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MULLANEY ENGINEERING, INC.

9049 SHADY GROVE COURT
GAITHERSBURG, MD 20877

ENGINEERING EXHIBIT EE-1:

ENGINEERING AMENDMENT TO PENDING APPLICATION

**KVNV (DT)
BPCDT-20130528AJP
PMCM TV, LLC**

**DIGITAL TELEVISION CHANNEL 3
MIDDLETOWN TOWNSHIP, NJ
MARCH 2014**

**ENGINEERING EXHIBIT
IN SUPPORT OF APPLICATION BY
PMCM TV, LLC
DIGITAL TELEVISION STATION
CHANNEL 3
MIDDLETOWN TOWNSHIP, NJ**

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TABLE OF CONTENTS:

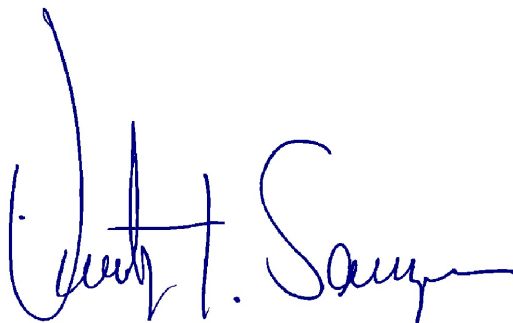
1. F.C.C. Form 301, Section III-D (DTV Engineering)
2. F.C.C. Form 301, Section III (Preparer's Certification)
3. Declaration of Engineer
4. Narrative Statement
5. Figure 1, FCC Tower Registration or FAA Notice (Amended)
6. Figure 2, Topographic Site Map (No Change)
7. Figure 3, Vertical Sketch of Supporting Structure (Amended)
8. Figure 4, Relative Field Pattern, Vertical Plane (Amended)
9. Figure 5, Digital Service Contours and City of License Path Profile (Amended)
10. Figure 6, Interference Study and/or Channel Spacing Study (Amended)

DECLARATION

I, Timothy Z. Sawyer, declare and that I have provided engineering services in the area of telecommunications since 1969. My qualifications are a matter of record with the Federal Communications Commission. I am a senior engineer with the firm of Mullaney Engineering, Inc., consulting radio telecommunications engineers with offices in Gaithersburg, Maryland.

The firm of Mullaney Engineering, Inc., has been retained by PMCM TV, LLC, to prepare the instant engineering (amendment) exhibit in support of an Application for a full-service Digital Television Station operating on Channel 3, serving the community of Middletown Township, New Jersey.

All facts contained herein are true of my own knowledge except those stated to be on information and belief, and as to those facts, I believe them to be true. I declare under the penalty of perjury that the foregoing is true and correct.



Timothy Z. Sawyer

Executed on the 25th day of March 2014

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MARCH 2014**

ENGINEERING STATEMENT

The technical exhibit, of which this narrative is part, was prepared on behalf of PMCM TV, LLC, in support of an application for a Digital Full-Service Television Station servicing the community of Middletown Township, New Jersey.

ENGINEERING AMENDMENT

This engineering amendment increases the antenna supporting structure height and modifies the antenna height above mean sea level (AMSL), above ground level (AGL), and above average terrain (HAAT). Additionally, minor details concerning the antenna type and model and electrical beam-tilt and effective radiated power (ERP) are addressed. No change in site location is proposed.

The proposed station will operate on Digital TV Channel 3 (no change in the channel allotment is proposed) with an effective radiated power (ERP) of 6.96 - kilowatts (8.42 dBk) and an antenna height above average terrain (HAAT) of 340.19 meters (rounds to 340 meters) utilizing a nondirectional antenna.¹

¹

47 CFR 73.622 (f)(6)(ii) "For DTV stations located in Zone I that operate on channels 2-6 with an HAAT that exceeds 305 meters, the allowable maximum ERP expressed in decibels above 1 kW (dBk) is determined using the following formula, with HAAT expressed in meters:" $ERP_{max} = 92.57 - 33.24 \cdot \log_{10}(HAAT)$

The supporting structure has received a determination of “no-hazard to air navigation” from the FAA ² and the existing FCC tower registration number: 1238745 has been modified.

It is not believed that this proposal would be subject to environmental processing in accordance with 47 C.F.R. §1.1306. This proposal does not involve a site location specified under 47 C.F.R. §1.1307 (a)(1)-(7), or involve high intensity lighting under 47 C.F.R. §1.1307(a)(8) or result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in 47 C.F.R. §1.1307(b). The proposal is in compliance with Section 106 of the National Historic Preservation Act.

This application conforms with all applicable rules and regulations of the Federal Communications Commission.

TRANSMITTER SITE DETAILS (FIGURE 1, 2 AND 3)

Figure 1 is a copy of the amended tower registration details, Figure 2 is a large scale topographic map of the site, and Figure 3 is an amended vertical sketch of the antenna supporting structure. The site elevation above mean sea level (AMSL) is 15.24 meters. The overall height of the supporting structure will be 349.7 meters above ground (AGL), 364.9 meters AMSL.

The antenna is to be top-mounted with the center of radiation at 339.2 meters AGL, 354.4 meters AMSL. This location results in an antenna height above average terrain (HAAT) of 340.19 meters (rounds to 340 meters) for the center of radiation from the antenna.

The average terrain elevations from 3 to 16 kilometers from the proposed site were obtained from the N.E.D. 3-second terrain database. The 8-standard radials, evenly

²

FAA Study Number: 2013-AEA-3207-OE, determination issued September 9, 2013

spaced at 45-degree intervals were used for determining the antenna height above average terrain.

ANTENNA DETAILS - BEAM TILT (FIGURE 4)

The applicant proposes to utilize a 6-Bay Alan Dick ADC-LAMBDA circularly polarized antenna. This nondirectional antenna employ 1-degree of electrical beam tilt. A graphical plot and tabulation of the vertical plane relative field values are included in Figure 4.

The antenna is circular polarized with equal horizontal and vertical radiated power (50/50 power split).

FCC F(50,90) DIGITAL SERVICE CONTOURS (FIGURE 5)

The predicted 35 and 28 dBu f(50,90) service contours were calculated in accordance with the provisions of 47 C.F.R. §73.313. In accordance with current FCC practice, no consideration was given to terrain roughness correction factors.

The average terrain elevations from 3 to 16 kilometers from the proposed site were obtained from the N.E.D. 3-second terrain database. 360 radials, evenly spaced at 1-degree intervals were used for determining the average terrain elevations and the distance to the service contours.

The antenna radiation center heights above average terrain in the individual radial directions and the effective radiated power in the appropriate directions were used in conjunction with the appropriate F(50,90) curve contained with the Commission's rules. The digital service contours have been drawn on the map in Figure 5 and as the map in shows, the 35 dBu (City Grade) contour completely encompasses the city of license, Middletown Township, New Jersey.

CITY OF LICENSE RADIAL 187 DEGREES TRUE

A terrain profile to the city of license has also been prepared and is contained with Figure 5. As the terrain profile shows - direct line-of-sight service is available to the city of license - Middletown Township, New Jersey, from this proposal.

POPULATION AND AREA

The population to be served within the digital service contour was determined by a computer program that adds the population of census districts (block level) whose centroids lie within the contour. 21,364,980 persons reside within the 28 dBu service contour as shown on the map in Figure 5. The 2010 U.S. Census data was employed.

CHANNEL SPACING - INTERFERENCE STUDY

The proposed facility is fully-spaced from all other full-service facilities as shown in Figure 6. In addition, Figure 6 contains a summary of a detailed interference study using the procedures outlined in OET Bulletin Number 69³ and demonstrates that this proposal complies with the 0.5 percent limit of new interference caused to Class-A television stations (if applicable.)

NOTIFICATION TO RADIO ASTRONOMY INSTALLATIONS

Notification to radio astronomy installations or FCC monitoring stations of this proposal in accordance with 47 C.F.R §73.1030 is not required. The proposed facility is not within any coordination or notification zones.

ENVIRONMENTAL CONSIDERATIONS

The facilities were evaluated in terms of potential radiofrequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With

3

The implementation of OET Bulletin number 69 for this study followed the guidelines of the bulletin as specified therein. Comparisons of various results of this computer program to the Commission's implementation of the bulletin shows excellent correlation.

FCC-Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields."

Power density contribution from the proposed operation was computed using the appropriate equations of the OET Bulletin 65. The maximum radiated power is 6.96 kilowatts (13.92 kilowatts H & V combined). Using a "worst-case" relative field pattern of 0.25 for all values 30 degrees and greater below the horizon, the power density was computed at a level of 2 meters above the building's rooftop to be 0.0009 mW/cm² or 0.01% of the recommended limit of 1.0 mW/cm² for a controlled area, and 0.45% of the recommended limit of 0.2 mW/cm² for an uncontrolled area. As this level is well below 1% for both controlled and uncontrolled areas, no further study is required.

Therefore, at the building rooftop level (and 2 meters above), at the base of the supporting structure the potential for radiofrequency radiation exposure will be well within the FCC guidelines.

The antenna is 113.6 meters above the building rooftop (a controlled access area). The "worst-case" minimum distance from the antenna using a relative field value of 1.0 was computed to be 13.6 meters for a controlled area and 30.5 meters for an uncontrolled area. As the safe-buffer zone distances are 100 meters for a controlled area and 83.1 meters for an uncontrolled area above the building rooftop no exposure in excess of the guidelines to workers or the public is predicted to occur from this proposal on the building rooftop. There are no public access points within the area of concern.

The permittee/licensee/applicant will coordinate with other users of the site and will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of the FCC guidelines.

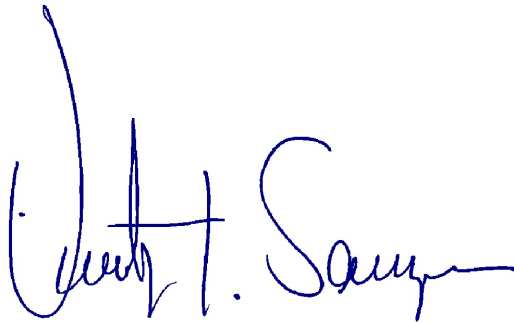
KVNV (DT) Construction Permit Application - Amendment
Channel 3, Middletown Township, New Jersey
PMCM TV, LLC.

Suitable warning signs are posted, If work is required on the supporting pole, the power to the antenna will be terminated or reduced as required. The applicant will fully comply with the provisions contained within the OET bulletin.

Inquiries concerning the technical portion of this application should be directed to the office of the undersigned.

March 25, 2014

Timothy Z. Sawyer
Mullaney Engineering, Inc.
9049 Shady Grove Ct.
Gaithersburg, MD 20877
(301) 921-0115 ext 3.

A handwritten signature in blue ink, appearing to read "Timothy Z. Sawyer". The signature is fluid and cursive, with a large initial "T" and "S".

Email: tzsawyer@mullengr.com

FCC TOWER REGISTRATION #1238745



UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
ANTENNA STRUCTURE REGISTRATION



OWNER: 4 TS II LLC

FCC Registration Number (FRN): 0017225152

ATTN: JOHN M LYONS 4 TS II LLC One Bryant Park 49th Floor NEW YORK, NY 10036		Antenna Structure Registration Number 1238745	
		Issue Date 03/24/2014	
Location of Antenna Structure 4 Times Square New York, NY 10036 County: NEW YORK		Ground Elevation (AMSL) 15.2 meters	
		Overall Height Above Ground (AGL) 349.7 meters	
Latitude 40° 45' 22.4" N		Longitude 073° 59' 10.5" W	NAD83
		Overall Height Above Mean Sea Level (AMSL) 364.9 meters	
Center of Array Coordinates N/A		Type of Structure BTWR Building with Tower	
Painting and Lighting Requirements: FAA Chapters 4, 5, 12 Paint and Light in Accordance with FAA Circular Number 70/7460-1K Conditions:			



FAA NOTIFICATION AND/OR FCC TOWER REGISTRATION EXISTING TOWER/STRUCTURE

PMCM TV, LLC
DIGITAL TELEVISION CHANNEL 3
MIDDLETOWN TOWNSHIP, NEW JERSEY

**FIGURE
1**
(REVISED)

GAITHERSBURG, MARYLAND U.S.A

SIZE
A

FSCM NO
N/A

DWG NO
20130313MIDDLETOWNF1

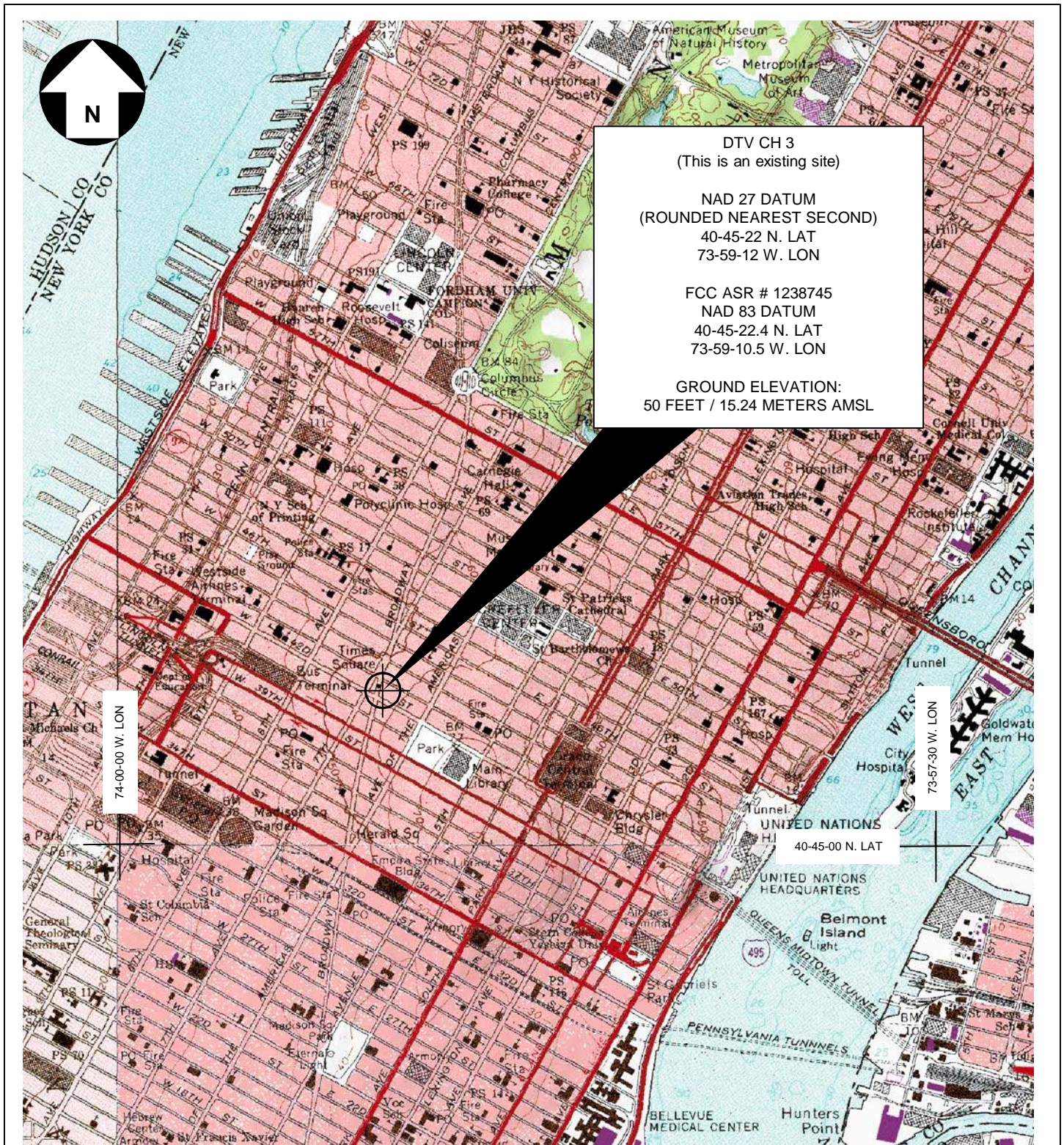
REV
5/24/13


(C) 2014, ALL RIGHTS RESERVED

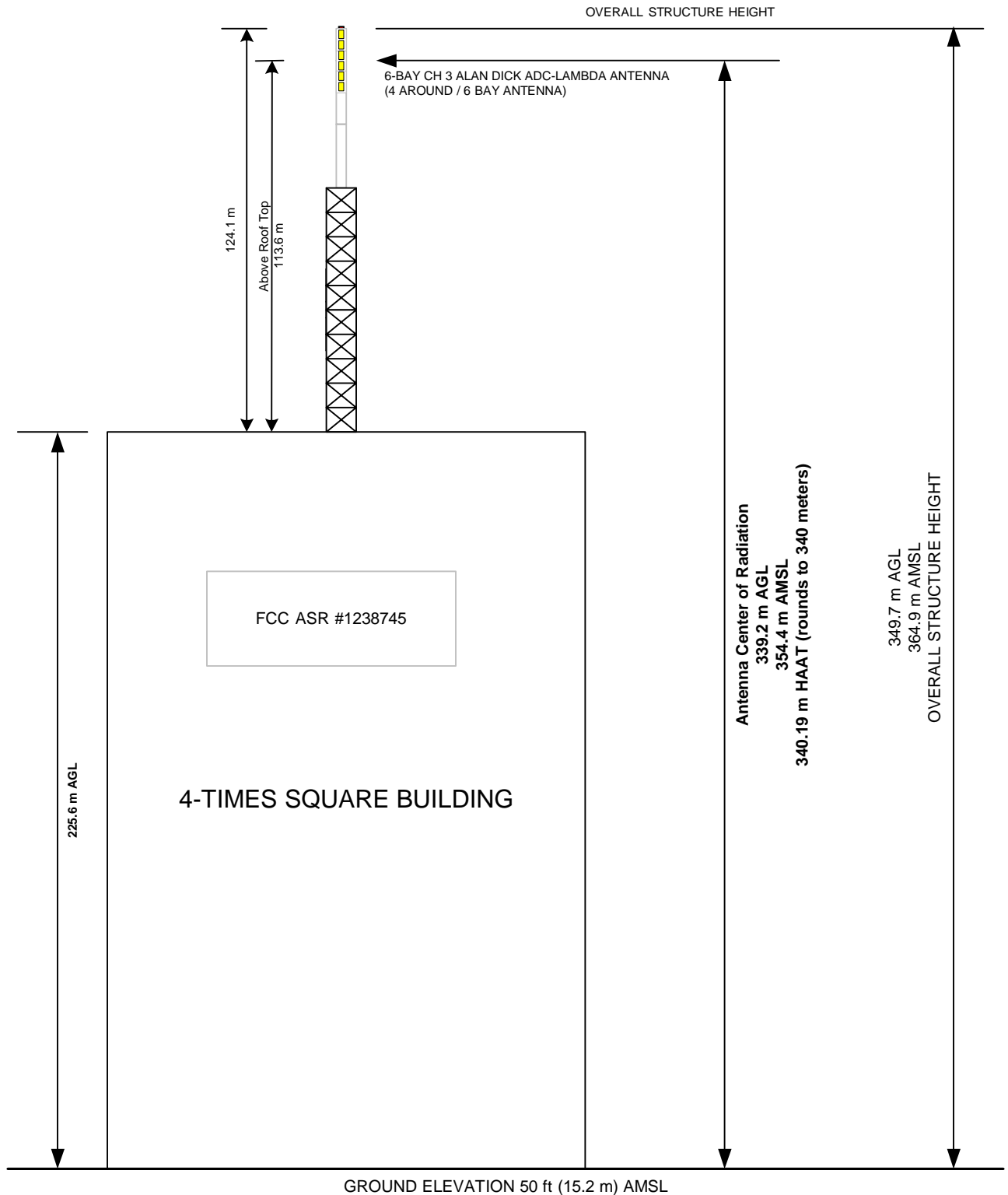
SCALE
N/A

MARCH 2014

SHEET
1 OF 1



 Mullaney Engineering, Inc.	PROPOSED TRANSMITTER SITE TOPOGRAPHIC MAP				FIGURE 2
	PMCM TV, LLC DIGITAL TELEVISION CHANNEL 3 MIDDLETOWN TOWNSHIP, NEW JERSEY				
GAITHERSBURG, MARYLAND U.S.A	SIZE A	FSCM NO N/A	DWG NO 20130313MIDDLETOWNF2	REV 5/24/13 6/19/13	
(c) 2013, ALL RIGHTS RESERVED	SCALE 1:24,000	MAY 2013		SHEET	



VERTICAL SKETCH OF SUPPORTING STRUCTURE

PMCM TV, LLC
CHANNEL 3
MIDDLETOWN TOWNSHIP, NEW JERSEY

**FIGURE
3**
(REVISED)

GAITHERSBURG, MARYLAND U.S.A

SIZE
A

FSCM NO
N/A

DWG NO
20130313MIDDLETOWNF3

REV
3/21/14

(c) 2014, ALL RIGHTS RESERVED

SCALE NO SCALE

MARCH 2014

SHEET

1 OF 1

**DEPRESSION ANGLE TO RADIO HORIZON IN ACCORDANCE WITH
47 CFR §73.625 DTV Coverage Of Principal Community And Antenna System.**

AZIMUTH (Degrees T.)	HAAT (Meters)	DEPRESSION ANGLE (Degrees)	AZIMUTH (Degrees T.)	HAAT (Meters)	DEPRESSION ANGLE (Degrees)
000	319.2	0.495	180	338.0	0.509
010	305.1	0.484	190	342.3	0.512
020	326.9	0.501	200	352.4	0.520
030	329.8	0.503	210	352.6	0.520
040	336.4	0.508	220	354.0	0.5201
050	347.1	0.516	230	348.9	0.517
060	351.3	0.519	240	348.4	0.517
070	351.2	0.519	250	345.8	0.515
080	344.3	0.514	260	346.1	0.515
090	340.8	0.511	270	343.4	0.513
100	338.8	0.510	280	337.2	0.509
110	330.8	0.504	290	337.8	0.509
120	333.4	0.506	300	341.6	0.512
130	339.4	0.510	310	342.8	0.513
140	344.9	0.514	320	339.1	0.510
150	344.5	0.514	330	339.6	0.510
160	343.2	0.513	340	340.9	0.511
170	339.9	0.511	350	328.2	0.502
187 (CITY OF LICENSE)	339.7	0.511			

The proposed antenna uses 1-degree of electrical beam tilt.
The Depression Angle to the radio horizon varies from 0.484 to 0.521 degrees.

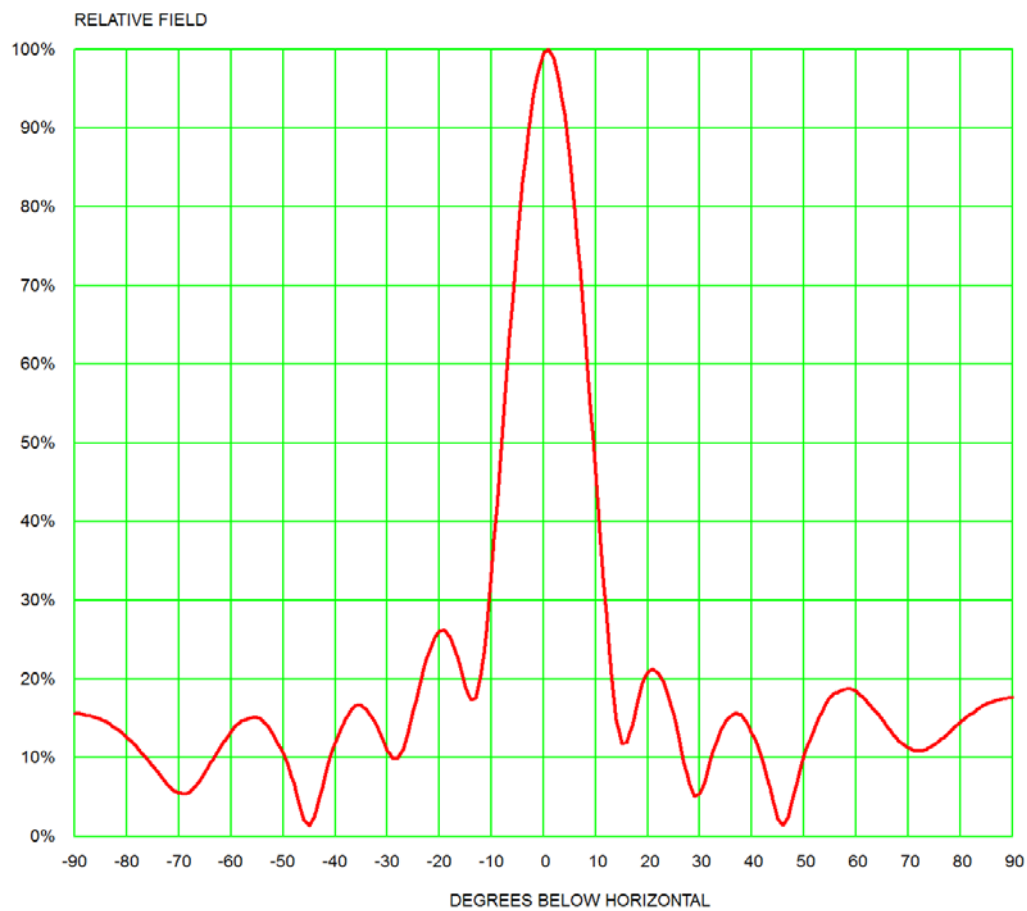
The relative field value from the antenna in the vertical plane for all azimuths shown above is greater than 0.90 to the radio horizon (see vertical field elevation plot and tabulation included herein), no adjustment in the proposed ERP used in computing distances to the predicted service contours is required or appropriate.

VERTICAL RADIATION PATTERN

Station **PMCM**

Frequency **63 MHz**

Type **Lambda Antenna 3333mm Spacing**



Beam Tilt **1 deg**

Engineer **Chris R** Date **11 Mar 2014**

Tabulated Data.

Elevation Angle	dB	Elevation Angle	dB	Elevation Angle	dB	Elevation Angle	dB
-5	-2.4	20.5	-13.5	46	-37.0	71.5	-19.3
-4.5	-2.0	21	-13.4	46.5	-34.2	72	-19.3
-4	-1.6	21.5	-13.5	47	-32.0	72.5	-19.3
-3.5	-1.3	22	-13.6	47.5	-28.5	73	-19.2
-3	-1.0	22.5	-13.9	48	-26.0	73.5	-19.1
-2.5	-0.8	23	-14.1	48.5	-23.8	74	-19.0
-2	-0.5	23.5	-14.6	49	-22.1	74.5	-18.8
-1.5	-0.4	24	-15.0	49.5	-20.9	75	-18.6
-1	-0.2	24.5	-15.6	50	-19.8	75.5	-18.5
-0.5	-0.1	25	-16.2	50.5	-19.1	76	-18.3
0	0.0	25.5	-17.1	51	-18.4	76.5	-18.1
0.5	0.0	26	-18.1	51.5	-17.8	77	-18.0
1	0.0	26.5	-19.3	52	-17.3	77.5	-17.8
1.5	-0.1	27	-20.6	52.5	-16.8	78	-17.6
2	-0.1	27.5	-22.0	53	-16.4	78.5	-17.3
2.5	-0.2	28	-23.6	53.5	-16.0	79	-17.1
3	-0.4	28.5	-24.7	54	-15.6	79.5	-17.0
3.5	-0.6	29	-25.8	54.5	-15.3	80	-16.8
4	-0.7	29.5	-25.7	55	-15.1	80.5	-16.6
4.5	-1.0	30	-25.5	55.5	-14.9	81	-16.5
5	-1.3	30.5	-24.2	56	-14.8	81.5	-16.3
5.5	-1.6	31	-23.0	56.5	-14.7	82	-16.2
6	-2.0	31.5	-21.7	57	-14.7	82.5	-16.1
6.5	-2.4	32	-20.5	57.5	-14.6	83	-15.9
7	-2.8	32.5	-19.5	58	-14.6	83.5	-15.8
7.5	-3.4	33	-18.6	58.5	-14.6	84	-15.7
8	-3.9	33.5	-18.0	59	-14.5	84.5	-15.6
8.5	-4.5	34	-17.5	59.5	-14.6	85	-15.5
9	-5.2	34.5	-17.1	60	-14.7	85.5	-15.4
9.5	-5.9	35	-16.7	60.5	-14.8	86	-15.4
10	-6.7	35.5	-16.5	61	-14.9	86.5	-15.3
10.5	-7.6	36	-16.3	61.5	-15.1	87	-15.3
11	-8.6	36.5	-16.2	62	-15.3	87.5	-15.2
11.5	-9.7	37	-16.1	62.5	-15.5	88	-15.2
12	-10.9	37.5	-16.2	63	-15.7	88.5	-15.1
12.5	-12.2	38	-16.3	63.5	-15.9	89	-15.1
13	-13.7	38.5	-16.5	64	-16.1	89.5	-15.1
13.5	-15.1	39	-16.8	64.5	-16.3	90	-15.1
14	-16.6	39.5	-17.2	65	-16.5		
14.5	-17.5	40	-17.6	65.5	-16.8		
15	-18.6	40.5	-18.1	66	-17.1		
15.5	-18.5	41	-18.7	66.5	-17.4		
16	-18.5	41.5	-19.4	67	-17.7		
16.5	-17.7	42	-20.1	67.5	-17.9		
17	-17.0	42.5	-21.2	68	-18.2		
17.5	-16.2	43	-22.6	68.5	-18.4		
18	-15.4	43.5	-24.4	69	-18.6		
18.5	-14.8	44	-26.7	69.5	-18.8		
19	-14.2	44.5	-29.2	70	-18.9		
19.5	-13.9	45	-32.9	70.5	-19.1		
20	-13.6	45.5	-34.7	71	-19.2		

KVNV-4TIMES SQ

APPLICATION AMENDMENT

Latitude: 40-45-22 N

Longitude: 073-59-12 W

ERP: 6.96 kW

Channel: 3 Frequency: 63.0 MHz

Antenna HAAT Height: 340.19 m

Antenna AMSL Height: 354.4 m

Antenna AGL Height: 339.2 m

Ground Elevation: 15.2 m

Horiz. Pattern: Omni

FCC PREDICTED SERVICE CONTOURS

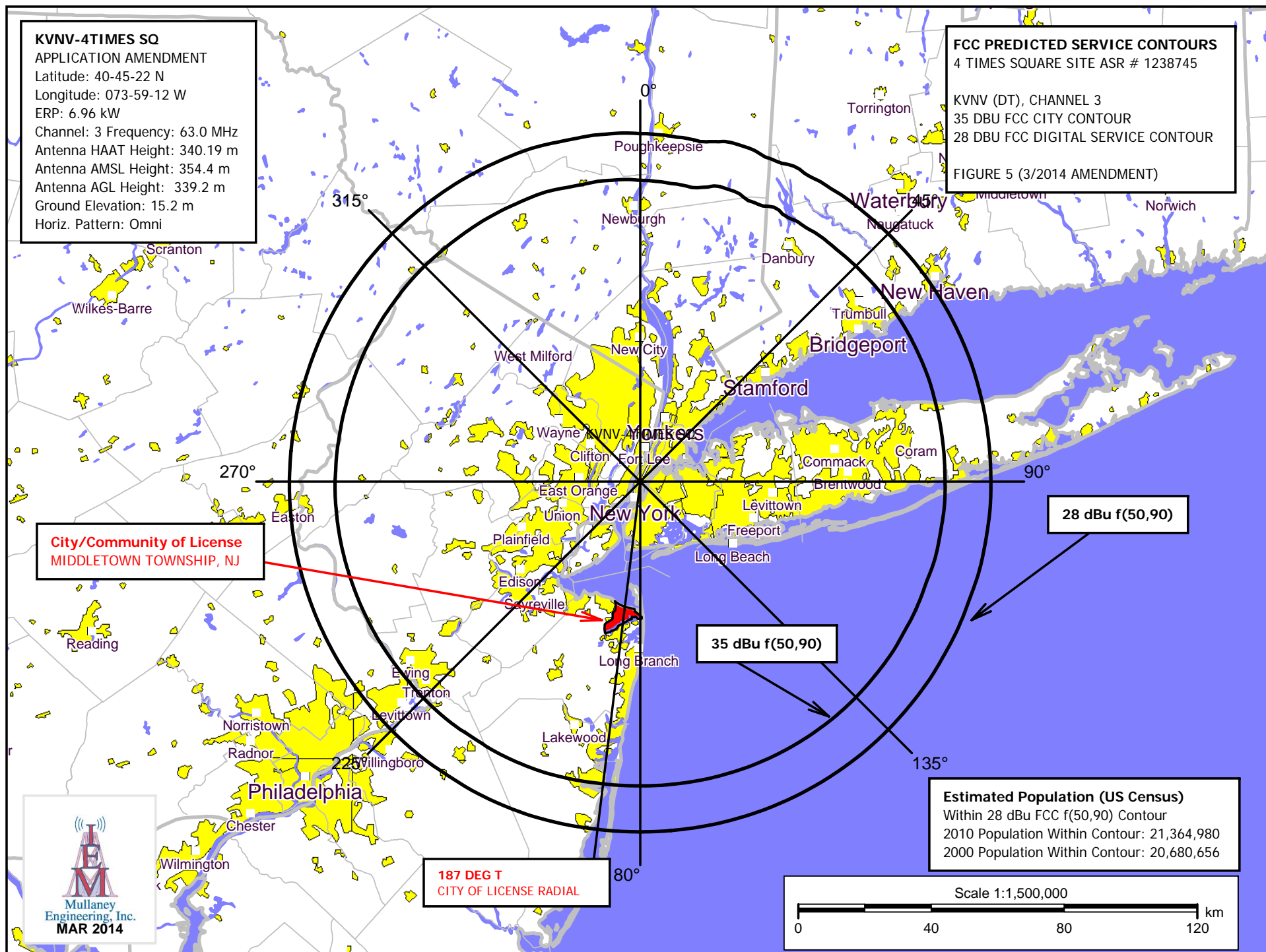
4 TIMES SQUARE SITE ASR # 1238745

KVNV (DT), CHANNEL 3

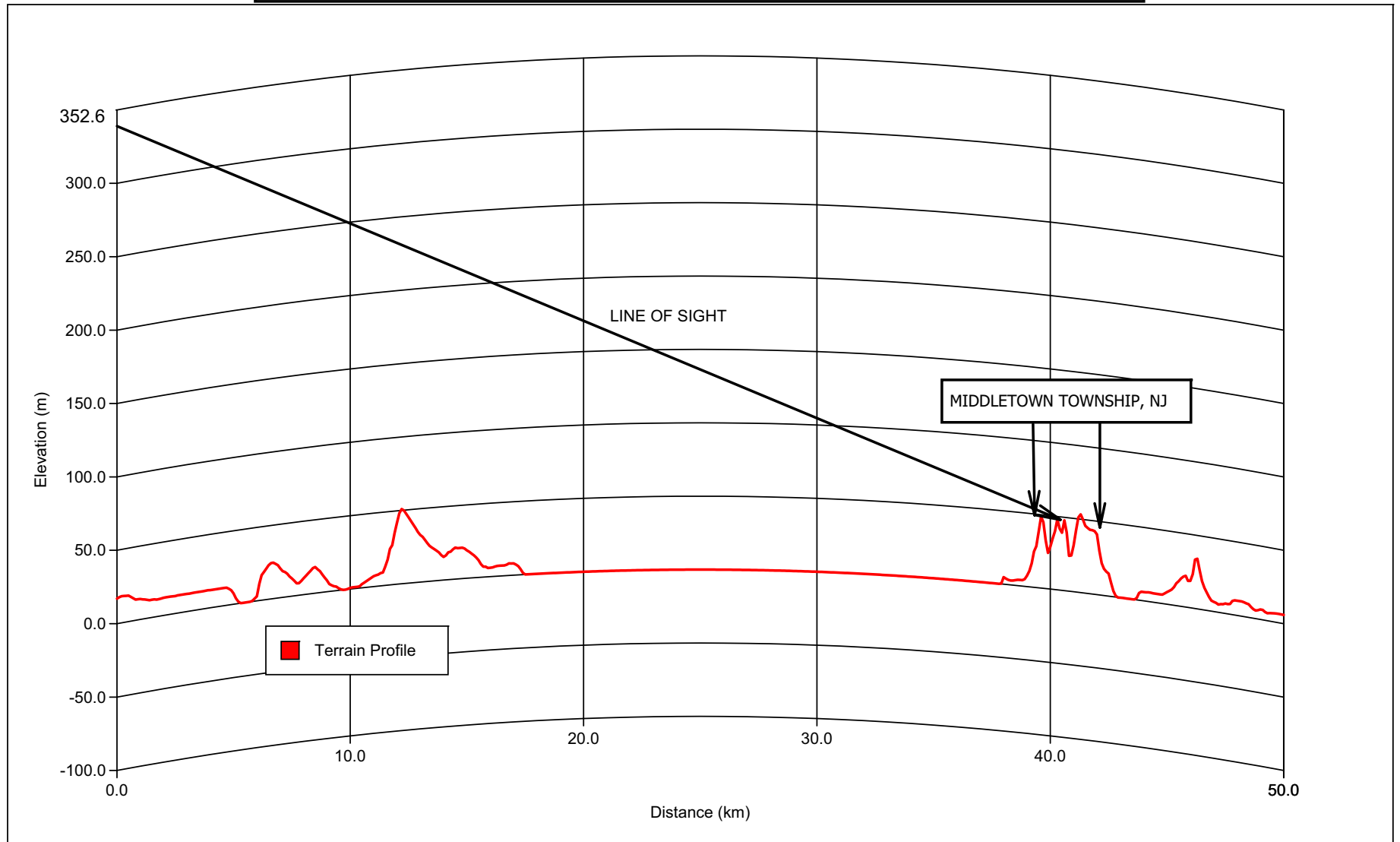
35 DBU FCC CITY CONTOUR

28 DBU FCC DIGITAL SERVICE CONTOUR

FIGURE 5 (3/2014 AMENDMENT)



PATH PROFILE TO CITY OF LICENSE - 187 DEGREES TRUE RADIAL



Start Latitude: 40-45-22 N
Start Longitude: 073-59-12 W

Distance: 50.0 km
Bearing: 187.0 deg

FIGURE 6 (REVISED)

CHANNEL 3 ALLOCATION STUDY (SPACING) AND OET BULLETIN 69 SUMMARY RESULTS

Outgoing Interference Population Report

KVNV-4TIMES SQ (3) Middletown Township, NJ
 Broadcast Type: Digital Service: T
 Lat: 40-45-22 N Lng: 073-59-12 W ERP: 6.96 kW AMSL: 354.4 m
 TV Outgoing Interference Study
 Signal Resolution: 1.0 km
 Consider NTSC Taboo: Yes
 KWX error points are considered to
 be interference free coverage.
 Default # of radials computed for contours: 360
 Contours calculated using 8 radial HAAT.
 LR Profile Spacing Increment: 1.0 km
 Masked interference points are being
 counted as interference.
 Using LPTV/translator D/U rules.
 Pop Centroid DB: 2000 US Census (SF1)
 Primary Terrain: NED 3 Second US Terrain
 Secondary Terrain: V-Soft 30 Second US Database

Population Database: 2000 US Census (SF1)

 Stations Considered:

Call Letters	City	State	Dist	Azi
KJWY-DR.P.A (2)	Wilmington	DE	132.7	233.7 - FULLY SPACED
KVNV-DR.P.A (3)	Middletown Township	NJ	0.0	0.0 - CH 3 ALLOCATION
WACP-D (4)	Atlantic City	NJ	134.7	212.9 - FULLY SPACED
WFPA-CA-D.A (3)	Philadelphia	PA	132.5	233.6 - CLASS-A STATION APP

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%
WFPA-CA-D.A (3)	120.2	28,246	5,018,956	0	71,078	1.42 (PROPOSED)

* WFPA-CA IS A CLASS-A LPTV PENDING DISPLACEMENT APPLICATION. NO INCREASE IN INTERFERENCE ABOVE THE ALLOWABLE LIMIT(S) TO THIS STATION WILL OCCUR FROM THIS PROPOSAL.