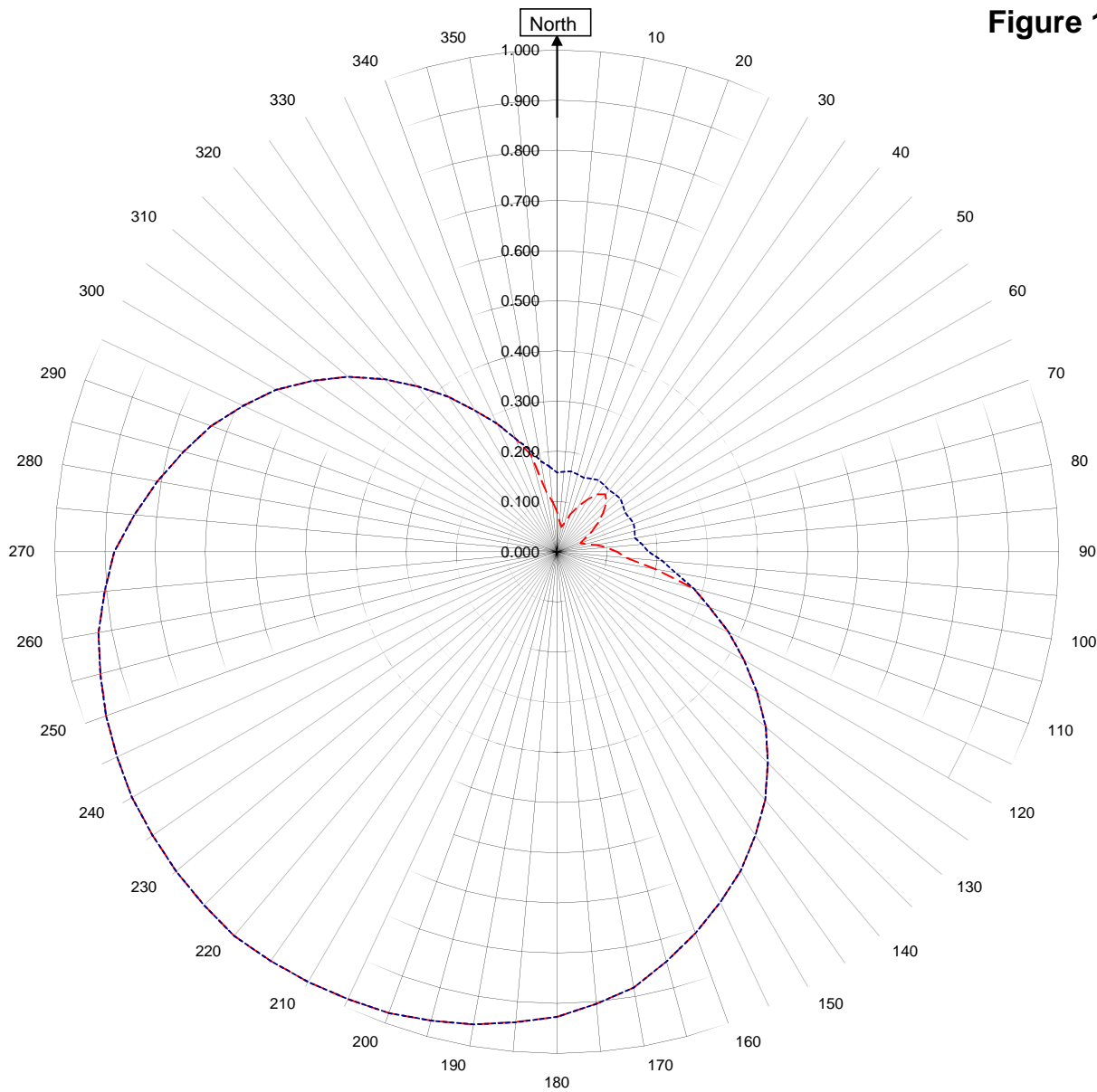


Shively Labs

Shively Labs, a division of Howell Laboratories, Inc. Bridgton, ME (207)647-3327

Figure 1a



K202CV Breckenridge, CO

0
September 13, 2011

Horizontal RMS	0.000	Frequency	88.3 / 397.35 mHz
Vertical RMS	0.636	Plot	Relative Field
H/V Composite RMS	0.636	Scale	4.5 : 1
FCC Composite RMS	0.641	See Figure 2 for Mechanical Details	

Antenna Model	6020-1-off the Self Translator
Pattern Type	Directional Azimuth

Figure 1d

Tabulation of Vertical Azimuth Pattern
K202CV Breckenridge, CO

Azimuth	Rel Field	Azimuth	Rel Field
0	0.080	180	0.927
10	0.050	190	0.956
20	0.080	200	0.978
30	0.120	210	0.990
40	0.150	220	1.000
45	0.140	225	0.995
50	0.120	230	0.990
60	0.080	240	0.978
70	0.050	250	0.956
80	0.080	260	0.927
90	0.120	270	0.882
100	0.200	280	0.808
110	0.324	290	0.733
120	0.430	300	0.646
130	0.543	310	0.543
135	0.594	315	0.486
140	0.646	320	0.430
150	0.733	330	0.324
160	0.808	340	0.240
170	0.882	350	0.120

Figure 1f

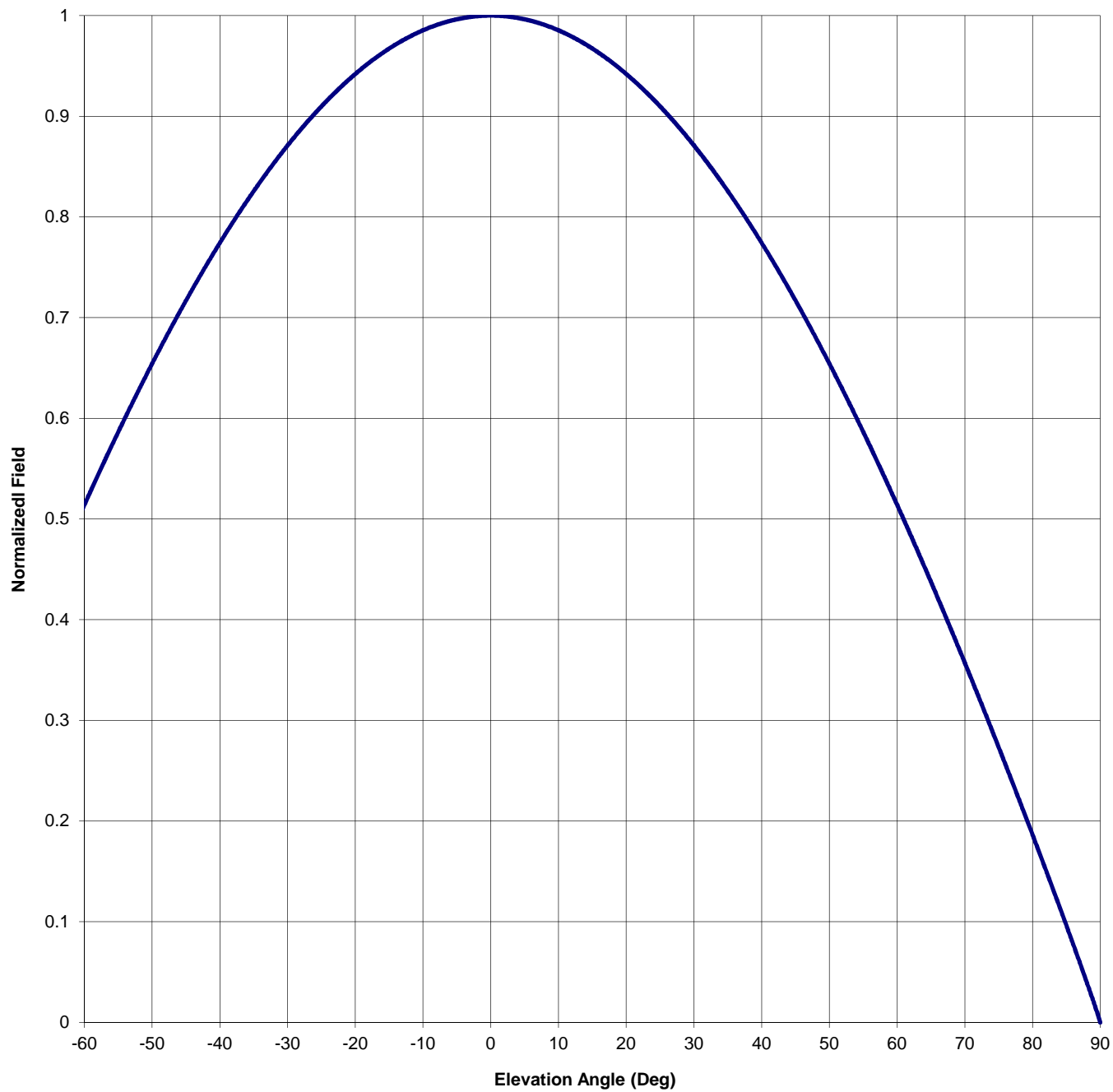
Tabulation of FCC Directional Composite
K202CV Breckenridge, CO

Azimuth	Rel Field	Azimuth	Rel Field
0	0.158	180	0.927
10	0.163	190	0.956
20	0.157	200	0.978
30	0.165	210	0.990
40	0.161	220	1.000
50	0.165	230	0.990
60	0.157	240	0.978
70	0.163	250	0.956
80	0.158	260	0.927
90	0.183	270	0.882
100	0.240	280	0.808
110	0.324	290	0.733
120	0.430	300	0.646
130	0.543	310	0.543
140	0.646	320	0.430
150	0.733	330	0.324
160	0.808	340	0.240
170	0.882	350	0.183

Antenna Mfg.: Shively Labs
Antenna Type: 6020-1-Translator
Station: K202CV
Frequency: 88.3
Channel #: 202
Figure: Figure 3

Date: 9/13/2011

Beam Tilt	0	
Gain (Max)	2.447	3.886 dB
Gain (Horizon)	2.447	3.886 dB



Antenna Mfg.: Shively Labs
 Antenna Type: 6020-1-Translator
 Station: K202CV
 Frequency: 88.3
 Channel #: 202

Date: 9/13/2011

Beam Tilt 0
 Gain (Max) 2.447 3.886 dB
 Gain (Horizon) 2.447 3.886 dB

Figure: Figure 3

Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field
-90	0.000	-44	0.729	0	1.000	46	0.705
-89	0.021	-43	0.741	1	1.000	47	0.693
-88	0.040	-42	0.752	2	0.999	48	0.680
-87	0.059	-41	0.763	3	0.999	49	0.667
-86	0.078	-40	0.774	4	0.998	50	0.654
-85	0.096	-39	0.785	5	0.996	51	0.641
-84	0.114	-38	0.796	6	0.995	52	0.628
-83	0.133	-37	0.806	7	0.993	53	0.614
-82	0.151	-36	0.816	8	0.991	54	0.600
-81	0.168	-35	0.826	9	0.988	55	0.586
-80	0.186	-34	0.835	10	0.985	56	0.572
-79	0.204	-33	0.845	11	0.982	57	0.558
-78	0.221	-32	0.854	12	0.979	58	0.544
-77	0.239	-31	0.862	13	0.975	59	0.529
-76	0.256	-30	0.871	14	0.971	60	0.514
-75	0.273	-29	0.879	15	0.967	61	0.499
-74	0.290	-28	0.887	16	0.963	62	0.484
-73	0.307	-27	0.895	17	0.958	63	0.469
-72	0.324	-26	0.903	18	0.953	64	0.453
-71	0.341	-25	0.910	19	0.948	65	0.437
-70	0.357	-24	0.917	20	0.942	66	0.422
-69	0.373	-23	0.924	21	0.936	67	0.406
-68	0.390	-22	0.930	22	0.930	68	0.390
-67	0.406	-21	0.936	23	0.924	69	0.373
-66	0.422	-20	0.942	24	0.917	70	0.357
-65	0.437	-19	0.948	25	0.910	71	0.341
-64	0.453	-18	0.953	26	0.903	72	0.324
-63	0.469	-17	0.958	27	0.895	73	0.307
-62	0.484	-16	0.963	28	0.887	74	0.290
-61	0.499	-15	0.967	29	0.879	75	0.273
-60	0.514	-14	0.971	30	0.871	76	0.256
-59	0.529	-13	0.975	31	0.862	77	0.239
-58	0.544	-12	0.979	32	0.854	78	0.221
-57	0.558	-11	0.982	33	0.845	79	0.204
-56	0.572	-10	0.985	34	0.835	80	0.186
-55	0.586	-9	0.988	35	0.826	81	0.168
-54	0.600	-8	0.991	36	0.816	82	0.151
-53	0.614	-7	0.993	37	0.806	83	0.133
-52	0.628	-6	0.995	38	0.796	84	0.114
-51	0.641	-5	0.996	39	0.785	85	0.096
-50	0.654	-4	0.998	40	0.774	86	0.078
-49	0.667	-3	0.999	41	0.763	87	0.059
-48	0.680	-2	0.999	42	0.752	88	0.040
-47	0.693	-1	1.000	43	0.741	89	0.021
-46	0.705	0	1.000	44	0.729	90	0.000
-45	0.717			45	0.717		

S.O. [redacted]

VALIDATION OF TOTAL POWER GAIN CALCULATION

[redacted] K202CV 88.3 MHz Breckenridge, CO.

[redacted] 6020-1 off the Self Translator

Elevation Gain of Antenna [redacted] 0.99

V RMS [redacted] 0.636

Vertical Azimuth Gain equals $1/(\text{RMS})^2$ 2.472

***Total Vertical Power Gain is the Elevation Gain Times the Azimuth Gain**

Total Vertical Power Gain 2.447

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ERP divided by Vertical Power Gain equals Antenna Input Power

[redacted] 0.25 kW ERP Divided by V Gain 2.447 Equals 0.102 kW Antenna Input Pow