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ENGINEERING EXHIBIT EE-1:

**HOUSTON CHRISTIAN BROADCASTERS, INC.
FM TRANSLATOR STATION**

**NEW
FM CHANNEL 246D
LONGVIEW, TEXAS**

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

**AUGUST 2013
FCC FACILITY NUMBER
140154**

ENGINEERING EXHIBIT

IN SUPPORT OF

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

**CH 246D
LONGVIEW, TEXAS**

HOUSTON CHRISTIAN BROADCASTERS, INC.
FM TRANSLATOR STATION
NEW
FM CHANNEL 246D
LONGVIEW, TEXAS

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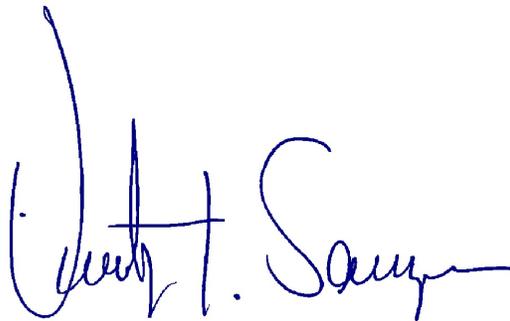
1. F.C.C. Form 349, Section III (Certification)
2. F.C.C. Form 349, Section IIIa (Engineering)
3. Declaration of Engineer
4. Narrative Statement
5. Figure 1, Site Location FCC Tower Registration.
6. Figure 2, Vertical Sketch of Supporting Structure
7. Figure 3, Proposed Translator Service and Primary Station Contours, FM Translator Interference/Spacing Study, and LPFM Preclusion Study (if required).

DECLARATION

I, Timothy Z. Sawyer, declare and that I have provided engineering services in the area of telecommunications since 1969. My qualifications are a matter of record with the Federal Communications Commission. I am a senior engineer with the firm of Mullaney Engineering, Inc., consulting radio telecommunications engineers with offices in Gaithersburg, Maryland.

The firm of Mullaney Engineering, Inc., has been retained to prepare the instant engineering exhibit in support of *an application for Authority to Construct or Make Changes in a FM Translator of FM Booster Station, FCC Facility ID Number 140154.*

All facts contained herein are true of my own knowledge except those stated to be on information and belief, and as to those facts, I believe them to be true. I declare under the penalty of perjury that the foregoing is true and correct.



Timothy Z. Sawyer

Executed on the 27th day of August 2013

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**AUGUST 2013
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NARRATIVE STATEMENT:

I. GENERAL:

The engineering exhibit, of which this narrative is part, was prepared in support of an application for a construction permit for a NEW FM Translator Station at Longview, Texas.

The station will provide FM translator service for co-owned noncommercial educational (NCE) FM Station KH CJ, Jefferson, Texas, FCC Facility ID: 83429.

No changes are proposed from the previously provided short form application

The proposed FM Translator station will operate on channel 246D (97.1 MHz) with an effective radiated power (ERP) of 0.250 kilowatts (250 watts) and an antenna height above mean sea level of 167 meters (AMSL) and above ground level of 91 meters (AGL). The applicant proposes to use a standard, non-directional, 1-bay FM antenna utilizing circular polarization (H & V).

TRANSMITTER LOCATION - FIGURE 1:

The transmitting facility will consist of a 1-bay FM antenna side-mounted on an existing permanent structure. No changes are proposed from the previously provided short form application. The FCC ASR registration for the structure is provided in Figure 1. FAA notification is not required as no changes to the existing structure are proposed.

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.

COVERAGE CONTOURS - FIGURE 3:

The predicted coverage contours were calculated in accordance with the provisions of 47 CFR 73.313. In accordance with current FCC practice, no consideration was given to terrain roughness correction factors.

The average terrain elevations from 3 to 16 kilometers from the proposed translator site were obtained from the NGDC 30-second computer database. The standard twelve radials evenly spaced at 30-degree intervals were used for determining the average terrain elevations and the distance to the 60 dBu translator coverage contour.

The antenna radiation center heights above average terrain in the individual radial directions and the effective radiated power were used in conjunction with the F(50,50) curves of 47 CFR 73.333(Figure 1) to determine distances to the 60 dBu contour from the proposed translator and the FM primary station.

Figure 3 contains a map in which the predicted coverage contours of the translator and the primary station to be rebroadcast have been drawn.

CHANNEL 246D ALLOCATION STUDY - FIGURE 3:

The proposed site fully protects all other stations of concern as detailed in Figure 3. No prohibitive overlap with any other facility of concern is predicted to occur.

LPFM PRECLUSION STUDY:

An LPFM preclusion study, has been provided in the previously filed short-form amendment.

As this application *DOES NOT* modify any technical parameters from that previously filed with the Commission, the LPFM preclusion study is incorporated herein by reference.

No preclusion of any LPFM facilities will occur as a result of a grant of this proposal within any designated LPFM market grid, nor is the proposed facility located within any Top-50 market grid or buffer zone.

OTHER CONSIDERATIONS:

The "blanketing" contour of a 0.250 kilowatt FM station extends 200 meters. 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. However, the applicant clearly recognizes its responsibility to remedy interference complaints to existing stations resulting from its proposed operation.

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 1.0 for all angles below the horizon, and a power of 0.250-kilowatts, and an antenna height of 91 meters above ground. The power density level 2-meters above ground is predicted to be 0.0021 mW/cm² or less. The computed power density is 0.21% of the Commission's guidelines for a controlled area and 1.05% 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. The minimum safe distance for a controlled area is 4.1 meters (13.5 feet), the antenna is located at 91 meters (299 feet) above ground, therefore no exposure in excess of the guidelines can occur at ground level.

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

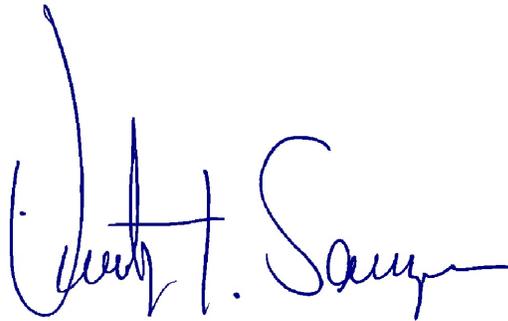
II SUMMARY:

The proposed FM translator will operate as a FM translator for co-owned, noncommercial educational FM Broadcast Station KHCJ, Jefferson, Texas with a maximum ERP 0.250 kilowatts (250 watts), utilizing a NON-DIRECTIONAL / OMNI 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.

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

27 August 2013



Timothy Z. Sawyer

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GAITHERSBURG, MARYLAND USA
TEL.: (301) 921-0115, ext 3.

FCC TOWER REGISTRATION 1037517

Registration Detail			
Reg Number	1037517	Status	Constructed
File Number	A0601746	Constructed	01/01/1989
EMI	No	Dismantled	
NEPA	No		
Antenna Structure			
Structure Type	TOWER - Free standing or Guyed Structure used for Commu		
Location (in NAD83 Coordinates)			
Lat/Long	32-29-49.2 N 094-44-32.4 W	Address	210 W Methvin St. (Longview/I-20 #9091--SOU)
City, State	Longview , TX		
Zip	75601	County	GREGG
Center of AM Array		Position of Tower in Array	
Heights (meters)			
Elevation of Site Above Mean Sea Level		Overall Height Above Ground (AGL)	
102.7		91.1	
Overall Height Above Mean Sea Level		Overall Height Above Ground w/o Appurtenances	
193.8		82.3	
Painting and Lighting Specifications			
FAA Chapters 4, 8, 12 Paint and Light in Accordance with FAA Circular Number 70/7460-1K			
FAA Notification			
FAA Study	2003-ASW-3390-OE	FAA Issue Date	08/07/2003



FAA NOTIFICATION AND/OR FCC TOWER REGISTRATION

CH 246D (FMX)
LONGVIEW, TEXAS

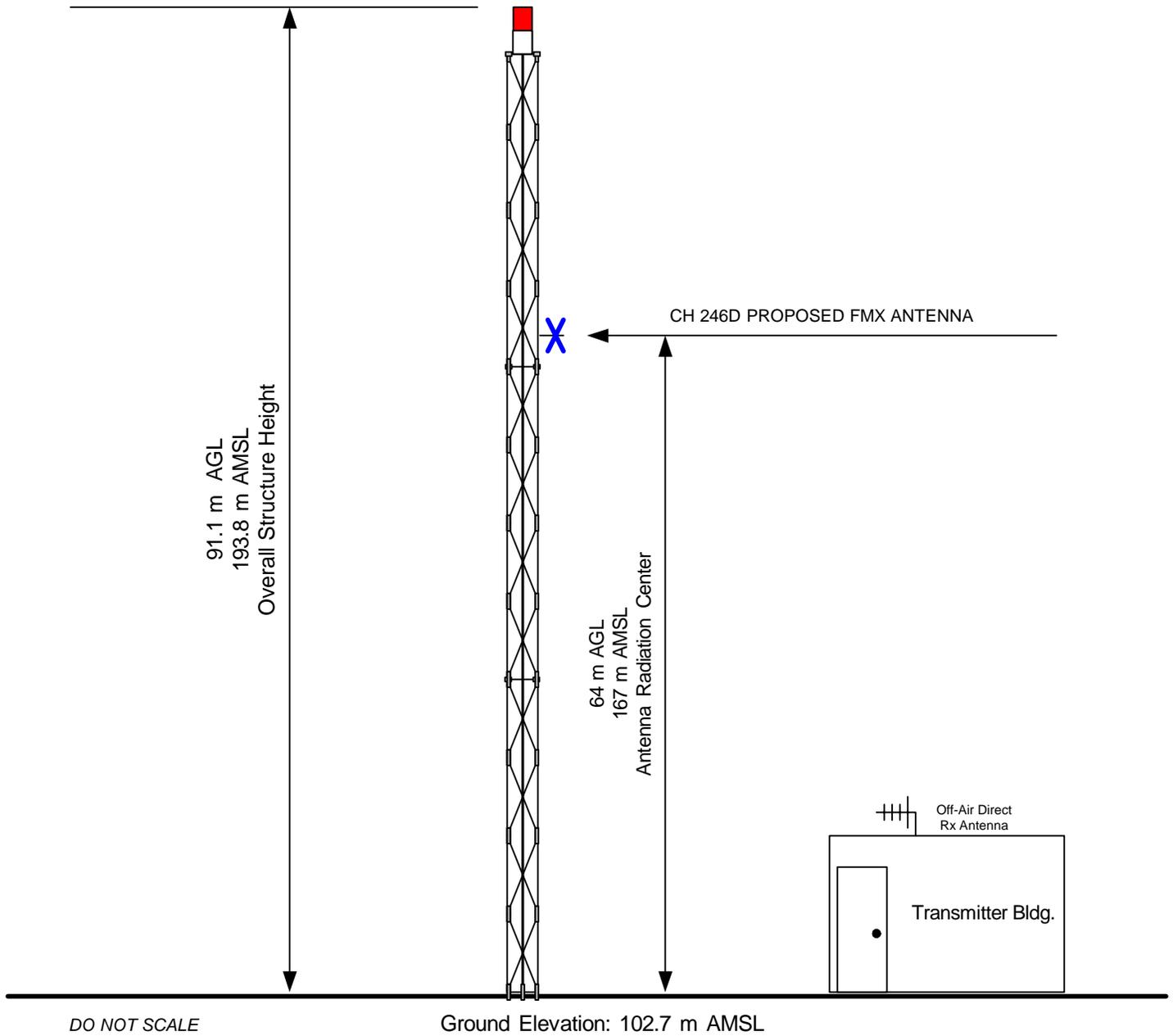
**FIGURE
1**

GAITHERSBURG, MARYLAND U.S.A

SIZE A	FSCM NO N/A	DWG NO 20130827LONGVIEWCH246	REV NONE
SCALE N/A	AUGUST 2013		SHEET

(c) 2013, ALL RIGHTS RESERVED

This is an existing structure - no new construction is required
 Proposal is exempt from Section 106 NHPA processing
 No increase in existing structure height - FAA notification is not required
 FCC ASR # 1037517



VERTICAL SKETCH OF SUPPORTING STRUCTURE

CH246D (FMX)
 LONGVIEW, TEXAS

FIGURE 2

GAITHERSBURG, MARYLAND U.S.A

SIZE A	FSCM NO N/A	DWG NO 20130827LONGVIEWCH246	REV
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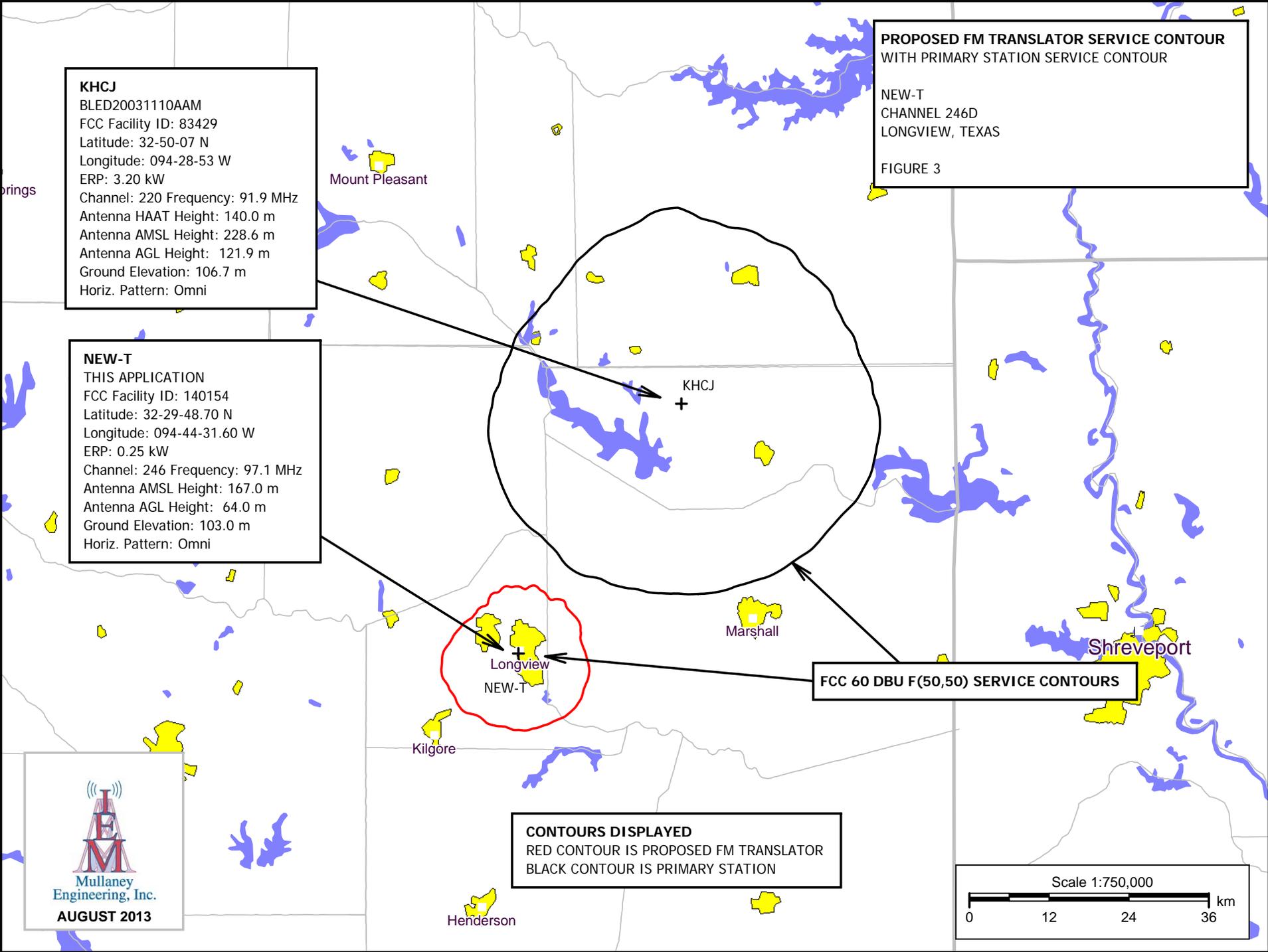
(c) 2013, ALL RIGHTS RESERVED

SCALE NO SCALE	AUGUST 2013	SHEET
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KHCJ
 BLED20031110AAM
 FCC Facility ID: 83429
 Latitude: 32-50-07 N
 Longitude: 094-28-53 W
 ERP: 3.20 kW
 Channel: 220 Frequency: 91.9 MHz
 Antenna HAAT Height: 140.0 m
 Antenna AMSL Height: 228.6 m
 Antenna AGL Height: 121.9 m
 Ground Elevation: 106.7 m
 Horiz. Pattern: Omni

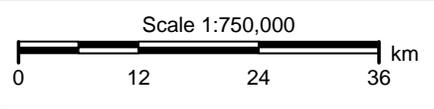
NEW-T
 THIS APPLICATION
 FCC Facility ID: 140154
 Latitude: 32-29-48.70 N
 Longitude: 094-44-31.60 W
 ERP: 0.25 kW
 Channel: 246 Frequency: 97.1 MHz
 Antenna AMSL Height: 167.0 m
 Antenna AGL Height: 64.0 m
 Ground Elevation: 103.0 m
 Horiz. Pattern: Omni

**PROPOSED FM TRANSLATOR SERVICE CONTOUR
 WITH PRIMARY STATION SERVICE CONTOUR**
 NEW-T
 CHANNEL 246D
 LONGVIEW, TEXAS
 FIGURE 3



FCC 60 DBU F(50,50) SERVICE CONTOURS

CONTOURS DISPLAYED
 RED CONTOUR IS PROPOSED FM TRANSLATOR
 BLACK CONTOUR IS PRIMARY STATION



LONGVIEW TEXAS CHANNEL 246D CHANNEL STUDY

FIGURE 3

REFERENCE CH# 246D - 97.1 MHz, Pwr= 0.25 kW, HAAT= 0.0 M, COR= 167 M
 32 29 48.7 N. Average Protected F(50-50)= 7.09 km
 94 44 31.6 W. Omni-directional

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*
246D Longview	1564574	APP_C_ TX		0.0 0.0	0.00 BNPFT20030317CIN	32 29 48.7 94 44 31.6	0.250 167	33.7 167	10.1 Houston Christian Broadcas	-43.8*	-43.8*
245C3 Pittsburg	KSCN	LIC NC_ TX		331.7 151.6	64.56 BLH20010730ABF	33 00 31.0 95 04 14.0	14.000 113	58.0 230	38.5 East Texas Broadcasting, I	-2.8<	13.0
247C2 Waskom	AL7143	RSV-A TX		90.0 270.5	91.80 RM11232	32 29 36.0 93 45 55.0	50.000 150	77.7 203	51.9	4.0	25.9
247D Henderson	640799	APP_C_ TX		190.0 9.9	35.11 BNPFT20030317KTH	32 11 06.0 94 48 25.0	0.250 88	19.6 216	13.1 East Texas Community Repea	4.3	6.0
247C2 Waskom	KQHN	LIC_CX TX		90.0 270.5	91.80 BLH20060109AAQ	32 29 36.0 93 45 55.0	42.000 163	77.2 216	51.9 Cumulus Licensing Llc	4.5	25.8
246C Fort Worth	KEGL	LIC_C_ TX		273.4 92.2	209.34 BMLH20081020AOC	32 35 19.0 96 58 05.0	100.000 508	190.2 697	86.3 Citicasters Licenses, Inc.	8.1	85.5
300C2 Longview	AL7146	VAC TX		14.5 194.5	23.30 RM11232	32 42 01.0 94 40 47.0	50.000 150	0.0 246	0.0 Xyz	14.5R	8.8M
245D Marshall	1562700	APP_C_ TX		78.4 258.6	37.39 BNPFT20030317JLF	32 33 49.0 94 21 07.0	0.205 17.1	17.1 218	11.7 E-string Wireless, Ltd	10.7	12.3
246C Cleveland	KTHT	LIC_C_ TX		186.9 6.8	219.09 BLH20001031AAA	30 32 06.0 95 01 04.0	100.000 563	196.5 609	91.1 Cox Radio, Inc.	11.3	89.3
243C1 Shreveport	KVKI-FM	LIC_CY LA		82.3 262.8	83.47 BLH19850305KS	32 35 38.0 93 51 39.0	100.000 243	8.9 305	66.9 Townsquare Media Shrevepor	64.8	15.5
300D Marshall	1568293	APP_C_ TX		85.0 265.2	37.02 BNPFT20130819ABE	32 31 30.0 94 20 58.0	0.250 0.0	0.0 161	0.0 Juan Alberto Ayala	9.5R	27.5M
244C2 Frankston	KOYE	LIC NC_ TX		231.2 50.9	80.88 BLH20010510AAK	32 02 22.0 95 24 39.0	50.000 150	5.8 276	51.4 Access.1 Texas License Com	63.2	28.4
249C3 Rusk	KWRW	LIC NCN TX		208.4 28.1	85.30 BLH19940124KB	31 49 12.0 95 10 19.0	14.500 124	4.2 258	41.1 E. H. Whitehead	69.8	43.1
249C3 Winfield	KALK	LIC NCN TX		330.4 150.1	87.80 BLH19920813KC	33 11 01.0 95 12 32.0	22.500 100	3.9 226	37.7 East Texas Broadcasting, I	74.7	49.0
248D Lindale	650278	APP_C_ TX		271.9 91.5	63.78 BNPFT20030317JKI	32 30 49.0 95 25 14.0	0.170 95	0.9 229	11.2 E-string Wireless, Ltd	51.7	51.5
247D Nacogdoches	K247BG	LIC_C_ TX		175.9 355.9	89.57 BLFT20070614AEQ	31 41 28.0 94 40 26.0	0.115 140	17.7 259	12.0 E-string Wireless, Ltd	60.2	60.7
245D Shreveport	K245BA	LIC_C_ LA		88.9 269.5	93.89 BLFT20080306AAC	32 30 32.0 93 44 35.0	0.205 107	19.2 160	12.8 Houston Christian Broadcas	64.7	67.1
246C2 Camden	KAMD-FM	LIC_CX AR		57.6 238.7	212.26 BLH20020806AAD	33 30 14.0 92 48 38.0	50.000 139	133.6 188	47.9 Radio Works, Inc.	68.5	130.2
300D Mount Pleasant	K300AU	LIC_C_ TX		348.3 168.2	79.93 BLFT20070405ABY	33 12 09.0 94 54 59.0	0.250 61	0.0 172	0.0 Life Media Ministries, Inc	9.5R	70.4M

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.
 All separation margins (if shown) include rounding
 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 protected contour.

-----NO PROBLEMS FOUND -----NO PROHIBITIVE OVERLAP-----