MARASHLIAN & DONAHUE, LLC
THE COMMLAW GROUP

April 6, 2015

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Room TW-A325
Washington, DC 20554

ATTN: Media Bureau

Re: WRSO(AM), Orlovista, Florida, Facility ID No. 129548
FCC File No. BMML-20150304ADE
Amendment to Application for License to Cover on FCC 302-AM

Dear Ms. Dortch:

On behalf of Star Over Orlando, Inc., by and through its attorney, attached is an amendment, in triplicate, to the above referenced application. The application is amended, as requested,[1] to correct the community of license in Section II, provide Figure 16 (Certified Array Geometry Survey) which was omitted in the original filing, and correct the antenna monitor ratio for tower #3.

If there are any questions concerning this application, please do not hesitate to contact me.

Yours truly,

N. Hardy

Nathaniel J. Hardy
Counsel for Star Over Orlando, Inc.

Encls.

cc: Son Nguyen, Audio Division (via email)
Edward Lubetzky, Audio Division (via email)

[1] *See Letter*, dated March 13, 2015, from Son Nguyen, Supervisory Engineer, Audio Division to counsel. The Letter granted limited program test authority to Star Over Orlando, Inc. *See* BPTA-20150304ADF. As the application has been amended, Star Over Orlando, Inc. requests that it be granted unlimited program test authority for Station WRSO.

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Accepted / Filed

Federal Communications Commission
Washington, D. C. 20554

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

FOR FCC USE ONLY

APR – 6 2015

Federal Communications Commission
Office of the Secretary

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)

STAR OVER ORLANDO, INC.

MAILING ADDRESS (Line 1) (Maximum 35 characters)
357 OCEAN SHORE BOULEVARD

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
ORMOND BEACH	FL	32176

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
~~3866722723~~ (386) 566-4299	WRSO	129548

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: This is a minor curative amendment to FCC File No. BMML-20150304ADE.*

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
	0001	$	

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
	0001	$	

	TOTAL AMOUNT REMITTED WITH THIS APPLICATION	FOR FCC USE ONLY
ADD ALL AMOUNTS SHOWN IN COLUMN C, AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE.	$	

* The application is amended to correct the community of license of the station in Section II, provide Figure 16 which was omitted and correct the antenna monitor ratio for tower #3.

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT STAR OVER ORLANDO, INC.		
MAILING ADDRESS 357 OCEAN SHORE BOULEVARD		
CITY ORMOND BEACH	STATE FL	ZIP CODE 32176

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
WRSO	ORLOVISTA	BMP-20140211ACD		9/11/2016

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. A

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.

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.

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	
Carl Tutera		
Title	Date	Telephone Number
President	04/01/2015	~~(386) 672-2723~~ (386) 566-4299

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.

SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant
Star Over Orlando, Inc.

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
WRSO	BMP-20140211ACD	810	UNLIMITED	0.40	20.0

2. Station location

State	City or Town
FLORIDA	ORLOVISTA

3. Transmitter location

State	County	City or Town	Street address (or other identification)
FL	ORANGE	ORLANDO	2100 Mercy Drive

4. Main studio location

State	County	City or Town	Street address (or other identification)
FL	SEMINOLE	ALTAMONTE SPRINGS	999 Douglas Ave., Suite 3318

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

State	County	City or Town	Street address (or other identification)
FL	SEMINOLE	ALTAMONTE SPRINGS	999 Douglas Ave., Suite 3318

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. ENG

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
2.94	20.5

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
50.0	50.0	-8.1	-8.1

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 (SW)	0.0	+95.9	1.000	1.114		
2 (SE)		0.0		1.000		
3 (NE)	-29.0	-1.1	.976	.823		
4 (NW)		+84.0		.773		

Manufacturer and type of antenna monitor: Potomac Instruments 1901-4

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 Tower	92.53	93.0	94.2	Exhibit No. N/A

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
28 ° 34 ' 18 "	81 ° 26 ' 02 "

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. ENG

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

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

No Change from Construction Permit

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

New Adjustment

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)
Kurt Gorman	
Address (include ZIP Code) Phasetek Inc. 550 California Rd., Unit 11 Quakertown, PA 18951	Date March 30, 2015 Telephone No. (Include Area Code) 215-536-6648

☐ Technical Director

☐ Registered Professional Engineer

☐ Chief Operator

☑ Technical Consultant

☐ Other (specify)

EXHIBIT A
APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WRSO(AM), 810 KHZ, DA-2, ORLOVISTA, FLORIDA

Pursuant to the terms of the underlying construction permit, the station must request program test authority prior to beginning such tests. See Special Operating Conditions, No. 1, FCC File No. BMP-20140211ACD.

ENGINEERING STATEMENT CONCERNING

APPLICATION FOR LICENSE INFORMATION

EMPLOYING MOMENT METHOD MODELING

WRSO, 810 KHZ, DA-2

ORLOVISTA, FLORIDA

FEBRUARY, 2015

PHASETEK INC.

ENGINEERING STATEMENT CONCERNING APPLICATION FOR LICENSE INFORMATION EMPLOYING MOMENT METHOD MODELING WRSO, 810 KHZ, DA-2 ORLOVISTA, FLORIDA FEBRUARY, 2015

TABLE OF CONTENTS

PHASETEK INC.

ENGINEERING STATEMENT CONCERNING
APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

SUMMARY

Adjustment of the Antenna System and a Proof of Performance employing Moment Method Modeling were performed on Radio Station WRSO, 810 KHz, Orlovista, Florida, after modification of Antenna Phasing equipment. The existing transmission and sampling lines were utilized. WRSO holds Construction Permit Number: BMP-20140211ACD to increase Day power and change Day radiation pattern. The Night radiation pattern remains as licensed. This report was prepared on behalf of Star Over Orlando, Inc. licensee of Radio Station WRSO.

SITE MODIFICATIONS

The WRSO Transmitter site is that as currently licensed. The Day Antenna Phasing and Branching equipment has been modified. All Towers remain unchanged. A License Application employing Moment Method Modeling as set forth in Section 73.151(C) has been done to cover the Radio Station WRSO Construction Permit and license under the new rules.

REFERENCE POINTS

Reference Points were measured at pattern minima and maxima for the Directional modes of operation. These Points and their measured field intensity are shown in Figure 15.

SPECIAL OPERATING CONDITION #6

No new tower construction has been done at the WRSO transmitter site. All towers and grounding remain as previously licensed. Therefore, implementation of the WRSO construction permit has not adversely affected AM stations WDYZ, 990 kHz or WRLZ, 1270 kHz. WHOO, 1080 kHz operates from a licensed site that is more than 5 kM from the WRSO site. Verification of no spurious products from the above stations was performed.

PHASETEK INC.

ENGINEERING STATEMENT CONCERNING APPLICATION FOR LICENSE INFORMATION EMPLOYING MOMENT METHOD MODELING WRSO, 810 KHZ, DA-2 ORLOVISTA, FLORIDA FEBRUARY, 2015

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, both the Day and Night Directional Antenna Systems were computed. For Directional modes, 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.

MEASURING EQUIPMENT AND PERSONNEL

All Tower Resistance and Reactance measurements were made with a Delta Electronics OIB-3 Operating Impedance Bridge. Before use, tests of known impedances were made to verify operation. All Field Intensity Measurements were made with two Potomac Instruments Field Intensity Meters: An FIM-41, Serial Number 2181, calibrated on October 9, 2009 and another FIM-41, Serial Number 643, calibrated July 3, 2003. Both meters were calibrated by Potomac Instruments, Silver Spring, Maryland. Both meters were also compared to a Potomac Instruments FIM-21, serial number 901, calibrated August 29, 2012 by Potomac Instruments and agreed within tolerance. All measurements were taken by Phasetek Inc. personnel supervised by Kurt Gorman of Phasetek Inc.

CONCLUSION

It is believed that the WRSO Antenna System has been constructed and adjusted in accordance with all applicable Commission rules and regulations. The foregoing was prepared on behalf of Star Over Orlando, Inc., under the immediate supervision of Kurt Gorman, Phasetek Inc., Quakertown, Pennsylvania, whose qualifications are a matter of record with the Federal Communications Commission. The statements herein are true and correct of his knowledge, except such statements made on information and belief, and as to these statements he believes them to be true and correct.

PHASETEK INC.

ENGINEERING STATEMENT CONCERNING APPLICATION FOR LICENSE INFORMATION EMPLOYING MOMENT METHOD MODELING WRSO, 810 KHZ, DA-2 ORLOVISTA, FLORIDA FEBRUARY, 2015

Kurt Gorman, President
Phasetek Inc.
Quakertown, Pennsylvania

FIGURE 1

ANTENNA SYSTEM AS ADJUSTED

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

ANTENNA SYSTEM DESCRIPTION

1. The Antenna System consists of four (4), uniform, guyed, vertical steel transmitting Towers. All Towers stand 92.53M (90.0°) above their Base Insulators. The Towers are arranged with Tower 1 as a reference; Tower 2 is spaced 90.0° on a bearing of 81.6°T. Tower 3 is spaced 225.0° on a bearing of 7.0°T. Tower 4 is spaced 208.1° on a bearing of 343.4°T. Tower 2 supports an FM translator antenna and a STL antenna. Both feeds for these Antennas are isolated at the base with Isocouplers. All towers have aviation obstruction lighting. The lighting circuits are isolated at the base with a choke for each tower.

2. The Ground System for each Tower consists of (120) buried copper Radials, 92.5M in length, except where they intersect with copper transverse straps between Towers or property boundaries. Copper strap connects all Towers to the main Transmitter grounding point.

3. The Sampling System consists of four (4), Delta Electronics TCT-3, 1.0 V/A Toroidal Current Transformers. All TCT's are at the Output of each Antenna Tuning Unit. These TCT's are connected to a Potomac Instruments 1901-4 Antenna Monitor via four (4) equal lengths of Andrew, LDF2-50, 3/8" phase stabilized foam coaxial cable.

4. Tower registration numbers:
   Tower 1: 1247871
   Tower 2: 1247872
   Tower 3: 1247873
   Tower 4: 1247874

FIGURE 1
ANTENNA SYSTEM AS ADJUSTED

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
CONTINUED
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

ANTENNA SYSTEM DESCRIPTION – Continued

DIRECTIONAL OPERATION (DAY)

COMMON POINT

Impedance = 50.0 – j 8.1 Ohms
Current = 20.5 Amperes
Power = 21,060 Watts

DIRECTIONAL OPERATION (NIGHT)

COMMON POINT

Impedance = 50.0 – j 8.1 Ohms
Current = 2.94 Amperes
Power = 432 Watts

Directional Antenna Monitor indications are within $\pm$5% and $\pm 3^{\circ}$ of the modeled TCT values.

FIGURE 2
WRSO SAMPLING SYSTEM DESCRIPTION/MEASUREMENTS

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

SAMPLING SYSTEM DESCRIPTION

The Sampling System consists of Delta Electronics TCT-3 Toroidal Sampling Transformers (1.0 volt/amp) mounted at the base of each Tower. The sampling devices are connected to the Antenna Monitor with equal lengths of Andrew LDF2-50. The Antenna Monitor is a Potomac Instruments Model 1901-4, Serial Number 653.

SAMPLE LINE MEASUREMENTS

Impedance measurements were made of the Antenna Sampling Lines using an Array Solutions 2180 Vector Network Analyzer (VNA). Measurements were done with the lines open circuited and then connected to the TCT's.

The table below shows the frequencies above and below the carrier frequency where resonance, defined as zero reactance corresponding with low resistance, was found. Frequencies of resonance occur at odd multiples of 90 degrees electrical length, the Sample Line length at the resonant frequency above the carrier frequency, which is the closest one to the carrier frequency, was found to be 450 electrical degrees. The electrical length at carrier frequency appearing in the table below was calculated by ratioing the frequencies.

SAMPLE LINE MEASUREMENTS

	Resonant Frequency (KHz) below 810 KHz	Resonant Frequency (KHz) above 810 KHz	Calculated Electrical Length (deg) at 810 KHz	Measured Impedance (ohms) Connected to TCT @ 810 KHz
Tower 1	552.459	924.855	394.1	52.45 +j 0.25
Tower 2	552.443	924.877	394.1	52.07 +j 0.37
Tower 3	552.430	924.876	394.1	51.81 –j 0.71
Tower 4	552.428	924.777	394.1	51.48 –j 0.52

FIGURE 2
WSRF SAMPLING SYSTEM DESCRIPTION/MEASUREMENTS

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
CONTINUED
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

SAMPLE LINE MEASUREMENTS (CONTINUED)

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:

$$Z_0 = ((R_1^2 + X_1^2)^{1/2} \bullet (R_2^2 + X_2^2)^{1/2})^{1/2}$$

Tower	+ 45 Degree Offset Frequency (kHz)	+ 45 Degree Measured Impedance (Ohms)	- 45 Degree Offset Frequency (kHz)	- 45 Degree Measured Impedance (Ohms)	Calculated Characteristic Impedance (Ohms)
1	1017.3	9.9 +j 48.6	832.4	9.2 –j 48.4	49.43
2	1017.4	9.9 +j 48.5	832.4	9.1 –j 48.4	49.37
3	1017.4	9.8 +j 48.6	832.4	9.2 –j 48.5	49.47
4	1017.3	9.7 +j 48.7	832.3	9.0 –j 48.5	49.49

SAMPLING TCT MEASUREMENTS

Measurements of the Delta Electronics Model TCT-3, 1.0 V/A Toroidal Current Transformers were performed by a Hewlett Packard 8752A, Network Analyzer. Measurements are normalized to Tower #2 (reference) and are within the manufacturer's rating of ± 2.0% and ± 3.0°.

FIGURE 2
WSRF SAMPLING SYSTEM DESCRIPTION/MEASUREMENTS

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
CONTINUED
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

SAMPLING TCT MEASUREMENTS CONT'D

TOWER	TCT SERIAL #	MAGNITUDE	PHASE
1	17304	1.000	0.1^{o}
2	17307	1.000	0.0^{o}
3	17308	1.001	0.0^{o}
4	17309	1.002	-0.1^{o}

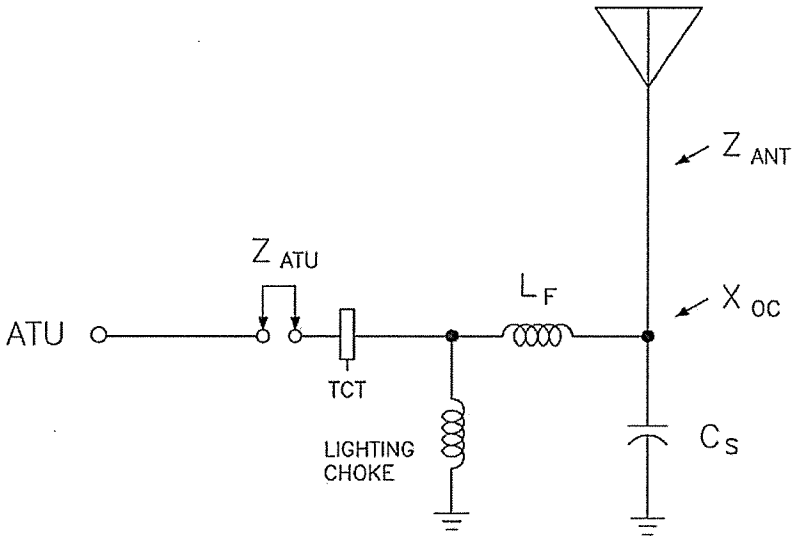
ANTENNA MONITOR MEASUREMENT

Measurement of the Potomac Instruments Model 1901-4 Antenna Monitor was performed to verify calibration. A single RF Voltage was applied to the Reference Input (Tower #2) and each other Input by use of a "T" divider and equal electrical length coaxial cables. This yields the following:

Tower	Ratio	Phase
1	1.000	0.4^{0}
2	1.000	0.0^{0}
3	1.000	0.2^{0}
4	1.000	0.3^{0}

The above is within the manufacturer's rating of $\pm$ 1.0% and $\pm$ 1.0^{o}.

FIGURE 3
WRSO TOWER IMPEDANCE MEASUREMENTS COMPARED TO METHOD OF MOMENTS MODEL
APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015



TOWER	Specified Cs (pf)	Measured L_F (µH)	Measured X_F (Ω)	Modeled Z_{ANT} (Ω)	Modeled Z_{ATU} (Ω)	Measured Z_{ATU} (Ω)
1	15	3.93	+j20.0	51.0 +j 55.4	49.2 +j 74.5	49.0 +j 76.0
2	45	5.11	+j26.0	49.9 +j 52.3	48.7 +j 77.3	48.0 +j 78.6
3	15	4.13	+j21.0	51.0 +j 55.2	49.2 +j 75.3	49.5 +j 76.8
4	15	3.93	+j20.0	50.9 +j 55.3	49.1 +j 74.5	49.9 +j 75.1

Tower	Calculated X_{OC} (Ω)
1	+j 4,537.3
2	+j 14,883.9
3	+j 4,539.1
4	+j 4,537.3

FIGURE 4
WRSO MOMENT MODEL PARAMETERS

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

Tower #	Wire #	# of Segments	Base Node
1	1	10	1
2	2	10	11
3	3	10	21
4	4	10	31

Tower #	Physical Height Degrees	Modeled Height Degrees	Modeled Radius Meters	% of Equivalent Radius
1	90.0	96.5	.243	100.0
2	90.0	96.0	.243	100.0
3	90.0	96.5	.243	100.0
4	90.0	96.5	.243	100.0

All Towers are uniform cross section, guyed with Base Insulator. All towers are three (3) sided, 20" face width.

All Base Insulators are manufactured by Austin Insulators, part number A-4197L, with an assumed capacity of 15pf (-j13,099.2 ohms @ 810 kHz). Tower #2 FM Isocoupler is Phasetek Inc. Model #P600-407 with a capacity of 20pf (-j9,824.4 ohms @ 810 kHz). Tower #2 STL isocoupler is a Moseley Model #ICU-1D with a capacity of 10pF (-j19,648.8 ohms @ 810 kHz).

All Towers have Kintronic Labs 3 wire lighting choke. These measure +j3,350 ohms @ 810 kHz.

FIGURE 5
WRSO MOMENT SUMMARY FOR INDIVIDUAL TOWERS

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

WRSO 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	.243	10
		0	0	96.5		
2	none	90.	81.6	0	.243	10
		90.	81.6	96.		
3	none	225.	7.	0	.243	10
		225.	7.	96.5		
4	none	208.1	343.4	0	.243	10
		208.1	343.4	96.5		

Number of wires = 4
current nodes = 40

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	2	9.6	1	9.65
radius	1	.243	1	.243

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.81	0	1	.0266667	.0268056

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	11	0	14,883.9	0	0	0
2	21	0	4,539.1	0	0	0
3	31	0	4,537.3	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							
.81	51.	55.39	75.294	47.4	2.8531	-6.3583	-1.1424

FIGURE 5
WRSO MOMENT SUMMARY FOR INDIVIDUAL TOWERS

WRSO TOWER 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	.243	10
		0	0	96.5		
2	none	90.	81.6	0	.243	10
		90.	81.6	96.		
3	none	225.	7.	0	.243	10
		225.	7.	96.5		
4	none	208.1	343.4	0	.243	10
		208.1	343.4	96.5		

Number of wires = 4
current nodes = 40

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	2	9.6	1	9.65
radius	1	.243	1	.243

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.81	0	1	.0266667	.0268056

Sources

source	node	sector	magnitude	phase	type
1	11	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	4,537.3	0	0	0
2	21	0	4,539.1	0	0	0
3	31	0	4,537.3	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 11, sector 1							
.81	49.848	52.312	72.259	46.4	2.7319	-6.6681	-1.0534

FIGURE 5
WRSO MOMENT SUMMARY FOR INDIVIDUAL TOWERS

WRSO 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	.243	10
		0	0	96.5		
2	none	90.	81.6	0	.243	10
		90.	81.6	96.		
3	none	225.	7.	0	.243	10
		225.	7.	96.5		
4	none	208.1	343.4	0	.243	10
		208.1	343.4	96.5		

Number of wires = 4
current nodes = 40

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	2	9.6	1	9.65
radius	1	.243	1	.243

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.81	0	1	.0266667	.0268056

Sources

source	node	sector	magnitude	phase	type
1	21	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	1	0	4,537.3	0	0	0
2	11	0	14,883.9	0	0	0
3	31	0	4,537.3	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 21, sector 1							
.81	51.04	55.237	75.208	47.3	2.8444	-6.3794	-1.1361

FIGURE 5
WRSO MOMENT SUMMARY FOR INDIVIDUAL TOWERS

WRSO 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	.243	10
		0	0	96.5		
2	none	90.	81.6	0	.243	10
		90.	81.6	96.		
3	none	225.	7.	0	.243	10
		225.	7.	96.5		
4	none	208.1	343.4	0	.243	10
		208.1	343.4	96.5		

Number of wires = 4
current nodes = 40

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	2	9.6	1	9.65
radius	1	.243	1	.243

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.81	0	1	.0266667	.0268056

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	4,537.3	0	0	0
2	11	0	14,883.9	0	0	0
3	21	0	4,539.1	0	0	0

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 31, sector 1							
.81	50.943	55.333	75.213	47.4	2.8517	-6.3616	-1.1414

FIGURE 6
WRSO MOMENT MODEL ARRAY SYNTHESIS
(DIRECTIONAL – DAY)

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

WRSO DAY

MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = .81 MHz

tower	field ratio magnitude	phase (deg)
1	1.	0
2	.931	-99.8
3	.744	-101.
4	.68	-11.3

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	666.332	74.8	14.3908	1.4
11	1,131.51	314.2	12.9567	265.5
21	828.243	301.5	10.6227	264.9
31	313.52	69.4	10.012	349.3

Sum of square of source currents = 1,176.11
Total power = 20,000. watts

TOWER ADMITTANCE MATRIX

admittance	real (mhos)	imaginary (mhos)
Y(1, 1)	.00871243	-.00882986
Y(1, 2)	.00496811	.00269084
Y(1, 3)	.00272785	-.00149079
Y(1, 4)	.00332803	-.00202396
Y(2, 1)	.00496807	.00269091
Y(2, 2)	.00865981	-.00902374
Y(2, 3)	.00278277	-.00215183
Y(2, 4)	.0020943	-.00141139
Y(3, 1)	.00272784	-.00149078
Y(3, 2)	.00278277	-.00215185
Y(3, 3)	.00848884	-.00890128
Y(3, 4)	.00491857	.0025569
Y(4, 1)	.00332803	-.00202395
Y(4, 2)	.0020943	-.00141141
Y(4, 3)	.00491857	.0025569
Y(4, 4)	.00852187	-.00877838

TOWER IMPEDANCE MATRIX

impedance	real (ohms)	imaginary (ohms)
Z(1, 1)	51.0064	55.2755
Z(1, 2)	25.7748	-24.7706
Z(1, 3)	-18.1711	-3.06078
Z(1, 4)	-16.5232	-8.91811
Z(2, 1)	25.7744	-24.7709
Z(2, 2)	49.6066	52.1707
Z(2, 3)	-17.189	-5.32849
Z(2, 4)	-17.8057	1.08107

FIGURE 6
WRSO MOMENT MODEL ARRAY SYNTHESIS
(DIRECTIONAL – DAY)

z(3, 1)	-18.171	-3.06079
z(3, 2)	-17.189	-5.32855
z(3, 3)	50.7966	55.1332
z(3, 4)	25.9233	-25.0164
z(4, 1)	-16.5232	-8.91811
z(4, 2)	-17.8056	1.081
z(4, 3)	25.9233	-25.0164
z(4, 4)	50.7251	55.2564

FIGURE 7
WRSO MOMENT MODEL SUMMARY FOR DIRECTIONAL DAY MODE

APPLICATION FOR LICENSE INFORMATION EMPLOYING MOMENT METHOD MODELING WRSO, 810 KHZ, DA-2 ORLOVISTA, FLORIDA FEBRUARY, 2015

WRSO DAY

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

wire	caps	Distance	Angle	Z	radius	segs
1	none	0	0	0	.243	10
		0	0	96.5		
2	none	90.	81.6	0	.243	10
		90.	81.6	96.		
3	none	225.	7.	0	.243	10
		225.	7.	96.5		
4	none	208.1	343.4	0	.243	10
		208.1	343.4	96.5		

Number of wires = 4
current nodes = 40

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	2	9.6	1	9.65
radius	1	.243	1	.243

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.81	0	1	.0266667	.0268056

Sources

source	node	sector	magnitude	phase	type
1	1	1	942.336	74.8	voltage
2	11	1	1,600.19	314.2	voltage
3	21	1	1,171.31	301.5	voltage
4	31	1	443.384	69.4	voltage

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.81	13.16	44.393	46.303	73.5	6.9132	-2.5306	-3.5497
source = 2; node 11, sector 1							
.81	57.597	65.643	87.33	48.7	3.2042	-5.6086	-1.3959
source = 3; node 21, sector 1							
.81	62.626	46.445	77.969	36.6	2.3062	-8.0665	-.737
source = 4; node 31, sector 1							
.81	5.3731	30.85	31.314	80.1	12.878	-1.3517	-5.7274

FIGURE 7
WRSO MOMENT MODEL SUMMARY FOR DIRECTIONAL DAY MODE

CURRENT rms
Frequency = .81 MHz
Input power = 20,000. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	14.3908	1.4	14.3868	.340922
2	0	0	9.65	14.7135	.8	14.7121	.202131
3	0	0	19.3	14.5145	.4	14.5141	.10502
4	0	0	28.95	13.8928	.1	13.8927	.0264191
5	0	0	38.6	12.8779	359.8	12.8778	-.0355023
6	0	0	48.25	11.4992	359.6	11.4989	-.0803309
7	0	0	57.9	9.78984	359.4	9.78926	-.107014
8	0	0	67.55	7.78531	359.2	7.78447	-.114348
9	0	0	77.2	5.51781	359.	5.51688	-.101099
10	0	0	86.85	2.9972	358.7	2.99649	-.0656428
END	0	0	96.5	0	0	0	0
GND	13.1475	-89.0345	0	12.9567	265.5	-1.02345	-12.9162
12	13.1475	-89.0345	9.6	13.4673	263.	-1.63043	-13.3682
13	13.1475	-89.0345	19.2	13.4336	261.6	-1.97168	-13.2881
14	13.1475	-89.0345	28.8	12.9755	260.4	-2.15967	-12.7945
15	13.1475	-89.0345	38.4	12.1214	259.5	-2.21057	-11.9181
16	13.1475	-89.0345	48.	10.8978	258.7	-2.13273	-10.6871
17	13.1475	-89.0345	57.6	9.33466	258.	-1.93352	-9.13221
18	13.1475	-89.0345	67.2	7.46468	257.5	-1.62078	-7.28659
19	13.1475	-89.0345	76.8	5.31777	256.9	-1.20195	-5.18015
20	13.1475	-89.0345	86.4	2.90268	256.5	-.6796	-2.822
END	13.1475	-89.0345	96.	0	0	0	0
GND	223.323	-27.4206	0	10.6227	264.9	-.938196	-10.5812
22	223.323	-27.4206	9.65	10.8886	262.3	-1.46813	-10.7892
23	223.323	-27.4206	19.3	10.7693	260.6	-1.76492	-10.6236
24	223.323	-27.4206	28.95	10.3339	259.3	-1.92665	-10.1527
25	223.323	-27.4206	38.6	9.60155	258.2	-1.9675	-9.3978
26	223.323	-27.4206	48.25	8.59224	257.3	-1.89486	-8.3807
27	223.323	-27.4206	57.9	7.32948	256.5	-1.71532	-7.12594
28	223.323	-27.4206	67.55	5.83915	255.8	-1.43594	-5.65983
29	223.323	-27.4206	77.2	4.14509	255.1	-1.06348	-4.00635
30	223.323	-27.4206	86.85	2.25478	254.6	-.60047	-2.17336
END	223.323	-27.4206	96.5	0	0	0	0
GND	199.427	59.4518	0	10.012	349.3	9.83826	-1.85722
32	199.427	59.4518	9.65	10.1324	349.1	9.94864	-1.92081
33	199.427	59.4518	19.3	9.93024	348.9	9.74478	-1.91023
34	199.427	59.4518	28.95	9.45594	348.8	9.27484	-1.84179
35	199.427	59.4518	38.6	8.72779	348.6	8.55677	-1.7193
36	199.427	59.4518	48.25	7.765	348.5	7.60953	-1.54606
37	199.427	59.4518	57.9	6.58971	348.4	6.45499	-1.32568
38	199.427	59.4518	67.55	5.22569	348.3	5.11665	-1.06198
39	199.427	59.4518	77.2	3.6943	348.2	3.61563	-.75833
40	199.427	59.4518	86.85	2.00203	348.	1.95853	-.415087
END	199.427	59.4518	96.5	0	0	0	0

FIGURE 8
WRSO MOMENT MODEL ARRAY SYNTHESIS
(DIRECTIONAL – NIGHT)

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

WRSO NIGHT

MEDIUM WAVE ARRAY SYNTHESIS FROM FIELD RATIOS

Frequency = .81 MHz

tower	field ratio magnitude	phase (deg)
1	1.	0
2	0	0
3	.95	-29.5
4	0	0

VOLTAGES AND CURRENTS - rms

source node	voltage magnitude	phase (deg)	current magnitude	phase (deg)
1	164.627	63.8	2.37815	3.2
11	48.2653	296.8	.0838396	27.5
21	132.326	21.8	2.32942	334.2
31	93.6368	269.	.167967	358.8

Sum of square of source currents = 22.234
Total power = 400. watts

TOWER ADMITTANCE MATRIX

admittance	real (mhos)	imaginary (mhos)
Y(1, 1)	.00871243	-.00882986
Y(1, 2)	.00496811	.00269084
Y(1, 3)	.00272785	-.00149079
Y(1, 4)	.00332803	-.00202396
Y(2, 1)	.00496807	.00269091
Y(2, 2)	.00865981	-.00902374
Y(2, 3)	.00278277	-.00215183
Y(2, 4)	.0020943	-.00141139
Y(3, 1)	.00272784	-.00149078
Y(3, 2)	.00278277	-.00215185
Y(3, 3)	.00848884	-.00890128
Y(3, 4)	.00491857	.0025569
Y(4, 1)	.00332803	-.00202395
Y(4, 2)	.0020943	-.00141141
Y(4, 3)	.00491857	.0025569
Y(4, 4)	.00852187	-.00877838

TOWER IMPEDANCE MATRIX

impedance	real (ohms)	imaginary (ohms)
Z(1, 1)	51.0064	55.2755
Z(1, 2)	25.7748	-24.7706
Z(1, 3)	-18.1711	-3.06078
Z(1, 4)	-16.5232	-8.91811
Z(2, 1)	25.7744	-24.7709
Z(2, 2)	49.6066	52.1707
Z(2, 3)	-17.189	-5.32849
Z(2, 4)	-17.8057	1.08107
Z(3, 1)	-18.171	-3.06079
Z(3, 2)	-17.189	-5.32855

FIGURE 8
WRSO MOMENT MODEL ARRAY SYNTHESIS
(DIRECTIONAL – NIGHT)

Z(3, 3)	50.7966	55.1332
Z(3, 4)	25.9233	-25.0164
Z(4, 1)	-16.5232	-8.91811
Z(4, 2)	-17.8056	1.081
Z(4, 3)	25.9233	-25.0164
Z(4, 4)	50.7251	55.2564

FIGURE 9
WRSO MOMENT MODEL SUMMARY FOR DIRECTIONAL NIGHT MODE

APPLICATION FOR LICENSE INFORMATION EMPLOYING MOMENT METHOD MODELING WRSO, 810 KHZ, DA-2 ORLOVISTA, FLORIDA FEBRUARY, 2015

GEOMETRY
WRSO 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	.243	10
		0	0	96.5		
2	none	90.	81.6	0	.243	10
		90.	81.6	96.		
3	none	225.	7.	0	.243	10
		225.	7.	96.5		
4	none	208.1	343.4	0	.243	10
		208.1	343.4	96.5		

Number of wires = 4
current nodes = 40

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	2	9.6	1	9.65
radius	1	.243	1	.243

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.81	0	1	.0266667	.0268056

Sources

source	node	sector	magnitude	phase	type
1	1	1	232.817	63.8	voltage
2	21	1	187.137	21.8	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	11	0	575.64	0	0	0
2	31	0	557.47	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							
.81	33.962	60.298	69.204	60.6	4.0454	-4.385	-1.9677
source = 2; node 21, sector 1							
.81	38.307	41.942	56.803	47.6	2.6061	-7.0254	-.96023

FIGURE 9
WRSO MOMENT MODEL SUMMARY FOR DIRECTIONAL NIGHT MODE

CURRENT rms
Frequency = .81 MHz
Input power = 400. watts
Efficiency = 100. %
coordinates in degrees

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	2.37861	3.2	2.37493	.132359
2	0	0	9.65	2.46164	1.7	2.4605	.0750189
3	0	0	19.3	2.44764	.8	2.44738	.036138
4	0	0	28.95	2.35775	.1	2.35775	5.86E-03
5	0	0	38.6	2.19733	359.6	2.19726	-.0168924
6	0	0	48.25	1.97135	359.1	1.97108	-.0323633
7	0	0	57.9	1.68539	358.6	1.6849	-.0406187
8	0	0	67.55	1.34544	358.2	1.34479	-.0417169
9	0	0	77.2	.956957	357.9	.95629	-.0357237
10	0	0	86.85	.521547	357.5	.521059	-.0225592
END	0	0	96.5	0	0	0	0
GND	13.1475	-89.0345	0	.0839735	26.8	.074951	.0378669
12	13.1475	-89.0345	9.6	.0462457	26.7	.0412989	.0208101
13	13.1475	-89.0345	19.2	.0212658	26.3	.0190663	9.42E-03
14	13.1475	-89.0345	28.8	2.42E-03	17.1	2.32E-03	7.13E-04
15	13.1475	-89.0345	38.4	.0112656	210.2	-9.73E-03	-5.67E-03
16	13.1475	-89.0345	48.	.0200294	209.5	-.0174351	-9.86E-03
17	13.1475	-89.0345	57.6	.0242098	209.5	-.021067	-.0119289
18	13.1475	-89.0345	67.2	.0241126	209.7	-.020936	-.0119625
19	13.1475	-89.0345	76.8	.0200658	210.	-.0173698	-.0100462
20	13.1475	-89.0345	86.4	.0123212	210.4	-.0106294	-6.23E-03
END	13.1475	-89.0345	96.	0	0	0	0
GND	223.323	-27.4206	0	2.32935	334.2	2.09728	-1.01355
22	223.323	-27.4206	9.65	2.37803	332.6	2.11045	-1.09592
23	223.323	-27.4206	19.3	2.34445	331.5	2.06053	-1.11833
24	223.323	-27.4206	28.95	2.24331	330.7	1.95597	-1.09846
25	223.323	-27.4206	38.6	2.07908	330.	1.80038	-1.03981
26	223.323	-27.4206	48.25	1.85632	329.4	1.59776	-.945034
27	223.323	-27.4206	57.9	1.58028	328.9	1.35275	-.816912
28	223.323	-27.4206	67.55	1.25663	328.4	1.07033	-.658427
29	223.323	-27.4206	77.2	.890562	328.	.755004	-.472303
30	223.323	-27.4206	86.85	.483689	327.6	.408257	-.259387
END	223.323	-27.4206	96.5	0	0	0	0
GND	199.427	59.4518	0	.1679	358.9	.167871	-3.11E-03
32	199.427	59.4518	9.65	.094281	358.9	.0942651	-1.73E-03
33	199.427	59.4518	19.3	.0448671	359.	.0448606	-7.6E-04
34	199.427	59.4518	28.95	6.88E-03	.2	6.88E-03	2.49E-05
35	199.427	59.4518	38.6	.021208	178.3	-.0211983	6.41E-04
36	199.427	59.4518	48.25	.0398862	178.4	-.0398714	1.08E-03
37	199.427	59.4518	57.9	.0494597	178.4	-.0494414	1.34E-03
38	199.427	59.4518	67.55	.0502426	178.4	-.0502228	1.41E-03
39	199.427	59.4518	77.2	.0425701	178.3	-.0425515	1.26E-03
40	199.427	59.4518	86.85	.0266035	178.2	-.02659	8.48E-04
END	199.427	59.4518	96.5	0	0	0	0

FIGURE 10
DERIVED DIRECTIONAL PARAMETERS

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

DAY:

	Theoretical		Base Network Input Current		Normalized TCT	
Tower	Field	Phase	Amplitude	Phase	Amplitude	Phase
1 (SW)	1.000	0.0°	14.62	+1.15°	1.114	+95.9°
2 (SE)	.931	-99.8°	13.12	-94.76°	1.000	0.0°
3 (NE)	.744	-101.0°	10.80	-95.84°	.823	-1.1°
4 (NW)	.680	-11.3°	10.14	-10.79°	.773	+84.0°

NIGHT:

	Theoretical		Base Network Input Current		Normalized TCT	
Tower	Field	Phase	Amplitude	Phase	Amplitude	Phase
1 (SW)	1.000	0.0°	2.42	+2.77°	1.000	0.0°
2 (SE)			DETUNED			
3 (NE)	.950	-29.5°	2.37	-26.27°	.979	-29.0°
4 (NW)			DETUNED			

FIGURE 11
WRSO TOWER BASE CIRCUIT ANALYSIS DESCRIPTION

APPLICATION FOR LICENSE INFORMATION
EMPLOYING MOMENT METHOD MODELING
WRSO, 810 KHZ, DA-2
ORLOVISTA, FLORIDA
FEBRUARY, 2015

CIRCUIT ANALYSIS

Circuit Analysis was performed on each Tower of the WRSO model. "Phasetek" nodal Circuit Analysis program was used to compute base model Input/Output voltages and currents. For the Directional modes, 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.

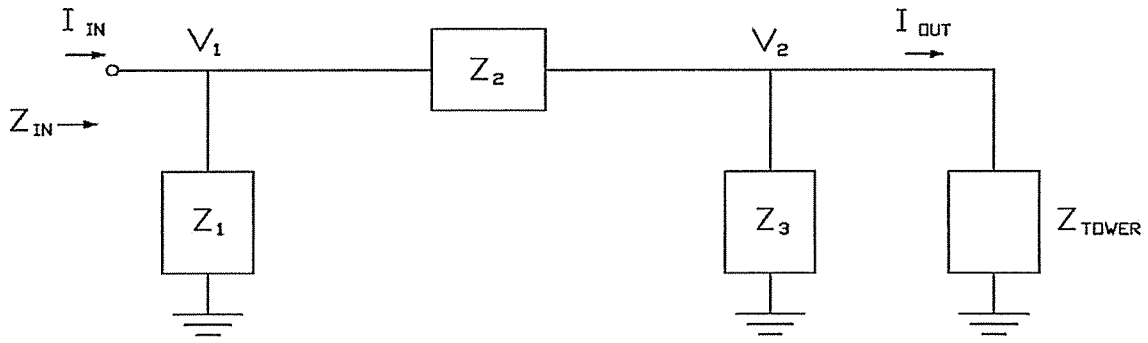


FIGURE 12
WRSO CIRCUIT ANALYSIS FOR INDIVIDUAL TOWERS

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

FREQUENCY : 810.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 3350.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 20.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-13099.20 OHMS
TOWER IMPEDANCE (R,X) : 51.00, 55.39 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	3350.00
2		GROUND	51.43	55.42
1		2	0.00	20.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	82.82	-8.57

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	49.18	74.50	89.27	56.57
INPUT CURRENT (AMPS) :	0.62	-0.93	1.12	-56.57
OUTPUT CURRENT (AMPS) :	0.62	-0.91	1.10	-55.93

INPUT/OUTPUT CURRENT RATIO = 1.0183
INPUT/OUTPUT PHASE = -0.64 DEGREES

FIGURE 12
WRSO CIRCUIT ANALYSIS FOR INDIVIDUAL TOWERS

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

FREQUENCY : 810.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 3350.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 26.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -4366.40 OHMS
TOWER IMPEDANCE (R,X) : 49.85, 52.31 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	3350.00
2		GROUND	51.06	52.36
1		2	0.00	26.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	78.19	-11.19

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	48.74	77.29	91.38	57.76
INPUT CURRENT (AMPS) :	0.58	-0.93	1.09	-57.76
OUTPUT CURRENT (AMPS) :	0.58	-0.91	1.08	-57.57

INPUT/OUTPUT CURRENT RATIO = 1.0113
INPUT/OUTPUT PHASE = -0.19 DEGREES

FIGURE 12
WRSO CIRCUIT ANALYSIS FOR INDIVIDUAL TOWERS

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

FREQUENCY : 810.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 3350.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 21.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-13099.20 OHMS
TOWER IMPEDANCE (R,X) : 51.04, 55.24 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	3350.00
2		GROUND	51.47	55.27
1		2	0.00	21.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	82.08	-8.95

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	49.20	75.31	89.95	56.85
INPUT CURRENT (AMPS) :	0.61	-0.93	1.11	-56.85
OUTPUT CURRENT (AMPS) :	0.61	-0.91	1.09	-56.21

INPUT/OUTPUT CURRENT RATIO = 1.0186
INPUT/OUTPUT PHASE = -0.64 DEGREES

FIGURE 12
WRSO CIRCUIT ANALYSIS FOR INDIVIDUAL TOWERS

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

FREQUENCY : 810.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 3350.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 20.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-13099.20 OHMS
TOWER IMPEDANCE (R,X) : 50.94, 55.33 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	3350.00
2		GROUND	51.38	55.37
1		2	0.00	20.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	100.00	0.00
2	82.81	-8.58

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	49.13	74.45	89.20	56.58
INPUT CURRENT (AMPS) :	0.62	-0.94	1.12	-56.58
OUTPUT CURRENT (AMPS) :	0.62	-0.91	1.10	-55.94

INPUT/OUTPUT CURRENT RATIO = 1.0183
INPUT/OUTPUT PHASE = -0.64 DEGREES

FIGURE 13
WRSO CIRCUIT ANALYSIS FOR DIRECTIONAL DAY MODE

CUSTOMER : WRSO
NETWORK ID : TOWER 1 DAY

FREQUENCY : 810.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 3350.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 20.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-13099.20 OHMS
TOWER IMPEDANCE (R,X) : 13.16, 44.39 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	3350.00
2		GROUND	13.25	44.53
1		2	0.00	20.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	944.81	79.77
2	666.33	74.80

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	12.75	63.36	64.63	78.62
INPUT CURRENT (AMPS) :	14.62	0.29	14.62	1.15
OUTPUT CURRENT (AMPS) :	14.39	0.33	14.39	1.31

INPUT/OUTPUT CURRENT RATIO = 1.0158
INPUT/OUTPUT PHASE = -0.16 DEGREES

FIGURE 13
WRSO CIRCUIT ANALYSIS FOR DIRECTIONAL DAY MODE

CUSTOMER : WRSO
NETWORK ID : TOWER 2 DAY

FREQUENCY : 810.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 3350.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 26.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00, -4366.40 OHMS
TOWER IMPEDANCE (R,X) : 57.60, 65.64 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	3350.00
2		GROUND	59.36	65.85
1		2	0.00	26.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	1395.79	-36.64
2	1131.51	314.20

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	56.22	90.37	106.43	58.12
INPUT CURRENT (AMPS) :	-1.09	-13.07	13.12	-94.76
OUTPUT CURRENT (AMPS) :	-1.02	-12.92	12.96	-94.54

INPUT/OUTPUT CURRENT RATIO = 1.0122
INPUT/OUTPUT PHASE = -0.22 DEGREES

FIGURE 13
WRSO CIRCUIT ANALYSIS FOR DIRECTIONAL DAY MODE

CUSTOMER : WRSO
NETWORK ID : TOWER 3 DAY

FREQUENCY : 810.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 3350.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 21.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-13099.20 OHMS
TOWER IMPEDANCE (R,X) : 62.63, 46.44 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	3350.00
2		GROUND	63.07	46.31
1		2	0.00	21.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	976.38	-47.93
2	828.24	301.50

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	60.59	67.10	90.41	47.92
INPUT CURRENT (AMPS) :	-1.10	-10.74	10.80	-95.84
OUTPUT CURRENT (AMPS) :	-0.94	-10.58	10.62	-95.06

INPUT/OUTPUT CURRENT RATIO = 1.0167
INPUT/OUTPUT PHASE = -0.78 DEGREES

FIGURE 13
WRSO CIRCUIT ANALYSIS FOR DIRECTIONAL DAY MODE

CUSTOMER : WRSO
NETWORK ID : TOWER 4 DAY

FREQUENCY : 810.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 3350.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 20.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-13099.20 OHMS
TOWER IMPEDANCE (R,X) : 5.37, 30.85 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	3350.00
2		GROUND	5.40	30.92
1		2	0.00	20.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	511.47	73.25
2	313.52	69.40

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	5.24	50.17	50.44	84.04
INPUT CURRENT (AMPS) :	9.96	-1.90	10.14	-10.79
OUTPUT CURRENT (AMPS) :	9.84	-1.86	10.01	-10.72

INPUT/OUTPUT CURRENT RATIO = 1.0128
INPUT/OUTPUT PHASE = -0.07 DEGREES

FIGURE 14
WRSO CIRCUIT ANALYSIS FOR DIRECTIONAL NIGHT MODE

CUSTOMER : WRSO
NETWORK ID : TOWER 1 NIGHT

FREQUENCY : 810.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 3350.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 20.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-13099.20 OHMS
TOWER IMPEDANCE (R,X) : 33.96, 60.30 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	3350.00
2		GROUND	34.28	60.49
1		2	0.00	20.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	207.15	70.27
2	164.63	63.80

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	32.68	78.93	85.43	67.51
INPUT CURRENT (AMPS) :	2.42	0.12	2.42	2.77
OUTPUT CURRENT (AMPS) :	2.38	0.13	2.38	3.19

INPUT/OUTPUT CURRENT RATIO = 1.0194
INPUT/OUTPUT PHASE = -0.42 DEGREES

FIGURE 14
WRSO CIRCUIT ANALYSIS FOR DIRECTIONAL NIGHT MODE

CUSTOMER : WRSO
NETWORK ID : TOWER 3 NIGHT

FREQUENCY : 810.00 kHz
ATU SHUNT IMPEDANCE (R,X) : 0.00, 3350.00 OHMS
TOWER FEED IMPEDANCE (R,X) : 0.00, 21.00 OHMS
TOWER SHUNT IMPEDANCE (R,X) : 0.00,-13099.20 OHMS
TOWER IMPEDANCE (R,X) : 38.31, 41.94 OHMS

NODE	TO	NODE	IMPEDANCE (OHMS) R	X
1		GROUND	0.00	3350.00
2		GROUND	38.55	41.96
1		2	0.00	21.00

NODE	VOLTAGE MAGNITUDE	PHASE
1	171.44	32.90
2	132.33	21.80

	REAL	IMAGINARY	MAGNITUDE	PHASE
INPUT IMPEDANCE (OHMS) :	37.14	62.22	72.46	59.17
INPUT CURRENT (AMPS) :	2.12	-1.05	2.37	-26.27
OUTPUT CURRENT (AMPS) :	2.10	-1.01	2.33	-25.79

INPUT/OUTPUT CURRENT RATIO = 1.0156
INPUT/OUTPUT PHASE = -0.48 DEGREES

FIGURE 15

WRSO REFERENCE POINTS -- DA-D 1/3/2015

Radial		Dist km	Time	mV/m	CO-ORD NAD27	deg	min	sec	Description
N 10 E	1	1.52	1003	160.0	N	28	35	6.4	Mercy Drive at Unisource entrance
					W	81	25	52.5	
	2	4.91	1020	35.0	N	28	36	54.4	Parking lot of #6401 Edgewater Drive
					W	81	25	31.7	
	3	5.45	1025	33.0	N	28	37	11.9	Driveway 3531 Dr. Love Road
					W	81	25	27.9	
N 72 E	1	1.84	1040	1310.0	N	28	34	36.2	John Young Pkwy. --south end of Wawa parking lot
					W	81	24	57.4	
	2	2.40	1048	1080.0	N	28	34	41.9	Regent Ave. 100' north of Silver Star Rd.
					W	81	24	37.9	
	3	2.74	1053	1100.0	N	28	34	45.5	Orange Blossom Trail opposite gate
					W	81	24	26.2	
N 127.5 E	1	2.22	1126	138.0	N	28	33	35.3	100' west of int. John Young Pkwy + WD Judge Road
					W	81	24	56.8	
	2	3.67	1105	81.0	N	28	33	5.9	Arlington St + Vern Dr -- southwest corner
					W	81	24	14.6	
	3	3.54	1114	105.0	N	28	33	8.5	W Colonial Dr -- east edge of Citgo parking lot
					W	81	24	19.1	

FIGURE 15 CONTINUED

WRSO REFERENCE POINTS -- DA-D cont. 1/3/2015

Radial		Dist km	Time	mV/m	CO-ORD NAD27	deg	min	sec	Description
N 230 E	1	2.48	1048	7.6	N	28	33	26.6	San Domingo Rd near Balboa -- drwy opp spd lim 25
					W	81	27	12.1	
	2	2.93	1032	22.0	N	28	33	16.7	Mailbox 810 Governors Ave
					W	81	27	24.4	
	3	3.24	1027	18.3	N	28	33	10.6	Hastings St -- St Andrew Church lot drwy
					W	81	27	33.6	
N 269.5 E	1	1.45	1055	43.0	N	28	34	17.0	Drwy 2117 Beecher St
					W	81	26	55.2	
	2	1.94	1105	20.5	N	28	34	16.9	Casa Vida Apts. @ curve south of Building N -- on road
					W	81	27	13.6	
	3	2.27	1112	22.2	N	28	34	15.6	Golf Club Pkwy + Silver Spruce @ fire hydrant
					W	81	27	25.4	
N 322.5 E	1	2.60	1122	24.2	N	28	35	24.5	White Heron Dr + Donovan St -- west side
					W	81	27	0.8	
	2	2.89	1128	27.8	N	28	35	31.5	Grandview off Pine Hills Rd @ spd lim 25
					W	81	27	7.9	
	3	3.50	1133	23.1	N	28	35	47.0	Mailbox 4403 Robbins Ave
					W	81	27	22.0	

FIGURE 15 CONTINUED

WRSO REFERENCE POINTS -- DA-N 1/3/2015

Radial		*Dist km*	*Time*	*mV/m*		*CO-ORD NAD27* deg	min	sec	*Description*
N 28.5 E	1	1.24	1338	14.1	N	28	34	58.6	Road to industrial building -- @ fence
					W	81	25	41.3	
	2	2.16	1353	7.7	N	28	35	18.8	Int of Bay Lake Road + Eunice Ave
					W	81	25	22.7	
	3	3.73	1403	5.6	N	28	36	3.2	Trotters Park lot by fire hydrant + stop sign
					W	81	24	55.2	
N 89.5 E	1	2.31	1428	135.0	N	28	34	18.5	Lynx Lane @ bus stop
					W	81	24	37.1	
	2	2.71	1413	91.0	N	28	34	19.3	Orange Blossom Trl W side -- Pr'ton Commerce Ctr.
					W	81	24	22.1	
	3	3.11	1421	72.0	N	28	34	19.1	1503 W Smith St -- parking lot
					W	81	24	7.5	
N 139 E	1	3.05	1453	8.0	N	28	33	3.8	John Young Pkwy W side -- center of mall parking lot
					W	81	24	47.8	
	2	4.04	1448	1.95	N	28	32	39.1	int Lakeland Ave + Washington St
					W	81	24	25.1	
	3	4.68	1439	2.8	N	28	32	23.7	Church St opp stadium box office
					W	81	24	9.0	

FIGURE 15 CONTINUED

WRSO REFERENCE POINTS -- DA-N cont. 1/3/2015

Radial		Dist km	Time	mV/m	CO-ORD NAD27	deg	min	sec	Description
N 235 E	1	1.76	1343	7.0	N	28	33	45.2	Mailbox 4913 Cortez Dr
					W	81	26	55.0	
	2	2.09	1350	4.5	N	28	33	39.1	Drwy 1109 Santa Anita St
					W	81	27	4.8	
	3	2.46	1356	9.6	N	28	33	31.8	Mailbox 1006 Emeralda Rd
					W	81	27	15.9	
N 284.5 E	1	1.70	1406	120.0	N	28	34	31.3	Queensway Rd + Kipp @ street sign
					W	81	27	2.6	
	2	2.30	1413	96.0	N	28	34	37.1	Drwy 5800 Golf Club Pkwy
					W	81	27	23.7	
	3	3.02	1419	71.0	N	28	34	42.1	Mailbox 2609 Pioneer Rd
					W	81	27	49.7	
N 345.5 E	1	1.14	1432	20.4	N	28	34	53.5	Seaboard Rd north side @ C+S -- on drain
					W	81	26	13.0	
	2	1.67	1441	13.7	N	28	35	10.1	Shader Rd W of Daltile plant + rail -- S side @ drain
					W	81	26	17.6	
	3	4.45	1458	3.0	N	28	36	37.3	opp drwy 5426 Lee Ann Dr
					W	81	26	43.6	

FIGURE 16: CERTIFIED ARRAY GEOMETRY SURVEY

Summary of Post Construction Certified Array Geometry

Tower	Specified Array Geometry			Post-Construction Certification*		Distance From Specified Base Location	
	Spacing (Deg.)	Spacing (Meters)	Azimuth (Deg. T.)	Spacing (Feet)	Azimuth (Deg. T.)	(Meters)	(Deg.)
1	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
2	90.0	92.53	81.6	302.69	81.5	0.35	0.3
3	225.0	231.33	7.0	759.74	6.9	0.61	0.6
4	208.1	213.95	343.4	702.41	343.2	0.69	0.7

*From March 27, 2015 Record Survey Plan prepared by William D. Donley

The "as built" tower displacements frm their specified locations, expressed in electrical degrees at carrier frequency, which correspond to space phasing differences in the far-field radiation pattern of the array, are well below the +/- degree operating phase range specified for antenna monitor parameters by the FCC Rules.

LEGAL DESCRIPTION: (KOONTZ PARCEL)

PARCEL 1:

LOTS 72, 87, 88, 89, 90, 91, 92, 105, 106 AND VACATED STREETS ADJACENT TO SAID LOTS, AS VACATED IN OFFICIAL RECORDS BOOK 612, PAGE 581, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA, WILLIS R. MUNGER'S SUBDIVISION OF SECTION 17, TOWNSHIP 22 SOUTH, RANGE 29 EAST AS RECORDED IN PLAT BOOK "E", PAGE 3, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA, LESS THAT PART OF NORMANDY SHORES, FIRST SECTION, AS RECORDED IN PLAT BOOK "M", PAGE 63, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA, AND NORMANDY SHORES, SECOND SECTION, AS RECORDED IN PLAT BOOK "X", PAGE 95, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA, WHICH IS DESCRIBED AS FOLLOWS: FROM THE NORTHEAST CORNER OF THE SOUTHWEST 1/4 OF SECTION 17, TOWNSHIP 22 SOUTH, RANGE 29 EAST, RUN SOUTH 89° 59' 53" WEST ALONG THE NORTH LINE OF THE SOUTHWEST 1/4 OF SAID SECTION 17 FOR A DISTANCE OF 1327.71 FEET TO THE EAST-WEST QUARTER SECTION LINE FOR THE POINT OF BEGINNING; THENCE RUN SOUTH 89° 59' 53" WEST 1668.27 FEET ALONG THE EAST-WEST QUARTER SECTION LINE TO A POINT ON THE WEST BOUNDARY OF SAID NORMANDY SHORES, SECOND SECTION; THENCE ALONG THE BOUNDARY OF SAID NORMANDY SHORES, SECOND SECTION, WITH THE FOLLOWING COURSES AND DISTANCES: SOUTH 01° 19' 30" EAST 174.87 FEET; THENCE EAST 150 FEET TO THE BEGINNING OF A CURVE CONCAVE SOUTHWESTERLY, HAVING A RADIUS OF 200 FEET AND AN INTERSECTION ANGLE OF 42° 58' 45"; THENCE SOUTHEASTERLY 150.03 FEET ALONG THE ARC OF SAID CURVE TO THE BEGINNING OF A CURVE CONCAVE SOUTHEASTERLY, HAVING A RADIUS OF 150 FEET AND AN INTERSECTION ANGLE OF 63° 09' 30"; THENCE FROM A TANGENT BEARING OF SOUTH 61° 50' WEST RUN SOUTHEASTERLY 141.74 FEET ALONG THE ARC OF SAID CURVE TO THE END OF SAID CURVE; THENCE SOUTH 01° 19' 30" EAST 330.70 FEET; THENCE EAST 552.53 FEET TO THE BEGINNING OF A CURVE CONCAVE SOUTHWESTERLY, HAVING A RADIUS OF 600 FEET AND AN INTERSECTION ANGLE OF 48° 57' 30"; THENCE SOUTHEASTERLY 563.97 FEET ALONG THE ARC OF SAID CURVE TO THE END OF SAID CURVE; THENCE SOUTH 41° 02' 29" EAST 60.45 FEET; THENCE NORTH 41° 58' EAST 341.00 FEET TO THE BEGINNING OF A CURVE CONCAVE SOUTHWESTERLY, HAVING A RADIUS OF 1000 FEET AND AN INTERSECTION ANGLE OF 09° 43' 38"; THENCE FROM A TANGENT BEARING OF SOUTH 39° 57' 28" EAST RUN SOUTHEASTERLY 117.40 FEET ALONG THE ARC OF SAID CURVE TO THE END OF SAID CURVE; THENCE NORTH 41° 58' EAST 45.45 FEET TO THE BEGINNING OF A CURVE CONCAVE NORTHWESTERLY, HAVING A RADIUS OF 450 FEET AND AN INTERSECTION ANGLE OF 42° 30'; THENCE NORTHEASTERLY 333.79 FEET ALONG THE ARC OF SAID CURVE TO THE END OF SAID CURVE; THENCE NORTH 00°32' WEST 612.08 FEET TO THE POINT OF BEGINNING.

ALSO LESS ANY PORTION OF SUBJECT PREMISES LYING WITHIN THE RIGHT OF WAY OF WEST PRINCETON STREET AND LESS ANY PORTION OF SUBJECT PREMISES LYING WITHIN THE RIGHT OF WAY OF MERCY DRIVE AND LESS THE ORLANDO-ORANGE COUNTY DRAINAGE CANAL AS DESCRIBED IN WARRENTY DEED RECORDED IN OFFICIAL RECORDS BOOK 1624, PAGE 795, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.

LESS RIGHT OF WAY DEEDS RECORDED IN OFFICIAL RECORDS BOOK 2655, PAGE 1714 AND IN OFFICIAL RECORDS BOOK 3422, PAGE 1160, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.

PARCEL 2:

THE NORTH 1/2 OF THE NORTH 1/2 OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 17, TOWNSHIP 22 SOUTH, RANGE 29 EAST, (LESS RIGHT-OF-WAY FOR MERCY DRIVE), IN SECTION 17, TOWNSHIP 22 SOUTH, RANGE 29 EAST, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.

LESS RIGHT OF WAY DEEDS RECORDED IN OFFICIAL RECORDS BOOK 2872, PAGE 144 AND OFFICIAL RECORDS BOOK 2872, PAGE 268, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.

MORE PARTICULARLY DESCRIBED AS:

PART OF THE NORTH 1/2 OF THE NORTH 1/2 OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 17, TOWNSHIP 22 SOUTH, RANGE 29 EAST AND THAT PART OF LOTS 72, 87, 88, 89, 90, 91, 92, 105, 106 AND VACATED STREETS ADJACENT TO SAID LOTS (AS VACATED IN OFFICIAL RECORDS BOOK 612, PAGE 581, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA) WILLIS R. MUNGER'S SUBDIVISION OF SECTION 17, TOWNSHIP 22 SOUTH, RANGE 29 EAST, AS RECORDED IN PLAT BOOK E, PAGE 3, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA LYING WEST OF THE RIGHT-OF-WAY OF PRINCETON STREET (STATE ROAD 438) PER STIPULATED FINAL JUDGMENT RECORDED NOVEMBER 3, 1986, IN OFFICIAL RECORDS BOOK 3833, PAGE 327 AND AS DEPICTED ON FLORIDA DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY MAP SECTION 75250-2508, LYING EAST OF AND 100 FEET, MORE OR LESS, NORMAL TO THE ORANGE COUNTY CANAL RIGHT-OF-WAY RECORDED IN OFFICIAL RECORDS BOOK 1624, PAGE 795, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 17; THENCE NORTH 00°41'24" WEST ALONG THE EAST LINE THEREOF, A DISTANCE OF 1335.20 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 17, ALSO BEING THE SOUTHEAST CORNER OF LOT 93 OF THE AFORESAID WILLIS R. MUNGER'S SUBDIVISION OF SECTION 17; THENCE SOUTH 89°42'29" WEST ALONG THE SOUTH LINE OF SAID LOT 93, A DISTANCE OF 80.00 FEET TO THE WESTERLY RIGHT-OF-WAY LINE OF MERCY DRIVE AND THE POINT OF BEGINNING; THENCE CONTINUING SOUTH 89°42'29" WEST ALONG THE SOUTH LINE OF SAID LOT 92, A DISTANCE OF 175.00 FEET; THENCE SOUTH 00°41'24" EAST ALONG A LINE 255 FEET WEST OF AND PARALLEL WITH SAID EAST LINE OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 17, A DISTANCE OF 334.01 FEET TO THE SOUTH LINE OF THE AFORESAID NORTH 1/2 OF THE NORTH 1/2 OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 17; THENCE SOUTH 89°42'29" WEST ALONG SAID SOUTH LINE A DISTANCE OF 1071.21 FEET TO THE SOUTHWEST CORNER OF SAID NORTH 1/2 OF THE NORTH 1/2 OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 17, SAID CORNER BEING ON THE EAST LINE OF LOT 105 OF SAID MUNGER'S SUBDIVISION; THENCE SOUTH 01°00'04" EAST ALONG SAID EAST LINE, A DISTANCE OF 336.48 FEET TO THE SOUTHEAST CORNER OF SAID LOT 105; THENCE NORTH 89°49'44" WEST ALONG THE SOUTH LINE OF LOTS 105 AND 106 OF SAID MUNGER'S SUBDIVISION, A DISTANCE OF 665.53 FEET, TO THE SOUTHWEST CORNER OF SAID LOT 106; THENCE NORTH 01°07'47" WEST ALONG THE WESTERLY LINE OF SAID LOT 106 A DISTANCE OF 363.77 FEET TO THE EASTERLY LINE OF THE AFORESAID 100 FOOT WIDE ORANGE COUNTY CANAL RIGHT-OF-WAY; THENCE ALONG SAID CANAL RIGHT-OF-WAY LINE THE FOLLOWING THREE COURSES: NORTH 41°53'11" EAST, A DISTANCE OF 888.69 FEET TO THE POINT OF CURVATURE OF A CURVE CONCAVE NORTHWESTERLY, HAVING A RADIUS OF 550.00 FEET AND A CENTRAL ANGLE OF 42°30'00"; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE A DISTANCE OF 407.97 FEET TO THE POINT OF TANGENCY; THENCE NORTH 00°34'49" WEST, A DISTANCE OF 555.47 FEET TO THE SOUTH LINE OF THE FLORIDA DEPARTMENT OF TRANSPORTATION CANAL RIGHT-OF-WAY PER MAP SECTION 75250-2508; THENCE SOUTH 89°40'30" EAST ALONG SAID CANAL RIGHT-OF-WAY LINE, A DISTANCE OF 243.33 FEET TO THE EAST LINE OF LOT 72 OF SAID MUNGER'S SUBDIVISION; THENCE SOUTH 00°50'28" EAST ALONG SAID EAST LINE, A DISTANCE OF 628.12 FEET TO THE SOUTHEAST CORNER OF SAID LOT 72 AND THE NORTHWEST CORNER OF LOT 90 OF SAID MUNGER'S SUBDIVISION; THENCE SOUTH 89°58'58" EAST ALONG THE NORTH LINE OF SAID LOT 90, A DISTANCE OF 306.83 FEET TO THE AFORESAID WESTERLY RIGHT-OF-WAY LINE OF PRINCETON STREET (STATE ROAD 438) BEING A NON-TANGENT CURVE CONCAVE NORTHEASTERLY, HAVING A RADIUS OF 1255.67 FEET AND A CENTRAL ANGLE OF 27°57'17"; THENCE, FROM A TANGENT BEARING OF SOUTH 31°43'50" EAST, RUN SOUTHEASTERLY ALONG SAID WESTERLY RIGHT-OF-WAY LINE AND THE ARC OF SAID CURVE A DISTANCE OF 612.64 FEET TO A POINT OF COMPOUND CURVATURE OF A CURVE CONCAVE NORTHEASTERLY HAVING A RADIUS OF 1828.62 FEET AND A CENTRAL ANGLE OF 06°26'45"; THENCE CONTINUE SOUTHEASTERLY ALONG SAID WESTERLY RIGHT-OF-WAY LINE AND THE ARC OF SAID CURVE A DISTANCE OF 205.72 FEET TO THE AFORESAID WESTERLY RIGHT-OF-WAY LINE OF MERCY DRIVE; THENCE SOUTH 00°41'29" EAST ALONG SAID RIGHT-OF-WAY LINE, A DISTANCE OF 151.08 FEET TO THE POINT OF BEGINNING.

CONTAINING 37.38 ACRES, MORE OR LESS.

LEGAL DESCRIPTION: (WINEMAN PARCEL)

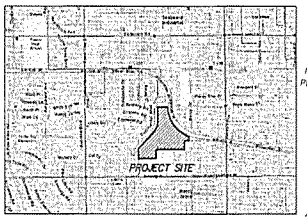
LOT 71, OF SUBDIVISION OF WILLIS R. MUNGER'S LAND IN SECTION 17, TOWNSHIP 22 SOUTH, RANGE 29 EAST, ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK E, PAGE 3, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA, LESS THE NORTH 30 FEET THEREOF AND LESS AND EXCEPT ROAD RIGHT OF WAY PER ORDER OF TAKING RECORDED JUNE 20, 1984, IN OFFICIAL RECORDS BOOK 3515, PAGE 2594 AND STIPULATED FINAL JUDGMENT RECORDED NOVEMBER 3, 1986, IN OFFICIAL RECORDS BOOK 3833, PAGE 327, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.

MORE PARTICULARLY DESCRIBED AS:

THAT PART OF LOT 71, WILLIS R. MUNGER'S SUBDIVISION OF SECTION 17, TOWNSHIP 22 SOUTH, RANGE 29 EAST, AS RECORDED IN PLAT BOOK E, PAGE 3, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA, LYING WEST OF THE RIGHT-OF-WAY OF PRINCETON STREET (STATE ROAD 438) PER STIPULATED FINAL JUDGMENT RECORDED NOVEMBER 3, 1986, IN OFFICIAL RECORDS BOOK 3833, PAGE 327 AND AS DEPICTED ON FLORIDA DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY MAP SECTION 75250-2508, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 17; THENCE NORTH 00°41'24" WEST ALONG THE EAST LINE THEREOF, A DISTANCE OF 1335.20 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 17, ALSO BEING THE SOUTHEAST CORNER OF LOT 93 OF THE AFORESAID MUNGER'S SUBDIVISION OF SECTION 17; THENCE SOUTH 89°42'29" WEST ALONG THE SOUTH LINE OF SAID LOT 93, A DISTANCE OF 80.00 FEET TO THE WESTERLY RIGHT-OF-WAY LINE OF MERCY DRIVE AND THE POINT OF BEGINNING; THENCE CONTINUING SOUTH 89°42'29" WEST ALONG THE SOUTH LINE OF SAID LOT 92, A DISTANCE OF 175.00 FEET; THENCE SOUTH 00°41'24" EAST ALONG A LINE 255 FEET WEST OF AND PARALLEL WITH SAID EAST LINE OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 17, A DISTANCE OF 334.01 FEET TO THE SOUTH LINE OF THE AFORESAID NORTH 1/2 OF THE NORTH 1/2 OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 17; THENCE SOUTH 89°42'29" WEST ALONG SAID SOUTH LINE A DISTANCE OF 1071.21 FEET TO THE SOUTHWEST CORNER OF SAID NORTH 1/2 OF THE NORTH 1/2 OF THE SOUTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 17, SAID CORNER BEING ON THE EAST LINE OF LOT 105 OF SAID MUNGER'S SUBDIVISION; THENCE SOUTH 01°00'04" EAST ALONG SAID EAST LINE, A DISTANCE OF 336.48 FEET TO THE SOUTHEAST CORNER OF SAID LOT 105; THENCE NORTH 89°49'44" WEST ALONG THE SOUTH LINE OF LOTS 105 AND 106 OF SAID MUNGER'S SUBDIVISION, A DISTANCE OF 665.53 FEET, TO THE SOUTHWEST CORNER OF SAID LOT 106; THENCE NORTH 01°07'47" WEST ALONG THE WESTERLY LINE OF SAID LOT 106 A DISTANCE OF 363.77 FEET TO THE EASTERLY LINE OF THE AFORESAID 100 FOOT WIDE ORANGE COUNTY CANAL RIGHT-OF-WAY; THENCE ALONG SAID CANAL RIGHT-OF-WAY LINE THE FOLLOWING THREE COURSES: NORTH 41°53'11" EAST, A DISTANCE OF 888.69 FEET TO THE POINT OF CURVATURE OF A CURVE CONCAVE NORTHWESTERLY, HAVING A RADIUS OF 550.00 FEET AND A CENTRAL ANGLE OF 42°30'00"; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE A DISTANCE OF 407.97 FEET TO THE POINT OF TANGENCY; THENCE NORTH 00°34'49" WEST, A DISTANCE OF 555.47 FEET TO THE SOUTH LINE OF THE FLORIDA DEPARTMENT OF TRANSPORTATION CANAL RIGHT-OF-WAY PER MAP SECTION 75250-2508; THENCE SOUTH 89°40'30" EAST ALONG SAID CANAL RIGHT-OF-WAY LINE, A DISTANCE OF 243.33 FEET TO THE EAST LINE OF LOT 72 OF SAID MUNGER'S SUBDIVISION; THENCE SOUTH 00°50'28" EAST ALONG SAID EAST LINE, A DISTANCE OF 628.12 FEET TO THE SOUTHEAST CORNER OF SAID LOT 72 AND THE NORTHWEST CORNER OF LOT 90 OF SAID MUNGER'S SUBDIVISION; THENCE SOUTH 89°58'58" EAST ALONG THE NORTH LINE OF SAID LOT 90, A DISTANCE OF 306.83 FEET TO THE AFORESAID WESTERLY RIGHT-OF-WAY LINE OF PRINCETON STREET (STATE ROAD 438) BEING A NON-TANGENT CURVE CONCAVE NORTHEASTERLY, HAVING A RADIUS OF 1255.67 FEET AND A CENTRAL ANGLE OF 27°57'17"; THENCE, FROM A TANGENT BEARING OF SOUTH 31°43'50" EAST, RUN SOUTHEASTERLY ALONG SAID WESTERLY RIGHT-OF-WAY LINE AND THE ARC OF SAID CURVE A DISTANCE OF 612.64 FEET TO A POINT OF COMPOUND CURVATURE OF A CURVE CONCAVE NORTHEASTERLY HAVING A RADIUS OF 1828.62 FEET AND A CENTRAL ANGLE OF 06°26'45"; THENCE CONTINUE SOUTHEASTERLY ALONG SAID WESTERLY RIGHT-OF-WAY LINE AND THE ARC OF SAID CURVE A DISTANCE OF 205.72 FEET TO THE AFORESAID WESTERLY RIGHT-OF-WAY LINE OF MERCY DRIVE; THENCE SOUTH 00°41'29" EAST ALONG SAID RIGHT-OF-WAY LINE, A DISTANCE OF 151.08 FEET TO THE POINT OF BEGINNING.

CONTAINING 2.642 ACRES, MORE OR LESS.



VICINITY MAP
NOT TO SCALE

LEGEND AND ABBREVIATIONS:

±	MORE OR LESS
EL.	ELEVATION
LB	LICENSED BUSINESS
NO.	NUMBER
LS	LAND SURVEYOR
I.D.	IDENTIFICATION
ORB	OFFICIAL RECORDS BOOK
℄	CENTERLINE
R	RADIUS
L	ARC LENGTH
Δ	DELTA (CENTRAL ANGLE)
C.D.	CHORD LENGTH
C.B.	CHORD BEARING
POC	POINT ON CURVE
POL	POINT ON LINE
PCC	POINT OF COMPOUND CURVATURE
PRC	POINT OF REVERSE CURVATURE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
PI	POINT OF INTERSECTION
P.O.C.	POINT OF COMMENCEMENT
P.O.B.	POINT OF BEGINNING
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
DIP	DUCTILE IRON PIPE
PVC	POLYVINYL CHLORIDE
CMP	CORRUGATED METAL PIPE
RCP	REINFORCED CONCRETE PIPE
NAVD	NORTH AMERICAN VERTICAL DATUM
NGVD	NATIONAL GEODETIC VERTICAL DATUM
P.B.	PLAT BOOK
ORB	OFFICIAL RECORDS BOOK
PG(S)	PAGE(S)
R/W	RIGHT OF WAY
ESMT	EASEMENT
SEC	SECTION
FND	FOUND
REC	RECOVERED
CCR	CERTIFIED CORNER RECORD
RLS	REGISTERED LAND SURVEYOR
CM	CONCRETE MONUMENT
IRC	IRON ROD AND CAP
IR	IRON ROD
IP	IRON PIPE
CLF	CHAIN LINK FENCE
	CABLE TELEVISION RISER BOX
	TELEPHONE RISER BOX
	UTILITY RISER
	WELL
	WATER SPIGOT
	IRRIGATION CONTROL VALVE
	WATER METER
	WATER VALVE
	FIRE HYDRANT
	AIR CONDITIONER PAD
	GAS VALVE
	GAS METER
	GAS LINE MARKER
	CONCRETE UTILITY POLE
	METAL UTILITY POLE
	WOOD UTILITY POLE
	UTILITY POLE GUY ANCHOR
	LIGHT POLE
	SPOT/GROUND LIGHT
	ELECTRIC TRANSFORMER
	WETLAND FLAG
	SIGN
	BOLLARD
	FLAG POLE
	MAILBOX
	HEDGE ROW
	LINE BREAK
	FENCE LINE AS NOTED
	OVERHEAD UTILITY LINE
	APPROXIMATE TOP OF BANK
	APPROXIMATE TOE OF SLOPE
	EXISTING CONTOUR
	FOUND CONCRETE MONUMENT AS NOTED
	FOUND NAIL AS NOTED
	FOUND NAIL & DISK AS NOTED
	SET NAIL & DISK (LB 8011)
	FOUND IRON ROD & CAP AS NOTED
	FOUND IRON ROD AS NOTED
	SET 5/8" IRON ROD & CAP (LB 8011)
	CONTROL/BENCHMARK AS DESCRIBED
	CURB INLET GRATE
	CATCH BASIN
	STORM MANHOLE
	SANITARY MANHOLE
	SANITARY CLEANOUT
	ELECTRIC MANHOLE
	ELECTRIC METER
	ELECTRIC RISER BOX

TOWER SITES STATE PLANE GRID COORDINATES:

TOWER	NORTHING	EASTING	LATITUDE	LONGITUDE
TOWER 1	1340242.9648	517023.8917	N28° 34' 12"	W81° 26' 01"
TOWER 2	1340287.9136	517323.2301	N28° 34' 13"	W81° 25' 57"
TOWER 3	1340015.4562	517621.0593	N28° 34' 19"	W81° 25' 53"
TOWER 4	1340297.2678	517114.5991	N28° 34' 20"	W81° 26' 00"

SURVEY NOTES:

1. BEARINGS SHOWN HEREON ARE BASED ON THE EAST LINE THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 17, TOWNSHIP 22 SOUTH, RANGE 29 EAST, BEING N 00°41'29" W (ASSUMED DATUM)
2. ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP (FIRM) MAP NO. 12095C0235F, ORANGE COUNTY, FLORIDA, EFFECTIVE DATE OF SEPTEMBER 25, 2009, THE PROPERTY DESCRIBED HEREON LIES WITHIN ZONE(S) "X" AND "AE" AND PARTIALLY LIES WITHIN A 100 YEAR FLOOD HAZARD AREA.
3. UNDERGROUND FOUNDATIONS AND UTILITIES WERE NOT LOCATED AS PART OF THIS SURVEY.
4. LANDS SHOWN HEREON WERE NOT ABSTRACTED FOR RIGHTS-OF-WAY, EASEMENTS, OWNERSHIP, ADJOINERS OR OTHER INSTRUMENTS OF RECORD BY THIS FIRM.
5. NORTH-SOUTH AND EAST-WEST TIES TO FOUND MONUMENTATION AND IMPROVEMENTS ARE BASED ON CARDINAL DIRECTION.
6. WETLAND AREAS, IF EXISTING, WERE NOT ADDRESSED AS A PART OF THIS SURVEY.
7. THE ACCURACY OF THE SURVEY MEASUREMENTS USED FOR THIS SURVEY MEETS OR EXCEEDS THE EXPECTED USE OF THE PROPERTY DESCRIBED HEREON, (SUBURBAN) 1 FOOT IN 7,500 FEET.
8. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS.
9. THE TOWER COORDINATES SHOWN HEREON HAVE BEEN DERIVED FROM THE STATEWIDE TRIMBLE VRS NETWORK AND ARE RELATIVE TO THE FLORIDA EAST ZONE, NORTH AMERICAN DATUM OF 1983 WITH 2012 ADJUSTMENT.

CERTIFIED TO:

STAR OVER ORLANDO, INC.

SURVEYOR'S CERTIFICATE:

I HEREBY CERTIFY THIS SURVEY MEETS THE APPLICABLE "STANDARDS OF PRACTICE" AS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN RULE 5J-17.050-.052, FLORIDA ADMINISTRATIVE CODE.

WILLIAM D. DONLEY
FLORIDA LICENSED SURVEYOR & MAPPER NO. LS 5381

THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

REVISIONS				
FB/PG	DATE	DRAWN	REVISION	CKD

Dewberry
520 South Magnolia Avenue
Orlando, Florida 32801
Phone: 321.354.9826 Fax: 407.648.9104
www.dewberry.com
Certificate Of Authorization No. LB 8011

A PORTION OF LOTS 71, 72, 87-92 & 105-106
WILLIS R. MUNGER'S SUBDIVISION
SECTION 17, TOWNSHIP 22 SOUTH, RANGE 29 EAST
PLAT BOOK E, PAGE 3
ORANGE COUNTY, FLORIDA

PLAT OF BOUNDARY SURVEY
-FOR-
STAR OVER ORLANDO, INC.

FB/PG	FIELD DATE	PROJECT NO.
17-22-29 / 4-7	03/24/2015	50073218 (KPR)
DRAWING DATE: 03/27/2015	BY: MRP	APPROVED: WDD
SCALE: 1" = 120'		1 OF 1

Drawing name: S:\KPR-15\FC-Civil 3D\PROJ_Boundary\Boundary Survey Mar 25, 2015 1:15pm by mrapkin