

MINOR CHANGE APPLICATION
QANTUM OF FLORENCE LICENSE COMPANY, LLC
W236BS FM TRANSLATOR
CH 290D - 105.9 MHZ - 0.145 KW
DARLINGTON, SOUTH CAROLINA
April 2011

EXHIBIT C

As indicated on Exhibit C1, the proposed operation of W236BS on Channel 290D with an effective radiated power of 0.145 kilowatt at 113.4 meters (372.0 feet) above ground level will not cause interference to any existing, applied for, or proposed facility. As noted on Exhibit C1, the proposed W236BS on Channel 290D is inside the predicted 60 dBu contour of second adjacent stations WDAR-FM, Channel 288C3, Darlington, South Carolina and WYNN-FM, Channel 292A, Florence, South Carolina. Due to the relationship between W236BS on Channel 290D and WDAR-FM and WYNN-FM, a 40 db ratio of the protected and interfering contours applies.

We have, therefore, calculated the level of signal of WDAR-FM and WYNN-FM at the proposed W236BS site. A map showing the WDAR-FM and WYNN-FM contours at the W236BS site is attached as Exhibit C2. The proposed W236BS will be located on the same tower as the WDAR-FM antenna system. The WDAR-FM contour is in excess of 120.0 dBu (50/50). The corresponding interfering contour for W236BS is 160.0 dBu (50/10). At its greatest distance, the interfering contour (160.0 dBu) of W236BS extends less than 0.001 meter (3.3 feet) from the proposed W236BS site. The proposed W236BS antenna system will be located 113.4 meters (372.0 feet) up on the tower. As such, the interfering contour of the proposed W236BS, as it relates to WDAR-FM, will not reach the ground.

The WYNN-FM contour at the W236BS site is 72.65 dBu (50/50) and the corresponding interfering contour for W236BS is 112.65 dBu (50/10). At its greatest distance, the interfering contour (112.65 dBu) of W236BS extends 0.20 kilometer (656.2 feet) from the proposed W236BS site. The proposed W236BS antenna system is an Electronics Research, Inc. ("ERI") Model LPX3E (three bay full wavelength spaced). ERI has provided the vertical elevation pattern of the antenna system, so that the actual power level at depression angles between 5° and 90° could be calculated (Exhibit C4). Applying the actual relative field values, it was possible to calculate, using a free space calculation, the actual distance to the interfering contour (F50/10) of the proposed W236BS with regard to WYNN-FM.

As indicated on Exhibit C5, we have calculated the elevation above the ground of the interference from the proposed W236BS translator. The closest point above the ground that the interfering contour reaches is 35.8 meters (117.5 feet). This point occurs at a distance of 36.2 meters (118.8 feet) out from the base of the tower. There are no multi-story structures in the immediate vicinity of the tower. As the interfering contour does not reach the ground, it will not impact reception of service from WYNN-FM in the area and the interference is, therefore, considered to be over an unpopulated area. As such, it is believed that the proposed W236BS facility on Channel 290D is in compliance with §74.1204(d) of the Commission's rules. If a waiver of the rule is needed, one is respectfully requested, based on the absence of any population affected in the interference area.

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EXHIBIT C1

Interference Review for W236BS Darlington, South Carolina on Channel 290D
Using Proposed Site as Reference

REFERENCE CH# 290D - 105.9 MHZ, Pwr= 0.145 kW, HAAT= 114.8 M, COR= 159.1 M DISPLAY DATES
34 18 58.0 N. Average Protected F(50-50)= 12.0 km DATA 04-06-11
79 53 17.0 W. Omni-directional SEARCH 04-11-11

CH CITY	CALL	TYPE STATE	ANT STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
236D Florence	W236BS«	LIC	C SC	139.2 319.3	17.4 BLFT20081112AAU	34 11 50.0 79 45 51.0	0.110 35	5.8 67	5.8 Qantum Of Florence License	10.0R	7.4M
288C3 Darlington	WDAR-FM	LIC	NCN SC	0.0 0.0	0.0 BLH199601115K	34 18 58.0 79 53 17.0	17.000 122	4.0 166	39.0 Qantum Of Florence License	-16.0*<	-39.8*<
292A Florence	WYNN-FM	LIC	CN SC	146.1 326.1	13.1 BLH19941001KB	34 13 05.0 79 48 30.0	6.000 100	2.6 137	27.1 Cumulus Licensing Llc	-1.7<	-14.9*<
290D Sumter	W290AY	LIC	C SC	220.0 39.8	58.2 BLFT20070605ACD	33 54 52.0 80 17 39.0	0.250 182	56.3 224	17.9 Miller Communications, Inc.	-9.8<	0.3
290C3 North Myrtle Beach	WEZV	LIC	NCN SC	115.1 295.8	119.6 BLH19940503KA	33 51 16.0 78 43 00.0	17.000 110	106.9 114	37.7 Fidelity Broadcasting Corp.	0.2	39.1
237A Quinby	WFRK«	LIC	ZCX SC	126.4 306.5	16.1 BLH20100512AEH	34 13 48.0 79 44 49.0	3.900 125	29.4 155	27.5 Miller Communications, Inc.	10.0R	6.1M
237A Quinby	AU7965649«	VAC		122.7 302.9	29.4 RM10713*	34 10 23.0 79 37 11.0	6.000 100	28.9 121	27.1 Miller Communications, Inc	10.0R	19.4M
291C2 Waxhaw	WOLS	LIC	NCX NC	307.5 127.0	104.2 BLH20081014ADN	34 53 01.0 80 47 37.0	21.000 188	69.6 358	47.1 GHB Of Waxhaw, Inc.	22.8	39.7
290A Pinopolis	WTUA	CP	NCX SC	185.2 5.2	127.2 BPH20090421ABK	33 10 26.0 80 00 46.0	6.000 68	79.7 80	22.9 Praise Communications, Inc.	35.6	63.5
291A St. Stephen	WTUA	LIC	CN SC	180.1 0.1	91.3 BLH19900606KC	33 29 36.0 79 53 21.0	6.000 100	43.6 115	28.2 Praise Communications, Inc.	35.7	45.5
291D Laurinburg	W291BM	LIC	C NC	40.9 221.1	65.4 BLFT20070829ACB	34 45 38.0 79 25 09.0	0.080 52	10.9 109	7.6 University Radio Foundation	42.3	39.6
289C3 Rennert	WGQR	LIC	NCX NC	64.9 245.5	111.0 BLH20110217AAC	34 44 05.0 78 47 25.0	7.700 178	56.7 212	38.3 Christian Listening Network	42.0	54.6
236D Laurinburg	W236BP«	LIC	V NC	43.9 224.2	65.5 BLFT20070625AAX	34 44 22.0 79 23 28.0	0.250 7	7.1 61	7.1 Church Planters Of America	10.0R	55.5M

Terrain database is NGDC 30 SEC, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM
Contour distances are on direct line to and from reference station. 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.

< = Station meets FCC minimum distance spacing for its class.

< = Contour Overlap

Reference station has protected zone issue: AM tower

Graham Brock, Inc. - Broadcast Technical Consultants

W236BS - Proposed
Latitude: 34-18-58 N
Longitude: 079-53-17 W
ERP: 0.145 kW
Channel: 290D
Frequency: 105.9 MHz
AMSL Height: 159.1 m
Horiz. Pattern: Omni
Prop Model: FCC

WDAR-FM
BLH-19960111SK
Latitude: 34-18-58 N
Longitude: 079-53-17 W
ERP: 17.00 kW
Channel: 288C3
Frequency: 105.5 MHz
AMSL Height: 166.0 m
Horiz. Pattern: Omni
Prop Model: FCC

WYNN-FM
BLH-19941001KB
Latitude: 34-13-05 N
Longitude: 079-48-30 W
ERP: 6.00 kW
Channel: 292A
Frequency: 106.3 MHz
AMSL Height: 137.0 m
Horiz. Pattern: Omni
Prop Model: FCC

WDAR-FM 120.0 dBu (50/50)

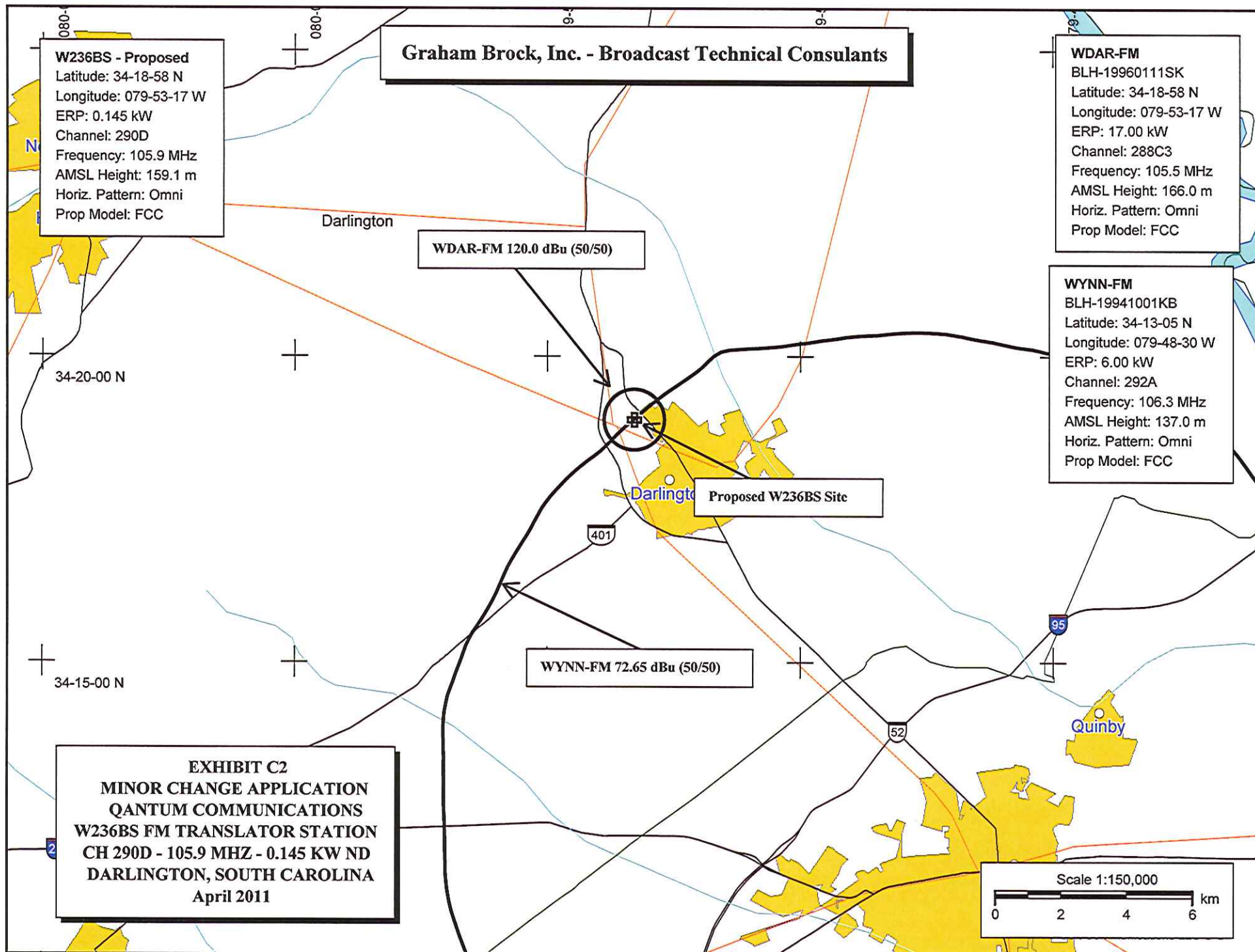
WYNN-FM 72.65 dBu (50/50)

Proposed W236BS Site

EXHIBIT C2
MINOR CHANGE APPLICATION
QANTUM COMMUNICATIONS
W236BS FM TRANSLATOR STATION
CH 290D - 105.9 MHZ - 0.145 KW ND
DARLINGTON, SOUTH CAROLINA
April 2011

Scale 1:150,000

0 2 4 6 km



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EXHIBIT C3

Predicted Contour:

N. Lat. = 34 18 58 - Tabulated Protected and Interfering Contour Data
W. Lng. = 79 53 17 - W236BS FM Translator - Darlington, South Carolina

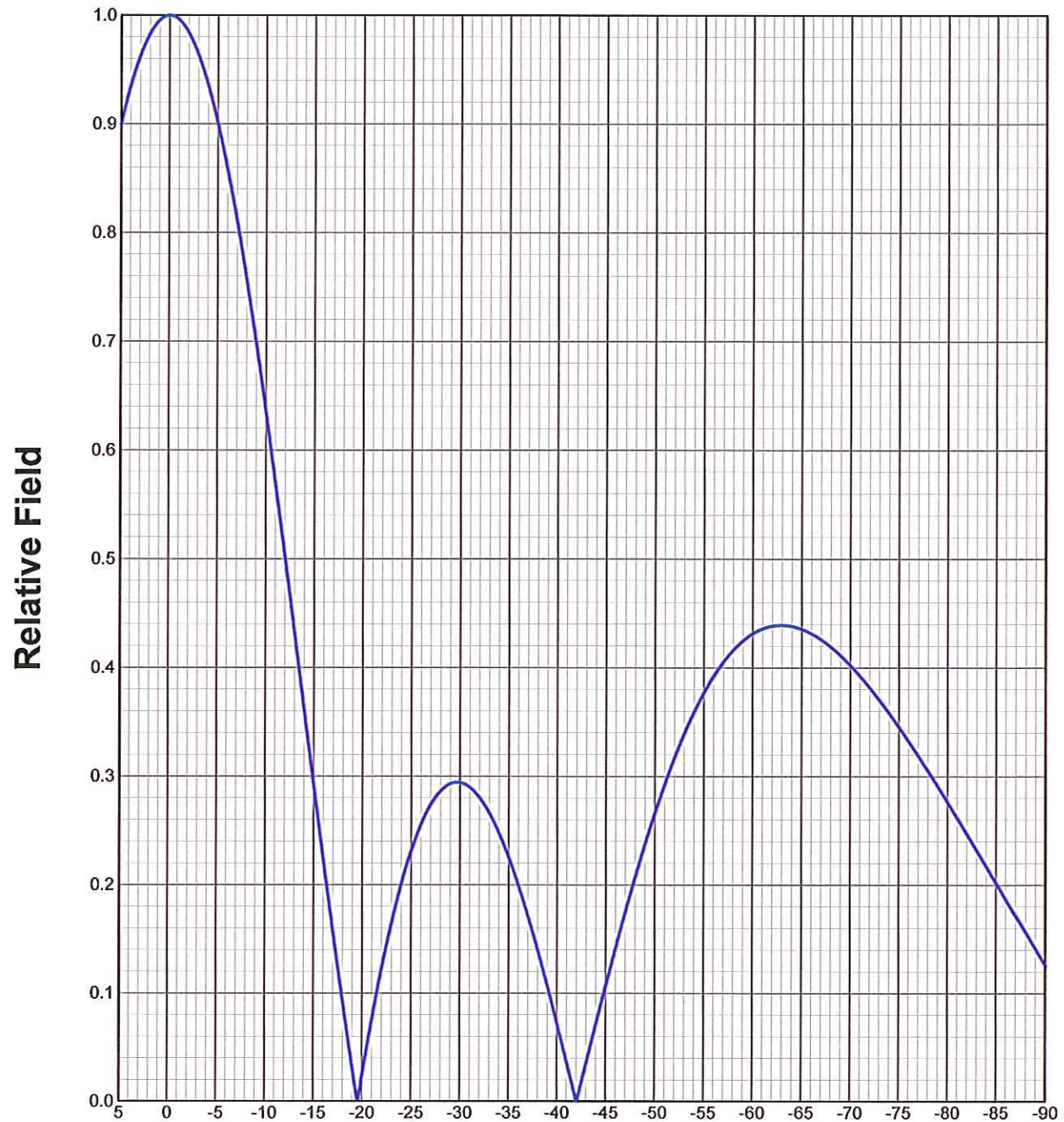
HAAT and Distance to Contour - NGDC 30 Second terrain database

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5	40-F1	54-F1	100-F1	112.65-F1	160-F1
000	45.5	113.6	0.1450	-8.39	1.000	11.98	40.96	17.69	0.84	0.20	0.001
010	42.2	116.9	0.1450	-8.39	1.000	12.14	41.48	17.99	0.84	0.20	0.001
020	43.0	116.1	0.1450	-8.39	1.000	12.10	41.35	17.92	0.84	0.20	0.001
030	40.4	118.7	0.1450	-8.39	1.000	12.23	41.74	18.15	0.84	0.20	0.001
040	40.0	119.1	0.1450	-8.39	1.000	12.25	41.79	18.18	0.84	0.20	0.001
050	39.6	119.5	0.1450	-8.39	1.000	12.26	41.84	18.21	0.84	0.20	0.001
060	37.0	122.1	0.1450	-8.39	1.000	12.39	42.20	18.43	0.84	0.20	0.001
070	41.6	117.5	0.1450	-8.39	1.000	12.17	41.56	18.04	0.84	0.20	0.001
080	38.7	120.4	0.1450	-8.39	1.000	12.31	41.98	18.30	0.84	0.20	0.001
090	34.9	124.2	0.1450	-8.39	1.000	12.48	42.48	18.60	0.84	0.20	0.001
100	36.7	122.4	0.1450	-8.39	1.000	12.40	42.24	18.46	0.84	0.20	0.001
110	36.4	122.7	0.1450	-8.39	1.000	12.41	42.28	18.48	0.84	0.20	0.001
120	32.9	126.2	0.1450	-8.39	1.000	12.58	42.74	18.77	0.84	0.20	0.001
130	36.6	122.5	0.1450	-8.39	1.000	12.41	42.26	18.47	0.84	0.20	0.001
140	40.0	119.1	0.1450	-8.39	1.000	12.25	41.79	18.18	0.84	0.20	0.001
150	40.4	118.7	0.1450	-8.39	1.000	12.23	41.73	18.15	0.84	0.20	0.001
160	41.1	118.0	0.1450	-8.39	1.000	12.20	41.64	18.09	0.84	0.20	0.001
170	42.6	116.5	0.1450	-8.39	1.000	12.12	41.41	17.95	0.84	0.20	0.001
180	46.8	112.3	0.1450	-8.39	1.000	11.92	40.76	17.57	0.84	0.20	0.001
190	47.3	111.8	0.1450	-8.39	1.000	11.89	40.67	17.52	0.84	0.20	0.001
200	49.4	109.7	0.1450	-8.39	1.000	11.79	40.33	17.32	0.84	0.20	0.001
210	51.6	107.5	0.1450	-8.39	1.000	11.68	39.95	17.11	0.84	0.20	0.001
220	51.2	107.9	0.1450	-8.39	1.000	11.70	40.01	17.15	0.84	0.20	0.001
230	51.2	107.9	0.1450	-8.39	1.000	11.70	40.02	17.15	0.84	0.20	0.001
240	51.9	107.2	0.1450	-8.39	1.000	11.66	39.89	17.08	0.84	0.20	0.001
250	53.2	105.9	0.1450	-8.39	1.000	11.59	39.65	16.94	0.84	0.20	0.001
260	55.3	103.8	0.1450	-8.39	1.000	11.48	39.27	16.74	0.84	0.20	0.001
270	55.0	104.1	0.1450	-8.39	1.000	11.50	39.33	16.76	0.84	0.20	0.001
280	55.8	103.3	0.1450	-8.39	1.000	11.46	39.18	16.68	0.84	0.20	0.001
290	54.6	104.5	0.1450	-8.39	1.000	11.52	39.40	16.81	0.84	0.20	0.001
300	51.6	107.5	0.1450	-8.39	1.000	11.67	39.94	17.11	0.84	0.20	0.001
310	48.0	111.1	0.1450	-8.39	1.000	11.86	40.57	17.46	0.84	0.20	0.001
320	45.8	113.3	0.1450	-8.39	1.000	11.96	40.91	17.66	0.84	0.20	0.001
330	43.4	115.7	0.1450	-8.39	1.000	12.08	41.29	17.88	0.84	0.20	0.001
340	47.3	111.8	0.1450	-8.39	1.000	11.89	40.67	17.52	0.84	0.20	0.001
350	46.4	112.7	0.1450	-8.39	1.000	11.94	40.82	17.61	0.84	0.20	0.001

AMSL= 159.1 M

ELEVATION PATTERN

Type:	LPX3F		Channel:	290
Directivity:	Numeric	dBd	Location:	
Main Lobe:	1.56	1.93	Beam Tilt:	0.00
Horizontal:	1.56	1.93	Polarization:	Circular



Preliminary, subject to final design and review.

TABULATED DATA FOR ELEVATION PATTERN

Type: LPX3F

Polarization: Circular

ANGLE FIELD	dB	ANGLE FIELD	dB	ANGLE FIELD	dB	ANGLE FIELD	dB	ANGLE FIELD	dB					
5.00	0.900	-0.91	-6.75	0.823	-1.70	-27.00	0.275	-11.23	-50.50	0.280	-11.05	-74.00	0.358	-8.92
4.75	0.910	-0.82	-7.00	0.810	-1.83	-27.50	0.281	-11.01	-51.00	0.293	-10.66	-74.50	0.352	-9.07
4.50	0.919	-0.74	-7.25	0.797	-1.97	-28.00	0.287	-10.85	-51.50	0.306	-10.30	-75.00	0.346	-9.23
4.25	0.927	-0.66	-7.50	0.784	-2.12	-28.50	0.291	-10.73	-52.00	0.318	-9.96	-75.50	0.339	-9.39
4.00	0.935	-0.58	-7.75	0.770	-2.27	-29.00	0.293	-10.65	-52.50	0.329	-9.66	-76.00	0.332	-9.57
3.75	0.943	-0.51	-8.00	0.756	-2.43	-29.50	0.295	-10.62	-53.00	0.340	-9.38	-76.50	0.326	-9.74
3.50	0.950	-0.44	-8.25	0.742	-2.59	-30.00	0.294	-10.63	-53.50	0.350	-9.12	-77.00	0.319	-9.93
3.25	0.957	-0.38	-8.50	0.728	-2.76	-30.50	0.293	-10.67	-54.00	0.360	-8.88	-77.50	0.312	-10.12
3.00	0.963	-0.32	-8.75	0.713	-2.94	-31.00	0.290	-10.76	-54.50	0.369	-8.66	-78.00	0.305	-10.31
2.75	0.969	-0.27	-9.00	0.698	-3.13	-31.50	0.286	-10.88	-55.00	0.377	-8.47	-78.50	0.298	-10.52
2.50	0.975	-0.22	-9.25	0.682	-3.32	-32.00	0.280	-11.05	-55.50	0.385	-8.29	-79.00	0.291	-10.73
2.25	0.979	-0.18	-9.50	0.667	-3.52	-32.50	0.274	-11.25	-56.00	0.393	-8.12	-79.50	0.284	-10.94
2.00	0.984	-0.14	-9.75	0.651	-3.73	-33.00	0.266	-11.50	-56.50	0.399	-7.97	-80.00	0.276	-11.17
1.75	0.987	-0.11	-10.00	0.635	-3.94	-33.50	0.257	-11.79	-57.00	0.406	-7.84	-80.50	0.269	-11.40
1.50	0.991	-0.08	-10.50	0.603	-4.40	-34.00	0.248	-12.12	-57.50	0.411	-7.72	-81.00	0.262	-11.64
1.25	0.994	-0.06	-11.00	0.569	-4.89	-34.50	0.237	-12.51	-58.00	0.416	-7.61	-81.50	0.254	-11.89
1.00	0.996	-0.04	-11.50	0.535	-5.43	-35.00	0.225	-12.95	-58.50	0.421	-7.51	-82.00	0.247	-12.15
0.75	0.998	-0.02	-12.00	0.501	-6.00	-35.50	0.213	-13.44	-59.00	0.425	-7.43	-82.50	0.240	-12.41
0.50	0.999	-0.01	-12.50	0.467	-6.62	-36.00	0.200	-14.00	-59.50	0.429	-7.36	-83.00	0.232	-12.69
0.25	1.000	0.00	-13.00	0.432	-7.30	-36.50	0.186	-14.63	-60.00	0.432	-7.30	-83.50	0.225	-12.97
0.00	1.000	0.00	-13.50	0.397	-8.03	-37.00	0.171	-15.34	-60.50	0.434	-7.25	-84.00	0.217	-13.27
-0.25	1.000	0.00	-14.00	0.362	-8.84	-37.50	0.156	-16.15	-61.00	0.436	-7.21	-84.50	0.210	-13.57
-0.50	0.999	-0.01	-14.50	0.327	-9.72	-38.00	0.140	-17.08	-61.50	0.437	-7.18	-85.00	0.202	-13.89
-0.75	0.998	-0.02	-15.00	0.292	-10.70	-38.50	0.124	-18.16	-62.00	0.439	-7.16	-85.50	0.194	-14.22
-1.00	0.996	-0.04	-15.50	0.257	-11.79	-39.00	0.107	-19.42	-62.50	0.439	-7.15	-86.00	0.187	-14.57
-1.25	0.994	-0.06	-16.00	0.223	-13.03	-39.50	0.090	-20.94	-63.00	0.439	-7.15	-86.50	0.179	-14.93
-1.50	0.991	-0.08	-16.50	0.190	-14.45	-40.00	0.072	-22.81	-63.50	0.439	-7.15	-87.00	0.172	-15.31
-1.75	0.987	-0.11	-17.00	0.156	-16.11	-40.50	0.055	-25.25	-64.00	0.438	-7.17	-87.50	0.164	-15.70
-2.00	0.984	-0.14	-17.50	0.124	-18.13	-41.00	0.037	-28.69	-64.50	0.437	-7.19	-88.00	0.156	-16.11
-2.25	0.979	-0.18	-18.00	0.092	-20.68	-41.50	0.019	-34.55	-65.00	0.436	-7.22	-88.50	0.149	-16.55
-2.50	0.975	-0.22	-18.50	0.062	-24.20	-42.00	0.001	-64.47	-65.50	0.434	-7.26	-89.00	0.141	-17.00
-2.75	0.969	-0.27	-19.00	0.032	-29.94	-42.50	0.018	-35.10	-66.00	0.431	-7.30	-89.50	0.134	-17.48
-3.00	0.963	-0.32	-19.50	0.003	-50.53	-43.00	0.036	-28.93	-66.50	0.429	-7.35	-90.00	0.126	-17.99
-3.25	0.957	-0.38	-20.00	0.025	-32.11	-43.50	0.054	-25.37	-67.00	0.426	-7.41			
-3.50	0.950	-0.44	-20.50	0.051	-25.77	-44.00	0.072	-22.87	-67.50	0.423	-7.48			
-3.75	0.943	-0.51	-21.00	0.077	-22.28	-44.50	0.090	-20.94	-68.00	0.419	-7.55			
-4.00	0.935	-0.58	-21.50	0.101	-19.90	-45.00	0.107	-19.37	-68.50	0.415	-7.63			
-4.25	0.927	-0.66	-22.00	0.124	-18.13	-45.50	0.125	-18.07	-69.00	0.411	-7.72			
-4.50	0.919	-0.74	-22.50	0.146	-16.74	-46.00	0.142	-16.95	-69.50	0.407	-7.81			
-4.75	0.910	-0.82	-23.00	0.166	-15.61	-46.50	0.159	-15.97	-70.00	0.402	-7.91			
-5.00	0.900	-0.91	-23.50	0.184	-14.68	-47.00	0.176	-15.11	-70.50	0.397	-8.01			
-5.25	0.890	-1.01	-24.00	0.202	-13.90	-47.50	0.192	-14.34	-71.00	0.392	-8.13			
-5.50	0.880	-1.11	-24.50	0.218	-13.24	-48.00	0.208	-13.65	-71.50	0.387	-8.24			
-5.75	0.869	-1.22	-25.00	0.232	-12.69	-48.50	0.223	-13.03	-72.00	0.382	-8.37			
-6.00	0.858	-1.33	-25.50	0.245	-12.22	-49.00	0.238	-12.47	-72.50	0.376	-8.49			
-6.25	0.847	-1.44	-26.00	0.256	-11.83	-49.50	0.253	-11.95	-73.00	0.370	-8.63			
-6.50	0.835	-1.57	-26.50	0.266	-11.50	-50.00	0.267	-11.48	-73.50	0.364	-8.77			

Preliminary, subject to final design and review.

CALL: W236BS
 POWER (Watts): 145 0° radial
 ANTENNA AGL (m): 113.4
 Desired Contour (dBu) 112.65

INPUT FROM MFG

DEPRESSION ANGLE	ANTENNA RELATIVE FIELD	ERP (WATTS)	dBk	DISTANCE TO INTERFERING CONTOUR (m)	HORIZONTAL DISTANCE FROM TOWER (m)	VERTICAL DISTANCE FROM GROUND (m)
5	0.900	117.5	-9.30	176.8	176.1	98.0
10	0.635	58.5	-12.33	124.7	122.8	91.7
15	0.292	12.4	-19.08	57.4	55.4	98.6
20	0.025	0.1	-40.43	4.9	4.6	111.7
25	0.232	7.8	-21.08	45.6	41.3	94.1
30	0.293	12.4	-19.05	57.6	49.8	84.6
35	0.225	7.3	-21.34	44.2	36.2	88.1
40	0.072	0.8	-31.24	14.1	10.8	104.3
45	0.107	1.7	-27.80	21.0	14.9	98.5
50	0.267	10.3	-19.86	52.4	33.7	73.2
55	0.377	20.6	-16.86	74.1	42.5	52.7
60	0.432	27.1	-15.68	84.9	42.4	39.9
65	0.436	27.6	-15.60	85.6	36.2	35.8
70	0.402	23.4	-16.30	79.0	27.0	39.2
75	0.346	17.4	-17.60	68.0	17.6	47.8
80	0.276	11.0	-19.57	54.2	9.4	60.0
85	0.202	5.9	-22.28	39.7	3.5	73.9
90	0.126	2.3	-26.38	24.7	0.0	88.7
WORST CASE HEIGHT AGL (m)						35.8