A COMBINED SOFT COMPUTING-MECHANICS APPROACH TO DAMAGE EVALUATION AND DETECTION IN REINFORCED CONCRETE BEAMS

by

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Abstract

Damage detection and structural health monitoring are topics that have been receiving increased attention from researchers around the world. A structure can accumulate damage during its service life, which in turn can impair the structure's safety. Currently, visual inspection is performed by experienced personnel in order to evaluate damage in structures. This approach is affected by the constraints of time and availability of qualified personnel. This study aims to facilitate damage evaluation and detection in concrete bridge girders without the need for visual inspection while minimizing field measurements. Simply-supported beams with different geometric, material and cracking parameters (cracks' depth, width and location) were modeled in three phases using Abaqus finite element analysis software in order to obtain stiffness values at specified nodes. In the first two phases, beams were modeled using beam elements. Phase I included beams with a single crack, while phase II included beams with up to two cracks. For phase III, beams with a single crack were modeled using plane stress elements. The resulting damage databases from the three phases were then used to train two types of Artificial Neural Networks (ANNs). The first network type (ANNf) solves the forward problem of providing a health index parameter based on the predicted stiffness values. The second network type (ANNi) solves the inverse problem of predicting the most probable cracking pattern, where a unique analytical solution is not attainable. In phase I, beams with 3, 5, 7 and 9 stiffness nodes and a single crack were modeled. For the forward problem, ANNIf had the geometric, material and cracking parameters as inputs and stiffness values as outputs. This network provided excellent prediction accuracy measures ($R^2 > 99\%$). For the inverse problem, ANNIi had the geometric and material parameters as well as stiffness values as inputs and the cracking parameters as outputs. Better prediction accuracy measures were achieved when more stiffness nodes were utilized in the ANN modeling process. It was also observed that decreasing the number of required outputs immensely improved the quality of predictions provided by the ANN. This network provided less accurate predictions ($R^2 = 68\%$) compared to ANNIf, however, ANNIi still provided reasonable results, considering the non-uniqueness of this problem's solution. In phase II, beams with 9 stiffness nodes and two cracks were modeled following the same procedure. ANNIIf provided excellent results ($R^2 > 99\%$) while ANNIIi had less accurate ($R^2 = 65\%$) but still reasonable predictions. Finally, in phase III, simple span beams with 3, 5, 7 and 9

stiffness nodes and a single crack were modeled using plane stress elements. ANNIIIf (R^2 > 99%) provided excellent results while ANNIIIi had less accurate (R^2 = 65%) but still reasonable predictions. Predictions in this phase were very accurate for the crack depth and location parameters (R^2 = 97% and 99%, respectively). Further inspection showed that ANNIIIi provided more accurate predictions when compared with ANNIi. Overall, the obtained results were reasonable and showed good agreement with the actual values. This indicates that using ANNs is an excellent approach to damage evaluation, and a viable approach to obtain the, analytically unattainable, solution of the inverse damage detection problem.

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Dedication

This thesis is dedicated to my parents for their love, endless support and encouragement.

Chapter 1 - Introduction

Background

Damage detection and structural health monitoring are topics that have been receiving an increased attention from researchers around the world. A structure accumulates damage during its service life, which in turn can impair the structure's safety. Assuring the safety of aging infrastructure necessitates periodic assessments and maintenance. The currently used approach, visual evaluation, is performed by experienced personnel and is subject to their personal judgment. This approach is affected by the constraints of time and availability of qualified personnel. Thus, new approaches to damage evaluation and detection that provide faster and more accurate results are pursued. A promising approach to damage evaluation and detection utilizes Artificial Neural Networks (ANNs) in solving these two problems.

Objectives

In this study, the viability of using an Artificial Neural Network (ANN) approach for damage evaluation and detection in concrete bridge girders was investigated. First, damage databases for simply supported concrete beams with different parameters were generated using finite element modeling software Abaqus. For this study, damage databases were generated for beams with a single (phase I) and two cracks (phase II) using beam elements. Phase III damage databases consisted of beams with a single crack modeled with plane stress elements. Second, static Artificial Neural Networks (ANNs) with backpropagation learning algorithm were trained on the generated databases to solve two problems. In damage evaluation (forward problem), the ANN predicts a health index parameter provided the beam's geometric, material, and cracking parameters. In damage prediction (inverse problem), the ANN inversely predicts cracking parameters provided the beam's geometric and material parameters. Finally, interfaces were developed to provide an easy and effortless way for users to utilize the ANNs for real world damage evaluation and prediction applications.

Scope

This thesis consists of seven chapters. The first chapter provides a brief introduction to the background and objectives of the study, in addition to the scope. Chapter two comprises reviews of previous related work found in the literature, in addition to a brief introduction to Artificial Neural Networks (ANNs). Chapter three explains the modeling methodology by which the stiffness damage databases were generated. Chapter four explains the ANN modeling methodology followed to create the ANN models for both the forward and the inverse problems. Chapter five reports the results obtained from all the phases in addition to the discussion. Chapter six presents the developed Excel interfaces, and demonstrates their actual usage through examples. Chapter seven summarizes the conclusions of this study and provides recommendations for further future research work.

Chapter 2 - Literature Review

Approaches to Damage Detection

The topic of damage detection has been receiving a lot of attention from researchers worldwide due to its importance. Cracks allow external corroding agents to reach the steel reinforcement, and thus affect the durability and safety of the structure. Many approaches to damage detection exist, each having its own advantages and disadvantages. The most common approach is visual evaluation of structures. This approach's disadvantages include its dependency on the judgment of the evaluation personnel. Additionally, it requires experienced personnel to carry out the inspections, and is also constrained by time. Due to these drawbacks, many alternative approaches are being evaluated for possible application in the field.

Damage detection is achieved by obtaining specific features from the structure to be inspected, then analyzing these features using different processing techniques to obtain the cracking parameters. Features include dynamic characteristics such as natural frequencies and mode shapes, wave response methods such as acoustic emission and ultrasound, visual features such as images, and static properties such as flexural stiffness. Commonly employed analysis methods include strain energy, wavelet analysis, artificial neural networks and other feature specific methods. Several combinations of these approaches found in the literature are discussed next.

Dynamic features are commonly utilized in damage detection. Methods based on these features rely on the fact that the existence of cracks affects the dynamic properties of a structure, such as its natural frequencies and mode shapes. In this approach, dynamic characteristics are extracted using different experimental techniques, and then processed using different techniques. Strain energy is one of these techniques that has been used by multiple researchers (Kam and Lee 1994; Ndambi et al. 2002; Kim et al. 2003). In this technique, the structure is divided into beam (1D) or plate (2D) elements. The original and damaged state modal strain energy that is stored within every element is then obtained and used to estimate the location of the crack (Xu and Humar 2006). Depending on the formulation of the method used, the cracking parameters that can be predicted differ. Kam and Lee's approach could predict the depth of the crack provided its location, while the approach developed by Ndambi et al. could only predict the location of the crack. Kim et al. started with the formulation of the strain energy of a Bernoulli–Euler beam, a relation was then obtained between the eigenvalue and location and depth of the crack. Their formulation could predict the location and depth of the crack. None of the previous approaches provided a prediction for the width of the crack.

Another approach utilizes the wavelet transform to detect damage provided the dynamic characteristics of the structure. In wavelet analysis, the input signal is decomposed into a series of wavelets so that the local features could be identified from the scale and position of wavelets (Loutridis et al. 2004). Zhong and Oyadiji (2007; 2010) cite that the advantage of this approach lies in the fact that it does not require a baseline or reference uncracked beam. In their approach, continuous wavelet transforms (CWTs) are obtained for two sets of mode shape data, each set corresponds to a half of the modal data of a cracked simply supported beam. The mode shape data exhibit local peaks within the region of damage due to the additional response from the crack. Similarly, Loutridis et al. and Chasalevris et al. worked on expanding this method to predict the locations of two cracks. The locations are determined by the sudden changes in the spatial variation of the transformed response (2004; 2006). The wavelet analysis approach is limited by its inability to directly provide the depth of the crack.

The last processing method for dynamic features to be investigated is Artificial Neural Networks (ANNs). ANNs are computational models that are based on the human neural system. ANNs learn by examples and can learn to establish relations between different parameters. Multiple studies utilized ANNs for damage detection. Masri et al. (2000) proposed a method that relies on vibration measurements from a healthy system to train the neural network for identification purposes. This network is then fed comparable vibration measurements from the same structure under different episodes of response in order to monitor the health of the structure. The network then delivers an indicator of damage in the structure. It was concluded that ANNs are a robust tool to detect changes or damage in systems, however, the nonuniqueness of the optimal ANN structure prevents the attribution of changes in the system with the changes in the ANN's parameters. Xu and Humar (2006) combined the modal energy and ANN approaches to determine the location and extent or magnitude of the damage. The location is first determined from the plots of damage indices for the elements in the model, then the damage extent is predicted with an ANN trained on simulated damage in elements and their corresponding damage indices. Kazemi et al. (2011) applied a 4-stage procedure to determine the location and depth of two cracks in cantilever beams. First, the finite element method was used to obtain 3 natural frequencies for cantilevers with varying crack depths and locations. Four ANNs were then created and trained using the Particle Swarm Optimization (PSO) method. Each network predicted a single cracking parameter. Finally, the networks were tested and the results demonstrated good agreement with the actual parameters. Advantages of ANNs include their ability to adapt to complex relations and provide immediate predictions after training is complete. On the other hand, a drawback to ANNs is their need for a large number of training datasets to provide reliable predictions. Overall, utilizing dynamic characteristics provides an excellent approach to damage detection. However, several limitations can inhibit this approach. Experimentally extracted features can vary due to measurement errors and noise, which affects the accuracy of the methods. Also, obtaining complete mode shapes, especially the higher modes, for large and complex structures with a large number of degrees of freedom can be impractical (Xu and Humar 2006).

Wave response methods such as ultrasonic signals and acoustic emission (AE) have been used to detect damage in structures. Spall et al. (1996) suggested the analysis of acoustic emission (AE) signals as a promising approach for nondestructive crack prediction. They cite the difficulties in the classical signal processing (deconvolution) techniques employed in the AE analysis of a bridge. They proposed an ANN approach in order to avoid possible complexities involving nonlinearities. A Q-switched laser was used to simulate an AE event in the structure to generate features that then would be used to train the ANN. Inputs for this ANN were the arrival delay time, signal amplitude, and a summary of frequency and leading edge shape, which were obtained from PZT (lead-zirconium-titanate) transducers' readings. The required output was the location of the AE event. Kappatos and Dermatas (2007) utilized a similar approach while accounting for noise in the AE response data. As expected, the classification accuracy was negatively affected due to the noise interference. Liu et al. (2002) simulated the A-scan ultrasonic nondestructive testing using a backpropagation neural networks and computational mechanics. ANNs were trained with the characteristic parameters extracted from surface responses obtained from the numerical modeling stage. These networks were then used to solve the inverse problem by classifying and identifying the type, location and length of the cracks. The ANNs' performance was reasonable for both the classification and the identification of cracks. Generally, the wave based detections methods combined with ANNs performed well;

however, their performance is affected by external noise such as rainfall, which can produce a signal similar to a crack (Kappatos and Dermatas 2007).

Image processing is another approach that has been proposed. In this approach, an image of the investigated surface is analyzed using different processing algorithms, and the results of the analysis indicate whether a crack exists or not. Oka et al. (2009) employed near-field millimeter-wave imaging to detect concrete surface cracks with width of 0.2 mm or less. An ANN was used to develop a new image processing algorithm, which facilitates the detection of fine cracks from images. Yamaguchi et al. (2008; 2010) utilized percolation-based image processing for crack detection. Pixels are processed to determine whether they are a crack or not based on cluster shapes formed by percolation processes. The Sequential Similarity Detection Algorithm (SSDA) was used to terminate the process if the pixel is not found to be a crack, thus increasing the speed of the process. Sham et al. (2008) investigated the application of IR-based thermal images (Flash Thermography) in crack detection. They concluded that cracks between 0.5 mm to 1 mm wide can be detected using flash excitation, while smaller cracks required active thermography with water stimulus. The main drawback of these image processing based techniques is that they are only applicable for surface cracks and cannot be effectively used to detect cracks in difficult to reach places such as the bottom side of bridge girders. Also, they only indicate the existence of a crack, and do not provide detailed cracking parameters.

A summary of selected approaches found in literature, including the extracted features, processing tools, and obtained outputs, is provided in Table 2-1.

Table 2-1 Summary of selected approaches to damage detection

#	Source	Extracted features	Processing tools	Predicted outputs
1	Kam and Lee (1994)	Natural frequency and mode shape	Strain energy	Crack's depth given its location
2	Ndambi et al. (2002)	Eigenfrequencies and mode shape derivatives	Strain energy	Crack's location
3	Zhong and Oyadiji (2007; 2010)	Mode shape	Wavelet Transform	Crack's location
4	Loutridis et al. (2004)	Natural frequency and mode shape	Wavelet Transform	Location and intensity for 2 cracks
5	Xu and Humar (2006)	Mode shape	Strain energy and ANN	Crack's location and intensity
6	Kazemi et al. (2011)	Natural frequency	ANN	Location and depth for 2 cracks
7	Liu et al. (2001)	Ultrasonic signals	ANN	Crack's location and depth
8	Kappatos and Dermatas (2007)	Acoustic Emission	ANN	Crack's existence
9	Oka et al. (2009)	Millimeter-wave images	ANN	Crack's existence
10	Yamaguchi et al. (2008; 2010)	Grayscale image	Percolation-based image processing	Crack's existence
11	Sham et al. (2008)	Thermal image	Heat emission difference	Crack's existence

The approach presented in this study involves the application of a defined static load at a specified number of equally spaced nodes in the structure and obtaining the deflection at the node under the load. The stiffness values can then be obtained at each node and used as inputs for the ANN to predict the cracking parameters, including the depth, width and location of the cracks.

Artificial Neural Networks (ANNs)

Definition

An Artificial Neural Network (ANN) is a model inspired of human cognition and neural biology. It is a computational model with mathematical algorithms that emulates the biological neural system. It consists of neurons that are located in multiple interconnected layers, where computations are performed in parallel to obtain generalizations. ANNs are highly capable learning machines that are able to adapt to very complex relationships. ANNs learn by providing sample observations of the phenomenon to be modeled. That and their robustness have contributed to the recent increase in their usage in many fields. As shown earlier in this chapter, many researchers utilized ANNs in damage prediction. The inverse problem of crack prediction is very complex and does not have a unique analytical solution, which is why the ANN approach to solving this problem is being evaluated.

Structure

The basic structural unit of an ANN is the neuron. Structurally, ANNs are divided into feedforward and recurrent ANNs. In feedforward (static) ANNs, the neurons are assembled in layers with the signals flowing from the inputs to the outputs. Additionally, neurons within the same layer are not interconnected. In recurrent (dynamic) ANNs, the output signals are fed back to the network, which induces the memory of the ANN. Feedforward ANNs, which were used in this study, generally consist of three types of layers: The input layer, the hidden layer(s), and the output layer. The neurons within each layer are interconnected with the neurons in the previous layer. Nodes in the input layer do not provide any mathematical processing other that the normalization of the input parameters. These parameters are then transmitted to the hidden layer. A network could have one or more hidden layers. The hidden layer contributes to the learning process of the network and assists it to deal with complex problems that demonstrate high nonlinearities. An ANN's prediction accuracy can be greatly affected by the number of hidden nodes within the hidden layer. Providing too many hidden nodes can cause overtraining (memorization), while providing few hidden nodes can inhibit the ANN's ability to adapt to complex relationships. Each interconnection between the nodes has a weight value associated with it. These connection weights are considered the most important part of an ANN, and its main source of computational power. Overall, the neurons receive input signals and process them through an activation function to generate output signals that are amplified by the weight value on the connection links and then transferred to the connected neurons. A sample ANN structure is shown in Figure 2-1.

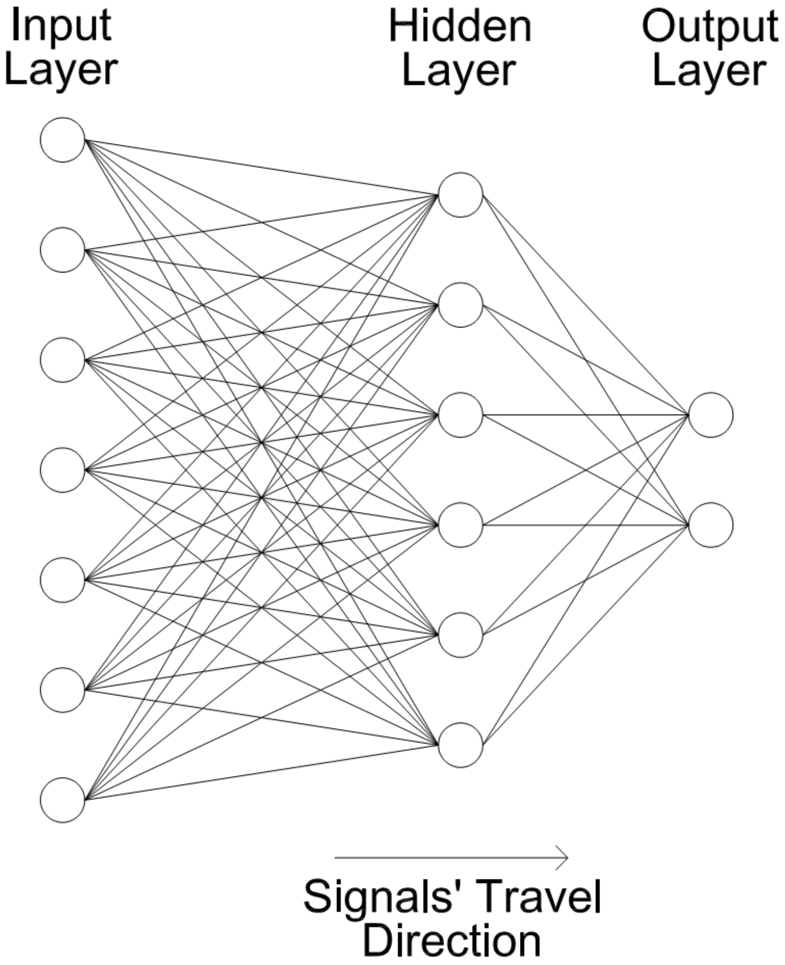


Figure 2-1 Sample ANN structure

Learning Method

ANNs are also classified by the applied learning method. Learning methods include supervised, unsupervised and reinforcement learning. In supervised learning, the ANN is provided with the actual outputs and the weights are adjusted to increase the accuracy of predicted outputs. Backpropagation, which was used in this study, is a widely used supervised learning algorithm. In unsupervised learning, the ANN does not need the actual outputs, and learning is accomplished by grouping the input patterns by their similarity and correlation. As for reinforcement learning, which is a special case of supervised learning, the ANN is only provided with an evaluation on the predictions' quality for the given inputs instead of the actual outputs (Basheer 1998).

Learning in neural networks is achieved by updating the connection weights to minimize error. In backpropagation, the error obtained is used to modify the connection weights. Initially, these weights are randomly assigned so that the ANN can provide its first set of predictions from which errors are then calculated. The obtained errors are then propagated backwards through the connections. Using the newly updated connection weights, the ANN provides a new set of predictions. These predictions are compared to the actual outputs and errors are recalculated. The errors are then propagated backwards again through the network. The cycle of predictions and error propagation is repeated until the error reaches an acceptable value. The final network structure with its adjusted weights can provide sets of predictions for new datasets with no known outputs. Feedforward backpropagation neural networks have been successfully used for a vast variety of applications in various fields of science and engineering.

Training Process

The main part of the ANN modeling process is training. Yasarer explains the procedure by which training is accomplished (2010). The inputs are first normalized, and then transmitted from the input nodes to the hidden nodes in the hidden layer after being amplified by the connection weights. Normalization is done to ensure that a single parameter will not dominate the other parameters. Each hidden node receives signals from all nodes in the input layer. The input value for a hidden node is equal to the summation of the inputs multiplied by the connection weights, i.e. for hidden node X, the input value received is calculated by the following equation:

$$(Input\ value\ for\ hidden\ node\ X) = \sum_{i=1}^{n} y_i \times w_{iX} \tag{2-1}$$

$where\ y = value\ of\ input\ node\ i$

$w_{iX} = connection\ weight\ between\ input\ node\ i\ and\ hidden\ node\ X$

$n = number\ of\ input\ nodes$

Next, the hidden node processes the signal through an activation function. This is done to avoid negative or large values and to induce nonlinearity into the ANN. For this research, the sigmoid or logistic function, which is widely used in backpropagation networks, is used. The sigmoid or logistic function is expressed as:

$$f(x) = \frac{1}{1 + e^{-x}} \tag{2-2}$$

The regulatory nature of the sigmoid function can be seen in Figure 2-2. Very large (>+5) or small (<-5) values are stabilized by the sigmoid function at approximately 1 or 0, respectively.

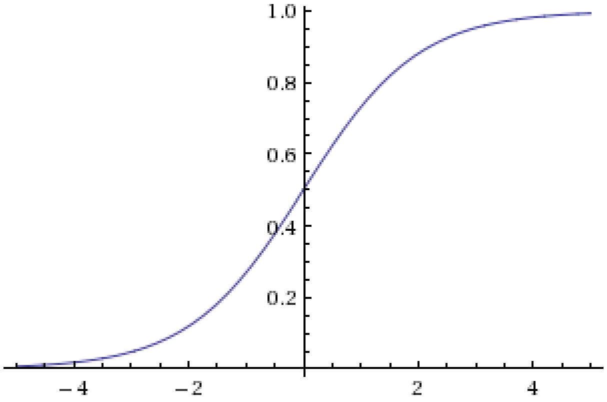


Figure 2-2 Plot of the sigmoid function

After all calculations within the hidden layer are complete, the same procedure is followed to obtain the input values for the output nodes. The output values obtained are finally de-normalized and presented. A more general equation for the value at any node is provided below:

$$(Input\ value\ for\ node\ X) = \sum_{i=1}^{n} y_i \times w_{iX} \tag{2-3}$$

$where\ y = value\ of\ node\ i$

$w_{iX} = connection\ weight\ between\ node\ i\ and\ node\ X$

$n = number\ of\ nodes\ in\ preceeding\ layer$

After the first set of predictions is obtained, the error can be calculated. The error is then used to adjust the connection weights. The incremental change in the connection weights is calculated by the following equation (Zupan and Gasteiger 1993):

$$\Delta w_{ij} = \eta \delta_i (Output)_j + \mu \Delta w_{ij}^{previous} \tag{2-4}$$

$where\ \Delta w_{ij} = incremental\ change\ in\ the\ connection\ weight\ between\ nodes\ i\ and\ j$

$\eta = learning\ rate$

$\delta = error\ factor$

$Output_j = output\ value\ at\ node\ j$

$\mu = momentum\ rate$

$\Delta w_{ij}^{previous} = incremental\ change\ in\ the\ connection\ weight\ from\ the\ previous\ iteration$

The learning rate parameter (η) controls the speed at which the ANN converges. The momentum rate parameter (μ) varies between 0 and 1 (Rumelhart et al. 1986), and its main function is to avoid converging to a local minima by taking into account the correction from the previous iteration. The biases (thresholds) are also updated for the output and hidden nodes using the following equation:

$$\Delta b_i = \eta \delta_i + \mu \Delta b_i^{previous} \tag{2-5}$$

$where\ \Delta b_i = incremental\ change\ in\ the\ threshold\ of\ node\ i$

$\Delta b_i^{previous} = incremental\ change\ in\ the\ threshold\ from\ the\ previous\ iteration$

As for the error (correction) factor, it is obtained by the following two equations for output and hidden nodes, respectively:

$$\delta_i(for\ an\ output\ node) = (y_i - (Output)_i)(1 - (Output)_i)(Output)_i \tag{2-6}$$

$$\delta_i(for\ a\ hidden\ node) = \left(\sum_{k=1}^{n} \delta_k w_{ki}\right)(1 - (Output)_i)(Output)_i \tag{2-7}$$

$where\ y_i = Actual\ value\ at\ output\ node\ i$

$(Output)_i = Predicted\ value\ at\ output\ node\ i$

$n = number\ of\ output\ nodes$

$\delta_k = error\ factor\ of\ output\ node\ k$

The process is done for all nodes in the network and then repeated for all training datasets. This process continues until the maximum number of iterations specified is reached or when the error in the predicted output values is within the specified tolerance. For this study, the ANN is initialized with a specific number of initial hidden nodes. To ensure that the system is solvable and that the number of unknowns (connection weights and thresholds) does not exceed the number of training datasets, the maximum number of hidden nodes can be obtained from the following equation:

$$MHN = \frac{TR - OUT}{IN + OUT + 1} \tag{2-8}$$

$where\ MHN = maximum\ number\ of\ hidden\ nodes$

$TR = number\ of\ training\ datasets$

$OUT = number\ of\ output\ parameters$

$IN = number\ of\ input\ parameters$

The training process continues until the specific number of hidden nodes and iterations is reached.

Datasets Preparation

To develop the ANN, the datasets must be divided into three groups: training, testing, and validation. Training datasets are sets which the ANN iterates on and update its connection weights using its learning algorithm. Testing datasets do not contribute to the ANN's learning, and are used to periodically check if the ANN is generalizing or memorizing the training datasets. The top performing networks are chosen based on the statistics obtained from testing. Finally, validation datasets are used to determine which network structure is the best of the previously chosen top performing networks. As for datasets allocation, first, datasets with the maximum and minimum values for all parameters are assigned for training. This is done to ensure that the ANN is exposed to the full range of the datasets during the training process. After assigning the extreme datasets to training, the remaining datasets are divided so that 50%, 25%, and 25% of all datasets is allocated to training, testing, and validation, respectively (Basheer 1998).

Another important step in datasets preparation is normalization. Normalization is done to ensure that a single parameter will not dominate the other parameters in the network. The ranges used to normalize the parameters are intentionally expanded to facilitate better mathematical mapping. The input datasets parameters are adjusted to fit 10%-90% of the expanded range, while the output datasets parameters are adjusted to fit 20%-80% of the expanded range. This is done to ensure that the parameters, especially the outputs, are within the sensitive region of the sigmoid function. The minimum or maximum value (x) used in normalization can be obtained from the following equation:

$$x = x_n(x_{max} - x_{min}) + x_{min} \tag{2-9}$$

$where\ x = expanded\ minimum\ or\ maximum\ value\ for\ a\ parameter$

$x_n = normalized\ value\ for\ a\ parameter\ (0.9\ or\ 0.1\ for\ inputs, 0.8\ or\ 0.2\ for\ outputs)$

$x_{min} = minimum\ value\ for\ a\ parameter$

$x_{max} = maximum\ value\ for\ a\ parameter$

Model Selection Criteria

As explained earlier, multiple models with different numbers of initial hidden nodes are created and evaluated in the process to obtain the optimal ANN structure. Evaluation of the performance of an ANN is done based on statistical measures, including the Averaged-Squared-Error (ASE), coefficient of determination (R^2), and Mean Absolute Relative Error (MARE). A better network structure is characterized by lower ASE and MARE values and higher R^2 value. Top performing models are first chosen based on the statistics obtained for the testing datasets. The best performing structure is then chosen based on the statistics obtained for the validation datasets. Finally, the ANN is retrained on all datasets, and the statistics obtained from this stage are reported. The equations used to obtain the statistical measures of error are shown below:

$$ASE = \frac{\sum^{o}\sum^{n}(x' - x)^2}{o * n} \tag{2-10}$$

$$R^2 = \sum^{o}\left(\frac{n\sum^{n} x.x' - \sum^{n} x\sum^{n} x'}{\sqrt{n\sum^{n} x^2 - \left(\sum^{n} x\right)^2}\sqrt{n\sum^{n} x'^2 - \left(\sum^{n} x'\right)^2}}\right)^2 \Big/ o \tag{2-11}$$

$$MARE\ (\%) = \frac{\sum^{o}\sum^{n}\left(\frac{(x' - x)}{x}\right) * 100}{o * n} \tag{2-12}$$

$x' = predicted\ value\ by\ ANN$

$x = actual\ value$

$o = number\ or\ outputs$

$n = number\ of\ datasets$

Chapter 3 - Establishment of Databases

Analysis of Cracked Beams

First, multiple structural analysis software packages were evaluated for this study. The list of evaluated software included CSi SAP2000, CSi ETABS, SP-Frame and Abaqus FEA. For the purpose of this study, Abaqus FEA was determined to be the most appropriate due to its extendibility and scripting capabilities, which facilitated this research's completion. Thus, simply supported concrete beams were analyzed using Abaqus FEA 6.10-2 software package ("Abaqus 6.10 Online Documentation", 2010). Cracks were modeled by a change in the cross-section of the simply supported beam as shown in Figure 3-1. This procedure could later on be applied to other beam configurations, such as multi-span continuous beams.

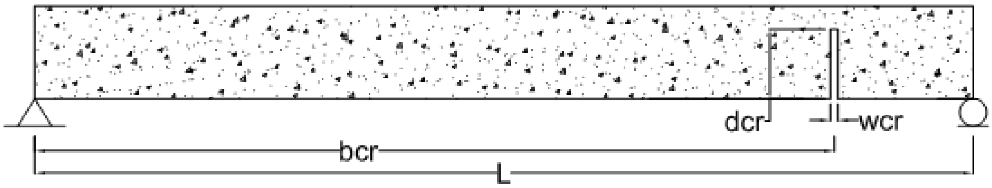


Figure 3-1 Actual concrete beam elevation

Beams were modeled in three phases. Beams with a single and two cracks were modeled in phases I and II, respectively. For these two phases, the 2-node cubic beam in a plane element (B23), which utilizes the classical Euler-Bernoulli assumption and uses cubic interpolation functions, was chosen to model the beam segments in Abaqus FEA. It is understood that this assumption does not hold for non-slender elements; however, due to the constraints of time and computational power, the loss of accuracy expected due to the usage of this element is considered to be within the tolerance for the purpose of this study. Additionally, it is expected that the introduced error would not dramatically affect the results since the obtained values will be normalized as it will be mentioned later in this chapter. For this reason, steel reinforcement was not included in these phases. The finite element mesh developed for these models included two types of elements: healthy and cracked elements. Healthy elements, representing the healthy parts of the beam, had the same depth as the beam, while cracked elements had a reduced depth to represent the crack. A visual representation of the mesh is shown in Figure 3-2.

Figure 3-2 Finite element mesh for phases I, II

For phase III, 8-node biquadratic plane stress quadrilateral elements (CPS8) and 6-node quadratic plane stress triangle elements (CPS6) were used in modeling beams with a single crack. Additionally, steel reinforcement was included in the analysis. A fixed steel ratio (ρ) of 1% was assumed for the analysed beams. Concrete cover was assumed to be 38 mm for all beams. To deterimine the optimal mesh size, a sensetivity analyais was performed. Evaluated mesh sizes were 100 mm, 50 mm, 25 mm, and 10 mm. A healthy beam with a width of 250 mm, depth of 500 mm, span length of 3.5 m and compressive strength of 21 MPa was analyzed as a reference. Next, two cracked beams with the same geometric and material parameters and different cracking parameters were modeled. The first beam (C1) had a 200 mm deep and 2.5 mm wide crack located 1.4 m away from the edge of the beam, while the second beam (C2) had a 375 mm deep and 5 mm wide crack located 0.7 m away from the edge of the beam. The stiffness ratios were calcualted at 5 stiffness nodes for each beam while varying the mesh size. The percentage change in the stiffness ratios (defined later in this chapter) moving from mesh size 1 (MS1) to mesh size 2 (MS2) is shown in Table 3-1.

Table 3-1 Sensitivity analysis results

	MS1	MS2	Δk1 (%)	Δk2 (%)	Δk3 (%)	Δk4 (%)	Δk5 (%)
C1	100	50	0.32722%	1.03696%	0.85103%	0.43108%	0.05413%
	50	25	0.33583%	0.83787%	0.72907%	0.36756%	0.01824%
	25	10	0.26779%	0.71102%	0.66568%	0.36886%	0.28775%
C2	100	50	0.58492%	0.70983%	0.33187%	0.17025%	0.04872%
	50	25	0.85723%	0.44899%	0.22606%	0.06457%	-0.04472%
	25	10	0.69113%	0.86437%	0.43349%	0.23939%	0.13328%

Overall, the obtained variations were less than 1%. It should be noted that running the analysis for a model meshed with 100 mm elements took 10 seconds to complete, compared to 40 seconds for a model meshed with 10 mm elements. The mesh size of 50 mm was chosen as a middle ground as it provided acceptable accuracy with reasonable running time. Figure 3-3 shows the mesh generated automatically by Abaqus for a beam with a mesh size of 50 mm.

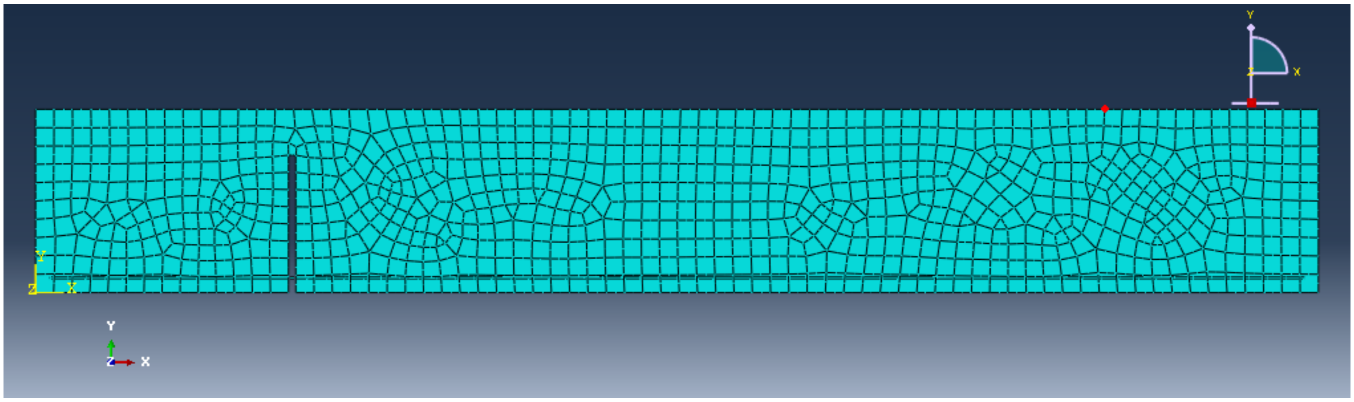


Figure 3-3 Finite element mesh for a beam in phase III

Elastic material models were used to model steel and concrete in this study. Steel was modeled as a linear elastic material with a Poisson’s ratio (ν) of 0.3 and a modulus of elasticity (E) of 200 GPa. Concrete was also modeled using a linear elastic material model with a Poisson’s ratio (ν) of 0.2 and a modulus of elasticity (E) calculated by the following equation:

$$E = 4723 \times \sqrt{f'_c} \tag{3-1}$$

$where\ E = modulus\ of\ elesticity\ (MPa)$

$f'_c = \ concrete\ compressive\ strength\ (MPa)$

In all phases, a specified number of stiffness nodes was added to the mesh as shown in Figure 3-4 (In phase III, the stiffness nodes were added to the top surface of the beam). A defined load was applied at each stiffness node and the resulting displacement was obtained from the analysis as shown in Figure 3-4 through Figure 3-6. Finally, the stiffness at the node was calculated by dividing the applied load by the obtained displacement at that node according to the following equation:

$$kn = Pn\ /\ \Delta n \tag{3-2}$$

$where\ kn = stiffness\ value\ at\ node\ n$

$Pn = load\ applied\ at\ node\ n$

$\Delta n = deflection\ obtained\ at\ node\ n$

This was done for the healthy and the cracked beams to determine the stiffness ratios, which were obtained by dividing the cracked stiffness by the healthy stiffness at each node for beams with the same geometric and material parameters, as shown in the following formula:

$$kn\% = kn_{cr} \,/\, kn_h \qquad (3\text{-}3)$$

$where\ kn\% = stiffness\ ratio\ at\ node\ n$

$kn_{cr} = stiffness\ value\ at\ node\ n\ in\ the\ cracked\ beam$

$kn_h = stiffness\ value\ at\ node\ n\ in\ the\ healthy\ beam$

Stiffness ratios (kn%) serve as an indicator of the severity of the damage in the beam and can reveal where the crack could be located in the beam. Lower stiffness ratios are expected in beams with deeper and wider cracks. Stiffness ratios at nodes closer to the location of the crack are expected to be lower compared to the ratios at nodes further away.

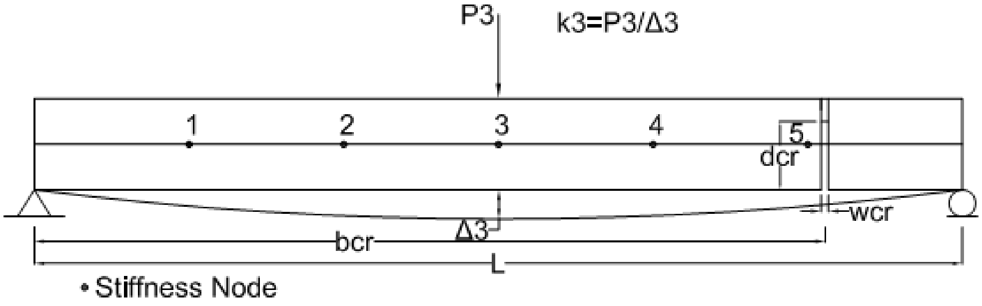


Figure 3-4 Beam elevation with 5 stiffness nodes in phase 1

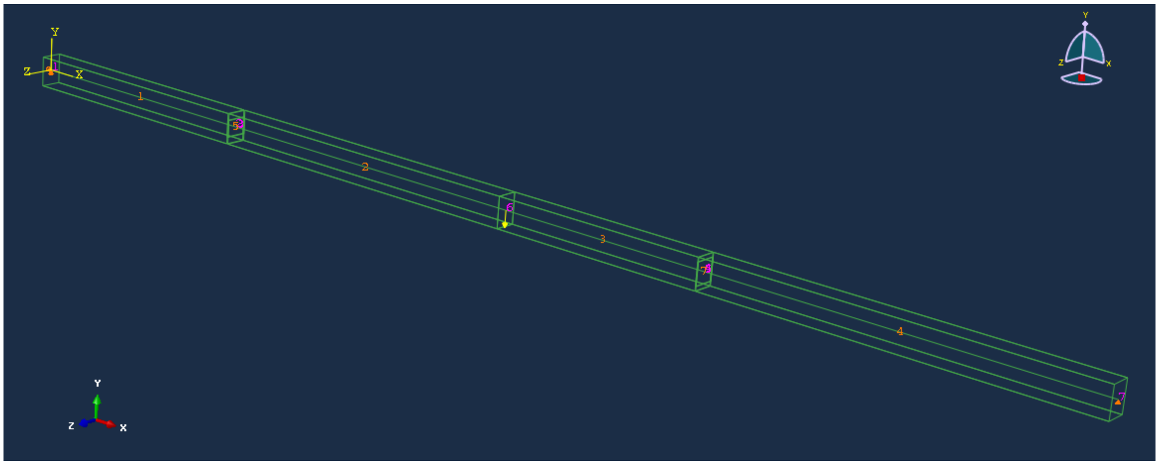


Figure 3-5 A 3D view of a concrete beam from phase II loaded at the center in Abaqus

Figure 3-6 Elevation view of a beam from phase III in Abaqus

Generation of Stiffness Damage Databases

Concrete beams with different parameters were modeled in order to generate the damage databases. These parameters included geometric parameters such as the width of the cross-section (b), the depth of the cross-section (d) and the span length of the beam (L), a material parameter represented by the concrete compressive strength (f'_c), and cracking parameters including the depth (d_{cr}), width (w_{cr}) and location (b_{cr}) of the cracks. Most parameters were normalized so that the database could be generalized to beams that were not included in this study but are within the range of the modeled data.

This study was conducted in three phases. In phases I and III, damage databases were generated for beams with a single crack in the first half of the beam. In phase II, damage databases were generated for beams with two cracks. In order to regulate the possibilities of this case, beams’ spans in phase II were divided into two regions. Only a single crack could exist in each region, thus a beam could have two, one or no cracks at all. Figure 3-7 shows an example of a beam with two cracking regions. Lists of the parameters and the associated values used to generate the aforementioned damage databases are given in Table 3-2 and Table 3-3.

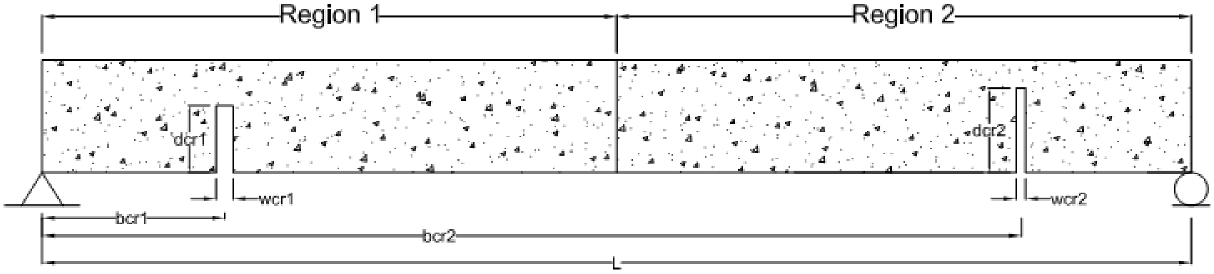


Figure 3-7 Elevation view of a sample concrete beam with two cracks

Table 3-2 Phase I, III modeling parameters (beams with a single crack)

b/h	L/h	f'_c (MPa)	d_{cr}/h	w_{cr} (mm)	b_{cr}/L
0.5	7	21	0.25	0.5	0.1
0.7	10	31	0.4	1	0.2
0.9	13	41	0.5	2.5	0.3
-	-	-	0.75	5	0.4
-	-	-	-	-	0.5

Table 3-3 Phase II modeling parameters (beams with two cracks)

b/h	L/h	f'_c (MPa)	Crack 1			Crack 2		
			d_{cr}/h	w_{cr} (mm)	b_{cr}/L	d_{cr}/h	w_{cr} (mm)	b_{cr}/L
0.5	7	21	0.25	0.5	0.167	0.25	0.5	0.667
0.7	10	31	0.5	2.5	0.333	0.5	2.5	0.833
0.9	13	41	0.75	5	0.5	0.75	5	-

Table 3-2 shows that for phases I and III, cracks were modeled in the first half of the beam's span only utilizing the symmetry of the cracks distribution, i.e. a beam with a crack located at 0.1L will have the same stiffness values as a beam with the same crack located at 0.9L, except that they will be in a reversed order. This was done to increase the accuracy of the ANN's predictions as well as to reduce the computation time. This does not apply in phase II, as the cracks are independently distributed in each half of the beam. For phases I and III, a healthy beam was identified by having a crack location to beam span ratio (b_{cr}/L) of 0. For phase II, beams without a crack in the first region had a crack location to beam span ratio (b_{cr}/L) of 0, while beams with no cracks in the second region had a crack location to beam span ratio (b_{cr}/L) of 0.5. As previously mentioned, a specific number of stiffness nodes was included in the finite element mesh. For phases I and III, databases for 3, 5, 7 and 9 stiffness nodes were generated. Utilizing the results from phase I, databases were generated for the optimum only at 9 stiffness nodes. An MS Excel VBA (Visual Basic for Applications) macro was written to generate Abaqus input files (*.inp files) by varying the parameters mentioned earlier for phases I and II. For phase III, a Python script was written to generate the input files directly by interfacing with Abaqus. For all phases, a Python script was used to batch run the created input files in Abaqus, and another Python script was written to extract the output deflections from Abaqus binary output databases (*.odb files), determine the stiffness values corresponding to the stiffness nodes, normalize them with the healthy beam stiffness values and store them in the stiffness database. The normalized stiffness values, or stiffness ratios (kn%), were calculated as the ratio of the stiffness at a node in the cracked beam to the stiffness at same node in the healthy beam. These ratios serve as an indicator of the damage in the beam and can reveal in which half of the beam the crack is located.

Chapter 4 - ANN Modeling

Forward Problem: Damage Evaluation

Initially, this problem was solved in phase I in order to validate the databases obtained from Abaqus. ANNs in this phase had the beams' geometric, material and cracking parameters (b/h, L/h, f'$_c$, d_{cr}/h, w_{cr} and b_{cr}/L) as inputs and the stiffness ratios (kn%) as outputs. This is a forward problem that is expected to yield a unique solution for each dataset. Obtaining good results from this type of networks should verify the databases and show that the ANN can nicely understand the logic behind them. The same problem was solved in phase III for beams with a single crack modeled using plane stress elements. Proceeding with phase II, the same problem was solved for beams with two cracks. In addition to the original forward ANN, a second ANN was created. The second ANN had the same inputs, but had the health index (ki%) as its sole output. The health index was calculated by normalizing the total area under the stiffness ratios profile by the beam's span length, and can be obtained by the following formula:

$$Health\ Index\ (ki\%) = \left({}^{l_n}/_{L}\right)\left[1 + \sum_{m=1}^{n} km\%\right] \tag{4-1}$$

$where\ l_n = distance\ between\ two\ consecutive\ stiffness\ nodes.$

$L = beam's\ span\ length.$

$n = number\ of\ stiffness\ nodes.$

$km\% = \ stiffness\ ratio\ at\ node\ m.$

A sample database header is shown in Table 4-1. Inputs and outputs are identified by 'I', 'O', respectively. Flag values of 1, 2, or 3 indicate whether the dataset is used in training, testing or validation, respectively.

Table 4-1 Sample database header for the forward problem with 3 stiffness nodes in phase I.

b/h	L/h	f'$_c$ (MPa)	d_{cr}/h	w_{cr} (mm)	b_{cr}/L	k1%	k2%	k3%	ki%	Flag
I	I	I	I	I	I	O	O	O	O	1,2 or 3

Inverse Problem: Damage Prediction

For this problem, ANNs with the stiffness ratios (kn%) and the beam parameters (b/h, L/h and f'$_c$) as inputs and the crack parameters (d_{cr}/h, w_{cr} and b_{cr}/L) as outputs were created. This is an inverse problem for which no unique solution exists. The accuracy of the ANNs is expected to improve with the increase in the number of stiffness nodes. Also, it is expected that better accuracy will be obtained by decreasing the number of required output parameters. This problem was solved in all three phases. A sample header file is shown in Table 4-2. Again, inputs and outputs are identified by ‘I’, ‘O’, respectively. Flag values of 1, 2, or 3 indicate whether the dataset is used in training, testing or validation, respectively.

Table 4-2 Sample database header for the inverse problem with 3 stiffness nodes in phase I.

b/h	L/h	f'_c (MPa)	k1%	k2%	k3%	d_{cr}/h	w_{cr} (mm)	b_{cr}/L	Flag
I	I	I	I	I	I	O	O	O	1,2 or 3

ANN Model Development

Following the ANN modeling methodology explained earlier and discussed in the work reported by Najjar and his Co-workers (2003; 2007), several ANN models were evaluated. For all phases, the maximum number of hidden nodes was taken to be 20, which is less than the maximum number of hidden nodes allowed for each phase. Also, the initial number of hidden nodes was taken from 2 to 10. In phase I, each damage database contained 2187 datasets that corresponded to the generated Abaqus beam models. The datasets included 27 healthy beams, in addition to 2160 damaged beams obtained by varying the previously mentioned modeling parameters. The ANNs were trained and tested on 1093 and 550 datasets, respectively, to obtain the optimal number of hidden nodes and iterations. The training sets included the maximum and minimum values for each parameter to capture the full range of the datasets. The ranges used to normalize the parameters were intentionally expanded to facilitate better mapping. The input parameters were mapped to fit 10%-90% of the expanded range, while the output parameters were mapped to fit 20%-80% of the expanded range. This was done so that the parameters are within the sensitive region of the sigmoid function. The expanded ranges used in each phase are shown in Table 4-3. The top performing ANN models were then chosen based on statistical measures such as the Averaged-Squared-Error (ASE), coefficient of determination (R^2), and Mean Absolute Relative Error (MARE), which were defined in Chapter 2.

Table 4-3 Expanded normalization ranges

Phase	Phase I		Phase II		Phase III	
Parameter	Max	Min	Max	Min	Max	Min
b/h	0.95	0.45	0.95	0.45	0.95	0.45
L/h	13.74999	6.250001	13.74999	6.250001	13.74999	6.250001
f'_c	43.5	18.5	43.5	18.5	43.5	18.5
k1%	1.040685	0.633832	1.040685	0.633832	1.013568	0.87789
k2%	1.040771	0.63306	1.040771	0.63306	1.015904	0.856863
k3%	1.040797	0.632824	1.044408	0.600327	1.017004	0.846968
k4%	1.040808	0.632729	1.040808	0.632729	1.017656	0.841094
k5%	1.038668	0.651988	1.051503	0.536471	1.038668	0.651988
k6%	1.031542	0.716121	1.050373	0.54664	1.014646	0.86819
k7%	1.024837	0.776471	1.050982	0.541161	1.010784	0.902943
k8%	1.019944	0.820502	1.043159	0.611568	1.007727	0.931004
k9%	1.016304	0.853261	1.045213	0.593083	1.007222	0.958094
d_{cr}/h^1	1.000001	-0.25	1.000001	-0.25	1.000001	-0.25
w_{cr}^1	6.666669	-1.66668	6.666669	-1.666676	6.666669	-1.66668
b_{cr}/L^1	0.666666	-0.16667	0.666666	-0.166667	0.666666	-0.16667
d_{cr}/h^2	-	-	1.000001	-0.25	-	-
w_{cr}^2	-	-	6.666669	-1.666676	-	-
b_{cr}/L^2	-	-	1.111113	-0.277778	-	-

After that, validation was performed on the remaining 544 datasets to choose the best model of the three. Finally, the ANN was retrained at this optimal structure on all available datasets to improve the prediction accuracy. For phase II, the damage databases contained 14364 datasets consisting of the same 27 base healthy beams and 14337 damaged beams. The same procedure was followed and training, testing and validation were done on 7188, 3588 and 3588 datasets, respectively. Finally, in phase III, the damage databases contained 2187 datasets consisting of the same 27 base healthy beams and 2160 damaged beams. The same procedure was followed and training, testing and validation were done on 1097, 545 and 545 datasets, respectively.

Chapter 5 - Results and Discussions

Forward Problem: Damage Evaluation

As previously mentioned, an ANN that predicts the stiffness values, given the beam's geometric and cracking parameters, was created. This was initially done to confirm the accuracy of the generated databases and the ANN's adaptability to the datasets. In phase I, ANNs were trained on the 3 and 5 stiffness nodes databases. For the 3 stiffness nodes database, a network with 6 inputs (b/h, L/h, f'_c, d_{cr}/h, w_{cr} and b_{cr}/L), 3 outputs (k1%, k2% and k3%) and 19 hidden nodes (Model 6-19-3) was found to be the optimal network, and provided the following statistics: ASE = 0.000021, R^2 = 0.99423 and MARE = 0.139%. For the 5 stiffness nodes database, a network with the same 6 inputs, 5 outputs (k1%, k2%, k3%, k4% and k5%) and 19 hidden nodes (Model 6-19-5) was found to be the optimal network and provided: ASE = 0.00005, R^2 = 0.99241 and MARE = 0.142%. Both networks provided the best statistics at 20000 iterations. These statistics are summarized in Table 5-1.

Table 5-1 Forward problem ANNs' final results in phase I

# of Stiffness Nodes	Model (INP-HN-OUT)	Iterations	MARE (%)	R^2	ASE
3	6-19-3	20000	0.139	0.99423	0.000021
5	6-19-5	20000	0.142	0.99241	0.00005

The very low errors and high coefficient of determination values obtained indicate that the databases were accurate and that this type of ANN models was capable of understanding the logic within them. The high accuracy is very evident in Figure 5-1 and Figure 5-2, on which the predicted vs. the actual kn% values are plotted. The closer the plotted points are to the red 45° line, the better the prediction accuracy is. In this case, most of the points are on the line, which shows the excellent prediction accuracy of the forward problem's ANNs.

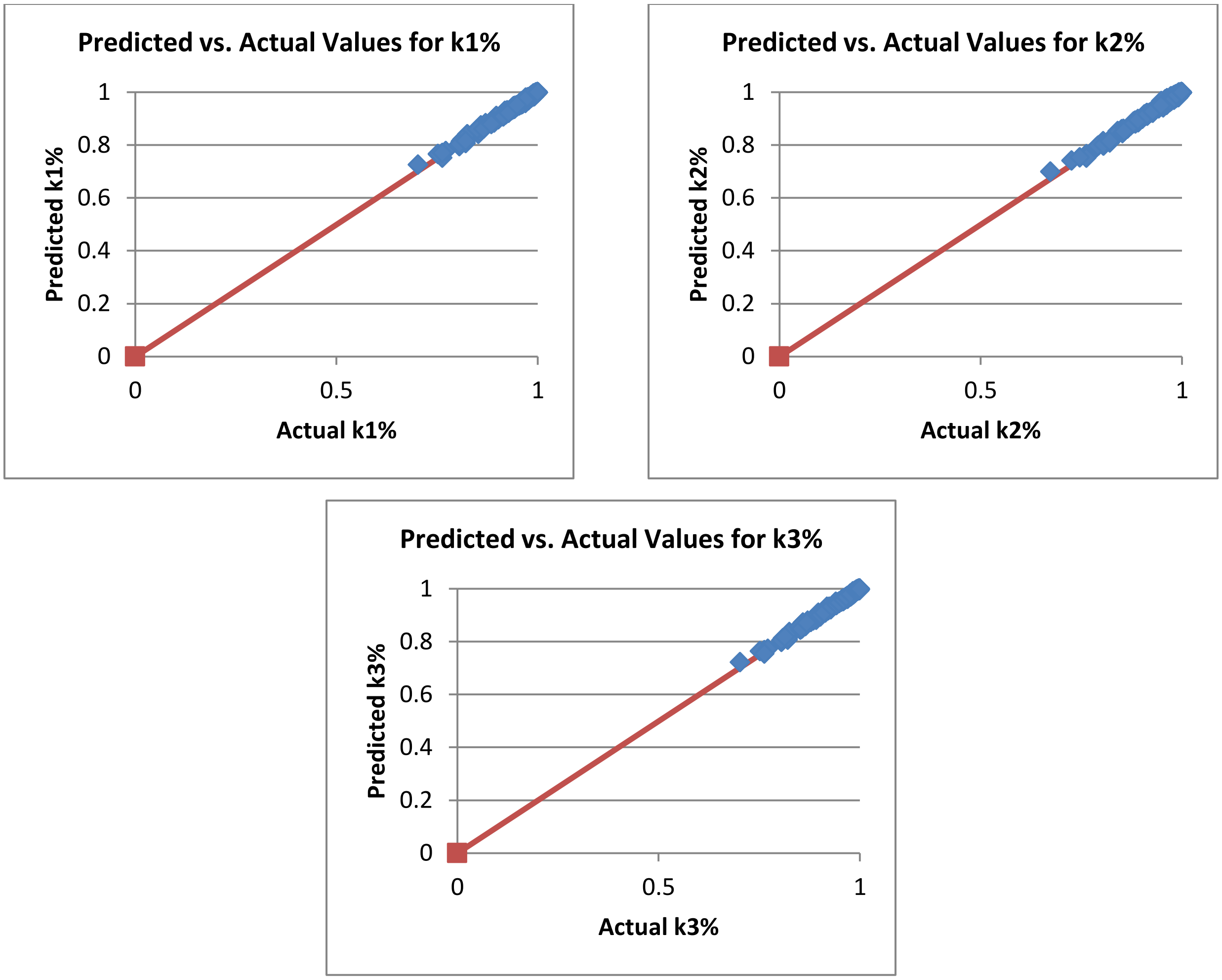
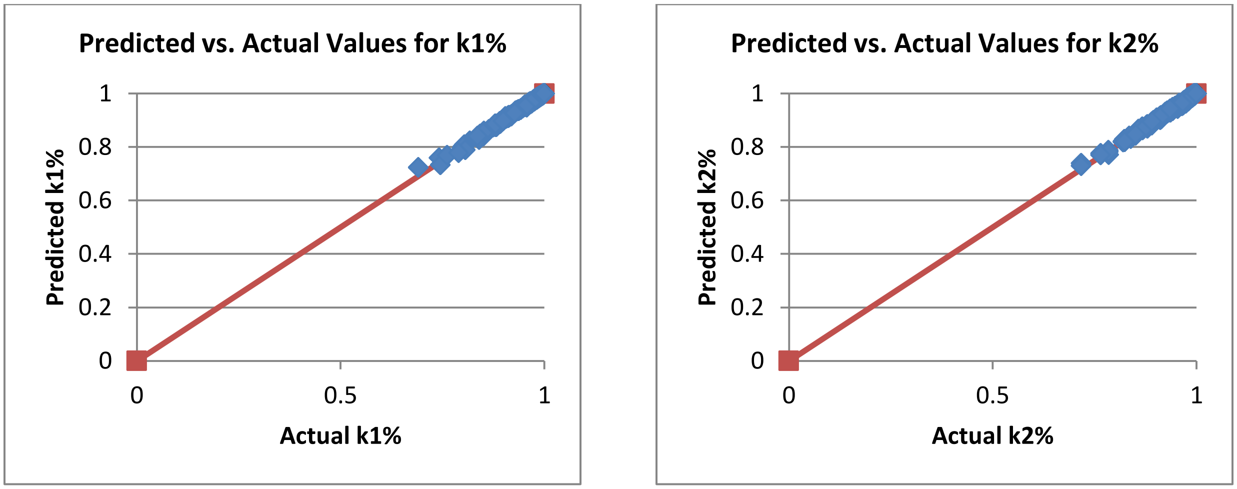


Figure 5-1 Phase I predicted vs. actual values for (a) k1% (b) k2% (c) k3%



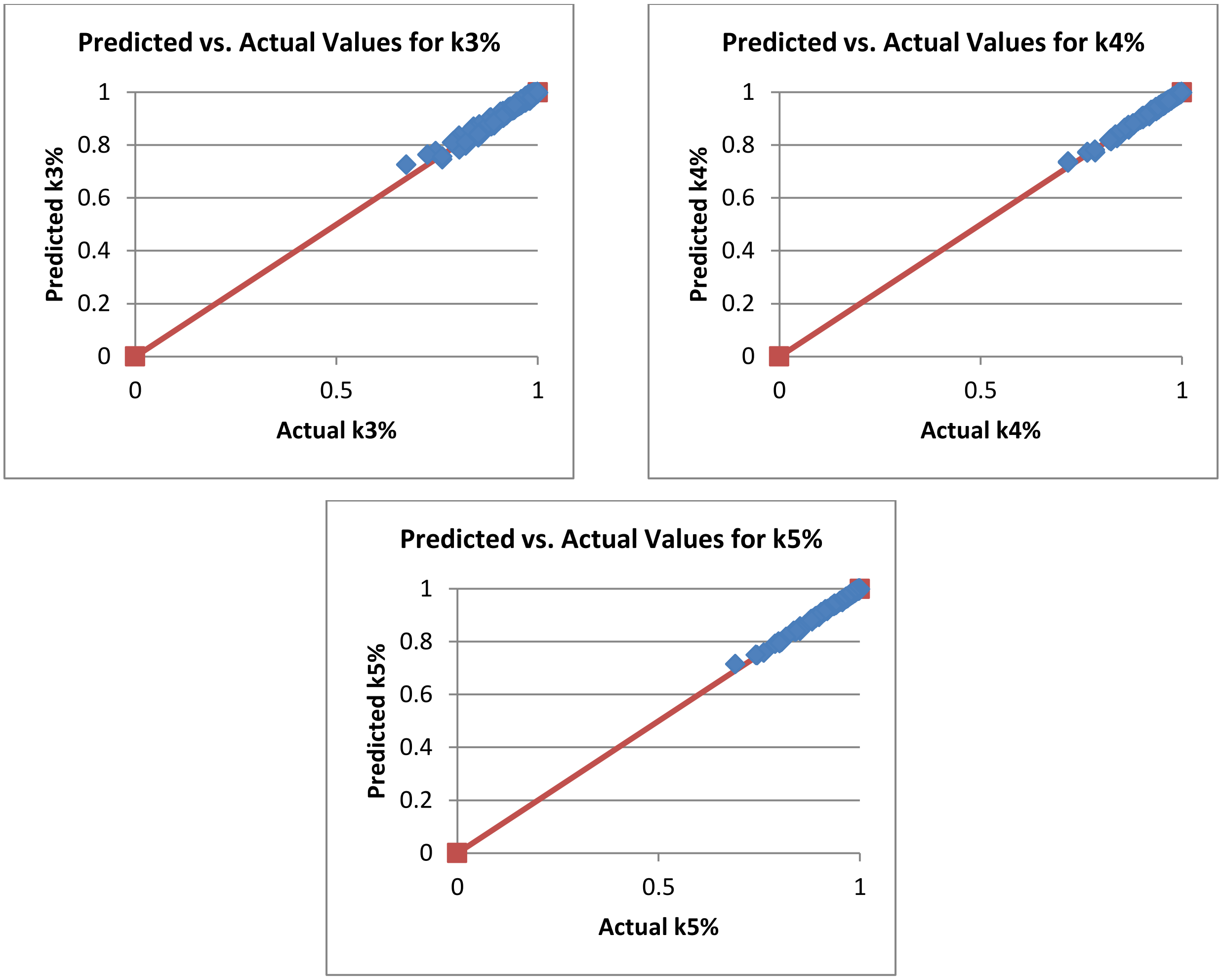


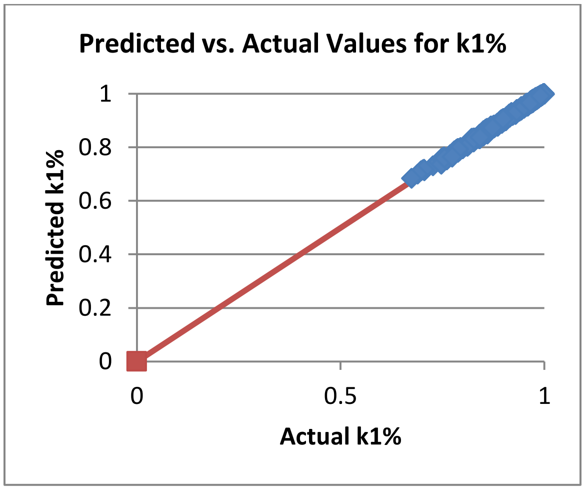
Figure 5-2 Phase I predicted vs. actual values for (a) k1% (b) k2% (c) k3% (d) k4% (e) k5%

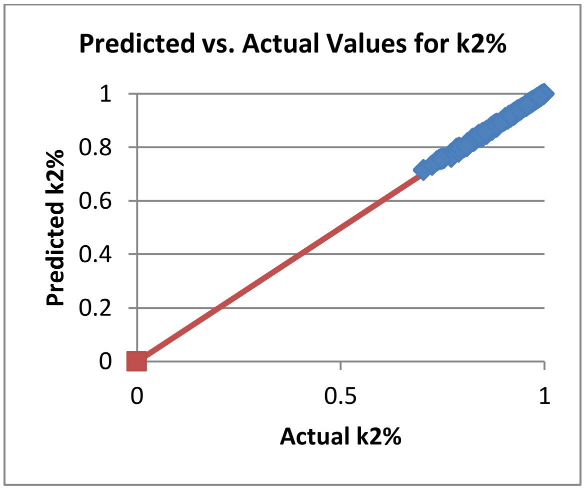
Moving to phase II, the same procedure was followed to train two ANNs on the generated 9 stiffness nodes damage database. The first ANN had 6 inputs (b/h, L/h, f'$_c$, d_{cr}/h, w_{cr} and b_{cr}/L) and 9 outputs (k1%, k2%, k3%, k4%, k5%, k6%, k7%, k8% and k9%). From training testing, and validation, the optimal network structure was obtained at 19 hidden nodes (Model 6-19-9) with 19600 iterations. This network provided the following statistics when trained on all datasets: ASE = 0.000016, R^2 = 0.99817 and MARE = 0.169%. The second ANN had the same inputs but a single output, which was the health index (ki%). From training, testing, and validation, the optimal network structure was obtained at 18 hidden nodes (Model 6-18-1) with 18100 iterations. This network provided the following statistics when trained on all datasets: ASE = 0.000003, R^2 = 0.99959 and MARE = 0.062%. The statistics for training, testing validation, and training on all datasets are summarized in Table 5-2.

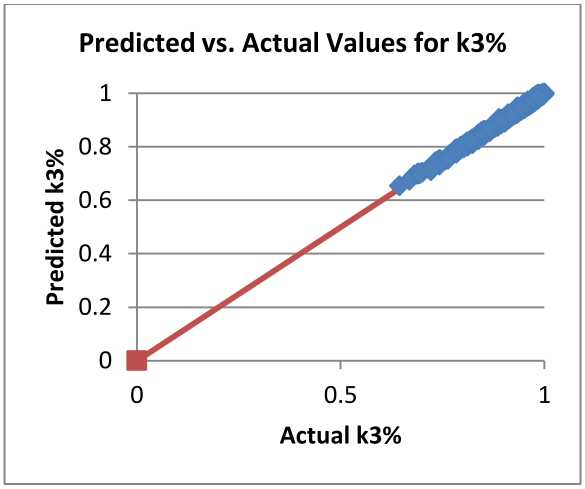
Table 5-2 Forward problem ANNs' detailed results in phase II

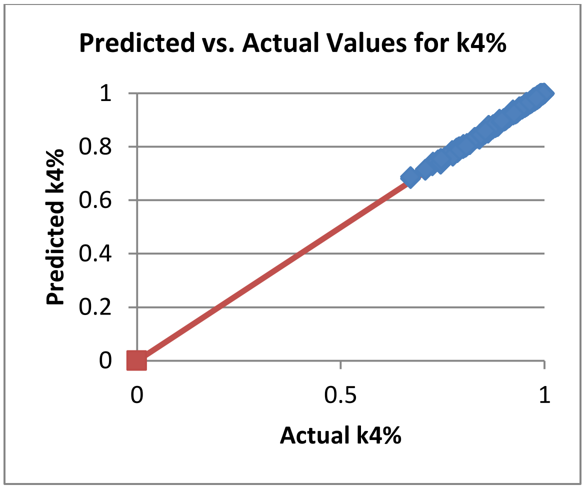
Output		kn%	ki%
Model		6-19-9	6-18-1
Iterations		19600	18100
Training	MARE	0.171	0.066
	R^2	0.99832	0.99957
	ASE	0.000016	0.000003
Testing	MARE	0.173	0.066
	R2	0.99825	0.99955
	ASE	0.000016	0.000003
Validation	MARE	0.172	0.068
	R^2	0.9983	0.99953
	ASE	0.000016	0.000004
All Data	MARE	0.169	0.062
	R^2	0.99817	0.99959
	ASE	0.000016	0.000003

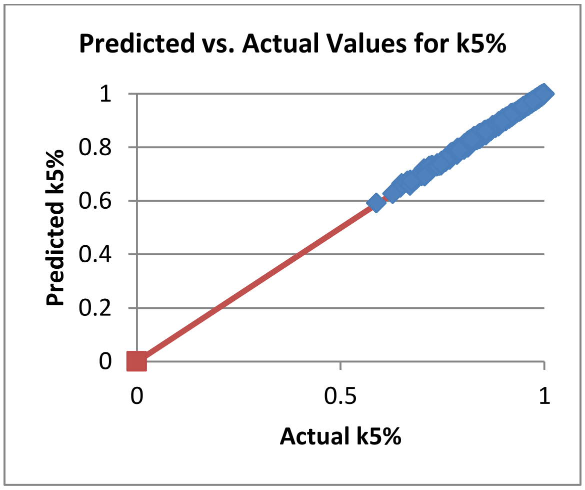
These ANNs provided excellent prediction accuracy. The statistics were very close for both ANNs in all modeling stages due to the large size of the databases and the diversity of the datasets used for training, testing and validation. As expected, training the ANNs on all datasets provided the best results. From Table 5-2, it can be observed that model 6-18-1 had better accuracy compared to model 6-19-9. This is logical as predicting a single output is easier for the network than predicting multiple outputs. The predictions provided by these two networks can be considered upper and lower limits for a range within which the actual health index value lies. The high accuracy of these networks is highly evident in Figure 5-3.

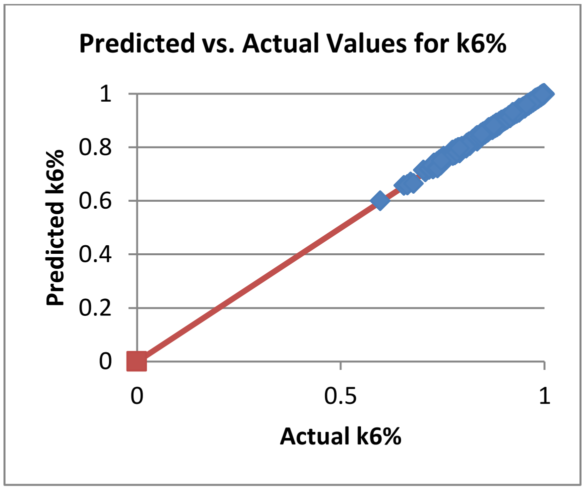


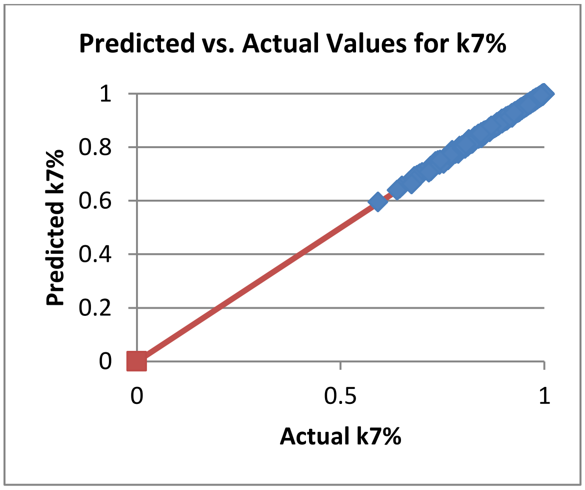


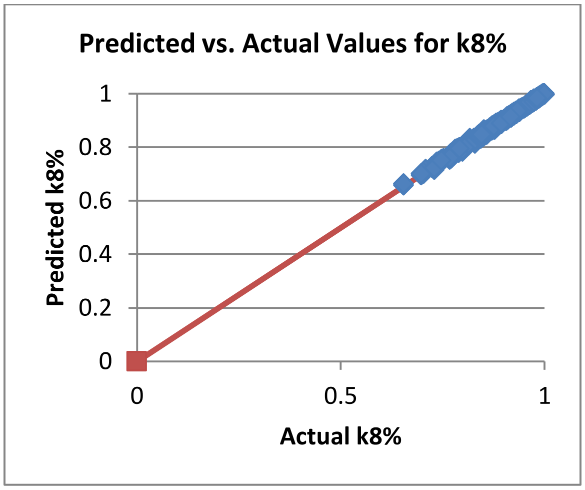

Predicted vs. Actual Values for k3%
Predicted k3%
Actual k3%
0
0.2
0.4
0.6
0.8
1
0
0.5
1


Predicted vs. Actual Values for k4%
Predicted k4%
Actual k4%
0
0.2
0.4
0.6
0.8
1
0
0.5
1


Predicted vs. Actual Values for k5%
Predicted k5%
Actual k5%
0
0.2
0.4
0.6
0.8
1
0
0.5
1


Predicted vs. Actual Values for k6%
Predicted k6%
Actual k6%
0
0.2
0.4
0.6
0.8
1
0
0.5
1


Predicted vs. Actual Values for k7%
Predicted k7%
Actual k7%
0
0.2
0.4
0.6
0.8
1
0
0.5
1


Predicted vs. Actual Values for k8%
Predicted k8%
Actual k8%
0
0.2
0.4
0.6
0.8
1
0
0.5
1

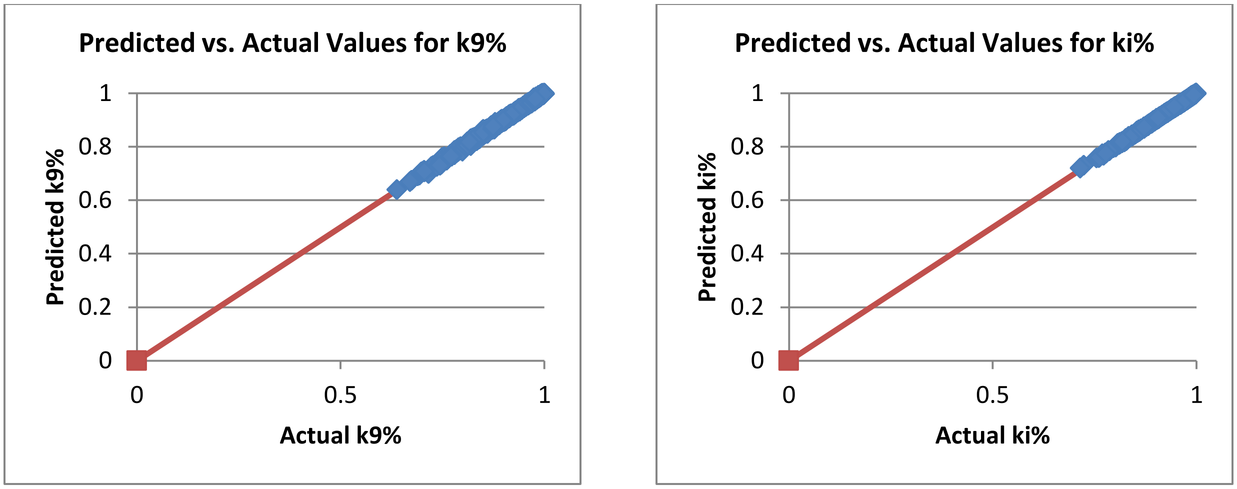


Figure 5-3 Phase II predicted vs. actual values for (a) k1% (b) k2% (c) k3% (d) k4% (e) k5% (f) k6% (g) k7% (h) k8% (i) k9% (j) ki%

Finally, in phase III, ANNs were trained on the 3 and 5 stiffness nodes databases. For the 3 stiffness nodes database, a network with 6 inputs (b/h, L/h, f'$_c$, d_{cr}/h, w_{cr} and b_{cr}/L), 3 outputs (k1%, k2% and k3%) and 19 hidden nodes at 19800 iterations (Model 6-19-3) provided the following statistics: ASE = 0.00004, R^2 = 0.99828 and MARE = 0.069%. For the 5 stiffness nodes database, a network with the same 6 inputs, 5 outputs (k1%, k2%, k3%, k4% and k5%) and 19 hidden nodes at 18000 iterations (Model 6-19-5) provided: ASE = 0.000045, R^2 = 0.99792 and MARE = 0.068%. These statistics are summarized in Table 5-3.

Table 5-3 Forward problem ANNs' final results in phase III

# of Stiffness Nodes	Model (INP-HN-OUT)	Iterations	MARE (%)	R^2	ASE
3	6-19-3	19800	0.069	0.99828	0.00004
5	6-19-5	18000	0.068	0.99792	0.000045

These ANNs provided excellent results with very low errors and high R^2 values. Comparing the overall statistics provided in both Table 5-1 and Table 5-3, it can be observed that ANNs in phase III provided better results than in phase I. This implies that the quality of the data within the damage databases provided to ANNIIIf is better, and shows that better results are obtained when modeling the damage databases' beams with plane stress elements. The predicted vs. the actual kn% values obtained from ANNIIIf are plotted in Figure 5-4 and Figure 5-5.

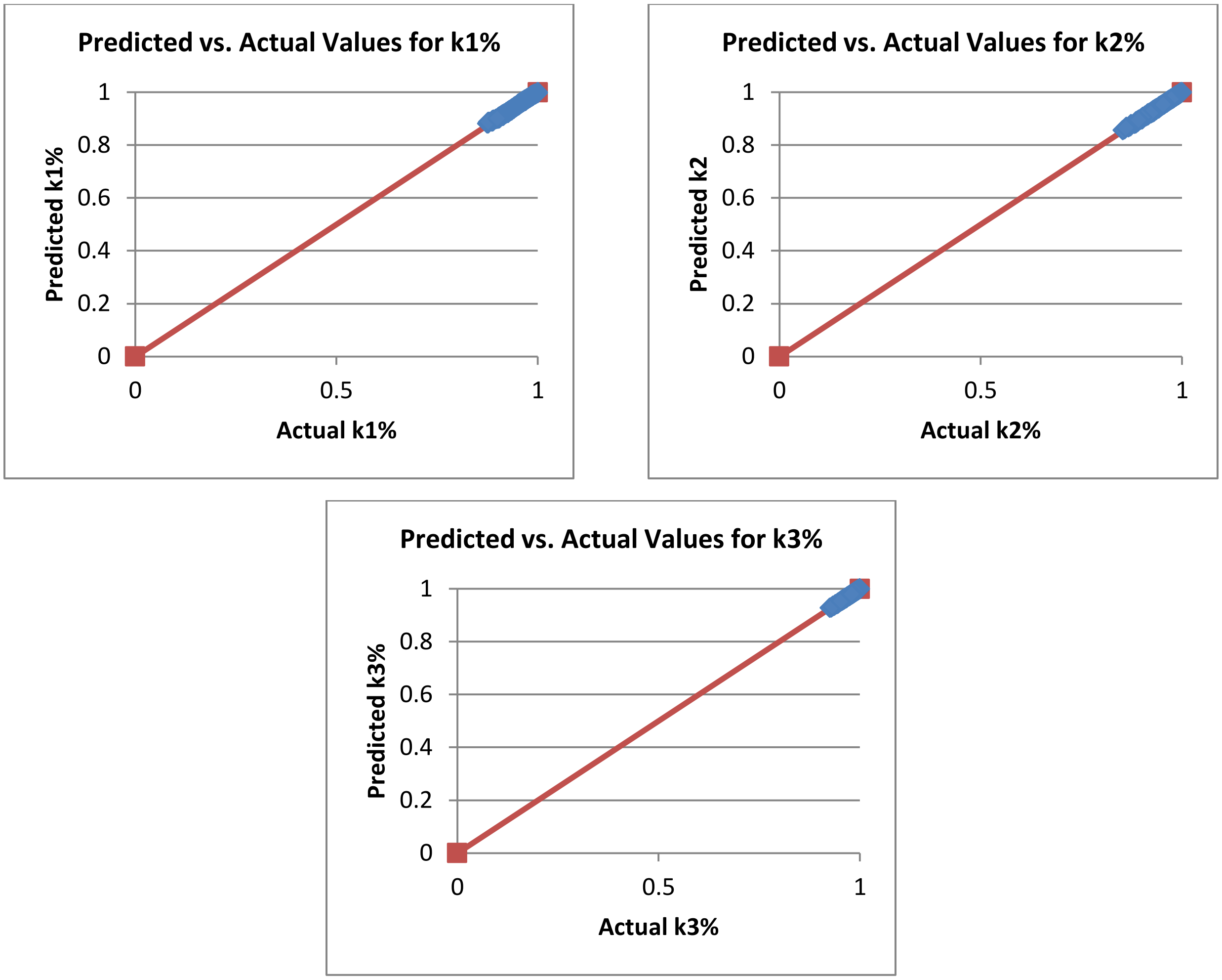
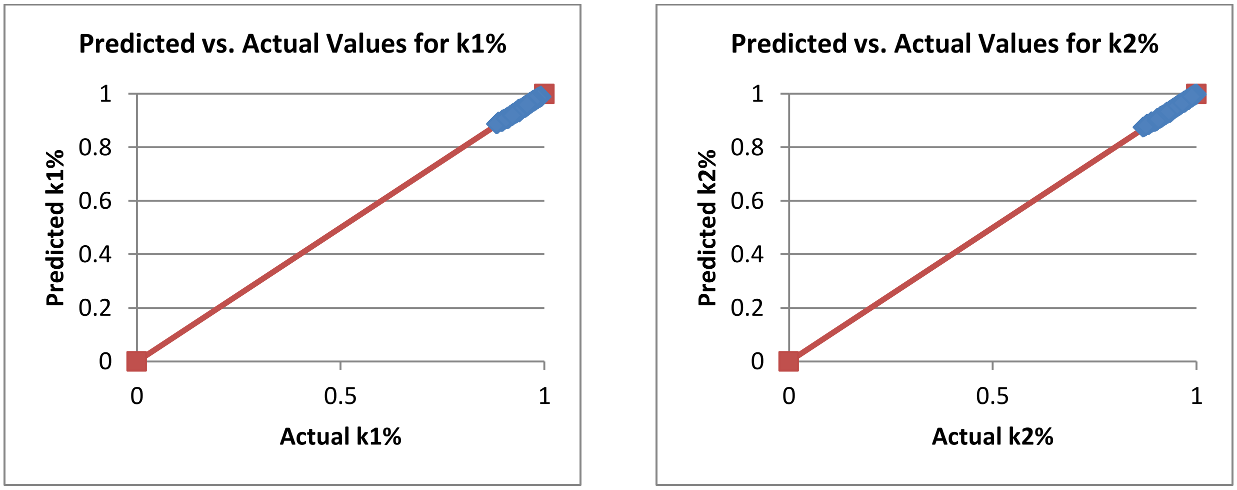


Figure 5-4 Phase III predicted vs. actual values for (a) k1% (b) k2% (c) k3%



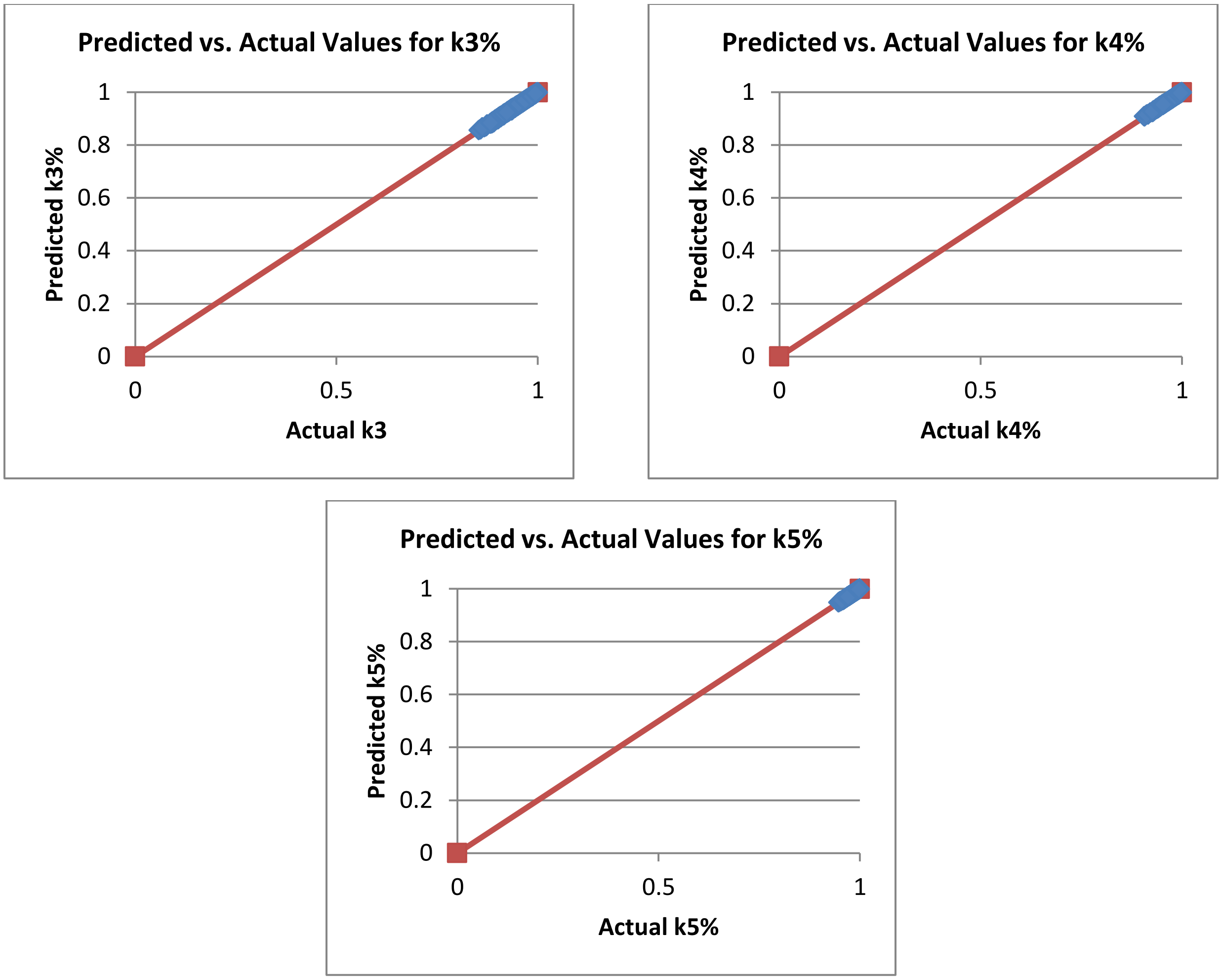


Figure 5-5 Phase III predicted vs. actual values for (a) k1% (b) k2% (c) k3% (d) k4% (e) k5%

Inverse Problem: Damage Prediction

As for the inverse problem of determining the cracking parameters from the stiffness ratios and beam's parameters, several networks were created for each database following the same methodology. Each network had the beams' geometric and material parameters (b/h, L/h and f'$_c$) in addition to the stiffness ratios (kn%) as inputs, while the cracking parameters (d_{cr}/h, w_{cr} and b_{cr}/L) were the required outputs. From training, testing and validation, the optimal ANN structure for each damage database was obtained. Starting with phase I, for the 3 stiffness nodes database, the minimum MARE and ASE values and the maximum R^2 value were obtained with 19 hidden nodes at 18200 iterations. Similarly, the optimal structure was obtained with18 hidden nodes at 20000 iterations, 8 hidden nodes at 18100 iterations, and 11 hidden nodes at 20000 iterations for the 5 stiffness nodes, 7 stiffness nodes, and 9 stiffness nodes databases, respectively. It was observed that generally, the number of hidden nodes decreased as the number of stiffness nodes increased. It appears that providing the ANN with more inputs reduced the need for more hidden nodes. This effect is desirable as decreasing the number of hidden nodes decreases the complexity of the ANN and lowers the possibility of abnormalities occurring for different predictions. Table 5-4 shows the best models obtained for each database in phase I and their statistics after training on all datasets. Additionally, Figure 5-6 (a) and (b) shows how ASE and R^2, respectively, vary with the increase in the number of stiffness nodes. As expected, the noted trend indicates an increase in the ANNs predictions' accuracy as the number of stiffness nodes increases, with the rate of change in error stabilizing at 9 stiffness nodes. The statistics for training, testing, validation, and training on all datasets for 9 stiffness nodes ANNs are summarized in Table 5-5. From training and testing, the optimal network structures obtained were 9 hidden nodes, 11 hidden nodes and 9 hidden nodes again, all at 20000 iterations. Models 1 and 2 provided better results than model 3 in validation. Finally, model 2 was chosen as it had close results to model 1 in validation and better results after training on all datasets. The structure of the best performing network (Model 2 or ANNIi-1) is shown in Figure 5-7.

Table 5-4 Inverse problem ANNs' final results in phase I

# of Stiffness Nodes	Model (INP-HN-OUT)	Iterations	MARE (%)	R^2	ASE
3	6-19-3	18200	69.919	0.49944	0.023731
5	8-18-3	20000	64.681	0.59153	0.018116
7	10-8-3	18100	52.858	0.67364	0.012125
9	12-11-3	20000	52.338	0.67834	0.012113

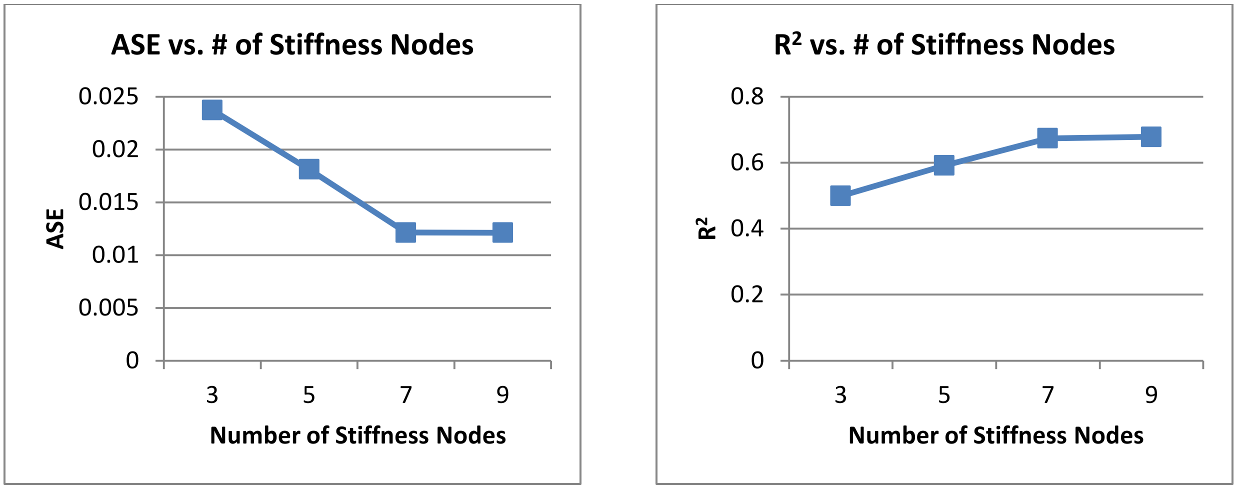


Figure 5-6 (a) ASE vs. number of stiffness nodes curve (b) R^2 vs. number of stiffness nodes curve for phase I

Table 5-5 Inverse problem ANNs' detailed results in phase I (9 stiffness nodes)

		Model 1 12_(4-9_20000)_3	**Model 2** **12_(5-11_20000)_3**	Model 3 12_(6-9_20000)_3
Training	MARE	52.065	**51.835**	53.166
	R^2	0.67746	**0.68219**	0.66609
	ASE	0.011776	**0.011588**	0.012234
Testing	MARE	53.879	**53.432**	54.414
	R^2	0.67924	**0.6713**	0.67161
	ASE	0.011778	**0.01195**	0.012066
Validation	MARE	48.081	**48.084**	49.089
	R^2	0.67978	**0.67784**	0.6724
	ASE	0.011648	**0.011676**	0.01191
All Data	MARE	52.583	**52.338**	54.273
	R^2	0.66128	**0.67834**	0.66452
	ASE	0.01237	**0.012113**	0.012555

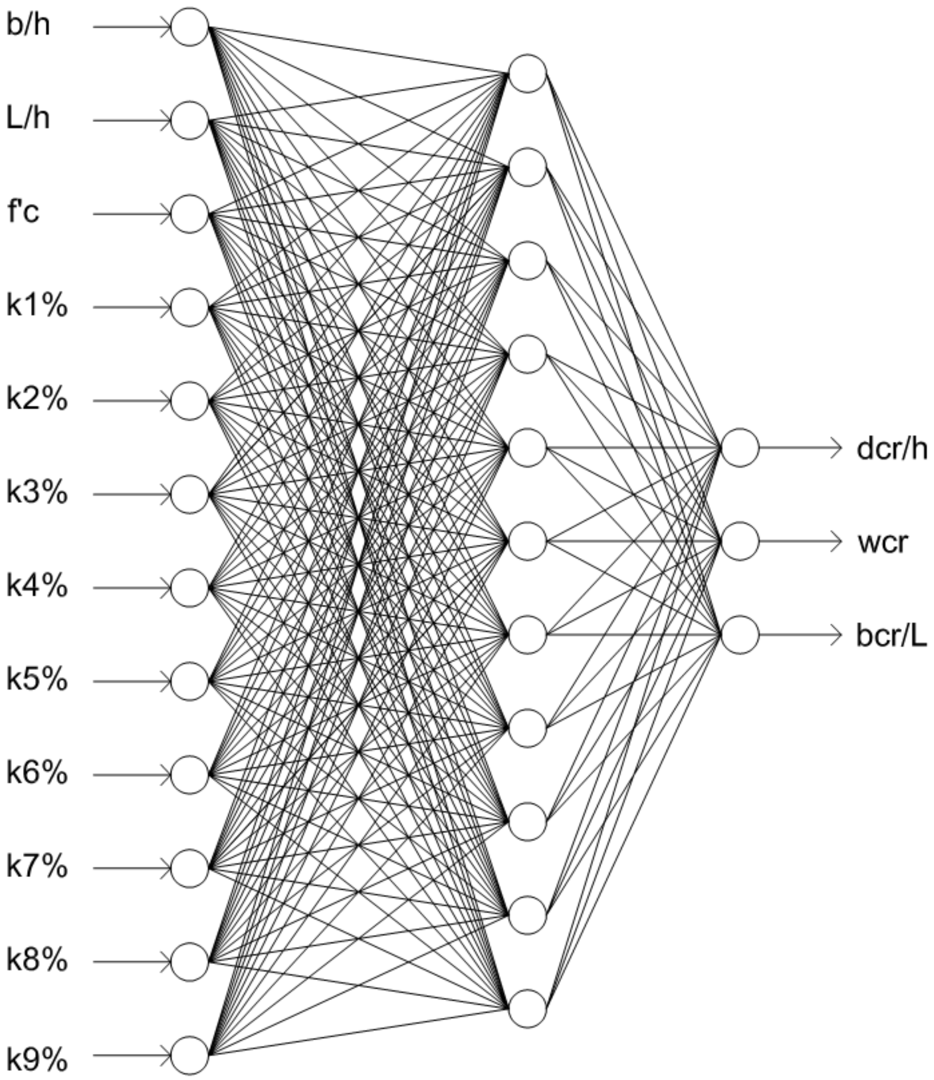


Figure 5-7 Structure of ANNIi-1 (Model 12-11-3)

Even at 9 stiffness nodes, the error remained relatively high. This was due to the fact that the inverse problem tackled does not have a unique solution. The complexity of this problem prevented the three outputs network (ANN1) from accurately predicting the three requested outputs, which are d_{cr}/h, w_{cr} and b_{cr}/L. It was expected that the predictions could be improved if some cracking parameters were provided to the ANN as an input. To illustrate that, additional ANNs that predict two and a single cracking parameter were developed (ANN2-ANN7). Also, ANNs that predict each cracking parameter independently from the others (ANN8-ANN10) were developed to compare them with the three outputs network (ANN1). Table 5-6 shows the ANNs created, the outputs predicted in each, and the statistics for the best models obtained after training on all datasets.

Table 5-6 Results for ANNs with different outputs at 9 stiffness nodes for phase I

ANNi ID	Outputs	Model (INP-HN-OUT)	Iterations	MARE (%)	R^2	ASE
ANN1	d_{cr}/h, w_{cr}, b_{cr}/L	12-11-3	20000	52.338	0.67834	0.012113
ANN2	w_{cr}, b_{cr}/L	13-19-2	20000	19.751	0.97466	0.000789
ANN3	d_{cr}/h, b_{cr}/L	13-19-2	20000	18.644	0.97418	0.000736
ANN4	d_{cr}/h, w_{cr}	13-10-2	20000	60.48	0.61901	0.014453
ANN5	d_{cr}/h	14-18-1	19900	15.345	0.9926	0.000177
ANN6	w_{cr}	14-19-1	20000	19.281	0.99567	0.000192
ANN7	b_{cr}/L	14-19-1	20000	15.829	0.99418	0.000175
ANN8	d_{cr}/h[1]	12-3-1	20000	32.111	0.71999	0.006393
ANN9	w_{cr}[1]	12-8-1	19100	88.987	0.47372	0.023544
ANN10	b_{cr}/L[1]	12-19-1	19200	24.066	0.8879	0.004014

Table 5-6 shows that decreasing the number of required outputs resulted in clear improvements in prediction accuracy for all cases except for ANN4, where the required outputs are the crack depth (d_{cr}/h) and width (w_{cr}). This is because Table 5-6 reports the average statistical measures of all outputs, i.e. the reported R^2 value for ANN1 is actually the average of the R^2 values obtained for each of the depth, width and location of the crack. To further investigate this, the individual coefficient of determination (R^2) values were calculated and are shown in Table 5-7. For ANN1, R^2 was 0.7337, 0.45588 and 0.84542 for d_{cr}/h, w_{cr} and b_{cr}/L, respectively. For ANN4, R^2 was 0.7636 and 0.47066 for d_{cr}/h and w_{cr}, respectively. Individual R^2 values for both d_{cr}/h and w_{cr} showed improvement when moving from ANN1 to ANN4. This indicates that even though the average R^2 decreased, the actual individual R^2 values increased when b_{cr}/L was provided as an input. It is concluded that the accuracy of predictions improved when the ANN was provided with some cracking parameters as inputs.

Table 5-7 Individual coefficient of determination (R^2) values for ANNIi-1, ANNIi-4

ID / R^2	d_{cr} /h	w_{cr}	b_{cr} /h	Average
ANN1	0.7337	0.45588	0.84542	0.67833
ANN4	0.76736	0.47066	-	0. 61901

Table 5-8 lists the individual R^2 values for ANN1, ANN8, ANN9, and ANN10. Comparing the statistics of ANN8, ANN9 and ANN10 (R^2 = 0.7199, 0.47372, and 0.8879, respectively), to the individual statistics of ANN1 (R^2 = 0.7337, 0.45588, and 0.84542 for d_{cr}/h w_{cr} and b_{cr}/L, respectively), it can be observed that the accuracy improved for all outputs except d_{cr}/h. The better statistics for d_{cr}/h in ANN1 could be attributed to the presence of the other output parameters, namely, w_{cr} and b_{cr}/L. During the training stage, while the ANN was trying to optimize the connections for the crack width and location, the connections for the crack depth were also optimized at the same time. This indicates a positive relation between these parameters in this network, where only the depth prediction benefits from the presence of the other outputs parameters. This effect does not exist in ANN8-10, where each output parameter is predicted independently and the connections are optimized for each output separately from the others. As a result, the prediction accuracy for d_{cr}/h is enhanced in ANN1 when compared to ANN8.

Table 5-8 Individual coefficient of determination (R^2) values for ANNIi1, 8, 9, 10

ID / R^2	d_{cr} /h	w_{cr}	b_{cr} /h
ANN1	0.7337	0.45588	0.84542
ANN8, 9, 10	0.7199	0.47372	0.8879

Graphical comparisons between actual and predicted values for all developed ANN models listed in Table 5-6 are shown in Figure 5-8 through Figure 5-13. The size of the bandwidth is affected by the accuracy of prediction of the ANN. It is observed that ANNIi-1 has the best accuracy when predicting the crack's location. Also, the increase in prediction accuracy with the decrease in the number of requested outputs is very evident from the decrease in the bandwidth in these figures.

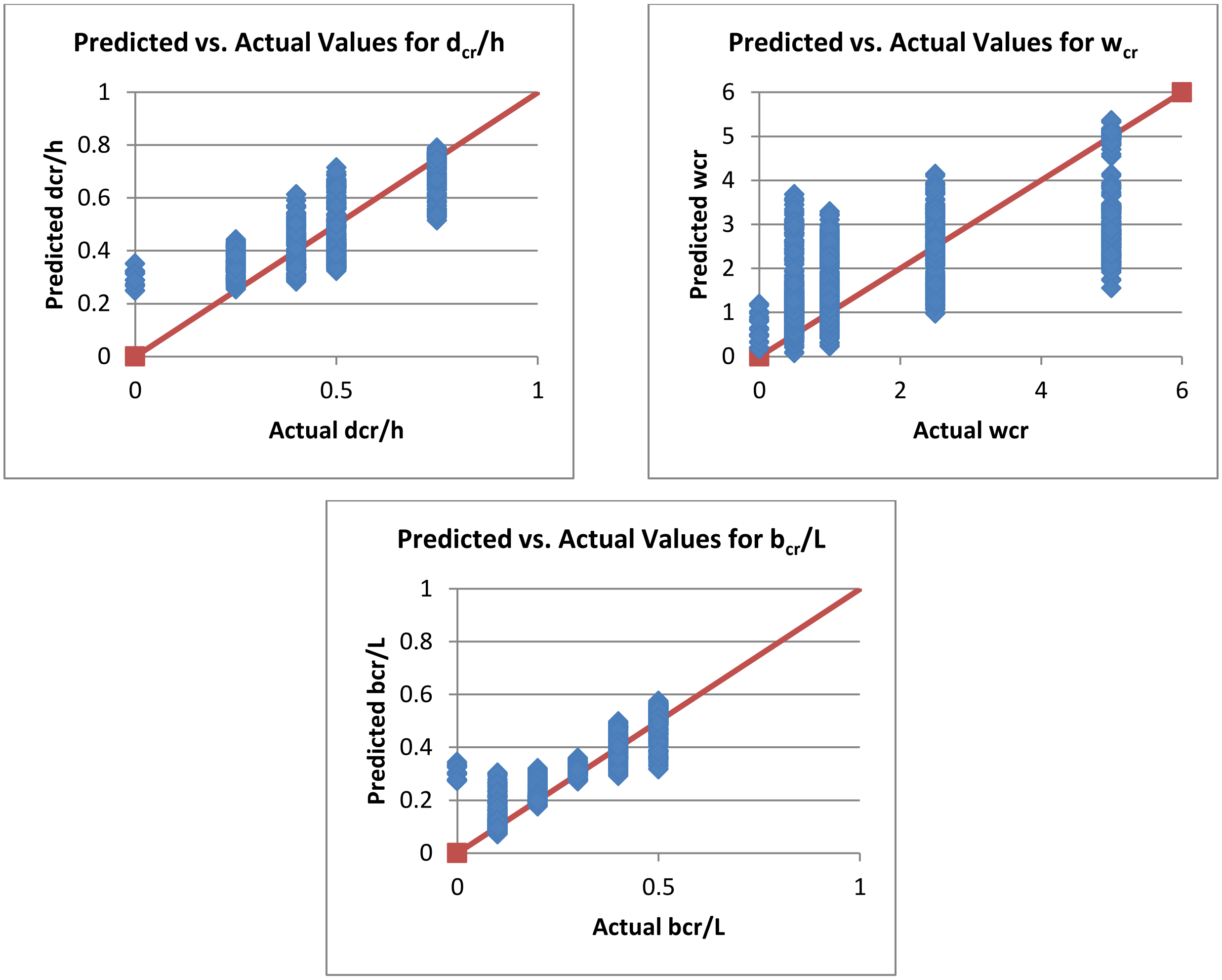


Figure 5-8 ANNIi-1 predicted vs. actual values for (a) d_{cr}/h (b) w_{cr} (c) b_{cr}/L

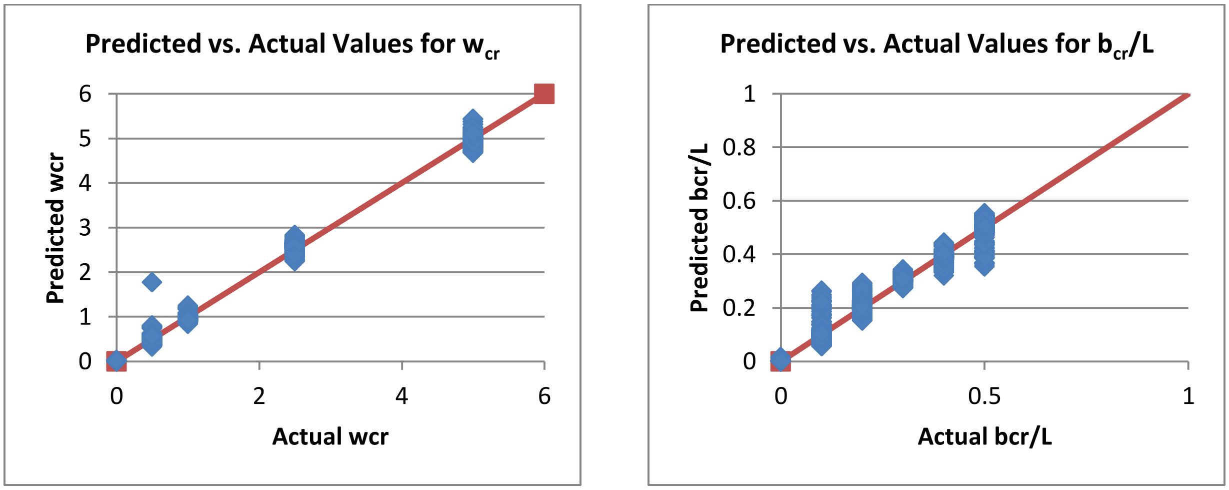


Figure 5-9 ANNIi-2 predicted vs. actual values for (a) w_{cr} (b) b_{cr}/L

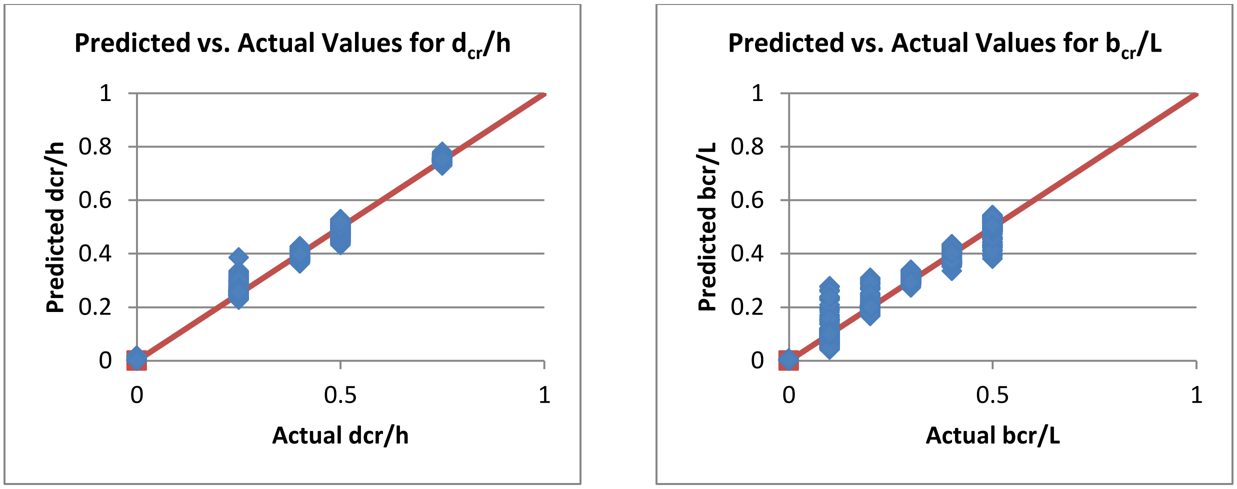


Figure 5-10 ANNIi-3 predicted vs. actual values for (a) d_{cr}/h (b) b_{cr}/L

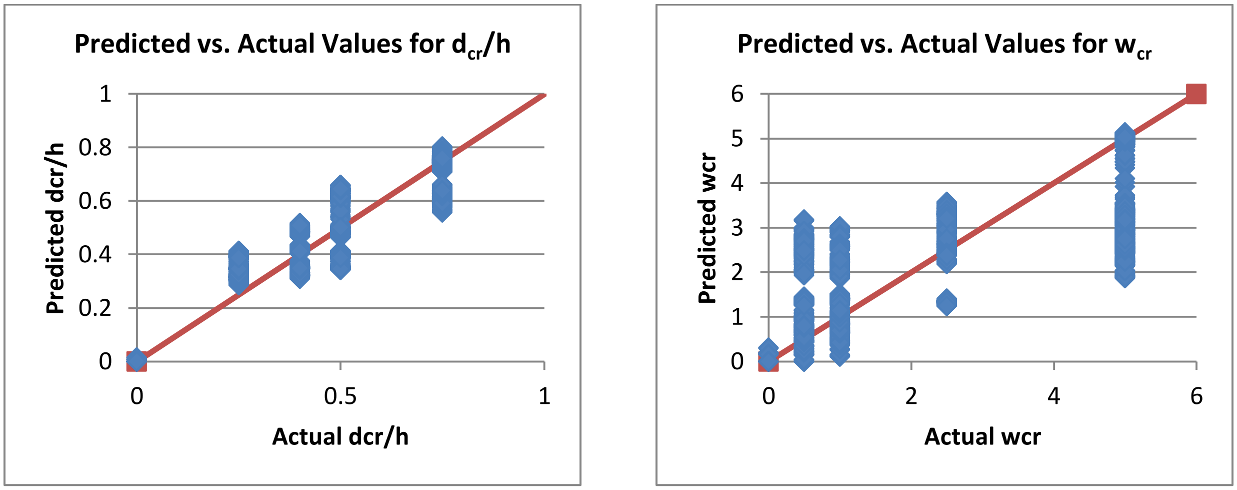


Figure 5-11 ANNIi-4 predicted vs. actual values for (a) d_{cr}/h (b) w_{cr}

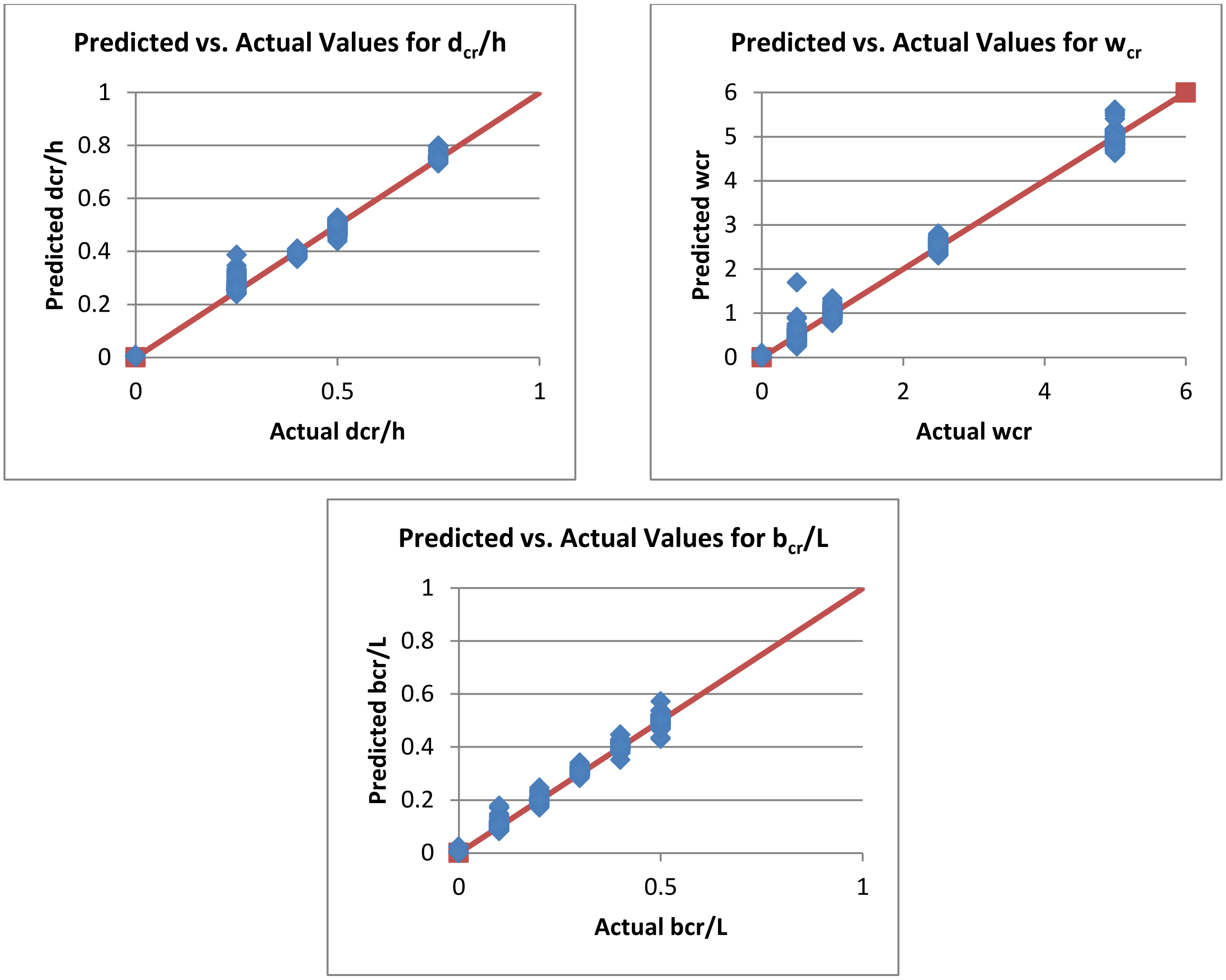
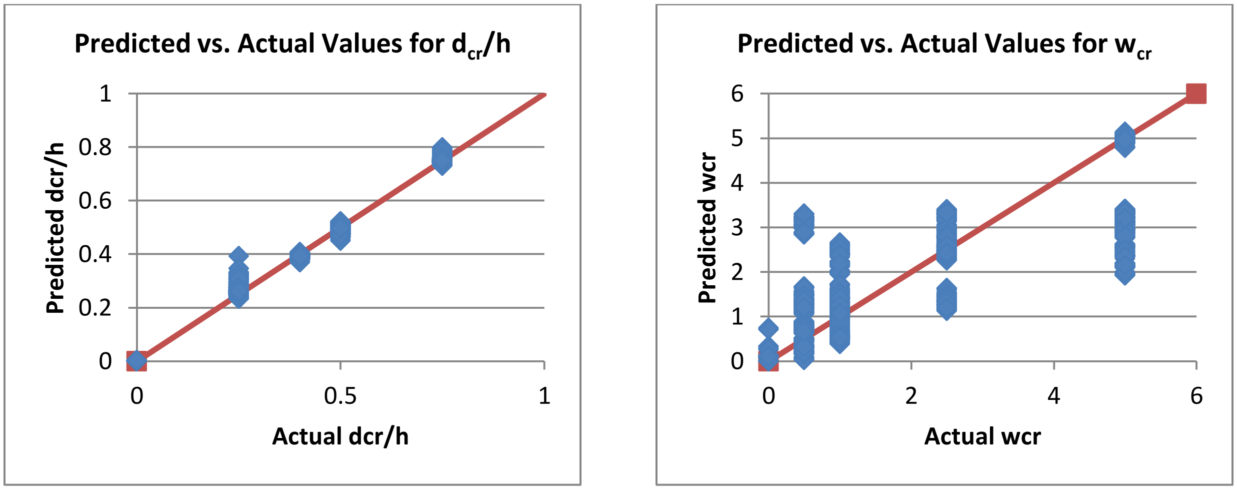


Figure 5-12 Predicted vs. actual values for (a) d_{cr}/h from ANNIi-5 (b) w_{cr} from ANNIi-6 (c) b_{cr}/L from ANNIi-7



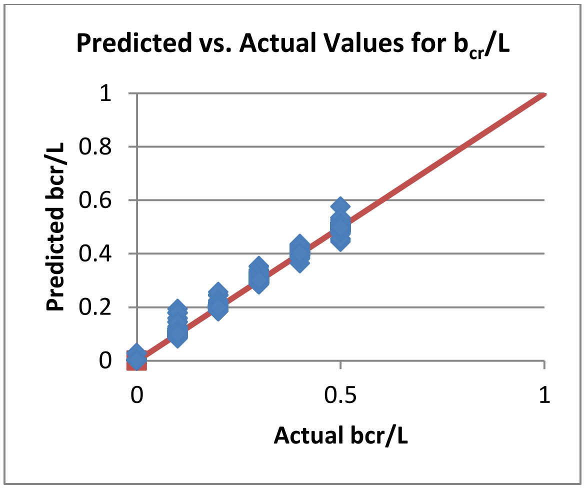


Figure 5-13 Predicted vs. actual values for (a) d_{cr}/h from ANNIi-8 (b) w_{cr} from ANNIi-9 (c) b_{cr}/L from ANNIi-10

Moving to phase II, ANNs were created to solve the inverse problem of damage detection for beams with two cracks modeled using beam elements following the previously described methodology. These ANNs were trained, tested and validated on the generated 9 stiffness nodes database. For this phase, the inputs were the beams' geometric and material parameters (b/h, L/h and f'_c) in addition to the stiffness ratios (kn%), while the outputs were the two cracks' parameters (d_{cr}/h^1, $w_{cr}{}^1$, b_{cr}/L^1, d_{cr}/h^2, $w_{cr}{}^2$ and b_{cr}/L^2). Table 5-9 shows the best two models obtained in phase II and their detailed statistics for training, testing, validation, and training on all datasets. From training and testing, the optimal structures obtained were 18 hidden nodes in model 1 and 16 hidden nodes in model 2, both obtained at 20000 iterations. Next, validation was performed and model 1 provided the least MARE and ASE values and the highest R^2 value, thus it was chosen as the best model. Model 1 also provided better statistics when trained on all datasets. The structure of the best performing network (Model 12-18-6) is shown in Figure 5-14.

Table 5-9 Inverse problem ANNs' detailed results in phase II

		Model 1 **12_(4-18_20000)_6**	Model 2 12_(5-16_20000)_6
Training	MARE	**88.174**	89.314
	R^2	**0.6092**	0.58042
	ASE	**0.022252**	0.023493
Testing	MARE	**87.913**	88.936
	R^2	**0.60742**	0.57857
	ASE	**0.02237**	0.023579

Validation	MARE	**85.971**	86.963
	R^2	**0.60304**	0.57525
	ASE	**0.022614**	0.023767
All Data	MARE	**84.568**	88.522
	R^2	**0.65207**	0.60955
	ASE	**0.018121**	0.023538

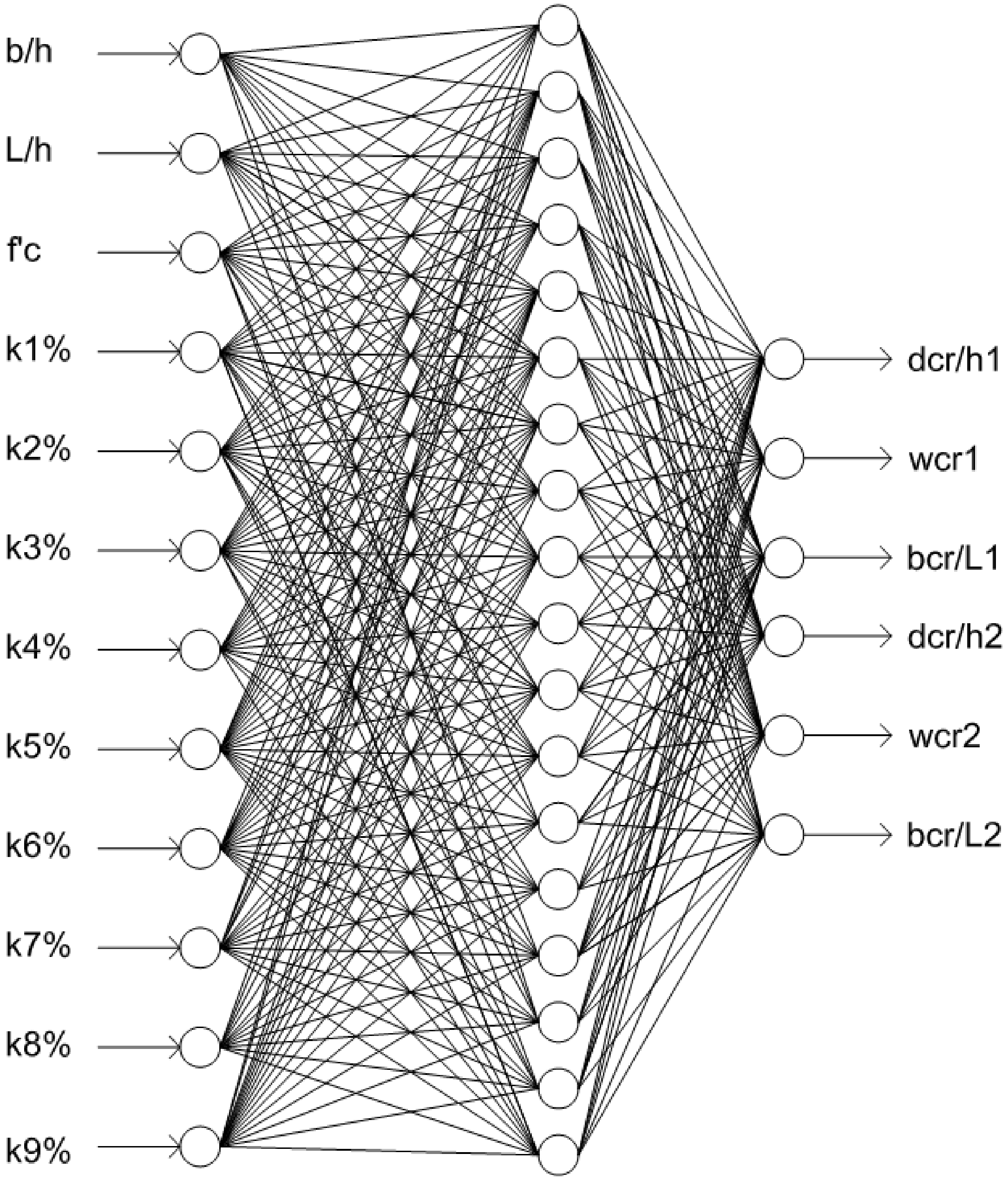
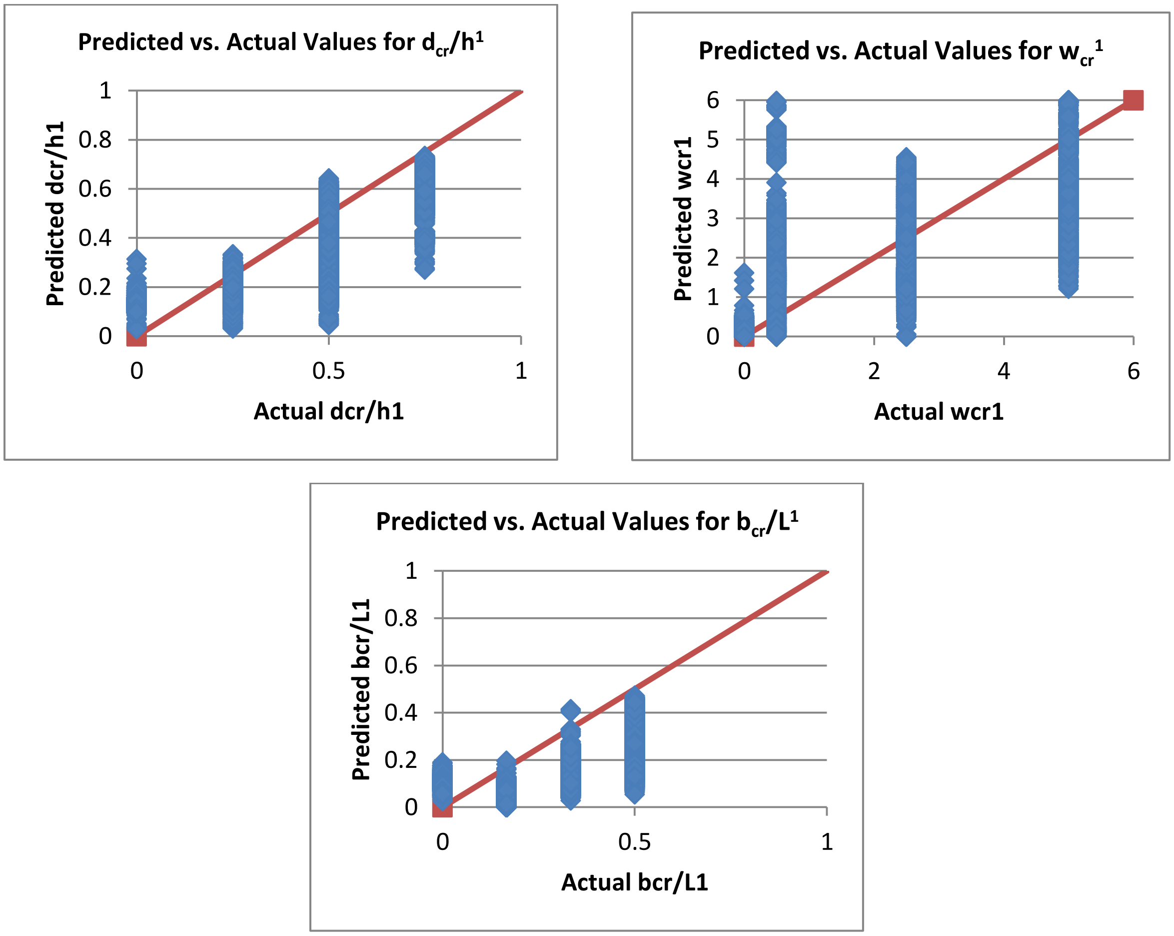


Figure 5-14 Structure of ANNIIi (Model 12-18-6)

A slight decrease in the accuracy of the inverse problem's ANN is experienced in phase II. Statistical measures for ANNIIi were: MARE = 84.568%, R^2 = 0.65207, ASE = 0.01812, compared to ANNiI-1, where MARE = 52.338%, R^2 = 0.67834, ASE = 0.012113 in phase I. The percentage differences from ANNIi-1 to ANNIIi were 61.58%, -3.87%, and 49.59%, for MARE, R^2, and ASE, respectively. This decrease was expected as the ANN is trying to predict three additional outputs in phase II compared to phase I. Even though the obtained errors were relatively high, the predictions of this ANN could still be considered reasonable for practical applications. This is due to the fact that the cracking parameters are very small in magnitude, so even a large error value can only cause a variation of fractions of millimeters. Figure 5-15 and Figure 5-16 plot the predicted values provided by ANNIIi vs. the actual values for the three cracking parameters. An increase in error compared to ANNIi is observed from the increase in the bandwidth for all outputs. It is also perceived that the most accurately predicted parameter is the location of the crack for both crack 1 and 2.


Predicted vs. Actual Values for d_{cr}/h^1

Predicted vs. Actual Values for $w_{cr}{}^1$

Predicted vs. Actual Values for b_{cr}/L^1

Figure 5-15 ANNIIi crack 1 predicted vs. actual values for (a) d_{cr}/h (b) w_{cr} (c) b_{cr}/L

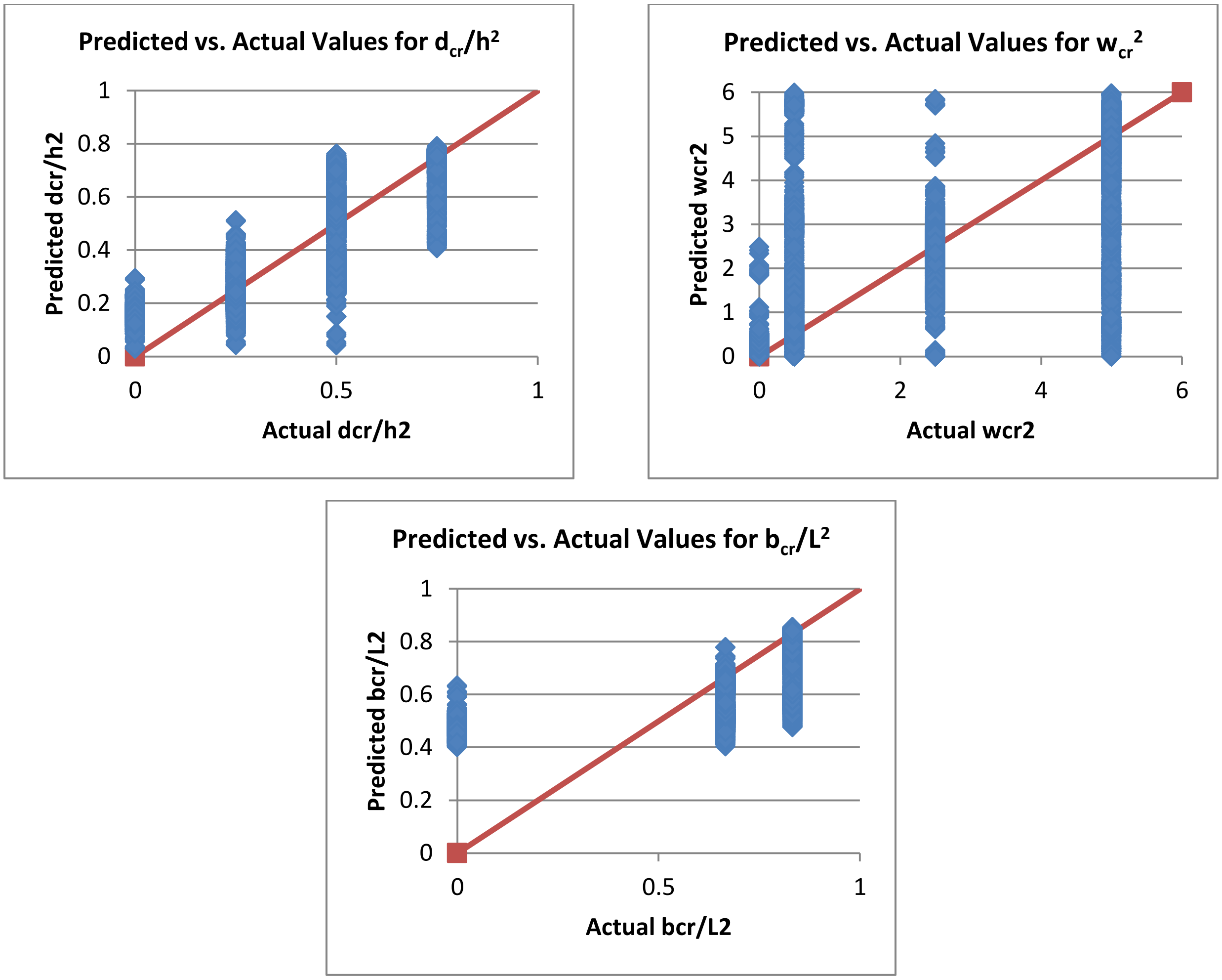


Figure 5-16 ANNIIi crack 2 predicted vs. actual values for (a) d_{cr}/h (b) w_{cr} (c) b_{cr}/L

Finally, in phase III, ANNs were created to solve the inverse problem of damage detection for beams with a single crack modeled using plane stress elements following the previously described methodology. For this phase, the inputs were the beams' geometric and material parameters (b/h, L/h and f'_c) in addition to the stiffness ratios (kn%), while the outputs were the cracking parameters (d_{cr}/h, w_{cr}, and b_{cr}/L). These ANNs were trained, tested and validated on the generated 3, 5, 7 and 9 stiffness nodes databases. From training and testing, the optimal structure obtained was 12 hidden nodes at 20000 iterations, 9 hidden nodes at 4100 iterations, 10 hidden nodes at 11200 iterations, and 9 hidden nodes at 19600 iterations for the 3, 5, 7, and 9 stiffness nodes databases, respectively. Compared to networks obtained in phase I, the ANNs obtained in phase III generally had less hidden nodes, especially for networks with a lower count of stiffness nodes. This further reinforces the implication that the quality of datasets within the damage databases in phase III is higher. Table 5-10 shows the best models obtained for each database in phase III and their statistics after training on all datasets. Additionally, Figure 5-17 (a) and (b) shows how ASE and R^2, respectively, vary with the increase in the number of stiffness nodes. As expected, the noted trend indicates an increase in the ANNs predictions' accuracy as the number of stiffness nodes increases. The statistics for training, testing validation, and training on all datasets for 9 stiffness nodes ANNs are summarized in Table 5-11. From training and testing, the optimal network structures obtained were 9 hidden nodes at 19600 iterations, 7 hidden nodes at 7100 iterations and 7 hidden nodes again at 19100 iterations. Model 1 was chosen as it provided better results than models 2 and 3 in all modeling stages, including training on all datasets. The structure of the best performing network (Model 1 or ANNIIIi) is shown in Figure 5-18.

Table 5-10 Inverse problem ANNs' final results in phase III

# of Stiffness Nodes	Model (INP-HN-OUT)	Iterations	MARE (%)	R^2	ASE
3	6-12-3	20000	63.645	0.57572	0.016786
5	8-9-3	4100	67.24	0.62484	0.01609
7	10-10-3	11200	62.514	0.64542	0.015161
9	12-9-3	19600	60.693	0.65061	0.0148

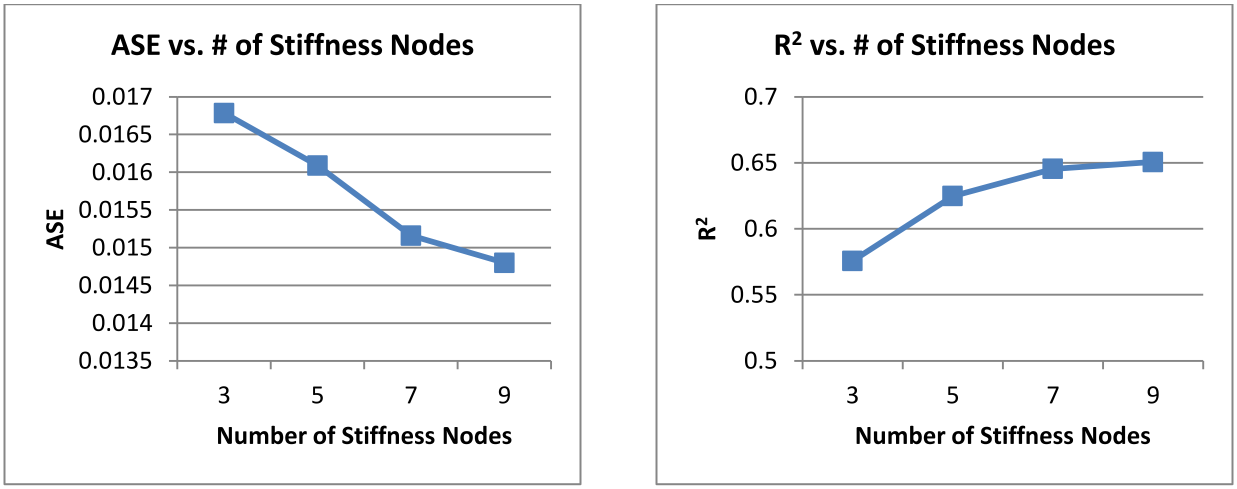


Figure 5-17 (a) ASE vs. number of stiffness nodes curve (b) R^2 vs. number of stiffness nodes curve for phase III

Table 5-11 Inverse problem ANNs' detailed results in phase III (9 stiffness nodes)

		Model 1 **12_(5-9_19600)_3**	Model 2 12_(3-7_7100)_3	Model 3 12_(4-7_19100)_3
Training	MARE	**60.801**	62.04	62.711
	R^2	**0.65451**	0.64493	0.63997
	ASE	**0.014691**	0.015022	0.015223
Testing	MARE	**57.994**	58.468	58.788
	R^2	**0.63333**	0.62678	0.63068
	ASE	**0.01575**	0.015803	0.015599
Validation	MARE	**58.779**	59.159	59.756
	R2	**0.63415**	0.62515	0.62645
	ASE	**0.015303**	0.015418	0.015436
All Data	MARE	**60.693**	63.941	60.966
	R^2	**0.65061**	0.6401	0.64208
	ASE	**0.0148**	0.015171	0.015116

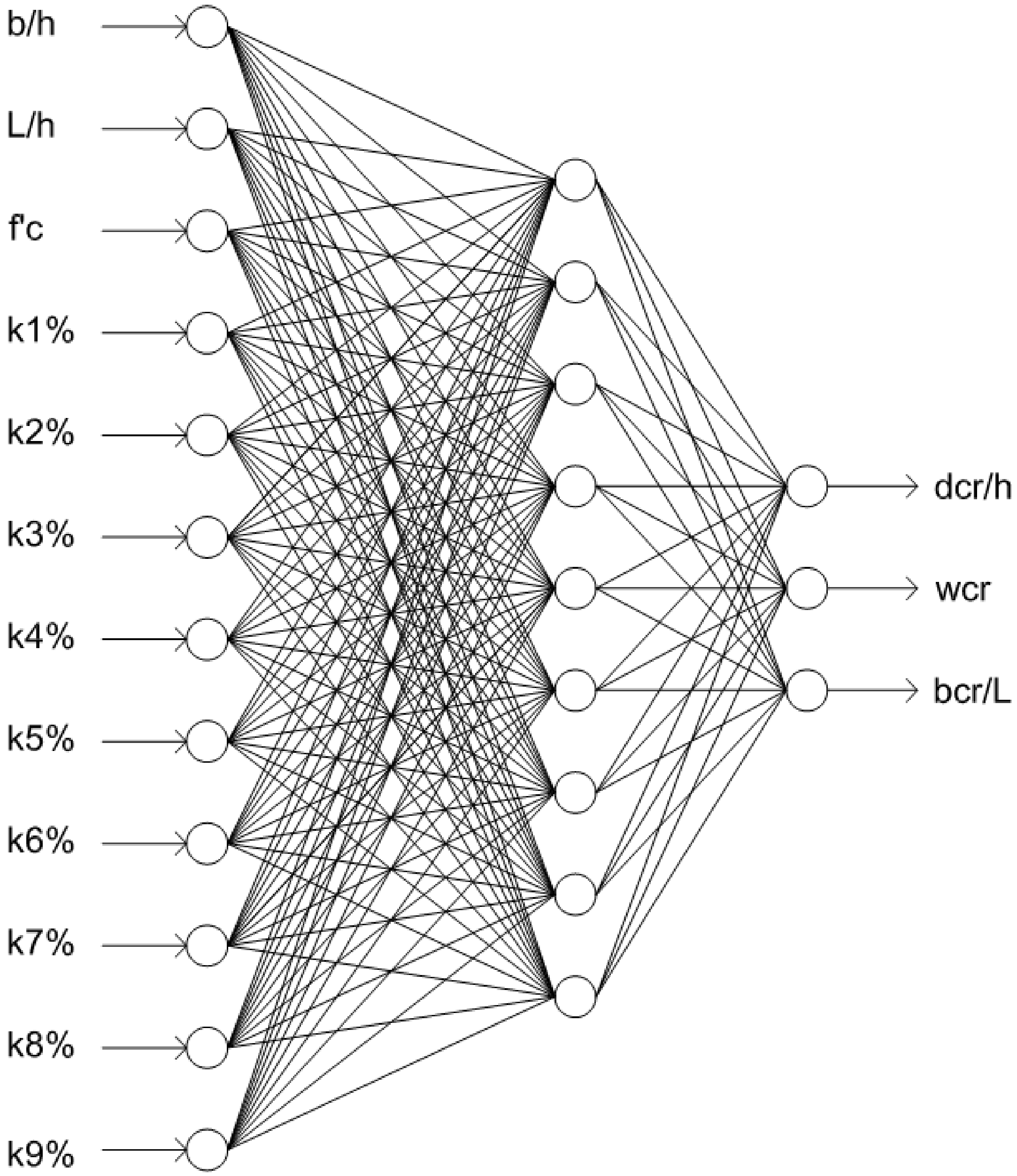


Figure 5-18 Structure of ANNIIIi (Model 12-9-3)

As it was done earlier in phase I, additional ANNs that predict two and a single cracking parameter were developed (ANN2-ANN7). Also, ANNs that predict each cracking parameter independently from the others (ANN8-ANN10) were developed to compare them with the three outputs network (ANN1). Additionally, a network that predicts the crack depth and location independently from the crack width (ANN11) was developed to confirm the observed degrading effect of the inclusion of the crack's width prediction on the general accuracy of the ANN.

Table 5-12 shows the ANNs created, the outputs predicted in each, and the statistics for the best models obtained after training on all datasets.

Table 5-12 Results for ANNs with different outputs at 9 stiffness nodes for phase I

ANNIIIi ID	Outputs	Model (INP-HN-OUT)	Iterations	MARE (%)	R^2	ASE
ANN1	d_{cr}/h, w_{cr}, b_{cr}/L	12-9-3	19600	60.693	0.65061	0.0148
ANN2	w_{cr}, b_{cr}/L	13-17-2	11000	80.986	0.56975	0.019361
ANN3	d_{cr}/h, b_{cr}/L	13-19-2	12600	15.894	0.95019	0.00046
ANN4	d_{cr}/h, w_{cr}	13-5-2	14100	83.517	0.46684	0.022583
ANN5	d_{cr}/h	14-19-1	20000	17.219	0.961	0.000887
ANN6	w_{cr}	14-17-1	20000	111.875	0.34741	0.029043
ANN7	b_{cr}/L	14-19-1	20000	12.965	0.99985	0.000004
ANN8	d_{cr}/h^{i}	12-19-1	19900	17.601	0.9561	0.000997
ANN9	w_{cr}^{i}	12-6-1	20000	142.946	0.05142	0.042193
ANN10	b_{cr}/L^{i}	12-19-1	19600	13.258	0.99967	0.00001
ANN11	d_{cr}/h^{i}, b_{cr}/L^{i}	12-19-2	20000	15.716	0.98174	0.000425

Table 5-12 shows that decreasing the number of required outputs resulted in clear improvements in prediction accuracy in all cases except for when the crack width (w_{cr}) is predicted. This is because the reported values are the average statistical measures of all outputs. To further investigate this, the individual coefficient of determination (R^2) values were calculated and are shown in Table 5-13. It is perceived that the crack width's (w_{cr}) prediction accuracy experienced the greatest improvement in ANN2 and ANN6. When compared to ANN1, the prediction accuracy of the crack's depth (d_{cr}/h) and location (b_{cr}/L) has slightly decreased in ANN2, ANN4, respectively. These observations indicate that for damage databases in phase III, the crack's width is negatively related to the previous two cracking parameters in the network. This is confirmed from the results obtained for ANN2, 4, and 6 where the crack depth (d_{cr}/h) and/or the location (b_{cr}/L) have deteriorated when compared to ANN11, where the crack width (w_{cr}) is not included.

Table 5-13 Individual coefficient of determination (R^2) values for ANNIIIi-1, 2, 4, 6, 11

ID / R^2	d_{cr} /h	w_{cr}	b_{cr} /h	Average
ANN1	0.90253	0.057175	0.99214	0.650615
ANN2	-	0.1493	0.99021	0.569755
ANN4	0.89539	0.038298	-	0.466844
ANN6	-	0.34741	-	0.34741
ANN11	0.96577	-	0.99771	0.98174

Table 5-14 lists the individual R^2 values for ANN1, ANN8, ANN9, and ANN10. Comparing the statistics of ANN8, ANN9 and ANN10 to the individual statistics of ANN1 listed previously, it can be observed that the accuracy improved for all outputs except the crack width (w_{cr}). The better statistics for the crack width (w_{cr}) in ANN1 could be attributed to the presence of the other output parameters, namely, d_{cr}/h and b_{cr}/L. During the training stage, while the ANN was trying to optimize the connections for the crack depth and location, the connections for the crack width were also optimized at the same time. The width prediction benefits from the presence of the other outputs parameters. This effect does not exist in ANN8-10, where each output parameter is predicted independently and the connections are optimized for each output separately from the others. As a result, the prediction accuracy for w_{cr} is slightly enhanced in ANN1 when compared to ANN8.

Table 5-14 Individual coefficient of determination (R^2) values for ANNIIIi1, 8, 9, 10

ID / R^2	d_{cr} /h	w_{cr}	b_{cr} /h
ANN1	0.90253	0.057175	0.99214
ANN8, 9, 10	0.9561	0.05142	0.99967

Graphical comparisons between the actual and predicted values for ANNIIIi are shown in Figure 5-19. It is observed this ANN has the best accuracy when predicting the crack's location. Comparing these graphs with the ones obtained for ANNIi, it can be observed that the prediction accuracy has considerably improved, especially in predicting the crack's depth and location. It is also observed that ANNIIIi provides better accuracy in predicting when the beam is healthy. Also, the increase in prediction accuracy with the decrease in the number of requested outputs is very evident from the decrease in the bandwidth in Figure 5-19 through Figure 5-25.

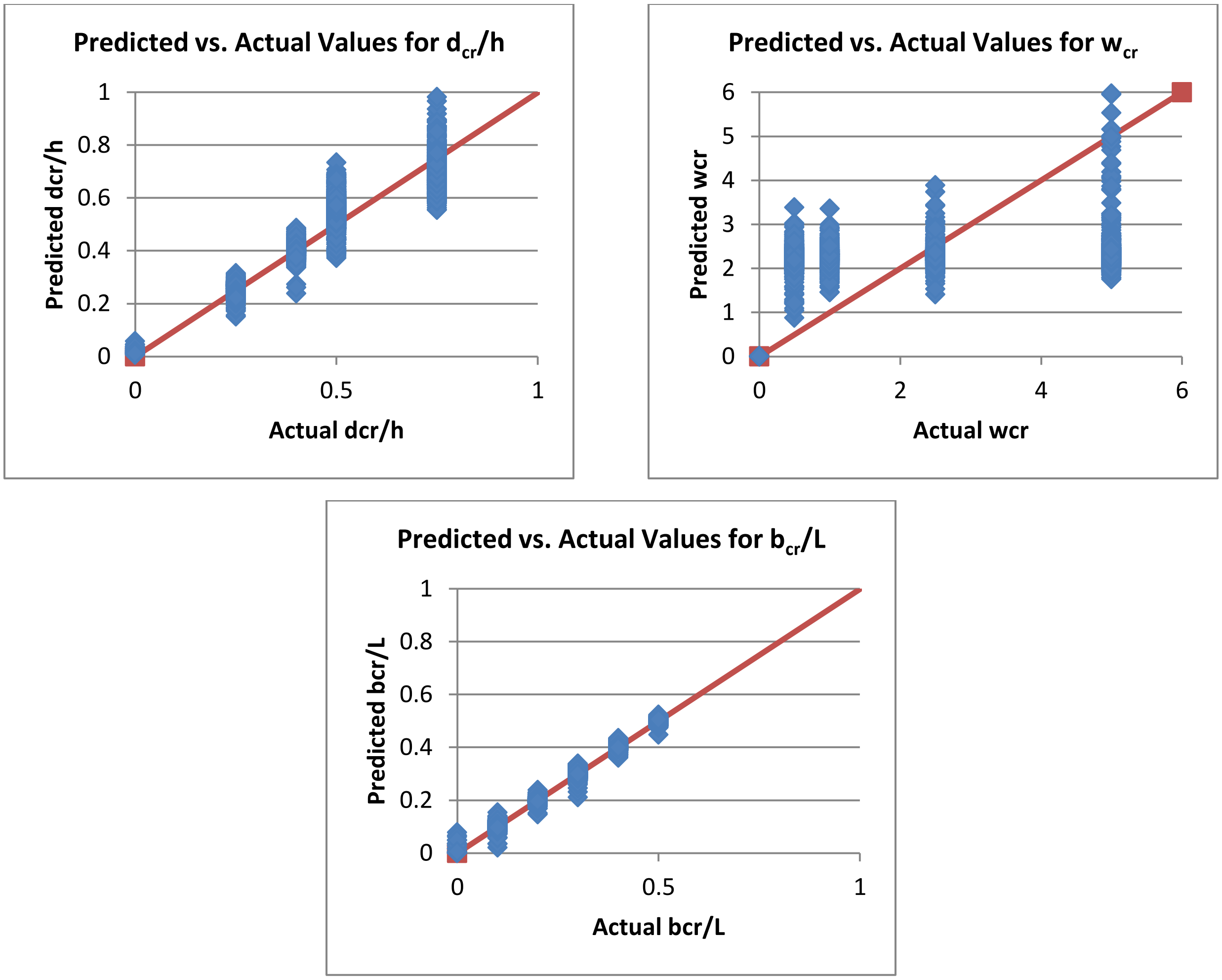


Figure 5-19 ANNIIIi-1 predicted vs. actual values for (a) d_{cr}/h (b) w_{cr} (c) b_{cr}/L

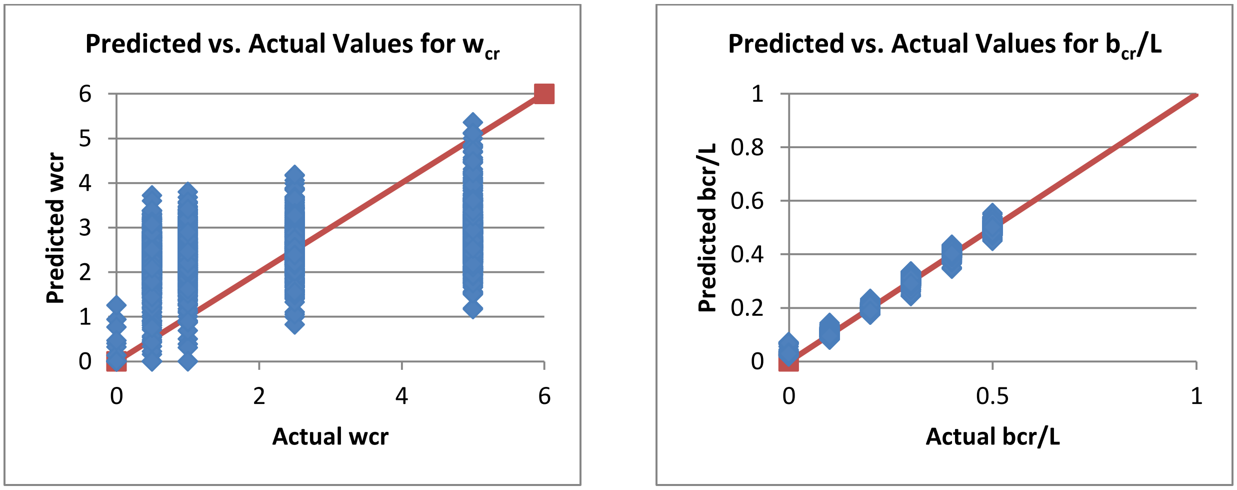


Figure 5-20 ANNIIIi-2 predicted vs. actual values for (a) w_{cr} (b) b_{cr}/L

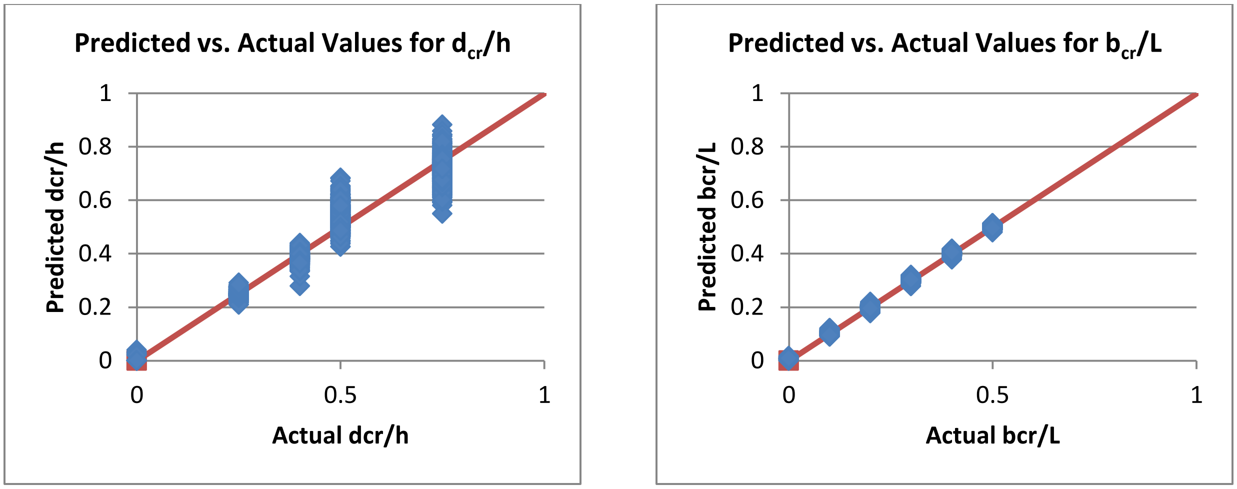


Figure 5-21 ANNIIIi-3 predicted vs. actual values for (a) d_{cr}/h (b) b_{cr}/L

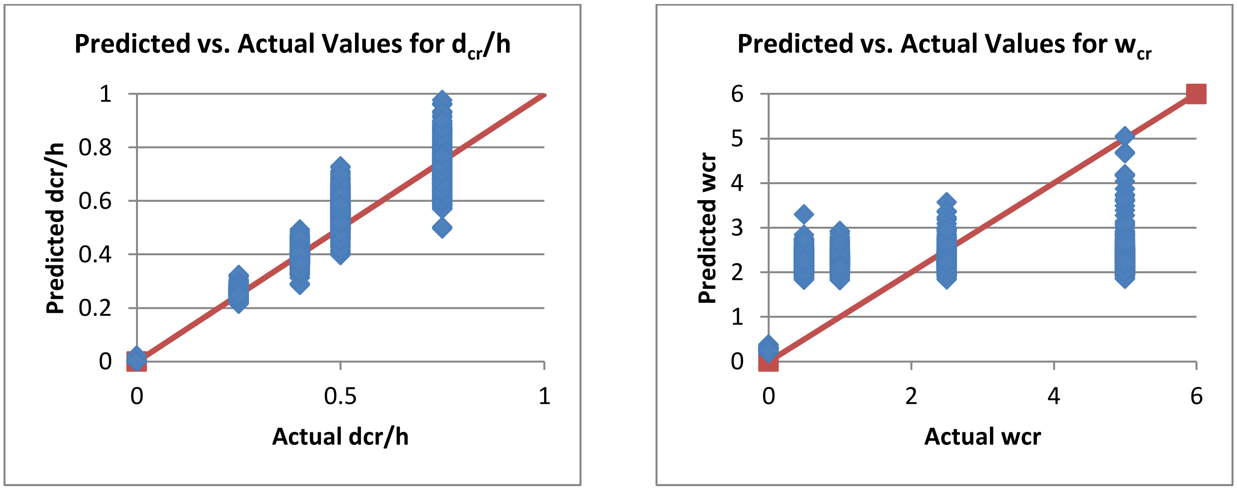
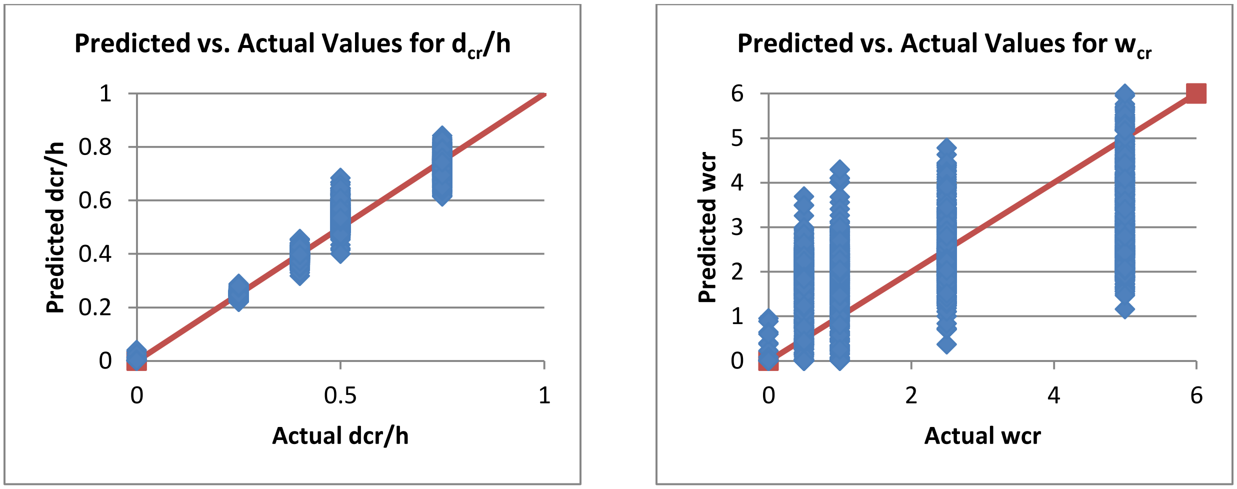


Figure 5-22 ANNIIIi-4 predicted vs. actual values for (a) d_{cr}/h (b) w_{cr}



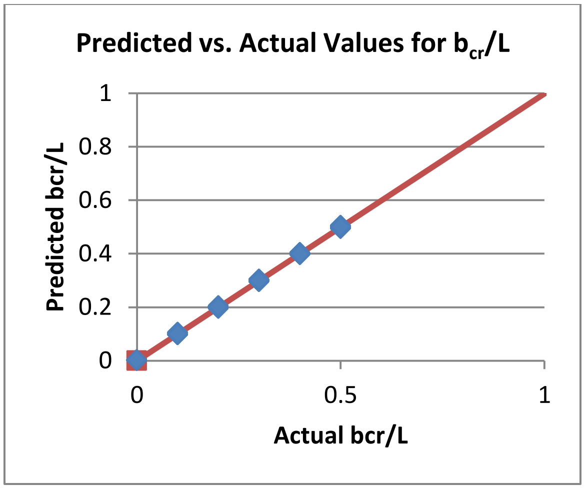
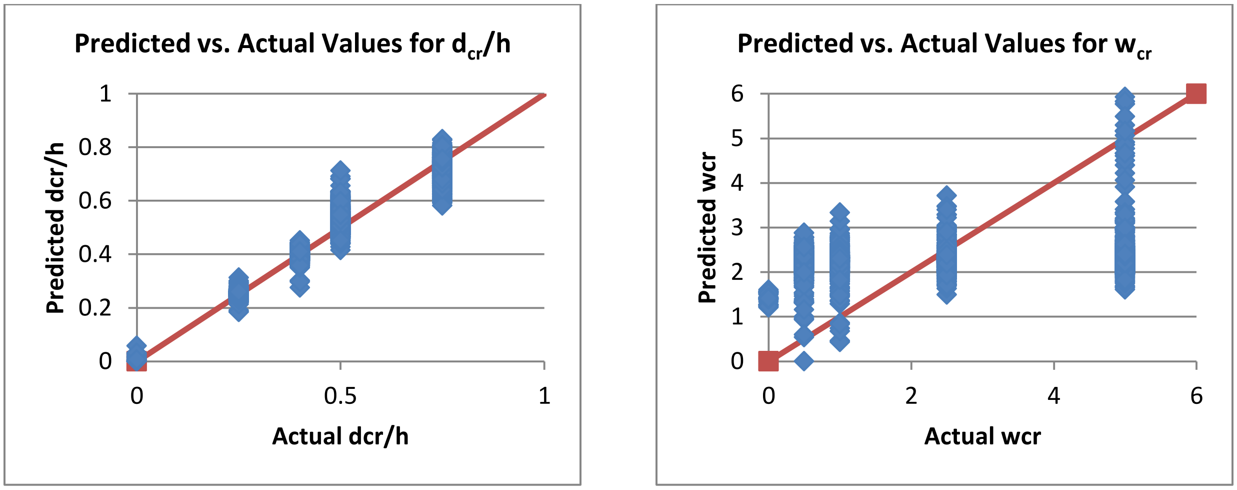


Figure 5-23 Predicted vs. actual values for (a) d_{cr}/h from ANNIIIi-5 (b) w_{cr} from ANNIIIi-6 (c) b_{cr}/L from ANNIIIi-7



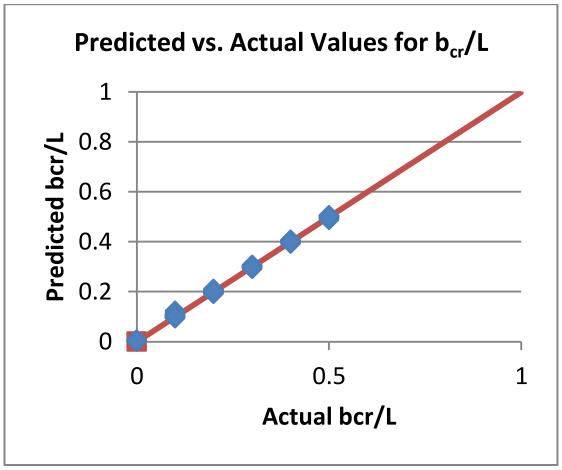


Figure 5-24 Predicted vs. actual values for (a) d_{cr}/h from ANNIIIi-8 (b) w_{cr} from ANNIIIi-9 (c) b_{cr}/L from ANNIIIi-10

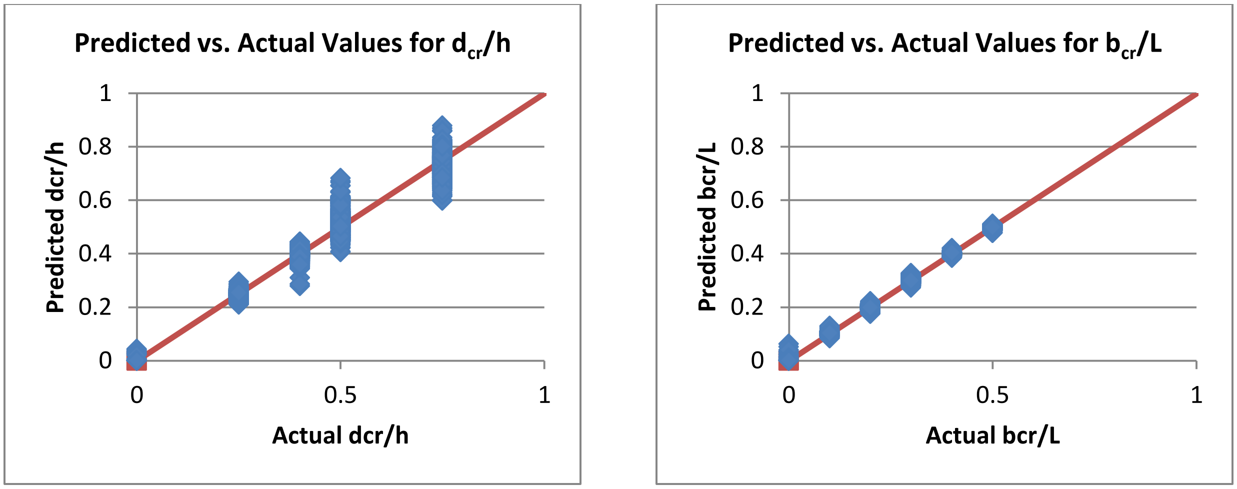


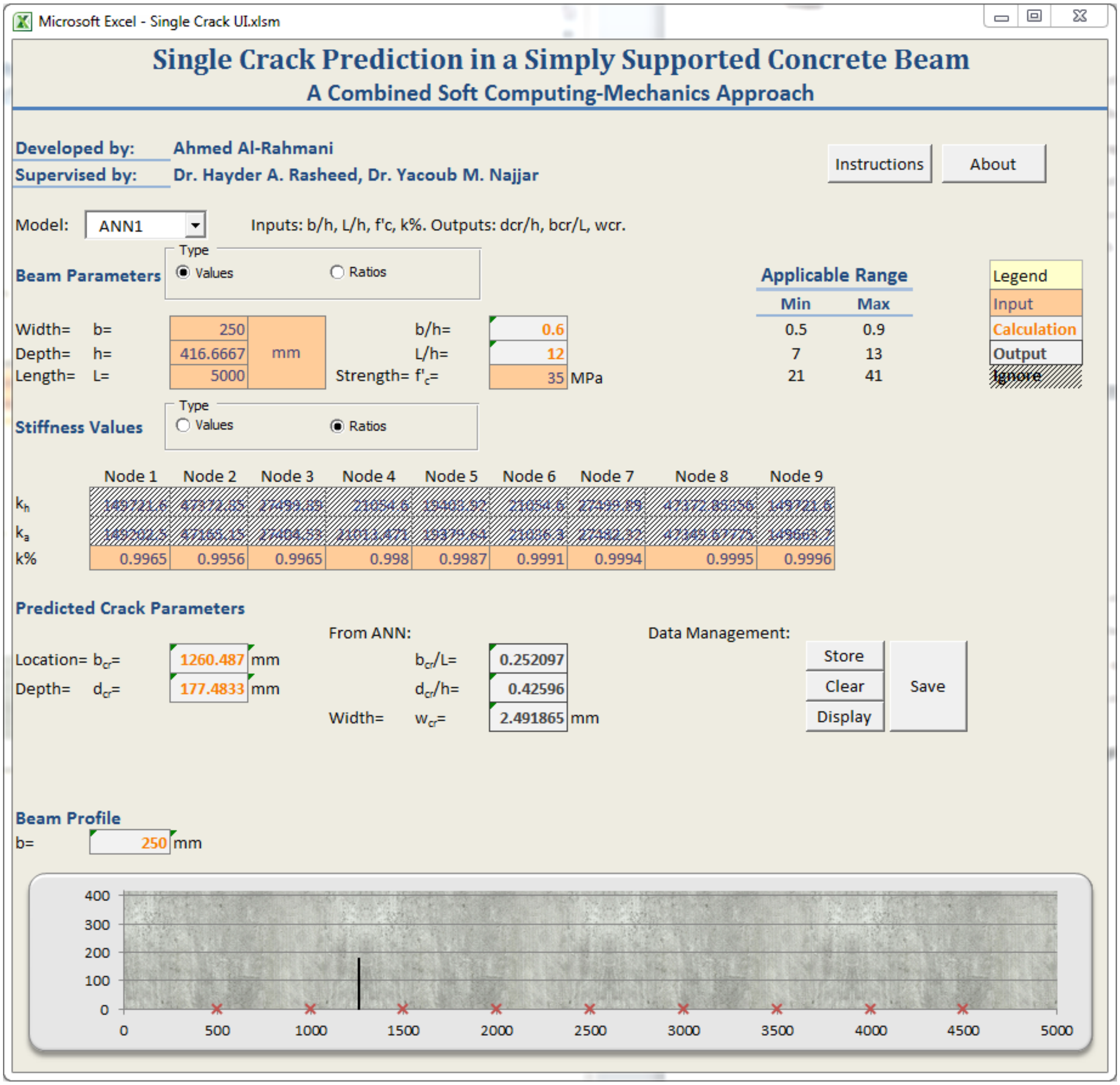
Figure 5-25 ANNIIIi-11 predicted vs. actual values for (a) d_{cr}/h (b) b_{cr}/L

Chapter 6 - ANN Utilization

Excel Interfaces

After completing training, testing, validation, and finally training on all datasets, the optimal ANN models were obtained. These ANN models consist of the nodes, their thresholds and the connection weights between them. To facilitate damage evaluation and detection using the developed ANN models, Excel interfaces have been created. These interfaces were created using Microsoft Excel 2010 and Visual Basic for Application (VBA) code was utilized for their backends.

The first Excel interface integrates phases I and III ANNs. The user can choose to use either ANNIi-1 model or ANNIi-8, 9, 10 models to predict a single crack in a simply supported beam. As previously explained, ANN1 predicts all output parameters in a single model, while ANN8-10 predict each output parameter within an independent ANN. Alternatively, the user can choose the more accurate ANNIII model developed based on plane stress elements. The models' descriptions are also provided within the interface for the user to review. Next, the user can choose to input the beam's parameters in absolute or normalized value formats. The inputs for the exact format are the compressive strength (f'_c), width (b), depth (h) and span length (L) of the beam, while the inputs for the normalized format are the width to depth ratio (b/h), span length to depth ratio (L/h) and the compressive strength (f'_c). Similarly, the user can also choose to input the stiffness values in either exact or normalized value formats. The inputs for the exact format are the stiffness values for the beam in question (kn_a) and the stiffness values for the same beam in its initial or healthy state (kn_h), while the inputs for the normalized format are the stiffness ratios (kn%) as defined earlier. Next, the interface immediately provides the ANN's predicted cracking parameters for these inputs in normalized and/or exact formats, depending on the format of the provided input beam's parameters. Also, the interface can determine which half of the span the crack is located in and informs the user if the stiffness values should be reversed. Additionally, the interface provides a graphical representation of the beam's profile and shows where the crack is located within the beam's span and how deep it is relative to the depth of the beam. The plot also represents the locations of the stiffness nodes with red 'x' marks. Figure 6-1 shows the interface developed for phases I and III.



Single Crack Prediction in a Simply Supported Concrete Beam

A Combined Soft Computing-Mechanics Approach

Developed by: Ahmed Al-Rahmani

Supervised by: Dr. Hayder A. Rasheed, Dr. Yacoub M. Najjar

Model: ANN1 Inputs: b/h, L/h, f'c, k%. Outputs: dcr/h, bcr/L, wcr.

Beam Parameters Type: ● Values ○ Ratios

Width= b= 250 mm
Depth= h= 416.6667 mm
Length= L= 5000 mm

b/h= 0.6
L/h= 12
Strength= f'_c= 35 MPa

Applicable Range

	Min	Max
b/h	0.5	0.9
L/h	7	13
f'_c	21	41

Legend
Input
Calculation
Output
Ignore

Stiffness Values Type: ○ Values ● Ratios

	Node 1	Node 2	Node 3	Node 4	Node 5	Node 6	Node 7	Node 8	Node 9
k_h	149721.6	47372.85	27499.89	21054.6	19403.92	21054.6	27499.89	47372.85356	149721.6
k_a	149202.5	47165.15	27404.53	21011.471	19379.64	21036.3	27482.32	47349.67775	149663.7
k%	0.9965	0.9956	0.9965	0.998	0.9987	0.9991	0.9994	0.9995	0.9996

Predicted Crack Parameters

Location= b_{cr}= 1260.487 mm
Depth= d_{cr}= 177.4833 mm

From ANN:
b_{cr}/L= 0.252097
d_{cr}/h= 0.42596
Width= w_{cr}= 2.491865 mm

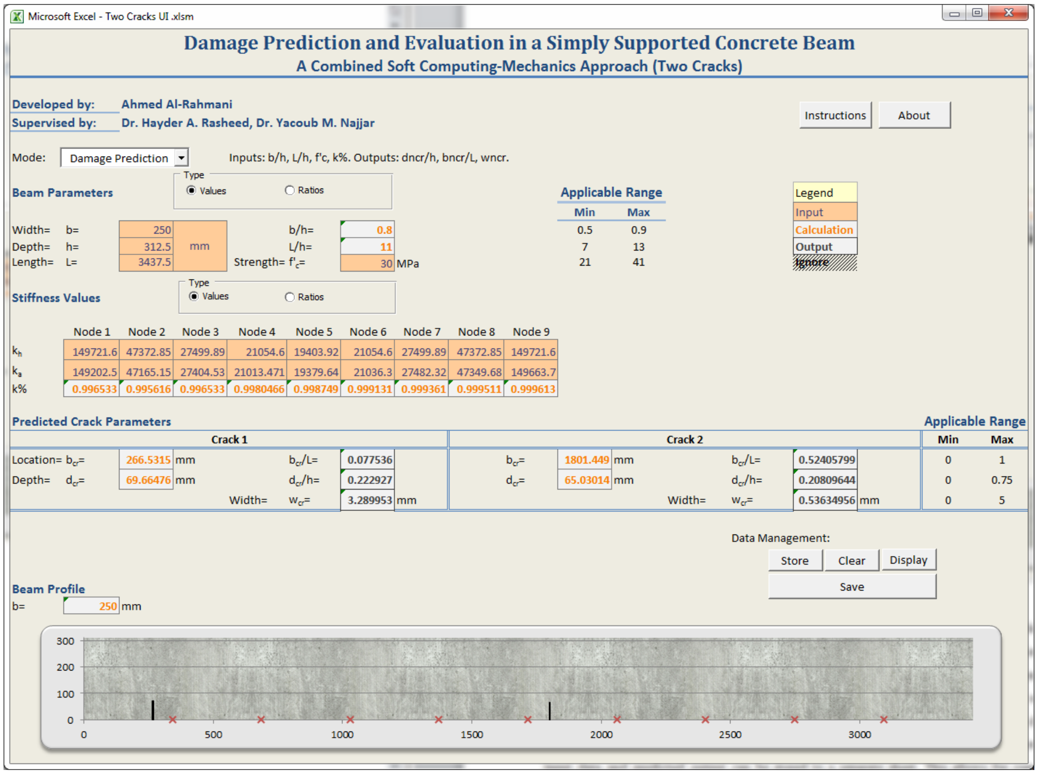
Data Management:

Beam Profile

b= 250 mm

Figure 6-1 Excel user interface for phases I and III operating with ANNIi-1 model

For phase II, the interface needed to be redesigned since two cracks could be predicted using the ANNs developed in this phase. First, the user has to choose desired operation mode. The user can choose either 'Damage Prediction' mode to predict cracks' depth, width and location by providing beam's parameters and stiffness values, or choose 'Damage Evaluation' mode to determine the health index by providing beam's and cracks' parameters. Next, the user can choose to input the beam parameters in absolute or normalized value formats. The inputs for the exact format are the compressive strength (f'_c), width (b), depth (h) and span length (L) of the beam, while the inputs for the normalized format are the width to depth ratio (b/h), span length to depth ratio (L/h) and the compressive strength (f'$_c$). The next step depends on the operation mode chosen by the user. If the interface is operating in 'Damage Prediction' mode, the user should then either choose to input the stiffness values in exact or normalized value format. The inputs for the exact format are the stiffness values for the beam in question (kn_a) and the stiffness values for the same beam in its initial or healthy state (kn_h), while the inputs for the normalized format are the stiffness ratios (kn%) as defined earlier. The interface then immediately provides the ANN's predicted cracking parameters for these inputs in normalized and/or exact formats, depending on the format of the provided input beam parameters. Additionally, the interface provides a graphical representation of the beam profile and shows where the crack is located within the beam's span and how deep it is relative to the depth of the beam. The plot also represents the locations of the stiffness nodes with red 'x' marks. If the interface is operating in 'Damage Evaluation' mode, the user should then choose to input the cracks' parameters in either exact or normalized value formats. The inputs for the exact format are the location (b_{cr}), depth (d_{cr}) and width (w_{cr}) of each crack, while the inputs for the normalized format are the location to span length ratio (b_{cr}/L), depth to section height ratio (d_{cr}/h) and width (w_{cr}) of each crack. The interface then immediately provides the health index (ki%) range from the previously developed ANN models. Figure 6-2 and Figure 6-3 show the interface developed for phase II in 'Damage Detection' and Damage Evaluation' modes, respectively.



Damage Prediction and Evaluation in a Simply Supported Concrete Beam
A Combined Soft Computing-Mechanics Approach (Two Cracks)

Developed by: Ahmed Al-Rahmani
Supervised by: Dr. Hayder A. Rasheed, Dr. Yacoub M. Najjar

Mode: Damage Prediction Inputs: b/h, L/h, f'c, k%. Outputs: dncr/h, bncr/L, wncr.

Beam Parameters Type ● Values ○ Ratios

Width=	b=	250	mm	b/h=	0.8	
Depth=	h=	312.5		L/h=	11	
Length=	L=	3437.5		Strength= f'c=	30	MPa

Applicable Range

Min	Max
0.5	0.9
7	13
21	41

Legend: Input, Calculation, Output, Ignore

Stiffness Values Type ● Values ○ Ratios

	Node 1	Node 2	Node 3	Node 4	Node 5	Node 6	Node 7	Node 8	Node 9
k_h	149721.6	47372.85	27499.89	21054.6	19403.92	21054.6	27499.89	47372.85	149721.6
k_a	149202.5	47165.15	27404.53	21013.471	19379.64	21036.3	27482.32	47349.68	149663.7
k%	0.996533	0.995616	0.996533	0.9980466	0.998749	0.999131	0.999361	0.999511	0.999613

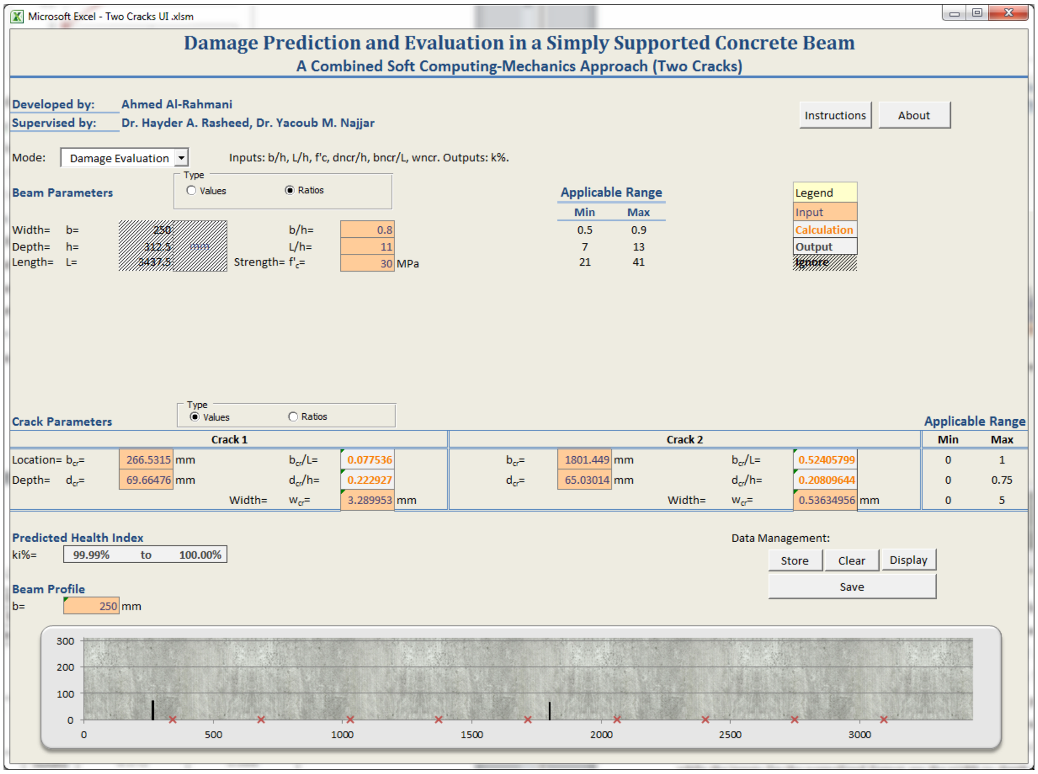
Predicted Crack Parameters

Crack 1				Crack 2				Applicable Range	
								Min	Max
Location= b_{cr}=	266.5315 mm	b_{cr}/L=	0.077536	b_{cr}=	1801.449 mm	b_{cr}/L=	0.52405799	0	1
Depth= d_{cr}=	69.66476 mm	d_{cr}/h=	0.222927	d_{cr}=	65.03014 mm	d_{cr}/h=	0.20809644	0	0.75
		Width= w_{cr}=	3.289953 mm			Width= w_{cr}=	0.53634956 mm	0	5

Data Management:

Beam Profile
b= 250 mm

Figure 6-2 Excel user interface developed for ANNIIi in 'Damage Prediction' mode



Damage Prediction and Evaluation in a Simply Supported Concrete Beam
A Combined Soft Computing-Mechanics Approach (Two Cracks)

Developed by: Ahmed Al-Rahmani
Supervised by: Dr. Hayder A. Rasheed, Dr. Yacoub M. Najjar

Mode: Damage Evaluation Inputs: b/h, L/h, f'c, dncr/h, bncr/L, wncr. Outputs: k%.

Beam Parameters Type ○ Values ● Ratios

Width=	b=	250	mm	b/h=	0.8	
Depth=	h=	312.5		L/h=	11	
Length=	L=	3437.5		Strength= f'c=	30	MPa

Applicable Range

Min	Max
0.5	0.9
7	13
21	41

Legend: Input, Calculation, Output, Ignore

Crack Parameters Type ● Values ○ Ratios

Crack 1				Crack 2				Applicable Range	
								Min	Max
Location= b_{cr}=	266.5315 mm	b_{cr}/L=	0.077536	b_{cr}=	1801.449 mm	b_{cr}/L=	0.52405799	0	1
Depth= d_{cr}=	69.66476 mm	d_{cr}/h=	0.222927	d_{cr}=	65.03014 mm	d_{cr}/h=	0.20809644	0	0.75
		Width= w_{cr}=	3.289953 mm			Width= w_{cr}=	0.53634956 mm	0	5

Predicted Health Index
ki%= 99.99% to 100.00%

Data Management:

Beam Profile
b= 250 mm

Figure 6-3 Excel user interface developed for ANNIIf-1, 2 in 'Damage Evaluation' mode

All designed interfaces display the applicable range for input parameters on which the ANN models were trained. As out of range input data could result in unreliable predictions, the user is warned when such data is inputted. The interfaces also include a color coded legend that indicates to the user whether cells contain inputs, calculations, or outputs. Full instructions are also provided within each interface and can be accessed by the user by clicking on the 'Instructions' button. Finally, the interfaces offer basic data management features. The input data and predicted outputs can be stored in a separate sheet. This allows for comparing different models or studying the effect of changing different parameters on the predictions by the users. These interfaces provide an easy and effortless way for users to utilize the ANNs for real world applications. As the developed interfaces are Excel based, they can be uploaded online and accessed directly from portable computers and smartphones. This allows the users to immediately utilize these interfaces in the field. The interfaces can also be extended in the future to allow the users to provide some crack parameters as inputs to improve the prediction accuracy, or utilize updated ANN models.

Examples

In this section, the functionality and accuracy of the developed interfaces and ANNs are demonstrated through solved examples. Two example beams for each phase are provided. For each phase, the first beam was included in the datasets with the damage database used to train the ANN; while the second beam was generated using Abaqus with the same methodology discussed previously and was not used in training the ANNs.

Phase I

Table 6-1 Input parameters for example beams for phase I

ID	b/h	L/h	f'_c (MPa)	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
B1	0.7	13	21	0.9609	0.9899	0.9955	0.9975	0.9984	0.9989	0.9992	0.9994	0.9995
B2	0.6	12	35	0.9965	0.9956	0.9965	0.9980	0.9987	0.9991	0.9994	0.9995	0.9996

Table 6-2 Example beams' obtained predictions for phase I

ID	Actual			Predicted with ANN1			Predicted with ANN8, 9, 10		
	d_{cr}/h	w_{cr} (mm)	b_{cr}/L	d_{cr}/h	w_{cr} (mm)	b_{cr}/L	d_{cr}/h	w_{cr} (mm)	b_{cr}/L
B1	0.75	1	0.1	0.714	1.239	0.108	0.701	0.860	0.099
B2	0.45	2	0.25	0.426	2.48	0.252	0.400	2.458	0.215

Phase II

Table 6-3 Geometric, material and cracking parameters for example beams for phase II

ID	b/h	L/h	f'_c (MPa)	d_{cr}/h^1	w_{cr} (mm)^1	b_{cr}/L^1	d_{cr}/h^2	w_{cr} (mm)^2	b_{cr}/L^2
B1	0.9	7	21	0.25	2.5	0.3333	0.75	5	0.6667
B2	0.7143	10	28	0.55	4	0.22	0.22	2	0.68

Table 6-4 Stiffness ratios for example beams for phase II

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
B1	0.9350	0.9191	0.8969	0.8668	0.8208	0.7468	0.6938	0.7472	0.7890
B2	0.9680	0.9599	0.9592	0.9519	0.9358	0.9056	0.8681	0.8958	0.9158

Table 6-5 Example beams' obtained predictions for the inverse problem for phase II

ID	Crack	Actual			Predicted		
		d_{cr}/h	w_{cr} (mm)	b_{cr}/L	d_{cr}/h	w_{cr} (mm)	b_{cr}/L
B1	1	0.25	2.5	0.3333	0.2317	2.3565	0.3277
	2	0.75	5	0.6667	0.6708	5.1601	0.6811
B2	1	0.55	4	0.22	0.2431	3.8694	0.1542
	2	0.22	2	0.68	0.7226	2.8349	0.6679

Phase III

Table 6-6 Input parameters for example beams for phase III

ID	b/h	L/h	f'_c (MPa)	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
B1	0.9	10	21	0.9456	0.9263	0.9607	0.9770	0.9854	0.9897	0.9926	0.9947	0.9973
B2	0.65	11	28	0.9699	0.9573	0.9428	0.9466	0.9651	0.9758	0.9822	0.9869	0.9910

Table 6-7 Example beams' obtained predictions for phase III

ID	Actual			Predicted		
	d_{cr}/h	w_{cr} (mm)	b_{cr}/L	d_{cr}/h	w_{cr} (mm)	b_{cr}/L
B1	0.5	2.5	0.2	0.4999	2.118	0.208
B2	0.75	3	0.35	0.684	2.162	0.340

Chapter 7 - Conclusions and Recommendations

Conclusions

In this research, damage databases for beams with different parameters were generated using finite element modeling software Abaqus. Each database was used to train two types of static Artificial Neural Networks (ANNs) with backpropagation learning algorithm. The forward problem ANN (ANNf), where the beam's geometric (b/h, L/h), material (f'_c) and cracking parameters (d_{cr}/h^n, $w_{cr}{}^n$ and b_{cr}/L^n) are inputs and the stiffness ratios (kn%) or the health index (ki%) are outputs, provided excellent results in all phases ($R^2 > 99\%$). The ANN provided better results in phase III ($R^2 = 99.8\%$, MARE = 0.068 for 5 stiffness nodes), when compared with phase I ($R^2 = 0.992$, MARE = 0.142 for 5 stiffness nodes), which implies that better quality datasets are obtained from modeling with plane stress elements. The obtained results for the forward problem from the three phases indicate that using ANNs is an excellent approach to damage evaluation.

The inverse problem's ANN (ANNi) had the beam's geometric and material parameters as well as the stiffness ratios as inputs and the cracking parameters as outputs. For phase I, it was observed that the accuracy of the ANN's predictions improved as the number of stiffness nodes increased ($R^2 = 49.9\%$ for 3 stiffness nodes, $R^2 = 67.8\%$ for 9 stiffness nodes). Also, decreasing the number of required outputs greatly improved the accuracy of the ANNs developed (from $R^2 = 67.8\%$ for 3 outputs, to $R^2 = 99\%$ for 1 output). The accuracy of the ANN dropped slightly when moving from phase I ($R^2 = 68\%$) to phase II ($R^2 = 65\%$) due to the increase in the number of required output parameters. Moving to phase III, the accuracy apparently did not change significantly ($R^2 = 65\%$); however, it was shown that the prediction quality has actually dramatically improved for the crack depth and location ($R^2 = 97\%$, 99%, respectively). The ANN also showed better accuracy in predicting when the beam is healthy. In general, even though the obtained errors in all phases were apparently high, the predictions of ANNi could still be considered reasonable for practical applications. This is due to the fact that the crack parameters are very small in magnitude, so even a large error value can only cause a variation of fractions of millimeters. As the provided examples showed, the results obtained from the ANNs were reasonable and showed good agreement with the actual values. This indicates that using ANNs is an excellent approach to damage evaluation, and a viable approach to obtain the, analytically unattainable, solution of the inverse damage detection problem.

Recommendations

The following points could be done to extend this research, address some of the issues encountered, and improve the quality of predictions provided by the ANN:

- Inclusion of steel reinforcement: Adding steel reinforcement to the beams in phase III contributed to the improvement in the quality of the datasets. Adding the steel ratio (ρ) as a variable can improve the ANNs and make them more applicable to realistic situations.
- Modeling using 2D or 3D elements: Using 2D plane stress elements improved the quality of the datasets in phase III. Using 2D plane stress elements for any further work involving 2 or more cracks is highly recommended. The applicability of 3D brick elements could also be explored.
- Addressing additional beam configurations: This research covered simply supported beams. The described methodology could be applied to other configurations such as continuous multi-span beams. Multiple ANNs can be created and used depending on the configuration being evaluated.
- Increasing the number of possible values for each parameter: Due to the constraints of time and computational power, a limited number of combinations was investigated. The ANN is capable of handling more combinations, which should make the predictions more realistic.
- Adding crack angle (Θ) parameter: This research covered beams with vertical flexural cracks. Adding different crack inclinations can help make the ANN more applicable to realistic situations.
- Expanding on the health index (ki%) parameter: The forward ANN showed excellent prediction accuracy. The promise this approach holds incites conducting more analyses on the health index parameter. A scale could be established to determine what health index values deem the beam to be structurally fit or otherwise, unsafe and requires immediate maintenance and retrofitting.

- Comparison with experimental data: Experimental measurements in the field could contain noise. The effect of the noise and other errors in measurement on the predictions of the ANN and how to correct for them could be further investigated.

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> “Stay hungry. Stay foolish.”
>
> Steve Jobs (1955-2011)

Quote from the 1974 edition of “The Whole Earth Catalog”

Appendix A - Sample ABAQUS FEA Input Files

Phase I

Sample Healthy Beam Input File

```
*HEADING
H10-L1
N-mm
*NODE
1, 0, 0, 0
2, 250, 0, 0
3, 2500, 0, 0
*ELEMENT, TYPE=B23, ELSET=HEALTHY
1, 1, 2
2, 2, 3
*Beam Section, elset=HEALTHY, material=C21MPa, section=RECT
250, 357.142857142857
*Material, name=C21MPa
*Elastic
21643.5, 0.2
*Material, name=C31MPa
*Elastic
26296.6, 0.2
*Material, name=C41MPa
*Elastic
30242., 0.2
*NSET, NSET=LOAD
2
*STEP
1kN Load
*STATIC
```

```
1., 1., 1e-05, 1.
*BOUNDARY
1, 1, 2
3, 2
*CLOAD
2, 2, -1000
*Output, field
*Node Output
U,
*NODE PRINT, NSET=LOAD
U2,
*END STEP
```

Sample Cracked Beam Input File

```
*HEADING
C10-L3
N-mm
*NODE
1, 0, 0, 0
2, 349.5, 0, 0
3, 350.5, 0, 0
4, 1050, 0, 0
5, 3500, 0, 0
*ELEMENT, TYPE=B23, ELSET=HEALTHY
1, 1, 2
2, 3, 4
3, 4, 5
*ELEMENT, TYPE=B23, ELSET=CRACKED
5, 2, 3
**
*Beam Section, elset=HEALTHY, material=C21MPa, section=RECT
```

```
250, 500
*Beam Section, elset=CRACKED, material=C21MPa, section=RECT
250, 375
*Material, name=C21MPa
*Elastic
21643.5, 0.2
*Material, name=C31MPa
*Elastic
26296.6, 0.2
*Material, name=C41MPa
*Elastic
30242., 0.2
*NSET, NSET=LOAD
4
*STEP
1kN Load
*STATIC
1., 1., 1e-05, 1.
*BOUNDARY
1, 1, 2
5, 2
*CLOAD
4, 2, -1000
*Output, field
*Node Output
U,
*NODE PRINT, NSET=LOAD
U2,
*END STEP
```

Phase II

Sample Cracked Beam Input File

```
*HEADING
C11000-L2
N-mm
*NODE
1, 0, 0, 0
2, 1386.38888888889, 0, 0
3, 1391.38888888889, 0, 0
4, 2314.56481481481, 0, 0
5, 2315.06481481481, 0, 0
6, 555.555555555556, 0, 0
7, 2777.77777777778, 0, 0
*ELEMENT, TYPE=B23, ELSET=HEALTHY
1, 1, 6
2, 6, 2
3, 3, 4
4, 5, 7
*ELEMENT, TYPE=B23, ELSET=CRACK1
5, 2, 3
**
*ELEMENT, TYPE=B23, ELSET=CRACK2
7, 4, 5
**
*Beam Section, elset=HEALTHY, material=C31MPa, section=RECT
250, 277.777777777778
*Beam Section, elset=CRACK1, material=C31MPa, section=RECT
250, 138.888888888889
*Beam Section, elset=CRACK2, material=C31MPa, section=RECT
250, 208.333333333333
```

```
*Material, name=C31Mpa
*Elastic
26296.5510856462, 0.2
*NSET, NSET=LOAD
6
*STEP
1kN Load@6
*STATIC
1., 1., 1e-05, 1.
*BOUNDARY
1, 1, 2
7, 2
*CLOAD
6, 2, -1000
*Output, field
*Node Output
U,
*END STEP
```

Phase III

Sample Healthy Beam Input File

```
*Heading
** Job name: H1-L1 Model name: Model-1
** Generated by: Abaqus/CAE 6.10-1
*Preprint, echo=NO, model=NO, history=NO, contact=NO
**
** PARTS
**
*Part, name=Part-1
*Node
      1,           0.,           0.
      2,   49.7737541,           0.
      3,   99.5475082,           0.
      4,   149.321274,           0.
      5,   199.095016,           0.
```

(Lines omitted to reduce length).....

```
   2223,   4107.14258,   384.615387
   2224,   4181.29883,   360.576904
   2225,   4156.59375,   384.615387
   2226,   4230.76904,   360.576904
   2227,   4206.04395,   384.615387
*Element, type=CPS8
  1,   1,   2,  88,  87, 775, 776, 777, 778
  2,   2,   3,  89,  88, 779, 780, 781, 776
  3,   3,   4,  90,  89, 782, 783, 784, 780
  4,   4,   5,  91,  90, 785, 786, 787, 783
  5,   5,   6,  92,  91, 788, 789, 790, 786
```

(Lines omitted to reduce length).....

```
676, 683, 684, 770, 769, 2048, 2218, 2219, 2216
```

```
677,  684,  685,  771,  770, 2050, 2220, 2221, 2218
678,  685,  686,  772,  771, 2052, 2222, 2223, 2220
679,  686,  687,  773,  772, 2054, 2224, 2225, 2222
680,  687,  688,  774,  773, 2056, 2226, 2227, 2224
*Nset, nset=_PickedSet2, internal, generate
    1,  2227,     1
*Elset, elset=_PickedSet2, internal, generate
   1,  680,    1
** Section: Section-1
*Solid Section, elset=_PickedSet2, material=Material-1
250.,
*End Part
**
*Part, name=Part-2
*Node
      1,           0.,           0.
      2,   98.9230804,           0.
      3,   197.846161,           0.
      4,   296.769226,           0.
      5,   395.692322,           0.
```

(Lines omitted to reduce length).....

```
    209,   4055.84619,   1.72445464
    210,   4006.38477,   3.44890928
    211,   4105.30762,           0.
    212,   4154.76904,   1.72445464
    213,   4105.30762,   3.44890928
*Element, type=CPS8
 1,   1,   2,  45,  44,  87,  88,  89,  90
 2,   2,   3,  46,  45,  91,  92,  93,  88
 3,   3,   4,  47,  46,  94,  95,  96,  92
 4,   4,   5,  48,  47,  97,  98,  99,  95
```

```
 5,  5,  6, 49, 48, 100, 101, 102, 98
```

(Lines omitted to reduce length).....

```
38, 38, 39, 82, 81, 199, 200, 201, 197
39, 39, 40, 83, 82, 202, 203, 204, 200
40, 40, 41, 84, 83, 205, 206, 207, 203
41, 41, 42, 85, 84, 208, 209, 210, 206
42, 42, 43, 86, 85, 211, 212, 213, 209
*Nset, nset=_PickedSet2, internal, generate
   1, 213,   1
*Elset, elset=_PickedSet2, internal, generate
  1, 42,   1
** Section: Section-2
*Solid Section, elset=_PickedSet2, material=Material-2
250.,
*End Part
**
**
** ASSEMBLY
**
*Assembly, name=Assembly
**
*Instance, name=Part-1-1, part=Part-1
*End Instance
**
*Instance, name=Part-2-1, part=Part-2
         38.,          38.,           0.
*End Instance
**
*Nset, nset=_PickedSet6, internal, instance=Part-2-1, generate
   1, 213,   1
*Elset, elset=_PickedSet6, internal, instance=Part-2-1, generate
```

```
  1,  42,   1
*Nset, nset=_PickedSet7, internal, instance=Part-1-1
 697,
*Nset, nset=myEdge, instance=Part-1-1
 697,
*Nset, nset=_PickedSet10, internal, instance=Part-1-1
 1,
*Nset, nset=_PickedSet11, internal, instance=Part-1-1
 86,
*Nset, nset=LOAD, instance=Part-1-1
 697,
** Constraint: Constraint-1
*Embedded Element, exterior tolerance=0.15
_PickedSet6
*End Assembly
**
** MATERIALS
**
*Material, name=Material-1
*Elastic
 24991.8, 0.2
*Material, name=Material-2
*Elastic
200000., 0.3
** ----------------------------------------------------------------
**
** STEP: Step-1
**
*Step, name=Step-1
*Static
1., 1., 1e-05, 1.
```

```
**
** BOUNDARY CONDITIONS
**
** Name: BC-1 Type: Displacement/Rotation
*Boundary
_PickedSet10, 1, 1
_PickedSet10, 2, 2
** Name: BC-2 Type: Displacement/Rotation
*Boundary
_PickedSet11, 2, 2
**
** LOADS
**
** Name: Load-1   Type: Concentrated force
*Cload
_PickedSet7, 2, -1000.
**
** OUTPUT REQUESTS
**
*Restart, write, frequency=0
**
** FIELD OUTPUT: F-Output-1
**
*Output, field
*Node Output
U,
*Output, history, frequency=0
*End Step
```

Sample Cracked Beam Input File

```
*Heading
```

```
** Job name: C111-L7 Model name: Model-1
** Generated by: Abaqus/CAE 6.10-1
*Preprint, echo=NO, model=NO, history=NO, contact=NO
**
** PARTS
**
*Part, name=Part-1
*Node
      1,   1331.34229,           0.
      2,   1183.41541,           0.
      3,    1035.4884,           0.
      4,   887.561523,           0.
      5,   739.634644,           0.
```

(Lines omitted to reduce length).....

```
   2296,   2356.37891,   184.279236
   2297,   1939.96826,   173.600296
   2298,   1068.53735,    133.97377
   2299,   2580.72241,   212.582047
   2300,    1386.8208,   289.724701
*Element, type=CPS6
 1, 759, 714, 154, 799, 800, 801
 2, 663, 576,  94, 802, 803, 804
 3, 751,  92, 614, 805, 806, 807
 4, 147, 634, 717, 808, 809, 810
 5, 644, 736, 743, 811, 812, 813
 6, 678, 153, 598, 814, 815, 816
 7, 733, 726, 138, 817, 818, 819
 8, 700, 144, 606, 820, 821, 822
 9, 737,  84, 617, 823, 824, 825
10,  91, 796, 745, 826, 827, 828
11, 797, 692, 632, 829, 830, 831
```

```
12, 752, 136, 710, 832, 833, 834
13, 793,  93, 761, 835, 836, 837
14, 795, 650, 596, 838, 839, 840
*Element, type=CPS8
16,  575,  559,   82,  533,  845,  846,  847,  848
 17,   81,  540,  576,  663,  849,  850,  802,  851
 18,  645,  761,  764,  501,  852,  853,  854,  855
 19,  675,  577,   79,  561,  856,  857,  858,  859
 20,  578,   78,  497,  708,  860,  861,  862,  863
```

(Lines omitted to reduce length).....

```
701,  485,  378,  780,  786, 1967, 2068, 2126, 1971
702,  108,  785,  784,  775, 2272, 2300, 1452, 1934
703,  494,  776,  784,  785,  901, 1453, 2300, 2088
704,  794,  142,  798,  666, 2169, 2167, 2296, 2278
705,  691,  726,  733,  792, 2156,  817, 2214, 2297
*Nset, nset=_PickedSet3, internal, generate
    1,  2300,     1
*Elset, elset=_PickedSet3, internal, generate
   1,  705,    1
** Section: Section-1
*Solid Section, elset=_PickedSet3, material=Material-1
250.,
*End Part
**
*Part, name=Part-2
*Node
      1,           0.,           0.
      2,   98.9230804,           0.
      3,   197.846161,           0.
      4,   296.769226,           0.
      5,   395.692322,           0.
```

(Lines omitted to reduce length).....

```
   210,   4006.38477,   3.44890928
   211,   4105.30762,           0.
   212,   4154.76904,   1.72445464
   213,   4105.30762,   3.44890928
*Element, type=CPS8
 1,   1,   2,  45,  44,  87,  88,  89,  90
 2,   2,   3,  46,  45,  91,  92,  93,  88
 3,   3,   4,  47,  46,  94,  95,  96,  92
 4,   4,   5,  48,  47,  97,  98,  99,  95
 5,   5,   6,  49,  48, 100, 101, 102,  98
```

(Lines omitted to reduce length).....

```
38,  38,  39,  82,  81, 199, 200, 201, 197
39,  39,  40,  83,  82, 202, 203, 204, 200
40,  40,  41,  84,  83, 205, 206, 207, 203
41,  41,  42,  85,  84, 208, 209, 210, 206
42,  42,  43,  86,  85, 211, 212, 213, 209
*Nset, nset=_PickedSet2, internal, generate
   1,  213,    1
*Elset, elset=_PickedSet2, internal, generate
  1,  42,   1
** Section: Section-2
*Solid Section, elset=_PickedSet2, material=Material-2
250.,
*End Part
**
**
** ASSEMBLY
**
*Assembly, name=Assembly
**
```

```
*Instance, name=Part-1-1, part=Part-1
*End Instance
**
*Instance, name=Part-2-1, part=Part-2
        38.,         38.,          0.
*End Instance
**
*Nset, nset=_PickedSet6, internal, instance=Part-2-1, generate
   1,  213,    1
*Elset, elset=_PickedSet6, internal, instance=Part-2-1, generate
  1,  42,   1
*Nset, nset=_PickedSet7, internal, instance=Part-1-1
 47,
*Nset, nset=myEdge, instance=Part-1-1
 47,
*Nset, nset=_PickedSet10, internal, instance=Part-1-1
 11,
*Nset, nset=_PickedSet11, internal, instance=Part-1-1
 35,
*Nset, nset=LOAD, instance=Part-1-1
 47,
** Constraint: Constraint-1
*Embedded Element, exterior tolerance=0.15
_PickedSet6
*End Assembly
**
** MATERIALS
**
*Material, name=Material-1
*Elastic
 24991.8, 0.2
```

```
*Material, name=Material-2
*Elastic
200000., 0.3
** ----------------------------------------------------------------
**
** STEP: Step-1
**
*Step, name=Step-1
*Static
1., 1., 1e-05, 1.
**
** BOUNDARY CONDITIONS
**
** Name: BC-1 Type: Displacement/Rotation
*Boundary
_PickedSet10, 1, 1
_PickedSet10, 2, 2
** Name: BC-2 Type: Displacement/Rotation
*Boundary
_PickedSet11, 2, 2
**
** LOADS
**
** Name: Load-1   Type: Concentrated force
*Cload
_PickedSet7, 2, -1000.
**
** OUTPUT REQUESTS
**
*Restart, write, frequency=0
**
```

```
** FIELD OUTPUT: F-Output-1
**
*Output, field
*Node Output
U,
*Output, history, frequency=0
*End Step
```

Appendix B - Inverse Problem’s ANNs’ Final Structure Details

ANNIi

Table B-1 Connection weights between input nodes and hidden nodes, threshold values for hidden nodes for ANNIi

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11
Thresholds	-5.72E+01	17.034	56.424	27.147	7.02E+01	9.80E+01	-30.271	12.867	-1.2045	-2.82E+00	-1.07E+00
I1 (b/h)	2.21E-01	-2.84E+00	-4.07E-01	-1.53E-01	1.36E-01	-5.24E+00	5.35E-01	-2.35E+00	2.30E+00	6.39E-01	-2.63E+00
I2 (L/h)	9.81E-02	3.00E+00	2.41E-01	1.77E-01	1.76E-02	5.70E+00	-7.80E-01	2.44E+00	-4.96E+00	-2.02E+00	-3.08E+00
I3 (f'_c)	3.70E-02	-5.44E-02	-3.08E-02	1.71E-02	4.60E-03	6.52E-02	-4.12E-02	9.28E-03	-4.92E-01	-2.60E-01	7.17E-01
I4 (k1%)	-2.59E+02	-1.59E+01	-1.96E+02	6.42E+01	2.48E+01	-5.74E+01	2.39E+01	-1.25E+01	9.13E-01	4.96E-01	-1.31E+00
I5 (k2%)	-3.62E+01	1.16E-01	-7.40E+01	-4.45E+01	7.76E+01	-1.54E+00	5.09E+00	-4.48E+00	-1.65E+00	-5.58E-01	-8.33E-01
I6 (k3%)	3.20E+01	-2.86E+00	-3.06E+01	-2.07E+01	4.45E+01	-2.16E+01	-3.13E+00	5.10E+00	-1.95E+00	-1.01E+00	-2.95E-01
I7 (k4%)	4.48E+01	-3.48E-01	5.83E+01	5.66E+01	-1.16E+02	-1.34E+01	-3.54E+00	1.03E+01	4.38E+00	2.48E+00	-5.32E-02
I8 (k5%)	8.91E+01	-1.76E+01	2.18E+01	-3.81E+01	-4.29E+01	-2.75E+01	7.38E+00	-1.00E+01	-8.38E-01	5.03E-01	-6.20E-01
I9 (k6%)	5.96E+01	-4.96E+00	3.24E+01	-2.16E+01	-2.64E+01	-7.61E+00	2.99E+00	-4.69E+00	-4.37E-01	2.64E-01	-6.52E-01
I10 (k7%)	5.01E+01	2.26E+00	3.87E+01	-1.29E+01	-1.79E+01	-2.86E-01	1.56E+00	-2.24E+00	-2.45E-01	1.55E-01	-6.66E-01
I11 (k8%)	4.29E+01	5.36E+00	4.09E+01	-9.32E+00	-1.42E+01	4.51E+00	6.29E-01	-6.08E-01	-1.14E-01	7.78E-02	-6.77E-01
I12 (k9%)	3.99E+01	9.22E+00	4.43E+01	-5.11E+00	-9.24E+00	7.78E+00	6.49E-03	5.03E-01	-2.45E-02	1.83E-02	-6.85E-01

Table B-2 Connection weights between hidden nodes and output nodes, threshold values for output nodes for ANNIi

	O1 (d_{cr}/h)	O2 (w_{cr})	O3 (b_{cr}/L)
Thresholds	0.56187	-0.70683	3.2434
H1	-4.84E-01	-1.90E+00	-5.56E+00
H2	-5.24E-01	1.86E+00	-1.21E+00
H3	8.69E-01	2.90E+00	1.35E+00
H4	1.94E-01	3.94E-01	1.72E+00
H5	3.86E-01	7.66E-01	-3.81E+00
H6	4.86E-01	-1.62E+00	2.77E-02
H7	-1.44E+00	-1.44E-01	6.63E-01
H8	2.96E-01	9.37E-01	1.38E+00
H9	-5.49E-01	-2.51E-01	-2.35E-01
H10	1.20E+00	-5.89E-02	5.69E-01
H11	9.31E-01	-1.50E-01	-2.54E-01

ANNIIi

Table B-3 Connection weights between input nodes and hidden nodes, threshold values for hidden nodes for ANNIIi

	H1	H2	H3	H4	H5	H6	H7	H8	H9
Thresholds	-76.463	362.97	-202.01	28.881	253.13	168.51	443.02	10.086	79.093
I1 (b/h)	0.09894	-2.7317	-0.00662	-10.348	-5.7854	-5.6945	-4.2872	-1.2294	-3.6302
I2 (L/h)	-0.09804	0.089728	-0.09738	6.9014	6.5893	6.5233	4.1479	-1.0755	3.801
I3 (f'_c)	0.005751	0.12082	-0.05948	-0.36557	-0.01263	-0.10622	-0.0389	-0.35116	-0.07152
I4 (k1%)	-10.47	31.644	580.76	6.6765	-144.01	-95.594	63.765	73.607	11.965
I5 (k2%)	4.5686	-34.342	354.21	-5.2461	-94.156	-57.956	-59.724	-10.118	-11.397
I6 (k3%)	59.541	-70.005	-127.93	-14.351	44.963	27.821	-177.88	-189.52	-28.422
I7 (k4%)	-87.649	127.53	-361.01	12.19	-71.504	-50.464	288.32	-38.708	46.12
I8 (k5%)	-32.756	270.96	-502.23	52.507	-265.02	-133.65	273.55	140.68	51.647
I9 (k6%)	-26.11	49.482	174.47	-4.0223	132.91	18.103	58.592	86.157	26.444
I10 (k7%)	171.72	-327.45	119.01	-40.842	126.57	104.8	-378.63	-76.291	-83.916
I11 (k8%)	7.1737	-302.12	5.2099	-37.783	-17.043	10.055	-361.31	-29.849	-69.953
I12 (k9%)	-4.1391	-157.12	-18.629	-19.753	-4.1253	-19.807	-205.47	33.163	-36.999
	H10	H11	H12	H13	H14	H15	H16	H17	H18
Thresholds	-274.77	-88.776	-188.96	-52.464	-29.563	31.753	-9.4526	-76.716	37.29
I1 (b/h)	1.3434	-0.08148	8.3131	0.15384	-0.12815	-5.9112	0.3411	6.9804	6.1377
I2 (L/h)	-1.1713	-0.05429	-9.4773	-0.05089	-0.01509	5.6902	-0.15933	-7.9033	-13.693
I3 (f'_c)	0.079338	0.007678	0.1417	0.074319	-0.02835	-0.33036	0.013765	0.54716	-2.3926
I4 (k1%)	146.59	-15.808	-20.783	28.693	-1.8456	-24.675	-2.0862	38.81	-2.41
I5 (k2%)	109.51	15.456	18.604	22.129	8.2376	-15.195	1.6261	29.122	-0.23357
I6 (k3%)	-10.608	35.137	58.631	-1.9425	14.545	7.9679	4.8711	-4.4149	10.967
I7 (k4%)	71.113	-58.672	-91.895	22.272	-26.089	-11.262	-6.7402	24.11	0.44466
I8 (k5%)	217.94	42.9	-151.85	40.4	-27.985	-36.89	9.6949	45.937	-3.4388
I9 (k6%)	-162.38	-126.37	-23.229	-37.47	-18.323	6.2796	-15.914	-11.823	-5.1917
I10 (k7%)	-75.251	-63.489	179.84	-34.909	16.24	26.67	-19.915	-29.421	-7.8613
I11 (k8%)	10.795	99.755	165.72	4.5792	31.628	3.1801	10.288	0.23508	-20.359
I12 (k9%)	-0.55136	167.31	91.227	8.037	28.462	-4.9917	24.746	1.755	-16.358

Table B-4 Connection weights between hidden nodes and output nodes, threshold values for output nodes for ANNIIi

	O1 (d_{cr}/h^1)	O2 (w_{cr}^1)	O3 (b_{cr}/L^1)	O1 (d_{cr}/h^2)	O2 (w_{cr}^2)	O3 (b_{cr}/L^2)
Thresholds	1.1574	-1.3994	-0.71548	-3.1646	11.356	1.714
H1	-0.37131	-2.9605	-0.53284	-12.953	-11.427	7.4996
H2	0.000392	0.043057	-0.07695	1.0307	-3.584	-0.09897
H3	-0.06201	0.16751	1.9612	0.016228	0.14438	0.009131
H4	-0.14365	0.16993	-0.05032	0.049618	1.415	-0.05439
H5	2.5975	-7.1691	-0.2628	0.037002	0.003782	-0.05641
H6	-2.5458	8.7716	0.23184	-0.02495	0.060526	0.057037
H7	-0.16536	-0.16564	-0.1911	-1.4471	4.1066	-0.16778
H8	-0.01996	-0.00592	0.93944	-0.05892	0.013509	-0.05618
H9	-0.10077	-0.17929	0.006323	5.0451	-11.817	-0.08207
H10	-0.44568	-3.1686	-0.59341	0.04254	-0.13358	0.098469
H11	-0.58793	-0.08979	-1.0147	-8.2086	-4.5395	-14.591
H12	-0.04487	-0.10117	-0.02407	4.0913	-11.206	-0.00028
H13	-3.0026	-16.792	-10.345	1.3089	0.30784	1.4516
H14	-0.32505	0.18418	-0.25401	-2.9355	-0.72105	0.2487
H15	0.088542	1.6064	0.019648	0.065463	-0.16808	0.027978
H16	-0.44014	-2.7402	-0.80823	-0.98192	-1.5844	-15.47
H17	-1.3875	3.0618	-0.13915	-0.03209	-0.06489	-0.04863
H19	0.11473	-0.23734	-0.07077	-0.1184	-0.08535	0.066033

ANNIIIi

Table B-5 Connection weights between input nodes and hidden nodes, threshold values for hidden nodes for ANNIIIi

	H1	H2	H3	H4	H5	H6	H7	H8	H9
Thresholds	32.109	8.8402	13.586	-0.40405	1.242	37.081	6.8263	14.751	8.3648
I1 (b/h)	-11.666	0.021145	-6.7128	0.17962	-6.9343	-4.7455	-2.0971	-7.1134	-1.7522
I2 (L/h)	7.5927	0.66796	5.1103	-0.12465	4.65	1.7751	3.131	0.45437	0.22365
I3 (f'_c)	-11.524	0.064407	-5.4059	0.029898	-2.1862	-1.9833	-6.3926	-2.527	-0.38047
I4 (k1%)	-34.997	17.644	8.2389	0.81383	-21.784	-31.544	-14.784	-10.858	-10.101
I5 (k2%)	-14.987	-4.0591	-28.467	0.31687	0.36375	1.4036	-3.1701	-7.0322	0.65299
I6 (k3%)	-7.2976	8.7569	-6.0127	5.24	-4.2569	-1.7436	-0.84692	-2.803	3.8859
I7 (k4%)	-11.762	-2.838	-3.6805	-5.7455	-6.3355	-8.7856	-6.3763	-1.1969	-5.4266
I8 (k5%)	43.104	-3.2178	10.906	-9.1733	38.788	26.307	25.467	11.8	4.5855
I9 (k6%)	16.994	-6.7411	8.2479	2.4154	12.874	-5.2747	0.85296	0.70144	-0.54751
I10 (k7%)	19.542	-6.746	2.9758	4.8155	4.7591	2.066	-1.4948	-0.82068	-2.4148
I11 (k8%)	-26.072	-12.272	16.629	0.12984	-7.5048	-8.0666	-7.7565	-10.674	0.22541
I12 (k9%)	-48.471	-0.96214	-38.604	-0.45013	-33.021	-20.022	-9.5053	-5.6039	-2.5061

Table B-6 Connection weights between hidden nodes and output nodes, threshold values for output nodes for ANNIIIi

	O1 (d_{cr}/h)	O2 (w_{cr})	O3 (b_{cr}/L)
Thresholds	-1.064	-1.7521	-0.51878
H1	-0.20821	20.915	0.44044
H2	0.015202	-0.1355	2.0981
H3	-0.04627	-2.1025	0.078746
H4	-2.0182	1.4181	-12.054
H5	10.472	2.1999	0.52521
H6	0.64159	1.8256	1.5484
H7	2.0733	-0.24568	-0.12153
H8	10.033	4.4798	-0.90989
H9	0.98551	-0.4946	-1.0833

Appendix C - Stiffness Damage Databases

Table C-1 Damage Database for phase III: Parameters

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1	0.5	7	21	0	0	0	1
2	0.5	7	31	0	0	0	1
3	0.5	7	41	0	0	0	2
4	0.5	10	21	0	0	0	3
5	0.5	10	31	0	0	0	3
6	0.5	10	41	0	0	0	1
7	0.5	13	21	0	0	0	1
8	0.5	13	31	0	0	0	1
9	0.5	13	41	0	0	0	3
10	0.7	7	21	0	0	0	1
11	0.7	7	31	0	0	0	2
12	0.7	7	41	0	0	0	1
13	0.7	10	21	0	0	0	1
14	0.7	10	31	0	0	0	1
15	0.7	10	31	0.4	1	0.2	1
16	0.7	10	31	0.4	1	0.3	1
17	0.7	10	31	0.4	1	0.4	3
18	0.7	10	31	0.4	1	0.5	2
19	0.7	10	31	0.4	2.5	0.1	1
20	0.7	10	31	0.4	2.5	0.2	1
21	0.7	10	31	0.4	2.5	0.3	2
22	0.7	10	31	0.4	2.5	0.4	3
23	0.9	7	41	0.25	5	0.2	3
24	0.9	7	41	0.25	5	0.3	2
25	0.9	7	41	0.25	5	0.4	1
26	0.9	7	41	0.25	5	0.5	1
27	0.9	7	41	0.4	0.5	0.1	3
28	0.7	10	41	0	0	0	1
29	0.7	13	21	0	0	0	1
30	0.7	13	31	0	0	0	1
31	0.7	13	41	0	0	0	3
32	0.9	7	21	0	0	0	1
33	0.9	7	31	0	0	0	1
34	0.9	7	41	0	0	0	1
35	0.9	10	21	0	0	0	3
36	0.9	10	31	0	0	0	3
37	0.9	10	41	0	0	0	2
38	0.9	13	21	0	0	0	2
39	0.9	13	31	0	0	0	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
40	0.9	13	41	0	0	0	1
41	0.5	7	21	0.25	0.5	0.1	3
42	0.5	7	21	0.25	0.5	0.2	1
43	0.5	7	21	0.25	0.5	0.3	2
44	0.5	7	21	0.25	0.5	0.4	3
45	0.5	7	21	0.25	0.5	0.5	1
46	0.5	7	21	0.25	1	0.1	3
47	0.5	7	21	0.25	1	0.2	1
48	0.5	7	21	0.25	1	0.3	2
49	0.5	7	21	0.25	1	0.4	1
50	0.5	7	21	0.25	1	0.5	1
51	0.5	7	21	0.25	2.5	0.1	3
52	0.5	7	21	0.25	2.5	0.2	1
53	0.5	7	21	0.25	2.5	0.3	1
54	0.5	7	21	0.25	2.5	0.4	2
55	0.5	7	21	0.25	2.5	0.5	1
56	0.5	7	21	0.25	5	0.1	3
57	0.5	7	21	0.25	5	0.2	2
58	0.5	7	21	0.25	5	0.3	2
59	0.5	7	21	0.25	5	0.4	1
60	0.5	7	21	0.25	5	0.5	1
61	0.5	7	21	0.4	0.5	0.1	3
62	0.5	7	21	0.4	0.5	0.2	1
63	0.5	7	21	0.4	0.5	0.3	3
64	0.5	7	21	0.4	0.5	0.4	1
65	0.5	7	21	0.4	0.5	0.5	2
66	0.5	7	21	0.4	1	0.1	3
67	0.5	7	21	0.4	1	0.2	2
68	0.5	7	21	0.4	1	0.3	3
69	0.5	7	21	0.4	1	0.4	3
70	0.5	7	21	0.4	1	0.5	1
71	0.5	7	21	0.4	2.5	0.1	1
72	0.5	7	21	0.4	2.5	0.2	1
73	0.5	7	21	0.4	2.5	0.3	3
74	0.5	7	21	0.4	2.5	0.4	2
75	0.5	7	21	0.4	2.5	0.5	2
76	0.5	7	21	0.4	5	0.1	1
77	0.5	7	21	0.4	5	0.2	1
78	0.5	7	21	0.4	5	0.3	1
79	0.5	7	21	0.4	5	0.4	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
80	0.5	7	21	0.4	5	0.5	3
81	0.5	7	21	0.5	0.5	0.1	3
82	0.5	7	21	0.5	0.5	0.2	2
83	0.5	7	21	0.5	0.5	0.3	2
84	0.5	7	21	0.5	0.5	0.4	1
85	0.5	7	21	0.5	0.5	0.5	3
86	0.5	7	21	0.5	1	0.1	3
87	0.5	7	21	0.5	1	0.2	1
88	0.5	7	21	0.5	1	0.3	1
89	0.5	7	21	0.5	1	0.4	1
90	0.5	7	21	0.5	1	0.5	1
91	0.5	7	21	0.5	2.5	0.1	3
92	0.5	7	21	0.5	2.5	0.2	1
93	0.5	7	21	0.5	2.5	0.3	1
94	0.5	7	21	0.5	2.5	0.4	2
95	0.5	7	21	0.5	2.5	0.5	2
96	0.5	7	21	0.5	5	0.1	3
97	0.5	7	21	0.5	5	0.2	3
98	0.5	7	21	0.5	5	0.3	3
99	0.5	7	21	0.5	5	0.4	3
100	0.5	7	21	0.5	5	0.5	1
101	0.5	7	21	0.75	0.5	0.1	1
102	0.5	7	21	0.75	0.5	0.2	3
103	0.5	7	21	0.75	0.5	0.3	1
104	0.5	7	21	0.75	0.5	0.4	3
105	0.5	7	21	0.75	0.5	0.5	3
106	0.5	7	21	0.75	1	0.1	3
107	0.5	7	21	0.75	1	0.2	1
108	0.5	7	21	0.75	1	0.3	3
109	0.5	7	21	0.75	1	0.4	3
110	0.5	7	21	0.75	1	0.5	2
111	0.5	7	21	0.75	2.5	0.1	2
112	0.5	7	21	0.75	2.5	0.2	1
113	0.5	7	21	0.75	2.5	0.3	1
114	0.5	7	21	0.75	2.5	0.4	3
115	0.5	7	21	0.75	2.5	0.5	3
116	0.5	7	21	0.75	5	0.1	1
117	0.5	7	21	0.75	5	0.2	2
118	0.5	7	21	0.75	5	0.3	2
119	0.5	7	21	0.75	5	0.4	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
120	0.5	7	21	0.75	5	0.5	1
121	0.5	7	31	0.25	0.5	0.1	1
122	0.5	7	31	0.25	0.5	0.2	1
123	0.5	7	31	0.25	0.5	0.3	2
124	0.5	7	31	0.25	0.5	0.4	1
125	0.5	7	31	0.25	0.5	0.5	3
126	0.5	7	31	0.25	1	0.1	1
127	0.5	7	31	0.25	1	0.2	1
128	0.5	7	31	0.25	1	0.3	2
129	0.5	7	31	0.25	1	0.4	1
130	0.5	7	31	0.25	1	0.5	1
131	0.5	7	31	0.25	2.5	0.1	1
132	0.5	7	31	0.25	2.5	0.2	1
133	0.5	7	31	0.25	2.5	0.3	3
134	0.5	7	31	0.25	2.5	0.4	1
135	0.5	7	31	0.25	2.5	0.5	2
136	0.5	7	31	0.25	5	0.1	2
137	0.5	7	31	0.25	5	0.2	1
138	0.5	7	31	0.25	5	0.3	1
139	0.5	7	31	0.25	5	0.4	1
140	0.5	7	31	0.25	5	0.5	1
141	0.5	7	31	0.4	0.5	0.1	3
142	0.5	7	31	0.4	0.5	0.2	2
143	0.5	7	31	0.4	0.5	0.3	1
144	0.5	7	31	0.4	0.5	0.4	2
145	0.5	7	31	0.4	0.5	0.5	1
146	0.5	7	31	0.4	1	0.1	3
147	0.5	7	31	0.4	1	0.2	2
148	0.5	7	31	0.4	1	0.3	2
149	0.5	7	31	0.4	1	0.4	2
150	0.5	7	31	0.4	1	0.5	1
151	0.5	7	31	0.4	2.5	0.1	3
152	0.5	7	31	0.4	2.5	0.2	2
153	0.5	7	31	0.4	2.5	0.3	1
154	0.5	7	31	0.4	2.5	0.4	2
155	0.5	7	31	0.4	2.5	0.5	1
156	0.5	7	31	0.4	5	0.1	3
157	0.5	7	31	0.4	5	0.2	1
158	0.5	7	31	0.4	5	0.3	1
159	0.5	7	31	0.4	5	0.4	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
160	0.5	7	31	0.4	5	0.5	2
161	0.5	7	31	0.5	0.5	0.1	3
162	0.5	7	31	0.5	0.5	0.2	2
163	0.5	7	31	0.5	0.5	0.3	1
164	0.5	7	31	0.5	0.5	0.4	1
165	0.5	7	31	0.5	0.5	0.5	3
166	0.5	7	31	0.5	1	0.1	3
167	0.5	7	31	0.5	1	0.2	1
168	0.5	7	31	0.5	1	0.3	1
169	0.5	7	31	0.5	1	0.4	3
170	0.5	7	31	0.5	1	0.5	1
171	0.5	7	31	0.5	2.5	0.1	3
172	0.5	7	31	0.5	2.5	0.2	1
173	0.5	7	31	0.5	2.5	0.3	1
174	0.5	7	31	0.5	2.5	0.4	1
175	0.5	7	31	0.5	2.5	0.5	1
176	0.5	7	31	0.5	5	0.1	3
177	0.5	7	31	0.5	5	0.2	1
178	0.5	7	31	0.5	5	0.3	1
179	0.5	7	31	0.5	5	0.4	1
180	0.5	7	31	0.5	5	0.5	2
181	0.5	7	31	0.75	0.5	0.1	3
182	0.5	7	31	0.75	0.5	0.2	1
183	0.5	7	31	0.75	0.5	0.3	3
184	0.5	7	31	0.75	0.5	0.4	1
185	0.5	7	31	0.75	0.5	0.5	3
186	0.5	7	31	0.75	1	0.1	3
187	0.5	7	31	0.75	1	0.2	3
188	0.5	7	31	0.75	1	0.3	1
189	0.5	7	31	0.75	1	0.4	1
190	0.5	7	31	0.75	1	0.5	2
191	0.5	7	31	0.75	2.5	0.1	3
192	0.5	7	31	0.75	2.5	0.2	3
193	0.5	7	31	0.75	2.5	0.3	1
194	0.5	7	31	0.75	2.5	0.4	1
195	0.5	7	31	0.75	2.5	0.5	1
196	0.5	7	31	0.75	5	0.1	1
197	0.5	7	31	0.75	5	0.2	3
198	0.5	7	31	0.75	5	0.3	1
199	0.5	7	31	0.75	5	0.4	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
200	0.5	7	31	0.75	5	0.5	3
201	0.5	7	41	0.25	0.5	0.1	1
202	0.5	7	41	0.25	0.5	0.2	1
203	0.5	7	41	0.25	0.5	0.3	2
204	0.5	7	41	0.25	0.5	0.4	2
205	0.5	7	41	0.25	0.5	0.5	1
206	0.5	7	41	0.25	1	0.1	1
207	0.5	7	41	0.25	1	0.2	1
208	0.5	7	41	0.25	1	0.3	2
209	0.5	7	41	0.25	1	0.4	2
210	0.5	7	41	0.25	1	0.5	2
211	0.5	7	41	0.25	2.5	0.1	3
212	0.5	7	41	0.25	2.5	0.2	2
213	0.5	7	41	0.25	2.5	0.3	2
214	0.5	7	41	0.25	2.5	0.4	2
215	0.5	7	41	0.25	2.5	0.5	2
216	0.5	7	41	0.25	5	0.1	2
217	0.5	7	41	0.25	5	0.2	2
218	0.5	7	41	0.25	5	0.3	1
219	0.5	7	41	0.25	5	0.4	2
220	0.5	7	41	0.25	5	0.5	2
221	0.5	7	41	0.4	0.5	0.1	2
222	0.5	7	41	0.4	0.5	0.2	2
223	0.5	7	41	0.4	0.5	0.3	2
224	0.5	7	41	0.4	0.5	0.4	1
225	0.5	7	41	0.4	0.5	0.5	2
226	0.5	7	41	0.4	1	0.1	2
227	0.5	7	41	0.4	1	0.2	2
228	0.5	7	41	0.4	1	0.3	1
229	0.5	7	41	0.4	1	0.4	1
230	0.5	7	41	0.4	1	0.5	2
231	0.5	7	41	0.4	2.5	0.1	1
232	0.5	7	41	0.4	2.5	0.2	2
233	0.5	7	41	0.4	2.5	0.3	1
234	0.5	7	41	0.4	2.5	0.4	1
235	0.5	7	41	0.4	2.5	0.5	2
236	0.5	7	41	0.4	5	0.1	2
237	0.5	7	41	0.4	5	0.2	1
238	0.5	7	41	0.4	5	0.3	3
239	0.5	7	41	0.4	5	0.4	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
240	0.5	7	41	0.4	5	0.5	2
241	0.5	7	41	0.5	0.5	0.1	1
242	0.5	7	41	0.5	0.5	0.2	1
243	0.7	10	31	0.4	2.5	0.5	1
244	0.7	10	31	0.4	5	0.1	2
245	0.7	10	31	0.4	5	0.2	1
246	0.7	10	31	0.4	5	0.3	1
247	0.7	10	31	0.4	5	0.4	1
248	0.7	10	31	0.4	5	0.5	3
249	0.7	10	31	0.5	0.5	0.1	1
250	0.7	10	31	0.5	0.5	0.2	3
251	0.7	10	31	0.5	0.5	0.3	1
252	0.7	10	31	0.5	0.5	0.4	2
253	0.7	10	31	0.5	0.5	0.5	2
254	0.7	10	31	0.5	1	0.1	3
255	0.7	10	31	0.5	1	0.2	1
256	0.7	10	31	0.5	1	0.3	2
257	0.7	10	31	0.5	1	0.4	3
258	0.7	10	31	0.5	1	0.5	2
259	0.7	10	31	0.5	2.5	0.1	3
260	0.7	10	31	0.5	2.5	0.2	1
261	0.7	10	31	0.5	2.5	0.3	1
262	0.7	10	31	0.5	2.5	0.4	2
263	0.7	10	31	0.5	2.5	0.5	2
264	0.7	10	31	0.5	5	0.1	1
265	0.7	10	31	0.5	5	0.2	3
266	0.7	10	31	0.5	5	0.3	3
267	0.7	10	31	0.5	5	0.4	2
268	0.7	10	31	0.5	5	0.5	3
269	0.7	10	31	0.75	0.5	0.1	2
270	0.7	10	31	0.75	0.5	0.2	1
271	0.7	10	31	0.75	0.5	0.3	1
272	0.7	10	31	0.75	0.5	0.4	1
273	0.7	10	31	0.75	0.5	0.5	3
274	0.7	10	31	0.75	1	0.1	2
275	0.7	10	31	0.75	1	0.2	1
276	0.7	10	31	0.75	1	0.3	1
277	0.7	10	31	0.75	1	0.4	1
278	0.7	10	31	0.75	1	0.5	3
279	0.7	10	31	0.75	2.5	0.1	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
280	0.7	10	31	0.75	2.5	0.2	1
281	0.7	10	31	0.75	2.5	0.3	1
282	0.7	10	31	0.75	2.5	0.4	1
283	0.7	10	31	0.75	2.5	0.5	2
284	0.7	10	31	0.75	5	0.1	3
285	0.7	10	31	0.75	5	0.2	1
286	0.7	10	31	0.75	5	0.3	2
287	0.7	10	31	0.75	5	0.4	2
288	0.7	10	31	0.75	5	0.5	1
289	0.7	10	41	0.25	0.5	0.1	3
290	0.7	10	41	0.25	0.5	0.2	3
291	0.7	10	41	0.25	0.5	0.3	2
292	0.7	10	41	0.25	0.5	0.4	1
293	0.7	10	41	0.25	0.5	0.5	1
294	0.7	10	41	0.25	1	0.1	3
295	0.7	10	41	0.25	1	0.2	1
296	0.7	10	41	0.25	1	0.3	2
297	0.7	10	41	0.25	1	0.4	2
298	0.7	10	41	0.25	1	0.5	1
299	0.7	10	41	0.25	2.5	0.1	3
300	0.7	10	41	0.25	2.5	0.2	1
301	0.7	10	41	0.25	2.5	0.3	1
302	0.7	10	41	0.25	2.5	0.4	2
303	0.7	10	41	0.25	2.5	0.5	1
304	0.7	10	41	0.25	5	0.1	3
305	0.7	10	41	0.25	5	0.2	1
306	0.7	10	41	0.25	5	0.3	2
307	0.7	10	41	0.25	5	0.4	1
308	0.7	10	41	0.25	5	0.5	1
309	0.7	10	41	0.4	0.5	0.1	1
310	0.7	10	41	0.4	0.5	0.2	2
311	0.7	10	41	0.4	0.5	0.3	2
312	0.7	10	41	0.4	0.5	0.4	1
313	0.7	10	41	0.4	0.5	0.5	1
314	0.7	10	41	0.4	1	0.1	1
315	0.7	10	41	0.4	1	0.2	1
316	0.7	10	41	0.4	1	0.3	3
317	0.7	10	41	0.4	1	0.4	1
318	0.7	10	41	0.4	1	0.5	2
319	0.7	10	41	0.4	2.5	0.1	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
320	0.7	10	41	0.4	2.5	0.2	1
321	0.7	10	41	0.4	2.5	0.3	2
322	0.7	10	41	0.4	2.5	0.4	1
323	0.7	10	41	0.4	2.5	0.5	2
324	0.7	10	41	0.4	5	0.1	1
325	0.7	10	41	0.4	5	0.2	3
326	0.7	10	41	0.4	5	0.3	3
327	0.7	10	41	0.4	5	0.4	1
328	0.7	10	41	0.4	5	0.5	1
329	0.7	10	41	0.5	0.5	0.1	2
330	0.7	10	41	0.5	0.5	0.2	1
331	0.7	10	41	0.5	0.5	0.3	1
332	0.7	10	41	0.5	0.5	0.4	1
333	0.7	10	41	0.5	0.5	0.5	1
334	0.7	10	41	0.5	1	0.1	2
335	0.7	10	41	0.5	1	0.2	1
336	0.7	10	41	0.5	1	0.3	3
337	0.7	10	41	0.5	1	0.4	1
338	0.7	10	41	0.5	1	0.5	3
339	0.7	10	41	0.5	2.5	0.1	2
340	0.7	10	41	0.5	2.5	0.2	2
341	0.7	10	41	0.5	2.5	0.3	1
342	0.7	10	41	0.5	2.5	0.4	3
343	0.7	10	41	0.5	2.5	0.5	3
344	0.7	10	41	0.5	5	0.1	2
345	0.7	10	41	0.5	5	0.2	1
346	0.7	10	41	0.5	5	0.3	2
347	0.7	10	41	0.5	5	0.4	1
348	0.7	10	41	0.5	5	0.5	1
349	0.7	10	41	0.75	0.5	0.1	3
350	0.7	10	41	0.75	0.5	0.2	1
351	0.7	10	41	0.75	0.5	0.3	2
352	0.9	7	41	0.4	0.5	0.2	2
353	0.9	7	41	0.4	0.5	0.3	2
354	0.9	7	41	0.4	0.5	0.4	2
355	0.9	7	41	0.4	0.5	0.5	2
356	0.9	7	41	0.4	1	0.1	3
357	0.9	7	41	0.4	1	0.2	2
358	0.9	7	41	0.4	1	0.3	3
359	0.9	7	41	0.4	1	0.4	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
360	0.9	7	41	0.4	1	0.5	3
361	0.9	7	41	0.4	2.5	0.1	3
362	0.9	7	41	0.4	2.5	0.2	2
363	0.9	7	41	0.4	2.5	0.3	3
364	0.9	7	41	0.4	2.5	0.4	3
365	0.9	7	41	0.4	2.5	0.5	3
366	0.9	7	41	0.4	5	0.1	3
367	0.9	7	41	0.4	5	0.2	2
368	0.9	7	41	0.4	5	0.3	2
369	0.9	7	41	0.4	5	0.4	2
370	0.9	7	41	0.4	5	0.5	3
371	0.9	7	41	0.5	0.5	0.1	3
372	0.9	7	41	0.5	0.5	0.2	1
373	0.9	7	41	0.5	0.5	0.3	2
374	0.9	7	41	0.5	0.5	0.4	3
375	0.9	7	41	0.5	0.5	0.5	1
376	0.9	7	41	0.5	1	0.1	3
377	0.9	7	41	0.5	1	0.2	3
378	0.9	7	41	0.5	1	0.3	1
379	0.9	7	41	0.5	1	0.4	1
380	0.9	7	41	0.5	1	0.5	2
381	0.9	7	41	0.5	2.5	0.1	2
382	0.9	7	41	0.5	2.5	0.2	3
383	0.9	7	41	0.5	2.5	0.3	1
384	0.9	7	41	0.5	2.5	0.4	1
385	0.9	7	41	0.5	2.5	0.5	1
386	0.9	7	41	0.5	5	0.1	2
387	0.9	7	41	0.5	5	0.2	3
388	0.9	7	41	0.5	5	0.3	1
389	0.9	7	41	0.5	5	0.4	1
390	0.9	7	41	0.5	5	0.5	1
391	0.9	7	41	0.75	0.5	0.1	2
392	0.9	7	41	0.75	0.5	0.2	3
393	0.9	7	41	0.75	0.5	0.3	1
394	0.9	7	41	0.75	0.5	0.4	3
395	0.9	7	41	0.75	0.5	0.5	3
396	0.9	7	41	0.75	1	0.1	1
397	0.9	7	41	0.75	1	0.2	1
398	0.9	7	41	0.75	1	0.3	1
399	0.9	7	41	0.75	1	0.4	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
400	0.9	7	41	0.75	1	0.5	1
401	0.9	7	41	0.75	2.5	0.1	1
402	0.9	7	41	0.75	2.5	0.2	2
403	0.9	7	41	0.75	2.5	0.3	3
404	0.9	7	41	0.75	2.5	0.4	1
405	0.9	7	41	0.75	2.5	0.5	1
406	0.9	7	41	0.75	5	0.1	2
407	0.9	7	41	0.75	5	0.2	2
408	0.9	7	41	0.75	5	0.3	1
409	0.9	7	41	0.75	5	0.4	1
410	0.9	7	41	0.75	5	0.5	1
411	0.9	10	21	0.25	0.5	0.1	1
412	0.9	10	21	0.25	0.5	0.2	1
413	0.9	10	21	0.25	0.5	0.3	1
414	0.9	10	21	0.25	0.5	0.4	1
415	0.9	10	21	0.25	0.5	0.5	1
416	0.9	10	21	0.25	1	0.1	2
417	0.9	10	21	0.25	1	0.2	1
418	0.9	10	21	0.25	1	0.3	1
419	0.9	10	21	0.25	1	0.4	1
420	0.9	10	21	0.25	1	0.5	1
421	0.9	10	21	0.25	2.5	0.1	2
422	0.9	10	21	0.25	2.5	0.2	1
423	0.9	10	21	0.25	2.5	0.3	1
424	0.9	10	21	0.25	2.5	0.4	1
425	0.9	10	21	0.25	2.5	0.5	1
426	0.9	10	21	0.25	5	0.1	3
427	0.9	10	21	0.25	5	0.2	3
428	0.9	10	21	0.25	5	0.3	1
429	0.9	10	21	0.25	5	0.4	1
430	0.9	10	21	0.25	5	0.5	3
431	0.9	10	21	0.4	0.5	0.1	2
432	0.9	10	21	0.4	0.5	0.2	3
433	0.9	10	21	0.4	0.5	0.3	1
434	0.9	10	21	0.4	0.5	0.4	1
435	0.9	10	21	0.4	0.5	0.5	1
436	0.9	10	21	0.4	1	0.1	3
437	0.9	10	21	0.4	1	0.2	1
438	0.9	10	21	0.4	1	0.3	1
439	0.9	10	21	0.4	1	0.4	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
440	0.9	10	21	0.4	1	0.5	3
441	0.9	10	21	0.4	2.5	0.1	1
442	0.9	10	21	0.4	2.5	0.2	1
443	0.9	10	21	0.4	2.5	0.3	1
444	0.9	10	21	0.4	2.5	0.4	3
445	0.9	10	21	0.4	2.5	0.5	3
446	0.9	10	21	0.4	5	0.1	3
447	0.9	10	21	0.4	5	0.2	2
448	0.9	10	21	0.4	5	0.3	1
449	0.9	10	21	0.4	5	0.4	3
450	0.9	10	21	0.4	5	0.5	3
451	0.9	10	21	0.5	0.5	0.1	1
452	0.9	10	21	0.5	0.5	0.2	1
453	0.9	10	21	0.5	0.5	0.3	3
454	0.9	10	21	0.5	0.5	0.4	3
455	0.9	10	21	0.5	0.5	0.5	3
456	0.9	10	21	0.5	1	0.1	1
457	0.9	10	21	0.5	1	0.2	1
458	0.9	10	21	0.5	1	0.3	1
459	0.9	10	21	0.5	1	0.4	1
460	0.5	7	41	0.5	0.5	0.3	3
461	0.5	7	41	0.5	0.5	0.4	3
462	0.5	7	41	0.5	0.5	0.5	1
463	0.5	7	41	0.5	1	0.1	1
464	0.5	7	41	0.5	1	0.2	1
465	0.5	7	41	0.5	1	0.3	3
466	0.5	7	41	0.5	1	0.4	1
467	0.5	7	41	0.5	1	0.5	3
468	0.5	7	41	0.5	2.5	0.1	2
469	0.5	7	41	0.5	2.5	0.2	2
470	0.5	7	41	0.5	2.5	0.3	2
471	0.5	7	41	0.5	2.5	0.4	1
472	0.5	7	41	0.5	2.5	0.5	3
473	0.5	7	41	0.5	5	0.1	1
474	0.5	7	41	0.5	5	0.2	1
475	0.5	7	41	0.5	5	0.3	1
476	0.5	7	41	0.5	5	0.4	2
477	0.5	7	41	0.5	5	0.5	1
478	0.5	7	41	0.75	0.5	0.1	1
479	0.5	7	41	0.75	0.5	0.2	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
480	0.5	7	41	0.75	0.5	0.3	1
481	0.5	7	41	0.75	0.5	0.4	1
482	0.5	7	41	0.75	0.5	0.5	1
483	0.5	7	41	0.75	1	0.1	2
484	0.5	7	41	0.75	1	0.2	1
485	0.5	7	41	0.75	1	0.3	3
486	0.5	7	41	0.75	1	0.4	1
487	0.5	7	41	0.75	1	0.5	1
488	0.5	7	41	0.75	2.5	0.1	1
489	0.5	7	41	0.75	2.5	0.2	2
490	0.5	7	41	0.75	2.5	0.3	1
491	0.5	7	41	0.75	2.5	0.4	1
492	0.5	7	41	0.75	2.5	0.5	3
493	0.5	7	41	0.75	5	0.1	2
494	0.5	7	41	0.75	5	0.2	2
495	0.5	7	41	0.75	5	0.3	2
496	0.5	7	41	0.75	5	0.4	1
497	0.5	7	41	0.75	5	0.5	1
498	0.5	10	21	0.25	0.5	0.1	2
499	0.5	10	21	0.25	0.5	0.2	2
500	0.5	10	21	0.25	0.5	0.3	1
501	0.5	10	21	0.25	0.5	0.4	3
502	0.5	10	21	0.25	0.5	0.5	3
503	0.5	10	21	0.25	1	0.1	2
504	0.5	10	21	0.25	1	0.2	2
505	0.5	10	21	0.25	1	0.3	3
506	0.5	10	21	0.25	1	0.4	3
507	0.5	10	21	0.25	1	0.5	3
508	0.5	10	21	0.25	2.5	0.1	2
509	0.5	10	21	0.25	2.5	0.2	2
510	0.5	10	21	0.25	2.5	0.3	1
511	0.5	10	21	0.25	2.5	0.4	3
512	0.5	10	21	0.25	2.5	0.5	2
513	0.5	10	21	0.25	5	0.1	3
514	0.5	10	21	0.25	5	0.2	3
515	0.5	10	21	0.25	5	0.3	1
516	0.5	10	21	0.25	5	0.4	3
517	0.5	10	21	0.25	5	0.5	2
518	0.5	10	21	0.4	0.5	0.1	2
519	0.5	10	21	0.4	0.5	0.2	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
520	0.5	10	21	0.4	0.5	0.3	1
521	0.5	10	21	0.4	0.5	0.4	1
522	0.5	10	21	0.4	0.5	0.5	2
523	0.5	10	21	0.4	1	0.1	1
524	0.5	10	21	0.4	1	0.2	1
525	0.5	10	21	0.4	1	0.3	3
526	0.5	10	21	0.4	1	0.4	1
527	0.5	10	21	0.4	1	0.5	2
528	0.5	10	21	0.4	2.5	0.1	1
529	0.5	10	21	0.4	2.5	0.2	1
530	0.5	10	21	0.4	2.5	0.3	2
531	0.5	10	21	0.4	2.5	0.4	2
532	0.5	10	21	0.4	2.5	0.5	3
533	0.5	10	21	0.4	5	0.1	1
534	0.5	10	21	0.4	5	0.2	1
535	0.5	10	21	0.4	5	0.3	1
536	0.5	10	21	0.4	5	0.4	2
537	0.5	10	21	0.4	5	0.5	3
538	0.5	10	21	0.5	0.5	0.1	1
539	0.5	10	21	0.5	0.5	0.2	1
540	0.5	10	21	0.5	0.5	0.3	2
541	0.5	10	21	0.5	0.5	0.4	2
542	0.5	10	21	0.5	0.5	0.5	3
543	0.5	10	21	0.5	1	0.1	1
544	0.5	10	21	0.5	1	0.2	1
545	0.5	10	21	0.5	1	0.3	3
546	0.5	10	21	0.5	1	0.4	2
547	0.5	10	21	0.5	1	0.5	1
548	0.5	10	21	0.5	2.5	0.1	1
549	0.5	10	21	0.5	2.5	0.2	1
550	0.5	10	21	0.5	2.5	0.3	1
551	0.5	10	21	0.5	2.5	0.4	1
552	0.5	10	21	0.5	2.5	0.5	3
553	0.5	10	21	0.5	5	0.1	1
554	0.5	10	21	0.5	5	0.2	1
555	0.5	10	21	0.5	5	0.3	1
556	0.5	10	21	0.5	5	0.4	1
557	0.5	10	21	0.5	5	0.5	3
558	0.5	10	21	0.75	0.5	0.1	2
559	0.5	10	21	0.75	0.5	0.2	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
560	0.5	10	21	0.75	0.5	0.3	1
561	0.5	10	21	0.75	0.5	0.4	1
562	0.5	10	21	0.75	0.5	0.5	3
563	0.5	10	21	0.75	1	0.1	2
564	0.5	10	21	0.75	1	0.2	1
565	0.5	10	21	0.75	1	0.3	1
566	0.5	10	21	0.75	1	0.4	1
567	0.5	10	21	0.75	1	0.5	1
568	0.5	10	21	0.75	2.5	0.1	1
569	0.5	10	21	0.75	2.5	0.2	1
570	0.5	10	21	0.75	2.5	0.3	3
571	0.5	10	21	0.75	2.5	0.4	2
572	0.5	10	21	0.75	2.5	0.5	3
573	0.5	10	21	0.75	5	0.1	2
574	0.5	10	21	0.75	5	0.2	1
575	0.5	10	21	0.75	5	0.3	3
576	0.5	10	21	0.75	5	0.4	1
577	0.5	10	21	0.75	5	0.5	2
578	0.5	10	31	0.25	0.5	0.1	2
579	0.5	10	31	0.25	0.5	0.2	1
580	0.5	10	31	0.25	0.5	0.3	3
581	0.5	10	31	0.25	0.5	0.4	1
582	0.5	10	31	0.25	0.5	0.5	1
583	0.5	10	31	0.25	1	0.1	1
584	0.5	10	31	0.25	1	0.2	1
585	0.5	10	31	0.25	1	0.3	3
586	0.5	10	31	0.25	1	0.4	1
587	0.5	10	31	0.25	1	0.5	1
588	0.5	10	31	0.25	2.5	0.1	1
589	0.5	10	31	0.25	2.5	0.2	1
590	0.5	10	31	0.25	2.5	0.3	2
591	0.5	10	31	0.25	2.5	0.4	2
592	0.5	10	31	0.25	2.5	0.5	3
593	0.5	10	31	0.25	5	0.1	2
594	0.5	10	31	0.25	5	0.2	1
595	0.5	10	31	0.25	5	0.3	1
596	0.5	10	31	0.25	5	0.4	3
597	0.5	10	31	0.25	5	0.5	1
598	0.5	10	31	0.4	0.5	0.1	2
599	0.5	10	31	0.4	0.5	0.2	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
600	0.5	10	31	0.4	0.5	0.3	1
601	0.5	10	31	0.4	0.5	0.4	3
602	0.5	10	31	0.4	0.5	0.5	1
603	0.5	10	31	0.4	1	0.1	1
604	0.5	10	31	0.4	1	0.2	1
605	0.5	10	31	0.4	1	0.3	1
606	0.5	10	31	0.4	1	0.4	3
607	0.5	10	31	0.4	1	0.5	1
608	0.5	10	31	0.4	2.5	0.1	2
609	0.5	10	31	0.4	2.5	0.2	1
610	0.5	10	31	0.4	2.5	0.3	1
611	0.5	10	31	0.4	2.5	0.4	3
612	0.5	10	31	0.4	2.5	0.5	1
613	0.5	10	31	0.4	5	0.1	1
614	0.5	10	31	0.4	5	0.2	2
615	0.5	10	31	0.4	5	0.3	3
616	0.5	10	31	0.4	5	0.4	1
617	0.5	10	31	0.4	5	0.5	2
618	0.5	10	31	0.5	0.5	0.1	2
619	0.5	10	31	0.5	0.5	0.2	1
620	0.5	10	31	0.5	0.5	0.3	3
621	0.5	10	31	0.5	0.5	0.4	1
622	0.5	10	31	0.5	0.5	0.5	2
623	0.5	10	31	0.5	1	0.1	1
624	0.5	10	31	0.5	1	0.2	1
625	0.5	10	31	0.5	1	0.3	3
626	0.5	10	31	0.5	1	0.4	1
627	0.5	10	31	0.5	1	0.5	2
628	0.5	10	31	0.5	2.5	0.1	1
629	0.5	10	31	0.5	2.5	0.2	2
630	0.5	10	31	0.5	2.5	0.3	3
631	0.5	10	31	0.5	2.5	0.4	1
632	0.5	10	31	0.5	2.5	0.5	2
633	0.5	10	31	0.5	5	0.1	2
634	0.5	10	31	0.5	5	0.2	1
635	0.5	10	31	0.5	5	0.3	1
636	0.5	10	31	0.5	5	0.4	2
637	0.5	10	31	0.5	5	0.5	1
638	0.5	10	31	0.75	0.5	0.1	1
639	0.5	10	31	0.75	0.5	0.2	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
640	0.5	10	31	0.75	0.5	0.3	1
641	0.5	10	31	0.75	0.5	0.4	2
642	0.5	10	31	0.75	0.5	0.5	1
643	0.5	10	31	0.75	1	0.1	1
644	0.5	10	31	0.75	1	0.2	3
645	0.5	10	31	0.75	1	0.3	1
646	0.5	10	31	0.75	1	0.4	2
647	0.5	10	31	0.75	1	0.5	1
648	0.5	10	31	0.75	2.5	0.1	3
649	0.5	10	31	0.75	2.5	0.2	3
650	0.5	10	31	0.75	2.5	0.3	1
651	0.5	10	31	0.75	2.5	0.4	2
652	0.5	10	31	0.75	2.5	0.5	1
653	0.5	10	31	0.75	5	0.1	2
654	0.5	10	31	0.75	5	0.2	1
655	0.5	10	31	0.75	5	0.3	2
656	0.5	10	31	0.75	5	0.4	1
657	0.5	10	31	0.75	5	0.5	3
658	0.5	10	41	0.25	0.5	0.1	2
659	0.5	10	41	0.25	0.5	0.2	1
660	0.5	10	41	0.25	0.5	0.3	2
661	0.5	10	41	0.25	0.5	0.4	1
662	0.5	10	41	0.25	0.5	0.5	3
663	0.5	10	41	0.25	1	0.1	2
664	0.5	10	41	0.25	1	0.2	1
665	0.5	10	41	0.25	1	0.3	2
666	0.5	10	41	0.25	1	0.4	1
667	0.5	10	41	0.25	1	0.5	3
668	0.5	10	41	0.25	2.5	0.1	3
669	0.5	10	41	0.25	2.5	0.2	1
670	0.5	10	41	0.25	2.5	0.3	1
671	0.5	10	41	0.25	2.5	0.4	3
672	0.5	10	41	0.25	2.5	0.5	2
673	0.5	10	41	0.25	5	0.1	1
674	0.5	10	41	0.25	5	0.2	1
675	0.5	10	41	0.25	5	0.3	3
676	0.7	10	41	0.75	0.5	0.4	1
677	0.7	10	41	0.75	0.5	0.5	1
678	0.7	10	41	0.75	1	0.1	1
679	0.7	10	41	0.75	1	0.2	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
680	0.7	10	41	0.75	1	0.3	2
681	0.7	10	41	0.75	1	0.4	1
682	0.7	10	41	0.75	1	0.5	1
683	0.7	10	41	0.75	2.5	0.1	1
684	0.7	10	41	0.75	2.5	0.2	2
685	0.7	10	41	0.75	2.5	0.3	1
686	0.7	10	41	0.75	2.5	0.4	3
687	0.7	10	41	0.75	2.5	0.5	1
688	0.7	10	41	0.75	5	0.1	2
689	0.7	10	41	0.75	5	0.2	1
690	0.7	10	41	0.75	5	0.3	3
691	0.7	10	41	0.75	5	0.4	1
692	0.7	10	41	0.75	5	0.5	2
693	0.7	13	21	0.25	0.5	0.1	2
694	0.7	13	21	0.25	0.5	0.2	1
695	0.7	13	21	0.25	0.5	0.3	3
696	0.7	13	21	0.25	0.5	0.4	1
697	0.7	13	21	0.25	0.5	0.5	2
698	0.7	13	21	0.25	1	0.1	2
699	0.7	13	21	0.25	1	0.2	1
700	0.7	13	21	0.25	1	0.3	3
701	0.7	13	21	0.25	1	0.4	1
702	0.7	13	21	0.25	1	0.5	2
703	0.7	13	21	0.25	2.5	0.1	2
704	0.7	13	21	0.25	2.5	0.2	1
705	0.7	13	21	0.25	2.5	0.3	3
706	0.7	13	21	0.25	2.5	0.4	1
707	0.7	13	21	0.25	2.5	0.5	2
708	0.7	13	21	0.25	5	0.1	1
709	0.7	13	21	0.25	5	0.2	3
710	0.7	13	21	0.25	5	0.3	1
711	0.7	13	21	0.25	5	0.4	2
712	0.7	13	21	0.25	5	0.5	1
713	0.7	13	21	0.4	0.5	0.1	1
714	0.7	13	21	0.4	0.5	0.2	3
715	0.7	13	21	0.4	0.5	0.3	1
716	0.7	13	21	0.4	0.5	0.4	2
717	0.7	13	21	0.4	0.5	0.5	1
718	0.7	13	21	0.4	1	0.1	1
719	0.7	13	21	0.4	1	0.2	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
720	0.7	13	21	0.4	1	0.3	1
721	0.7	13	21	0.4	1	0.4	2
722	0.7	13	21	0.4	1	0.5	1
723	0.7	13	21	0.4	2.5	0.1	1
724	0.7	13	21	0.4	2.5	0.2	3
725	0.7	13	21	0.4	2.5	0.3	2
726	0.7	13	21	0.4	2.5	0.4	1
727	0.7	13	21	0.4	2.5	0.5	1
728	0.7	13	21	0.4	5	0.1	2
729	0.7	13	21	0.4	5	0.2	2
730	0.7	13	21	0.4	5	0.3	1
731	0.7	13	21	0.4	5	0.4	3
732	0.7	13	21	0.4	5	0.5	1
733	0.7	13	21	0.5	0.5	0.1	1
734	0.7	13	21	0.5	0.5	0.2	2
735	0.7	13	21	0.5	0.5	0.3	1
736	0.7	13	21	0.5	0.5	0.4	3
737	0.7	13	21	0.5	0.5	0.5	1
738	0.7	13	21	0.5	1	0.1	1
739	0.7	13	21	0.5	1	0.2	2
740	0.7	13	21	0.5	1	0.3	1
741	0.7	13	21	0.5	1	0.4	3
742	0.7	13	21	0.5	1	0.5	1
743	0.7	13	21	0.5	2.5	0.1	1
744	0.7	13	21	0.5	2.5	0.2	2
745	0.7	13	21	0.5	2.5	0.3	1
746	0.7	13	21	0.5	2.5	0.4	3
747	0.7	13	21	0.5	2.5	0.5	1
748	0.7	13	21	0.5	5	0.1	1
749	0.7	13	21	0.5	5	0.2	1
750	0.7	13	21	0.5	5	0.3	3
751	0.7	13	21	0.5	5	0.4	1
752	0.7	13	21	0.5	5	0.5	2
753	0.7	13	21	0.75	0.5	0.1	2
754	0.7	13	21	0.75	0.5	0.2	1
755	0.7	13	21	0.75	0.5	0.3	3
756	0.7	13	21	0.75	0.5	0.4	1
757	0.7	13	21	0.75	0.5	0.5	2
758	0.7	13	21	0.75	1	0.1	3
759	0.7	13	21	0.75	1	0.2	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
760	0.7	13	21	0.75	1	0.3	3
761	0.7	13	21	0.75	1	0.4	1
762	0.7	13	21	0.75	1	0.5	2
763	0.7	13	21	0.75	2.5	0.1	2
764	0.7	13	21	0.75	2.5	0.2	1
765	0.7	13	21	0.75	2.5	0.3	3
766	0.7	13	21	0.75	2.5	0.4	1
767	0.7	13	21	0.75	2.5	0.5	2
768	0.7	13	21	0.75	5	0.1	1
769	0.7	13	21	0.75	5	0.2	3
770	0.7	13	21	0.75	5	0.3	1
771	0.7	13	21	0.75	5	0.4	2
772	0.7	13	21	0.75	5	0.5	1
773	0.7	13	31	0.25	0.5	0.1	1
774	0.7	13	31	0.25	0.5	0.2	3
775	0.7	13	31	0.25	0.5	0.3	1
776	0.7	13	31	0.25	0.5	0.4	2
777	0.7	13	31	0.25	0.5	0.5	1
778	0.7	13	31	0.25	1	0.1	1
779	0.7	13	31	0.25	1	0.2	3
780	0.7	13	31	0.25	1	0.3	1
781	0.7	13	31	0.25	1	0.4	2
782	0.7	13	31	0.25	1	0.5	1
783	0.7	13	31	0.25	2.5	0.1	1
784	0.9	10	21	0.5	1	0.5	2
785	0.9	10	21	0.5	2.5	0.1	2
786	0.9	10	21	0.5	2.5	0.2	1
787	0.9	10	21	0.5	2.5	0.3	3
788	0.9	10	21	0.5	2.5	0.4	1
789	0.9	10	21	0.5	2.5	0.5	2
790	0.9	10	21	0.5	5	0.1	2
791	0.9	10	21	0.5	5	0.2	1
792	0.9	10	21	0.5	5	0.3	3
793	0.9	10	21	0.5	5	0.4	1
794	0.9	10	21	0.5	5	0.5	1
795	0.9	10	21	0.75	0.5	0.1	1
796	0.9	10	21	0.75	0.5	0.2	1
797	0.9	10	21	0.75	0.5	0.3	1
798	0.9	10	21	0.75	0.5	0.4	1
799	0.9	10	21	0.75	0.5	0.5	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
800	0.9	10	21	0.75	1	0.1	1
801	0.9	10	21	0.75	1	0.2	1
802	0.9	10	21	0.75	1	0.3	2
803	0.9	10	21	0.75	1	0.4	3
804	0.9	10	21	0.75	1	0.5	1
805	0.9	10	21	0.75	2.5	0.1	3
806	0.9	10	21	0.75	2.5	0.2	1
807	0.9	10	21	0.75	2.5	0.3	2
808	0.9	10	21	0.75	2.5	0.4	2
809	0.9	10	21	0.75	2.5	0.5	3
810	0.9	10	21	0.75	5	0.1	2
811	0.9	10	21	0.75	5	0.2	2
812	0.9	10	21	0.75	5	0.3	1
813	0.9	10	21	0.75	5	0.4	2
814	0.9	10	21	0.75	5	0.5	3
815	0.9	10	31	0.25	0.5	0.1	1
816	0.9	10	31	0.25	0.5	0.2	1
817	0.9	10	31	0.25	0.5	0.3	1
818	0.9	10	31	0.25	0.5	0.4	1
819	0.9	10	31	0.25	0.5	0.5	3
820	0.9	10	31	0.25	1	0.1	1
821	0.9	10	31	0.25	1	0.2	2
822	0.9	10	31	0.25	1	0.3	1
823	0.9	10	31	0.25	1	0.4	1
824	0.9	10	31	0.25	1	0.5	1
825	0.9	10	31	0.25	2.5	0.1	1
826	0.9	10	31	0.25	2.5	0.2	2
827	0.9	10	31	0.25	2.5	0.3	1
828	0.9	10	31	0.25	2.5	0.4	3
829	0.9	10	31	0.25	2.5	0.5	3
830	0.9	10	31	0.25	5	0.1	3
831	0.9	10	31	0.25	5	0.2	1
832	0.9	10	31	0.25	5	0.3	2
833	0.9	10	31	0.25	5	0.4	1
834	0.9	10	31	0.25	5	0.5	1
835	0.9	10	31	0.4	0.5	0.1	3
836	0.9	10	31	0.4	0.5	0.2	1
837	0.9	10	31	0.4	0.5	0.3	2
838	0.9	10	31	0.4	0.5	0.4	3
839	0.9	10	31	0.4	0.5	0.5	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
840	0.9	10	31	0.4	1	0.1	3
841	0.9	10	31	0.4	1	0.2	1
842	0.9	10	31	0.4	1	0.3	2
843	0.9	10	31	0.4	1	0.4	1
844	0.9	10	31	0.4	1	0.5	1
845	0.9	10	31	0.4	2.5	0.1	1
846	0.9	10	31	0.4	2.5	0.2	2
847	0.9	10	31	0.4	2.5	0.3	3
848	0.9	10	31	0.4	2.5	0.4	1
849	0.9	10	31	0.4	2.5	0.5	1
850	0.9	10	31	0.4	5	0.1	1
851	0.9	10	31	0.4	5	0.2	1
852	0.9	10	31	0.4	5	0.3	1
853	0.9	10	31	0.4	5	0.4	1
854	0.9	10	31	0.4	5	0.5	1
855	0.9	10	31	0.5	0.5	0.1	3
856	0.9	10	31	0.5	0.5	0.2	1
857	0.9	10	31	0.5	0.5	0.3	1
858	0.9	10	31	0.5	0.5	0.4	3
859	0.9	10	31	0.5	0.5	0.5	1
860	0.9	10	31	0.5	1	0.1	1
861	0.9	10	31	0.5	1	0.2	1
862	0.9	10	31	0.5	1	0.3	1
863	0.9	10	31	0.5	1	0.4	2
864	0.9	10	31	0.5	1	0.5	1
865	0.9	10	31	0.5	2.5	0.1	1
866	0.9	10	31	0.5	2.5	0.2	1
867	0.9	10	31	0.5	2.5	0.3	1
868	0.9	10	31	0.5	2.5	0.4	3
869	0.9	10	31	0.5	2.5	0.5	1
870	0.9	10	31	0.5	5	0.1	1
871	0.9	10	31	0.5	5	0.2	2
872	0.9	10	31	0.5	5	0.3	1
873	0.9	10	31	0.5	5	0.4	1
874	0.9	10	31	0.5	5	0.5	1
875	0.9	10	31	0.75	0.5	0.1	1
876	0.9	10	31	0.75	0.5	0.2	3
877	0.9	10	31	0.75	0.5	0.3	1
878	0.9	10	31	0.75	0.5	0.4	2
879	0.9	10	31	0.75	0.5	0.5	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
880	0.9	10	31	0.75	1	0.1	1
881	0.9	10	31	0.75	1	0.2	3
882	0.9	10	31	0.75	1	0.3	3
883	0.9	10	31	0.75	1	0.4	1
884	0.9	10	31	0.75	1	0.5	3
885	0.9	10	31	0.75	2.5	0.1	1
886	0.9	10	31	0.75	2.5	0.2	3
887	0.9	10	31	0.75	2.5	0.3	3
888	0.9	10	31	0.75	2.5	0.4	3
889	0.9	10	31	0.75	2.5	0.5	1
890	0.9	10	31	0.75	5	0.1	2
891	0.9	10	31	0.75	5	0.2	3
892	0.5	10	41	0.25	5	0.4	1
893	0.5	10	41	0.25	5	0.5	2
894	0.5	10	41	0.4	0.5	0.1	1
895	0.5	10	41	0.4	0.5	0.2	2
896	0.5	10	41	0.4	0.5	0.3	3
897	0.5	10	41	0.4	0.5	0.4	1
898	0.5	10	41	0.4	0.5	0.5	2
899	0.5	10	41	0.4	1	0.1	2
900	0.5	10	41	0.4	1	0.2	1
901	0.5	10	41	0.4	1	0.3	3
902	0.5	10	41	0.4	1	0.4	1
903	0.5	10	41	0.4	1	0.5	2
904	0.5	10	41	0.4	2.5	0.1	1
905	0.5	10	41	0.4	2.5	0.2	3
906	0.5	10	41	0.4	2.5	0.3	1
907	0.5	10	41	0.4	2.5	0.4	1
908	0.5	10	41	0.4	2.5	0.5	2
909	0.5	10	41	0.4	5	0.1	3
910	0.5	10	41	0.4	5	0.2	1
911	0.5	10	41	0.4	5	0.3	1
912	0.5	10	41	0.4	5	0.4	2
913	0.5	10	41	0.4	5	0.5	1
914	0.5	10	41	0.5	0.5	0.1	3
915	0.5	10	41	0.5	0.5	0.2	3
916	0.5	10	41	0.5	0.5	0.3	3
917	0.5	10	41	0.5	0.5	0.4	1
918	0.5	10	41	0.5	0.5	0.5	1
919	0.5	10	41	0.5	1	0.1	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
920	0.5	10	41	0.5	1	0.2	3
921	0.5	10	41	0.5	1	0.3	3
922	0.5	10	41	0.5	1	0.4	1
923	0.5	10	41	0.5	1	0.5	2
924	0.5	10	41	0.5	2.5	0.1	3
925	0.5	10	41	0.5	2.5	0.2	3
926	0.5	10	41	0.5	2.5	0.3	1
927	0.5	10	41	0.5	2.5	0.4	1
928	0.5	10	41	0.5	2.5	0.5	1
929	0.5	10	41	0.5	5	0.1	2
930	0.5	10	41	0.5	5	0.2	3
931	0.5	10	41	0.5	5	0.3	1
932	0.5	10	41	0.5	5	0.4	1
933	0.5	10	41	0.5	5	0.5	1
934	0.5	10	41	0.75	0.5	0.1	2
935	0.5	10	41	0.75	0.5	0.2	1
936	0.5	10	41	0.75	0.5	0.3	3
937	0.5	10	41	0.75	0.5	0.4	1
938	0.5	10	41	0.75	0.5	0.5	2
939	0.5	10	41	0.75	1	0.1	1
940	0.5	10	41	0.75	1	0.2	1
941	0.5	10	41	0.75	1	0.3	1
942	0.5	10	41	0.75	1	0.4	1
943	0.5	10	41	0.75	1	0.5	1
944	0.5	10	41	0.75	2.5	0.1	1
945	0.5	10	41	0.75	2.5	0.2	3
946	0.5	10	41	0.75	2.5	0.3	1
947	0.5	10	41	0.75	2.5	0.4	1
948	0.5	10	41	0.75	2.5	0.5	1
949	0.5	10	41	0.75	5	0.1	1
950	0.5	10	41	0.75	5	0.2	2
951	0.5	10	41	0.75	5	0.3	3
952	0.5	10	41	0.75	5	0.4	1
953	0.5	10	41	0.75	5	0.5	1
954	0.5	13	21	0.25	0.5	0.1	1
955	0.5	13	21	0.25	0.5	0.2	1
956	0.5	13	21	0.25	0.5	0.3	1
957	0.5	13	21	0.25	0.5	0.4	2
958	0.5	13	21	0.25	0.5	0.5	2
959	0.5	13	21	0.25	1	0.1	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
960	0.5	13	21	0.25	1	0.2	1
961	0.5	13	21	0.25	1	0.3	2
962	0.5	13	21	0.25	1	0.4	2
963	0.5	13	21	0.25	1	0.5	1
964	0.5	13	21	0.25	2.5	0.1	3
965	0.5	13	21	0.25	2.5	0.2	1
966	0.5	13	21	0.25	2.5	0.3	1
967	0.5	13	21	0.25	2.5	0.4	2
968	0.5	13	21	0.25	2.5	0.5	1
969	0.5	13	21	0.25	5	0.1	3
970	0.5	13	21	0.25	5	0.2	1
971	0.5	13	21	0.25	5	0.3	2
972	0.5	13	21	0.25	5	0.4	2
973	0.5	13	21	0.25	5	0.5	1
974	0.5	13	21	0.4	0.5	0.1	3
975	0.5	13	21	0.4	0.5	0.2	1
976	0.5	13	21	0.4	0.5	0.3	1
977	0.5	13	21	0.4	0.5	0.4	2
978	0.5	13	21	0.4	0.5	0.5	1
979	0.5	13	21	0.4	1	0.1	3
980	0.5	13	21	0.4	1	0.2	3
981	0.5	13	21	0.4	1	0.3	1
982	0.5	13	21	0.4	1	0.4	2
983	0.5	13	21	0.4	1	0.5	1
984	0.5	13	21	0.4	2.5	0.1	3
985	0.5	13	21	0.4	2.5	0.2	3
986	0.5	13	21	0.4	2.5	0.3	1
987	0.5	13	21	0.4	2.5	0.4	2
988	0.5	13	21	0.4	2.5	0.5	1
989	0.5	13	21	0.4	5	0.1	3
990	0.5	13	21	0.4	5	0.2	3
991	0.5	13	21	0.4	5	0.3	1
992	0.5	13	21	0.4	5	0.4	1
993	0.5	13	21	0.4	5	0.5	3
994	0.5	13	21	0.5	0.5	0.1	2
995	0.5	13	21	0.5	0.5	0.2	1
996	0.5	13	21	0.5	0.5	0.3	1
997	0.5	13	21	0.5	0.5	0.4	3
998	0.5	13	21	0.5	0.5	0.5	3
999	0.5	13	21	0.5	1	0.1	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1000	0.5	13	21	0.5	1	0.2	1
1001	0.5	13	21	0.5	1	0.3	3
1002	0.5	13	21	0.5	1	0.4	1
1003	0.5	13	21	0.5	1	0.5	3
1004	0.5	13	21	0.5	2.5	0.1	2
1005	0.5	13	21	0.5	2.5	0.2	1
1006	0.5	13	21	0.5	2.5	0.3	1
1007	0.5	13	21	0.5	2.5	0.4	3
1008	0.5	13	21	0.5	2.5	0.5	3
1009	0.5	13	21	0.5	5	0.1	1
1010	0.5	13	21	0.5	5	0.2	1
1011	0.5	13	21	0.5	5	0.3	1
1012	0.5	13	21	0.5	5	0.4	3
1013	0.5	13	21	0.5	5	0.5	1
1014	0.5	13	21	0.75	0.5	0.1	2
1015	0.5	13	21	0.75	0.5	0.2	1
1016	0.5	13	21	0.75	0.5	0.3	1
1017	0.5	13	21	0.75	0.5	0.4	1
1018	0.5	13	21	0.75	0.5	0.5	2
1019	0.5	13	21	0.75	1	0.1	2
1020	0.5	13	21	0.75	1	0.2	3
1021	0.5	13	21	0.75	1	0.3	1
1022	0.5	13	21	0.75	1	0.4	3
1023	0.5	13	21	0.75	1	0.5	1
1024	0.5	13	21	0.75	2.5	0.1	2
1025	0.5	13	21	0.75	2.5	0.2	3
1026	0.5	13	21	0.75	2.5	0.3	2
1027	0.5	13	21	0.75	2.5	0.4	3
1028	0.5	13	21	0.75	2.5	0.5	2
1029	0.5	13	21	0.75	5	0.1	2
1030	0.5	13	21	0.75	5	0.2	2
1031	0.5	13	21	0.75	5	0.3	1
1032	0.5	13	21	0.75	5	0.4	1
1033	0.5	13	21	0.75	5	0.5	1
1034	0.5	13	31	0.25	0.5	0.1	2
1035	0.5	13	31	0.25	0.5	0.2	2
1036	0.5	13	31	0.25	0.5	0.3	1
1037	0.5	13	31	0.25	0.5	0.4	1
1038	0.5	13	31	0.25	0.5	0.5	1
1039	0.5	13	31	0.25	1	0.1	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1040	0.5	13	31	0.25	1	0.2	1
1041	0.5	13	31	0.25	1	0.3	1
1042	0.5	13	31	0.25	1	0.4	3
1043	0.5	13	31	0.25	1	0.5	1
1044	0.5	13	31	0.25	2.5	0.1	3
1045	0.5	13	31	0.25	2.5	0.2	2
1046	0.5	13	31	0.25	2.5	0.3	1
1047	0.5	13	31	0.25	2.5	0.4	1
1048	0.5	13	31	0.25	2.5	0.5	2
1049	0.5	13	31	0.25	5	0.1	3
1050	0.5	13	31	0.25	5	0.2	2
1051	0.5	13	31	0.25	5	0.3	3
1052	0.5	13	31	0.25	5	0.4	1
1053	0.5	13	31	0.25	5	0.5	1
1054	0.5	13	31	0.4	0.5	0.1	3
1055	0.5	13	31	0.4	0.5	0.2	3
1056	0.5	13	31	0.4	0.5	0.3	1
1057	0.5	13	31	0.4	0.5	0.4	1
1058	0.5	13	31	0.4	0.5	0.5	1
1059	0.5	13	31	0.4	1	0.1	1
1060	0.5	13	31	0.4	1	0.2	1
1061	0.5	13	31	0.4	1	0.3	3
1062	0.5	13	31	0.4	1	0.4	1
1063	0.5	13	31	0.4	1	0.5	2
1064	0.5	13	31	0.4	2.5	0.1	2
1065	0.5	13	31	0.4	2.5	0.2	2
1066	0.5	13	31	0.4	2.5	0.3	2
1067	0.5	13	31	0.4	2.5	0.4	3
1068	0.5	13	31	0.4	2.5	0.5	2
1069	0.5	13	31	0.4	5	0.1	2
1070	0.5	13	31	0.4	5	0.2	2
1071	0.5	13	31	0.4	5	0.3	1
1072	0.5	13	31	0.4	5	0.4	3
1073	0.5	13	31	0.4	5	0.5	2
1074	0.5	13	31	0.5	0.5	0.1	2
1075	0.5	13	31	0.5	0.5	0.2	3
1076	0.5	13	31	0.5	0.5	0.3	1
1077	0.5	13	31	0.5	0.5	0.4	3
1078	0.5	13	31	0.5	0.5	0.5	2
1079	0.5	13	31	0.5	1	0.1	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1080	0.5	13	31	0.5	1	0.2	2
1081	0.5	13	31	0.5	1	0.3	1
1082	0.5	13	31	0.5	1	0.4	2
1083	0.5	13	31	0.5	1	0.5	3
1084	0.5	13	31	0.5	2.5	0.1	1
1085	0.5	13	31	0.5	2.5	0.2	1
1086	0.5	13	31	0.5	2.5	0.3	2
1087	0.5	13	31	0.5	2.5	0.4	3
1088	0.5	13	31	0.5	2.5	0.5	2
1089	0.5	13	31	0.5	5	0.1	1
1090	0.5	13	31	0.5	5	0.2	3
1091	0.5	13	31	0.5	5	0.3	2
1092	0.5	13	31	0.5	5	0.4	1
1093	0.5	13	31	0.5	5	0.5	3
1094	0.5	13	31	0.75	0.5	0.1	1
1095	0.5	13	31	0.75	0.5	0.2	3
1096	0.5	13	31	0.75	0.5	0.3	1
1097	0.5	13	31	0.75	0.5	0.4	3
1098	0.5	13	31	0.75	0.5	0.5	2
1099	0.5	13	31	0.75	1	0.1	1
1100	0.5	13	31	0.75	1	0.2	3
1101	0.5	13	31	0.75	1	0.3	1
1102	0.5	13	31	0.75	1	0.4	3
1103	0.5	13	31	0.75	1	0.5	2
1104	0.5	13	31	0.75	2.5	0.1	2
1105	0.5	13	31	0.75	2.5	0.2	1
1106	0.5	13	31	0.75	2.5	0.3	2
1107	0.5	13	31	0.75	2.5	0.4	1
1108	0.5	13	31	0.75	2.5	0.5	1
1109	0.7	13	31	0.25	2.5	0.2	3
1110	0.7	13	31	0.25	2.5	0.3	1
1111	0.7	13	31	0.25	2.5	0.4	2
1112	0.7	13	31	0.25	2.5	0.5	1
1113	0.7	13	31	0.25	5	0.1	2
1114	0.7	13	31	0.25	5	0.2	1
1115	0.7	13	31	0.25	5	0.3	3
1116	0.7	13	31	0.25	5	0.4	1
1117	0.7	13	31	0.25	5	0.5	1
1118	0.7	13	31	0.4	0.5	0.1	2
1119	0.7	13	31	0.4	0.5	0.2	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1120	0.7	13	31	0.4	0.5	0.3	3
1121	0.7	13	31	0.4	0.5	0.4	1
1122	0.7	13	31	0.4	0.5	0.5	1
1123	0.7	13	31	0.4	1	0.1	2
1124	0.7	13	31	0.4	1	0.2	1
1125	0.7	13	31	0.4	1	0.3	2
1126	0.7	13	31	0.4	1	0.4	2
1127	0.7	13	31	0.4	1	0.5	3
1128	0.7	13	31	0.4	2.5	0.1	2
1129	0.7	13	31	0.4	2.5	0.2	2
1130	0.7	13	31	0.4	2.5	0.3	3
1131	0.7	13	31	0.4	2.5	0.4	3
1132	0.7	13	31	0.4	2.5	0.5	3
1133	0.7	13	31	0.4	5	0.1	2
1134	0.7	13	31	0.4	5	0.2	1
1135	0.7	13	31	0.4	5	0.3	2
1136	0.7	13	31	0.4	5	0.4	3
1137	0.7	13	31	0.4	5	0.5	1
1138	0.7	13	31	0.5	0.5	0.1	2
1139	0.7	13	31	0.5	0.5	0.2	2
1140	0.7	13	31	0.5	0.5	0.3	2
1141	0.7	13	31	0.5	0.5	0.4	1
1142	0.7	13	31	0.5	0.5	0.5	1
1143	0.7	13	31	0.5	1	0.1	1
1144	0.7	13	31	0.5	1	0.2	1
1145	0.7	13	31	0.5	1	0.3	1
1146	0.7	13	31	0.5	1	0.4	3
1147	0.7	13	31	0.5	1	0.5	1
1148	0.7	13	31	0.5	2.5	0.1	3
1149	0.7	13	31	0.5	2.5	0.2	2
1150	0.7	13	31	0.5	2.5	0.3	1
1151	0.7	13	31	0.5	2.5	0.4	1
1152	0.7	13	31	0.5	2.5	0.5	2
1153	0.7	13	31	0.5	5	0.1	3
1154	0.7	13	31	0.5	5	0.2	1
1155	0.7	13	31	0.5	5	0.3	1
1156	0.7	13	31	0.5	5	0.4	1
1157	0.7	13	31	0.5	5	0.5	3
1158	0.7	13	31	0.75	0.5	0.1	2
1159	0.7	13	31	0.75	0.5	0.2	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1160	0.7	13	31	0.75	0.5	0.3	3
1161	0.7	13	31	0.75	0.5	0.4	1
1162	0.7	13	31	0.75	0.5	0.5	3
1163	0.7	13	31	0.75	1	0.1	2
1164	0.7	13	31	0.75	1	0.2	2
1165	0.7	13	31	0.75	1	0.3	3
1166	0.7	13	31	0.75	1	0.4	1
1167	0.7	13	31	0.75	1	0.5	1
1168	0.7	13	31	0.75	2.5	0.1	2
1169	0.7	13	31	0.75	2.5	0.2	3
1170	0.7	13	31	0.75	2.5	0.3	1
1171	0.7	13	31	0.75	2.5	0.4	3
1172	0.7	13	31	0.75	2.5	0.5	1
1173	0.7	13	31	0.75	5	0.1	2
1174	0.7	13	31	0.75	5	0.2	2
1175	0.7	13	31	0.75	5	0.3	3
1176	0.7	13	31	0.75	5	0.4	2
1177	0.7	13	31	0.75	5	0.5	1
1178	0.7	13	41	0.25	0.5	0.1	3
1179	0.7	13	41	0.25	0.5	0.2	1
1180	0.7	13	41	0.25	0.5	0.3	2
1181	0.7	13	41	0.25	0.5	0.4	1
1182	0.7	13	41	0.25	0.5	0.5	1
1183	0.7	13	41	0.25	1	0.1	3
1184	0.7	13	41	0.25	1	0.2	1
1185	0.7	13	41	0.25	1	0.3	2
1186	0.7	13	41	0.25	1	0.4	1
1187	0.7	13	41	0.25	1	0.5	3
1188	0.7	13	41	0.25	2.5	0.1	2
1189	0.7	13	41	0.25	2.5	0.2	1
1190	0.7	13	41	0.25	2.5	0.3	1
1191	0.7	13	41	0.25	2.5	0.4	1
1192	0.7	13	41	0.25	2.5	0.5	3
1193	0.7	13	41	0.25	5	0.1	1
1194	0.7	13	41	0.25	5	0.2	1
1195	0.7	13	41	0.25	5	0.3	2
1196	0.7	13	41	0.25	5	0.4	3
1197	0.7	13	41	0.25	5	0.5	1
1198	0.7	13	41	0.4	0.5	0.1	1
1199	0.7	13	41	0.4	0.5	0.2	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1200	0.7	13	41	0.4	0.5	0.3	1
1201	0.7	13	41	0.4	0.5	0.4	3
1202	0.7	13	41	0.4	0.5	0.5	3
1203	0.7	13	41	0.4	1	0.1	1
1204	0.7	13	41	0.4	1	0.2	3
1205	0.7	13	41	0.4	1	0.3	1
1206	0.7	13	41	0.4	1	0.4	3
1207	0.7	13	41	0.4	1	0.5	1
1208	0.7	13	41	0.4	2.5	0.1	1
1209	0.7	13	41	0.4	2.5	0.2	3
1210	0.7	13	41	0.4	2.5	0.3	1
1211	0.7	13	41	0.4	2.5	0.4	3
1212	0.7	13	41	0.4	2.5	0.5	3
1213	0.7	13	41	0.4	5	0.1	3
1214	0.7	13	41	0.4	5	0.2	1
1215	0.7	13	41	0.4	5	0.3	1
1216	0.7	13	41	0.4	5	0.4	1
1217	0.9	10	31	0.75	5	0.3	3
1218	0.9	10	31	0.75	5	0.4	3
1219	0.9	10	31	0.75	5	0.5	1
1220	0.9	10	41	0.25	0.5	0.1	2
1221	0.9	10	41	0.25	0.5	0.2	3
1222	0.9	10	41	0.25	0.5	0.3	3
1223	0.9	10	41	0.25	0.5	0.4	3
1224	0.9	10	41	0.25	0.5	0.5	1
1225	0.9	10	41	0.25	1	0.1	2
1226	0.9	10	41	0.25	1	0.2	1
1227	0.9	10	41	0.25	1	0.3	3
1228	0.9	10	41	0.25	1	0.4	1
1229	0.9	10	41	0.25	1	0.5	1
1230	0.9	10	41	0.25	2.5	0.1	2
1231	0.9	10	41	0.25	2.5	0.2	1
1232	0.9	10	41	0.25	2.5	0.3	3
1233	0.9	10	41	0.25	2.5	0.4	3
1234	0.9	10	41	0.25	2.5	0.5	3
1235	0.9	10	41	0.25	5	0.1	1
1236	0.9	10	41	0.25	5	0.2	2
1237	0.9	10	41	0.25	5	0.3	2
1238	0.9	10	41	0.25	5	0.4	3
1239	0.9	10	41	0.25	5	0.5	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1240	0.9	10	41	0.4	0.5	0.1	1
1241	0.9	10	41	0.4	0.5	0.2	1
1242	0.9	10	41	0.4	0.5	0.3	2
1243	0.9	10	41	0.4	0.5	0.4	1
1244	0.9	10	41	0.4	0.5	0.5	3
1245	0.9	10	41	0.4	1	0.1	1
1246	0.9	10	41	0.4	1	0.2	1
1247	0.9	10	41	0.4	1	0.3	2
1248	0.9	10	41	0.4	1	0.4	1
1249	0.9	10	41	0.4	1	0.5	3
1250	0.9	10	41	0.4	2.5	0.1	2
1251	0.9	10	41	0.4	2.5	0.2	2
1252	0.9	10	41	0.4	2.5	0.3	3
1253	0.9	10	41	0.4	2.5	0.4	1
1254	0.9	10	41	0.4	2.5	0.5	1
1255	0.9	10	41	0.4	5	0.1	1
1256	0.9	10	41	0.4	5	0.2	3
1257	0.9	10	41	0.4	5	0.3	1
1258	0.9	10	41	0.4	5	0.4	1
1259	0.9	10	41	0.4	5	0.5	1
1260	0.9	10	41	0.5	0.5	0.1	2
1261	0.9	10	41	0.5	0.5	0.2	3
1262	0.9	10	41	0.5	0.5	0.3	1
1263	0.9	10	41	0.5	0.5	0.4	3
1264	0.9	10	41	0.5	0.5	0.5	1
1265	0.9	10	41	0.5	1	0.1	3
1266	0.9	10	41	0.5	1	0.2	3
1267	0.9	10	41	0.5	1	0.3	1
1268	0.9	10	41	0.5	1	0.4	1
1269	0.9	10	41	0.5	1	0.5	2
1270	0.9	10	41	0.5	2.5	0.1	1
1271	0.9	10	41	0.5	2.5	0.2	3
1272	0.9	10	41	0.5	2.5	0.3	1
1273	0.9	10	41	0.5	2.5	0.4	3
1274	0.9	10	41	0.5	2.5	0.5	1
1275	0.9	10	41	0.5	5	0.1	3
1276	0.9	10	41	0.5	5	0.2	1
1277	0.9	10	41	0.5	5	0.3	2
1278	0.9	10	41	0.5	5	0.4	1
1279	0.9	10	41	0.5	5	0.5	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1280	0.9	10	41	0.75	0.5	0.1	3
1281	0.9	10	41	0.75	0.5	0.2	2
1282	0.9	10	41	0.75	0.5	0.3	2
1283	0.9	10	41	0.75	0.5	0.4	2
1284	0.9	10	41	0.75	0.5	0.5	1
1285	0.9	10	41	0.75	1	0.1	3
1286	0.9	10	41	0.75	1	0.2	2
1287	0.9	10	41	0.75	1	0.3	2
1288	0.9	10	41	0.75	1	0.4	2
1289	0.9	10	41	0.75	1	0.5	1
1290	0.9	10	41	0.75	2.5	0.1	3
1291	0.9	10	41	0.75	2.5	0.2	2
1292	0.9	10	41	0.75	2.5	0.3	2
1293	0.9	10	41	0.75	2.5	0.4	1
1294	0.9	10	41	0.75	2.5	0.5	1
1295	0.9	10	41	0.75	5	0.1	1
1296	0.9	10	41	0.75	5	0.2	1
1297	0.9	10	41	0.75	5	0.3	1
1298	0.9	10	41	0.75	5	0.4	3
1299	0.9	10	41	0.75	5	0.5	3
1300	0.9	13	21	0.25	0.5	0.1	1
1301	0.9	13	21	0.25	0.5	0.2	2
1302	0.9	13	21	0.25	0.5	0.3	1
1303	0.9	13	21	0.25	0.5	0.4	3
1304	0.9	13	21	0.25	0.5	0.5	1
1305	0.9	13	21	0.25	1	0.1	1
1306	0.9	13	21	0.25	1	0.2	2
1307	0.9	13	21	0.25	1	0.3	1
1308	0.9	13	21	0.25	1	0.4	3
1309	0.9	13	21	0.25	1	0.5	3
1310	0.9	13	21	0.25	2.5	0.1	1
1311	0.9	13	21	0.25	2.5	0.2	2
1312	0.9	13	21	0.25	2.5	0.3	1
1313	0.9	13	21	0.25	2.5	0.4	1
1314	0.9	13	21	0.25	2.5	0.5	1
1315	0.9	13	21	0.25	5	0.1	1
1316	0.9	13	21	0.25	5	0.2	1
1317	0.9	13	21	0.25	5	0.3	1
1318	0.9	13	21	0.25	5	0.4	1
1319	0.9	13	21	0.25	5	0.5	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1320	0.9	13	21	0.4	0.5	0.1	3
1321	0.9	13	21	0.4	0.5	0.2	3
1322	0.9	13	21	0.4	0.5	0.3	1
1323	0.9	13	21	0.4	0.5	0.4	1
1324	0.5	13	31	0.75	5	0.1	1
1325	0.5	13	31	0.75	5	0.2	1
1326	0.5	13	31	0.75	5	0.3	2
1327	0.5	13	31	0.75	5	0.4	1
1328	0.5	13	31	0.75	5	0.5	1
1329	0.5	13	41	0.25	0.5	0.1	3
1330	0.5	13	41	0.25	0.5	0.2	1
1331	0.5	13	41	0.25	0.5	0.3	2
1332	0.5	13	41	0.25	0.5	0.4	2
1333	0.5	13	41	0.25	0.5	0.5	3
1334	0.5	13	41	0.25	1	0.1	2
1335	0.5	13	41	0.25	1	0.2	1
1336	0.5	13	41	0.25	1	0.3	2
1337	0.5	13	41	0.25	1	0.4	1
1338	0.5	13	41	0.25	1	0.5	1
1339	0.5	13	41	0.25	2.5	0.1	1
1340	0.5	13	41	0.25	2.5	0.2	3
1341	0.5	13	41	0.25	2.5	0.3	1
1342	0.5	13	41	0.25	2.5	0.4	1
1343	0.5	13	41	0.25	2.5	0.5	3
1344	0.5	13	41	0.25	5	0.1	2
1345	0.5	13	41	0.25	5	0.2	1
1346	0.5	13	41	0.25	5	0.3	2
1347	0.5	13	41	0.25	5	0.4	1
1348	0.5	13	41	0.25	5	0.5	2
1349	0.5	13	41	0.4	0.5	0.1	2
1350	0.5	13	41	0.4	0.5	0.2	2
1351	0.5	13	41	0.4	0.5	0.3	2
1352	0.5	13	41	0.4	0.5	0.4	1
1353	0.5	13	41	0.4	0.5	0.5	1
1354	0.5	13	41	0.4	1	0.1	1
1355	0.5	13	41	0.4	1	0.2	1
1356	0.5	13	41	0.4	1	0.3	2
1357	0.5	13	41	0.4	1	0.4	1
1358	0.5	13	41	0.4	1	0.5	3
1359	0.5	13	41	0.4	2.5	0.1	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1360	0.5	13	41	0.4	2.5	0.2	2
1361	0.5	13	41	0.4	2.5	0.3	2
1362	0.5	13	41	0.4	2.5	0.4	1
1363	0.5	13	41	0.4	2.5	0.5	1
1364	0.5	13	41	0.4	5	0.1	3
1365	0.5	13	41	0.4	5	0.2	1
1366	0.5	13	41	0.4	5	0.3	1
1367	0.5	13	41	0.4	5	0.4	3
1368	0.5	13	41	0.4	5	0.5	1
1369	0.5	13	41	0.5	0.5	0.1	3
1370	0.5	13	41	0.5	0.5	0.2	1
1371	0.5	13	41	0.5	0.5	0.3	1
1372	0.5	13	41	0.5	0.5	0.4	3
1373	0.5	13	41	0.5	0.5	0.5	3
1374	0.5	13	41	0.5	1	0.1	1
1375	0.5	13	41	0.5	1	0.2	1
1376	0.5	13	41	0.5	1	0.3	1
1377	0.5	13	41	0.5	1	0.4	3
1378	0.5	13	41	0.5	1	0.5	3
1379	0.5	13	41	0.5	2.5	0.1	1
1380	0.5	13	41	0.5	2.5	0.2	1
1381	0.5	13	41	0.5	2.5	0.3	1
1382	0.5	13	41	0.5	2.5	0.4	1
1383	0.5	13	41	0.5	2.5	0.5	1
1384	0.5	13	41	0.5	5	0.1	2
1385	0.5	13	41	0.5	5	0.2	1
1386	0.5	13	41	0.5	5	0.3	3
1387	0.5	13	41	0.5	5	0.4	1
1388	0.5	13	41	0.5	5	0.5	2
1389	0.5	13	41	0.75	0.5	0.1	1
1390	0.5	13	41	0.75	0.5	0.2	1
1391	0.5	13	41	0.75	0.5	0.3	1
1392	0.5	13	41	0.75	0.5	0.4	1
1393	0.5	13	41	0.75	0.5	0.5	1
1394	0.5	13	41	0.75	1	0.1	1
1395	0.5	13	41	0.75	1	0.2	1
1396	0.5	13	41	0.75	1	0.3	3
1397	0.5	13	41	0.75	1	0.4	1
1398	0.5	13	41	0.75	1	0.5	1
1399	0.5	13	41	0.75	2.5	0.1	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1400	0.5	13	41	0.75	2.5	0.2	1
1401	0.5	13	41	0.75	2.5	0.3	1
1402	0.5	13	41	0.75	2.5	0.4	3
1403	0.5	13	41	0.75	2.5	0.5	3
1404	0.5	13	41	0.75	5	0.1	1
1405	0.5	13	41	0.75	5	0.2	3
1406	0.5	13	41	0.75	5	0.3	3
1407	0.5	13	41	0.75	5	0.4	1
1408	0.5	13	41	0.75	5	0.5	3
1409	0.7	7	21	0.25	0.5	0.1	1
1410	0.7	7	21	0.25	0.5	0.2	1
1411	0.7	7	21	0.25	0.5	0.3	2
1412	0.7	7	21	0.25	0.5	0.4	2
1413	0.7	7	21	0.25	0.5	0.5	3
1414	0.7	7	21	0.25	1	0.1	1
1415	0.7	7	21	0.25	1	0.2	2
1416	0.7	7	21	0.25	1	0.3	2
1417	0.7	7	21	0.25	1	0.4	2
1418	0.7	7	21	0.25	1	0.5	3
1419	0.7	7	21	0.25	2.5	0.1	1
1420	0.7	7	21	0.25	2.5	0.2	1
1421	0.7	7	21	0.25	2.5	0.3	2
1422	0.7	7	21	0.25	2.5	0.4	1
1423	0.7	7	21	0.25	2.5	0.5	2
1424	0.7	7	21	0.25	5	0.1	3
1425	0.7	7	21	0.25	5	0.2	3
1426	0.7	7	21	0.25	5	0.3	1
1427	0.7	7	21	0.25	5	0.4	2
1428	0.7	7	21	0.25	5	0.5	2
1429	0.7	7	21	0.4	0.5	0.1	1
1430	0.7	7	21	0.4	0.5	0.2	1
1431	0.7	7	21	0.4	0.5	0.3	1
1432	0.7	7	21	0.4	0.5	0.4	2
1433	0.7	7	21	0.4	0.5	0.5	2
1434	0.7	7	21	0.4	1	0.1	3
1435	0.7	7	21	0.4	1	0.2	1
1436	0.7	7	21	0.4	1	0.3	3
1437	0.7	7	21	0.4	1	0.4	2
1438	0.7	7	21	0.4	1	0.5	1
1439	0.7	7	21	0.4	2.5	0.1	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1440	0.7	7	21	0.4	2.5	0.2	1
1441	0.7	7	21	0.4	2.5	0.3	3
1442	0.7	7	21	0.4	2.5	0.4	2
1443	0.7	7	21	0.4	2.5	0.5	1
1444	0.7	7	21	0.4	5	0.1	1
1445	0.7	7	21	0.4	5	0.2	2
1446	0.7	7	21	0.4	5	0.3	1
1447	0.7	7	21	0.4	5	0.4	1
1448	0.7	7	21	0.4	5	0.5	2
1449	0.7	7	21	0.5	0.5	0.1	3
1450	0.7	7	21	0.5	0.5	0.2	2
1451	0.7	7	21	0.5	0.5	0.3	2
1452	0.7	7	21	0.5	0.5	0.4	1
1453	0.7	7	21	0.5	0.5	0.5	2
1454	0.7	7	21	0.5	1	0.1	3
1455	0.7	7	21	0.5	1	0.2	2
1456	0.7	7	21	0.5	1	0.3	1
1457	0.7	7	21	0.5	1	0.4	2
1458	0.7	7	21	0.5	1	0.5	1
1459	0.7	7	21	0.5	2.5	0.1	3
1460	0.7	7	21	0.5	2.5	0.2	2
1461	0.7	7	21	0.5	2.5	0.3	2
1462	0.7	7	21	0.5	2.5	0.4	3
1463	0.7	7	21	0.5	2.5	0.5	1
1464	0.7	7	21	0.5	5	0.1	1
1465	0.7	7	21	0.5	5	0.2	1
1466	0.7	7	21	0.5	5	0.3	2
1467	0.7	7	21	0.5	5	0.4	2
1468	0.7	7	21	0.5	5	0.5	1
1469	0.7	7	21	0.75	0.5	0.1	1
1470	0.7	7	21	0.75	0.5	0.2	1
1471	0.7	7	21	0.75	0.5	0.3	2
1472	0.7	7	21	0.75	0.5	0.4	2
1473	0.7	7	21	0.75	0.5	0.5	1
1474	0.7	7	21	0.75	1	0.1	1
1475	0.7	7	21	0.75	1	0.2	1
1476	0.7	7	21	0.75	1	0.3	2
1477	0.7	7	21	0.75	1	0.4	1
1478	0.7	7	21	0.75	1	0.5	3
1479	0.7	7	21	0.75	2.5	0.1	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1480	0.7	7	21	0.75	2.5	0.2	1
1481	0.7	7	21	0.75	2.5	0.3	1
1482	0.7	7	21	0.75	2.5	0.4	1
1483	0.7	7	21	0.75	2.5	0.5	2
1484	0.7	7	21	0.75	5	0.1	2
1485	0.7	7	21	0.75	5	0.2	1
1486	0.7	7	21	0.75	5	0.3	1
1487	0.7	7	21	0.75	5	0.4	1
1488	0.7	7	21	0.75	5	0.5	2
1489	0.7	7	31	0.25	0.5	0.1	1
1490	0.7	7	31	0.25	0.5	0.2	2
1491	0.7	7	31	0.25	0.5	0.3	1
1492	0.7	7	31	0.25	0.5	0.4	1
1493	0.7	7	31	0.25	0.5	0.5	2
1494	0.7	7	31	0.25	1	0.1	2
1495	0.7	7	31	0.25	1	0.2	1
1496	0.7	7	31	0.25	1	0.3	3
1497	0.7	7	31	0.25	1	0.4	2
1498	0.7	7	31	0.25	1	0.5	2
1499	0.7	7	31	0.25	2.5	0.1	1
1500	0.7	7	31	0.25	2.5	0.2	2
1501	0.7	7	31	0.25	2.5	0.3	1
1502	0.7	7	31	0.25	2.5	0.4	3
1503	0.7	7	31	0.25	2.5	0.5	1
1504	0.7	7	31	0.25	5	0.1	1
1505	0.7	7	31	0.25	5	0.2	2
1506	0.7	7	31	0.25	5	0.3	1
1507	0.7	7	31	0.25	5	0.4	3
1508	0.7	7	31	0.25	5	0.5	1
1509	0.7	7	31	0.4	0.5	0.1	2
1510	0.7	7	31	0.4	0.5	0.2	2
1511	0.7	7	31	0.4	0.5	0.3	1
1512	0.7	7	31	0.4	0.5	0.4	3
1513	0.7	7	31	0.4	0.5	0.5	1
1514	0.7	7	31	0.4	1	0.1	2
1515	0.7	7	31	0.4	1	0.2	2
1516	0.7	7	31	0.4	1	0.3	3
1517	0.7	7	31	0.4	1	0.4	1
1518	0.7	7	31	0.4	1	0.5	1
1519	0.7	7	31	0.4	2.5	0.1	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1520	0.7	7	31	0.4	2.5	0.2	1
1521	0.7	7	31	0.4	2.5	0.3	2
1522	0.7	7	31	0.4	2.5	0.4	1
1523	0.7	7	31	0.4	2.5	0.5	3
1524	0.7	7	31	0.4	5	0.1	3
1525	0.7	7	31	0.4	5	0.2	1
1526	0.7	7	31	0.4	5	0.3	2
1527	0.7	7	31	0.4	5	0.4	1
1528	0.7	7	31	0.4	5	0.5	3
1529	0.7	7	31	0.5	0.5	0.1	3
1530	0.7	7	31	0.5	0.5	0.2	1
1531	0.7	7	31	0.5	0.5	0.3	2
1532	0.7	7	31	0.5	0.5	0.4	1
1533	0.7	7	31	0.5	0.5	0.5	3
1534	0.7	7	31	0.5	1	0.1	3
1535	0.7	7	31	0.5	1	0.2	1
1536	0.7	7	31	0.5	1	0.3	2
1537	0.7	7	31	0.5	1	0.4	1
1538	0.7	7	31	0.5	1	0.5	3
1539	0.7	7	31	0.5	2.5	0.1	2
1540	0.7	13	41	0.4	5	0.5	3
1541	0.7	13	41	0.5	0.5	0.1	1
1542	0.7	13	41	0.5	0.5	0.2	1
1543	0.7	13	41	0.5	0.5	0.3	3
1544	0.7	13	41	0.5	0.5	0.4	2
1545	0.7	13	41	0.5	0.5	0.5	1
1546	0.7	13	41	0.5	1	0.1	3
1547	0.7	13	41	0.5	1	0.2	1
1548	0.7	13	41	0.5	1	0.3	1
1549	0.7	13	41	0.5	1	0.4	2
1550	0.7	13	41	0.5	1	0.5	2
1551	0.7	13	41	0.5	2.5	0.1	1
1552	0.7	13	41	0.5	2.5	0.2	1
1553	0.7	13	41	0.5	2.5	0.3	3
1554	0.7	13	41	0.5	2.5	0.4	1
1555	0.7	13	41	0.5	2.5	0.5	2
1556	0.7	13	41	0.5	5	0.1	1
1557	0.7	13	41	0.5	5	0.2	1
1558	0.7	13	41	0.5	5	0.3	1
1559	0.7	13	41	0.5	5	0.4	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1560	0.7	13	41	0.5	5	0.5	1
1561	0.7	13	41	0.75	0.5	0.1	1
1562	0.7	13	41	0.75	0.5	0.2	2
1563	0.7	13	41	0.75	0.5	0.3	3
1564	0.7	13	41	0.75	0.5	0.4	2
1565	0.7	13	41	0.75	0.5	0.5	2
1566	0.7	13	41	0.75	1	0.1	1
1567	0.7	13	41	0.75	1	0.2	2
1568	0.7	13	41	0.75	1	0.3	2
1569	0.7	13	41	0.75	1	0.4	1
1570	0.7	13	41	0.75	1	0.5	1
1571	0.7	13	41	0.75	2.5	0.1	1
1572	0.7	13	41	0.75	2.5	0.2	2
1573	0.7	13	41	0.75	2.5	0.3	2
1574	0.7	13	41	0.75	2.5	0.4	1
1575	0.7	13	41	0.75	2.5	0.5	1
1576	0.7	13	41	0.75	5	0.1	1
1577	0.7	13	41	0.75	5	0.2	2
1578	0.7	13	41	0.75	5	0.3	2
1579	0.7	13	41	0.75	5	0.4	1
1580	0.7	13	41	0.75	5	0.5	1
1581	0.9	7	21	0.25	0.5	0.1	2
1582	0.9	7	21	0.25	0.5	0.2	2
1583	0.9	7	21	0.25	0.5	0.3	1
1584	0.9	7	21	0.25	0.5	0.4	3
1585	0.9	7	21	0.25	0.5	0.5	1
1586	0.9	7	21	0.25	1	0.1	2
1587	0.9	7	21	0.25	1	0.2	2
1588	0.9	7	21	0.25	1	0.3	1
1589	0.9	7	21	0.25	1	0.4	1
1590	0.9	7	21	0.25	1	0.5	3
1591	0.9	7	21	0.25	2.5	0.1	2
1592	0.9	7	21	0.25	2.5	0.2	1
1593	0.9	7	21	0.25	2.5	0.3	2
1594	0.9	7	21	0.25	2.5	0.4	2
1595	0.9	7	21	0.25	2.5	0.5	3
1596	0.9	7	21	0.25	5	0.1	2
1597	0.9	7	21	0.25	5	0.2	2
1598	0.9	7	21	0.25	5	0.3	2
1599	0.9	7	21	0.25	5	0.4	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1600	0.9	7	21	0.25	5	0.5	3
1601	0.9	7	21	0.4	0.5	0.1	2
1602	0.9	7	21	0.4	0.5	0.2	2
1603	0.9	7	21	0.4	0.5	0.3	2
1604	0.9	7	21	0.4	0.5	0.4	2
1605	0.9	7	21	0.4	0.5	0.5	3
1606	0.9	7	21	0.4	1	0.1	1
1607	0.9	7	21	0.4	1	0.2	1
1608	0.9	7	21	0.4	1	0.3	1
1609	0.9	7	21	0.4	1	0.4	3
1610	0.9	7	21	0.4	1	0.5	1
1611	0.9	7	21	0.4	2.5	0.1	1
1612	0.9	7	21	0.4	2.5	0.2	2
1613	0.9	7	21	0.4	2.5	0.3	1
1614	0.9	7	21	0.4	2.5	0.4	3
1615	0.9	7	21	0.4	2.5	0.5	1
1616	0.9	7	21	0.4	5	0.1	1
1617	0.9	7	21	0.4	5	0.2	2
1618	0.9	7	21	0.4	5	0.3	1
1619	0.9	7	21	0.4	5	0.4	2
1620	0.9	7	21	0.4	5	0.5	1
1621	0.9	7	21	0.5	0.5	0.1	1
1622	0.9	7	21	0.5	0.5	0.2	1
1623	0.9	7	21	0.5	0.5	0.3	1
1624	0.9	7	21	0.5	0.5	0.4	3
1625	0.9	7	21	0.5	0.5	0.5	1
1626	0.9	7	21	0.5	1	0.1	1
1627	0.9	7	21	0.5	1	0.2	3
1628	0.9	7	21	0.5	1	0.3	2
1629	0.9	7	21	0.5	1	0.4	1
1630	0.9	7	21	0.5	1	0.5	1
1631	0.9	7	21	0.5	2.5	0.1	1
1632	0.9	7	21	0.5	2.5	0.2	3
1633	0.9	7	21	0.5	2.5	0.3	2
1634	0.9	7	21	0.5	2.5	0.4	1
1635	0.9	7	21	0.5	2.5	0.5	1
1636	0.9	7	21	0.5	5	0.1	1
1637	0.9	7	21	0.5	5	0.2	1
1638	0.9	7	21	0.5	5	0.3	3
1639	0.9	7	21	0.5	5	0.4	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1640	0.9	7	21	0.5	5	0.5	2
1641	0.9	7	21	0.75	0.5	0.1	3
1642	0.9	7	21	0.75	0.5	0.2	1
1643	0.9	7	21	0.75	0.5	0.3	2
1644	0.9	7	21	0.75	0.5	0.4	1
1645	0.9	7	21	0.75	0.5	0.5	1
1646	0.9	7	21	0.75	1	0.1	3
1647	0.9	7	21	0.75	1	0.2	3
1648	0.9	13	21	0.4	0.5	0.5	2
1649	0.9	13	21	0.4	1	0.1	1
1650	0.9	13	21	0.4	1	0.2	1
1651	0.9	13	21	0.4	1	0.3	2
1652	0.9	13	21	0.4	1	0.4	2
1653	0.9	13	21	0.4	1	0.5	3
1654	0.9	13	21	0.4	2.5	0.1	1
1655	0.9	13	21	0.4	2.5	0.2	2
1656	0.9	13	21	0.4	2.5	0.3	1
1657	0.9	13	21	0.4	2.5	0.4	1
1658	0.9	13	21	0.4	2.5	0.5	1
1659	0.9	13	21	0.4	5	0.1	1
1660	0.9	13	21	0.4	5	0.2	2
1661	0.9	13	21	0.4	5	0.3	1
1662	0.9	13	21	0.4	5	0.4	1
1663	0.9	13	21	0.4	5	0.5	3
1664	0.9	13	21	0.5	0.5	0.1	1
1665	0.9	13	21	0.5	0.5	0.2	2
1666	0.9	13	21	0.5	0.5	0.3	3
1667	0.9	13	21	0.5	0.5	0.4	1
1668	0.9	13	21	0.5	0.5	0.5	1
1669	0.9	13	21	0.5	1	0.1	3
1670	0.9	13	21	0.5	1	0.2	2
1671	0.9	13	21	0.5	1	0.3	1
1672	0.9	13	21	0.5	1	0.4	1
1673	0.9	13	21	0.5	1	0.5	1
1674	0.9	13	21	0.5	2.5	0.1	1
1675	0.9	13	21	0.5	2.5	0.2	3
1676	0.9	13	21	0.5	2.5	0.3	1
1677	0.9	13	21	0.5	2.5	0.4	3
1678	0.9	13	21	0.5	2.5	0.5	1
1679	0.9	13	21	0.5	5	0.1	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1680	0.9	13	21	0.5	5	0.2	3
1681	0.9	13	21	0.5	5	0.3	1
1682	0.9	13	21	0.5	5	0.4	3
1683	0.9	13	21	0.5	5	0.5	1
1684	0.9	13	21	0.75	0.5	0.1	1
1685	0.9	13	21	0.75	0.5	0.2	2
1686	0.9	13	21	0.75	0.5	0.3	1
1687	0.9	13	21	0.75	0.5	0.4	3
1688	0.9	13	21	0.75	0.5	0.5	1
1689	0.9	13	21	0.75	1	0.1	2
1690	0.9	13	21	0.75	1	0.2	1
1691	0.9	13	21	0.75	1	0.3	3
1692	0.9	13	21	0.75	1	0.4	3
1693	0.9	13	21	0.75	1	0.5	2
1694	0.9	13	21	0.75	2.5	0.1	1
1695	0.9	13	21	0.75	2.5	0.2	1
1696	0.9	13	21	0.75	2.5	0.3	1
1697	0.9	13	21	0.75	2.5	0.4	3
1698	0.9	13	21	0.75	2.5	0.5	3
1699	0.9	13	21	0.75	5	0.1	1
1700	0.9	13	21	0.75	5	0.2	1
1701	0.9	13	21	0.75	5	0.3	1
1702	0.9	13	21	0.75	5	0.4	3
1703	0.9	13	21	0.75	5	0.5	3
1704	0.9	13	31	0.25	0.5	0.1	1
1705	0.9	13	31	0.25	0.5	0.2	3
1706	0.9	13	31	0.25	0.5	0.3	1
1707	0.9	13	31	0.25	0.5	0.4	3
1708	0.9	13	31	0.25	0.5	0.5	1
1709	0.9	13	31	0.25	1	0.1	3
1710	0.9	13	31	0.25	1	0.2	1
1711	0.9	13	31	0.25	1	0.3	3
1712	0.9	13	31	0.25	1	0.4	1
1713	0.9	13	31	0.25	1	0.5	1
1714	0.9	13	31	0.25	2.5	0.1	1
1715	0.9	13	31	0.25	2.5	0.2	3
1716	0.9	13	31	0.25	2.5	0.3	2
1717	0.9	13	31	0.25	2.5	0.4	3
1718	0.9	13	31	0.25	2.5	0.5	1
1719	0.9	13	31	0.25	5	0.1	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1720	0.9	13	31	0.25	5	0.2	1
1721	0.9	13	31	0.25	5	0.3	1
1722	0.9	13	31	0.25	5	0.4	3
1723	0.9	13	31	0.25	5	0.5	2
1724	0.9	13	31	0.4	0.5	0.1	1
1725	0.9	13	31	0.4	0.5	0.2	3
1726	0.9	13	31	0.4	0.5	0.3	1
1727	0.9	13	31	0.4	0.5	0.4	1
1728	0.9	13	31	0.4	0.5	0.5	2
1729	0.9	13	31	0.4	1	0.1	1
1730	0.9	13	31	0.4	1	0.2	3
1731	0.9	13	31	0.4	1	0.3	1
1732	0.9	13	31	0.4	1	0.4	3
1733	0.9	13	31	0.4	1	0.5	2
1734	0.9	13	31	0.4	2.5	0.1	2
1735	0.9	13	31	0.4	2.5	0.2	1
1736	0.9	13	31	0.4	2.5	0.3	1
1737	0.9	13	31	0.4	2.5	0.4	1
1738	0.9	13	31	0.4	2.5	0.5	2
1739	0.9	13	31	0.4	5	0.1	3
1740	0.9	13	31	0.4	5	0.2	1
1741	0.9	13	31	0.4	5	0.3	3
1742	0.9	13	31	0.4	5	0.4	1
1743	0.9	13	31	0.4	5	0.5	2
1744	0.9	13	31	0.5	0.5	0.1	2
1745	0.9	13	31	0.5	0.5	0.2	1
1746	0.9	13	31	0.5	0.5	0.3	1
1747	0.9	13	31	0.5	0.5	0.4	3
1748	0.9	13	31	0.5	0.5	0.5	1
1749	0.9	13	31	0.5	1	0.1	2
1750	0.9	13	31	0.5	1	0.2	1
1751	0.9	13	31	0.5	1	0.3	1
1752	0.9	13	31	0.5	1	0.4	1
1753	0.9	13	31	0.5	1	0.5	2
1754	0.9	13	31	0.5	2.5	0.1	1
1755	0.9	13	31	0.5	2.5	0.2	2
1756	0.7	7	31	0.5	2.5	0.2	2
1757	0.7	7	31	0.5	2.5	0.3	1
1758	0.7	7	31	0.5	2.5	0.4	3
1759	0.7	7	31	0.5	2.5	0.5	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1760	0.7	7	31	0.5	5	0.1	1
1761	0.7	7	31	0.5	5	0.2	2
1762	0.7	7	31	0.5	5	0.3	1
1763	0.7	7	31	0.5	5	0.4	3
1764	0.7	7	31	0.5	5	0.5	1
1765	0.7	7	31	0.75	0.5	0.1	1
1766	0.7	7	31	0.75	0.5	0.2	2
1767	0.7	7	31	0.75	0.5	0.3	1
1768	0.7	7	31	0.75	0.5	0.4	3
1769	0.7	7	31	0.75	0.5	0.5	1
1770	0.7	7	31	0.75	1	0.1	2
1771	0.7	7	31	0.75	1	0.2	3
1772	0.7	7	31	0.75	1	0.3	2
1773	0.7	7	31	0.75	1	0.4	1
1774	0.7	7	31	0.75	1	0.5	3
1775	0.7	7	31	0.75	2.5	0.1	1
1776	0.7	7	31	0.75	2.5	0.2	3
1777	0.7	7	31	0.75	2.5	0.3	2
1778	0.7	7	31	0.75	2.5	0.4	1
1779	0.7	7	31	0.75	2.5	0.5	3
1780	0.7	7	31	0.75	5	0.1	2
1781	0.7	7	31	0.75	5	0.2	1
1782	0.7	7	31	0.75	5	0.3	1
1783	0.7	7	31	0.75	5	0.4	3
1784	0.7	7	31	0.75	5	0.5	2
1785	0.7	7	41	0.25	0.5	0.1	1
1786	0.7	7	41	0.25	0.5	0.2	1
1787	0.7	7	41	0.25	0.5	0.3	3
1788	0.7	7	41	0.25	0.5	0.4	3
1789	0.7	7	41	0.25	0.5	0.5	2
1790	0.7	7	41	0.25	1	0.1	1
1791	0.7	7	41	0.25	1	0.2	3
1792	0.7	7	41	0.25	1	0.3	1
1793	0.7	7	41	0.25	1	0.4	3
1794	0.7	7	41	0.25	1	0.5	1
1795	0.7	7	41	0.25	2.5	0.1	3
1796	0.7	7	41	0.25	2.5	0.2	1
1797	0.7	7	41	0.25	2.5	0.3	1
1798	0.7	7	41	0.25	2.5	0.4	3
1799	0.7	7	41	0.25	2.5	0.5	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1800	0.7	7	41	0.25	5	0.1	3
1801	0.7	7	41	0.25	5	0.2	2
1802	0.7	7	41	0.25	5	0.3	3
1803	0.7	7	41	0.25	5	0.4	1
1804	0.7	7	41	0.25	5	0.5	3
1805	0.7	7	41	0.4	0.5	0.1	1
1806	0.7	7	41	0.4	0.5	0.2	1
1807	0.7	7	41	0.4	0.5	0.3	1
1808	0.7	7	41	0.4	0.5	0.4	1
1809	0.7	7	41	0.4	0.5	0.5	3
1810	0.7	7	41	0.4	1	0.1	1
1811	0.7	7	41	0.4	1	0.2	1
1812	0.7	7	41	0.4	1	0.3	3
1813	0.7	7	41	0.4	1	0.4	1
1814	0.7	7	41	0.4	1	0.5	1
1815	0.7	7	41	0.4	2.5	0.1	1
1816	0.7	7	41	0.4	2.5	0.2	1
1817	0.7	7	41	0.4	2.5	0.3	1
1818	0.7	7	41	0.4	2.5	0.4	3
1819	0.7	7	41	0.4	2.5	0.5	3
1820	0.7	7	41	0.4	5	0.1	1
1821	0.7	7	41	0.4	5	0.2	1
1822	0.7	7	41	0.4	5	0.3	1
1823	0.7	7	41	0.4	5	0.4	3
1824	0.7	7	41	0.4	5	0.5	3
1825	0.7	7	41	0.5	0.5	0.1	2
1826	0.7	7	41	0.5	0.5	0.2	1
1827	0.7	7	41	0.5	0.5	0.3	1
1828	0.7	7	41	0.5	0.5	0.4	3
1829	0.7	7	41	0.5	0.5	0.5	3
1830	0.7	7	41	0.5	1	0.1	1
1831	0.7	7	41	0.5	1	0.2	1
1832	0.7	7	41	0.5	1	0.3	1
1833	0.7	7	41	0.5	1	0.4	3
1834	0.7	7	41	0.5	1	0.5	3
1835	0.7	7	41	0.5	2.5	0.1	1
1836	0.7	7	41	0.5	2.5	0.2	1
1837	0.7	7	41	0.5	2.5	0.3	1
1838	0.7	7	41	0.5	2.5	0.4	3
1839	0.7	7	41	0.5	2.5	0.5	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1840	0.7	7	41	0.5	5	0.1	2
1841	0.7	7	41	0.5	5	0.2	1
1842	0.7	7	41	0.5	5	0.3	3
1843	0.7	7	41	0.5	5	0.4	2
1844	0.7	7	41	0.5	5	0.5	1
1845	0.7	7	41	0.75	0.5	0.1	3
1846	0.7	7	41	0.75	0.5	0.2	1
1847	0.7	7	41	0.75	0.5	0.3	3
1848	0.7	7	41	0.75	0.5	0.4	1
1849	0.7	7	41	0.75	0.5	0.5	3
1850	0.7	7	41	0.75	1	0.1	3
1851	0.7	7	41	0.75	1	0.2	2
1852	0.7	7	41	0.75	1	0.3	1
1853	0.7	7	41	0.75	1	0.4	1
1854	0.7	7	41	0.75	1	0.5	3
1855	0.7	7	41	0.75	2.5	0.1	1
1856	0.7	7	41	0.75	2.5	0.2	2
1857	0.7	7	41	0.75	2.5	0.3	2
1858	0.7	7	41	0.75	2.5	0.4	1
1859	0.7	7	41	0.75	2.5	0.5	3
1860	0.7	7	41	0.75	5	0.1	1
1861	0.7	7	41	0.75	5	0.2	2
1862	0.7	7	41	0.75	5	0.3	3
1863	0.7	7	41	0.75	5	0.4	3
1864	0.7	7	41	0.75	5	0.5	3
1865	0.7	10	21	0.25	0.5	0.1	1
1866	0.7	10	21	0.25	0.5	0.2	2
1867	0.7	10	21	0.25	0.5	0.3	1
1868	0.7	10	21	0.25	0.5	0.4	1
1869	0.7	10	21	0.25	0.5	0.5	2
1870	0.7	10	21	0.25	1	0.1	1
1871	0.7	10	21	0.25	1	0.2	2
1872	0.7	10	21	0.25	1	0.3	3
1873	0.7	10	21	0.25	1	0.4	3
1874	0.7	10	21	0.25	1	0.5	2
1875	0.7	10	21	0.25	2.5	0.1	1
1876	0.7	10	21	0.25	2.5	0.2	3
1877	0.7	10	21	0.25	2.5	0.3	1
1878	0.7	10	21	0.25	2.5	0.4	3
1879	0.7	10	21	0.25	2.5	0.5	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1880	0.7	10	21	0.25	5	0.1	1
1881	0.7	10	21	0.25	5	0.2	2
1882	0.7	10	21	0.25	5	0.3	2
1883	0.7	10	21	0.25	5	0.4	1
1884	0.7	10	21	0.25	5	0.5	1
1885	0.7	10	21	0.4	0.5	0.1	3
1886	0.7	10	21	0.4	0.5	0.2	2
1887	0.7	10	21	0.4	0.5	0.3	2
1888	0.7	10	21	0.4	0.5	0.4	1
1889	0.7	10	21	0.4	0.5	0.5	3
1890	0.7	10	21	0.4	1	0.1	2
1891	0.7	10	21	0.4	1	0.2	2
1892	0.7	10	21	0.4	1	0.3	2
1893	0.7	10	21	0.4	1	0.4	1
1894	0.7	10	21	0.4	1	0.5	3
1895	0.7	10	21	0.4	2.5	0.1	1
1896	0.7	10	21	0.4	2.5	0.2	3
1897	0.7	10	21	0.4	2.5	0.3	3
1898	0.7	10	21	0.4	2.5	0.4	1
1899	0.7	10	21	0.4	2.5	0.5	1
1900	0.7	10	21	0.4	5	0.1	1
1901	0.7	10	21	0.4	5	0.2	3
1902	0.7	10	21	0.4	5	0.3	1
1903	0.7	10	21	0.4	5	0.4	1
1904	0.7	10	21	0.4	5	0.5	3
1905	0.7	10	21	0.5	0.5	0.1	3
1906	0.7	10	21	0.5	0.5	0.2	1
1907	0.7	10	21	0.5	0.5	0.3	2
1908	0.7	10	21	0.5	0.5	0.4	1
1909	0.7	10	21	0.5	0.5	0.5	1
1910	0.7	10	21	0.5	1	0.1	3
1911	0.7	10	21	0.5	1	0.2	1
1912	0.7	10	21	0.5	1	0.3	2
1913	0.7	10	21	0.5	1	0.4	1
1914	0.7	10	21	0.5	1	0.5	1
1915	0.7	10	21	0.5	2.5	0.1	3
1916	0.7	10	21	0.5	2.5	0.2	1
1917	0.7	10	21	0.5	2.5	0.3	2
1918	0.7	10	21	0.5	2.5	0.4	1
1919	0.7	10	21	0.5	2.5	0.5	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1920	0.7	10	21	0.5	5	0.1	3
1921	0.7	10	21	0.5	5	0.2	1
1922	0.7	10	21	0.5	5	0.3	2
1923	0.7	10	21	0.5	5	0.4	1
1924	0.7	10	21	0.5	5	0.5	3
1925	0.7	10	21	0.75	0.5	0.1	1
1926	0.7	10	21	0.75	0.5	0.2	2
1927	0.7	10	21	0.75	0.5	0.3	1
1928	0.7	10	21	0.75	0.5	0.4	3
1929	0.7	10	21	0.75	0.5	0.5	3
1930	0.7	10	21	0.75	1	0.1	1
1931	0.7	10	21	0.75	1	0.2	2
1932	0.7	10	21	0.75	1	0.3	1
1933	0.7	10	21	0.75	1	0.4	3
1934	0.7	10	21	0.75	1	0.5	3
1935	0.7	10	21	0.75	2.5	0.1	1
1936	0.7	10	21	0.75	2.5	0.2	2
1937	0.7	10	21	0.75	2.5	0.3	1
1938	0.7	10	21	0.75	2.5	0.4	3
1939	0.7	10	21	0.75	2.5	0.5	1
1940	0.7	10	21	0.75	5	0.1	1
1941	0.7	10	21	0.75	5	0.2	2
1942	0.7	10	21	0.75	5	0.3	1
1943	0.7	10	21	0.75	5	0.4	3
1944	0.7	10	21	0.75	5	0.5	1
1945	0.7	10	31	0.25	0.5	0.1	2
1946	0.7	10	31	0.25	0.5	0.2	1
1947	0.7	10	31	0.25	0.5	0.3	3
1948	0.7	10	31	0.25	0.5	0.4	1
1949	0.7	10	31	0.25	0.5	0.5	1
1950	0.7	10	31	0.25	1	0.1	2
1951	0.7	10	31	0.25	1	0.2	1
1952	0.7	10	31	0.25	1	0.3	3
1953	0.7	10	31	0.25	1	0.4	1
1954	0.7	10	31	0.25	1	0.5	3
1955	0.7	10	31	0.25	2.5	0.1	2
1956	0.7	10	31	0.25	2.5	0.2	1
1957	0.7	10	31	0.25	2.5	0.3	3
1958	0.7	10	31	0.25	2.5	0.4	1
1959	0.7	10	31	0.25	2.5	0.5	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
1960	0.7	10	31	0.25	5	0.1	2
1961	0.7	10	31	0.25	5	0.2	1
1962	0.7	10	31	0.25	5	0.3	1
1963	0.7	10	31	0.25	5	0.4	1
1964	0.7	10	31	0.25	5	0.5	1
1965	0.7	10	31	0.4	0.5	0.1	1
1966	0.7	10	31	0.4	0.5	0.2	1
1967	0.7	10	31	0.4	0.5	0.3	1
1968	0.7	10	31	0.4	0.5	0.4	2
1969	0.7	10	31	0.4	0.5	0.5	1
1970	0.7	10	31	0.4	1	0.1	3
1971	0.9	7	21	0.75	1	0.3	3
1972	0.9	7	21	0.75	1	0.4	2
1973	0.9	7	21	0.75	1	0.5	2
1974	0.9	7	21	0.75	2.5	0.1	3
1975	0.9	7	21	0.75	2.5	0.2	3
1976	0.9	7	21	0.75	2.5	0.3	1
1977	0.9	7	21	0.75	2.5	0.4	1
1978	0.9	7	21	0.75	2.5	0.5	1
1979	0.9	7	21	0.75	5	0.1	2
1980	0.9	7	21	0.75	5	0.2	3
1981	0.9	7	21	0.75	5	0.3	3
1982	0.9	7	21	0.75	5	0.4	1
1983	0.9	7	21	0.75	5	0.5	1
1984	0.9	7	31	0.25	0.5	0.1	1
1985	0.9	7	31	0.25	0.5	0.2	3
1986	0.9	7	31	0.25	0.5	0.3	1
1987	0.9	7	31	0.25	0.5	0.4	2
1988	0.9	7	31	0.25	0.5	0.5	1
1989	0.9	7	31	0.25	1	0.1	1
1990	0.9	7	31	0.25	1	0.2	2
1991	0.9	7	31	0.25	1	0.3	1
1992	0.9	7	31	0.25	1	0.4	2
1993	0.9	7	31	0.25	1	0.5	1
1994	0.9	7	31	0.25	2.5	0.1	3
1995	0.9	7	31	0.25	2.5	0.2	3
1996	0.9	7	31	0.25	2.5	0.3	2
1997	0.9	7	31	0.25	2.5	0.4	1
1998	0.9	7	31	0.25	2.5	0.5	3
1999	0.9	7	31	0.25	5	0.1	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
2000	0.9	7	31	0.25	5	0.2	1
2001	0.9	7	31	0.25	5	0.3	1
2002	0.9	7	31	0.25	5	0.4	1
2003	0.9	7	31	0.25	5	0.5	3
2004	0.9	7	31	0.4	0.5	0.1	1
2005	0.9	7	31	0.4	0.5	0.2	1
2006	0.9	7	31	0.4	0.5	0.3	1
2007	0.9	7	31	0.4	0.5	0.4	1
2008	0.9	7	31	0.4	0.5	0.5	1
2009	0.9	7	31	0.4	1	0.1	1
2010	0.9	7	31	0.4	1	0.2	2
2011	0.9	7	31	0.4	1	0.3	1
2012	0.9	7	31	0.4	1	0.4	3
2013	0.9	7	31	0.4	1	0.5	1
2014	0.9	7	31	0.4	2.5	0.1	1
2015	0.9	7	31	0.4	2.5	0.2	1
2016	0.9	7	31	0.4	2.5	0.3	1
2017	0.9	7	31	0.4	2.5	0.4	3
2018	0.9	7	31	0.4	2.5	0.5	1
2019	0.9	7	31	0.4	5	0.1	3
2020	0.9	7	31	0.4	5	0.2	1
2021	0.9	7	31	0.4	5	0.3	2
2022	0.9	7	31	0.4	5	0.4	3
2023	0.9	7	31	0.4	5	0.5	1
2024	0.9	7	31	0.5	0.5	0.1	2
2025	0.9	7	31	0.5	0.5	0.2	1
2026	0.9	7	31	0.5	0.5	0.3	3
2027	0.9	7	31	0.5	0.5	0.4	3
2028	0.9	7	31	0.5	0.5	0.5	1
2029	0.9	7	31	0.5	1	0.1	3
2030	0.9	7	31	0.5	1	0.2	3
2031	0.9	7	31	0.5	1	0.3	3
2032	0.9	7	31	0.5	1	0.4	1
2033	0.9	7	31	0.5	1	0.5	1
2034	0.9	7	31	0.5	2.5	0.1	3
2035	0.9	7	31	0.5	2.5	0.2	2
2036	0.9	7	31	0.5	2.5	0.3	3
2037	0.9	7	31	0.5	2.5	0.4	2
2038	0.9	7	31	0.5	2.5	0.5	3
2039	0.9	7	31	0.5	5	0.1	3

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
2040	0.9	7	31	0.5	5	0.2	2
2041	0.9	7	31	0.5	5	0.3	3
2042	0.9	7	31	0.5	5	0.4	2
2043	0.9	7	31	0.5	5	0.5	1
2044	0.9	7	31	0.75	0.5	0.1	1
2045	0.9	7	31	0.75	0.5	0.2	2
2046	0.9	7	31	0.75	0.5	0.3	1
2047	0.9	7	31	0.75	0.5	0.4	3
2048	0.9	7	31	0.75	0.5	0.5	3
2049	0.9	7	31	0.75	1	0.1	1
2050	0.9	7	31	0.75	1	0.2	3
2051	0.9	7	31	0.75	1	0.3	1
2052	0.9	7	31	0.75	1	0.4	1
2053	0.9	7	31	0.75	1	0.5	3
2054	0.9	7	31	0.75	2.5	0.1	1
2055	0.9	7	31	0.75	2.5	0.2	1
2056	0.9	7	31	0.75	2.5	0.3	1
2057	0.9	7	31	0.75	2.5	0.4	3
2058	0.9	7	31	0.75	2.5	0.5	1
2059	0.9	7	31	0.75	5	0.1	2
2060	0.9	7	31	0.75	5	0.2	1
2061	0.9	7	31	0.75	5	0.3	1
2062	0.9	7	31	0.75	5	0.4	3
2063	0.9	7	31	0.75	5	0.5	3
2064	0.9	7	41	0.25	0.5	0.1	1
2065	0.9	7	41	0.25	0.5	0.2	1
2066	0.9	7	41	0.25	0.5	0.3	2
2067	0.9	7	41	0.25	0.5	0.4	1
2068	0.9	7	41	0.25	0.5	0.5	1
2069	0.9	7	41	0.25	1	0.1	1
2070	0.9	7	41	0.25	1	0.2	3
2071	0.9	7	41	0.25	1	0.3	2
2072	0.9	7	41	0.25	1	0.4	1
2073	0.9	7	41	0.25	1	0.5	1
2074	0.9	7	41	0.25	2.5	0.1	1
2075	0.9	7	41	0.25	2.5	0.2	2
2076	0.9	7	41	0.25	2.5	0.3	1
2077	0.9	7	41	0.25	2.5	0.4	3
2078	0.9	7	41	0.25	2.5	0.5	1
2079	0.9	7	41	0.25	5	0.1	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
2080	0.9	13	31	0.5	2.5	0.3	3
2081	0.9	13	31	0.5	2.5	0.4	1
2082	0.9	13	31	0.5	2.5	0.5	3
2083	0.9	13	31	0.5	5	0.1	1
2084	0.9	13	31	0.5	5	0.2	1
2085	0.9	13	31	0.5	5	0.3	1
2086	0.9	13	31	0.5	5	0.4	2
2087	0.9	13	31	0.5	5	0.5	3
2088	0.9	13	31	0.75	0.5	0.1	2
2089	0.9	13	31	0.75	0.5	0.2	1
2090	0.9	13	31	0.75	0.5	0.3	1
2091	0.9	13	31	0.75	0.5	0.4	1
2092	0.9	13	31	0.75	0.5	0.5	3
2093	0.9	13	31	0.75	1	0.1	1
2094	0.9	13	31	0.75	1	0.2	1
2095	0.9	13	31	0.75	1	0.3	1
2096	0.9	13	31	0.75	1	0.4	1
2097	0.9	13	31	0.75	1	0.5	3
2098	0.9	13	31	0.75	2.5	0.1	1
2099	0.9	13	31	0.75	2.5	0.2	1
2100	0.9	13	31	0.75	2.5	0.3	1
2101	0.9	13	31	0.75	2.5	0.4	2
2102	0.9	13	31	0.75	2.5	0.5	3
2103	0.9	13	31	0.75	5	0.1	1
2104	0.9	13	31	0.75	5	0.2	1
2105	0.9	13	31	0.75	5	0.3	2
2106	0.9	13	31	0.75	5	0.4	3
2107	0.9	13	31	0.75	5	0.5	2
2108	0.9	13	41	0.25	0.5	0.1	2
2109	0.9	13	41	0.25	0.5	0.2	1
2110	0.9	13	41	0.25	0.5	0.3	2
2111	0.9	13	41	0.25	0.5	0.4	1
2112	0.9	13	41	0.25	0.5	0.5	1
2113	0.9	13	41	0.25	1	0.1	1
2114	0.9	13	41	0.25	1	0.2	2
2115	0.9	13	41	0.25	1	0.3	2
2116	0.9	13	41	0.25	1	0.4	1
2117	0.9	13	41	0.25	1	0.5	1
2118	0.9	13	41	0.25	2.5	0.1	1
2119	0.9	13	41	0.25	2.5	0.2	2

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
2120	0.9	13	41	0.25	2.5	0.3	2
2121	0.9	13	41	0.25	2.5	0.4	3
2122	0.9	13	41	0.25	2.5	0.5	1
2123	0.9	13	41	0.25	5	0.1	1
2124	0.9	13	41	0.25	5	0.2	1
2125	0.9	13	41	0.25	5	0.3	2
2126	0.9	13	41	0.25	5	0.4	3
2127	0.9	13	41	0.25	5	0.5	1
2128	0.9	13	41	0.4	0.5	0.1	2
2129	0.9	13	41	0.4	0.5	0.2	2
2130	0.9	13	41	0.4	0.5	0.3	2
2131	0.9	13	41	0.4	0.5	0.4	2
2132	0.9	13	41	0.4	0.5	0.5	3
2133	0.9	13	41	0.4	1	0.1	2
2134	0.9	13	41	0.4	1	0.2	1
2135	0.9	13	41	0.4	1	0.3	2
2136	0.9	13	41	0.4	1	0.4	2
2137	0.9	13	41	0.4	1	0.5	1
2138	0.9	13	41	0.4	2.5	0.1	1
2139	0.9	13	41	0.4	2.5	0.2	1
2140	0.9	13	41	0.4	2.5	0.3	2
2141	0.9	13	41	0.4	2.5	0.4	1
2142	0.9	13	41	0.4	2.5	0.5	1
2143	0.9	13	41	0.4	5	0.1	1
2144	0.9	13	41	0.4	5	0.2	2
2145	0.9	13	41	0.4	5	0.3	2
2146	0.9	13	41	0.4	5	0.4	2
2147	0.9	13	41	0.4	5	0.5	3
2148	0.9	13	41	0.5	0.5	0.1	2
2149	0.9	13	41	0.5	0.5	0.2	1
2150	0.9	13	41	0.5	0.5	0.3	1
2151	0.9	13	41	0.5	0.5	0.4	1
2152	0.9	13	41	0.5	0.5	0.5	1
2153	0.9	13	41	0.5	1	0.1	1
2154	0.9	13	41	0.5	1	0.2	1
2155	0.9	13	41	0.5	1	0.3	1
2156	0.9	13	41	0.5	1	0.4	1
2157	0.9	13	41	0.5	1	0.5	1
2158	0.9	13	41	0.5	2.5	0.1	1
2159	0.9	13	41	0.5	2.5	0.2	1

ID	b/h	L/h	f'c (MPa)	dcr/h	wcr (mm)	bcr/L	Flag
2160	0.9	13	41	0.5	2.5	0.3	2
2161	0.9	13	41	0.5	2.5	0.4	1
2162	0.9	13	41	0.5	2.5	0.5	1
2163	0.9	13	41	0.5	5	0.1	2
2164	0.9	13	41	0.5	5	0.2	3
2165	0.9	13	41	0.5	5	0.3	2
2166	0.9	13	41	0.5	5	0.4	1
2167	0.9	13	41	0.5	5	0.5	1
2168	0.9	13	41	0.75	0.5	0.1	2
2169	0.9	13	41	0.75	0.5	0.2	2
2170	0.9	13	41	0.75	0.5	0.3	1
2171	0.9	13	41	0.75	0.5	0.4	1
2172	0.9	13	41	0.75	0.5	0.5	1
2173	0.9	13	41	0.75	1	0.1	1
2174	0.9	13	41	0.75	1	0.2	2
2175	0.9	13	41	0.75	1	0.3	1
2176	0.9	13	41	0.75	1	0.4	2
2177	0.9	13	41	0.75	1	0.5	1
2178	0.9	13	41	0.75	2.5	0.1	3
2179	0.9	13	41	0.75	2.5	0.2	2
2180	0.9	13	41	0.75	2.5	0.3	1
2181	0.9	13	41	0.75	2.5	0.4	2
2182	0.9	13	41	0.75	2.5	0.5	1
2183	0.9	13	41	0.75	5	0.1	3
2184	0.9	13	41	0.75	5	0.2	1
2185	0.9	13	41	0.75	5	0.3	2
2186	0.9	13	41	0.75	5	0.4	1
2187	0.9	13	41	0.75	5	0.5	1

Table C-2 Damage Database for phase III: Stiffness ratios

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
2	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
3	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
4	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
5	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
6	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
7	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
8	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
9	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
10	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
11	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
12	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
13	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
14	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
15	0.95725	0.94338	0.96958	0.98239	0.98882	0.99219	0.99407	0.99530	0.99579
16	0.96681	0.95219	0.93981	0.96214	0.97561	0.98316	0.98719	0.99058	0.99237
17	0.97422	0.96389	0.95034	0.93938	0.95735	0.96994	0.97776	0.98318	0.98818
18	0.98024	0.97273	0.96331	0.95016	0.93385	0.95051	0.96321	0.97227	0.98057
19	0.95227	0.98174	0.99097	0.99484	0.99674	0.99774	0.99813	0.99844	0.99822
20	0.95677	0.94309	0.96948	0.98233	0.98856	0.99190	0.99402	0.99524	0.99624
21	0.96714	0.95189	0.94002	0.96222	0.97540	0.98279	0.98700	0.99014	0.99263
22	0.97386	0.96274	0.95193	0.93933	0.95726	0.96997	0.97755	0.98308	0.98793
23	0.95554	0.93533	0.96252	0.97865	0.98632	0.99031	0.99306	0.99534	0.99762
24	0.96848	0.94371	0.92913	0.95300	0.96975	0.97898	0.98482	0.98951	0.99472
25	0.97557	0.95939	0.94192	0.92734	0.94677	0.96339	0.97352	0.98174	0.99046
26	0.98560	0.97166	0.95988	0.94225	0.92522	0.94341	0.95901	0.97071	0.98486
27	0.92575	0.96475	0.98305	0.99032	0.99370	0.99567	0.99657	0.99809	0.99912
28	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
29	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
30	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
31	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
32	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
33	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
34	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
35	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
36	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
37	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
38	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
39	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
40	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
41	0.98132	0.98997	0.99485	0.99698	0.99823	0.99860	0.99898	0.99916	0.99908
42	0.98254	0.97152	0.98269	0.98990	0.99382	0.99540	0.99631	0.99685	0.99596
43	0.98649	0.97504	0.96837	0.97877	0.98626	0.99035	0.99292	0.99505	0.99566
44	0.98922	0.98056	0.97130	0.96488	0.97453	0.98241	0.98753	0.99120	0.99499
45	0.99236	0.98558	0.97982	0.97190	0.96380	0.97151	0.98027	0.98693	0.98986
46	0.98143	0.98987	0.99483	0.99707	0.99822	0.99862	0.99903	0.99916	0.99903
47	0.98087	0.97187	0.98244	0.98975	0.99366	0.99540	0.99628	0.99665	0.99609
48	0.98627	0.97557	0.96911	0.97915	0.98656	0.99062	0.99303	0.99516	0.99600
49	0.98919	0.98096	0.97167	0.96470	0.97438	0.98217	0.98749	0.99117	0.99500
50	0.99207	0.98582	0.97965	0.97135	0.96349	0.97197	0.98002	0.98670	0.99008
51	0.98068	0.98949	0.99479	0.99698	0.99832	0.99865	0.99892	0.99941	0.99951
52	0.98178	0.97130	0.98241	0.98970	0.99362	0.99504	0.99629	0.99673	0.99843
53	0.98691	0.97537	0.96840	0.97904	0.98633	0.99048	0.99311	0.99497	0.99568
54	0.98896	0.97940	0.97064	0.96317	0.97316	0.98137	0.98687	0.99084	0.99470
55	0.99184	0.98571	0.97973	0.97118	0.96289	0.97145	0.97999	0.98631	0.99220
56	0.97992	0.98924	0.99475	0.99690	0.99849	0.99818	0.99891	0.99874	0.99667
57	0.98000	0.97024	0.98188	0.98950	0.99340	0.99497	0.99657	0.99731	0.99594
58	0.98722	0.97500	0.96808	0.97874	0.98622	0.99007	0.99275	0.99445	0.99455
59	0.99027	0.97952	0.96991	0.96185	0.97254	0.98116	0.98647	0.99063	0.99451
60	0.99133	0.98543	0.97877	0.96960	0.96203	0.97063	0.97930	0.98552	0.99214
61	0.98040	0.98316	0.99150	0.99533	0.99703	0.99781	0.99827	0.99903	0.99934
62	0.97284	0.95718	0.97330	0.98389	0.98963	0.99285	0.99460	0.99585	0.99829
63	0.97855	0.96031	0.94925	0.96598	0.97759	0.98406	0.98858	0.99150	0.99302
64	0.98367	0.96933	0.95601	0.94561	0.95982	0.97215	0.97997	0.98628	0.99088
65	0.98829	0.97840	0.96902	0.95673	0.94392	0.95645	0.96905	0.97838	0.98521
66	0.96919	0.98316	0.99146	0.99538	0.99689	0.99779	0.99827	0.99911	0.99937
67	0.97268	0.95691	0.97259	0.98374	0.98945	0.99266	0.99443	0.99580	0.99828
68	0.97823	0.96033	0.94923	0.96569	0.97745	0.98417	0.98857	0.99118	0.99293
69	0.98361	0.96922	0.95606	0.94506	0.95967	0.97201	0.97988	0.98634	0.99146
70	0.98822	0.97820	0.96873	0.95630	0.94349	0.95608	0.96871	0.97812	0.98538
71	0.97051	0.98244	0.99138	0.99517	0.99711	0.99747	0.99835	0.99907	0.99935
72	0.97333	0.95708	0.97233	0.98396	0.98941	0.99252	0.99475	0.99577	0.99781
73	0.97803	0.96010	0.94838	0.96504	0.97734	0.98389	0.98835	0.99140	0.99300
74	0.98373	0.96908	0.95617	0.94475	0.95955	0.97197	0.97967	0.98606	0.99123
75	0.98805	0.97760	0.96811	0.95546	0.94265	0.95517	0.96816	0.97795	0.98616
76	0.97071	0.98231	0.99128	0.99500	0.99690	0.99745	0.99825	0.99884	0.99887
77	0.97124	0.95484	0.97195	0.98386	0.98922	0.99230	0.99454	0.99595	0.99760
78	0.97780	0.96035	0.94774	0.96490	0.97727	0.98391	0.98832	0.99181	0.99383
79	0.98328	0.96891	0.95544	0.94457	0.95929	0.97120	0.97958	0.98588	0.99207

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
80	0.98756	0.97696	0.96746	0.95441	0.94136	0.95429	0.96732	0.97704	0.98523
81	0.96635	0.97803	0.98929	0.99372	0.99594	0.99723	0.99754	0.99871	0.99887
82	0.96922	0.94907	0.96659	0.98036	0.98728	0.99084	0.99343	0.99498	0.99754
83	0.97708	0.95478	0.94225	0.95908	0.97323	0.98132	0.98663	0.99048	0.99445
84	0.98086	0.96426	0.94957	0.93629	0.95317	0.96757	0.97644	0.98387	0.98984
85	0.98649	0.97474	0.96404	0.95007	0.93552	0.94966	0.96343	0.97448	0.98657
86	0.96687	0.97808	0.98911	0.99375	0.99583	0.99712	0.99780	0.99875	0.99891
87	0.96740	0.94854	0.96670	0.98032	0.98701	0.99082	0.99338	0.99494	0.99748
88	0.97715	0.95473	0.94218	0.95922	0.97317	0.98129	0.98661	0.99047	0.99438
89	0.98045	0.96414	0.94919	0.93624	0.95313	0.96747	0.97636	0.98391	0.98985
90	0.98586	0.97423	0.96382	0.94993	0.93494	0.94936	0.96326	0.97439	0.98539
91	0.96520	0.97757	0.98874	0.99355	0.99584	0.99692	0.99747	0.99872	0.99880
92	0.96817	0.94731	0.96568	0.97993	0.98688	0.99065	0.99352	0.99495	0.99754
93	0.97429	0.95418	0.94058	0.95890	0.97302	0.98136	0.98660	0.99072	0.99334
94	0.98045	0.96371	0.94887	0.93577	0.95301	0.96713	0.97628	0.98361	0.99117
95	0.98598	0.97426	0.96303	0.94901	0.93377	0.94821	0.96292	0.97362	0.98641
96	0.96472	0.97694	0.98854	0.99346	0.99579	0.99678	0.99764	0.99850	0.99859
97	0.96757	0.94901	0.96504	0.97973	0.98672	0.99067	0.99309	0.99497	0.99682
98	0.97435	0.95439	0.94160	0.95845	0.97300	0.98114	0.98618	0.99033	0.99390
99	0.98015	0.96326	0.94885	0.93604	0.95244	0.96679	0.97607	0.98351	0.99115
100	0.98612	0.97400	0.96276	0.94916	0.93365	0.94848	0.96186	0.97372	0.98552
101	0.95142	0.95410	0.97705	0.98633	0.99121	0.99386	0.99581	0.99719	0.99804
102	0.96281	0.93894	0.95171	0.97217	0.98121	0.98684	0.99117	0.99312	0.99470
103	0.97113	0.94795	0.93381	0.94892	0.96612	0.97640	0.98308	0.98817	0.99155
104	0.97723	0.95946	0.94245	0.93055	0.94416	0.96115	0.97192	0.98028	0.98811
105	0.98436	0.97044	0.95794	0.94143	0.92929	0.94119	0.95782	0.96973	0.98254
106	0.95119	0.95367	0.97686	0.98641	0.99097	0.99383	0.99572	0.99715	0.99804
107	0.96351	0.93850	0.95158	0.97210	0.98112	0.98712	0.99067	0.99295	0.99483
108	0.97118	0.94784	0.93396	0.94877	0.96620	0.97640	0.98307	0.98810	0.99265
109	0.97739	0.95930	0.94229	0.93026	0.94396	0.96081	0.97208	0.98028	0.98811
110	0.98427	0.97009	0.95748	0.94110	0.92901	0.94085	0.95768	0.96997	0.98338
111	0.94926	0.95224	0.97626	0.98587	0.99092	0.99356	0.99614	0.99709	0.99797
112	0.96349	0.94169	0.95113	0.97118	0.98126	0.98675	0.99062	0.99319	0.99594
113	0.97143	0.94818	0.93485	0.94866	0.96600	0.97622	0.98303	0.98778	0.99263
114	0.97790	0.95904	0.94135	0.93024	0.94378	0.96038	0.97160	0.98023	0.98887
115	0.98419	0.96978	0.95745	0.94110	0.92782	0.94029	0.95677	0.96899	0.98298
116	0.94757	0.95074	0.97535	0.98553	0.99050	0.99322	0.99567	0.99671	0.99745
117	0.96365	0.93904	0.95040	0.97054	0.98117	0.98637	0.99036	0.99303	0.99556
118	0.97112	0.94785	0.93435	0.94701	0.96561	0.97573	0.98262	0.98740	0.99269
119	0.97756	0.95867	0.94104	0.92944	0.94282	0.96009	0.97116	0.97996	0.98888

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
120	0.98360	0.96946	0.95678	0.93973	0.92784	0.93986	0.95635	0.96865	0.98350
121	0.97840	0.98860	0.99423	0.99662	0.99799	0.99844	0.99887	0.99908	0.99903
122	0.97988	0.96754	0.98039	0.98859	0.99296	0.99481	0.99590	0.99657	0.99582
123	0.98456	0.97155	0.96400	0.97583	0.98437	0.98905	0.99199	0.99440	0.99531
124	0.98778	0.97801	0.96762	0.96033	0.97119	0.98011	0.98588	0.99004	0.99436
125	0.99131	0.98373	0.97718	0.96821	0.95906	0.96784	0.97767	0.98506	0.98884
126	0.97855	0.98851	0.99420	0.99670	0.99798	0.99846	0.99892	0.99908	0.99898
127	0.97822	0.96787	0.98014	0.98843	0.99280	0.99481	0.99587	0.99637	0.99596
128	0.98434	0.97207	0.96475	0.97621	0.98469	0.98932	0.99211	0.99451	0.99565
129	0.98775	0.97840	0.96802	0.96013	0.97102	0.97987	0.98583	0.99000	0.99436
130	0.99101	0.98395	0.97701	0.96763	0.95868	0.96820	0.97739	0.98483	0.98905
131	0.97777	0.98812	0.99413	0.99661	0.99808	0.99848	0.99881	0.99932	0.99946
132	0.97910	0.96729	0.98009	0.98837	0.99276	0.99446	0.99588	0.99644	0.99829
133	0.98496	0.97186	0.96400	0.97608	0.98443	0.98917	0.99217	0.99432	0.99533
134	0.98748	0.97678	0.96691	0.95846	0.96972	0.97902	0.98518	0.98964	0.99405
135	0.99077	0.98381	0.97704	0.96742	0.95804	0.96773	0.97733	0.98442	0.99116
136	0.97697	0.98786	0.99410	0.99653	0.99824	0.99803	0.99880	0.99867	0.99665
137	0.97730	0.96620	0.97954	0.98816	0.99252	0.99438	0.99614	0.99702	0.99580
138	0.98525	0.97144	0.96363	0.97574	0.98430	0.98875	0.99180	0.99379	0.99421
139	0.98874	0.97687	0.96613	0.95708	0.96908	0.97877	0.98476	0.98942	0.99385
140	0.99023	0.98347	0.97600	0.96573	0.95701	0.96682	0.97658	0.98357	0.99108
141	0.97562	0.98098	0.99045	0.99472	0.99663	0.99754	0.99809	0.99889	0.99926
142	0.96837	0.95054	0.96941	0.98160	0.98815	0.99182	0.99387	0.99535	0.99800
143	0.97515	0.95425	0.94177	0.96090	0.97427	0.98176	0.98692	0.99035	0.99240
144	0.98108	0.96477	0.94961	0.93766	0.95394	0.96804	0.97700	0.98416	0.98972
145	0.98646	0.97516	0.96448	0.95045	0.93590	0.95019	0.96453	0.97515	0.98344
146	0.96462	0.98096	0.99041	0.99476	0.99650	0.99752	0.99809	0.99897	0.99929
147	0.96817	0.95020	0.96866	0.98145	0.98796	0.99162	0.99370	0.99529	0.99798
148	0.97481	0.95425	0.94172	0.96060	0.97412	0.98185	0.98691	0.99003	0.99231
149	0.98101	0.96466	0.94966	0.93714	0.95379	0.96789	0.97692	0.98422	0.99029
150	0.98637	0.97494	0.96415	0.94997	0.93543	0.94979	0.96416	0.97486	0.98359
151	0.96587	0.98024	0.99033	0.99456	0.99671	0.99722	0.99816	0.99892	0.99927
152	0.96882	0.95039	0.96842	0.98168	0.98792	0.99149	0.99402	0.99527	0.99753
153	0.97461	0.95404	0.94088	0.95994	0.97403	0.98158	0.98670	0.99024	0.99237
154	0.98112	0.96453	0.94976	0.93678	0.95366	0.96785	0.97669	0.98395	0.99006
155	0.98617	0.97428	0.96346	0.94903	0.93445	0.94880	0.96353	0.97463	0.98432
156	0.96608	0.98011	0.99023	0.99440	0.99651	0.99719	0.99807	0.99871	0.99880
157	0.96674	0.94816	0.96800	0.98155	0.98772	0.99128	0.99380	0.99544	0.99732
158	0.97437	0.95422	0.94022	0.95979	0.97393	0.98158	0.98666	0.99064	0.99320
159	0.98065	0.96429	0.94895	0.93652	0.95333	0.96704	0.97657	0.98374	0.99089

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
160	0.98566	0.97356	0.96269	0.94790	0.93297	0.94776	0.96258	0.97365	0.98336
161	0.96091	0.97548	0.98805	0.99300	0.99548	0.99691	0.99733	0.99855	0.99880
162	0.96368	0.94080	0.96178	0.97750	0.98543	0.98956	0.99251	0.99434	0.99719
163	0.97284	0.94738	0.93304	0.95288	0.96914	0.97846	0.98457	0.98904	0.99364
164	0.97763	0.95862	0.94172	0.92650	0.94594	0.96247	0.97274	0.98123	0.98838
165	0.98420	0.97070	0.95840	0.94232	0.92560	0.94197	0.95784	0.97047	0.98430
166	0.96140	0.97553	0.98787	0.99304	0.99537	0.99680	0.99758	0.99858	0.99884
167	0.96193	0.94025	0.96188	0.97747	0.98516	0.98954	0.99247	0.99430	0.99713
168	0.97292	0.94731	0.93296	0.95303	0.96907	0.97843	0.98454	0.98902	0.99357
169	0.97722	0.95849	0.94133	0.92644	0.94589	0.96238	0.97265	0.98127	0.98841
170	0.98357	0.97017	0.95816	0.94214	0.92496	0.94164	0.95760	0.97034	0.98312
171	0.95972	0.97501	0.98750	0.99283	0.99537	0.99660	0.99726	0.99856	0.99873
172	0.96263	0.93904	0.96086	0.97707	0.98502	0.98937	0.99260	0.99431	0.99718
173	0.97008	0.94675	0.93139	0.95269	0.96892	0.97848	0.98454	0.98926	0.99255
174	0.97721	0.95805	0.94099	0.92592	0.94574	0.96200	0.97257	0.98096	0.98970
175	0.98365	0.97017	0.95727	0.94110	0.92366	0.94038	0.95723	0.96952	0.98411
176	0.95925	0.97439	0.98730	0.99274	0.99532	0.99647	0.99742	0.99835	0.99852
177	0.96201	0.94060	0.96020	0.97686	0.98485	0.98938	0.99217	0.99432	0.99648
178	0.97011	0.94691	0.93230	0.95220	0.96887	0.97824	0.98411	0.98887	0.99312
179	0.97689	0.95756	0.94092	0.92615	0.94515	0.96167	0.97235	0.98083	0.98968
180	0.98373	0.96984	0.95695	0.94119	0.92344	0.94057	0.95602	0.96957	0.98317
181	0.94549	0.95177	0.97589	0.98567	0.99078	0.99355	0.99560	0.99702	0.99796
182	0.95716	0.92960	0.94678	0.96915	0.97924	0.98547	0.99018	0.99243	0.99432
183	0.96662	0.94022	0.92356	0.94254	0.96181	0.97339	0.98089	0.98663	0.99072
184	0.97379	0.95344	0.93425	0.91959	0.93660	0.95574	0.96798	0.97746	0.98655
185	0.98189	0.96612	0.95191	0.93333	0.91815	0.93307	0.95179	0.96542	0.98012
186	0.94526	0.95135	0.97570	0.98573	0.99054	0.99353	0.99551	0.99699	0.99796
187	0.95786	0.92919	0.94663	0.96907	0.97915	0.98574	0.98969	0.99226	0.99444
188	0.96670	0.94014	0.92368	0.94237	0.96192	0.97338	0.98090	0.98655	0.99180
189	0.97395	0.95328	0.93409	0.91931	0.93641	0.95541	0.96813	0.97746	0.98654
190	0.98179	0.96575	0.95145	0.93297	0.91782	0.93269	0.95163	0.96564	0.98092
191	0.94331	0.94995	0.97511	0.98521	0.99049	0.99327	0.99591	0.99693	0.99789
192	0.95781	0.93221	0.94617	0.96816	0.97928	0.98538	0.98963	0.99250	0.99556
193	0.96696	0.94043	0.92448	0.94230	0.96169	0.97319	0.98084	0.98623	0.99178
194	0.97446	0.95304	0.93315	0.91929	0.93622	0.95497	0.96765	0.97741	0.98729
195	0.98172	0.96538	0.95137	0.93292	0.91647	0.93212	0.95065	0.96459	0.98050
196	0.94165	0.94847	0.97421	0.98487	0.99008	0.99293	0.99545	0.99656	0.99738
197	0.95801	0.92958	0.94544	0.96752	0.97917	0.98500	0.98938	0.99233	0.99519
198	0.96659	0.94013	0.92396	0.94063	0.96131	0.97269	0.98044	0.98585	0.99184
199	0.97410	0.95264	0.93280	0.91845	0.93524	0.95465	0.96720	0.97713	0.98730

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
200	0.98108	0.96503	0.95059	0.93143	0.91645	0.93159	0.95019	0.96421	0.98098
201	0.97613	0.98754	0.99373	0.99633	0.99781	0.99832	0.99879	0.99902	0.99900
202	0.97784	0.96449	0.97862	0.98756	0.99229	0.99435	0.99558	0.99635	0.99571
203	0.98305	0.96884	0.96063	0.97355	0.98291	0.98804	0.99127	0.99389	0.99504
204	0.98667	0.97605	0.96479	0.95686	0.96864	0.97834	0.98461	0.98915	0.99387
205	0.99050	0.98230	0.97517	0.96538	0.95543	0.96502	0.97567	0.98362	0.98806
206	0.97630	0.98744	0.99370	0.99641	0.99780	0.99834	0.99883	0.99902	0.99895
207	0.97618	0.96479	0.97836	0.98741	0.99214	0.99435	0.99555	0.99616	0.99585
208	0.98285	0.96935	0.96138	0.97393	0.98324	0.98831	0.99138	0.99400	0.99538
209	0.98664	0.97643	0.96523	0.95663	0.96845	0.97811	0.98456	0.98910	0.99387
210	0.99020	0.98251	0.97498	0.96478	0.95501	0.96532	0.97538	0.98339	0.98825
211	0.97550	0.98704	0.99362	0.99633	0.99789	0.99836	0.99872	0.99925	0.99943
212	0.97704	0.96422	0.97831	0.98735	0.99209	0.99400	0.99556	0.99622	0.99817
213	0.98344	0.96914	0.96059	0.97379	0.98296	0.98816	0.99143	0.99381	0.99506
214	0.98634	0.97478	0.96405	0.95487	0.96710	0.97722	0.98387	0.98872	0.99355
215	0.98994	0.98234	0.97497	0.96453	0.95433	0.96487	0.97528	0.98296	0.99036
216	0.97468	0.98677	0.99359	0.99623	0.99804	0.99791	0.99871	0.99862	0.99664
217	0.97523	0.96311	0.97774	0.98713	0.99185	0.99393	0.99581	0.99680	0.99569
218	0.98371	0.96868	0.96018	0.97342	0.98281	0.98773	0.99106	0.99328	0.99394
219	0.98756	0.97484	0.96324	0.95344	0.96644	0.97694	0.98345	0.98848	0.99334
220	0.98939	0.98196	0.97388	0.96277	0.95318	0.96390	0.97449	0.98208	0.99026
221	0.97187	0.97923	0.98961	0.99423	0.99632	0.99733	0.99794	0.99878	0.99920
222	0.96487	0.94536	0.96635	0.97980	0.98699	0.99101	0.99330	0.99495	0.99777
223	0.97248	0.94953	0.93596	0.95692	0.97166	0.97995	0.98561	0.98944	0.99191
224	0.97906	0.96123	0.94465	0.93152	0.94937	0.96483	0.97468	0.98250	0.98881
225	0.98502	0.97262	0.96095	0.94557	0.92969	0.94534	0.96102	0.97263	0.98204
226	0.96099	0.97919	0.98956	0.99427	0.99618	0.99731	0.99794	0.99885	0.99923
227	0.96464	0.94496	0.96556	0.97964	0.98678	0.99081	0.99312	0.99489	0.99775
228	0.97214	0.94951	0.93589	0.95661	0.97151	0.98003	0.98561	0.98911	0.99182
229	0.97899	0.96112	0.94469	0.93101	0.94922	0.96468	0.97460	0.98256	0.98937
230	0.98493	0.97238	0.96058	0.94506	0.92919	0.94491	0.96062	0.97232	0.98219
231	0.96221	0.97848	0.98949	0.99407	0.99639	0.99700	0.99801	0.99881	0.99921
232	0.96529	0.94516	0.96534	0.97987	0.98674	0.99068	0.99344	0.99487	0.99731
233	0.97194	0.94932	0.93505	0.95595	0.97142	0.97977	0.98539	0.98932	0.99188
234	0.97908	0.96098	0.94478	0.93061	0.94909	0.96464	0.97436	0.98230	0.98915
235	0.98470	0.97169	0.95983	0.94403	0.92812	0.94385	0.95993	0.97205	0.98288
236	0.96241	0.97834	0.98939	0.99391	0.99619	0.99698	0.99792	0.99861	0.99875
237	0.96321	0.94294	0.96490	0.97973	0.98653	0.99046	0.99322	0.99503	0.99710
238	0.97168	0.94945	0.93438	0.95580	0.97131	0.97975	0.98535	0.98971	0.99269
239	0.97860	0.96070	0.94391	0.93030	0.94870	0.96379	0.97422	0.98207	0.98996

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
240	0.98418	0.97090	0.95898	0.94286	0.92649	0.94269	0.95889	0.97100	0.98190
241	0.95657	0.97340	0.98704	0.99241	0.99510	0.99664	0.99715	0.99841	0.99873
242	0.95932	0.93432	0.95797	0.97523	0.98395	0.98854	0.99178	0.99383	0.99691
243	0.97986	0.97205	0.96281	0.94910	0.93293	0.94961	0.96281	0.97200	0.98023
244	0.95222	0.98123	0.99086	0.99478	0.99670	0.99765	0.99802	0.99836	0.99819
245	0.95638	0.94252	0.96883	0.98205	0.98849	0.99197	0.99396	0.99521	0.99678
246	0.96644	0.95137	0.93957	0.96161	0.97515	0.98251	0.98693	0.99007	0.99237
247	0.97392	0.96328	0.95154	0.93854	0.95659	0.96987	0.97744	0.98307	0.98771
248	0.98000	0.97166	0.96197	0.94847	0.93181	0.94855	0.96180	0.97144	0.97983
249	0.94445	0.97740	0.98938	0.99394	0.99594	0.99708	0.99756	0.99809	0.99818
250	0.94984	0.93246	0.96335	0.97895	0.98649	0.99055	0.99273	0.99440	0.99540
251	0.96139	0.94379	0.93064	0.95590	0.97102	0.98005	0.98515	0.98894	0.99173
252	0.97038	0.95746	0.94360	0.92824	0.95049	0.96474	0.97418	0.98037	0.98613
253	0.97713	0.96747	0.95661	0.94171	0.92266	0.94153	0.95708	0.96750	0.97746
254	0.94426	0.97729	0.98922	0.99400	0.99597	0.99707	0.99774	0.99802	0.99803
255	0.94977	0.93245	0.96350	0.97891	0.98646	0.99054	0.99271	0.99439	0.99539
256	0.96101	0.94349	0.93055	0.95549	0.97121	0.98002	0.98477	0.98853	0.99153
257	0.97036	0.95795	0.94332	0.92809	0.94965	0.96420	0.97387	0.98051	0.98577
258	0.97651	0.96739	0.95634	0.94131	0.92219	0.94159	0.95679	0.96758	0.97739
259	0.94394	0.97702	0.98911	0.99393	0.99602	0.99716	0.99794	0.99806	0.99802
260	0.95081	0.93244	0.96361	0.97876	0.98680	0.99055	0.99285	0.99448	0.99565
261	0.96114	0.94340	0.92961	0.95507	0.97064	0.97961	0.98478	0.98844	0.99167
262	0.97009	0.95709	0.94287	0.92764	0.94961	0.96339	0.97396	0.98029	0.98581
263	0.97629	0.96676	0.95617	0.94035	0.92106	0.94049	0.95566	0.96701	0.97688
264	0.94327	0.97684	0.98876	0.99380	0.99590	0.99739	0.99767	0.99806	0.99767
265	0.95049	0.93249	0.96317	0.97889	0.98627	0.99055	0.99284	0.99445	0.99538
266	0.96074	0.94317	0.92949	0.95453	0.97054	0.97950	0.98477	0.98835	0.99155
267	0.97013	0.95745	0.94247	0.92707	0.94928	0.96383	0.97389	0.98000	0.98599
268	0.97596	0.96623	0.95511	0.93900	0.91884	0.93982	0.95477	0.96629	0.97632
269	0.93964	0.96932	0.98562	0.99178	0.99457	0.99613	0.99691	0.99769	0.99761
270	0.95010	0.93193	0.96013	0.97682	0.98506	0.98950	0.99207	0.99396	0.99531
271	0.96074	0.94300	0.92909	0.95306	0.96943	0.97832	0.98376	0.98796	0.99078
272	0.96995	0.95649	0.94252	0.92646	0.94764	0.96315	0.97276	0.97943	0.98550
273	0.97654	0.96733	0.95642	0.94103	0.92337	0.94078	0.95633	0.96696	0.97659
274	0.93784	0.96954	0.98563	0.99169	0.99451	0.99609	0.99696	0.99713	0.99716
275	0.94999	0.93179	0.96001	0.97701	0.98501	0.98962	0.99199	0.99398	0.99530
276	0.96059	0.94297	0.92900	0.95293	0.96959	0.97833	0.98375	0.98807	0.99076
277	0.96956	0.95646	0.94245	0.92680	0.94758	0.96343	0.97273	0.97940	0.98549
278	0.97638	0.96711	0.95588	0.94048	0.92312	0.94049	0.95611	0.96648	0.97666
279	0.93878	0.96899	0.98517	0.99141	0.99443	0.99601	0.99685	0.99757	0.99727

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
280	0.94971	0.93153	0.95969	0.97655	0.98486	0.98952	0.99197	0.99387	0.99507
281	0.96045	0.94257	0.92858	0.95258	0.96909	0.97822	0.98368	0.98761	0.99106
282	0.96944	0.95632	0.94158	0.92694	0.94728	0.96295	0.97275	0.97928	0.98540
283	0.97609	0.96650	0.95545	0.94006	0.92238	0.94003	0.95553	0.96690	0.97650
284	0.93797	0.96806	0.98485	0.99131	0.99432	0.99597	0.99669	0.99730	0.99773
285	0.94817	0.93093	0.95908	0.97618	0.98452	0.98920	0.99197	0.99339	0.99469
286	0.96005	0.94251	0.92849	0.95209	0.96873	0.97799	0.98400	0.98739	0.99093
287	0.96931	0.95611	0.94171	0.92623	0.94710	0.96274	0.97266	0.97911	0.98527
288	0.97690	0.96621	0.95474	0.93899	0.91975	0.93897	0.95475	0.96626	0.97606
289	0.96513	0.98730	0.99395	0.99637	0.99787	0.99839	0.99862	0.99865	0.99849
290	0.96880	0.95803	0.97750	0.98776	0.99194	0.99428	0.99563	0.99653	0.99713
291	0.97687	0.96626	0.95830	0.97368	0.98299	0.98825	0.99100	0.99300	0.99443
292	0.98070	0.97350	0.96449	0.95514	0.96904	0.97854	0.98373	0.98770	0.99096
293	0.98579	0.98078	0.97471	0.96535	0.95381	0.96565	0.97487	0.98114	0.98599
294	0.96625	0.98750	0.99373	0.99649	0.99772	0.99829	0.99856	0.99869	0.99848
295	0.96834	0.95799	0.97787	0.98748	0.99186	0.99466	0.99564	0.99655	0.99724
296	0.97572	0.96470	0.95605	0.97245	0.98225	0.98766	0.99059	0.99282	0.99418
297	0.98059	0.97362	0.96433	0.95520	0.96897	0.97820	0.98367	0.98789	0.99092
298	0.98566	0.98068	0.97416	0.96497	0.95264	0.96528	0.97451	0.98061	0.98658
299	0.96474	0.98740	0.99385	0.99651	0.99769	0.99828	0.99840	0.99874	0.99848
300	0.96847	0.95806	0.97781	0.98727	0.99177	0.99435	0.99561	0.99648	0.99713
301	0.97522	0.96404	0.95516	0.97182	0.98195	0.98740	0.99049	0.99272	0.99413
302	0.98044	0.97322	0.96475	0.95474	0.96870	0.97807	0.98375	0.98793	0.99081
303	0.98558	0.98028	0.97353	0.96470	0.95302	0.96455	0.97441	0.98070	0.98663
304	0.96512	0.98706	0.99384	0.99627	0.99764	0.99826	0.99861	0.99882	0.99837
305	0.96838	0.95823	0.97789	0.98741	0.99191	0.99428	0.99562	0.99646	0.99705
306	0.97505	0.96388	0.95500	0.97181	0.98186	0.98737	0.99038	0.99263	0.99413
307	0.98060	0.97328	0.96429	0.95472	0.96880	0.97778	0.98311	0.98777	0.99064
308	0.98493	0.97967	0.97271	0.96319	0.95142	0.96424	0.97303	0.97990	0.98544
309	0.94873	0.98029	0.99053	0.99458	0.99673	0.99753	0.99783	0.99830	0.99819
310	0.95363	0.93831	0.96755	0.98069	0.98754	0.99128	0.99361	0.99511	0.99566
311	0.96398	0.94708	0.93531	0.95912	0.97276	0.98122	0.98603	0.98934	0.99214
312	0.97154	0.96017	0.94655	0.93290	0.95303	0.96689	0.97558	0.98156	0.98682
313	0.97894	0.97006	0.96001	0.94561	0.92784	0.94604	0.95982	0.96971	0.97891
314	0.94796	0.97995	0.99032	0.99458	0.99645	0.99765	0.99789	0.99821	0.99791
315	0.95274	0.93753	0.96645	0.98055	0.98766	0.99138	0.99349	0.99487	0.99551
316	0.96330	0.94714	0.93365	0.95818	0.97303	0.98134	0.98586	0.98959	0.99172
317	0.97162	0.96012	0.94525	0.93313	0.95288	0.96678	0.97544	0.98145	0.98700
318	0.97838	0.96999	0.95969	0.94523	0.92745	0.94563	0.95959	0.96952	0.97868
319	0.94744	0.97995	0.99015	0.99438	0.99645	0.99754	0.99800	0.99835	0.99817

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
320	0.95224	0.93723	0.96632	0.98052	0.98737	0.99107	0.99343	0.99481	0.99596
321	0.96361	0.94686	0.93388	0.95828	0.97280	0.98096	0.98568	0.98915	0.99198
322	0.97124	0.95889	0.94691	0.93306	0.95278	0.96679	0.97520	0.98133	0.98676
323	0.97794	0.96927	0.95909	0.94411	0.92642	0.94466	0.95914	0.96921	0.97831
324	0.94737	0.97944	0.99004	0.99431	0.99640	0.99744	0.99789	0.99827	0.99815
325	0.95182	0.93662	0.96566	0.98020	0.98729	0.99113	0.99337	0.99478	0.99649
326	0.96290	0.94629	0.93339	0.95763	0.97253	0.98068	0.98560	0.98908	0.99171
327	0.97126	0.95945	0.94651	0.93223	0.95207	0.96667	0.97508	0.98133	0.98652
328	0.97803	0.96880	0.95818	0.94336	0.92517	0.94349	0.95804	0.96860	0.97788
329	0.93845	0.97519	0.98835	0.99336	0.99557	0.99683	0.99739	0.99797	0.99811
330	0.94422	0.92516	0.95941	0.97664	0.98499	0.98951	0.99198	0.99385	0.99504
331	0.95702	0.93752	0.92300	0.95098	0.96778	0.97776	0.98348	0.98769	0.99090
332	0.96711	0.95271	0.93735	0.92045	0.94498	0.96077	0.97128	0.97817	0.98465
333	0.97473	0.96401	0.95197	0.93554	0.91462	0.93533	0.95252	0.96401	0.97505
334	0.93825	0.97507	0.98818	0.99341	0.99560	0.99681	0.99757	0.99790	0.99795
335	0.94415	0.92514	0.95956	0.97660	0.98496	0.98950	0.99196	0.99384	0.99503
336	0.95661	0.93720	0.92290	0.95056	0.96795	0.97772	0.98309	0.98729	0.99069
337	0.96708	0.95322	0.93706	0.92028	0.94408	0.96021	0.97095	0.97831	0.98427
338	0.97410	0.96389	0.95168	0.93509	0.91412	0.93544	0.95219	0.96407	0.97498
339	0.93791	0.97479	0.98807	0.99334	0.99565	0.99690	0.99775	0.99794	0.99795
340	0.94518	0.92513	0.95967	0.97645	0.98531	0.98951	0.99211	0.99394	0.99529
341	0.95674	0.93709	0.92194	0.95013	0.96736	0.97729	0.98310	0.98720	0.99082
342	0.96679	0.95229	0.93656	0.91978	0.94403	0.95934	0.97104	0.97810	0.98431
343	0.97387	0.96320	0.95147	0.93406	0.91286	0.93424	0.95097	0.96344	0.97442
344	0.93725	0.97460	0.98773	0.99321	0.99553	0.99714	0.99749	0.99794	0.99760
345	0.94486	0.92519	0.95922	0.97658	0.98477	0.98950	0.99209	0.99390	0.99502
346	0.95632	0.93685	0.92181	0.94955	0.96726	0.97719	0.98309	0.98710	0.99070
347	0.96684	0.95271	0.93615	0.91920	0.94367	0.95980	0.97095	0.97778	0.98449
348	0.97347	0.96259	0.95028	0.93256	0.91047	0.93345	0.94997	0.96263	0.97379
349	0.93279	0.96684	0.98445	0.99111	0.99415	0.99584	0.99671	0.99755	0.99753
350	0.94418	0.92389	0.95593	0.97434	0.98346	0.98839	0.99126	0.99337	0.99492
351	0.95608	0.93636	0.92072	0.94780	0.96595	0.97586	0.98197	0.98663	0.98988
352	0.93183	0.90279	0.94221	0.96646	0.97823	0.98481	0.98916	0.99272	0.99641
353	0.94980	0.91220	0.89266	0.92754	0.95294	0.96695	0.97636	0.98365	0.99148
354	0.96383	0.93565	0.90913	0.88804	0.91760	0.94270	0.95820	0.97098	0.98455
355	0.97569	0.95598	0.93623	0.91114	0.88705	0.91041	0.93507	0.95496	0.97558
356	0.92587	0.96458	0.98299	0.99023	0.99364	0.99566	0.99654	0.99796	0.99911
357	0.93169	0.90297	0.94237	0.96628	0.97819	0.98479	0.98913	0.99270	0.99639
358	0.94970	0.91270	0.89247	0.92739	0.95229	0.96667	0.97630	0.98360	0.99145
359	0.96363	0.93553	0.90883	0.88786	0.91750	0.94326	0.95843	0.97097	0.98450

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
360	0.97532	0.95401	0.93574	0.91049	0.88611	0.91121	0.93602	0.95496	0.97545
361	0.92508	0.96421	0.98302	0.99016	0.99358	0.99560	0.99648	0.99792	0.99907
362	0.93212	0.90175	0.94161	0.96622	0.97783	0.98465	0.98875	0.99263	0.99633
363	0.94939	0.91256	0.89197	0.92671	0.95227	0.96647	0.97615	0.98341	0.99136
364	0.96171	0.93520	0.90913	0.88731	0.91702	0.94212	0.95814	0.97015	0.98427
365	0.97467	0.95301	0.93456	0.90861	0.88473	0.90924	0.93519	0.95411	0.97513
366	0.92408	0.96350	0.98269	0.98979	0.99348	0.99550	0.99671	0.99786	0.99899
367	0.92943	0.90188	0.94091	0.96581	0.97755	0.98453	0.98860	0.99244	0.99621
368	0.94842	0.91159	0.89135	0.92612	0.95183	0.96613	0.97577	0.98328	0.99120
369	0.96115	0.93446	0.90800	0.88652	0.91595	0.94072	0.95788	0.96975	0.98398
370	0.97401	0.95178	0.93281	0.90821	0.88228	0.90918	0.93338	0.95327	0.97446
371	0.91390	0.95472	0.97884	0.98761	0.99206	0.99448	0.99574	0.99737	0.99875
372	0.92085	0.88333	0.92900	0.95866	0.97296	0.98123	0.98635	0.99178	0.99764
373	0.94073	0.89704	0.87225	0.91222	0.94268	0.95994	0.97092	0.98072	0.98906
374	0.95373	0.92209	0.89151	0.86687	0.90085	0.93022	0.94954	0.96516	0.97985
375	0.96966	0.94525	0.92330	0.89189	0.86200	0.89278	0.92250	0.94448	0.96967
376	0.91368	0.95435	0.97852	0.98755	0.99208	0.99440	0.99541	0.99736	0.99873
377	0.92077	0.88311	0.92871	0.95851	0.97298	0.98118	0.98672	0.99177	0.99762
378	0.94065	0.89730	0.87210	0.91141	0.94258	0.95981	0.97064	0.98088	0.99180
379	0.95501	0.92216	0.89150	0.86645	0.89980	0.93025	0.94895	0.96537	0.97981
380	0.96957	0.94512	0.92315	0.89136	0.86291	0.89214	0.92202	0.94417	0.96930
381	0.91310	0.95377	0.97838	0.98742	0.99189	0.99407	0.99541	0.99829	1.00111
382	0.92120	0.88370	0.92809	0.95778	0.97284	0.98106	0.98623	0.99162	0.99767
383	0.93949	0.89668	0.87086	0.91052	0.94249	0.95942	0.97064	0.97973	0.98751
384	0.95392	0.92289	0.89262	0.86483	0.89925	0.92869	0.94879	0.96517	0.98329
385	0.96733	0.94351	0.92161	0.89213	0.86217	0.89172	0.92052	0.94317	0.96825
386	0.91223	0.95206	0.97754	0.98711	0.99171	0.99417	0.99570	0.99814	0.99860
387	0.91982	0.88339	0.92765	0.95759	0.97244	0.98033	0.98639	0.99018	0.99499
388	0.93889	0.89779	0.87291	0.91103	0.94175	0.95905	0.97043	0.97955	0.98879
389	0.95367	0.92112	0.89266	0.86439	0.89912	0.92794	0.94822	0.96469	0.98023
390	0.96784	0.94245	0.92066	0.88870	0.86118	0.88912	0.92016	0.94292	0.97103
391	0.89915	0.93284	0.96808	0.98100	0.98760	0.99119	0.99363	0.99587	0.99796
392	0.92063	0.87701	0.91682	0.95129	0.96776	0.97767	0.98431	0.98899	0.99449
393	0.93795	0.89489	0.86719	0.90362	0.93636	0.95520	0.96791	0.97753	0.98821
394	0.95276	0.91961	0.88919	0.86203	0.89379	0.92485	0.94508	0.96119	0.97944
395	0.96815	0.94217	0.91892	0.88654	0.85732	0.88695	0.91675	0.94295	0.96752
396	0.89253	0.93235	0.96708	0.98082	0.98768	0.99157	0.99367	0.99616	0.99847
397	0.92180	0.87389	0.91651	0.95118	0.96765	0.97760	0.98396	0.98910	0.99444
398	0.93806	0.89526	0.86505	0.90338	0.93650	0.95509	0.96772	0.97776	0.98799
399	0.95154	0.91981	0.88916	0.86011	0.89362	0.92477	0.94463	0.96111	0.97794

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
400	0.96806	0.94233	0.91841	0.88794	0.85804	0.88826	0.91949	0.94249	0.96724
401	0.89146	0.93093	0.96687	0.98012	0.98723	0.99122	0.99354	0.99613	0.99841
402	0.91948	0.87360	0.91569	0.95029	0.96733	0.97736	0.98347	0.98883	0.99424
403	0.93678	0.89446	0.86481	0.90271	0.93575	0.95475	0.96759	0.97738	0.98787
404	0.95241	0.91909	0.88861	0.85985	0.89298	0.92430	0.94462	0.96086	0.97776
405	0.96708	0.94121	0.91703	0.88519	0.85543	0.88663	0.91848	0.94010	0.96574
406	0.89181	0.92853	0.96531	0.97906	0.98680	0.99110	0.99306	0.99541	0.99729
407	0.91877	0.87277	0.91479	0.94929	0.96676	0.97702	0.98369	0.98821	0.99348
408	0.93704	0.89308	0.86397	0.90189	0.93493	0.95422	0.96703	0.97694	0.98701
409	0.95164	0.91801	0.88654	0.85875	0.89159	0.92370	0.94430	0.96027	0.97555
410	0.96628	0.94027	0.91601	0.88441	0.85318	0.88284	0.91373	0.93868	0.96301
411	0.96850	0.98786	0.99455	0.99693	0.99820	0.99870	0.99910	0.99943	1.00151
412	0.96814	0.95839	0.97802	0.98749	0.99188	0.99462	0.99607	0.99723	0.99863
413	0.97538	0.96279	0.95410	0.97074	0.98154	0.98734	0.99103	0.99336	0.99569
414	0.98198	0.97412	0.96452	0.95307	0.96754	0.97752	0.98387	0.98810	0.99224
415	0.98672	0.98153	0.97562	0.96545	0.95453	0.96667	0.97508	0.98174	0.98760
416	0.96177	0.98840	0.99420	0.99682	0.99800	0.99865	0.99911	0.99939	0.99977
417	0.96758	0.95637	0.97767	0.98729	0.99189	0.99442	0.99598	0.99719	1.00048
418	0.97459	0.96331	0.95403	0.97189	0.98151	0.98744	0.99083	0.99332	0.99559
419	0.98162	0.97325	0.96410	0.95294	0.96741	0.97745	0.98369	0.98828	0.99254
420	0.98724	0.98148	0.97452	0.96514	0.95374	0.96609	0.97551	0.98173	0.98770
421	0.96324	0.98715	0.99432	0.99668	0.99800	0.99864	0.99911	0.99938	0.99973
422	0.96740	0.95560	0.97800	0.98738	0.99212	0.99449	0.99598	0.99716	0.99872
423	0.97430	0.96261	0.95335	0.97179	0.98158	0.98722	0.99082	0.99326	0.99556
424	0.98226	0.97344	0.96194	0.95298	0.96706	0.97753	0.98289	0.98789	0.99210
425	0.98651	0.98107	0.97411	0.96495	0.95248	0.96525	0.97462	0.98076	0.98736
426	0.96234	0.98730	0.99424	0.99669	0.99796	0.99861	0.99912	0.99948	0.99982
427	0.96674	0.95495	0.97728	0.98723	0.99175	0.99442	0.99606	0.99710	0.99861
428	0.97445	0.96276	0.95316	0.97144	0.98139	0.98727	0.99074	0.99322	0.99565
429	0.98218	0.97298	0.96325	0.95235	0.96714	0.97723	0.98344	0.98781	0.99216
430	0.98715	0.98088	0.97402	0.96477	0.95134	0.96405	0.97412	0.98043	0.98732
431	0.94563	0.97979	0.99057	0.99483	0.99688	0.99774	0.99846	0.99892	0.99955
432	0.95309	0.93629	0.96634	0.98084	0.98781	0.99148	0.99394	0.99559	0.99789
433	0.96238	0.94518	0.93283	0.95719	0.97187	0.98063	0.98601	0.98961	0.99326
434	0.97368	0.96011	0.94616	0.93109	0.95197	0.96646	0.97542	0.98186	0.98783
435	0.97991	0.97054	0.96033	0.94560	0.92813	0.94563	0.96011	0.97058	0.97981
436	0.94423	0.97983	0.99062	0.99470	0.99680	0.99773	0.99865	0.99887	0.99959
437	0.95311	0.93601	0.96642	0.98099	0.98780	0.99146	0.99403	0.99559	0.99799
438	0.96306	0.94520	0.93286	0.95714	0.97189	0.98061	0.98576	0.98957	0.99341
439	0.97145	0.95980	0.94613	0.93113	0.95191	0.96639	0.97538	0.98187	0.98770

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
440	0.97972	0.97030	0.96007	0.94525	0.92764	0.94565	0.96045	0.97015	0.97995
441	0.94330	0.97957	0.99072	0.99462	0.99685	0.99771	0.99870	0.99890	1.00121
442	0.95244	0.93566	0.96674	0.98086	0.98767	0.99141	0.99396	0.99554	0.99794
443	0.96252	0.94552	0.93246	0.95757	0.97226	0.98082	0.98576	0.98977	0.99230
444	0.97284	0.95978	0.94570	0.93120	0.95201	0.96649	0.97498	0.98181	0.98851
445	0.97898	0.96982	0.95931	0.94461	0.92633	0.94482	0.95962	0.96979	0.97906
446	0.94416	0.98027	0.99056	0.99463	0.99654	0.99766	0.99830	0.99887	0.99996
447	0.95204	0.93510	0.96642	0.98039	0.98740	0.99128	0.99386	0.99556	0.99790
448	0.96175	0.94451	0.93092	0.95640	0.97170	0.98024	0.98563	0.98946	0.99324
449	0.97254	0.95941	0.94540	0.93018	0.95147	0.96584	0.97512	0.98159	0.98818
450	0.97942	0.96951	0.95860	0.94321	0.92509	0.94348	0.95884	0.96927	0.97971
451	0.93430	0.97440	0.98842	0.99326	0.99578	0.99710	0.99797	0.99856	0.99933
452	0.94589	0.92649	0.96047	0.97717	0.98562	0.98978	0.99284	0.99504	0.99731
453	0.95582	0.93563	0.92114	0.94743	0.96698	0.97685	0.98313	0.98758	0.99335
454	0.96841	0.95407	0.93844	0.92172	0.94464	0.96149	0.97161	0.97893	0.98671
455	0.97570	0.96499	0.95350	0.93627	0.91498	0.93444	0.95306	0.96482	0.97560
456	0.93568	0.97476	0.98852	0.99333	0.99586	0.99714	0.99793	0.99859	0.99928
457	0.94516	0.92679	0.96040	0.97721	0.98524	0.98978	0.99270	0.99464	0.99719
458	0.95601	0.93559	0.92060	0.94717	0.96698	0.97684	0.98324	0.98756	0.99334
459	0.96834	0.95412	0.93839	0.92118	0.94458	0.96131	0.97155	0.97888	0.98668
460	0.96951	0.94158	0.92586	0.94801	0.96591	0.97620	0.98294	0.98790	0.99300
461	0.97509	0.95421	0.93561	0.91890	0.94030	0.95848	0.96983	0.97916	0.98724
462	0.98240	0.96752	0.95398	0.93628	0.91791	0.93597	0.95346	0.96732	0.98251
463	0.95705	0.97346	0.98687	0.99245	0.99499	0.99654	0.99741	0.99844	0.99877
464	0.95761	0.93377	0.95806	0.97520	0.98368	0.98852	0.99174	0.99380	0.99685
465	0.96958	0.94151	0.92577	0.94816	0.96584	0.97616	0.98291	0.98788	0.99294
466	0.97469	0.95407	0.93520	0.91884	0.94024	0.95838	0.96973	0.97919	0.98726
467	0.98176	0.96697	0.95372	0.93606	0.91723	0.93562	0.95318	0.96716	0.98133
468	0.95536	0.97294	0.98649	0.99225	0.99499	0.99634	0.99709	0.99842	0.99866
469	0.95828	0.93257	0.95704	0.97480	0.98354	0.98835	0.99186	0.99380	0.99689
470	0.96677	0.94094	0.92421	0.94781	0.96568	0.97621	0.98290	0.98810	0.99191
471	0.97466	0.95362	0.93485	0.91827	0.94006	0.95798	0.96965	0.97887	0.98854
472	0.98181	0.96695	0.95276	0.93494	0.91582	0.93427	0.95278	0.96631	0.98230
473	0.95489	0.97231	0.98630	0.99215	0.99494	0.99622	0.99724	0.99822	0.99845
474	0.95764	0.93404	0.95637	0.97457	0.98336	0.98834	0.99144	0.99381	0.99620
475	0.96678	0.94107	0.92506	0.94728	0.96561	0.97595	0.98246	0.98772	0.99249
476	0.97433	0.95310	0.93475	0.91849	0.93946	0.95765	0.96942	0.97872	0.98852
477	0.98185	0.96656	0.95239	0.93497	0.91552	0.93440	0.95145	0.96631	0.98132
478	0.94065	0.94975	0.97487	0.98507	0.99039	0.99329	0.99541	0.99688	0.99789
479	0.95258	0.92214	0.94272	0.96667	0.97761	0.98433	0.98935	0.99186	0.99400

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
480	0.96298	0.93400	0.91540	0.93734	0.95829	0.97092	0.97909	0.98536	0.99003
481	0.97101	0.94860	0.92766	0.91091	0.93050	0.95137	0.96479	0.97518	0.98528
482	0.97990	0.96262	0.94705	0.92682	0.90932	0.92653	0.94693	0.96194	0.97815
483	0.94041	0.94933	0.97469	0.98514	0.99016	0.99326	0.99532	0.99685	0.99788
484	0.95327	0.92176	0.94256	0.96659	0.97753	0.98460	0.98887	0.99169	0.99413
485	0.96307	0.93394	0.91548	0.93716	0.95843	0.97091	0.97912	0.98529	0.99111
486	0.97117	0.94844	0.92750	0.91063	0.93031	0.95104	0.96492	0.97517	0.98527
487	0.97979	0.96225	0.94660	0.92642	0.90896	0.92612	0.94675	0.96214	0.97893
488	0.93846	0.94795	0.97410	0.98462	0.99010	0.99301	0.99571	0.99679	0.99782
489	0.95320	0.92465	0.94209	0.96567	0.97764	0.98425	0.98882	0.99192	0.99524
490	0.96334	0.93418	0.91622	0.93711	0.95817	0.97070	0.97905	0.98496	0.99107
491	0.97167	0.94820	0.92656	0.91061	0.93012	0.95059	0.96445	0.97511	0.98601
492	0.97972	0.96182	0.94646	0.92634	0.90749	0.92556	0.94572	0.96104	0.97848
493	0.93681	0.94647	0.97320	0.98427	0.98970	0.99267	0.99526	0.99643	0.99731
494	0.95343	0.92204	0.94136	0.96503	0.97753	0.98387	0.98857	0.99175	0.99488
495	0.96294	0.93390	0.91569	0.93543	0.95779	0.97021	0.97866	0.98459	0.99113
496	0.97131	0.94779	0.92618	0.90975	0.92913	0.95025	0.96399	0.97483	0.98600
497	0.97904	0.96144	0.94559	0.92474	0.90742	0.92492	0.94522	0.96061	0.97893
498	0.98113	0.99320	0.99648	0.99803	0.99867	0.99927	0.99911	0.99923	0.99933
499	0.98221	0.97590	0.98709	0.99271	0.99539	0.99679	0.99777	0.99776	0.99752
500	0.98761	0.97955	0.97326	0.98356	0.98948	0.99264	0.99479	0.99575	0.99609
501	0.99048	0.98427	0.97870	0.97306	0.98111	0.98713	0.99054	0.99271	0.99426
502	0.99325	0.98850	0.98466	0.97895	0.97034	0.97885	0.98482	0.98852	0.99122
503	0.98021	0.99250	0.99647	0.99802	0.99866	0.99901	0.99920	0.99923	0.99851
504	0.98186	0.97593	0.98728	0.99267	0.99534	0.99696	0.99770	0.99777	0.99752
505	0.98712	0.97977	0.97420	0.98339	0.98928	0.99285	0.99473	0.99577	0.99674
506	0.99071	0.98437	0.97862	0.97292	0.98106	0.98706	0.99045	0.99267	0.99434
507	0.99186	0.98844	0.98379	0.97884	0.97018	0.97873	0.98467	0.98843	0.99123
508	0.98035	0.99239	0.99642	0.99811	0.99875	0.99917	0.99913	0.99932	0.99875
509	0.98198	0.97528	0.98669	0.99252	0.99528	0.99676	0.99746	0.99775	0.99771
510	0.98718	0.97874	0.97304	0.98315	0.98910	0.99260	0.99463	0.99575	0.99662
511	0.99049	0.98449	0.97841	0.97260	0.98081	0.98690	0.99037	0.99239	0.99426
512	0.99361	0.98811	0.98408	0.97789	0.97078	0.97841	0.98362	0.98827	0.99109
513	0.98008	0.99225	0.99634	0.99802	0.99865	0.99917	0.99921	0.99941	0.99849
514	0.98186	0.97435	0.98652	0.99223	0.99512	0.99670	0.99749	0.99774	0.99825
515	0.98620	0.97791	0.97228	0.98284	0.98900	0.99237	0.99466	0.99576	0.99660
516	0.99023	0.98439	0.97826	0.97241	0.98058	0.98671	0.99029	0.99236	0.99364
517	0.99291	0.98789	0.98339	0.97773	0.96983	0.97720	0.98385	0.98801	0.99114
518	0.96939	0.98848	0.99432	0.99680	0.99795	0.99865	0.99882	0.99909	0.99913
519	0.97230	0.96179	0.97963	0.98816	0.99245	0.99483	0.99620	0.99681	0.99749

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
520	0.97960	0.96738	0.96061	0.97413	0.98332	0.98859	0.99156	0.99366	0.99526
521	0.98342	0.97518	0.96614	0.95736	0.96994	0.97942	0.98476	0.98852	0.99194
522	0.98915	0.98245	0.97594	0.96708	0.95582	0.96703	0.97589	0.98185	0.98787
523	0.96809	0.98770	0.99419	0.99677	0.99788	0.99865	0.99890	0.99914	0.99911
524	0.97294	0.96170	0.97957	0.98813	0.99246	0.99484	0.99622	0.99682	0.99747
525	0.97894	0.96746	0.95929	0.97408	0.98327	0.98845	0.99158	0.99374	0.99523
526	0.98310	0.97509	0.96604	0.95700	0.96992	0.97915	0.98480	0.98863	0.99136
527	0.98867	0.98214	0.97567	0.96694	0.95564	0.96679	0.97573	0.98169	0.98713
528	0.96943	0.98746	0.99418	0.99678	0.99789	0.99861	0.99891	0.99920	0.99872
529	0.97301	0.96165	0.97940	0.98812	0.99244	0.99476	0.99609	0.99679	0.99719
530	0.97877	0.96720	0.95893	0.97407	0.98317	0.98836	0.99141	0.99354	0.99529
531	0.98484	0.97494	0.96601	0.95698	0.96967	0.97907	0.98462	0.98845	0.99152
532	0.98907	0.98200	0.97537	0.96631	0.95497	0.96630	0.97553	0.98146	0.98698
533	0.96846	0.98746	0.99407	0.99664	0.99783	0.99839	0.99884	0.99909	0.99931
534	0.97116	0.96108	0.97906	0.98795	0.99239	0.99476	0.99606	0.99699	0.99752
535	0.97879	0.96717	0.95883	0.97368	0.98313	0.98829	0.99136	0.99355	0.99515
536	0.98392	0.97452	0.96564	0.95643	0.96950	0.97859	0.98443	0.98835	0.99154
537	0.98862	0.98169	0.97488	0.96581	0.95415	0.96560	0.97500	0.98125	0.98739
538	0.96294	0.98446	0.99263	0.99590	0.99733	0.99807	0.99846	0.99905	0.99905
539	0.96807	0.95567	0.97577	0.98598	0.99096	0.99381	0.99543	0.99636	0.99710
540	0.97419	0.96226	0.95293	0.96993	0.98044	0.98652	0.99012	0.99261	0.99472
541	0.98185	0.97110	0.96100	0.95053	0.96548	0.97583	0.98226	0.98687	0.99033
542	0.98659	0.97947	0.97194	0.96153	0.94911	0.96163	0.97170	0.97922	0.98559
543	0.96341	0.98426	0.99262	0.99586	0.99733	0.99811	0.99846	0.99898	0.99891
544	0.96807	0.95543	0.97573	0.98595	0.99098	0.99380	0.99545	0.99619	0.99709
545	0.97445	0.96219	0.95281	0.96989	0.98041	0.98648	0.99017	0.99257	0.99450
546	0.98171	0.97115	0.96139	0.95020	0.96529	0.97586	0.98232	0.98684	0.99089
547	0.98699	0.97930	0.97166	0.96178	0.94880	0.96156	0.97216	0.97894	0.98540
548	0.96281	0.98418	0.99259	0.99586	0.99725	0.99821	0.99852	0.99899	0.99848
549	0.96858	0.95532	0.97542	0.98588	0.99103	0.99370	0.99555	0.99628	0.99701
550	0.97535	0.96197	0.95249	0.96969	0.98039	0.98637	0.98997	0.99250	0.99444
551	0.98149	0.97136	0.96113	0.95012	0.96543	0.97594	0.98207	0.98673	0.99075
552	0.98696	0.97899	0.97154	0.96119	0.94793	0.96105	0.97137	0.97856	0.98486
553	0.96167	0.98396	0.99244	0.99561	0.99726	0.99805	0.99847	0.99878	0.99902
554	0.96859	0.95493	0.97530	0.98576	0.99094	0.99375	0.99535	0.99651	0.99742
555	0.97511	0.96180	0.95208	0.96946	0.98018	0.98632	0.98983	0.99238	0.99443
556	0.98116	0.97077	0.96084	0.95018	0.96498	0.97570	0.98200	0.98670	0.99069
557	0.98645	0.97874	0.97152	0.96019	0.94810	0.96069	0.97161	0.97867	0.98489
558	0.95453	0.97339	0.98799	0.99284	0.99550	0.99695	0.99757	0.99821	0.99823
559	0.96542	0.95036	0.96917	0.98220	0.98846	0.99216	0.99424	0.99567	0.99614

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
560	0.97308	0.95839	0.94847	0.96460	0.97692	0.98402	0.98828	0.99147	0.99380
561	0.97907	0.96720	0.95586	0.94563	0.96009	0.97201	0.97962	0.98498	0.98977
562	0.98539	0.97649	0.96794	0.95666	0.94386	0.95674	0.96796	0.97616	0.98408
563	0.95623	0.97356	0.98773	0.99280	0.99547	0.99690	0.99761	0.99804	0.99877
564	0.96520	0.95024	0.96900	0.98210	0.98839	0.99212	0.99418	0.99554	0.99623
565	0.97297	0.95838	0.94827	0.96437	0.97686	0.98388	0.98820	0.99123	0.99375
566	0.97899	0.96749	0.95626	0.94576	0.95990	0.97218	0.97950	0.98506	0.98944
567	0.98533	0.97623	0.96775	0.95641	0.94381	0.95625	0.96776	0.97617	0.98388
568	0.95896	0.97314	0.98751	0.99267	0.99538	0.99687	0.99759	0.99827	0.99813
569	0.96510	0.95022	0.96869	0.98189	0.98829	0.99198	0.99428	0.99553	0.99607
570	0.97299	0.95803	0.94797	0.96414	0.97674	0.98373	0.98811	0.99100	0.99357
571	0.97950	0.96712	0.95671	0.94598	0.95960	0.97205	0.97922	0.98461	0.98938
572	0.98513	0.97583	0.96750	0.95612	0.94322	0.95616	0.96759	0.97587	0.98361
573	0.95497	0.97278	0.98722	0.99278	0.99525	0.99687	0.99746	0.99795	0.99833
574	0.96402	0.94971	0.96814	0.98141	0.98808	0.99189	0.99390	0.99549	0.99625
575	0.97191	0.95716	0.94710	0.96336	0.97609	0.98351	0.98790	0.99092	0.99401
576	0.97827	0.96753	0.95636	0.94547	0.95962	0.97184	0.97943	0.98469	0.98963
577	0.98535	0.97589	0.96723	0.95543	0.94266	0.95511	0.96723	0.97558	0.98320
578	0.97843	0.99224	0.99605	0.99778	0.99852	0.99916	0.99904	0.99919	0.99929
579	0.97979	0.97268	0.98540	0.99176	0.99477	0.99636	0.99746	0.99754	0.99738
580	0.98571	0.97676	0.96975	0.98139	0.98808	0.99165	0.99408	0.99523	0.99575
581	0.98906	0.98222	0.97593	0.96949	0.97864	0.98540	0.98928	0.99179	0.99365
582	0.99222	0.98699	0.98265	0.97618	0.96660	0.97606	0.98281	0.98704	0.99022
583	0.97753	0.99155	0.99603	0.99777	0.99850	0.99890	0.99912	0.99918	0.99849
584	0.97942	0.97271	0.98561	0.99171	0.99472	0.99653	0.99739	0.99756	0.99739
585	0.98518	0.97698	0.97075	0.98120	0.98787	0.99188	0.99401	0.99524	0.99640
586	0.98927	0.98230	0.97583	0.96935	0.97857	0.98532	0.98918	0.99174	0.99373
587	0.99085	0.98692	0.98176	0.97606	0.96644	0.97594	0.98265	0.98692	0.99022
588	0.97763	0.99142	0.99598	0.99785	0.99859	0.99906	0.99905	0.99927	0.99872
589	0.97947	0.97197	0.98496	0.99154	0.99464	0.99632	0.99714	0.99753	0.99757
590	0.98524	0.97592	0.96952	0.98095	0.98766	0.99160	0.99390	0.99522	0.99627
591	0.98905	0.98240	0.97560	0.96900	0.97830	0.98515	0.98909	0.99145	0.99364
592	0.99254	0.98657	0.98202	0.97503	0.96699	0.97558	0.98156	0.98674	0.99007
593	0.97733	0.99127	0.99590	0.99777	0.99849	0.99906	0.99914	0.99936	0.99847
594	0.97930	0.97096	0.98478	0.99123	0.99447	0.99626	0.99717	0.99751	0.99809
595	0.98424	0.97505	0.96869	0.98060	0.98756	0.99136	0.99392	0.99522	0.99624
596	0.98877	0.98226	0.97541	0.96875	0.97803	0.98493	0.98899	0.99140	0.99301
597	0.99181	0.98632	0.98125	0.97482	0.96594	0.97431	0.98173	0.98643	0.99009
598	0.96490	0.98682	0.99356	0.99637	0.99767	0.99846	0.99868	0.99900	0.99907
599	0.96799	0.95612	0.97663	0.98643	0.99133	0.99405	0.99563	0.99640	0.99722

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
600	0.97624	0.96248	0.95459	0.97031	0.98081	0.98685	0.99028	0.99273	0.99464
601	0.98090	0.97147	0.96119	0.95110	0.96551	0.97632	0.98248	0.98683	0.99081
602	0.98733	0.97978	0.97238	0.96224	0.94945	0.96222	0.97235	0.97922	0.98608
603	0.96358	0.98604	0.99343	0.99633	0.99760	0.99846	0.99876	0.99905	0.99905
604	0.96861	0.95603	0.97656	0.98640	0.99134	0.99406	0.99565	0.99641	0.99720
605	0.97558	0.96255	0.95325	0.97024	0.98076	0.98669	0.99030	0.99279	0.99461
606	0.98058	0.97139	0.96109	0.95075	0.96549	0.97603	0.98251	0.98693	0.99024
607	0.98685	0.97946	0.97209	0.96209	0.94925	0.96196	0.97215	0.97904	0.98534
608	0.96489	0.98580	0.99341	0.99634	0.99761	0.99842	0.99877	0.99911	0.99866
609	0.96866	0.95595	0.97638	0.98639	0.99131	0.99397	0.99553	0.99638	0.99693
610	0.97539	0.96227	0.95285	0.97021	0.98065	0.98659	0.99012	0.99259	0.99466
611	0.98227	0.97122	0.96104	0.95069	0.96521	0.97594	0.98232	0.98674	0.99038
612	0.98720	0.97928	0.97173	0.96139	0.94846	0.96139	0.97193	0.97876	0.98517
613	0.96391	0.98578	0.99330	0.99620	0.99755	0.99820	0.99871	0.99899	0.99924
614	0.96681	0.95534	0.97601	0.98620	0.99125	0.99397	0.99548	0.99657	0.99724
615	0.97539	0.96223	0.95271	0.96981	0.98060	0.98651	0.99008	0.99260	0.99452
616	0.98132	0.97077	0.96064	0.95009	0.96500	0.97543	0.98211	0.98663	0.99039
617	0.98671	0.97893	0.97115	0.96077	0.94752	0.96057	0.97132	0.97849	0.98551
618	0.95733	0.98241	0.99168	0.99536	0.99698	0.99783	0.99829	0.99893	0.99897
619	0.96277	0.94864	0.97205	0.98381	0.98956	0.99284	0.99472	0.99585	0.99676
620	0.97005	0.95622	0.94549	0.96519	0.97732	0.98434	0.98852	0.99144	0.99393
621	0.97870	0.96653	0.95489	0.94283	0.96001	0.97197	0.97942	0.98475	0.98892
622	0.98434	0.97616	0.96750	0.95558	0.94120	0.95566	0.96728	0.97593	0.98336
623	0.95778	0.98221	0.99167	0.99531	0.99698	0.99787	0.99829	0.99886	0.99883
624	0.96276	0.94840	0.97200	0.98379	0.98958	0.99283	0.99474	0.99568	0.99675
625	0.97032	0.95614	0.94537	0.96514	0.97729	0.98430	0.98856	0.99139	0.99371
626	0.97855	0.96657	0.95530	0.94245	0.95980	0.97199	0.97948	0.98474	0.98946
627	0.98471	0.97596	0.96724	0.95577	0.94085	0.95556	0.96773	0.97563	0.98315
628	0.95717	0.98213	0.99164	0.99531	0.99690	0.99797	0.99835	0.99887	0.99842
629	0.96321	0.94826	0.97168	0.98372	0.98962	0.99272	0.99483	0.99577	0.99667
630	0.97117	0.95591	0.94497	0.96491	0.97726	0.98417	0.98835	0.99132	0.99365
631	0.97832	0.96677	0.95502	0.94237	0.95997	0.97207	0.97924	0.98461	0.98933
632	0.98464	0.97560	0.96702	0.95509	0.93989	0.95498	0.96687	0.97520	0.98260
633	0.95603	0.98189	0.99148	0.99506	0.99691	0.99781	0.99830	0.99866	0.99894
634	0.96320	0.94783	0.97153	0.98358	0.98952	0.99277	0.99463	0.99599	0.99707
635	0.97092	0.95569	0.94453	0.96466	0.97703	0.98411	0.98822	0.99120	0.99364
636	0.97799	0.96615	0.95469	0.94236	0.95946	0.97180	0.97912	0.98456	0.98925
637	0.98408	0.97531	0.96695	0.95396	0.93997	0.95451	0.96703	0.97527	0.98258
638	0.94812	0.97129	0.98699	0.99227	0.99513	0.99669	0.99739	0.99808	0.99814
639	0.95981	0.94255	0.96527	0.97992	0.98698	0.99112	0.99348	0.99511	0.99578

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
640	0.96870	0.95209	0.94030	0.95962	0.97363	0.98171	0.98660	0.99022	0.99296
641	0.97569	0.96227	0.94935	0.93712	0.95425	0.96786	0.97656	0.98271	0.98823
642	0.98292	0.97290	0.96320	0.95023	0.93507	0.95029	0.96321	0.97260	0.98163
643	0.94976	0.97146	0.98674	0.99224	0.99510	0.99664	0.99743	0.99792	0.99868
644	0.95959	0.94242	0.96509	0.97982	0.98691	0.99108	0.99343	0.99499	0.99587
645	0.96856	0.95203	0.94006	0.95937	0.97356	0.98157	0.98650	0.98997	0.99291
646	0.97561	0.96260	0.94980	0.93722	0.95408	0.96805	0.97646	0.98278	0.98791
647	0.98285	0.97266	0.96299	0.94996	0.93500	0.94984	0.96299	0.97258	0.98144
648	0.95239	0.97104	0.98651	0.99210	0.99501	0.99662	0.99741	0.99814	0.99805
649	0.95949	0.94238	0.96478	0.97960	0.98680	0.99094	0.99352	0.99497	0.99572
650	0.96859	0.95169	0.93969	0.95915	0.97344	0.98140	0.98642	0.98974	0.99273
651	0.97614	0.96220	0.95029	0.93749	0.95375	0.96792	0.97615	0.98232	0.98786
652	0.98262	0.97221	0.96271	0.94962	0.93430	0.94965	0.96278	0.97226	0.98113
653	0.94847	0.97066	0.98622	0.99220	0.99488	0.99662	0.99728	0.99783	0.99824
654	0.95841	0.94181	0.96421	0.97912	0.98658	0.99084	0.99315	0.99493	0.99589
655	0.96746	0.95075	0.93876	0.95830	0.97277	0.98116	0.98618	0.98965	0.99315
656	0.97491	0.96266	0.94993	0.93692	0.95383	0.96771	0.97639	0.98243	0.98810
657	0.98280	0.97220	0.96232	0.94881	0.93363	0.94857	0.96235	0.97192	0.98071
658	0.97634	0.99149	0.99571	0.99759	0.99840	0.99908	0.99898	0.99915	0.99926
659	0.97792	0.97020	0.98409	0.99103	0.99429	0.99602	0.99722	0.99737	0.99728
660	0.98424	0.97460	0.96705	0.97971	0.98700	0.99088	0.99353	0.99483	0.99549
661	0.98797	0.98064	0.97379	0.96676	0.97674	0.98407	0.98830	0.99107	0.99318
662	0.99143	0.98584	0.98110	0.97407	0.96376	0.97394	0.98127	0.98590	0.98945
663	0.97546	0.99081	0.99570	0.99758	0.99838	0.99882	0.99907	0.99914	0.99848
664	0.97754	0.97022	0.98431	0.99097	0.99423	0.99619	0.99714	0.99739	0.99729
665	0.98370	0.97483	0.96809	0.97951	0.98677	0.99113	0.99346	0.99483	0.99613
666	0.98817	0.98071	0.97369	0.96660	0.97666	0.98398	0.98821	0.99101	0.99325
667	0.99007	0.98576	0.98020	0.97394	0.96359	0.97381	0.98110	0.98577	0.98945
668	0.97553	0.99067	0.99565	0.99766	0.99846	0.99898	0.99899	0.99923	0.99870
669	0.97753	0.96942	0.98363	0.99077	0.99415	0.99598	0.99690	0.99735	0.99746
670	0.98375	0.97375	0.96681	0.97925	0.98656	0.99083	0.99334	0.99481	0.99600
671	0.98794	0.98079	0.97345	0.96624	0.97638	0.98380	0.98810	0.99073	0.99316
672	0.99172	0.98540	0.98043	0.97284	0.96410	0.97341	0.97998	0.98557	0.98929
673	0.97521	0.99051	0.99556	0.99757	0.99837	0.99897	0.99908	0.99931	0.99845
674	0.97732	0.96835	0.98343	0.99045	0.99397	0.99591	0.99692	0.99734	0.99797
675	0.98274	0.97285	0.96594	0.97888	0.98644	0.99058	0.99336	0.99480	0.99597
676	0.96645	0.95145	0.93590	0.91792	0.94173	0.95891	0.96964	0.97710	0.98391
677	0.97399	0.96361	0.95150	0.93447	0.91461	0.93424	0.95143	0.96327	0.97402
678	0.93102	0.96706	0.98446	0.99102	0.99409	0.99580	0.99676	0.99699	0.99708
679	0.94408	0.92375	0.95581	0.97454	0.98340	0.98850	0.99119	0.99339	0.99490

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
680	0.95594	0.93633	0.92064	0.94770	0.96610	0.97587	0.98196	0.98674	0.98986
681	0.96607	0.95142	0.93584	0.91829	0.94167	0.95921	0.96960	0.97707	0.98390
682	0.97381	0.96338	0.95097	0.93393	0.91434	0.93387	0.95114	0.96274	0.97407
683	0.93193	0.96651	0.98400	0.99075	0.99401	0.99572	0.99665	0.99743	0.99719
684	0.94378	0.92349	0.95548	0.97408	0.98325	0.98841	0.99116	0.99329	0.99468
685	0.95579	0.93593	0.92023	0.94734	0.96560	0.97576	0.98189	0.98628	0.99016
686	0.96595	0.95125	0.93495	0.91844	0.94137	0.95871	0.96963	0.97695	0.98381
687	0.97350	0.96273	0.95047	0.93338	0.91349	0.93340	0.95052	0.96314	0.97389
688	0.93112	0.96557	0.98368	0.99064	0.99390	0.99568	0.99649	0.99717	0.99764
689	0.94225	0.92289	0.95487	0.97371	0.98291	0.98808	0.99116	0.99280	0.99430
690	0.95539	0.93588	0.92012	0.94686	0.96525	0.97554	0.98220	0.98606	0.99003
691	0.96582	0.95107	0.93510	0.91772	0.94120	0.95851	0.96954	0.97679	0.98368
692	0.97425	0.96237	0.94963	0.93219	0.91066	0.93222	0.94965	0.96243	0.97340
693	0.97497	0.99205	0.99607	0.99790	0.99845	0.99888	0.99914	0.99886	0.99912
694	0.97805	0.97090	0.98563	0.99170	0.99449	0.99628	0.99721	0.99770	0.99787
695	0.98322	0.97731	0.97166	0.98270	0.98889	0.99228	0.99413	0.99537	0.99616
696	0.98701	0.98259	0.97760	0.97039	0.98014	0.98592	0.98975	0.99167	0.99386
697	0.99062	0.98717	0.98316	0.97726	0.96888	0.97761	0.98346	0.98731	0.99047
698	0.97509	0.99200	0.99624	0.99777	0.99848	0.99888	0.99911	0.99899	0.99911
699	0.97685	0.97094	0.98560	0.99188	0.99462	0.99622	0.99705	0.99742	0.99786
700	0.98288	0.97701	0.97124	0.98241	0.98862	0.99195	0.99409	0.99544	0.99645
701	0.98706	0.98256	0.97700	0.97066	0.97980	0.98598	0.98951	0.99209	0.99370
702	0.99044	0.98709	0.98330	0.97737	0.96907	0.97708	0.98314	0.98704	0.99050
703	0.97496	0.99197	0.99616	0.99775	0.99848	0.99885	0.99908	0.99917	0.99911
704	0.97746	0.97045	0.98549	0.99165	0.99469	0.99618	0.99709	0.99761	0.99786
705	0.98274	0.97668	0.97088	0.98225	0.98860	0.99200	0.99397	0.99520	0.99643
706	0.98708	0.98275	0.97722	0.97047	0.97996	0.98586	0.98956	0.99165	0.99356
707	0.99015	0.98681	0.98301	0.97675	0.96825	0.97725	0.98280	0.98701	0.99059
708	0.97460	0.99175	0.99611	0.99771	0.99849	0.99883	0.99910	0.99916	0.99887
709	0.97737	0.97178	0.98601	0.99199	0.99489	0.99630	0.99713	0.99764	0.99790
710	0.98276	0.97641	0.97047	0.98210	0.98843	0.99185	0.99394	0.99513	0.99642
711	0.98703	0.98259	0.97712	0.97051	0.97998	0.98595	0.98953	0.99203	0.99389
712	0.99001	0.98671	0.98259	0.97642	0.96793	0.97648	0.98275	0.98674	0.99007
713	0.96371	0.98776	0.99420	0.99670	0.99783	0.99840	0.99883	0.99861	0.99890
714	0.96590	0.95754	0.97840	0.98760	0.99197	0.99427	0.99570	0.99690	0.99709
715	0.97500	0.96661	0.95876	0.97423	0.98339	0.98828	0.99144	0.99323	0.99507
716	0.98153	0.97488	0.96739	0.95773	0.97128	0.97980	0.98502	0.98859	0.99116
717	0.98585	0.98091	0.97490	0.96615	0.95421	0.96625	0.97517	0.98089	0.98576
718	0.96344	0.98787	0.99423	0.99666	0.99781	0.99840	0.99877	0.99859	0.99891
719	0.96516	0.95768	0.97805	0.98748	0.99183	0.99421	0.99563	0.99660	0.99705

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
720	0.97504	0.96629	0.95793	0.97421	0.98325	0.98847	0.99132	0.99322	0.99461
721	0.98150	0.97504	0.96704	0.95789	0.97115	0.97955	0.98493	0.98852	0.99103
722	0.98607	0.98080	0.97485	0.96593	0.95379	0.96599	0.97514	0.98080	0.98569
723	0.96347	0.98770	0.99417	0.99680	0.99776	0.99839	0.99872	0.99894	0.99887
724	0.96580	0.95599	0.97786	0.98724	0.99187	0.99428	0.99566	0.99656	0.99711
725	0.97513	0.96605	0.95784	0.97426	0.98328	0.98842	0.99129	0.99334	0.99496
726	0.98135	0.97491	0.96697	0.95735	0.97109	0.97944	0.98482	0.98848	0.99105
727	0.98558	0.98076	0.97443	0.96601	0.95320	0.96554	0.97453	0.98065	0.98559
728	0.96386	0.98738	0.99428	0.99657	0.99772	0.99841	0.99871	0.99888	0.99861
729	0.96564	0.95638	0.97828	0.98740	0.99169	0.99438	0.99577	0.99657	0.99706
730	0.97489	0.96569	0.95751	0.97381	0.98324	0.98821	0.99125	0.99322	0.99470
731	0.98125	0.97453	0.96660	0.95734	0.97074	0.97951	0.98485	0.98833	0.99125
732	0.98548	0.98042	0.97464	0.96552	0.95309	0.96533	0.97418	0.98073	0.98530
733	0.95714	0.98516	0.99301	0.99602	0.99733	0.99805	0.99851	0.99880	0.99880
734	0.96006	0.94928	0.97370	0.98538	0.99030	0.99320	0.99490	0.99600	0.99673
735	0.97147	0.96100	0.95126	0.97013	0.98059	0.98637	0.99000	0.99223	0.99397
736	0.97873	0.97089	0.96198	0.95079	0.96617	0.97642	0.98268	0.98653	0.99000
737	0.98380	0.97769	0.97073	0.96043	0.94608	0.96019	0.97093	0.97766	0.98355
738	0.95742	0.98516	0.99304	0.99597	0.99741	0.99807	0.99850	0.99878	0.99866
739	0.96005	0.94927	0.97373	0.98537	0.99029	0.99317	0.99492	0.99603	0.99669
740	0.97121	0.96098	0.95085	0.97008	0.98055	0.98625	0.99011	0.99222	0.99417
741	0.97843	0.97079	0.96182	0.95046	0.96622	0.97628	0.98260	0.98685	0.98978
742	0.98358	0.97756	0.97071	0.96021	0.94612	0.96044	0.97087	0.97747	0.98329
743	0.95716	0.98511	0.99296	0.99596	0.99738	0.99814	0.99852	0.99901	0.99847
744	0.96031	0.94797	0.97370	0.98491	0.99040	0.99327	0.99481	0.99582	0.99668
745	0.97118	0.96075	0.95094	0.96984	0.98028	0.98629	0.98996	0.99219	0.99376
746	0.97837	0.97094	0.96203	0.94992	0.96617	0.97647	0.98215	0.98689	0.99007
747	0.98324	0.97727	0.97036	0.96030	0.94527	0.96019	0.97036	0.97756	0.98321
748	0.95677	0.98476	0.99289	0.99589	0.99731	0.99810	0.99845	0.99873	0.99854
749	0.96013	0.94959	0.97409	0.98535	0.99038	0.99326	0.99496	0.99601	0.99661
750	0.97080	0.96043	0.95061	0.96946	0.98009	0.98610	0.98980	0.99210	0.99389
751	0.97808	0.97031	0.96116	0.94990	0.96574	0.97595	0.98203	0.98652	0.98966
752	0.98303	0.97697	0.96999	0.95921	0.94447	0.95972	0.96988	0.97696	0.98289
753	0.95480	0.98138	0.99136	0.99491	0.99665	0.99770	0.99810	0.99859	0.99859
754	0.95977	0.94986	0.97295	0.98425	0.98982	0.99292	0.99463	0.99579	0.99656
755	0.97087	0.96037	0.95063	0.96878	0.97973	0.98573	0.98962	0.99181	0.99363
756	0.97826	0.97021	0.96106	0.95006	0.96520	0.97548	0.98188	0.98614	0.98929
757	0.98334	0.97796	0.97112	0.96037	0.94809	0.96076	0.97068	0.97793	0.98353
758	0.95380	0.98126	0.99123	0.99494	0.99669	0.99760	0.99817	0.99854	0.99818
759	0.95974	0.94980	0.97289	0.98423	0.98980	0.99283	0.99460	0.99578	0.99639

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
760	0.97079	0.96031	0.95057	0.96872	0.97960	0.98574	0.98945	0.99176	0.99362
761	0.97821	0.97015	0.96099	0.94993	0.96512	0.97545	0.98182	0.98611	0.98930
762	0.98328	0.97767	0.97103	0.96120	0.94792	0.96052	0.97057	0.97765	0.98347
763	0.95477	0.98097	0.99110	0.99483	0.99662	0.99754	0.99813	0.99857	0.99837
764	0.96037	0.94914	0.97287	0.98452	0.99004	0.99302	0.99492	0.99602	0.99643
765	0.97062	0.96014	0.95038	0.96860	0.97947	0.98565	0.98935	0.99193	0.99364
766	0.97808	0.97003	0.96091	0.94984	0.96498	0.97530	0.98170	0.98602	0.98927
767	0.98361	0.97749	0.97054	0.96064	0.94635	0.95992	0.97058	0.97761	0.98331
768	0.95410	0.98053	0.99093	0.99479	0.99653	0.99748	0.99803	0.99831	0.99816
769	0.96065	0.94968	0.97277	0.98431	0.98948	0.99285	0.99484	0.99576	0.99641
770	0.97007	0.95973	0.94988	0.96823	0.97925	0.98561	0.98926	0.99192	0.99356
771	0.97791	0.96989	0.96048	0.94950	0.96461	0.97520	0.98154	0.98588	0.98913
772	0.98312	0.97745	0.97004	0.95959	0.94555	0.95967	0.96992	0.97685	0.98302
773	0.97178	0.99106	0.99564	0.99766	0.99831	0.99879	0.99908	0.99883	0.99910
774	0.97527	0.96736	0.98387	0.99070	0.99386	0.99585	0.99690	0.99748	0.99772
775	0.98107	0.97439	0.96799	0.98045	0.98743	0.99127	0.99340	0.99482	0.99578
776	0.98538	0.98037	0.97469	0.96660	0.97757	0.98412	0.98844	0.99069	0.99314
777	0.98951	0.98566	0.98112	0.97452	0.96517	0.97481	0.98141	0.98580	0.98934
778	0.97190	0.99101	0.99581	0.99754	0.99834	0.99879	0.99905	0.99896	0.99909
779	0.97402	0.96736	0.98384	0.99089	0.99398	0.99579	0.99673	0.99719	0.99771
780	0.98068	0.97404	0.96752	0.98014	0.98714	0.99093	0.99335	0.99490	0.99605
781	0.98543	0.98032	0.97404	0.96688	0.97722	0.98416	0.98818	0.99110	0.99298
782	0.98932	0.98556	0.98127	0.97459	0.96529	0.97430	0.98112	0.98552	0.98937
783	0.97174	0.99098	0.99573	0.99751	0.99834	0.99876	0.99902	0.99914	0.99909
784	0.97555	0.96479	0.95311	0.93592	0.91454	0.93503	0.95277	0.96462	0.97547
785	0.93208	0.97488	0.98833	0.99339	0.99583	0.99713	0.99826	0.99853	0.99934
786	0.94564	0.92631	0.96070	0.97698	0.98542	0.98969	0.99262	0.99469	0.99732
787	0.95531	0.93548	0.92100	0.94901	0.96626	0.97679	0.98322	0.98747	0.99331
788	0.96878	0.95423	0.93814	0.92031	0.94457	0.96067	0.97097	0.97870	0.98661
789	0.97504	0.96416	0.95215	0.93484	0.91374	0.93448	0.95227	0.96400	0.97499
790	0.93336	0.97451	0.98815	0.99317	0.99589	0.99708	0.99826	0.99849	1.00100
791	0.94473	0.92567	0.96011	0.97701	0.98542	0.98973	0.99260	0.99464	0.99736
792	0.95613	0.93402	0.91931	0.94762	0.96657	0.97614	0.98325	0.98738	0.99316
793	0.96825	0.95370	0.93785	0.92004	0.94431	0.96076	0.97108	0.97876	0.98609
794	0.97378	0.96316	0.95129	0.93308	0.91138	0.93283	0.95071	0.96343	0.97547
795	0.92861	0.96717	0.98473	0.99155	0.99435	0.99625	0.99728	0.99800	0.99898
796	0.94459	0.92363	0.95599	0.97496	0.98376	0.98886	0.99213	0.99406	0.99676
797	0.95547	0.93479	0.91924	0.94763	0.96519	0.97609	0.98231	0.98705	0.99158
798	0.96820	0.95203	0.93619	0.91886	0.94169	0.95888	0.97033	0.97771	0.98504
799	0.97509	0.96368	0.95163	0.93391	0.91256	0.93374	0.95072	0.96417	0.97551

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
800	0.92882	0.96638	0.98447	0.99106	0.99450	0.99608	0.99728	0.99802	0.99895
801	0.94449	0.92353	0.95594	0.97462	0.98352	0.98873	0.99210	0.99404	0.99676
802	0.95516	0.93439	0.91787	0.94710	0.96517	0.97562	0.98250	0.98676	0.99154
803	0.96814	0.95245	0.93585	0.91871	0.94158	0.95927	0.97019	0.97795	0.98499
804	0.97529	0.96302	0.95136	0.93266	0.91242	0.93328	0.95148	0.96352	0.97515
805	0.92542	0.96581	0.98427	0.99090	0.99441	0.99599	0.99722	0.99798	0.99894
806	0.94360	0.92175	0.95549	0.97420	0.98337	0.98849	0.99169	0.99398	0.99672
807	0.95500	0.93411	0.91817	0.94716	0.96504	0.97590	0.98253	0.98704	0.99138
808	0.96795	0.95221	0.93591	0.91789	0.94127	0.95872	0.96974	0.97779	0.98490
809	0.97451	0.96260	0.95050	0.93195	0.91139	0.93202	0.94967	0.96314	0.97422
810	0.92453	0.96444	0.98367	0.99053	0.99423	0.99582	0.99709	0.99788	0.99887
811	0.94395	0.92127	0.95495	0.97383	0.98316	0.98832	0.99162	0.99389	0.99665
812	0.95325	0.93381	0.91766	0.94648	0.96474	0.97560	0.98208	0.98672	0.99127
813	0.96754	0.95152	0.93533	0.91747	0.94110	0.95834	0.96971	0.97743	0.98522
814	0.97341	0.96197	0.94876	0.93080	0.90891	0.92998	0.94931	0.96252	0.97388
815	0.96409	0.98625	0.99379	0.99649	0.99792	0.99850	0.99895	0.99931	1.00142
816	0.96401	0.95304	0.97515	0.98583	0.99079	0.99386	0.99552	0.99682	0.99835
817	0.97227	0.95828	0.94859	0.96722	0.97924	0.98572	0.98985	0.99247	0.99507
818	0.97960	0.97077	0.96004	0.94740	0.96351	0.97468	0.98179	0.98654	0.99116
819	0.98512	0.97922	0.97260	0.96130	0.94914	0.96259	0.97207	0.97946	0.98601
820	0.95745	0.98680	0.99343	0.99641	0.99771	0.99845	0.99895	0.99927	0.99969
821	0.96337	0.95109	0.97480	0.98565	0.99082	0.99367	0.99542	0.99677	1.00018
822	0.97141	0.95879	0.94850	0.96833	0.97920	0.98582	0.98963	0.99243	0.99497
823	0.97920	0.96983	0.95956	0.94725	0.96337	0.97460	0.98159	0.98671	0.99144
824	0.98564	0.97919	0.97147	0.96104	0.94829	0.96197	0.97245	0.97943	0.98610
825	0.95882	0.98552	0.99355	0.99624	0.99772	0.99843	0.99895	0.99926	0.99964
826	0.96320	0.95024	0.97510	0.98570	0.99102	0.99373	0.99542	0.99673	0.99842
827	0.97109	0.95803	0.94775	0.96822	0.97924	0.98558	0.98961	0.99236	0.99493
828	0.97982	0.97008	0.95735	0.94727	0.96295	0.97467	0.98075	0.98629	0.99098
829	0.98487	0.97874	0.97100	0.96075	0.94693	0.96105	0.97150	0.97841	0.98574
830	0.95786	0.98563	0.99347	0.99625	0.99766	0.99842	0.99896	0.99938	0.99972
831	0.96245	0.94950	0.97433	0.98553	0.99064	0.99365	0.99549	0.99667	0.99831
832	0.97121	0.95811	0.94749	0.96780	0.97900	0.98561	0.98951	0.99230	0.99500
833	0.97974	0.96948	0.95859	0.94656	0.96300	0.97433	0.98128	0.98619	0.99105
834	0.98546	0.97846	0.97081	0.96044	0.94561	0.95971	0.97092	0.97802	0.98564
835	0.93795	0.97687	0.98922	0.99405	0.99638	0.99738	0.99819	0.99871	0.99941
836	0.94563	0.92678	0.96113	0.97779	0.98584	0.99008	0.99292	0.99482	0.99735
837	0.95658	0.93696	0.92292	0.95075	0.96759	0.97762	0.98379	0.98797	0.99212
838	0.96935	0.95390	0.93799	0.92095	0.94466	0.96125	0.97155	0.97895	0.98580
839	0.97685	0.96616	0.95454	0.93785	0.91803	0.93781	0.95432	0.96624	0.97671

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
840	0.93646	0.97693	0.98925	0.99390	0.99629	0.99737	0.99838	0.99867	0.99944
841	0.94566	0.92654	0.96119	0.97795	0.98583	0.99008	0.99301	0.99482	0.99745
842	0.95727	0.93702	0.92293	0.95069	0.96761	0.97759	0.98354	0.98794	0.99227
843	0.96708	0.95357	0.93794	0.92098	0.94459	0.96117	0.97149	0.97896	0.98567
844	0.97663	0.96584	0.95426	0.93742	0.91747	0.93791	0.95462	0.96570	0.97688
845	0.93554	0.97662	0.98933	0.99381	0.99633	0.99736	0.99843	0.99869	1.00106
846	0.94497	0.92614	0.96151	0.97782	0.98568	0.99002	0.99294	0.99479	0.99740
847	0.95669	0.93728	0.92249	0.95109	0.96798	0.97779	0.98352	0.98810	0.99115
848	0.96842	0.95350	0.93744	0.92101	0.94465	0.96125	0.97109	0.97888	0.98647
849	0.97580	0.96528	0.95338	0.93664	0.91610	0.93692	0.95369	0.96528	0.97591
850	0.93626	0.97729	0.98916	0.99381	0.99601	0.99730	0.99802	0.99866	0.99982
851	0.94450	0.92545	0.96116	0.97729	0.98537	0.98987	0.99282	0.99479	0.99735
852	0.95586	0.93615	0.92079	0.94984	0.96738	0.97718	0.98338	0.98777	0.99210
853	0.96811	0.95310	0.93713	0.91989	0.94407	0.96054	0.97120	0.97863	0.98612
854	0.97623	0.96494	0.95252	0.93505	0.91460	0.93539	0.95282	0.96464	0.97653
855	0.92465	0.97080	0.98672	0.99227	0.99513	0.99665	0.99763	0.99831	0.99916
856	0.93668	0.91472	0.95405	0.97341	0.98313	0.98806	0.99158	0.99411	0.99665
857	0.94855	0.92536	0.90883	0.93928	0.96160	0.97303	0.98031	0.98547	0.99190
858	0.96300	0.94639	0.92845	0.90928	0.93561	0.95504	0.96682	0.97531	0.98417
859	0.97176	0.95939	0.94617	0.92651	0.90228	0.92467	0.94565	0.95917	0.97164
860	0.92598	0.97114	0.98680	0.99234	0.99522	0.99669	0.99759	0.99834	0.99910
861	0.93597	0.91501	0.95397	0.97341	0.98274	0.98803	0.99143	0.99370	0.99652
862	0.94873	0.92532	0.90823	0.93900	0.96159	0.97302	0.98043	0.98544	0.99188
863	0.96293	0.94644	0.92833	0.90875	0.93554	0.95486	0.96675	0.97524	0.98414
864	0.97159	0.95916	0.94575	0.92612	0.90178	0.92512	0.94532	0.95895	0.97150
865	0.92243	0.97124	0.98659	0.99240	0.99519	0.99667	0.99793	0.99828	0.99916
866	0.93644	0.91446	0.95429	0.97316	0.98293	0.98793	0.99134	0.99374	0.99665
867	0.94800	0.92518	0.90866	0.94091	0.96081	0.97296	0.98040	0.98535	0.99185
868	0.96333	0.94651	0.92807	0.90778	0.93553	0.95415	0.96612	0.97504	0.98405
869	0.97097	0.95844	0.94467	0.92489	0.90084	0.92444	0.94478	0.95824	0.97095
870	0.92364	0.97086	0.98642	0.99217	0.99525	0.99662	0.99793	0.99824	1.00082
871	0.93548	0.91392	0.95364	0.97321	0.98291	0.98799	0.99131	0.99369	0.99668
872	0.94886	0.92359	0.90687	0.93940	0.96114	0.97224	0.98043	0.98525	0.99168
873	0.96278	0.94598	0.92773	0.90750	0.93522	0.95424	0.96620	0.97510	0.98352
874	0.96962	0.95724	0.94359	0.92289	0.89820	0.92254	0.94302	0.95758	0.97140
875	0.91760	0.96313	0.98280	0.99044	0.99362	0.99574	0.99690	0.99773	0.99878
876	0.93477	0.91060	0.94902	0.97082	0.98104	0.98696	0.99073	0.99301	0.99604
877	0.94774	0.92387	0.90566	0.93898	0.95939	0.97199	0.97926	0.98478	0.99003
878	0.96236	0.94377	0.92542	0.90513	0.93198	0.95191	0.96511	0.97379	0.98230
879	0.97082	0.95752	0.94362	0.92321	0.89845	0.92307	0.94265	0.95805	0.97125

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
880	0.91781	0.96235	0.98255	0.98995	0.99377	0.99557	0.99689	0.99774	0.99876
881	0.93467	0.91050	0.94895	0.97048	0.98080	0.98682	0.99071	0.99299	0.99604
882	0.94741	0.92348	0.90428	0.93850	0.95937	0.97151	0.97948	0.98446	0.98999
883	0.96230	0.94420	0.92507	0.90503	0.93188	0.95231	0.96498	0.97403	0.98226
884	0.97101	0.95686	0.94333	0.92196	0.89827	0.92258	0.94344	0.95739	0.97087
885	0.91450	0.96179	0.98235	0.98979	0.99369	0.99549	0.99684	0.99770	0.99874
886	0.93381	0.90872	0.94850	0.97006	0.98065	0.98658	0.99029	0.99293	0.99601
887	0.94728	0.92327	0.90463	0.93856	0.95925	0.97181	0.97951	0.98478	0.98981
888	0.96211	0.94397	0.92517	0.90419	0.93158	0.95174	0.96454	0.97388	0.98216
889	0.97014	0.95638	0.94237	0.92114	0.89710	0.92121	0.94147	0.95694	0.96984
890	0.91362	0.96041	0.98175	0.98941	0.99351	0.99532	0.99671	0.99760	0.99867
891	0.93412	0.90825	0.94797	0.96968	0.98044	0.98640	0.99022	0.99285	0.99593
892	0.98764	0.98062	0.97322	0.96595	0.97607	0.98357	0.98798	0.99067	0.99253
893	0.99097	0.98511	0.97962	0.97259	0.96298	0.97211	0.98011	0.98522	0.98928
894	0.96136	0.98551	0.99296	0.99603	0.99745	0.99831	0.99858	0.99893	0.99902
895	0.96462	0.95169	0.97427	0.98506	0.99044	0.99344	0.99519	0.99608	0.99700
896	0.97362	0.95866	0.94989	0.96732	0.97884	0.98548	0.98928	0.99199	0.99416
897	0.97893	0.96859	0.95735	0.94624	0.96207	0.97389	0.98069	0.98550	0.98992
898	0.98590	0.97770	0.96961	0.95849	0.94453	0.95850	0.96959	0.97716	0.98468
899	0.96003	0.98472	0.99282	0.99598	0.99738	0.99830	0.99865	0.99897	0.99900
900	0.96523	0.95160	0.97420	0.98503	0.99045	0.99344	0.99520	0.99609	0.99699
901	0.97296	0.95873	0.94854	0.96723	0.97879	0.98531	0.98929	0.99204	0.99411
902	0.97861	0.96850	0.95724	0.94589	0.96204	0.97360	0.98072	0.98559	0.98935
903	0.98542	0.97737	0.96931	0.95832	0.94429	0.95821	0.96937	0.97697	0.98394
904	0.96131	0.98448	0.99280	0.99599	0.99738	0.99826	0.99866	0.99903	0.99862
905	0.96527	0.95150	0.97400	0.98502	0.99042	0.99336	0.99508	0.99606	0.99672
906	0.97275	0.95843	0.94811	0.96719	0.97867	0.98521	0.98911	0.99184	0.99416
907	0.98027	0.96832	0.95718	0.94581	0.96174	0.97349	0.98052	0.98541	0.98949
908	0.98575	0.97715	0.96890	0.95757	0.94342	0.95758	0.96913	0.97665	0.98375
909	0.96033	0.98446	0.99269	0.99585	0.99732	0.99805	0.99860	0.99891	0.99919
910	0.96341	0.95087	0.97362	0.98482	0.99035	0.99335	0.99503	0.99625	0.99703
911	0.97274	0.95838	0.94794	0.96678	0.97862	0.98511	0.98906	0.99184	0.99402
912	0.97930	0.96785	0.95675	0.94518	0.96151	0.97295	0.98029	0.98529	0.98949
913	0.98522	0.97677	0.96825	0.95685	0.94238	0.95667	0.96846	0.97635	0.98405
914	0.95290	0.98078	0.99092	0.99492	0.99670	0.99764	0.99816	0.99883	0.99890
915	0.95859	0.94313	0.96910	0.98210	0.98845	0.99207	0.99416	0.99543	0.99649
916	0.96680	0.95149	0.93968	0.96146	0.97486	0.98261	0.98725	0.99051	0.99331
917	0.97623	0.96295	0.95013	0.93682	0.95573	0.96894	0.97719	0.98308	0.98781
918	0.98257	0.97355	0.96402	0.95094	0.93506	0.95101	0.96381	0.97334	0.98160
919	0.95334	0.98057	0.99091	0.99488	0.99670	0.99768	0.99816	0.99876	0.99876

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
920	0.95858	0.94290	0.96905	0.98207	0.98847	0.99205	0.99418	0.99528	0.99648
921	0.96708	0.95140	0.93955	0.96141	0.97482	0.98257	0.98730	0.99046	0.99309
922	0.97606	0.96297	0.95054	0.93642	0.95551	0.96895	0.97724	0.98307	0.98834
923	0.98292	0.97334	0.96377	0.95107	0.93467	0.95088	0.96425	0.97303	0.98139
924	0.95272	0.98048	0.99087	0.99487	0.99662	0.99777	0.99821	0.99876	0.99836
925	0.95899	0.94272	0.96871	0.98201	0.98850	0.99195	0.99426	0.99536	0.99640
926	0.96789	0.95117	0.93910	0.96116	0.97479	0.98244	0.98708	0.99039	0.99302
927	0.97583	0.96317	0.95024	0.93632	0.95569	0.96903	0.97701	0.98294	0.98820
928	0.98282	0.97294	0.96348	0.95033	0.93364	0.95024	0.96335	0.97256	0.98081
929	0.95158	0.98024	0.99071	0.99463	0.99663	0.99762	0.99816	0.99856	0.99887
930	0.95898	0.94227	0.96856	0.98186	0.98840	0.99199	0.99406	0.99557	0.99679
931	0.96763	0.95092	0.93863	0.96088	0.97455	0.98237	0.98694	0.99026	0.99301
932	0.97549	0.96252	0.94989	0.93628	0.95514	0.96873	0.97686	0.98288	0.98812
933	0.98222	0.97261	0.96337	0.94910	0.93364	0.94969	0.96343	0.97260	0.98076
934	0.94295	0.96953	0.98615	0.99179	0.99482	0.99648	0.99724	0.99797	0.99807
935	0.95528	0.93629	0.96208	0.97804	0.98576	0.99027	0.99286	0.99465	0.99548
936	0.96515	0.94699	0.93375	0.95557	0.97095	0.97983	0.98522	0.98919	0.99228
937	0.97296	0.95830	0.94411	0.93032	0.94953	0.96450	0.97407	0.98086	0.98698
938	0.98093	0.97000	0.95938	0.94506	0.92808	0.94511	0.95938	0.96972	0.97965
939	0.94455	0.96970	0.98590	0.99176	0.99479	0.99643	0.99728	0.99781	0.99860
940	0.95506	0.93616	0.96189	0.97795	0.98570	0.99022	0.99281	0.99453	0.99557
941	0.96500	0.94690	0.93349	0.95531	0.97087	0.97968	0.98512	0.98895	0.99222
942	0.97288	0.95865	0.94460	0.93040	0.94938	0.96470	0.97399	0.98093	0.98667
943	0.98085	0.96977	0.95916	0.94478	0.92798	0.94470	0.95915	0.96967	0.97947
944	0.94711	0.96928	0.98567	0.99162	0.99470	0.99640	0.99725	0.99803	0.99798
945	0.95496	0.93609	0.96157	0.97772	0.98557	0.99009	0.99290	0.99452	0.99542
946	0.96503	0.94657	0.93308	0.95509	0.97075	0.97950	0.98503	0.98871	0.99204
947	0.97342	0.95822	0.94512	0.93070	0.94903	0.96459	0.97366	0.98047	0.98662
948	0.98059	0.96928	0.95884	0.94438	0.92719	0.94441	0.95891	0.96934	0.97913
949	0.94324	0.96889	0.98538	0.99172	0.99457	0.99641	0.99713	0.99772	0.99817
950	0.95386	0.93548	0.96100	0.97723	0.98535	0.98998	0.99253	0.99447	0.99559
951	0.96386	0.94558	0.93210	0.95420	0.97005	0.97925	0.98478	0.98861	0.99245
952	0.97220	0.95873	0.94473	0.93010	0.94915	0.96437	0.97393	0.98059	0.98685
953	0.98073	0.96921	0.95834	0.94349	0.92643	0.94330	0.95841	0.96896	0.97869
954	0.98317	0.99460	0.99753	0.99867	0.99912	0.99932	0.99949	0.99960	1.00036
955	0.98457	0.98021	0.99003	0.99446	0.99641	0.99743	0.99811	0.99835	0.99906
956	0.98813	0.98392	0.97983	0.98785	0.99215	0.99451	0.99599	0.99675	0.99811
957	0.99037	0.98694	0.98252	0.97741	0.98469	0.98938	0.99221	0.99402	0.99609
958	0.99316	0.99086	0.98786	0.98364	0.97713	0.98323	0.98800	0.99105	0.99369
959	0.98313	0.99452	0.99751	0.99867	0.99912	0.99941	0.99947	0.99959	1.00026

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
960	0.98435	0.97987	0.99000	0.99432	0.99630	0.99747	0.99802	0.99841	0.99906
961	0.98788	0.98368	0.97965	0.98772	0.99202	0.99445	0.99602	0.99669	0.99807
962	0.99024	0.98658	0.98233	0.97719	0.98444	0.98929	0.99200	0.99394	0.99619
963	0.99309	0.99063	0.98789	0.98351	0.97721	0.98333	0.98785	0.99065	0.99362
964	0.98276	0.99439	0.99750	0.99861	0.99910	0.99941	0.99946	0.99958	0.99971
965	0.98364	0.97950	0.98976	0.99418	0.99623	0.99739	0.99802	0.99842	0.99925
966	0.98740	0.98337	0.97906	0.98726	0.99188	0.99431	0.99591	0.99670	0.99826
967	0.98990	0.98680	0.98205	0.97677	0.98413	0.98913	0.99209	0.99385	0.99570
968	0.99272	0.99051	0.98748	0.98312	0.97704	0.98307	0.98745	0.99053	0.99359
969	0.98263	0.99430	0.99751	0.99860	0.99906	0.99933	0.99940	0.99943	0.99979
970	0.98325	0.97869	0.98954	0.99403	0.99617	0.99731	0.99797	0.99843	0.99957
971	0.98701	0.98249	0.97801	0.98698	0.99148	0.99399	0.99569	0.99669	0.99802
972	0.98991	0.98663	0.98184	0.97675	0.98416	0.98895	0.99195	0.99375	0.99550
973	0.99276	0.99022	0.98711	0.98293	0.97618	0.98288	0.98729	0.99027	0.99359
974	0.97218	0.99076	0.99571	0.99765	0.99837	0.99884	0.99924	0.99927	0.99996
975	0.97556	0.96922	0.98406	0.99105	0.99416	0.99599	0.99701	0.99767	0.99869
976	0.98107	0.97365	0.96707	0.97995	0.98697	0.99091	0.99337	0.99475	0.99706
977	0.98546	0.97990	0.97344	0.96595	0.97654	0.98357	0.98784	0.99080	0.99376
978	0.98966	0.98566	0.98094	0.97426	0.96475	0.97401	0.98094	0.98547	0.99006
979	0.97222	0.99079	0.99569	0.99763	0.99843	0.99883	0.99922	0.99932	1.00003
980	0.97551	0.96859	0.98401	0.99100	0.99415	0.99598	0.99700	0.99766	0.99869
981	0.98102	0.97344	0.96698	0.97991	0.98699	0.99091	0.99338	0.99481	0.99704
982	0.98546	0.98012	0.97361	0.96607	0.97666	0.98377	0.98801	0.99098	0.99410
983	0.98931	0.98557	0.98079	0.97406	0.96464	0.97389	0.98082	0.98538	0.99005
984	0.97268	0.99053	0.99562	0.99761	0.99837	0.99883	0.99915	0.99923	0.99985
985	0.97487	0.96827	0.98388	0.99085	0.99411	0.99594	0.99698	0.99761	0.99867
986	0.98080	0.97352	0.96684	0.97978	0.98693	0.99086	0.99337	0.99476	0.99693
987	0.98557	0.98004	0.97350	0.96597	0.97659	0.98372	0.98791	0.99087	0.99412
988	0.98952	0.98539	0.98055	0.97366	0.96399	0.97346	0.98044	0.98514	0.98990
989	0.97263	0.99050	0.99563	0.99757	0.99833	0.99880	0.99918	0.99925	1.00008
990	0.97418	0.96790	0.98368	0.99079	0.99404	0.99585	0.99690	0.99764	0.99856
991	0.98071	0.97321	0.96657	0.97962	0.98679	0.99077	0.99326	0.99474	0.99695
992	0.98535	0.98008	0.97353	0.96593	0.97656	0.98362	0.98791	0.99094	0.99372
993	0.98905	0.98520	0.98014	0.97319	0.96376	0.97304	0.98041	0.98497	0.98969
994	0.96796	0.98843	0.99475	0.99710	0.99806	0.99858	0.99899	0.99919	0.99992
995	0.97183	0.96328	0.98126	0.98940	0.99310	0.99518	0.99644	0.99728	0.99841
996	0.97786	0.96961	0.96159	0.97654	0.98487	0.98933	0.99228	0.99398	0.99644
997	0.98292	0.97653	0.96887	0.96025	0.97260	0.98088	0.98580	0.98938	0.99294
998	0.98765	0.98326	0.97775	0.97002	0.95918	0.97015	0.97799	0.98324	0.98840
999	0.96789	0.98846	0.99473	0.99706	0.99808	0.99857	0.99902	0.99918	0.99986

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1000	0.97162	0.96345	0.98123	0.98938	0.99315	0.99524	0.99647	0.99727	0.99840
1001	0.97789	0.96929	0.96174	0.97648	0.98472	0.98933	0.99222	0.99399	0.99642
1002	0.98282	0.97653	0.96898	0.95999	0.97271	0.98095	0.98592	0.98939	0.99295
1003	0.98761	0.98323	0.97792	0.96982	0.95970	0.97001	0.97793	0.98324	0.98866
1004	0.96728	0.98845	0.99465	0.99705	0.99805	0.99863	0.99899	0.99913	0.99907
1005	0.97113	0.96319	0.98114	0.98929	0.99302	0.99522	0.99639	0.99722	0.99842
1006	0.97782	0.96924	0.96150	0.97642	0.98472	0.98935	0.99222	0.99396	0.99643
1007	0.98305	0.97644	0.96884	0.96004	0.97240	0.98090	0.98576	0.98930	0.99294
1008	0.98798	0.98320	0.97766	0.96972	0.95862	0.96957	0.97746	0.98299	0.98831
1009	0.96625	0.98827	0.99457	0.99698	0.99794	0.99854	0.99902	0.99915	0.99982
1010	0.97136	0.96273	0.98100	0.98923	0.99297	0.99513	0.99646	0.99729	0.99829
1011	0.97762	0.96903	0.96123	0.97616	0.98457	0.98925	0.99213	0.99394	0.99632
1012	0.98252	0.97610	0.96838	0.95922	0.97214	0.98056	0.98553	0.98920	0.99246
1013	0.98737	0.98305	0.97748	0.96917	0.95821	0.96952	0.97758	0.98305	0.98818
1014	0.96137	0.98301	0.99214	0.99561	0.99707	0.99803	0.99861	0.99882	0.99992
1015	0.96883	0.95935	0.97742	0.98709	0.99171	0.99411	0.99573	0.99667	0.99820
1016	0.97512	0.96607	0.95772	0.97300	0.98250	0.98774	0.99098	0.99309	0.99577
1017	0.98125	0.97382	0.96543	0.95589	0.96919	0.97837	0.98412	0.98802	0.99123
1018	0.98659	0.98124	0.97512	0.96638	0.95518	0.96632	0.97514	0.98113	0.98715
1019	0.96121	0.98296	0.99213	0.99553	0.99705	0.99795	0.99855	0.99878	0.99992
1020	0.96847	0.95938	0.97735	0.98706	0.99165	0.99418	0.99569	0.99667	0.99816
1021	0.97506	0.96597	0.95765	0.97293	0.98245	0.98772	0.99097	0.99306	0.99574
1022	0.98124	0.97389	0.96554	0.95600	0.96904	0.97819	0.98402	0.98802	0.99180
1023	0.98641	0.98109	0.97504	0.96624	0.95498	0.96623	0.97489	0.98116	0.98713
1024	0.96151	0.98270	0.99206	0.99556	0.99704	0.99792	0.99853	0.99884	0.99987
1025	0.96819	0.95905	0.97726	0.98687	0.99161	0.99410	0.99562	0.99668	0.99825
1026	0.97494	0.96575	0.95749	0.97279	0.98234	0.98762	0.99086	0.99296	0.99570
1027	0.98109	0.97366	0.96506	0.95593	0.96887	0.97811	0.98386	0.98789	0.99203
1028	0.98603	0.98101	0.97483	0.96579	0.95464	0.96595	0.97471	0.98102	0.98695
1029	0.96094	0.98234	0.99185	0.99546	0.99697	0.99787	0.99850	0.99879	0.99987
1030	0.96774	0.95833	0.97667	0.98665	0.99139	0.99394	0.99559	0.99658	0.99812
1031	0.97458	0.96547	0.95739	0.97238	0.98211	0.98748	0.99075	0.99294	0.99564
1032	0.98054	0.97342	0.96472	0.95557	0.96841	0.97788	0.98370	0.98776	0.99182
1033	0.98591	0.98056	0.97460	0.96562	0.95402	0.96543	0.97462	0.98067	0.98679
1034	0.98083	0.99386	0.99720	0.99849	0.99900	0.99924	0.99943	0.99956	1.00032
1035	0.98246	0.97751	0.98869	0.99370	0.99592	0.99709	0.99786	0.99817	0.99893
1036	0.98650	0.98167	0.97702	0.98612	0.99104	0.99374	0.99543	0.99633	0.99780
1037	0.98912	0.98523	0.98026	0.97448	0.98270	0.98798	0.99119	0.99325	0.99552
1038	0.99228	0.98962	0.98626	0.98146	0.97413	0.98105	0.98641	0.98984	0.99280
1039	0.98079	0.99379	0.99717	0.99848	0.99900	0.99932	0.99941	0.99955	1.00022

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1040	0.98222	0.97715	0.98866	0.99355	0.99580	0.99713	0.99777	0.99823	0.99893
1041	0.98624	0.98142	0.97683	0.98600	0.99091	0.99368	0.99545	0.99628	0.99776
1042	0.98898	0.98485	0.98007	0.97424	0.98242	0.98788	0.99096	0.99317	0.99562
1043	0.99221	0.98941	0.98627	0.98132	0.97422	0.98115	0.98624	0.98944	0.99273
1044	0.98038	0.99364	0.99716	0.99842	0.99898	0.99933	0.99940	0.99954	0.99968
1045	0.98151	0.97676	0.98840	0.99341	0.99573	0.99704	0.99777	0.99824	0.99911
1046	0.98572	0.98107	0.97617	0.98550	0.99073	0.99352	0.99533	0.99627	0.99793
1047	0.98864	0.98505	0.97975	0.97378	0.98209	0.98770	0.99104	0.99307	0.99513
1048	0.99183	0.98926	0.98583	0.98088	0.97401	0.98084	0.98581	0.98929	0.99268
1049	0.98023	0.99355	0.99717	0.99841	0.99894	0.99925	0.99934	0.99939	0.99976
1050	0.98108	0.97588	0.98816	0.99323	0.99566	0.99696	0.99772	0.99824	0.99941
1051	0.98531	0.98014	0.97505	0.98519	0.99031	0.99318	0.99510	0.99624	0.99768
1052	0.98862	0.98486	0.97951	0.97372	0.98211	0.98752	0.99089	0.99295	0.99492
1053	0.99184	0.98894	0.98542	0.98063	0.97305	0.98057	0.98562	0.98900	0.99265
1054	0.96811	0.98944	0.99511	0.99731	0.99815	0.99869	0.99914	0.99919	0.99989
1055	0.97180	0.96451	0.98166	0.98969	0.99327	0.99538	0.99656	0.99733	0.99845
1056	0.97815	0.96968	0.96215	0.97691	0.98500	0.98954	0.99236	0.99400	0.99649
1057	0.98328	0.97690	0.96951	0.96091	0.97305	0.98110	0.98603	0.98943	0.99275
1058	0.98810	0.98352	0.97812	0.97045	0.95963	0.97022	0.97813	0.98334	0.98848
1059	0.96815	0.98947	0.99509	0.99729	0.99821	0.99868	0.99911	0.99924	0.99996
1060	0.97174	0.96385	0.98162	0.98962	0.99326	0.99536	0.99655	0.99733	0.99844
1061	0.97810	0.96946	0.96206	0.97687	0.98502	0.98953	0.99237	0.99405	0.99647
1062	0.98326	0.97713	0.96969	0.96101	0.97317	0.98132	0.98621	0.98962	0.99309
1063	0.98774	0.98342	0.97794	0.97023	0.95949	0.97007	0.97799	0.98324	0.98847
1064	0.96857	0.98921	0.99502	0.99726	0.99816	0.99868	0.99904	0.99916	0.99979
1065	0.97111	0.96350	0.98147	0.98947	0.99322	0.99532	0.99652	0.99728	0.99842
1066	0.97786	0.96955	0.96190	0.97673	0.98494	0.98947	0.99236	0.99401	0.99637
1067	0.98337	0.97703	0.96955	0.96089	0.97309	0.98126	0.98610	0.98951	0.99311
1068	0.98792	0.98320	0.97767	0.96977	0.95876	0.96958	0.97757	0.98297	0.98830
1069	0.96847	0.98916	0.99502	0.99722	0.99811	0.99865	0.99907	0.99917	1.00001
1070	0.97039	0.96308	0.98125	0.98939	0.99314	0.99522	0.99645	0.99730	0.99831
1071	0.97776	0.96920	0.96159	0.97655	0.98480	0.98937	0.99224	0.99398	0.99638
1072	0.98313	0.97705	0.96955	0.96083	0.97304	0.98114	0.98609	0.98956	0.99271
1073	0.98742	0.98298	0.97719	0.96921	0.95844	0.96909	0.97749	0.98275	0.98805
1074	0.96290	0.98679	0.99401	0.99667	0.99779	0.99840	0.99886	0.99909	0.99984
1075	0.96719	0.95741	0.97829	0.98769	0.99200	0.99441	0.99588	0.99687	0.99810
1076	0.97422	0.96471	0.95550	0.97276	0.98242	0.98762	0.99102	0.99304	0.99574
1077	0.98016	0.97277	0.96396	0.95396	0.96823	0.97780	0.98353	0.98766	0.99168
1078	0.98571	0.98059	0.97424	0.96528	0.95280	0.96541	0.97446	0.98057	0.98643
1079	0.96283	0.98682	0.99398	0.99664	0.99781	0.99838	0.99889	0.99908	0.99978

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1080	0.96696	0.95762	0.97825	0.98767	0.99205	0.99447	0.99591	0.99684	0.99809
1081	0.97426	0.96435	0.95562	0.97269	0.98226	0.98761	0.99095	0.99304	0.99572
1082	0.98006	0.97277	0.96407	0.95367	0.96835	0.97787	0.98365	0.98767	0.99168
1083	0.98566	0.98055	0.97439	0.96507	0.95336	0.96524	0.97438	0.98054	0.98668
1084	0.96221	0.98682	0.99390	0.99663	0.99778	0.99844	0.99885	0.99903	0.99901
1085	0.96647	0.95729	0.97815	0.98757	0.99190	0.99445	0.99583	0.99679	0.99811
1086	0.97417	0.96430	0.95537	0.97263	0.98225	0.98762	0.99095	0.99301	0.99572
1087	0.98028	0.97266	0.96391	0.95371	0.96801	0.97781	0.98348	0.98758	0.99167
1088	0.98599	0.98048	0.97408	0.96489	0.95213	0.96478	0.97389	0.98028	0.98630
1089	0.96118	0.98662	0.99382	0.99655	0.99767	0.99836	0.99888	0.99905	0.99974
1090	0.96667	0.95679	0.97800	0.98750	0.99185	0.99435	0.99589	0.99686	0.99798
1091	0.97395	0.96406	0.95507	0.97236	0.98209	0.98751	0.99086	0.99298	0.99561
1092	0.97973	0.97227	0.96340	0.95282	0.96770	0.97743	0.98322	0.98745	0.99119
1093	0.98534	0.98030	0.97385	0.96425	0.95163	0.96464	0.97398	0.98030	0.98616
1094	0.95564	0.98130	0.99136	0.99517	0.99679	0.99783	0.99846	0.99871	0.99983
1095	0.96395	0.95292	0.97429	0.98528	0.99054	0.99330	0.99514	0.99623	0.99787
1096	0.97128	0.96084	0.95105	0.96901	0.97989	0.98591	0.98964	0.99208	0.99502
1097	0.97828	0.96979	0.96017	0.94894	0.96450	0.97507	0.98168	0.98617	0.98989
1098	0.98447	0.97835	0.97133	0.96128	0.94815	0.96122	0.97134	0.97825	0.98501
1099	0.95548	0.98126	0.99134	0.99508	0.99677	0.99775	0.99840	0.99868	0.99983
1100	0.96359	0.95294	0.97422	0.98525	0.99048	0.99336	0.99510	0.99622	0.99783
1101	0.97121	0.96076	0.95098	0.96894	0.97984	0.98590	0.98962	0.99205	0.99499
1102	0.97826	0.96986	0.96030	0.94903	0.96436	0.97488	0.98157	0.98617	0.99044
1103	0.98428	0.97821	0.97123	0.96112	0.94792	0.96113	0.97109	0.97826	0.98499
1104	0.95577	0.98100	0.99128	0.99511	0.99676	0.99772	0.99839	0.99873	0.99978
1105	0.96330	0.95258	0.97412	0.98506	0.99044	0.99328	0.99503	0.99623	0.99791
1106	0.97109	0.96054	0.95081	0.96881	0.97973	0.98579	0.98952	0.99195	0.99495
1107	0.97812	0.96963	0.95982	0.94898	0.96417	0.97479	0.98143	0.98603	0.99065
1108	0.98389	0.97810	0.97101	0.96063	0.94752	0.96081	0.97086	0.97811	0.98481
1109	0.97462	0.96684	0.98371	0.99064	0.99404	0.99574	0.99678	0.99738	0.99770
1110	0.98054	0.97367	0.96712	0.97996	0.98713	0.99098	0.99322	0.99464	0.99604
1111	0.98545	0.98051	0.97427	0.96664	0.97737	0.98403	0.98822	0.99066	0.99284
1112	0.98900	0.98524	0.98096	0.97394	0.96443	0.97441	0.98075	0.98544	0.98944
1113	0.97137	0.99075	0.99567	0.99747	0.99835	0.99874	0.99904	0.99912	0.99886
1114	0.97453	0.96817	0.98423	0.99098	0.99425	0.99586	0.99682	0.99741	0.99774
1115	0.98052	0.97338	0.96667	0.97978	0.98693	0.99081	0.99319	0.99458	0.99602
1116	0.98538	0.98033	0.97414	0.96668	0.97737	0.98412	0.98819	0.99103	0.99317
1117	0.98883	0.98509	0.98044	0.97351	0.96397	0.97355	0.98060	0.98510	0.98888
1118	0.95826	0.98601	0.99341	0.99626	0.99756	0.99821	0.99870	0.99853	0.99884
1119	0.96084	0.95124	0.97525	0.98580	0.99082	0.99346	0.99511	0.99648	0.99679

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1120	0.97116	0.96147	0.95239	0.97024	0.98083	0.98649	0.99013	0.99224	0.99435
1121	0.97866	0.97100	0.96234	0.95125	0.96680	0.97666	0.98271	0.98685	0.98990
1122	0.98376	0.97810	0.97120	0.96118	0.94754	0.96127	0.97148	0.97807	0.98369
1123	0.95799	0.98612	0.99345	0.99622	0.99754	0.99821	0.99864	0.99852	0.99886
1124	0.96005	0.95144	0.97487	0.98566	0.99066	0.99339	0.99504	0.99617	0.99675
1125	0.97119	0.96110	0.95151	0.97024	0.98066	0.98667	0.99000	0.99223	0.99389
1126	0.97864	0.97116	0.96195	0.95142	0.96669	0.97639	0.98261	0.98677	0.98976
1127	0.98400	0.97797	0.97113	0.96091	0.94708	0.96100	0.97143	0.97796	0.98362
1128	0.95800	0.98595	0.99338	0.99636	0.99748	0.99821	0.99859	0.99885	0.99882
1129	0.96074	0.94962	0.97466	0.98540	0.99070	0.99346	0.99506	0.99613	0.99681
1130	0.97128	0.96085	0.95141	0.97028	0.98070	0.98662	0.98997	0.99235	0.99425
1131	0.97848	0.97101	0.96187	0.95083	0.96660	0.97625	0.98248	0.98671	0.98977
1132	0.98347	0.97791	0.97065	0.96098	0.94638	0.96048	0.97076	0.97778	0.98348
1133	0.95836	0.98562	0.99348	0.99613	0.99745	0.99823	0.99859	0.99880	0.99857
1134	0.96054	0.95002	0.97508	0.98556	0.99050	0.99356	0.99518	0.99613	0.99676
1135	0.97100	0.96045	0.95106	0.96979	0.98065	0.98639	0.98993	0.99223	0.99397
1136	0.97837	0.97061	0.96146	0.95081	0.96621	0.97633	0.98251	0.98657	0.98995
1137	0.98334	0.97750	0.97083	0.96036	0.94617	0.96015	0.97031	0.97782	0.98314
1138	0.95036	0.98298	0.99203	0.99546	0.99699	0.99781	0.99835	0.99869	0.99873
1139	0.95371	0.94146	0.96966	0.98309	0.98881	0.99216	0.99415	0.99544	0.99635
1140	0.96673	0.95458	0.94331	0.96518	0.97736	0.98412	0.98835	0.99099	0.99307
1141	0.97519	0.96606	0.95572	0.94278	0.96061	0.97252	0.97978	0.98434	0.98840
1142	0.98122	0.97414	0.96607	0.95415	0.93769	0.95393	0.96628	0.97412	0.98093
1143	0.95063	0.98297	0.99205	0.99541	0.99706	0.99784	0.99834	0.99866	0.99858
1144	0.95369	0.94144	0.96969	0.98308	0.98880	0.99212	0.99416	0.99547	0.99630
1145	0.96646	0.95455	0.94290	0.96512	0.97732	0.98398	0.98845	0.99098	0.99327
1146	0.97484	0.96595	0.95555	0.94240	0.96066	0.97234	0.97969	0.98466	0.98818
1147	0.98094	0.97398	0.96604	0.95390	0.93774	0.95419	0.96621	0.97391	0.98066
1148	0.95034	0.98292	0.99196	0.99541	0.99703	0.99790	0.99836	0.99889	0.99840
1149	0.95401	0.93998	0.96965	0.98258	0.98892	0.99223	0.99405	0.99526	0.99629
1150	0.96638	0.95430	0.94298	0.96487	0.97702	0.98402	0.98830	0.99094	0.99286
1151	0.97479	0.96613	0.95574	0.94182	0.96060	0.97255	0.97922	0.98470	0.98847
1152	0.98057	0.97364	0.96562	0.95399	0.93672	0.95387	0.96561	0.97397	0.98055
1153	0.94996	0.98256	0.99190	0.99533	0.99696	0.99786	0.99829	0.99862	0.99848
1154	0.95379	0.94172	0.97007	0.98304	0.98889	0.99222	0.99422	0.99546	0.99622
1155	0.96598	0.95394	0.94261	0.96447	0.97682	0.98382	0.98813	0.99085	0.99299
1156	0.97447	0.96542	0.95477	0.94180	0.96013	0.97199	0.97909	0.98432	0.98804
1157	0.98031	0.97327	0.96517	0.95271	0.93577	0.95327	0.96503	0.97327	0.98013
1158	0.94735	0.97904	0.99030	0.99431	0.99627	0.99745	0.99793	0.99848	0.99851
1159	0.95327	0.94162	0.96888	0.98189	0.98830	0.99187	0.99386	0.99522	0.99616

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1160	0.96596	0.95379	0.94228	0.96371	0.97641	0.98340	0.98792	0.99053	0.99271
1161	0.97460	0.96527	0.95458	0.94164	0.95949	0.97143	0.97889	0.98388	0.98765
1162	0.98066	0.97435	0.96639	0.95396	0.93947	0.95442	0.96592	0.97432	0.98087
1163	0.94638	0.97892	0.99016	0.99434	0.99632	0.99735	0.99800	0.99843	0.99811
1164	0.95324	0.94156	0.96881	0.98187	0.98828	0.99177	0.99383	0.99521	0.99600
1165	0.96589	0.95374	0.94222	0.96365	0.97627	0.98341	0.98775	0.99048	0.99270
1166	0.97455	0.96521	0.95451	0.94150	0.95941	0.97141	0.97883	0.98386	0.98766
1167	0.98059	0.97404	0.96629	0.95491	0.93927	0.95412	0.96579	0.97403	0.98080
1168	0.94731	0.97862	0.99003	0.99423	0.99624	0.99729	0.99796	0.99846	0.99830
1169	0.95396	0.94085	0.96882	0.98220	0.98853	0.99197	0.99416	0.99545	0.99604
1170	0.96573	0.95357	0.94202	0.96353	0.97615	0.98332	0.98765	0.99066	0.99272
1171	0.97442	0.96510	0.95445	0.94142	0.95926	0.97126	0.97871	0.98377	0.98763
1172	0.98094	0.97381	0.96572	0.95428	0.93753	0.95350	0.96581	0.97396	0.98062
1173	0.94664	0.97819	0.98986	0.99419	0.99615	0.99723	0.99786	0.99819	0.99809
1174	0.95431	0.94147	0.96872	0.98198	0.98797	0.99180	0.99408	0.99520	0.99602
1175	0.96518	0.95316	0.94152	0.96315	0.97593	0.98328	0.98756	0.99065	0.99264
1176	0.97425	0.96496	0.95403	0.94108	0.95891	0.97116	0.97856	0.98363	0.98750
1177	0.98040	0.97374	0.96514	0.95307	0.93656	0.95311	0.96506	0.97311	0.98028
1178	0.96933	0.99030	0.99530	0.99747	0.99820	0.99871	0.99903	0.99881	0.99908
1179	0.97313	0.96466	0.98252	0.98993	0.99338	0.99551	0.99666	0.99731	0.99760
1180	0.97942	0.97214	0.96517	0.97873	0.98632	0.99050	0.99283	0.99440	0.99548
1181	0.98413	0.97865	0.97246	0.96370	0.97560	0.98273	0.98743	0.98994	0.99259
1182	0.98865	0.98450	0.97957	0.97244	0.96236	0.97268	0.97984	0.98464	0.98847
1183	0.96945	0.99025	0.99547	0.99735	0.99822	0.99872	0.99900	0.99893	0.99908
1184	0.97186	0.96463	0.98248	0.99012	0.99349	0.99545	0.99649	0.99702	0.99759
1185	0.97899	0.97175	0.96466	0.97840	0.98601	0.99014	0.99278	0.99447	0.99575
1186	0.98417	0.97861	0.97179	0.96399	0.97524	0.98277	0.98716	0.99033	0.99242
1187	0.98847	0.98440	0.97971	0.97247	0.96242	0.97218	0.97958	0.98435	0.98851
1188	0.96927	0.99020	0.99539	0.99732	0.99822	0.99868	0.99897	0.99911	0.99907
1189	0.97244	0.96408	0.98235	0.98987	0.99355	0.99540	0.99653	0.99721	0.99758
1190	0.97884	0.97137	0.96424	0.97819	0.98599	0.99019	0.99264	0.99421	0.99573
1191	0.98418	0.97879	0.97201	0.96371	0.97538	0.98263	0.98719	0.98989	0.99229
1192	0.98813	0.98404	0.97939	0.97180	0.96153	0.97225	0.97918	0.98424	0.98857
1193	0.96888	0.98997	0.99533	0.99728	0.99823	0.99867	0.99899	0.99909	0.99885
1194	0.97233	0.96539	0.98285	0.99019	0.99375	0.99551	0.99657	0.99723	0.99762
1195	0.97879	0.97105	0.96375	0.97800	0.98577	0.99001	0.99260	0.99414	0.99570
1196	0.98411	0.97859	0.97185	0.96374	0.97536	0.98271	0.98716	0.99026	0.99260
1197	0.98793	0.98385	0.97880	0.97129	0.96096	0.97131	0.97896	0.98385	0.98797
1198	0.95395	0.98462	0.99278	0.99591	0.99734	0.99806	0.99860	0.99847	0.99880
1199	0.95688	0.94630	0.97276	0.98437	0.98990	0.99282	0.99464	0.99613	0.99655

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1200	0.96812	0.95741	0.94738	0.96708	0.97879	0.98506	0.98909	0.99145	0.99378
1201	0.97639	0.96793	0.95836	0.94615	0.96326	0.97417	0.98087	0.98545	0.98888
1202	0.98212	0.97589	0.96830	0.95729	0.94234	0.95738	0.96859	0.97586	0.98206
1203	0.95368	0.98472	0.99282	0.99587	0.99732	0.99806	0.99854	0.99845	0.99881
1204	0.95605	0.94654	0.97235	0.98422	0.98973	0.99273	0.99457	0.99582	0.99651
1205	0.96814	0.95700	0.94645	0.96709	0.97861	0.98524	0.98894	0.99145	0.99332
1206	0.97637	0.96809	0.95794	0.94632	0.96315	0.97389	0.98077	0.98538	0.98875
1207	0.98237	0.97575	0.96821	0.95698	0.94184	0.95710	0.96852	0.97573	0.98199
1208	0.95367	0.98455	0.99274	0.99601	0.99726	0.99806	0.99849	0.99878	0.99877
1209	0.95676	0.94464	0.97213	0.98394	0.98977	0.99281	0.99459	0.99578	0.99656
1210	0.96823	0.95675	0.94635	0.96713	0.97864	0.98519	0.98892	0.99156	0.99368
1211	0.97620	0.96793	0.95785	0.94569	0.96306	0.97373	0.98061	0.98530	0.98875
1212	0.98181	0.97567	0.96769	0.95703	0.94106	0.95652	0.96779	0.97551	0.98182
1213	0.95400	0.98421	0.99284	0.99578	0.99723	0.99808	0.99850	0.99873	0.99854
1214	0.95654	0.94503	0.97255	0.98410	0.98955	0.99291	0.99471	0.99578	0.99651
1215	0.96793	0.95631	0.94599	0.96660	0.97859	0.98495	0.98887	0.99143	0.99339
1216	0.97608	0.96750	0.95740	0.94567	0.96263	0.97381	0.98065	0.98516	0.98892
1217	0.94544	0.92298	0.90413	0.93789	0.95898	0.97152	0.97906	0.98445	0.98971
1218	0.96172	0.94327	0.92461	0.90378	0.93143	0.95136	0.96451	0.97351	0.98250
1219	0.96896	0.95561	0.94042	0.91979	0.89432	0.91892	0.94099	0.95620	0.96945
1220	0.96077	0.98503	0.99321	0.99616	0.99772	0.99836	0.99884	0.99922	1.00136
1221	0.96092	0.94904	0.97299	0.98459	0.98997	0.99330	0.99510	0.99650	0.99813
1222	0.96992	0.95491	0.94447	0.96459	0.97750	0.98450	0.98896	0.99181	0.99460
1223	0.97780	0.96824	0.95667	0.94316	0.96049	0.97255	0.98023	0.98537	0.99034
1224	0.98391	0.97748	0.97032	0.95819	0.94511	0.95953	0.96980	0.97775	0.98482
1225	0.95420	0.98560	0.99285	0.99609	0.99749	0.99830	0.99883	0.99919	0.99962
1226	0.96021	0.94714	0.97264	0.98441	0.99002	0.99311	0.99500	0.99645	0.99995
1227	0.96902	0.95540	0.94436	0.96565	0.97745	0.98460	0.98873	0.99176	0.99450
1228	0.97737	0.96726	0.95616	0.94300	0.96033	0.97246	0.98001	0.98553	0.99061
1229	0.98444	0.97746	0.96917	0.95796	0.94420	0.95887	0.97015	0.97770	0.98489
1230	0.95550	0.98429	0.99297	0.99590	0.99750	0.99828	0.99883	0.99917	0.99958
1231	0.96004	0.94622	0.97292	0.98444	0.99019	0.99315	0.99499	0.99641	0.99820
1232	0.96868	0.95459	0.94356	0.96552	0.97748	0.98434	0.98869	0.99168	0.99445
1233	0.97798	0.96756	0.95391	0.94300	0.95987	0.97251	0.97915	0.98509	0.99015
1234	0.98364	0.97699	0.96866	0.95761	0.94278	0.95789	0.96916	0.97666	0.98451
1235	0.95447	0.98437	0.99288	0.99591	0.99744	0.99827	0.99883	0.99931	0.99966
1236	0.95922	0.94541	0.97211	0.98425	0.98980	0.99306	0.99506	0.99635	0.99809
1237	0.96877	0.95461	0.94325	0.96506	0.97720	0.98435	0.98858	0.99161	0.99452
1238	0.97789	0.96685	0.95509	0.94222	0.95988	0.97214	0.97965	0.98497	0.99021
1239	0.98420	0.97663	0.96840	0.95719	0.94133	0.95647	0.96851	0.97620	0.98438

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1240	0.93193	0.97457	0.98815	0.99343	0.99598	0.99710	0.99798	0.99855	0.99930
1241	0.93978	0.91937	0.95703	0.97539	0.98428	0.98898	0.99211	0.99422	0.99693
1242	0.95203	0.93056	0.91520	0.94571	0.96424	0.97525	0.98203	0.98667	0.99121
1243	0.96594	0.94904	0.93160	0.91306	0.93894	0.95716	0.96850	0.97665	0.98420
1244	0.97445	0.96274	0.95003	0.93183	0.91023	0.93174	0.94980	0.96284	0.97428
1245	0.93038	0.97464	0.98817	0.99327	0.99589	0.99708	0.99817	0.99851	0.99933
1246	0.93983	0.91915	0.95709	0.97556	0.98426	0.98899	0.99221	0.99422	0.99703
1247	0.95273	0.93066	0.91519	0.94564	0.96424	0.97522	0.98179	0.98665	0.99138
1248	0.96365	0.94868	0.93155	0.91308	0.93886	0.95707	0.96844	0.97666	0.98407
1249	0.97421	0.96235	0.94972	0.93135	0.90960	0.93190	0.95007	0.96223	0.97448
1250	0.92946	0.97430	0.98823	0.99317	0.99593	0.99708	0.99822	0.99852	1.00095
1251	0.93912	0.91871	0.95741	0.97541	0.98410	0.98892	0.99213	0.99419	0.99697
1252	0.95211	0.93084	0.91471	0.94601	0.96462	0.97540	0.98176	0.98678	0.99024
1253	0.96495	0.94857	0.93100	0.91308	0.93889	0.95713	0.96803	0.97657	0.98485
1254	0.97331	0.96174	0.94876	0.93045	0.90820	0.93078	0.94906	0.96176	0.97345
1255	0.93007	0.97494	0.98805	0.99316	0.99559	0.99702	0.99780	0.99850	0.99971
1256	0.93859	0.91792	0.95702	0.97484	0.98376	0.98875	0.99200	0.99417	0.99692
1257	0.95125	0.92964	0.91293	0.94471	0.96398	0.97476	0.98160	0.98644	0.99118
1258	0.96461	0.94815	0.93067	0.91189	0.93828	0.95638	0.96811	0.97629	0.98450
1259	0.97372	0.96136	0.94778	0.92873	0.90651	0.92910	0.94813	0.96103	0.97404
1260	0.91700	0.96790	0.98535	0.99147	0.99460	0.99629	0.99736	0.99811	0.99902
1261	0.92938	0.90545	0.94893	0.97040	0.98112	0.98668	0.99057	0.99335	0.99611
1262	0.94278	0.91727	0.89916	0.93285	0.95732	0.96998	0.97806	0.98378	0.99073
1263	0.95869	0.94027	0.92056	0.89948	0.92846	0.94990	0.96300	0.97242	0.98213
1264	0.96863	0.95496	0.94038	0.91884	0.89237	0.91702	0.93980	0.95471	0.96850
1265	0.91829	0.96823	0.98542	0.99154	0.99470	0.99632	0.99732	0.99814	0.99896
1266	0.92869	0.90570	0.94885	0.97036	0.98074	0.98663	0.99042	0.99294	0.99598
1267	0.94295	0.91722	0.89851	0.93256	0.95731	0.96997	0.97819	0.98375	0.99072
1268	0.95861	0.94033	0.92038	0.89895	0.92837	0.94972	0.96291	0.97233	0.98210
1269	0.96844	0.95470	0.93994	0.91841	0.89182	0.91736	0.93945	0.95446	0.96834
1270	0.91479	0.96832	0.98519	0.99160	0.99467	0.99631	0.99766	0.99808	0.99902
1271	0.92914	0.90511	0.94917	0.97010	0.98094	0.98652	0.99030	0.99297	0.99612
1272	0.94221	0.91706	0.89895	0.93449	0.95649	0.96990	0.97815	0.98365	0.99068
1273	0.95897	0.94038	0.92010	0.89793	0.92836	0.94897	0.96225	0.97212	0.98201
1274	0.96776	0.95391	0.93876	0.91708	0.89077	0.91657	0.93888	0.95368	0.96775
1275	0.91594	0.96792	0.98502	0.99136	0.99473	0.99625	0.99766	0.99804	1.00067
1276	0.92814	0.90464	0.94848	0.97016	0.98090	0.98658	0.99027	0.99292	0.99614
1277	0.94307	0.91537	0.89710	0.93289	0.95682	0.96913	0.97818	0.98355	0.99050
1278	0.95841	0.93983	0.91972	0.89762	0.92802	0.94905	0.96229	0.97217	0.98146
1279	0.96632	0.95257	0.93751	0.91490	0.88793	0.91448	0.93696	0.95294	0.96816

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1280	0.90860	0.95978	0.98119	0.98950	0.99301	0.99532	0.99659	0.99749	0.99862
1281	0.92669	0.89997	0.94325	0.96738	0.97877	0.98537	0.98957	0.99213	0.99545
1282	0.94136	0.91492	0.89461	0.93186	0.95459	0.96858	0.97673	0.98289	0.98873
1283	0.95752	0.93694	0.91659	0.89395	0.92400	0.94614	0.96079	0.97053	0.98002
1284	0.96730	0.95245	0.93706	0.91449	0.88706	0.91438	0.93604	0.95301	0.96772
1285	0.90881	0.95901	0.98094	0.98902	0.99317	0.99515	0.99658	0.99750	0.99859
1286	0.92660	0.89987	0.94317	0.96705	0.97853	0.98524	0.98954	0.99211	0.99544
1287	0.94102	0.91454	0.89324	0.93142	0.95458	0.96810	0.97696	0.98256	0.98869
1288	0.95746	0.93739	0.91622	0.89387	0.92390	0.94654	0.96065	0.97077	0.97998
1289	0.96747	0.95180	0.93674	0.91324	0.88684	0.91385	0.93686	0.95235	0.96734
1290	0.90557	0.95845	0.98074	0.98886	0.99309	0.99506	0.99652	0.99746	0.99858
1291	0.92574	0.89810	0.94274	0.96661	0.97839	0.98499	0.98912	0.99206	0.99541
1292	0.94090	0.91437	0.89362	0.93147	0.95447	0.96842	0.97701	0.98290	0.98850
1293	0.95727	0.93717	0.91634	0.89303	0.92360	0.94597	0.96022	0.97062	0.97989
1294	0.96652	0.95125	0.93570	0.91232	0.88555	0.91238	0.93475	0.95183	0.96623
1295	0.90469	0.95707	0.98014	0.98848	0.99291	0.99489	0.99639	0.99736	0.99851
1296	0.92603	0.89763	0.94220	0.96624	0.97818	0.98481	0.98905	0.99198	0.99533
1297	0.93901	0.91410	0.89312	0.93082	0.95420	0.96813	0.97654	0.98256	0.98841
1298	0.95689	0.93645	0.91580	0.89263	0.92347	0.94560	0.96020	0.97025	0.98023
1299	0.96527	0.95037	0.93357	0.91081	0.88253	0.90991	0.93417	0.95100	0.96578
1300	0.96945	0.99071	0.99568	0.99754	0.99845	0.99906	0.99926	0.99942	0.99947
1301	0.97186	0.96270	0.98176	0.98930	0.99352	0.99537	0.99671	0.99752	0.99798
1302	0.97885	0.97108	0.96378	0.97839	0.98598	0.99033	0.99287	0.99460	0.99581
1303	0.98385	0.97833	0.97142	0.96144	0.97443	0.98257	0.98706	0.99009	0.99327
1304	0.98912	0.98529	0.97996	0.97321	0.96327	0.97320	0.98028	0.98494	0.98896
1305	0.96811	0.99032	0.99562	0.99753	0.99842	0.99892	0.99921	0.99942	0.99941
1306	0.97206	0.96308	0.98173	0.99004	0.99350	0.99541	0.99670	0.99745	0.99798
1307	0.97867	0.97050	0.96308	0.97815	0.98574	0.99021	0.99278	0.99454	0.99577
1308	0.98378	0.97808	0.97111	0.96186	0.97441	0.98220	0.98702	0.99015	0.99291
1309	0.98909	0.98467	0.98011	0.97244	0.96265	0.97284	0.98007	0.98492	0.98886
1310	0.96779	0.99047	0.99558	0.99766	0.99840	0.99890	0.99924	0.99940	0.99941
1311	0.97199	0.96304	0.98204	0.98999	0.99345	0.99554	0.99669	0.99746	0.99799
1312	0.97846	0.97033	0.96279	0.97797	0.98588	0.99011	0.99272	0.99449	0.99574
1313	0.98383	0.97791	0.96840	0.96143	0.97359	0.98218	0.98695	0.98999	0.99280
1314	0.98880	0.98428	0.97995	0.97202	0.96186	0.97216	0.97977	0.98430	0.98866
1315	0.96718	0.99033	0.99552	0.99762	0.99846	0.99890	0.99938	0.99937	0.99938
1316	0.97156	0.96292	0.98189	0.98973	0.99338	0.99542	0.99687	0.99745	0.99791
1317	0.97817	0.96996	0.96243	0.97769	0.98551	0.98995	0.99272	0.99439	0.99568
1318	0.98367	0.97754	0.97049	0.96167	0.97420	0.98216	0.98694	0.99017	0.99266
1319	0.98843	0.98406	0.97944	0.97130	0.96079	0.97151	0.97924	0.98391	0.98818

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1320	0.95298	0.98502	0.99312	0.99613	0.99758	0.99837	0.99888	0.99903	0.99924
1321	0.95841	0.94717	0.97364	0.98493	0.99028	0.99323	0.99517	0.99625	0.99714
1322	0.96765	0.95598	0.94449	0.96626	0.97828	0.98448	0.98882	0.99160	0.99368
1323	0.97575	0.96708	0.95597	0.94410	0.96253	0.97323	0.98035	0.98523	0.98926
1324	0.95523	0.98064	0.99107	0.99501	0.99669	0.99767	0.99836	0.99869	0.99978
1325	0.96280	0.95181	0.97351	0.98482	0.99021	0.99311	0.99499	0.99613	0.99778
1326	0.97072	0.96024	0.95068	0.96839	0.97949	0.98565	0.98941	0.99193	0.99489
1327	0.97758	0.96939	0.95944	0.94861	0.96373	0.97455	0.98124	0.98590	0.99044
1328	0.98376	0.97759	0.97074	0.96041	0.94681	0.96022	0.97075	0.97771	0.98461
1329	0.97901	0.99329	0.99694	0.99834	0.99891	0.99917	0.99939	0.99952	1.00029
1330	0.98082	0.97542	0.98765	0.99310	0.99554	0.99683	0.99767	0.99803	0.99883
1331	0.98523	0.97993	0.97484	0.98479	0.99018	0.99314	0.99499	0.99601	0.99756
1332	0.98816	0.98392	0.97853	0.97224	0.98117	0.98690	0.99040	0.99266	0.99509
1333	0.99161	0.98868	0.98503	0.97978	0.97184	0.97939	0.98518	0.98891	0.99212
1334	0.97896	0.99322	0.99691	0.99834	0.99891	0.99926	0.99937	0.99951	1.00019
1335	0.98058	0.97505	0.98763	0.99295	0.99542	0.99687	0.99758	0.99808	0.99883
1336	0.98497	0.97968	0.97466	0.98466	0.99005	0.99308	0.99501	0.99595	0.99752
1337	0.98802	0.98352	0.97833	0.97199	0.98088	0.98680	0.99016	0.99257	0.99518
1338	0.99153	0.98847	0.98503	0.97965	0.97193	0.97948	0.98500	0.98850	0.99205
1339	0.97853	0.99306	0.99690	0.99827	0.99888	0.99926	0.99936	0.99950	0.99966
1340	0.97986	0.97465	0.98736	0.99280	0.99534	0.99678	0.99758	0.99810	0.99900
1341	0.98443	0.97928	0.97393	0.98415	0.98985	0.99291	0.99488	0.99594	0.99768
1342	0.98767	0.98371	0.97798	0.97149	0.98053	0.98661	0.99024	0.99246	0.99469
1343	0.99114	0.98831	0.98456	0.97916	0.97169	0.97914	0.98455	0.98834	0.99198
1344	0.97836	0.99296	0.99690	0.99825	0.99884	0.99919	0.99929	0.99936	0.99974
1345	0.97940	0.97372	0.98709	0.99262	0.99527	0.99669	0.99752	0.99810	0.99930
1346	0.98400	0.97833	0.97278	0.98380	0.98941	0.99256	0.99464	0.99590	0.99743
1347	0.98763	0.98350	0.97773	0.97140	0.98054	0.98642	0.99008	0.99234	0.99448
1348	0.99113	0.98796	0.98412	0.97887	0.97066	0.97879	0.98433	0.98803	0.99192
1349	0.96490	0.98840	0.99464	0.99704	0.99798	0.99857	0.99905	0.99913	0.99984
1350	0.96886	0.96082	0.97978	0.98861	0.99258	0.99489	0.99621	0.99707	0.99825
1351	0.97587	0.96658	0.95832	0.97453	0.98345	0.98846	0.99156	0.99341	0.99605
1352	0.98157	0.97456	0.96644	0.95699	0.97033	0.97917	0.98462	0.98836	0.99196
1353	0.98688	0.98184	0.97592	0.96748	0.95565	0.96726	0.97594	0.98167	0.98726
1354	0.96494	0.98842	0.99462	0.99702	0.99804	0.99856	0.99902	0.99917	0.99991
1355	0.96880	0.96014	0.97974	0.98854	0.99256	0.99487	0.99620	0.99706	0.99825
1356	0.97581	0.96635	0.95822	0.97448	0.98348	0.98844	0.99157	0.99345	0.99603
1357	0.98154	0.97480	0.96662	0.95708	0.97045	0.97940	0.98481	0.98855	0.99231
1358	0.98652	0.98174	0.97572	0.96724	0.95549	0.96711	0.97579	0.98157	0.98724
1359	0.96533	0.98816	0.99454	0.99699	0.99798	0.99856	0.99896	0.99910	0.99974

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1360	0.96817	0.95977	0.97958	0.98838	0.99251	0.99483	0.99617	0.99701	0.99823
1361	0.97556	0.96644	0.95804	0.97434	0.98339	0.98839	0.99156	0.99341	0.99592
1362	0.98164	0.97468	0.96647	0.95693	0.97035	0.97933	0.98468	0.98843	0.99232
1363	0.98667	0.98149	0.97542	0.96674	0.95470	0.96656	0.97533	0.98127	0.98704
1364	0.96521	0.98811	0.99454	0.99695	0.99794	0.99853	0.99898	0.99911	0.99996
1365	0.96743	0.95932	0.97934	0.98829	0.99243	0.99473	0.99609	0.99703	0.99811
1366	0.97546	0.96606	0.95771	0.97415	0.98323	0.98828	0.99144	0.99338	0.99593
1367	0.98139	0.97468	0.96645	0.95685	0.97029	0.97920	0.98466	0.98848	0.99192
1368	0.98615	0.98125	0.97490	0.96611	0.95431	0.96601	0.97521	0.98102	0.98676
1369	0.95891	0.98549	0.99341	0.99633	0.99757	0.99825	0.99875	0.99901	0.99977
1370	0.96355	0.95280	0.97595	0.98634	0.99113	0.99380	0.99544	0.99653	0.99785
1371	0.97135	0.96087	0.95073	0.96978	0.98049	0.98626	0.99003	0.99229	0.99518
1372	0.97800	0.96983	0.96011	0.94905	0.96480	0.97538	0.98174	0.98630	0.99068
1373	0.98418	0.97849	0.97149	0.96158	0.94783	0.96170	0.97169	0.97847	0.98489
1374	0.95883	0.98551	0.99339	0.99630	0.99759	0.99823	0.99878	0.99900	0.99971
1375	0.96330	0.95303	0.97590	0.98632	0.99117	0.99386	0.99547	0.99651	0.99785
1376	0.97140	0.96047	0.95083	0.96971	0.98031	0.98625	0.98995	0.99229	0.99516
1377	0.97789	0.96982	0.96022	0.94873	0.96493	0.97545	0.98187	0.98631	0.99069
1378	0.98412	0.97844	0.97162	0.96135	0.94841	0.96151	0.97160	0.97843	0.98512
1379	0.95821	0.98551	0.99330	0.99629	0.99756	0.99829	0.99875	0.99895	0.99896
1380	0.96280	0.95265	0.97579	0.98620	0.99102	0.99384	0.99538	0.99646	0.99786
1381	0.97130	0.96042	0.95057	0.96964	0.98029	0.98625	0.98995	0.99226	0.99516
1382	0.97811	0.96970	0.96004	0.94877	0.96457	0.97538	0.98169	0.98622	0.99068
1383	0.98441	0.97833	0.97127	0.96111	0.94708	0.96102	0.97108	0.97815	0.98472
1384	0.95717	0.98531	0.99322	0.99621	0.99745	0.99821	0.99877	0.99896	0.99968
1385	0.96298	0.95213	0.97564	0.98613	0.99097	0.99374	0.99544	0.99652	0.99773
1386	0.97107	0.96017	0.95024	0.96937	0.98013	0.98614	0.98985	0.99223	0.99505
1387	0.97754	0.96928	0.95950	0.94783	0.96423	0.97498	0.98141	0.98608	0.99018
1388	0.98375	0.97814	0.97100	0.96039	0.94649	0.96081	0.97114	0.97813	0.98457
1389	0.95102	0.97988	0.99070	0.99479	0.99655	0.99766	0.99834	0.99863	0.99975
1390	0.95999	0.94774	0.97174	0.98381	0.98958	0.99264	0.99465	0.99587	0.99760
1391	0.96816	0.95662	0.94568	0.96576	0.97776	0.98442	0.98854	0.99125	0.99440
1392	0.97588	0.96655	0.95593	0.94338	0.96071	0.97240	0.97969	0.98466	0.98880
1393	0.98275	0.97602	0.96827	0.95717	0.94253	0.95711	0.96828	0.97593	0.98329
1394	0.95086	0.97984	0.99069	0.99471	0.99653	0.99758	0.99829	0.99859	0.99975
1395	0.95964	0.94776	0.97167	0.98377	0.98953	0.99269	0.99461	0.99586	0.99756
1396	0.96809	0.95654	0.94561	0.96570	0.97771	0.98440	0.98853	0.99123	0.99438
1397	0.97586	0.96661	0.95608	0.94346	0.96058	0.97219	0.97959	0.98466	0.98933
1398	0.98256	0.97587	0.96815	0.95699	0.94227	0.95701	0.96803	0.97592	0.98326
1399	0.95114	0.97958	0.99062	0.99474	0.99652	0.99756	0.99827	0.99864	0.99971

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1400	0.95933	0.94738	0.97156	0.98358	0.98947	0.99261	0.99454	0.99586	0.99763
1401	0.96796	0.95632	0.94544	0.96557	0.97761	0.98430	0.98843	0.99112	0.99433
1402	0.97572	0.96637	0.95559	0.94342	0.96037	0.97210	0.97946	0.98452	0.98954
1403	0.98216	0.97574	0.96792	0.95647	0.94181	0.95668	0.96774	0.97574	0.98307
1404	0.95063	0.97923	0.99041	0.99464	0.99645	0.99751	0.99824	0.99860	0.99970
1405	0.95881	0.94656	0.97093	0.98331	0.98924	0.99244	0.99450	0.99576	0.99751
1406	0.96759	0.95600	0.94530	0.96514	0.97736	0.98415	0.98831	0.99110	0.99427
1407	0.97518	0.96613	0.95518	0.94302	0.95994	0.97186	0.97924	0.98439	0.98933
1408	0.98200	0.97518	0.96761	0.95620	0.94102	0.95602	0.96762	0.97531	0.98284
1409	0.96897	0.98533	0.99218	0.99545	0.99701	0.99770	0.99818	0.99913	0.99903
1410	0.97220	0.95833	0.97562	0.98591	0.99054	0.99342	0.99508	0.99569	0.99743
1411	0.97859	0.96355	0.95513	0.97087	0.98078	0.98658	0.99015	0.99220	0.99487
1412	0.98348	0.97204	0.96119	0.95138	0.96431	0.97549	0.98250	0.98685	0.99068
1413	0.98793	0.97957	0.97224	0.96175	0.95064	0.96126	0.97266	0.97992	0.98677
1414	0.96983	0.98501	0.99244	0.99537	0.99679	0.99752	0.99783	0.99703	0.99753
1415	0.97123	0.95776	0.97581	0.98590	0.99050	0.99345	0.99510	0.99563	0.99736
1416	0.97849	0.96310	0.95365	0.96990	0.98039	0.98697	0.98960	0.99216	0.99478
1417	0.98333	0.97199	0.96049	0.95098	0.96507	0.97600	0.98244	0.98682	0.99094
1418	0.98788	0.97976	0.97213	0.96137	0.95023	0.96149	0.97243	0.98040	0.98663
1419	0.96988	0.98536	0.99155	0.99521	0.99665	0.99775	0.99764	0.99913	0.99905
1420	0.97059	0.95817	0.97541	0.98569	0.99037	0.99334	0.99477	0.99613	0.99522
1421	0.97869	0.96291	0.95361	0.96997	0.97993	0.98653	0.99033	0.99230	0.99533
1422	0.98384	0.97198	0.96067	0.95161	0.96559	0.97544	0.98197	0.98719	0.99190
1423	0.98740	0.97884	0.97123	0.96027	0.94888	0.96048	0.97226	0.97968	0.98727
1424	0.96790	0.98446	0.99137	0.99512	0.99691	0.99770	0.99761	0.99768	0.99914
1425	0.97121	0.95768	0.97498	0.98555	0.99060	0.99308	0.99498	0.99555	0.99524
1426	0.97853	0.96213	0.95321	0.96845	0.98026	0.98584	0.98926	0.99220	0.99467
1427	0.98345	0.97183	0.96069	0.95078	0.96393	0.97507	0.98185	0.98648	0.99074
1428	0.98737	0.97885	0.97059	0.96016	0.94841	0.95881	0.97148	0.97997	0.98678
1429	0.95830	0.97756	0.98804	0.99330	0.99553	0.99670	0.99730	0.99756	0.99805
1430	0.95961	0.94299	0.96333	0.97841	0.98586	0.99008	0.99267	0.99385	0.99647
1431	0.96958	0.94667	0.93450	0.95404	0.97047	0.97932	0.98457	0.98867	0.99218
1432	0.97592	0.95820	0.94119	0.92686	0.94588	0.96274	0.97312	0.98026	0.98774
1433	0.98246	0.97065	0.95861	0.94286	0.92619	0.94249	0.95830	0.97095	0.98440
1434	0.95680	0.97696	0.98801	0.99338	0.99546	0.99667	0.99731	0.99755	0.99804
1435	0.96050	0.94026	0.96408	0.97942	0.98594	0.99018	0.99329	0.99536	0.99442
1436	0.96869	0.94508	0.93154	0.95449	0.96993	0.97855	0.98445	0.98925	0.99200
1437	0.97625	0.95849	0.94162	0.92739	0.94643	0.96269	0.97265	0.98062	0.98734
1438	0.98242	0.96991	0.95828	0.94251	0.92576	0.94265	0.95902	0.97077	0.98429
1439	0.95677	0.97662	0.98842	0.99332	0.99542	0.99671	0.99747	0.99735	0.99831

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1440	0.95850	0.93964	0.96284	0.97884	0.98571	0.99009	0.99319	0.99433	0.99655
1441	0.96909	0.94559	0.93197	0.95361	0.96973	0.97880	0.98438	0.98872	0.99161
1442	0.97626	0.95761	0.94123	0.92804	0.94727	0.96259	0.97336	0.98087	0.98770
1443	0.98222	0.96970	0.95764	0.94158	0.92509	0.94164	0.95812	0.97035	0.98418
1444	0.95617	0.97669	0.98730	0.99308	0.99547	0.99657	0.99733	0.99767	0.99714
1445	0.95727	0.93868	0.96175	0.97786	0.98566	0.98985	0.99247	0.99386	0.99493
1446	0.96898	0.94503	0.93235	0.95334	0.96974	0.97890	0.98421	0.98861	0.99464
1447	0.97577	0.95822	0.94156	0.92669	0.94649	0.96287	0.97264	0.98014	0.98732
1448	0.98171	0.96884	0.95725	0.93967	0.92228	0.94035	0.95656	0.96869	0.98169
1449	0.95312	0.97054	0.98553	0.99123	0.99432	0.99595	0.99739	0.99719	0.99808
1450	0.95342	0.92735	0.95489	0.97370	0.98293	0.98790	0.99114	0.99304	0.99597
1451	0.96644	0.93801	0.92031	0.94657	0.96417	0.97510	0.98214	0.98671	0.99053
1452	0.97218	0.95199	0.93276	0.91490	0.93759	0.95619	0.96789	0.97694	0.98515
1453	0.97958	0.96503	0.95105	0.93294	0.91433	0.93333	0.95128	0.96487	0.97928
1454	0.95124	0.97021	0.98485	0.99136	0.99420	0.99590	0.99681	0.99734	0.99758
1455	0.95371	0.92732	0.95524	0.97375	0.98284	0.98791	0.99114	0.99322	0.99596
1456	0.96472	0.93740	0.92013	0.94640	0.96485	0.97482	0.98169	0.98724	0.99145
1457	0.97245	0.95192	0.93270	0.91520	0.93747	0.95612	0.96804	0.97703	0.98511
1458	0.97940	0.96505	0.95083	0.93271	0.91411	0.93279	0.95102	0.96533	0.97929
1459	0.95055	0.96993	0.98462	0.99165	0.99458	0.99579	0.99676	0.99746	0.99651
1460	0.95374	0.92754	0.95464	0.97399	0.98315	0.98833	0.99163	0.99416	0.99603
1461	0.96334	0.93807	0.92064	0.94493	0.96459	0.97537	0.98157	0.98724	0.99352
1462	0.97189	0.95179	0.93228	0.91480	0.93709	0.95591	0.96774	0.97681	0.98587
1463	0.97940	0.96442	0.95083	0.93163	0.91276	0.93262	0.95018	0.96474	0.98106
1464	0.95026	0.97047	0.98463	0.99112	0.99389	0.99570	0.99670	0.99698	0.99889
1465	0.95463	0.92722	0.95429	0.97300	0.98219	0.98739	0.99061	0.99304	0.99587
1466	0.96337	0.93704	0.91989	0.94467	0.96386	0.97455	0.98131	0.98651	0.99170
1467	0.97213	0.95143	0.93179	0.91470	0.93611	0.95535	0.96757	0.97655	0.98482
1468	0.97874	0.96355	0.94914	0.92956	0.91060	0.93054	0.94916	0.96302	0.97824
1469	0.94272	0.95002	0.97545	0.98540	0.99030	0.99305	0.99474	0.99550	0.99616
1470	0.95524	0.92721	0.94652	0.96843	0.97916	0.98533	0.98928	0.99171	0.99420
1471	0.96323	0.93719	0.92191	0.93981	0.96106	0.97270	0.98004	0.98573	0.99076
1472	0.97197	0.95095	0.93080	0.91557	0.93416	0.95388	0.96649	0.97598	0.98464
1473	0.97906	0.96341	0.94919	0.93086	0.91585	0.92998	0.94939	0.96366	0.97838
1474	0.94170	0.95024	0.97481	0.98504	0.99012	0.99287	0.99445	0.99555	0.99564
1475	0.95362	0.92505	0.94611	0.96819	0.97902	0.98523	0.98920	0.99165	0.99417
1476	0.96322	0.93712	0.92083	0.94078	0.96094	0.97261	0.98017	0.98569	0.98998
1477	0.97178	0.95086	0.93076	0.91548	0.93400	0.95377	0.96637	0.97592	0.98462
1478	0.97879	0.96339	0.94960	0.93020	0.91558	0.93069	0.94977	0.96389	0.97852
1479	0.93678	0.94911	0.97390	0.98502	0.98987	0.99316	0.99487	0.99558	0.99586

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1480	0.95333	0.92465	0.94541	0.96778	0.97874	0.98504	0.98907	0.99155	0.99410
1481	0.96429	0.93675	0.92183	0.93999	0.96062	0.97231	0.97977	0.98523	0.99044
1482	0.97149	0.95074	0.93052	0.91530	0.93367	0.95358	0.96619	0.97571	0.98451
1483	0.97838	0.96299	0.94911	0.92950	0.91490	0.92932	0.94926	0.96352	0.97828
1484	0.93949	0.94760	0.97330	0.98439	0.98959	0.99277	0.99450	0.99563	0.99615
1485	0.95250	0.92381	0.94427	0.96688	0.97811	0.98481	0.98880	0.99172	0.99392
1486	0.96373	0.93595	0.91973	0.93897	0.96000	0.97195	0.97943	0.98446	0.98955
1487	0.97121	0.94950	0.93027	0.91571	0.93281	0.95295	0.96576	0.97538	0.98406
1488	0.97798	0.96261	0.94787	0.92842	0.91126	0.92778	0.94857	0.96295	0.97793
1489	0.96495	0.98345	0.99134	0.99497	0.99672	0.99750	0.99804	0.99904	0.99899
1490	0.96865	0.95313	0.97257	0.98418	0.98943	0.99265	0.99454	0.99533	0.99723
1491	0.97601	0.95893	0.94942	0.96704	0.97833	0.98487	0.98893	0.99137	0.99440
1492	0.98155	0.96872	0.95646	0.94546	0.95994	0.97250	0.98035	0.98532	0.98983
1493	0.98657	0.97718	0.96888	0.95710	0.94463	0.95662	0.96929	0.97751	0.98544
1494	0.96581	0.98313	0.99160	0.99491	0.99651	0.99734	0.99772	0.99699	0.99750
1495	0.96769	0.95263	0.97278	0.98417	0.98940	0.99269	0.99456	0.99527	0.99716
1496	0.97590	0.95846	0.94791	0.96608	0.97794	0.98522	0.98841	0.99130	0.99431
1497	0.98139	0.96867	0.95574	0.94507	0.96071	0.97299	0.98028	0.98528	0.99008
1498	0.98651	0.97737	0.96879	0.95667	0.94416	0.95674	0.96903	0.97797	0.98527
1499	0.96580	0.98345	0.99071	0.99474	0.99635	0.99757	0.99753	0.99905	0.99901
1500	0.96704	0.95295	0.97237	0.98396	0.98925	0.99259	0.99425	0.99577	0.99504
1501	0.97601	0.95821	0.94783	0.96603	0.97741	0.98479	0.98908	0.99143	0.99484
1502	0.98189	0.96862	0.95590	0.94568	0.96120	0.97242	0.97979	0.98566	0.99103
1503	0.98600	0.97642	0.96782	0.95550	0.94279	0.95573	0.96886	0.97725	0.98588
1504	0.96381	0.98254	0.99052	0.99464	0.99661	0.99751	0.99749	0.99762	0.99909
1505	0.96759	0.95243	0.97190	0.98379	0.98948	0.99231	0.99444	0.99518	0.99506
1506	0.97583	0.95741	0.94738	0.96450	0.97772	0.98408	0.98801	0.99133	0.99419
1507	0.98147	0.96842	0.95584	0.94477	0.95948	0.97200	0.97966	0.98493	0.98986
1508	0.98594	0.97635	0.96708	0.95532	0.94217	0.95384	0.96798	0.97742	0.98532
1509	0.95187	0.97449	0.98661	0.99247	0.99502	0.99636	0.99708	0.99743	0.99798
1510	0.95346	0.93395	0.95799	0.97528	0.98383	0.98867	0.99167	0.99319	0.99609
1511	0.96496	0.93872	0.92464	0.94736	0.96609	0.97625	0.98238	0.98714	0.99131
1512	0.97240	0.95218	0.93283	0.91655	0.93815	0.95730	0.96922	0.97746	0.98613
1513	0.97999	0.96637	0.95264	0.93469	0.91579	0.93423	0.95234	0.96661	0.98188
1514	0.95039	0.97390	0.98658	0.99256	0.99495	0.99633	0.99708	0.99741	0.99796
1515	0.95445	0.93150	0.95889	0.97638	0.98396	0.98884	0.99234	0.99469	0.99407
1516	0.96404	0.93704	0.92156	0.94778	0.96551	0.97539	0.98225	0.98770	0.99111
1517	0.97276	0.95247	0.93325	0.91712	0.93873	0.95725	0.96871	0.97781	0.98574
1518	0.97993	0.96557	0.95225	0.93429	0.91531	0.93443	0.95302	0.96641	0.98175
1519	0.95031	0.97354	0.98698	0.99250	0.99490	0.99636	0.99722	0.99720	0.99823

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1520	0.95237	0.93088	0.95752	0.97572	0.98368	0.98872	0.99220	0.99364	0.99618
1521	0.96440	0.93757	0.92210	0.94686	0.96529	0.97572	0.98216	0.98717	0.99073
1522	0.97275	0.95157	0.93282	0.91779	0.93958	0.95711	0.96943	0.97808	0.98609
1523	0.97966	0.96529	0.95151	0.93316	0.91446	0.93330	0.95197	0.96595	0.98163
1524	0.94969	0.97359	0.98586	0.99225	0.99494	0.99623	0.99711	0.99754	0.99707
1525	0.95109	0.92975	0.95639	0.97472	0.98361	0.98843	0.99147	0.99316	0.99456
1526	0.96426	0.93697	0.92246	0.94653	0.96527	0.97581	0.98198	0.98704	0.99374
1527	0.97221	0.95213	0.93311	0.91635	0.93873	0.95737	0.96868	0.97732	0.98569
1528	0.97910	0.96435	0.95104	0.93113	0.91141	0.93181	0.95027	0.96414	0.97906
1529	0.94537	0.96694	0.98380	0.99024	0.99368	0.99552	0.99710	0.99702	0.99797
1530	0.94591	0.91637	0.94836	0.96981	0.98039	0.98614	0.98989	0.99216	0.99548
1531	0.96061	0.92823	0.90819	0.93829	0.95860	0.97124	0.97936	0.98475	0.98943
1532	0.96774	0.94450	0.92246	0.90209	0.92806	0.94941	0.96290	0.97338	0.98314
1533	0.97641	0.95961	0.94355	0.92276	0.90137	0.92321	0.94373	0.95941	0.97615
1534	0.94349	0.96660	0.98314	0.99037	0.99356	0.99548	0.99653	0.99716	0.99748
1535	0.94618	0.91632	0.94868	0.96987	0.98030	0.98616	0.98989	0.99236	0.99547
1536	0.95894	0.92752	0.90793	0.93816	0.95932	0.97091	0.97887	0.98528	0.99033
1537	0.96805	0.94442	0.92239	0.90250	0.92793	0.94934	0.96309	0.97349	0.98310
1538	0.97622	0.95959	0.94330	0.92248	0.90109	0.92261	0.94343	0.95983	0.97615
1539	0.94281	0.96631	0.98290	0.99065	0.99396	0.99537	0.99648	0.99726	0.99642
1540	0.98165	0.97520	0.96784	0.95631	0.94077	0.95610	0.96728	0.97553	0.98143
1541	0.94497	0.98123	0.99123	0.99501	0.99671	0.99762	0.99821	0.99859	0.99866
1542	0.94869	0.93528	0.96645	0.98126	0.98762	0.99132	0.99354	0.99499	0.99604
1543	0.96294	0.94948	0.93700	0.96123	0.97477	0.98232	0.98702	0.98999	0.99235
1544	0.97236	0.96221	0.95074	0.93643	0.95618	0.96941	0.97746	0.98258	0.98711
1545	0.97916	0.97132	0.96239	0.94919	0.93110	0.94899	0.96261	0.97130	0.97883
1546	0.94523	0.98120	0.99124	0.99496	0.99677	0.99764	0.99821	0.99856	0.99852
1547	0.94867	0.93526	0.96648	0.98125	0.98760	0.99129	0.99356	0.99502	0.99598
1548	0.96267	0.94944	0.93659	0.96117	0.97473	0.98216	0.98711	0.98998	0.99254
1549	0.97198	0.96210	0.95057	0.93603	0.95623	0.96919	0.97736	0.98289	0.98690
1550	0.97885	0.97115	0.96234	0.94892	0.93116	0.94925	0.96252	0.97108	0.97856
1551	0.94492	0.98115	0.99116	0.99496	0.99674	0.99771	0.99822	0.99879	0.99833
1552	0.94903	0.93368	0.96642	0.98072	0.98774	0.99140	0.99344	0.99481	0.99597
1553	0.96255	0.94917	0.93667	0.96090	0.97442	0.98220	0.98696	0.98994	0.99213
1554	0.97192	0.96228	0.95074	0.93541	0.95616	0.96941	0.97688	0.98294	0.98718
1555	0.97845	0.97076	0.96187	0.94900	0.93001	0.94887	0.96185	0.97112	0.97843
1556	0.94454	0.98079	0.99110	0.99488	0.99667	0.99767	0.99815	0.99853	0.99843
1557	0.94877	0.93552	0.96686	0.98119	0.98769	0.99139	0.99362	0.99501	0.99590
1558	0.96214	0.94879	0.93627	0.96049	0.97420	0.98199	0.98679	0.98984	0.99226
1559	0.97158	0.96153	0.94970	0.93538	0.95567	0.96882	0.97673	0.98254	0.98674

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1560	0.97814	0.97033	0.96134	0.94758	0.92892	0.94817	0.96119	0.97033	0.97793
1561	0.94125	0.97709	0.98941	0.99381	0.99596	0.99724	0.99778	0.99838	0.99844
1562	0.94793	0.93488	0.96550	0.97993	0.98704	0.99099	0.99322	0.99474	0.99582
1563	0.96190	0.94837	0.93542	0.95951	0.97364	0.98145	0.98649	0.98946	0.99193
1564	0.97156	0.96117	0.94924	0.93474	0.95476	0.96807	0.97641	0.98200	0.98627
1565	0.97844	0.97137	0.96250	0.94871	0.93242	0.94920	0.96200	0.97133	0.97866
1566	0.94030	0.97697	0.98927	0.99383	0.99600	0.99713	0.99785	0.99832	0.99805
1567	0.94791	0.93483	0.96544	0.97991	0.98702	0.99089	0.99319	0.99473	0.99566
1568	0.96183	0.94831	0.93536	0.95944	0.97350	0.98147	0.98633	0.98940	0.99192
1569	0.97150	0.96112	0.94917	0.93459	0.95469	0.96805	0.97633	0.98198	0.98629
1570	0.97836	0.97103	0.96238	0.94974	0.93219	0.94887	0.96186	0.97105	0.97859
1571	0.94120	0.97667	0.98914	0.99373	0.99592	0.99707	0.99781	0.99836	0.99823
1572	0.94868	0.93408	0.96546	0.98026	0.98727	0.99109	0.99352	0.99498	0.99570
1573	0.96167	0.94814	0.93517	0.95932	0.97339	0.98138	0.98623	0.98959	0.99194
1574	0.97138	0.96100	0.94912	0.93452	0.95454	0.96791	0.97622	0.98189	0.98625
1575	0.97872	0.97077	0.96175	0.94904	0.93033	0.94821	0.96187	0.97094	0.97839
1576	0.94053	0.97624	0.98897	0.99369	0.99583	0.99702	0.99771	0.99809	0.99803
1577	0.94908	0.93475	0.96537	0.98003	0.98670	0.99093	0.99344	0.99473	0.99569
1578	0.96113	0.94775	0.93467	0.95894	0.97316	0.98134	0.98614	0.98957	0.99187
1579	0.97120	0.96086	0.94870	0.93417	0.95419	0.96781	0.97607	0.98175	0.98612
1580	0.97813	0.97067	0.96108	0.94770	0.92923	0.94772	0.96104	0.97002	0.97800
1581	0.95667	0.98103	0.99147	0.99523	0.99701	0.99793	0.99837	0.99903	0.99968
1582	0.96374	0.94757	0.97036	0.98330	0.98920	0.99248	0.99431	0.99734	1.00134
1583	0.97496	0.95533	0.94295	0.96203	0.97579	0.98388	0.98799	0.99206	0.99915
1584	0.98157	0.96846	0.95546	0.94045	0.95717	0.97062	0.97846	0.98715	0.99309
1585	0.98958	0.97868	0.96830	0.95593	0.94335	0.95385	0.96762	0.97751	0.99206
1586	0.95716	0.98042	0.99160	0.99513	0.99665	0.99769	0.99820	1.00005	0.99967
1587	0.96429	0.94673	0.97012	0.98284	0.98907	0.99236	0.99425	0.99740	0.99833
1588	0.97483	0.95541	0.94205	0.96073	0.97570	0.98343	0.98793	0.99190	0.99873
1589	0.98144	0.96832	0.95476	0.94151	0.95699	0.97049	0.97887	0.98663	0.99304
1590	0.98949	0.97831	0.96817	0.95556	0.94073	0.95357	0.96722	0.97738	0.98866
1591	0.95872	0.98013	0.99117	0.99500	0.99684	0.99778	0.99834	0.99992	1.00231
1592	0.96304	0.94732	0.96948	0.98271	0.98886	0.99223	0.99461	0.99663	0.99855
1593	0.97453	0.95528	0.94216	0.96147	0.97557	0.98291	0.98763	0.99199	0.99597
1594	0.98043	0.96738	0.95326	0.94002	0.95645	0.97034	0.97865	0.98505	0.99283
1595	0.98913	0.97794	0.96810	0.95495	0.93900	0.95283	0.96808	0.97702	0.98839
1596	0.95768	0.98015	0.99094	0.99474	0.99689	0.99768	0.99860	0.99908	0.99962
1597	0.96331	0.94631	0.96909	0.98246	0.98880	0.99203	0.99430	0.99622	0.99813
1598	0.97433	0.95364	0.94115	0.96123	0.97513	0.98275	0.98751	0.99146	0.99585
1599	0.97990	0.96673	0.95213	0.93965	0.95601	0.96988	0.97828	0.98514	0.99246

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1600	0.98876	0.97696	0.96726	0.95235	0.93800	0.95355	0.96636	0.97603	0.98804
1601	0.94039	0.97212	0.98660	0.99236	0.99505	0.99660	0.99723	0.99859	0.99940
1602	0.94562	0.92229	0.95425	0.97361	0.98296	0.98809	0.99153	0.99442	0.99740
1603	0.96044	0.92983	0.91403	0.94258	0.96297	0.97404	0.98151	0.98736	0.99365
1604	0.97182	0.94897	0.92731	0.91006	0.93443	0.95472	0.96691	0.97740	0.98833
1605	0.98145	0.96561	0.94933	0.92889	0.90934	0.92837	0.94837	0.96470	0.98140
1606	0.94052	0.97196	0.98655	0.99227	0.99499	0.99658	0.99720	0.99844	0.99939
1607	0.94551	0.92252	0.95444	0.97345	0.98293	0.98807	0.99150	0.99440	0.99738
1608	0.96036	0.93033	0.91388	0.94246	0.96239	0.97377	0.98146	0.98733	0.99362
1609	0.97164	0.94888	0.92703	0.90988	0.93438	0.95504	0.96708	0.97735	0.98829
1610	0.98103	0.96380	0.94895	0.92826	0.90827	0.92901	0.94921	0.96464	0.98130
1611	0.93977	0.97163	0.98656	0.99222	0.99494	0.99653	0.99714	0.99840	0.99935
1612	0.94603	0.92139	0.95375	0.97339	0.98258	0.98797	0.99112	0.99434	0.99732
1613	0.96011	0.93036	0.91345	0.94186	0.96238	0.97361	0.98134	0.98716	0.99355
1614	0.96974	0.94863	0.92741	0.90946	0.93398	0.95424	0.96706	0.97663	0.98807
1615	0.98062	0.96297	0.94799	0.92689	0.90723	0.92758	0.94859	0.96406	0.98107
1616	0.93888	0.97097	0.98626	0.99189	0.99486	0.99643	0.99738	0.99835	0.99928
1617	0.94339	0.92167	0.95315	0.97305	0.98233	0.98786	0.99100	0.99417	0.99721
1618	0.95923	0.92951	0.91295	0.94142	0.96202	0.97333	0.98100	0.98706	0.99340
1619	0.96929	0.94806	0.92652	0.90887	0.93303	0.95296	0.96690	0.97631	0.98783
1620	0.98013	0.96203	0.94678	0.92667	0.90532	0.92767	0.94714	0.96336	0.98055
1621	0.93164	0.96353	0.98316	0.99013	0.99371	0.99562	0.99655	0.99794	0.99908
1622	0.93806	0.90752	0.94390	0.96765	0.97894	0.98542	0.98934	0.99394	0.99893
1623	0.95418	0.91898	0.89899	0.93095	0.95529	0.96889	0.97747	0.98546	0.99184
1624	0.96395	0.93896	0.91414	0.89433	0.92182	0.94542	0.96078	0.97339	0.98470
1625	0.97703	0.95742	0.93997	0.91437	0.88979	0.91525	0.93931	0.95693	0.97711
1626	0.93143	0.96316	0.98282	0.99009	0.99373	0.99553	0.99622	0.99793	0.99906
1627	0.93800	0.90733	0.94372	0.96751	0.97894	0.98537	0.98975	0.99394	0.99890
1628	0.95411	0.91930	0.89890	0.93020	0.95521	0.96875	0.97724	0.98561	0.99459
1629	0.96515	0.93904	0.91416	0.89394	0.92086	0.94536	0.96020	0.97354	0.98466
1630	0.97697	0.95734	0.93986	0.91396	0.89071	0.91472	0.93892	0.95670	0.97678
1631	0.93088	0.96256	0.98273	0.98998	0.99355	0.99520	0.99622	0.99889	1.00148
1632	0.93847	0.90806	0.94314	0.96688	0.97883	0.98526	0.98924	0.99379	0.99896
1633	0.95296	0.91872	0.89775	0.92944	0.95514	0.96847	0.97727	0.98444	0.99026
1634	0.96416	0.93975	0.91530	0.89249	0.92038	0.94402	0.96013	0.97338	0.98817
1635	0.97499	0.95607	0.93856	0.91470	0.89039	0.91435	0.93770	0.95586	0.97585
1636	0.93013	0.96085	0.98192	0.98967	0.99339	0.99530	0.99649	0.99873	0.99894
1637	0.93717	0.90789	0.94268	0.96671	0.97845	0.98452	0.98943	0.99237	0.99625
1638	0.95247	0.91982	0.89953	0.92990	0.95449	0.96815	0.97709	0.98430	0.99156
1639	0.96397	0.93818	0.91562	0.89221	0.92041	0.94348	0.95967	0.97300	0.98511

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1640	0.97569	0.95544	0.93796	0.91203	0.88995	0.91220	0.93764	0.95573	0.97882
1641	0.91903	0.94232	0.97291	0.98387	0.98948	0.99246	0.99454	0.99654	0.99836
1642	0.93907	0.90483	0.93308	0.96128	0.97442	0.98234	0.98772	0.99141	0.99590
1643	0.95259	0.91860	0.89727	0.92385	0.95026	0.96511	0.97517	0.98279	0.99127
1644	0.96390	0.93801	0.91374	0.89300	0.91651	0.94150	0.95744	0.97022	0.98476
1645	0.97630	0.95572	0.93728	0.91088	0.88884	0.91131	0.93522	0.95648	0.97577
1646	0.91208	0.94183	0.97190	0.98370	0.98956	0.99285	0.99456	0.99679	0.99884
1647	0.94029	0.90156	0.93277	0.96120	0.97431	0.98227	0.98735	0.99154	0.99585
1648	0.98233	0.97617	0.96827	0.95670	0.94157	0.95717	0.96819	0.97597	0.98282
1649	0.95290	0.98498	0.99306	0.99612	0.99757	0.99832	0.99888	0.99905	0.99922
1650	0.95834	0.94735	0.97359	0.98489	0.99026	0.99321	0.99516	0.99623	0.99714
1651	0.96761	0.95591	0.94487	0.96632	0.97825	0.98478	0.98893	0.99152	0.99367
1652	0.97583	0.96696	0.95673	0.94405	0.96150	0.97327	0.98032	0.98520	0.98924
1653	0.98222	0.97596	0.96807	0.95676	0.94127	0.95692	0.96799	0.97611	0.98271
1654	0.95262	0.98482	0.99308	0.99613	0.99750	0.99837	0.99886	0.99904	0.99923
1655	0.95797	0.94630	0.97302	0.98460	0.99009	0.99315	0.99506	0.99616	0.99707
1656	0.96726	0.95561	0.94446	0.96636	0.97824	0.98476	0.98884	0.99150	0.99362
1657	0.97575	0.96697	0.95641	0.94344	0.96145	0.97288	0.97998	0.98520	0.98909
1658	0.98198	0.97533	0.96727	0.95604	0.93993	0.95596	0.96778	0.97534	0.98192
1659	0.95209	0.98463	0.99297	0.99606	0.99748	0.99834	0.99881	0.99903	0.99921
1660	0.95764	0.94610	0.97311	0.98454	0.99006	0.99307	0.99502	0.99619	0.99708
1661	0.96733	0.95547	0.94404	0.96609	0.97791	0.98464	0.98886	0.99137	0.99355
1662	0.97548	0.96678	0.95586	0.94301	0.96146	0.97297	0.98033	0.98491	0.98915
1663	0.98161	0.97478	0.96700	0.95513	0.93861	0.95524	0.96718	0.97476	0.98183
1664	0.94394	0.98143	0.99158	0.99528	0.99698	0.99794	0.99854	0.99898	0.99910
1665	0.95215	0.93816	0.96899	0.98229	0.98853	0.99199	0.99421	0.99562	0.99660
1666	0.96263	0.94898	0.93533	0.96102	0.97448	0.98229	0.98701	0.99010	0.99267
1667	0.97180	0.96191	0.94927	0.93471	0.95586	0.96882	0.97756	0.98256	0.98781
1668	0.97940	0.97149	0.96235	0.94900	0.93114	0.94894	0.96266	0.97145	0.97899
1669	0.94386	0.98176	0.99153	0.99528	0.99697	0.99793	0.99853	0.99885	0.99908
1670	0.95216	0.93823	0.96892	0.98220	0.98852	0.99198	0.99420	0.99557	0.99660
1671	0.96259	0.94892	0.93516	0.96049	0.97446	0.98227	0.98699	0.99019	0.99270
1672	0.97167	0.96219	0.94915	0.93467	0.95567	0.96853	0.97753	0.98255	0.98718
1673	0.97911	0.97127	0.96213	0.94870	0.93078	0.94865	0.96245	0.97115	0.97916
1674	0.94396	0.98139	0.99163	0.99523	0.99697	0.99791	0.99849	0.99882	0.99907
1675	0.95172	0.93838	0.96858	0.98209	0.98844	0.99206	0.99426	0.99554	0.99656
1676	0.96215	0.94873	0.93613	0.96075	0.97468	0.98236	0.98697	0.99006	0.99282
1677	0.97172	0.96146	0.94997	0.93466	0.95575	0.96864	0.97745	0.98252	0.98721
1678	0.97864	0.97080	0.96154	0.94781	0.92994	0.94816	0.96178	0.97095	0.97880
1679	0.94355	0.98104	0.99133	0.99518	0.99688	0.99795	0.99840	0.99881	0.99904

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1680	0.95153	0.93730	0.96834	0.98187	0.98835	0.99185	0.99408	0.99549	0.99654
1681	0.96226	0.94873	0.93563	0.96051	0.97444	0.98208	0.98688	0.98998	0.99253
1682	0.97199	0.96172	0.94955	0.93480	0.95591	0.96883	0.97716	0.98277	0.98746
1683	0.97809	0.97018	0.96024	0.94635	0.92744	0.94630	0.96076	0.97003	0.97802
1684	0.94047	0.97708	0.98965	0.99411	0.99622	0.99738	0.99812	0.99858	0.99895
1685	0.95115	0.93564	0.96620	0.98076	0.98750	0.99132	0.99366	0.99522	0.99646
1686	0.96124	0.94738	0.93428	0.95923	0.97342	0.98153	0.98641	0.98969	0.99259
1687	0.97088	0.96063	0.94784	0.93380	0.95491	0.96822	0.97634	0.98217	0.98717
1688	0.97840	0.97066	0.96099	0.94703	0.92904	0.94793	0.96129	0.97025	0.97821
1689	0.94001	0.97698	0.98956	0.99408	0.99620	0.99737	0.99812	0.99858	0.99891
1690	0.95088	0.93555	0.96633	0.98072	0.98747	0.99130	0.99364	0.99523	0.99634
1691	0.96117	0.94715	0.93447	0.95912	0.97338	0.98140	0.98644	0.98964	0.99254
1692	0.97085	0.96063	0.94811	0.93327	0.95470	0.96765	0.97657	0.98201	0.98715
1693	0.97825	0.97019	0.96103	0.94750	0.92864	0.94749	0.96115	0.97026	0.97825
1694	0.93972	0.97670	0.98942	0.99398	0.99614	0.99733	0.99807	0.99856	0.99888
1695	0.95010	0.93543	0.96603	0.98059	0.98738	0.99124	0.99361	0.99519	0.99643
1696	0.96100	0.94713	0.93422	0.95890	0.97332	0.98129	0.98630	0.98959	0.99246
1697	0.97123	0.96045	0.94870	0.93401	0.95446	0.96788	0.97621	0.98197	0.98692
1698	0.97835	0.96972	0.96028	0.94654	0.92757	0.94653	0.96074	0.96973	0.97773
1699	0.93836	0.97633	0.98919	0.99385	0.99607	0.99728	0.99802	0.99853	0.99889
1700	0.94977	0.93554	0.96554	0.98032	0.98731	0.99116	0.99359	0.99513	0.99637
1701	0.96093	0.94642	0.93365	0.95835	0.97304	0.98112	0.98616	0.98947	0.99223
1702	0.97055	0.96017	0.94758	0.93371	0.95380	0.96758	0.97628	0.98187	0.98687
1703	0.97726	0.96903	0.95905	0.94478	0.92648	0.94544	0.95987	0.96878	0.97762
1704	0.96547	0.98941	0.99509	0.99720	0.99822	0.99890	0.99914	0.99933	0.99940
1705	0.96834	0.95834	0.97951	0.98802	0.99269	0.99479	0.99628	0.99719	0.99774
1706	0.97614	0.96741	0.95927	0.97562	0.98415	0.98906	0.99192	0.99389	0.99529
1707	0.98188	0.97562	0.96785	0.95676	0.97139	0.98034	0.98541	0.98880	0.99232
1708	0.98775	0.98346	0.97755	0.96992	0.95890	0.96995	0.97786	0.98310	0.98759
1709	0.96415	0.98903	0.99502	0.99719	0.99820	0.99877	0.99910	0.99932	0.99934
1710	0.96847	0.95871	0.97947	0.98874	0.99266	0.99482	0.99627	0.99712	0.99774
1711	0.97594	0.96682	0.95853	0.97534	0.98390	0.98892	0.99183	0.99382	0.99524
1712	0.98173	0.97534	0.96754	0.95726	0.97121	0.97996	0.98537	0.98889	0.99198
1713	0.98771	0.98281	0.97768	0.96916	0.95822	0.96955	0.97763	0.98306	0.98747
1714	0.96376	0.98915	0.99498	0.99731	0.99817	0.99875	0.99912	0.99931	0.99933
1715	0.96836	0.95855	0.97976	0.98867	0.99260	0.99494	0.99625	0.99712	0.99775
1716	0.97572	0.96664	0.95819	0.97512	0.98401	0.98881	0.99176	0.99377	0.99520
1717	0.98176	0.97513	0.96473	0.95689	0.97036	0.97992	0.98526	0.98872	0.99185
1718	0.98740	0.98239	0.97747	0.96867	0.95734	0.96882	0.97727	0.98238	0.98725
1719	0.96312	0.98899	0.99490	0.99727	0.99824	0.99873	0.99926	0.99928	0.99931

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1720	0.96786	0.95836	0.97956	0.98839	0.99252	0.99482	0.99643	0.99712	0.99765
1721	0.97537	0.96620	0.95776	0.97478	0.98363	0.98863	0.99175	0.99365	0.99513
1722	0.98156	0.97471	0.96678	0.95692	0.97092	0.97986	0.98522	0.98887	0.99169
1723	0.98696	0.98211	0.97689	0.96784	0.95614	0.96806	0.97667	0.98194	0.98672
1724	0.94583	0.98263	0.99201	0.99549	0.99716	0.99808	0.99868	0.99887	0.99912
1725	0.95190	0.93916	0.96949	0.98253	0.98871	0.99213	0.99437	0.99563	0.99670
1726	0.96257	0.94923	0.93620	0.96104	0.97487	0.98207	0.98705	0.99028	0.99270
1727	0.97196	0.96200	0.94933	0.93575	0.95676	0.96907	0.97726	0.98288	0.98752
1728	0.97965	0.97256	0.96355	0.95047	0.93328	0.95091	0.96348	0.97238	0.98013
1729	0.94573	0.98259	0.99196	0.99548	0.99716	0.99804	0.99867	0.99889	0.99911
1730	0.95181	0.93931	0.96944	0.98248	0.98869	0.99212	0.99436	0.99562	0.99670
1731	0.96252	0.94915	0.93659	0.96111	0.97484	0.98237	0.98715	0.99017	0.99268
1732	0.97203	0.96186	0.95012	0.93570	0.95564	0.96911	0.97722	0.98284	0.98750
1733	0.97952	0.97234	0.96333	0.95043	0.93295	0.95062	0.96326	0.97248	0.98001
1734	0.94540	0.98242	0.99197	0.99549	0.99709	0.99808	0.99865	0.99888	0.99911
1735	0.95140	0.93821	0.96881	0.98216	0.98851	0.99205	0.99425	0.99555	0.99663
1736	0.96216	0.94884	0.93615	0.96114	0.97481	0.98234	0.98706	0.99015	0.99263
1737	0.97193	0.96185	0.94975	0.93501	0.95556	0.96869	0.97686	0.98284	0.98734
1738	0.97924	0.97165	0.96247	0.94968	0.93145	0.94959	0.96299	0.97165	0.97918
1739	0.94485	0.98221	0.99185	0.99542	0.99707	0.99805	0.99861	0.99887	0.99909
1740	0.95102	0.93795	0.96890	0.98209	0.98848	0.99196	0.99421	0.99557	0.99663
1741	0.96221	0.94866	0.93566	0.96083	0.97445	0.98220	0.98707	0.99002	0.99256
1742	0.97163	0.96162	0.94915	0.93453	0.95554	0.96875	0.97722	0.98252	0.98737
1743	0.97880	0.97102	0.96207	0.94861	0.92992	0.94869	0.96229	0.97099	0.97901
1744	0.93505	0.97845	0.99021	0.99450	0.99647	0.99758	0.99828	0.99878	0.99895
1745	0.94408	0.92822	0.96383	0.97929	0.98657	0.99061	0.99321	0.99485	0.99604
1746	0.95629	0.94064	0.92506	0.95457	0.97020	0.97929	0.98480	0.98841	0.99143
1747	0.96703	0.95556	0.94098	0.92431	0.94860	0.96360	0.97370	0.97958	0.98564
1748	0.97600	0.96688	0.95637	0.94107	0.92061	0.94096	0.95671	0.96685	0.97555
1749	0.93496	0.97879	0.99015	0.99449	0.99646	0.99757	0.99827	0.99866	0.99894
1750	0.94408	0.92830	0.96374	0.97918	0.98656	0.99061	0.99318	0.99482	0.99603
1751	0.95625	0.94057	0.92486	0.95401	0.97018	0.97926	0.98477	0.98851	0.99146
1752	0.96689	0.95587	0.94085	0.92426	0.94836	0.96329	0.97367	0.97958	0.98496
1753	0.97567	0.96665	0.95611	0.94074	0.92019	0.94063	0.95647	0.96649	0.97571
1754	0.93506	0.97841	0.99024	0.99444	0.99646	0.99756	0.99822	0.99863	0.99892
1755	0.94360	0.92843	0.96337	0.97906	0.98647	0.99069	0.99324	0.99477	0.99599
1756	0.94615	0.91655	0.94810	0.97009	0.98059	0.98656	0.99037	0.99328	0.99554
1757	0.95749	0.92820	0.90845	0.93657	0.95905	0.97146	0.97878	0.98526	0.99238
1758	0.96744	0.94426	0.92194	0.90196	0.92751	0.94909	0.96273	0.97323	0.98384
1759	0.97620	0.95889	0.94321	0.92126	0.89957	0.92239	0.94248	0.95916	0.97785

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1760	0.94254	0.96683	0.98290	0.99013	0.99326	0.99528	0.99642	0.99680	0.99878
1761	0.94700	0.91618	0.94771	0.96910	0.97963	0.98564	0.98936	0.99217	0.99538
1762	0.95752	0.92714	0.90762	0.93631	0.95831	0.97065	0.97850	0.98453	0.99058
1763	0.96767	0.94384	0.92138	0.90186	0.92644	0.94849	0.96256	0.97297	0.98278
1764	0.97544	0.95787	0.94127	0.91895	0.89711	0.91995	0.94128	0.95732	0.97496
1765	0.93441	0.94634	0.97363	0.98435	0.98964	0.99261	0.99444	0.99531	0.99605
1766	0.94767	0.91527	0.93983	0.96439	0.97652	0.98350	0.98798	0.99081	0.99369
1767	0.95736	0.92734	0.90898	0.93138	0.95540	0.96874	0.97715	0.98371	0.98961
1768	0.96743	0.94324	0.92034	0.90198	0.92451	0.94694	0.96140	0.97235	0.98256
1769	0.97583	0.95781	0.94144	0.92053	0.90213	0.91963	0.94167	0.95805	0.97514
1770	0.93342	0.94654	0.97299	0.98399	0.98946	0.99243	0.99416	0.99536	0.99554
1771	0.94608	0.91319	0.93944	0.96415	0.97637	0.98340	0.98790	0.99075	0.99366
1772	0.95736	0.92723	0.90791	0.93241	0.95529	0.96865	0.97730	0.98366	0.98883
1773	0.96725	0.94316	0.92030	0.90188	0.92436	0.94683	0.96128	0.97228	0.98254
1774	0.97553	0.95777	0.94183	0.91977	0.90181	0.92032	0.94207	0.95831	0.97528
1775	0.92860	0.94543	0.97206	0.98395	0.98921	0.99270	0.99456	0.99538	0.99576
1776	0.94579	0.91278	0.93874	0.96374	0.97610	0.98321	0.98777	0.99065	0.99359
1777	0.95839	0.92686	0.90882	0.93162	0.95497	0.96833	0.97691	0.98321	0.98929
1778	0.96696	0.94304	0.92006	0.90170	0.92404	0.94664	0.96111	0.97208	0.98243
1779	0.97508	0.95731	0.94126	0.91898	0.90100	0.91889	0.94148	0.95788	0.97501
1780	0.93122	0.94391	0.97149	0.98334	0.98893	0.99232	0.99420	0.99543	0.99604
1781	0.94498	0.91194	0.93760	0.96284	0.97546	0.98298	0.98750	0.99081	0.99341
1782	0.95782	0.92607	0.90679	0.93061	0.95436	0.96798	0.97657	0.98245	0.98842
1783	0.96666	0.94180	0.91977	0.90202	0.92318	0.94601	0.96067	0.97173	0.98198
1784	0.97463	0.95684	0.93992	0.91772	0.89700	0.91713	0.94064	0.95720	0.97462
1785	0.96185	0.98200	0.99068	0.99460	0.99649	0.99735	0.99794	0.99897	0.99895
1786	0.96593	0.94916	0.97023	0.98285	0.98858	0.99205	0.99412	0.99504	0.99707
1787	0.97403	0.95540	0.94505	0.96410	0.97645	0.98355	0.98799	0.99073	0.99403
1788	0.98008	0.96619	0.95287	0.94097	0.95662	0.97021	0.97870	0.98415	0.98917
1789	0.98553	0.97535	0.96632	0.95357	0.94007	0.95309	0.96672	0.97567	0.98441
1790	0.96273	0.98168	0.99094	0.99454	0.99628	0.99719	0.99762	0.99694	0.99748
1791	0.96498	0.94871	0.97046	0.98284	0.98855	0.99210	0.99415	0.99499	0.99700
1792	0.97392	0.95492	0.94353	0.96316	0.97606	0.98388	0.98749	0.99064	0.99394
1793	0.97991	0.96613	0.95213	0.94060	0.95739	0.97069	0.97863	0.98410	0.98941
1794	0.98545	0.97555	0.96623	0.95310	0.93956	0.95314	0.96643	0.97610	0.98422
1795	0.96266	0.98197	0.99005	0.99436	0.99612	0.99742	0.99744	0.99898	0.99898
1796	0.96432	0.94897	0.97004	0.98262	0.98838	0.99200	0.99385	0.99549	0.99489
1797	0.97395	0.95462	0.94342	0.96302	0.97548	0.98344	0.98811	0.99076	0.99447
1798	0.98039	0.96605	0.95228	0.94117	0.95786	0.97011	0.97811	0.98448	0.99036
1799	0.98494	0.97457	0.96522	0.95187	0.93817	0.95212	0.96626	0.97539	0.98481

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1800	0.96067	0.98106	0.98986	0.99426	0.99637	0.99735	0.99740	0.99756	0.99905
1801	0.96482	0.94842	0.96953	0.98244	0.98861	0.99171	0.99402	0.99490	0.99492
1802	0.97375	0.95380	0.94293	0.96148	0.97577	0.98273	0.98705	0.99065	0.99381
1803	0.97996	0.96581	0.95214	0.94020	0.95609	0.96966	0.97798	0.98374	0.98918
1804	0.98485	0.97444	0.96440	0.95164	0.93745	0.95007	0.96531	0.97547	0.98421
1805	0.94677	0.97203	0.98546	0.99181	0.99460	0.99608	0.99690	0.99731	0.99791
1806	0.94861	0.92690	0.95377	0.97281	0.98222	0.98755	0.99087	0.99266	0.99578
1807	0.96130	0.93248	0.91694	0.94211	0.96263	0.97382	0.98064	0.98591	0.99062
1808	0.96962	0.94747	0.92632	0.90855	0.93212	0.95303	0.96615	0.97524	0.98487
1809	0.97804	0.96301	0.94796	0.92831	0.90773	0.92780	0.94767	0.96321	0.97989
1810	0.94531	0.97144	0.98542	0.99189	0.99452	0.99605	0.99688	0.99729	0.99790
1811	0.94968	0.92464	0.95478	0.97397	0.98240	0.98776	0.99157	0.99414	0.99379
1812	0.96036	0.93074	0.91377	0.94251	0.96202	0.97289	0.98049	0.98646	0.99040
1813	0.97001	0.94775	0.92673	0.90915	0.93272	0.95299	0.96561	0.97559	0.98447
1814	0.97797	0.96216	0.94753	0.92788	0.90721	0.92803	0.94832	0.96298	0.97975
1815	0.94520	0.97108	0.98582	0.99183	0.99447	0.99607	0.99702	0.99707	0.99816
1816	0.94754	0.92402	0.95332	0.97324	0.98207	0.98763	0.99141	0.99309	0.99587
1817	0.96071	0.93129	0.91438	0.94155	0.96178	0.97327	0.98040	0.98593	0.99003
1818	0.96999	0.94684	0.92626	0.90982	0.93357	0.95282	0.96634	0.97587	0.98481
1819	0.97764	0.96183	0.94672	0.92660	0.90622	0.92680	0.94716	0.96250	0.97961
1820	0.94455	0.97111	0.98470	0.99157	0.99451	0.99594	0.99692	0.99741	0.99700
1821	0.94622	0.92277	0.95217	0.97223	0.98198	0.98731	0.99066	0.99260	0.99425
1822	0.96053	0.93065	0.91474	0.94119	0.96174	0.97335	0.98020	0.98579	0.99302
1823	0.96940	0.94737	0.92653	0.90832	0.93266	0.95306	0.96556	0.97510	0.98441
1824	0.97705	0.96082	0.94619	0.92449	0.90300	0.92516	0.94534	0.96057	0.97698
1825	0.93917	0.96401	0.98239	0.98942	0.99315	0.99516	0.99686	0.99686	0.99788
1826	0.93994	0.90773	0.94316	0.96671	0.97835	0.98473	0.98888	0.99145	0.99509
1827	0.95597	0.92052	0.89869	0.93174	0.95417	0.96816	0.97713	0.98317	0.98853
1828	0.96422	0.93858	0.91438	0.89212	0.92057	0.94406	0.95894	0.97054	0.98153
1829	0.97388	0.95531	0.93764	0.91477	0.89127	0.91527	0.93778	0.95508	0.97366
1830	0.93730	0.96367	0.98173	0.98956	0.99303	0.99514	0.99630	0.99701	0.99740
1831	0.94021	0.90766	0.94347	0.96676	0.97826	0.98474	0.98888	0.99166	0.99508
1832	0.95434	0.91972	0.89837	0.93163	0.95492	0.96779	0.97662	0.98371	0.98943
1833	0.96454	0.93850	0.91430	0.89259	0.92043	0.94398	0.95916	0.97068	0.98149
1834	0.97368	0.95527	0.93735	0.91446	0.89094	0.91463	0.93745	0.95547	0.97365
1835	0.93663	0.96337	0.98149	0.98982	0.99344	0.99502	0.99624	0.99710	0.99634
1836	0.94013	0.90791	0.94290	0.96696	0.97854	0.98514	0.98936	0.99256	0.99514
1837	0.95283	0.92040	0.89890	0.92996	0.95463	0.96834	0.97653	0.98367	0.99147
1838	0.96391	0.93832	0.91382	0.89196	0.91999	0.94371	0.95875	0.97037	0.98221
1839	0.97364	0.95450	0.93720	0.91313	0.88929	0.91436	0.93641	0.95473	0.97529

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1840	0.93636	0.96387	0.98148	0.98931	0.99274	0.99493	0.99618	0.99664	0.99869
1841	0.94094	0.90749	0.94247	0.96598	0.97757	0.98422	0.98836	0.99146	0.99498
1842	0.95286	0.91933	0.89801	0.92970	0.95388	0.96754	0.97625	0.98294	0.98968
1843	0.96413	0.93786	0.91321	0.89185	0.91885	0.94307	0.95859	0.97012	0.98115
1844	0.97281	0.95336	0.93507	0.91063	0.88662	0.91165	0.93507	0.95281	0.97235
1845	0.92757	0.94322	0.97207	0.98344	0.98906	0.99222	0.99418	0.99513	0.99595
1846	0.94143	0.90556	0.93429	0.96102	0.97430	0.98196	0.98688	0.99004	0.99326
1847	0.95251	0.91925	0.89848	0.92443	0.95071	0.96543	0.97473	0.98201	0.98865
1848	0.96369	0.93693	0.91180	0.89101	0.91661	0.94122	0.95720	0.96934	0.98083
1849	0.97315	0.95320	0.93508	0.91210	0.89106	0.91121	0.93533	0.95343	0.97246
1850	0.92662	0.94341	0.97143	0.98308	0.98888	0.99204	0.99389	0.99518	0.99544
1851	0.93986	0.90354	0.93390	0.96079	0.97416	0.98186	0.98681	0.98999	0.99323
1852	0.95250	0.91910	0.89742	0.92550	0.95059	0.96535	0.97491	0.98196	0.98788
1853	0.96351	0.93684	0.91176	0.89092	0.91646	0.94112	0.95708	0.96927	0.98081
1854	0.97282	0.95313	0.93545	0.91126	0.89070	0.91188	0.93575	0.95371	0.97260
1855	0.92185	0.94230	0.97050	0.98302	0.98864	0.99230	0.99429	0.99520	0.99566
1856	0.93957	0.90313	0.93320	0.96037	0.97388	0.98167	0.98667	0.98988	0.99316
1857	0.95351	0.91875	0.89828	0.92471	0.95028	0.96501	0.97452	0.98151	0.98833
1858	0.96322	0.93673	0.91153	0.89073	0.91615	0.94093	0.95691	0.96906	0.98071
1859	0.97235	0.95262	0.93481	0.91039	0.88978	0.91037	0.93510	0.95324	0.97230
1860	0.92441	0.94077	0.96993	0.98243	0.98835	0.99193	0.99393	0.99525	0.99594
1861	0.93878	0.90228	0.93206	0.95947	0.97324	0.98143	0.98640	0.99004	0.99298
1862	0.95294	0.91796	0.89630	0.92370	0.94967	0.96467	0.97417	0.98076	0.98746
1863	0.96291	0.93548	0.91122	0.89100	0.91528	0.94029	0.95647	0.96871	0.98025
1864	0.97185	0.95209	0.93338	0.90898	0.88552	0.90843	0.93414	0.95246	0.97187
1865	0.97156	0.98954	0.99496	0.99692	0.99823	0.99861	0.99876	0.99873	0.99852
1866	0.97471	0.96579	0.98154	0.99001	0.99341	0.99530	0.99635	0.99704	0.99746
1867	0.98113	0.97265	0.96636	0.97863	0.98618	0.99050	0.99262	0.99419	0.99519
1868	0.98394	0.97828	0.97086	0.96339	0.97481	0.98255	0.98667	0.98987	0.99241
1869	0.98804	0.98412	0.97921	0.97149	0.96198	0.97178	0.97937	0.98446	0.98825
1870	0.97272	0.98978	0.99474	0.99706	0.99808	0.99852	0.99869	0.99877	0.99852
1871	0.97425	0.96574	0.98190	0.98978	0.99334	0.99568	0.99635	0.99707	0.99757
1872	0.98021	0.97124	0.96410	0.97753	0.98554	0.98995	0.99223	0.99402	0.99496
1873	0.98388	0.97846	0.97079	0.96348	0.97476	0.98226	0.98662	0.99006	0.99236
1874	0.98790	0.98398	0.97859	0.97108	0.96084	0.97144	0.97904	0.98402	0.98889
1875	0.97121	0.98968	0.99488	0.99708	0.99804	0.99852	0.99854	0.99883	0.99852
1876	0.97441	0.96585	0.98186	0.98959	0.99326	0.99538	0.99633	0.99700	0.99746
1877	0.97975	0.97068	0.96331	0.97694	0.98527	0.98971	0.99215	0.99393	0.99491
1878	0.98374	0.97810	0.97129	0.96310	0.97451	0.98214	0.98671	0.99010	0.99227
1879	0.98790	0.98368	0.97809	0.97105	0.96142	0.97078	0.97905	0.98414	0.98897

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1880	0.97169	0.98935	0.99487	0.99685	0.99800	0.99850	0.99875	0.99891	0.99841
1881	0.97435	0.96606	0.98199	0.98976	0.99341	0.99532	0.99634	0.99699	0.99738
1882	0.97965	0.97057	0.96324	0.97699	0.98523	0.98970	0.99207	0.99386	0.99494
1883	0.98395	0.97820	0.97089	0.96311	0.97467	0.98188	0.98606	0.98998	0.99210
1884	0.98728	0.98318	0.97740	0.96958	0.95990	0.97063	0.97777	0.98340	0.98784
1885	0.95965	0.98430	0.99235	0.99561	0.99738	0.99796	0.99813	0.99849	0.99829
1886	0.96377	0.95159	0.97448	0.98478	0.99020	0.99314	0.99492	0.99604	0.99628
1887	0.97193	0.95844	0.94916	0.96789	0.97861	0.98529	0.98897	0.99152	0.99360
1888	0.97743	0.96876	0.95797	0.94717	0.96314	0.97403	0.98082	0.98546	0.98947
1889	0.98318	0.97626	0.96820	0.95680	0.94240	0.95709	0.96808	0.97586	0.98313
1890	0.95890	0.98392	0.99214	0.99561	0.99711	0.99810	0.99816	0.99841	0.99801
1891	0.96296	0.95083	0.97352	0.98469	0.99028	0.99321	0.99480	0.99583	0.99612
1892	0.97125	0.95859	0.94766	0.96715	0.97887	0.98546	0.98886	0.99182	0.99319
1893	0.97750	0.96867	0.95681	0.94734	0.96301	0.97393	0.98069	0.98535	0.98965
1894	0.98259	0.97621	0.96793	0.95648	0.94209	0.95676	0.96783	0.97576	0.98297
1895	0.95839	0.98396	0.99198	0.99541	0.99711	0.99799	0.99828	0.99854	0.99827
1896	0.96250	0.95055	0.97346	0.98462	0.99005	0.99293	0.99476	0.99578	0.99659
1897	0.97160	0.95828	0.94784	0.96720	0.97867	0.98508	0.98866	0.99136	0.99345
1898	0.97716	0.96763	0.95829	0.94731	0.96294	0.97398	0.98050	0.98528	0.98940
1899	0.98228	0.97559	0.96755	0.95551	0.94131	0.95595	0.96751	0.97555	0.98266
1900	0.95837	0.98348	0.99188	0.99535	0.99707	0.99790	0.99818	0.99846	0.99825
1901	0.96216	0.95002	0.97282	0.98438	0.98999	0.99301	0.99471	0.99574	0.99714
1902	0.97091	0.95783	0.94743	0.96665	0.97845	0.98482	0.98861	0.99131	0.99318
1903	0.97729	0.96812	0.95792	0.94659	0.96233	0.97390	0.98041	0.98527	0.98921
1904	0.98249	0.97530	0.96682	0.95503	0.94035	0.95505	0.96662	0.97505	0.98230
1905	0.95200	0.98015	0.99065	0.99466	0.99639	0.99740	0.99777	0.99824	0.99825
1906	0.95691	0.94168	0.96829	0.98182	0.98834	0.99184	0.99365	0.99507	0.99584
1907	0.96688	0.95170	0.94030	0.96207	0.97508	0.98291	0.98722	0.99048	0.99276
1908	0.97447	0.96342	0.95148	0.93810	0.95741	0.96972	0.97781	0.98311	0.98796
1909	0.98014	0.97185	0.96248	0.94956	0.93294	0.94941	0.96285	0.97191	0.98049
1910	0.95181	0.98004	0.99049	0.99472	0.99643	0.99738	0.99795	0.99817	0.99811
1911	0.95685	0.94168	0.96844	0.98178	0.98832	0.99184	0.99363	0.99506	0.99584
1912	0.96654	0.95144	0.94022	0.96168	0.97529	0.98288	0.98685	0.99005	0.99256
1913	0.97445	0.96389	0.95122	0.93797	0.95666	0.96921	0.97752	0.98324	0.98763
1914	0.97954	0.97180	0.96225	0.94921	0.93250	0.94940	0.96261	0.97200	0.98043
1915	0.95151	0.97979	0.99039	0.99466	0.99648	0.99747	0.99815	0.99820	0.99810
1916	0.95788	0.94167	0.96854	0.98164	0.98865	0.99184	0.99378	0.99515	0.99609
1917	0.96666	0.95136	0.93931	0.96127	0.97473	0.98249	0.98688	0.98997	0.99273
1918	0.97422	0.96312	0.95084	0.93762	0.95663	0.96848	0.97760	0.98301	0.98768
1919	0.97934	0.97126	0.96213	0.94836	0.93154	0.94844	0.96161	0.97151	0.97997

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1920	0.95084	0.97961	0.99003	0.99453	0.99636	0.99770	0.99788	0.99821	0.99776
1921	0.95758	0.94171	0.96811	0.98176	0.98814	0.99185	0.99377	0.99513	0.99583
1922	0.96629	0.95113	0.93921	0.96079	0.97465	0.98237	0.98685	0.98989	0.99259
1923	0.97425	0.96340	0.95044	0.93704	0.95635	0.96888	0.97755	0.98277	0.98787
1924	0.97910	0.97083	0.96122	0.94720	0.92955	0.94791	0.96086	0.97092	0.97949
1925	0.94800	0.97228	0.98699	0.99257	0.99506	0.99647	0.99713	0.99784	0.99771
1926	0.95726	0.94177	0.96520	0.97978	0.98698	0.99082	0.99304	0.99465	0.99578
1927	0.96637	0.95106	0.93932	0.95942	0.97362	0.98127	0.98589	0.98955	0.99184
1928	0.97415	0.96259	0.95054	0.93693	0.95480	0.96826	0.97653	0.98223	0.98740
1929	0.97963	0.97184	0.96242	0.94906	0.93416	0.94878	0.96229	0.97145	0.97970
1930	0.94616	0.97251	0.98701	0.99248	0.99502	0.99642	0.99719	0.99728	0.99725
1931	0.95715	0.94164	0.96508	0.97998	0.98693	0.99095	0.99295	0.99467	0.99577
1932	0.96621	0.95102	0.93924	0.95925	0.97381	0.98127	0.98589	0.98965	0.99182
1933	0.97377	0.96256	0.95047	0.93721	0.95474	0.96852	0.97649	0.98219	0.98739
1934	0.97948	0.97165	0.96187	0.94849	0.93395	0.94858	0.96215	0.97101	0.97978
1935	0.94714	0.97195	0.98654	0.99220	0.99493	0.99634	0.99707	0.99773	0.99735
1936	0.95690	0.94137	0.96475	0.97951	0.98679	0.99085	0.99292	0.99456	0.99553
1937	0.96608	0.95062	0.93880	0.95893	0.97329	0.98117	0.98582	0.98919	0.99213
1938	0.97365	0.96244	0.94963	0.93735	0.95445	0.96806	0.97651	0.98207	0.98731
1939	0.97922	0.97108	0.96153	0.94821	0.93333	0.94815	0.96162	0.97145	0.97964
1940	0.94634	0.97102	0.98624	0.99209	0.99482	0.99630	0.99692	0.99745	0.99783
1941	0.95533	0.94077	0.96415	0.97915	0.98644	0.99053	0.99293	0.99408	0.99514
1942	0.96567	0.95055	0.93874	0.95843	0.97291	0.98095	0.98616	0.98897	0.99199
1943	0.97351	0.96221	0.94973	0.93667	0.95425	0.96784	0.97640	0.98190	0.98717
1944	0.98010	0.97086	0.96095	0.94729	0.93097	0.94722	0.96095	0.97090	0.97927
1945	0.96792	0.98828	0.99439	0.99661	0.99803	0.99849	0.99869	0.99869	0.99850
1946	0.97136	0.96139	0.97925	0.98874	0.99258	0.99472	0.99595	0.99675	0.99728
1947	0.97872	0.96903	0.96180	0.97583	0.98438	0.98923	0.99171	0.99352	0.99476
1948	0.98211	0.97558	0.96725	0.95871	0.97155	0.98028	0.98501	0.98864	0.99160
1949	0.98677	0.98223	0.97666	0.96800	0.95733	0.96830	0.97682	0.98258	0.98697
1950	0.96905	0.98849	0.99417	0.99674	0.99788	0.99839	0.99862	0.99873	0.99850
1951	0.97091	0.96135	0.97962	0.98848	0.99251	0.99511	0.99595	0.99678	0.99738
1952	0.97767	0.96754	0.95954	0.97466	0.98368	0.98866	0.99130	0.99335	0.99453
1953	0.98202	0.97572	0.96713	0.95879	0.97148	0.97997	0.98495	0.98884	0.99155
1954	0.98663	0.98211	0.97608	0.96761	0.95618	0.96794	0.97647	0.98209	0.98758
1955	0.96755	0.98839	0.99430	0.99676	0.99784	0.99838	0.99846	0.99878	0.99850
1956	0.97105	0.96144	0.97957	0.98828	0.99242	0.99480	0.99593	0.99671	0.99728
1957	0.97719	0.96692	0.95869	0.97404	0.98340	0.98840	0.99121	0.99325	0.99447
1958	0.98187	0.97534	0.96759	0.95836	0.97123	0.97984	0.98504	0.98888	0.99145
1959	0.98659	0.98175	0.97550	0.96745	0.95665	0.96724	0.97642	0.98219	0.98765

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
1960	0.96797	0.98806	0.99429	0.99652	0.99780	0.99837	0.99868	0.99886	0.99839
1961	0.97098	0.96163	0.97968	0.98844	0.99257	0.99473	0.99594	0.99670	0.99719
1962	0.97705	0.96678	0.95857	0.97406	0.98332	0.98839	0.99112	0.99317	0.99449
1963	0.98206	0.97542	0.96716	0.95836	0.97135	0.97956	0.98439	0.98874	0.99128
1964	0.98595	0.98119	0.97473	0.96594	0.95507	0.96700	0.97507	0.98142	0.98648
1965	0.95355	0.98207	0.99134	0.99504	0.99702	0.99772	0.99797	0.99839	0.99824
1966	0.95811	0.94415	0.97061	0.98250	0.98872	0.99211	0.99419	0.99553	0.99594
1967	0.96749	0.95208	0.94140	0.96299	0.97535	0.98302	0.98733	0.99031	0.99279
1968	0.97415	0.96396	0.95158	0.93918	0.95749	0.97005	0.97790	0.98329	0.98800
1969	0.98081	0.97279	0.96361	0.95051	0.93421	0.95089	0.96345	0.97242	0.98077
1970	0.95279	0.98171	0.99113	0.99504	0.99675	0.99786	0.99801	0.99830	0.99796
1971	0.95266	0.91893	0.89505	0.92359	0.95035	0.96500	0.97498	0.98299	0.99104
1972	0.96262	0.93819	0.91368	0.89104	0.91633	0.94142	0.95696	0.97014	0.98325
1973	0.97622	0.95591	0.93683	0.91222	0.88964	0.91257	0.93789	0.95608	0.97552
1974	0.91099	0.94042	0.97173	0.98298	0.98912	0.99250	0.99444	0.99676	0.99879
1975	0.93785	0.90123	0.93193	0.96028	0.97401	0.98203	0.98684	0.99124	0.99565
1976	0.95134	0.91810	0.89479	0.92290	0.94964	0.96465	0.97486	0.98260	0.99092
1977	0.96351	0.93749	0.91311	0.89077	0.91567	0.94094	0.95697	0.96989	0.98307
1978	0.97534	0.95498	0.93567	0.90988	0.88731	0.91117	0.93709	0.95401	0.97408
1979	0.91145	0.93804	0.97016	0.98194	0.98869	0.99240	0.99400	0.99609	0.99768
1980	0.93713	0.90038	0.93107	0.95931	0.97344	0.98171	0.98710	0.99064	0.99489
1981	0.95167	0.91669	0.89394	0.92214	0.94882	0.96413	0.97429	0.98221	0.99007
1982	0.96284	0.93646	0.91112	0.88982	0.91436	0.94036	0.95673	0.96934	0.98085
1983	0.97471	0.95428	0.93497	0.90937	0.88561	0.90799	0.93285	0.95286	0.97147
1984	0.95189	0.97871	0.99043	0.99461	0.99661	0.99765	0.99817	0.99889	0.99959
1985	0.95958	0.94146	0.96686	0.98125	0.98782	0.99155	0.99362	0.99686	1.00104
1986	0.97177	0.94986	0.93627	0.95745	0.97280	0.98187	0.98647	0.99102	0.99851
1987	0.97928	0.96444	0.95002	0.93364	0.95201	0.96703	0.97599	0.98533	0.99199
1988	0.98788	0.97584	0.96438	0.95070	0.93644	0.94838	0.96366	0.97464	0.99032
1989	0.95235	0.97811	0.99051	0.99447	0.99624	0.99740	0.99801	0.99990	0.99958
1990	0.95999	0.94062	0.96658	0.98068	0.98773	0.99141	0.99356	0.99691	0.99804
1991	0.97163	0.94991	0.93532	0.95605	0.97270	0.98135	0.98641	0.99083	0.99807
1992	0.97914	0.96429	0.94926	0.93467	0.95185	0.96689	0.97624	0.98475	0.99193
1993	0.98778	0.97544	0.96431	0.95027	0.93382	0.94806	0.96323	0.97449	0.98695
1994	0.95386	0.97779	0.99007	0.99434	0.99640	0.99750	0.99812	0.99976	1.00220
1995	0.95867	0.94115	0.96578	0.98055	0.98747	0.99127	0.99391	0.99615	0.99827
1996	0.97126	0.94965	0.93538	0.95683	0.97253	0.98079	0.98611	0.99091	0.99533
1997	0.97801	0.96327	0.94752	0.93304	0.95127	0.96669	0.97600	0.98314	0.99171
1998	0.98738	0.97499	0.96400	0.94938	0.93190	0.94723	0.96399	0.97407	0.98663
1999	0.95278	0.97777	0.98983	0.99410	0.99646	0.99739	0.99839	0.99893	0.99954

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
2000	0.95889	0.94004	0.96534	0.98029	0.98739	0.99105	0.99360	0.99572	0.99784
2001	0.97100	0.94798	0.93429	0.95653	0.97206	0.98060	0.98598	0.99035	0.99521
2002	0.97743	0.96255	0.94630	0.93261	0.95073	0.96618	0.97557	0.98320	0.99132
2003	0.98696	0.97394	0.96305	0.94657	0.93068	0.94776	0.96216	0.97299	0.98623
2004	0.93218	0.96799	0.98462	0.99122	0.99429	0.99608	0.99686	0.99831	0.99924
2005	0.93788	0.91132	0.94749	0.96961	0.98032	0.98626	0.99020	0.99347	0.99685
2006	0.95448	0.91991	0.90198	0.93413	0.95735	0.97007	0.97863	0.98528	0.99244
2007	0.96734	0.94148	0.91707	0.89763	0.92495	0.94796	0.96202	0.97380	0.98622
2008	0.97822	0.96020	0.94196	0.91888	0.89674	0.91824	0.94089	0.95923	0.97813
2009	0.93231	0.96783	0.98456	0.99114	0.99424	0.99607	0.99683	0.99817	0.99923
2010	0.93776	0.91152	0.94767	0.96944	0.98028	0.98624	0.99018	0.99345	0.99683
2011	0.95438	0.92041	0.90181	0.93399	0.95672	0.96979	0.97858	0.98525	0.99241
2012	0.96716	0.94138	0.91678	0.89746	0.92487	0.94842	0.96223	0.97377	0.98617
2013	0.97783	0.95830	0.94152	0.91824	0.89575	0.91898	0.94179	0.95920	0.97802
2014	0.93154	0.96748	0.98458	0.99108	0.99418	0.99601	0.99677	0.99813	0.99919
2015	0.93823	0.91034	0.94694	0.96938	0.97993	0.98612	0.98980	0.99338	0.99677
2016	0.95410	0.92035	0.90134	0.93334	0.95671	0.96961	0.97844	0.98506	0.99233
2017	0.96524	0.94109	0.91711	0.89696	0.92442	0.94743	0.96205	0.97300	0.98595
2018	0.97728	0.95737	0.94043	0.91658	0.89452	0.91723	0.94106	0.95847	0.97774
2019	0.93059	0.96679	0.98427	0.99072	0.99409	0.99591	0.99701	0.99808	0.99912
2020	0.93556	0.91053	0.94628	0.96900	0.97966	0.98600	0.98966	0.99320	0.99665
2021	0.95317	0.91943	0.90077	0.93282	0.95631	0.96930	0.97807	0.98494	0.99217
2022	0.96473	0.94042	0.91609	0.89626	0.92341	0.94608	0.96184	0.97263	0.98567
2023	0.97669	0.95627	0.93891	0.91626	0.89229	0.91725	0.93940	0.95770	0.97713
2024	0.92175	0.95863	0.98077	0.98874	0.99280	0.99499	0.99610	0.99762	0.99890
2025	0.92845	0.89396	0.93558	0.96265	0.97562	0.98309	0.98768	0.99274	0.99821
2026	0.94667	0.90668	0.88395	0.92047	0.94825	0.96390	0.97382	0.98282	0.99030
2027	0.95825	0.92951	0.90144	0.87888	0.91006	0.93692	0.95451	0.96880	0.98200
2028	0.97292	0.95062	0.93064	0.90173	0.87412	0.90263	0.92989	0.94997	0.97297
2029	0.92153	0.95827	0.98044	0.98868	0.99282	0.99491	0.99577	0.99761	0.99888
2030	0.92838	0.89375	0.93534	0.96250	0.97563	0.98305	0.98807	0.99273	0.99819
2031	0.94660	0.90697	0.88382	0.91968	0.94816	0.96377	0.97357	0.98298	0.99304
2032	0.95950	0.92959	0.90144	0.87846	0.90904	0.93691	0.95391	0.96899	0.98196
2033	0.97284	0.95051	0.93051	0.90126	0.87504	0.90203	0.92945	0.94969	0.97261
2034	0.92096	0.95768	0.98032	0.98856	0.99263	0.99457	0.99577	0.99856	1.00127
2035	0.92883	0.89441	0.93474	0.96181	0.97550	0.98293	0.98757	0.99258	0.99824
2036	0.94544	0.90637	0.88262	0.91885	0.94809	0.96343	0.97358	0.98182	0.98873
2037	0.95845	0.93032	0.90258	0.87691	0.90852	0.93544	0.95380	0.96881	0.98546
2038	0.97071	0.94905	0.92906	0.90203	0.87449	0.90164	0.92807	0.94877	0.97161
2039	0.92015	0.95597	0.97949	0.98825	0.99246	0.99468	0.99605	0.99840	0.99875

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
2040	0.92749	0.89415	0.93430	0.96164	0.97511	0.98219	0.98774	0.99116	0.99555
2041	0.94489	0.90748	0.88457	0.91934	0.94738	0.96308	0.97339	0.98166	0.99002
2042	0.95823	0.92863	0.90274	0.87655	0.90847	0.93478	0.95328	0.96837	0.98239
2043	0.97131	0.94817	0.92828	0.89892	0.87374	0.89923	0.92785	0.94857	0.97447
2044	0.90810	0.93714	0.97027	0.98230	0.98846	0.99177	0.99405	0.99617	0.99814
2045	0.92894	0.88945	0.92415	0.95581	0.97078	0.97979	0.98586	0.99009	0.99513
2046	0.94456	0.90553	0.88061	0.91272	0.94264	0.95969	0.97120	0.97992	0.98960
2047	0.95780	0.92789	0.90019	0.87583	0.90398	0.93235	0.95066	0.96527	0.98185
2048	0.97183	0.94828	0.92717	0.89744	0.87133	0.89785	0.92505	0.94905	0.97124
2049	0.90133	0.93665	0.96927	0.98213	0.98853	0.99215	0.99408	0.99645	0.99864
2050	0.93014	0.88626	0.92385	0.95572	0.97067	0.97972	0.98550	0.99021	0.99508
2051	0.94465	0.90589	0.87844	0.91247	0.94276	0.95958	0.97101	0.98013	0.98938
2052	0.95655	0.92808	0.90016	0.87389	0.90381	0.93227	0.95020	0.96519	0.98034
2053	0.97174	0.94845	0.92669	0.89881	0.87209	0.89914	0.92776	0.94861	0.97098
2054	0.90026	0.93524	0.96908	0.98143	0.98809	0.99180	0.99395	0.99642	0.99858
2055	0.92777	0.88596	0.92302	0.95482	0.97036	0.97949	0.98500	0.98993	0.99488
2056	0.94335	0.90507	0.87818	0.91180	0.94203	0.95923	0.97088	0.97975	0.98926
2057	0.95743	0.92736	0.89959	0.87362	0.90316	0.93180	0.95019	0.96494	0.98017
2058	0.97082	0.94742	0.92540	0.89625	0.86961	0.89761	0.92685	0.94637	0.96951
2059	0.90065	0.93285	0.96752	0.98037	0.98766	0.99169	0.99349	0.99572	0.99747
2060	0.92705	0.88512	0.92214	0.95383	0.96979	0.97915	0.98524	0.98931	0.99412
2061	0.94364	0.90368	0.87734	0.91100	0.94120	0.95871	0.97033	0.97933	0.98840
2062	0.95670	0.92631	0.89755	0.87259	0.90181	0.93121	0.94991	0.96437	0.97795
2063	0.97010	0.94659	0.92454	0.89559	0.86761	0.89410	0.92232	0.94507	0.96684
2064	0.94829	0.97696	0.98965	0.99414	0.99631	0.99743	0.99801	0.99878	0.99953
2065	0.95644	0.93688	0.96423	0.97970	0.98679	0.99085	0.99310	0.99649	1.00082
2066	0.96935	0.94575	0.93126	0.95401	0.97055	0.98037	0.98532	0.99023	0.99803
2067	0.97756	0.96142	0.94594	0.92855	0.94814	0.96432	0.97413	0.98396	0.99115
2068	0.98659	0.97370	0.96143	0.94679	0.93127	0.94429	0.96068	0.97248	0.98901
2069	0.94874	0.97637	0.98970	0.99398	0.99593	0.99718	0.99786	0.99978	0.99951
2070	0.95675	0.93604	0.96393	0.97906	0.98672	0.99069	0.99304	0.99653	0.99783
2071	0.96920	0.94578	0.93028	0.95256	0.97044	0.97978	0.98526	0.99002	0.99757
2072	0.97740	0.96126	0.94514	0.92956	0.94799	0.96417	0.97426	0.98334	0.99110
2073	0.98648	0.97329	0.96141	0.94632	0.92866	0.94394	0.96024	0.97231	0.98565
2074	0.95019	0.97603	0.98924	0.99384	0.99606	0.99729	0.99796	0.99965	1.00212
2075	0.95538	0.93652	0.96300	0.97893	0.98641	0.99054	0.99338	0.99579	0.99806
2076	0.96879	0.94542	0.93030	0.95334	0.97025	0.97919	0.98496	0.99009	0.99485
2077	0.97618	0.96018	0.94321	0.92782	0.94738	0.96394	0.97400	0.98170	0.99087
2078	0.98605	0.97277	0.96092	0.94519	0.92660	0.94303	0.96092	0.97185	0.98531
2079	0.94907	0.97598	0.98898	0.99361	0.99614	0.99717	0.99824	0.99882	0.99947

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
2080	0.95580	0.94035	0.92587	0.95427	0.97040	0.97935	0.98475	0.98837	0.99158
2081	0.96693	0.95505	0.94175	0.92422	0.94846	0.96339	0.97358	0.97953	0.98500
2082	0.97511	0.96611	0.95539	0.93972	0.91928	0.94008	0.95570	0.96624	0.97526
2083	0.93461	0.97805	0.98994	0.99438	0.99637	0.99759	0.99814	0.99861	0.99889
2084	0.94338	0.92724	0.96313	0.97883	0.98638	0.99046	0.99307	0.99471	0.99597
2085	0.95591	0.94031	0.92533	0.95398	0.97014	0.97904	0.98464	0.98827	0.99128
2086	0.96722	0.95535	0.94129	0.92433	0.94858	0.96359	0.97326	0.97979	0.98526
2087	0.97451	0.96538	0.95395	0.93799	0.91647	0.93792	0.95448	0.96519	0.97442
2088	0.93037	0.97376	0.98810	0.99322	0.99565	0.99699	0.99782	0.99836	0.99878
2089	0.94245	0.92462	0.96058	0.97748	0.98536	0.98982	0.99256	0.99439	0.99585
2090	0.95442	0.93837	0.92302	0.95226	0.96882	0.97826	0.98401	0.98785	0.99126
2091	0.96574	0.95382	0.93897	0.92246	0.94708	0.96263	0.97216	0.97899	0.98481
2092	0.97465	0.96564	0.95444	0.93830	0.91736	0.93929	0.95476	0.96520	0.97444
2093	0.92992	0.97366	0.98801	0.99319	0.99562	0.99697	0.99782	0.99835	0.99874
2094	0.94223	0.92454	0.96071	0.97744	0.98533	0.98979	0.99254	0.99440	0.99572
2095	0.95436	0.93816	0.92322	0.95215	0.96877	0.97814	0.98404	0.98781	0.99121
2096	0.96571	0.95380	0.93925	0.92190	0.94688	0.96203	0.97241	0.97882	0.98480
2097	0.97448	0.96515	0.95447	0.93882	0.91691	0.93879	0.95459	0.96521	0.97448
2098	0.92963	0.97338	0.98786	0.99309	0.99557	0.99694	0.99778	0.99834	0.99872
2099	0.94144	0.92442	0.96041	0.97731	0.98523	0.98973	0.99250	0.99436	0.99582
2100	0.95421	0.93812	0.92299	0.95194	0.96870	0.97804	0.98390	0.98776	0.99113
2101	0.96614	0.95364	0.93991	0.92271	0.94665	0.96228	0.97203	0.97877	0.98455
2102	0.97456	0.96459	0.95361	0.93774	0.91571	0.93772	0.95411	0.96460	0.97390
2103	0.92831	0.97301	0.98764	0.99296	0.99550	0.99688	0.99773	0.99830	0.99872
2104	0.94112	0.92453	0.95992	0.97704	0.98517	0.98966	0.99249	0.99430	0.99576
2105	0.95413	0.93745	0.92243	0.95140	0.96843	0.97787	0.98377	0.98765	0.99089
2106	0.96543	0.95336	0.93875	0.92242	0.94599	0.96199	0.97213	0.97868	0.98452
2107	0.97335	0.96380	0.95223	0.93579	0.91440	0.93647	0.95312	0.96353	0.97374
2108	0.96250	0.98843	0.99464	0.99695	0.99806	0.99879	0.99905	0.99926	0.99935
2109	0.96572	0.95508	0.97783	0.98706	0.99207	0.99435	0.99596	0.99694	0.99756
2110	0.97410	0.96465	0.95588	0.97354	0.98277	0.98810	0.99121	0.99336	0.99489
2111	0.98042	0.97358	0.96518	0.95327	0.96912	0.97866	0.98418	0.98784	0.99160
2112	0.98672	0.98207	0.97573	0.96744	0.95562	0.96750	0.97605	0.98173	0.98657
2113	0.96118	0.98805	0.99457	0.99693	0.99803	0.99865	0.99901	0.99925	0.99928
2114	0.96578	0.95545	0.97778	0.98776	0.99204	0.99438	0.99595	0.99688	0.99756
2115	0.97388	0.96405	0.95511	0.97323	0.98251	0.98795	0.99112	0.99327	0.99484
2116	0.98019	0.97329	0.96486	0.95383	0.96880	0.97827	0.98413	0.98794	0.99127
2117	0.98667	0.98142	0.97584	0.96670	0.95490	0.96708	0.97579	0.98165	0.98643
2118	0.96075	0.98816	0.99452	0.99705	0.99801	0.99863	0.99904	0.99924	0.99928
2119	0.96563	0.95518	0.97804	0.98768	0.99196	0.99450	0.99592	0.99687	0.99756

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
2120	0.97365	0.96386	0.95473	0.97297	0.98261	0.98783	0.99103	0.99322	0.99480
2121	0.98020	0.97303	0.96200	0.95351	0.96794	0.97821	0.98398	0.98776	0.99113
2122	0.98634	0.98097	0.97560	0.96615	0.95396	0.96631	0.97539	0.98095	0.98618
2123	0.96007	0.98799	0.99444	0.99700	0.99806	0.99861	0.99917	0.99920	0.99925
2124	0.96508	0.95494	0.97781	0.98738	0.99186	0.99436	0.99609	0.99686	0.99746
2125	0.97326	0.96337	0.95425	0.97260	0.98220	0.98763	0.99102	0.99309	0.99472
2126	0.97997	0.97257	0.96398	0.95335	0.96844	0.97813	0.98392	0.98789	0.99096
2127	0.98586	0.98064	0.97496	0.96525	0.95265	0.96548	0.97473	0.98045	0.98562
2128	0.94023	0.98075	0.99114	0.99499	0.99684	0.99786	0.99852	0.99875	0.99903
2129	0.94679	0.93289	0.96622	0.98063	0.98747	0.99127	0.99374	0.99515	0.99635
2130	0.95858	0.94395	0.92973	0.95695	0.97217	0.98017	0.98565	0.98923	0.99191
2131	0.96898	0.95801	0.94415	0.92924	0.95224	0.96581	0.97481	0.98103	0.98614
2132	0.97754	0.96973	0.95987	0.94561	0.92685	0.94603	0.95980	0.96956	0.97803
2133	0.94013	0.98070	0.99108	0.99498	0.99683	0.99781	0.99851	0.99877	0.99901
2134	0.94670	0.93302	0.96616	0.98058	0.98745	0.99125	0.99372	0.99513	0.99635
2135	0.95852	0.94386	0.93013	0.95701	0.97214	0.98047	0.98574	0.98910	0.99189
2136	0.96903	0.95786	0.94494	0.92919	0.95105	0.96583	0.97478	0.98099	0.98612
2137	0.97741	0.96949	0.95963	0.94550	0.92649	0.94572	0.95956	0.96964	0.97789
2138	0.93974	0.98052	0.99109	0.99498	0.99676	0.99785	0.99849	0.99876	0.99902
2139	0.94626	0.93189	0.96550	0.98023	0.98726	0.99118	0.99361	0.99507	0.99627
2140	0.95815	0.94353	0.92966	0.95703	0.97211	0.98043	0.98565	0.98909	0.99184
2141	0.96892	0.95783	0.94455	0.92843	0.95094	0.96540	0.97441	0.98097	0.98595
2142	0.97709	0.96878	0.95873	0.94473	0.92487	0.94463	0.95926	0.96877	0.97703
2143	0.93917	0.98029	0.99096	0.99491	0.99674	0.99782	0.99845	0.99874	0.99900
2144	0.94583	0.93157	0.96558	0.98016	0.98722	0.99107	0.99357	0.99508	0.99627
2145	0.95818	0.94332	0.92912	0.95670	0.97172	0.98028	0.98565	0.98894	0.99177
2146	0.96861	0.95757	0.94390	0.92791	0.95089	0.96543	0.97477	0.98064	0.98596
2147	0.97660	0.96808	0.95822	0.94353	0.92319	0.94358	0.95846	0.96804	0.97680
2148	0.92800	0.97606	0.98910	0.99386	0.99606	0.99729	0.99807	0.99862	0.99883
2149	0.93767	0.92035	0.95971	0.97687	0.98499	0.98951	0.99240	0.99423	0.99558
2150	0.95125	0.93402	0.91694	0.94943	0.96678	0.97688	0.98302	0.98706	0.99044
2151	0.96322	0.95050	0.93441	0.91610	0.94283	0.95944	0.97061	0.97720	0.98390
2152	0.97329	0.96323	0.95163	0.93483	0.91235	0.93468	0.95200	0.96321	0.97281
2153	0.92790	0.97641	0.98904	0.99385	0.99605	0.99729	0.99806	0.99850	0.99882
2154	0.93766	0.92043	0.95960	0.97675	0.98498	0.98950	0.99237	0.99421	0.99558
2155	0.95119	0.93394	0.91673	0.94885	0.96675	0.97685	0.98299	0.98716	0.99046
2156	0.96307	0.95084	0.93428	0.91604	0.94256	0.95912	0.97058	0.97719	0.98319
2157	0.97293	0.96298	0.95135	0.93446	0.91188	0.93432	0.95173	0.96279	0.97296
2158	0.92799	0.97602	0.98912	0.99381	0.99605	0.99727	0.99801	0.99847	0.99880
2159	0.93715	0.92054	0.95920	0.97663	0.98488	0.98958	0.99242	0.99416	0.99553

ID	k1 (%)	k2 (%)	k3 (%)	k4 (%)	k5 (%)	k6 (%)	k7 (%)	k8 (%)	k9 (%)
2160	0.95075	0.93370	0.91775	0.94911	0.96697	0.97693	0.98296	0.98701	0.99058
2161	0.96310	0.94995	0.93522	0.91598	0.94266	0.95921	0.97047	0.97714	0.98322
2162	0.97231	0.96240	0.95054	0.93335	0.91093	0.93372	0.95089	0.96250	0.97246
2163	0.92752	0.97564	0.98882	0.99374	0.99596	0.99730	0.99793	0.99845	0.99878
2164	0.93691	0.91929	0.95897	0.97639	0.98479	0.98935	0.99225	0.99409	0.99551
2165	0.95084	0.93363	0.91719	0.94878	0.96669	0.97659	0.98284	0.98690	0.99027
2166	0.96340	0.95028	0.93473	0.91605	0.94275	0.95941	0.97013	0.97741	0.98349
2167	0.97168	0.96158	0.94898	0.93141	0.90789	0.93133	0.94952	0.96135	0.97157
2168	0.92210	0.97101	0.98681	0.99248	0.99517	0.99666	0.99758	0.99817	0.99864
2169	0.93528	0.91560	0.95592	0.97475	0.98357	0.98856	0.99164	0.99369	0.99534
2170	0.94878	0.93095	0.91379	0.94650	0.96499	0.97553	0.98200	0.98633	0.99014
2171	0.96147	0.94817	0.93167	0.91317	0.94060	0.95800	0.96868	0.97633	0.98285
2172	0.97155	0.96151	0.94905	0.93117	0.90787	0.93221	0.94940	0.96104	0.97133
2173	0.92166	0.97091	0.98672	0.99245	0.99515	0.99664	0.99758	0.99816	0.99860
2174	0.93510	0.91552	0.95605	0.97471	0.98355	0.98854	0.99162	0.99370	0.99521
2175	0.94872	0.93075	0.91401	0.94639	0.96495	0.97542	0.98203	0.98628	0.99009
2176	0.96145	0.94815	0.93195	0.91260	0.94043	0.95737	0.96895	0.97616	0.98284
2177	0.97136	0.96099	0.94909	0.93171	0.90738	0.93168	0.94920	0.96104	0.97136
2178	0.92137	0.97062	0.98657	0.99235	0.99509	0.99661	0.99753	0.99815	0.99858
2179	0.93430	0.91541	0.95575	0.97458	0.98344	0.98848	0.99158	0.99367	0.99531
2180	0.94859	0.93069	0.91380	0.94618	0.96486	0.97533	0.98190	0.98623	0.99002
2181	0.96190	0.94800	0.93265	0.91345	0.94020	0.95764	0.96856	0.97611	0.98259
2182	0.97143	0.96036	0.94812	0.93054	0.90608	0.93052	0.94866	0.96038	0.97073
2183	0.92007	0.97024	0.98635	0.99222	0.99502	0.99655	0.99749	0.99811	0.99858
2184	0.93398	0.91552	0.95527	0.97431	0.98339	0.98841	0.99157	0.99360	0.99525
2185	0.94849	0.93006	0.91324	0.94566	0.96460	0.97516	0.98177	0.98612	0.98977
2186	0.96117	0.94773	0.93148	0.91316	0.93954	0.95734	0.96867	0.97602	0.98255
2187	0.97012	0.95949	0.94663	0.92842	0.90459	0.92914	0.94757	0.95920	0.97053