

**Technical Certifications**

This exhibit for the minor modification of K221GC demonstrates compliance with all engineering standards and requirements specified in the applicable FCC rules and regulations. This application proposes a change in the ERP, antenna pattern, a minor change in the tower geographical coordinates, and the ASR information. These changes are indicated below:

	Licensed	Minor Mod
Channel / Class	221D	221D
ASRN	1052434	1001786
Geographical Coordinates	30 17 53.9 97 49 55.5	30 17 54.0 97 49 55.0
Tower AGL	64 m	12.5 m
Site AMSL	309 m	304.8 m
COR AGL	12 m	86 m
COR AMSL	321 m	391 m
HAAT	89.7 m	159.7 m
ERP	0.001 kW (V DA)	0.25 kW (H&V DA)

GLOBE terrain data

EMF acknowledges this proposed minor modification causes prohibited overlap with the KYLR licensed facility, file number BLED-20060901ACQ. KYLR has been granted a construction permit, file number 0000210508, which once constructed and licensed will not receive prohibited overlap from this K221GC proposed modification.

Note the K221GC proposed geographic coordinates and center of radiation above ground are the same as KVLR 223C3 Sunset Valley, TX, file number BLED-20170321AAM. KVLR has been granted a construction permit, file number 0000210507, which once constructed and licensed will allow the K221GC transmit antenna to occupy the vacated KVLR antenna location. K221GC and KVLR will not occupy the same center of radiation on the same tower at the same time.

**Channel Study**

REFERENCE CH# 221D - 92.1 MHz, Pwr= 0.25 kW DA, HAAT= 159.7 M, COR= 391 M DISPLAY DATES  
 30 17 53.7 N. Average Protected F(50-50)= 16.5 km DATA 08-04-23  
 97 49 55.0 W. Standard Directional SEARCH 08-07-23

CH CITY	CALL	TYPE STATE	ANT	AZI. <--	DIST FILE #	LAT. LNG.	Pwr (kW) HAAT (M)	INT (km) COR (M)	PRO (km) LICENSEE	*IN* (Overlap in km)	*OUT*
221A Hutto	KYLR	LIC NCN TX		42.4	35.60	30 32 04.70	2.500	76.1	23.5	-49.2*	-29.5*
				222.5	BLED20060901ACQ	97 34 53.00	137	343	Educational Media Foundati		
221A Hutto	KYLR	CP ZCN TX		37.2	47.53	30 38 18.90	2.000	71.7	22.1	-32.6*	6.7
				217.3	0000210508	97 31 53.90	119	321	Educational Media Foundati		
223C3 Sunset Valley	KVLR	CP NCN TX		47.9	4.15	30 19 23.80	4.000	3.2	36.2	-2.8	-32.0*
				227.9	0000210507	97 47 59.50	255	479	Educational Media Foundati		
223C3 Sunset Valley	KVLR	LIC NCN TX		0.0	0.00	30 17 53.70	4.900	2.8	28.9	-6.0*	-29.0*
				0.0	BLED20170321AAM	97 49 55.00	161	391	Educational Media Foundati		
221A New Braunfels	KNBT	LIC ZCN TX		203.8	68.92	29 43 50.80	6.000	71.4	17.5	-14.1*	7.8
				23.7	BLH20030501AAZ	98 07 13.00	95	327	New Braunfels Communicatio		
221D Austin	K221GC!	LIC DVN TX		0.0	0.00	30 17 53.70	0.001		---	Reference---	
				0.0	BLFT20180620AAA	97 49 55.00		321	Educational Media Foundati		
219A Hornsby	KOOP	LIC CN TX		103.0	15.51	30 16 00.70	3.000	1.6	13.2	-3.8*	1.3
				283.0	BLED19950103KA	97 40 28.00	26	193	Texas Educational Broadcas		
219A Austin	KVRX	LIC CN TX		103.0	15.51	30 16 00.70	3.000	1.6	13.2	-3.8*	1.3
				283.0	BLED19941123KA	97 40 28.00	26	193	The University Of Texas At		
220A Dripping Springs	KLLR	LIC NCN TX		252.5	36.22	30 11 58.70	2.000	31.8	21.0	-0.8	11.9
				72.3	BLED20150825AAC	98 11 29.10	86	456	Educational Media Foundati		
218A Buda	767967	APP DCN TX		174.8	25.33	30 04 16.80	0.100	0.1	2.5	9.6	21.7
				354.8	0000166599	97 48 28.60	35	241	Poderosa Broadcasting, Inc		
218A Buda	@767967	APP DCN TX		174.8	25.33	30 04 16.80	0.100	0.1	2.5	9.6	21.7
				354.8	0000166599	97 48 28.60	35	241	Poderosa Broadcasting, Inc		
222C3 New Ulm	KNRG	LIC NCN TX		108.5	102.46	30 00 06.80	8.000	58.9	39.8	24.3	34.2
				289.0	BLH20190308AAZ	96 49 21.90	174	290			
220A Gonzales	VA8855	VAC N TX		157.5	95.57	29 30 12.85	6.000	39.9	26.1	38.1	43.8
				337.7		97 27 13.98	100	203	From CDBS		
220C2 Caldwell	KALD	LIC NCN TX		73.3	118.81	30 35 57.70	30.000	61.9	40.5	42.0	61.4
				253.9	BLED20100618ARG	96 38 32.90	118	220	Houston Christian Broadcas		
222A Killeen	KIIZ-FM	LIC CN TX		10.1	91.46	31 06 29.60	6.000	38.8	25.8	46.0	62.3
				190.1	BLH20090113ABH	97 39 51.10	73	312	Ihm Licenses, LLC		
222C2 Kerrville	KRNH	LIC NCN TX		257.8	121.12	30 03 42.80	20.000	66.7	45.2	48.1	72.4
				77.2	BLH20070406AAQ	99 03 44.10	203	753	Radio Ranch, LLC		
220C3 Gonzales	766262	CP ZCN TX		155.2	96.42	29 30 36.40	20.000	30.2	20.0	48.4	49.5
				335.4	0000166682	97 24 51.60	37	131	Texas Public Radio		

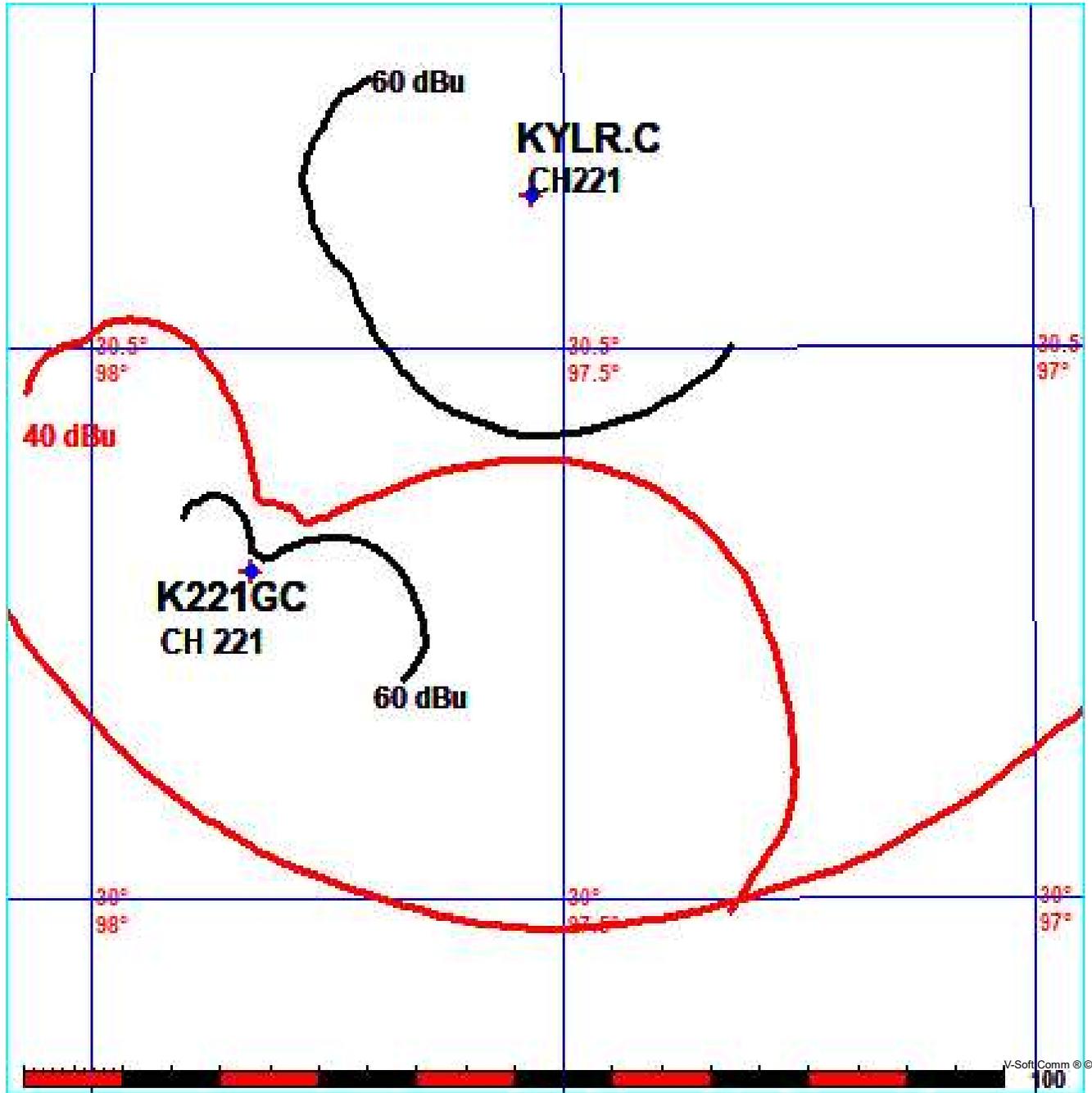
Terrain database is GLOBE 30 Sec, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM  
 In & Out distances between contours are shown at closest points. Reference Zone= West Zone, Co to 3rd adjacent.  
 All separation margins (if shown) include rounding. Call signs with exclamation marks need not be protected.  
 Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)  
 "\*"affixed to 'IN' or 'OUT' values = site inside restricted contour.  
 Reference station has protected zone issue: Mexico

Educational Media Foundation

FMCommander Single Allocation Study - 08-07-2023 - GLOBE 30 Sec  
K221GC's Overlaps (In= -32.61 km, Out= 6.71 km)

K221GC CH 221 D DA  
Lat= 30 17 53.70, Lng= 97 49 55.00  
0.25 kW 159.7 m HAAT, 391 m COR  
Prot.= 60 dBu, Intef.= 40 dBu

KYLR-C CH 221 A 73.215 Z 0000210508  
Lat= 30 38 18.90, Lng= 97 31 53.90  
2.0 kW 119 m HAAT, 321 m COR  
Prot.= 60 dBu, Intef.= 40 dBu



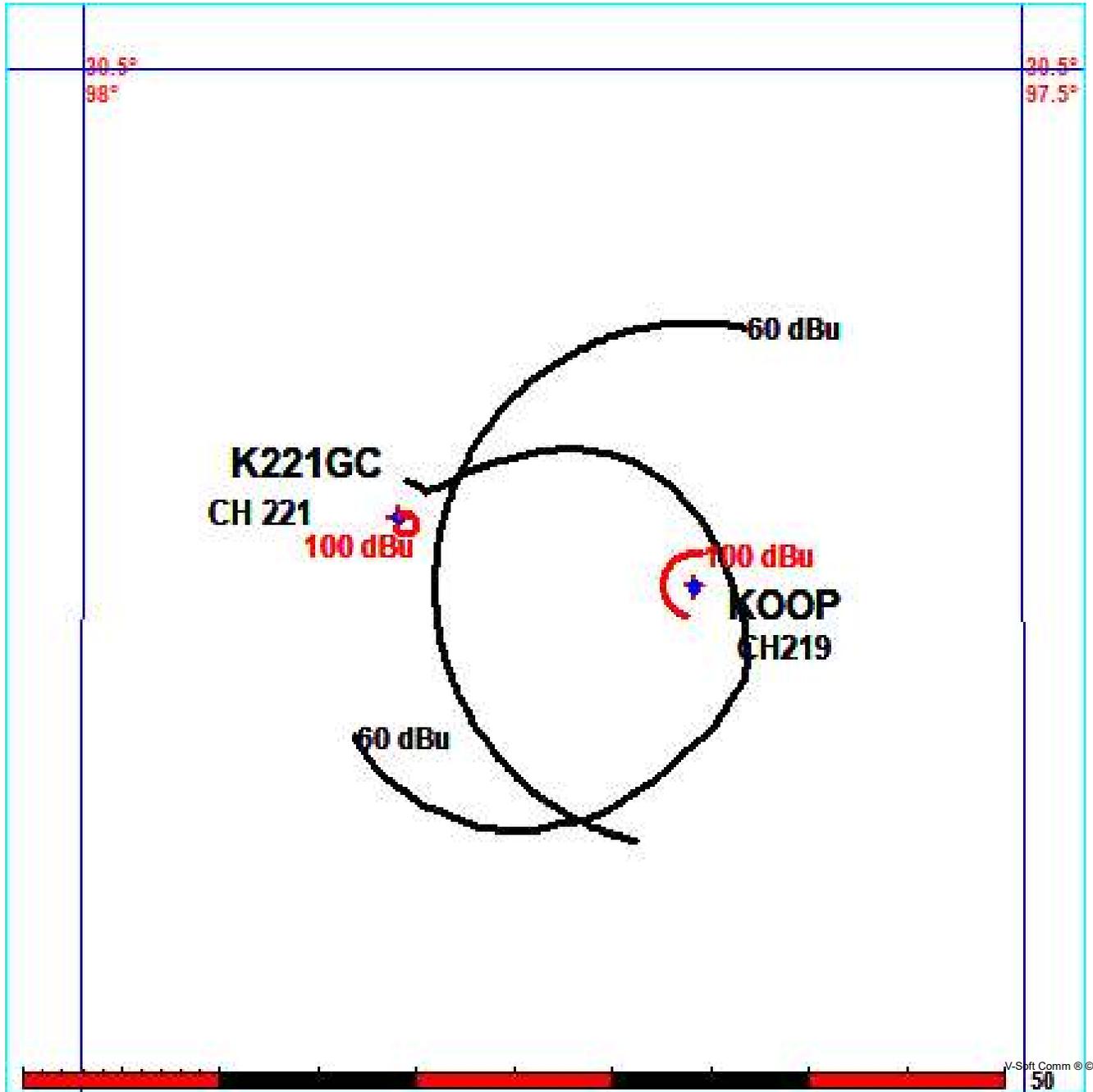


Educational Media Foundation

FMCommander Single Allocation Study - 08-07-2023 - GLOBE 30 Sec  
K221GC's Overlaps (In= -3.77 km, Out= 1.33 km)

K221GC CH 221 D DA  
Lat= 30 17 53.70, Lng= 97 49 55.00  
0.25 kW 159.7 m HAAT, 391 m COR  
Prot.= 60 dBu, Intef.= 100 dBu

KOOP CH 219 A BLED19950103KA  
Lat= 30 16 00.70, Lng= 97 40 28.00  
3.0 kW 26 m HAAT, 193 m COR  
Prot.= 60 dBu, Intef.= 100 dBu

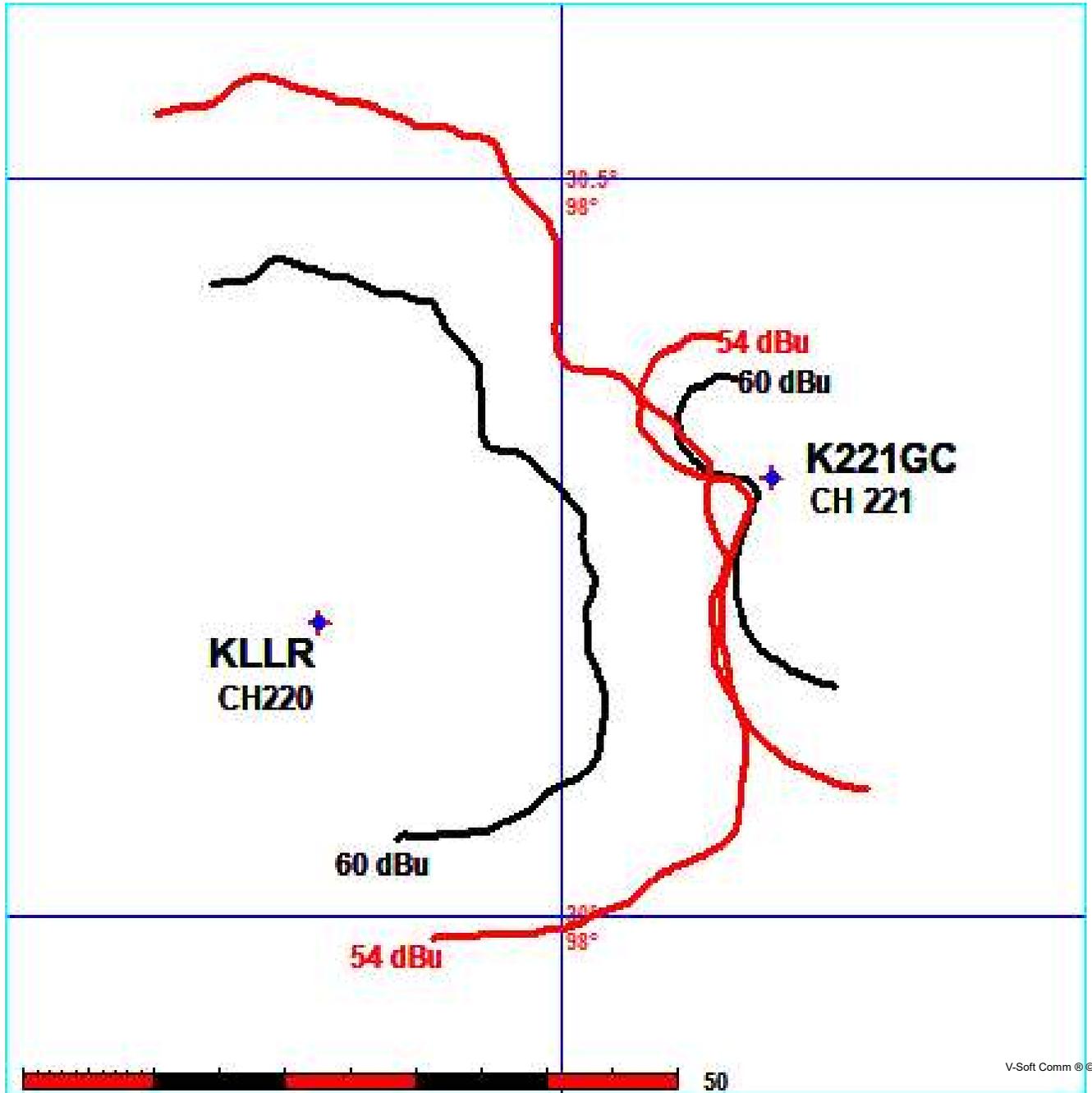


Educational Media Foundation

FMCommander Single Allocation Study - 08-07-2023 - GLOBE 30 Sec  
K221GC's Overlaps (In= -0.83 km, Out= 11.86 km)

K221GC CH 221 D DA  
Lat= 30 17 53.70, Lng= 97 49 55.00  
0.25 kW 159.7 m HAAT, 391 m COR  
Prot.= 60 dBu, Intef.= 54 dBu

KLLR CH 220 A 73.215 N BLED20150825AAC  
Lat= 30 11 58.70, Lng= 98 11 29.10  
2.0 kW 86 m HAAT, 456 m COR  
Prot.= 60 dBu, Intef.= 54 dBu



**Compliance with C.F.R. 74.1204**

The proposed FM Translator to operate on channel 221 is located within the protected 60dBu contour of second adjacent channel station KVLR, channel 223C3 Sunset Valley, TX. According to 74.1204(a)(3), in order to protect second and third adjacent facilities, the difference in dBu between the two facilities must not exceed 40dBu.

The proposed ERP for K221GC:	250 watts
The proposed COR for K221GC:	86 meters
KVLR F(50/50) contour at proposed site:	96.7 dBu
The F(50/10) contour of proposed K221GC	136.7 dBu

The predicted distance to the 136.7dbu interfering contour is 16.3 meters. Taking into account the antenna vertical elevation pattern for the Scala CA2-CP single bay antenna and the height above ground of 86m, it has been determined that the interfering contour of 136.7dbu does not reach the ground. As seen in Exhibit 1-A1, the lowest elevation for this interfering contour is 78.5m above ground at a distance of 11.6m from the antenna.

There are no regularly occupied structures at the base of the tower and there are no structures which are tall enough to enter the 16.3 meter predicted interference distance.

Therefore, EMF respectfully requests a waiver of C.F.R. 74.1204 based on no population within the area of predicted interference.

EXHIBIT 1 - A2  
 74.1204(d) Showing  
 K221GC  
 Austin, TX

ERP (kw): 0.25  
 Height of Antenna above Ground (m): 86  
 Translator's IX Contour: 136.7  
 Antenna Type: Scala CA2-CP/1

<u>Depression Angle from Horizon</u>	<u>Antenna Relative Field</u>	<u>ERP (kw) from the Antenna RF</u>	<u>Dist. To IX Contour (m)</u>	<u>Height IX Contour Above Ground (m)</u>
0	1.000	0.2500	16.2170	86.000
5	0.990	0.2450	16.0548	84.601
10	0.979	0.2396	15.8764	83.243
15	0.952	0.2266	15.4386	82.004
20	0.920	0.2116	14.9196	80.897
25	0.877	0.1923	14.2223	79.989
30	0.829	0.1718	13.4439	79.278
35	0.772	0.1490	12.5195	78.819
40	0.715	0.1278	11.5951	78.547
45	0.647	0.1047	10.4924	78.581
50	0.570	0.0812	9.2437	78.919
55	0.487	0.0593	7.8977	79.531
60	0.388	0.0376	6.2922	80.551
65	0.292	0.0213	4.7354	81.708
70	0.187	0.0087	3.0326	83.150
75	0.095	0.0023	1.5406	84.512
80	0.045	0.0005	0.7298	85.281
85	0.032	0.0003	0.5189	85.483
90	0.030	0.0002	0.4865	85.513

### **Human exposure to excess levels of radiofrequency radiation**

The proposed facility is to be built using a 1-bay circularly polarized Scala CA2-CP antenna.

According to OET 65, “Applicants and licensees should be able to calculate, based on considerations of frequency, power and antenna characteristics the distance from their transmitter where their signal produces an RF field equal to, or greater than, the 5% threshold limit. The applicant or licensee then shares responsibility for compliance in any accessible area or areas within this 5% “contour” where the appropriate limits are found to be exceeded.”

The proposed facility’s maximum contribution to RF on the site is  $1.36\mu\text{W}/\text{cm}^2$  at a distance of 23 meters from the tower, which is less than 0.7% of the uncontrolled (public) exposure limit and less than 0.2% of the controlled limit.

Therefore, because the proposed facility will not cause an RF field that is equal to or greater than 5% of the  $200\ \mu\text{W}/\text{cm}^2$  limit for uncontrolled exposure at any point, the proposed facility complies with the requirements of OET 65.

EMF will fully cooperate with other site users to temporarily reduce power or cease broadcasting, as necessary, to protect workers and others having access to the site from excessive levels of RF Radiation.