W A T L O W

Reference Data

Resistance vs. Temperature Table for DIN-IEC-751 Platinum RTDs

100 Ohm With Temperature Coefficient of 0.00385

ITS-90 °C	0	1	2	3	4	5	6	7	8	9	ITS-90 °C
-200	18.52							-			-200
-190	22.83	22.40	21.97	21.54	21.11	20.68	20.25	19.82	19.38	18.95	-190
-180	27.10	26.67	26.24	25.82	25.39	24.97	24.54	24.11	23.68	23.25	-180
-170	31.34	30.91	30.49	30.07	29.64	29.22	28.80	28.37	27.95	27.52	-170
-160	35.54	35.12	34.70	34.28	33.86	33.44	33.02	32.60	32.18	31.76	-160
-150	39.72	39.31	38.89	38.47	38.05	37.64	37.22	36.80	36.38	35.96	-150
-140	43.88	43.46	43.05	42.63	42.22	41.80	41.39	40.97	40.56	40.14	-140
-130	48.00	47.59	47.18	46.77	46.36	45.94	45.53	45.12	44.70	44.29	-130
-120	52.11	51.70	51.29	50.88	50.47	50.06	49.65	49.24	48.83	48.42	-120
-110	56.19	55.79	55.38	54.97	54.56	54.15	53.75	53.34	52.93	52.52	-110
-100	60.26	59.85	59.44	59.04	58.63	58.23	57.82	57.41	57.01	56.60	-100
-90	64.30	63.90	63.49	63.09	62.68	62.28	61.88	61.47	61.07	60.66	-90
-80	68.33	67.92	67.52	67.12	66.72	66.31	65.91	65.51	65.11	64.70	-80
-70	72.33	71.93	71.53	71.13	70.73	70.33	69.93	69.53	69.13	68.73	-70
-60	76.33	75.93	75.53	75.13	74.73	74.33	73.93	73.53	73.13	72.73	-60
-50	80.31	79.91	79.51	79.11	78.72	78.32	77.92	77.52	77.12	76.73	-50
-40	84.27	83.87	83.48	83.08	82.69	82.29	81.89	81.50	81.10	80.70	-40
-30	88.22	87.83	87.43	87.04	86.64	86.25	85.85	85.46	85.06	84.67	-30
-20	92.16	91.77	91.37	90.98	90.59	90.19	89.80	89.40	89.01	88.62	-20
-10	96.09	95.69	95.30	94.91	94.52	94.12	93.73	93.34	92.95	92.55	-10
0	100.00	99.61	99.22	98.83	98.44	98.04	97.65	97.26	96.87	96.48	0
0	100.00	100.39	100.78	101.17	101.56	101.95	102.34	102.73	103.12	103.51	0
10	103.90	104.29	104.68	105.07	105.46	105.85	106.24	106.63	107.02	107.40	10
20	107.79	108.18	108.57	108.96	109.35	109.73	110.12	110.51	110.90	111.29	20
30	111.67	112.06	112.45	112.83	113.22	113.61	114.00	114.38	114.77	115.15	30
40	115.54	115.93	116.31	116.70	117.08	117.47	117.86	118.24	118.63	119.01	40
50	119.40	119.78	120.17	120.55	120.94	121.32	121.71	122.09	122.47	122.86	50
60	123.24	123.63	124.01	124.39	124.78	125.16	125.54	125.93	126.31	126.69	60
70	127.08	127.46	127.84	128.22	128.61	128.99	129.37	129.75	130.13	130.52	70
80	130.90	131.28	131.66	132.04	132.42	132.80	133.18	133.57	133.95	134.33	80
90	134.71	135.09	135.47	135.85	136.23	136.61	136.99	137.37	137.75	138.13	90
100	138.51	138.88	139.26	139.64	140.02	140.40	140.78	141.16	141.54	141.91	100
110	142.29	142.67	143.05	143.43	143.80	144.18	144.56	144.94	145.31	145.69	110
120	146.07	146.44	146.82	147.20	147.57	147.95	148.33	148.70	149.08	149.46	120
130	149.83	150.21	150.58	150.96	151.33	151.71	152.08	152.46	152.83	153.21	130
140	153.58	153.96	154.33	154.71	155.08	155.46	155.83	156.20	156.58	156.95	140
150	157.33	157.70	158.07	158.45	158.82	159.19	159.56	159.94	160.31	160.68	150
160	161.05	161.43	161.80	162.17	162.54	162.91	163.29	163.66	164.03	164.40	160
170	164.77	165.14	165.51	165.89	166.26	166.63	167.00	167.37	167.74	168.11	170
180	168.48	168.85	169.22	169.59	169.96	170.33	170.70	171.07	171.43	171.80	180
190	172.17	172.54	172.91	173.28	173.65	174.02	174.38	174.75	175.12	175.49	190

CONTINUED

Reference Data

Resistance vs. Temperature Table for DIN-IEC-751 Platinum RTDs

Continued

100 Ohm With Temperature Coefficient of 0.00385

Timeson Time												
220	iTS-90 °C	0	1	2	3	4	5	6	7	8	9	its-90
220		175.86	176.22	176.59	176.96	177.33	177.69	178.06	178.43	178.79	179.16	
230 186.84 187.20 187.56 187.33 188.29 188.66 189.02 189.38 189.75 190.11 230 250 194.10 194.46 194.82 195.56 195.51 195.51 195.51 195.51 195.91 196.63 196.69 197.35 250 260 197.71 198.07 202.03 202.39 202.75 203.11 203.83 204.19 204.52 200.95 200.95 200.95 200.95 200.95 200.95 200.95 200.20 208.84 208.26 205.62 205.98 206.34 206.70 207.05 207.41 207.77 208.13 280 290 208.48 208.84 209.20 209.56 209.91 210.27 210.63 211.94 211.70 290 300 212.05 212.41 212.76 213.12 213.48 213.83 214.74 218.09 224.44 216.52 217.00 217.42 218.09 224.55 221.83 221.83	210	179.53	179.89	180.26	180.63	180.99	181.36		182.09	182.46	182.82	
240 190.47 190.84 191.20 191.56 199.92 192.28 192.65 193.01 193.37 193.74 240 250 197.71 198.07 198.43 198.55 199.15 199.51 199.63 196.63 196.99 197.35 250 270 201.31 201.67 202.03 202.39 202.75 203.11 203.47 203.83 204.19 204.55 270 280 204.90 205.62 205.62 205.98 206.94 206.70 207.05 207.41 207.77 208.13 280 290 208.48 208.84 209.20 209.56 209.91 210.27 210.63 210.98 211.34 211.70 221.31 221.91 219.51 219.96 213.12 213.48 213.83 217.74 218.09 218.41 214.19 214.54 214.90 215.25 300 300 222.68 223.04 223.39 223.74 224.09 224.50 225.10	1	183.19	183.55	183.92	184.28	184.65	185.01	185.38	185.74	186.11	186.47	
250												
260 197.71 198.07 198.43 198.79 199.15 199.57 203.47 203.83 200.59 200.55 260 270 201.31 201.67 202.03 202.39 202.75 203.11 203.47 203.83 204.19 204.55 270 280 204.90 205.26 205.62 205.96 209.91 210.67 207.05 207.41 217.77 208.13 280 290 208.48 208.84 208.84 209.20 209.56 209.91 210.63 219.98 211.34 211.70 290 300 212.05 212.15.66 216.32 216.67 217.03 217.38 217.74 218.09 218.44 218.80 310 310 215.65 226.56 226.91 227.26 227.61 227.99 221.77 216.3 221.93 2218.83 320 225.85 225.85 330 320 226.86 223.04 223.77 231.12 231.44 224.99 <td< td=""><td>240</td><td>190.47</td><td>190.84</td><td>191.20</td><td>191.56</td><td>191.92</td><td>192.29</td><td>192.65</td><td>193.01</td><td>193.37</td><td>193.74</td><td>240</td></td<>	240	190.47	190.84	191.20	191.56	191.92	192.29	192.65	193.01	193.37	193.74	240
270 201.31 201.67 202.03 202.39 206.75 203.11 203.47 203.83 204.19 204.55 270 280 208.48 208.49 205.26 205.62 205.98 206.34 206.70 207.41 207.77 208.13 280 300 212.05 212.41 212.76 213.12 213.48 213.83 214.19 214.54 214.90 215.25 300 310 215.61 219.51 219.51 219.51 219.51 219.51 219.51 219.51 219.51 219.51 223.39 223.74 224.09 224.45 224.50 225.55 225.50 225.83 330 340 226.21 226.56 226.91 227.26 227.61 227.96 228.31 228.51 225.50 225.87 330 350 229.72 230.07 230.42 230.77 231.12 231.47 231.82 232.17 232.52 232.87 350 360 233.	250	194.10	194.46	194.82	195.18	195.55	195.91	196.27	196.63	196.99	197.35	250
280 204.90 205.66 205.68 205.88 206.34 206.70 207.05 207.41 207.77 208.13 280 300 212.05 212.41 212.76 213.12 213.48 213.83 214.19 214.54 214.90 215.25 300 310 215.61 215.96 216.32 216.67 217.03 217.38 217.74 218.09 218.44 218.80 310 320 219.15 219.51 219.86 220.27 220.97 221.27 221.63 221.83 221.98 222.33 320 340 226.21 226.56 226.91 227.66 227.61 227.96 228.31 228.66 229.02 229.37 340 350 229.72 230.07 237.62 237.40 237.74 234.96 235.31 235.66 236.00 236.35 360 370 236.70 237.05 237.05 237.04 237.74 238.09 238.44 238.37 239.	260	197.71	198.07	198.43	198.79	199.15	199.51	199.87	200.23	200.59	200.95	260
290 208.48 208.84 209.20 209.56 209.91 210.27 210.63 210.98 211.34 211.70 290 300 212.05 212.41 212.76 213.12 213.48 213.83 214.19 214.54 214.90 215.53 300 310 215.61 215.96 263.32 216.67 217.03 217.74 218.09 221.84 218.80 310 330 222.68 223.04 223.39 223.74 224.09 224.45 224.80 225.15 225.50 229.02 229.07 340 340 226.21 226.56 226.91 227.62 227.61 227.86 228.31 228.60 229.02 229.07 230.43 330 342.66 233.91 236.60 233.71 231.12 231.47 231.82 232.17 232.52 232.87 350 350 229.72 230.07 237.40 237.74 231.12 231.47 231.82 232.17 232.52	270	201.31	201.67	202.03	202.39	202.75	203.11	203.47	203.83	204.19	204.55	270
300 212.05 212.41 213.76 213.12 213.48 213.83 214.19 214.54 214.90 215.25 300 310 215.61 215.96 216.67 217.03 217.38 217.74 218.09 228.44 218.80 310 320 219.15 219.15 129.15 129.86 220.21 226.80 221.98 222.33 320 330 222.68 223.04 223.39 223.74 224.09 224.45 224.80 225.15 225.50 225.85 330 340 226.21 226.56 226.91 227.61 227.61 227.96 228.31 228.66 229.02 229.37 340 350 223.72 230.07 231.62 233.41 233.56 233.91 234.62 234.61 234.96 235.31 235.66 236.00 236.35 360 370 236.70 237.05 237.04 241.22 241.52 241.91 242.26 242.60 242.	280	204.90	205.26	205.62	205.98	206.34	206.70	207.05	207.41	207.77	208.13	280
310 215.61 215.96 216.32 216.67 217.03 217.38 217.74 218.09 218.44 218.80 310 320 219.15 219.51 219.56 220.21 220.57 220.92 221.27 221.63 221.98 222.33 320 330 222.68 223.04 223.39 223.74 224.09 225.15 225.50 225.85 330 340 226.21 226.56 226.91 227.26 227.61 227.96 228.31 228.66 229.02 229.37 340 350 233.21 233.56 233.91 234.26 234.61 235.51 235.52 232.87 350 360 233.21 233.56 233.91 237.40 237.74 238.09 238.44 238.79 239.13 239.48 239.83 370 380 243.64 243.99 244.33 244.68 245.07 245.71 246.06 242.95 243.29 380 450 247.09 <td>290</td> <td>208.48</td> <td>208.84</td> <td>209.20</td> <td>209.56</td> <td>209.91</td> <td>210.27</td> <td>210.63</td> <td>210.98</td> <td>211.34</td> <td>211.70</td> <td>290</td>	290	208.48	208.84	209.20	209.56	209.91	210.27	210.63	210.98	211.34	211.70	290
320 219.15 219.61 220.21 220.57 220.92 221.27 221.63 221.98 222.33 30 330 222.68 223.04 223.39 223.74 224.09 224.45 224.80 225.15 225.55 225.85 330 340 226.21 226.66 226.91 227.26 227.61 227.96 228.31 228.66 229.02 229.37 340 350 229.72 230.07 230.42 230.77 231.12 231.47 231.82 232.17 232.52 232.87 350 360 233.21 233.56 237.40 237.74 238.04 238.44 238.99 239.91 239.84 239.93 39.93 339.94 239.34 239.44 241.22 241.56 241.91 242.66 242.60 242.95 243.29 380 390 243.64 243.99 244.68 245.02 245.57 245.71 246.06 242.95 243.29 380 390	300	212.05	212.41	212.76	213.12	213.48	213.83	214.19	214.54	214.90	215.25	300
330 222.68 223.04 223.39 223.74 224.09 224.45 228.31 228.65 225.50 225.85 330 340 226.21 226.56 226.91 227.61 227.61 227.96 228.31 228.62 229.02 229.37 340 350 229.72 230.07 230.42 230.77 231.12 231.87 232.52 232.87 350 360 233.21 233.56 233.91 234.26 234.61 234.96 235.31 235.66 236.00 236.35 360 370 236.70 237.05 237.40 237.74 238.09 288.44 238.79 239.13 239.48 239.83 370 380 240.18 240.85 244.32 244.68 245.02 245.71 246.00 242.95 243.29 380 390 243.64 243.99 244.33 244.68 245.02 245.00 246.00 242.95 253.32 255.19 252.95 252.	310	215.61	215.96	216.32	216.67	217.03	217.38	217.74	218.09	218.44	218.80	310
340 226.21 226.56 226.91 227.26 227.61 227.96 228.31 228.66 229.02 229.37 340 350 229.72 230.07 230.42 230.77 231.12 231.47 231.82 232.17 232.52 232.87 350 360 233.21 233.56 233.91 234.26 234.61 234.96 235.31 236.66 236.00 236.35 360 370 236.70 237.05 237.40 237.74 238.09 238.44 238.79 239.13 239.48 239.83 370 380 240.18 240.52 240.87 241.22 241.56 241.91 242.66 242.60 242.95 243.29 380 390 243.64 243.99 244.33 244.68 245.02 245.37 245.71 246.06 246.40 246.75 390 400 247.09 247.44 247.78 248.13 248.47 248.11 249.50 249.85 250.	320	219.15	219.51	219.86	220.21	220.57	220.92	221.27	221.63	221.98	222.33	320
350 229.72 230.07 230.42 230.77 231.12 231.47 231.82 232.17 232.52 232.87 350 360 233.21 233.56 233.91 234.26 234.61 234.96 235.31 236.60 236.35 360 370 236.70 237.50 237.40 237.74 238.09 238.44 238.79 239.13 239.48 239.83 370 380 240.18 240.52 240.87 241.22 241.56 241.91 242.26 242.60 242.95 243.29 380 390 243.64 243.99 244.33 244.68 245.02 245.37 245.71 246.06 246.40 246.75 390 400 247.99 247.44 247.78 248.81 249.16 249.16 246.40 246.75 390 400 247.95 255.85 259.19 252.59 252.93 253.28 253.62 410 420 25.53 256.08	330	222.68	223.04	223.39	223.74	224.09	224.45	224.80	225.15	225.50	225.85	330
360 233.21 233.56 233.91 234.26 234.61 234.96 235.31 235.66 236.00 236.35 360 370 236.70 237.05 237.40 237.74 238.09 238.44 238.79 239.13 239.83 370 380 240.18 240.52 240.87 241.22 241.56 241.91 242.60 242.95 243.29 380 390 243.64 243.99 244.33 244.68 245.02 245.37 245.71 246.06 246.40 246.75 390 400 247.09 247.44 247.78 248.13 248.47 248.81 249.16 249.50 249.85 250.19 400 410 250.53 250.88 251.22 251.56 251.91 252.55 252.59 252.32 253.82 250.19 400 420 253.96 254.30 254.65 254.99 255.33 255.67 256.01 266.35 252.22 268.01 266.	340	226.21	226.56	226.91	227.26	227.61	227.96	228.31	228.66	229.02	229.37	340
370 236,70 237,05 237,40 237,74 238,09 238,44 238,79 239,13 239,48 239,83 370 380 240,18 240,52 240,87 241,22 241,56 242,66 242,60 242,65 243,29 380 390 243,64 243,99 244,33 244,68 245,02 245,37 245,71 246,06 246,40 246,75 390 400 247,09 247,44 247,78 248,13 248,47 248,81 249,16 249,50 249,85 250,19 400 410 250,53 250,88 251,22 251,56 251,91 252,25 252,59 252,33 253,28 253,62 410 420 253,96 254,03 254,65 254,99 255,33 255,67 256,01 256,04 267,02 259,78 260,10 260,04 430 440 260,78 261,12 261,46 261,80 262,14 262,48 262,82 263,	350	229.72	230.07	230.42	230.77	231.12	231.47	231.82	232.17	232.52	232.87	350
380 240.18 240.52 240.87 241.22 241.56 241.91 242.66 242.60 242.95 243.29 380 390 243.64 243.99 244.33 244.68 245.02 245.37 245.71 246.06 246.40 246.75 390 400 247.09 247.44 247.78 248.13 248.47 248.16 249.50 249.85 250.19 400 410 250.53 250.88 251.22 251.56 251.91 252.25 252.99 252.93 253.28 253.62 410 420 253.96 254.30 254.65 254.99 255.33 255.67 256.01 256.35 256.70 257.04 420 430 257.38 257.72 258.06 258.40 258.74 259.08 259.42 259.76 260.10 260.44 430 450 264.18 264.52 264.86 265.20 265.53 266.87 266.21 262.49 263.50 266.	360	233.21	233.56	233.91	234.26	234.61	234.96	235.31	235.66	236.00	236.35	360
390 243.64 243.99 244.33 244.68 245.02 245.37 245.71 246.06 246.40 246.75 390 400 247.09 247.44 247.78 248.13 248.47 248.81 249.16 249.50 249.85 250.19 400 410 250.53 250.88 251.22 251.56 251.91 252.25 252.59 252.93 253.28 253.62 410 420 253.96 254.65 254.69 255.33 255.67 256.01 256.35 256.70 257.04 420 430 257.38 257.72 258.06 258.40 258.74 259.08 259.42 259.76 260.10 260.44 430 440 260.78 261.12 261.46 261.80 265.20 265.53 266.87 266.21 266.55 266.57 266.55 266.89 267.22 450 460 267.56 267.90 268.24 268.57 268.91 266.57 269.	370	236.70	237.05	237.40	237.74	1	238.44	238.79	239.13	239.48	239.83	370
400 247.09 247.44 247.78 248.13 248.47 248.81 249.16 249.50 249.85 250.19 400 410 250.53 250.88 251.22 251.56 251.91 252.25 252.59 252.93 253.28 253.62 410 420 253.96 254.30 254.65 254.99 255.33 255.67 256.01 256.00 257.04 420 430 257.38 257.72 258.06 258.40 258.74 259.08 259.42 259.76 260.10 260.44 430 440 260.78 261.12 261.42 262.82 263.16 263.50 263.84 440 450 264.18 264.52 264.86 265.20 265.53 266.87 266.21 266.25 266.89 267.22 450 460 267.56 267.90 268.24 268.57 268.91 269.25 269.59 269.92 270.26 270.60 470 470	380	240.18	240.52	240.87	241.22	241.56	241.91	242.26	242.60	242.95	243.29	380
410 250.53 250.88 251.22 251.56 251.91 252.25 252.59 252.93 253.28 253.62 410 420 253.96 254.30 254.65 254.99 255.33 256.67 256.01 256.35 256.70 257.04 420 430 257.38 257.72 258.06 258.40 258.74 259.08 259.42 259.76 260.10 260.44 430 440 260.78 261.12 261.46 261.80 262.14 262.48 262.82 263.16 263.50 263.84 440 450 264.18 264.52 264.86 265.20 265.53 265.87 266.21 266.55 266.89 267.22 450 460 267.56 267.90 268.24 268.57 268.91 269.25 269.59 269.92 270.26 270.60 460 470 270.93 271.27 271.61 271.94 272.28 272.61 272.95 273.29 273.	390	243.64	243.99	244.33	244.68	245.02	245.37	245.71	246.06	246.40	246.75	390
420 253.96 254.30 254.65 254.99 255.33 255.67 256.01 256.35 256.70 257.04 420 430 257.38 257.72 258.06 258.40 258.74 259.08 259.42 259.76 260.10 260.44 430 440 260.78 261.12 261.46 261.80 262.14 262.48 262.82 263.16 263.50 263.84 440 450 264.18 264.52 268.86 265.20 265.53 265.87 266.21 266.55 266.89 267.22 450 460 267.56 267.90 268.24 268.57 268.91 269.92 270.26 270.60 460 470 270.93 271.27 271.61 271.94 272.28 272.61 272.95 273.29 273.62 273.96 470 480 274.29 274.63 274.96 275.30 275.63 275.97 276.30 276.64 276.97 277.31 480<	400	247.09	247.44	247.78	248.13	248.47	248.81	249.16	249.50	249.85	250.19	400
430 257.38 257.72 258.06 258.40 258.74 259.08 259.42 259.76 260.10 260.44 430 440 260.78 261.12 261.46 261.80 262.14 262.48 262.82 263.16 263.50 263.84 440 450 264.18 264.52 264.86 265.20 265.53 265.87 266.21 266.55 266.89 267.22 450 460 267.56 267.90 268.24 268.57 268.91 269.25 269.59 269.92 270.26 270.60 460 470 270.93 271.27 271.61 271.94 272.28 272.61 272.95 273.29 273.62 273.96 470 480 274.99 276.63 276.95 275.30 276.63 276.90 277.64 276.91 287.31 480 490 277.64 277.98 278.31 278.64 278.98 293.31 279.64 279.98 280.31 280.	410	250.53	250.88	251.22	251.56	251.91	252.25	252.59	252.93	253.28	253.62	410
440 260.78 261.12 261.46 261.80 262.14 262.48 262.82 263.16 263.50 263.84 440 450 264.18 264.52 264.86 265.20 265.53 265.87 266.21 266.55 266.89 267.22 450 460 267.56 267.90 268.24 268.57 268.91 269.25 269.59 269.92 270.26 270.60 460 470 270.93 271.27 271.61 271.94 272.28 272.61 272.95 273.29 273.62 273.96 470 480 274.29 274.63 274.96 275.30 275.63 275.97 276.30 276.64 276.97 277.31 480 490 277.64 277.98 278.31 278.64 278.98 279.31 279.64 279.98 280.31 280.64 490 500 280.98 281.31 281.64 281.98 282.97 283.31 283.64 283.97 500<	420		254.30	254.65	254.99	255.33	255.67			256.70		420
450 264.18 264.52 264.86 265.20 265.53 265.87 266.21 266.55 266.89 267.22 450 460 267.56 267.90 268.24 268.57 268.91 269.25 269.59 269.92 270.26 270.60 460 470 270.93 271.27 271.61 271.94 272.28 272.61 272.95 273.29 273.62 273.96 470 480 274.29 274.63 274.96 275.30 275.63 275.97 276.30 276.64 276.97 277.31 480 490 277.64 277.98 278.31 278.64 278.98 279.31 279.64 279.98 280.31 280.64 490 500 280.98 281.31 281.64 281.98 282.31 282.64 282.97 283.31 283.64 283.97 500 510 287.62 287.95 288.28 288.61 288.94 289.27 289.60 289.93 290.	430	257.38	257.72	258.06	258.40	258.74	259.08	259.42	259.76	260.10	260.44	430
460 267.56 267.90 268.24 268.57 268.91 269.25 269.59 269.92 270.26 270.60 460 470 270.93 271.27 271.61 271.94 272.28 272.61 272.95 273.29 273.62 273.96 470 480 274.29 274.63 274.96 275.30 275.63 275.97 276.30 276.64 276.97 277.31 480 490 277.64 277.98 278.31 278.64 278.98 279.31 279.64 279.98 280.31 280.64 490 500 280.98 281.31 281.64 281.98 282.31 282.64 282.97 283.31 283.64 283.97 500 510 284.30 284.63 284.97 285.30 285.63 285.96 286.29 286.62 286.95 287.29 510 520 287.62 287.95 288.28 288.61 288.94 289.27 289.60 289.93 290.	440	260.78	261.12	261.46	261.80	262.14	262.48	262.82	263.16	263.50	263.84	440
470 270.93 271.27 271.61 271.94 272.28 272.61 272.95 273.29 273.62 273.96 470 480 274.29 274.63 274.96 275.30 275.63 275.97 276.30 276.64 276.97 277.31 480 490 277.64 277.98 278.31 278.64 278.98 279.31 279.64 279.98 280.31 280.64 490 500 280.98 281.31 281.64 281.98 282.31 282.64 282.97 283.31 283.64 283.97 500 510 284.30 284.63 284.97 285.30 285.63 285.96 286.29 286.62 286.95 287.29 510 520 287.62 287.95 288.28 288.61 288.94 289.27 289.60 289.93 290.26 290.59 520 530 290.92 291.25 291.58 291.91 292.24 292.56 292.89 293.22 293.	450	264.18	264.52	264.86	265.20	265.53	265.87	266.21	266.55	266.89	267.22	450
470 270.93 271.27 271.61 271.94 272.28 272.61 272.95 273.29 273.62 273.96 470 480 274.29 274.63 274.96 275.30 275.63 275.97 276.30 276.64 276.97 277.31 480 490 277.64 277.98 278.31 278.64 278.98 279.31 279.64 279.98 280.31 280.64 490 500 280.98 281.31 281.64 281.98 282.31 282.64 282.97 283.31 283.64 283.97 500 510 284.30 284.63 284.97 285.30 285.63 285.96 286.29 286.62 286.95 287.29 510 520 287.62 287.95 288.28 288.61 288.94 289.27 289.60 289.93 290.26 290.59 520 530 290.92 291.25 291.58 291.91 292.24 292.56 292.89 293.22 293.	460	267.56	267.90	268.24	268.57	268.91	269.25	269.59	269.92	270.26	270.60	460
490 277.64 277.98 278.31 278.64 278.98 279.31 279.64 279.98 280.31 280.64 490 500 280.98 281.31 281.64 281.98 282.31 282.64 282.97 283.31 283.64 283.97 500 510 284.30 284.63 284.97 285.30 285.63 285.96 286.29 286.62 286.95 287.29 510 520 287.62 287.95 288.28 288.61 288.94 289.27 289.60 289.93 290.26 290.59 520 530 290.92 291.25 291.58 291.91 292.24 292.56 292.89 293.22 293.55 293.88 530 540 294.21 294.54 294.86 295.19 295.52 295.85 296.18 296.50 296.83 297.16 540 550 297.49 297.81 298.47 298.80 299.12 299.45 299.78 300.10 300.	470	270.93	271.27	271.61	271.94	272.28	272.61		273.29			470
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510 284.30 284.63 284.97 285.30 285.63 285.96 286.29 286.62 286.95 287.29 510 520 287.62 287.95 288.28 288.61 288.94 289.27 289.60 289.93 290.26 290.59 520 530 290.92 291.25 291.58 291.91 292.24 292.56 292.89 293.22 293.55 293.88 530 540 294.21 294.54 294.86 295.19 295.52 295.85 296.18 296.50 296.83 297.16 540 550 297.49 297.81 298.14 298.47 298.80 299.12 299.45 299.78 300.10 300.43 550 560 300.75 301.08 301.41 301.73 302.06 302.38 302.71 303.03 303.36 303.69 560 570 304.01 304.66 304.98 305.31 305.63 305.96 306.28 306.61 306.	490	277.64	277.98	278.31	278.64	278.98	279.31	279.64	279.98	280.31	280.64	490
520 287.62 287.95 288.28 288.61 288.94 289.27 289.60 289.93 290.26 290.59 520 530 290.92 291.25 291.58 291.91 292.24 292.56 292.89 293.22 293.55 293.88 530 540 294.21 294.54 294.86 295.19 295.52 295.85 296.18 296.50 296.83 297.16 540 550 297.49 297.81 298.14 298.47 298.80 299.12 299.45 299.78 300.10 300.43 550 560 300.75 301.08 301.41 301.73 302.06 302.38 302.71 303.03 303.36 303.69 560 570 304.01 304.34 304.66 304.98 305.31 305.63 305.96 306.28 306.61 306.93 570 580 307.25 307.58 307.90 308.23 308.55 308.87 309.20 309.52 309.	500	280.98	281.31	281.64	281.98	282.31	282.64	282.97	283.31	283.64	283.97	500
520 287.62 287.95 288.28 288.61 288.94 289.27 289.60 289.93 290.26 290.59 520 530 290.92 291.25 291.58 291.91 292.24 292.56 292.89 293.22 293.55 293.88 530 540 294.21 294.54 294.86 295.19 295.52 295.85 296.18 296.50 296.83 297.16 540 550 297.49 297.81 298.14 298.47 298.80 299.12 299.45 299.78 300.10 300.43 550 560 300.75 301.08 301.41 301.73 302.06 302.38 302.71 303.03 303.36 303.69 560 570 304.01 304.34 304.66 304.98 305.31 305.63 305.96 306.28 306.61 306.93 570 580 307.25 307.58 307.90 308.23 308.55 308.87 309.20 309.52 309.	510	284.30	284.63	284.97	285.30	285.63	285.96	286.29	286.62	286.95	287.29	510
540 294.21 294.54 294.86 295.19 295.52 295.85 296.18 296.50 296.83 297.16 540 550 297.49 297.81 298.14 298.47 298.80 299.12 299.45 299.78 300.10 300.43 550 560 300.75 301.08 301.41 301.73 302.06 302.38 302.71 303.03 303.36 303.69 560 570 304.01 304.34 304.66 304.98 305.31 305.63 305.96 306.28 306.61 306.93 570 580 307.25 307.58 307.90 308.23 308.55 308.87 309.20 309.52 309.84 310.16 580 590 310.49 310.81 311.13 311.45 311.78 312.10 312.42 312.74 313.06 313.39 590 600 313.71 314.03 314.35 314.67 314.99 315.31 315.64 315.96 316.		287.62	287.95	288.28	288.61	288.94	289.27			290.26		
550 297.49 297.81 298.14 298.47 298.80 299.12 299.45 299.78 300.10 300.43 550 560 300.75 301.08 301.41 301.73 302.06 302.38 302.71 303.03 303.36 303.69 560 570 304.01 304.34 304.66 304.98 305.31 305.63 305.96 306.28 306.61 306.93 570 580 307.25 307.58 307.90 308.23 308.55 308.87 309.20 309.52 309.84 310.16 580 590 310.49 310.81 311.13 311.45 311.78 312.10 312.42 312.74 313.06 313.39 590 600 313.71 314.03 314.35 314.67 314.99 315.31 315.64 315.96 316.28 316.60 600 610 316.92 317.24 317.56 317.88 318.20 318.52 318.84 319.16 319.	530	290.92	291.25	291.58	291.91	292.24	292.56	292.89	293.22	293.55	293.88	530
560 300.75 301.08 301.41 301.73 302.06 302.38 302.71 303.03 303.36 303.69 560 570 304.01 304.34 304.66 304.98 305.31 305.63 305.96 306.28 306.61 306.93 570 580 307.25 307.58 307.90 308.23 308.55 308.87 309.20 309.52 309.84 310.16 580 590 310.49 310.81 311.13 311.45 311.78 312.10 312.42 312.74 313.06 313.39 590 600 313.71 314.03 314.35 314.67 314.99 315.31 315.64 315.96 316.28 316.60 600 610 316.92 317.24 317.56 317.88 318.20 318.52 318.84 319.16 319.48 319.80 610 620 320.12 320.43 320.75 321.07 321.39 321.71 322.03 322.35 322.	540	294.21	294.54	294.86	295.19	295.52	295.85	296.18	296.50	296.83	297.16	540
560 300.75 301.08 301.41 301.73 302.06 302.38 302.71 303.03 303.36 303.69 560 570 304.01 304.34 304.66 304.98 305.31 305.63 305.96 306.28 306.61 306.93 570 580 307.25 307.58 307.90 308.23 308.55 308.87 309.20 309.52 309.84 310.16 580 590 310.49 310.81 311.13 311.45 311.78 312.10 312.42 312.74 313.06 313.39 590 600 313.71 314.03 314.35 314.67 314.99 315.31 315.64 315.96 316.28 316.60 600 610 316.92 317.24 317.56 317.88 318.20 318.52 318.84 319.16 319.48 319.80 610 620 320.12 320.43 320.75 321.07 321.39 321.71 322.03 322.35 322.	550	297.49	297.81	298.14	298.47	298.80	299.12	299.45	299.78	300.10	300.43	550
570 304.01 304.34 304.66 304.98 305.31 305.63 305.96 306.28 306.61 306.93 570 580 307.25 307.58 307.90 308.23 308.55 308.87 309.20 309.52 309.84 310.16 580 590 310.49 310.81 311.13 311.45 311.78 312.10 312.42 312.74 313.06 313.39 590 600 313.71 314.03 314.35 314.67 314.99 315.31 315.64 315.96 316.28 316.60 600 610 316.92 317.24 317.56 317.88 318.20 318.52 318.84 319.16 319.48 319.80 610 620 320.12 320.43 320.75 321.07 321.39 321.71 322.03 322.35 322.67 322.98 620 630 323.30 323.62 323.94 324.26 324.57 324.89 325.21 325.53 325.												
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590 310.49 310.81 311.13 311.45 311.78 312.10 312.42 312.74 313.06 313.39 590 600 313.71 314.03 314.35 314.67 314.99 315.31 315.64 315.96 316.28 316.60 600 610 316.92 317.24 317.56 317.88 318.20 318.52 318.84 319.16 319.48 319.80 610 620 320.12 320.43 320.75 321.07 321.39 321.71 322.03 322.35 322.67 322.98 620 630 323.30 323.62 323.94 324.26 324.57 324.89 325.21 325.53 325.84 326.16 630 640 326.48 326.79 327.11 327.43 327.74 328.06 328.38 328.69 329.01 329.32 640	580	307.25	307.58	307.90	308.23	308.55	308.87	309.20	309.52	309.84	310.16	580
610 316.92 317.24 317.56 317.88 318.20 318.52 318.84 319.16 319.48 319.80 610 620 320.12 320.43 320.75 321.07 321.39 321.71 322.03 322.35 322.67 322.98 620 630 323.30 323.62 323.94 324.26 324.57 324.89 325.21 325.53 325.84 326.16 630 640 326.48 326.79 327.11 327.43 327.74 328.06 328.38 328.69 329.01 329.32 640	590		310.81	311.13	311.45	311.78		312.42	312.74	313.06	313.39	590
610 316.92 317.24 317.56 317.88 318.20 318.52 318.84 319.16 319.48 319.80 610 620 320.12 320.43 320.75 321.07 321.39 321.71 322.03 322.35 322.67 322.98 620 630 323.30 323.62 323.94 324.26 324.57 324.89 325.21 325.53 325.84 326.16 630 640 326.48 326.79 327.11 327.43 327.74 328.06 328.38 328.69 329.01 329.32 640	600	313.71	314.03	314.35	314.67	314.99	315.31	315.64	315.96	316.28	316.60	600
620 320.12 320.43 320.75 321.07 321.39 321.71 322.03 322.35 322.67 322.98 620 630 323.30 323.62 323.94 324.26 324.57 324.89 325.21 325.53 325.84 326.16 630 640 326.48 326.79 327.11 327.43 327.74 328.06 328.38 328.69 329.01 329.32 640												
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640 326.48 326.79 327.11 327.43 327.74 328.06 328.38 328.69 329.01 329.32 640				323.94	324.26							
	640		326.79	327.11	327.43	327.74		328.38		329.01	329.32	640
	650	329.64										650