ENGINEERING EXHIBIT

Application for Modification of Construction Permit
Replacement Digital Television Translator

prepared for

CBS Broadcasting Inc.
WCBS-TV New York, NY
Facility ID 9610
Replacement Digital Translator
Plainview, NY Ch. 22 15 kW

CBS Broadcasting Inc. ("CBS") is the licensee of television station WCBS-TV, Channel 33, Facility ID 9610, New York, NY. A Construction Permit ("CP" BDRTCDT-20090630AEB) authorizes a new replacement digital television translator station on Channel 22 to aid in serving Plainview, NY and other communities on New York's Long Island and southern Connecticut. *CBS* herein proposes to modify the CP to specify a different transmitter site and other technical parameters.

The proposed digital translator facility will employ a new antenna system to be side-mounted on an existing tower structure associated with Antenna Structure Registration number 1006717. No change to the overall structure height is proposed.

A "full service" out of channel emission mask is proposed. The maximum effective radiated power is 15 kW with a circularly polarized directional antenna.

Figure 1 depicts the 51 dBµ coverage contour of the proposed translator and that of the CP, along with the WCBS-TV digital Channel 33 noise limited contour (BLCDT-20090612AFN) and the pre-transition analog Channel 2 Grade B contour (BLCT-20011123AAQ). The proposed modification of the translator represents a minor change of the CP since there is overlap between the authorized and proposed translator facility 51 dBµ contours.

Figure 1 shows that the proposed digital translator facility's contour will cover some of the areas that are within the WCBS-TV former analog Channel 2 Grade B contour and beyond the WCBS-TV licensed digital Channel 33 service contour. This area represents locations that potentially lost service at the transition to digital. A portion of the proposed digital translator's service contour extends beyond the WCBS-TV analog Grade B contour. A highly directional antenna pattern has been selected for the proposed translator and oriented to minimize the contour extension. Without some minor extension, it would be impossible to place the translator's service contour along the edge of the analog Grade B contour while filling nearby loss areas.

Nearly all of the contour extension area lies over water and may be disregarded. Only a minor portion involves land area. The land area that is within the contour extension consists of 12.8 square kilometers and contains a population of 3,137 persons (2000 Census). This is 0.02 percent of the population and 0.04 percent of the area within the WCBS-TV former analog Channel 2 Grade B contour (20,265,980 persons and 32,001.7 sq. km), and 0.20 percent of the population and 0.32 percent of the area within the proposed translator's 51 dBμ service contour (1,542,896 persons and 4,020.1 sq. km). These percentages can be considered as representing a *de minimis* contour extension as discussed in MB Docket 08-253 and §74.787(a)(5).

Detailed interference studies per OET Bulletin 69[1] show that the proposal complies with the Commission's interference protection requirements toward all digital television, television translator, LPTV, and Class A stations. The results, summarized in Table 1, show that any new interference does not exceed the Commission's interference limits (0.5 percent to full power and Class A stations, and 2.0 percent to secondary stations) to any facility. Accordingly, the proposal complies with §74.793 regarding interference protection to digital television, low power television, television translator, and Class A television facilities.

[1]FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). The implementation of OET-69 for this study followed the guidelines of OET-69 as specified therein. A cell size of 1 km was employed. Comparisons of various results of this computer program (run on a Sun Sparc processor) to the Commission's implementation of OET-69 show excellent correlation.

The nearest FCC monitoring station is 385 km distant at Laurel, MD. This exceeds the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with "quiet" zones specified in §73.1030(a) and (b). There are no authorized AM stations within 3.2 kilometers of the site. The site location is beyond the border areas requiring international coordination.

Human Exposure to Radiofrequency Electromagnetic Field

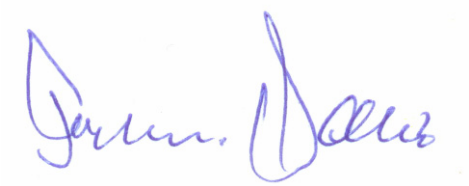
The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number 65. Based on OET-65 equation (10), and considering 10 percent antenna relative field in downward elevations, the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is 0.4 $\mu W/cm^2$, which is 0.1 percent of the general population/uncontrolled maximum permitted exposure limit. This is well below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

This exhibit is limited to the evaluation of exposure to RF electromagnetic field. The proposed transmitting antenna will be side-mounted on an existing antenna support structure which was constructed prior to March 16, 2001. No change in structure height is proposed.

Certification

The undersigned hereby certifies that the foregoing statement and associated attachments were prepared by him or under his direction, and that they are true and correct to the best of his knowledge and belief.



Joseph M. Davis, P.E.
March 2, 2012

Chesapeake RF Consultants, LLC
207 Old Dominion Road
Yorktown, VA 23692
703-650-9600

List of Attachments

Figure 1	Coverage Contour Comparison
Table 1	Interference Analysis Results Summary
Form 346	Saved Version of Engineering Sections from FCC Form at Time of Upload

This material was entered March 2, 2012 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's account number and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.

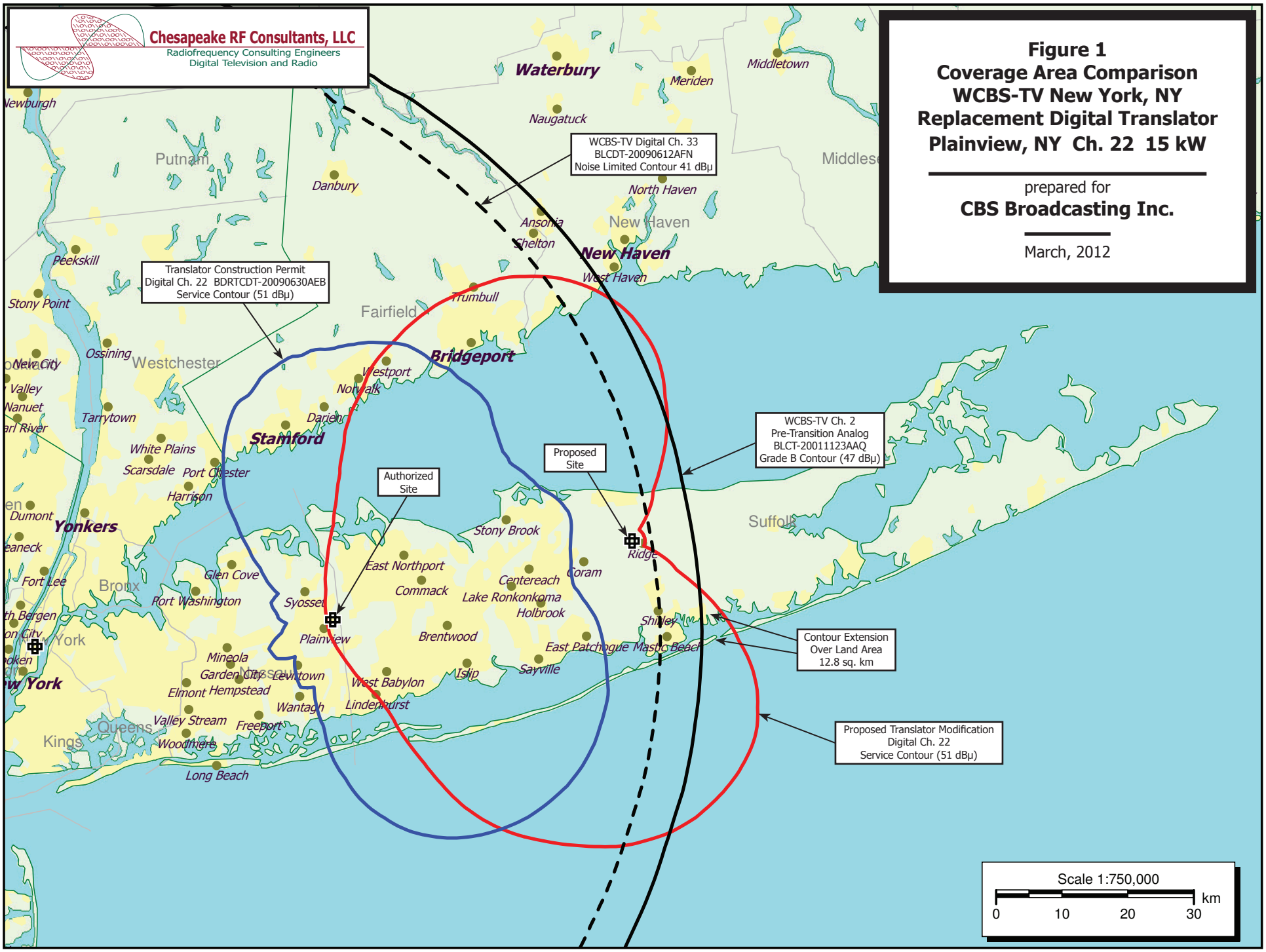

Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio
Figure 1
Coverage Area Comparison
WCBS-TV New York, NY
Replacement Digital Translator
Plainview, NY Ch. 22 15 kW
prepared for
CBS Broadcasting Inc.
March, 2012
WCBS-TV Digital Ch. 33
BLCDT-20090612AFN
Noise Limited Contour 41 dBµ
Translator Construction Permit
Digital Ch. 22 BDRTCDT-20090630AEB
Service Contour (51 dBµ)
WCBS-TV Ch. 2
Pre-Transition Analog
BLCT-20011123AAQ
Grade B Contour (47 dBµ)
Proposed Site
Authorized Site
Contour Extension
Over Land Area
12.8 sq. km
Proposed Translator Modification
Digital Ch. 22
Service Contour (51 dBµ)
Scale 1:750,000
0 10 20 30 km
Waterbury
Middletown
Meriden
Naugatuck
Danbury
North Haven
New Haven
Ansonia
Shelton
West Haven
Trumbull
Fairfield
Bridgeport
Westport
Norwalk
Darien
Stamford
Tarrytown
White Plains
Scarsdale
Port Chester
Harrison
Yonkers
Ossining
Peekskill
Stony Point
Westchester
Putnam
Dumont
Fort Lee
Glen Cove
Port Washington
Bronx
York
Mineola
Garden City
Hempstead
Elmont
Valley Stream
Freeport
Woodmere
Long Beach
Kings
Queens
Levittown
Wantagh
West Babylon
Lindenhurst
Islip
Sayville
East Patchogue
Mastic Beach
Shirley
Brentwood
Plainview
Syosset
East Northport
Commack
Stony Brook
Centereach
Lake Ronkonkoma
Holbrook
Coram
Ridge
Suffolk

Table 1

Interference Analysis Results Summary

prepared for

CBS Broadcasting Inc.

WCBS-TV New York, NY

Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

```
WCBS-RD  USERRECORD-01                PLAINVIEW              NY US
Channel 22 ERP 15.     kW   HAAT  174. m  RCAMSL 00197 m FULL SERVICE MASK
Latitude 040-53-50  Longitude 0072-54-56
Dir Antenna Make usr  Model CH22_TUL-C2Ar1  Beam tilt N  Ref Azimuth 253.
```

Ch.	Call	City/State	Dist (km)	Status	Application Ref. No.	---Population (2000 Census)---- Baseline	New Interference
21	WSHM-LD	SPRINGFIELD MA	142.2	LIC	BLDTL-20101124ABC	---	none
21	W21CQ	ALBANY NY	203.3	APP	BDFCDTL-20110729AHR	---	none
21	WLIW	GARDEN CITY NY	46.7	APP	BMPEDT-20080620AID	15,008,779	953 (0.01%)
21	WLIW	GARDEN CITY NY	46.7	LIC	BLEDT-20090612AEP	13,675,926	3,384 (0.02%)
21	WSSN-LP	HUDSON ET AL NY	159.6	LIC	BLTTL-20050915AAI	---	none
21	WSBE-TV	PROVIDENCE RI	173.2	LIC	BLEDT-20050307ACR	---	none
22	W22BN	DANBURY CT	69.8	LIC	BLTTL-19940912JB	---	none
22	WLWC	NEW BEDFORD MA	192.6	CP	BPCDT-20111110AHX	---	none
22	WLWC	NEW BEDFORD MA	192.6	LIC	BLCDT-20050802ACS	---	none
22	WGBY-TV	SPRINGFIELD MA	151.0	LIC	BLEDT-20090612ACH	2,074,917	5,461 (0.26%)
22	WBLP-LP	OCEAN CITY MD	328.4	CP	BPTTL-20080505AAH	---	none
22	WBLP-LP	OCEAN CITY MD	328.4	LIC	BLTTL-19941114JA	---	none
22	NEW	CONCORD NH	276.5	APP	BNPDTL-20090825AHR	---	none
22	WNJS	CAMDEN NJ	208.8	CP	BPEDT-20080620ALH	7,512,158	3,105 (0.04%)
22	WNJS	CAMDEN NJ	208.8	LIC	BLEDT-20070611AAY	6,838,917	224 (0.00%)
22	NEW	CORNING NY	372.9	APP	BMJADTL-20100524AHU	---	none
22	WXNY-LD	NEW YORK NY	88.1	CP	BDISDTL-20100421AAT	7,624,916	138,779 (1.82%)
22	WTVU-LP	SYRACUSE NY	360.3	CP	BDFCDTA-20081216BLJ	---	none
22	WTVU-LP	SYRACUSE NY	360.3	APP	BMPDTA-20111031AAK	---	none
22	WTVU-LP	SYRACUSE NY	360.3	APP	BSTA-20120103ADP	---	none
22	WTVU-LP	SYRACUSE NY	360.3	LIC	BLTTL-19990816JB	---	none
22	W22DO-D	UTICA NY	311.8	LIC	BLDTT-20111024AES	---	none
22	WNEP-TV	WAYMART PA	225.1	LIC	BLCDT-20091216AAH	---	none
22	WCAX-TV	BURLINGTON VT	403.4	LIC	BLCDT-20090220ABA	---	none
22	WCAX-TV	BURLINGTON VT	403.4	CP MOD	BMPCDT-20080616ADK	---	none
23	WDVB-LD	EDISON NJ	91.6	LIC	BLDTL-20110113ABM	---	none
23	W23AZ	HACKETTSTOWN NJ	161.3	LIC	BLTTL-20021007AAH	---	none
23	W43CN-D	PORT JERVIS NY	141.5	APP	BDISDTL-20110823ACW	---	none
23	WFTY-DT	SMITHTOWN NY	3.3	LIC	BLCDT-20030113ABS	4,053,141	71 (0.00%)
23	WFTY-DT	SMITHTOWN NY	3.3	CP	BPCDT-20111028AAU	---	none
26	W26DC	HEMPSTEAD NY	46.7	LIC	BLTTL-20080522ABK	---	none
26	W26CE	NEW YORK NY	13.1	LIC	BLTTL-20080306ABU	---	none

Section III - Engineering (Digital)

TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

TECH BOX

1. Channel:
22

2. Translator Input Channel No. : 33

3. Primary station proposed to be rebroadcast:

Facility Identifier	Call Sign	City	State	Channel
9610	WCBS-TV	NEW YORK	NY	33

4. Antenna Location Coordinates: (NAD 27)
Latitude:
Degrees 40 Minutes 53 Seconds 50 (•) North ( ) South

Longitude:
Degrees 72 Minutes 54 Seconds 56 (•) West ( ) East

5. Antenna Structure Registration Number: 1006717
☐ Not Applicable [Exhibit 11] ☐ Notification filed with FAA

6. Antenna Location Site Elevation Above Mean Sea Level: 27.4 meters

7. Overall Tower Height Above Ground Level: 195.6 meters

8. Height of Radiation Center Above Ground Level: 169.1 meters

9. Maximum Effective Radiated Power (ERP): 15 kW

10. Transmitter Output Power: 1.53 kW

11. a.Transmitting Antenna:
Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under CDBS Public Access (http://licensing.fcc.gov/prod/cdbs/pubacc/prod/cdbs_pa.htm). Make sure that the Standard Pattern is marked Yes and that the relative field values shown match your values. Enter the Manufacturer (Make) and Model exactly as displayed in the Antenna Search.
( ) Nondirectional ( ) Directional Off-the Shelf (•) Directional composite

Manufacturer DIE Model TUL-C2-06/12M-T CIRCULARLY POLARIZED

b. Electrical Beam Tilt: 0.75 degrees ☐ Not Applicable

c. Mechanical Beam Tilt: degrees toward azimuth degrees True ☑ Not Applicable

d. Directional Antenna Relative Field Values: ☐ N/A (Nondirectional or Off-the-Shelf)
Rotation (Degrees): 253 ☐ No Rotation

Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
0	1.0	10	0.931	20	0.827	30	0.849	40	0.936	50	0.946
60	0.893	70	0.793	80	0.657	90	0.5	100	0.339	110	0.192
120	0.077	130	0.010	140	0.001	150	0.001	160	0.001	170	0.001
180	0.001	190	0.001	200	0.001	210	0.001	220	0.001	230	0.01
240	0.077	250	0.192	260	0.339	270	0.5	280	0.657	290	0.793
300	0.893	310	0.946	320	0.936	330	0.849	340	0.827	350	0.931
Additional Azimuths		45	0.953	315	0.953						

e. Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt? ( ) Yes (•) No

[Exhibit 12]

If Yes, attach an Exhibit (see instructions for details).

Relative Field Polar Plot

NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.

12. **Out-of-channel Emission Mask:** ( ) Simple ( ) Stringent (•) Full Service

CERTIFICATION

13. **Interference** : The proposed facility complies with all of the following applicable rule sections. 47.C.F.R Sections 74.709, 74.793(e), 74.793(f), 74.793(g), 74.793(h), 74.794(b) and 73.1030. (•) Yes ( ) No

See Explanation in [Exhibit 13]

14. **Environmental Protection Act.** The proposed facility is excluded from environmental processing under 47. C.F.R. Section 1.1306 (i.e., The facility will not have a significant environmental impact and complies with the maximum permissible (•) Yes ( ) No

	radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine RF compliance, an **Exhibit is required.** By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.	See Explanation in [Exhibit 14]
15.	**Channels 52-59.** If the proposed channel is within channels 52-59, the applicant certifies compliance with the following requirements, as applicable: ☐ The applicant is applying for a digital companion channel for which no suitable channel from channel 2-51 is available. ☐ Pursuant to Section 74.786(d), the applicant has notified, within 30 days of filing this application, all commercial wireless licenses of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees.	
16.	**Channels 60-69.** If the proposed channel is within channels 60-69, the applicant certifies compliance with the following requirements, as applicable: ☐ Pursuant to Section 74.786(e), the applicant has notified, within 30 days of filing this application , all commercial wireless licenses of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees. ☐ Pursuant to Section 74.786(e), the applicant proposing operation on channel 63, 64, 68 and 69 ("public safety channels") has secured a coordinated spectrum use agreements(s) with 700 MHz public safety regional planning committee(s) and state administrator(s) of the region(s) and state(s) within which the antenna site of the digital LPTV or TV translator station is proposed to locate, and those adjoining regions and states with boundaries within 75 miles of the proposed station location. ☐ Pursuant to Section 74.786(e), the applicant for a channel adjacent to channel 63, 64, 68 or 69 has notified, within 30 days of filing this application, the 700 MHz public safety regional planning committee(s) and state administrator(s) of the region and state containing the proposed digital LPTV or TV translator antenna site and regions and states whose geographic boundaries lie within 50 miles of the proposed LPTV or TV translator antenna site.	

PREPARERS CERTIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED.

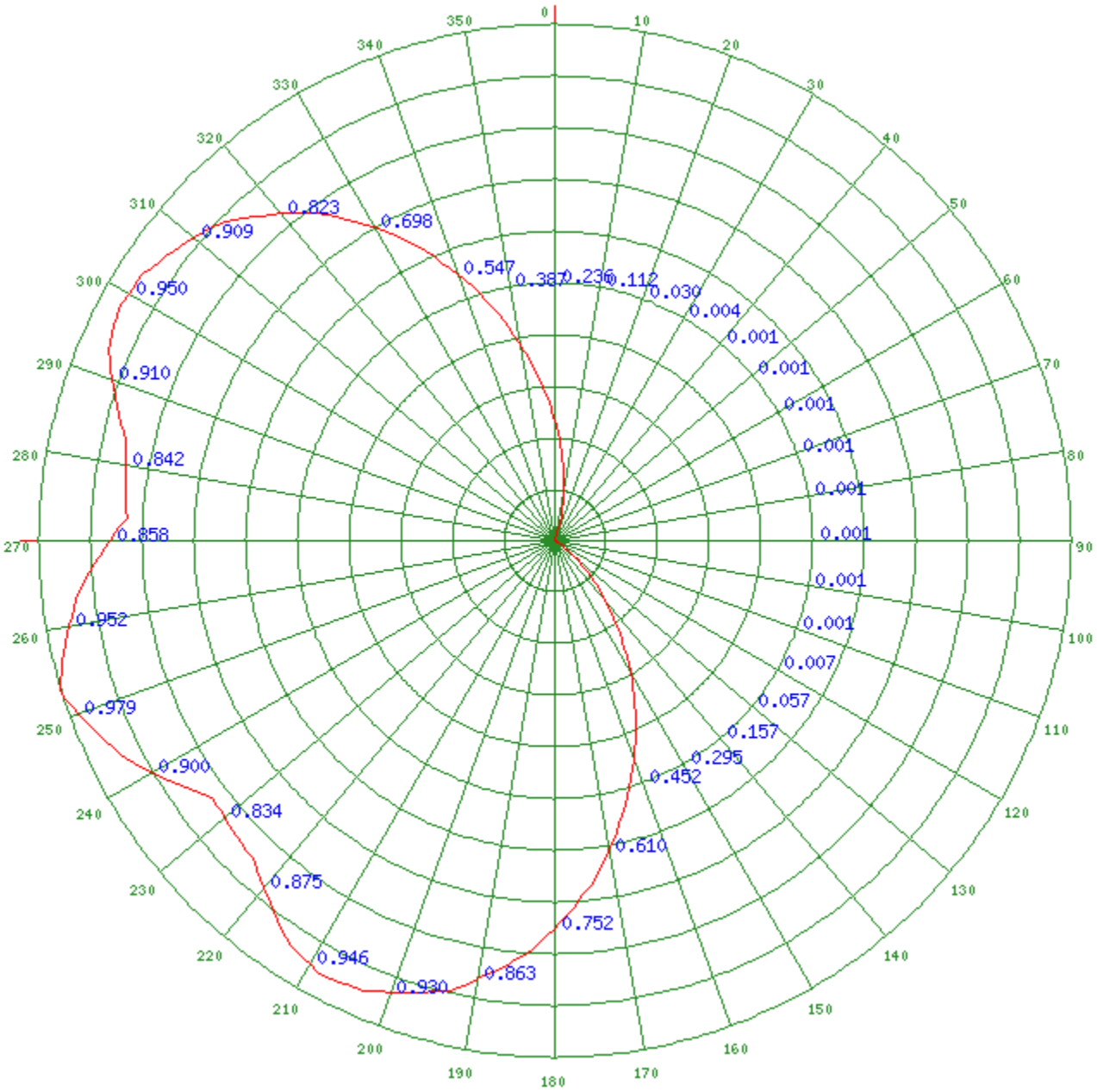
SECTION III PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name JOSEPH M. DAVIS, P.E.	Relationship to Applicant (e.g., Consulting Engineer) CONSULTING ENGINEER	
Signature	Date 3/2/2012	
Mailing Address CHESAPEAKE RF CONSULTANTS, LLC 207 OLD DOMINION ROAD		
City YORKTOWN	State or Country (if foreign address) VA	Zip Code 23692 -
Telephone Number (include area code) 7036509600	E-Mail Address (if available) JOSEPH.DAVIS@RF-CONSULTANTS.COM	

Any specified rotation has already been applied to the plotted pattern.
Field strength values shown on a rotated pattern may differ from the listed values because intermediate azimuths are interpolated between entered azimuths.

Close Window



FM Query FCC TV Query