EXHIBIT A

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of FAITH BROADCASTING NETWORK, INC., licensee of digital Class A television station WBNF-CD, Channel 15 in Buffalo, New York, in support of its request for modification of license BLDTA-20111130LWW to specify a new antenna make and model and new operating parameters. No change in site location, antenna height, effective radiated power or antenna pattern is proposed herein.

The licensee installed a Jampro JUHD-5/2(10) directional antenna in place of the authorized Micro Communications 955316 antenna. It is important to note that the Jampro antenna has 0.5 degrees of beam tilt. Both antennas have identical azimuth patterns, and the elevation and azimuth patterns of the Jampro antenna are provided in Exhibit B. Exhibit C is proof of performance conducted on the installed facility.

I declare under penalty of perjury that the foregoing statements and the attached exhibits are true and correct to the best of my knowledge and belief.

K.7.1/

KEVIN T. FISHER

July 2, 2013

EXHIBIT B-1



6340 Sky Creek Drive, Sacramento, California 95828 P.O. Box 292880, Sacramento, California 95829-2880 (916) 383-1177 FAX (916) 383-1182

ELEVATION PLOT



EXHIBIT B-2



6340 Sky Creek Drive, Sacramento, California 95828 P.O. Box 292880, Sacramento, California 95829-2880 (916) 383-1177 FAX (916) 383-1182

ELEVATION PLOT EXPANDED







6340 Sky Creek Drive, Sacramento, California 95828 P.O. Box 292880, Sacramento, California 95829-2880 (916) 383-1177 FAX (916) 383-1182

ELEVATION PATTERN TABULATION

ELEVATION	RELATIVE	ELEVATION	RELATIVE	ELEVATION	RELATIVE
ANGLE	FIELD	ANGLE	FIELD	ANGLE	FIELD
10	0.171	-26	0.020	-61	0.061
9	0.219	-27	0.029	-62	0.053
8	0.219	-28	0.069	-63	0.047
7	0.161	-29	0.100	-64	0.042
6	0.041	-30	0.116	-65	0.039
5	0.134	-31	0.117	-66	0.038
4	0.343	-32	0.105	-67	0.038
3	0.561	-33	0.083	-68	0.038
2	0.759	-34	0.056	-69	0.038
1	0.909	-35	0.029	-70	0.038
0	0.990	-36	0.010	-71	0.037
-1	0.989	-37	0.017	-72	0.036
-2	0.907	-38	0.025	-73	0.034
-3	0.756	-39	0.025	-74	0.032
-4	0.558	-40	0.018	-75	0.029
-5	0.342	-41	0.008	-76	0.027
-6	0.135	-42	0.010	-77	0.025
-7	0.037	-43	0.022	-78	0.023
-8	0.154	-44	0.032	-79	0.021
-9	0.212	-45	0.038	-80	0.020
-10	0.211	-46	0.040	-81	0.019
-11	0.165	-47	0.037	-82	0.019
-12	0.091	-48	0.033	-83	0.018
-13	0.022	-49	0.031	-84	0.018
-14	0.072	-50	0.035	-85	0.018
-15	0.121	-51	0.045	-86	0.018
-16	0.140	-52	0.058	-87	0.018
-17	0.128	-53	0.069	-88	0.018
-18	0.092	-54	0.078	-89	0.018
-19	0.043	-55	0.084	-90	0.018
-20	0.030	-56	0.087		
-21	0.070	-57	0.086		
-22	0.098	-58	0.083		
-23	0.106	-59	0.076		
-24	0.092	-60	0.069		
-25	0.061				

EXHIBIT B-4



6340 Sky Creek Drive, Sacramento, California 95828 P.O. Box 292880, Sacramento, California 95829-2880 (916) 383-1177 FAX (916) 383-1182

AZIMUTH PATTERN





ED MURLATT

41 FOXPOINT WEST WILLIAMSVILLE, NY 14221

> PHONE (716) 639-0860 FAX (716) 636-0084 CELL (716) 435-4167

> > ed@ema4rf.com



Broadcast RF System Services

DIGITAL TELEVISION TRANSMITTER

ENGINEERING MEASUREMENTS and PROOF OF PERFORMANCE DATA

FOR THE Harris Ranger Transmitter

AT WBNF-CD, CHANNEL 15, BUFFALO, NY

DATA MEASURED BY:

Murbett

Edward J. Murlatt

Data Recorded on June 12, 2013

ORGANIZATON

FACILITIES AUTHORIZED IN LICENSE
PARAMETERS IN FCC DATABASE
DETERMINATION OF AS-BUILT OPERATING PARAMETERS
ANTENNA FEEDER LENGTH
TPO REQUIREMENT CALCULATIONS
POWER AND FREQUENCY MEASUREMENTS
METHOD OF DETERMINING OUTPUT POWER
POWER MEASUREMENT
METHOD OF DETERMINING TRANSMITTER FREQUENCY
FREQUENCY MEASUREMENT
SPECTRUM MEASUREMENTS
HARMONIC EMISSIONS MEASUREMENTS
HARMONIC CALCULATIONS
REFERENCE SWEEP ACROSS 20 MHz – ATTENUATION 20 DBM
NOTCH SUPPRESSION - ATTENUATION 20 DB
SPECTRUM TO 3 GHZ; FUNDAMENTAL SUPPRESSION >70 DB ATTENUATION 0 DB7
CHANNEL RESPONSE MEASUREMENTS:
AMPLITUDE AND PHASE RESPONSE MEASUREMENT
TRANSMITTER AMPLITUDE RESPONSE MEASUREMENTS
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MEASUREMENT OF TEST CABLE AND NOTCH RESPONSE
STATEMENT OF AUTHENTICITY

	FACILITIES AUTHORIZED IN LICENSE
	PARAMETERS IN FCC DATABASE
FCC File Number/Type:	BLDTA-20111130LWW
Licensee:	Faith Broadcasting Network, Inc.
Principal Community:	Buffalo, NY
Grant Date:	January 12, 2012
Channel:	15
Frequency:	476 – 482 MHz
Maximum ERP:	15 kW
Antenna Make/Model:	MCI 955316 in License, *Jampro JUHD-5/2 (10) on Tower

*Jampro antenna gain differs from antenna gain in license. Correct value for the antenna gain, as provided by the manufacturer, is used in the calculations below.

DETERMINATION OF AS-BUILT OPERATING PARAMETERS ANTENNA FEEDER LENGTH

The transmission line length was measured using a Rohde-Schwarz ZVL-6 vector network analyzer. The instrument was operated in the 1601 point mode and the appropriate velocity factor correction was employed to determine the distance to the antenna input tuning section. The distance measurement and manufacturer's transmission line data are shown in the appendices on pages 20 through 22. The line length is 718.83 feet. The loss per hundred feet at 479 MHz is 0.484 dB. The total line loss is $\binom{718.83'}{100} * 0.484 = 3.48$ dB. The manufacturer's antenna specifications are shown on page 23.

TPO REQUIREMENT CALCULATIONS

<u>dB</u>	<u>Power/Gain</u>
11.76 dBk	15 kW
16.0	39.6
-4.24 dBk	0.38 kW
3.48 dB	.45
Incl	Incl
-0.76 dBk	0.84 kW
	<u>dB</u> 11.76 dBk 16.0 -4.24 dBk 3.48 dB Incl -0.76 dBk



POWER AND FREQUENCY MEASUREMENTS

METHOD OF DETERMINING OUTPUT POWER

The transmitter output power was measured using a Rohde-Schwarz NRP-Z11 power probe. The power probe was connected to the system at a directional coupler sample located at the output of the mask filter. The coupler has a fixed coupling value, and as shown on page 19, was measured on site to be -43.842 dB coupling. The transmitter's output power meter reads in watts, and was adjusted to agree with the power meter measurement.

POWER MEASUREMENT

Z Power Viewe	er	X
File View Re	esolution Options Help	
	&SCHWARZ POWER VIEWER	
+	0.8457	kW NRP-Z11 106471
	W dBm Zero Analog Bar Offset	Averaging Manual
Exit	Δ% M2Ref Frequency / MHz Value / dB 479 43.842 43.842	512 Apply



METHOD OF DETERMINING TRANSMITTER FREQUENCY

The transmitter frequency was measured using a Rohde-Schwarz EFA50/53 Analyzer externally locked to a 10 MHz rubidium standard. The accuracy of the measurement is \pm 1 Hz. The measurement indicates deviation from assigned frequency.

6	ATSC/VS	B MEASURE	
CENTER FREQ 479.00 MHz	CHANNEL 15	ATTEN : LOW+P -6.4 dBm	
SET CENTER FR SET PILOT FR	EQ 47 EQ 47 EQ 47	79.0000000 MHz 76.3094406 MHz 76.3094428 MHz	CONSTELL DIAGRAM
PILOT FREQ OF SYMBOL RATE C	FSET	2.3 Hz -32.0 Hz	FREQUENCY DOMAIN
MODULATION MER (REAL,RMS MER (REAL,RMS))	8VSB 33.9 dB 2.01 %	TIME DOMAIN
BER BEFORE RS 1.2E-7 (100/100) BER AFTER RS 0.0E-8 (268/1K00) SEG ERR RATIO 0.0E-6 (268/1K00)			VSB PARA- METERS
SEG ERR / s	00000		RESET BER
TS BIT R	ATE 19.39 SAW:OFF	3 Mbit∕s	ADD. NOISE OFF

FREQUENCY MEASUREMENT



SPECTRUM MEASUREMENTS HARMONIC EMISSIONS MEASUREMENTS

The directional coupler sample was connected to the spectrum analyzer through two Eagle model TFN-230 notch filters tuned to reduce the carrier to prevent overloading the spectrum analyzer. The notch provided over 60 dB of attenuation. Coupler correction is 6 dB per octave, and cable attenuation is -1.04 dB at the 2nd harmonic and -0.29 dB at the 3rd. Cable and notch characteristics were measured using the Rhode and Schwarz ZVL-6 vector network analyzer, and are shown in the appendix on page 24. 20 dB of input attenuation is removed for the harmonic measurement. The harmonics were attenuated below the noise floor of the instrument, or more than 110 dB (-90 dB noise floor, minus 20 dB of input attenuation).

Measurement	Normalized Attenuation (dBm)	Coupler Correction (dB)	Cable Correction (dB)	Net
2nd Harmonic	110.00	6	-1.04	114.96
3rd Harmonic	110.00	9	-0.29	118.71







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NOTCH SUPPRESSION - ATTENUATION 20 DB



Date: 12.JUN.2013 16:12:27

SPECTRUM TO 3 GHZ; FUNDAMENTAL SUPPRESSION >70 DB ATTENUATION 0 DB



Date: 12.JUN.2013 16:13:56



CHANNEL RESPONSE MEASUREMENTS:

ATSC/	YSB MEA	SURE: FRE	QUENCY DOMAIN
.9 dB			LVL: -6.4dl SAW OFF
.3			SPECTRUM
3			AMPL/PHAS AMPL/GD POLAR PLO
3 -2 3	-1 -1	Ó MHz	2 PHASE/AMPL JITTER
	-		
1			DETECTOR
-1		┝	RMS PEAK



PAGE 8 OF 25

TRANSMITTER AMPLITUDE RESPONSE MEASUREMENTS

The transmitter amplitude response measurements demonstrated below were made using the Rohde-Schwarz ZVL6 analyzer in the spectrum analyzer mode. The analyzer was connected to a forward directional coupler located on the output of the amplifier combiner, and prior to the mask filter. The analyzer was operated in the 401 point mode and averaging across 100 sweeps was employed to reduce the impact of noise and subtle changes in the system output power. The data was exported to an Excel file along with the Filter Response data discussed below. The aggregate data is shown on pages 10 and 11.

MASK FILTER AMPLITUDE RESPONSE MEASUREMENTS

The WBNF-CD transmitter employs a Dielectric mask filter to comply with the FCC mask requirements. The filter's amplitude response was measured using the Rohde-Schwarz ZVL-6 in the vector network analyzer mode. Trace data is exported directly to an Excel file and summed with the transmitter amplitude data to produce the aggregate data shown on pages 10 and 11.



FCC MASK COMPLIANCE – TABULAR DATA

The table below uses the data collected from the transmitter amplitude response measurements and the filter amplitude response measurements to verify compliance with the FCC mask requirements. The two responses are added and compared to the FCC response in the chart on the following page.

	N	lask Filter Resp	onse	Transm	nitter Pre-Filter	Response		
	NWA	Center Freq	Normalized	Spec An	Center Freq	Normalized		
Frequency in MHz	Reading	Reference	Response	Reading	Reference	Response	Net Response	FCC Response
469.000	-69.58	-0.32	-69.26	-58.64	-14.54	-44.10	-113.36	-99.4
470.000	-71.57	-0.32	-71.25	-57.55	-14.54	-43.01	-114.26	-99.2
471.000	-75.08	-0.32	-74.76	-55.75	-14.54	-41.21	-115.96	-87.7
472.000	-53.74	-0.32	-53.42	-53.59	-14.54	-39.05	-92.46	-76.1
473.000	-40.06	-0.32	-39.74	-54.36	-14.54	-39.82	-79.56	-64.5
474.000	-26.04	-0.32	-25.72	-55.15	-14.54	-40.61	-66.33	-53.0
474.500	-18.08	-0.32	-17.76	-54.65	-14.54	-40.11	-57.87	-47.2
475.000	-9.18	-0.32	-8.86	-54.34	-14.54	-39.80	-48.65	-41.4
475.500	-2.06	-0.32	-1.73	-54.52	-14.54	-39.98	-41.71	-36.4
475.750	-0.85	-0.32	-0.53	-54.61	-14.54	-40.06	-40.59	-36.4
476.000	-0.55	-0.32	-0.22	-35.44	-14.54	-20.90	-21.12	0.0
477.000	-0.38	-0.32	-0.05	-14.36	-14.54	0.18	0.13	0.0
478.000	-0.33	-0.32	-0.01	-14.86	-14.54	-0.32	-0.33	0.0
479.000	-0.32	-0.32	0.00	-14.54	-14.54	0.00	0.00	0.0
480.000	-0.32	-0.32	0.00	-15.07	-14.54	-0.53	-0.53	0.0
480.500	-0.34	-0.32	-0.02	-14.65	-14.54	-0.11	-0.12	0.0
481.000	-0.36	-0.32	-0.04	-14.60	-14.54	-0.06	-0.10	0.0
482.000	-0.52	-0.32	-0.20	-35.19	-14.54	-20.65	-20.85	0.0
482.250	-0.86	-0.32	-0.54	-53.46	-14.54	-38.92	-39.46	-36.4
482.500	-2.22	-0.32	-1.90	-53.64	-14.54	-39.09	-40.99	-36.4
483.000	-9.70	-0.32	-9.37	-53.33	-14.54	-38.79	-48.16	-42.6
483.500	-18.81	-0.32	-18.48	-54.29	-14.54	-39.74	-58.22	-48.4
484.000	-27.19	-0.32	-26.87	-54.55	-14.54	-40.00	-66.87	-54.1
485.000	-42.62	-0.32	-42.29	-55.72	-14.54	-41.18	-83.47	-65.7
486.000	-62.35	-0.32	-62.03	-57.23	-14.54	-42.69	-104.71	-77.3
487.000	-64.87	-0.32	-64.54	-59.45	-14.54	-44.91	-109.45	-88.8
488.000	-62.41	-0.32	-62.09	-60.98	-14.54	-46.44	-108.53	-99.4
489.000	-63.39	-0.32	-63.07	-62.74	-14.54	-48.20	-111.27	-99.4

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MASK COMPLIANCE PLOT





PAGE 11 OF 25

SHOULDER ATTENUATION

The Rohde-Schwarz EFA50/53 was used to verify shoulder compliance.





PAGE 12 OF 25

ATSC System Performance Measurements Constellation Display



8VSB PARAMETERS

EQ On **EQ Off** ATSC/VSB MEASURE: VSB PARAMETERS ATSC/VSB MEASURE: YSB PARAMETERS ATTEN : LOW+P -6.4 dBm CENTER FREQ CHANNEL ATTEN : LOW+P CHANNEL CENTER FREQ 479.00 MHz -6.4 dBm 15 479.00 MHz 15 CONSTELL CONSTELL TRANSMISSION: DIAGRAM ... TRANSMISSION: DIAGRAM ... PHASE JITTER (RMS) SIGNAL/NOISE (LOW Q) PHASE JITTER (RMS) SIGNAL/NOISE (LOW Q) 0.25 ° --- 0 FREQUENCY FREQUENCY 39.6 dB 36.7 dB DOMAIN ... DOMAIN ... SUMMARY: SUMMARY: MER (REAL,RMS) MER (REAL,MIN) 38.0 dB 14.9 dB TIME MER (REAL, RMS) TIME 35.7 dB 13.7 dB DOMAIN ... DOMAIN ... MER (REAL, MIN) MER (REAL,RMS) MER (REAL,MAX) 1.26 % MER (REAL, RMS) MER (REAL, MAX) 1.63 % VSB PARA PILOT VALUE. VSB PARA PILOT VALUE 20.63 % ADD. NOISE OFF ADD. NOISE OFF





PHASE JITTER





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COMPLIMENTARY CUMULATIVE DISTRIBUTION FUNCTION (CCDF)





APPENDIX

TEST EQUIPMENT LIST

	Make	Model	Serial
Power Probe	Rohde-Schwarz	NRP-Z11	106471
Spectrum Analyzer	Rohde-Schwarz	ZVL6-K1	100429
Modulation Analyzer	Rohde-Schwarz	EFA50/53	100296053
Rubidium Reference	Stanford Research Systems	FS725/2	65717
Vector Network Analyzer	Rohde-Schwarz	ZVL6	100429
Notch Filters	Eagle	TFN-230	N/A

TEST CONFIGURATION BLOCK DIAGRAM





FCC AUTHORIZATION



United States of America FEDERAL COMMUNICATIONS COMMISSION DIGITAL CLASS A BROADCAST STATION LICENSE

Authorizing Official:

Hossein Hashemzadeh

Deputy Chief

Video Division Media Bureau

Official Mailing Address:

FAITH BROADCASTING NETWORK, INC. P. O. BOX 1010 MARION IL62959

Facility Id: 14326

Analog TSID: 8372 Digital TSID: 8373 This license expires 3:00 a.m. local time, June 01, 2015.

Grant Date: January 12, 2012

Call Sign: WBNF-CD

License File Number: BLDTA-20111130LWW

This license covers permit no.: BDFCDTA-20090507ABL

Subject to the provisions of the Communications Act of 1934, subsequent acts and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions set forth in this license, the licensee is hereby authorized to use and operate the radio transmitting apparatus herein described.

This license is issued on the licensee's representation that the statements contained in licensee's application are true and that the undertakings therein contained so far as they are consistent herewith, will be carried out in good faith. The licensee shall, during the term of this license, render such broadcasting service as will serve the public interest, convenience, or necessity to the full extent of the privileges herein conferred.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequency designated in the license beyond the term hereof, nor in any other manner than authorized herein. Neither the license nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934. This license is subject to the right of use or control by the Government of the United States conferred by Section 606 of the Communications Act of 1934.



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License No.: BLDTA-20111130LWW Callsign: WBNF-CD Name of Licensee: FAITH BROADCASTING NETWORK, INC. Station Location: NY-BUFFALO Frequency (MHz): 476 - 482 Channel: 15 Hours of Operation: Unlimited Transmitter: Type Accepted. See Sections 74.750 of the Commission's Rules. Antenna type: (directional or non-directional): Directional Description: MCI 955316 Major lobe directions 60 150 (degrees true): Beam Tilt: 0.5 Degrees Antenna Coordinates: North Latitude: 43 deg 01 min 32 sec West Longitude: 78 deg 55 min 43 sec 15 kW Maximum Effective Radiated Power (ERP): Transmitter Output Power: 0.8 kW Height of radiation center above ground: 168 Meters Height of radiation center above mean sea level: 347.5 Meters Antenna structure registration number: 1019110 Overall height of antenna structure above ground (including obstruction lighting if any) see the registration for this antenna structure. Out-of-Channel Emission mask: Stringent *** END OF AUTHORIZATION ***



821					Ref 479.00000 Mkr 1 -3.000000 Mkr 2 3.000000	MHz -43.842 c MHz 0.002 c MHz 0.017 c
9						
2					_	
3						
4	 	AMkr 1	 Ref	ΔMkr 2	 	
;						
3					 -	

DIRECTIONAL COUPLER MEASUREMENT

The coupling value of the directional coupler used to calibrate the power meter was measured using the Rohde & Schwarz vector network analyzer. The analyzer was operated in the 1601 point mode.



¢ Trc1 SUR 2 mU/ Ref1 U Calint •1 816.84857 ft 1.094 U 1018 1016 1014 1013 1010 1008 1004 Pwr 0 dBm Time Domain Stop 806 MHz Stop 983.2664042 ft Ch1 Start 470 MHz Trc1 Start 0 ft Date: 12.JUN.2013 13:28:22

APPENDIX WBNF – JUNE 12, 2013, 2013

TRANSMISSION LINE LENGTH MEASUREMENT

Marker 1 shows the location of the antenna input. The measurement was made from the input of the power meter sample section to the antenna. The distance shown in the plot uses a velocity factor of 1. The manufacturer's specifications state the velocity factor is 0.88, making the actual distance to the antenna 816.85 * 0.88 or 718.83 feet. The network analyzer was operated in the 1601 point mode.



MANUFACTURER'S TRANSMISSION LINE SPECIFICATION

Product Specifications



LDF7-50A

LDF7-50A, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 1-5/8 in, black PE jacket

COMMSCOPE°

ANDREW

POWERED BY

OBSOLETE

Construction Materials

Jacket Material Outer Conductor Material Dielectric Material Flexibility Inner Conductor Material Jacket Color PE Corrugated copper Foam PE Standard Corrugated copper tube Black

0.82 lb/ft | 1.22 kg/m 44.196 mm | 1.740 in

49.784 mm | 1.960 in 17.2720 mm | 0.6800 in

46.482 mm | 1.830 in

1-5/8 in

Dimensions

Nominal Size Cable Weight Diameter Over Dielectric Diameter Over Jacket Inner Conductor OD Outer Conductor OD

Electrical Specifications

Cable Impedance Capacitance dc Resistance, Inner Conductor dc Resistance, Outer Conductor dc Test Voltage Inductance Insulation Resistance Jacket Spark Test Voltage (rms) Operating Frequency Band Peak Power Pulse Reflection Velocity 50 ohm ±1 ohm 23.1 pF/ft | 75.8 pF/m 0.250 ohms/kft | 0.820 ohms/km 0.160 ohms/kft | 0.525 ohms/km 11000 V 0.190 μH/m | 0.058 μH/ft 100000 Nohms•km 10000 V 1 - 2700 MHz 315.0 kW 0.5% 88%

Environmental Specifications

Installation Temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Operating Temperature	-55 °C to +85 °C (-67 °F to +185 °F)
Storage Temperature	-70 °C to +60 °C (-94 °F to +140 °F)

General Specifications

Brand

HELIAX®

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Product Specifications

COMMSCOPE°

POWERED BY

Attenuation

LDF7-50A

Frequency (MHz) 479	Attenuation (dB/100 m) 1.587	Attenuation (dB/100 ft) 0.484	Average Power (kW) 6.92	
Attenuation				
Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft) 0.014	Average Power (kW) 247.25	
1	0.063	0.019	174.46	
1.5	0.077	0.024	142.22	
2	0.089	0.027	122.99	
10	0.202	0.062	54.32	
20	0.289	0.088	38.05	
30	0.356	0.109	30.85	
50	0.465	0.142	23.63	
88	0.627	0.191	17.53	
100	0.671	0.205	16.38	
108	0.699	0.213	15.72	
150	0.834	0.254	13.17	
174	0.904	0.276	12.15	
200	0.976	0.297	11.26	
300	1.22	0.372	9.01	
400	1.433	0.437	7.67	
450	1.532	0.467	7.17	
500	1.627	0.496	6.76	
512	1.649	0.503	6.67	
600	1.806	0.55	6.09	
700	1.974	0.602	5.57	
800	2.134	0.65	5.15	
824	2.171	0.662	5.06	
894	2.278	0.694	4.83	
960	2.376	0.724	4.63	
1000	2.434	0.742	4.52	
1250	2.781	0.848	3.95	
1500	3.106	0.947	3.54	
1700	3.354	1.022	3.28	
1800	3.474	1.059	3.16	
2000	3.709	1.131	2.96	
2100	3.824	1.165	2.87	
2200	3.937	1.2	2.79	
2300	4.049	1.234	2.71	
2500	4.267	1.301	2.58	
2700	4,481	1.366	2.45	

* Values typical, guaranteed within 5%

Regulatory Compliance/Certifications

Agency RoHS 2011/65/EU China RoHS SJ/T 11364-2006 Classification Compliant Below Maximum Concentration Value (MCV)



Below Maximum Concentration Value (MCV

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page 3 of 3 June 13, 2013

MANUFACTURER'S ANTENNA SPECIFICATIONS

JAMPI	6340 Sky Creek Drive, Sacramento, California 95828 P.O. Box 292880, Sacramento, California 95829-2880 ANTENNA SPECIFICATIONS	
MODEL:	JUHD-5/2 (10)	SERIAL NO: 16730
ELECTRICAL SPECIFICATIONS		
	FREQUENCY:	476-482 MHz
	POLARIZATION:	Horizontal
	AZIMUTH PATTERN:	Directional
	PEAK GAIN:	39.6x (16.0 dBd)
	BEAM TILT:	0.5°
	NULL FILL:	0%
	INPUT POWER:	1 kW
	INPUT IMPEDANCE:	50 ohms, nominal
	MAXIMUM VSWR:	1.1:1
	ELECTRICAL DE-ICER:	none
	INPUT CONNECTION:	1-5/8" EIA
MECHANICAL/ENVIRONMENTAL SPECIFICATIONS		
	WEIGHT:	1037 lbs. (470 kg), no ice
EFFEC	CTIVE PROJECTED AREA (EPA):	83 ft ² (7.7 m ²), no ice, per TIA-222-G
	PRESSURIZATION:	10 psi max, 3-5 psi operating
	ANTI-ICING PROTECTION:	Radomes





MEASUREMENT OF TEST CABLE AND NOTCH RESPONSE

Date: 12.JUN.2013 14:52:19



STATEMENT OF AUTHENTICITY

The preceding statements and data contained herein were prepared by me and/or under my direct supervision, and are true and accurate to the best of my knowledge and belief.

Edward & Murlatt

Edward J. Murlatt

June 14, 2013

Date

