

ENGINEERING EXHIBIT

Application for Digital Television Station Construction Permit

prepared for

Esteem Broadcasting of California LLC

KBVU(DT) Eureka, CA

Facility ID 58618

Ch. 28 50 kW 512 m

Esteem Broadcasting of California LLC (“*Esteem*”) is the licensee of television station KBVU, Channel 28, Eureka, CA. KBVU is licensed to operate at 50 kW effective radiated power (“ERP”) with a directional antenna having a height above average terrain (“HAAT”) of 513 meters (BLCDT-20061215ACE). *Esteem* herein seeks a modification of KBVU’s authorization to make corrections to the actual, as-built directional antenna configuration. No change is proposed to the transmitting location, antenna height, or maximum ERP. A waiver is requested of the FCC’s April 5, 2013 freeze on contour extensions.

KBVU has recently been assigned to *Esteem* (BALCDT-20120823ABC). As due diligence it has been determined that the as-built directional antenna’s orientation does not match licensed values. Further, the license indicates “negative” beamtilt which is also corrected herein. The modification falls outside of those contemplated in §73.1690(c)(3) since the actual directional pattern exceeds the authorized pattern along some azimuths. Thus, a Construction Permit (“CP”) must be obtained as an initial step in updating the KBVU license to match the as-built facility.

There is no change to the antenna make and model, which is a Jampro circularly polarized model JSM-GB-8/CP. The maximum ERP will continue to be 50 kW. While there is no change in antenna height above ground or above mean sea level, the KBVU antenna HAAT is recalculated to be 512 meters. The antenna employs electrical and mechanical beam tilt. The licensed and proposed corrected (as-built) specifications for KBVU’s antenna are listed in the following.

KBVU Directional Antenna Parameter	Licensed (BLCDT-20061215ACE)	As-Built (proposed CP)
Electrical Beamtilt	-1.5 degrees	1.5 degrees
Mechanical Beamtilt	-2.0 degrees toward 295°T	1.3 degrees toward 295°T
Pattern reference orientation	115° T	295°T
Major Lobe Directions	40° 190° T	10° 220°T

The as-built antenna's main beam azimuthal pattern, expressed in terms of relative field without consideration of the mechanical beamtilt, is supplied in Figure 1. Figure 1A depicts the azimuthal pattern with the introduction of the mechanical beamtilt, as determined towards the radio horizon along each azimuth and scaled per the Commission's policies. A comparison of the licensed and as-built patterns is provided in Figure 1B.

Table 1 presents a tabulation of the horizontal plane relative field pattern, to supplement the relative field data within the Form 301 Section III-D "Tech Box" (item 10e). Table 1 includes pertinent terrain elevation data and provides the derivation of the relative field pattern towards the radio horizon. Figures 2 and 2A supply the elevation pattern for the antenna system. Along each azimuth (considering the mechanical beamtilt), radiation at any angle above horizontal elevations does not exceed the maximum radiation realized at horizontal or below.

A map is supplied as Figure 3 which depicts the standard predicted coverage contours. This map includes the location of Eureka, KBVU's principal community. As demonstrated thereon, the KBVU facility complies with §73.625(a)(1) as the entire principal community is encompassed by the 48 dBμ contour.

The as-built KBVU facility's predicted service population provides a 99.3 percent match of the MB Docket 87-268 Seventh Report and Order Appendix B facility, as detailed in the following table.

Digital Television Population Summary

Population Summary (2000 Census) OET Bulletin 69 method	Appendix B	As-built
Within Noise Limited Contour	129,623	127,192
Not affected by terrain losses	121,129	120,292
Lost to all interference	0	0
Net DTV Service	121,129	120,292
Match of Appendix B	---	99.31%

Contour Extension – Waiver Request

The FCC's Public Notice¹ of April 5, 2013 (DA 13-618) imposed limitations on the filing and processing of full power station applications that propose an increase in their authorized noise-limited service contour ("NLSC"). As specified herein, the proposed antenna correction will place the KBVU NLSC (41 dBμ) beyond the currently authorized contour location in some directions.

DA 13-618 contemplates waiver of the contour extension limitation for certain cases by stating:

The Bureau will consider, on a case-by-case basis, requests for waiver of the filing limitation imposed by this Public Notice when a modification application is necessary or otherwise in the public interest for technical or other reasons to maintain quality service to the public, such as when zoning restrictions preclude tower construction at a particular site or when unforeseen events, such as extreme weather events or other extraordinary circumstances, require relocation to a new tower site.

For the case at hand, no change is proposed in the actual KBVU operation, which was constructed during the transition and has been in use for over six years (BLCDDT-20061215ACE). A coverage contour comparison is provided in Figure 4, which shows that the correction will result in an extension of the KBVU NLSC principally over the Pacific Ocean. Contour analysis over large bodies of water is customarily disregarded in evaluation for FCC licensing purposes. A small area of NLSC extension does occur over land to the north. The land area within the extension consists of 373.4 square kilometers within an arc spanning 31 degrees (354 to

¹"Media Bureau Announces Limitations on the Filing and Processing of Full Power and Class A Television Station Modification Applications, Effective Immediately, and Reminds Stations of Spectrum Act Preservation Mandate," DA 13-618, Public Notice, released April 5, 2013.

25 degrees True) from the KBVU site. This area is 1.96 percent of the total area (19,087.9 sq km) within the as-built KBVU NLSC.

The discrepancy in antenna specifications appears to have arisen from inadvertent mischaracterization of the intended antenna configuration at the underlying FCC Form 301 Application for Construction Permit stage, as well as possible lack of understanding of how to properly specify the use of mechanical beamtilt. The pattern comparison in Figure 2B shows that the actual, as-built pattern is approximately a mirror image of the authorized pattern. The KBVU license indicates a negative value (-1.5°) for electrical beamtilt and a negative value (-2.0°) for mechanical beamtilt. Negative beamtilt² should not have been specified, nor should have mechanical beamtilt been in excess of the electrical beamtilt, as the result (if implemented) would have placed the main radiation lobe above the horizon in some azimuths in contravention of §73.623(c)(1) which states:

The antenna system shall be designed so that the effective radiated power at any angle above the horizontal shall be as low as the state of the art permits, and in the same vertical plane may not exceed the effective radiated power in either the horizontal direction or below the horizontal, whichever is greater.

In DA 13-138,³ the FCC recently requested comments and recommendations on how to consider television license records that have accuracy issues, for interference protection and replication purposes. The problem with negative beamtilt was specifically mentioned:

Treatment of Inaccurate Data in FCC Database. We recognize that there may be instances where the information entered into the FCC's broadcast station database (CDBS) may not be fully accurate. Examples may include:

- Negative values for beam tilt
- Swapped values for mechanical beam tilt and orientation
- Missing maximum values for directional antenna patterns
- Missing or incorrect directional antenna flags
- ERP value entered in dBk instead of kilowatts

²FCC Form 301 instructions describe negative beamtilt as being above the horizontal: "The range of depression angles shall be 10 degrees above horizontal (-10 degrees depression) to 90 degrees below horizontal (90 degrees depression)..."

³"Office Of Engineering And Technology Releases And Seeks Comment On Updated Oet-69 Software," DA 13-138, Public Notice, Released February 4, 2013.

Grant of the instant KBVU proposal would provide corrected license data to accurately represent the as-built KBVU facility.

The as-built antenna configuration provides service complementary to the locations of the principal community and other intended service areas. The site's location is within 20 km of the Pacific Ocean coastline and the as-built "bent peanut" directional pattern matches the azimuths up and down the coast. Areas inland from the site (to the east) are largely terrain-blocked from service. Thus, repositioning the antenna to match the licensed azimuthal pattern would result in degraded signal levels over the intended populated areas and ineffective coverage (a waste of power) towards the terrain blockage. Predicted coverage based on the terrain-dependent Longley-Rice method is provided in Figure 5, showing the substantial effect of the terrain blockage in directions away from the coastline.

As to any concern over "loss" areas that would result from the reduction in KBVU NLSC contour over the land areas to the east, any such loss should be considered as theoretical given that no change to the actual KBVU facility is proposed. The purpose of this application is to modify the KBVU authorization to match the as-built facility which has been in operation for over six years.

A waiver of the DA 13-618 contour extension limitations is justified in this case for the reasons stated above.

Interference and Other Allocation Factors

The proposed facility expands the KBVU service contour beyond that established by Appendix B values. A detailed interference study per OET Bulletin 69⁴ shows that the proposal complies with the 0.5 percent limit of new interference caused to pertinent nearby digital

⁴FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). The implementation of OET-69 for this study followed the guidelines of OET-69 as specified therein. A cell size of 2 km was employed. Comparisons of various results of this computer program (run on a Sun Sparc processor) to the Commission's implementation of OET-69 show excellent correlation.

television and Class A television stations. The interference study output report is provided as Table 2.

The nearest FCC monitoring station is 384 km distant at Livermore, CA. This exceeds the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with quiet zones specified in §73.1030(a) and (b). There are no authorized AM stations within 3.2 kilometers of the site. The site is not within a border area requiring international coordination.

Human Exposure to Radiofrequency Electromagnetic Field

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number 65. Based on OET-65 equation (10) and considering 20 percent antenna relative field in downward elevations, the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is $13.9 \mu\text{W}/\text{cm}^2$ which is 3.7 percent of the general population/uncontrolled maximum permitted exposure limit. This is below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

This exhibit is limited to the evaluation of exposure to RF electromagnetic field. The proposal involves continued use of a side-mounted transmitting antenna on an existing antenna support structure. No tower work or change in structure height is proposed.

Certification

The undersigned hereby certifies that the foregoing statement and associated attachments were prepared by him or under his direction, and that they are true and correct to the best of his knowledge and belief.



Joseph M. Davis, P.E.
May 17, 2013

Chesapeake RF Consultants, LLC
207 Old Dominion Road
Yorktown, VA 23692
703-650-9600

List of Attachments

Figure 1, 1A, 1B	Antenna Azimuthal Pattern
Figure 2, 2A	Antenna Elevation Pattern
Figure 3	Proposed Coverage Contours
Figure 4	Coverage Contour Comparison
Figure 5	Longley-Rice Predicted Coverage
Table 1	Antenna Pattern and Elevation Data
Table 2	OET Bulletin 69 Interference Study
Form 301	Saved Version of Engineering Sections from FCC Form at Time of Upload

This material was entered May 17, 2013 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's account number and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.

**Azimuth Pattern - Relative Field
(True North)**

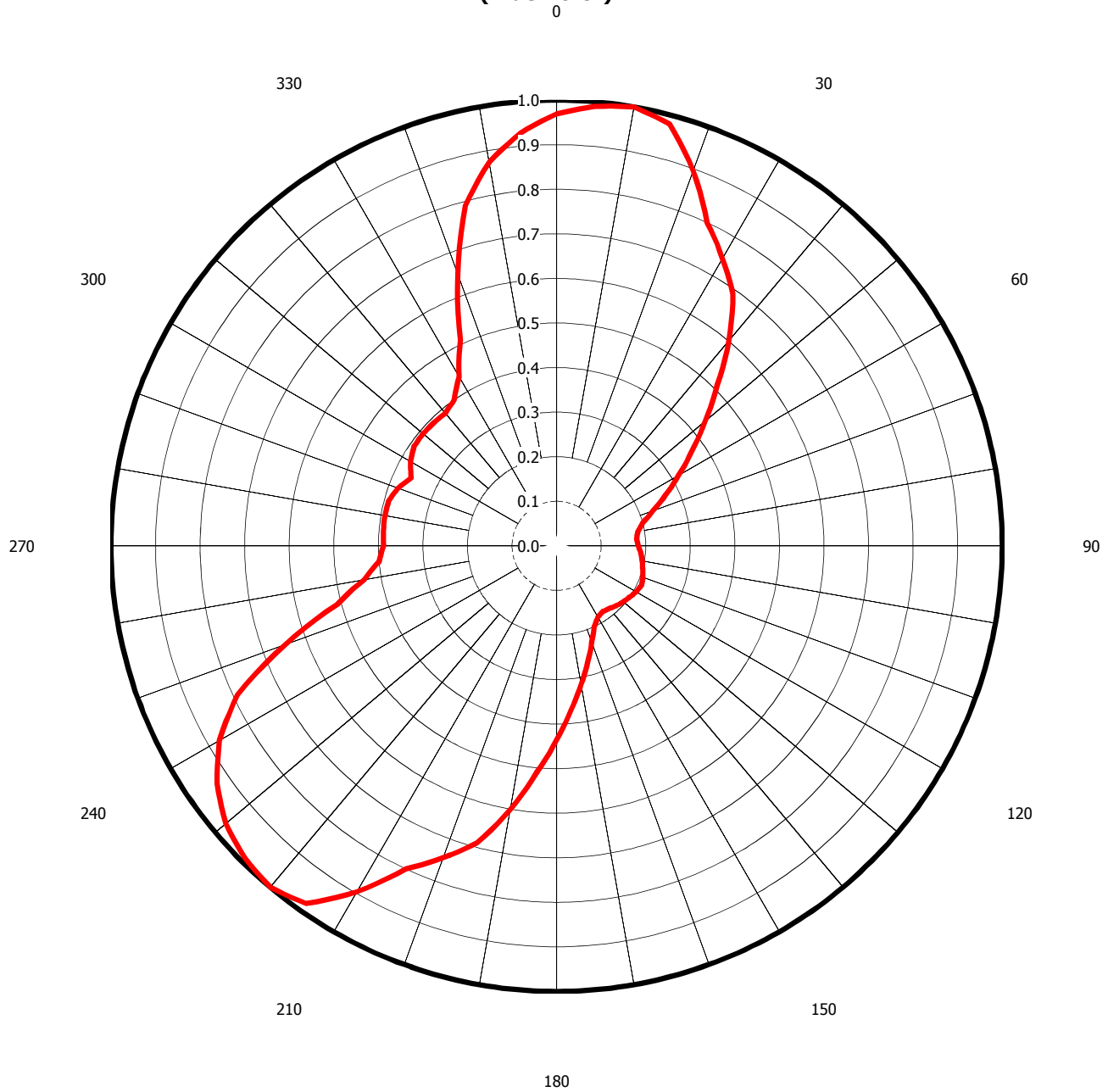


Figure 1
Antenna Azimuthal Pattern - Main Beam
(No Consideration of Mechanical Beamtilt)
KBVU(DT) Eureka, CA
Facility ID 58618
Ch. 28 50 kW 512 m

prepared for
Esteem Broadcasting of California LLC

May, 2013

**Azimuth Pattern - Relative Field
(True North)**

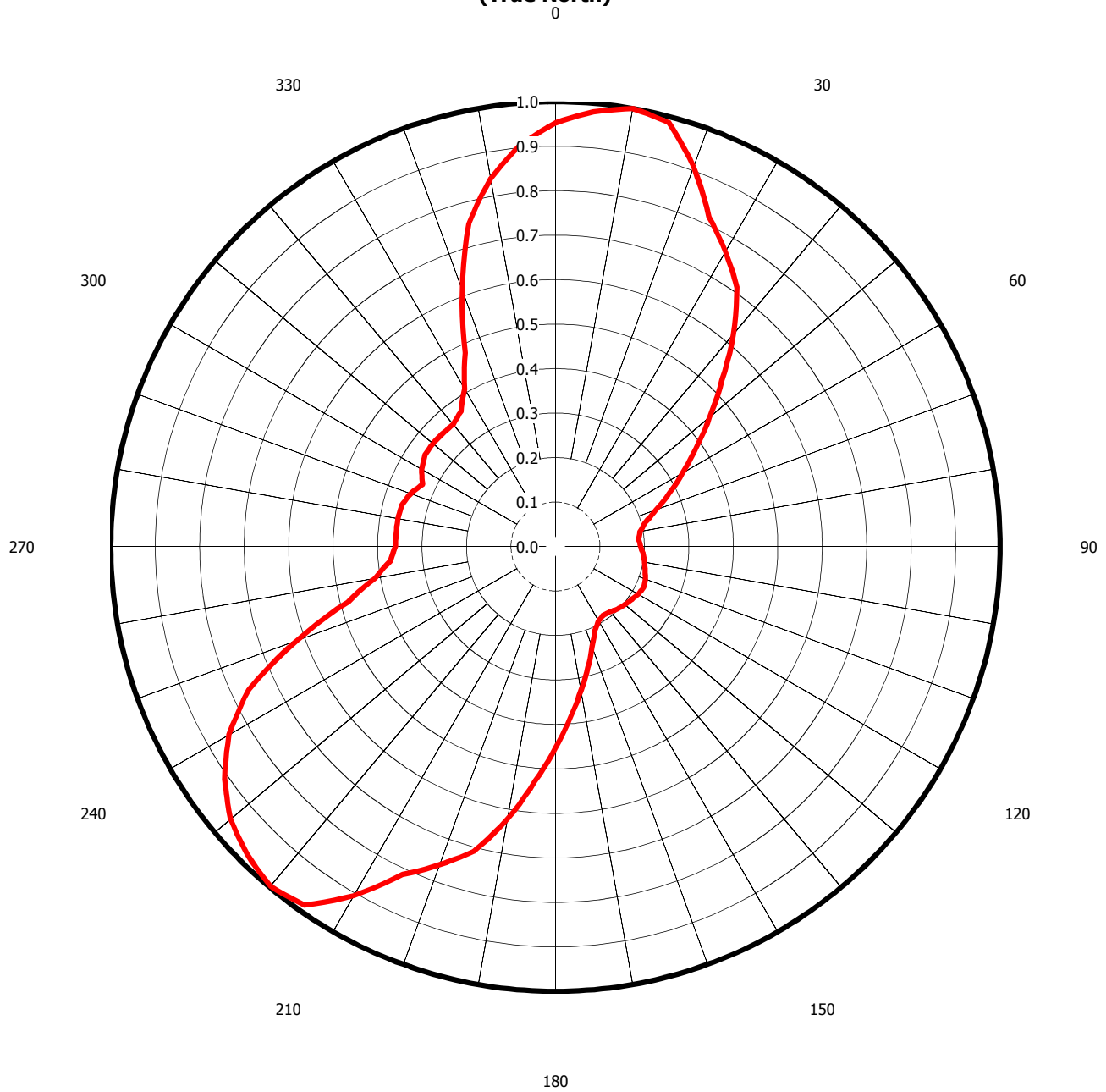


Figure 1A

**Antenna Azimuthal Pattern Towards Radio Horizon
Considering Mechanical Beamtilt
(1.3 Degree at 295 Degrees True)
KBVU(DT) Eureka, CA
Facility ID 58618
Ch. 28 50 kW 512 m**

prepared for

Esteem Broadcasting of California LLC

May, 2013



Azimuth Pattern - Relative Field (True North)

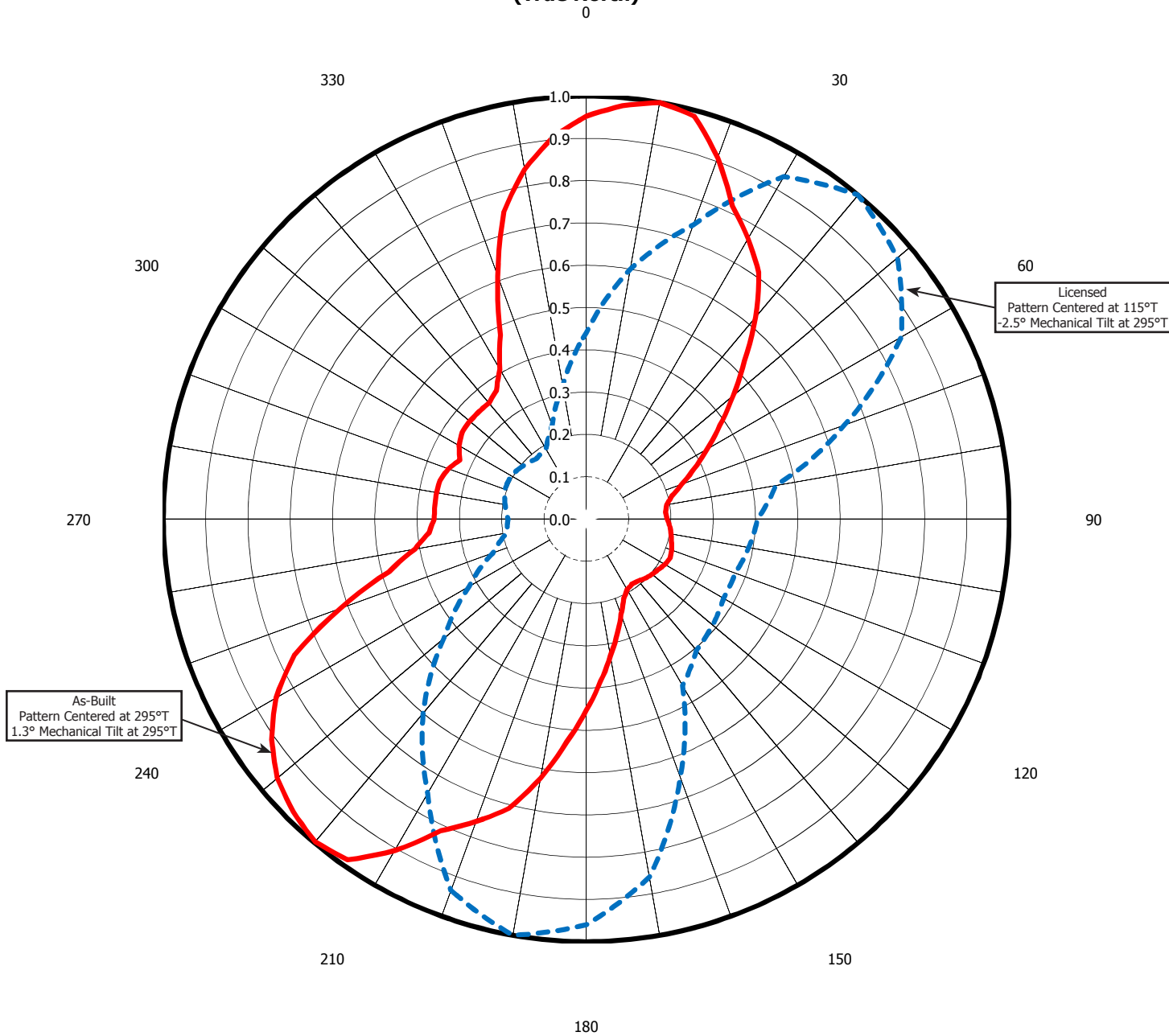


Figure 1B
Antenna Azimuthal Pattern Comparison
Licensed vs As-Built
KBVU(DT) Eureka, CA
Facility ID 58618
Ch. 28 50 kW 512 m

prepared for
Esteem Broadcasting of California LLC

May, 2013



JSM-3, Channel 28
COMPUTED ELEVATION PATTERN

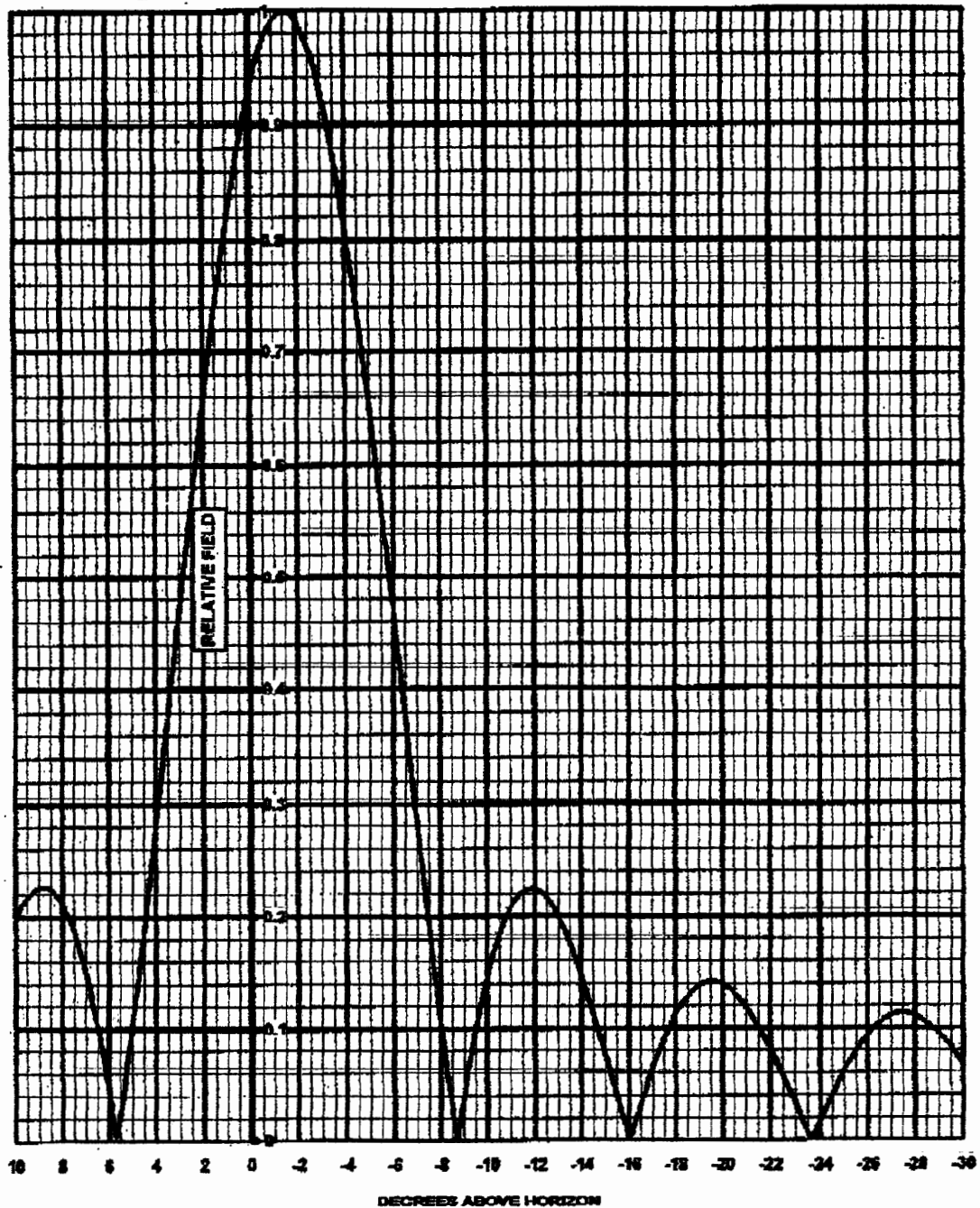


Figure 2
Antenna Elevation Pattern
KBVU(DT) Eureka, CA
Facility ID 58618
Ch. 28 50 kW 512 m

prepared for
Esteem Broadcasting of California LLC

May, 2013





TABULATION

RELATIVE FIELD VS ELEVATION ANGLE

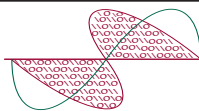
ELEVATION ANGLE	RELATIVE FIELD	ELEVATION ANGLE	RELATIVE FIELD	ELEVATION ANGLE	RELATIVE FIELD
10	0.200	-26	0.094	-61	0.082
9	0.226	-27	0.111	-62	0.060
8	0.212	-28	0.111	-63	0.036
7	0.151	-29	0.095	-64	0.008
6	0.045	-30	0.066	-65	0.018
5	0.103	-31	0.030	-66	0.045
4	0.280	-32	0.010	-67	0.070
3	0.471	-33	0.047	-68	0.093
2	0.855	-34	0.077	-69	0.114
1	0.814	-35	0.096	-70	0.131
0	0.931	-36	0.103	-71	0.146
-1	0.992	-37	0.097	-72	0.157
-2	0.992	-38	0.080	-73	0.165
-3	0.930	-39	0.054	-74	0.170
-4	0.813	-40	0.021	-75	0.172
-5	0.654	-41	0.013	-76	0.171
-6	0.470	-42	0.045	-77	0.167
-7	0.282	-43	0.072	-78	0.162
-8	0.106	-44	0.093	-79	0.154
-9	0.041	-45	0.103	-80	0.144
-10	0.147	-46	0.105	-81	0.134
-11	0.208	-47	0.096	-82	0.121
-12	0.224	-48	0.080	-83	0.108
-13	0.200	-49	0.056	-84	0.094
-14	0.147	-50	0.028	-85	0.079
-15	0.076	-51	0.003	-86	0.064
-16	0.002	-52	0.033	-87	0.048
-17	0.064	-53	0.061	-88	0.032
-18	0.113	-54	0.086	-89	0.016
-19	0.138	-55	0.104	-90	0.000
-20	0.140	-56	0.117		
-21	0.119	-57	0.123		
-22	0.081	-58	0.121		
-23	0.033	-59	0.114		
-24	0.017	-60	0.100		
-25	0.061				

Figure 2A
Antenna Elevation Pattern
KBVU(DT) Eureka, CA
Facility ID 58618
Ch. 28 50 kW 512 m

prepared for
Esteem Broadcasting of California LLC

May, 2013





Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

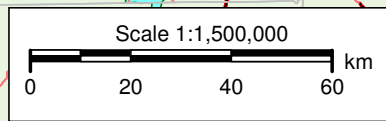
Figure 3
As-Built Coverage Contours
KBVU(DT) Eureka, CA
Facility ID 58618
Ch. 28 50 kW 512 m

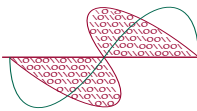
prepared for
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of California LLC

May, 2013

As-Built KBVU
DTV City Grade (48 dBμ)
DTV Service (41 dBμ)

Proposed Digital Coverage	Population (2000 Census)	Area (sq. km)
Within Standard DTV Service Contour	125,351	19,087.9
OET Bulletin 69 method		
Within noise limited contour	127,192	19,795.1
Not affected by terrain losses	120,292	15,352.7
Lost to all interference	0	0.0
Net DTV Service	120,292	15,352.7





Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Figure 4
Coverage Contour Comparison
KBVU(DT) Eureka, CA
Facility ID 58618
Ch. 28 50 kW 512 m

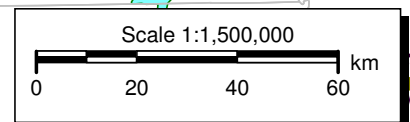
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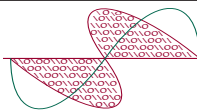
May, 2013

As-Built KBVU
41 dBμ Contour (NLSC)

Contour Extension
Land Area: 373.4 sq. km

Licensed KBVU
41 dBμ Contour (NLSC)





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Radiofrequency Consulting Engineers
Digital Television and Radio

Figure 5
Longley-Rice Predicted Coverage
As-Built Facility
KBVU(DT) Eureka, CA
Facility ID 58618
Ch. 28 50 kW 512 m

prepared for
Esteem Broadcasting
of California LLC

May, 2013

FCC Contour
41 dBu

Propagation Model: Longley-Rice Ver 1.2.2
Signal Resolution: 0.25 km
Area of calculation: FCC F(50-90): 41 dBu
Primary Terrain: NED 3 Second US Terrain
Coordinate System: NAD27

Transmitter Information:
Call Letters: KBVU asbuilt
Latitude: 40-43-39 N
Longitude: 123-58-17 W
ERP: 50.00 kW
Channel: 28
Frequency: 557.0 MHz
AMSL Height: 908.0 m
HAAT: 513.0 m
Horiz. Antenna Pattern: Directional
Vert. Elevation Pattern: Yes
Electrical Beam Tilt: 1.5
Climate: Continental temperate
Conductivity: 0.0050
Dielectric Constant: 15.0
Refractivity: 311.0
Receiver Height AG: 10.0 m
Receiver Gain: 0 dB
Time Variability: 90.0%
Situation Variability: 50.0%
ITM Mode: Broadcast

As-Built KBVU Longley-Rice Predicted Signal Level

Signal 41 dBu or higher
Signal below 41 dBu threshold (terrain blocked)

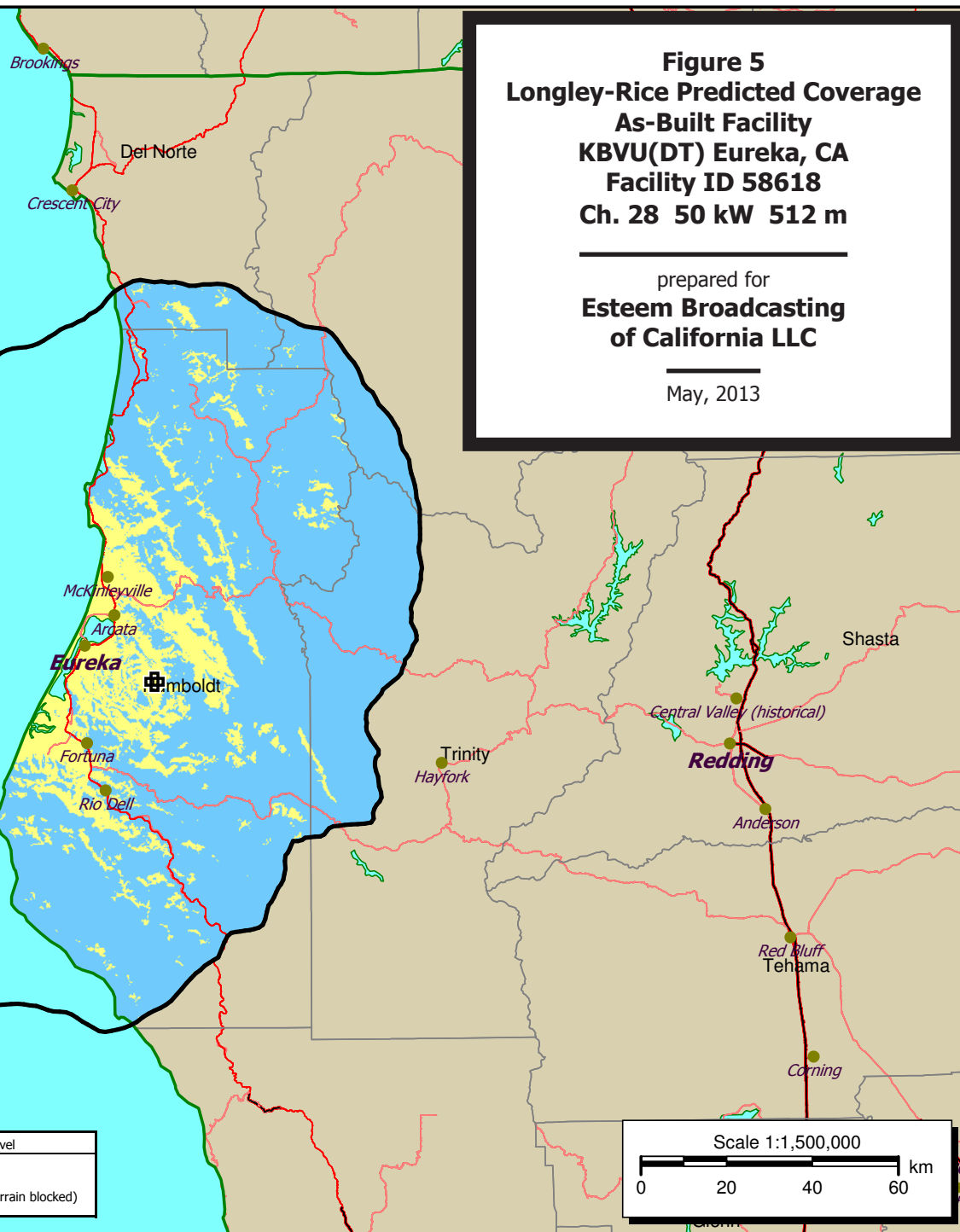
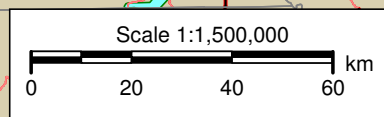


Table 1
Antenna Pattern and Elevation Data
prepared for
Esteem Broadcasting of California LLC
KBVU(DT) Eureka, CA

Azimuth (°T)	Average Elevation (meters)	Effective Height (meters)	Antenna	FCC	Mechanical Tilt (degrees)	Effective Tilt (degrees)	Vertical Plane Relative Field at \angle	Composite Relative Field	Normalized Relative Field ²
			Horizontal Plane Relative Field Before Beamtilt ¹	Depression Angle (\angle) (degrees)					
0	319.6	588.4	0.969	0.67	0.55	2.05	0.942	0.913	0.953
5	336.4	571.6	0.990	0.66	0.44	1.94	0.949	0.940	0.981
10	316.4	591.6	1.000	0.67	0.34	1.84	0.958	0.958	1.000
15	349.3	558.7	0.980	0.65	0.23	1.73	0.964	0.945	0.986
20	353.8	554.2	0.896	0.65	0.11	1.61	0.971	0.870	0.909
25	319.9	588.1	0.800	0.67	0.00	1.50	0.978	0.783	0.817
30	330.9	577.1	0.745	0.67	-0.11	1.39	0.984	0.733	0.765
35	372.1	535.9	0.690	0.64	-0.23	1.27	0.987	0.681	0.711
40	378.0	530.0	0.602	0.64	-0.34	1.16	0.991	0.597	0.623
45	376.7	531.3	0.510	0.64	-0.44	1.06	0.994	0.507	0.529
50	393.1	514.9	0.435	0.63	-0.55	0.95	0.997	0.434	0.453
55	424.9	483.1	0.370	0.61	-0.65	0.85	0.998	0.369	0.385
60	447.7	460.3	0.316	0.59	-0.75	0.75	0.999	0.315	0.329
65	474.2	433.8	0.270	0.58	-0.84	0.66	1.000	0.270	0.282
70	482.7	425.3	0.230	0.57	-0.92	0.58	1.000	0.230	0.240
75	530.7	377.3	0.200	0.54	-1.00	0.50	1.000	0.200	0.209
80	505.5	402.5	0.185	0.56	-1.06	0.44	1.000	0.185	0.193
85	574.3	333.7	0.180	0.51	-1.13	0.37	0.999	0.180	0.188
90	630.3	277.7	0.183	0.46	-1.18	0.32	0.999	0.183	0.191
95	701.5	206.5	0.190	0.40	-1.22	0.28	1.000	0.190	0.198
100	733.5	174.5	0.195	0.37	-1.26	0.24	1.000	0.195	0.203
105	700.8	207.2	0.200	0.40	-1.28	0.22	0.999	0.200	0.209
110	665.2	242.8	0.206	0.43	-1.30	0.20	0.998	0.206	0.215
115	612.3	295.7	0.210	0.48	-1.30	0.20	0.998	0.209	0.219
120	586.1	321.9	0.206	0.50	-1.30	0.20	0.997	0.206	0.215
125	605.7	302.3	0.200	0.48	-1.28	0.22	0.998	0.200	0.208
130	681.9	226.1	0.195	0.42	-1.26	0.24	0.999	0.195	0.203
135	707.4	200.6	0.190	0.39	-1.22	0.28	1.000	0.190	0.198
140	730.2	177.8	0.183	0.37	-1.18	0.32	1.000	0.183	0.191
145	669.6	238.4	0.180	0.43	-1.13	0.37	1.000	0.180	0.188
150	610.9	297.1	0.185	0.48	-1.06	0.44	1.000	0.185	0.193
155	551.3	356.7	0.200	0.52	-1.00	0.50	1.000	0.200	0.209
160	560.4	347.6	0.230	0.52	-0.92	0.58	1.000	0.230	0.240
165	573.2	334.8	0.270	0.51	-0.84	0.66	0.999	0.270	0.282
170	520.9	387.1	0.316	0.54	-0.75	0.75	0.999	0.315	0.329
175	482.2	425.8	0.370	0.57	-0.65	0.85	0.997	0.369	0.385
180	419.6	488.4	0.435	0.61	-0.55	0.95	0.996	0.433	0.452
185	374.0	534.0	0.510	0.64	-0.44	1.06	0.994	0.507	0.529
190	398.9	509.1	0.602	0.63	-0.34	1.16	0.991	0.596	0.622

¹ Depicted in **Figure 1**

² Depicted in **Figure 1A** and reported in FCC Form 301 Tech Box

Table 1
Antenna Pattern and Elevation Data
(page 2 of 2)

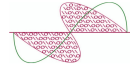
Azimuth (°T)	Average Elevation (meters)	Effective Height (meters)	Antenna	FCC	Mechanical Tilt (degrees)	Effective Tilt (degrees)	Vertical Plane Relative Field at ∠	Composite Relative Field	Normalized Relative Field
			Horizontal Plane Relative Field Before Beamtilt	Depression Angle (∠) (degrees)					
195	476.7	431.3	0.690	0.58	-0.23	1.27	0.985	0.679	0.709
200	486.2	421.8	0.745	0.57	-0.11	1.39	0.979	0.729	0.761
205	456.2	451.8	0.800	0.59	0.00	1.50	0.974	0.779	0.813
210	429.3	478.7	0.896	0.61	0.11	1.61	0.968	0.868	0.906
215	402.3	505.7	0.980	0.62	0.23	1.73	0.962	0.943	0.984
220	384.9	523.1	1.000	0.63	0.34	1.84	0.955	0.955	0.997
225	357.9	550.1	0.990	0.65	0.44	1.94	0.948	0.939	0.980
230	299.0	609.0	0.969	0.68	0.55	2.05	0.942	0.914	0.954
235	267.9	640.1	0.930	0.70	0.65	2.15	0.935	0.870	0.908
240	219.4	688.6	0.874	0.73	0.75	2.25	0.929	0.812	0.848
245	179.1	728.9	0.790	0.75	0.84	2.34	0.923	0.729	0.761
250	173.5	734.5	0.648	0.75	0.92	2.42	0.915	0.593	0.619
255	166.3	741.7	0.510	0.75	1.00	2.50	0.908	0.463	0.483
260	171.5	736.5	0.438	0.75	1.06	2.56	0.900	0.394	0.412
265	175.8	732.2	0.400	0.75	1.13	2.63	0.893	0.357	0.373
270	168.3	739.7	0.388	0.75	1.18	2.68	0.887	0.344	0.360
275	156.0	752.0	0.390	0.76	1.22	2.72	0.883	0.344	0.360
280	132.0	776.0	0.391	0.77	1.26	2.76	0.881	0.344	0.360
285	123.7	784.3	0.390	0.78	1.28	2.78	0.878	0.342	0.357
290	114.1	793.9	0.379	0.78	1.30	2.80	0.877	0.332	0.347
295	91.2	816.8	0.360	0.79	1.30	2.80	0.878	0.316	0.330
300	89.1	818.9	0.379	0.79	1.30	2.80	0.878	0.333	0.347
305	99.3	808.7	0.390	0.79	1.28	2.78	0.880	0.343	0.358
310	129.4	778.6	0.391	0.77	1.26	2.76	0.881	0.345	0.360
315	186.0	722.0	0.390	0.74	1.22	2.72	0.881	0.344	0.359
320	237.2	670.8	0.388	0.72	1.18	2.68	0.883	0.343	0.358
325	273.0	635.0	0.400	0.70	1.13	2.63	0.887	0.355	0.370
330	288.9	619.1	0.438	0.69	1.06	2.56	0.893	0.391	0.408
335	271.6	636.4	0.510	0.70	1.00	2.50	0.902	0.460	0.480
340	365.5	542.5	0.648	0.65	0.92	2.42	0.904	0.586	0.612
345	383.9	524.1	0.790	0.63	0.84	2.34	0.912	0.720	0.752
350	385.4	522.6	0.874	0.63	0.75	2.25	0.921	0.804	0.840
355	317.6	590.4	0.930	0.67	0.65	2.15	0.933	0.868	0.906

Radiation Center Height AMSL 908.0 m
Cardinal Radial Average Terrain AMSL 395.7 m
Radiation Center Height AAT 512.3 m
Effective Radiated Power (AVG) 50 kW 16.99 dBk

Beamtilt details

1.5 degree electrical tilt and 1.3 degree mechanical tilt at 295° True
Effective Tilt = (Electrical Tilt)° + [(Maximum Mechanical Tilt)Cosφ]° = (1.5)° + (1.3*Cos(295-Azimuth))°
Where φ = 0° at azimuth towards mechanical tilt

Table 2 KBVU(DT) OET Bulletin 69 Interference Study
(worst-case scenarios shown page 1 of 4)



Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

TW Census data selected 2000
Data Base Selected
/space/software/cdbs/pt_tvdb.sff

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 05-17-2013 Time: 10:23:15

Record Selected for Analysis

KBVU USERRECORD-01 EUREKA CA US
Channel 28 ERP 50. kW HAAT 518. m RCMSL 00908 m
Latitude 040-43-39 Longitude 0123-58-17
Status APP Zone 2 Border Site number: 01
Dir Antenna Make usr Model KBVU_asbuilt Beam tilt N Ref Azimuth 0.
Last update Cutoff date Docket
Comments
Applicant

Cell Size for Service Analysis 2.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Facility (site # 01) meets maximum height/power limits

Site number	1		
Azimuth (Deg)	ERP (kW)	HAAT (m)	41.0 dBu F(50,90) (km)
0.0	45.410	586.5	92.8
45.0	14.472	529.7	80.6
90.0	1.824	274.4	55.0
135.0	1.940	209.3	51.6
180.0	10.215	486.9	76.4
225.0	47.580	567.5	92.1
270.0	6.374	760.7	82.0
315.0	6.381	727.8	81.1

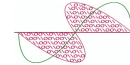
Evaluation toward Class A Stations from site # 01

No Spacing violations or contour overlap
to Class A stations from site # 01

Class A Evaluation Complete

Checks to Site Number 01

Table 2 KBVU(DT) OET Bulletin 69 Interference Study
(worst-case scenarios shown page 2 of 4)



Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quiet zone

Proposed facility OK toward Table Mountain

Proposed facility is beyond the Canadian coordination distance

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
28	KBVU	EUREKA CA	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist (km)	Status	Application	Ref. No.
28	KKPM-CD	CHICO CA	249.4	LIC	BLDTA	20100914AHF
28	KFTL-CD	SAN FRANCISCO CA	362.9	LIC	BLDTA	20100419ACP
28	KDTV-CD	SANTA ROSA CA	257.8	LIC	BLDTA	20100730ADZ

Analysis of Interference to Affected Station 1

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
28	KKPM-CD	CHICO CA	BLDTA	-20100914AHF

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist (km)	Status	Application	Ref. No.
27	KUCO-LP	CHICO CA	84.6	CP	BDFCDTL	-20110404AFA
27	KUCO-LP	CHICO CA	84.6	LIC	BLTTL	-20050405AAP
27	KBTU-CD	SACRAMENTO CA	76.9	CP	BDISDTA	-20110826ADP
27	K27EE-D	UKIAH CA	110.2	LIC	BLDTL	-20120509AFS
28	KBVU	EUREKA CA	249.5	PLN	DTVPLN	-DTVP1016
28	K28LC-D	REDDING CA	163.4	CP	BNPDTL	-20090825ASN
28	KFTL-CD	SAN FRANCISCO CA	177.0	LIC	BLDTA	-20100419ACP
28	KDTV-CD	SANTA ROSA CA	92.0	LIC	BLDTA	-20100730ADZ
28	KMMW-LD	STOCKTON CA	153.7	LIC	BLDTL	-20090518ADI
28	KMPH-TV	VISALIA CA	382.2	LIC	BLCDT	-20030204AGN
28	K36NB-D	INCLINE VILLAGE NV	167.0	APP	BDISDTL	-20130204AAH
28	NEW	RENO NV	178.7	APP	BNPDTL	-20090825AON
28	NEW	RENO NV	178.7	APP	BNPDTL	-20090825BFX
28	NEW	RENO NV	166.1	APP	BNPDTL	-20090825AXH
28	NEW	SPARKS NV	178.6	APP	BNPDTL	-20090825BDO
29	K29JS-D	CHICO CA	82.7	CP	BNPDTL	-20090916ACX
28	KBVU	EUREKA CA	249.4	APP	USERRECORD-01	

Proposal causes no interference

Table 2 KBVU(DT) OET Bulletin 69 Interference Study
(worst-case scenarios shown page 3 of 4)



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Analysis of Interference to Affected Station 2

Analysis of current record

Channel	Call	City/State	Application Ref. No.
28	KFTL-CD	SAN FRANCISCO CA	BLDTA -20100419ACP

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
27	KEXT-CA	MODESTO CA	98.1	CP	BDFCDTA -20080804AER
27	KTSF	SAN FRANCISCO CA	0.1	LIC	BLCDT -20111025AGM
28	KKPM-CD	CHICO CA	177.0	LIC	BLDTA -20100914AHF
28	KBVU	EUREKA CA	362.9	PLN	DTVPLN -DTVP1016
28	K28MZ-D	NEWMAN CA	127.1	CP	BNPDTL -20100513ADV
28	K28LU-D	SALINAS CA	146.5	CP	BNPDTL -20100329AFR
28	KDTV-CD	SANTA ROSA CA	108.9	LIC	BLDTA -20100730ADZ
28	KMMW-LD	STOCKTON CA	157.4	LIC	BLDTL -20090518ADI
28	KMPH-TV	VISALIA CA	334.6	LIC	BLCDT -20030204AGN
28	K36NB-D	INCLINE VILLAGE NV	285.9	APP	BDISDTL -20130204AAH
29	KPIX-TV	SAN FRANCISCO CA	7.7	LIC	BLCDT -20091112AIZ
28	KBVU	EUREKA CA	362.9	APP	USERRECORD-01

Proposal causes no interference

#####

Analysis of Interference to Affected Station 3

Analysis of current record

Channel	Call	City/State	Application Ref. No.
28	KDTV-CD	SANTA ROSA CA	BLDTA -20100730ADZ

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
27	KBTU-CD	SACRAMENTO CA	99.1	CP	BDISDTA -20110826ADP
27	KTSF	SAN FRANCISCO CA	108.9	LIC	BLCDT -20111025AGM
27	K27EE-D	UKIAH CA	65.8	LIC	BLDTL -20120509AFS
28	KKPM-CD	CHICO CA	92.0	LIC	BLDTA -20100914AHF
28	KBVU	EUREKA CA	257.8	PLN	DTVPLN -DTVP1016
28	K28LU-D	SALINAS CA	251.0	CP	BNPDTL -20100329AFR
28	KFTL-CD	SAN FRANCISCO CA	108.9	LIC	BLDTA -20100419ACP
28	KMMW-LD	STOCKTON CA	175.2	LIC	BLDTL -20090518ADI
28	K36NB-D	INCLINE VILLAGE NV	246.9	APP	BDISDTL -20130204AAH
28	NEW	RENO NV	251.9	APP	BNPDTL -20090825AXH
29	KPIX-TV	SAN FRANCISCO CA	101.2	LIC	BLCDT -20091112AIZ
29	K29DF	UKIAH CA	65.9	LIC	BLTT -19960424IIB
28	KBVU	EUREKA CA	257.8	APP	USERRECORD-01

Proposal causes no interference

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Table 2 KBVU(DT) OET Bulletin 69 Interference Study
(worst-case scenarios shown page 4 of 4)



Analysis of Interference to Affected Station 4

Analysis of current record

Channel	Call	City/State	Application Ref. No.
28	KBVU	EUREKA CA	USERRECORD-01

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
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Total scenarios = 1

Result key: 1

Scenario 1 Affected station 4

Before Analysis

Results for: 28A CA EUREKA USERRECORD01 APP

HAAT	518.0 m, ATV ERP	50.0 kW	POPULATION	AREA (sq km)
within Noise Limited Contour			127192	19795.1
not affected by terrain losses			120292	15352.7
lost to NTSC IX			0	0.0
lost to additional IX by ATV			0	0.0
lost to ATV IX only			0	0.0
lost to all IX			0	0.0

Potential Interfering Stations Included in above Scenario 1

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FINISHED FINISHED FINISHED FINISHED FINISHED FINISHED

SECTION III-D - DTV Engineering	
Complete Questions 1-5, and provide all data and information for the proposed facility, as requested in Technical Specifications, Items 1-13.	
<p>Pre-Transition Certification Checklist: An application concerning a pre-transition channel must complete questions 1(a)-(c), and 2-5. A correct answer of "Yes" to all of the questions will ensure an expeditious grant of a construction permit application to change pre-transition facilities. However, if the proposed facility is located within the Canadian or Mexican borders, coordination of the proposal under the appropriate treaties may be required prior to grant of the application. An answer of "No" will require additional evaluation of the applicable information in this form before a construction permit can be granted.</p> <p>Post-Transition Expedited Processing. An application concerning a post-transition channel must complete questions 1(a), (d)-(e), and 2-5. A station applying for a construction permit to build its post-transition channel will receive expedited processing if its application (1) does not seek to expand the noise-limited service contour in any direction beyond that established by Appendix B of the Seventh Report and Order in MB Docket No. 87-268 establishing the new DTV Table of Allotments in 47 C.F.R. § 73.622(i) ("new DTV Table Appendix B"); (2) specifies facilities that match or closely approximate those defined in the new DTV Table Appendix B facilities; and (3) is filed within 45 days of the effective date of Section 73.616 of the rules adopted in the Report and Order in the Third DTV Periodic Review proceeding, MB Docket No. 07-91.</p>	
1. The proposed DTV facility complies with 47 C.F.R. Section 73.622 in the following respects:	
(a) It will operate on the DTV channel for this station as established in 47 C.F.R. Section 73.622.	<input checked="" type="radio"/> Yes <input type="radio"/> No
(b) It will operate a pre-transition facility from a transmitting antenna located within 5.0 km (3.1 miles) of the DTV reference site for this station as established in 47 C.F.R. Section 73.622.	<input type="radio"/> Yes <input type="radio"/> No
(c) It will operate a pre-transition facility with an effective radiated power (ERP) and antenna height above average terrain (HAAT) that do not exceed the DTV reference ERP and HAAT for this station as established in 47 C.F.R. Section 73.622.	<input type="radio"/> Yes <input type="radio"/> No
(d) It will operate at post-transition facilities that do not expand the noise-limited service contour in any direction beyond that established by Appendix B of the Seventh Report and Order in MB Docket No. 87-268 establishing the new DTV Table of Allotments in 47 C.F.R. § 73.622(i) ("new DTV Table Appendix B").	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A
(e) It will operate at post-transition facilities that match or reduce by no more than five percent with respect to predicted population from those defined in the new DTV Table Appendix B.	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
2. The proposed facility will not have a significant environmental impact, including exposure of workers or the general public to levels of RF radiation exceeding the applicable health and safety guidelines, and therefore will not come within 47 C.F.R. Section 1.1307. Applicant must submit the Exhibit called for in Item 13.	<input checked="" type="radio"/> Yes <input type="radio"/> No
3. Pursuant to 47 C.F.R. Section 73.625, the DTV coverage contour of the proposed facility will encompass the allotted principal community.	<input checked="" type="radio"/> Yes <input type="radio"/> No
4. The requirements of 47 C.F.R. Section 73.1030 regarding notification to radio astronomy installations, radio receiving installations and FCC monitoring stations have either been satisfied or are not applicable.	<input checked="" type="radio"/> Yes <input type="radio"/> No
5. The antenna structure to be used by this facility has been registered by the Commission and will not require registration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely effect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7.	<input checked="" type="radio"/> Yes <input type="radio"/> No

SECTION III-D - DTV Engineering	
TECHNICAL SPECIFICATIONS	
Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.	
TECH BOX	
1. Channel Number:	DTV 28 Analog TV, if any
2. Zone:	<input type="radio"/> I <input checked="" type="radio"/> II <input type="radio"/> III
3. Antenna Location Coordinates: (NAD 27)	Latitude: Degrees 40 Minutes 43 Seconds 39 <input checked="" type="radio"/> North <input type="radio"/> South Longitude: Degrees 123 Minutes 58 Seconds 17 <input checked="" type="radio"/> West <input type="radio"/> East
4. Antenna Structure Registration Number: 1224088	<input type="checkbox"/> Not Applicable <input type="checkbox"/> Notification filed with FAA
5. Antenna Location Site Elevation Above Mean Sea Level:	808 meters
6. Overall Tower Height Above Ground Level:	122 meters
7. Height of Radiation Center Above Ground Level:	100 meters
8. Height of Radiation Center Above Average Terrain :	512 meters
9. Maximum Effective Radiated Power (average power):	50 kW

10.	<p>Antenna Specifications:</p> <p>a. Manufacturer JAM Model JSM-GB-8/CP</p> <p>b. Electrical Beam Tilt: 1.5 degrees <input type="checkbox"/> Not Applicable</p> <p>c. Mechanical Beam Tilt: 1.3 degrees toward azimuth 295 degrees True <input type="checkbox"/> Not Applicable Attach as an Exhibit all data specified in 47 C.F.R. Section 73.625(c). [Exhibit 46]</p> <p>d. Polarization: <input type="radio"/> Horizontal <input checked="" type="radio"/> Circular <input type="radio"/> Elliptical</p> <p>e. Directional Antenna Relative Field Values: <input type="checkbox"/> Not applicable (Nondirectional)</p> <p>[For a composite directional (not off-the-shelf) antenna, press the following button to fill in the relative field values subform.] [Relative Field Values]</p> <div style="text-align: center;">10e. Directional Antenna Relative Field Values [Fill in this subform for a composite directional (not off-the-shelf) antenna, only.]</div> <table border="1"><tr><td colspan="12">e. Directional Antenna Relative Field Values:</td></tr><tr><td colspan="12">Rotation (Degrees): <input checked="" type="checkbox"/> No Rotation</td></tr><tr><td>Degrees</td><td>Value</td><td>Degrees</td><td>Value</td><td>Degrees</td><td>Value</td><td>Degrees</td><td>Value</td><td>Degrees</td><td>Value</td><td>Degrees</td><td>Value</td></tr><tr><td>0</td><td>0.953</td><td>10</td><td>1</td><td>20</td><td>0.909</td><td>30</td><td>0.765</td><td>40</td><td>0.623</td><td>50</td><td>0.453</td></tr><tr><td>60</td><td>0.329</td><td>70</td><td>0.24</td><td>80</td><td>0.193</td><td>90</td><td>0.191</td><td>100</td><td>0.203</td><td>110</td><td>0.215</td></tr><tr><td>120</td><td>0.215</td><td>130</td><td>0.203</td><td>140</td><td>0.191</td><td>150</td><td>0.193</td><td>160</td><td>0.24</td><td>170</td><td>0.329</td></tr><tr><td>180</td><td>0.452</td><td>190</td><td>0.622</td><td>200</td><td>0.761</td><td>210</td><td>0.906</td><td>220</td><td>0.997</td><td>230</td><td>0.954</td></tr><tr><td>240</td><td>0.848</td><td>250</td><td>0.619</td><td>260</td><td>0.412</td><td>270</td><td>0.36</td><td>280</td><td>0.36</td><td>290</td><td>0.347</td></tr><tr><td>300</td><td>0.347</td><td>310</td><td>0.36</td><td>320</td><td>0.358</td><td>330</td><td>0.408</td><td>340</td><td>0.612</td><td>350</td><td>0.84</td></tr><tr><td colspan="2">Additional Azimuths</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> <p style="text-align: center;">Relative Field Polar Plot</p>											e. Directional Antenna Relative Field Values:												Rotation (Degrees): <input checked="" type="checkbox"/> No Rotation												Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	0	0.953	10	1	20	0.909	30	0.765	40	0.623	50	0.453	60	0.329	70	0.24	80	0.193	90	0.191	100	0.203	110	0.215	120	0.215	130	0.203	140	0.191	150	0.193	160	0.24	170	0.329	180	0.452	190	0.622	200	0.761	210	0.906	220	0.997	230	0.954	240	0.848	250	0.619	260	0.412	270	0.36	280	0.36	290	0.347	300	0.347	310	0.36	320	0.358	330	0.408	340	0.612	350	0.84	Additional Azimuths											
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	If a directional antenna is proposed, the requirements of 47 C.F.R. Sections 73.625(c) must be satisfied. Exhibit required. [Exhibit 47]																																																																																																																																		
11.	<p>Does the proposed facility satisfy the pre-transition interference protection provisions of 47 C.F.R. Section 73.623(a) (Applicable only if Certification Checklist Items 1(a), (b), or (c) are answered "No.") and/or the post-transition interference protection provisions of 47 C.F.R. Section 73.616? <input checked="" type="radio"/> Yes <input type="radio"/> No [Exhibit 48]</p> <p>If "No," attach as an Exhibit justification therefor, including a summary of any related previously granted waivers.</p>																																																																																																																																		
12.	If the proposed facility will not satisfy the coverage requirement of 47 C.F.R. Section 73.625, attach as an Exhibit justification therefore. (Applicable only if Certification Checklist item 3 is answered "No.") [Exhibit 49]																																																																																																																																		
13.	<p>Environmental Protection Act. Submit in an Exhibit the following: [Exhibit 50]</p> <p>If Certification Checklist Item 2 is answered "Yes," a brief explanation of why an Environmental Assessment is not required. Also describe in the Exhibit the steps that will be taken to limit RF radiation exposure to the public and to persons authorized access to the tower site.</p> <p>By checking "Yes" to Certification Checklist Item 2, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.</p> <p>If Certification Checklist Item 2 is answered "No," an Environmental Assessment as required by 47 C.F.R Section 1.1311.</p>																																																																																																																																		
PREPARERS CERTIFICATION ON SECTION III MUST BE COMPLETED AND SIGNED.																																																																																																																																			

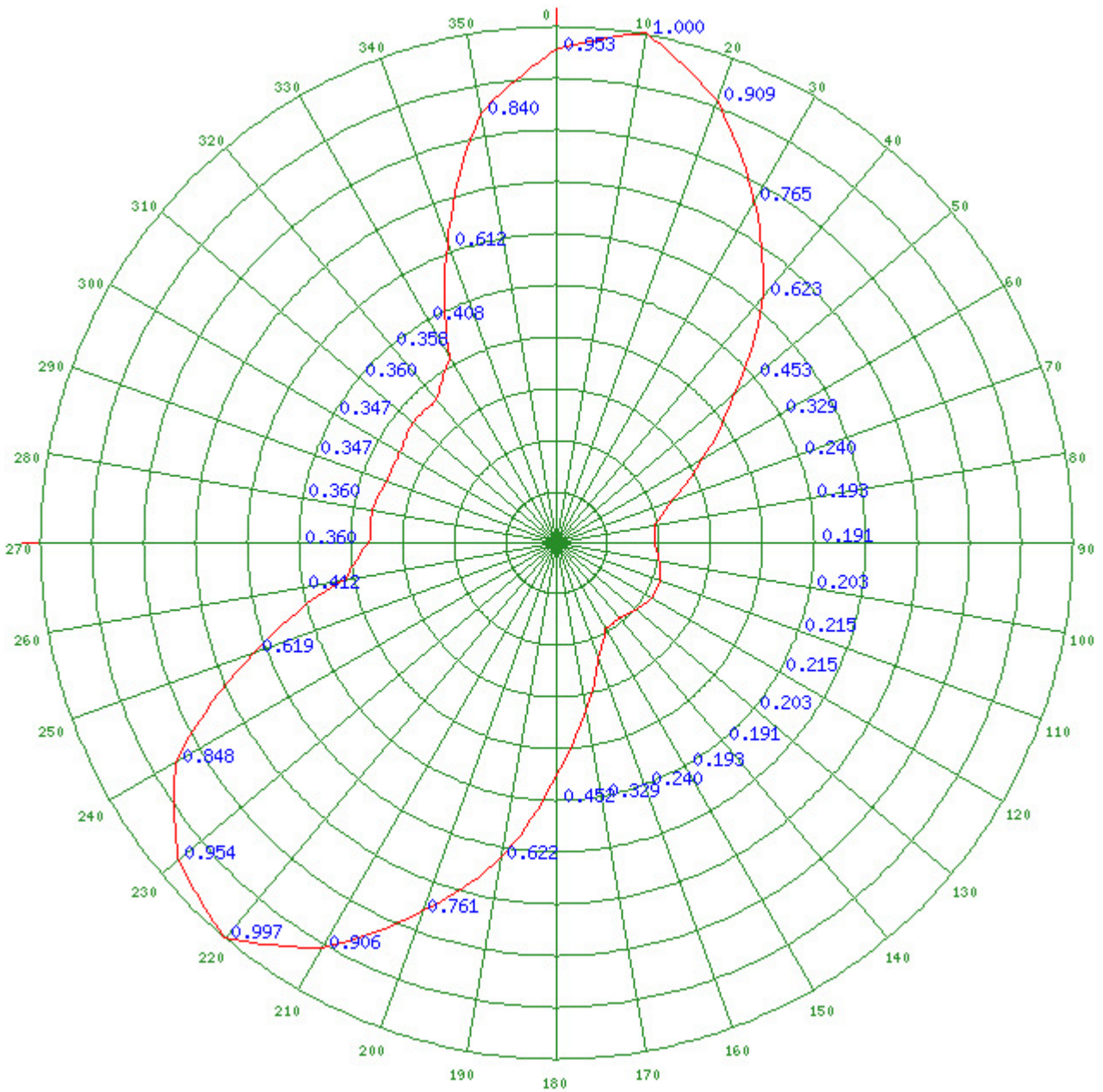
SECTION III - PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name JOSEPH M. DAVIS, P.E.	Relationship to Applicant (e.g., Consulting Engineer) CONSULTING ENGINEER	
Signature	Date 5/17/2013	
Mailing Address CHESAPEAKE RF CONSULTANTS, LLC 207 OLD DOMINION ROAD		
City YORKTOWN	State or Country (if foreign address) VA	Zip Code 23692 -
Telephone Number (include area code) 7036509600	E-Mail Address (if available) JOSEPH.DAVIS@RF-CONSULTANTS.COM	

Any specified rotation has already been applied to the plotted pattern.
 Field strength values shown on a rotated pattern may differ from the listed values
 because intermediate azimuths are interpolated between entered azimuths.

Close Window



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