

**TECHNICAL STATEMENT
LOTUS TV PHOENIX LLC
KPHE-LD 15.0 KW-DA 838.4 M AMSL CH. 16
PHOENIX, ARIZONA**

INTRODUCTION

Lotus TV of Phoenix LLC (“Lotus”), the licensee of digital low power television station KPHE-LD, Facility ID No. 168602, seeks to avoid displacement as a result of the TV repack by making certain minor changes to its existing facilities that will bring the station into compliance with the interference rules. More specifically, Lotus proposes a new directional antenna pattern and orientation to eliminate the excessive interference predicted to full-service station KHRR on its post-auction channel assignment.¹

PROPOSED MODIFICATION OF LICENSED FACILITY

KPHE-LD will utilize its licensed transmitter site to continue operations on Channel 16. It will employ a new directional antenna system with no rotation and 2 degrees electrical beam tilt. The antenna radiation center height will remain at 838.4 meters above mean sea level (AMSL) and no change in the maximum effective radiated power (ERP) of 15.0 kW is proposed.

INTERFERENCE PROTECTION AND OET-69 ANALYSIS SETTINGS

A copy of the *TVStudy* analysis summary is provided in [Figure 1](#). This summary indicates that no interference check failures were found and therefore the proposal is not

¹ KHRR in Tucson, AZ was reassigned to Channel 16 in the Incentive Auction Closing and Channel Reassignment Public Notice (“CCRPN”), 32 FCC Rcd 2786 (2017).



predicted to cause new interference beyond the normal tolerance to any existing or post-auction stations.² With regard to the 16 scenarios of excessive interference that KPHE-LD is predicted to receive, Lotus will accept all such interference. The summary further reflects that the following analysis settings were used:

Study cell size: 0.5 kilometer
Profile point spacing: 0.5 kilometer

ENVIRONMENTAL IMPACT

The application specifies an existing FCC registered tower that was constructed before March 16, 2001.³ Given that the specified antenna replacement will not result in a substantial increase in the size of the existing antenna-supporting structure,⁴ the criteria outlined in 47

² TVStudy Program, Version 2.2.3.

³ 47 CFR Part 1, App. B, § III.A. “An antenna may be mounted on an existing tower constructed on or before March 16, 2001 without such collocation being reviewed through the Section 106 process set forth in the NPA, unless: 1. The mounting of the antenna will result in a substantial increase in the size of the tower as defined in Stipulation I.E, above; or, 2. The tower has been determined by the FCC to have an adverse effect on one or more historic properties, where such effect has not been avoided or mitigated through a conditional no adverse effect determination, a Memorandum of Agreement, a programmatic agreement, or a finding of compliance with Section 106 and the NPA; or, 3. The tower is the subject of a pending environmental review or related proceeding before the FCC involving compliance with Section 106 of the National Historic Preservation Act; or, 4. The collocation licensee or the owner of the tower has received written or electronic notification that the FCC is in receipt of a complaint from a member of the public, an Indian Tribe, a SHPO or the Council, that the collocation has an adverse effect on one or more historic properties. Any such complaint must be in writing and supported by substantial evidence describing how the effect from the collocation is adverse to the attributes that qualify any affected historic property for eligibility or potential eligibility for the National Register.”

⁴ 47 CFR Part 1, App. B, § I.C. A substantial increase in size means: “(1) The mounting of the proposed antenna on the tower would increase the existing height of the tower by more than 10%, or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to avoid interference with existing antennas; or (2) The mounting of the proposed antenna would involve the installation of more than the standard number of new equipment cabinets for the technology involved, not to exceed four, or more than one new equipment shelter; or (3) The mounting of the proposed antenna would involve adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater, except that the mounting of the proposed antenna may exceed the size limits set forth in this paragraph if necessary to shelter the antenna from inclement weather or to connect the antenna to the tower via cable; or (4) The mounting of the proposed antenna would involve excavation outside the current tower site, defined as the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site.”



CFR § 1.1307(a) for certain types of facilities that may significantly affect the environment do not apply. With regard to the rules for limiting human exposure to radio-frequency (RF) energy in 47 CFR § 1.1307(b), the station will continue to operate a UHF broadcast antenna in full compliance with those guidelines as described in greater detail below. The following technical specifications are proposed:

Frequency :	482 - 488 MHz (UHF Channel 16)
Effective Radiated Power:	15.0 kW
Antenna Type:	DIE TUA-C2/6-1-SM
Antenna Beamtilt:	2 degrees electrical
Antenna Polarization:	Horizontal
Antenna Height:	27.7 meters AGL
Location coordinates:	33-20-01.0 N, 112-03-48.0 (NAD83)
Site elevation:	810.7 meters AMSL
Overall tower height:	104.5 meters AGL
FCC ASRN:	1002070; Constructed in 1986

Using the methodology for predicting power density levels for UHF broadcast antennas outlined in *FCC OET Bulletin No. 65, Edition 97-01*, (OET-65), it was determined that the proposed Channel 16 facility will produce a maximum power density of 15 $\mu\text{W}/\text{cm}^2$ at points 2 meters above ground (approximate human head height). This worst-case exposure level was calculated using 14 percent antenna relative field. The maximum exposure limits applicable to Channel 16, as established for uncontrolled and controlled situations in 47 CFR § 1.1310, are 321 $\mu\text{W}/\text{cm}^2$ and 1,607 $\mu\text{W}/\text{cm}^2$ respectively. Because the maximum exposure level determined for the proposed facility is not more than 5% of those guidelines, no further showing of compliance is necessary. Accordingly, this application complies with the RF exposure limits and is categorically excluded from environmental processing by 47 CFR § 1.1306.

The existing tower is located on an isolated mountaintop that is not generally accessible to the public. In addition to using suitable warning signs, steps to limit exposure to persons that are authorized to access the transmitter site will be consistent with the recommendations in OET-65. All maintenance and other related work to be performed at elevations higher than 2



meters above ground will be coordinated to prevent exposure to RF fields in excess of the controlled limit. Such preventative steps shall include reducing power or shutting down the facility.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Scott Turpie', written over a horizontal line.

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Attachment
Figure 1 – *TVStudy* Analysis Summary

FIGURE 1 Analysis Summary TVSTUDY, VERSION 2.2.3.

Study created: 2017.11.09 17:50:35

Study build station data: LMS TV 2017-11-08 (51)

Proposal: KPHE-LD D16 LD APP PHOENIX, AZ

Facility ID: 168602

Station data: User record

Record ID: 370

Country: U.S.

Build options:

Protect records not on baseline channel

Search options:

Non-U.S. records included

Stations affected by proposal:

Call	Chan	Svc	Status	City, State	File Number	Distance
KXV-TV	D15	DT	LIC	PHOENIX, AZ	BLCDT20090619ABX	0.0 km
K16BP-D	D16	LD	LIC	COTTONWOOD, AZ	BLDTT20130625AAT	150.5
K16FB-D	D16	LD	LIC	GLOBE, AZ	BLDTL20111026AFE	114.7
K16EO-D	D16	LD	LIC	ORO VALLEY/TUCSON, AZ	BLANK0000005585	158.9
NEW	D16	LD	APP	SALOME, AZ	BNPDL20100514AEO	133.7
KHRR	D16	DT	GP	TUCSON, AZ	BLANK0000026323	149.6
KHRR	D16	DT	APP	TUCSON, AZ	BLANK0000034596	149.6
KPHO-TV	D17	DT	APP	PHOENIX, AZ	BP0DT20120509AEA	0.1
KPHO-TV	D17	DT	LIC	PHOENIX, AZ	BLCDT20051205ADF	0.1

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D16

Mask: Simple

Latitude: 33 20 1.00 N (NAD83)

Longitude: 112 3 48.00 W

Height AMSL: 838.4 m

HAAT: 0.0 m

Peak ERP: 15.0 kW

Antenna: DIE TUA-C2/6-1-SM 0.0 deg
Elev Pattern: Generic
Elec Tilt: 2.00

48.9 dBu contour:	ERP	HAAT	Distance
Azimuth	11.9 kW	499.0 m	65.8 km
45.0	14.8	462.1	66.1
90.0	3.19	455.1	56.4
135.0	0.014	481.1	25.1
180.0	0.013	493.9	25.2
225.0	0.015	498.9	26.0
270.0	3.12	443.9	55.9
315.0	14.9	512.3	67.6

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 481 m

Distance to Canadian border: 1741.2 km

**Proposal is within coordination distance of Mexican border
Distance to Mexican border: 176.0 km

Conditions at FCC monitoring station: Douglas AZ
Bearing: 131.4 degrees Distance: 304.3 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 36.8 degrees Distance: 967.2 km

No land mobile station failures found

Proposal is not within the Offshore Radio Service protected area

Study cell size: 0.50 km
Profile point spacing: 0.50 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

**MX with scenario 1, receives 14.52% interference
**MX with scenario 2, receives 14.52% interference
**MX with scenario 3, receives 14.52% interference
**MX with scenario 4, receives 14.52% interference
**MX with scenario 5, receives 14.62% interference
**MX with scenario 6, receives 14.62% interference
**MX with scenario 7, receives 14.62% interference
**MX with scenario 8, receives 14.62% interference
**MX with BNPDL20100514AEO APP, 13.97% interference, scenario 9
**MX with BNPDL20100514AEO APP, 13.97% interference, scenario 10
**MX with BNPDL20100514AEO APP, 13.97% interference, scenario 11
**MX with BNPDL20100514AEO APP, 13.97% interference, scenario 12
**MX with scenario 13, receives 14.11% interference
**MX with scenario 14, receives 14.11% interference
**MX with scenario 15, receives 14.10% interference
**MX with scenario 16, receives 14.10% interference