SUPPLEMENTAL
ENGINEERING STATEMENT TO
LICENSE APPLICATION
FCC FILE NO. BMLCDT-20140206ACV
ON BEHALF OF
NRJ TV LA LICENSE CO. LLC
KSCI-DT, LONG BEACH, CALIFORNIA
CH. 18 700 KW ERP MAX DA 899 METERS HAAT
APRIL 2014

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS
RADIO AND TELEVISION
WASHINGTON, D.C.

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss
District of Columbia)

Donald G. Everist, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer, a Registered Professional Engineer in the District of Columbia, and is President, Secretary and Treasurer of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1420 N Street, N.W., Suite One, Washington, D.C. 20005;

That his qualifications are a matter of record in the Federal Communications Commission;

That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

Donald G. Everist
District of Columbia
Professional Engineer
Registration No. 5714

Subscribed and sworn to before me this 2nd day of April, 2014.

CAROLYN L. LYONS NOTARY PUBLIC DISTRICT OF COLUMBIA 02-28-2018

Notary Public

My Commission Expires: 2/28/2018

This supplemental engineering statement has been prepared on behalf of NRJ TV LA License Co. LLC, licensee of KSCI, Long Beach, California in support of an application filed on FCC Form 302-DTV (File No. BMLCDT-20140206ACV) concerning the replacement of the KSCI antenna..

Summary

KSCI had to replace, due to storm damage, its Andrew, Model No. ATW26H6-ETC-18S antenna. ERI, successor to Andrew antenna-products section was authorized to build a new antenna as a replacement. The replacement antenna, model number is ERI Model ATW26H6-ETC3-18S.

Section 73.1690(c)(3) of the Commission's rules permits KSCI's directional antenna to be replaced without prior authorization so long as "the proposed horizontal theoretical directional antenna pattern does not exceed the licensed horizontal directional antenna pattern at any azimuth and where no change in effective radiated power for the horizontal polarization will result." KSCI's antenna replacement satisfies this standard.

The ERI Model number ATW26H6-ETC3-18S horizontal polarization radiation pattern is identical to the licensed Andrew horizontal polarization radiation pattern. The electrical tilt remains unchanged and is 1.6 electrical degrees. The mechanical tilt remains unchanged and is 1.6 degrees at an orientation of N 220ºET. Therefore, the horizontal polarization radiation pattern at the horizontal plane by the replacement antenna manufactured by ERI remains unchanged from the antenna manufactured by Andrew. The new antenna has lower horizontal gain than the antenna it replaced, requiring higher transmitter output power to achieve the same horizontal ERP. Detailed discussion follows below.

Certain information needs be provided to the Commission in connection with an antenna change made pursuant to Section 73.1690(c)(3) of the rules. That information, which is described in Section 73.685(f) of the rules, has been included with this supplemental engineering statement.

Detailed Discussion

Attached is the tabulation (Table I) of the horizontal polarization radiation pattern in the horizontal plane. Exhibit E-1 provides the plot of that data and demonstrates that the replacement antenna pattern for the horizontal polarization pattern in the horizontal plane is the same as authorized by the construction permit (FCC File No. BMPCDT-20080619ACW) and subsequently licensed (FCC File No. BLCDT-20100412AEF).

The replacement antenna's horizontal polarization radiation pattern characteristics in the horizontal plane with the 1.6 degree electrical tilt and the 1.6 degree mechanical tilt produces no change to the horizontal polarization radiation pattern in horizontal plane. Therefore, the horizontal polarization's effective radiated power in the horizontal plane remains unchanged. However, because the replacement antenna has lower horizontal gain than the antenna it replaced, it requires a higher transmitter output power to achieve the licensed maximum effective radiated power of 700 kW.

The replacement antenna's manufacturer, ERI, has provided a letter describing the replacement antenna. Attachment 1 provides that letter.

Radiofrequency Analysis
Per Section 73.1690(c)(3) of the FCC Rules

From the report entitled, "Radiofrequency Electromagnetic Field Measurements at Mt. Harvard, Transmitter Site of KSCI TV, November 20, 2012, By: BEEM Co., Arcadia, CA, 626-446-3468", prepared by Joel T. Saxberg, President of BEEM Co., measurements were conducted after the antenna was replaced. The following has been abstracted:

> "The public area of the transmitter site was marked in a 10 foot by 10 foot grid. Instantaneous peak readings were taken at each grid point and recorded. A NARDA 8718-10 s/n 01559 radiation survey meter calibrated by the manufacturer on 10/27/2011 was used with an 8742 Shaped E-Field probe s/n 03004 calibrated on 11/17/2011."

Mr. Saxberg in his report indicates that the highest instantaneous peak reading at this 10 foot by 10 foot grid was twenty percent of standard of occupational exposure limit (1 mW/cm^2). Mr. Saxberg also indicates his belief that instantaneous peak reading are higher than spatial average readings. Mr. Saxberg with the grid measurements and those from his personal Narda XT monitor, has the opinion that the multi-use site meets the exposure requirements for the general public.

Subsequently, Mr. Saxberg indicates the, "Readings are Percent of Standard (occupational limits) 100% would be 1 mW/cm^2."

Section 73.685 of the FCC Rules

The replacement pattern information is provided.

- Included is the horizontal polarization directional field ratio pattern and associated tabulation (Table II) of field ratios from N 0°ET through N 350°E in 10 degree intervals in azimuth.

- The elevation pattern plot and associated table (Table III) provides the tabulation of

horizontal polarization elevation field ratios.

- The vertical polarization directional field ratio pattern with a tabulation (Table IV) of the field ratios from N 0ºET through N 350ºET in 10 degree intervals in azimuth.

- The vertical polarization elevation pattern includes a tabulation (Table V) of field ratios.

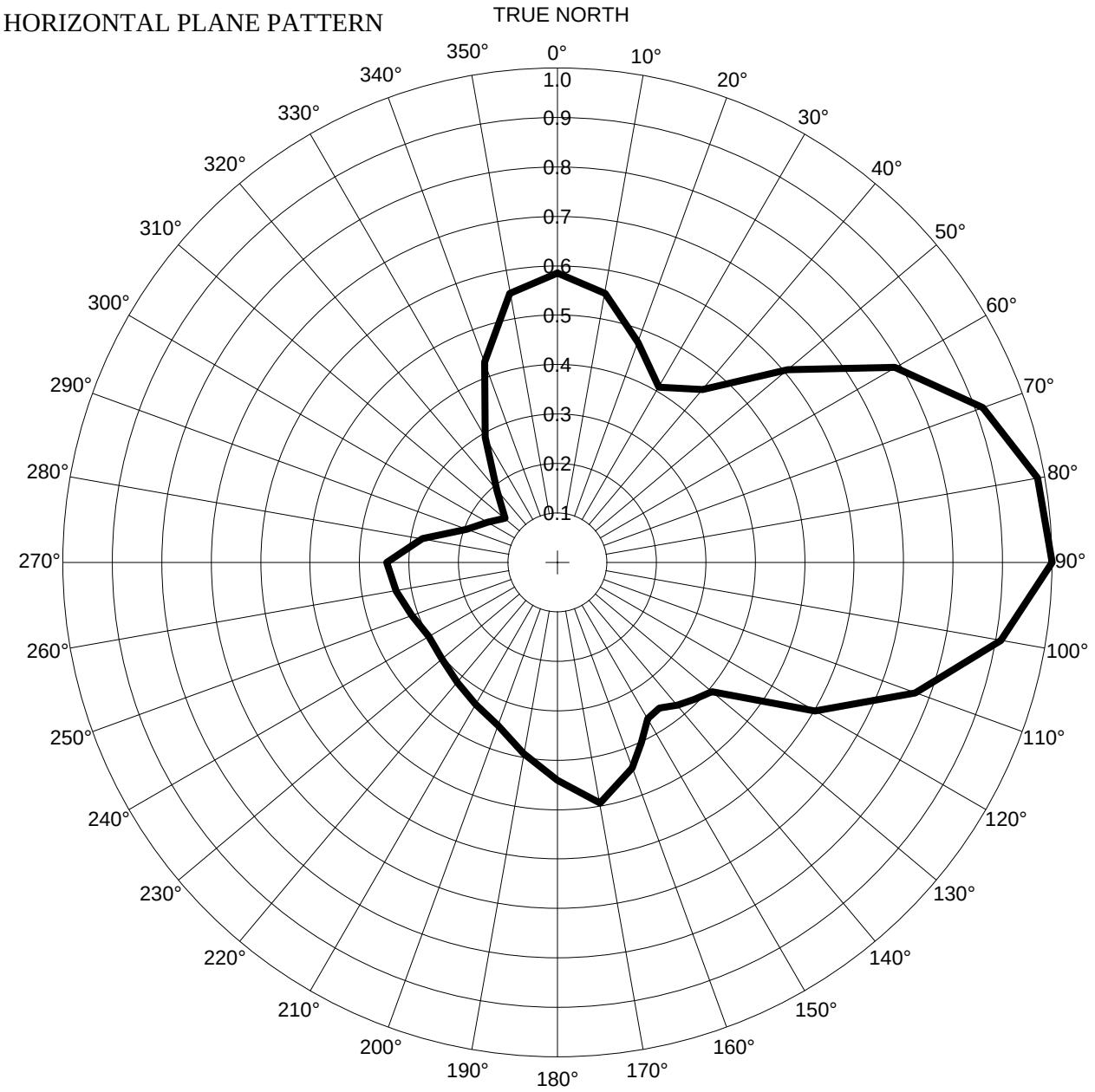
System Power Calculations To Restore Licensed
Effective Horizontal Polarization
Of 700 kW Max

The ERI RF power analysis is provided as Attachment 2 and ERI provides the RF system analysis.

TABLE I
TABULATION OF
HORIZONTAL PLANE RELATIVE FIELD VALUES FOR REPLACEMENT ANTENNA
(HORIZONTAL POLARIZATION WITH 1.6º ELECTRICAL TILT
1.6º MECHANICAL TILT AT N 220ºE)
ERI MODEL NO. ATW26H6-ETC3-18S UNCHANGED FROM THAT AUTHORIZED IN
CONSTRUCTION PERMIT, FCC FILE NO. BMPCT-20080619ACW
KSCI-DT, LONG BEACH, CALIFORNIA
MARCH 2014

Azimuth N ºE T	Field Value	Azimuth N ºE T	Field Value
0	0.585	180	0.441
10	0.553	190	0.392
20	0.474	200	0.351
30	0.409	210	0.331
40	0.456	220	0.316
50	0.607	230	0.305
60	0.788	240	0.300
70	0.915	250	0.313
80	0.985	260	0.331
90	1.000	270	0.345
100	0.910	280	0.277
110	0.770	290	0.195
120	0.601	300	0.163
130	0.407	310	0.139
135	0.392	320	0.191
140	0.377	330	0.293
145	0.360	340	0.431
150	0.364	350	0.553
155	0.402		
160	0.442		
170	0.494		

HORIZONTAL PLANE PATTERN



Relative Intensity

NORMALIZED PATTERN IN
THE HORIZONTAL PLANE
1.6º ELECTRICAL AND
1.6º MECHANICAL TILT

EXHIBIT E - 1
HORIZONTAL PATTERN
FOR
KSCI-DT, LONG BEACH, CALIFORNIA
MARCH 2014

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS

Cohen, Dippell and Everist, P.C.

ATTACHMENT 1

STATEMENT FROM ANTENNA MANUFACTURER ELECTRONICS RESEARCH, INC. MARCH 2014

ELECTRONICS RESEARCH, INC. ERI®

Bill Harland
Vice President of Marketing

EMAIL: bharland@eriinc.com
TEL: +1 (812) 925-6000 x. 214

Corporate:
7777 Gardner Road
Chandler, Indiana 47610-9219
USA

TEL: +1 (812) 925-6000
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March 25, 2014

Mr. Donald G. Everist P. E.
President
COHEN, DIPPELL & EVERIST, PC
Consulting Engineers Radio-Television
1420 N Street, NW; Suite One
Washington, D.C. 20005

Dear Mr. Everist:

To follow up our telephone conversation regarding the new antenna built by ERI for KSCI-DT (Long Beach, CA) to replace the antenna destroyed when its supporting structure collapsed. The new antenna built for RF Channel 18 is a replica of the original antenna built and placed into service in 2001 with the exception of the following parameters:

1. The vertically polarized azimuth pattern was made slightly wider but is still fully contained within the horizontally polarized azimuth pattern and is compliant with the FCC Rules applicable to elliptically polarized television transmitting antennas.
2. The vertically polarized effective radiated power of the new antenna is 58% of the horizontally polarized ERP.

With the exception of those specification effected by the above, all other operating parameters of the new antenna are unchanged from the previous antenna. If you have questions or require other information please contact us.

Sincerely,

ELECTRONICS RESEARCH, INC.

Bill Harland
Vice President of Marketing

Cohen, Dippell and Everist, P.C.

REPLACEMENT ANTENNA INFORMATION MARCH 2014

ERI TECHNICAL MANUAL

TOP MOUNTED ANTENNA

ATW26H6-ETC3-18S TRASAR® UHF ANTENNA

CH. 18, KSCI-DT, LONG BEACH, CA (LA)

#29455

EXCERPTS FROM FINAL TECHNICAL MANUAL: 30 May 2012

Technical Manual #	Date
CH18 ETC3 DTV STEEL	30 May 2012

Electronics Research
7777 Gardner Road
Chandler, Indiana U.S.A. 47610

TABLE 1-1

Electrical Specifications - DTV

Parameter	**Value**
Channel	18
Frequency Range	494-500 MHZ
Azimuth Pattern No.	H-Pol: CH18AZH V-Pol: CH18AZV
Elevation Pattern No.	H-Pol: CH18ELH V-Pol: CH18ELV
Azimuthal Directivity	H-Pol: 2.00 (3.01 dB) V-Pol: 2.81 (4.49 dB)
Elevation Directivity	H-Pol: 26.00 (14.15 dBd) V-Pol: 23.00 (13.62 dBd)
Peak Power Gain	H-Pol: 35.45 (15.50 dbd) V-Pol: 20.56 (13.13 dbd)
Gain at Horizontal	H-Pol:4.52 (6.55 dBd) V-Pol:2.27 (3.55 dBd)
Horiz. / Vert. Ratio	0.58
Electrical Beam Tilt	1.60 degrees
Mechanical Tilt	1.60 degrees
Input Type	6-1/8" EIA 75 OHM
Maximum Input Power Rating	36 KW Average Power Digital
MAX VSWR	1.10 over 6 MHz channel

NOTE: Measured VSWR provided.

TABLE 1-2

Mechanical Specifications *

Antenna Parameters	**Value**
Antenna Height Including 3.5 ft. Lightning Spurs	61.10 ft.
Antenna Height	57.60 ft.
Radiation Center above Antenna Base	28.80 ft.
Radome Diameter – Aviation Orange	20.4 in. OD
Antenna Input Type	6-1/8" EIA 75 OHM
Antenna Pressurization(not to exceed 5 PSIG)	Pressurized Radome
Antenna Measured Weight(No Ice):	11,700 lbs.
Antenna Calculated Weight(1.0" Ice):	13,695 lbs.
Antennas Area C_AA_A (Rev.F No Ice):	80.26 Sq. Ft.
Antennas Effective Moment Arm(Rev.F No Ice):	31.31 Ft.
Antennas Area C_AA_A (Rev.F 1.0" Ice):	106.71 Sq. Ft.
Antennas Effective Moment Arm(Rev.F 1.0" Ice):	31.77 Ft.

REV F: Based on a wind speed of 100 MPH (fastest mile) no ice and 87 MPH with 1.00" radial ice with a height above ground level (HAGL) of 164 ft. per ANSI/EIA/TIA-222-F.
Specified loads include antenna, climbing device, beacon and lightning protection. Antenna input adaptors & mounting brackets are NOT included.

NOTE: The antenna is designed to be supported by a structure that can resist the antenna base reactions and provide a support that is rigid in the three translational and three rotational degrees of freedom.

NOTE: See Installation Drawings provided for further details.

NOTE: The purchaser or their representative shall be required to contact the tower owner, state and/or local building officials for specific design requirements and suitable parameters for a particular structure. Any variation from the parameters shown above must be communicated to ERI for comprehensive assessment.

MEASURED VSWR

ATW26H6-ETC3-18S TRASAR® UHF ANTENNA

CH. 18, KSCI-DT, LONG BEACH, CA (LA)

#29455

Final Slotted Line Measurements

CH18 – DTV

Frequency (MHZ)	VSWR
494.00	1.03
495.00	1.05
496.00	1.03
497.00	1.04
498.00	1.05
499.00	1.02
500.00	1.05

Electronics Research
7777 Gardner Road
Chandler, Indiana U.S.A. 47610

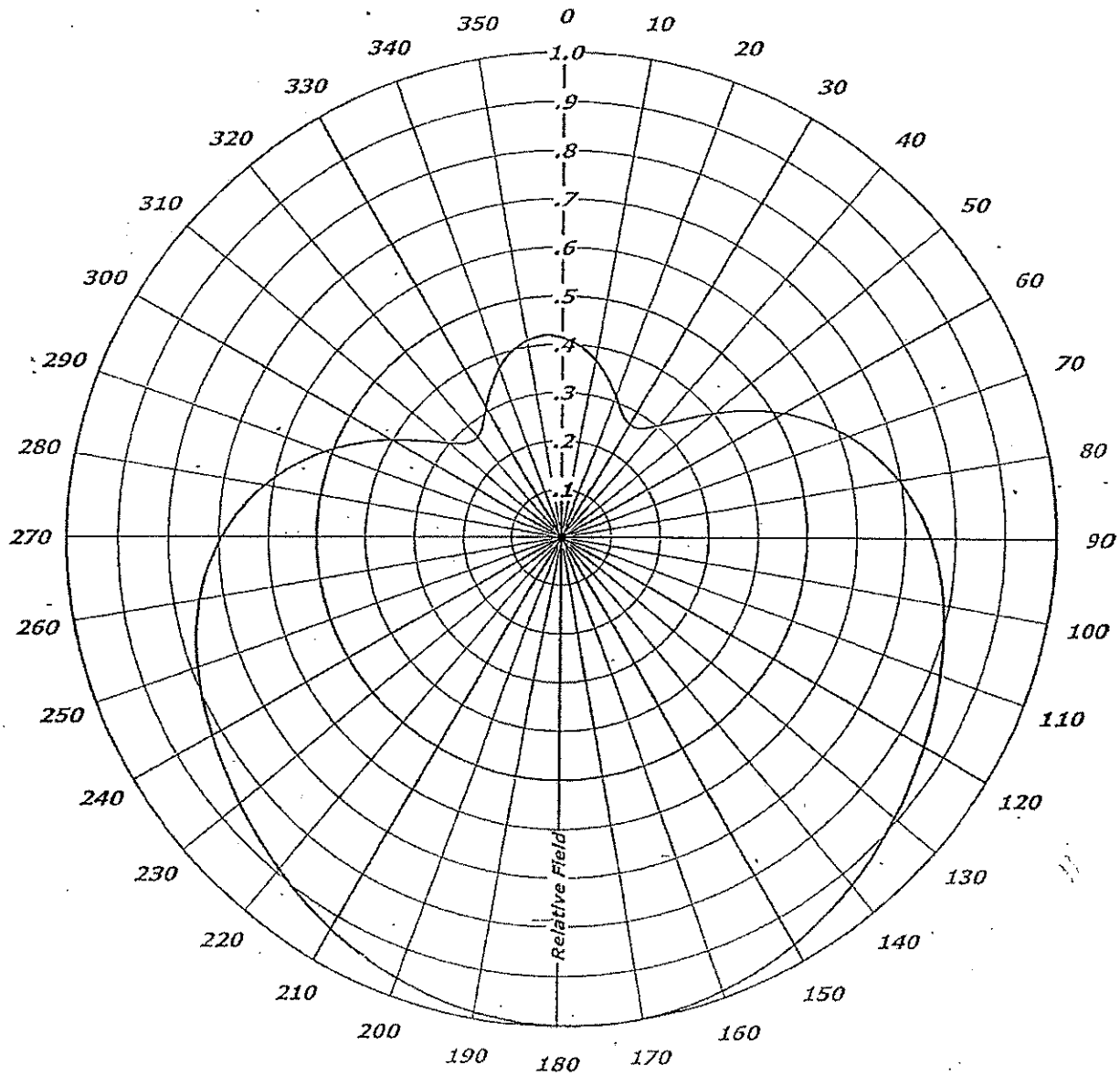
EXHIBIT A

ANDREW

AZIMUTH PATTERN

Type: CH18AZH

	Numeric	dBd
Directivity:		
Peak(s) At:		
Polarization:	Horizontal	
Channel:	18	
Location:	LOS ANGELES, CA.	



ANDREW CORPORATION
10500 W. 153rd Street
Orland Park, Illinois U.S.A. 60462

Cohen, Dippell and Everist, P.C.

TABLE II
TABULATION OF
HORIZONTAL POLARIZATION RADIATION PATTERN
FIELD RATIOS VERSUS AZIMUTH ANGLE
FOR REPLACEMENT ANTENNA UNCHANGED
FROM THAT AUTHORIZED IN CONSTRUCTION PERMIT
ERI MODEL NO. ATW26H6-ETC3-18S
KSCI-DT, LONG BEACH, CALIFORNIA
MARCH 2014

Azimuth N ºE T	Field Value	Azimuth N ºE T	Field Value
0	0.41	180	1.00
10	0.37	190	0.99
20	0.31	200	0.96
30	0.27	210	0.93
40	0.30	220	0.89
50	0.40	230	0.85
60	0.52	240	0.82
70	0.62	250	0.79
80	0.70	260	0.75
90	0.75	270	0.70
100	0.79	280	0.62
110	0.82	290	0.52
120	0.85	300	0.40
130	0.89	310	0.30
140	0.93	320	0.27
150	0.96	330	0.31
160	0.99	340	0.37
170	1.00	350	0.41

EXHIBIT C

ANDREW

ELEVATION PATTERN

Type: CH18EL H

Directivity: Numeric dBd

Main Lobe:

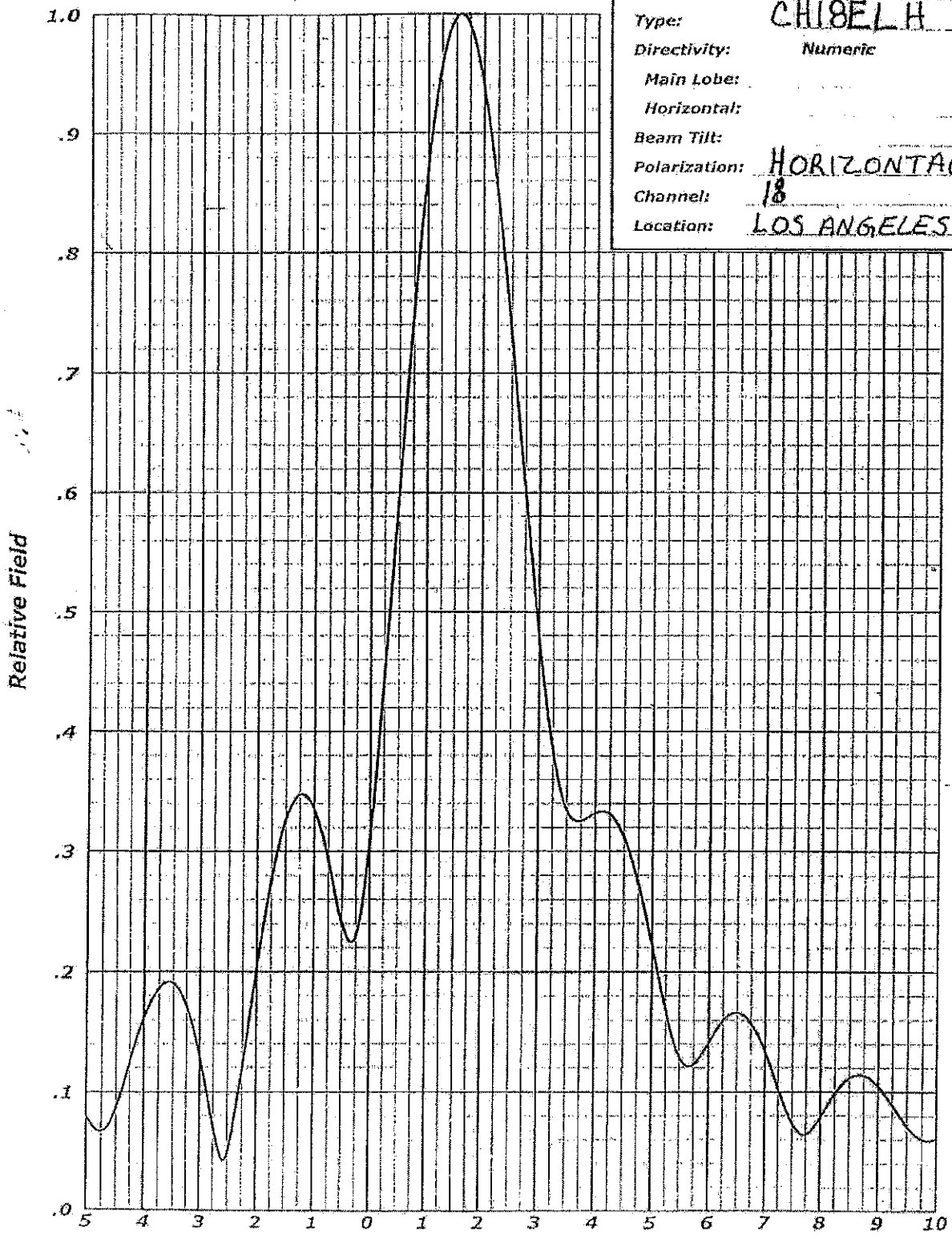
Horizontal:

Beam Tilt:

Polarization: HORIZONTAL

Channel: 18

Location: LOS ANGELES, CA.



ANDREW CORPORATION
10500 W. 153rd Street
Orland Park, Illinois U.S.A. 60462

ETC-00118

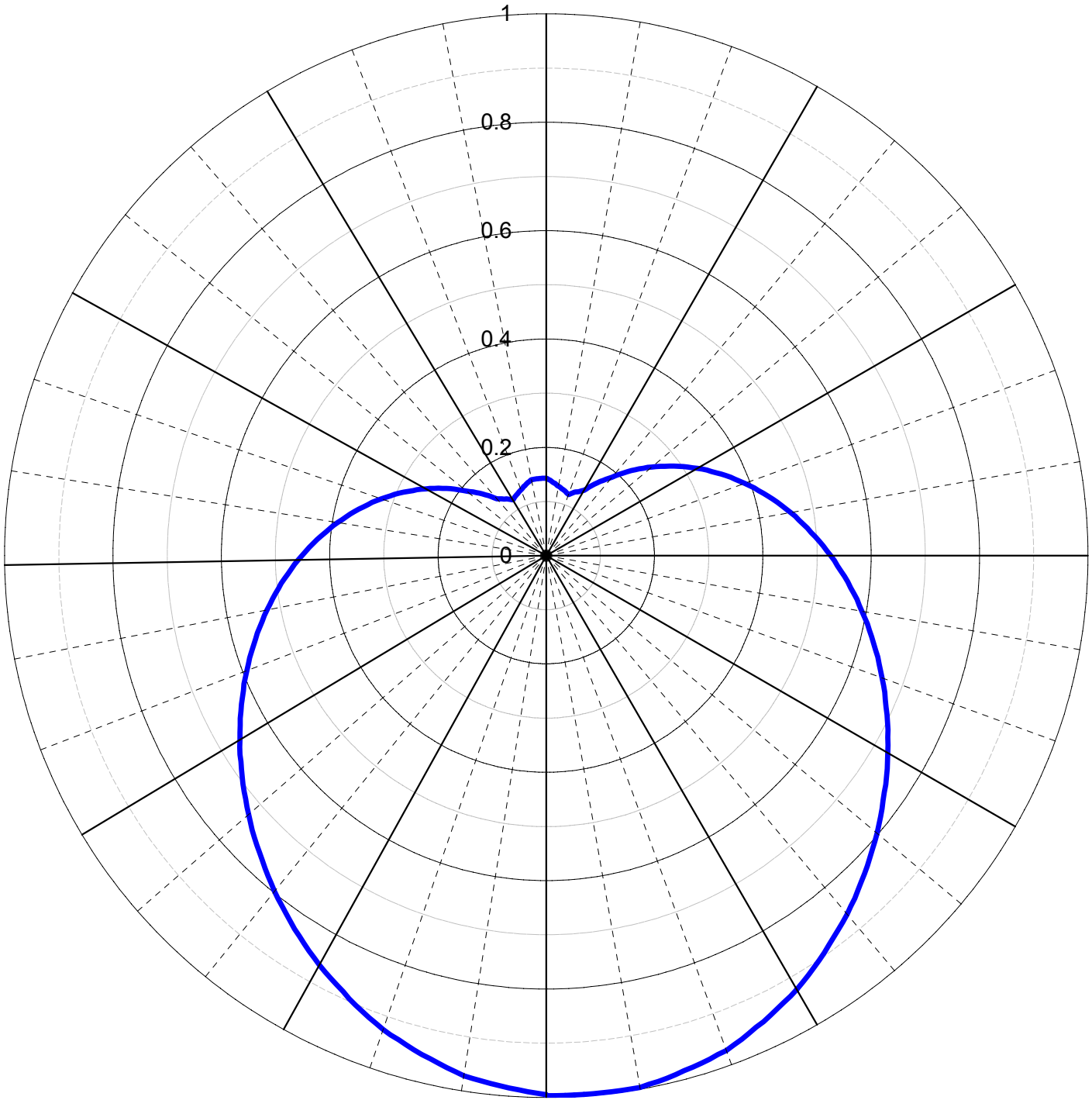
Cohen, Dippell and Everist, P.C.

TABLE III
HORIZONTAL ELEVATION RELATIVE FIELD VALUES
FOR REPLACEMENT ANTENNA
ERI MODEL NO. ATW26H6-ETC3-18S
UNCHANGED FROM THAT AUTHORIZED IN CONSTRUCTION PERMIT
FCC FILE NO. BMPCT-20080619ACW
KSCI-DT, LONG BEACH, CALIFORNIA
MARCH 2014

Elevation Angle degrees	Field Ratio	Elevation Angle degrees	Field Ratio
-5	0.080	2	0.930
-4.5	0.080	2.25	0.860
-4	0.160	2.5	0.720
-3.5	0.190	2.75	0.580
-3	0.130	3	0.480
-2.5	0.050	3.75	0.330
-2	0.200	4.25	0.335
-1.25	0.350	5	0.220
-1	0.330	5.75	0.120
-0.25	0.230	6	0.140
0	0.300	6.5	0.162
0.25	0.420	7	0.130
0.5	0.580	7.75	0.060
0.75	0.740	8	0.080
1	0.860	8.75	0.118
1.25	0.960	9	0.100
1.5	0.99	9.75	0.60
1.6	1.000	10	0.60
1.75	0.980		

AZIMUTH PATTERN

TYPE:	CH18AZV	**Polarization:**	Vertical
	Numeric dB	**Channel:**	18 (DTV)
Directivity:		**Location:**	Long Beach (LA), CA



Note: Pattern shape and directivity may vary with channel and mounting configuration.

Electronics Research, Inc.
7777 Gardner Road
Chandler, IN 47610

Cohen, Dippell and Everist, P.C.

TABLE IV
TABULATION OF
VERTICAL POLARIZATION RADIATION PATTERN
FIELD RATIOS VERSUS AZIMUTH ANGLE
ERI MODEL NO. ATW26H6-ETC3-18S
KSCI-DT, LONG BEACH, CALIFORNIA
MARCH 2014

Azimuth N ºE T	Field Value	Azimuth N ºE T	Field Value
0	0.14	180	1.00
10	0.13	190	0.97
20	0.12	200	0.93
30	0.14	210	0.86
40	0.19	220	0.80
50	0.25	230	0.73
60	0.32	240	0.66
70	0.39	250	0.59
80	0.46	260	0.53
90	0.53	270	0.46
100	0.59	280	0.39
110	0.66	290	0.32
120	0.73	300	0.25
130	0.80	310	0.19
140	0.86	320	0.14
150	0.93	330	0.12
160	0.97	340	0.13
170	1.00	350	0.14

EXHIBIT D

ANDREW

ELEVATION PATTERN

Type: CH18ELV

Directivity: Numeric dBd

Main Lobe:

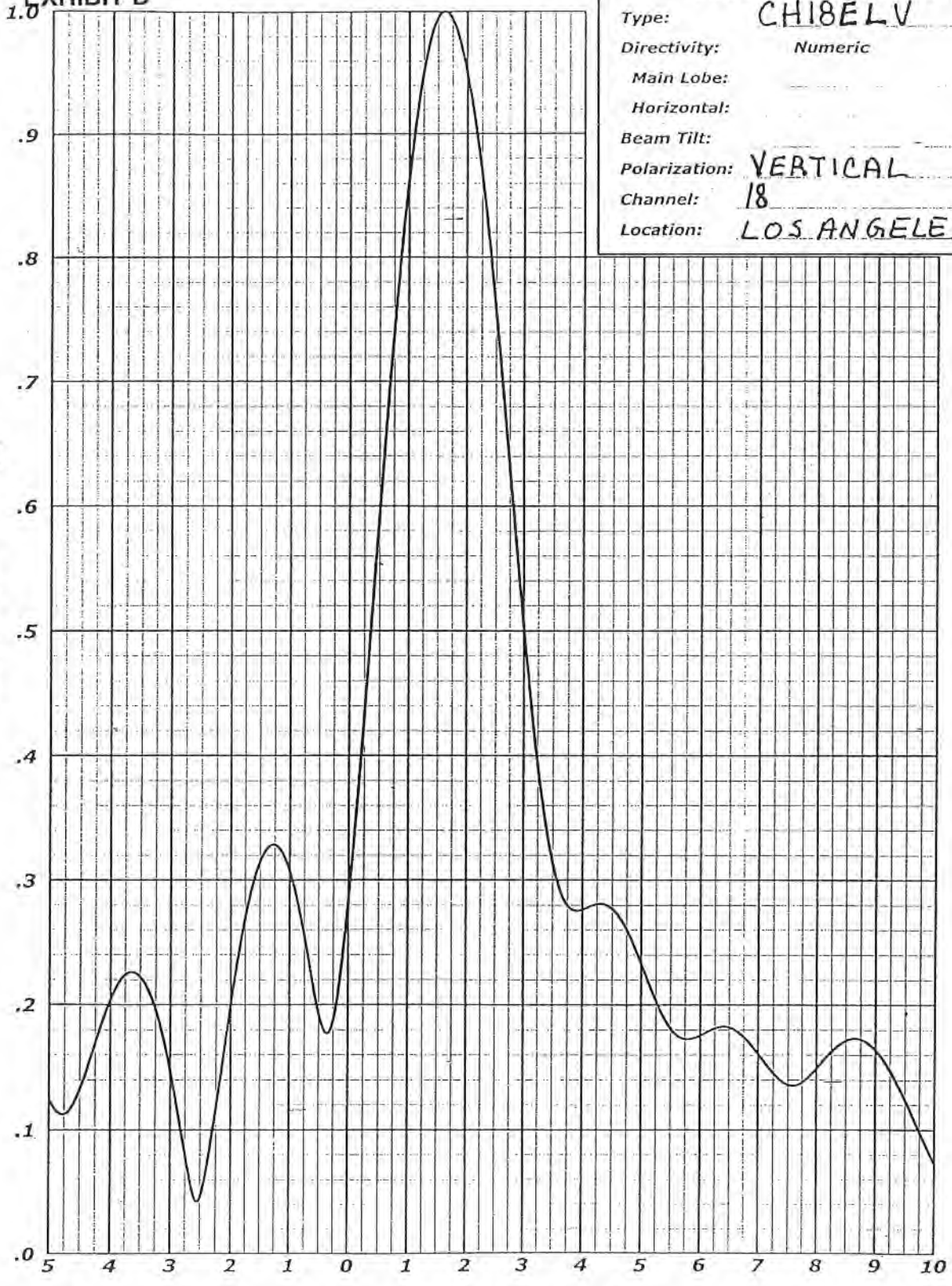
Horizontal:

Beam Tilt:

Polarization: VERTICAL

Channel: 18

Location: LOS ANGELES, CA.



ANDREW CORPORATION
10500 W. 153rd Street
Orland Park, Illinois U.S.A. 60462

ETC-00118

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TABLE V
VERTICAL POLARIZATION ELEVATION RELATIVE PATTERN
FIELD RATIOS FOR REPLACEMENT ANTENNA
ERI MODEL NO. ATW26H6-ETC3-18S
UNCHANGED FROM THAT AUTHORIZED IN CONSTRUCTION PERMIT
FCC FILE NO. BMPCDT-20080619ACW
KSCI-DT, LONG BEACH, CALIFORNIA
MARCH 2014

Elevation Angle degrees	Field Ratio	Elevation Angle degrees	Field Ratio
-5	0.123	3.0	0.510
-4.5	0.13	3.5	0.315
-4	0.205	4.0	0.276
-3.5	0.22	4.3	0.280
-3	0.14	4.5	0.277
-2.5	0.04	5.0	0.230
-2	0.20	5.5	0.180
-1.5	0.31	6.0	0.175
-1.25	0.323	6.5	0.182
-1	0.31	7.0	0.160
-0.5	0.19	7.5	0.136
0	0.275	8.0	0.150
0.5	0.6	8.5	0.170
1	0.86	8.7	0.172
1.6	1.0	9.0	0.166
2.0	0.950	9.5	0.125
2.5	0.770	10	0.075

Cohen, Dippell and Everist, P.C.

ATTACHMENT 2

BROADCAST ANTENNA SYSTEM
POWER ANALYSIS
MARCH 2014

Broadcast Antenna System

Power Analysis

KSCI-DT Channel 18
Long Beach, CA
ATW26H6-ETC3-18S

ANTENNA PARAMETERS :

Azimuth Directivity :
Hor. Pol : 2.00 (3.01 dBd)
Ver. Pol : 2.81 (4.49 dBd)

Elevation Directivity :
Hor. Pol : 26.00 (14.15 dBd)
Ver. Pol : 23.00 (13.62 dBd)

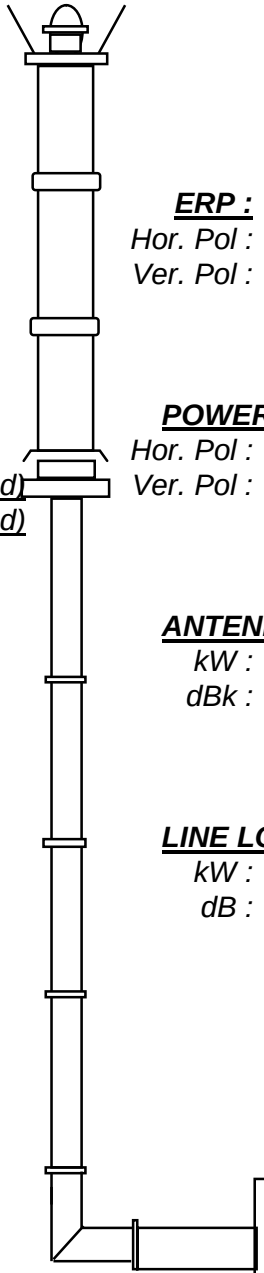
TRANSMISSION LINE :

VERTICAL RUN :
Type: MACX675
Length, ft. : 130
Attenuation , dB/100 ft: 0.101

HORIZONTAL RUN :
Type: MACX675
Length, ft. : 150
Attenuation , dB/100 ft: 0.101

Line Efficiency : 93.70%

Filter Loss, dB: 0.2



ERP :
Hor. Pol : 700.00 kW (28.45 dBk)
Ver. Pol : 406.00 kW (26.09 dBk)

POWER GAIN :
Hor. Pol : 35.45 (15.50 dBd)
Ver. Pol : 20.56 (13.13 dBd)

ANTENNA INPUT :
kW : 19.74
dBk : 12.95

LINE LOSS :
kW : 1.33
dB : 0.28

TRANSMITTER POWER :
At Filter Output
kW : 21.07
dBk : 13.24

At Filter Input
kW : 22.06
dBk : 13.44

Updated March 26, 2014