ASR Registration Search

Registration 1019014

Map Registration

Registration Detail

Reg Number	1019014	Status	Constructed
File Number	A1072150	Constructed	10/01/1987
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Commu

Location (in NAD83 Coordinates)

Lat/Long	39-06-59.0 N 084-30-07.0 W	Address	1906 HIGHLAND AVE
City, State	CINCINNATI , OH		
Zip	45202	County	HAMILTON
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
236.5	294.6
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
531.1	269.8

Painting and Lighting Specifications

FAA Chapters 3, 4, 5, 13
Paint and Light in Accordance with FAA Circular Number 70/7460-1J

FAA Notification

FAA Study	96-AGL-4129-OE	FAA Issue Date	01/03/1997

Owner & Contact Information

FRN	0023451453	Owner Entity Type	Limited Liability Company

Owner

Vertical Bridge Towers, LLC
Attention To: FCC Contact
750 Park of Commerce Drive Ste. 200
Boca Raton , FL 33487

P: (561)406-4015
F:
E: fcc-faa@verticalbridge.com

Contact

Hickey , Richard
Attention To: FCC Contact
750 Park of Commerce Drive Ste. 200
Boca Raton , FL 33487

P: (561)406-4015
F:
E: fcc-faa@verticalbridge.com

Last Action Status

Status	Constructed	Received	05/02/2017
Purpose	Admin Update	Entered	05/02/2017
Mode	Interactive		

Related Applications

05/02/2017	A1072150	- Admin Update (AU)
06/29/2015	A0974270	- Change Owner (OC)
05/22/2008	A0594869	- Change Owner (OC)

Related applications (6)

Comments

Comments

None

History

Date	Event
05/03/2017	Registration Printed
05/02/2017	Administrative Update Received
06/30/2015	Registration Printed

All History (13)

Automated Letters

05/03/2017	Authorization, Reference
06/30/2015	Authorization, Reference
06/30/2015	Ownership Change, Reference 868789

All letters (8)

CLOSE WINDOW

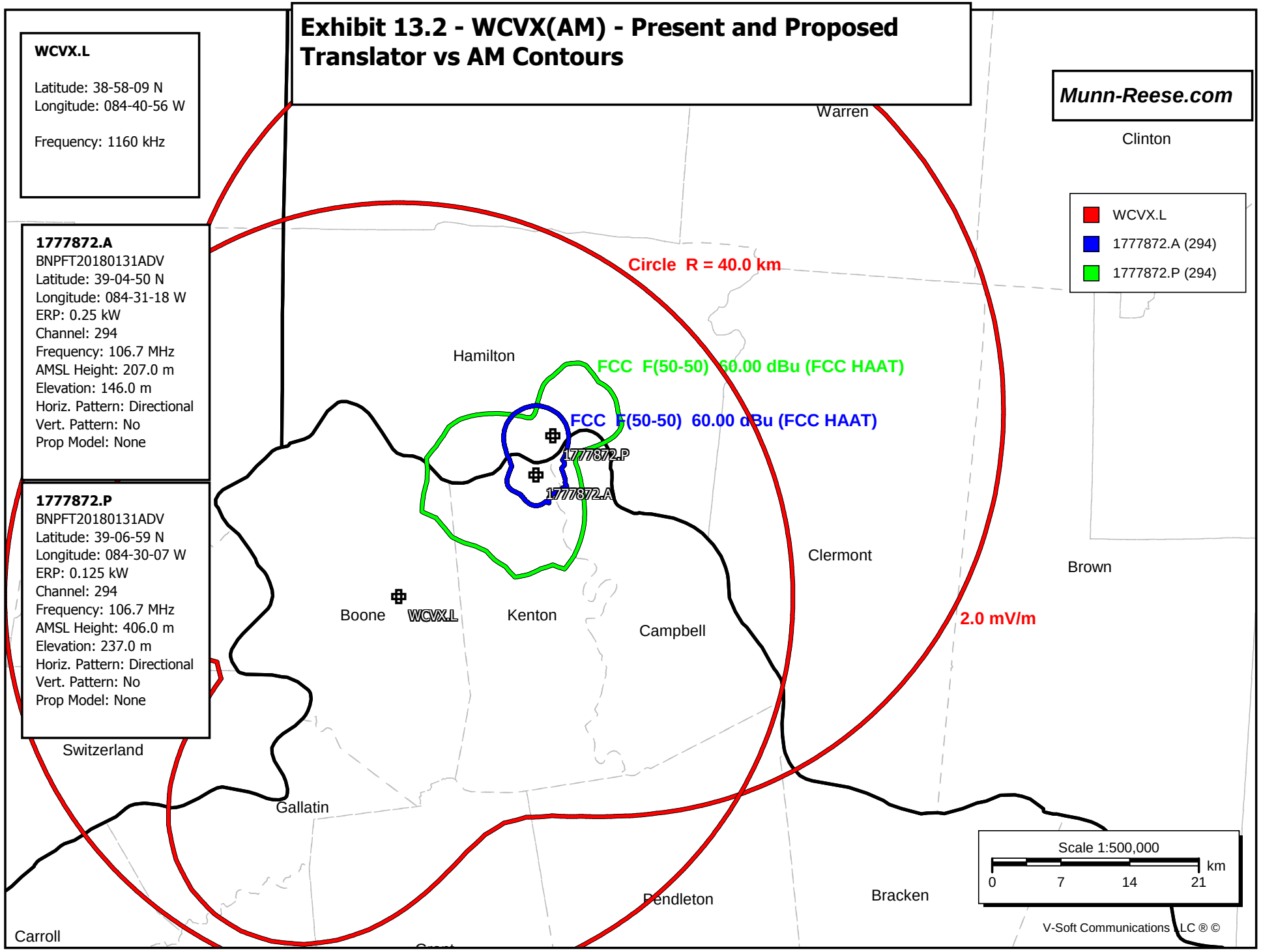


Exhibit 13.2 - WCVX(AM) - Present and Proposed Translator vs AM Contours
WCVX.L
Latitude: 38-58-09 N
Longitude: 084-40-56 W
Frequency: 1160 kHz
1777872.A
BNPFT20180131ADV
Latitude: 39-04-50 N
Longitude: 084-31-18 W
ERP: 0.25 kW
Channel: 294
Frequency: 106.7 MHz
AMSL Height: 207.0 m
Elevation: 146.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None
1777872.P
BNPFT20180131ADV
Latitude: 39-06-59 N
Longitude: 084-30-07 W
ERP: 0.125 kW
Channel: 294
Frequency: 106.7 MHz
AMSL Height: 406.0 m
Elevation: 237.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None
Munn-Reese.com
WCVX.L
1777872.A (294)
1777872.P (294)
Circle R = 40.0 km
FCC F(50-50) 60.00 dBu (FCC HAAT)
FCC F(50-50) 60.00 dBu (FCC HAAT)
1777872.P
1777872.A
2.0 mV/m
Warren
Clinton
Hamilton
Clermont
Brown
Boone
WCVX.L
Kenton
Campbell
Switzerland
Gallatin
Pendleton
Bracken
Carroll
Scale 1:500,000
km
0
7
14
21
V-Soft Communications LLC ® ©

Munn-Reese
Coldwater, MI 49036

Exhibit 13.3
Christian Broadcasting System, Ltd.

REFERENCE CH# 241D - 96.1 MHz, Pwr= 0.125 kW DA, HAAT= 190.4 M, COR= 406 M DISPLAY DATES
39 06 59.0 N. Average Protected F(50-50)= 15.02 km DATA 04-12-18
84 30 07.0 W. Standard Directional SEARCH 04-17-18

CH CALL / CITY	TYPE ANT / STATE	AZI <--	DIST / FILE #	LAT / LNG	PWR(kW) / HAAT(M)	INT(km) / COR(M)	PRO(km) / LICENSEE	*IN*	*OUT* (Overlap in km)
241B WQLK	LIC _CX	336.8	93.85	39 53 28.5	50.000	140.3	67.6	-52.5*	0.3
Richmond	IN	156.5	BLH20130325AMC	84 56 09.5	150	474	Brewer Broadcasting Corpor		
243B WFTK	LIC _C_	30.0	30.40	39 21 11.0	19.500	5.6	64.0	16.9	-34.0*
Lebanon	OH	210.1	BMLH20020320ABO	84 19 30.0	247	474	Radio License Holding Src		
240D 1778058	APP _C_	75.1	23.51	39 10 13.8	0.054	16.6	10.7	0.1	1.7
Milford	OH	255.3	BNPFT20180131AJA	84 14 18.0		339	Mustang Media, Inc.		
241A WLXO	LIC ZCN	182.2	101.49	38 12 15.0	6.000	86.1	27.9	0.8	28.6
Stamping Ground	KY	2.2	BLH20000728ABS	84 32 51.0	100	369	Clarity Communications, In		
240A WKID	LIC _C_	236.0	55.16	38 50 15.4	2.800	38.0	23.4	3.5	8.4
Vevay	IN	55.7	BMLH20150820AAV	85 01 47.9	94	324	Dial Broadcasting Inc		
238D W238BJ	LIC _C_	29.5	30.23	39 21 10.8	0.070	0.6	9.6	21.8	19.9
Auburn	OH	209.6	BLFT20130304ACG	84 19 44.2	115	345	Educational Media Foundati		
294A WNKR	LIC _CX	188.6	48.03	38 41 19.0	1.800	169.8	84.6	9.5R	38.5M
Williamstown	KY	8.6	BLH20080424AAY	84 35 07.0	185	432	Grant County Broadcasters,		
240A WFTM-FM	LIC _CN	129.9	81.71	38 38 35.0	3.000	30.5	22.2	42.2	49.3
Maysville	KY	310.3	BLH19960207KA	83 46 47.0	94	333	Standard Tobacco Company,		
239B WHIO-FM	LIC _CX	8.2	123.71	40 13 03.0	50.000	6.0	65.2	110.0	58.2
Pleasant Hill	OH	188.4	BMLH20160916AAF	84 17 37.0	145	444	Cox Radio, Inc.		
244A WORX-FM	LIC _C_	241.1	85.22	38 44 32.0	1.050	1.9	24.6	68.5	59.8
Madison	IN	60.5	BLH19990312KD	85 21 43.0	168	387	Dubois County Broadcasting		
242A WJAA	LIC _CN	255.6	118.19	38 50 39.0	3.000	31.4	21.3	72.3	76.0
Austin	IN	74.7	BLH19911028KF	85 49 26.0	100	274	Midland Media, Inc.		
242B WLVQ	LIC _CN	52.6	158.12	39 58 16.0	18.000	73.2	62.2	77.2	80.0
Columbus	OH	233.5	BLH19830404AN	83 01 40.0	229	475	Franklin Communications, I		
238B WFMS	LIC _CX	299.8	147.84	39 46 03.0	13.000	5.5	66.5	132.5	81.2
Fishers	IN	118.8	BLH20101203ABU	86 00 12.0	302	555	Radio License Holding Src		
242A WIVY	CP NCX	137.4	141.28	38 10 33.0	2.900	46.0	30.0	84.8	105.2
Morehead	KY	318.1	BPH20180207AAR	83 24 28.0	144	451	Gateway Radio Works, Inc.		
242A WIVY	LIC NCX	137.4	141.28	38 10 33.0	2.150	43.2	28.1	87.7	107.2
Morehead	KY	318.1	BLH20070911AAL	83 24 28.0	158	453	Gateway Radio Works, Inc.		
240A WFDM-FM	LIC _CX	288.6	141.80	39 30 49.0	3.400	39.1	25.7	91.4	105.7
Franklin	IN	107.6	BMLH20030714AEP	86 04 07.0	91	324	Pilgrim Communications, Ll		
239B WQMF	LIC _C_	229.3	165.31	38 08 16.0	28.500	6.7	70.7	144.1	93.1
Jeffersonville	IN	48.4	BLH19990211KA	85 56 06.0	196	387	Cc Licenses, Llc		
241C WSTO	LIC _CN	239.9	290.08	37 46 20.0	100.000	173.7	73.5	101.5	168.1
Owensboro	KY	58.1	BLH19820601AO	87 21 27.0	305	427	Midwest Communications, In		
243D W243DG	LIC _C_	177.9	120.32	38 02 05.7	0.082	0.6	13.5	105.4	106.3
Winchester	KY	357.9	BLFT20161207ABL	84 27 02.2		477	American Family Associatio		
238B WXMG	LIC DCN	67.8	168.73	39 40 32.0	21.000	5.3	62.4	155.9	105.9
Lancaster	OH	249.0	BLH19941223KB	82 40 34.0	232	527	Blue Chip Broadcasting Lic		
241B WKWS	LIC _CN	108.6	251.33	38 21 54.0	45.000	138.5	66.8	106.7	161.2
Charleston	WV	290.3	BLH19930405KB	81 46 06.0	157	409	West Virginia Radio Corpor		
242C3 WXKY	LIC _C_	190.4	179.91	37 31 27.0	4.900	57.5	38.8	107.5	118.0
Stanford	KY	10.2	BMLED20040907ABM	84 52 12.0	223	542	Educational Media Foundati		
243D W243CL	LIC _C_	294.6	119.60	39 33 29.0	0.250	1.1	11.4	108.0	108.0
Shelbyville	IN	113.8	BLFT20180119AAC	85 46 13.0		338	3 Towers Broadcasting Comp		
242A WHHH	LIC _CN	297.9	159.55	39 46 32.0	3.300	30.3	20.6	119.2	132.0
Indianapolis	IN	116.8	BLH19960911KB	86 09 10.0	87	322	Radio One Of Indiana, Llc		
244B1 WKOV-FM	LIC _CX	92.8	164.66	39 01 45.0	16.000	4.0	44.5	153.8	119.5
Oak Hill	OH	274.0	BMLH20160201AFT	82 35 51.0	129	364	Jackson County Broadcastin		

CH CALL / CITY	TYPE ANT / STATE	AZI / <--	DIST / FILE #	LAT / LNG	PWR(kW) / HAAT(M)	INT(km) / COR(M)	PRO(km) / LICENSEE	*IN*	*OUT* (Overlap in km)
295B WVEZ St. Matthews	LIC _CX KY	234.6 53.8	141.69 BLH20070706AAP	38 22 19.0 85 49 33.0	24.500 204	169.8 391	84.6 Sm-wvez, Llc	14.5R	127.2M
295B AL9833 St. Matthews	RSV-A ___ KY	234.6 53.8	141.69 RM11334	38 22 19.0 85 49 33.0	50.000 150	169.8 338	84.6	14.5R	127.2M
240L1 WKRI-LP Richmond	LIC ___ KY	173.8 353.9	155.65 BLL20160418AAN	37 43 28.1 84 18 37.3	0.100 30	315	Richmondradio,inc	132.9	128.1
243A WGZB-FM Lanesville	LIC _CX IN	229.9 49.0	161.30 BLH20050927ACD	38 10 25.0 85 54 50.0	1.600 194	2.4 378	32.4 Alpha Media Licensee Llc	144.3	128.1
241C3 WKKQ Barbourville	LIC NCX KY	167.9 348.3	255.65 BLH20100617AHU	36 51 59.0 83 54 00.0	25.000 100	113.3 458	38.8 Choice Radio Corporation	128.9	174.4
244A WBKQ Alexandria	LIC _C_ IN	320.0 139.3	154.79 BLH19980921KB	40 10 38.0 85 40 23.0	2.500 107	2.1 371	22.9 Woof Boom Radio Muncie Lic	145.3	131.9
243A AL9800 Lanesville	RSV-A ___ IN	233.1 52.2	165.36 RM11069	38 12 52.0 86 01 00.0	6.000 100	2.4 320	24.6	148.3	135.9
244A WCSM-FM Celina	LIC _CX OH	359.5 179.5	159.70 BLH20101206AAR	40 33 10.0 84 31 02.0	2.200 117	2.1 383	23.3 Hayco Broadcasting, Inc.	150.2	136.2
244A WBWB Bloomington	LIC _CX IN	272.3 91.1	170.02 BMLH20150629AAO	39 09 45.0 86 28 22.0	1.650 134	2.2 348	25.7 Artistic Media Partners, I	154.9	143.7
238C WQHY Prestonsburg	LIC _CN KY	135.5 316.6	219.22 BLH19910521KB	37 41 45.0 82 45 24.0	100.000 305	10.4 575	73.7 Wdoc, Inc.	198.6	145.2
294A WTLC-FM Greenwood	LIC _CX IN	295.6 114.6	156.24 BLH20070504AAL	39 42 42.0 86 08 45.0	6.000 99	169.8 331	84.6 Radio One Of Indiana, Llc	9.5R	146.7M
294A WZCB Dublin	LIC _CX OH	51.3 232.2	161.93 BLH20121004AAP	40 01 01.8 83 01 11.3	3.000 144	169.8 392	84.6 Citicasters Licenses, Inc.	9.5R	152.4M
294C3 WLFX Berea	CP ZCX KY	169.2 349.4	164.55 BPH20160523ABP	37 39 36.0 84 09 00.0	14.500 133	169.8 409	84.6 Wallingford Communications	11.5R	153.1M
294A WLFX Berea	LIC DCX KY	169.1 349.3	164.46 BMLH20140624AAQ	37 39 40.0 84 08 55.0	3.700 128	169.8 403	84.6 Wallingford Communications	9.5R	155.0M
240A WKUZ Wabash	LIC _CN IN	329.2 148.4	205.61 BLH19950707KC	40 41 54.0 85 45 03.0	4.200 120	43.3 363	28.2 Upper Wabash Broadcasting	156.1	172.3
240A WJKW Athens	LIC ZCN OH	85.6 267.1	209.92 BLH19980825KA	39 14 10.0 82 04 16.0	5.500 104	44.9 353	29.1 Christian Faith Broadcast,	158.0	171.0
240A WYNT Caledonia	LIC _CX OH	35.7 216.7	215.73 BLH20060829BGI	40 40 55.0 83 00 27.0	4.600 114	43.8 410	28.5 Cc Licenses, Llc	164.2	176.4
242B1 WXKE Churubusco	LIC NCX IN	345.3 164.8	229.01 BLH20170518AAQ	41 06 24.0 85 11 46.0	8.400 152	57.6 401	44.7 Adams Radio Of Fort Wayne,	164.8	175.8
294B1 AL6931 Dublin	RSV-A ___ OH	49.3 230.3	179.29 RM10557	40 09 20.0 82 54 12.0	25.000 100	169.8 390	84.6	11.5R	167.8M
241L1 WBWH-LP Bluffton	LIC ___ OH	14.3 194.6	204.43 BLL20120904AAE	40 53 49.0 83 54 10.0	0.066 37	282	Bluffton College	180.2	173.6
295B WXXC Marion	LIC _CN IN	329.5 148.8	191.84 BLH19830418AS	40 35 52.0 85 39 21.0	50.000 152	169.8 408	84.6 Hoosier Am/fm, Llc	14.5R	177.3M
241A WMTR-FM Archbold	LIC NCN OH	5.5 185.7	272.78 BLH19910308KA	41 33 29.0 84 11 08.0	3.800 122	84.1 348	28.4 Nobco, Inc.	181.0	221.0
244A WANV Annville	LIC NCX KY	168.8 349.1	214.41 BLH20060823AAC	37 13 24.0 84 02 01.0	1.850 152	2.3 506	27.8 F.t.g. Broadcasting, Inc.	198.5	186.2
243C1 WXCC Williamson	LIC ZCX WV	131.6 313.0	264.87 BLH20071205ABF	37 30 48.0 82 15 20.0	75.000 339	9.2 759	70.6 East Kentucky Radio Networ	246.1	189.9
242A WMCV Farmersburg	LIC _CX IN	274.5 92.6	248.41 BLED20150824AAH	39 15 16.0 87 22 45.0	6.000 93	40.6 260	26.1 Community Broadcasting, In	195.1	206.6
243B WAZY-FM Lafayette	LIC _CN IN	302.9 121.2	265.30 BLH7632	40 23 02.0 87 07 55.0	50.000 152	6.1 352	66.2 Star City Broadcasting, Ll	249.8	199.0
240A WVIG Seelyville	LIC _CN IN	282.5 100.6	254.45 BLH19961002KE	39 34 29.0 87 24 06.0	4.100 121	43.3 288	28.4 Dlc Media, Inc.	199.1	213.5

Terrain database is NGDC 30 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= East Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.

Exhibit 13.4 - WCVX(AM) - Proposed Translator vs WFTK(FM) in support of a 74.1204(d) Waiver Request

WCVX.L

Latitude: 38-58-09 N
Longitude: 084-40-56 W

Frequency: 1160 kHz

1777872.P
BNPFT20180131ADV
Latitude: 39-06-59 N
Longitude: 084-30-07 W
ERP: 0.125 kW
Channel: 241
Frequency: 96.1 MHz
AMSL Height: 406.0 m
Elevation: 237.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

WFTK
BMLH20020320ABO
Latitude: 39-21-11 N
Longitude: 084-19-30 W
ERP: 19.50 kW
Channel: 243
Frequency: 96.5 MHz
AMSL Height: 474.0 m
Elevation: 251.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

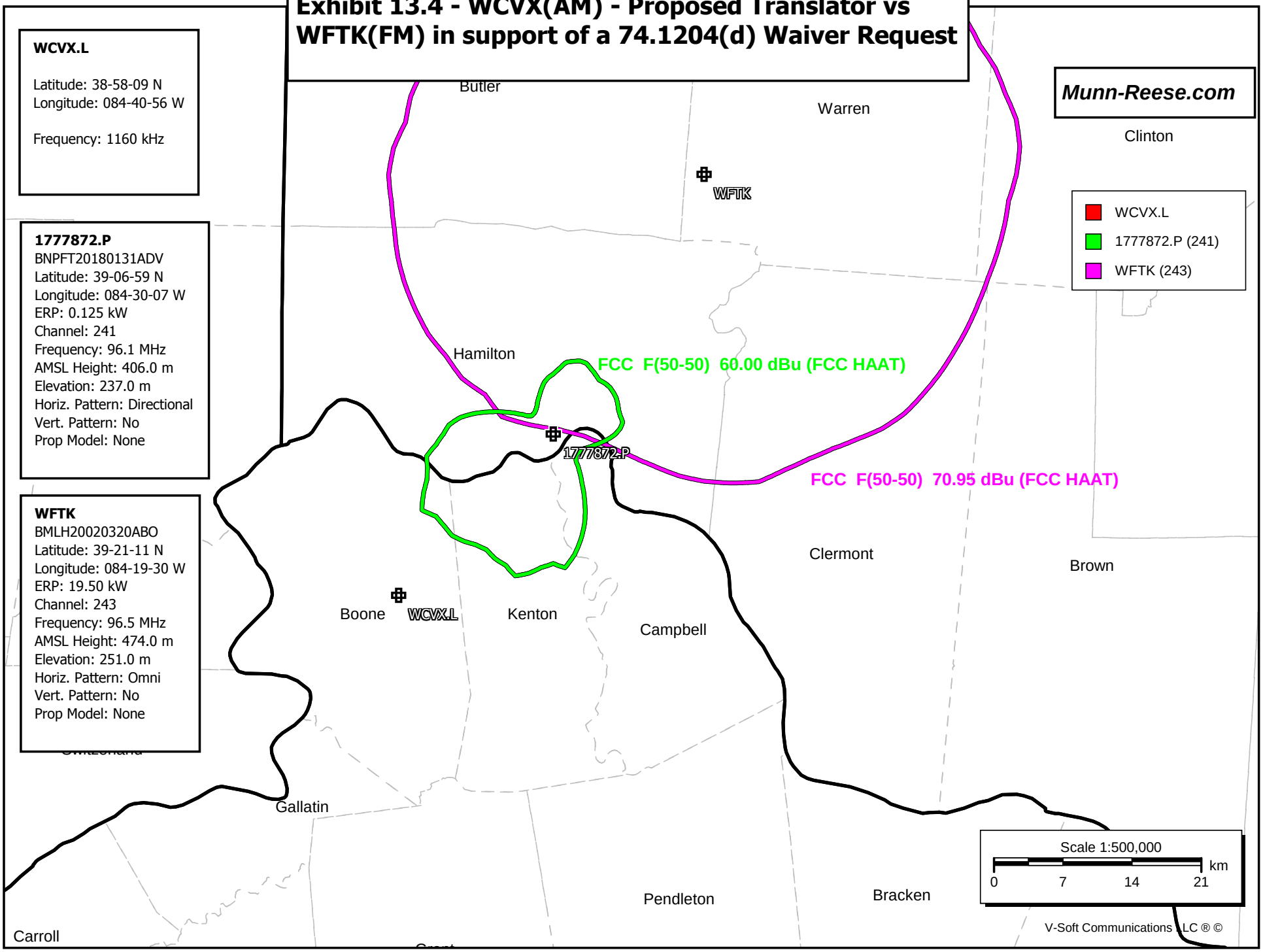
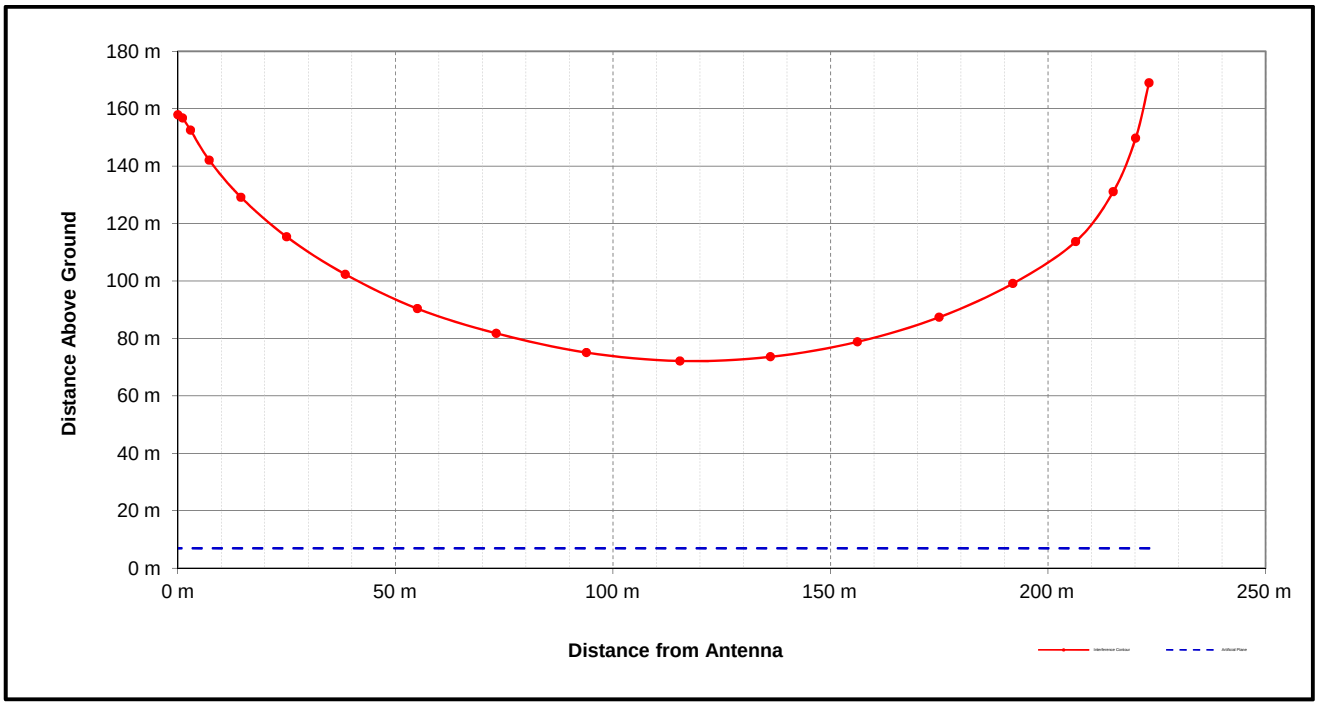


Exhibit 13.4 - Downward Radiation Study in Support of a 74.1204(d) Waiver Request



Proposed Antenna: 1 Bay Scala CA2-FM
Proposed Power: 0.126 kW
Antenna Height AGL: 169 meters
Interference Contour: 110.95 dBu f(50:10)
Artificial Ground Plane Height: 7 meters
Distance (Free Space) Equation: =(10^((106.92-[desired dBu]+[ERP in dBk])/20))*1000
Field Strength (dBu) Equation "=106.92-(20*(LOG10[DistMeters]/1000)))+[ERPin dBk]

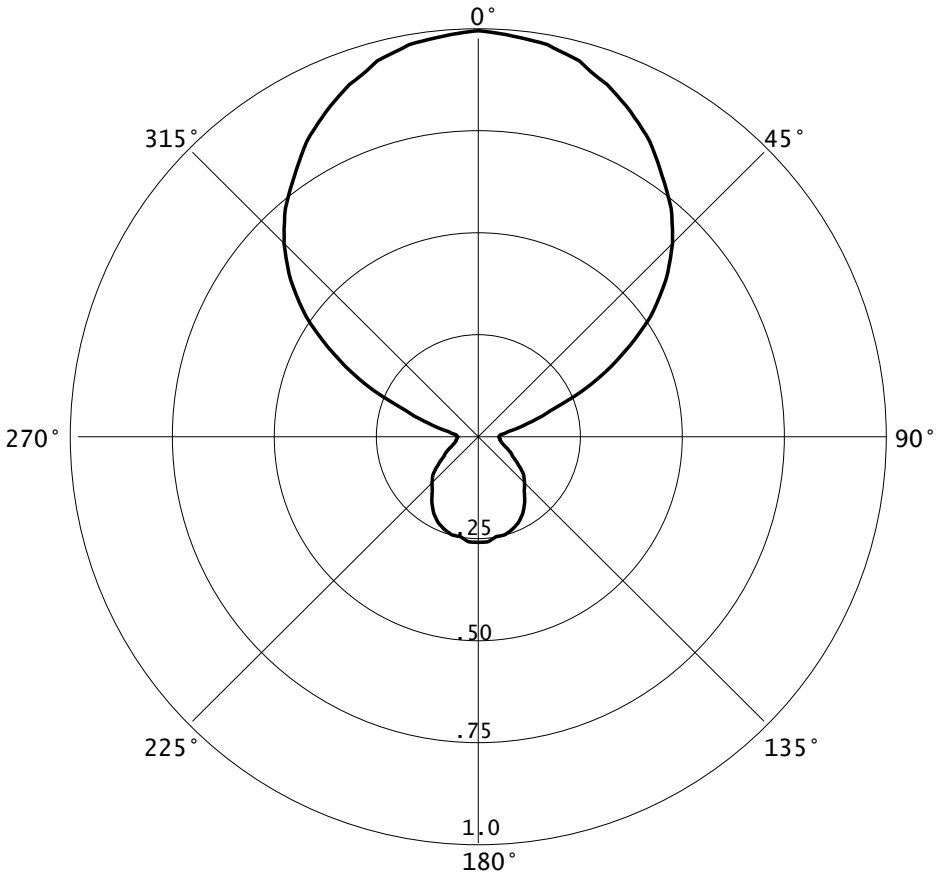
Depression Angle Below Horizon	Antenna Relative Field	ERP in kW	ERP in dBk	Distance from Ant. to Interference Contour	Distance from Ant. to Artificial Plane	Field Strength in dBu @ Artificial Plane	Distance from Ant. to Ground Level	Field Strength in dBu @ Ground Level
0°	1.000	0.126	-9.00	223.20 m	infinite	---	---	---
-5°	0.990	0.123	-9.08	220.96 m	1858.74 m	92.45 dBu	1939.06 m	92.08 dBu
-10°	0.978	0.121	-9.19	218.29 m	932.92 m	98.33 dBu	973.23 m	97.97 dBu
-15°	0.957	0.115	-9.38	213.60 m	625.92 m	101.61 dBu	652.97 m	101.24 dBu
-20°	0.915	0.105	-9.77	204.22 m	473.66 m	103.64 dBu	494.12 m	103.28 dBu
-25°	0.865	0.094	-10.26	193.06 m	383.32 m	104.99 dBu	399.89 m	104.63 dBu
-30°	0.808	0.082	-10.85	180.34 m	324.00 m	105.86 dBu	338.00 m	105.49 dBu
-35°	0.745	0.070	-11.55	166.28 m	282.44 m	106.35 dBu	294.64 m	105.98 dBu
-40°	0.675	0.057	-12.41	150.66 m	252.03 m	106.48 dBu	262.92 m	106.11 dBu
-45°	0.595	0.045	-13.51	132.80 m	229.10 m	106.21 dBu	239.00 m	105.85 dBu
-50°	0.510	0.033	-14.84	113.83 m	211.48 m	105.57 dBu	220.61 m	105.20 dBu
-55°	0.430	0.023	-16.33	95.97 m	197.77 m	104.67 dBu	206.31 m	104.30 dBu
-60°	0.345	0.015	-18.24	77.00 m	187.06 m	103.24 dBu	195.14 m	102.87 dBu
-65°	0.265	0.009	-20.53	59.15 m	178.75 m	101.34 dBu	186.47 m	100.98 dBu
-70°	0.190	0.005	-23.42	42.41 m	172.40 m	98.77 dBu	179.85 m	98.40 dBu
-75°	0.125	0.002	-27.06	27.90 m	167.71 m	95.37 dBu	174.96 m	95.00 dBu
-80°	0.075	0.001	-31.50	16.74 m	164.50 m	91.10 dBu	171.61 m	90.73 dBu
-85°	0.055	0.000	-34.19	12.28 m	162.62 m	88.51 dBu	169.65 m	88.14 dBu
-90°	0.050	0.000	-35.02	11.16 m	162.00 m	87.71 dBu	169.00 m	87.35 dBu

Exhibit 13.5 - Manufacturers Antenna Specifications

CA2-FM(Slant-45)
COMPOSITE PATTERN

03-14-2016 RMS(V)= .494

Graph is Relative Field



Azi	Field	dBk	kW
000	1.000	-10.000	0.100
010	0.980	-10.175	0.096
020	0.923	-10.696	0.085
030	0.840	-11.514	0.071
040	0.735	-12.674	0.054
050	0.600	-14.437	0.036
060	0.410	-17.744	0.017
070	0.190	-24.425	0.004
080	0.075	-32.499	0.001
090	0.050	-36.021	0.000
100	0.055	-35.193	0.000
110	0.070	-33.098	0.000
120	0.098	-30.175	0.001
130	0.145	-26.773	0.002
140	0.175	-25.139	0.003
150	0.218	-23.231	0.005
160	0.243	-22.288	0.006
170	0.250	-22.041	0.006
180	0.260	-21.701	0.007
190	0.250	-22.041	0.006
200	0.243	-22.288	0.006
210	0.218	-23.231	0.005
220	0.175	-25.139	0.003
230	0.145	-26.773	0.002
240	0.098	-30.175	0.001
250	0.070	-33.098	0.000
260	0.055	-35.193	0.000
270	0.050	-36.021	0.000
280	0.075	-32.499	0.001
290	0.190	-24.425	0.004
300	0.410	-17.744	0.017
310	0.600	-14.437	0.036
320	0.735	-12.674	0.054
330	0.840	-11.514	0.071
340	0.923	-10.696	0.085
350	0.980	-10.175	0.096

The directional antenna pattern will be produced by means of a Scala Dipole Reflector CA2-FM broadcast element mounted at a 45° (degree) slant orientation to achieve horizontal and vertical polarization. The CA2-FM(Slant-45) Directional Pattern is therefore a maximum composite pattern of the current CA2-FM(Horizontal) and CA2-FM(Vertical) broadcast patterns as notified by the Scala Division (Kathrein-Scala) of Kathrein, Inc.

The maximum antenna gain for a single CL-FM(Slant-45) element will be 1.0 dBd or the common Horizontal or Vertical maximum antenna gain of 4.0 dBd adjusted by 3 dBd for dual broadcast in the Horizontal and Vertical planes (1.0 dBd = 4.0 dBd - 3.0 dBd). The maximum gain for multiple bay options of the Scala CA2-FM(Slant-45) antenna would therefore also be adjusted by -3 dBd to account for operation in the Horizontal and Vertical planes.

The antenna proposed in this application will be mounted in accordance with specific instructions provided by the antenna manufacturer. The directional antenna will be mounted on the tower which is of uniform cross section. No other antennas of any type are or will be mounted on the same tower level as the directional antenna.

No antenna is or will be mounted within any vertical or horizontal distance specified by the antenna manufacturer as being necessary for proper operation of the directional antenna. In addition, the antenna will be assembled under the supervision of a qualified engineer and installed pursuant to the manufacturer's instructions and manufacturer specified antenna orientation.

KATHREIN
SCALA DIVISION

CA2-FM

FM DIPOLE REFLECTOR ANTENNA

4 dBd gain
88 to 108 MHz

The Scala CA2-FM is a ruggedly built dipole reflector antenna, designed for professional FM transmit and receive applications.

Like all Scala antennas, the CA2-FM is made of the finest materials resulting in superior performance and long service life.

The CA2-FM may be used stand-alone or in stacked arrays for higher gain, increased side-lobe suppression, or custom azimuth patterns.

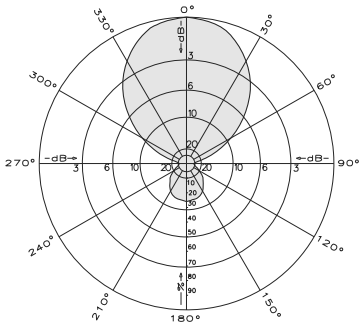
Specifications:

Frequency range	Any specified FM channel 88 to 108 MHz
Gain	4 dBd
Impedance	50 or 75 ohms
VSWR	< 1.5:1
Polarization	Horizontal or Vertical
Front-to-back ratio	>11 dB
Maximum input power	250 watts
Azimuth pattern	72 degrees (half-power)
Elevation pattern	80 degrees (half-power)
Connector	50Ω or 75Ω N female
Weight	5.7 lb (2.6 kg)
Dimensions	35.3 x 68.9 inches maximum (897 x 1750 mm)
Equivalent flat plate area	1.19 ft^2 (0.11 m^2) maximum
Wind survival rating*	120 mph (194 kph)
Shipping dimensions	70 x 6 x 5 inches maximum (1778 x 152 x 127mm)
Shipping weight	10 lb (4.5 kg) maximum
Mounting	For masts of 2.375 inches (60 mm) OD.

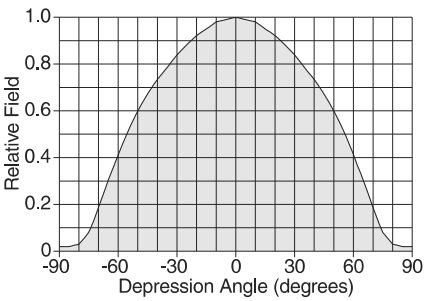
* Mechanical design is based on environmental conditions as stipulated in EIA-222-F (June 1996) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

Order Information:

Contact Scala Customer Service for detailed order information.



Azimuth pattern (E-plane - typical)



Elevation pattern (H-plane)

ISO 9001

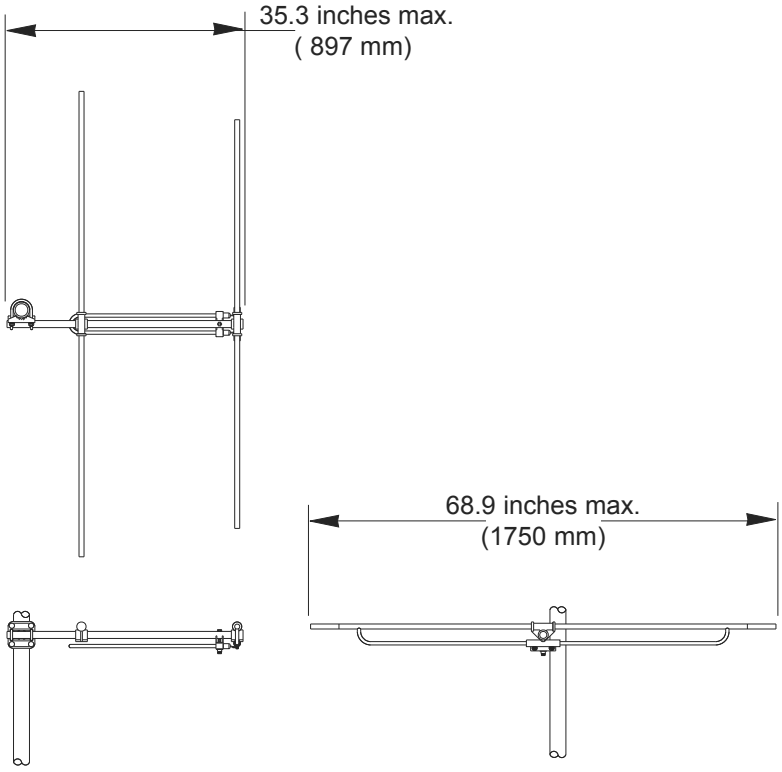
10747-A

KATHREIN
SCALA DIVISION

CA2-FM

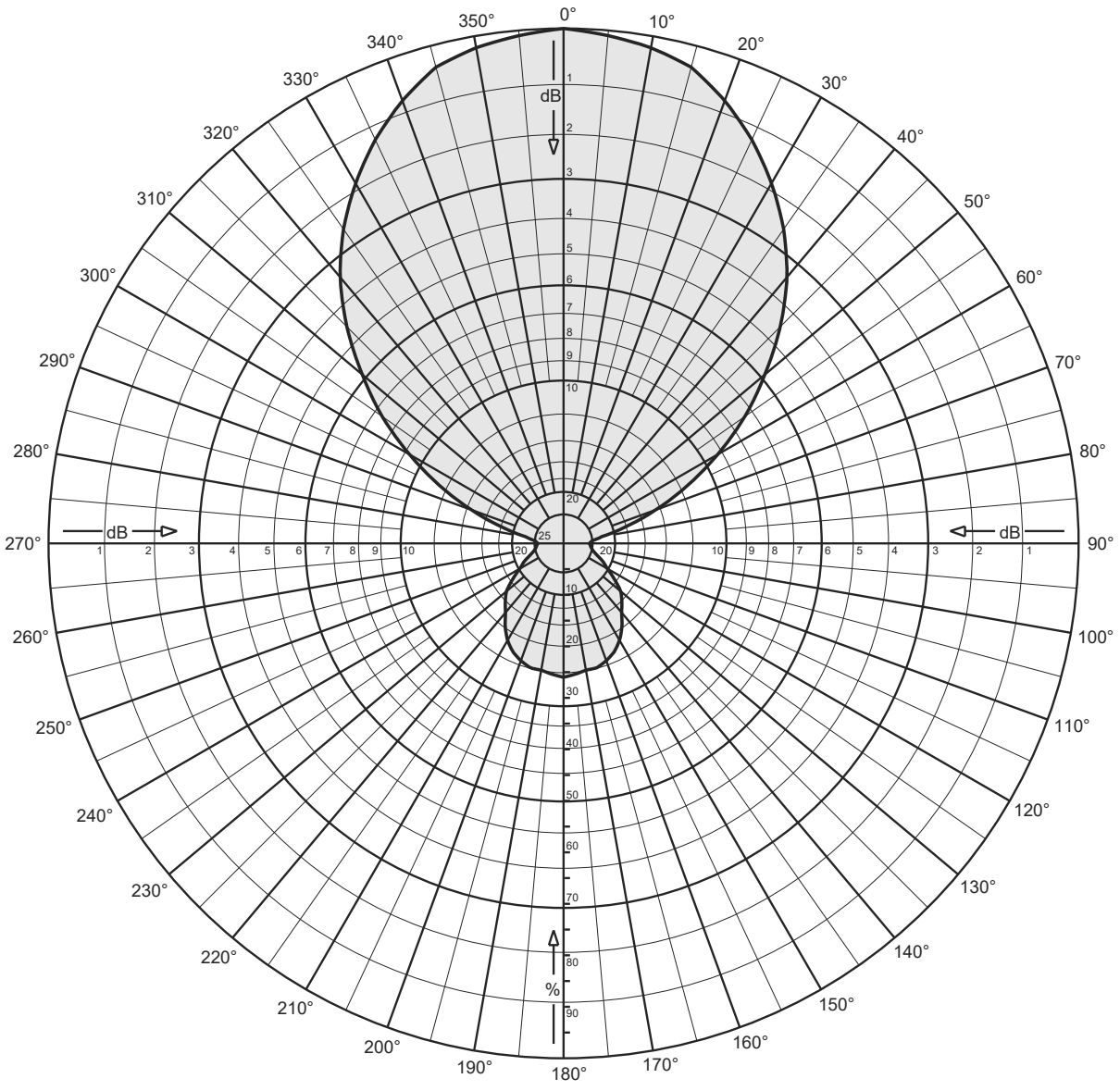
FM DIPOLE REFLECTOR ANTENNA

4 dBd gain
88 to 108 MHz



Order Information:

Contact Scala Customer Service for detailed order information.



CA2-FM
FM
Maximum gain: 4.0 dBd
Horizontal polarization
Horizontal radiation pattern

KATHREIN
USA

23-Jul-2015

KATHREIN

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CA2-FM

FM

Maximum gain: 4.0 dBd

Horizontal polarization

Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	4.00	2.51	45	0.595	-4.51	-0.51	0.89
1	0.998	-0.02	3.98	2.50	46	0.578	-4.76	-0.76	0.84
2	0.996	-0.03	3.97	2.49	47	0.561	-5.02	-1.02	0.79
3	0.994	-0.05	3.95	2.48	48	0.544	-5.29	-1.29	0.74
4	0.992	-0.07	3.93	2.47	49	0.527	-5.56	-1.56	0.70
5	0.990	-0.09	3.91	2.46	50	0.510	-5.85	-1.85	0.65
6	0.988	-0.11	3.89	2.45	51	0.494	-6.13	-2.13	0.61
7	0.985	-0.13	3.87	2.44	52	0.478	-6.41	-2.41	0.57
8	0.982	-0.15	3.85	2.42	53	0.462	-6.71	-2.71	0.54
9	0.980	-0.18	3.82	2.41	54	0.446	-7.01	-3.01	0.50
10	0.978	-0.20	3.80	2.40	55	0.430	-7.33	-3.33	0.46
11	0.974	-0.23	3.77	2.38	56	0.413	-7.68	-3.68	0.43
12	0.970	-0.27	3.73	2.36	57	0.396	-8.05	-4.05	0.39
13	0.965	-0.30	3.70	2.34	58	0.379	-8.43	-4.43	0.36
14	0.961	-0.34	3.66	2.32	59	0.362	-8.83	-4.83	0.33
15	0.957	-0.38	3.62	2.30	60	0.345	-9.24	-5.24	0.30
16	0.949	-0.45	3.55	2.26	61	0.329	-9.66	-5.66	0.27
17	0.940	-0.53	3.47	2.22	62	0.313	-10.09	-6.09	0.25
18	0.932	-0.61	3.39	2.18	63	0.297	-10.54	-6.54	0.22
19	0.924	-0.69	3.31	2.14	64	0.281	-11.03	-7.03	0.20
20	0.915	-0.77	3.23	2.10	65	0.265	-11.54	-7.54	0.18
21	0.905	-0.87	3.13	2.06	66	0.250	-12.04	-8.04	0.16
22	0.895	-0.96	3.04	2.01	67	0.235	-12.58	-8.58	0.14
23	0.885	-1.06	2.94	1.97	68	0.220	-13.15	-9.15	0.12
24	0.875	-1.16	2.84	1.92	69	0.205	-13.76	-9.76	0.11
25	0.865	-1.26	2.74	1.88	70	0.190	-14.42	-10.42	0.09
26	0.854	-1.38	2.62	1.83	71	0.177	-15.04	-11.04	0.08
27	0.842	-1.49	2.51	1.78	72	0.164	-15.70	-11.70	0.07
28	0.831	-1.61	2.39	1.73	73	0.151	-16.42	-12.42	0.06
29	0.819	-1.73	2.27	1.68	74	0.138	-17.20	-13.20	0.05
30	0.808	-1.86	2.14	1.64	75	0.125	-18.06	-14.06	0.04
31	0.795	-1.99	2.01	1.59	76	0.115	-18.79	-14.79	0.03
32	0.783	-2.13	1.87	1.54	77	0.105	-19.58	-15.58	0.03
33	0.770	-2.27	1.73	1.49	78	0.095	-20.45	-16.45	0.02
34	0.757	-2.41	1.59	1.44	79	0.085	-21.41	-17.41	0.02
35	0.745	-2.56	1.44	1.39	80	0.075	-22.50	-18.50	0.01
36	0.731	-2.72	1.28	1.34	81	0.071	-22.97	-18.97	0.01
37	0.717	-2.89	1.11	1.29	82	0.067	-23.48	-19.48	0.01
38	0.703	-3.06	0.94	1.24	83	0.063	-24.01	-20.01	0.01
39	0.689	-3.24	0.76	1.19	84	0.059	-24.58	-20.58	0.01
40	0.675	-3.41	0.59	1.14	85	0.055	-25.19	-21.19	0.01
41	0.659	-3.62	0.38	1.09	86	0.054	-25.35	-21.35	0.01
42	0.643	-3.84	0.16	1.04	87	0.053	-25.51	-21.51	0.01
43	0.627	-4.05	-0.05	0.99	88	0.052	-25.68	-21.68	0.01
44	0.611	-4.28	-0.28	0.94	89	0.051	-25.85	-21.85	0.01

KATHREIN

USA

CA2-FM

FM

Maximum gain: 4.0 dBd

Horizontal polarization

Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
90	0.050	-26.02	-22.02	0.01	135	0.160	-15.92	-11.92	0.06
91	0.051	-25.93	-21.93	0.01	136	0.163	-15.76	-11.76	0.07
92	0.051	-25.85	-21.85	0.01	137	0.166	-15.60	-11.60	0.07
93	0.052	-25.76	-21.76	0.01	138	0.169	-15.44	-11.44	0.07
94	0.052	-25.68	-21.68	0.01	139	0.172	-15.29	-11.29	0.07
95	0.053	-25.60	-21.60	0.01	140	0.175	-15.14	-11.14	0.08
96	0.053	-25.51	-21.51	0.01	141	0.179	-14.92	-10.92	0.08
97	0.054	-25.43	-21.43	0.01	142	0.184	-14.70	-10.70	0.09
98	0.054	-25.35	-21.35	0.01	143	0.188	-14.49	-10.49	0.09
99	0.055	-25.27	-21.27	0.01	144	0.193	-14.29	-10.29	0.09
100	0.055	-25.19	-21.19	0.01	145	0.197	-14.09	-10.09	0.10
101	0.056	-25.04	-21.04	0.01	146	0.201	-13.91	-9.91	0.10
102	0.057	-24.88	-20.88	0.01	147	0.205	-13.74	-9.74	0.11
103	0.058	-24.73	-20.73	0.01	148	0.209	-13.58	-9.58	0.11
104	0.059	-24.58	-20.58	0.01	149	0.213	-13.41	-9.41	0.11
105	0.060	-24.44	-20.44	0.01	150	0.218	-13.25	-9.25	0.12
106	0.062	-24.15	-20.15	0.01	151	0.220	-13.13	-9.13	0.12
107	0.064	-23.88	-19.88	0.01	152	0.224	-13.01	-9.01	0.13
108	0.066	-23.61	-19.61	0.01	153	0.226	-12.90	-8.90	0.13
109	0.068	-23.35	-19.35	0.01	154	0.230	-12.78	-8.78	0.13
110	0.070	-23.10	-19.10	0.01	155	0.233	-12.67	-8.67	0.14
111	0.073	-22.73	-18.73	0.01	156	0.235	-12.60	-8.60	0.14
112	0.076	-22.38	-18.38	0.01	157	0.236	-12.52	-8.52	0.14
113	0.079	-22.05	-18.05	0.02	158	0.238	-12.45	-8.45	0.14
114	0.082	-21.72	-17.72	0.02	159	0.241	-12.38	-8.38	0.15
115	0.085	-21.41	-17.41	0.02	160	0.242	-12.31	-8.31	0.15
116	0.087	-21.16	-17.16	0.02	161	0.244	-12.25	-8.25	0.15
117	0.090	-20.92	-16.92	0.02	162	0.246	-12.20	-8.20	0.15
118	0.093	-20.68	-16.68	0.02	163	0.247	-12.15	-8.15	0.15
119	0.095	-20.45	-16.45	0.02	164	0.248	-12.09	-8.09	0.16
120	0.097	-20.22	-16.22	0.02	165	0.250	-12.04	-8.04	0.16
121	0.102	-19.83	-15.83	0.03	166	0.250	-12.04	-8.04	0.16
122	0.107	-19.45	-15.45	0.03	167	0.250	-12.04	-8.04	0.16
123	0.111	-19.09	-15.09	0.03	168	0.250	-12.04	-8.04	0.16
124	0.115	-18.75	-14.75	0.03	169	0.250	-12.04	-8.04	0.16
125	0.120	-18.42	-14.42	0.04	170	0.250	-12.04	-8.04	0.16
126	0.125	-18.06	-14.06	0.04	171	0.251	-12.01	-8.01	0.16
127	0.130	-17.72	-13.72	0.04	172	0.252	-11.97	-7.97	0.16
128	0.135	-17.39	-13.39	0.05	173	0.253	-11.94	-7.94	0.16
129	0.140	-17.08	-13.08	0.05	174	0.254	-11.90	-7.90	0.16
130	0.145	-16.77	-12.77	0.05	175	0.255	-11.87	-7.87	0.16
131	0.148	-16.59	-12.59	0.06	176	0.256	-11.84	-7.84	0.16
132	0.151	-16.42	-12.42	0.06	177	0.257	-11.80	-7.80	0.17
133	0.154	-16.25	-12.25	0.06	178	0.258	-11.77	-7.77	0.17
134	0.157	-16.08	-12.08	0.06	179	0.259	-11.73	-7.73	0.17

KATHREIN

USA

CA2-FM

FM

Maximum gain: 4.0 dBd

Horizontal polarization

Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
180	0.260	-11.70	-7.70	0.17	225	0.160	-15.92	-11.92	0.06
181	0.259	-11.73	-7.73	0.17	226	0.157	-16.08	-12.08	0.06
182	0.258	-11.77	-7.77	0.17	227	0.154	-16.25	-12.25	0.06
183	0.257	-11.80	-7.80	0.17	228	0.151	-16.42	-12.42	0.06
184	0.256	-11.84	-7.84	0.16	229	0.148	-16.59	-12.59	0.06
185	0.255	-11.87	-7.87	0.16	230	0.145	-16.77	-12.77	0.05
186	0.254	-11.90	-7.90	0.16	231	0.140	-17.08	-13.08	0.05
187	0.253	-11.94	-7.94	0.16	232	0.135	-17.39	-13.39	0.05
188	0.252	-11.97	-7.97	0.16	233	0.130	-17.72	-13.72	0.04
189	0.251	-12.01	-8.01	0.16	234	0.125	-18.06	-14.06	0.04
190	0.250	-12.04	-8.04	0.16	235	0.120	-18.42	-14.42	0.04
191	0.250	-12.04	-8.04	0.16	236	0.115	-18.75	-14.75	0.03
192	0.250	-12.04	-8.04	0.16	237	0.111	-19.09	-15.09	0.03
193	0.250	-12.04	-8.04	0.16	238	0.107	-19.45	-15.45	0.03
194	0.250	-12.04	-8.04	0.16	239	0.102	-19.83	-15.83	0.03
195	0.250	-12.04	-8.04	0.16	240	0.097	-20.22	-16.22	0.02
196	0.248	-12.09	-8.09	0.16	241	0.095	-20.45	-16.45	0.02
197	0.247	-12.15	-8.15	0.15	242	0.093	-20.68	-16.68	0.02
198	0.246	-12.20	-8.20	0.15	243	0.090	-20.92	-16.92	0.02
199	0.244	-12.25	-8.25	0.15	244	0.087	-21.16	-17.16	0.02
200	0.242	-12.31	-8.31	0.15	245	0.085	-21.41	-17.41	0.02
201	0.241	-12.38	-8.38	0.15	246	0.082	-21.72	-17.72	0.02
202	0.238	-12.45	-8.45	0.14	247	0.079	-22.05	-18.05	0.02
203	0.236	-12.52	-8.52	0.14	248	0.076	-22.38	-18.38	0.01
204	0.235	-12.60	-8.60	0.14	249	0.073	-22.73	-18.73	0.01
205	0.233	-12.67	-8.67	0.14	250	0.070	-23.10	-19.10	0.01
206	0.230	-12.78	-8.78	0.13	251	0.068	-23.35	-19.35	0.01
207	0.226	-12.90	-8.90	0.13	252	0.066	-23.61	-19.61	0.01
208	0.224	-13.01	-9.01	0.13	253	0.064	-23.88	-19.88	0.01
209	0.220	-13.13	-9.13	0.12	254	0.062	-24.15	-20.15	0.01
210	0.218	-13.25	-9.25	0.12	255	0.060	-24.44	-20.44	0.01
211	0.213	-13.41	-9.41	0.11	256	0.059	-24.58	-20.58	0.01
212	0.209	-13.58	-9.58	0.11	257	0.058	-24.73	-20.73	0.01
213	0.205	-13.74	-9.74	0.11	258	0.057	-24.88	-20.88	0.01
214	0.201	-13.91	-9.91	0.10	259	0.056	-25.04	-21.04	0.01
215	0.197	-14.09	-10.09	0.10	260	0.055	-25.19	-21.19	0.01
216	0.193	-14.29	-10.29	0.09	261	0.055	-25.27	-21.27	0.01
217	0.188	-14.49	-10.49	0.09	262	0.054	-25.35	-21.35	0.01
218	0.184	-14.70	-10.70	0.09	263	0.054	-25.43	-21.43	0.01
219	0.179	-14.92	-10.92	0.08	264	0.053	-25.51	-21.51	0.01
220	0.175	-15.14	-11.14	0.08	265	0.053	-25.60	-21.60	0.01
221	0.172	-15.29	-11.29	0.07	266	0.052	-25.68	-21.68	0.01
222	0.169	-15.44	-11.44	0.07	267	0.052	-25.76	-21.76	0.01
223	0.166	-15.60	-11.60	0.07	268	0.051	-25.85	-21.85	0.01
224	0.163	-15.76	-11.76	0.07	269	0.051	-25.93	-21.93	0.01

KATHREIN

USA

CA2-FM

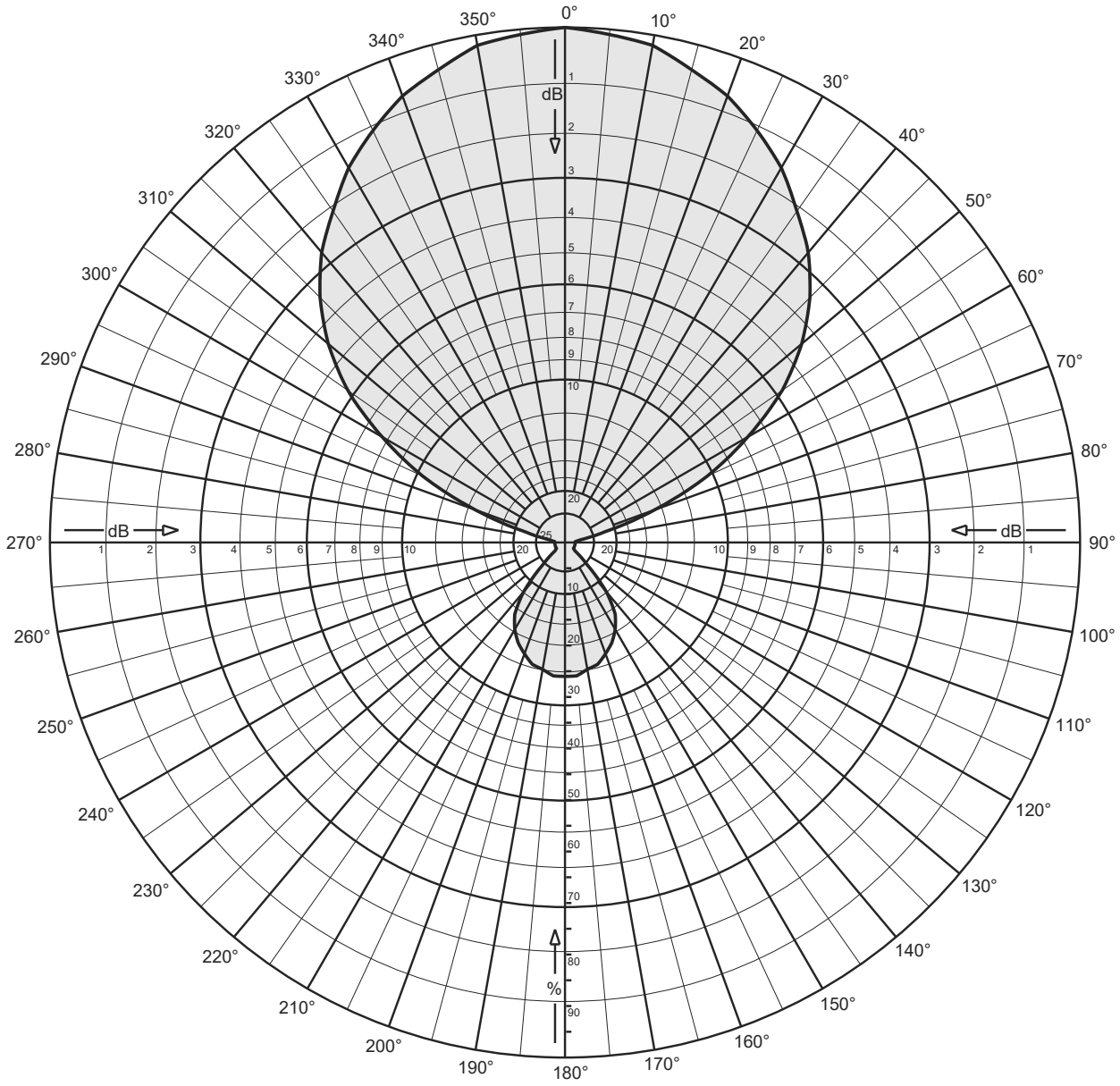
FM

Maximum gain: 4.0 dBd

Horizontal polarization

Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
270	0.050	-26.02	-22.02	0.01	315	0.595	-4.51	-0.51	0.89
271	0.051	-25.85	-21.85	0.01	316	0.611	-4.28	-0.28	0.94
272	0.052	-25.68	-21.68	0.01	317	0.627	-4.05	-0.05	0.99
273	0.053	-25.51	-21.51	0.01	318	0.643	-3.84	0.16	1.04
274	0.054	-25.35	-21.35	0.01	319	0.659	-3.62	0.38	1.09
275	0.055	-25.19	-21.19	0.01	320	0.675	-3.41	0.59	1.14
276	0.059	-24.58	-20.58	0.01	321	0.689	-3.24	0.76	1.19
277	0.063	-24.01	-20.01	0.01	322	0.703	-3.06	0.94	1.24
278	0.067	-23.48	-19.48	0.01	323	0.717	-2.89	1.11	1.29
279	0.071	-22.97	-18.97	0.01	324	0.731	-2.72	1.28	1.34
280	0.075	-22.50	-18.50	0.01	325	0.745	-2.56	1.44	1.39
281	0.085	-21.41	-17.41	0.02	326	0.757	-2.41	1.59	1.44
282	0.095	-20.45	-16.45	0.02	327	0.770	-2.27	1.73	1.49
283	0.105	-19.58	-15.58	0.03	328	0.783	-2.13	1.87	1.54
284	0.115	-18.79	-14.79	0.03	329	0.795	-1.99	2.01	1.59
285	0.125	-18.06	-14.06	0.04	330	0.808	-1.86	2.14	1.64
286	0.138	-17.20	-13.20	0.05	331	0.819	-1.73	2.27	1.68
287	0.151	-16.42	-12.42	0.06	332	0.831	-1.61	2.39	1.73
288	0.164	-15.70	-11.70	0.07	333	0.842	-1.49	2.51	1.78
289	0.177	-15.04	-11.04	0.08	334	0.854	-1.38	2.62	1.83
290	0.190	-14.42	-10.42	0.09	335	0.865	-1.26	2.74	1.88
291	0.205	-13.76	-9.76	0.11	336	0.875	-1.16	2.84	1.92
292	0.220	-13.15	-9.15	0.12	337	0.885	-1.06	2.94	1.97
293	0.235	-12.58	-8.58	0.14	338	0.895	-0.96	3.04	2.01
294	0.250	-12.04	-8.04	0.16	339	0.905	-0.87	3.13	2.06
295	0.265	-11.54	-7.54	0.18	340	0.915	-0.77	3.23	2.10
296	0.281	-11.03	-7.03	0.20	341	0.924	-0.69	3.31	2.14
297	0.297	-10.54	-6.54	0.22	342	0.932	-0.61	3.39	2.18
298	0.313	-10.09	-6.09	0.25	343	0.940	-0.53	3.47	2.22
299	0.329	-9.66	-5.66	0.27	344	0.949	-0.45	3.55	2.26
300	0.345	-9.24	-5.24	0.30	345	0.957	-0.38	3.62	2.30
301	0.362	-8.83	-4.83	0.33	346	0.961	-0.34	3.66	2.32
302	0.379	-8.43	-4.43	0.36	347	0.965	-0.30	3.70	2.34
303	0.396	-8.05	-4.05	0.39	348	0.970	-0.27	3.73	2.36
304	0.413	-7.68	-3.68	0.43	349	0.974	-0.23	3.77	2.38
305	0.430	-7.33	-3.33	0.46	350	0.978	-0.20	3.80	2.40
306	0.446	-7.01	-3.01	0.50	351	0.980	-0.18	3.82	2.41
307	0.462	-6.71	-2.71	0.54	352	0.982	-0.15	3.85	2.42
308	0.478	-6.41	-2.41	0.57	353	0.985	-0.13	3.87	2.44
309	0.494	-6.13	-2.13	0.61	354	0.988	-0.11	3.89	2.45
310	0.510	-5.85	-1.85	0.65	355	0.990	-0.09	3.91	2.46
311	0.527	-5.56	-1.56	0.70	356	0.992	-0.07	3.93	2.47
312	0.544	-5.29	-1.29	0.74	357	0.994	-0.05	3.95	2.48
313	0.561	-5.02	-1.02	0.79	358	0.996	-0.03	3.97	2.49
314	0.578	-4.76	-0.76	0.84	359	0.998	-0.02	3.98	2.50



CA2-FM
FM
Maximum gain: 4.0 dBd
Vertical polarization
Horizontal radiation pattern

KATHREIN
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23-Jul-2015

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CA2-FM

FM

Maximum gain: 4.0 dBd

Vertical polarization

Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	4.00	2.51	45	0.673	-3.45	0.55	1.14
1	0.998	-0.02	3.98	2.50	46	0.658	-3.64	0.36	1.09
2	0.996	-0.03	3.97	2.49	47	0.643	-3.83	0.17	1.04
3	0.994	-0.05	3.95	2.48	48	0.629	-4.03	-0.03	0.99
4	0.992	-0.07	3.93	2.47	49	0.615	-4.23	-0.23	0.95
5	0.990	-0.09	3.91	2.46	50	0.600	-4.44	-0.44	0.90
6	0.988	-0.10	3.90	2.45	51	0.583	-4.69	-0.69	0.85
7	0.986	-0.12	3.88	2.44	52	0.566	-4.94	-0.94	0.80
8	0.984	-0.14	3.86	2.43	53	0.549	-5.21	-1.21	0.76
9	0.982	-0.16	3.84	2.42	54	0.532	-5.48	-1.48	0.71
10	0.980	-0.18	3.82	2.41	55	0.515	-5.76	-1.76	0.67
11	0.974	-0.23	3.77	2.38	56	0.494	-6.13	-2.13	0.61
12	0.968	-0.28	3.72	2.35	57	0.473	-6.50	-2.50	0.56
13	0.962	-0.34	3.66	2.32	58	0.452	-6.90	-2.90	0.51
14	0.956	-0.39	3.61	2.30	59	0.431	-7.31	-3.31	0.47
15	0.950	-0.45	3.55	2.27	60	0.410	-7.74	-3.74	0.42
16	0.944	-0.50	3.50	2.24	61	0.389	-8.20	-4.20	0.38
17	0.939	-0.55	3.45	2.21	62	0.368	-8.68	-4.68	0.34
18	0.933	-0.60	3.40	2.19	63	0.347	-9.19	-5.19	0.30
19	0.928	-0.65	3.35	2.16	64	0.326	-9.74	-5.74	0.27
20	0.923	-0.70	3.30	2.14	65	0.305	-10.31	-6.31	0.23
21	0.914	-0.78	3.22	2.10	66	0.281	-11.03	-7.03	0.20
22	0.906	-0.85	3.15	2.06	67	0.257	-11.80	-7.80	0.17
23	0.898	-0.93	3.07	2.03	68	0.233	-12.65	-8.65	0.14
24	0.891	-1.01	2.99	1.99	69	0.209	-13.60	-9.60	0.11
25	0.883	-1.09	2.91	1.96	70	0.185	-14.66	-10.66	0.09
26	0.874	-1.17	2.83	1.92	71	0.164	-15.70	-11.70	0.07
27	0.865	-1.25	2.75	1.88	72	0.143	-16.89	-12.89	0.05
28	0.857	-1.34	2.66	1.84	73	0.122	-18.27	-14.27	0.04
29	0.849	-1.43	2.57	1.81	74	0.101	-19.91	-15.91	0.03
30	0.840	-1.51	2.49	1.77	75	0.080	-21.94	-17.94	0.02
31	0.829	-1.63	2.37	1.73	76	0.070	-23.10	-19.10	0.01
32	0.818	-1.74	2.26	1.68	77	0.060	-24.44	-20.44	0.01
33	0.807	-1.86	2.14	1.64	78	0.050	-26.02	-22.02	0.01
34	0.796	-1.98	2.02	1.59	79	0.040	-27.96	-23.96	0.00
35	0.785	-2.10	1.90	1.55	80	0.030	-30.46	-26.46	0.00
36	0.775	-2.21	1.79	1.51	81	0.028	-31.06	-27.06	0.00
37	0.765	-2.33	1.67	1.47	82	0.026	-31.70	-27.70	0.00
38	0.755	-2.44	1.56	1.43	83	0.024	-32.40	-28.40	0.00
39	0.745	-2.56	1.44	1.39	84	0.022	-33.15	-29.15	0.00
40	0.735	-2.67	1.33	1.36	85	0.020	-33.98	-29.98	0.00
41	0.722	-2.82	1.18	1.31	86	0.020	-33.98	-29.98	0.00
42	0.710	-2.97	1.03	1.27	87	0.020	-33.98	-29.98	0.00
43	0.697	-3.13	0.87	1.22	88	0.020	-33.98	-29.98	0.00
44	0.685	-3.29	0.71	1.18	89	0.020	-33.98	-29.98	0.00

KATHREIN

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CA2-FM

FM

Maximum gain: 4.0 dBd

Vertical polarization

Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
90	0.020	-33.98	-29.98	0.00	135	0.060	-24.44	-20.44	0.01
91	0.020	-33.98	-29.98	0.00	136	0.073	-22.73	-18.73	0.01
92	0.020	-33.98	-29.98	0.00	137	0.086	-21.31	-17.31	0.02
93	0.020	-33.98	-29.98	0.00	138	0.099	-20.09	-16.09	0.02
94	0.020	-33.98	-29.98	0.00	139	0.112	-19.02	-15.02	0.03
95	0.020	-33.98	-29.98	0.00	140	0.125	-18.06	-14.06	0.04
96	0.020	-33.98	-29.98	0.00	141	0.134	-17.46	-13.46	0.05
97	0.020	-33.98	-29.98	0.00	142	0.143	-16.89	-12.89	0.05
98	0.020	-33.98	-29.98	0.00	143	0.152	-16.36	-12.36	0.06
99	0.020	-33.98	-29.98	0.00	144	0.161	-15.86	-11.86	0.07
100	0.020	-33.98	-29.98	0.00	145	0.170	-15.39	-11.39	0.07
101	0.020	-33.98	-29.98	0.00	146	0.175	-15.14	-11.14	0.08
102	0.020	-33.98	-29.98	0.00	147	0.180	-14.89	-10.89	0.08
103	0.020	-33.98	-29.98	0.00	148	0.185	-14.66	-10.66	0.09
104	0.020	-33.98	-29.98	0.00	149	0.190	-14.42	-10.42	0.09
105	0.020	-33.98	-29.98	0.00	150	0.195	-14.20	-10.20	0.10
106	0.020	-33.98	-29.98	0.00	151	0.199	-14.02	-10.02	0.10
107	0.020	-33.98	-29.98	0.00	152	0.203	-13.85	-9.85	0.10
108	0.020	-33.98	-29.98	0.00	153	0.207	-13.68	-9.68	0.11
109	0.020	-33.98	-29.98	0.00	154	0.211	-13.51	-9.51	0.11
110	0.020	-33.98	-29.98	0.00	155	0.215	-13.35	-9.35	0.12
111	0.020	-33.98	-29.98	0.00	156	0.218	-13.23	-9.23	0.12
112	0.020	-33.98	-29.98	0.00	157	0.221	-13.11	-9.11	0.12
113	0.020	-33.98	-29.98	0.00	158	0.224	-13.00	-9.00	0.13
114	0.020	-33.98	-29.98	0.00	159	0.227	-12.88	-8.88	0.13
115	0.020	-33.98	-29.98	0.00	160	0.230	-12.77	-8.77	0.13
116	0.020	-33.98	-29.98	0.00	161	0.233	-12.65	-8.65	0.14
117	0.020	-33.98	-29.98	0.00	162	0.236	-12.54	-8.54	0.14
118	0.020	-33.98	-29.98	0.00	163	0.239	-12.43	-8.43	0.14
119	0.020	-33.98	-29.98	0.00	164	0.242	-12.32	-8.32	0.15
120	0.020	-33.98	-29.98	0.00	165	0.245	-12.22	-8.22	0.15
121	0.020	-33.98	-29.98	0.00	166	0.246	-12.18	-8.18	0.15
122	0.020	-33.98	-29.98	0.00	167	0.247	-12.15	-8.15	0.15
123	0.020	-33.98	-29.98	0.00	168	0.248	-12.11	-8.11	0.15
124	0.020	-33.98	-29.98	0.00	169	0.249	-12.08	-8.08	0.16
125	0.020	-33.98	-29.98	0.00	170	0.250	-12.04	-8.04	0.16
126	0.021	-33.56	-29.56	0.00	171	0.252	-11.97	-7.97	0.16
127	0.022	-33.15	-29.15	0.00	172	0.254	-11.90	-7.90	0.16
128	0.023	-32.77	-28.77	0.00	173	0.256	-11.84	-7.84	0.16
129	0.024	-32.40	-28.40	0.00	174	0.258	-11.77	-7.77	0.17
130	0.025	-32.04	-28.04	0.00	175	0.260	-11.70	-7.70	0.17
131	0.032	-29.90	-25.90	0.00	176	0.260	-11.70	-7.70	0.17
132	0.039	-28.18	-24.18	0.00	177	0.260	-11.70	-7.70	0.17
133	0.046	-26.74	-22.74	0.01	178	0.260	-11.70	-7.70	0.17
134	0.053	-25.51	-21.51	0.01	179	0.260	-11.70	-7.70	0.17

KATHREIN

USA

CA2-FM

FM

Maximum gain: 4.0 dBd

Vertical polarization

Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
180	0.260	-11.70	-7.70	0.17	225	0.060	-24.44	-20.44	0.01
181	0.260	-11.70	-7.70	0.17	226	0.053	-25.51	-21.51	0.01
182	0.260	-11.70	-7.70	0.17	227	0.046	-26.74	-22.74	0.01
183	0.260	-11.70	-7.70	0.17	228	0.039	-28.18	-24.18	0.00
184	0.260	-11.70	-7.70	0.17	229	0.032	-29.90	-25.90	0.00
185	0.260	-11.70	-7.70	0.17	230	0.025	-32.04	-28.04	0.00
186	0.258	-11.77	-7.77	0.17	231	0.024	-32.40	-28.40	0.00
187	0.256	-11.84	-7.84	0.16	232	0.023	-32.77	-28.77	0.00
188	0.254	-11.90	-7.90	0.16	233	0.022	-33.15	-29.15	0.00
189	0.252	-11.97	-7.97	0.16	234	0.021	-33.56	-29.56	0.00
190	0.250	-12.04	-8.04	0.16	235	0.020	-33.98	-29.98	0.00
191	0.249	-12.08	-8.08	0.16	236	0.020	-33.98	-29.98	0.00
192	0.248	-12.11	-8.11	0.15	237	0.020	-33.98	-29.98	0.00
193	0.247	-12.15	-8.15	0.15	238	0.020	-33.98	-29.98	0.00
194	0.246	-12.18	-8.18	0.15	239	0.020	-33.98	-29.98	0.00
195	0.245	-12.22	-8.22	0.15	240	0.020	-33.98	-29.98	0.00
196	0.242	-12.32	-8.32	0.15	241	0.020	-33.98	-29.98	0.00
197	0.239	-12.43	-8.43	0.14	242	0.020	-33.98	-29.98	0.00
198	0.236	-12.54	-8.54	0.14	243	0.020	-33.98	-29.98	0.00
199	0.233	-12.65	-8.65	0.14	244	0.020	-33.98	-29.98	0.00
200	0.230	-12.77	-8.77	0.13	245	0.020	-33.98	-29.98	0.00
201	0.227	-12.88	-8.88	0.13	246	0.020	-33.98	-29.98	0.00
202	0.224	-13.00	-9.00	0.13	247	0.020	-33.98	-29.98	0.00
203	0.221	-13.11	-9.11	0.12	248	0.020	-33.98	-29.98	0.00
204	0.218	-13.23	-9.23	0.12	249	0.020	-33.98	-29.98	0.00
205	0.215	-13.35	-9.35	0.12	250	0.020	-33.98	-29.98	0.00
206	0.211	-13.51	-9.51	0.11	251	0.020	-33.98	-29.98	0.00
207	0.207	-13.68	-9.68	0.11	252	0.020	-33.98	-29.98	0.00
208	0.203	-13.85	-9.85	0.10	253	0.020	-33.98	-29.98	0.00
209	0.199	-14.02	-10.02	0.10	254	0.020	-33.98	-29.98	0.00
210	0.195	-14.20	-10.20	0.10	255	0.020	-33.98	-29.98	0.00
211	0.190	-14.42	-10.42	0.09	256	0.020	-33.98	-29.98	0.00
212	0.185	-14.66	-10.66	0.09	257	0.020	-33.98	-29.98	0.00
213	0.180	-14.89	-10.89	0.08	258	0.020	-33.98	-29.98	0.00
214	0.175	-15.14	-11.14	0.08	259	0.020	-33.98	-29.98	0.00
215	0.170	-15.39	-11.39	0.07	260	0.020	-33.98	-29.98	0.00
216	0.161	-15.86	-11.86	0.07	261	0.020	-33.98	-29.98	0.00
217	0.152	-16.36	-12.36	0.06	262	0.020	-33.98	-29.98	0.00
218	0.143	-16.89	-12.89	0.05	263	0.020	-33.98	-29.98	0.00
219	0.134	-17.46	-13.46	0.05	264	0.020	-33.98	-29.98	0.00
220	0.125	-18.06	-14.06	0.04	265	0.020	-33.98	-29.98	0.00
221	0.112	-19.02	-15.02	0.03	266	0.020	-33.98	-29.98	0.00
222	0.099	-20.09	-16.09	0.02	267	0.020	-33.98	-29.98	0.00
223	0.086	-21.31	-17.31	0.02	268	0.020	-33.98	-29.98	0.00
224	0.073	-22.73	-18.73	0.01	269	0.020	-33.98	-29.98	0.00

KATHREIN

USA

CA2-FM

FM

Maximum gain: 4.0 dBd

Vertical polarization

Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
270	0.020	-33.98	-29.98	0.00	315	0.673	-3.45	0.55	1.14
271	0.020	-33.98	-29.98	0.00	316	0.685	-3.29	0.71	1.18
272	0.020	-33.98	-29.98	0.00	317	0.697	-3.13	0.87	1.22
273	0.020	-33.98	-29.98	0.00	318	0.710	-2.97	1.03	1.27
274	0.020	-33.98	-29.98	0.00	319	0.722	-2.82	1.18	1.31
275	0.020	-33.98	-29.98	0.00	320	0.735	-2.67	1.33	1.36
276	0.022	-33.15	-29.15	0.00	321	0.745	-2.56	1.44	1.39
277	0.024	-32.40	-28.40	0.00	322	0.755	-2.44	1.56	1.43
278	0.026	-31.70	-27.70	0.00	323	0.765	-2.33	1.67	1.47
279	0.028	-31.06	-27.06	0.00	324	0.775	-2.21	1.79	1.51
280	0.030	-30.46	-26.46	0.00	325	0.785	-2.10	1.90	1.55
281	0.040	-27.96	-23.96	0.00	326	0.796	-1.98	2.02	1.59
282	0.050	-26.02	-22.02	0.01	327	0.807	-1.86	2.14	1.64
283	0.060	-24.44	-20.44	0.01	328	0.818	-1.74	2.26	1.68
284	0.070	-23.10	-19.10	0.01	329	0.829	-1.63	2.37	1.73
285	0.080	-21.94	-17.94	0.02	330	0.840	-1.51	2.49	1.77
286	0.101	-19.91	-15.91	0.03	331	0.849	-1.43	2.57	1.81
287	0.122	-18.27	-14.27	0.04	332	0.857	-1.34	2.66	1.84
288	0.143	-16.89	-12.89	0.05	333	0.865	-1.25	2.75	1.88
289	0.164	-15.70	-11.70	0.07	334	0.874	-1.17	2.83	1.92
290	0.185	-14.66	-10.66	0.09	335	0.883	-1.09	2.91	1.96
291	0.209	-13.60	-9.60	0.11	336	0.891	-1.01	2.99	1.99
292	0.233	-12.65	-8.65	0.14	337	0.898	-0.93	3.07	2.03
293	0.257	-11.80	-7.80	0.17	338	0.906	-0.85	3.15	2.06
294	0.281	-11.03	-7.03	0.20	339	0.914	-0.78	3.22	2.10
295	0.305	-10.31	-6.31	0.23	340	0.923	-0.70	3.30	2.14
296	0.326	-9.74	-5.74	0.27	341	0.928	-0.65	3.35	2.16
297	0.347	-9.19	-5.19	0.30	342	0.933	-0.60	3.40	2.19
298	0.368	-8.68	-4.68	0.34	343	0.939	-0.55	3.45	2.21
299	0.389	-8.20	-4.20	0.38	344	0.944	-0.50	3.50	2.24
300	0.410	-7.74	-3.74	0.42	345	0.950	-0.45	3.55	2.27
301	0.431	-7.31	-3.31	0.47	346	0.956	-0.39	3.61	2.30
302	0.452	-6.90	-2.90	0.51	347	0.962	-0.34	3.66	2.32
303	0.473	-6.50	-2.50	0.56	348	0.968	-0.28	3.72	2.35
304	0.494	-6.13	-2.13	0.61	349	0.974	-0.23	3.77	2.38
305	0.515	-5.76	-1.76	0.67	350	0.980	-0.18	3.82	2.41
306	0.532	-5.48	-1.48	0.71	351	0.982	-0.16	3.84	2.42
307	0.549	-5.21	-1.21	0.76	352	0.984	-0.14	3.86	2.43
308	0.566	-4.94	-0.94	0.80	353	0.986	-0.12	3.88	2.44
309	0.583	-4.69	-0.69	0.85	354	0.988	-0.10	3.90	2.45
310	0.600	-4.44	-0.44	0.90	355	0.990	-0.09	3.91	2.46
311	0.615	-4.23	-0.23	0.95	356	0.992	-0.07	3.93	2.47
312	0.629	-4.03	-0.03	0.99	357	0.994	-0.05	3.95	2.48
313	0.643	-3.83	0.17	1.04	358	0.996	-0.03	3.97	2.49
314	0.658	-3.64	0.36	1.09	359	0.998	-0.02	3.98	2.50