Doug Vernier, Telecommunications Consultants
401 Main St., Ste 213, Cedar Falls, IA 50613

Contour-to-Contour Allocations Study
Juan Carlos Matos Barreto

REFERENCE CH# 268D - 101.5 MHz, Pwr= 0.25 kW DA, HAAT= 329.4 M, COR= 531 M DISPLAY DATES
18 16 49.0 N. Average Protected F(50-50)= 23.6 km DATA 02-19-14
66 06 35.0 W. Standard Directional SEARCH 02-19-14

CH CITY	CALL STATE	TYPE ANT <--	AZI DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*OUT* (Overlap in km)
267D	W267BL	LIC DC_	0.0 0.00	18 16 49.0	0.250	43.1	27.7	-70.7*
San Juan	PR	0.0	BLFT20120827AAO	66 06 35.0		531	Juan Carlos Matos Barreto	
270B	WZAR	LIC _CN	253.4 48.98	18 09 15.0	14.000	6.2	76.2	-27.4*<*
Ponce	PR	73.3	BMLH19820630AP	66 33 15.0	789	1274	Uno Radio Of Ponce, Inc.	
268B	WELX	LIC _CN	279.6 110.96	18 26 36.0	50.000	121.1	36.1	-10.9<**
Isabela	PR	99.2	BLH19920107KA	67 08 50.0	129	226	La Equis Broadcasting Corp	
266B	WRIO	LIC _CN	244.1 63.97	18 01 40.0	50.000	2.7	36.1	11.5
Ponce	PR	63.9	BLH19860609KA	66 39 14.0	-14	176	Arso Radio Corporation	
269A	WQML	LIC NCX	88.2 49.13	18 17 37.3	6.000	23.5	15.8	13.7
Ceiba	PR	268.3	BLH20131017AOU	65 38 40.3	70	140	Western New Life, Inc.	
266D	W266CF	CP DC_	84.3 33.41	18 18 36.0	0.010	0.1	4.8	23.3
Luquillo	PR	264.4	BNPFT20130819AFS	65 47 41.0		1035	New Life Broadcasting, Inc	
267B	WWKS	LIC _CN	87.1 145.46	18 20 30.0	50.000	104.9	83.1	37.9
Cruz Bay	VI	267.5	BLH19970310KC	64 43 59.0	374	415	Gark, Llc	

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)
Incoming contour overlap is ignored.
"*"affixed to 'IN' or 'OUT' values = site inside protected contour.
Reference station has protected zone issue:
< WZAR is protected using U/D
<** WELX contour overlap is over the ocean... see allocations map

HOW TO READ THE FM COMPUTER PRINT-OUT

Translator Reference Station

The computer printout should be self-explanatory for the most part. The parameters of the station being checked, (reference station) are printed in the heading. The 60 dBu protected contour is predicted from the Commission's F(50-50) table. Contour distances are in kilometers and are predicted using the Commission's TVFMINT FORTRAN subroutine. When interference contour distances are less than 16 kilometers the F(50-50) tables are used. If signal contour distances are less than 1.6 km the free-space equation is used.

All distances are derived by the method detailed in Sec. 73.208 of the Rules and Regulations as amended in Docket 80-90. The column labeled "* OUT *" shows the greatest distance in kilometers of overlap (or smallest distance of clearance) between the reference station's interference contour and the database station's protected contour. Negative distance figures in this column indicate outgoing contour overlap. Since translators are able to receive interference there is no “In” or incoming column in this report.

Listed antenna heights and power are the specific antenna heights and power from the FCC database.

Under the "AZI" column, the first row of numbers indicate the True North azimuths from the reference station toward the database stations, while the numbers in the second row indicate the reverse bearings from the database stations to the reference station. Bearings are calculated using spherical trigonometry.

The columns labeled "INT" and "PRO" contain the distance in kilometers of the appropriate interference contour and the protected contour of a data base station.

For I.F. relationships the minimum spacings the "OUT" columns change its significance. The letter "R" stands for the minimum **required** distance in kilometers, while the letter "M" in the next column displays the **available clear space** separation in kilometers. Minimum separation distances when displayed are taken from Sec 73.207 of the rules as amended. Canadian and Mexican separation distances, U/D ratios and protected contour values are from the US/Mexican Working Agreement and the US/Canada Working Agreement".

The first three letters of the "TYPE" column identify the current FCC status of the stations. The fourth letter will be a "D" if the facility is directional. “Z” indicates a 73.215 directional. An “N” indicates it is a 73.215 station that operates with an omni-directional antenna. The fifth letter will be an E, H or V depending on the type of antenna polarization. The sixth letter will be a "Y" if the antenna uses beam tilt or an “X” if the commission is not sure, otherwise it will be an “N” or left blank.

Contour-to-contour - WELX
Juan Carlos Matos Barreto

FMCommander Single Allocation Study - 02-18-2014 - USGS 03 SEC
W267BL's Overlaps (In= -24.51 km, Out= -10.94 km)

W267BL CH 268 D DA
Lat= 18 16 49.0, Lng= 66 06 35.0
0.25 kW 329.4 M HAAT, 531 M COR
Prot.= 60 dBu, Intef.= 34 dBu

WELX CH 268 B BLH19920107KA
Lat= 18 26 36.0, Lng= 67 08 50.0
50.0 kW 129 M HAAT, 226 M COR
Prot.= 54 dBu, Intef.= 40 dBu

02-18-2014 Terrain Data: USGS 03 SEC FMOver Analysis

WELX BLH19920107KA

Channel = 268B
Max ERP = 50 kW
RCAMSL = 226 M
N. Lat. 18 26 36.0
W. Lng. 67 08 50.0
Protected
54 dBu

W267BL

Channel = 268D
Max ERP = 0.25 kW
RCAMSL = 531 M
N. Lat. 18 16 49.0
W. Lng. 66 06 35.0
Interfering
34 dBu

Contour Overlap as highlighted is over ocean

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
039.0	050.0000	0190.4	069.6	317.9	000.0940	0439.3	097.4	30.51	
040.0	050.0000	0189.8	069.5	318.0	000.0943	0439.3	096.2	30.89	
041.0	050.0000	0189.1	069.5	318.0	000.0946	0439.4	095.0	31.27	
042.0	050.0000	0188.2	069.4	318.0	000.0947	0439.4	093.8	31.66	
043.0	050.0000	0187.0	069.3	318.0	000.0947	0439.4	092.6	32.04	
044.0	050.0000	0185.5	069.1	318.0	000.0945	0439.4	091.3	32.41	
045.0	050.0000	0184.5	069.0	318.0	000.0944	0439.4	090.1	32.79	
046.0	050.0000	0183.6	068.9	317.9	000.0943	0439.3	088.9	33.17	
047.0	050.0000	0182.7	068.8	317.9	000.0941	0439.3	087.7	33.55	
048.0	050.0000	0181.4	068.7	317.8	000.0937	0439.2	086.5	33.92	
049.0	050.0000	0179.6	068.5	317.7	000.0930	0439.4	085.3	34.29*	0.88
050.0	050.0000	0177.7	068.3	317.5	000.0922	0439.4	084.1	34.64*	1.95
051.0	050.0000	0176.0	068.2	317.4	000.0913	0439.2	083.0	34.98*	2.98
052.0	050.0000	0174.1	068.0	317.2	000.0903	0439.0	081.8	35.31*	3.99
053.0	050.0000	0172.4	067.8	316.9	000.0893	0439.0	080.6	35.63*	4.99
054.0	050.0000	0170.5	067.6	316.7	000.0880	0438.7	079.5	35.94*	5.93
055.0	050.0000	0167.9	067.3	316.4	000.0864	0438.5	078.4	36.22*	6.78
056.0	050.0000	0165.1	067.0	316.0	000.0846	0438.4	077.3	36.49*	7.59
057.0	050.0000	0161.4	066.5	315.5	000.0824	0438.1	076.2	36.71*	8.28
058.0	050.0000	0157.9	066.1	315.0	000.0802	0436.7	075.2	36.90*	8.82
059.0	050.0000	0154.7	065.7	314.5	000.0779	0435.6	074.2	37.07*	9.36
060.0	050.0000	0151.2	065.2	313.9	000.0755	0433.6	073.2	37.20*	9.73
061.0	050.0000	0148.0	064.8	313.3	000.0730	0433.1	072.2	37.36*	10.20
062.0	050.0000	0144.6	064.3	312.6	000.0703	0432.2	071.3	37.48*	10.53
063.0	050.0000	0141.4	063.9	312.0	000.0676	0430.9	070.4	37.57*	10.79
064.0	050.0000	0138.1	063.4	311.3	000.0648	0429.4	069.6	37.62*	10.94
065.0	050.0000	0134.8	062.9	310.5	000.0619	0427.1	068.8	37.63*	10.94
066.0	050.0000	0131.3	062.4	309.7	000.0589	0424.7	068.0	37.61*	10.83
067.0	050.0000	0128.6	061.9	309.0	000.0562	0421.2	067.3	37.57*	10.67
068.0	050.0000	0125.6	061.5	308.2	000.0533	0420.6	066.5	37.57*	10.65
069.0	050.0000	0122.1	060.9	307.3	000.0503	0419.4	065.9	37.50*	10.40
070.0	050.0000	0118.9	060.4	306.4	000.0473	0415.3	065.3	37.33*	9.86
071.0	050.0000	0115.4	059.9	305.5	000.0446	0410.4	064.8	37.14*	9.22
072.0	050.0000	0111.7	059.2	304.5	000.0423	0406.8	064.3	36.97*	8.68

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
073.0	050.0000	0107.6	058.5	303.4	000.0400	0404.5	064.0	36.78* 8.08
074.0	050.0000	0103.7	057.8	302.3	000.0376	0400.4	063.7	36.51* 7.25
075.0	050.0000	0100.3	057.1	301.3	000.0354	0397.1	063.4	36.27* 6.52
076.0	050.0000	0096.8	056.4	300.2	000.0333	0392.5	063.2	35.95* 5.58
077.0	050.0000	0093.2	055.7	299.1	000.0311	0384.1	063.0	35.49* 4.20
078.0	050.0000	0089.3	054.9	298.0	000.0290	0379.0	063.0	35.05* 2.94
079.0	050.0000	0085.9	054.2	296.9	000.0270	0368.9	063.0	34.46* 1.29
080.0	050.0000	0082.8	053.5	295.8	000.0252	0359.0	063.0	33.87
081.0	050.0000	0080.2	052.9	294.8	000.0238	0350.4	062.9	33.36
082.0	050.0000	0077.6	052.3	293.8	000.0225	0346.8	062.9	32.99
083.0	050.0000	0073.8	051.4	292.7	000.0211	0351.0	063.2	32.74
084.0	050.0000	0069.4	050.4	291.5	000.0196	0355.2	063.8	32.39
085.0	050.0000	0065.2	049.3	290.4	000.0183	0354.0	064.3	31.85
086.0	050.0000	0061.9	048.5	289.4	000.0172	0343.9	064.7	31.08
087.0	050.0000	0058.0	047.4	288.4	000.0160	0333.0	065.4	30.15
088.0	050.0000	0053.5	046.0	287.3	000.0148	0318.7	066.5	28.93
089.0	050.0000	0049.9	044.7	286.3	000.0138	0298.4	067.5	27.56
090.0	050.0000	0046.9	043.5	285.4	000.0130	0279.1	068.4	26.33
091.0	050.0000	0043.2	041.9	284.5	000.0123	0268.6	069.7	25.28
092.0	050.0000	0039.1	040.1	283.6	000.0116	0269.7	071.3	24.53
093.0	050.0000	0035.9	038.7	282.9	000.0111	0276.6	072.6	24.11
094.0	050.0000	0033.3	037.6	282.2	000.0106	0282.2	073.6	23.74
095.0	050.0000	0031.6	036.8	281.7	000.0102	0287.0	074.3	23.49
096.0	050.0000	0030.0	036.1	281.1	000.0098	0292.6	074.9	23.30
097.0	050.0000	0026.7	036.1	280.6	000.0095	0294.8	074.9	23.24
098.0	050.0000	0020.5	036.1	280.2	000.0092	0296.2	074.9	23.14
099.0	050.0000	0015.6	036.1	279.7	000.0089	0297.2	074.8	23.02
100.0	050.0000	0011.3	036.1	279.2	000.0086	0296.3	074.9	22.84
101.0	050.0000	0008.0	036.1	278.7	000.0083	0292.1	074.9	22.54
102.0	050.0000	0004.9	036.1	278.2	000.0080	0285.7	074.9	22.16
103.0	050.0000	0002.2	036.1	277.8	000.0077	0278.0	075.0	21.74
104.0	050.0000	0000.7	036.1	277.3	000.0074	0271.4	075.0	21.34
105.0	050.0000	-0000.1	036.1	276.8	000.0071	0261.3	075.1	20.83
106.0	050.0000	-0000.1	036.1	276.3	000.0068	0250.9	075.2	20.29
107.0	050.0000	-0001.5	036.1	275.9	000.0066	0238.8	075.3	19.70
108.0	050.0000	-0002.4	036.1	275.4	000.0065	0225.2	075.5	19.08
109.0	050.0000	-0002.2	036.1	274.9	000.0063	0213.0	075.6	18.48
110.0	050.0000	-0000.2	036.1	274.5	000.0062	0202.3	075.8	17.91
111.0	050.0000	0002.7	036.1	274.0	000.0060	0191.2	076.0	17.30
112.0	050.0000	0002.7	036.1	273.6	000.0059	0180.0	076.2	16.68
113.0	050.0000	0003.5	036.1	273.1	000.0058	0169.5	076.4	16.06
114.0	050.0000	0006.6	036.1	272.7	000.0056	0160.8	076.6	15.50
115.0	050.0000	0012.8	036.1	272.2	000.0055	0154.4	076.8	15.03
116.0	050.0000	0022.1	036.1	271.8	000.0054	0148.1	077.1	14.56
117.0	050.0000	0031.9	036.9	271.1	000.0052	0143.4	076.6	14.33
118.0	050.0000	0040.9	040.9	269.2	000.0047	0158.9	073.4	15.64
119.0	050.0000	0049.9	044.7	267.2	000.0042	0159.0	070.6	16.06
120.0	050.0000	0057.6	047.3	265.5	000.0038	0122.6	068.8	14.35
121.0	050.0000	0066.2	049.6	263.8	000.0035	0095.0	067.5	12.89
122.0	050.0000	0074.1	051.5	262.1	000.0033	0074.8	066.5	11.55
123.0	050.0000	0081.1	053.1	260.6	000.0031	0067.9	065.9	10.93

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
124.0	050.0000	0086.9	054.4	259.3	000.0029	0067.4	065.7	10.67
125.0	050.0000	0092.7	055.6	257.9	000.0027	0070.3	065.5	10.61
126.0	050.0000	0099.0	056.9	256.5	000.0025	0080.2	065.4	10.99
127.0	050.0000	0104.7	058.0	255.2	000.0024	0104.7	065.5	12.37
128.0	050.0000	0109.1	058.8	254.1	000.0024	0126.0	065.8	13.45
129.0	050.0000	0112.8	059.4	253.2	000.0024	0139.1	066.3	14.00
130.0	050.0000	0117.6	060.2	252.1	000.0024	0149.4	066.8	14.40
131.0	050.0000	0121.3	060.8	251.2	000.0024	0153.9	067.4	14.43
132.0	050.0000	0124.0	061.2	250.4	000.0024	0151.5	068.1	14.08
133.0	050.0000	0128.2	061.9	249.5	000.0024	0152.4	068.7	13.91
134.0	050.0000	0131.1	062.3	248.8	000.0024	0153.9	069.5	13.72
135.0	050.0000	0130.1	062.2	248.6	000.0024	0154.7	070.6	13.42
136.0	050.0000	0128.7	062.0	248.4	000.0024	0154.9	071.7	13.08
137.0	050.0000	0129.2	062.0	248.0	000.0024	0155.0	072.6	12.77
138.0	050.0000	0131.0	062.3	247.5	000.0024	0155.1	073.6	12.48
139.0	050.0000	0131.3	062.4	247.2	000.0024	0157.0	074.6	12.24
140.0	050.0000	0133.0	062.6	246.8	000.0024	0160.7	075.6	12.11
141.0	050.0000	0134.1	062.8	246.5	000.0024	0160.2	076.6	11.76
142.0	050.0000	0135.5	063.0	246.1	000.0024	0162.7	077.6	11.56
143.0	050.0000	0137.8	063.3	245.7	000.0024	0164.6	078.6	11.30
144.0	050.0000	0135.0	062.9	245.8	000.0024	0163.9	079.7	10.91
145.0	050.0000	0129.7	062.1	246.2	000.0024	0161.6	081.0	10.45
146.0	050.0000	0123.5	061.2	246.7	000.0024	0160.6	082.2	10.03
147.0	050.0000	0127.1	061.7	246.2	000.0024	0161.5	083.2	09.77
148.0	050.0000	0131.8	062.4	245.6	000.0024	0164.8	084.1	09.58
149.0	050.0000	0137.0	063.2	245.0	000.0024	0165.6	085.1	09.25
150.0	050.0000	0137.4	063.3	244.9	000.0023	0166.2	086.2	08.93
151.0	050.0000	0135.9	063.1	245.0	000.0024	0165.6	087.3	08.57
152.0	050.0000	0135.1	062.9	245.1	000.0024	0165.5	088.4	08.24
153.0	050.0000	0135.4	063.0	245.0	000.0024	0165.6	089.5	07.92
154.0	050.0000	0137.9	063.4	244.8	000.0023	0168.1	090.6	07.67
155.0	050.0000	0139.8	063.6	244.6	000.0023	0169.4	091.7	07.37
156.0	050.0000	0139.5	063.6	244.6	000.0023	0169.1	092.9	07.04
157.0	050.0000	0138.5	063.4	244.7	000.0023	0168.2	094.0	06.70
158.0	050.0000	0137.9	063.4	244.8	000.0023	0167.3	095.1	06.36

Contour-to-contour - WRIO
Juan Carlos Matos Barreto

FMCommander Single Allocation Study - 02-18-2014 - USGS 03 SEC
W267BL's Overlaps (In= 53.28 km, Out= 11.53 km)

W267BL CH 268 D DA
Lat= 18 16 49.0, Lng= 66 06 35.0
0.25 kW 329.4 M HAAT, 531 M COR
Prot.= 60 dBu, Intef.= 94 dBu

WRIO CH 266 B BLH19860609KA
Lat= 18 01 40.0, Lng= 66 39 14.0
50.0 kW -14 M HAAT, 176 M COR
Prot.= 54 dBu, Intef.= 100 dBu

02-18-2014 Terrain Data: USGS 03 SEC FMOver Analysis

WRIO BLH19860609KA

Channel = 266B
Max ERP = 50 kW
RCAMSL = 176 M
N. Lat. 18 01 40.0
W. Lng. 66 39 14.0
Protected
54 dBu

W267BL

Channel = 268D
Max ERP = 0.25 kW
RCAMSL = 531 M
N. Lat. 18 16 49.0
W. Lng. 66 06 35.0
Interfering
94 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
004.0	050.0000	-0278.9	036.1	278.3	000.0080	0286.9	055.5	29.31	
005.0	050.0000	-0283.5	036.1	278.4	000.0080	0287.4	054.9	29.59	
006.0	050.0000	-0287.9	036.1	278.4	000.0081	0287.8	054.2	29.86	
007.0	050.0000	-0289.5	036.1	278.4	000.0081	0288.0	053.6	30.13	
008.0	050.0000	-0284.7	036.1	278.4	000.0081	0288.1	053.0	30.39	
009.0	050.0000	-0287.9	036.1	278.4	000.0081	0288.1	052.3	30.63	
010.0	050.0000	-0292.8	036.1	278.4	000.0081	0287.9	051.7	30.87	
011.0	050.0000	-0298.7	036.1	278.4	000.0080	0287.6	051.1	31.11	
012.0	050.0000	-0309.3	036.1	278.3	000.0080	0287.1	050.4	31.33	
013.0	050.0000	-0310.3	036.1	278.3	000.0080	0286.4	049.8	31.54	
014.0	050.0000	-0314.1	036.1	278.2	000.0079	0285.5	049.2	31.74	
015.0	050.0000	-0308.8	036.1	278.1	000.0079	0284.3	048.6	31.92	
016.0	050.0000	-0303.3	036.1	278.0	000.0078	0282.9	047.9	32.09	
017.0	050.0000	-0294.7	036.1	277.9	000.0078	0280.8	047.3	32.23	
018.0	050.0000	-0283.3	036.1	277.8	000.0077	0278.5	046.7	32.37	
019.0	050.0000	-0267.2	036.1	277.6	000.0076	0276.5	046.1	32.51	
020.0	050.0000	-0254.3	036.1	277.5	000.0075	0274.1	045.5	32.63	
021.0	050.0000	-0246.2	036.1	277.3	000.0074	0271.6	044.8	32.74	
022.0	050.0000	-0239.5	036.1	277.1	000.0073	0267.8	044.2	32.81	
023.0	050.0000	-0247.1	036.1	276.9	000.0071	0262.7	043.6	32.82	
024.0	050.0000	-0250.6	036.1	276.6	000.0070	0257.7	043.0	32.83	
025.0	050.0000	-0230.9	036.1	276.4	000.0068	0251.8	042.4	32.80	
026.0	050.0000	-0223.8	036.1	276.1	000.0067	0244.5	041.8	32.70	
027.0	050.0000	-0220.2	036.1	275.8	000.0066	0236.2	041.2	32.58	
028.0	050.0000	-0228.8	036.1	275.4	000.0065	0226.6	040.7	32.38	
029.0	050.0000	-0228.9	036.1	275.1	000.0064	0217.6	040.1	32.18	
030.0	050.0000	-0218.8	036.1	274.7	000.0062	0207.2	039.5	31.89	
031.0	050.0000	-0196.1	036.1	274.3	000.0061	0198.3	038.9	31.65	
032.0	050.0000	-0186.7	036.1	273.9	000.0060	0187.8	038.4	31.34	
033.0	050.0000	-0178.6	036.1	273.4	000.0059	0176.2	037.8	30.97	
034.0	050.0000	-0178.8	036.1	272.9	000.0057	0165.7	037.3	30.62	
035.0	050.0000	-0178.7	036.1	272.4	000.0056	0156.9	036.8	30.30	
036.0	050.0000	-0187.1	036.1	271.8	000.0054	0148.8	036.2	29.99	
037.0	050.0000	-0181.7	036.1	271.3	000.0053	0143.9	035.7	29.83	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
038.0	050.0000	-0161.3	036.1	270.7	000.0051	0145.5	035.2	30.03
039.0	050.0000	-0148.8	036.1	270.0	000.0049	0150.3	034.7	30.41
040.0	050.0000	-0139.9	036.1	269.3	000.0047	0157.3	034.2	30.89
041.0	050.0000	-0136.7	036.1	268.6	000.0046	0163.6	033.8	31.30
042.0	050.0000	-0147.5	036.1	267.9	000.0044	0164.4	033.3	31.40
043.0	050.0000	-0154.8	036.1	267.1	000.0042	0157.8	032.9	31.07
044.0	050.0000	-0141.1	036.1	266.3	000.0040	0136.8	032.4	29.83
045.0	050.0000	-0125.1	036.1	265.5	000.0038	0122.8	032.0	28.96
046.0	050.0000	-0111.2	036.1	264.6	000.0037	0110.4	031.6	28.11
047.0	050.0000	-0101.4	036.1	263.7	000.0035	0093.9	031.2	26.66
048.0	050.0000	-0095.1	036.1	262.7	000.0034	0080.8	030.9	25.28
049.0	050.0000	-0084.9	036.1	261.8	000.0032	0072.7	030.5	24.33
050.0	050.0000	-0075.0	036.1	260.7	000.0031	0068.3	030.2	23.76
051.0	050.0000	-0058.7	036.1	259.7	000.0029	0067.5	029.9	23.61
052.0	050.0000	-0045.9	036.1	258.6	000.0028	0069.1	029.6	23.73
053.0	050.0000	-0038.5	036.1	257.5	000.0026	0071.8	029.3	23.96
054.0	050.0000	-0020.8	036.1	256.4	000.0025	0082.2	029.1	25.04
055.0	050.0000	-0016.2	036.1	255.2	000.0024	0105.0	028.8	27.36
056.0	050.0000	-0013.1	036.1	254.0	000.0024	0127.5	028.6	29.14
057.0	050.0000	-0005.9	036.1	252.8	000.0024	0143.5	028.5	30.29
058.0	050.0000	-0004.4	036.1	251.6	000.0024	0151.3	028.3	30.88
059.0	050.0000	0001.5	036.1	250.3	000.0024	0151.2	028.2	30.96
060.0	050.0000	0006.1	036.1	249.1	000.0024	0153.8	028.0	31.19
061.0	050.0000	0008.6	036.1	247.8	000.0024	0154.8	028.0	31.31
062.0	050.0000	-0000.1	036.1	246.5	000.0024	0160.2	027.9	31.67
063.0	050.0000	0002.7	036.1	245.2	000.0024	0165.3	027.9	31.91
064.0	050.0000	0014.4	036.1	243.9	000.0023	0175.3	027.9	32.33
065.0	050.0000	0027.7	036.1	242.6	000.0022	0178.7	027.9	32.37
066.0	050.0000	0031.9	036.9	241.2	000.0022	0179.5	027.1	32.79
067.0	050.0000	0043.2	041.9	238.2	000.0020	0186.2	022.2	36.31
068.0	050.0000	0055.0	046.5	233.3	000.0017	0153.9	017.9	37.30
069.0	050.0000	0063.0	048.8	228.3	000.0014	0113.7	016.0	35.28
070.0	050.0000	0069.4	050.4	222.9	000.0014	0088.9	014.9	33.92
071.0	050.0000	0077.8	052.4	215.7	000.0018	0116.3	013.7	38.81
072.0	050.0000	0091.0	055.2	204.0	000.0033	0119.6	012.1	43.84
073.0	050.0000	0100.0	057.1	194.2	000.0046	0111.4	011.8	45.12
074.0	050.0000	0106.5	058.3	186.9	000.0053	0121.6	012.2	45.92
075.0	050.0000	0110.9	059.1	181.9	000.0054	0119.4	012.9	44.87
076.0	050.0000	0111.8	059.2	180.0	000.0054	0124.0	013.8	43.95
077.0	050.0000	0112.3	059.3	178.8	000.0055	0128.8	014.8	43.11
078.0	050.0000	0113.4	059.5	177.4	000.0055	0141.4	015.8	43.22
079.0	050.0000	0113.9	059.6	176.6	000.0055	0146.0	016.8	42.68
080.0	050.0000	0113.6	059.6	176.3	000.0055	0147.3	017.9	41.90
081.0	050.0000	0112.7	059.4	176.5	000.0055	0146.3	018.9	40.99
082.0	050.0000	0111.7	059.2	176.7	000.0055	0144.9	020.0	40.06
083.0	050.0000	0110.3	059.0	177.2	000.0055	0142.2	021.0	39.06
084.0	050.0000	0113.0	059.4	175.8	000.0055	0148.8	022.0	38.71
085.0	050.0000	0115.0	059.8	174.9	000.0055	0147.8	023.0	37.86
086.0	050.0000	0116.4	060.0	174.4	000.0055	0145.1	024.1	36.91
087.0	050.0000	0117.7	060.2	174.0	000.0055	0142.8	025.2	36.00
088.0	050.0000	0120.4	060.7	173.2	000.0055	0137.8	026.2	34.93

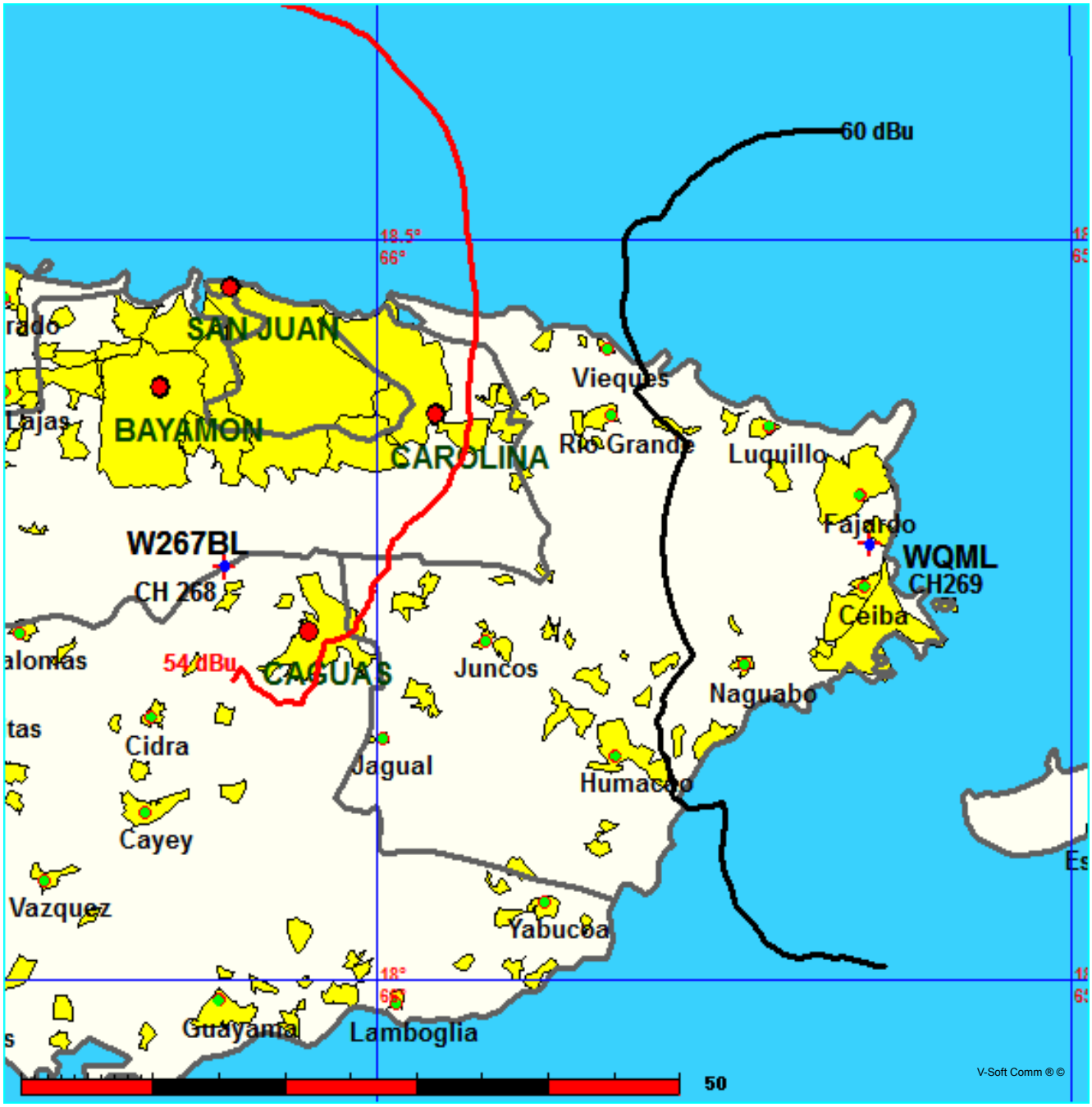
Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
089.0	050.0000	0123.9	061.2	172.3	000.0054	0134.6	027.3	33.97
090.0	050.0000	0128.2	061.9	171.2	000.0054	0127.3	028.5	32.76
091.0	050.0000	0131.9	062.4	170.5	000.0054	0124.5	029.7	31.87
092.0	050.0000	0134.5	062.8	170.2	000.0054	0123.6	030.8	31.17
093.0	050.0000	0136.4	063.1	170.1	000.0054	0123.6	032.0	30.57
094.0	050.0000	0138.6	063.5	170.0	000.0054	0123.5	033.1	30.00
095.0	050.0000	0141.1	063.8	169.9	000.0054	0123.6	034.3	29.44
096.0	050.0000	0143.8	064.2	169.8	000.0054	0123.6	035.5	28.87
097.0	050.0000	0146.9	064.6	169.6	000.0054	0123.5	036.7	28.30
098.0	050.0000	0149.6	065.0	169.6	000.0054	0123.5	037.8	27.75
099.0	050.0000	0151.8	065.3	169.8	000.0054	0123.6	039.0	27.22
100.0	050.0000	0154.1	065.6	169.9	000.0054	0123.6	040.2	26.70
101.0	050.0000	0156.1	065.9	170.1	000.0054	0123.6	041.4	26.19
102.0	050.0000	0157.8	066.1	170.4	000.0054	0124.4	042.5	25.74
103.0	050.0000	0159.3	066.3	170.8	000.0054	0125.9	043.6	25.34
104.0	050.0000	0160.7	066.4	171.2	000.0054	0127.0	044.8	24.93
105.0	050.0000	0162.0	066.6	171.6	000.0054	0128.9	045.9	24.57
106.0	050.0000	0163.6	066.8	171.9	000.0054	0131.9	047.1	24.28
107.0	050.0000	0164.9	066.9	172.3	000.0054	0135.0	048.2	24.00
108.0	050.0000	0166.0	067.1	172.8	000.0055	0136.3	049.3	23.64
109.0	050.0000	0166.8	067.2	173.3	000.0055	0138.3	050.4	23.32
110.0	050.0000	0167.5	067.2	173.8	000.0055	0141.3	051.5	23.06
111.0	050.0000	0168.2	067.3	174.3	000.0055	0144.5	052.6	22.81
112.0	050.0000	0168.8	067.4	174.8	000.0055	0147.3	053.6	22.55
113.0	050.0000	0169.3	067.4	175.3	000.0055	0148.9	054.7	22.23
114.0	050.0000	0169.9	067.5	175.8	000.0055	0148.8	055.8	21.82
115.0	050.0000	0170.4	067.6	176.4	000.0055	0147.0	056.8	21.32
116.0	050.0000	0170.8	067.6	176.9	000.0055	0144.1	057.9	20.77
117.0	050.0000	0171.1	067.6	177.4	000.0055	0141.1	058.9	20.22
118.0	050.0000	0171.5	067.7	178.0	000.0055	0136.9	060.0	19.61
119.0	050.0000	0171.7	067.7	178.5	000.0055	0131.0	061.0	18.91
120.0	050.0000	0171.9	067.7	179.1	000.0055	0127.9	062.0	18.38
121.0	050.0000	0172.1	067.7	179.6	000.0054	0126.4	063.1	17.95
122.0	050.0000	0172.2	067.8	180.2	000.0054	0123.0	064.1	17.42
123.0	050.0000	0172.4	067.8	180.7	000.0054	0119.5	065.1	16.90

Contour-to-contour - WQML
Juan Carlos Matos Barreto

FMCommander Single Allocation Study - 02-18-2014 - USGS 03 SEC
W267BL's Overlaps (In= 13.73 km, Out= 13.67 km)

W267BL CH 268 D DA
Lat= 18 16 49.0, Lng= 66 06 35.0
0.25 kW 329.4 M HAAT, 531 M COR
Prot.= 60 dBu, Intef.= 54 dBu

WQML CH 269 A 73.215 N BLH20131017AOU
Lat= 18 17 37.3, Lng= 65 38 40.3
6.0 kW 70 M HAAT, 140 M COR
Prot.= 60 dBu, Intef.= 54 dBu



02-18-2014 Terrain Data: USGS 03 SEC FMOver Analysis

WQML BLH20131017AOU	W267BL
Channel = 269A	Channel = 268D
Max ERP = 6 kW	Max ERP = 0.25 kW
RCAMSL = 140 M	RCAMSL = 531 M
N. Lat. 18 17 37.3	N. Lat. 18 16 49.0
W. Lng. 65 38 40.3	W. Lng. 66 06 35.0
Protected	Interfering
60 dBu	54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
208.0	006.0000	0067.9	023.7	117.0	000.0019	0423.2	042.7	32.02	
209.0	006.0000	0063.2	023.0	116.0	000.0019	0426.2	042.3	32.42	
210.0	006.0000	0059.3	022.3	115.1	000.0020	0424.7	042.0	32.62	
211.0	006.0000	0060.9	022.6	115.4	000.0020	0425.9	041.5	32.79	
212.0	006.0000	0063.6	023.0	116.0	000.0019	0426.2	041.1	32.93	
213.0	006.0000	0066.2	023.4	116.4	000.0019	0425.3	040.7	33.02	
214.0	006.0000	0068.1	023.7	116.8	000.0019	0423.8	040.2	33.12	
215.0	006.0000	0070.5	024.1	117.2	000.0018	0423.5	039.8	33.24	
216.0	006.0000	0069.6	023.9	116.9	000.0019	0423.3	039.4	33.46	
217.0	006.0000	0070.3	024.0	117.0	000.0019	0423.2	038.9	33.64	
218.0	006.0000	0070.3	024.0	116.9	000.0019	0423.5	038.5	33.85	
219.0	006.0000	0070.0	024.0	116.7	000.0019	0424.3	038.1	34.08	
220.0	006.0000	0064.4	023.1	115.3	000.0020	0425.4	037.9	34.38	
221.0	006.0000	0063.3	023.0	114.9	000.0020	0423.1	037.6	34.52	
222.0	006.0000	0062.7	022.9	114.6	000.0020	0419.7	037.2	34.63	
223.0	006.0000	0061.0	022.6	114.0	000.0020	0410.8	036.9	34.60	
224.0	006.0000	0057.8	022.1	113.0	000.0021	0399.3	036.7	34.49	
225.0	006.0000	0058.2	022.2	112.9	000.0021	0398.7	036.3	34.66	
226.0	006.0000	0058.3	022.2	112.7	000.0021	0398.0	036.0	34.83	
227.0	006.0000	0056.8	021.9	112.1	000.0021	0395.2	035.7	34.93	
228.0	006.0000	0054.9	021.6	111.3	000.0021	0394.6	035.5	35.08	
229.0	006.0000	0052.8	021.2	110.4	000.0022	0398.0	035.4	35.31	
230.0	006.0000	0052.6	021.1	110.1	000.0022	0397.7	035.1	35.48	
231.0	006.0000	0051.5	020.9	109.5	000.0022	0396.6	034.9	35.60	
232.0	006.0000	0048.0	020.1	108.1	000.0023	0392.1	035.0	35.56	
233.0	006.0000	0045.8	019.6	107.1	000.0023	0390.4	035.0	35.61	
234.0	006.0000	0045.5	019.6	106.7	000.0024	0391.1	034.8	35.77	
235.0	006.0000	0043.1	019.0	105.6	000.0024	0390.1	034.8	35.77	
236.0	006.0000	0039.1	018.0	104.1	000.0024	0396.7	035.2	35.76	
237.0	006.0000	0035.6	017.2	102.7	000.0024	0399.1	035.6	35.66	
238.0	006.0000	0031.1	016.0	101.1	000.0024	0402.2	036.2	35.44	
239.0	006.0000	0024.4	015.8	100.5	000.0024	0403.2	036.2	35.47	
240.0	006.0000	0021.1	015.8	100.2	000.0024	0402.2	036.0	35.53	
241.0	006.0000	0019.3	015.8	099.8	000.0024	0400.4	035.9	35.56	

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
242.0	006.0000	0011.4	015.8	099.5	000.0024	0398.1	035.7	35.58
243.0	006.0000	0003.8	015.8	099.1	000.0024	0395.8	035.5	35.60
244.0	006.0000	-0004.2	015.8	098.8	000.0024	0394.2	035.4	35.63
245.0	006.0000	-0012.1	015.8	098.4	000.0024	0394.6	035.2	35.71
246.0	006.0000	-0023.2	015.8	098.0	000.0024	0396.0	035.1	35.82
247.0	006.0000	-0039.1	015.8	097.6	000.0024	0397.9	034.9	35.93
248.0	006.0000	-0058.1	015.8	097.2	000.0024	0399.8	034.8	36.05
249.0	006.0000	-0079.2	015.8	096.8	000.0024	0403.7	034.7	36.21
250.0	006.0000	-0103.4	015.8	096.4	000.0024	0406.3	034.5	36.34
251.0	006.0000	-0131.5	015.8	096.0	000.0024	0408.4	034.4	36.45
252.0	006.0000	-0159.1	015.8	095.6	000.0025	0410.6	034.3	36.65
253.0	006.0000	-0180.4	015.8	095.2	000.0025	0412.3	034.2	36.84
254.0	006.0000	-0198.7	015.8	094.8	000.0026	0414.3	034.1	37.04
255.0	006.0000	-0214.2	015.8	094.3	000.0026	0416.1	034.0	37.23
256.0	006.0000	-0224.8	015.8	093.9	000.0027	0416.8	033.9	37.39
257.0	006.0000	-0230.8	015.8	093.4	000.0028	0417.4	033.8	37.54
258.0	006.0000	-0236.2	015.8	093.0	000.0028	0417.5	033.8	37.68
259.0	006.0000	-0239.0	015.8	092.5	000.0029	0418.8	033.7	37.84
260.0	006.0000	-0247.6	015.8	092.1	000.0029	0420.2	033.6	38.01
261.0	006.0000	-0263.0	015.8	091.6	000.0030	0420.0	033.6	38.13
262.0	006.0000	-0270.1	015.8	091.2	000.0031	0418.2	033.5	38.20
263.0	006.0000	-0276.3	015.8	090.7	000.0032	0415.2	033.5	38.25
264.0	006.0000	-0278.5	015.8	090.2	000.0032	0412.4	033.4	38.29
265.0	006.0000	-0274.4	015.8	089.8	000.0033	0409.6	033.4	38.33
266.0	006.0000	-0269.1	015.8	089.3	000.0034	0405.9	033.4	38.34
267.0	006.0000	-0262.4	015.8	088.8	000.0034	0400.0	033.4	38.29
268.0	006.0000	-0257.8	015.8	088.3	000.0035	0393.5	033.4	38.22
269.0	006.0000	-0258.6	015.8	087.9	000.0036	0385.2	033.4	38.09
270.0	006.0000	-0253.7	015.8	087.4	000.0037	0378.3	033.4	38.00
271.0	006.0000	-0256.6	015.8	086.9	000.0038	0372.1	033.4	37.92
272.0	006.0000	-0257.5	015.8	086.5	000.0038	0369.6	033.4	37.93
273.0	006.0000	-0258.7	015.8	086.0	000.0039	0367.7	033.5	37.96
274.0	006.0000	-0251.7	015.8	085.5	000.0040	0364.3	033.5	37.97
275.0	006.0000	-0246.3	015.8	085.1	000.0041	0360.2	033.5	37.96
276.0	006.0000	-0249.6	015.8	084.6	000.0042	0358.1	033.6	37.99
277.0	006.0000	-0247.1	015.8	084.1	000.0044	0356.7	033.6	38.04
278.0	006.0000	-0235.2	015.8	083.7	000.0045	0355.2	033.7	38.08
279.0	006.0000	-0226.6	015.8	083.2	000.0046	0355.5	033.8	38.17
280.0	006.0000	-0220.7	015.8	082.8	000.0047	0355.3	033.9	38.24
281.0	006.0000	-0205.7	015.8	082.3	000.0048	0353.7	033.9	38.26
282.0	006.0000	-0188.4	015.8	081.9	000.0049	0351.9	034.0	38.27
283.0	006.0000	-0170.7	015.8	081.5	000.0051	0351.9	034.1	38.32
284.0	006.0000	-0152.2	015.8	081.0	000.0052	0357.5	034.2	38.52
285.0	006.0000	-0133.4	015.8	080.6	000.0053	0365.3	034.3	38.78
286.0	006.0000	-0110.5	015.8	080.2	000.0054	0370.9	034.5	38.97
287.0	006.0000	-0082.5	015.8	079.8	000.0055	0374.7	034.6	39.11
288.0	006.0000	-0058.7	015.8	079.4	000.0056	0378.2	034.7	39.23
289.0	006.0000	-0048.3	015.8	079.0	000.0057	0380.9	034.8	39.32
290.0	006.0000	-0044.4	015.8	078.6	000.0059	0380.9	035.0	39.34
291.0	006.0000	-0035.2	015.8	078.2	000.0060	0381.6	035.1	39.37
292.0	006.0000	-0023.5	015.8	077.9	000.0061	0384.1	035.3	39.45

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)
293.0	006.0000	-0007.6	015.8	077.5	000.0062	0389.0	035.4	39.58
294.0	006.0000	0006.0	015.8	077.1	000.0063	0393.1	035.6	39.69
295.0	006.0000	0015.7	015.8	076.8	000.0064	0398.0	035.8	39.81
296.0	006.0000	0024.1	015.8	076.4	000.0065	0402.0	035.9	39.90
297.0	006.0000	0023.4	015.8	076.1	000.0066	0405.6	036.1	39.98
298.0	006.0000	0023.1	015.8	075.8	000.0068	0409.8	036.3	40.11
299.0	006.0000	0030.7	015.9	075.3	000.0070	0414.1	036.4	40.36
300.0	006.0000	0035.3	017.1	073.6	000.0080	0427.9	035.7	41.57
301.0	006.0000	0045.0	019.5	070.4	000.0102	0437.1	034.4	43.42
302.0	006.0000	0047.9	020.1	069.2	000.0110	0435.6	034.2	43.80
303.0	006.0000	0053.7	021.3	067.2	000.0125	0438.2	033.8	44.61
304.0	006.0000	0053.5	021.3	066.9	000.0128	0440.4	034.2	44.58
305.0	006.0000	0051.5	020.9	067.1	000.0126	0438.8	034.7	44.23
306.0	006.0000	0051.7	020.9	066.7	000.0129	0441.4	035.0	44.26
307.0	006.0000	0053.1	021.2	066.0	000.0134	0445.0	035.2	44.44
308.0	006.0000	0058.8	022.3	064.3	000.0153	0443.6	035.0	45.03
309.0	006.0000	0063.6	023.0	062.9	000.0168	0433.4	035.0	45.20
310.0	006.0000	0067.8	023.7	061.6	000.0182	0427.1	035.2	45.35
311.0	006.0000	0074.0	024.6	060.0	000.0202	0425.5	035.2	45.73
312.0	006.0000	0077.5	025.1	059.0	000.0215	0423.7	035.5	45.84
313.0	006.0000	0082.4	025.8	057.6	000.0232	0415.1	035.7	45.86
314.0	006.0000	0084.7	026.2	056.9	000.0242	0412.8	036.1	45.81
315.0	006.0000	0086.1	026.4	056.5	000.0248	0411.4	036.5	45.69
316.0	006.0000	0088.7	026.7	055.8	000.0258	0409.4	036.9	45.65
317.0	006.0000	0092.5	027.3	054.8	000.0275	0406.9	037.3	45.69
318.0	006.0000	0095.1	027.6	054.2	000.0287	0405.4	037.7	45.63
319.0	006.0000	0099.0	028.2	053.3	000.0303	0404.7	038.1	45.66
320.0	006.0000	0105.0	028.9	052.1	000.0326	0405.8	038.6	45.80
321.0	006.0000	0110.5	029.6	051.1	000.0347	0406.8	039.1	45.87
322.0	006.0000	0112.4	029.9	050.8	000.0353	0407.9	039.6	45.75
323.0	006.0000	0113.4	030.0	050.6	000.0357	0408.9	040.1	45.58
324.0	006.0000	0113.3	030.0	050.7	000.0356	0408.6	040.6	45.34
325.0	006.0000	0112.0	029.8	050.9	000.0350	0407.1	041.1	45.02
326.0	006.0000	0110.7	029.7	051.2	000.0345	0406.8	041.7	44.72
327.0	006.0000	0108.3	029.4	051.7	000.0335	0406.4	042.1	44.39