Entercom

2400 Market Street, 4th Floor, Philadelphia, PA 19103

Laura Berman
Senior Counsel

March 25, 2020

***via* EMAIL**
Marlene Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, S.W.
Washington, DC 20554
Attn: Audio Division, Media Bureau
james.bradshaw@fcc.gov
nazifa.sawez@fcc.gov

Re: KXST, North Las Vegas, NV (Facility ID No. 47745)
FCC Form 302-AM

Dear Ms. Dortch:

Entercom License, LLC ("Entercom"), licensee of KXST, North Las Vegas, NV (Facility ID No. 47745), hereby submits an application on Form 302-AM in support of an application to return to direct measurement of power using a method moments proof of performance following the diplexing of KXST with KDWN (720 kHz). A 302-AM application for KDWN is also being filed with the Commission.

In accordance with the instructions set forth in *Audio Division Announces Procedures Related to Coronavirus*, Public Notice, DA 20-266 (rel. Mar. 13, 2020), Entercom is submitting this application via email. The filing fee for the application was paid via Fee Filer. Enclosed is the Form 159 for the payment of the fee.

Please contact me if there are any questions.

Sincerely,

Laura Berman

cc: Bert Goldman
John Kennedy

Enclosures

ETM:116207

Agency Tracking ID:PGC3374630 Authorization Number:038428
Successful Authorization -- Date Paid: 3/25/20
FILE COPY ONLY!!

READ INSTRUCTIONS CAREFULLY BEFORE PROCEEDING (1) LOCKBOX #**979089**	FEDERAL COMMUNICATIONS COMMISSION **REMITTANCE ADVICE** **FORM 159** PAGE NO 1 OF 1	APPROVED BY OMB 3060-059 SPECIAL USE FCC USE ONLY

SECTION A - Payer Information

(2) PAYER NAME (if paying by credit card, enter name exactly as it appears on your card)	(3) TOTAL AMOUNT PAID (dollars and cents)
Entercom Communications Corp.	**$1560.00**

(4) STREET ADDRESS LINE NO. 1
2400 Market Street

(5) STREET ADDRESS LINE NO. 2
4th Floor

(6) CITY	(7) STATE	(8) ZIP CODE
Philadelphia	**PA**	**19103**

(9) DAYTIME TELEPHONE NUMBER (INCLUDING AREA CODE)	(10) COUNTRY CODE (IF NOT IN U.S.A.)
484-2706312	**US**

FCC REGISTRATION NUMBER (FRN) AND TAX IDENTIFICATION NUMBER (TIN) REQUIRED

(11) PAYER (FRN)	(12) FCC USE ONLY
0006113955	

IF PAYER NAME AND THE APPLICANT NAME ARE DIFFERENT, COMPLETE SECTION B
IF MORE THAN ONE APPLICANT, USE CONTINUATION SHEETS (FORM 159-C)

(13) APPLICANT NAME
Entercom License, LLC

(14) STREET ADDRESS LINE NO. 1
2400 Market Street

(15) STREET ADDRESS LINE NO. 2
4th Floor

(16) CITY	(17) STATE	(18) ZIP CODE
Philadelphia	**PA**	**19103**

(19) DAYTIME TELEPHONE NUMBER (INCLUDING AREA CODE)	(20) COUNTRY CODE (IF NOT IN U.S.A.)
484-2706312	**US**

FCC REGISTRATION NUMBER (FRN) AND TAX IDENTIFICATION NUMBER (TIN) REQUIRED

(21) APPLICANT (FRN)	(22) FCC USE ONLY
0004434866	

COMPLETE SECTION C FOR EACH SERVICE, IF MORE BOXES ARE NEEDED, USE CONTINUATION SHEET

(23A) FCC Call Sign/Other ID	(24A) Payment Type Code(PTC)	(25A) Quantity
KXST	**MMR**	**1**
(26A) Fee Due for (PTC)	(27A) Total Fee	FCC Use Only
$725.00	**$725.00**	

(28A) FCC CODE 1	(29A) FCC CODE 2
47745	**FCCForm302-AM**

(23B) FCC Call Sign/Other ID	(24B) Payment Type Code(PTC)	(25B) Quantity
KXST	**MOR**	**1**
(26B) Fee Due for (PTC)	(27B) Total Fee	FCC Use Only
$835.00	**$835.00**	

(28B) FCC CODE 1	(29B) FCC CODE 2
47745	**FCCForm302-AM**

Federal Communications Commission
Washington, D. C. 20554

Approved by OMB
3060-0627
Expires 01/31/98

FOR FCC USE ONLY

FCC 302-AM
APPLICATION FOR AM BROADCAST STATION LICENSE

(Please read instructions before filling out form.)

FOR COMMISSION USE ONLY

FILE NO.

SECTION I - APPLICANT FEE INFORMATION

1. PAYOR NAME (Last, First, Middle Initial)

Entercom Communications Corp.

MAILING ADDRESS (Line 1) (Maximum 35 characters)
2400 MARKET STREET

MAILING ADDRESS (Line 2) (Maximum 35 characters)
4TH FLOOR

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
PHILADELPHIA	PA	19103

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
6106605610	KXST	47745

2. A. Is a fee submitted with this application? ☑ Yes ☐ No

B. If No, indicate reason for fee exemption (see 47 C.F.R. Section

☐ Governmental Entity ☐ Noncommercial educational licensee ☐ Other (Please explain):

C. If Yes, provide the following information:

Enter in Column (A) the correct Fee Type Code for the service you are applying for. Fee Type Codes may be found in the "Mass Media Services Fee Filing Guide." Column (B) lists the Fee Multiple applicable for this application. Enter fee amount due in Column (C).

(A) FEE TYPE CODE	(B) FEE MULTIPLE	(C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A)	FOR FCC USE ONLY
M M R	0 0 0 1	$ 725.00	

To be used only when you are requesting concurrent actions which result in a requirement to list more than one Fee Type Code.

(A)	(B)	(C)	FOR FCC USE ONLY
M O R	0 0 0 1	$ 835.00	

ADD ALL AMOUNTS SHOWN IN COLUMN C, AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE.

TOTAL AMOUNT REMITTED WITH THIS APPLICATION	FOR FCC USE ONLY
$ 1,560.00	

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT ENTERCOM LICENSE, LLC		
MAILING ADDRESS 2400 MARKET STREET, 4TH FLOOR		
CITY PHILADELPHIA	STATE PA	ZIP CODE 19103

2. This application is for:

☑ Commercial ☐ Noncommercial

☑ AM Directional ☑ AM Non-Directional

Call letters	Community of License	Construction Permit File No.	Modification of Construction Permit File No(s).	Expiration Date of Last Construction Permit
KXST	NORTH LAS VEGAS	N/A	N/A	N/A

3. Is the station now operating pursuant to automatic program test authority in accordance with 47 C.F.R. Section 73.1620?

☑ Yes ☐ No

If No, explain in an Exhibit.

Exhibit No.

4. Have all the terms, conditions, and obligations set forth in the above described construction permit been fully met?

☐ Yes ☐ No

If No, state exceptions in an Exhibit.

Exhibit No. N/A

5. Apart from the changes already reported, has any cause or circumstance arisen since the grant of the underlying construction permit which would result in any statement or representation contained in the construction permit application to be now incorrect?

☐ Yes ☐ No

If Yes, explain in an Exhibit.

Exhibit No. N/A

6. Has the permittee filed its Ownership Report (FCC Form 323) or ownership certification in accordance with 47 C.F.R. Section 73.3615(b)?

☐ Yes ☐ No ☑ Does not apply

If No, explain in an Exhibit.

Exhibit No.

7. Has an adverse finding been made or an adverse final action been taken by any court or administrative body with respect to the applicant or parties to the application in a civil or criminal proceeding, brought under the provisions of any law relating to the following: any felony; mass media related antitrust or unfair competition; fraudulent statements to another governmental unit; or discrimination?

☐ Yes ☑ No

If the answer is Yes, attach as an Exhibit a full disclosure of the persons and matters involved, including an identification of the court or administrative body and the proceeding (by dates and file numbers), and the disposition of the litigation. Where the requisite information has been earlier disclosed in connection with another application or as required by 47 U.S.C. Section 1.65(c), the applicant need only provide: (i) an identification of that previous submission by reference to the file number in the case of an application, the call letters of the station regarding which the application or Section 1.65 information was filed, and the date of filing; and (ii) the disposition of the previously reported matter.

Exhibit No.

8. Does the applicant, or any party to the application, have a petition on file to migrate to the expanded band (1605-1705 kHz) or a permit or license either in the existing band or expanded band that is held in combination (pursuant to the 5 year holding period allowed) with the AM facility proposed to be modified herein?

☐ Yes ☑ No

If Yes, provide particulars as an Exhibit.

Exhibit No.

The APPLICANT hereby waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because use of the same, whether by license or otherwise, and requests and authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended).

The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations and that all the exhibits are a material part hereof and are incorporated herein as set out in full in

CERTIFICATION

1. By checking Yes, the applicant certifies, that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862, or, in the case of a non-individual applicant (e.g., corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits that includes FCC benefits pursuant to that section. For the definition of a "party" for these purposes, see 47 C.F.R. Section 1.2002(b).

☑ Yes ☐ No

2. I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Name	Signature	
JOHN KENNEDY	John D. Kennedy	
Title	Date	Telephone Number
VICE PRESIDENT, TECHNICAL OPERATIONS	March 23, 2020	484-270-6320

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The Commission will use the information provided in this form to determine whether grant of the application is in the public interest. In reaching that determination, or for law enforcement purposes, it may become necessary to refer personal information contained in this form to another government agency. In addition, all information provided in this form will be available for public inspection. If information requested on the form is not provided, the application may be returned without action having been taken upon it or its processing may be delayed while a request is made to provide the missing information. Your response is required to obtain the requested authorization.

Public reporting burden for this collection of information is estimated to average 639 hours and 53 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Records Management Branch, Paperwork Reduction Project (3060-0627), Washington, D. C. 20554. Do NOT send completed forms to this address.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.

CLEAR ALL PAGES

SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant
ENTERCOM LICENSE, LLC

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☐ Station License ☑ Direct Measurement of Power

1. Facilities authorized in construction permit

Call Sign	File No. of Construction Permit (if applicable)	Frequency (kHz)	Hours of Operation	Power in kilowatts	
				Night	Day
KXST	N/A	1140	UNL	2.5	10

2. Station location

State	City or Town
NEVADA	NORTH LAS VEGAS

3. Transmitter location

State	County	City or Town	Street address (or other identification)
NV	CLARK	NORTH LAS VEGAS	CORNER SLOAN & E TROPICAL PKWY

4. Main studio location

State	County	City or Town	Street address (or other identification)
NV	CLARK	LAS VEGAS	7255 S TENAYA WAY, SUITE 100

5. Remote control point location (specify only if authorized directional antenna)

State	County	City or Town	Street address (or other identification)
NV	CLARK	LAS VEGAS	7255 S TENAYA WAY, SUITE 100

6. Has type-approved stereo generating equipment been installed? ☐ Yes ☑ No

7. Does the sampling system meet the requirements of 47 C.F.R. Section 73.68? ☑ Yes ☐ No ☐ Not Applicable

Attach as an Exhibit a detailed description of the sampling system as installed. Exhibit No. 1

8. Operating constants:

RF common point or antenna current (in amperes) without modulation for night system	RF common point or antenna current (in amperes) without modulation for day system
7.35	8.3

Measured antenna or common point resistance (in ohms) at operating frequency		Measured antenna or common point reactance (in ohms) at operating frequency	
Night	Day	Night	Day
50	145	-J4	+J122

Antenna indications for directional operation

Towers	Antenna monitor Phase reading(s) in degrees		Antenna monitor sample current ratio(s)		Antenna base currents	
	Night	Day	Night	Day	Night	Day
1	-42.7	N/A	0.604	N/A	N/A	N/A
2	0	N/A	1.0	N/A	N/A	N/A
3	38	N/A	1.138	N/A	N/A	N/A
4	71.7	N/A	0.487	N/A	N/A	N/A

Manufacturer and type of antenna monitor: POTOMAC INSTRUMENTS 1901-4 (S/N 904, CAL 11/19/2006)

SECTION III - Page 2

9. Description of antenna system ((f directional antenna is used, the information requested below should be given for each element of the array. Use separate sheets if necessary.)

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
GUYED UNIFORM CROSS-SECTION	73.2	73.6	74.7	Exhibit No.

Excitation ☑ Series ☐ Shunt

Geographic coordinates to nearest second. For directional antenna give coordinates of center of array. For single vertical radiator give tower location.

North Latitude	West Longitude
36 ° 16 ' 05 "	115 ° 02 ' 41 "

If not fully described above, attach as an Exhibit further details and dimensions including any other antenna mounted on tower and associated isolation circuits. Exhibit No. 1

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system. Exhibit No. 1

10. In what respect, if any, does the apparatus constructed differ from that described in the application for construction permit or in the permit?

N/A

11. Give reasons for the change in antenna or common point resistance.

N/A

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

Name (Please Print or Type)	Signature (check appropriate box below)
BERT GOLDMAN	Bert Goldman
Address (include ZIP Code)	Date
560 PERKINS WAY AUBURN, CA 95603	3/22/2020
	Telephone No. (Include Area Code)
	(214) 395-5067

☐ Technical Director

☐ Registered Professional Engineer

☐ Chief Operator

☑ Technical Consultant

☐ Other (specify)

ENGINEERING STATEMENT
IN SUPPORT OF 302-AM

APPLICATION FOR LICENSE EMPLOYING
MOMENT METHOD MODELING

KXST, 1140kHz (Facility ID 47745)

10,000 Watt ND-D

2,500 Watt DA-N

North Las Vegas, NV.

March, 2020

ENGINEERING STATEMENT IN SUPPORT OF 302-AM
APPLICATION FOR LICENSE EMPLOYING
MOMENT METHOD MODELING

KXST, 1140kHz

March, 2020

Table of Contents

SUMMARY

The following engineering statement has been prepared on behalf of Entercom License, LLC ("Entercom"), licensee of standard broadcast station KXST (AM), North Las Vegas, NV, 1140kHz, Facility ID 47745, in support of an application to return to direct measurement of power using a Method Moments proof of performance following the diplexing of KXST with KDWN (720kHz). A 302-AM application for KDWN is being filed concurrently with this application.

The antenna system has been adjusted to produce monitoring system parameters which are within ± 5% in field ratio and ± 3° in phase of the modeled values as required by 47 C.F.R. §73.151(c)(2)(ii). There are no appurtenances attached to any of the four towers above the base insulator.

KDWN Night Tower 2 is not used by KXST and is a base insulated tower which was built to hold a backup antenna for several FM stations. Although the FM tower, appurtenances and transmission line is included in the MoM analysis, it is not a driven tower for KXST.

FCC 302-AM form exhibits

Exhibit 1 – Station Operation

DESCRIPTION OF KXST TRANSMISSION FACILITIES

RF Power Day, nominal 10kW (Non-directional)

RF Power night, nominal 2.5kW (Directional)

RF Antenna Input ND DAY 8.3a, 145Ω Antenna Input resistance (10kW input)

RF Common Point DA NIGHT 7.35a, 50Ω common point resistance (2.7kW input[1])

TOWERS[2] Electrical, Towers 1 - 4, 100.2° height

Physical, Towers 1 - 4, each 74.7m OAGL

Antenna Struct .Reg. 1058336 Night only, designated Tower 1
1058337 Day Tower, Night designated Tower 2
1058338 Night only, designated Tower 3
1058339 Night only, designated Tower 4

GROUND SYSTEM: 120 equally spaced, buried, copper radials, about the base of each of towers 1-4, each 65.7 meters in length. There is additionally 120, 89.2 meters of radials around the unused KXST tower (KDWN #2(W)), except where intersecting radials are shortened and bonded to a transverse copper strap midway between adjacent towers, plus 120 interspersed radials 15.2 meters in length around towers 1-4, and 7.3 meters around the unused KDWN tower #2(W).

[1] Per FCC 73.51(b)(2), For stations with nominal powers of 5 kW or less, the authorized antenna input power to directional antennas shall exceed the nominal power by 8 percent.

DAY- Non-Directional operation

NIGHT MoM OPERATING PARAMETERS (Normalized TCT)

TOWER	**#1**	**#2**	**#3**	**#4**
Phasing	-42.7°	0°	38.0°	71.7°
Field Ratio	0.604	1	1.138	0.487

Exhibit 2 – Description of sampling system

Description of Sampling System as Constructed

Samples for the antenna monitor are obtained from Delta TCT-3 TCT's (1.0V/A) toroidal current transformers mounted at the outputs of the antenna coupling units (prior to filtering).

The TCT's were measured with a HP 8753ES Network Analyzer and have the following measured characteristics:

Tower Number	Serial No.	Magnitude	Phase
1	352	1.000	0.05°
2	351	1.010	0.0°
3	218	0.980	-0.1°
4	350	0.999	0.15

The above measurements certify compliance within 1 percent ratio and one-degree phase accuracy.

Samples are returned to the antenna monitor using equal lengths of Andrew LDF-4-50J, ½" foam coaxial cable with solid copper outer shield.

All sample lines were tested and verified to be within 1° electrical length and with characteristic impedance to be within FCC guidelines. Verification of the sample lines is included below.

The phase monitor is a Potomac Instruments 1901-3 antenna monitor (serial number 904). Phase monitor accuracy was confirmed by feeding two tower inputs at a time through a splitter and equal length jumpers to confirm equal magnitude and phase on each tower within .001 current ratio and 0.1 degrees phase. Antenna monitor was last factory calibrated 11/19/2016.

Antenna Monitor Verification

DAY (N/A) Non-directional

NIGHT (Reference #2)

Tower Number	Value	Phase
2-1	0.999	-0.2°
2-3	0.999	-0.1°
2-4	0.999	-0.2

Impedance measurements were made of the antenna sampling system using a Power AIM 120. The measurements were made looking into the antenna monitor ends of the sample lines with the tower ends open-circuited. All connectors were installed on the sample lines and readings were normalized to include the test leads. All sample lines were equally cut prior to installation and trimmed to achieve identical electrical length and phase stability.

The table in Exhibit 1 shows the frequencies above and below the carrier frequency where resonance, defined as zero reactance corresponding with low resistance, was found. As the length of distortionless transmission line is 180 electrical degrees at the difference frequency between adjacent frequencies of resonance, and frequencies of resonance occur at odd multiples of 90 degrees electrical length, the sample line length at the resonant frequency above carrier frequency, which is the closest one to the carrier frequency, was found to be 270 electrical degrees. The electrical length at carrier frequency appearing in Exhibit 1 below was calculated by ratioing the frequencies.

KXST Tower Sample Measurements

	Resonance Below 1140Khz	Resonance Above 1140Khz	Calculated Electrical Length@1140kHz	Impedance into TCT @1140kHz
Tower 1	687.24	1150.71	445.8°	49.8 –j 3.6
Tower 2	687.87	1151.13	445.6°	50.6 –j 2.9
Tower 3	686.80	1149.40	446.3°	51.3 –j 3.0
Tower 4	686.03	1149.03	446.5°	51.5 –j 2.8

Max Delta 0.9 deg

Based upon the measurements shown above, the sample lines are within the one electrical degree requirement.

To determine the characteristic impedance values of the sample lines, open-circuited measurements were made with frequencies offset to produce ± 45 degrees of electrical length from resonance

The characteristic impedance was calculated using the following formula, where R1 +j X1 and R2 +j X2 are the measured impedances at the +45 and -45 degree offset frequencies, respectively:

$$ZO = ((R1^2 + X1^2)^{½} \times (R2^2 + X2^2)^{½})^{½}$$

KXST Sample Line Characteristic Impedance Measurements

SAMPLE LINE IMPEDANCE MEASUREMENTS

	+45 Degree Offset Frequency (KHz)	+45 Degree Measured Impedance (Ohms)	-45 Degree Offset Frequency (KHz)	-45 Degree Measured Impedance (Ohms)	Calculated Characteristic Impedance (Ohms)
Tower 1	1265.8	11.86 +j49.46	1035.6	9.01 - j49.35	50.51
Tower 2	1266.2	11.79 +j49.12	1036.0	9.29 - j49.88	50.63
Tower 3	1264.3	11.91 +j48.82	1034.5	9.19 - j49.43	50.26
Tower 4	1263.9	11.80 +j48.82	1034.1	9.23 – j49.59	50.33

MAX Impedance	50.63
MIN Impedance	50.26
MAX IMPEDANCE DELTA	**0.36 Ω**

As shown above, the sample lines measured characteristic impedances meet the requirement that they be equal to 50 Ohms within +-2 ohms.

The sampling system for KXST is type approved under 47CFR 73.68 of the FCC rules.

Exhibit 3 – Tower details and isolation circuits

The following isolation circuits are attached to the KXST towers and have been included in the MoM analysis:

KXST Towers 1-4: Uniform cross-section 20 inch face, guyed towers. Leg diameter 2.5 inches. Each tower with an Austin Ring transformer and Utility base insulator.

Unused KDWN Tower #2: Austin A4722B base insulator plus ERI Model 430 ISO Transformer to couple FM stations . Total assumed Base capacity: 14pf (-j9,972.1 Ω @ 1140kHz) towers1-4,

200pf (-j698.0 Ω @ 1140kHz) tower 5. Stray capacity is shunt reactance of the filtering circuitry for towers 1-4 and measures –j600 Ω @ 1140 kHz. Stray capacity for tower 5 is static drain choke that measures –j25,000 Ω @ 1140 kHz. Series reactance is incorporated in filtering circuitry for towers 1-4, and is in series with tower feed reactance. Tower 5 has only tower feed reactance.

Direct Measurement of Power

The common point current was measured using a Delta TCA RF current meter. Common point resistance was set to 50Ω –j4. The transmitter was adjusted to yield the correct current as reflected on this 302-AM.

CONCLUSION

All adjustments and measurements were conducted jointly by Bertram Goldman and Kurt Gorman. Method of Moments analysis was conducted by Kurt Gorman. Both Gorman's and Goldman's qualifications are a matter of record with the Federal Communications Commission.

This application was prepared on behalf of Entercom by Bertram Goldman of Goldman Engineering Management. All statements herein are true and correct to the best of his knowledge.

Bertram S. Goldman
560 Perkins Way
Auburn, CA 95603
214-395-5067
bert@bgoldman.net

Exhibit 4 – Method of Moments Computations

Method of Moments Detail

All Moment Method Modeling was done with Expert MININEC Broadcast Professional, Version 23. One wire was used to represent each tower. Towers were driven individually to verify the Model compared to measured impedance data. Once the Model was verified, the Night Directional Antenna System was computed. For the Directional mode, the complex voltage values for sources located at ground level were computed. These sources produce current moment sums for each Tower that, when normalized, equate to the Theoretical Field Parameters for each respective Tower.

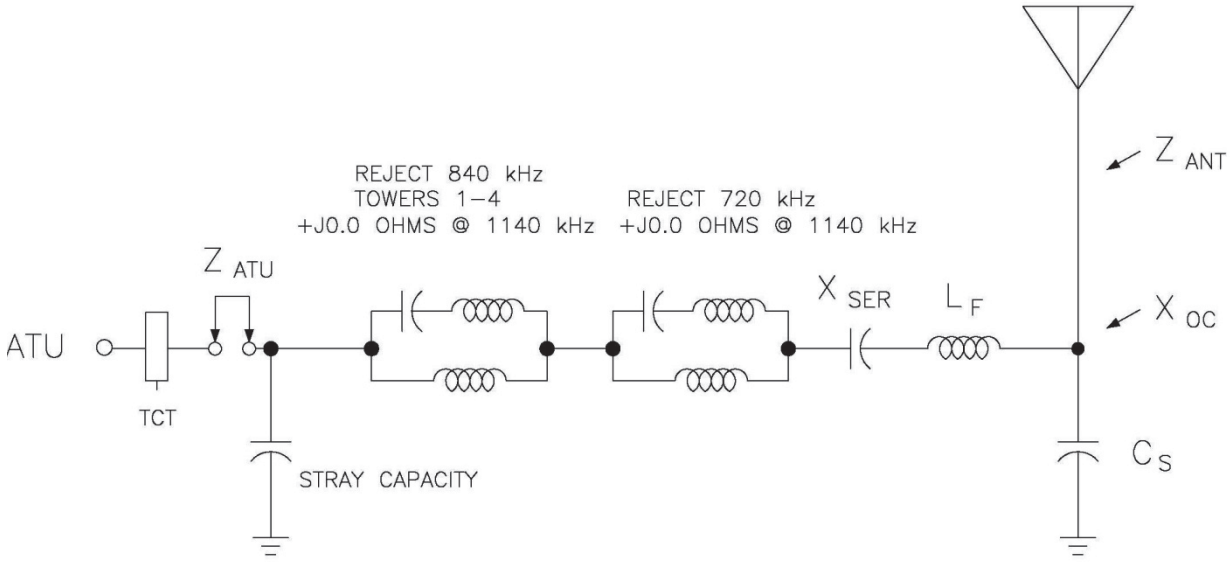
Exhibit 4A - Tower Base Impedance Measurements

The impedance of each tower was measured at the J plug at the output of the T matching network and at the TCT at the base of each tower. All impedance measurements were obtained using a HP 8753ES Network Analyzer with an external power amplifier operating on 1140kHz. The measurements were taken via remote calibration of the new sample lines after being disconnected from the Delta TCT's. All measurements were taken for each tower with all other towers open-circuited.

Exhibit 4B- Tower Impedances

The following exhibit describes the measurement conditions and assumptions used in the MoM analysis

KXST, 1140 kHz, BASE CIRCUIT DESCRIPTION
METHOD OF MOMENTS MODEL



TOWER	Specified Cs (pf)	Measured L_F (µH)	Measured X_F (Ω)	Filter X_{SER} (Ω)	Series Total X_{SERT} (Ω)	Stray C X_{SHUNT} (Ω)
1	14	2.79	+j20.0	-j 65.0	-j 45.0	-j 600.0
2	14	1.81	+j13.0	-j53.0	-j 40.0	-j 600.0
3	14	1.40	+j10.0	-j 90.0	-j 80.0	-j 600.0
4	14	4.61	+j33.0	-j 58.0	-j 25.0	-j 600.0
5	200	0.70	+j5.0	+j 0.0	+j 5.0	-j 25,000.0

KXST, 1140 KHz, TOWER IMPEDANCE MEASUREMENTS COMPARED TO METHOD OF MOMENTS MODEL

TOWER	Modeled Z_{ANT} (Ω)	Modeled Z_{ATU} (Ω)	Measured Z_{ATU} (Ω)
1	73.3 +j 104.9	90.8 +j 54.7	93.4 +j 53.8
2	79.7 +j 195.8	148.3 +j 188.6	142.1 +j 179.9
3	97.8 +j 120.0	111.6 +j 23.4	118.1 +j 23.7
4	89.1 +j 116.6	123.3 +j 86.7	125.1 +j 88.4
5	272.3 +j 258.0	499.6 +j 98.2	492.5 +j 95.7

Tower	Calculated X_{OC} (Ω)
1	-j605.8
2	-j601.4
3	-j636.6
4	-j588.1
5	-j679.0

EXHIBIT 4C - MoM Model Parameters

Note: For the MoM model, towers 1-4 are as designated in the license. For purposes of MoM modeling, however, the KDWN tower1 (DAY), which is not driven in the KXST array either daytime or nighttime was added as tower 5.

Tower	Wire No.	Segments	Base Node	Radius (meters)	Percent of equivalent radius	Model Length (deg)	Physical Length (deg)
1	1	15	1	.2426	100.0	106.0	100.2
2	2	15	16	.2426	100.0	113.0	100.2
3	3	15	46	.2426	100.0	110.0	100.2
4	4	15	61	.2426	100.0	108.0	100.2
5	5	15	76	.60	137.4	135.0	122.2

CIRCUIT ANALYSIS

Circuit analysis was performed on each tower of the KXST model. The "Phasetek" Nodal Circuit Analysis program was used to compute base model Input/ Output voltages and currents. For directional operation, the calculated Mininec Tower Base Drive Voltage was used to determine the Base Network Input Current. This point is the location of the sampling TCT. "Z_1" represents the ATU Shunt impedance, "Z_2" represents the Tower Feed impedance, and "Z_3" represents the Tower Base Shunt impedance.

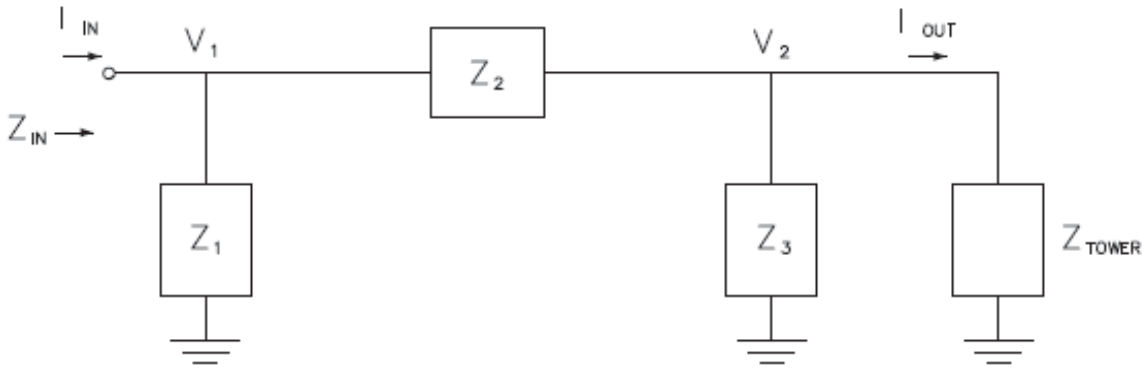


EXHIBIT 4D- DERIVED DIRECTIONAL PARAMETERS

APPLICATION FOR LICENSE INFORMATION

EMPLOYING MOMENT METHOD MODELING

KXST, 1140kHz, DA-N

DAY: **Non-Directional (All other towers detuned)**

NIGHT: **KDWN Day tower detuned**

	Theoretical		Base Network Input Current		Normalized TCT	
Tower	**Field**	**Phase**	**Amplitude**	**Phase**	**Amplitude**	**Phase**
1	1.0	0.0	2.01	12.37°	0.604	-42.7°
2	2.2	38.6	3.33	55.10°	1.0	0°
3	2.16	80.9	3.79	93.08°	1.138	38.0°
4	0.95	117.6	1.62	126.77°	0.487	71.7°

Exhibit 5 - Method of Moment Analysis

EXHIBIT 5A BASE NETWORK COMPUTATION

BASE NETWORK COMPUTATION
PHASETEK INC.
QUAKERTOWN PA

CUSTOMER : KXST
NETWORK ID : TOWER 1 (OTHERS OPEN)

FREQUENCY : 1140.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -600.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -45.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -9972.10 OHMS
TOWER IMPEDANCE (R,X) : 73.25, 104.90 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-600.00
2	GROUND	74.81	105.46
1	2	0.00	-45.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	134.42	15.70

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	90.77	54.65	105.95	31.05
INPUT CURRENT (AMPS) :	0.81	-0.49	0.94	-31.05
OUTPUT CURRENT (AMPS) :	0.81	-0.67	1.05	-39.37

INPUT/OUTPUT CURRENT RATIO = 0.8983
INPUT/OUTPUT PHASE = 8.32 DEGREES

BASE NETWORK COMPUTATION
PHASETEK INC.
QUAKERTOWN PA

CUSTOMER : KXST
NETWORK ID : TOWER 1 NIGHT

FREQUENCY : 1140.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -600.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -45.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -9972.10 OHMS
TOWER IMPEDANCE (R,X) : 57.32, 74.13 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-600.00
2	GROUND	58.18	74.35
1	2	0.00	-45.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	137.30	33.31
2	198.91	58.50

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	63.66	24.37	68.16	20.95
INPUT CURRENT (AMPS) :	1.97	0.43	2.01	12.37
OUTPUT CURRENT (AMPS) :	2.11	0.23	2.12	6.21

INPUT/OUTPUT CURRENT RATIO = 0.9489
INPUT/OUTPUT PHASE = 6.15 DEGREES

BASE NETWORK COMPUTATION
PHASETEK INC.
QUAKERTOWN PA

CUSTOMER : KXST
NETWORK ID : TOWER 2 (OTHERS OPEN)

FREQUENCY : 1140.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -600.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -40.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -9972.10 OHMS
TOWER IMPEDANCE (R,X) : 79.67, 195.83 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-600.00
2	GROUND	82.89	199.08
1	2	0.00	-40.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	120.22	4.92

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	148.25	188.60	239.89	51.83
INPUT CURRENT (AMPS) :	0.26	-0.33	0.42	-51.83
OUTPUT CURRENT (AMPS) :	0.26	-0.51	0.57	-62.94

INPUT/OUTPUT CURRENT RATIO = 0.7331
INPUT/OUTPUT PHASE = 11.11 DEGREES

BASE NETWORK COMPUTATION
PHASETEK INC.
QUAKERTOWN PA

CUSTOMER : KXST
NETWORK ID : TOWER 2 NIGHT

FREQUENCY : 1140.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -600.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -40.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -9972.10 OHMS
TOWER IMPEDANCE (R,X) : 74.09, 129.49 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-600.00
2	GROUND	76.05	130.62
1	2	0.00	-40.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	458.88	96.61
2	586.28	106.40

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	103.21	91.33	137.82	41.51
INPUT CURRENT (AMPS) :	1.91	2.73	3.33	55.10
OUTPUT CURRENT (AMPS) :	2.72	2.84	3.93	46.18

INPUT/OUTPUT CURRENT RATIO = 0.8473
INPUT/OUTPUT PHASE = 8.92 DEGREES

BASE NETWORK COMPUTATION
PHASETEK INC.
QUAKERTOWN PA

CUSTOMER : KXST
NETWORK ID : TOWER 3 (OTHERS OPEN)

FREQUENCY : 1140.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -600.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -80.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -9972.10 OHMS
TOWER IMPEDANCE (R,X) : 97.81, 119.98 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-600.00
2	GROUND	100.20	120.45
1	2	0.00	-80.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	145.00	28.26

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	111.63	23.38	114.05	11.83
INPUT CURRENT (AMPS) :	0.86	-0.18	0.88	-11.83
OUTPUT CURRENT (AMPS) :	0.87	-0.36	0.94	-22.55

INPUT/OUTPUT CURRENT RATIO = 0.9361
INPUT/OUTPUT PHASE = 10.72 DEGREES

BASE NETWORK COMPUTATION
PHASETEK INC.
QUAKERTOWN PA

CUSTOMER : KXST
NETWORK ID : TOWER 3 NIGHT

FREQUENCY : 1140.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -600.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -80.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -9972.10 OHMS
TOWER IMPEDANCE (R,X) : 57.19, 117.85 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-600.00
2	GROUND	58.56	118.92
1	2	0.00	-80.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	283.21	120.73
2	533.89	150.90

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	66.25	34.70	74.79	27.65
INPUT CURRENT (AMPS) :	-0.20	3.78	3.79	93.08
OUTPUT CURRENT (AMPS) :	0.23	4.07	4.08	86.79

INPUT/OUTPUT CURRENT RATIO = 0.9291
INPUT/OUTPUT PHASE = 6.29 DEGREES

BASE NETWORK COMPUTATION
PHASETEK INC.
QUAKERTOWN PA

CUSTOMER : KXST
NETWORK ID : TOWER 4 (OTHERS OPEN)

FREQUENCY : 1140.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -600.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -25.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -9972.10 OHMS
TOWER IMPEDANCE (R,X) : 89.10, 116.57 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-600.00
2	GROUND	91.21	117.12
1	2	0.00	-25.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	114.51	6.80

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	123.33	86.69	150.74	35.10
INPUT CURRENT (AMPS) :	0.54	-0.38	0.66	-35.10
OUTPUT CURRENT (AMPS) :	0.54	-0.56	0.78	-45.80

INPUT/OUTPUT CURRENT RATIO = 0.8500
INPUT/OUTPUT PHASE = 10.70 DEGREES

BASE NETWORK COMPUTATION
PHASETEK INC.
QUAKERTOWN PA

CUSTOMER : KXST
NETWORK ID : TOWER 4 NIGHT

FREQUENCY : 1140.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, -600.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, -25.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -9972.10 OHMS
TOWER IMPEDANCE (R,X) : 41.19, 103.97 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-600.00
2	GROUND	42.06	104.89
1	2	0.00	-25.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	167.73	-175.62
2	209.95	190.30

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	55.61	87.66	103.82	57.61
INPUT CURRENT (AMPS) :	-0.97	1.29	1.62	126.77
OUTPUT CURRENT (AMPS) :	-0.99	1.59	1.88	121.91

INPUT/OUTPUT CURRENT RATIO = 0.8606
INPUT/OUTPUT PHASE = 4.86 DEGREES

BASE NETWORK COMPUTATION
PHASETEK INC.
QUAKERTOWN PA

CUSTOMER : KXST
NETWORK ID : TOWER 5 (OTHERS OPEN)
(*KDWN Tower 2 not driven by KXST*)

FREQUENCY : 1140.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00,-25000.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 5.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -698.00 OHMS
TOWER IMPEDANCE (R,X) : 272.27, 257.99 OHMS

NODE	TO NODE	IMPEDANCE (OHMS) R	X
1	GROUND	0.00	-25000.00
2	GROUND	495.45	102.68
1	2	0.00	5.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	99.80	-0.55

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	499.55	98.21	509.11	11.12
INPUT CURRENT (AMPS) :	0.19	-0.04	0.20	-11.12
OUTPUT CURRENT (AMPS) :	0.19	-0.18	0.27	-44.01

INPUT/OUTPUT CURRENT RATIO = 0.7383
INPUT/OUTPUT PHASE = 32.89 DEGREES

EXHIBIT 5B- TOWER GEOMETRY

KXST TOWER 1 (OTHERS OPEN)
GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2426	15
		0	0	106.		
2	none	194.	129.1	0	.2426	15
		194.	129.1	113.		
3	none	388.	129.1	0	.2426	15
		388.	129.1	110.		
4	none	582.	129.1	0	.2426	15
		582.	129.1	108.		
5	none	224.55	150.9	0	.6	15
		224.55	150.9	135.		

Number of wires = 5
current nodes = 75

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	7.06667	5	9.
radius	1	.2426	5	.6

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.14	0	1	.0196296	.025

Sources

source	node	sector	magnitude	phase	type
1	1	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	16	0	-601.4	0	0	0
2	31	0	-636.6	0	0	0
3	46	0	-588.1	0	0	0
4	61	0	-679.	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
1.14	73.249	104.9	127.95	55.1	4.9503	-3.5582	-2.5239

KXSTTOWER 2 (OTHERS OPEN)

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2426	15
		0	0	106.		
2	none	194.	129.1	0	.2426	15
		194.	129.1	113.		
3	none	388.	129.1	0	.2426	15
		388.	129.1	110.		
4	none	582.	129.1	0	.2426	15
		582.	129.1	108.		
5	none	224.55	150.9	0	.6	15
		224.55	150.9	135.		

Number of wires = 5
current nodes = 75

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	7.06667	5	9.
radius	1	.2426	5	.6

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.14	0	1	.0196296	.025

Sources

source	node	sector	magnitude	phase	type
1	16	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-605.8	0	0	0
2	31	0	-636.6	0	0	0
3	46	0	-588.1	0	0	0
4	61	0	-679.	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 16, sector 1							
1.14	79.665	195.83	211.42	67.9	11.764	-1.4803	-5.3936

KXST TOWER 3 (OTHERS OPEN)

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2426	15
		0	0	106.		
2	none	194.	129.1	0	.2426	15
		194.	129.1	113.		
3	none	388.	129.1	0	.2426	15
		388.	129.1	110.		
4	none	582.	129.1	0	.2426	15
		582.	129.1	108.		
5	none	224.55	150.9	0	.6	15
		224.55	150.9	135.		

Number of wires = 5
current nodes = 75

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	7.06667	5	9.
radius	1	.2426	5	.6

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.14	0	1	.0196296	.025

Sources

source	node	sector	magnitude	phase	type
1	31	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-605.8	0	0	0
2	16	0	-601.4	0	0	0
3	46	0	-588.1	0	0	0
4	61	0	-679.	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 31, sector 1							
1.14	97.808	119.98	154.79	50.8	5.2192	-3.3701	-2.678

KXST TOWER 4 (OTHERS OPEN)

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2426	15
		0	0	106.		
2	none	194.	129.1	0	.2426	15
		194.	129.1	113.		
3	none	388.	129.1	0	.2426	15
		388.	129.1	110.		
4	none	582.	129.1	0	.2426	15
		582.	129.1	108.		
5	none	224.55	150.9	0	.6	15
		224.55	150.9	135.		

Number of wires = 5
current nodes = 75

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	7.06667	5	9.
radius	1	.2426	5	.6

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.14	0	1	.0196296	.025

Sources

source	node	sector	magnitude	phase	type
1	46	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-605.8	0	0	0
2	16	0	-601.4	0	0	0
3	31	0	-636.6	0	0	0
4	61	0	-679.	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 46, sector 1							
1.14	89.104	116.57	146.72	52.6	5.2008	-3.3823	-2.6677

KXST TOWER 5 (OTHERS OPEN)

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2426	15
		0	0	106.		
2	none	194.	129.1	0	.2426	15
		194.	129.1	113.		
3	none	388.	129.1	0	.2426	15
		388.	129.1	110.		
4	none	582.	129.1	0	.2426	15
		582.	129.1	108.		
5	none	224.55	150.9	0	.6	15
		224.55	150.9	135.		

Number of wires = 5
current nodes = 75

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	7.06667	5	9.
radius	1	.2426	5	.6

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.14	0	1	.0196296	.025

Sources

source	node	sector	magnitude	phase	type
1	61	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	-605.8	0	0	0
2	16	0	-601.4	0	0	0
3	31	0	-636.6	0	0	0
4	46	0	-588.1	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 61, sector 1							
1.14	272.27	257.99	375.08	43.5	10.422	-1.672	-4.9548

EXHIBIT 5C- NIGHT GEOMETRY

KXST NIGHT

GEOMETRY
Wire coordinates in degrees; other dimensions in meters
Environment: perfect ground

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.2426	15
		0	0	106.		
2	none	194.	129.1	0	.2426	15
		194.	129.1	113.		
3	none	388.	129.1	0	.2426	15
		388.	129.1	110.		
4	none	582.	129.1	0	.2426	15
		582.	129.1	108.		
5	none	224.55	150.9	0	.6	15
		224.55	150.9	135.		

Number of wires = 5
current nodes = 75

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	1	7.06667	5	9.
radius	1	.2426	5	.6

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	1.14	0	1	.0196296	.025

Sources

source	node	sector	magnitude	phase	type
1	1	1	281.301	58.5	voltage
2	16	1	829.13	106.4	voltage
3	31	1	755.035	150.9	voltage
4	46	1	296.916	190.3	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	61	0	285.73	0	0	0

IMPEDANCE
   normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
1.14	57.319	74.129	93.705	52.3	3.6631	-4.8658	-1.7144
source = 2; node 16, sector 1							
1.14	74.088	129.49	149.19	60.2	6.53	-2.6814	-3.3661
source = 3; node 31, sector 1							
1.14	57.186	117.85	130.99	64.1	6.7264	-2.6019	-3.4611
source = 4; node 46, sector 1							
1.14	41.193	103.97	111.84	68.4	7.1466	-2.4468	-3.6579

CURRENT rms
Frequency = 1.14 MHz
Input power = 2,500. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	2.12372	6.2	2.11125	.229814
2	0	0	7.06667	2.22551	4.	2.22011	.154944
3	0	0	14.1333	2.26419	2.7	2.26175	.10505
4	0	0	21.2	2.26473	1.6	2.26384	.0634618
5	0	0	28.2667	2.23048	.7	2.2303	.0282683
6	0	0	35.3333	2.16325	360.	2.16325	-1.17E-03
7	0	0	42.4	2.06457	359.3	2.06442	-.0250879
8	0	0	49.4667	1.93603	358.7	1.93554	-.0435652
9	0	0	56.5333	1.77939	358.2	1.77848	-.0566566
10	0	0	63.6	1.59661	357.7	1.59531	-.0644211
11	0	0	70.6667	1.38976	357.2	1.38814	-.0669418
12	0	0	77.7333	1.16086	356.8	1.15908	-.0643257
13	0	0	84.8	.911663	356.4	.909899	-.0566829
14	0	0	91.8667	.642826	356.1	.641314	-.0440626
15	0	0	98.9333	.351759	355.7	.350777	-.0262575
END	0	0	106.	0	0	0	0
GND	-122.351	-150.553	0	3.93168	46.2	2.72248	2.83659
17	-122.351	-150.553	7.53333	4.29173	43.3	3.12335	2.9434
18	-122.351	-150.553	15.0667	4.4747	41.7	3.34286	2.97461
19	-122.351	-150.553	22.6	4.56181	40.4	3.47302	2.95774
20	-122.351	-150.553	30.1333	4.56309	39.4	3.52554	2.89695
21	-122.351	-150.553	37.6667	4.48323	38.6	3.50555	2.79473
22	-122.351	-150.553	45.2	4.32575	37.8	3.41644	2.65331
23	-122.351	-150.553	52.7333	4.09421	37.2	3.26137	2.47509
24	-122.351	-150.553	60.2667	3.79264	36.6	3.04371	2.26273
25	-122.351	-150.553	67.8	3.42561	36.1	2.76727	2.01916
26	-122.351	-150.553	75.3333	2.99815	35.7	2.43621	1.7475
27	-122.351	-150.553	82.8667	2.51541	35.2	2.05482	1.45086
28	-122.351	-150.553	90.4	1.98208	34.8	1.62701	1.13202
29	-122.351	-150.553	97.9333	1.40068	34.5	1.15491	.792507

```
 30    -122.351  -150.553  105.467   .766808  34.1   .634933   .429947
END    -122.351  -150.553  113.      0        0      0         0
GND    -244.702  -301.106  0         4.0778   86.8   .228659   4.07138
 32    -244.702  -301.106  7.33333   4.40763  84.6   .416039   4.38795
 33    -244.702  -301.106  14.6667   4.56685  83.3   .531719   4.53579
 34    -244.702  -301.106  22.       4.63262  82.3   .617755   4.59124
 35    -244.702  -301.106  29.3333   4.61488  81.5   .679159   4.56463
 36    -244.702  -301.106  36.6667   4.51848  80.9   .717809   4.4611
 37    -244.702  -301.106  44.       4.3471   80.3   .734639   4.28458
 38    -244.702  -301.106  51.3333   4.10439  79.8   .730316   4.03889
 39    -244.702  -301.106  58.6667   3.79439  79.3   .705516   3.72822
 40    -244.702  -301.106  66.       3.42159  78.9   .660995   3.35713
 41    -244.702  -301.106  73.3333   2.99083  78.5   .597617   2.93051
 42    -244.702  -301.106  80.6667   2.50699  78.1   .516305   2.45325
 43    -244.702  -301.106  88.       1.97438  77.8   .417902   1.92964
 44    -244.702  -301.106  95.3333   1.39508  77.5   .3028     1.36183
 45    -244.702  -301.106  102.667   .764194  77.2   .169812   .745088
END    -244.702  -301.106  110.      0        0      0         0
GND    -367.053  -451.659  0         1.87817  121.9  -.992846  1.5943
 47    -367.053  -451.659  7.2       2.00883  120.3  -1.01437  1.73391
 48    -367.053  -451.659  14.4      2.06795  119.4  -1.01519  1.80161
 49    -367.053  -451.659  21.6      2.08709  118.7  -1.00158  1.83106
 50    -367.053  -451.659  28.8      2.07044  118.1  -.97458   1.82672
 51    -367.053  -451.659  36.       2.02011  117.6  -.934929  1.79074
 52    -367.053  -451.659  43.2      1.93773  117.1  -.883328  1.72468
 53    -367.053  -451.659  50.4      1.82495  116.7  -.82055   1.63008
 54    -367.053  -451.659  57.6      1.68353  116.4  -.747458  1.50851
 55    -367.053  -451.659  64.8      1.51542  116.   -.664962  1.36174
 56    -367.053  -451.659  72.       1.3227   115.7  -.574036  1.19164
 57    -367.053  -451.659  79.2      1.10743  115.4  -.475627  1.00009
 58    -367.053  -451.659  86.4      .871398  115.2  -.37055   .788687
 59    -367.053  -451.659  93.6      .615387  114.9  -.259191  .558141
 60    -367.053  -451.659  100.8     .337079  114.7  -.140645  .306335
END    -367.053  -451.659  108.      0        0      0         0
GND    -196.206  -109.207  0         .764181  69.9   .262866   .717547
 62    -196.206  -109.207  9.        .498779  69.9   .171281   .468448
 63    -196.206  -109.207  18.       .336153  70.1   .114505   .31605
 64    -196.206  -109.207  27.       .199657  70.6   .0662708  .188338
 65    -196.206  -109.207  36.       .0839647 72.8   .0248806  .0801937
 66    -196.206  -109.207  45.       .0142645 225.   -.0100894 -.0100836
 67    -196.206  -109.207  54.       .0914325 245.   -.0385871 -.0828912
 68    -196.206  -109.207  63.       .150976  246.4  -.0604777 -.138334
 69    -196.206  -109.207  72.       .192109  246.8  -.0756859 -.176572
 70    -196.206  -109.207  81.       .215148  246.9  -.0842502 -.197967
 71    -196.206  -109.207  90.       .220698  247.   -.0863223 -.203116
 72    -196.206  -109.207  99.       .209594  246.9  -.0821413 -.192827
 73    -196.206  -109.207  108.      .182779  246.8  -.071962  -.168017
 74    -196.206  -109.207  117.      .141043  246.6  -.0559288 -.12948
 75    -196.206  -109.207  126.      .0844813 246.4  -.0338412 -.0774071
END    -196.206  -109.207  135.      0        0      0         0
```

EXHIBIT 5D- Medium Wave Array Synthesis From Field Ratios (NIGHT)

(KXSTNIGHTSYN)

KXST NIGHT
MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = 1.14 MHz

tower	field ratio magnitude	phase (deg)
1	1.	0
2	2.2	38.6
3	2.16	80.9
4	.95	117.6
5	0	0

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	198.91	58.5	2.12423	6.2
16	586.284	106.4	3.93263	46.1
31	533.891	150.9	4.07472	86.8
46	209.951	190.3	1.87861	121.9
61	219.039	340.3	.766517	69.6

Sum of square of source currents = 81.3959
Total power = 2,500. watts

TOWER ADMITTANCE MATRIX

admittance	real (mhos)	imaginary (mhos)
Y(1, 1)	.00411425	-.00649815
Y(1, 2)	.000575611	-.00142381
Y(1, 3)	-.000159442	.000429141
Y(1, 4)	-1.1634E-05	-.000319737
Y(1, 5)	-5.7738E-05	-.000885014
Y(2, 1)	.000575594	-.00142381
Y(2, 2)	.00298309	-.00440857
Y(2, 3)	.000513925	-.00110999
Y(2, 4)	-.000247785	.000481822
Y(2, 5)	.00149223	.000141942
Y(3, 1)	-.000159441	.000429138
Y(3, 2)	.000513921	-.00111
Y(3, 3)	.00341267	-.00568343
Y(3, 4)	.00028458	-.00127361
Y(3, 5)	.000338844	-.000903942
Y(4, 1)	-1.1626E-05	-.000319738
Y(4, 2)	-.000247771	.000481839
Y(4, 3)	.000284603	-.00127361
Y(4, 4)	.00374922	-.00584655
Y(4, 5)	-.000261316	.000455041
Y(5, 1)	-5.7839E-05	-.000885

Y(5, 2)	.00149213	.000141763
Y(5, 3)	.000338738	-.000903951
Y(5, 4)	-.000261293	.000455066
Y(5, 5)	.001946	-.00134737

TOWER IMPEDANCE MATRIX

impedance	real (ohms)	imaginary (ohms)
Z(1, 1)	79.3297	105.174
Z(1, 2)	-21.1106	-14.2808
Z(1, 3)	20.9474	2.06807
Z(1, 4)	-15.4109	.337016
Z(1, 5)	-55.2446	26.4607
Z(2, 1)	-21.111	-14.2821
Z(2, 2)	83.6864	163.601
Z(2, 3)	-27.6525	-9.6926
Z(2, 4)	17.7319	2.62447
Z(2, 5)	50.2221	-121.745
Z(3, 1)	20.9474	2.06825
Z(3, 2)	-27.652	-9.69152
Z(3, 3)	101.388	129.082
Z(3, 4)	-34.3793	-15.8611
Z(3, 5)	-67.648	2.73275
Z(4, 1)	-15.4112	.337042
Z(4, 2)	17.7317	2.62349
Z(4, 3)	-34.3796	-15.8608
Z(4, 4)	89.8061	121.252
Z(4, 5)	40.0809	-.479922
Z(5, 1)	-55.2481	26.4566
Z(5, 2)	50.237	-121.749
Z(5, 3)	-67.6497	2.72752
Z(5, 4)	40.0813	-.478381
Z(5, 5)	305.505	235.543

KXST NIGHT

CURRENT MOMENTS(amp-degrees) rms

Frequency = 1.14 MHz
Input power = 2,500. watts

			vertical current moment	
wire	magnitude	phase (deg)	magnitude	phase (deg)
1	175.343	0.0	175.343	0.0
2	385.826	38.6	385.826	38.6
3	379.067	80.9	379.067	80.9
4	166.603	117.6	166.603	117.6
5	.90616	158.9	.90616	158.9

Medium wave array vertical current moment (amps-degrees) rms
(Calculation assumes tower wires are grouped together.
The first wire of each group must contain the source.)

tower	magnitude	phase (deg)
1	175.343	0.0
2	385.826	38.6
3	379.067	80.9
4	166.603	117.6
5	.90616	158.9

EXHIBIT 6 – Spurious Radiation Measurements

KDWN/KXST SPURIOUS RADIATION MEASUREMENTS
JANUARY, 2020
KDWN (720 KHZ), 25.0 KW DAY (ND) MODE
KXST (1140 KHZ), 10.0 KW DAY(ND) MODE

Frequency (kHz)	Field Intensity (mV/M)	Attenuation (dB) relative to KDWN	Attenuation (dB) relative to KXST
720	1510	--	--
1140	1416	--	--
300	.059	88.2	87.6
420	.014	100.7	100.1
840	N.R.	--	--
1020	.080	85.5	85.0
1260	.055	88.8	88.2
1440	.020	97.6	97.0
1560	.062	87.7	87.2
1860	.019	98.0	97.4
1980	.016	99.5	98.9
2160	.015	100.1	99.5
2280	.013	101.3	100.7
2580	.059	88.2	87.6
2700	.010	103.6	103.0
3000	.084	85.1	84.5
3300	.008	105.5	105.0
3420	.058	88.3	87.8
3720	.009	104.5	103.9
4140	.010	103.6	103.0
4440	.010	103.6	103.0
4860	.011	102.8	102.2

Above taken with Potomac Instruments, PI 4100, SN249, 0.97 kM from the Antenna on a bearing of 244°T.

Point coordinates: (NAD 27): N36° 15' 50.1", W115° 03' 16.7".

N.R. denotes not readable due to other station on the same frequency

Above readings meet required attenuation of 80.0dB (KDWN Day) and 80.0dB (KXST Day).

KDWN/KXST SPURIOUS RADIATION MEASUREMENTS
JANUARY, 2020
KDWN (720 KHZ), 7.5 KW NIGHT (DA) MODE
KXST (1140 KHZ), 2.5 KW NIGHT(DA) MODE

Frequency (kHz)	Field Intensity (mV/M)	Attenuation (dB) relative to KDWN	Attenuation (dB) relative to KXST
720	1170	--	--
1140	862	--	--
300	.070	84.5	81.8
420	.015	97.8	95.2
840	N.R.	--	--
1020	.043	88.7	86.0
1260	.040	89.3	86.7
1440	.027	92.7	90.1
1560	.049	87.6	84.9
1860	.012	99.8	97.1
1980	.011	100.5	97.9
2160	.024	93.8	91.1
2280	.013	99.1	96.4
2580	.070	84.5	81.8
2700	.010	101.4	98.7
3000	.089	82.4	79.7
3300	.008	103.3	100.6
3420	.013	99.1	96.4
3720	.008	103.3	100.6
4140	.010	101.4	98.7
4440	.015	97.8	95.2
4860	.012	99.8	97.1

Above taken with Potomac Instruments, PI 4100, SN249, 0.97 kM from the Antenna on a bearing of 244°T.

Point coordinates: (NAD 27): N36° 15' 50.1", W115° 03' 16.7".

N.R. denotes not readable due to other station on the same frequency

Above readings meet required attenuation of 80.0dB (KDWN Night) and 77.0dB (KXST Night).

EXHIBIT 7 - Reference Field Strength Measurements- KXST

Reference field strength measurements were made using a Potomac Instruments FIM-4100 serial number 307 Calibrated 9/3/2013) at three locations along radials at the azimuths with radiation values as determined by pattern minima, Night pattern readings were taken at 10°, and 141.5°, with lobes at 67°, 242°.

The measured field strengths, descriptions, and GPS coordinates for the reference measurement points are shown on the following pages. All locations indicated are listed using NAD 83 datum. All measurements were taken on January 14th, 2020 between 12pm and 3:30pm, and January 15 between 9am and 12pm.

NIGHT REFERENCE MEASUREMENTS

27.5° Radial

Point No	Dist. Km.	N Latitude	W. Longitude	Field mV/m	Comments
1	0.255	36° 16' 12.2"	115° 02' 36.2"	2400	Dirt lot off Tropical across form KXST
2	1.01	36° 16' 33.8"	115° 02' 22.1"	890	Dirt lot across from Sysco
3	2.09	36° 17' 5.2"	115° 02' 2.1"	518	Open dirt lot- walk to location

65.5° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	0.318	36° 16' 19"	115° 02' 27"	1560	Guest parking nr light pole- Amazon lot
2	0.674	36° 16' 14"	115° 02' 16"	463	Near Gym, 2819-A Transworld Rd
3	1.313	36° 16' 22.6"	115° 01'52.7"	180	Azure Ave

169° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	0.632	36° 15' 44.9"	115° 02' 36.1"	115	Ann Ave
2	0.985	36° 15' 33.7"	115° 02' 34"	26.3	Sloan & Howdy Wells @ fire hydrant
3	1.272	36° 15' 24.7"	115° 02' 31.6"	20.4	Sloan & Fisher N of intersection

NIGHT REFERENCE POINTs (Cont'd)

193.5° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	0.683	36° 15' 43.5"	115° 02' 47.4"	288	5675 Ann Ave- W side of lot
2	1.068	36° 15' 31.3"	115° 02' 50.3"	83.9	5265 Howdy Wells
3	1.156	36° 15' 28.4"	115° 02' 51.4"	69	Across Street from pt 2

231.5° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	0.405	36° 15' 56.3"	115° 02' 54.1"	1950	Across St from White bldg.- dirt lot
2	0.8	36° 15' 49"	115° 03' 05.8"	1150	Dirt lot next to Air Force fence- solar array
3	3.265	36° 15' 00"	115° 04' 24.5"	249	At LKQ building end of road, far as possible

282.5° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	0.239	36° 15' 56.3"	115° 02' 54.1"	1590	Bldg Across St from KXST, fire hydrant
2	0.381	36° 15' 49"	115° 03' 05.8"	400	Other side of bldg. at fire hydrant
3	3.265	36° 15' 00"	115° 04' 24.5"	145	So side Tropical near turn in street

336.5° Radial

Point No	Dist. Km.	N. Latitude	W. Longitude	Field mV/m	Comments
1	0.231	36° 16' 11.8"	115° 02' 44.5"	1920	Dirt lot- tropical across from KXST
2	0.491	36° 16' 19.6"	115° 02' 49.1"	550	Dirt lot- follow coords
3	0.653	36° 16' 24.3"	115° 02' 51.8"	368	Dirt frontage road nr fwy, before turn

EXHIBIT 8 – Site Survey

Although the KXST site was surveyed for the additional "new" tower for KDWN which is unused by KXST, other than using the tower for the MoM array modeling, it is not a driven tower for KXST. There is no change in the tower spacing parameters for KXST from the currently licensed parameters.

Entercom License, LLC
FRN 0004434866
Exhibit 1 to Form 302-AM

In the FCC Form 2100 – Schedule 396 for its stations in the Norfolk market, Licensee disclosed that on November 30, 2018, a former employee, Kristina Price, filed a charge with the United States Equal Employment Opportunity Commission ("EEOC") alleging disability discrimination (EEOC Charge No. 437-2019-00222). *See* FCC File No. 0000073703, as modified by FCC File No. 0000081093. On August 26, 2019, a reasonable cause determination was issued against certain of Licensee's affiliates, including Licensee's corporate parent, with respect to that charge. While disability discrimination is not one of the enumerated classes of discrimination set forth in Section 73.2080 of the Commission's Rules, Licensee disclosed the pending charge and subsequent determination in the applicable FCC Form 2100 – Schedule 396 out of abundance of caution. In that same abundance of caution, License is disclosing this determination in response to the Adverse Findings Section of this FCC Form 302-AM. On September 30, 2019, Licensee's affiliates settled the claim.

Commission precedent establishes that an adverse finding exists only if there has been be an adjudication by an ultimate trier of fact. *Policy Regarding Character Qualifications in Broadcast Licensing*, Memorandum Opinion and Order, 7 FCC Rcd 6564, 6566 para 10 (1992). "An 'ultimate trier of fact' is a court or administrative body whose factual findings are not subject to de novo review." *Id.* (internal citations omitted).

An EEOC reasonable cause determination is not a "finding" of discrimination or adjudication by an ultimate trier of fact. It does not require "weighing of information from both complainant and respondent" and "is a gateway not to an evidentiary hearing but to *informal methods* of conference, conciliation, and persuasion." *Nat'l Broad. Co., Inc.*, 58 F.C.C.2d 419, 421 ¶¶ 4, 5 (1976) (emphasis added). EEOC proceedings are also "not of an adversary nature." *See Hubbard Broadcasting, Inc.,* 48 F.C.C. 2d 717, 524 n.6 (1974). A reasonable cause determination is essentially an initial determination based on limited facts made available to the EEOC, without the respondent having the ability to present a full defense, that there is reasonable cause to move forward with the informal conciliation process. Furthermore, EEOC decisions are subject to de novo review.

In any case, Licensee submits that, based on Commission precedent, a reasonable cause determination, based on a complaint which has since settled, should not be an impediment to the grant of this application. *See, e.g., Pac. & S. Co., Inc.*, 11 F.C.C. Rcd. 8503, 8507 (1996) (denying an application for review and affirming grant of renewal application where a reasonable cause determination had been issued); *Focus Cable of Oakland, Inc.*, 65 F.C.C.2d 35 (1977); *Nat'l Broad. Co., Inc.*, 62 F.C.C.2d 582, 583 (1977); *Nat'l Broad. Co., Inc.*, 58 F.C.C.2d 419 (1976).