

TECHNICAL SUMMARY
APPLICATION FOR CONSTRUCTION PERMIT
LOW POWER DIGITAL STATION K17DA-D
LAKE HAVASU CITY, ARIZONA
CHANNEL 17 15 KW (DA)

1. Application Purpose: The instant application proposes to change the licensed K17DA-D directional antenna system from a Scala model 4DR-16S to a Kathrein model 4x1 750 0000049 E-pol panel array, increase the ERP from 0.78 kW (horizontal polarization) to 15 kW (elliptical polarization) and increase the antenna height by 1 meter. No other changes are proposed.

2. Interference Compliance: As indicated in the attached *TVStudy* analysis summary, K17DA-D's proposed 15 kW operation meets the FCC's interference protection requirements with respect to all protected facilities. A cell size of 1.0 km and a profile resolution of 1.0 km points/km were utilized for the *TVStudy* analysis.

3. RFR Compliance: The proposed facilities were evaluated in terms of potential radiofrequency radiation (RFR) exposure at ground level to workers and the general public. The radiation center for the proposed DTV antenna will be located 16 meters above ground level. The total DTV ERP is 21.43 kW (15 kW H-pol, 6.43 kW V-pol). A greater than expected vertical plane relative field value of 0.06 is presumed for the antenna's downward radiation (-60° to -90° elevation, see attached vertical plane relative field pattern). The calculated power density at a point 2 meters above ground level is 13.1 uW/cm^2 which is only 4% of the FCC's recommended limit of 327.3 uW/cm^2 for channel 17 for an uncontrolled environment. Thus, it is believed that the proposed K17DA-D facility is in compliance with the FCC's requirements with regard to RF radiation exposure. However, if necessary, measurements will be made to substantiate compliance with the FCC's RF radiation exposure requirements.

Access to the transmitting site will be restricted and appropriately marked with RFR warning signs. Furthermore, as this is a multi-user site, a protocol shall be in effect in the event that workers or other authorized personnel enter the restricted area or climb the supporting structure to ensure that appropriate measures will be taken to assure worker safety with respect to RF energy exposure.

K17DA-D TVSTUDY INTERFERENCE ANALYSIS

tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: k17da030, Model: Longley-Rice
Start: 2023.07.06 12:06:46

Study created: 2023.07.06 12:06:46

Study build station data: LMS TV 2023-07-03

Proposal: K17DA030 D17 LD APP LAKE HAVASU CITY, AZ
File number: k17da030
Facility ID: 35805
Station data: User record
Record ID: 446
Country: U.S.

Search options:
Non-U.S. records included

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
Yes	K16EV-D	D16	LD	LIC	BULLHEAD CITY, AZ	BLDTT20130308AAR	48.2 km
No	K16BP-D	D16	LD	LIC	COTTONWOOD, AZ	BLANK0000150709	206.3
No	K16NM-D	D16	LD	CP	SALOME, AZ	BNPDTL20100514AEO	139.7
No	K1NC	D16	DT	LIC	LAS VEGAS, NV	BLCDT20060630ACH	161.3
No	K17NS-D	D17	LD	LIC	CHLORIDE, AZ	BLANK0000071714	90.1
No	K17MO-D	D17	LD	LIC	FLAGSTAFF, AZ	BLANK0000062883	262.5
No	KPHO-TV	D17	DT	LIC	PHOENIX, AZ	BLANK0000150149	255.3
No	K17LM-D	D17	LD	LIC	YUMA, AZ	BLDTL20121115ADF	214.5
Yes	K17OQ-D	D17	LD	CP	BLYTHE, CA	BNPDTL20100514ACW	115.6
No	K17OR-D	D17	LD	CP	HOLTVILLE, CA	BNPDTL20100510AAC	220.4
No	K26MW-D	N17	TX	LIC	LUCERNE VALLEY, CA	BLTT20120112AFA	230.2
Yes	K17BN-D	D17	LD	LIC	NEEDLES, CA	BLDTT20130308ACD	48.2
No	KODG-LD	D17	LD	LIC	PALM SPRINGS, CA	BLANK0000202528	206.4
No	KODG-LD	N17z	TX	LIC	PALM SPRINGS, CA	BLTTL20001219ABP	192.2
No	KUAN-LD	D17	LD	LIC	POWAY, ETC., CA	BLANK0000068682	318.1
No	K17HY-D	D17	LD	LIC	RIDGECREST, ETC., CA	BLDTT20090622AAJ	316.8
No	KNSD	D17	DT	LIC	SAN DIEGO, CA	BLANK0000068597	318.1
No	K17GJ-D	D17	LD	LIC	TWENTYNINE PALMS, CA	BLANK0000004553	156.8
No	K17GJ-D	N17-	TX	LIC	TWENTYNINE PALMS, CA	BLTT20080902AED	185.2
No	KEEN-CD	D17	DC	LIC	LAS VEGAS, NV	BLDTA20100624AKB	166.7
No	K17CL-D	D17	LD	LIC	PAHRUMP, NV	BLDTT20120510ACN	230.3
No	K17JK-D	D17	LD	LIC	CANE BEDS, AZ/HILDALE, UT	BLDTT20091218ABP	281.9
No	K17NK-D	D17	LD	LIC	CEDAR CITY, UT	BLANK0000091057	358.2
No	K17NL-D	D17	LD	LIC	ENTERPRISE, UT	BLANK0000063185	329.0
No	K17LH-D	D17	LD	CP	HURRICANE, UT	BLANK0000197283	302.8
No	K17LH-D	D17	LD	LIC	HURRICANE, UT	BLANK0000199479	302.8
No	K17JC-D	D17	LD	LIC	ORDERVILLE, UT	BLDTT20091228AAF	335.8
No	DK17JQ	N17z	TX	APP	ST. GEORGE, UT	BLTTL20121207ACG	282.9
No	K18CB-D	D18	LD	LIC	BULLHEAD CITY, AZ	BLDTT20140604ABM	79.3
No	K18DD-D	D18	LD	CP	CAMP VERDE, AZ	BLANK0000211826	206.3
No	K18LZ-D	D18	LD	LIC	KINGMAN, AZ	BLANK0000071715	68.1
No	KPNX	D18	DT	LIC	MESA, AZ	BLANK0000153358	255.2
No	K18NS-D	D18	LD	CP	SALOME, AZ	BNPDTL20100514AEP	139.7
No	KPSP-CD	D18	DC	LIC	CATHEDRAL CITY, CA	BLANK0000075036	206.5
No	KHMP-LD	D18	LD	LIC	LAS VEGAS, NV	BLANK0000010687	166.7
No	LICITACIOND16		DT	LIC	MEXICALI, BN	BLANKBPFS20160524AAU	244.5
No	XHENJ	D17	DT	LIC	ENSENADA, BN	BLANKBPFS20160301ABK	369.0
No	XHCTME	D17	DT	LIC	MEXICALI, BN	BLANKBPFS20160524AAV	257.2
No	XHMEX	D18	DT	LIC	MEXICALI, BN	BLANKBPFS20160302ABR	244.5

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D17
Mask: Stringent
Latitude: 34 36 9.00 N (NAD83)
Longitude: 114 22 16.00 W
Height AMSL: 408.0 m
HAAT: 54.0 m
Peak ERP: 15.0 kW
Antenna: Kat_4x1_750_0000049_E 350.0 deg
Elev Pattn: Generic

K17DA-D TVSTUDY INTERFERENCE ANALYSIS

49.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.054 kW	35.8 m	9.8 km
45.0	0.051	-7.4	9.0
90.0	0.454	-298.1	15.1
135.0	9.04	-5.2	29.0
180.0	10.9	255.9	53.6
225.0	0.723	173.6	34.9
270.0	0.041	113.4	15.7
315.0	0.057	167.8	21.8

Distance to Canadian border: 1600.3 km

**Proposal is within coordination distance of Mexican border
Distance to Mexican border: 211.8 km

Conditions at FCC monitoring station: Douglas AZ
Bearing: 126.8 degrees Distance: 558.4 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 50.0 degrees Distance: 1011.3 km

No land mobile station failures found

Proposal is not within the Offshore Radio Service protected area

Study cell size: 1.00 km
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 BLDTT20130308AAR LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K16EV-D	D16	LD	LIC	BULLHEAD CITY, AZ	BLDTT20130308AAR	
Undesireds:	K17DA030	D17	LD	APP	LAKE HAVASU CITY, AZ	k17da030	48.2 km
	K15CR-D	D15	LD	LIC	LAKE HAVASU CITY, AZ	BLDTT20140530APD	48.2
	KPHE-LD	D16	LD	CP	PHOENIX, AZ	BLANK0000035172	284.3
	KINC	D16	DT	LIC	LAS VEGAS, NV	BLCDT20060630ACH	118.1
	K17BN-D	D17	LD	LIC	NEEDLES, CA	BLDTT20130308ACD	0.0
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	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	4920.2	76,117	3766.0	74,749	3606.2	70,727	0.00 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
K17DA030 D17 LD APP	3.0	0	0.0 0
K15CR-D D15 LD LIC	4.0	0 1.0	0 1.0 0
KINC D16 DT LIC	52.0	14 40.0	14 40.0 14
K17BN-D D17 LD LIC	115.7	4,008 106.8	4,008 106.8 4,008

Interference to BNPDTL20100514ACW CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	K170Q-D	D17	LD	CP	BLYTHE, CA	BNPDTL20100514ACW	
Undesireds:	K17DA030	D17	LD	APP	LAKE HAVASU CITY, AZ	k17da030	115.6 km
	KPHO-TV	D17	DT	LIC	PHOENIX, AZ	BLANK0000150149	253.3
	K17LM-D	D17	LD	LIC	YUMA, AZ	BLDTL20121115ADF	112.6
	KODG-LD	D17	LD	LIC	PALM SPRINGS, CA	BLANK0000202528	155.9
	K17GJ-D	D17	LD	LIC	TWENTYNINE PALMS, CA	BLANK0000004553	120.7
	XHCTME	D17	DT	LIC	MEXICALI, BN	BLANKBFFS20160524AAV	143.5
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	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	2377.0	25,573	2236.5	25,554	2227.6	25,551	0.00 0.00
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Undesired	Total IX		Unique IX, before		Unique IX, after		
K17DA030 D17 LD APP	1.0	0	0.0	0			

K17DA-D TVSTUDY INTERFERENCE ANALYSIS

KPHO-TV D17 DT LIC	1.0	0	0.0	0	0.0	0
K17LM-D D17 LD LIC	2.0	0	1.0	0	0.0	0
XHCTME D17 DT LIC	7.9	3	6.9	3	6.9	3

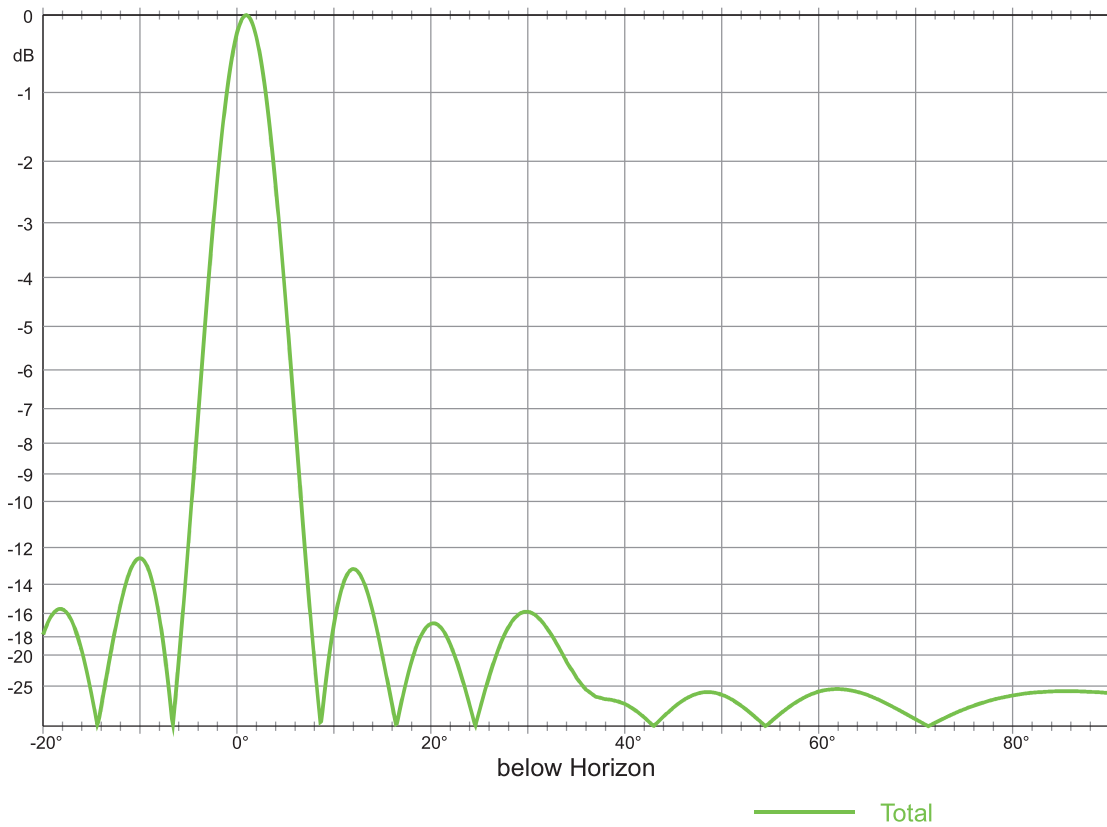
Interference to BLDTT20130308ACD LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	K17BN-D	D17	LD	LIC	NEEDLES, CA	BLDTT20130308ACD	
Undesireds:	K17DA030	D17	LD	APP	LAKE HAVASU CITY, AZ	k17da030	48.2 km
	K16EV-D	D16	LD	LIC	BULLHEAD CITY, AZ	BLDTT20130308AAR	0.0
	K17NS-D	D17	LD	LIC	CHLORIDE, AZ	BLANK0000071714	44.0
	KODG-LD	D17	LD	LIC	PALM SPRINGS, CA	BLANK0000202528	229.4
	K17GJ-D	D17	LD	LIC	TWENTYNINE PALMS, CA	BLANK0000004553	180.0
	KEEN-CD	D17	DC	LIC	LAS VEGAS, NV	BLDTA20100624AKB	122.6
	K17LH-D	D17	LD	CP	HURRICANE, UT	BLANK0000197283	257.5
Service area		Terrain-limited		IX-free, before		IX-free, after	
5194.4	77,050	3720.5	75,937	3687.5	75,669	3628.2	75,669
				Percent New IX			
				1.61		0.00	
Undesired				Total IX	Unique IX, before	Unique IX, after	
K17DA030 D17 LD APP	59.2	0			59.2	0	
K16EV-D D16 LD LIC	28.0	268		25.0	265	265	
K17NS-D D17 LD LIC	4.0	3		1.0	0	0	
KEEN-CD D17 DC LIC	4.0	0		4.0	0	0	

Interference to proposal scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	K17DA030	D17	LD	APP	LAKE HAVASU CITY, AZ	k17da030	
Undesireds:	K16EV-D	D16	LD	LIC	BULLHEAD CITY, AZ	BLDTT20130308AAR	48.2 km
	KPHO-TV	D17	DT	LIC	PHOENIX, AZ	BLANK0000150149	255.3
	K17BN-D	D17	LD	LIC	NEEDLES, CA	BLDTT20130308ACD	48.2
	KODG-LD	D17	LD	LIC	PALM SPRINGS, CA	BLANK0000202528	206.4
	K17GJ-D	D17	LD	LIC	TWENTYNINE PALMS, CA	BLANK0000004553	156.8
	K17LH-D	D17	LD	CP	HURRICANE, UT	BLANK0000197283	302.8
Service area		Terrain-limited		IX-free		Percent IX	
2411.8	64,729	1706.4	56,352	1447.8	56,348	15.16	0.01
Undesired				Total IX	Unique IX	Prct Unique IX	
K16EV-D D16 LD LIC	2.0	0		0.0	0	0.00	0.00
KPHO-TV D17 DT LIC	3.0	0		1.0	0	0.06	0.00
K17BN-D D17 LD LIC	257.6	4		253.6	4	14.86	0.01

Elevation Pattern (cartesian-linear)



Antenna, Order No. 7500000049
Number of Bays: 4

Frequency: 491 MHz
Elevation Directivity: 9.43 dBd
Directivity: 16.89 dBd
Downtilt: 1°
Compensation: 10.37 %

No.	Vert. Distance [mm]	Power	Phase [°]
4	3450	1	35.5
3	2300	1	23.7
2	1150	1	11.8
1	0	1	0