Ехнівіт 10

Exported report from Maximi\$er V9.0 MultiRanker Report Demographic Report NEW YORK-PHILADELPHIA SPCL COMBO (Radio) - Fall 2003, Spring 2003

Demos:	P 12+	Pop:	8569500	ntab:	23262
Qualitative Selection:	none				
Geo Area: # Dayparts: Stations: Ranked by:	KXW 54 DBU CTYS - Cnty G 1 User Selected Station (All Selected Stations)				
Station WKXW-FM	Daypart M-Su 12:00M - 12:00M	Format Talk/Personality		Cume Pers (00) 7493	

KXW 54 DBU CTYS - Cnty Grp: BURLINGTON HDBA, NJ; BURLINGTON BALANCE, NJ; CAMDEN HDBA, NJ; CAMDEN HDHA, NJ; CAMDEN BALANCE, NJ; ESSEX HDBA, NJ; ESSEX HDHA, NJ; ESSEX BALANCE, NJ; GLOUCESTER, NJ; HUNTERDON, NJ; MERCER HDBA, NJ; MERCER HDHA, NJ; MERCER BALANCE, NJ; MIDDLESEX HDHA, NJ; MIDDLESEX BALANCE, NJ; MONMOUTH, NJ; MORRIS, NJ; OCEAN NORTH, NJ; OCEAN SOUTH, NJ; SOMERSET, NJ; UNION HDBA, NJ; UNION HDHA, NJ; UNION BALANCE, NJ; BUCKS, PA; CHESTER, PA; DELAWARE HDBA, PA; DELAWARE BALANCE, PA; LEHIGH, PA; MONTGOMERY, PA; NORTHAMPTON, PA; PHILADELPHIA HDBA, PA; PHILADELPHIA HDHA, PA; PHILADELPHIA BALANCE, PA

Please note: The intab reported is for the full twelve weeks of the survey. Users should note that reports run on fewer than twelve weeks are based on smaller sample sizes.

Stations qualify to be reported if they have received five or more minutes of listening in at least 10 diaries in the market, Monday-Sunday 6am-Midnight, during the survey period

Estimates are derived from the diaries that provided the audience data for the Market Report and are subject to the limitations stated in that Report. Due to these limitations, inherent in Arbitron's methodology, the accuracy of Arbitron audience estimates cannot be determined to any precise mathematical value or definition. This service is not part of Arbitron's regular syndicated service. The Media Rating Council (MRC) accredits this service.

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#### Exported report from Maximi\$er V9.0 MultiRanker Report Demographic Report NEW YORK-PHILADELPHIA SPCL COMBO (Radio) - Fall 2003, Spring 2003

Demos: P 12+ Pop: 20640100 Intab: 46943

Qualitative Selectio none

Geo Area:	KXW DBU BORDER+ - Cnty Grp
# Dayparts:	1
Stations;	User Selected
Ranked by:	Station (All Selected Stations)

				Çume
Station	Daypart	Format	Weeks	Pers (00)
WKXW-FM	M-Su 12:00M - 12:00M	Talk/Personality	12-Ja	n 2871

KXW DBU BORDER+ - Cnty Grp: FAIRFIELD (D SPLIT), CT; FAIRFIELD BR-SP HDBA, CT; FAIRFIELD BR-SP HDHA, CT; FAIRFIELD BR-SP BAL, CT; FAIRFIELD SN-SP BAL, CT; KENT, DE; NEW CASTLE HDBA, DE; NEW CASTLE BALANCE, DE; ATLANTIC WEST, NJ; ATLANTIC EAST HDBA, NJ; ATLANTIC EAST BAL, NJ; ATLANTIC AC-SPLIT, NJ; BERGEN HDHA, NJ; BERGEN BALANCE, NJ; CAMDEN HDBA, NJ; CAMDEN HDHA, NJ; CAMDEN HDHA, NJ; CAMDEN HDHA, NJ; ESSEX HDHA, NJ; ESSEX HDHA, NJ; SUSEX, NJ; ATLANTIC AC-SPLIT, NJ; BERGEN HDHA, NJ; BERGEN BALANCE, NJ; CAMDEN HDBA, NJ; CAMDEN HDHA, NJ; COMBERLAND, NJ; ESSEX HDBA, NJ; ESSEX HDHA, NJ; SUSEX, NJ; GUOCESTER, NJ; HUDSON HDBA, NJ; HUDSON HDHA, NJ; HUDSON HDHA, NJ; BRONX HDBA, NJ; HUDSON BALANCE, NJ; MORRIS, NJ; PASSAIC HDHA, NJ; PASSAIC BALANCE, NJ; SALEM, NJ; SUSSEX, NJ; WARREN, NJ; BRONX HDBA, NY; BRONX HDHA, NY; BRONX BALANCE, NY; DUTCHESS, NY; KINGS HDBA, NY; KINGS HDHA, NY; KINGS BALANCE, NY; NASSAU HDBA, NY; NASSAU HDBA, NY; NASSAU HDHA, NY; NASSAU BALANCE, NY; NEW YORK HDBA, NY; NEW YORK HDBA, NY; NASSAU HDBA, NY; ORANGE BALANCE, NY; ORANGE HDHA, NY; ORANGE BALANCE, NY; PUTNAM, NY; QUEENS HDBA, NY; QUEENS HDHA, NY; QUEENS BALANCE, NY; RICHMOND, NY; ROCKLAND HDBA, NY; ORANGE BALANCE, NY; SUFFOLK CENT W HDHA, NY; SUFFOLK CENTRAL E, NY; SUFFOLK WEST HDBA, NY; SUFF WESTCHESTER HDBA, NY; WESTCHESTER HDHA, NY; WESTCHESTER BALANCE, NY; BERKS, PA; BUCKS, PA; CHESTER, PA; DELAWARE HDBA, PA; DELAWARE HDBA, NY; WESTCHESTER BALANCE, PA; PHILADELPHIA HDBA, PA;

Please note: The intab reported is for the full twelve weeks of the survey. Users should note that reports run on fewer than twelve weeks are based on smaller sample sizes.

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Ехнівіт 11

### FM Stereo Receiver Performance with Low Signal Levels Co-channel and Second Adjacent Interference

April 6, 2004

### Introduction

Over the last 10 years the National Radio Systems Committee and the CEA have been conducting FM stereo receiver tests for FM-to-FM interference and IBOC compatibility. The data used for this report is taken from the NPR, CEA and CPB FM Receiver Interference Laboratory Test Report (1999) and from receiver characterization test conducted for the NRSC by CEA.

### **Receiver Sensitivity**

Table 1 shows the laboratory RMS signal-to-noise ratios measured in dB at seven signal levels in dBm (50 ohms). The test transmitters operated with stereo pilot. Receiver noise measurements were made using the left channel and a 19 kHz notch filter.

For the IBOC field tests NRSC found that for a FM field strength of 60 dbu, the power level at the input of an automobile radio was approximately -65 dBm. The FM receiver's receiving antenna for this test was a ¼ wave vertical at about 10 feet above ground.

To reduce noise and audible sounds caused by multipath, the auto radios blend to mono at lower signal levels. The shaded areas on Table 1 are levels where the receiver stereo separation was reduced to 10 dB or less. Auto receiver #5 was in mono for the signal levels tested.

With the signal reduced by 15 dB below the 60 dbu, the S/N performance is reasonable. The S/N data for each receiver at the lower signal power level is shown in the -80 dBm and -85 dBm data columns in Table 1.

### **Receiver Sensitivity Conclusions**

- With no interference the lower signal levels will produce a good sounding signal.
- To reduce the affects of MP some of the auto receivers will be in mono at the lower signal levels.

#### **Co-Channel**

Figures 1 and 2 show the laboratory measured WQP signal-to-noise ratio test results for 16 receivers, #1 through #16 in Table 1. The second adjacent WQP S/N data in not available for receivers #17 and #18.

Figure 1 shows the S/N with the desired signal 20 dB stronger than the undesired (D/U 20 dB, FCC limit). With the exception of receiver #1 the signal-to-noise for all receivers

varies from 26.5 dB to 17.5 dB, a spread of 9 dB. This S/N is below acceptable broadcast limits.

Figure 2 shows the same 16 receivers S/N test results with the desired to undesired (D/U) ratio set at 30 dB (desired 10 dB higher). With the reduction in interference the S/N has improved by 10 dB across the board.

#### **Co-Channel Conclusions**

- The present FCC 20 dB co-channel protection ratio penalizes class A stations.
- A reduction in interference will improve the performance of all receivers equally.

### Second Adjacent Interference

Figures 3 and 4 show the 2<sup>nd</sup> adjacent laboratory measured WQP signal-to-noise ratio tests results for receivers #1 through #16.

Figure 3 shows the undesired signal 20 dB stronger than the desired (D/U - 20 dB). Receiver #3 (boom box) and #16 (portable) have interference.

For Figure 2 the undesired signal was increased 20 dB to a D/U ratio of -40 dB. Receivers #3 (boom box), #9 (walkman), #11 (bookshelf/portable), and #16 (portable) failed completely. Receivers #4 (HiFi) and #12 (boom box) had some interference.

The auto radios #1, #5, #7, #13 and #15 showed little change in interference with the undesired 40 dB above the desired. In tests conducted by the NRSC, most automobile radios lost stereo separation when any undesired adjacent signal exceeded 30 dB.

#### Second Adjacent Conclusions

• Reducing the undesired interference FCC limit from -40 dB to -20 dB will reduce interference on the majority of non-automobile radios.

#### Note: Signal-to-Noise Measurements

RMS and Weighted Quasi Peak were used in this report. It is the convention to use RMS S/N measurements for consumer radio and in broadcast station testing. WQP measurements are used for making interference measurements for FCC filings. WQP is an international measurement standard. WQP S/N measurements do differ from RMS and are generally, but not always, 6 dB to 10 dB lower than RMS.

Thomas B. Keller

<u>.</u>	S/N at Seven Signal Levels Table 1.										
	Consumer FM Stereo Receiver Data			S/N in dB							
	Receiver Make	Receiver Type	Model Number	Estimated Age	Power -65dBm	Power -70dBm	Power -75dBm	Power -80dBm	Power -85dBm	Power -90dBm	Power -95dBm
1	Delco	Auto (OEM)	16192463	9	60	59	57	55	55	55	55
2	Denon	HiFi (RBDS)	TU-380RD	9	61	56	51	46	41	36	Mute
3	Panasonic	Boom Box	RX-FS430	9	62	58	53	48	43	38	33
4	Pioneer	HiFi (competitive)	SX-210	9	60	60	55	50	67	62	57
5	Ford	Auto (OEM)	F4XF-19B132-CB	9	. 66	66	65	64	61	58	54
6	Denon	HiFi (NAB)	TU-680	8	66	62	56	52	47	42	Mute
7	Audiovox	Auto (aftermarket)	Av-220	9	58	56	53	51	51	51	58
8	Sony	HiFi (competitive)	STR-AV21	12	65	60	55	50	45	63	57
9	Sony	Walkman	SRF-M40W	12	57	54	50	45	40	35	59
10	Technics	HiFi (competitive)	SA-EX110	5	65	60	55	51	46	41	57
11	Sanyo	Bookshelf/portable	MCD-S736	5	54	50	. 46	41	36	31	32
12	Sony	TR/Boom Box	CFD-S33	5	57	54	50	46	41	36	42
13	Koss	Auto (aftermarket)	MS-457	5	57	53	48	44	39	34	2'9
14	Magnavox	Bookshelf/Port	AX2700/17	5	54	50	48	48	52	49	45
15	Ford	Auto (OEM)	XF3F	5	55	53	52	54	55	51	47
16	Radio Shack	Portable	SCR-64 14-704	5	58	\$5	51	47	41	36	38
17	Delphi	Auto (OEM)	09394139	3	60	59	61	64	63	60	5-5
18	Pioneer	Auto (aftermarket)	KEH-1700	3	60	58	60	62	62	60	57

• Table shows the receiver RMS S/N in dB at seven signal levels.

• The shaded areas on the table are for signal levels where the stereo separation was 10 dB or less.

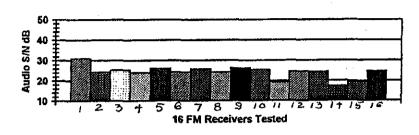
• The data for receivers #1 through #16 was taken from the CEA 1999 FM Receiver Interference Laboratory Test Report.

• The data for receivers #17 and #18 was taken from the NRSC FM IBOC compatibility receiver characterization tests.

April 6, 2004

### **Co-Channel**

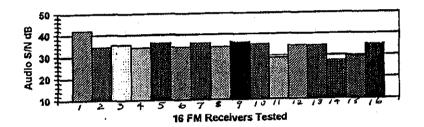
Figure 1.





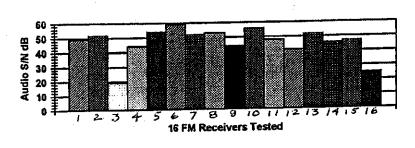


C-Channel Audio S/N with 30 dB D/U



# 2<sup>nd</sup> Adjacent

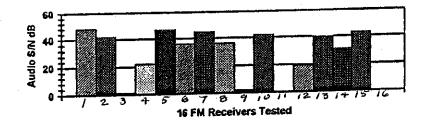




### 2nd Adjacent Audio S/N with D/U of -20 dB



### 2nd Adjacent Audio S/N with D/U of -40 dB



Ехнівіт 12

### **Charles M. Anderson and Associates**

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### **TECHNICAL REPORT**

This *Technical Report* summarizes the analyses of interference caused to licensed full service FM stations in New Jersey by proposed New Jersey FM translators that have been either accepted for filing or filed as singletons and are pending acceptance.

### Interference Criteria and Methodology:

The analyses utilized Commission interference ratios with the exception of the second adjacent channel where a 20 dB ratio was utilized rather than the 40 dB ratio currently specified in the Commission's rules. The analyses also assumed that the protected service contour for all New Jersey commercial FM stations is the 44 dBu (50, 50) contour.

The studies were conducted using V-Soft Communications' Probe III software and the V-Soft 30 second digitized terrain database. Population data is based on the 2000 U.S. Census. Interference from translators to full service stations was evaluated within each .1 km cell inside the stations' 44 dBu (50, 50) contour. Probe III analyzes the protected and interfering signals within each cell taking into consideration the HAAT and power for each in that direction and the appropriate D/U ratio.

### **Summary of Results:**

A total of twenty eight (28) translator applications were analyzed. Twenty-six (26) applications create interference within one or more full power New Jersey

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commercial FM stations' 44 dBu contours. Fifteen (15) of the twenty-eight cause

interference to a population of 1000 or more; thirteen (13) cause interference to a

population of 10,000 or more and eight (8) of the twenty-eight cause interference to a

population of 100,000 or more. The most egregious offenders (100,000+ population

receiving interference) are summarized below. Exhibits are attached as E-1 through E-10.

Proposed Translator	Station Receiving Interference		Interference Population	Interference Area sq km
BNPFT20030825AHK	WMGQ 252A	E-1	525,161	1,734
252D Lakewood, NJ	New Brunswick, N.	J		
	WBBO 253A Ocean Acres, NJ	E-2	407,742	881
BNPFT20030828AAN	WCHR-FM 289B	E-3	936,123	1,575
289D Trenton, NJ	Manahawkin, NJ		(769,563NJ)	
BNPFT20030827AHH	WCAA 290B1	E-4	349,199	1,102
290D Hackettstown, NJ	Newark, NJ			
BNPFT20030827AHA	WPRB 277B	E-5	366,337	269
276D Pompton Lakes,	Princeton, NJ			1
NJ				
BNPFT20030827AGO	WOJZ 285B1	E-6	142,271	155
Clinton, NJ	Egg Harbor, NJ			
BNPFT20030827AFX	WDHA-FM 288A	E-7	6,656,348	1,770
288D Atlantic	Dover, NJ		941,065NJ	
Highlands,				
NJ				
	WCHR-FM 289B1	E-8	190,655	453
	Manahawkin, NJ			
BNPFT20030828ALY	WPST 248B	E-9	797,661	675
248D West Milford, NJ	Trenton, NJ			
BNPFT20030828ABC	WAIV 272A	E-10	104,311	765
272D New Gretna, NJ	Cape May, NJ			

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### **Conclusion:**

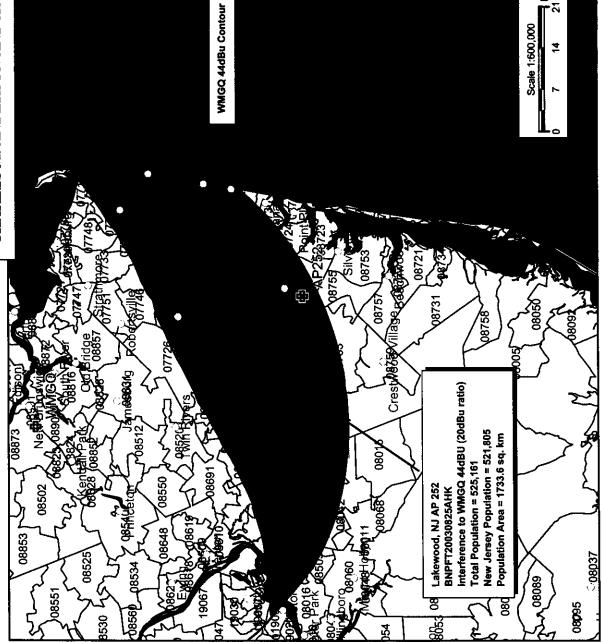
Based on the use of the 44 dBu (50,50) protected contour and the 20 dBu 2nd adjacent channel interference ratio, twenty-six of the twenty-eight translators cause interference. The sum total of the population receiving interference from these twenty-eight translators is 10,631,597. The great majority of this interference is co-channel or 1st adjacent channel. Eight of the proposed translators cause interference to a population of 100,000 or greater, six to a population of 300,000 or greater and one to a population of 6, 656,348.

Churles M. andren

Charles M. Anderson April 28, 2004 ©2004 Charles M. Anderson and Associates

530 4 856 Longitude: 074-29-34 W Prop Model: FCC Model AMSL Height: 187.0 m Loc. Variability: 50.0% Frequency: 98.3 MHz Latitude: 40-28-33 N Horiz. Pattern: Omni BMLH19921222KA Elevation: 37.0 m Vert. Pattern: No ERP: 1.20 kW Channel: 252 E-1 WMGQ

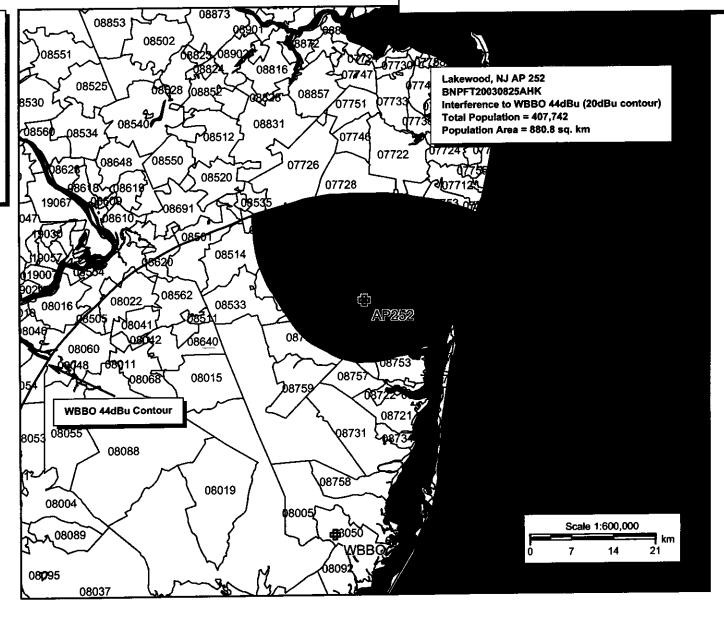
Time Variability: 50.0%

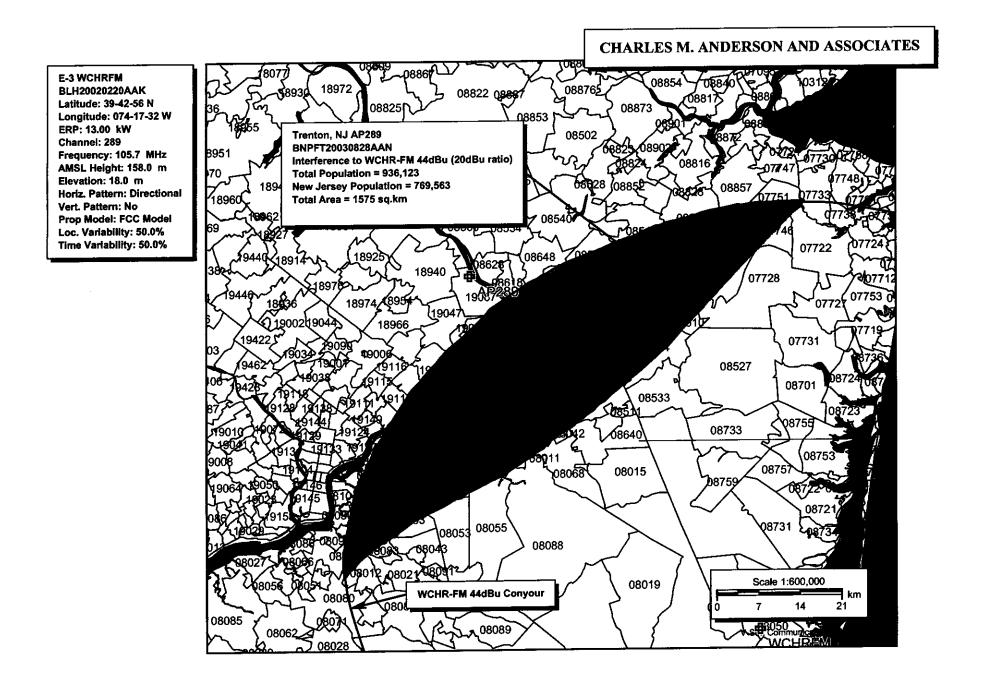


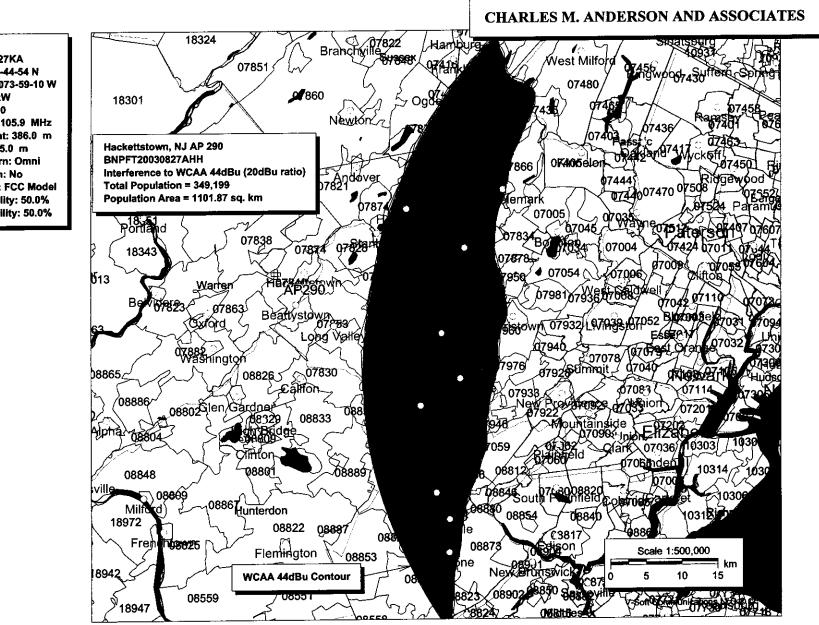
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### **CHARLES M. ANDERSON AND ASSOCIATES**

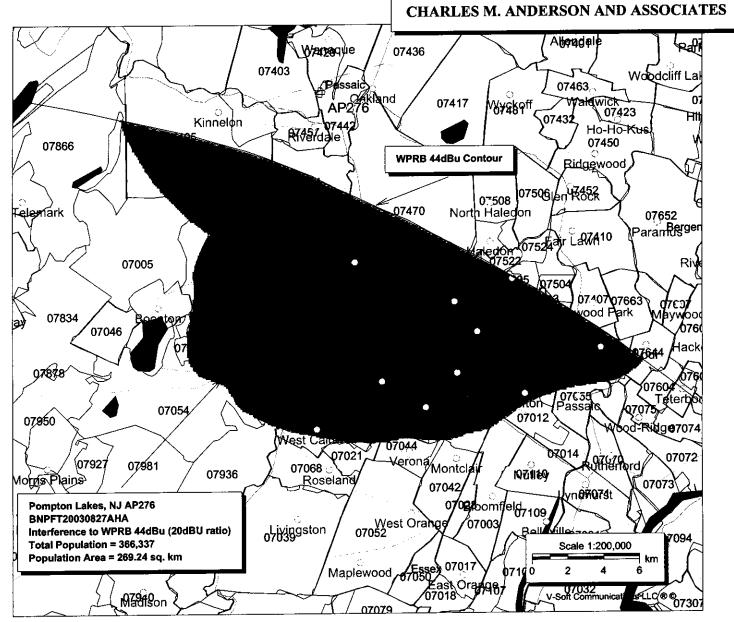
E-2 WBBO BLH20010720ABR Latitude: 39-42-56 N Longitude: 074-17-32 W ERP: 2.95 kW Channel: 253 Frequency: 98.5 MHz AMSL Height: 160.0 m Elevation: 18.0 m Horiz. Pattern: Directional Vert. Pattern: No Prop Model: FCC Model Loc. Variability: 50.0%





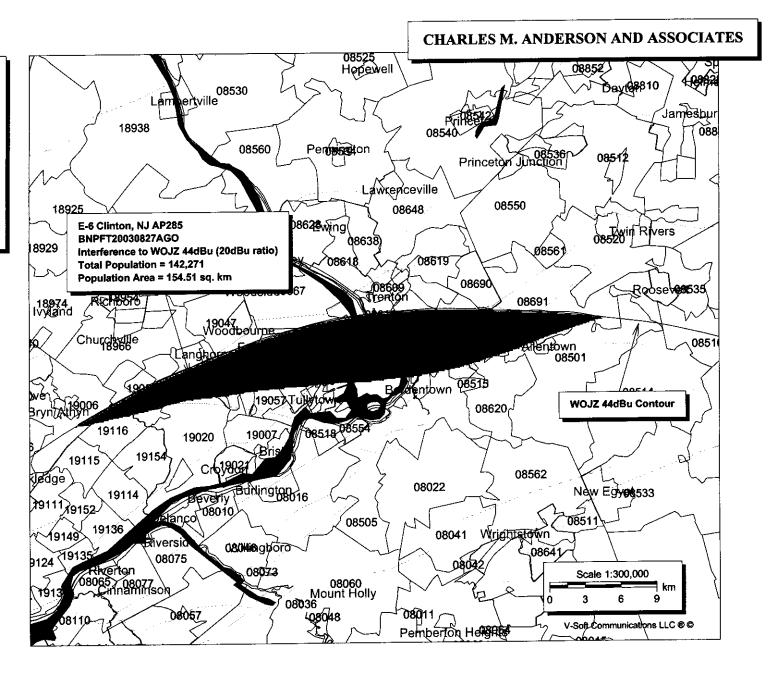


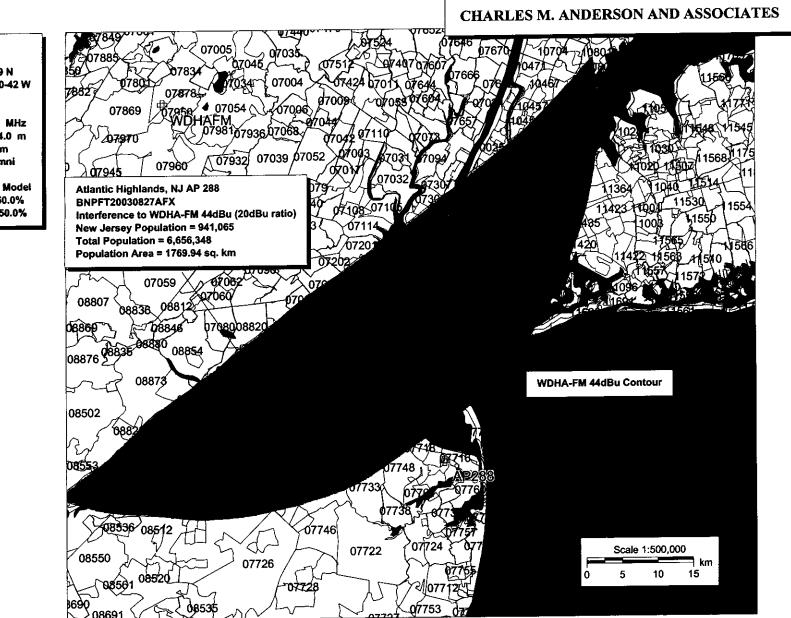
E-4 WCAA BLH19970327KA Latitude: 40-44-54 N Longitude: 073-59-10 W ERP: 0.61 kW Channel: 290 Frequency: 105.9 MHz AMSL Height: 386.0 m Elevation: 15.0 m Horiz. Pattern: Omni Vert. Pattern: No Prop Model: FCC Model Loc. Variability: 50.0% E-5 WPRB BLH19911028KB Latitude: 40-17-00 N Longitude: 074-41-20 W ERP: 14.00 kW Channel: 277 Frequency: 103.3 MHz AMSL Height: 258.0 m Elevation: 19.0 m Horiz. Pattern: Omni Vert. Pattern: No Prop Model: FCC Model Loc. Variability: 50.0%



WOJZ

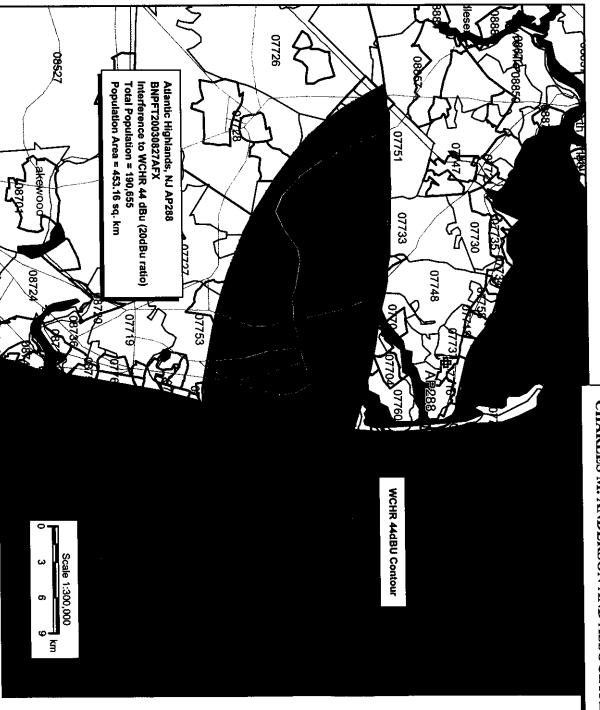
BLH19910726KB Latitude: 39-32-49 N Longitude: 074-38-19 W ERP: 10.00 kW Channel: 285 Frequency: 104.9 MHz AMSL Height: 167.0 m Elevation: 21.0 m Horiz. Pattern: Omni Vert. Pattern: No Prop Model: FCC Model Loc. Variability: 50.0%



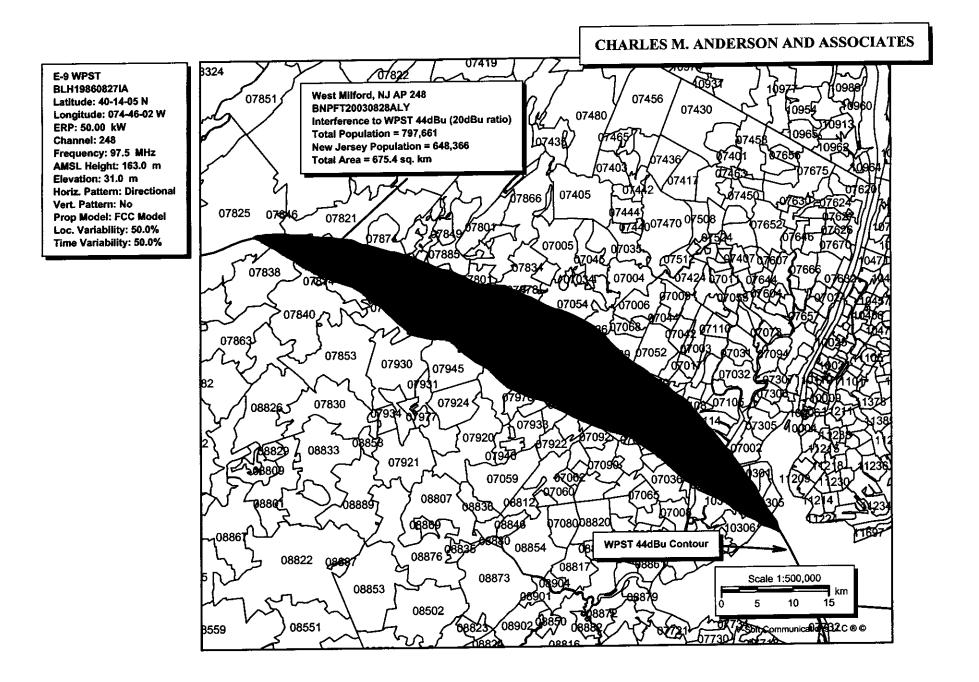


E-7 WDHAFM BLH19990726KC Latitude: 40-51-19 N Longitude: 074-30-42 W ERP: 0.98 kW Channel: 288 Frequency: 105.5 MHz AMSL Helght: 354.0 m Elevation: 315.0 m Horiz. Pattern: Omni Vert. Pattern: No Prop Model: FCC Model Loc. Variability: 50.0%

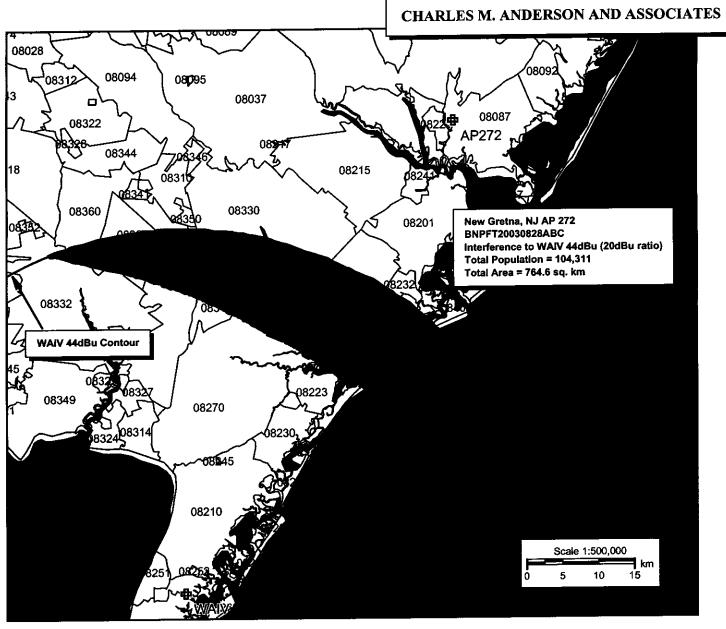
E-8 WCHRFM BLH20020220AAK Latitude: 39-42-56 N Longitude: 074-17-32 W ERP: 13.00 kW Channel: 289 Frequency: 105.7 MHz AMSL Height: 158.0 m Elevation: 18.0 m Horiz. Pattern: Directional Vert. Pattern: No Prop Model: FCC Model Loc. Variability: 50.0%



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WAIV BLH19900521KC Latitude: 39-00-33 N Longitude: 074-52-13 W ERP: 3.20 kW Channel: 272 Frequency: 102.3 MHz AMSL Height: 90.0 m Elevation: 3.0 m Horiz. Pattern: Om Vert. Pattern: No Prop Model: FCC Model Loc. Variability: 50.0%



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EXHIBIT 13

