

ENGINEERING EXHIBIT

Incentive Auction Channel Reassignment

Application for Modification of Digital Television Station Construction Permit prepared for

Hearst Properties Inc.
WMOR-TV Lakeland, FL
Facility ID 53819
Ch. 18 1000 kW 478 m

Hearst Properties Inc. (“Hearst”) is the licensee of digital television station WMOR-TV, Channel 19, Facility ID 53819, Lakeland, FL. Reassignment of WMOR-TV from Channel 19 to Channel 18 was specified in the *Incentive Auction Closing and Channel Reassignment Public Notice* (“CCRPN”, DA 17-317, released April 13, 2017). *Hearst* herein proposes modification of the WMOR-TV Channel 18 Construction Permit (“CP”, file# 0000027493). This application is intended to be filed during the second filing window.¹ The CP authorizes operation at 940 kW effective radiated power (“ERP”) at 478 meters antenna height above average terrain. *Hearst* proposes herein to increase the ERP to 1000 kW.

As with the current authorization, the proposed Channel 18 operation will employ a new broadband antenna system to be top-mounted on the WMOR-TV candelabra tower. The proposed antenna will be shared with several other post-auction facilities. The existing tower structure corresponds to FCC Antenna Structure Registration number 1057473. No change to the overall structure height will result. The proposed antenna is a nondirectional RFS model PEPL56D VPT.²

¹Public Notice “*Incentive Auction Task Force and Media Bureau Announce the Opening of the Second Filing Window for Eligible Full Power and Class A Television Station—October 3 Through November 2, 2017*” DA 17-911, released September 20, 2017.

²The proposed antenna provides for adjustable vertical polarization. The antenna provides separate inputs for horizontally polarized and vertically polarized radiators, which permits each of the television stations that share the antenna to individually choose how much vertical polarization to utilize. WMOR-TV will initially operate with horizontal polarization only. Following construction and licensing, any subsequent changes to the vertically polarized ERP will be described in a license modification application as necessary to show the revised system gains, losses, and transmitter power output. The horizontally polarized ERP will be maintained at 1000 kW and the

Figure 1 supplies a map that demonstrates compliance with §73.625(a)(1) regarding coverage of the entire principal community. The proposed facility's predicted population exceeds 95 percent of the *CCRPN* baseline facility's population.

Interference study per FCC OET Bulletin 69³ shows that the proposal complies with the 0.5 percent limit of new interference caused to pertinent nearby post-auction full service and Class A television stations and reassignments as required by §73.616. The interference study output report is provided as Table 1.

The proposed 1000 kW ERP exceeds the maximum permitted by §73.622(f)(8)(i) for the proposed antenna HAAT of 478 meters. Section 73.622(f)(5) permits the maximum ERP to be exceeded in order to provide the same geographic coverage area as the largest station within the same market. As demonstrated in Figure 2, the total area within the proposed WMOR-TV NLSC is 40,005 square kilometers, which does not exceed the NLSC area of WTVT(DT) (43,998 sq. km, Ch. 12, Tampa FL, BLCDT-20080410AAF). Thus, the 1000 kW ERP specified herein is in compliance with §73.622(f)(5) of the FCC's Rules.

The nearest FCC monitoring station is 162 km distant at Vero Beach, FL. This exceeds by a large margin 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 kilometers of the site. The site location is beyond the border areas requiring international coordination.

vertically polarized ERP will not exceed the horizontally polarized ERP.

³FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). This analysis employed the FCC's current "TVStudy" software with the default application processing template settings, 2 km cell size, and 1 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCC's implementation of TVStudy show excellent correlation.

Human Exposure to Radiofrequency Electromagnetic Field

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10), and considering 10 percent antenna relative field in downward elevations (pattern data shows less than 10 percent relative field at angles 10 to 90 degrees below the antenna), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is $1.5 \mu\text{W}/\text{cm}^2$, which is 0.5 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.

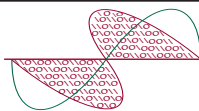
The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power 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. No increase in structure height is proposed.

List of Attachments

Figure 1	Proposed Coverage Contours
Figure 2	Maximum ERP per §73.622(f)
Table 1	OET Bulletin 69 Interference Study
Form 2100	Saved Version of Engineering Sections from FCC Form at Time of Upload

Chesapeake RF Consultants, LLC

Joseph M. Davis, P.E.	October 19, 2017	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600



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

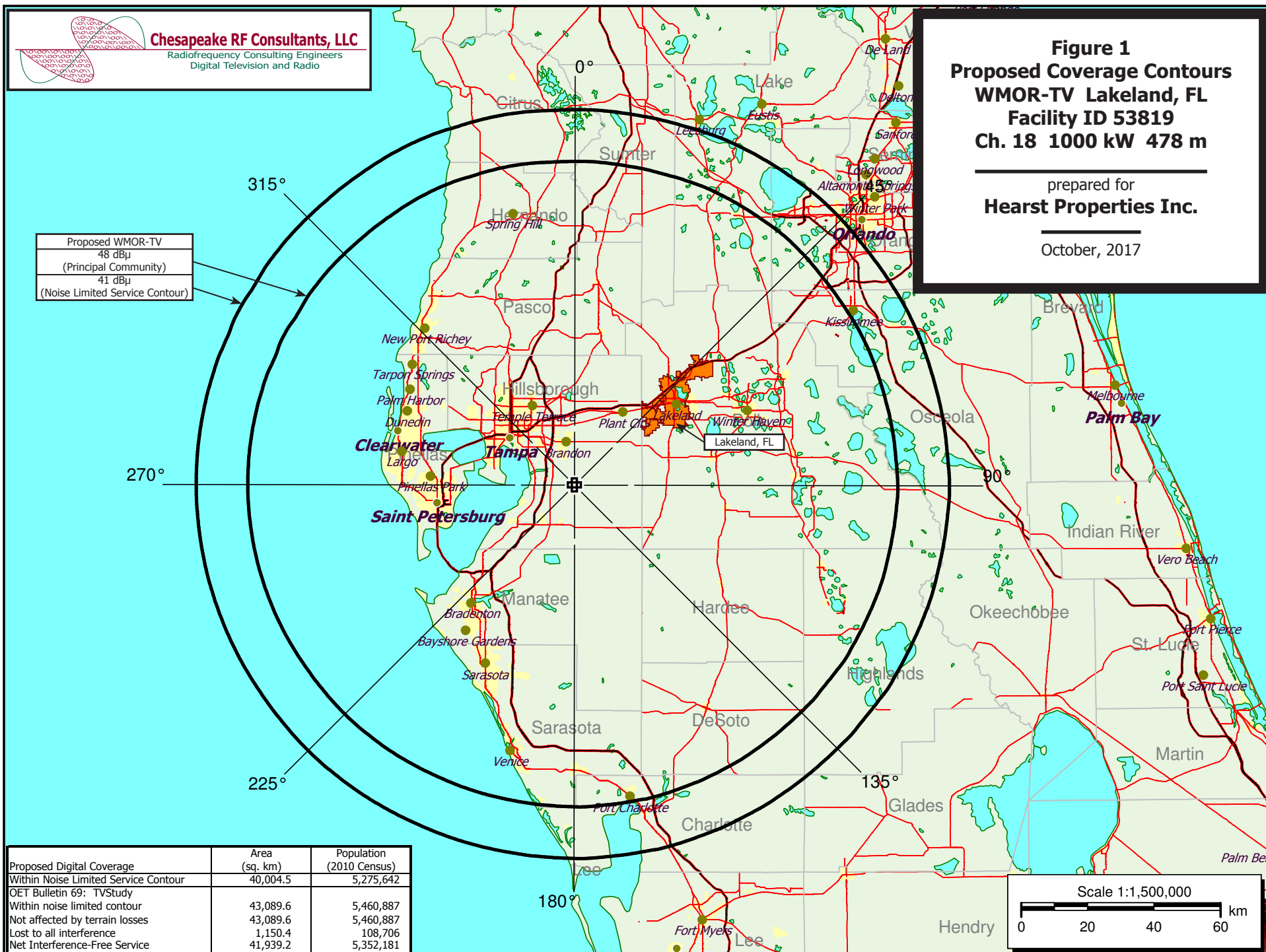
Figure 1
Proposed Coverage Contours
WMOR-TV Lakeland, FL
Facility ID 53819
Ch. 18 1000 kW 478 m

prepared for
Hearst Properties Inc.

October, 2017

Proposed WMOR-TV
48 dBu
(Principal Community)
41 dBu
(Noise Limited Service Contour)

Proposed Digital Coverage	Area (sq. km)	Population (2010 Census)
Within Noise Limited Service Contour	40,004.5	5,275,642
OET Bulletin 69: TVStudy		
Within noise limited contour	43,089.6	5,460,887
Not affected by terrain losses	43,089.6	5,460,887
Lost to all interference	1,150.4	108,706
Net Interference-Free Service	41,939.2	5,352,181





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

Figure 2
Maximum ERP per §73.622(f)
WMOR-TV Lakeland, FL
Facility ID 53819
Ch. 18 1000 kW 478 m

prepared for
Hearst Properties Inc.

October, 2017

WTVT Ch. 12 Tampa, FL
BLC DT-20080410AAF
36 dBμ Contour (NLSC)
Area: 43,998 sq. km

Proposed WMOR-TV
41 dBμ Contour (NLSC)
Area: 40,005 sq. km

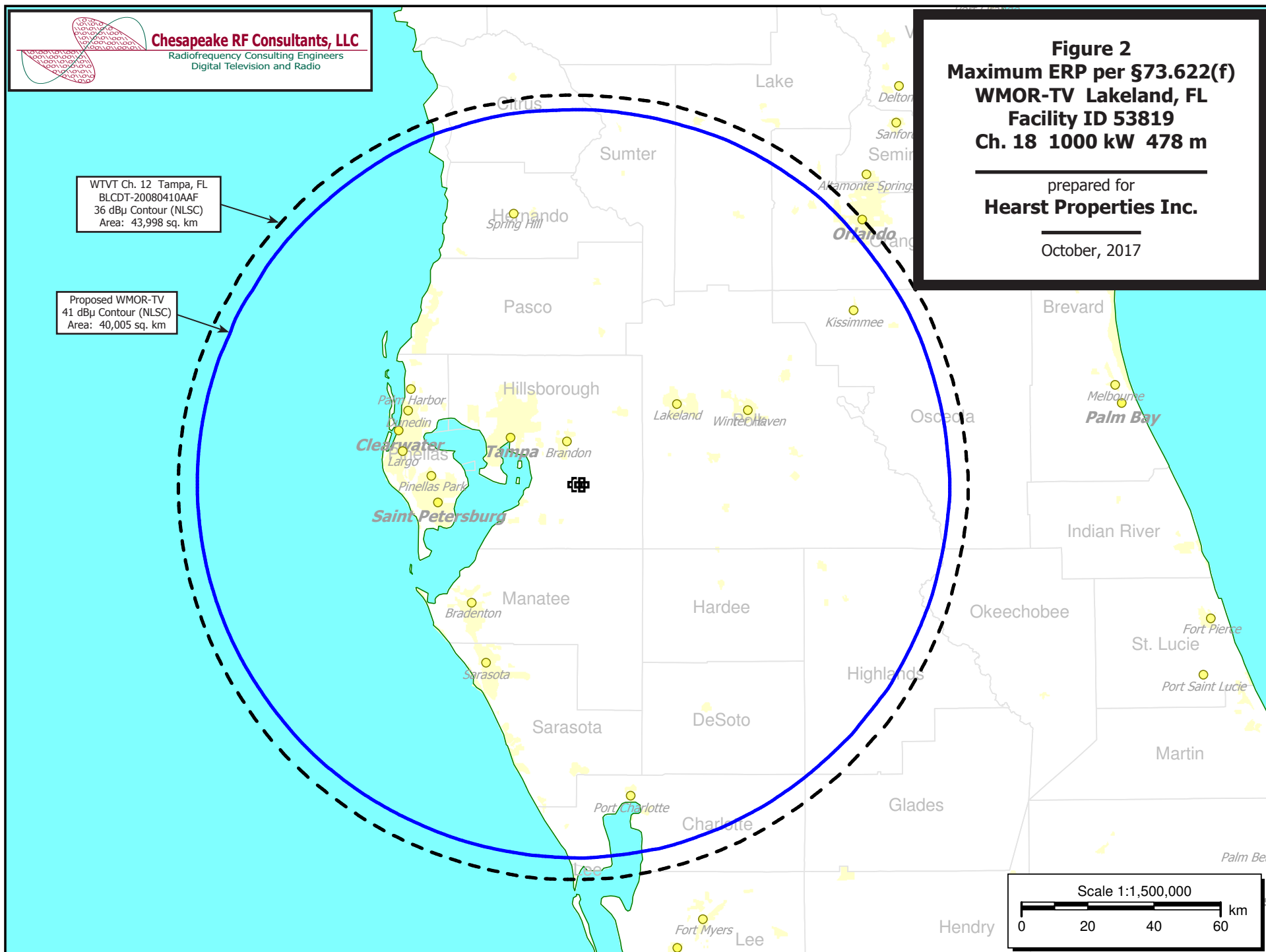
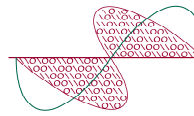


Table 1 WMOR-TV OET Bulletin 69 Interference Study
(page 1 of 3)



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

tvstudy v2.2.3 (6K70F1)
Database: localhost, Study: WMOR-TV 1000KW_TOP Prop, Model: Longley-Rice
Start: 2017.10.19 09:55:58

Study created: 2017.10.19 09:55:43

Study build station data: LMS TV 2017-10-07 LMSTV

Proposal: WMOR-TV D18 DT APP LAKELAND, FL
File number: WMOR-TV 1000KW_TOP
Facility ID: 53819
Station data: User record
Record ID: 708
Country: U.S.
Zone: III

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
Yes	WFTS-TV	D17	DT	CP	TAMPA, FL	BLANK0000026825	2.5 km
Yes	WTCE-TV	D18	DT	CP	FORT PIERCE, FL	BLANK0000028156	223.6
Yes	WJXT	D18	DT	CP	JACKSONVILLE, FL	BLANK0000027956	281.3
No	WTOG	D19	DT	CP	ST. PETERSBURG, FL	BLANK0000025842	0.0

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D18
Latitude: 27 49 10.80 N (NAD83)
Longitude: 82 15 38.00 W
Height AMSL: 497.9 m
HAAT: 477.7 m
Peak ERP: 1000 kW
Antenna: Omnidirectional
Elev Pattn: Generic
Elec Tilt: 0.75

39.1 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	1000 kW	477.5 m	117.1 km
45.0	1000	481.1	117.4
90.0	1000	474.7	116.9
135.0	1000	464.5	116.2
180.0	1000	469.0	116.5
225.0	1000	479.2	117.2
270.0	1000	488.3	117.9
315.0	1000	486.9	117.8

ERP exceeds maximum

ERP: 1000 kW ERP maximum: 577 kW

**Proposal service area extends beyond baseline plus 1.0%
Proposal service area population is more than 95.0% of baseline

Distance to Canadian border: 1540.2 km

Distance to Mexican border: 1467.0 km

Conditions at FCC monitoring station: Vero Beach FL
Bearing: 98.1 degrees Distance: 161.7 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 309.0 degrees Distance: 2508.0 km

No land mobile station failures found

Study cell size: 2.00 km

Table 1 WMOR-TV OET Bulletin 69 Interference Study
(page 2 of 3)



Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%

Maximum new IX to LPTV: 2.00%

Interference to BLANK0000026825 CP, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WFTS-TV	D17	DT	CP	TAMPA, FL	BLANK0000026825	
Undesireds:	WMOR-TV	D18	DT	BL	LAKELAND, FL	DTVBL53819	2.5 km
	WMOR-TV	D18	DT	APP	LAKELAND, FL	WMOR-TV 1000KW_TOP	2.5
	WTCN-CA	D17	DC	CP	PALM BEACH, FL	BLANK0000027427	224.7
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
38272.7		5,080,488		38256.6		5,072,800	0.03 0.01
Undesired		Total IX		Unique IX, before		Unique IX, after	
WMOR-TV D18 DT BL		36.0		7,105		36.0 7,105	
WMOR-TV D18 DT APP		48.1		7,657		48.1 7,657	
WTCN-CA D17 DC CP		7.9		332		7.9 332	

Interference to BLANK0000028156 CP, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WTCE-TV	D18	DT	CP	FORT PIERCE, FL	BLANK0000028156	
Undesireds:	WMOR-TV	D18	DT	BL	LAKELAND, FL	DTVBL53819	223.6 km
	WMOR-TV	D18	DT	APP	LAKELAND, FL	WMOR-TV 1000KW_TOP	223.6
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
23780.9		2,600,584		23780.9		2,600,524	0.00 0.00
Undesired		Total IX		Unique IX, before		Unique IX, after	
WMOR-TV D18 DT BL		8.0		60		8.0 60	
WMOR-TV D18 DT APP		8.0		60		8.0 60	

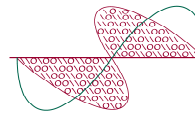
Interference to BLANK0000027956 CP, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WJXT	D18	DT	CP	JACKSONVILLE, FL	BLANK0000027956	
Undesireds:	WMOR-TV	D18	DT	BL	LAKELAND, FL	DTVBL53819	281.3 km
	WMOR-TV	D18	DT	APP	LAKELAND, FL	WMOR-TV 1000KW_TOP	281.3
	WJAX-TV	D19	DT	LIC	JACKSONVILLE, FL	BLCDT20030328ANV	1.8
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
26908.6		1,612,866		26908.6		1,607,874	0.06 0.00
Undesired		Total IX		Unique IX, before		Unique IX, after	
WMOR-TV D18 DT BL		191.6		4,992		191.6 4,992	
WMOR-TV D18 DT APP		207.6		5,017		207.6 5,017	
WJAX-TV D19 DT LIC		4.0		0		4.0 0	

Interference to proposal, scenario 1
1.99% interference

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WMOR-TV	D18	DT	APP	LAKELAND, FL	WMOR-TV 1000KW_TOP	
Undesireds:	WFTS-TV	D17	DT	CP	TAMPA, FL	BLANK0000026825	2.5 km
	WTCE-TV	D18	DT	CP	FORT PIERCE, FL	BLANK0000028156	223.6
	WJXT	D18	DT	CP	JACKSONVILLE, FL	BLANK0000027956	281.3
Service area		Terrain-limited		IX-free		Percent IX	
43089.6		5,460,887		41939.2		5,352,181	2.67 1.99
Undesired		Total IX		Unique IX		Prcnt Unique IX	

Table 1 WMOR-TV OET Bulletin 69 Interference Study
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 Radiofrequency Consulting Engineers
 Digital Television and Radio

WFTS-TV D17 DT CP	8.1	28	8.1	28	0.02	0.00
WTCE-TV D18 DT CP	905.1	35,739	788.1	18,504	1.83	0.34
WJXT D18 DT CP	354.3	90,174	237.2	72,939	0.55	1.34

**Channel and
Facility
Information**

Section	Question	Response
Proposed Community of License	Facility ID	53819
	State	Florida
	City	LAKELAND
	DTV Channel	18
Facility Type	Facility Type	Commercial
	Station Type	Main
Zone	Zone	2

**Antenna Location
Data**

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1057473
Coordinates (NAD83)	Latitude	27° 49' 10.8" N+
	Longitude	082° 15' 38.0" W-
	Structure Type	GTOWER-Guyed Structure Used for Communication Purposes
	Overall Structure Height	485.5 meters
	Support Structure Height	440.1 meters
	Ground Elevation (AMSL)	22.9 meters
Antenna Data	Height of Radiation Center Above Ground Level	475.0 meters
	Height of Radiation Center Above Average Terrain	477.7 meters
	Height of Radiation Center Above Mean Sea Level	497.9 meters
	Effective Radiated Power	1000 kW

Antenna Technical Data

Section	Question	Response
Antenna Type	Antenna Type	Non-Directional
	Do you have an Antenna ID?	
	Antenna ID	
Antenna Manufacturer and Model	Manufacturer:	RFS
	Model	PEPL56D VPT
	Rotation	
	Electrical Beam Tilt	0.75
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Horizontal
DTV and DTS: Elevation Pattern	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	

**Construction
Permit
Certifications**

Section	Question	Response
Post-Incentive Auction Expedited Processing	It will operate on the DTV channel for this station as established in the post-incentive auction channel reassignment public notice.	Yes
	It will operate post-incentive auction facilities that do not expand the noise-limited service contour in any direction beyond that established by the post-incentive auction channel reassignment public notice.	No
	It will operate post-incentive auction facilities that match or reduce by no more than five percent with respect to predicted population from those defined in the post-incentive auction channel reassignment public notice.	Yes
	The antenna structure to be used by this facility has been registered by the Commission and will not require re-registration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely affect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7.	Yes
Environmental Effect	Would a Commission grant of Authorization for this location be an action which may have a significant environmental effect? (See Section 1.1306 of 47 C.F.R.)	No
Broadcast Facility	The proposed facility complies with the applicable engineering standards and assignment requirements of 47 C. F.R. Sections 73.616, 73.622(i), 73.623(e), 73.625, 73.1030, and 73.1125.	Yes