

Technical Report W223BJ Minor Modification

This technical report is submitted as an amendment to the minor modification application to W223BJ at Frederiksted, U.S. Virgin Islands, FCC file no. BPFT-20110328AAK. A move to the +53 I.F. channel 276 with corresponding changes in tower site, antenna and ERP are requested. The modified W223BJ facility will serve as a fill-in to rebroadcast WVJZ(FM) 287B at Charlotte Amalie, U.S. Virgin Islands, facility I.D. 62113.

The following exhibits are provided for the FCC form 349 application:

- E-1 W223BJ Overlap Study
- E-2 Interference Plot to WAXJ(FM) 278A
- E-3 FMOver Analysis to WAXJ(FM) 278A
- E-4 Contour Overlap Plots
- E-5 Tower ASR 1220841
- E-6 OMB MP-2 Antenna Vertical Pattern

W223BJ Modification Analysis:

An overlap study in exhibit E-1 and interference plot to WAXJ(FM) 287A (exhibits E-2 and E-3) show the W223BJ modification to the +53 I.F. channel 276 will not produce any interference overlap to existing facilities.

Antenna System:

W223BJ will be located at an existing tower, ASR no.1220841 (exhibit E-5), and operate at 0.170 kW ERP using an OMB MP-2 nondirectional antenna mounted at a COR AGL of 20 meters, 165 meter AMSL and 140 meter HAAT using the 03 second USGS

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terrain database at 12 radials. The modified W223BJ translator 60 dBu contour overlaps the licensed W223BJ facility, and the 54 dBu F(50-50) contour is contained within the primary WVJZ(FM) 54 dBu F(50-50) contour, with the exception of an area that lies completely over water (exhibit E-4). Since the contour does not cause any interference overlap, following the CFR 74.1204(d), a waiver of CFR 74.1201(g) is requested to allow the contour to exceed the primary contour over water.

RF Exposure Calculation:


The RF contribution was calculated using the formula from the OET Bulletin 65:

$$S \text{ (RF in microwatts/cm}^2\text{)} = \frac{33.4 \times F^2 \times (H \text{ ERP} + V \text{ ERP in watts})}{R^2 \text{ (distance to radiation center in meters}^2\text{)}}$$

Using a worst-case vertical (F) factor of 0.113 provided from the antenna manufacturer (Exhibit E-6) results in an RF value of 0.45 $\mu\text{W}/\text{cm}^2$ to the ground, which is well below 5% of the 200 $\mu\text{W}/\text{cm}^2$ maximum permissible for general public exposure, allowing its exclusion from consideration.

Conclusion:

It is concluded that the minor amendment to the W223BJ application complies with all Commission rules and policies.



Christopher Anderson August 25, 2011
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E-1 W223BJ Overlap Study

REFERENCE CH# 276D - 103.1 MHz, Pwr= 0.17 kW, HAAT= 140.0 M, COR= 165 M DISPLAY DATES
17 44 55.0 N. Average Protected F(50-50)= 13.8 km DATA 08-25-11
64 43 42.0 W. Omni-directional SEARCH 08-25-11

CH CITY	CALL	TYPE STATE	ANT STATE	AZI <--	DI ST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
274D Frederiksted	W223BJ	APP	_C_	0.0 0.0	0.0 BPFT20110328AAK	17 44 55.0 64 43 42.0	0.250	1.1 165	16.8 Gark, Lic	-16.2*	-17.7*
275A Charlotte Amalie	WIUJ	LIC	_CN	341.2 161.1	71.2 BLED19970220KA	18 21 26.0 64 56 50.0	1.500 435	64.6 469	42.4 Virgin Island Youth Develop	-8.3	6.2
278A Frederiksted	WAXJ	LIC	_C_	260.8 80.7	16.7 BLH19990819KB	17 43 28.0 64 53 03.0	6.000 -10	2.0 47	15.8 Reef Broadcasting, Inc	4.3	0.1
277B Caguas	WVJP-FM	LIC	_CN	296.5 116.2	132.7 BLH19890331KI	18 16 41.0 65 51 09.0	28.000 581	116.3 813	92.2 Borinquen Broadcasting Co.	3.3	10.6
279B1 British Virgin Isla	NEW		_HN	10.1 190.1	77.0	18 26 00.0 64 36 00.0	5.000 279	1.6 0	18.1 Zrod Fm	60.6	57.9
279B1 British Virgin Isla	NEW		_HN	10.1 190.1	77.0	18 26 00.0 64 36 00.0	5.000 279	1.6 0	18.1 Zrod Fm	60.6	57.9
279B1 British Virgin Isla	NEW		_HN	10.1 190.1	77.0	18 26 00.0 64 36 00.0	5.000 279	1.6 0	18.1 Zrod Fm	60.6	57.9
273B San Juan	WTOK-FM	LIC	_CN	294.9 114.5	141.7 BLH19900129KD	18 16 54.0 65 56 42.0	50.000 347	9.7 545	79.9 Msg Radio, Inc.	118.8	59.6
222B1 British Virgin Isla	NEW		_HN	7.7 187.7	74.6	18 25 00.0 64 38 00.0	4.500 86	14.6 0	17.6 Tortola	8.0R	66.6M
222B1 British Virgin Isla	NEW		_HN	7.7 187.7	74.6	18 25 00.0 64 38 00.0	4.500 86	14.6 0	17.6 Tortola	8.0R	66.6M
222B1 British Virgin Isla	NEW		_HN	7.7 187.7	74.6	18 25 00.0 64 38 00.0	4.500 86	14.6 0	17.6 Tortola	8.0R	66.6M
277D Fajardo	WVJP-FM2	CP	_DC_	300.9 120.6	116.0 BNPFTB20080721AAO	18 16 57.0 65 40 15.0	2.000	27.8 300	16.9 Borinquen Broadcasting Co.	74.5	67.6
273D Ceiba	WTOK-FM2	LIC	_C_	300.8 120.6	115.8 BLFTB20000823ACJ	18 16 50.0 65 40 13.0	0.800 226	1.8 324	30.7 Msg Radio, Inc.	100.4	84.2

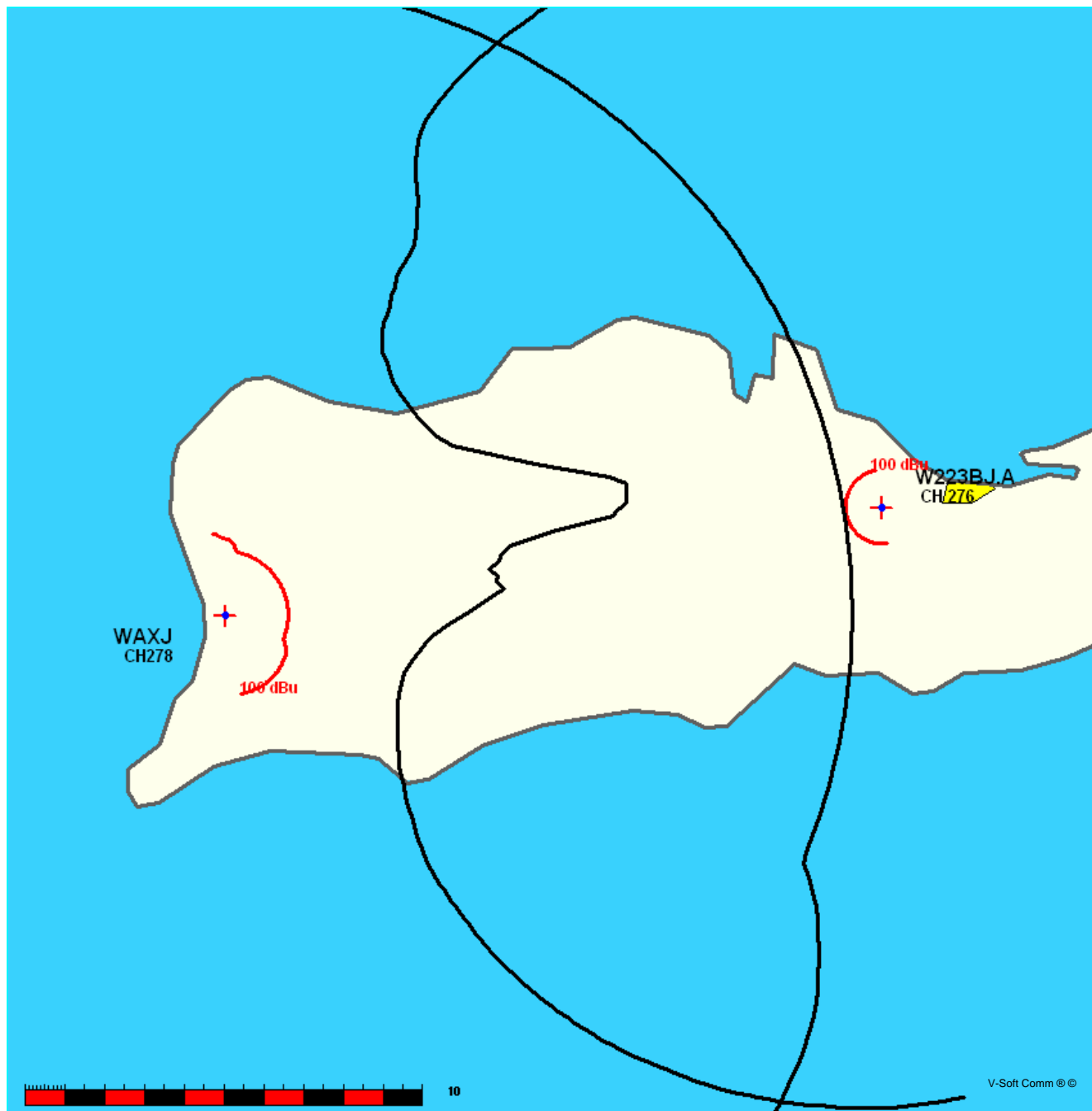
Terrain database is USGS 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= East Zone, Co to 3rd adjacent.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"***"affixed to 'IN' or 'OUT' values = site inside protected contour.

E-2 W223BJ Interference Plot to WAXJ(FM) 278A

FMCommander Single Allocation Study - 08-23-2011 - USGS 03 SEC
W223BJ.A's Overlaps (In= 4.31 km, Out= 0.05 km)

W223BJ.A CH 276 D
Lat= 17 44 55.0, Lng= 64 43 42.0
0.17 kW 140 M HAAT, 165 M COR
Prot.= 60 dBu, Intef.= 100 dBu

WAXJ CH 278 A BLH19990819KB
Lat= 17 43 28.0, Lng= 64 53 03.0
6.0 kW -10 M HAAT, 47 M COR
Prot.= 60 dBu, Intef.= 100 dBu



E-3 W223BJ Mod. FMOVER to WAXJ(FM) 278A

Terrain Data: USGS 03 SEC

WAXJ BLH19990819KB

W223BJ.A

Channel = 278A

Max ERP = 6 kW

RCAMSL = 47 M

N. Lat. 17 43 28.0

W. Lng. 64 53 03.0

Protected

60 dBu

Channel = 276D

Max ERP = 0.17 kW

RCAMSL = 165 M

N. Lat. 17 44 55.0

W. Lng. 64 43 42.0

Interfering

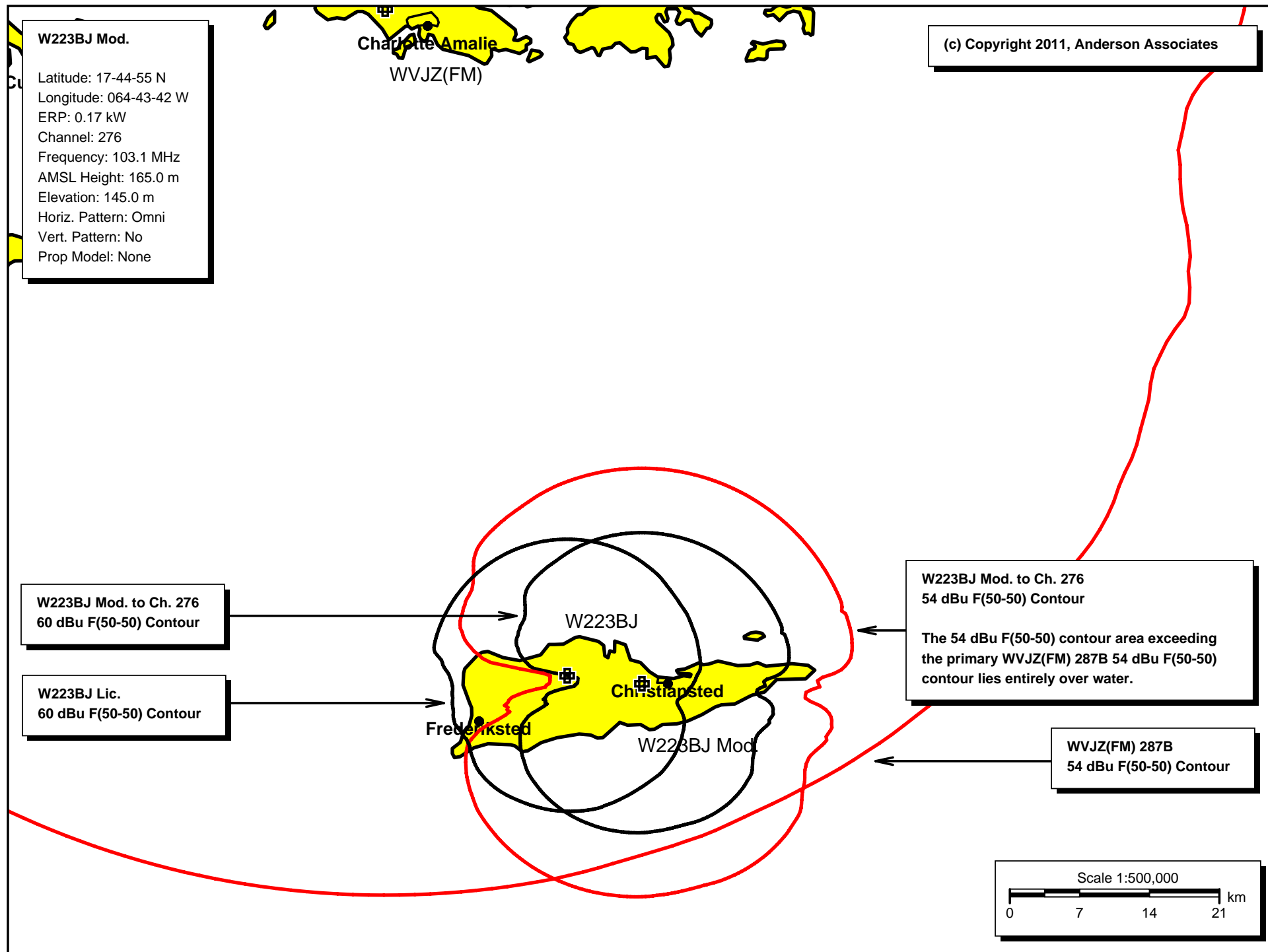
100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
021.0	006.0000	0020.4	015.8	318.1	000.1700	0163.1	016.3	59.13	
022.0	006.0000	0019.1	015.8	318.5	000.1700	0163.1	016.0	59.34	
023.0	006.0000	0017.8	015.8	319.0	000.1700	0163.1	015.8	59.55	
024.0	006.0000	0017.0	015.8	319.4	000.1700	0163.0	015.5	59.75	
025.0	006.0000	0016.7	015.8	319.8	000.1700	0163.0	015.3	59.96	
026.0	006.0000	0016.3	015.8	320.2	000.1700	0163.1	015.0	60.18	
027.0	006.0000	0016.1	015.8	320.7	000.1700	0163.1	014.8	60.31	
028.0	006.0000	0015.3	015.8	321.1	000.1700	0163.1	014.5	60.60	
029.0	006.0000	0015.3	015.8	321.5	000.1700	0163.0	014.3	60.90	
030.0	006.0000	0014.8	015.8	321.9	000.1700	0162.9	014.0	61.20	
031.0	006.0000	0014.7	015.8	322.4	000.1700	0162.8	013.7	61.52	
032.0	006.0000	0014.4	015.8	322.8	000.1700	0162.8	013.5	61.85	
033.0	006.0000	0013.9	015.8	323.2	000.1700	0162.8	013.2	62.19	
034.0	006.0000	0015.1	015.8	323.6	000.1700	0162.7	013.0	62.54	
035.0	006.0000	0014.9	015.8	324.0	000.1700	0162.7	012.7	62.90	
036.0	006.0000	0015.0	015.8	324.4	000.1700	0162.6	012.4	63.27	
037.0	006.0000	0014.2	015.8	324.8	000.1700	0162.5	012.2	63.65	
038.0	006.0000	0013.5	015.8	325.2	000.1700	0162.6	011.9	64.04	
039.0	006.0000	0013.5	015.8	325.5	000.1700	0162.6	011.7	64.45	
040.0	006.0000	0013.6	015.8	325.9	000.1700	0162.7	011.4	64.87	
041.0	006.0000	0013.2	015.8	326.3	000.1700	0162.8	011.1	65.30	
042.0	006.0000	0012.8	015.8	326.7	000.1700	0162.9	010.9	65.74	
043.0	006.0000	0012.4	015.8	327.0	000.1700	0162.9	010.6	66.19	
044.0	006.0000	0011.8	015.8	327.4	000.1700	0163.0	010.3	66.65	
045.0	006.0000	0011.2	015.8	327.7	000.1700	0163.1	010.1	67.12	
046.0	006.0000	0010.5	015.8	328.0	000.1700	0163.1	009.8	67.60	
047.0	006.0000	0009.9	015.8	328.4	000.1700	0163.2	009.5	68.09	
048.0	006.0000	0008.1	015.8	328.7	000.1700	0163.3	009.3	68.59	
049.0	006.0000	0005.3	015.8	329.0	000.1700	0163.4	009.0	69.11	
050.0	006.0000	0003.5	015.8	329.3	000.1700	0163.5	008.7	69.63	
051.0	006.0000	0002.0	015.8	329.6	000.1700	0163.6	008.4	70.16	
052.0	006.0000	-0001.8	015.8	329.8	000.1700	0163.7	008.2	70.70	
053.0	006.0000	-0002.4	015.8	330.1	000.1700	0163.7	007.9	71.26	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
054.0	006.0000	-0004.5	015.8	330.3	000.1700	0163.8	007.6	71.85
055.0	006.0000	-0008.6	015.8	330.5	000.1700	0163.9	007.3	72.49
056.0	006.0000	-0016.7	015.8	330.7	000.1700	0163.9	007.1	73.15
057.0	006.0000	-0027.5	015.8	330.9	000.1700	0164.0	006.8	73.84
058.0	006.0000	-0039.2	015.8	331.0	000.1700	0164.0	006.5	74.55
059.0	006.0000	-0049.4	015.8	331.1	000.1700	0164.0	006.2	75.28
060.0	006.0000	-0060.0	015.8	331.2	000.1700	0164.0	006.0	76.04
061.0	006.0000	-0068.1	015.8	331.2	000.1700	0164.1	005.7	76.83
062.0	006.0000	-0076.3	015.8	331.2	000.1700	0164.0	005.4	77.63
063.0	006.0000	-0085.2	015.8	331.1	000.1700	0164.0	005.1	78.44
064.0	006.0000	-0093.4	015.8	330.9	000.1700	0164.0	004.9	79.27
065.0	006.0000	-0101.8	015.8	330.7	000.1700	0163.9	004.6	80.12
066.0	006.0000	-0102.1	015.8	330.4	000.1700	0163.8	004.3	81.02
067.0	006.0000	-0092.8	015.8	330.0	000.1700	0163.7	004.0	81.97
068.0	006.0000	-0085.1	015.8	329.4	000.1700	0163.5	003.8	82.96
069.0	006.0000	-0078.1	015.8	328.7	000.1700	0163.3	003.5	84.00
070.0	006.0000	-0070.3	015.8	327.8	000.1700	0163.1	003.2	85.07
071.0	006.0000	-0062.6	015.8	326.6	000.1700	0162.8	003.0	86.23
072.0	006.0000	-0058.2	015.8	325.0	000.1700	0162.6	002.7	87.49
073.0	006.0000	-0053.5	015.8	323.1	000.1700	0162.8	002.4	88.85
074.0	006.0000	-0050.0	015.8	320.5	000.1700	0163.1	002.2	90.26
075.0	006.0000	-0047.2	015.8	317.1	000.1700	0163.2	001.9	91.70
076.0	006.0000	-0049.1	015.8	312.7	000.1700	0162.8	001.7	93.12
077.0	006.0000	-0052.7	015.8	306.6	000.1700	0154.8	001.5	95.91
078.0	006.0000	-0056.1	015.8	298.4	000.1700	0133.0	001.3	97.15
079.0	006.0000	-0055.5	015.8	287.4	000.1700	0128.1	001.1	98.30
080.0	006.0000	-0052.9	015.8	273.5	000.1700	0024.1	001.0	99.11
081.0	006.0000	-0051.8	015.8	257.7	000.1700	0068.3	001.0	99.32
082.0	006.0000	-0051.2	015.8	242.4	000.1700	0138.3	001.0	98.84
083.0	006.0000	-0049.5	015.8	229.6	000.1700	0153.9	001.2	97.87
084.0	006.0000	-0045.8	015.8	219.8	000.1700	0159.1	001.3	96.66
085.0	006.0000	-0041.5	015.8	212.5	000.1700	0161.3	001.6	93.92
086.0	006.0000	-0037.1	015.8	207.2	000.1700	0162.2	001.8	92.54
087.0	006.0000	-0033.3	015.8	203.2	000.1700	0162.4	002.0	91.11
088.0	006.0000	-0030.6	015.8	200.1	000.1700	0162.4	002.3	89.67
089.0	006.0000	-0028.2	015.8	197.9	000.1700	0162.5	002.5	88.28
090.0	006.0000	-0025.7	015.8	196.1	000.1700	0162.6	002.8	86.96
091.0	006.0000	-0020.4	015.8	194.7	000.1700	0162.5	003.1	85.73
092.0	006.0000	-0015.5	015.8	193.6	000.1700	0162.4	003.3	84.60
093.0	006.0000	-0011.2	015.8	192.8	000.1700	0162.3	003.6	83.53
094.0	006.0000	-0007.8	015.8	192.1	000.1700	0162.3	003.9	82.50
095.0	006.0000	-0003.8	015.8	191.6	000.1700	0162.2	004.2	81.51
096.0	006.0000	0000.4	015.8	191.2	000.1700	0162.2	004.4	80.57
097.0	006.0000	0003.9	015.8	190.9	000.1700	0162.1	004.7	79.68
098.0	006.0000	0006.2	015.8	190.7	000.1700	0162.1	005.0	78.84
099.0	006.0000	0007.7	015.8	190.6	000.1700	0162.1	005.3	78.01
100.0	006.0000	0009.0	015.8	190.6	000.1700	0162.1	005.5	77.20
101.0	006.0000	0010.8	015.8	190.6	000.1700	0162.1	005.8	76.40
102.0	006.0000	0012.2	015.8	190.6	000.1700	0162.1	006.1	75.62
103.0	006.0000	0013.7	015.8	190.7	000.1700	0162.1	006.4	74.87
104.0	006.0000	0015.7	015.8	190.8	000.1700	0162.1	006.6	74.15

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
105.0	006.0000	0017.8	015.8	190.9	000.1700	0162.1	006.9	73.45
106.0	006.0000	0019.9	015.8	191.1	000.1700	0162.1	007.2	72.77
107.0	006.0000	0021.6	015.8	191.3	000.1700	0162.2	007.5	72.12
108.0	006.0000	0023.0	015.8	191.5	000.1700	0162.2	007.7	71.51
109.0	006.0000	0024.2	015.8	191.8	000.1700	0162.2	008.0	70.93
110.0	006.0000	0025.4	015.8	192.0	000.1700	0162.3	008.3	70.39
111.0	006.0000	0027.2	015.8	192.3	000.1700	0162.3	008.6	69.85
112.0	006.0000	0029.1	015.8	192.6	000.1700	0162.3	008.8	69.33
113.0	006.0000	0030.2	015.8	192.5	000.1700	0162.3	009.1	68.80
114.0	006.0000	0031.2	016.0	191.5	000.1700	0162.2	009.4	68.20
115.0	006.0000	0032.1	016.3	190.4	000.1700	0162.1	009.8	67.58
116.0	006.0000	0033.0	016.5	189.6	000.1700	0162.0	010.1	66.98
117.0	006.0000	0033.7	016.7	189.1	000.1700	0161.9	010.4	66.40
118.0	006.0000	0034.4	016.9	188.7	000.1700	0161.9	010.8	65.83
119.0	006.0000	0035.1	017.1	188.4	000.1700	0161.9	011.1	65.27
120.0	006.0000	0035.7	017.2	188.2	000.1700	0161.8	011.4	64.73
121.0	006.0000	0036.3	017.4	188.0	000.1700	0161.8	011.8	64.20
122.0	006.0000	0037.1	017.6	187.7	000.1700	0161.8	012.1	63.65
123.0	006.0000	0037.7	017.7	187.7	000.1700	0161.8	012.5	63.16
124.0	006.0000	0038.2	017.8	187.8	000.1700	0161.8	012.8	62.68
125.0	006.0000	0038.7	018.0	188.0	000.1700	0161.8	013.2	62.22
126.0	006.0000	0039.1	018.0	188.2	000.1700	0161.8	013.5	61.79
127.0	006.0000	0039.5	018.1	188.5	000.1700	0161.9	013.8	61.38
128.0	006.0000	0039.8	018.2	188.8	000.1700	0161.9	014.1	60.99
129.0	006.0000	0040.1	018.3	189.2	000.1700	0161.9	014.4	60.61
130.0	006.0000	0040.4	018.4	189.5	000.1700	0162.0	014.8	60.24
131.0	006.0000	0040.8	018.5	189.9	000.1700	0162.0	015.1	60.05
132.0	006.0000	0041.1	018.6	190.3	000.1700	0162.0	015.4	59.78
133.0	006.0000	0041.4	018.6	190.7	000.1700	0162.1	015.7	59.52
134.0	006.0000	0041.7	018.7	191.1	000.1700	0162.1	016.0	59.26
135.0	006.0000	0042.0	018.7	191.6	000.1700	0162.2	016.3	59.01
136.0	006.0000	0042.2	018.8	192.0	000.1700	0162.3	016.6	58.76
137.0	006.0000	0042.4	018.9	192.5	000.1700	0162.3	016.9	58.51
138.0	006.0000	0042.7	018.9	193.0	000.1700	0162.4	017.3	58.26
139.0	006.0000	0042.9	019.0	193.5	000.1700	0162.4	017.5	58.02
140.0	006.0000	0043.1	019.0	194.0	000.1700	0162.5	017.8	57.77

E-4 W223BJ Mod. Contour Plots



E-5 W223BJ Mod. ASR

ASR Registration Search

Registration 1220841

 [Map Registration](#)

Registration Detail

Reg Number	1220841	Status	Constructed
File Number	A0630366	Constructed	05/30/2001
FAA Study	2008-ASO-6394-OE	EMI	No
FAA Issue Date	01/07/2009	NEPA	No

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Communications Purposes

Location (in NAD83 Coordinates)

Lat/Long 17-44-47.9 N 064-43-40.2 W #56 Estate Little Princesse (VI13510-A)
City, State Christianstead , VI
Center of
AM Array

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
144.8	44.8
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
189.6	42.7

Painting and Lighting Specifications

None

Owner & Contact Information

FRN	0018133256	Licensee ID	L01432829
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Owner

SBA Infrastructures, LLC
Attention To: Edward G. Roach
5900 Broken Sound Pkwy NW
Boca Raton , FL 33487

P: (561)995-7670
E: ERoach@sbsite.com

Contact

Roach , Edward G
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Boca Raton , FL 33487

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Last Action Status

Status	Constructed	Received	04/07/2009
Purpose	Notification	Entered	04/07/2009
Mode	Interactive		

Related Applications

04/07/2009 A0630355 - Modification (MD)

E-6 W223BJ Antenna Elevation Pattern



Certif.n° Es01-022



Certif. n° Es01-E021

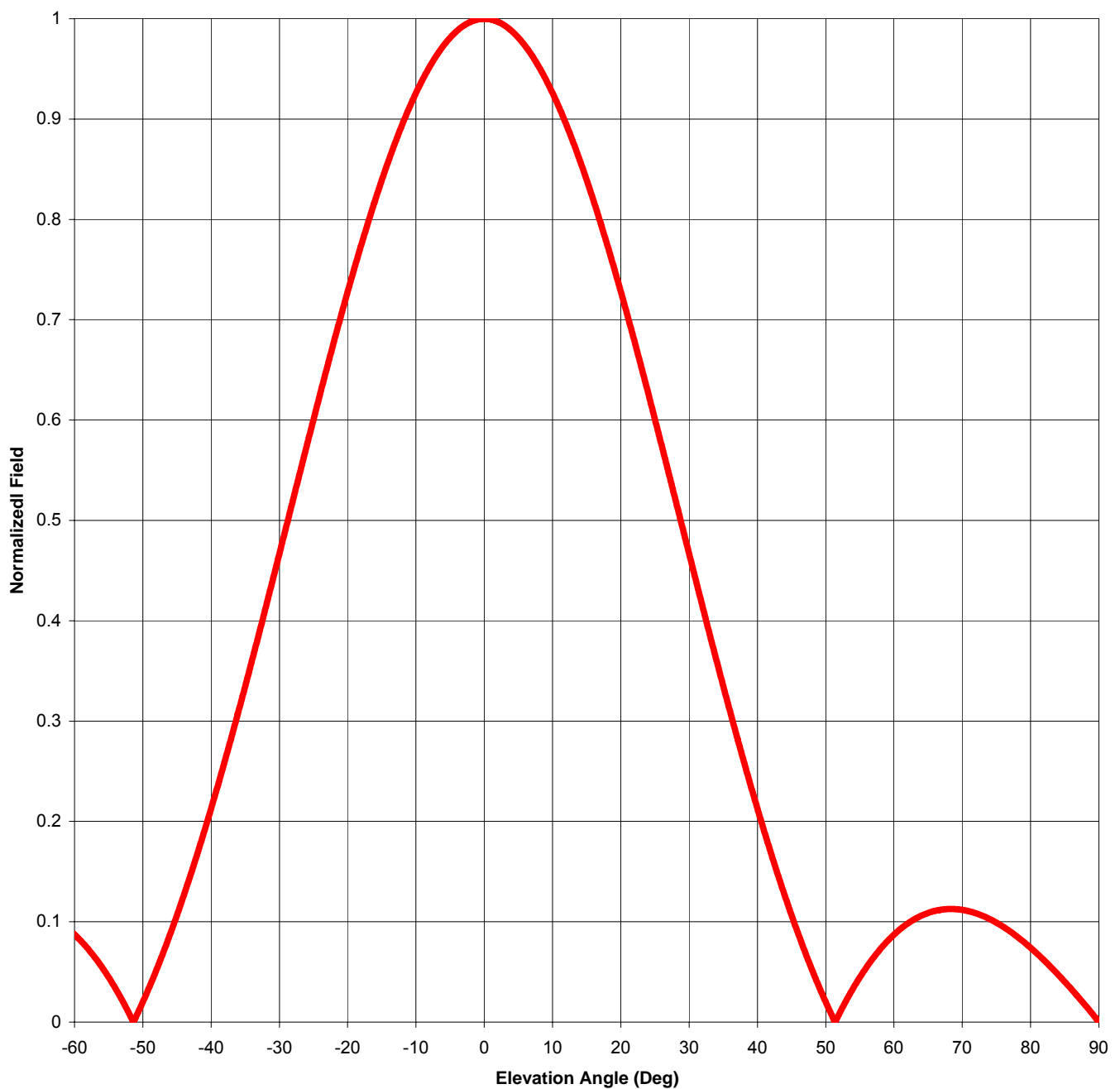
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MP-2 ELEVATION PATTERN

Antena Type: MP-2

Freq: 98.1MHz





Certif.n° Es01-022



Certif. n° Es01-E021

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ELEVATION PATTERN TABULATION

Degrees	Relative Field	Degrees	Relative Field
1	0.999	46	0.088
2	0.997	47	0.069
3	0.993	48	0.052
4	0.988	49	0.036
5	0.981	50	0.020
6	0.973	51	0.005
7	0.963	52	0.009
8	0.952	53	0.021
9	0.940	54	0.033
10	0.926	55	0.045
11	0.911	56	0.055
12	0.895	57	0.064
13	0.877	58	0.073
14	0.859	59	0.080
15	0.839	60	0.087
16	0.819	61	0.093
17	0.797	62	0.098
18	0.775	63	0.103
19	0.752	64	0.106
20	0.728	65	0.109
21	0.703	66	0.111
22	0.678	67	0.112
23	0.653	68	0.113
24	0.627	69	0.113
25	0.601	70	0.112
26	0.574	71	0.110
27	0.547	72	0.108
28	0.521	73	0.106
29	0.494	74	0.103
30	0.467	75	0.099
31	0.440	76	0.095
32	0.413	77	0.090
33	0.387	78	0.085
34	0.361	79	0.080
35	0.335	80	0.074
36	0.309	81	0.068
37	0.284	82	0.061
38	0.260	83	0.055
39	0.236	84	0.048
40	0.213	85	0.040
41	0.190	86	0.033
42	0.168	87	0.025
43	0.147	88	0.017
44	0.126	89	0.009
45	0.107	90	0.000