Proposal Number	**DCA-9456**	Revision:	**2**
Date	**18-Dec-03**		
Call Letters	**KSTW-DT**	Channel	**36**
Location	**Tacoma, WA**		
Customer			
Antenna Type	**TUV-24GTH/8HV-R 4BP250/P220**		

SYSTEM SUMMARY

Antenna:

			H Pol	
Type:	**TUV-24GTH/8HV-R 4BP250/P220**	ERP:	**850 kW**	**(29.29 dBk)**
Channel:	**36**	Peak Gain*:	**48.8**	**(16.88 dB)**
Location:	**Tacoma, WA**	Input Power:	**17.4 kW**	**(12.41 dBk)**

Transmission Line:

Type:	**EIA/DCA**	Attenuation:	**0.83 dB**
Size:	**6-1/8 in**	Efficiency:	**82.5%**
Impedance:	**50 ohm**		
Length:	**650 ft**	**198.1 m**	

Transmitter:

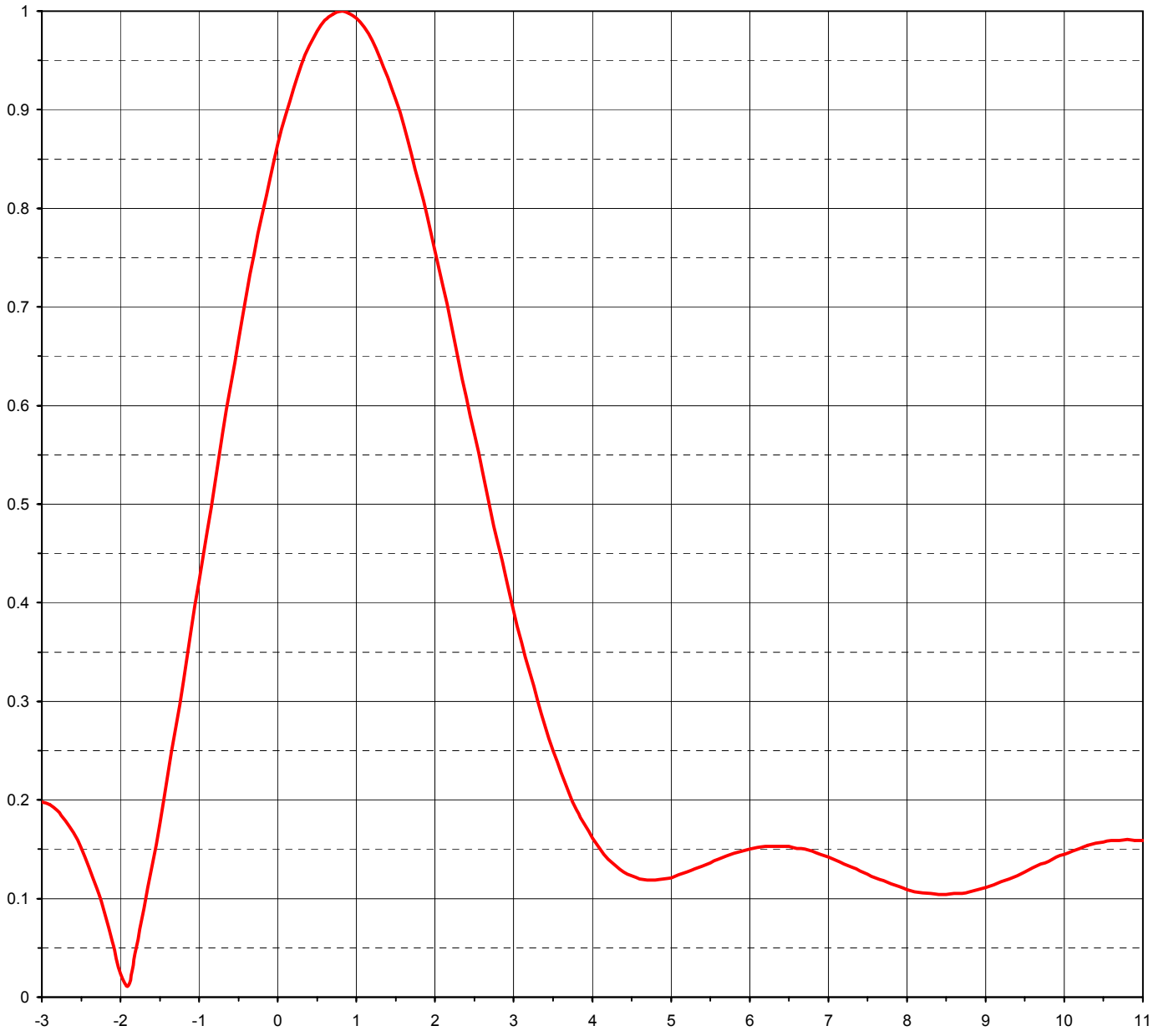
Power Required: **21.1 kW** **(13.25 dBk)**

* Gain is with respect to half wave dipole.

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Antenna Type	**TUV-24GTH/8HV-R 4BP250/P220**		

ELEVATION PATTERN

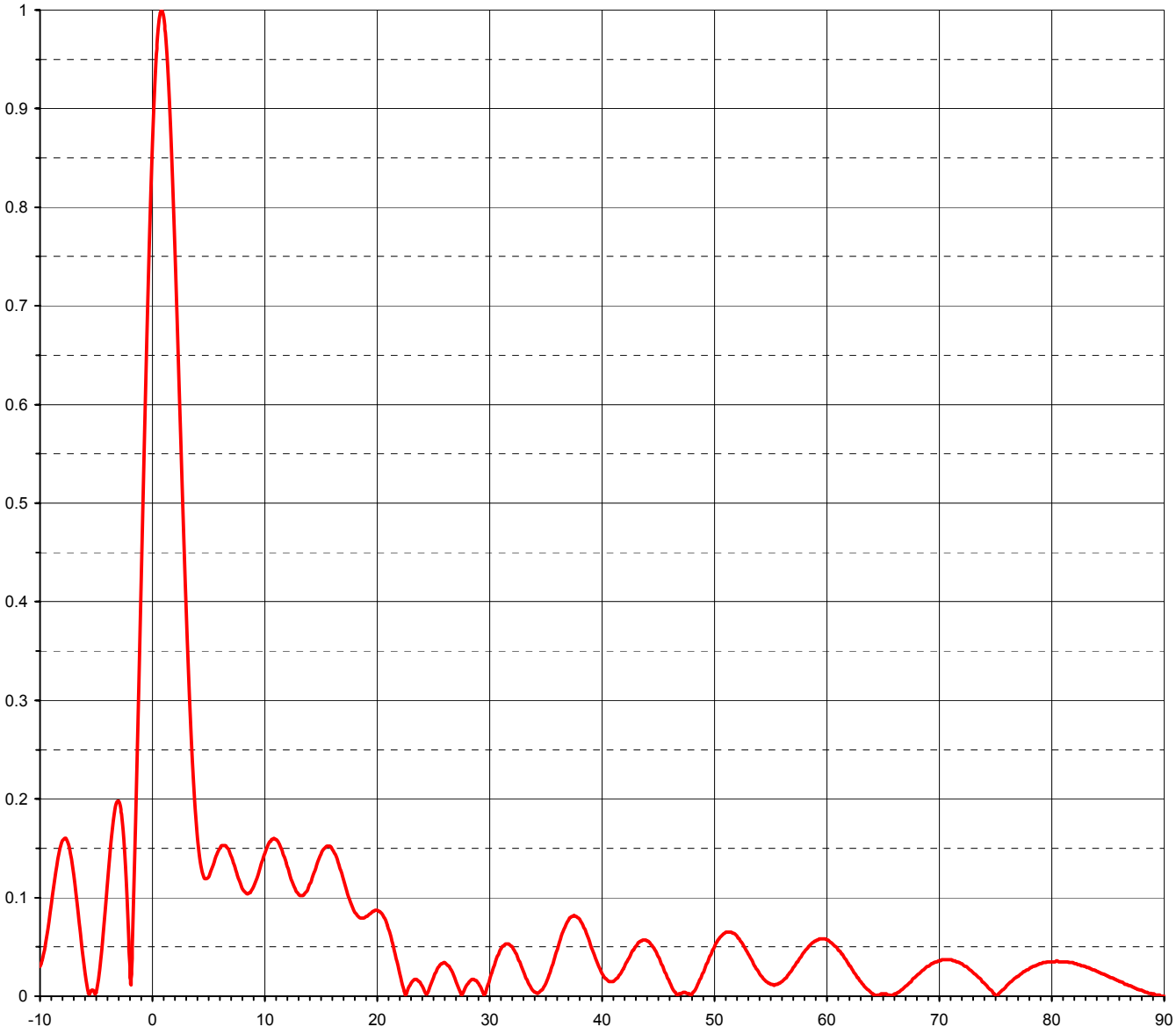
RMS Gain at Main Lobe	**19.50**	**(12.90 dB)**	Beam Tilt	**0.80 deg**
RMS Gain at Horizontal	**14.60**	**(11.64 dB)**	Frequency	**605.00 MHz**
Calculated / Measured	**Calculated**		Drawing #	**24G195080**



Proposal Number	**DCA-9456**	Revision:	**2**
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Call Letters	**KSTW-DT**	Channel	**36**
Location	**Tacoma, WA**		
Customer			
Antenna Type	**TUV-24GTH/8HV-R 4BP250/P220**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**19.50**	**(12.90 dB)**	Beam Tilt	**0.80 deg**
RMS Gain at Horizontal	**14.60**	**(11.64 dB)**	Frequency	**605.00 MHz**
Calculated / Measured	**Calculated**		Drawing #	**24G195080-90**



Dielectric

Proposal Number **DCA-9456** Revision: **2**
Date **18-Dec-03**
Call Letters **KSTW-DT** Channel **36**
Location **Tacoma, WA**
Customer
Antenna Type **TUV-24GTH/8HV-R 4BP250/P220**

TABULATION OF ELEVATION PATTERN

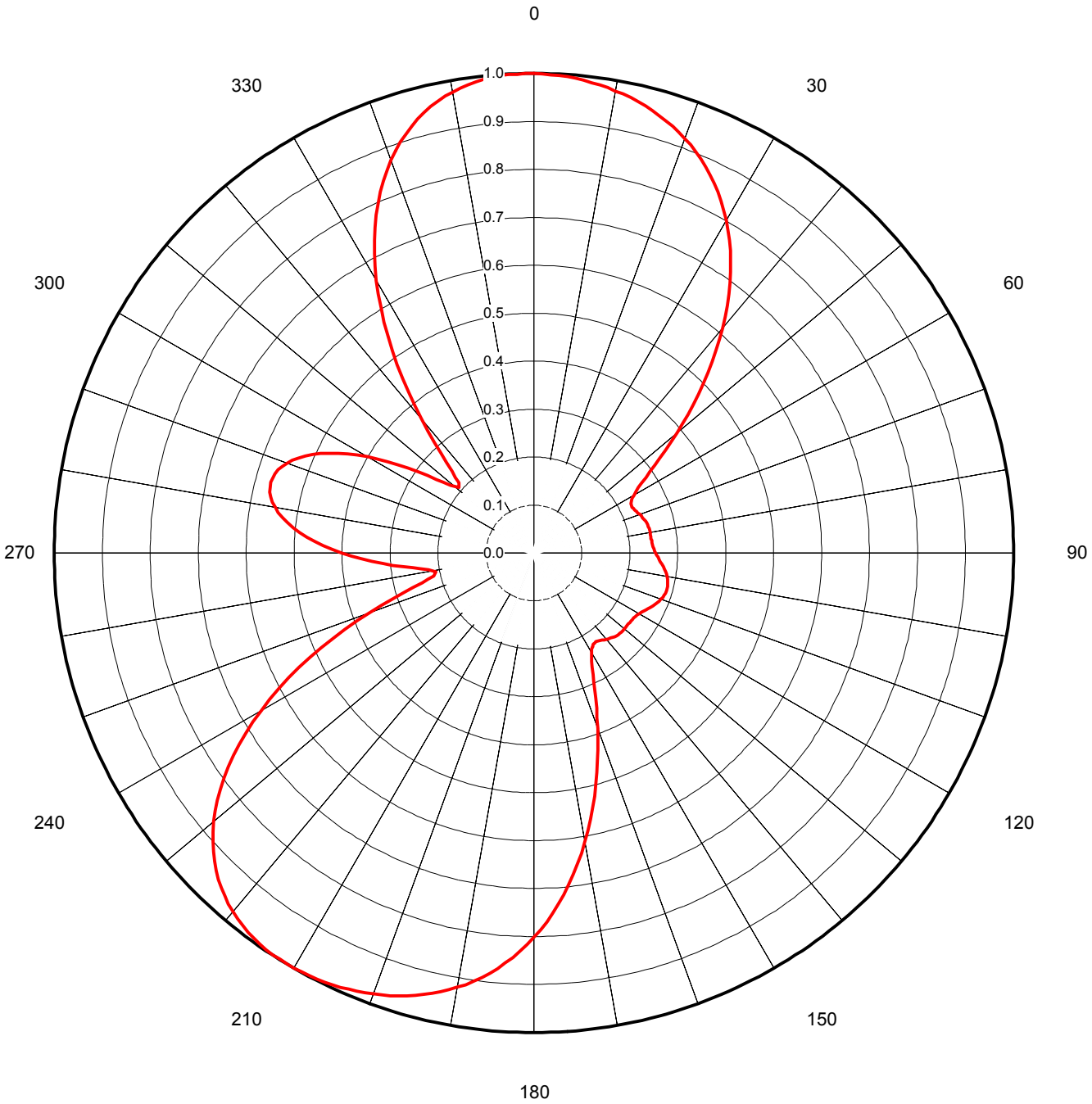
Elevation Pattern Drawing #: **24G195080-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.030	2.4	0.608	10.6	0.157	30.5	0.031	51.0	0.064	71.5	0.035
-9.5	0.054	2.6	0.533	10.8	0.159	31.0	0.046	51.5	0.065	72.0	0.033
-9.0	0.093	2.8	0.460	11.0	0.159	31.5	0.053	52.0	0.062	72.5	0.029
-8.5	0.133	3.0	0.392	11.5	0.151	32.0	0.051	52.5	0.055	73.0	0.024
-8.0	0.158	3.2	0.330	12.0	0.135	32.5	0.042	53.0	0.045	73.5	0.019
-7.5	0.155	3.4	0.275	12.5	0.117	33.0	0.028	53.5	0.035	74.0	0.013
-7.0	0.123	3.6	0.228	13.0	0.105	33.5	0.014	54.0	0.025	74.5	0.007
-6.5	0.073	3.8	0.190	13.5	0.102	34.0	0.005	54.5	0.017	75.0	0.001
-6.0	0.024	4.0	0.161	14.0	0.111	34.5	0.004	55.0	0.013	75.5	0.005
-5.5	0.005	4.2	0.140	14.5	0.126	35.0	0.011	55.5	0.012	76.0	0.011
-5.0	0.004	4.4	0.127	15.0	0.142	35.5	0.025	56.0	0.014	76.5	0.016
-4.5	0.048	4.6	0.120	15.5	0.151	36.0	0.044	56.5	0.019	77.0	0.020
-4.0	0.115	4.8	0.119	16.0	0.151	36.5	0.062	57.0	0.027	77.5	0.025
-3.5	0.176	5.0	0.121	16.5	0.140	37.0	0.075	57.5	0.035	78.0	0.028
-3.0	0.198	5.2	0.127	17.0	0.122	37.5	0.081	58.0	0.044	78.5	0.031
-2.8	0.189	5.4	0.133	17.5	0.102	38.0	0.079	58.5	0.051	79.0	0.033
-2.6	0.167	5.6	0.140	18.0	0.087	38.5	0.069	59.0	0.056	79.5	0.034
-2.4	0.132	5.8	0.146	18.5	0.080	39.0	0.055	59.5	0.058	80.0	0.035
-2.2	0.084	6.0	0.150	19.0	0.080	39.5	0.039	60.0	0.058	80.5	0.036
-2.0	0.024	6.2	0.153	19.5	0.084	40.0	0.025	60.5	0.054	81.0	0.035
-1.8	0.049	6.4	0.153	20.0	0.087	40.5	0.017	61.0	0.049	81.5	0.034
-1.6	0.133	6.6	0.151	20.5	0.084	41.0	0.015	61.5	0.042	82.0	0.033
-1.4	0.224	6.8	0.148	21.0	0.072	41.5	0.019	62.0	0.033	82.5	0.032
-1.2	0.321	7.0	0.142	21.5	0.052	42.0	0.028	62.5	0.024	83.0	0.030
-1.0	0.422	7.2	0.135	22.0	0.028	42.5	0.039	63.0	0.016	83.5	0.028
-0.8	0.522	7.4	0.128	22.5	0.005	43.0	0.049	63.5	0.009	84.0	0.025
-0.6	0.620	7.6	0.121	23.0	0.011	43.5	0.056	64.0	0.004	84.5	0.023
-0.4	0.711	7.8	0.115	23.5	0.017	44.0	0.057	64.5	0.001	85.0	0.020
-0.2	0.794	8.0	0.109	24.0	0.012	44.5	0.052	65.0	0.002	85.5	0.018
0.0	0.865	8.2	0.106	24.5	0.002	45.0	0.042	65.5	0.001	86.0	0.015
0.2	0.922	8.4	0.104	25.0	0.016	45.5	0.030	66.0	0.002	86.5	0.012
0.4	0.965	8.6	0.105	25.5	0.029	46.0	0.017	66.5	0.005	87.0	0.010
0.6	0.991	8.8	0.107	26.0	0.034	46.5	0.005	67.0	0.010	87.5	0.008
0.8	1.000	9.0	0.111	26.5	0.030	47.0	0.002	67.5	0.015	88.0	0.006
1.0	0.993	9.2	0.117	27.0	0.018	47.5	0.004	68.0	0.021	88.5	0.004
1.2	0.970	9.4	0.123	27.5	0.004	48.0	0.001	68.5	0.026	89.0	0.002
1.4	0.933	9.6	0.131	28.0	0.010	48.5	0.009	69.0	0.030	89.5	0.001
1.6	0.884	9.8	0.135	28.5	0.017	49.0	0.022	69.5	0.034	90.0	0.000
1.8	0.824	10.0	0.142	29.0	0.014	49.5	0.035	70.0	0.036		
2.0	0.757	10.2	0.148	29.5	0.004	50.0	0.048	70.5	0.037		
2.2	0.684	10.4	0.154	30.0	0.013	50.5	0.058	71.0	0.037		

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Customer			
Antenna Type	**TUV-24GTH/8HV-R 4BP250/P220**		

AZIMUTH PATTERN

Gain	**2.50**	**(3.98 dB)**	Frequency	**605.00 MHz**
Calculated / Measured		**Calculated**	Drawing #	**TUV-4BP250-6050**



Dielectric

Proposal Number	**DCA-9456**	Revision:	**2**
Date	**18-Dec-03**		
Call Letters	**KSTW-DT**	Channel	**36**
Location	**Tacoma, WA**		
Customer			
Antenna Type	**TUV-24GTH/8HV-R 4BP250/P220**		

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **TUV-4BP250-6050**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	1.000	45	0.499	90	0.254	135	0.244	180	0.801	225	0.937	270	0.401	315	0.241
1	0.999	46	0.477	91	0.256	136	0.242	181	0.817	226	0.925	271	0.421	316	0.263
2	0.998	47	0.454	92	0.259	137	0.241	182	0.831	227	0.914	272	0.440	317	0.284
3	0.997	48	0.432	93	0.262	138	0.239	183	0.845	228	0.900	273	0.458	318	0.311
4	0.995	49	0.410	94	0.265	139	0.237	184	0.857	229	0.887	274	0.475	319	0.337
5	0.993	50	0.389	95	0.268	140	0.235	185	0.870	230	0.871	275	0.491	320	0.366
6	0.991	51	0.368	96	0.271	141	0.232	186	0.881	231	0.855	276	0.504	321	0.395
7	0.989	52	0.348	97	0.274	142	0.230	187	0.892	232	0.837	277	0.518	322	0.425
8	0.985	53	0.329	98	0.277	143	0.228	188	0.901	233	0.819	278	0.529	323	0.455
9	0.982	54	0.312	99	0.279	144	0.227	189	0.911	234	0.798	279	0.540	324	0.485
10	0.978	55	0.295	100	0.281	145	0.226	190	0.920	235	0.778	280	0.548	325	0.515
11	0.975	56	0.281	101	0.284	146	0.226	191	0.928	236	0.755	281	0.555	326	0.544
12	0.970	57	0.268	102	0.285	147	0.227	192	0.935	237	0.732	282	0.560	327	0.573
13	0.966	58	0.257	103	0.287	148	0.230	193	0.943	238	0.708	283	0.565	328	0.602
14	0.960	59	0.247	104	0.287	149	0.233	194	0.949	239	0.683	284	0.566	329	0.630
15	0.955	60	0.240	105	0.287	150	0.240	195	0.955	240	0.656	285	0.568	330	0.656
16	0.949	61	0.233	106	0.287	151	0.247	196	0.960	241	0.630	286	0.566	331	0.683
17	0.942	62	0.230	107	0.287	152	0.257	197	0.966	242	0.602	287	0.565	332	0.708
18	0.935	63	0.227	108	0.285	153	0.268	198	0.970	243	0.573	288	0.560	333	0.732
19	0.928	64	0.226	109	0.284	154	0.281	199	0.975	244	0.544	289	0.555	334	0.755
20	0.920	65	0.226	110	0.281	155	0.295	200	0.978	245	0.515	290	0.548	335	0.778
21	0.911	66	0.227	111	0.279	156	0.312	201	0.982	246	0.485	291	0.540	336	0.798
22	0.901	67	0.228	112	0.277	157	0.329	202	0.985	247	0.455	292	0.529	337	0.819
23	0.892	68	0.230	113	0.274	158	0.348	203	0.989	248	0.425	293	0.518	338	0.837
24	0.881	69	0.232	114	0.271	159	0.368	204	0.991	249	0.395	294	0.504	339	0.855
25	0.870	70	0.235	115	0.268	160	0.389	205	0.993	250	0.366	295	0.491	340	0.871
26	0.857	71	0.237	116	0.265	161	0.410	206	0.995	251	0.337	296	0.475	341	0.887
27	0.845	72	0.239	117	0.262	162	0.432	207	0.997	252	0.311	297	0.458	342	0.900
28	0.831	73	0.241	118	0.259	163	0.454	208	0.998	253	0.284	298	0.440	343	0.914
29	0.817	74	0.242	119	0.256	164	0.477	209	0.999	254	0.263	299	0.421	344	0.925
30	0.801	75	0.244	120	0.254	165	0.499	210	1.000	255	0.241	300	0.401	345	0.937
31	0.786	76	0.244	121	0.252	166	0.522	211	1.000	256	0.227	301	0.381	346	0.946
32	0.769	77	0.245	122	0.250	167	0.545	212	0.999	257	0.214	302	0.359	347	0.956
33	0.752	78	0.246	123	0.249	168	0.568	213	0.999	258	0.211	303	0.338	348	0.963
34	0.734	79	0.246	124	0.248	169	0.590	214	0.997	259	0.208	304	0.316	349	0.970
35	0.715	80	0.246	125	0.247	170	0.612	215	0.996	260	0.216	305	0.295	350	0.976
36	0.695	81	0.246	126	0.246	171	0.634	216	0.993	261	0.223	306	0.275	351	0.982
37	0.676	82	0.246	127	0.246	172	0.655	217	0.990	262	0.239	307	0.255	352	0.986
38	0.655	83	0.246	128	0.246	173	0.676	218	0.986	263	0.255	308	0.239	353	0.990
39	0.634	84	0.246	129	0.246	174	0.695	219	0.982	264	0.275	309	0.223	354	0.993
40	0.612	85	0.247	130	0.246	175	0.715	220	0.976	265	0.295	310	0.216	355	0.996
41	0.590	86	0.248	131	0.246	176	0.734	221	0.970	266	0.316	311	0.208	356	0.997
42	0.568	87	0.249	132	0.246	177	0.752	222	0.963	267	0.338	312	0.211	357	0.999
43	0.545	88	0.250	133	0.245	178	0.769	223	0.956	268	0.359	313	0.214	358	0.999
44	0.522	89	0.252	134	0.244	179	0.786	224	0.946	269	0.381	314	0.227	359	1.000