

T.Z. SAWYER TECHNICAL CONSULTANTS

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ENGINEERING EXHIBIT EE-1:

**FM TRANSLATOR
MINOR CHANGE APPLICATION**

LA PROMESA FOUNDATION

**250-MILE FM TRANSLATOR
MODIFICATION WINDOW FOR AM
CLASS A AND CLASS B STATIONS
AND ALL OTHER AM STATION CLASSES
NOT PREVIOUSLY FILED**

**FM TRANSLATOR STATION K252FL
FCC FACILITY NUMBER: 148446**

**REQUESTS FM CHANNEL 241D
HOUSTON, TEXAS**

**APPLICATION FOR AUTHORITY TO
CONSTRUCT OR MAKE CHANGES IN AN
FM TRANSLATOR OR FM BOOSTER STATION**

JULY 2016

**ENGINEERING EXHIBIT
IN SUPPORT OF
MINOR MODIFICATION OF CONSTRUCTION PERMIT
APPLICATION FOR AUTHORITY TO
CONSTRUCT OR MAKE CHANGES IN AN
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**JULY 2016
NARRATIVE STATEMENT**

I. GENERAL:

The engineering exhibit, of which this narrative is part, was prepared in support of a MINOR CHANGE application concerning FM Translator Station, K252FL currently authorized at Port Lavaca, Texas, FCC Facility ID: 148446.

The applicant proposes to make changes to the facility location, the facility antenna system, the final output frequency, the community of license, and the primary station to be rebroadcast.

This application is being filed during the 250-mile FM Translator Modification Window for Class A and Class B AM broadcast stations (and all others not previously filed.) The primary station, KSHJ, Houston, Texas, FCC Facility ID: 33737, is a Class B AM broadcast station. The application is deemed to be a minor change application during this special filing window.

Minor Change 250-mile Radius Compliance.

K252FL, Port Lavaca, Texas, holds a construction permit (BMPFT-20160407ABM) for operation at the listed geographical coordinates in the table below and proposes operation at the location listed. This is a proposed site move clearly within the 250-mile allowable minor change radius of the filing window.

	N. Latitude (DD-MM-SS)	W. Longitude (DDD-MM-SS)	Distance (current to proposed)
CURRENT	28-46-47.00	096-19-44.00	
PROPOSED	29-52-42.80	095-33-36.50	88.77 miles

Distance per Sections 73.208 (FM) Valid out to a maximum distance of 475 km / 295 miles.

The station will provide FM "fill-in translator" service for non-commercial AM Station KSHJ, Houston, Texas, FCC Facility ID: 33737.

The proposed FM Translator station will operate on channel 241D (96.1 MHZ) with an effective radiated power (ERP) of 0.250 kilowatts (250 watts) and an antenna height of 35 meters above ground level (AGL) and 67 meters above mean sea level (AMSL). The applicant proposes to use a simple yagi directional, FM antenna (SCA CA-5 FMC) utilizing circular polarization (H & V).

TRANSMITTER LOCATION - FIGURE 1:

The transmitting facility will consist of an FM yagi antenna side-mounted on an existing permanent structure. FCC ASR registration number for the structure is 1053015 and is included in Figure 1. A site map (topographic map) is not provided as this is a FCC ASR registered tower site.

VERTICAL SKETCH OF SUPPORTING STRUCTURE - FIGURE 2:

A vertical tower sketch showing the proposed antenna and the existing supporting structure is included as Figure 2. No change in the overall height of the existing structure is proposed. The FAA has not been notified of this proposal. No new construction will occur that would require notification to the FAA.

PROPOSED DIRECTIONAL ANTENNA PATTERN - FIGURE 3:

A tabulation of the proposed FM translator directional antenna as well as a polar plot of the relative field pattern is provided in Figure 3. The antenna is an "SCA CA-5 FMC" Yagi directional antenna. The pattern provided in the graphical plot and the relative field tabulation values in Figure 3 have been rotated to the correct azimuth.

COVERAGE CONTOURS - FIGURE 4:

The predicted coverage contours were calculated in accordance with the provisions of 47 CFR 73.313 (FM Contours) and 47 CFR 73.183 (AM Groundwave Signals).

Figure 4 contains a map in which the predicted coverage contour of the translator and the primary station to be rebroadcast have been drawn, the proposed 60 dBu contour is within the 2mV/m groundwave daytime contour of the primary station as well as the 25-mile radius limit from the AM transmitting site.

CHANNEL 241D ALLOCATION STUDY - FIGURE 4:

The proposed site fully protects all other stations of concern as detailed in the contour study provided in Figure 4. No prohibitive overlap with any other facility of concern is predicted to occur when the vertical radiation pattern (vertical relative field) of the proposed antenna is taken into consideration.

MEXICO/UNITED STATES BORDER AREA:

The proposed site is not within the 320 kilometer coordination zone with Mexico. No international coordination of this proposal is required.

WAIVER REQUEST 2ND ADJACENT CHANNEL STATIONS - FIGURE 4:

Second Adjacent Channel Stations KKHH (Ch.239C) and KHMx (Ch.243C) collocated a distance of 33.82 kilometers are each predicted to have a signal level of 85.0 dBu at the proposed site. The D/U (desired to undesired) signal ratio is 40 dBu. Thus, the interfering signal level from this proposal is the $85.0 + 40 = 125.0$ dBu contour to each facility.

As detailed in Figure 4 the interference signal from this proposal does not reach the ground or any populated or traveled areas and cannot cause interference to any populated areas. There are no tall building, roof tops, or other occupied spaces within the predicted horizontal interference contour distance of 62.35 meters from this proposal. Thus no interference is predicted to occur to a populated or traveled area, and a grant of the wavier request is in the public interest as no harm is caused by grant of this proposal.

OTHER CONSIDERATIONS:

The applicant recognizes its responsibility to remedy complaints of blanketing interference as required by 47 CFR 73.318, and to protect existing or proposed facilities in accordance with the Commission's applicable rules. An intermodulation study has been conducted and no adverse impact on existing facilities or pending applications is anticipated. The applicant clearly recognizes its responsibility to remedy interference complaints to existing stations resulting from its proposed operation. There are no known translator input frequencies within the area in which this proposal's output frequency would cause interference.

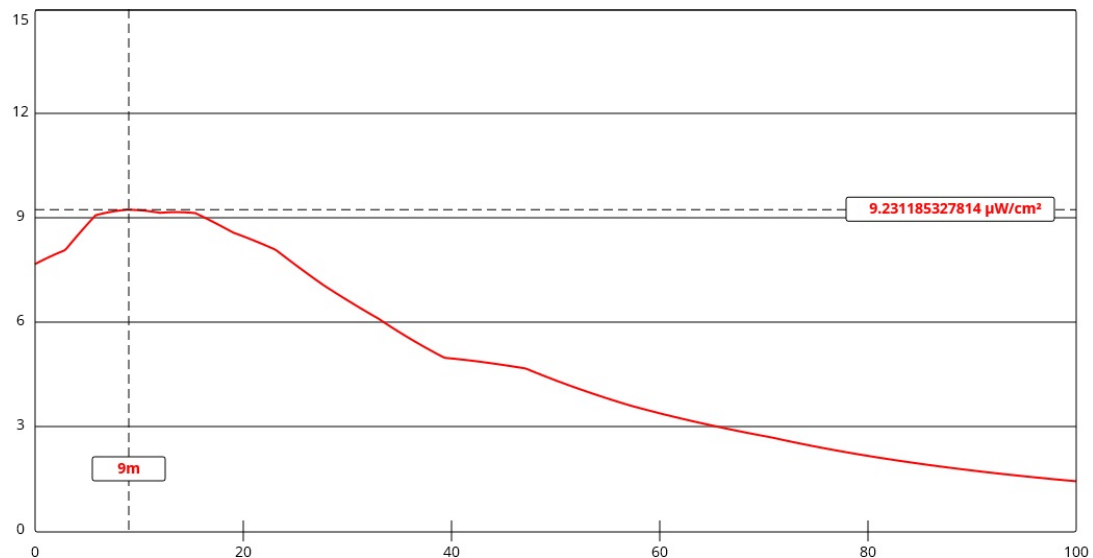
ENVIRONMENTAL CONSIDERATIONS:

The applicant believes its proposal will not significantly affect the environment for the following reasons:

- The proposal does not meet any of the criteria specified in Section 1.1307 of the FCC Rules. More specifically, the proposed facilities are not known to fall within any of the categories enumerated in Sections 1.1307(a)(1)-(7) and will not involve the use of high intensity white lights.
- The site and this proposal are exempt from NHPA Section 106 review as no construction will occur that would trigger a review under NHPA Section 106.
- Furthermore, operation of the proposed facility will not involve the exposure of workers or the general public to levels of radio frequency electromagnetic fields exceeding guidelines adopted by the Federal Communications Commission. (The current FCC guidelines are based upon criteria contained in the National Council of Radiation Protection and Measurements (NCRP) Report No.86 (1986) and ANSI/IEEE C95.1-1992.)

- Based upon a worst case downward field value of an EPA Type 1 antenna and a power of 0.250-kilowatts, and an antenna height of 35 meters above ground. The power density level 2-meters above ground is predicted to be 0.0092 mW/cm² or less. The computed power density is 0.92% of the Commission's guideline for a controlled area and 4.6% for an uncontrolled area. This level is well below the Commission's guidelines for maximum exposure levels to electromagnetic fields and no further study is required.

Results using FCC FM Model Program EPA Type 1 Antenna (Other)



The applicant will fully-cooperate and coordinate with all site users as required by the Commission's rules.

II SUMMARY:

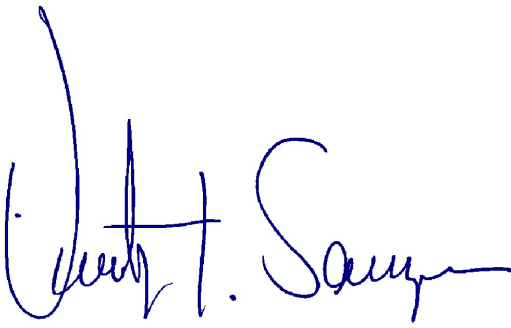
The proposed FM translator (modification of K252FL) will operate as a FM "fill-in" translator for AM Broadcast Station KSHJ with a maximum ERP 0.250-kilowatts, utilizing a DIRECTIONAL circularly polarized antenna system.

Operation as proposed herein would not cause/increase any normally prohibited contour overlap, and would not have any significant impact on the environment.

Second adjacent channel stations KKHH and KHHX are fully protected as the interference contour from this proposal does not reach the ground - therefore no population within the interference contour exists.

The proposed operation is fully in compliance with all other areas of the Commission's rules and applicable international agreements.

July 28, 2016



Timothy Z. Sawyer, Consulting Engineer

T Z SAWYER TECHNICAL CONSULTANTS

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FCC TOWER REGISTRATION 1053015

FAA NOTIFICATION NOT REQUIRED - NO CHANGES IN OVERALL HEIGHT ARE PROPOSED

Registration Detail

Reg Number	1053015	Status	Constructed
File Number	A1014290	Constructed	11/16/1988
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type	TOWER - Free standing or Guyed Structure used for Commu		
Location (in NAD83 Coordinates - Convert to NAD27)			
Lat/Long	29-52-43.6 N 095-33-37.3 W	Address	7263 Hillcrest
City, State	HOUSTON , TX		
Zip	77040	County	HARRIS
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
32.0	50.3
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
82.3	45.7

Painting and Lighting Specifications

None

FAA Notification

FAA Study	2008-ASW-5728-OE	FAA Issue Date	08/26/2008
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FCC TOWER REGISTRATION 1053015

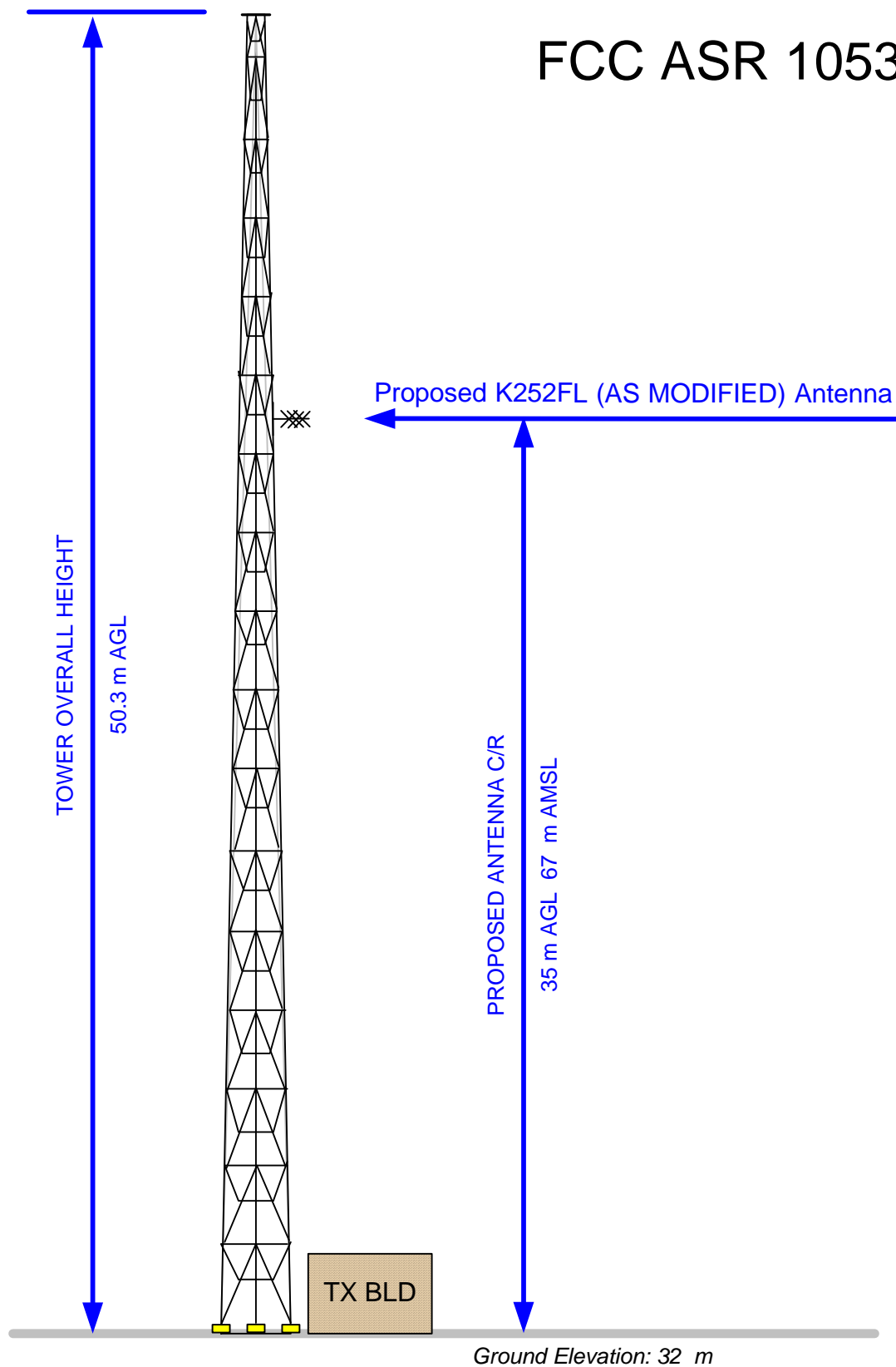
FM TRANSLATOR APPLICATION MOD OF K252FL
PRIMARY STATION KSHJ (AM)
HOUSTON, TEXAS

**FIGURE
1**

FALLS CHURCH, VA 22043

SIZE A	FSCM NO N/A	DWG NO 20160728KSHJ-FMX1	REV NONE
SCALE N/A	JULY 2016	SHEET	

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EXISTING STRUCTURE VERTICAL SKETCH OF ANTENNA

K252FL FMX MOD AM WINDOW FILING
KSHJ (AM) HOUSTON TEXAS

**FIGURE
2**

SIZE
A

FSCM NO
N/A

DWG NO
20160728K252FLFMX2

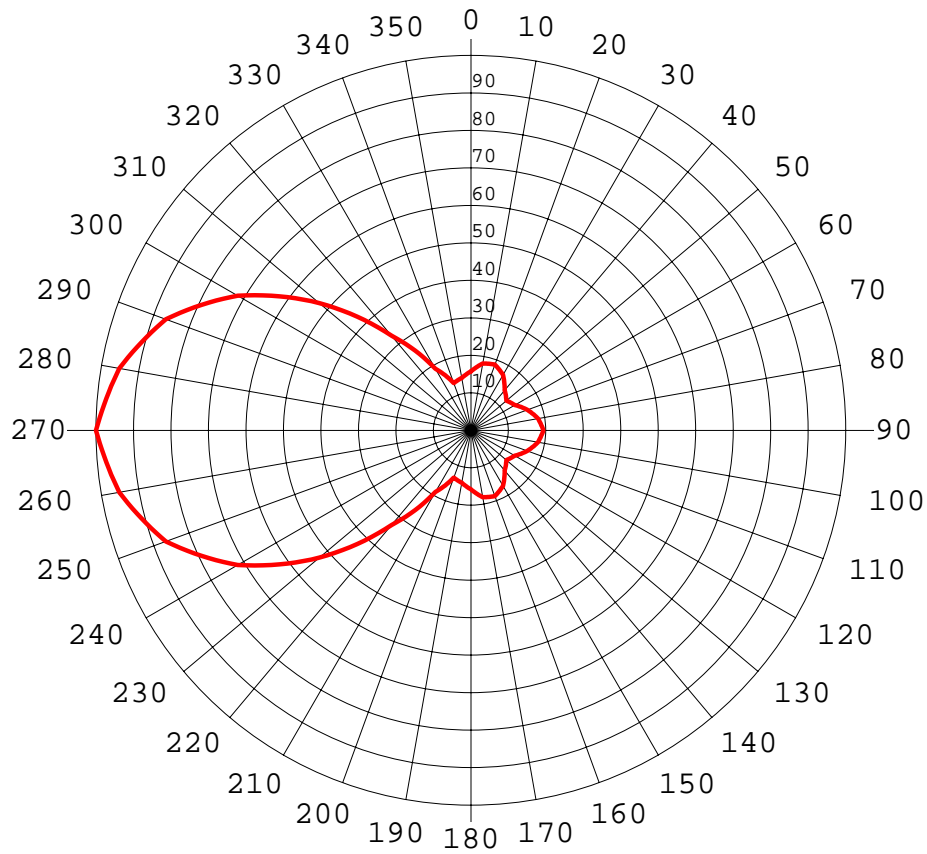
REV
NONE

SCALE
Vertical Only
1" = 20'

JULY 2016

SHEET

PROPOSED DIRECTIONAL PATTERN FIGURE 3



Azi	Rel	dBk	kW	dB	Azi	Rel	dBk	kW	dB
0	0.157	-22.09	0.006	-16.07	180	0.157	-22.09	0.006	-16.07
10	0.181	-20.87	0.008	-14.85	190	0.142	-22.99	0.005	-16.97
20	0.187	-20.60	0.009	-14.58	200	0.134	-23.48	0.004	-17.46
30	0.171	-21.36	0.007	-15.34	210	0.190	-20.45	0.009	-14.42
40	0.140	-23.10	0.005	-17.08	220	0.329	-15.67	0.027	-9.65
50	0.123	-24.20	0.004	-18.18	230	0.528	-11.56	0.070	-5.54
60	0.135	-23.41	0.005	-17.39	240	0.718	-8.89	0.129	-2.87
70	0.160	-21.94	0.006	-15.92	250	0.866	-7.27	0.187	-1.25
80	0.182	-20.83	0.008	-14.81	260	0.952	-6.45	0.227	-0.42
90	0.193	-20.30	0.009	-14.28	270	1.000	-6.02	0.250	0.00
100	0.182	-20.83	0.008	-14.81	280	0.952	-6.45	0.227	-0.42
110	0.160	-21.94	0.006	-15.92	290	0.866	-7.27	0.187	-1.25
120	0.135	-23.41	0.005	-17.39	300	0.718	-8.89	0.129	-2.87
130	0.123	-24.20	0.004	-18.18	310	0.528	-11.56	0.070	-5.54
140	0.140	-23.10	0.005	-17.08	320	0.329	-15.67	0.027	-9.65
150	0.171	-21.36	0.007	-15.34	330	0.190	-20.45	0.009	-14.42
160	0.187	-20.60	0.009	-14.58	340	0.134	-23.48	0.004	-17.46
170	0.181	-20.87	0.008	-14.85	350	0.142	-22.99	0.005	-16.97

K252FL MOD OF CP

BMPFT20160407ABM
FCC Facility ID: 148446
Latitude: 29-52-42.80 N
Longitude: 095-33-36.50 W
ERP: 0.25 kW
Channel: 241 Frequency: 96.1 MHz
Antenna HAAT Height: 34.5 m
Antenna AMSL Height: 67.0 m
Antenna AGL Height: 35.0 m
Ground Elevation: 32.0 m
Horiz. Pattern: Directional

FM FILL-IN TRANSLATOR FOR KSHJ (AM)
COVERAGE AND FILL-IN COMPLIANCE MAP

PROPOSED 60 DBU FM TRANSLATOR CONTOUR
AM KSHJ 25 MILE RADIUS LIMIT
AM KSHJ 2.0 MV/M DAYTIME GW CONTOUR

FIGURE 4

25 MILE RADIUS LIMIT
KSHJ AM SITE

2 MV/M GW
DAYTIME CONTOUR KSHJ AM

FCC 60 DBU F(50,50)
FMX CONTOUR

K252FL MOD OF CP

Jersey Village

Spring Valley

Hunters Creek Village

Houston

Bellaire

Meadows

Sugar Land

Missouri City

Richmond

Humble

Sheldon

KSHJ (AM)

Jacinto City

Galena Park

Pasadena

South Houston

Deer Park

Scale 1:375,000

0 10 20 30 km

K252FL MOD OF CP - AM WINDOW APPLICATION

FIGURE 4

NAD 27

LA PROMESA FOUNDATION

REFERENCE

CH# 241D - 96.1 MHz, Pwr= 0.25 kW DA, HAAT= 37.5 M, COR= 67 M

29 52 42.8 N.

Average Protected F(50-50)= 7.9 km

95 33 36.5 W.

Standard Directional

CH CITY	CALL	TYPE	ANT STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
239C Houston	KKHH	LIC	C TX	171.8 351.8	33.87 BMLH20060127AFY	29 34 34.0 95 30 36.0	100.000 585	13.5 605	91.3 Washington	16.8	-57.6* *1
243C Houston	KHMX	LIC	CY TX	171.8 351.8	33.87 BMLH20090814AAR	29 34 34.0 95 30 36.0	100.000 585	13.5 605	91.3	16.8	-57.6* * 2
241C2 Madisonville	KAGG	LIC	CX TX	332.6 152.3	115.36 BMLH20040617AFP	30 48 02.0 96 07 00.0	40.000 164	133.6 252	51.0 Cc Licenses, Llc	-21.2*	55.1
241L1 Houston	KBLT-LP	LIC		140.9 321.0	23.24 BLL20151008ABT	29 42 58.1 95 24 29.2	0.041 47			2.2	7.3
241L1 Houston	1641181	APP		74.9 255.0	27.98 BNPL20131112AUM	29 56 38.0 95 16 49.0	0.028 55			6.4	11.6
241C3 Edna	KIOX-FM	LIC	CN TX	225.3 44.9	122.29 BLH19980923KB	29 06 05.0 96 27 19.0	13.000 139	105.3 159	38.6 Globecom Media, Llc	11.6	66.2
241C1 Lake Charles	KYKZ	CP	NCX LA	76.0 257.0	196.62 BPH20141107ABI	30 17 26.0 93 34 35.0	60.000 369	168.4 375	72.3 Cumulus Licensing Llc	24.8	113.4
241D Houston	K241CM	CP	DC TX	144.6 324.7	56.21 BMPFT20160129AXU	29 27 56.0 95 13 23.0	0.250	26.7 315	7.8 South Texas Broadcasting,	26.0	37.3
295C Conroe	KHPT	LIC	CY TX	46.8 227.1	57.44 BMLH20060208ALZ	30 13 53.0 95 07 26.0	100.000 579	0.0 609	0.0 Cox Radio, Inc.	29.0R	28.4M
241C1 Lake Charles	KYKZ	LIC	CX LA	78.6 259.8	217.55 BMLH20050407KUV	30 14 41.0 93 20 37.0	100.000 146	154.9 150	58.5 Cumulus Licensing Llc	59.2	147.9

Terrain database is NGDC 30 SEC, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM
 Contour distances are on direct line to and from reference station. Reference Zone= West Zone, Co to 3rd adjacent.
 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.
 « = Station meets FCC minimum distance spacing for its class.
 < = Contour Overlap

Facility is okay with respect to AM station towers.

Facility is okay with respect to FCC monitoring stations.

Facility is okay toward West Virginia Quiet Zone. Distance to center = 1755.9 km

Facility is okay toward Table Mountain. Distance to Center = 1440.6 km, Azimuth = 325.0 Degrees True

Facility is not in a border zone (Mexico/Candada).

CHANNEL STUDY NOTES:

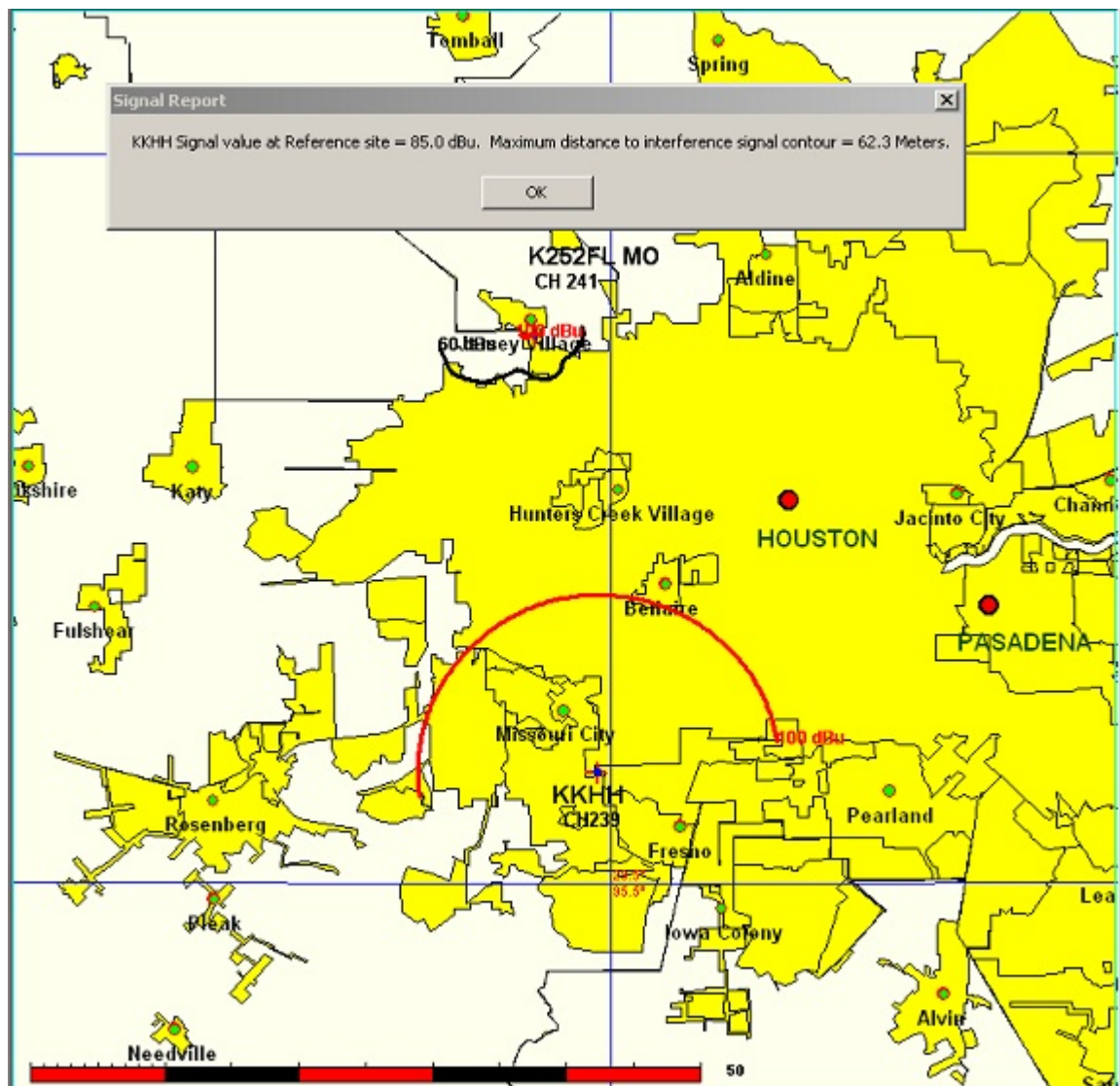
* 1 KKHH 2ND ADJACENT CHANNEL - NO CONTOUR OVERLAP INTERFERENCE CONTOUR DOES NOT REACH GROUND SEE ENGINEERING STATEMENT AND WAVIER REQUEST BASED ON NO POPULATION WITHIN INTERFERENCE CONTOUR.

* 2 KHMX 2ND ADJACENT CHANNEL - NO CONTOUR OVERLAP INTERFERENCE CONTOUR DOES NOT REACH GROUND SEE ENGINEERING STATEMENT AND WAVIER REQUEST BASED ON NO POPULATION WITHIN INTERFERENCE CONTOUR.

FIGURE 4**ADJACENT CHANNEL WAIVER REQUEST****SECOND-ADJACENT CHANNEL STATION KKHH (CH. 239C)****SECOND-ADJACENT CHANNEL STATION KHMx (CH. 243C)****NO POPULATION WITHIN INTERFERENCE CONTOUR**

Second-Adjacent Channel Stations KKHH and KHMx each are predicted to have a signal level of 85.0 dBu at the proposed site (the reference site). The D/U (desired to undesired) signal ratio is 40 dBu. Thus, the interfering signal level from this proposal is $85.0 + 40 = 125.0$ dBu to each facility.

The map below shows the calculated predicted signal level from KKHH/KHMx at the proposed translator site, and the predicted interfering contour distance (maximum horizontal distance). KKHH/KHMx are collocated facilities with identical radiated powers and antenna heights.



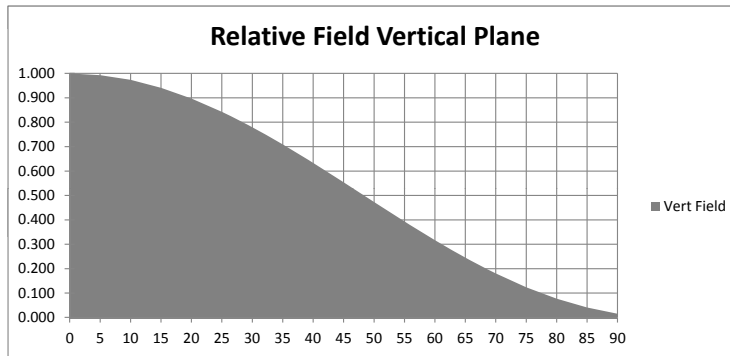
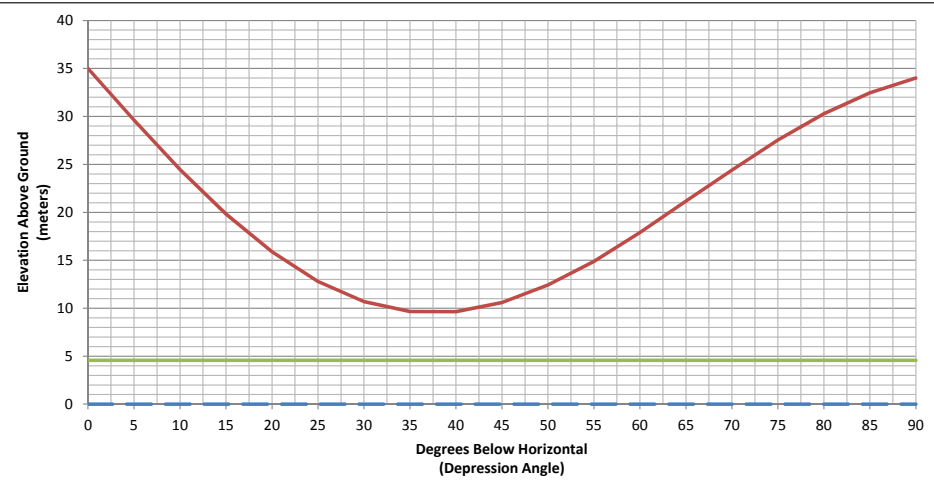
	Antenna
Manufacturer	SCA
Model	CA-5FMC
Number of Bays	1
Inter-Bay Spacing	FULLWAVE

Center of Radiation:	35	m AGL
Effective Radiated Power (ERP):	250	Watts
Interference Contour FS:	125	dBu
E Field Strength:	1.38995	V/m
Free Space Impedance:	377	Ohms
Power Density:	0.00512458	W/m ²
Maximum Free Space Distance:	62.31	meters

FIGURE 4 - WAIVER TO SECOND ADJ CHANNEL STATIONS

125 DBU
INTERFERENCE CONTOUR PLOTTED ABOVE GROUND LEVEL

DEPRESSION ANGLE	RELATIVE		ERP WATTS	IN METERS			
	FIELD	POWER		ECTOR LENG	HORIZONTAL	VERTICAL	AGL
0	1.0000	1.0000	250.00	62.31	62.31	0.00	35.00
5	0.9930	0.9860	246.51	61.87	61.64	5.39	29.61
10	0.9740	0.9487	237.17	60.69	59.76	10.54	24.46
15	0.9410	0.8855	221.37	58.63	56.63	15.17	19.83
20	0.8970	0.8046	201.15	55.89	52.52	19.12	15.88
25	0.8430	0.7106	177.66	52.52	47.60	22.20	12.80
30	0.7800	0.6084	152.10	48.60	42.09	24.30	10.70
35	0.7090	0.5027	125.67	44.18	36.19	25.34	9.66
40	0.6330	0.4007	100.17	39.44	30.21	25.35	9.65
45	0.5540	0.3069	76.73	34.52	24.41	24.41	10.59
50	0.4730	0.2237	55.93	29.47	18.94	22.58	12.42
55	0.3940	0.1552	38.81	24.55	14.08	20.11	14.89
60	0.3170	0.1005	25.12	19.75	9.88	17.11	17.89
65	0.2450	0.0600	15.01	15.27	6.45	13.83	21.17
70	0.1810	0.0328	8.19	11.28	3.86	10.60	24.40
75	0.1240	0.0154	3.84	7.73	2.00	7.46	27.54
80	0.0770	0.0059	1.48	4.80	0.83	4.72	30.28
85	0.0410	0.0017	0.42	2.55	0.22	2.54	32.46
90	0.0160	0.0003	0.06	1.00	0.00	1.00	34.00



WAREHOUSE ROOFS DO NOT EXCEED 6.1 METERS (20 FEET) IN ELEVATION
 MINIMUM ELEVATION OF INTERFERENCE CONTOUR IS 9.6 METERS (31 FEET).

