KBPA Channel 278C0
Facility ID No. 41213
San Marcos, Texas
Auxiliary CP File No. 0000099670
ASR No. 1063584
FCC Minor Modification
Comprehensive Technical Exhibit
November 25, 2020

TECHNICAL NARRATIVE

The applicant, Waterloo Media Group, L.P. ("Waterloo"), requests authority to modify FM auxiliary station construction permit File No. 0000099670 for KBPA, Channel 278C0, Facility ID No. 41213, licensed to San Marcos, Texas.

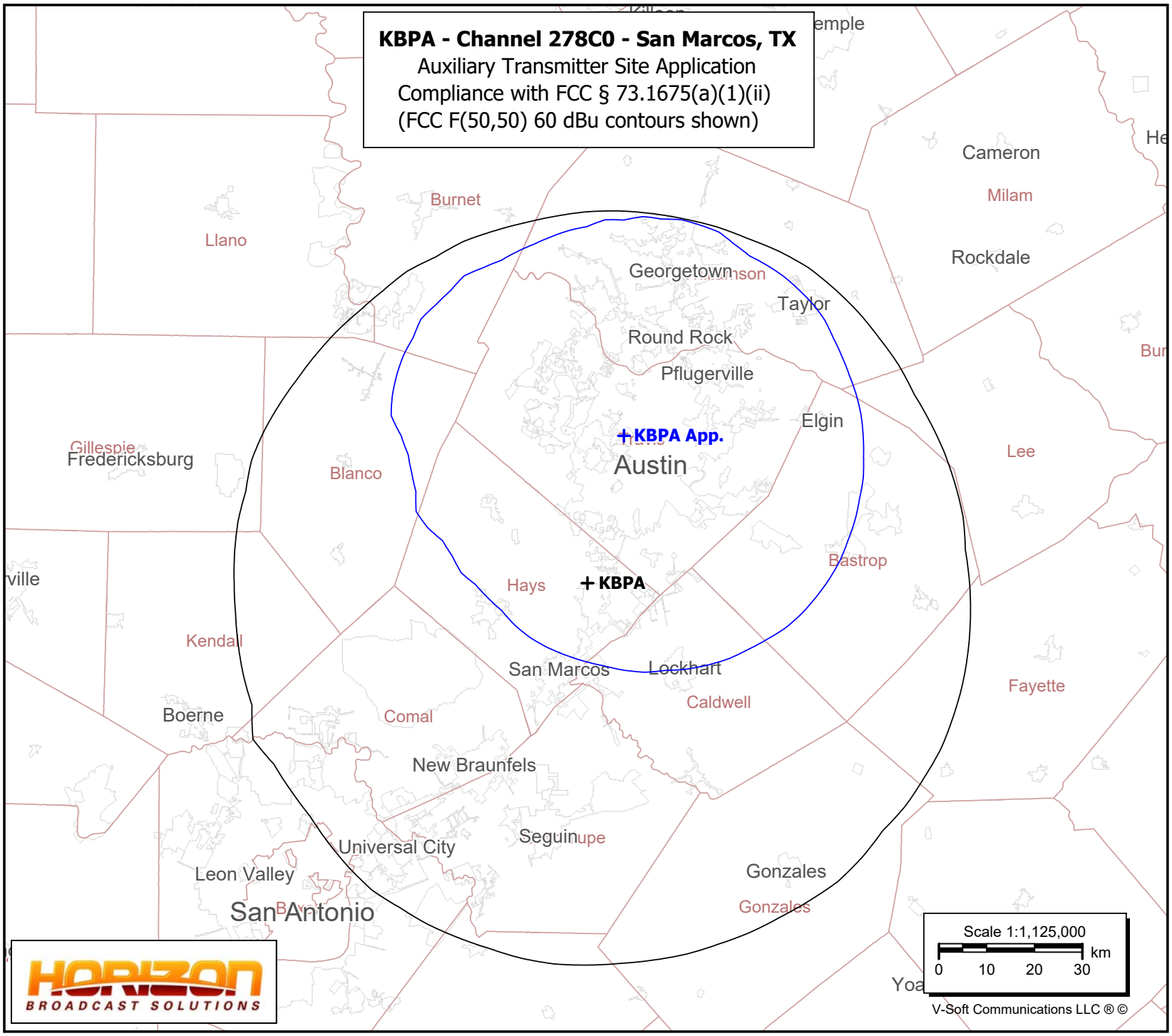
Waterloo requests to operate the KBPA auxiliary license with 11.0 kW ERP at 238.4 m above ground level and 253.3 m HAAT from an existing tower associated with ASR number 1063584. The transmit antenna will be an ERI SHP8AC6 eight bay full wave circularly polarized omni-directional antenna with a center of radiation of 238.4 meters height above ground level. The ERI antenna will also be the transmit antenna for the licensed facility of KROX-FM, Channel 268C2, Facility ID No. 54659, Buda, Texas and an auxiliary facility for KLBJ-FM, Channel 229C, Facility ID No. 65792 Austin, Texas.

The proposed KBPA auxiliary station will not result in extension of the licensed main facility FCC F(50,50) 60 dBu contour in any direction as required in Section 73.1675(a). A contour map demonstrating compliance of Section 73.1675(a) is included in the exhibit titled Comprehensive Technical Exhibit.

Compliance with environmental processing is demonstrated in an Exhibit titled Compliance with RF Exposure Limits and Section 106 which is included in the Comprehensive Technical Exhibit and includes FM Model for Windows for all three facilities as well as the combined RFR totals.

KBPA App.
San Marcos, TX
BXLH-20060913ACN
Latitude: 30-19-21 N
Longitude: 097-48-04 W
ERP: 11.00 kW
HAAT: 252.3 m
Channel: 278
Frequency: 103.5 MHz
AMSL Height: 476.2 m
Elevation: 237.8 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

KBPA
San Marcos, TX
BMLH20110913ABR
Latitude: 30-02-42.03 N
Longitude: 097-52-49.98 W
ERP: 100.00 kW
HAAT: 383.0 m
Channel: 278
Frequency: 103.5 MHz
AMSL Height: 608.0 m
Elevation: 250.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC



Human Exposure to Radiofrequency Electromagnetic Field
&
Section 106 Compliance
(Environmental)

A study has been made to determine whether this proposal is in compliance with 47 C.F.R. 1.1307 of the Commission's rules and with OET Bulletin #65, dated August 1997, regarding human exposure to radio frequency radiation in the vicinity of broadcast towers. Waterloo Media Group, L.P., licensee of KBPA seeks to modify FM auxiliary station construction permit File No. 0000099670 for KBPA, Channel 278C0 Facility ID No. 41213, licensed to San Marcos, Texas. The transmitting site is an existing tower 284.4 meters in overall height. This tower is registered with the FCC's Antenna Structure Registration (ASR) number 1063584. The tower is located at 30° 19' 21.0" N. Latitude ~ 97° 48' 04.0" W. Longitude (NAD 83). The proposed antenna is a side mounted ERI SHP8AC6 eight bay full wave circularly polarized omni-directional antenna with a center of radiation of 238.4 meters height above ground level. The KBPA auxiliary facility will operate with 11.0 kilowatts ERP at 238.4 meters above ground level and 253.3 meters HAAT. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of § 1.1306 of the FCC Rules. The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number 65. The ERI antenna is included in the recently revised OET FM Model Program under Type 3, Opposed "U" dipole. The ERI antenna will also be the transmit antenna for the licensed facility of KROX-FM, Channel 268C2, Facility ID No. 54659, Buda, Texas and an auxiliary facility for KLBJ-FM, Channel 229C, Facility ID No. 65792 Austin, Texas.

Using the Type Three antenna selection in the Commission's FM Model Program, the maximum calculated signal density near the tower at two meters above ground level attributable to the proposed facility was calculated to be 0.767 μW/cm at 64 meters, which is 0.384 percent of the general population/uncontrolled maximum permitted exposure limit.

The combined RFR predicted maximum calculated signal density for all three stations combined is as follows:

Call Sign	RFR level	Distance	Uncontrolled %
KBPA	0.767 μW/cm	64 meters	0.384%
KLBJ-FM Aux	6.976 μW/cm	63.8 meters	2.267%
KROX-FM	0.872 μW/cm	64 meters	0.436%
Total combined	8.615 μW/cm	64 meters	4.308%

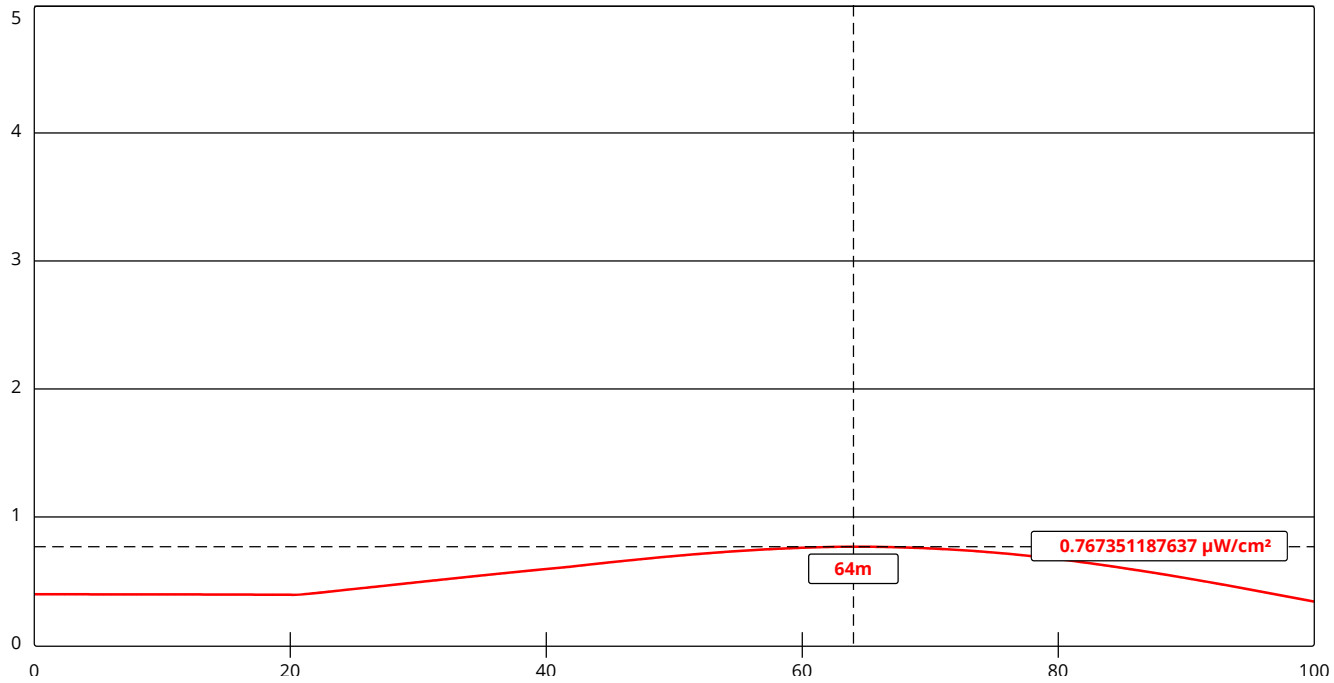
This is below the five percent threshold limit described in 1.1307(b) regarding sites with multiple emitters, which excludes applicant from responsibility for taking any corrective action in areas where the proposal's contribution is less than five percent.

The applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

Federal Communications Commission

FM Model

The FM Model calculator determines the potential exposure from radiofrequency (RF) electromagnetic fields produced by FM broadcast station antennas at ground level. The FM Model software was originally developed by the FCC in 1997 as a standalone executable program and this improved version provides more precise predictions and runs via a JavaScript enabled web browser. The FM Model is originally based on measured data published in 1985 by the EPA (http://nepis.epa.gov/Exe/ZyNET.exe/2000ED2W.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\81thru85\Txt\00000003\2000ED2W.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p|f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL). ▼ Show More....



View Tabular Results +

Channel Selection	Channel 278 (103.5 MHz)		
Antenna Type +	EPA Type 3: Opposed U Dipole		
Height (m)	238.4	Distance (m)	100
ERP-H (W)	11000	ERP-V (W)	11000
Num of Elements	8	Element Spacing (λ)	1
Num of Points	500	Apply	

Federal Communications Commission

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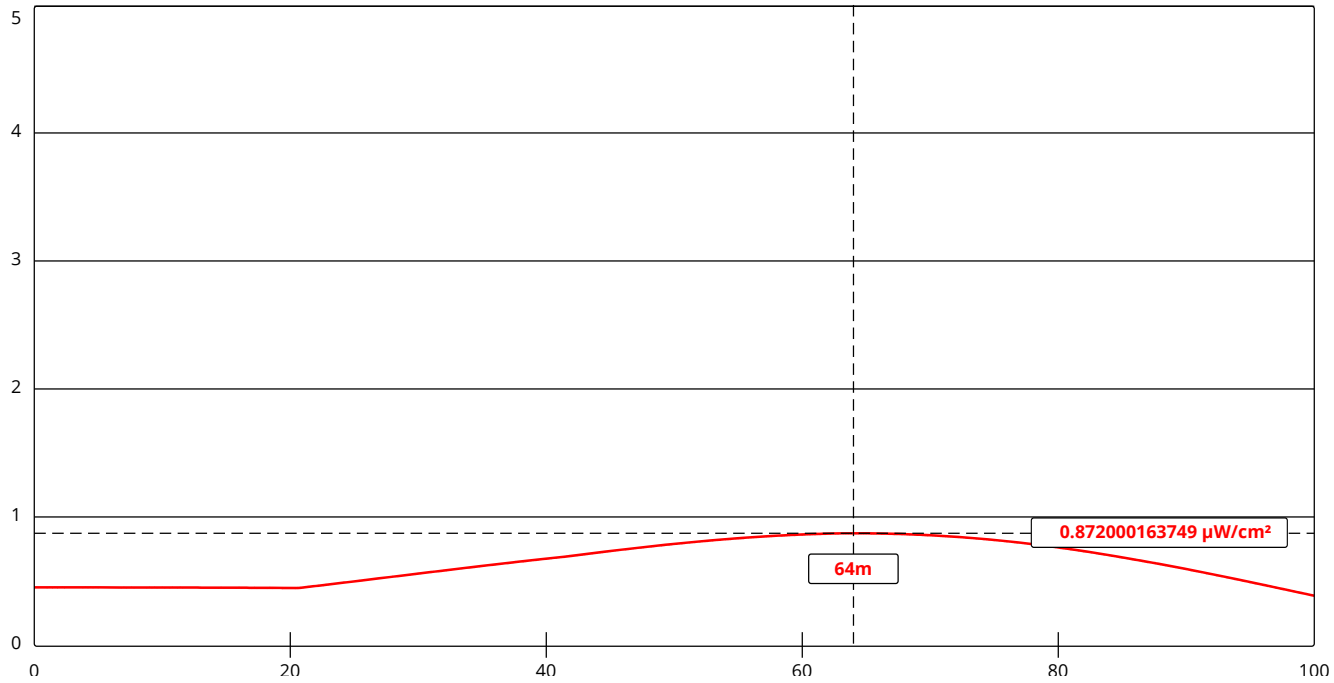

View Tabular Results +

Channel Selection	Channel 268 (101.5 MHz)		
Antenna Type +	EPA Type 3: Opposed U Dipole		
Height (m)	238.4	Distance (m)	100
ERP-H (W)	12500	ERP-V (W)	12500
Num of Elements	8	Element Spacing (λ)	1
Num of Points	500	Apply	

Federal Communications Commission

FM Model

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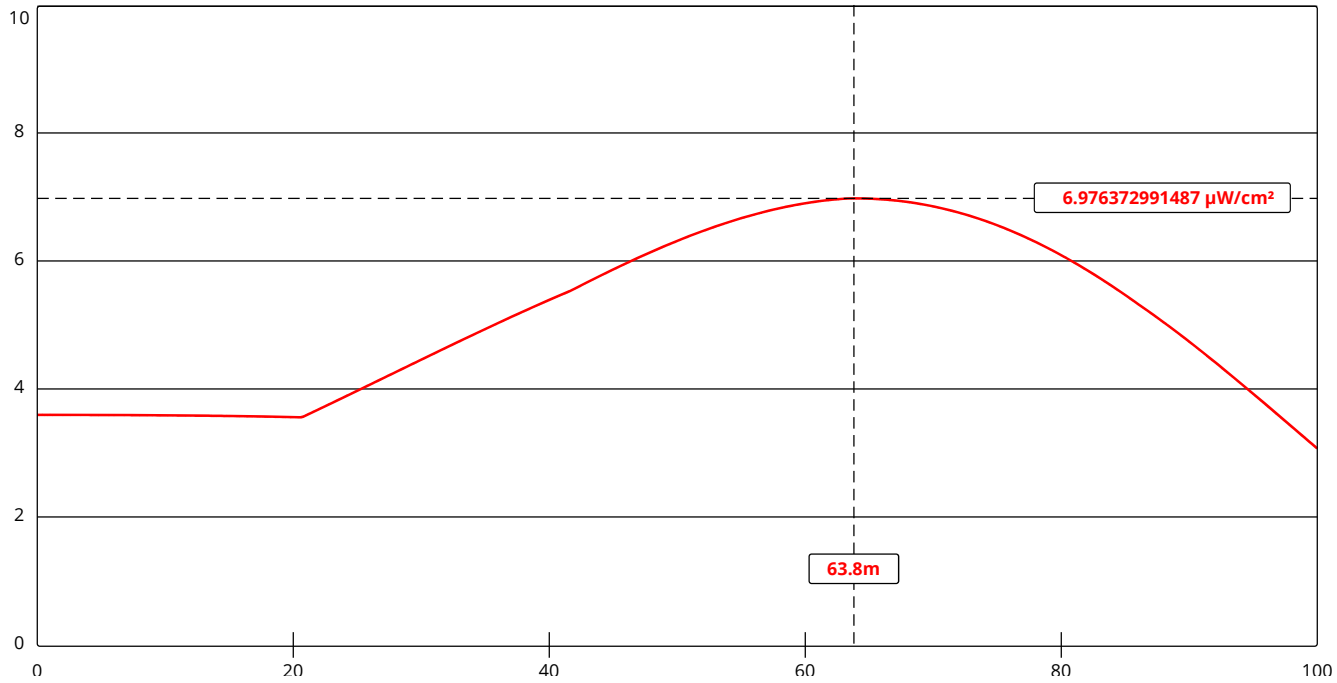

View Tabular Results +

Channel Selection	Channel 229 (93.7 MHz)		
Antenna Type +	EPA Type 3: Opposed U Dipole		
Height (m)	238.4	Distance (m)	100
ERP-H (W)	100000	ERP-V (W)	100000
Num of Elements	8	Element Spacing (λ)	1
Num of Points	500	Apply	