GDT 67

A. Scope

For a complete list of GDTs, see the Table of Contents.

Use this test method to determine the relation between moisture content and density of soils using the Families of Moisture-Density Curves and the One-Point Proctor Test. See Table set 1 for the Family A Curve, Table set 2 for the Family B Curve, and Table set 3 for the Family C Curve.

This method establishes the "theoretical" maximum dry density for soils having less than 45 percent retained on the No. 10 (2.00 mm) sieve. You may use this method in lieu of GDT 7 and GDT 24a for classification purposes and field compaction control of embankment, subgrade, and soil bases.

B. Apparatus

The apparatus is the same as outlined in GDT 7 with the following addition:

1. Mold Support: Use a concrete block at least 4 in (102 mm) thick, with a bottom surface area not less than 100 in^2 (64,520 mm^2) and weighing not less than 35 lbs (15.9 kg). Place the block on the roadway to support the mold during compacting.

   The upper surface of the block is formed to fit a specific mold base plate, so carefully clean the base and place it on the block the same way each time. Do not rest the block on soil that is considerably above optimum or pumping. Exercise caution to prevent any motion of the mold, or any part of it, during the compaction.

2. Curves: The Office of Materials and Research has established three Families of Moisture and Density Curves, lettered A, B, and C, for use with materials found within the State. The families are:
   - Family A materials are predominately sandy materials.
   - Family B materials are sand and clayey sand.
   - Family C materials are sand-clay, sandy-silty clay, silty clay, micaceous clay, shale, saprolite, and cherty clay.

C. Sample Size and Preparation

1. One-Point Proctor
   a. Take the sample from the roadway and break up any clumps.
   b. Thoroughly mix the sample with the appropriate quantity of water to bring it near optimum. 1) If the material is above optimum, dry 2,000 or 3,000 g.
      2) Let the sample cool.
      3) Thoroughly mix back enough water to bring it near optimum moisture (follow the precautions in step 2).
   c. Compact the prepared material in three layers into the 1/30 ft^3 (0.0009 m^3) density mold. (Reference ASTM D-698 Mold Volume Calibration)
      1) Compact each layer with 25 blows from the 5.5 pound (2.5 kg) rammer dropped from 12 in (300 mm) above the soil.
2. Precautions
   a. **Material Too Wet**
      1) Occasionally the "wet density" versus "moisture" plot will fall above the top of the slope lines. This indicates that the material is excessively wet and must be dried to fit the curve. 2) Dry the entire samples to a constant weight.
      2) Let the samples cool.
      3) Mix the material to a uniform moisture content (without visible clay lumps) and re-compact it to

determine a new wet density and moisture content.

4) Do not add the dry soil used to determine the moisture content to the entire sample.

Material Too Dry

1) If the material is too dry, the plot of "wet density" versus "moisture" will fall below the slope lines of the curve. When this occurs, do not extend the slope lines to the plotted point.
2) Mix the soil with appropriate amount of water to a uniform condition and recompact it.
3) Determine the new wet density and moisture content.

Nuclear Gauge Moisture

1) If you change the soil moisture content for the One-Point Proctor before compacting the sample into the mold, you must dry a sample for the One-Point Proctor.
2) If the in-place moisture percent is within +1 percent or -3 percent of optimum moisture, you may use the nuclear gauge moisture in the in-place density or one-point determination.
3) If the in-place moisture percent is outside +1 percent or -3 percent of optimum moisture, do not use the nuclear gauge moisture unless you correct the gauge.

D. Procedures

1. Family Section

   Determine the type of material tested by visual inspection or gradation analysis, if available, and select the appropriate family of curves.

2. One-Point Proctor

   a. Determine the wet density of the One-Point Proctor in pounds per cubic foot from the proper family density chart or as follows:

Wet Weight of Compacted Soil (lbs/ft^3) = $\frac{(Ws-Wc)/453.6}{V}$ or $\frac{(Ws-Wc) * \text{Mold Factor}}{453.6}$ or (Ws-Wc) * C.F.C

V = Volume of the Mold as calibrated Using (Ref. ASTM D-698, CVP 7)

Mold Factor = Calculated 1/volume lbs/ft^3 (Ref. CVP 7)

C.F.C = Correction Factor Conversion (GDOT Correction Factor) = Mold Factor/453.6 (Ref. CVP 7)

Ws = weight of the compacted soil and mold, in grams

Wc = weight of the mold, in grams

If you weighed in grams, dividing by 453.6 converts grams to pounds. This will give you the wet weight in pounds per cubic foot.

   b. Determine the moisture content in the mold.

      1) Take a 1.1 lb (500 g) sample of the wet material equally from all three layers of the compacted soil.

Note: If you took the moisture sample from the material before compacting it in the mold, determine the wet weight and compact the sample quickly, before the material dries further.

      2) Dry to a constant weight and calculate the percent moisture as follows:

$$\% \text{ Moisture} = \frac{A - B}{B} \times 100$$

where:

A = Weight of wet soil

B = Weight of dry soil

      3) Use the moisture percent determined by a surface moisture and density gauge on the in-place material in-place for the One Point Proctor moisture content if you did not adjust the moisture of the sample (follow the precautions in Sample Size and Preparation, step 2).

3. Plot the Maximum Dry Density and Optimum Moisture
   a. Plot "wet density" versus "moisture" as determined from the One-Point Proctor on the appropriate family of curves. The plot should fall on or between the slope lines to be a valid test.
   b. Follow a line from the plotted points, parallel to the existing slope lines, to the line of optimums.
   c. The percent moisture directly under this point of intersection is considered the optimum moisture.
   d. From the line of optimums, follow parallel with the straight diagonal lines to the "zero air voids" curve. This curve shows the dry density in pounds per cubic foot (kilograms per cubic meter). The point of intersection is considered the maximum dry density of the material.

Correction for Plus No. 10 (2.00 mm) Material

a. When determining maximum densities for compaction control, correct the densities when it appears to exceed 15% of Plus No. 10 (2.00 mm) material retained.

b. Use the conversion factors for correcting the density in Tables 1D - 7D, found in GDT-7

c. Use the conversion factors for correcting the moisture of Minus No. 10 (2.00 mm) for the Plus No. 10 (2.00 mm) 1n Tables 1M - 10M, found in GDT-7.

E. Calculations (CVP 7 http://www.dot.ga.gov/PS/Materials)

1. Calculate wet density:

$$\text{Wet Density} = \frac{(W2 - W1)/453.6}{V} \quad \text{or} \quad \frac{(W2 - W1) * \text{Mold Factor}}{453.6} \quad \text{or} \quad (W2 - W1) * \text{C.F.C.}$$

where:

V = Volume of the Mold as calibrated Using (Ref. ASTM D-698, CVP 7)

Mold Factor = Calculated 1/volume lbs/ft^3 (Ref. CVP 7)

C.F.C = Correction Factor Conversion (GDOT Correction Factor) = Mold Factor/453.6 (Ref. CVP 7)

W1 = Weight of mold in grams

W2 = Weight of mold + wet soil in grams

2. Calculate percent moisture:

$$\% \text{ Moisture} = \frac{A - B}{B} \times 100$$

where:

A = Weight of wet soil

B = Weight of dry soil

3. Calculate the density (dry weight), in pounds per cubic foot (kilograms per cubic meter), of the compacted soil as follows:

$$\text{English—Dry Density } (lb/ft^{3)} = \frac{Ww}{M + 100} \times 100$$

4. Ensure accuracy of the numbers.
   a. The values for Maximum Dry Density and Optimum Moisture as determined from any "Family of

Curves" should be within 3 lb/ft³ (48 kg/m³) dry density and 2 percent moisture of that obtained by GDT 7. For laboratory testing, out of every 10 soil samples tested by GDT 67, take 1 sample and run GDT 7 and GDT 67 to verify that these results are within the allowable tolerances stated above. If these results are not within the acceptable range, GDT 7 must be run for density and optimum moisture until results return to acceptable range.

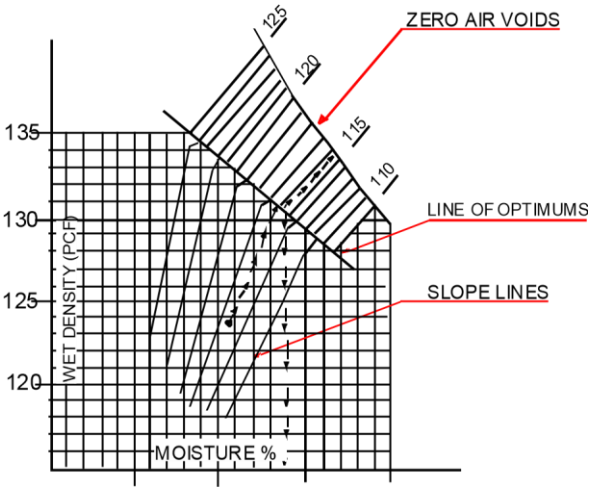
If you question the compaction at any specific area, take samples and use GDT 7 to perform a theoretical density test.

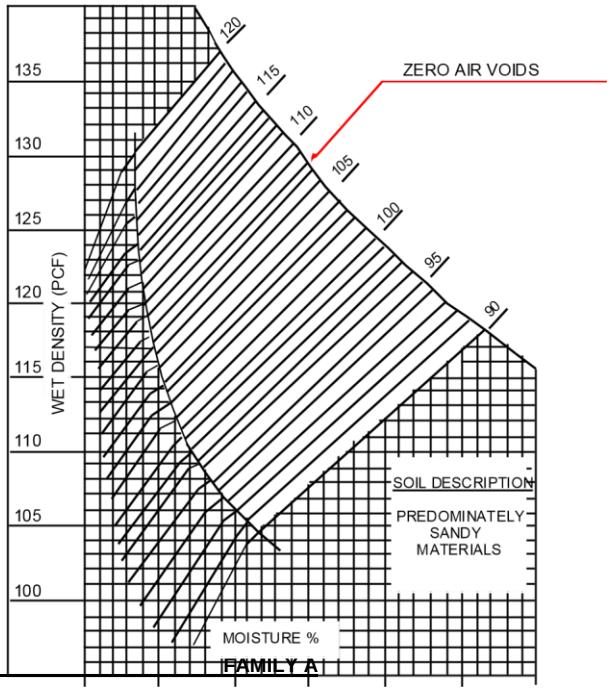
5. Check operator precision.
   a. For repeat testing of a specific material to be valid and within a 95 percent confidence level, the operator must be within the following limits using any Family of Curves for maximum dry density and optimum moisture:

	Single Operator	**Multiple Operators**
Maximum Dry Density- PCF (kg/m^3)	2.0	3.0
Optimum Moisture (%)	1.0	2.0

F. Report

Report the wet density and the percentage moisture for the material on Form 386.





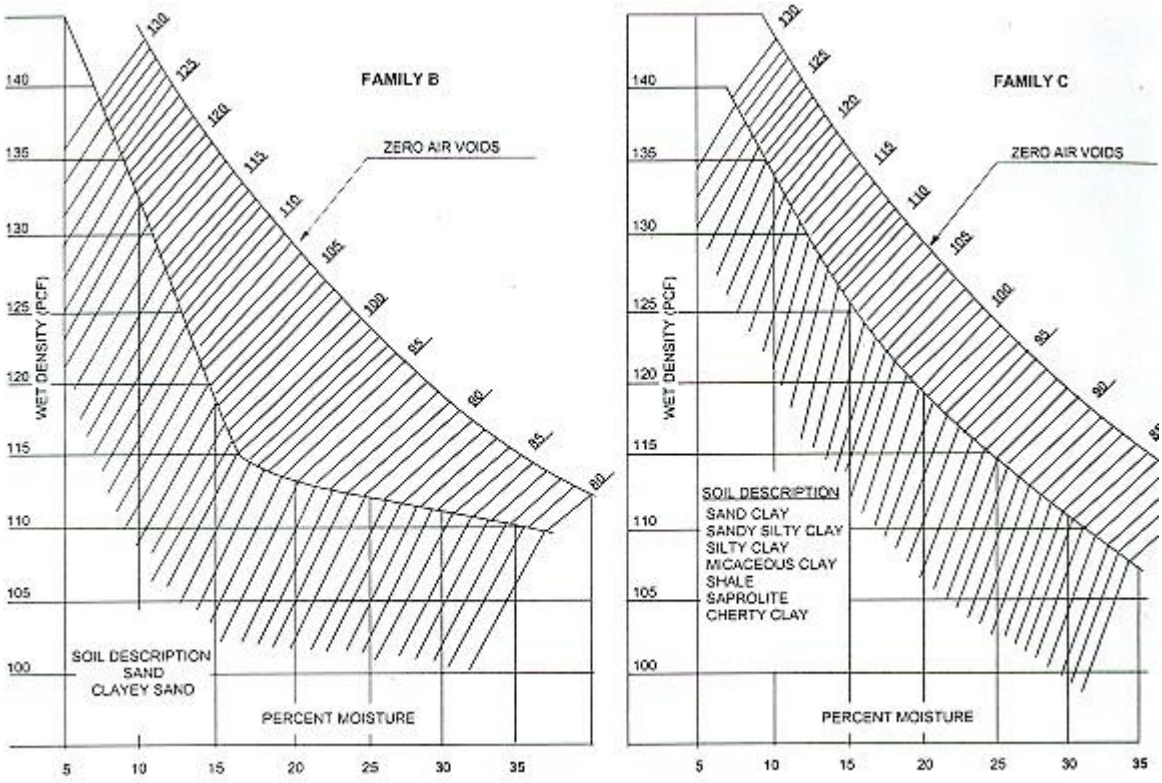
ONE POINT PROCTOR	FAMILY OF CURVES
	Optimum Moisture = 13-7% **CURVE**

5 10 15 20

EXAMPLE

Wet Density = 124 PCF Maximum Dry Density = 115-5 PCF

5 10 15 20 25 30 35


FAMILY B
ZERO AIR VOIDS
WET DENSITY (PCF)
PERCENT MOISTURE
SOIL DESCRIPTION
SAND
CLAYEY SAND
FAMILY C
ZERO AIR VOIDS
WET DENSITY (PCF)
PERCENT MOISTURE
SOIL DESCRIPTION
SAND CLAY
SANDY SILTY CLAY
SILTY CLAY
MICACEOUS CLAY
SHALE
SAPROLITE
CHERTY CLAY

GDT 67 Table Set 1—Family of Curves, Theoretical Density-Moisture Chart

Table 1 A Curve; Table A Overview

Wet Density (pcf)	% Moisture	
	5.0-10.0	10.5-15.5
98.5 to 107.0	A-1	A-2
107.5 to 116.0	A-3	A-4
116.5 to 125.0	A-5	A-6
125.5 to 131.0	A-7	X

Table 2 A Curve; Table A-1

	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
98.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	92.3 14.9	91.8 15.3
99.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	92.4 14.8	92.1 15.0
99.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	92.7 14.6	92.3 14.9
100.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	93.2 14.3	92.6 14.6
100.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	94.0 14.0	93.5 14.2	93.0 14.5
101.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	94.3 13.8	94.0 14.0	93.2 14.3
101.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	94.6 13.7	94.2 13.9	93.4 14.2
102.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	94.7 13.6	94.5 13.7	94.0 14.0
102.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	95.5 13.3	95.1 13.4	94.8 13.6	94.3 13.8
103.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	96.0 13.1	95.5 13.3	95.0 13.5	94.6 13.7
103.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	96.4 12.8	95.8 13.1	95.3 13.3	94.9 13.5
104.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	97.2 12.5	96.8 12.7	96.2 12.9	95.8 13.1	95.1 13.4
104.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	98.2 12.2	97.5 12.4	97.1 12.5	96.5 12.8	96.1 13.0	95.5 13.3
105.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	98.6 12.0	98.1 12.2	97.7 12.4	97.0 12.7	96.5 12.8	96.0 13.0
105.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	99.0 11.9	98.6 12.0	98.0 12.3	97.4 12.4	96.8 12.7	96.3 12.9
106.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	100.1 11.5	99.6 11.6	99.0 11.9	98.4 12.1	97.9 12.3	97.3 12.5	96.6 12.8
106.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	100.2 11.4	99.9 11.5	99.3 11.7	98.8 12.0	98.2 12.2	97.8 12.3	97.1 12.5
107.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	101.0 11.2	100.6 11.3	99.8 11.5	99.3 11.7	98.7 12.0	98.1 12.2	97.7 12.4

Table 3 A Curve; Table A-2

	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5
98.5	91.4 15.4	91.2 15.5	90.6 15.7	90.5 16.1	90.4 16.2	90.2 16.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
99.0	91.8 15.2	91.3 15.4	91.1 15.6	90.7 16.0	90.5 16.1	90.2 16.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
99.5	92.0 15.1	91.6 15.3	91.4 15.4	91.0 15.7	90.7 16.0	90.3 16.3	90.1 16.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
100.0	92.2 14.9	91.9 15.2	91.6 15.3	91.2 15.5	90.8 15.8	90.6 16.1	90.3 16.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
100.5	92.6 14.6	92.1 15.0	91.8 15.2	91.5 15.4	91.0 15.6	90.7 16.0	90.5 16.1	90.1 16.5	0.0 0.0	0.0 0.0	0.0 0.0
101.0	92.8 14.5	92.3 14.9	92.0 15.1	91.6 15.3	91.1 15.6	90.8 15.8	90.6 16.1	90.3 16.3	0.0 0.0	0.0 0.0	0.0 0.0
101.5	93.2 14.3	92.6 14.6	92.3 14.9	91.8 15.2	91.5 15.4	91.0 15.6	90.7 16.0	90.5 16.1	90.1 16.5	0.0 0.0	0.0 0.0
102.0	93.6 14.2	93.0 14.5	92.6 14.6	92.2 14.9	91.8 15.2	91.3 15.4	90.9 15.7	90.6 16.1	90.3 16.3	90.0 16.6	0.0
102.5	94.0 14.0	93.3 14.3	92.9 14.5	92.3 14.9	92.0 15.1	91.6 15.3	91.1 15.6	90.7 16.0	90.5 16.1	90.2 16.4	0.0 0.0
103.0	94.3 13.8	93.8 14.1	93.3 14.3	92.6 14.6	92.3 14.9	91.8 15.2	91.5 15.4	91.0 15.6	90.7 16.0	90.4 16.2	90.0 16.6
103.5	94.6 13.2	94.2 13.9	93.6 14.3	93.0 14.5	92.6 14.6	92.0 15.1	91.7 15.3	91.3 15.4	90.9 15.7	90.5 16.1	90.2 16.4
104.0	94.9 13.5	94.4 13.8	94.0 14.0	93.4 14.2	93.0 14.5	92.4 14.8	92.0 15.1	91.6 15.3	91.2 15.6	90.7 16.0	90.1 16.5
104.5	95.1 13.4	94.7 13.6	94.3 13.8	93.8 14.1	93.1 14.4	92.7 14.6	92.3 14.9	91.8 15.2	91.5 15.4	91.0 15.6	90.7 16.0
105.0	95.5 13.3	95.0 13.5	94.7 13.6	94.2 13.9	93.7 14.2	93.1 14.4	92.7 14.6	92.1 15.1	91.7 15.3	91.4 15.4	90.8 15.8
105.5	95.8 13.1	95.3 13.3	95.0 13.5	94.5 13.7	94.0 14.0	93.3 14.3	92.9 14.5	92.5 14.8	92.1 15.0	91.5 15.4	91.1 15.6
106.0	96.3 12.9	95.8 13.1	95.3 13.3	94.8 13.6	94.4 13.8	94.0 14.0	93.3 14.3	92.9 14.5	92.4 14.8	92.0 15.1	91.6 15.3
106.5	96.7 12.8	96.1 13.0	95.7 13.2	95.0 13.5	94.7 13.6	94.3 13.8	93.8 14.1	93.2 14.3	92.8 14.5	92.3 14.9	91.9 15.2
107.0	97.0 12.7	96.4 12.8	96.1 13.0	95.5 13.3	95.1 13.4	94.7 13.6	94.1 14.0	93.7 14.2	93.1 14.4	92.6 14.6	92.3 14.9

Table 4 A Curve; Table A-3

	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
107.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	101.4 11.0	101.0 11.2	100.1 11.4	99.7 11.6	99.1 11.8	98.6 12.0	97.9 12.3
108.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	101.7 10.9	101.3 11.1	100.8 11.3	100.0 11.5	99.4 11.7	99.1 11.8	98.4 12.1
108.5	0.0 0.0	0.0 0.0	0.0 0.0	102.9 10.7	102.2 10.8	101.7 10.9	101.1 11.2	100.7 11.3	99.9 11.5	99.3 11.7	98.9 11.9
109.0	0.0 0.0	0.0 0.0	0.0 0.0	103.2 10.6	102.7 10.7	102.3 10.8	101.6 11.0	101.1 11.2	100.5 11.3	99.9 11.5	99.4 11.6
109.5	0.0 0.0	0.0 0.0	0.0 0.0	103.7 10.6	103.1 10.6	102.6 10.7	102.0 10.9	101.4 11.0	100.9 11.2	100.4 11.4	99.6 11.6
110.0	0.0 0.0	0.0 0.0	104.4 10.2	104.0 10.3	103.5 10.4	103.1 10.6	102.4 10.7	102.0 10.9	101.3 11.1	100.9 11.3	100.0 11.5
110.5	0.0 0.0	0.0 0.0	104.9 10.1	104.2 10.2	103.7 10.4	103.4 10.5	102.7 10.7	102.3 10.8	101.7 10.9	101.1 11.2	100.6 11.3
111.0	0.0 0.0	0.0 0.0	105.3 10.0	104.9 10.1	104.1 10.3	103.7 10.4	103.1 10.6	102.7 10.7	102.3 10.8	101.6 11.0	101.0 11.2
111.5	0.0 0.0	0.0 0.0	105.6 9.9	105.2 10.0	104.6 10.2	104.1 10.3	103.6 10.4	103.0 10.6	102.5 10.7	102.1 10.8	101.4 11.1
112.0	0.0 0.0	0.0 0.0	106.4 9.7	105.6 9.9	105.0 10.1	104.5 10.2	103.9 10.3	103.5 10.4	103.0 10.6	102.4 10.7	102.0 10.9
112.5	0.0 0.0	0.0 0.0	106.7 9.7	106.2 9.8	105.3 10.0	105.0 10.1	104.2 10.2	103.8 10.3	103.4 10.4	102.8 10.6	102.3 10.8
113.0	0.0 0.0	0.0 0.0	107.2 9.6	106.7 9.7	105.7 9.9	105.4 10.0	104.9 10.1	104.2 10.2	103.7 10.3	103.3 10.5	102.7 10.7
113.5	0.0 0.0	0.0 0.0	107.4 9.6	107.0 9.7	106.3 9.8	105.6 9.9	105.1 10.1	104.7 10.1	104.0 10.3	103.7 10.3	103.2 10.6
114.0	0.0 0.0	0.0 0.0	107.9 9.5	107.5 9.6	106.9 9.7	106.4 9.7	105.6 9.9	105.2 10.0	104.7 10.1	104.0 10.3	103.6 10.4
114.5	0.0 0.0	0.0 0.0	108.2 9.5	107.8 9.5	107.2 9.6	106.8 9.7	106.0 9.8	105.5 10.0	105.0 10.1	104.4 10.2	104.0 10.3
115.0	0.0 0.0	109.4 9.4	109.0 9.4	108.2 9.5	107.7 9.5	107.2 9.6	106.7 9.7	106.2 9.8	105.5 10.0	105.0 10.1	104.6 10.2
115.5	0.0 0.0	109.7 9.3	109.4 9.4	108.9 9.4	108.0 9.5	107.6 9.5	107.0 9.7	106.5 9.7	105.8 9.9	105.4 10.0	105.0 10.1
16.0	0.0 0.0	110.1 9.3	109.6 9.3	109.1 9.4	108.4 9.4	107.9 9.5	107.5 9.6	107.0 9.7	106.4 9.7	105.8 9.9	105.4 10.0

Table 5 A Curve; Table A-4

	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5
107.5	97.6 12.4	96.9 12.7	96.4 12.8	95.8 13.1	95.4 13.3	94.9 13.5	94.6 13.7	94.0 14.0	93.6 14.2	93.1 14.4	92.7 14.6
108.0	98.0 12.3	97.3 12.5	96.8 12.7	96.4 12.8	95.9 13.1	95.3 13.3	94.9 13.5	94.5 14.3	94.0 14.0	93.5 14.2	93.1 14.4
108.5	98.4 12.1	97.8 12.3	97.3 12.5	96.8 12.7	96.3 12.9	95.8 13.1	95.3 13.3	94.6 13.7	94.3 13.8	94.0 14.0	93.8 14.1
109.0	99.0 11.9	98.2 12.2	97.7 12.4	97.2 12.5	96.7 12.8	96.1 13.0	95.7 13.2	95.3 13.3	95.0 13.5	94.5 14.3	94.0 14.0
109.5	99.3 11.7	98.7 12.0	98.1 12.2	97.7 12.4	97.1 12.5	96.6 12.7	96.2 12.9	95.7 13.2	95.3 13.3	95.0 13.5	0.0 0.0
110.0	99.6 11.6	99.1 11.8	98.6 12.0	98.0 12.3	97.6 12.4	97.1 12.5	96.6 12.7	96.2 12.9	95.9 13.1	95.5 13.3	0.0 0.0
110.5	100.0 11.5	99.4 11.7	99.1 11.8	98.5 12.0	98.1 12.2	97.6 12.4	97.2 12.5	96.7 12.8	96.3 12.9	0.0 0.0	0.0 0.0
111.0	100.6 11.3	99.9 11.5	99.5 11.7	99.0 11.9	98.7 12.0	98.1 12.2	97.6 12.4	97.3 12.5	96.9 12.7	0.0 0.0	0.0 0.0
111.5	101.0 11.2	100.4 11.4	99.8 11.5	99.5 11.7	99.0 11.9	98.5 12.0	98.3 12.2	97.8 12.3	0.0 0.0	0.0 0.0	0.0 0.0
112.0	101.4 11.0	100.9 11.2	100.3 11.4	99.8 11.5	99.5 11.7	99.1 11.8	98.8 12.0	98.3 12.1	0.0 0.0	0.0 0.0	0.0 0.0
112.5	101.8 10.9	101.3 11.1	100.8 11.2	100.3 11.4	99.9 11.5	99.6 11.6	99.2 11.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
113.0	102.3 10.8	101.8 10.9	101.3 11.1	100.8 11.3	100.4 11.4	99.4 11.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
113.5	102.7 10.7	102.2 10.8	101.7 10.9	101.3 11.1	100.9 11.2	100.5 11.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
114.0	103.1 10.6	102.6 10.7	102.2 10.8	101.8 10.9	101.4 11.0	101.2 11.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
114.5	103.6 10.5	103.1 10.6	102.7 10.7	102.2 10.8	101.9 10.9	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
115.0	104.0 10.4	103.6 10.5	103.3 10.5	102.8 10.7	102.5 10.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
115.5	104.6 10.2	104.0 10.4	103.7 10.4	103.4 10.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
116.0	105.0 10.1	104.5 10.2	104.1 10.3	103.8 10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6 A Curve; Table A-5

	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
116.5	0.0 0.0	110.7 9.2	110.1 9.3	109.4 9.3	108.9 9.4	108.2 9.5	107.7 9.5	107.5 9.6	106.9 9.7	106.3 9.8	105.8 9.9
117.0	0.0 0.0	111.1 9.1	110.5 9.2	110.0 9.3	109.4 9.3	108.9 9.4	108.3 9.4	107.8 9.5	107.3 9.6	106.9 9.7	106.3 9.8
117.5	0.0 0.0	111.3 9.1	110.8 9.2	110.4 9.3	109.6 9.3	109.2 9.4	108.7 9.4	108.1 9.5	107.5 9.6	107.2 9.6	106.8 9.7
118.0	112.8 9.0	112.2 9.0	111.8 9.1	110.8 9.2	110.3 9.3	109.6 9.3	109.1 9.4	108.8 9.4	108.0 9.5	107.6 9.5	107.2 9.6
118.5	113.1 9.0	112.7 9.0	112.0 9.1	111.1 9.2	110.4 9.3	110.1 9.3	109.4 9.3	109.0 9.4	108.5 9.4	108.0 9.5	107.6 9.5
119.0	113.8 9.0	113.3 9.0	112.5 9.1	112.0 9.1	111.1 9.2	110.5 9.2	110.1 9.3	109.5 9.3	109.0 9.4	108.6 9.4	108.0 9.5
119.5	114.3 8.9	113.7 9.0	113.3 9.0	112.4 9.1	111.9 9.1	110.9 9.2	110.4 9.3	110.1 9.3	109.5 9.3	109.1 9.4	108.6 9.4
120.0	115.2 8.8	114.8 8.9	113.6 9.0	113.0 9.0	112.3 9.1	111.9 9.1	111.0 9.2	110.4 9.3	110.1 9.3	109.6 9.3	109.2 9.4
120.5	115.6 8.8	115.0 8.9	114.1 8.9	113.4 9.0	112.8 9.0	112.2 9.1	111.8 9.1	110.9 9.2	110.5 9.3	110.0 9.3	109.6 9.3
121.0	117.1 8.7	116.6 8.7	114.9 8.8	114.0 8.9	113.3 9.0	112.7 9.0	112.1 9.4	111.6 9.1	111.0 9.2	110.4 9.3	110.0 9.3
121.5	117.4 8.7	117.0 8.7	115.1 8.8	114.7 8.9	113.8 9.0	113.4 9.0	112.5 9.1	112.0 9.1	111.4 9.1	110.9 9.2	110.5 9.3
122.0	118.7 8.7	117.2 8.7	116.6 8.7	115.0 8.9	114.6 8.9	113.9 8.9	113.3 9.0	112.6 9.0	112.0 9.1	111.5 9.1	111.0 9.2
122.5	119.0 8.7	118.3 8.7	117.8 8.7	115.5 8.8	114.9 8.8	114.1 8.9	113.5 9.0	113.1 9.0	112.6 9.0	112.0 9.1	111.8 9.1
123.0	119.2 8.6	118.8 8.7	117.3 8.7	116.7 8.7	115.4 8.8	114.8 8.9	114.2 8.9	113.8 9.0	113.0 9.0	112.8 9.0	112.4 9.1
123.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	113.5 9.0	113.1 9.0	112.9 9.0
124.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	114.1 8.9	113.5 9.0	113.1 9.0
124.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	114.4 8.9	114.1 8.9	113.8 9.0
125.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	114.9 8.8	114.6 8.9	114.2 8.9

Table 7 A Curve; Table A-6

	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5
116.5	105.5 10.0	105.0 10.1	104.7 10.2	104.3 10.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
117.0	105.8 9.9	105.6 9.9	105.3 10.0	104.9 10.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
117.5	106.3 9.8	106.0 9.8	105.7 9.9	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
118.0	109.6 9.7	106.5 9.7	106.2 9.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
118.5	107.3 9.6	107.1 9.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
119.0	107.7 9.5	107.4 9.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
119.5	108.3 9.4	107.8 9.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
120.0	109.0 9.4	108.5 9.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
120.5	109.3 9.4	109.0 9.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
121.0	109.8 9.3	109.6 9.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
121.5	110.2 9.3	110.0 9.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
122.0	110.9 9.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
122.5	111.7 9.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
123.0	112.4 9.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
123.5	112.9 9.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
124.0	113.1 9.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
124.5	113.8 9.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
125.0	114.2 8.9	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 8 A Curve; Table A-7

	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
125.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	115.3 8.8	115.0 8.8	114.8 8.8
126.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	115.8 8.8	115.5 8.8	115.3 8.8
126.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	116.3 8.8	115.7 8.8	115.7 8.8
127.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	116.7 8.7	116.4 8.8	116.4 8.8
127.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	117.1 8.7	117.0 8.7	117.0 8.7
128.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	117.5 8.7	117.3 8.7	117.3 8.7
128.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	118.0 8.6	117.7 8.7	117.6 8.7
129.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	118.5 8.6	118.2 8.6	118.1 8.6
129.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	119.0 8.6	118.8 8.6	118.7 8.6
130.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	119.4 8.6	119.3 8.6	119.2 8.6
130.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	119.8 8.6	119.7 8.6	119.7 8.6
131.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	120.2 8.5	119.8 8.6	119.8 8.6

GDT-67 Table Set 2— Family of Curves, Theoretical Density-Moisture Chart, B Curve

Table 1: B Curve – Table B Overview

Wet Density (pcf)	% Moisture					
	4.0–10.0	10.5-15.5	16.0-21.0	21.5-26.5	27.0-32.0	32.5-37.5
98.5 to 111.0	X	B-1	B-2	B-3	B-4	B-5
111.5 to 120.0	B-6	B-7	B-8	B-9	B-10	B-11
120.5 to 129.0	B-12	B-13	B-14			
129.5 to 137.5	B-15	B-16	X	X	X	X
138.0 to 1440	X	X	X	X	X	X

Table 2: B Curve – Table B-1

	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5
98.5 to 109.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
110.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	97.8 17.5	97.1 17.9
110.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	98.0 17.4	97.5 17.8
111.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	98.8 17.0	98.3 17.2	97.8 17.5

Table 3: B Curve – Table B-2

	16.0	**16.5**	**17.0**	**17.5**	**18.0**	**18.5**	**19.0**	**19.5**	**20.0**	**20.5**	**21.0**
98.5 to 106.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
107.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	92.5 22.0	92.0 22.5	91.8 23.0	91.2 23.5	90.8 24.0
107.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	92.7 21.8	92.4 22.1	91.8 22.8	91.3 23.4	90.9 23.8
108.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	93.9 20.8	93.4 21.1	92.9 21.5	92.5 22.0	92.0 22.5	91.8 23.0	91.2 23.5
108.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	94.0 20.5	93.5 21.0	92.9 21.5	92.7 21.8	92.4 22.1	91.8 22.8	91.3 23.4
109.0	0.0 0.0	0.0 0.0	95.0 19.5	94.7 19.9	94.2 20.3	94.0 20.5	93.5 21.0	93.2 21.3	92.6 22.0	92.3 22.2	91.8 23.0
109.5	0.0 0.0	95.6 19.0	95.0 19.5	94.6 20.0	94.4 20.2	94.0 20.5	93.6 21.0	93.5 21.0	92.7 21.8	92.5 22.1	91.8 22.8
110.0	96.5 18.3	96.0 18.8	95.5 19.0	95.0 19.5	94.5 20.0	94.3 20.3	93.9 20.7	93.5 21.0	93.0 21.5	92.7 22.0	91.2 22.5
110.5	96.9 18.0	96.3 18.3	95.7 18.7	95.1 19.5	94.7 20.0	94.4 20.1	94.0 20.5	93.6 21.0	93.3 21.1	92.7 21.8	92.5 22.2
111.0	97.1 17.8	96.5 18.2	96.0 18.6	95.4 19.2	95.0 19.5	94.5 20.0	94.2 20.3	94.0 20.6	93.4 21.0	92.8 21.8	92.5 22.1

Table 4: B Curve – Table B-3

	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	26.5
98.5 to 105.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
106.0	0.0 0.0	0.0 0.0	0.0 0.0	89.0 26.1	88.7 26.5	88.4 27.0	88.0 27.3	87.7 27.8	87.2 28.4	86.9 28.9	86.5 29.3
106.5	0.0 0.0	89.8 25.3	89.5 25.5	89.2 26.0	88.9 26.3	88.5 26.8	88.2 27.2	87.9 27.5	87.5 28.1	87.0 28.7	86.7 29.1
107.0	90.2 24.6	90.0 25.0	89.7 25.4	89.2 25.8	89.0 26.1	88.7 26.6	88.3 27.0	88.0 27.3	87.7 27.8	87.3 28.3	86.8 28.9
107.5	90.6 24.2	90.2 24.8	89.8 25.2	89.5 25.5	89.2 26.0	88.8 26.4	88.5 26.8	88.1 27.1	87.9 27.6	87.4 28.2	87.0 28.8
108.0	90.8 24.0	90.2 24.6	90.0 25.0	89.7 25.4	89.2 25.8	89.0 26.1	88.7 26.6	88.3 27.0	88.0 27.0	87.7 27.8	87.3 28.3
108.5	90.9 23.8	90.6 24.2	90.1 24.8	89.8 25.2	89.5 25.5	89.1 26.0.	88.8 26.4	88.5 26.9	88.0 27.4	87.9 27.6	87.4 28.2
109.0	91.3 23.4	90.8 24.0	90.5 24.5	90.0 25.0	89.8 25.2	89.5 25.8	89.2 26.0	88.7 26.5	88.5 27.0	88.0 27.5	87.5 28.0
109.5	91.3 23.2	91.0 23.7	90.5 24.0	90.0 25.0	89.9 25.1	89.5 25.5	89.3 26.0	88.8 26.5	88.5 26.9	88.0 27.5	87.6 28.0
110.0	91.7 23.0	91.2 23.4	90.8 24.0	90.5 24.5	90.1 24.9	89.9 25.1	89.5 25.8	89.0 26.1	88.7 26.5	88.5 27.0	88.0 27.5
110.5	91.8 22.9	91.5 23.1	90.8 23.9	90.6 24.1	90.5 24.4	90.0 25.0	89.6 25.5	89.3 25.8	88.8 26.4	88.5 27.0	88.1 27.2
111.0	92.1 22.6	91.7 23.0	91.4 23.3	90.8 23.9	90.5 24.5	90.2 24.8	89.8 25.2	89.5 25.7	89.0 26.2	88.6 26.6	88.4 27.0

Table 5: B Curve – Table B-4

	27.0	27.5	28.0	28.5	29.0	29.5	30.0	30.5	31.0	31.5	32.0
98.5 to 104.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
105.0	0.0 0.0	0.0 0.0	84.6 31.2	84.2 31.7	83.8 32.1	83.5 32.6	83.1 33.1	82.8 33.7	82.3 34.5	82.0 34.9	81.5 35.5
105.5	0.0 0.0	0.0 0.0	84.9 31.0	84.4 31.5	84.0 32.0	83.6 32.5	83.2 33.0	83.0 33.4	82.5 34.0	82.1 34.5	81.8 35.1
106.0	86.0 30.0	85.5 30.4	85.0 30.8	84.6 31.2	84.2 31.7	83.9 31.7	83.5 32.6	83.1 33.1	82.8 33.7	82.3 34.4	81.9 34.9
106.5	86.1 29.8	85.7 30.2	85.1 30.6	84.9 31.0	84.4 31.4	84.0 32.0	83.7 32.5	83.3 33.0	82.8 33.6	82.4 34.1	82.1 34.5
107.0	86.3 29.4	86.0 30.0	85.4 30.4	85.0 30.8	84.6 31.3	84.3 31.6	83.9 32.1	83.4 32.8	83.0 33.0	82.7 33.8	82.3 34.3
107.5	86.5 29.2	86.1 29.8	85.5 30.3	85.1 30.6	84.9 31.0	84.4 31.4	84.0 32.0	83.7 32.5	83.3 33.0	82.9 33.4	82.5 34.0
108.0	86.8 28.9	86.3 29.4	86.0 30.0	85.4 30.4	85.0 30.8	84.6 31.3	84.3 31.6	83.9 32.1	83.4 32.8	83.0 33.3	82.7 33.8
108.5	87.0 28.8	86.4 29.1	86.1 29.8	85.5 30.3	85.1 30.6	84.9 31.0	84.4 31.4	84.0 32.0	83.7 32.5	83.2 33.0	82.9 33.4
109.0	87.2 28.4	86.9 28.9	86.5 29.4	86.0 30.0	85.5 30.4	85.0 30.7	84.7 31.2	84.5 31.4	84.0 32.0	83.6 32.6	83.2 33.1
109.5	87.4 28.1	87.0 28.6	86.5 29.2	86.2 29.8	85.7 30.2	85.2 30.5	85.0 31.0	84.6 31.3	84.0 32.0	83.8 32.4	83.4 31.1
110.0	87.5 28.0	87.4 28.2	86.9 28.9	86.5 29.2	86.0 30.0	85.5 30.3	85.0 30.8	84.8 31.0	84.5 31.4	84.0 32.0	83.6 32.5
110.5	87.8 27.8	87.5 28.0	87.0 28.6	86.7 29.0	86.4 29.5	86.0 30.1	85.5 30.4	85.0 30.8	84.7 31.3	84.3 31.7	83.8 32.1
111.0	88.0 27.5	87.6 28.0	87.4 28.4	86.6 29.0	86.5 29.2	86.3 29.6	85.9 30.1	85.1 30.5	84.8 31.0	84.5 31.4	84.0 31.9

Table 6: B Curve – Table B-5

	32.5	33.0	33.5	34.0	34.5	35.0	35.5	36.0	36.5	37.0	37.5
98.5 to 103.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
104.0	0.0 0.0	80.5 36.5	80.3 37.0	80.2 37.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
104.5	0.0 0.0	80.6 36.5	80.4 36.8	80.1 37.1	80.0 37.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
105.0	81.1 35.9	80.9 36.0	80.5 36.5	80.2 37.0	80.1 37.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
105.5	81.3 35.6	81.0 36.0	80.7 36.3	80.4 36.6	80.2 37.1	80.0 37.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
106.0	81.5 35.5	81.1 35.8	80.9 36.0	80.5 36.5	80.3 37.0	80.0 37.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
106.5	81.7 35.3	81.4 35.6	81.0 36.0	80.7 36.3	80.4 36.8	80.2 37.1	80.0 37.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
107.0	81.9 35.0	81.5 35.5	81.1 35.8	80.9 36.0	80.5 36.5	80.3 37.0	80.1 37.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
107.5	82.1 34.6	81.8 35.1	81.9 35.7	81.0 36.0	80.7 36.3	80.4 36.8	80.3 37.0	80.0 37.5	0.0 0.0	0.0 0.0	0.0 0.0
108.0	82.3 34.3	81.9 35.0	81.5 35.5	81.1 35.8	80.9 36.0	80.5 36.5	80.3 37.0	80.1 37.3	0.0 0.0	0.0 0.0	0.0 0.0
108.5	82.5 34.0	82.1 34.6	81.8 35.1	81.3 35.7	81.0 36.0	80.7 36.3	80.4 36.8	80.3 37.0	80.0 37.4	0.0 0.0	0.0 0.0
109.0	82.9 33.5	82.4 34.0	82.1 34.5	81.8 35.0	81.3 35.7	81.0 36.0	80.5 36.5	80.3 36.8	80.1 37.0	80.0 37.4	0.0 0.0
109.5	83.0 33.4	82.5 34.0	82.2 34.5	82.0 35.0	81.6 35.5	81.2 35.8	81.0 36.0	80.5 36.5	80.3 37.0	80.0 37.3	0.0 0.0
110.0	83.5 33.0	83.0 33.4	82.5 34.0	82.1 34.6	82.0 35.0	81.5 35.2	81.3 35.5	81.0 36.0	80.5 36.5	0.0 0.0	0.0 0.0
110.5	83.5 32.7	83.1 33.0	82.9 33.5	82.7 34.0	82.3 34.4	82.0 34.8	81.6 35.4	81.4 35.5	0.0 0.0	0.0 0.0	0.0 0.0
111.0	83.9 32.3	83.5 32.7	83.4 33.0	83.0 33.5	82.6 34.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 7: B Curve – Table B-6

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	5.0	**5.5**	**6.0**	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**9.0**	**9.5**	**10.0**
111.5 to 118.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
118.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	109.5 13.0
119.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	110.2 12.9
119.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	110.3 12.8
120.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	112.2 12.4	111.9 12.5	111.2 12.6

Table 8: B Curve – Table B-7

	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5
111.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	99.4 16.6	99.0 16.8	98.5 17.1	97.8 17.5
112.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	100.1 16.2	99.6 16.4	99.2 16.6	98.8 16.8	98.2 17.2
112.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	100.5 16.2	99.8 16.4	99.4 16.6	99.0 16.8	98.5 17.0
113.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	101.5 15.8	101.0 16.0	100.1 16.2	99.6 16.5	99.3 16.6	98.6 17.0
113.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	101.8 15.7	101.2 15.9	100.4 16.1	100.0 16.2	99.5 16.6	99.0 16.8
114.0	0.0 0.0	0.0 0.0	0.0 0.0	103.0 15.1	102.9 15.3	102.0 15.6	101.4 15.8	101.0 16.0	100.5 16.2	99.9 16.4	99.4 16.6
114.5	0.0 0.0	0.0 0.0	0.0 0.0	104.0 15.0	103.4 15.1	102.5 15.4	101.8 15.8	101.0 16.0	100.6 16.1	99.0 16.8	99.5 16.6
115.0	0.0 0.0	0.0 0.0	105.3 14.5	104.5 14.8	103.7 15.0	103.0 15.3	102.5 15.4	101.5 15.8	101.0 16.0	100.4 16.2	99.8 16.3
115.5	0.0 0.0	0.0 0.0	105.5 14.4	105.0 14.6	104.0 15.0	103.3 15.1	102.5 15.4	101.8 15.8	101.5 15.8	101.0 16.0	100.2 16.2
116.0	0.0 0.0	106.5 14.0	106.0 14.2	105.4 14.5	104.7 14.8	103.5 15.1	103.0 15.3	102.4 15.5	101.8 15.8	101.5 15.8	100.5 16.0
116.5	0.0 0.0	106.9 13.9	106.0 14.2	105.6 14.4	105.0 14.6	104.3 14.9	103.4 15.1	102.5 15.5	102.0 15.7	101.5 15.8	101.0 16.0
117.0	0.0 0.0	107.5 13.8	106.5 14.0	105.5 14.4	105.2 14.5	104.6 14.8	103.5 15.1	102.0 15.7	101.8 15.5	101.5 15.7	101.3 15.8
117.5	0.0 0.0	107.5 13.8	107.0 13.9	106.4 14.1	105.5 14.4	105.0 14.6	104.4 14.8	103.4 15.1	103.0 15.3	102.5 15.5	102.0 15.7
118.0	108.4 13.5	108.0 13.6	107.5 13.8	106.8 13.9	106.0 14.2	105.2 14.5	104.8 14.8	104.0 15.0	103.4 15.1	102.9 15.3	102.2 15.6
118.5	108.9 13.3	108.2 13.6	107.5 13.8	106.9 13.9	106.4 14.1	105.5 14.4	105.0 14.6	104.2 14.9	103.7 15.1	103.4 15.1	102.5 15.4
119.0	109.3 13.1	108.5 13.5	108.0 13.6	107.3 13.8	106.7 14.0	106.0 14.2	105.5 14.4	104.9 14.7	104.3 14.9	103.6 15.0	103.1 15.3
119.5	109.8 13.0	109.0 13.2	108.3 13.4	107.4 13.8	107.0 13.9	106.2 14.1	105.4 14.4	105.0 14.6	104.8 14.7	104.1 15.0	103.5 15.1
120.0	110.3 12.8	109.5 13.1	108.5 13.4	108.0 13.6	107.5 13.8	106.9 13.9	106.2 13.1	105.5 14.4	105.0 14.5	104.6 14.8	104.1 15.0

Table 9: B Curve – Table B-8

	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0
111.5	97.5 17.7	97.0 18.0	96.2 18.7	95.7 18.9	95.0 19.5	94.7 20.0	94.4 20.1	94.0 20.6	93.6 21.0	93.0 21.5	92.7 21.9
112.0	97.8 17.5	97.2 17.8	96.5 18.3	96.0 18.8	95.7 19.0	95.0 19.5	94.7 20.0	94.4 20.2	94.0 20.6	93.5 21.0	93.0 21.5
112.5	98.0 17.4	97.5 17.7	97.0 18.0	96.4 18.5	95.9 18.8	95.2 19.4	94.7 19.8	94.5 20.0	94.0 21.6	93.6 21.0	93.1 21.3
113.0	98.2 17.3	97.8 17.5	97.2 17.8	96.5 18.2	96.0 18.7	95.5 19.0	95.0 19.5	94.7 20.0	94.5 20.1	94.0 20.6	93.5 21.0
113.5	98.4 17.1	98.0 17.4	97.5 17.7	97.0 18.0	96.3 18.5	96.0 18.7	95.5 19.0	95.0 19.5	94.6 20.0	94.3 20.3	93.9 20.7
114.0	99.0 16.8	98.4 17.2	97.8 17.5	97.1 17.9	96.9 18.3	96.0 18.7	95.8 18.8	95.4 19.2	95.0 19.6	94.6 20.0	94.2 20.5
114.5	99.0 16.8	98.7 17.0	98.0 17.4	97.6 17.7	97.0 18.0	96.6 18.3	96.0 18.7	95.7 18.8	95.4 19.3	94.9 19.6	94.4 20.1
115.0	99.3 16.6	99.0 16.8	98.5 17.1	98.0 17.4	97.3 17.7	96.9 18.0	96.6 18.3	96.2 18.5	95.9 18.7	95.3 19.3	95.0 19.5
115.5	99.6 16.5	99.3 16.6	99.0 16.8	98.4 17.2	97.8 17.5	97.4 17.7	97.0 18.0	96.5 18.4	96.2 18.5	95.7 18.8	95.4 19.3
116.0	100.0 16.4	99.6 16.5	99.1 16.7	98.7 17.0	98.3 17.3	97.7 17.6	97.4 17.7	97.0 18.0	96.6 18.3	96.4 18.4	96.1 18.4
116.5	100.4 16.2	100.0 16.4	99.4 16.5	99.0 16.8	98.7 17.0	98.3 17.3	97.7 17.6	97.5 17.6	97.4 17.7	96.9 18.0	96.6 18.3
117.0	101.0 16.0	100.3 16.3	99.9 16.4	99.5 16.5	99.0 16.8	98.7 17.0	98.4 17.2	98.3 17.3	0.0 0.0	0.0 0.0	0.0 0.0
117.5	101.3 16.8	100.9 16.0	100.1 16.3	99.8 16.4	99.4 16.5	99.3 16.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
118.0	101.7 15.7	101.3 15.8	101.0 16.0	100.4 16.2	100.0 16.4	99.9 16.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
118.5	102.1 15.5	101.7 15.7	101.3 15.8	101.0 16.0	100.5 16.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
119.0	102.7 15.3	102.6 15.4	101.7 15.6	101.4 15.7	101.2 15.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
119.5	103.1 15.2	102.7 15.3	102.4 15.4	102.0 15.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
120.0	103.6 15.0	103.3 15.1	103.0 15.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 10: B Curve – Table B-9

	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	26.5
111.5	92.3 22.2	91.8 22.9	91.3 23.4	91.0 23.7	90.6 24.1	90.4 24.5	90.0 25.0	89.6 25.4	89.4 25.9	88.8 26.4	88.5 26.9
112.0	92.8 22.0	92.0 22.6	91.7 23.0	91.4 23.5	90.8 23.8	90.6 24.2	90.2 24.8	89.9 25.1	89.6 25.5	89.1 26.0	88.8 26.4
112.5	92.8 21.9	92.5 22.1	92.0 22.6	91.7 23.0	91.1 23.5	90.8 23.9	90.5 24.3	90.3 24.7	89.7 25.2	89.3 25.8	89.1 26.0
113.0	93.0 21.5	92.8 21.9	92.4 223.	92.0 22.7	91.6 23.1	91.1 23.5	90.8 23.8	90.5 24.3	90.0 25.0	89.7 25.3	89.5 25.6
113.5	93.3 21.1	93.0 21.5	92.7 21.9	92.3 22.2	91.9 22.7	91.5 23.1	91.2 23.2	90.8 23.8	90.6 24.3	90.2 25.0	89.8 25.3
114.0	93.9 20.7	93.3 21.1	92.8 21.7	92.6 21.8	92.3 22.2	91.9 22.7	91.8 22.9	91.4 23.3	90.8 23.8	90.7 23.9	90.6 24.3
114.5	94.5 20.4	94.0 20.6	93.6 20.9	92.8 21.7	92.7 21.8	92.4 22.3	92.0 22.6	91.8 22.8	0.0 0.0	0.0 0.0	0.0 0.0
1150	95.0 20.0	94.6 20.4	94.0 20.6	93.9 20.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
115.5	95.1 19.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
116.0 to 129.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 11: B Curve – Table B-10

	27.0	27.5	28.0	28.5	29.0	29.5	30.0	30.5	31.0	31.5	32.0
111.5	88.2 27.2	88.0 27.5	87.5 28.0	87.1 28.5	86.8 28.9	86.5 29.3	86.1 29.8	85.8 30.1	85.4 30.4	84.7 31.0	84.5 31.4
112.0	88.5 26.7	88.2 27.1	87.9 27.6	87.6 28.0	87.1 28.6	86.9 28.2	86.5 29.3	86.0 29.9	85.8 30.1	85.3 30.5	84.9 31.0
112.5	88.8 26.4	88.7 26.5	88.1 27.3	88.0 27.5	87.6 28.0	87.1 28.4	86.9 28.7	86.4 29.4	86.1 29.8	0.0 0.0	0.0 0.0
113.0	89.2 26.0	88.9 26.3	88.7 26.5	88.3 27.1	87.8 27.5	87.6 27.6	87.5 28.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
113.5	89.7 25.4	89.5 25.6	89.2 26.0	89.0 26.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
114.0 to 129.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 12: B Curve – Table B-11

	32.5	33.0	33.5	34.0	34.5	35.0	35.5	36.0	36.5	37.0	37.5
111.5	84.3 31.6	83.9 32.2	83.7 32.4	83.6 33.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
112.0	84.7 31.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
112.5 to 129.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 13: B Curve – Table B-12

	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
120.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	113.0 12.2	112.2 12.4	111.3 12.6
121.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	113.0 12.2	112.5 12.4	111.5 12.5
121.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	114.0 11.9	113.5 12.0	112.8 12.2	112.0 12.4
122.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	114.7 11.8	114.0 12.0	113.0 12.2	112.5 12.4
122.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	115.0 11.7	114.1 11.9	113.5 12.1	113.0 12.2
123.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	115.5 11.6	114.8 11.8	114.0 12.0	113.5 12.1
123.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	116.0 11.4	115.5 11.5	115.0 11.7	114.3 11.9	113.5 12.0
124.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	116.3 11.2	116.0 11.4	115.4 11.6	114.6 11.7	114.0 12.0
124.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	116.7 11.1	116.0 11.4	115.5 11.5	115.0 11.7	114.5 11.8
125.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	117.0 11.0	116.5 11.1	116.0 11.4	115.5 11.5	115.0 11.7
125.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	117.5 11.0	116.9 11.1	116.1 11.4	115.5 11.5	115.0 11.7
126.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	118.5 10.7	117.6 11.0	117.1 11.0	116.5 11.2	116.0 11.3	115.5 11.5
126.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	118.8 10.6	118.2 10.8	117.5 11.0	117.0 11.1	116.2 11.3	115.8 11.5
127.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	119.0 10.5	118.6 10.6	117.5 10.8	117.0 11.1	116.5 11.2	116.0 11.3
127.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	120.2 10.0	119.6 10.3	118.8 10.5	118.3 10.6	117.3 11.0	117.0 11.1	116.5 11.2
128.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	120.5 10.0	120.0 10.1	119.2 10.3	118.8 10.5	118.0 10.8	117.5 11.0	116.8 11.1
128.5	0.0 0.0	0.0 0.0	0.0 0.0	122.0 9.6	121.0 10.0	120.5 10.0	119.5 10.3	119.0 10.5	118.5 10.6	117.8 10.9	117.2 11.0
129.0	0.0 0.0	0.0 0.0	0.0 0.0	122.5 9.5	121.0 10.0	120.5 10.0	120.0 10.1	119.0 10.5	118.8 10.5	118.1 10.8	117.5 11.0

Table 14: B Curve – Table B-13

	10.5	**11.0**	**11.5**	**12.0**	**12.5**	**13.0**	**13.5**	**14.0**	**14.5**	**15.0**	**15.5**
120.5	110.8 12.8	109.8 13.0	109.0 13.2	108.5 13.8	107.7 13.8	107.0 13.9	106.5 14.0	105.9 14.4	105.5 14.4	105.0 14.6	104.6 14.8
121.0	111.0 12.7	110.3 12.8	109.5 13.0	108.7 13.1	108.0 13.6	107.5 13.8	106.3 13.9	105.8 14.3	105.8 14.3	105.3 14.5	104.9 14.7
121.0	111.2 12.6	110.5 12.8	109.8 13.0	108.8 13.2	108.5 13.5	107.6 13.7	107.1 13.9	106.6 14.1	106.1 14.1	105.8 14.3	105.3 14.5
122.0	111.5 12.5	111.0 12.7	110.4 12.8	109.5 13.0	108.6 13.5	108.0 13.6	107.5 13.8	107.0 14.0	106.6 14.0	106.1 14.1	105.8 14.3
122.5	112.0 12.5	111.2 12.6	110.5 12.8	110.0 13.0	109.0 13.2	108.5 13.5	108.0 13.6	107.7 13.9	107.0 13.9	106.7 14.0	106.5 14.0
123.0	112.5 12.3	111.5 12.5	111.0 12.8	110.3 12.8	109.7 13.0	109.0 13.2	108.5 13.5	108.0 13.7	107.6 13.7	107.4 13.7	106.9 13.9
123.5	113.0 12.2	112.2 12.4	111.2 12.6	110.5 12.8	110.0 13.0	109.5 13.0	108.8 13.4	108.4 13.6	108.1 13.6	107.7 13.6	107.6 13.7
124.0	113.5 12.1	112.5 12.3	111.8 12.5	111.0 12.7	110.5 12.8	109.8 13.0	109.3 13.2	108.8 13.5	108.5 13.5	108.3 13.5	107.9 13.6
124.5	113.8 12.0	113.0 12.2	112.2 12.4	111.5 12.5	111.0 12.7	110.2 12.9	109.7 13.0	109.3 13.1	109.0 13.3	108.8 13.4	108.5 13.5
125.0	114.2 11.8	113.5 121.	113.0 12.2	112.0 12.5	111.2 12.5	110.7 12.7	110.2 12.9	109.6 13.0	109.3 13.1	109.2 13.3	109.1 13.3
125.5	114.5 11.8	114.0 12.0	113.0 12.2	112.5 12.3	112.0 12.5	111.2 12.6	110.7 12.7	110.2 12.9	109.8 13.0	109.4 13.1	0.0 0.0
126.0	115.0 11.6	114.0 12.0	113.7 12.0	113.0 12.2	112.5 12.5	111.8 12.4	111.1 12.5	110.7 12.7	110.2 12.9	109.9 13.0	0.0 0.0
126.5	115.4 11.5	114.5 11.8	114.0 12.0	113.5 12.0	113.0 12.3	112.2 12.4	111.7 12.4	111.1 12.6	111.0 12.7	0.0 0.0	0.0 0.0
127.0	115.5 11.5	115.0 11.6	114.5 11.8	114.0 12.0	113.4 12.1	112.8 12.3	112.4 12.3	112.1 12.4	112.0 12.4	0.0 0.0	0.0 0.0
127.5	116.0 11.3	115.5 11.5	115.0 11.6	114.3 11.8	114.0 12.0	113.4 12.1	113.2 12.2	113.1 12.2	0.0 0.0	0.0 0.0	0.0 0.0
128.0	116.2 11.3	115.8 11.5	115.5 11.5	114.7 11.7	114.4 11.8	114.1 11.9	113.8 12.0	113.7 12.0	0.0 0.0	0.0 0.0	0.0 0.0
128.5	116.5 11.1	116.0 11.3	115.7 11.5	115.1 11.5	114.9 11.6	114.6 11.7	114.4 11.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
129.0	117.0 11.1	116.5 11.1	116.1 11.3	115.6 11.4	115.4 11.5	115.1 11.6	115.0 11.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 15: B Curve – Table B-14

	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0
120.5	104.1 14.9	103.7 15.0	103.4 15.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
121.0	104.4 14.8	104.1 14.9	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
121.5	105.0 14.6	104.7 14.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
122.0	105.3 14.5	105.1 14.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
122.5	105.9 14.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
123.0	106.4 14.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
123.5	107.2 13.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
124.0 to 129.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 16: B Curve – Table B-15

	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
129.5	0.0 0.0	0.0 0.0	0.0 0.0	122.5 9.5	122.0 9.6	121.0 10.0	120.5 10.0	120.0 10.1	119.0 10.5	118.8 10.6	118.0 10.8
130.0	0.0 0.0	0.0 0.0	123.8 9.2	123.0 9.5	122.1 9.5	121.5 9.8	120.5 10.0	120.2 10.0	119.5 10.3	119.0 10.5	118.5 10.6
130.5	0.0 0.0	0.0 0.0	124.0 9.1	123.2 9.3	122.5 9.6	122.0 10.0	121.0 10.0	120.5 10.0	120.0 10.1	119.0 10.5	118.9 10.5
131.0	0.0 0.0	0.0 0.0	124.5 9.0	123.9 9.1	123.0 9.5	122.4 9.5	121.9 9.6	120.9 10.0	120.5 10.0	120.0 10.1	119.5 10.3
131.5	0.0 0.0	125.5 8.6	125.0 8.9	124.0 9.1	123.1 9.3	122.9 9.5	122.0 9.6	121.0 10.0	120.5 10.0	120.0 10.1	119.5 10.3
132.0	0.0 0.0	126.0 8.5	125.0 8.9	124.5 9.0	123.9 9.1	123.0 9.5	122.5 9.5	122.0 9.6	121.0 10.0	120.5 10.0	120.3 10.0
132.5	0.0 0.0	126.5 8.4	125.5 8.6	125.0 8.9	124.2 9.2	123.8 9.1	123.0 9.5	122.5 9.5	121.5 9.8	121.0 10.0	120.5 10.0
133.0	0.0 0.0	126.9 8.2	126.0 8.5	125.0 8.9	124.5 9.0	124.0 9.1	123.5 9.2	122.5 9.5	122.0 9.5	121.5 9.5	121.5 9.9
133.5	0.0 0.0	127.2 8.1	126.5 8.4	125.5 8.6	125.0 8.9	124.5 9.0	124.0 9.1	123.2 9.5	122.8 9.4	122.3 9.5	121.7 9.7
134.0	0.0 0.0	127.5 8.0	126.9 8.2	126.0 8.5	125.5 8.8	124.8 8.9	124.5 9.0	124.2 9.0	124.0 9.1	123.0 9.5	122.4 9.5
134.5	0.0 0.0	127.8 8.0	127.0 8.1	126.5 8.4	125.5 8.6	125.0 8.9	124.7 8.9	124.2 9.0	124.0 9.1	123.4 9.3	123.0 9.4
135.0	128.8 7.7	128.4 7.8	127.5 8.0	126.9 8.2	126.2 8.4	125.6 8.6	125.0 8.9	124.5 9.0	124.5 9.0	124.1 9.1	123.9 9.2
135.5	129.0 7.7	128.6 7.8	128.0 8.0	127.2 8.1	126.9 8.2	126.0 8.5	125.5 8.6	125.0 8.9	124.3 8.9	124.5 9.0	124.3 9.0
136.0	129.6 7.4	129.0 7.7	128.5 7.8	128.0 8.0	127.0 8.1	126.8 8.2	126.0 8.5	125.8 8.5	125.2 8.7	124.9 8.9	124.8 8.9
136.5	130.0 7.3	129.5 7.4	129.0 7.7	128.5 7.8	127.5 8.0	127.0 8.1	126.5 8.4	126.4 8.5	126.0 8.5	125.6 8.6	0.0 0.0
137.0	130.5 7.1	129.8 7.3	129.3 7.5	128.9 7.8	128.0 8.0	127.5 8.0	127.0 8.1	126.8 8.3	126.4 8.4	126.2 8.4	0.0 0.0
137.5	131.0 7.0	130.5 7.1	129.5 7.4	129.0 7.7	128.5 7.8	128.0 8.0	127.5 8.0	127.3 8.0	126.9 8.3	0.0 0.0	0.0 0.0

Table 17: B Curve – Table B-16

	10.0	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5
129.5	117.5 11.0	117.0 11.0	116.6 11.2	116.1 11.3	115.9 11.4	115.6 11.5	115.5 11.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
130.0	118.0 10.8	117.5 11.0	117.1 11.1	116.8 11.2	116.6 11.3	116.2 11.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
130.5	118.5 10.6	118.0 10.7	117.6 10.9	117.3 11.0	117.0 11.1	116.9 11.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
131.0	118.8 10.6	118.4 10.7	118.0 10.7	117.8 10.9	117.6 10.9	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
131.5	119.4 10.4	118.9 10.5	118.5 10.6	118.3 10.7	118.2 10.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
132.0	119.8 10.3	119.4 10.4	119.1 10.5	118.9 10.5	118.8 10.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
132.5	120.2 10.1	119.9 10.2	119.7 10.3	119.3 10.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
133.0	121.1 9.8	120.4 10.0	120.2 10.1	120.1 10.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
133.5	121.2 9.8	121.0 9.9	120.6 10.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
134.0	122.0 9.7	121.9 9.8	121.8 9.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
134.5	122.6 9.5	122.5 9.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
135.0	123.5 9.3	123.4 9.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
135.5	124.2 9.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
136.0	124.8 8.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
136.5 to 137.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 18: B Curve – Table B-17

	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0
138.0	0.0 0.0	132.6 6.6	131.5 6.9	130.8 7.0	130.0 7.3	129.5 7.4	129.0 7.8	128.6 7.8	128.3 7.9	127.9 8.0	127.5 8.1
138.5	0.0 0.0	132.6 6.5	132.0 6.8	131.5 6.9	130.8 7.1	130.0 7.3	129.6 7.4	129.2 7.8	128.8 7.6	128.7 7.7	128.2 7.6
139.0	0.0 0.0	133.3 6.4	132.6 6.5	131.8 6.8	131.2 7.0	130.5 7.2	130.0 7.3	129.6 7.5	129.2 7.7	129.3 7.6	0.0 0.0
139.5	0.0 0.0	134.0 6.2	132.6 6.5	132.0 6.8	131.5 6.9	131.0 7.0	130.5 7.2	130.1 7.3	129.8 7.4	129.5 7.4	0.0 0.0
140.0	0.0 0.0	134.0 6.2	133.3 6.4	132.6 6.5	132.0 6.8	131.5 6.9	131.0 7.0	130.7 7.2	130.3 7.3	130.30 7.3	0.0 0.0
140.5	0.0 0.0	134.5 6.1	134.0 6.2	133.0 6.5	132.5 6.5	132.0 6.8	131.6 6.9	131.3 7.0	131.2 7.0	0.0 0.0	0.0 0.0
141.0	135.0 6.0	134.5 6.1	134.0 6.2	133.5 6.3	132.8 6.5	132.5 6.5	132.1 6.7	131.9 6.8	131.7 6.8	0.0 0.0	0.0 0.0
141.5	135.5 5.8	135.0 6.0	134.5 6.1	134.0 6.2	133.5 6.3	133.0 6.5	132.8 6.5	132.6 6.5	0.0 0.0	0.0 0.0	0.0 0.0
142.0	135.8 5.7	135.2 5.8	134.5 6.1	134.3 6.2	134.0 6.2	133.6 6.4	133.4 6.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
142.5	136.2 5.6	135.5 5.7	135.0 6.0	134.8 6.0	134.5 6.0	134.1 6.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
143.0	136.5 5.5	136.0 5.6	135.5 5.7	135.2 5.9	135.0 6.0	134.7 6.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
143.5	137.0 5.3	136.5 5.5	135.8 5.7	135.5 5.7	135.4 5.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
144.0	137.5 5.1	137.0 5.2	136.5 5.5	136.3 5.5	135.9 5.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

GDT-67 Table Set 3—Family of Curves; Theoretical Density-Moisture Chart, C Curve

Table 1: C Curve; Table C Overview

Wet Density (pcf)	% Moisture					
	4-0-10.0	10.5-15.5	16.0-21.0	21.5-26.5	27.0-32.0	32.5-37.5
98.5 to 108.0	X	X	C-1	C-2	C-3	C-4
108.0 to 117.0	X	C-5	C-6	C-7	C-8	
117.5 to 126.0	C-9	C-10	C011			X
126.5 to 135.0	C-12	C-13	X	X	X	X
135.5 to 144.0	C-14	X	X	X	X	X

Table 2: C Curve; Table C-1

	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0
98.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
105.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	92.3 24.7
105.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	92.4 24.6
106.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	93.6 23.7	93.1 24.0	92.6 24.4
106.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	94.2 23.3	93.7 23.7	93.3 23.9	92.7 24.4
107.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	95.7 22.1	95.0 22.7	94.4 23.1	93.9 23.5	93.5 23.8	92.6 24.3
107.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	95.8 22.1	95.2 22.4	94.5 23.1	93.9 23.5	93.7 23.7	93.0 24.1
108.0	0.0	0.0	0.0	0.0	96.9 21.5	96.2 21.8	95.2 22.4	94.7 22.9	94.0 23.4	93.8 23.6	93.0 24.1

Table 3: C Curve; Table C-2

	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	26.5
98.5 to 101.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
102.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	86.4 29.3	85.8 29.8	85.4 30.1
102.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	86.6 29.0	85.9 29.6	85.5 30.0
103.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	87.8 28.0	87.5 28.3	87.1 28.6	86.6 29.0	86.2 29.1	85.5 30.0
103.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	88.6 27.4	87.9 27.9	87.5 28.3	87.1 28.6	86.6 29.0	86.2 29.4	85.7 29.9
104.0	0.0 0.0	90.9 25.8	90.1 26.4	89.4 26.9	88.8 27.2	88.0 27.9	87.6 28.0	87.2 28.6	86.7 28.9	86.3 29.3	85.8 29.3
104.5	0.0 0.0	91.0 25.7	90.3 26.3	89.5 26.8	89.0 27.1	88.4 27.5	87.8 28.0	87.4 28.4	86.9 28.8	86.4 29.2	86.0 29.6
105.0	92.0 24.9	91.3 25.5	90.6 26.0	89.8 26.6	89.3 27.0	88.5 27.5	88.0 27.9	87.5 28.3	87.1 28.6	86.6 29.0	86.2 29.4
105.5	92.1 24.8	91.3 25.5	90.7 25.9	90.0 26.5	89.3 27.0	88.7 27.3	88.2 27.7	87.5 28.3	87.2 28.6	86.8 28.8	86.3 29.3
106.0	92.1 24.0	91.4 25.4	90.8 25.8	90.1 26.4	89.6 26.8	88.8 27.2	88.3 27.7	87.7 28.2	87.4 28.4	87.0 28.7	86.5 29.2
106.5	92.2 24.7	91.5 25.3	91.0 25.7	90.2 26.3	89.6 26.8	89.0 27.1	88.4 27.5	87.8 28.0	87.4 28.4	87.2 28.6	86.6 29.0
107.0	92.3 24.7	91.8 25.0	91.2 25.5	90.6 26.0	90.0 26.5	89.2 27.0	87.9 27.2	88.1 27.8	87.7 28.2	87.2 28.6	86.7 28.9
107.5	92.6 24.4	91.9 25.0	91.3 25.5	90.7 25.9	90.1 26.4	89.4 26.9	88.9 27.2	88.3 27.7	87.8 28.0	87.3 28.5	86.9 28.8
108.0	92.8 24.3	92.0 24.9	91.7 25.1	90.9 25.8	90.3 26.3	89.7 26.7	89.2 27.0	88.5 27.5	88.1 27.8	87.6 28.2	87.2 28.6

Table 4: C Curve; Table C-3

	27.0	27.5	28.0	28.5	29.0	29.5	30.0	30.5	31.0	31.5	32.0
98.5 to 99.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
100.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	80.2 34.5	0.0 0.0	0.0 0.0
100.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	82.1 33.0	81.1 33.5	80.9 33.8	80.4 34.2	80.0 34.6	0.0 0.0
101.0	0.0 0.0	0.0 0.0	83.6 31.5	83.1 31.9	82.6 32.3	82.1 32.9	84.6 33.2	81.0 33.7	80.5 34.0	80.3 34.4	0.0 0.0
101.5	84.6 30.8	84.0 30.8	83.7 31.5	83.4 31.7	82.6 32.3	82.4 32.6	81.6 33.2	81.4 33.4	80.6 34.0	80.5 34.2	79.8 34.8
102.0	84.8 30.2	84.3 31.0	83.7 31.4	83.5 31.5	82.8 32.1	82.5 32.4	82.0 32.9	81.5 33.4	80.8 33.9	80.5 34.2	80.0 34.6
102.5	84.8 30.2	84.5 30.8	83.7 31.4	83.5 31.5	82.9 32.1	82.6 32.8	82.0 32.9	81.5 33.3	81.0 33.7	80.6 34.0	80.1 34.5
103.0	85.1 30.3	84.5 30.8	83.9 31.2	83.6 31.5	83.1 31.9	82.6 32.3	82.2 32.7	81.7 33.2	81.3 33.4	80.7 34.0	80.3 34.4
103.5	85.2 30.2	84.7 30.7	84.0 31.2	83.7 31.4	83.2 31.8	82.6 32.3	82.3 32.7	81.8 33.1	81.4 33.4	80.9 33.9	80.3 34.4
104.0	85.3 30.2	84.8 30.7	84.3 31.0	83.8 31.3	83.4 30.7	82.8 32.1	82.5 32.4	82.1 32.9	81.6 33.2	81.2 33.6	80.6 34.1
104.5	85.4 30.1	85.0 30.4	84.5 30.8	84.0 31.2	83.6 31.5	83.1 31.9	82.6 32.3	82.3 32.7	81.7 33.2	81.3 33.4	80.7 34.0
105.0	85.6 30.0	85.2 30.2	84.7 30.7	84.2 31.0	83.7 31.4	83.3 31.7	82.7 32.2	82.4 32.6	81.9 33.0	81.5 33.3	80.8 33.9
105.5	85.7 29.9	85.3 30.2	84.8 30.7	84.3 31.0	83.8 31.3	83.5 31.5	82.8 32.1	82.6 32.3	82.1 32.9	81.7 33.2	81.1 33.7
106.0	85.9 29.7	85.5 30.0	85.0 30.4	84.6 30.8	84.0 31.2	83.7 31.4	83.1 31.9	82.7 32.2	82.2 32.7	81.9 33.0	81.2 33.5
106.5	86.0 29.6	85.3 30.0	85.1 30.3	84.8 30.7	84.1 31.1	83.8 31.3	83.2 31.8	82.9 32.1	82.4 34.6	82.1 32.9	81.5 33.3
107.0	86.1 29.5	85.8 29.8	85.3 30.2	85.0 30.4	84.4 30.9	84.0 31.5	83.6 31.5	83.1 31.9	82.6 32.3	82.3 32.7	81.8 33.0
107.5	86.6 29.0	86.0 29.6	85.6 30.0	85.1 30.3	84.7 31.7	84.1 31.1	83.7 31.4	83.3 31.7	82.8 32.1	82.4 32.6	82.0 32.9
108.0	86.7 28.9	86.2 29.4	85.7 29.9	85.3 30.2	84.8 30.7	84.6 30.8	83.9 31.2	83.6 31.5	83.0 32.0	82.7 32.2	82.2 32.7

Table 5: C Curve; Table C-4

	32.5	33.0	33.5	34.0	34.5	35.0	35.5	36.0	36.5	37.0	37.5
98.5 to 103.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
103.5	80.0 34.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
104.0	80.2 34.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
104.5	80.3 34.4	79.9 34.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
105.0	80.6 34.1	80.0 34.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
105.5	80.7 34.0	80.3 34.4	79.9 34.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
106.0	80.8 33.9	80.5 34.2	80.2 34.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
106.5	81.1 33.6	80.6 34.1	80.3 34.4	79.8 34.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107.0	81.4 33.4	80.9 33.9	80.6 34.1	80.1 34.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
107.5	81.6 33.2	81.1 33.6	80.7 34.0	80.3 34.4	80.0 34.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
108.0	81.9 33.0	81.4 33.4	80.9 33.9	80.7 34.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
108.5	82.1 32.9	81.7 33.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
109.0	82.2 32.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
109.5 to 117.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 6: C Curve; Table C-5

	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5
108.5 to 111.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
111.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	102.7 18.2	102.0 18.6
112.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	104.0 17.5	102.7 18.2	102.1 18.5
112.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	104.6 17.3	104.1 17.4	102.7 18.2	102.1 18.5
113.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	106.3 16.5	104.7 17.2	104.2 17.4	103.0 18.0	102.3 18.4
113.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	106.6 16.3	104.8 17.1	104.4 17.3	103.0 18.0	102.5 18.3
114.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	107.9 15.8	106.7 16.3	104.9 17.0	104.5 17.3	103.3 17.9	102.6 18.3
114.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	107.9 15.8	107.2 16.0	105.9 16.7	104.6 17.3	103.3 17.9	102.7 18.2
115.0	0.0 0.0	0.0 0.0	0.0 0.0	109.8 14.9	109.0 15.2	108.0 15.7	107.4 16.0	106.0 16.6	105.3 16.8	103.4 17.7	103.0 18.0
115.5	0.0 0.0	0.0 0.0	0.0 0.0	109.9 14.9	109.1 15.2	108.1 15.7	107.5 15.9	106.1 16.5	105.4 16.8	104.0 17.5	103.1 18.0
116.0	0.0 0.0	0.0 0.0	111.2 14.4	110.0 14.8	109.2 15.1	108.2 15.6	107.5 15.9	106.2 16.5	105.6 16.7	104.3 17.4	103.3 17.9
116.5	0.0 0.0	0.0 0.0	111.4 14.3	110.1 14.7	109.5 15.0	108.3 15.5	107.6 15.8	106.4 16.4	105.7 16.6	104.3 17.4	103.8 17.6
117.0	113.1 13.6	112.0 14.0	111.5 14.3	110.1 14.7	109.7 15.0	108.4 15.5	107.9 15.8	106.5 16.5	106.0 16.6	104.5 17.3	104.0 17.5

Table 7: C Curve; Table C-6

	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0
108.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	97.1 21.4	96.2 21.8	95.3 22.4	94.9 22.7	94.2 23.3	93.8 23.6	93.2 24.0
109.0	0.0 0.0	0.0 0.0	98.5 20.6	97.8 21.0	97.2 21.3	96.5 21.7	95.4 22.3	95.0 22.7	94.3 23.1	94.0 23.4	93.5 23.8
109.5	0.0 0.0	0.0 0.0	98.6 20.5	97.8 21.0	97.3 21.3	96.5 21.7	95.7 22.1	95.1 22.5	94.5 23.1	94.0 23.4	93.6 23.7
110.0	100.4 19.4	99.9 19.8	98.8 20.4	98.0 20.8	97.4 21.2	96.8 21.5	95.8 22.1	95.3 22.4	94.6 23.0	94.3 23.2	93.8 23.6
110.5	100.4 19.4	100.0 19.7	98.8 20.4	98.1 20.8	97.6 21.1	97.0 21.4	95.9 22.0	95.4 22.3	94.7 22.9	94.4 23.1	93.9 23.5
111.0	100.6 19.3	100.1 19.7	98.9 20.3	98.3 20.7	97.7 21.0	97.2 21.3	96.0 21.9	95.6 22.2	94.9 22.7	94.5 23.1	94.0 23.4
111.5	101.3 18.9	100.3 19.6	98.9 20.3	98.5 20.6	97.7 21.0	97.2 21.3	96.3 21.7	95.7 22.1	95.0 22.7	94.6 23.0	94.2 23.3
112.0	101.4 18.8	100.3 19.3	99.1 20.2	98.6 20.5	98.0 20.8	97.4 21.2	96.7 21.5	95.9 22.0	95.2 22.5	94.9 22.7	94.3 23.1
112.5	101.5 18.8	100.5 19.1	99.3 20.1	98.8 20.4	98.1 20.8	97.5 21.2	96.8 21.5	96.5 21.7	95.4 22.3	95.0 22.7	94.6 23.0
113.0	101.7 18.7	100.8 19.0	99.9 19.8	99.4 20.0	98.3 20.7	97.8 21.0	97.1 21.4	96.6 21.7	95.7 22.1	95.4 22.3	94.7 22.9
113.5	101.8 18.7	101.0 19.0	100.0 19.8	99.5 20.0	98.4 20.6	97.9 20.9	97.3 21.3	96.9 21.5	95.8 22.1	95.4 22.3	94.8 20.8
114.0	101.8 18.6	101.1 19.0	100.2 19.7	99.7 20.0	98.3 20.4	98.1 20.8	97.5 21.2	97.1 21.4	96.2 21.8	95.6 22.2	95.0 22.7
114.5	101.9 18.6	101.2 18.9	100.3 19.5	99.8 19.9	98.9 20.3	98.3 20.7	97.6 21.2	97.3 21.3	96.4 21.6	95.8 22.0	95.2 22.5
115.0	102.0 18.6	101.4 18.8	100.6 19.3	100.1 19.7	99.4 20.2	98.6 20.5	97.9 20.9	97.5 21.2	97.0 21.4	96.2 21.8	95.6 22.2
115.5	102.2 18.4	101.8 18.6	101.0 19.0	100.2 19.7	99.6 20.0	98.8 20.4	98.1 20.8	97.8 21.0	97.2 21.3	96.4 21.6	95.8 22.0
116.0	102.5 18.3	101.9 18.5	101.0 19.0	100.6 19.3	99.8 19.9	99.5 20.0	98.4 20.6	98.0 20.8	97.4 21.2	97.0 21.4	96.1 21.8
116.5	102.6 18.3	102.0 18.6	101.2 18.9	100.7 19.3	100.0 19.8	99.6 20.0	98.6 20.5	98.2 20.7	97.8 21.0	97.3 21.3	96.4 21.6
117.0	103.0 18.0	102.5 18.3	101.6 18.7	101.0 19.0	100.3 19.5	99.7 20.0	99.0 20.3	98.6 20.5	97.9 20.9	97.4 21.2	97.0 21.4

Table 8: C Curve; Table C-7

	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	26.5
108.5	92.8 24.3	92.2 24.7	91.8 25.0	91.0 25.7	90.7 25.9	89.9 26.5	89.4 26.9	88.7 27.3	88.2 27.7	87.7 28.2	87.3 20.5
109.0	92.8 24.3	92.3 24.7	92.0 24.9	91.2 25.5	90.8 25.8	90.0 26.5	89.6 26.8	88.9 27.2	88.6 27.4	88.0 27.9	87.6 28.2
109.5	93.0 24.2	92.4 24.6	92.0 24.9	91.3 25.5	90.9 25.8	90.3 26.3	89.8 26.6	89.1 27.1	88.6 27.4	88.1 27.8	87.6 28.2
110.0	93.3 24.0	92.7 24.4	92.2 24.7	91.6 25.2	91.2 25.5	90.4 26.2	90.0 26.5	89.4 26.9	89.0 27.1	88.3 27.7	88.0 27.9
110.5	93.4 24.9	92.8 24.3	92.3 24.7	91.9 25.0	91.3 25.5	90.8 25.8	90.1 26.4	89.6 26.8	89.2 27.0	88.6 27.4	88.2 27.7
111.0	93.7 23.7	93.0 24.2	92.6 24.4	92.0 24.9	91.6 25.2	90.9 25.8	90.4 26.2	89.9 26.5	89.4 26.9	88.9 27.2	88.5 27.5
111.5	93.8 23.6	93.2 24.0	92.7 24.4	92.1 24.8	91.7 25.1	91.2 25.5	90.7 25.9	90.0 26.5	89.7 26.7	89.1 27.1	88.7 27.3
112.0	94.0 23.4	93.5 23.8	92.9 24.2	92.4 24.6	92.0 24.9	9 1.4 25.4	91.0 25.7	90.4 26.2	90.0 26.5	89.5 26.8	89.0 27.1
112.5	94.1 23.4	93.7 23.7	93.1 24.1	92.6 24.4	92.1 24.8	91.6 25.2	91.2 25.5	90.7 25.9	90.2 26.3	89.7 26.7	89.1 27.1
113.0	94.3 23.0	93.9 23.5	93.5 23.8	92.8 24.3	92.4 24.6	91.8 25.0	91.5 25.3	90.9 25.8	90.6 26.0	90.0 26.5	89.6 26.8
113.5	96.4 23.0	94.0 23.4	93.6 23.7	93.0 24.1	92.6 24.4	92.0 24.9	91.7 25.1	91.0 25.7	90.7 25.9	90.3 26.3	0.0 0.0
114.0	94.7 22.9	94.2 23.3	94.0 23.4	93.3 23.9	92.8 24.3	92.3 24.7	92.0 24.9	91.4 25.4	91.0 25.7	0.0 0.0	0.0 0.0
114.5	94.8 20.8	94.4 23.1	94.1 23.4	93.6 23.7	93.0 24.1	92.4 24.6	92.1 24.8	91.6 25.2	0.0 0.0	0.0 0.0	0.0 0.0
115.0	95.1 22.6	94.7 22.9	94.4 23.1	93.8 23.6	93.5 23.8	92.8 24.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
115.5	95.4 22.3	94.8 20.8	94.5 23.1	94.0 23.4	93.7 23.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
116.0	95.7 22.1	95.0 22.7	94.7 22.9	94.3 23.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
116.5	95.8 22.0	95.3 22.5	94.8 20.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
117.0	96.2 21.8	95.7 22.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
117.5	96.6 21.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
118.0 to 126.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 9: C Curve; Table C-8

	27.0	**27.5**	**28.0**	**28.5**	**29.0**	**29.5**	**30.0**	**30.5**	**31.0**	**31.5**	**32.0**
108.5	86.8 28.8	86.4 29.2	85.8 29.8	85.5 30.0	85.0 30.4	84.7 30.7	84.2 31.0	83.7 31.4	83.2 31.8	82.9 32.1	82.4 32.6
109.0	87.0 28.7	86.7 28.9	86.1 29.5	85.7 29.9	85.3 30.2	85.0 30.4	84.5 30.8	84.0 31.2	83.5 31.6	83.1 31.9	82.7 32.2
109.5	87.1 28.6	86.8 28.8	86.3 29.3	85.8 29.8	85.5 30.0	85.1 30.3	84.7 30.7	84.2 31.0	83.8 31.1	83.3 31.7	0.0 0.0
110.0	87.5 28.3	87.1 28.6	86.6 29.0	86.2 29.4	85.7 29.9	85.4 30.1	84.9 30.5	84.6 30.8	84.2 31.0	0.0 0.0	0.0 0.0
110.5	87.7 28.2	87.2 28.6	86.8 28.8	86.4 29.2	85.9 29.7	85.6 30.0	85.2 30.2	84.8 30.7	0.0 0.0	0.0 0.0	0.0 0.0
111.0	88.0 27.9	87.5 28.3	87.0 28.7	86.7 28.9	86.2 29.4	85.8 29.8	85.5 30.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
111.5	88.2 27.7	87.8 28.0	87.4 28.4	86.9 28.8	86.6 29.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
112.0	88.4 27.5	88.1 27.8	87.7 28.2	87.2 28.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
112.5	88.7 27.3	88.3 27.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
113.0	89.1 27.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
113.5 to 126.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 10: C Curve; Table C-9

	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
117.5 to 118.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
119.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	115.2 12.8	114.4 13.1
119.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	115.4 12.7	114.6 13.0
120.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	116.5 12.5	115.7 12.6	114.9 12.9
120.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	116.6 12.2	115.9 12.5	115.0 12.9
121.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	117.6 11.8	116.7 12.2	116.0 12.4	115.2 12.8
121.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	117.8 11.7	117.1 12.0	116.2 12.3	115.2 12.8
122.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	119.4 11.0	118.8 11.4	117.9 11.7	117.3 11.9	116.4 12.3	115.3 12.8
122.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	119.6 11.0	118.9 11.3	118.1 11.5	117.3 11.9	116.5 12.2	115.7 12.6
123.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	119.7 10.9	119.1 11.2	118.5 11.9	117.5 11.8	117.0 12.1	115.9 12.5
123.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	120.3 10.6	119.8 10.8	119.2 11.1	118.5 11.4	117.6 11.8	117.2 12.0	116.0 12.4
124.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	120.5 10.5	119.9 10.8	119.4 11.0	118.8 11.4	117.7 11.7	117.3 11.9	116.1 12.4
124.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	120.6 10.5	120.0 10.7	119.4 11.0	118.9 11.3	117.8 11.7	117.4 11.8	116.2 12.3
125.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	122.5 9.9	121.7 10.3	120.2 10.6	119.6 11.0	119.2 11.1	118.4 11.5	117.6 11.8	116.5 12.2
125.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	122.6 9.9	121.8 10.1	120.4 10.6	119.6 11.0	119.2 11.1	118.6 11.4	117.6 11.8	116.7 12.2
126.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	122.8 9.8	121.9 10.1	120.6 10.5	119.8 10.8	119.4 11.0	118.8 11.4	117.7 11.7	117.0 12.1

Table 11: C Curve; Table C-10

	10.5	**11.0**	**11.5**	**12.0**	**12.5**	**13.0**	**13.5**	**14.0**	**14.5**	**15.0**	**15.5**
117.5	113.2 13.6	112.3 13.8	111.6 14.2	110.7 14.5	109.8 14.9	108.8 15.3	107.9 15.8	106.6 16.6	106.0 16.6	104.7 17.2	104.2 17.4
118.0	113.4 13.5	112.6 13.8	111.7 14.2	111.0 14.4	109.9 14.9	109.0 15.2	108.0 15.7	106.2 16.5	106.2 16.5	104.8 17.1	104.5 17.3
118.5	113.6 13.4	112.7 13.7	112.0 14.0	111.0 14.4	110.0 14.8	109.1 15.2	108.1 16.0	106.3 16.5	106.3 16.5	105.3 16.8	104.5 17.3
119.0	113.7 13.3	113.0 13.7	112.2 13.9	111.1 14.4	110.5 14.6	109.3 15.1	108.6 15.4	107.5 15.9	107.2 16.2	105.5 16.7	105.0 17.0
119.5	114.0 13.2	113.1 13.6	112.4 13.8	111.4 14.3	110.7 14.5	109.4 15.0	108.8 15.3	107.7 15.8	107.1 16.1	105.8 16.1	105.3 16.8
120.0	114.4 13.1	113.2 13.6	112.4 13.8	111.4 14.3	110.8 14.4	109.6 15.0	108.9 15.2	107.9 15.8	107.4 16.0	106.0 16.6	105.5 16.7
120.5	114.4 13.1	113.3 13.5	112.6 13.8	111.6 14.2	111.0 14.4	109.7 15.0	109.0 15.2	108.0 15.7	107.5 15.9	106.2 16.5	105.7 16.6
121.0	114.6 13.0	113.5 13.5	112.8 13.7	111.9 14.1	111.2 14.4	109.7 15.0	109.2 15.1	108.1 15.7	107.6 15.8	106.4 16.4	106.0 16.6
121.5	114.7 12.9	113.7 13.3	113.0 13.7	112.0 14.0	111.4 14.3	110.0 14.4	109.5 15.0	108.3 15.5	107.8 15.7	107.0 16.2	106.2 16.5
122.0	114.9 12.9	113.8 13.3	113.1 13.6	112.2 13.9	111.5 14.3	110.6 14.2	109.7 15.0	108.7 15.3	108.1 15.7	107.2 16.0	106.6 16.3
122.5	115.0 12.8	114.2 13.2	113.2 13.6	112.3 13.8	111.6 14.2	110.8 14.4	109.9 14.9	109.0 15.2	108.2 15.6	107.4 16.0	107.0 16.2
123.0	115.2 12.8	114.5 13.1	113.3 13.5	112.5 13.8	110.9 14.0	111.0 14.4	110.5 14.6	109.2 15.1	108.7 15.3	107.7 15.8	107.2 16.0
123.5	115.2 12.8	114.6 13.0	113.5 13.5	112.7 12.7	112.0 14.0	111.1 14.4	110.6 14.6	109.4 15.0	109.0 15.2	108.0 15.7	107.5 15.9
124.0	115.6 12.3	114.8 13.0	114.2 13.2	113.0 13.7	112.3 13.8	111.4 14.3	110.8 14.4	109.8 14.9	109.2 15.1	108.3 15.5	107.7 15.8
124.5	115.8 12.5	114.8 13.0	114.4 13.1	113.0 13.7	112.5 13.8	111.6 14.2	111.0 14.4	110.1 14.7	109.4 15.0	108.6 15.4	108.0 15.7
125.0	115.9 12.5	115.0 12.8	114.5 13.1	113.5 13.5	112.7 13.7	112.0 14.0	111.2 14.4	110.4 14.6	109.8 14.9	109.0 15.2	0.0 0.0
125.5	116.0 12.4	115.3 12.8	114.7 13.0	113.6 13.4	113.0 13.7	112.1 14.0	111.5 14.3	110.7 14.5	110.0 14.8	109.4 15.0	0.0 0.0
126.0	116.2 12.3	115.5 12.7	114.9 12.9	114.1 13.3	113.2 13.6	112.6 13.8	111.9 14.1	111.0 14.4	110.3 14.7	0.0 0.0	0.0 0.0

Table 12: C Curve; Table C-11

	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0
117.5	103.2 17.9	102.6 18.3	101.8 18.6	101.2 18.9	100.4 19.4	100.0 19.8	99.1 20.2	98.8 20.4	98.1 20.8	97.7 21.0	97.2 21.3
118.0	103.3 17.9	102.8 18.2	102.0 18.6	101.4 18.8	100.9 19.2	100.3 19.5	99.6 20.0	99.2 20.2	98.5 20.6	98.0 20.8	97.6 21.1
118.5	103.8 17.6	103.2 17.9	102.3 18.4	101.8 18.6	101.0 19.0	100.6 19.3	100.0 19.8	99.6 20.0	98.9 20.3	98.4 20.6	0.0 0.0
119.0	104.1 17.4	103.6 17.7	102.6 18.3	102.1 18.5	101.3 18.9	101.0 19.0	100.3 19.5	99.9 19.8	99.2 20.2	0.0 0.0	0.0 0.0
119.5	104.3 17.4	103.9 17.5	102.9 18.1	102.4 18.4	101.6 18.7	101.1 19.0	100.6 19.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
120.0	104.6 17.3	104.1 17.4	103.3 17.9	102.7 18.2	102.1 18.5	101.6 18.7	101.2 18.9	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
120.5	104.8 17.1	104.3 17.4	103.5 17.7	103.0 18.0	102.3 18.4	101.9 18.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
121.0	105.1 16.8	104.5 17.3	104.0 17.5	103.5 17.7	102.8 18.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
121.5	105.3 16.8	104.8 17.1	104.3 17.4	103.7 17.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
122.0	105.8 16.6	105.0 17.0	104.5 17.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
122.5	106.0 16.6	105.3 16.8	104.8 17.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
123.0	106.3 16.5	105.7 16.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
123.5	106.8 16.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
124.0	107.0 16.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
124.5 to 126.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 13: C Curve; Table C-12

	4.0	**4.5**	**5.0**	**5.5**	**6.0**	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**9.0**	**9.5**	**10.0**
126.5	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	123.0 9.8	122.0 10.0	121.0 10.4	120.0 10.7	119.5 11.0	118.9 11.3	118.0 11.6	117.3 11.9
127.0	0.0 0.0	0.0 0.0	0.0 0.0	124.4 9.2	123.7 9.5	123.0 9.8	122.2 10.0	121.7 10.3	120.1 10.7	119.7 10.9	119.1 11.2	118.5 11.4	117.4 11.8
127.5	0.0 0.0	0.0 0.0	125.1 9.0	124.6 9.2	124.0 9.4	123.2 9.7	122.2 10.0	121.7 10.3	120.3 10.6	119.7 10.9	119.3 11.0	118.8 11.3	117.9 11.7
128.0	0.0 0.0	0.0 0.0	125.5 8.8	124.8 9.1	124.2 9.3	123.6 9.6	122.7 9.8	121.8 10.1	120.6 10.5	120.0 10.7	119.4 11.0	119.0 11.2	117.7 11.7
128.5	0.0 0.0	0.0 0.0	125.7 8.7	125.0 9.0	124.4 9.2	123.8 9.6	122.7 9.8	122.0 10.0	120.9 10.4	120.3 10.6	119.5 11.0	119.2 11.1	118.0 11.6
129.0	0.0 0.0	0.0 0.0	125.8 8.8	125.1 9.0	124.5 9.2	124.1 9.4	123.0 9.8	122.4 10.0	121.5 10.2	120.5 10.6	119.7 10.9	119.4 11.0	118.6 11.4
129.5	0.0 0.0	0.0 0.0	126.0 8.7	125.3 8.9	124.6 9.2	124.2 9.3	123.5 9.6	122.7 9.8	121.8 10.1	120.8 10.5	120.0 10.7	119.6 11.0	118.8 11.3
130.0	0.0 0.0	126.8 8.5	126.0 8.7	125.7 8.7	124.9 9.0	124.4 9.2	123.7 9.5	122.8 9.8	122.1 10.0	121.5 10.2	120.4 10.6	119.7 10.9	119.1 11.2
130.5	0.0 0.0	127.1 8.4	126.2 8.6	125.8 8.8	125.0 9.0	124.5 9.2	123.9 9.4	123.3 19.7	122.3 9.9	121.9 10.1	120.6 10.5	120.0 10.7	119.4 11.0
131.0	128.3 7.9	127.8 8.1	126.5 8.6	126.0 8.7	125.3 8.9	124.8 9.1	124.3 9.3	123.6 9.6	122.7 9.8	122.0 10.0	121.2 10.3	120.3 10.6	119.7 10.9
131.5	128.5 7.8	128.0 8.0	126.8 8.5	126.1 8.7	125.6 8.8	124.9 9.0	124.4 9.2	123.8 9.6	123.0 9.8	122.3 9.9	121.6 10.2	120.6 10.5	119.8 10.8
132.0	129.0 7.7	128.1 8.0	127.5 8.3	126.5 8.6	125.9 8.7	125.3 8.9	124.7 9.2	124.1 9.4	123.5 9.6	122.6 9.9	121.9 10.1	121.9 10.1	121.3 10.3
132.5	129.17 .7	128.6 7.8	127.8 8.2	126.6 8.5	126.0 8.7	125.5 8.8	124.8 8.8	124.4 9.2	123.8 9.6	123.2 9.7	122.1 10.0	121.8 10.1	120.6 10.5
133.0	129.4 7.6	129.0 7.7	128.0 8.0	127.5 8.3	126.4 8.6	125.9 8.7	125.1 9.0	124.7 9.2	124.1 9.4	123.5 9.6	122.6 9.9	122.0 10.0	121.2 10.3
133.5	130.4 7.2	129.1 7.7	128.2 8.0	127.7 8.2	126.7 8.5	126.1 8.7	125.4 8.9	124.9 9.0	124.4 9.2	123.8 9.6	122.9 9.8	122.4 10.0	121.6 10.2
134.0	130.7 7.1	130.1 7.2	128.7 7.8	128.0 8.0	127.5 8.3	126.5 8.6	125.9 8.7	125.3 8.9	124.7 9.2	124.2 9.3	123.6 9.6	122.9 9.8	0.0 0.0
134.5	131.0 7.0	130.2 7.2	129.0 7.7	128. 7.9	127.6 8.2	126.8 8.5	126.1 8.7	125.8 8.8	124.9 9.0	124.6 9.2	123.9 9.4	123.2 9.7	0.0 0.0
135.0	131.6 6.8	130.6 7.3	129.2 7.7	128.7 7.8	128.0 8.0	127.5 8.3	126.6 8.5	126.0 8.7	125.5 8.8	124.8 9.1	124.2 9.3	0.0 0.0	0.0 0.0

Table 14: C Curve; Table C-13

	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0
126.5	116.5 12.2	115.8 12.6	115.0 12.9	114.4 13.1	113.5 13.5	112.9 13.7	112.1 14.0	111.2 14.3	0.0 0.0	0.0 0.0
127.0	117.0 12.1	116.0 12.4	115.4 12.7	114.7 13.0	114.0 13.2	113.1 13.6	112.4 13.8	111.7 14.2	0.0 0.0	0.0 0.0
127.5	117.1 12.0	116.2 12.3	115.7 12.6	114.8 13.0	114.4 13.1	113.3 13.5	112.7 13.7	0.0 0.0	0.0 0.0	0.0 0.0
128.0	117.3 11.9	116.7 12.2	116.0 12.4	115.2 12.8	114.7 13.0	114.0 13.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
128.5	117.6 11.8	116.7 12.2	116.3 12.3	115.5 12.7	115.0 12.9	114.4 13.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
129.0	117.7 11.7	117.2 12.0	116.7 12.2	115.8 12.6	115.3 12.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
129.5	118.0 11.6	117.4 11.8	117.0 12.1	116.0 12.4	115.5 12.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
130.0	118.5 11.4	117.7 11.7	117.3 11.9	116.6 12.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
130.5	118.9 11.3	118.0 11.6	117.5 11.8	117.0 12.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
131.0	119.1 11.2	118.6 11.4	117.9 11.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
131.5	119.4 11.0	118.8 11.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
132.0	119.9 10.7	119.2 11.1	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
132.5	120.0 10.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
133.0 to 135.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 15: C Curve; Table C-14

	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
135.5	131.7 6.8	130.7 7.1	129.3 7.7	128.9 7.8	128.3 7.9	127.7 8.2	126.9 8.4	126.4 8.6	125.8 8.8	125.1 9.0	0.0 0.0	0.0 0.0	0.0 0.0
136.0	131.9 6.7	131.2 7.0	130.1 7.2	129.3 7.6	128.6 7.8	128.1 8.0	127.6 8.2	126.9 8.4	126.3 8.7	125.8 8.8	0.0 0.0	0.0 0.0	0.0 0.0
136.5	132.8 6.5	131.5 6.8	130.4 7.4	130.0 7.3	128.9 7.8	128.5 7.8	127.9 8.1	127.4 8.3	126.6 8.5	126.1 8.7	0.0 0.0	0.0 0.0	0.0 0.0
137.0	133.0 6.4	132.3 6.6	130.8 7.0	130.2 7.2	129.3 7.6	128.7 7.8	128.3 7.9	127.8 8.2	127.2 8.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
137.5	133.1 6.3	132.5 6.6	131.2 6.9	130.6 7.3	129.5 7.5	129.1 7.7	128.4 7.9	127.9 8.1	127.5 8.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
138.0	133.9 6.1	132.9 6.5	131.6 6.8	131.0 7.0	130.2 7.2	129.8 7.4	129.0 7.7	128.5 7.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
138.5	134.0 6.0	133.0 6.4	131.9 6.7	131.2 7.0	130.6 7.1	130.0 7.4	129.3 7.7	128.9 7.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
139.0	134.2 6.0	133.7 6.2	132.5 6.6	131.7 6.8	131.1 7.0	130.6 7.1	130.0 7.3	0.0	0.0	0.0	0.0	0.0	0.0
139.5	134.7 5.8	133.8 6.1	132.9 6.5	132.3 6.6	131.4 6.9	131.0 7.0	130.4 7.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
140.0	134.9 5.7	134.2 6.0	133.5 6.2	132.7 6.5	132.0 6.6	131.5 6.8	131.0 7.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
140.5	135.1 5.6	134.6 5.8	134.0 6.0	133.1 6.4	132.4 6.5	132.0 6.6	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
141.0	136.0 5.3	135.0 5.7	134.1 6.0	133.8 6.1	133.0 6.4	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
141.5	136.2 5.3	135.1 5.6	134.7 5.8	134.0 6.0	133.5 6.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
142.0	136.8 5.2	136.0 5.3	135.0 5.7	134.6 5.8	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
142.5	137.2 5.0	136.2 5.3	135.3 5.6	135.0 5.7	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
143.0	137.6 4.9	137.0 5.1	136.0 5.3	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
143.5	138.0 4.8	137.5 4.9	136.7 5.2	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
144.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0

Table 67-4

Table 1: Table 67-4; Conversion for Proctor Soil Density Tests

	Table		
	67-1a	67-1b	67-1c
Weight in grams	1000-1495	1500-1995	2000-2495

The tables convert proctor soil specimen wet weight in grams to soil wet weight per cubic foot in pounds.

NOTE: Table computed for proctor molds having capacity of 1/30 cubic foot.

Table 2: Table 67-1a

Wt in grams	Wt. Cu. Ft.		Wt. In grams	Wt. Cu. Ft.		Wt in grams	Wt. Cu. Ft.		Wt in grams	Wt. Cu. Ft.		Wt in grams	Wt. Cu. Ft.
1000	66.0		1100	72.6		1200	79.2		1300	85.8		1400	92.4
1005	66.3		1105	72.9		1205	79.5		1305	86.1		1405	92.7
1010	66.7		1110	73.3		1210	79.9		1310	86.5		1410	93.1
1015	67.0		1115	73.6		1215	80.2		1315	86.8		1415	93.4
1020	67.3		1120	73.9		1220	80.5		1320	87.1		1420	93.7
1025	67.7		1125	74.3		1225	80.9		1325	87.5		1425	94.1
1030	68.0		1130	74.6		1230	81.2		1330	87.8		1430	94.4
1035	68.3		1135	74.9		1235	81.5		1335	88.1		1435	94.7
1040	68.6		1140	75.2		1240	81.8		1340	88.4		1440	95.0
1045	69.0		1145	75.6		1245	82.2		1345	88.8		1445	95.4
1050	69.3		1150	75.9		1250	82.5		1350	89.1		1450	95.7
1055	69.6		1155	76.2		1255	82.8		1355	89.4		1455	96.0
1060	70.0		1160	76.6		1260	83.2		1360	89.8		1460	96.4
1065	70.3		1165	76.9		1265	83.5		1365	90.1		1465	96.7
1070	70.6		1170	77.2		1270	83.8		1370	90.4		1470	97.0
1075	71.0		1175	77.6		1275	84.2		1375	90.8		1475	97.4
1080	71.3		1180	77.9		1280	84.5		1380	91.1		1480	97.7
1085	71.6		1185	78.2		1285	84.8		1385	91.4		1485	98.0
1090	71.9		1190	78.5		1290	85.1		1390	91.7		1490	98.3
1095	72.3		1195	78.9		1295	85.5		1395	92.1		1495	98.7

Table 3: Table 67-1b

Wt in grams	Wt. Cu. Ft.		Wt. In grams	Wt. Cu. Ft.		Wt in grams	Wt. Cu. Ft.		Wt in grams	Wt. Cu. Ft.		Wt in grams	Wt. Cu. Ft.
1500	99.0		1600	105.6		1700	112.2		1800	118.8		1900	25.4
1505	99.3		1605	105.9		1705	112.5		1805	119.1		1905	125.7
1510	99.7		1610	106.3		1710	112.9		1810	119.5		1910	126.1
1515	100.0		1615	106.6		1715	113.2		1815	119.8		1915	126.4
1520	100.3		1620	106.9		1720	113.5		1820	120.1		1920	126.7
1525	100.7		1525	107.3		1725	113.9		1825	120.5		1925	127.1
1530	101.0		1630	107.6		1730	114.2		1830	120.8		1930	127.4
1535	101.3		1635	107.9		1735	114.5		1835	121.1		1935	127.7
1540	101.6		1640	108.3		1740	114.8		1840	121.4		1940	128.0
1545	102.0		1645	108.6		1745	115.2		1845	121.8		1945	128.4
1550	102.3		1650	108.9		1750	115.5		1850	122.1		1950	128.7
1555	102.6		1655	109.2		1755	115.8		1855	112.4		1955	129.0
1560	103.0		1660	109.6		1760	116.2		1860	122.8		1960	129.4
1565	103.3		1665	109.9		1765	116.5		1865	123.1		1965	129.7
1570	103.6		1670	110.2		1770	116.8		1870	123.4		1970	130.0
1575	104.0		1675	110.6		1775	117.2		1875	123.8		1975	130.4
1580	104.3		1680	110.9		1780	117.5		1880	124.1		1980	130.7
1585	104.6		1685	111.2		1785	117.8		1885	124.4		1985	131.0
1590	104.9		1690	111.5		1790	118.1		1890	124.7		1990	131.4
1595	105.3		1695	111.9		1795	118.5		1895	125.1		1995	131.7

Table 4: Table 67-1c

Wt in grams	Wt. Cu. Ft.		Wt. In grams	Wt. Cu. Ft.		Wt in grams	Wt. Cu. Ft.		Wt in grams	Wt. Cu. Ft.		Wt in grams	Wt. Cu. Ft.
2000	132.0		2100	13806		2200	145.2		2300	151.8		2400	158.4
2005	132.3		2105	139.0		2205	145.5		2305	152.1		2405	158.7
2010	132.7		2110	139.3		2210	145.9		2310	152.5		2410	159.1
2015	133.0		2115	139.6		2215	1465.2		2315	152.8		2415	159.4
2020	133.3		2120	139.9		2220	146.5		2320	153.2		2420	159.7
2025	133.7		2125	140.3		2225	146.9		2325	153.5		2425	160.0
2030	134.0		2130	140.6		2230	147.2		2330	153.8		2430	160.4
2035	134.3		2135	140.9		2235	147.5		2335	154.1		2435	160.7
2040	134.6		2140	141.2		2240	147.8		2340	154.4		2440	161.0
2045	135.0		2145	141.6		2245	148.2		2345	154.8		2445	161.4
2050	135.3		2150	141.9		2250	148.5		2350	155.1		2450	161.7
2055	135.6		2155	142.2		2255	148.8		2355	155.4		2455	162.0
2060	136.0		2160	142.6		2260	149.2		2360	155.8		2460	162.4
2065	136.3		2165	142.9		2265	149.5		2365	156.1		2465	162.7
2070	136.6		2170	143.2		2270	149.8		2370	156.4		2470	163.0
2075	137.0		2175	143.6		2275	150.2		2375	156.8		2475	163.4
2080	137.3		2180	143.9		2280	150.5		2380	157.1		2480	163.7
2085	137.6		2185	144.2		2285	150.8		2385	157.4		2485	164.0
2090	137.9		2190	144.5		2290	151.1		2390	157.7		2490	164.3
2095	138.3		2195	144.9		2295	151.5		2395	158.1		2495	164.7