SPX®

COMMUNICATION TECHNOLOGY

Date	4/27/2012
Call Letters	WABE
Location	Atlanta, GA
Antenna Type	DCRM
Frequency	90.1
Drawing #	32R

PATTERN CERTIFICATION

TABLE OF CONTENTS

EXHIBIT B
APPLICATION FOR STATION LICENSE
AND PROGRAM TEST AUTHORITY
BOARD OF EDUCATION, CITY OF ATLANTA
WABE (FM) RADIO STATION
CH 211C0 - 90.1 MHZ - 100.0 KW
ATLANTA, GEORGIA
May 2012

COMMUNICATION TECHNOLOGY

Date	**4/27/2012**
Call Letters	**WABE**
Location	**Atlanta, GA**
Antenna Type	**DCRM**
Frequency	**90.1**
Drawing #	**32R**

PATTERN CERTIFICATION

Method of Measurement

The azimuth pattern for WABE, Dielectric Document Sketch #32R, was measured in the following manner.

A single 4.4 to 1 scale model "DCRM" bay radiator was mounted on a similarly scaled model of the tower according to information provided to Dielectric by the customer; refer to Dielectric Document Sketch #32R. The antenna under test, all parasitics, all known tower appurtenances, and the tower section were rotated through 360 degrees while receiving a signal at the appropriate frequency from a linear cavity-backed source antenna. Both the horizontal and vertical polarization azimuth patterns were measured in an anechoic test range.

The transmit and scale model antennas are mounted at identical elevations and at opposite ends of the chamber. A Hewlett Packard model 8753ET network analyzer was used to supply the RF signal to the source antenna at 4.4 times the fundamental FM frequency and to receive the signal intercepted by the antenna under test. The received signal was converted to a relative level, referenced to the source. This level was stored on a computer acting as the master controller. The computer controls the measurement system via IEEE-488 control bus through a GPIB card.

Statement of Qualifications

Jon Hanson is an Electrical Engineer here at Dielectric. He received a BS in Electrical Engineering from the North Dakota State University in 2004. He has 5 years experience in RF antenna engineering and has been employed by Dielectric Communications since 2008.

Signed by: Jon Hanson Digitally signed by Jon Hanson DN: CN=Jon Hanson, O=SPX Corporation, OU=SPX Communication Technologies, E=jon.hanson@spx.com, C=US Reason: I am the author of this document Location: Date: 2012/04/27 14:30:28 -05'00'

Date: _____

SPX®

COMMUNICATION TECHNOLOGY

Date	**4/27/2012**
Call Letters	**WABE**
Location	**Atlanta, GA**
Antenna Type	**DCRM**
Frequency	**90.1**
Drawing #	**32R**

FM AZIMUTH PATTERN APPROVAL

The azimuth pattern of the horizontal polarization and vertical polarization as supplied by Dielectric in the document labeled "Pattern 32R", is acknowledged as acceptable. We understand that Dielectric does not guarantee or predict signal strength in any particular location.

_____
(Customer's name)

By: _____
(Name typed or printed)

Title: _____

_____
(Signature)

SPX®

COMMUNICATION TECHNOLOGY

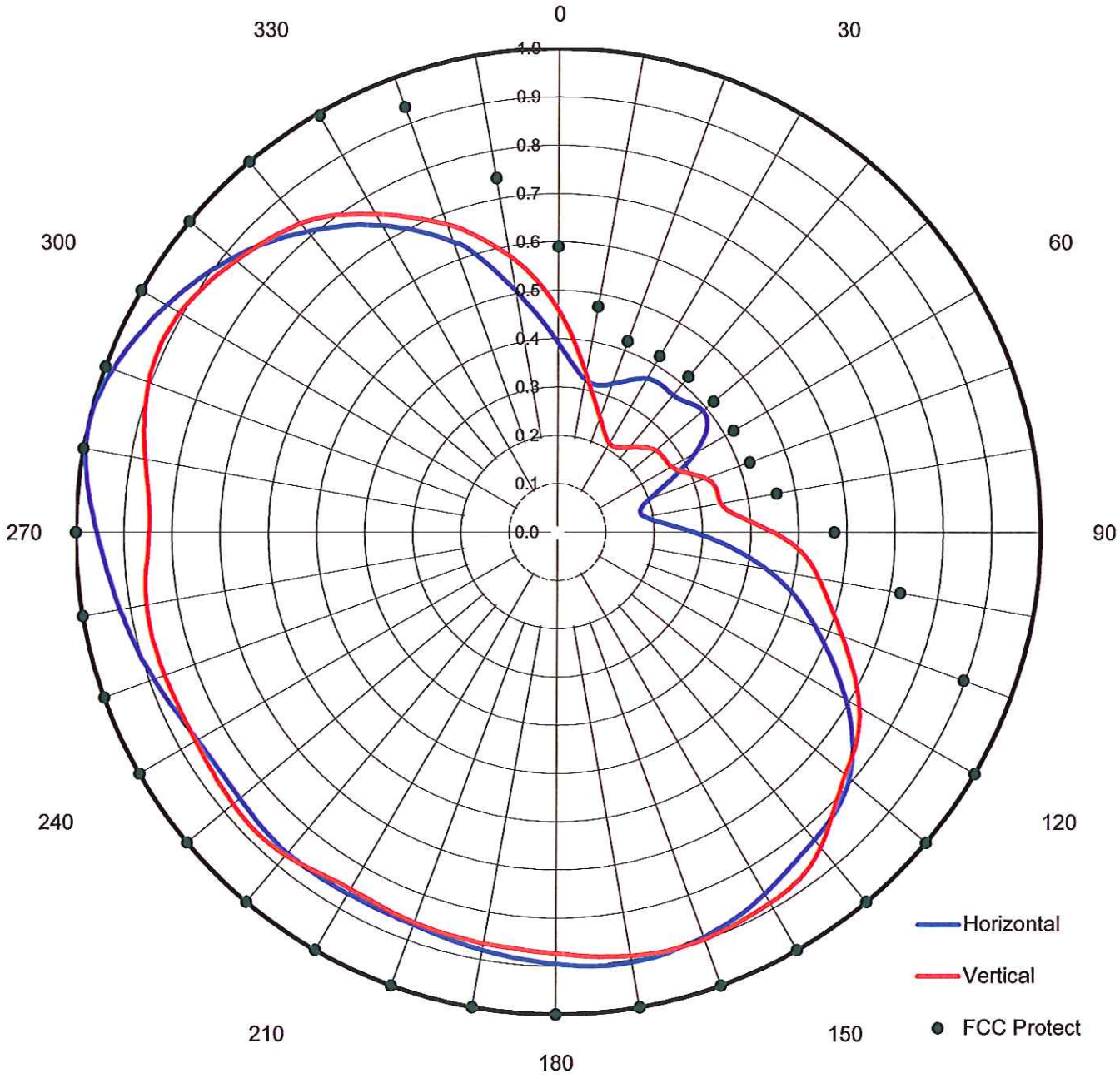
Date	4/27/2012
Call Letters	WABE
Location	Atlanta, GA
Antenna Type	DCRM
Frequency	90.1
Drawing #	32R

AZIMUTH PATTERN

86.1% Ccov 50.2% Hrms - 49.8% Vrms

Gain **1.88 (2.74 dB) HPOL**
1.60 (2.04 dB) VPOL

Calculated / Measured **Measured**



SPX®

COMMUNICATION TECHNOLOGY

Date	4/27/2012
Call Letters	WABE
Location	Atlanta, GA
Antenna Type	DCRM
Frequency	90.1
Drawing #	32R

TABULATION OF HORIZONTAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
	0.392	11.866	15.366
10	0.322	10.157	10.368
20	0.327	10.291	10.693
30	0.366	11.270	13.396
40	0.371	11.387	13.764
50	0.392	11.866	15.366
60	0.327	10.291	10.693
70	0.202	6.107	4.080
80	0.183	5.249	3.349
90	0.283	9.036	8.009
100	0.441	12.889	19.448
110	0.570	15.117	32.490
120	0.692	16.802	47.886
130	0.792	17.975	62.726
140	0.832	18.402	69.222
150	0.865	18.740	74.823
160	0.893	19.017	79.745
170	0.905	19.133	81.903
180	0.895	19.036	80.103
190	0.880	18.890	77.440
200	0.866	18.750	74.996
210	0.865	18.740	74.823
220	0.868	18.770	75.342
230	0.858	18.670	73.616
240	0.861	18.700	74.132
250	0.890	18.988	79.210
260	0.922	19.295	85.008
270	0.956	19.609	91.394
280	0.997	19.974	99.401
290	0.984	19.860	96.826
300	0.939	19.453	88.172
310	0.883	18.919	77.969
320	0.812	18.191	65.934
330	0.732	17.290	53.582
340	0.638	16.096	40.704
350	0.507	14.100	25.705

SPX®

COMMUNICATION TECHNOLOGY

Date	4/27/2012
Call Letters	WABE
Location	Atlanta, GA
Antenna Type	DCRM
Frequency	90.1
Drawing #	32R

TABULATION OF VERTICAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
	0.461	13.274	21.252
10	0.334	10.475	11.156
20	0.254	8.097	6.452
30	0.213	6.568	4.537
40	0.230	7.235	5.290
50	0.264	8.432	6.970
60	0.272	8.691	7.398
70	0.326	10.264	10.628
80	0.343	10.706	11.765
90	0.448	13.026	20.070
100	0.551	14.823	30.360
110	0.629	15.973	39.564
120	0.724	17.195	52.418
130	0.781	17.853	60.996
140	0.852	18.609	72.590
150	0.887	18.958	78.677
160	0.898	19.066	80.640
170	0.892	19.007	79.566
180	0.874	18.830	76.388
190	0.866	18.750	74.996
200	0.861	18.700	74.132
210	0.854	18.629	72.932
220	0.874	18.830	76.388
230	0.876	18.850	76.738
240	0.865	18.740	74.823
250	0.866	18.750	74.996
260	0.865	18.740	74.823
270	0.848	18.568	71.910
280	0.869	18.780	75.516
290	0.905	19.133	81.903
300	0.908	19.162	82.446
310	0.874	18.830	76.388
320	0.834	18.423	69.556
330	0.759	17.605	57.608
340	0.677	16.612	45.833
350	0.580	15.269	33.640

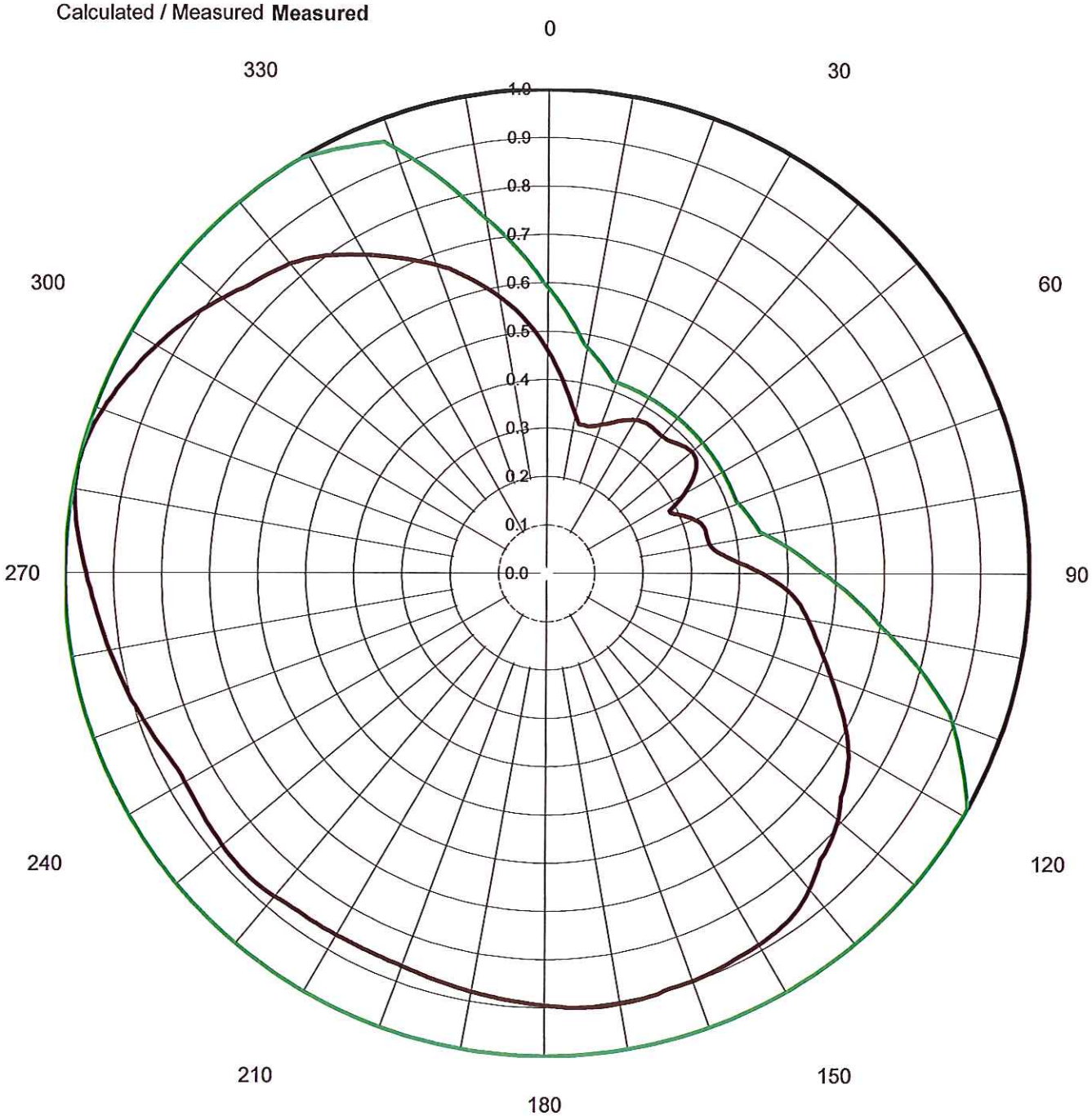
SPX®

COMMUNICATION TECHNOLOGY

Date	**4/27/2012**
Call Letters	**WABE**
Location	**Atlanta, GA**
Antenna Type	**DCRM**
Frequency	**90.1**
Drawing #	**32R**

COMPOSITE AZIMUTH PATTERN

Calculated / Measured **Measured**



SPX®

COMMUNICATION TECHNOLOGY

Date	4/27/2012
Call Letters	WABE
Location	Atlanta, GA
Antenna Type	DCRM
Frequency	90.1
Drawing #	32R

TABULATION OF COMPOSITE AZIMUTH PATTERN

Angle	Field	dBk	Power kW	Input Power
	0.461	13.274	21.252	100.000
10	0.334	10.475	11.156	100.000
20	0.327	10.291	10.693	100.000
30	0.366	11.270	13.396	100.000
40	0.371	11.387	13.764	100.000
50	0.392	11.866	15.366	100.000
60	0.327	10.291	10.693	100.000
70	0.326	10.264	10.628	100.000
80	0.343	10.706	11.765	100.000
90	0.448	13.026	20.070	100.000
100	0.551	14.823	30.360	100.000
110	0.629	15.973	39.564	100.000
120	0.724	17.195	52.418	100.000
130	0.792	17.975	62.726	100.000
140	0.852	18.609	72.590	100.000
150	0.887	18.958	78.677	100.000
160	0.898	19.066	80.640	100.000
170	0.905	19.133	81.903	100.000
180	0.895	19.036	80.103	100.000
190	0.880	18.890	77.440	100.000
200	0.866	18.750	74.996	100.000
210	0.865	18.740	74.823	100.000
220	0.874	18.830	76.388	100.000
230	0.876	18.850	76.738	100.000
240	0.865	18.740	74.823	100.000
250	0.890	18.988	79.210	100.000
260	0.922	19.295	85.008	100.000
270	0.956	19.609	91.394	100.000
280	0.997	19.974	99.401	100.000
290	0.984	19.860	96.826	100.000
300	0.939	19.453	88.172	100.000
310	0.883	18.919	77.969	100.000
320	0.834	18.423	69.556	100.000
330	0.759	17.605	57.608	100.000
340	0.677	16.612	45.833	100.000
350	0.580	15.269	33.640	100.000

SPX®

COMMUNICATION TECHNOLOGY

Date	**4/27/2012**
Call Letters	**WABE**
Location	**Atlanta, GA**
Antenna Type	**DCRM**
Frequency	**90.1**
Drawing #	**32R**

CUSTOMER GAIN SUMMARY

Azimuth Pattern Gain of Horizontal Polarization	1.88 (2.74 dB)
Elevation Pattern Gain Per Polarization	2.71 (4.33 dB)
Peak Gain at Horizontal Polarization	5.09 (7.07 dB)

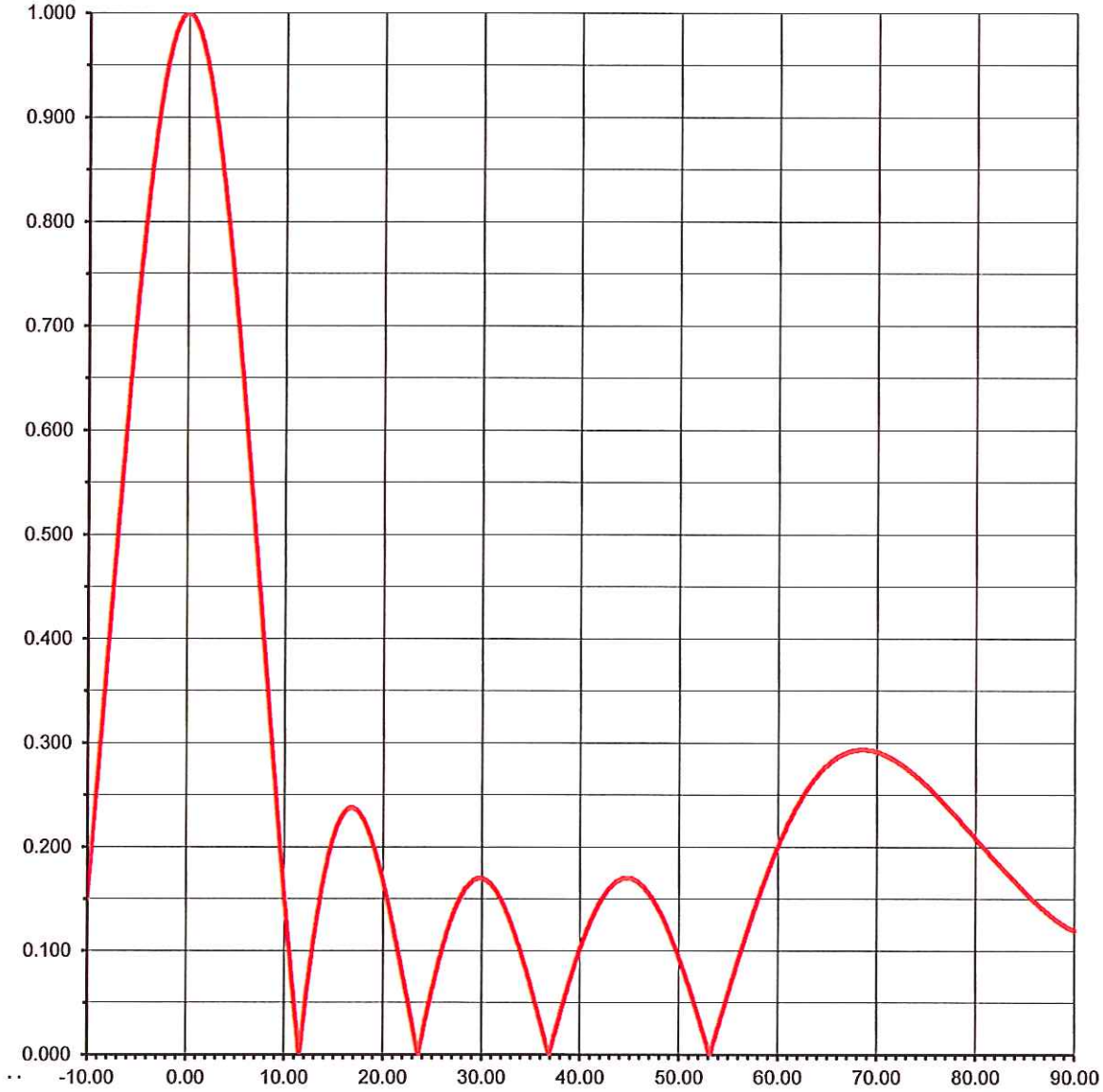
SPX®

COMMUNICATION TECHNOLOGY

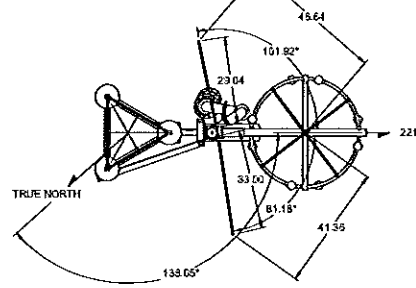
Date	4/27/2012
Call Letters	WABE
Location	Atlanta, GA
Antenna Type	DCRM
Frequency	90.1
Drawing #	32R

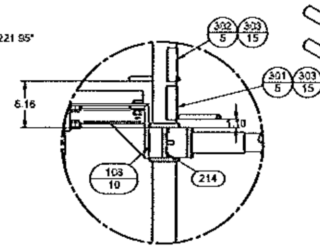
ELEVATION PATTERN

RMS Gain at Main Lobe	2.71 (4.33 dB)	Beam Tilt	
Per Polarization		Frequency	90.1 MHz
Calculated / Measured	Calculated		

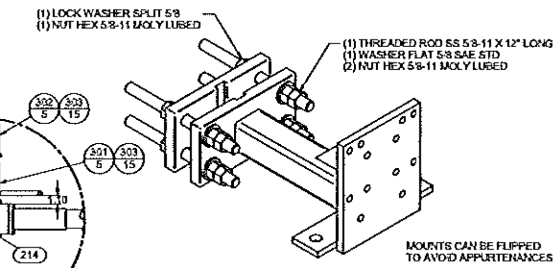


REV	ECO	DATE	REVISION NOTE	ECO	DATE APR
			CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.		
A1			SURVEY OF TOWER CHANGED ORIENTATION OF ANTENNA TO 221.5°	N/A	

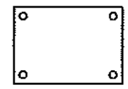




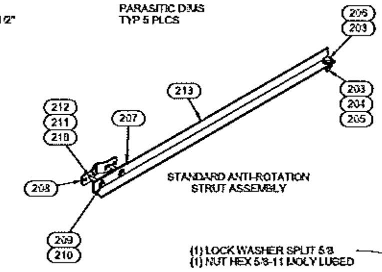
DETAIL A
PARASITIC DUS
TYP 5 PLCS



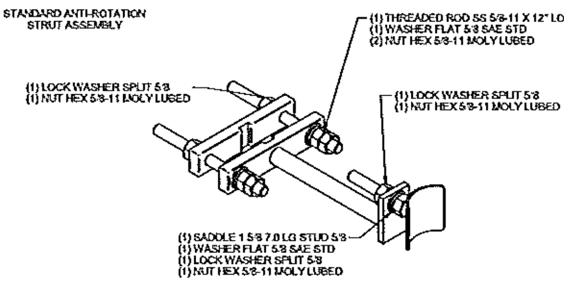
ITEM 201 DETAIL



ITEM 215 TO BE USED ON TOWER LEGS THAT ARE Ø1.25 OD 3 PLCS



STANDARD ANTI-ROTATION STRUT ASSEMBLY



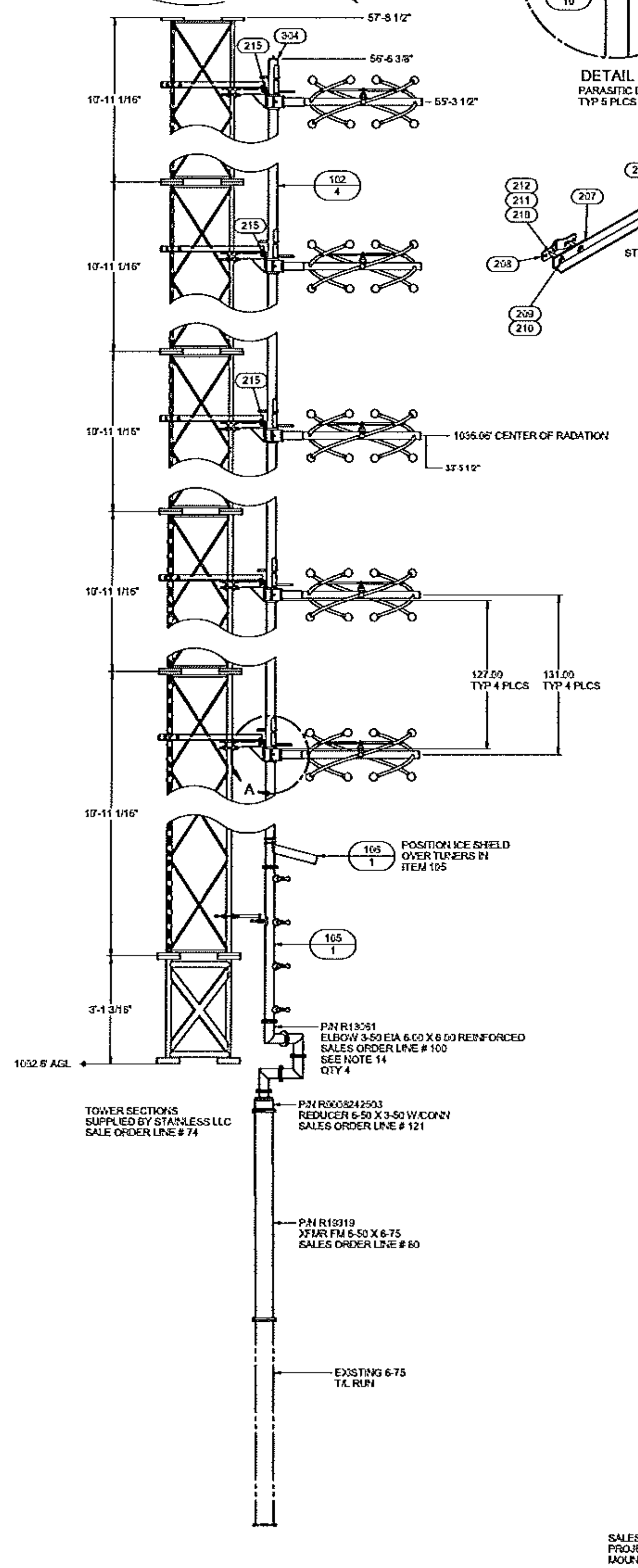
(1) THREADED ROD SS 5/8-11 X 12" LONG
(1) WASHER FLAT 5/8 SAE STD
(2) NUT HEX 5/8-11 MOLY LUBED
(1) LOCK WASHER SPLIT 5/8
(1) NUT HEX 5/8-11 MOLY LUBED
(1) LOCK WASHER SPLIT 5/8
(1) NUT HEX 5/8-11 MOLY LUBED
(1) SADDLE 1 5/8 7.0 LG STUD 5/8
(1) WASHER FLAT 5/8 SAE STD
(1) LOCK WASHER SPLIT 5/8
(1) NUT HEX 5/8-11 MOLY LUBED

ITEM 202 DETAIL

	ANTENNA BOM			
ITEM NO	MATERIAL	MATERIAL DESCRIPTION	REQ'D QTY	UNIT
101	R58839	DCRM PLAIN BAY W/ RADOME	5	EA
102	[illegible]	T/L KIT 3-50 SQ FLANGE FM USE 117.00 LONG	4	EA
103	R56737	DCT BLK END ASSY DCRM & SCM	1	EA
104	R56569	F/L INPUT SECT 3-50 X 70 INCH	1	EA
105	R71326	AFU 3-50 FM SHORT STUB	1	EA
106	R00[illegible]	ICE SHIELD KIT T/L 3-50 FM ANT	1	EA
107	R56545	DCT BLK CENTER ASSY DCRM & SCM	1	EA
108	R55364	STAND OFF MOUNT STN STL FM ANT	10	EA

	MOUNT BOM P/N 11000013090			
ITEM NO	MATERIAL	MATERIAL DESCRIPTION	REQ'D QTY	UNIT
201	11000006296	MOUNT KIT FM ANTENNA BAY	5	EA
202	11000006295	TERM MOUNT KIT FM ANT 3-50 T/L	2	EA
203	RC405300000	WASHER FLAT 5/8 SAE STD	10	EA
204	RC256300000	LOCK WASHER SPLIT 5/8	5	EA
205	RC14651100	NUT HEX 5/8-11 MOLY LUBED	5	EA
206	[illegible]	HHCS SS 5/8-11 X2.00	5	EA
207	R00214[illegible]	ANTI - ROTATION REINFORCEMENT PLATE	5	EA
208	[illegible]	CLAMPING BAR	5	EA
209	RC025013400	HHCS SS 1/2-13 X 4.00	10	EA
210	RC425300000	WASHER FLAT 1/2 SAE STD	10	EA
211	RC255300000	LOCK WASHER SPLIT 1/2	10	EA
212	RC145013000	NUT HEX 1/2-13 MOLY LUBED	10	EA
213	10000004729	[illegible] ANTI-ROTATION STRUT WABE 90.1 FM	5	EA
214	11000005299	HARDWARE BLOCK MOUNTING KIT	5	EA
215	10000008748	[illegible] SHIM .25 THK MOUNTING PLATE	3	EA

	PARASITIC BOM P/N 11000013199			
ITEM NO	MATERIAL	MATERIAL DESCRIPTION	REQ'D QTY	UNIT
301	10000008737	[illegible] PARASITIC COAX LINE MT WABE 90.1 [illegible]	5	EA
302	10000008538	[illegible] PARASITIC COAX LINE MT WABE 90.1 [illegible]	5	EA
303	[illegible]	HOSE CLAMP	20	EA
304	[illegible]	TOP BAY [illegible] EXTENSION	1	EA



57'-8 1/2"
215
304
56'-6 3/8"
55'-3 1/2"
10'-11 1/16"
102
4
215
10'-11 1/16"
215
10'-11 1/16"
1036.06' CENTER OF RADIATION
33'-5 1/2"
10'-11 1/16"
127.00
TYP 4 PLCS
131.00
TYP 4 PLCS
A
10'-11 1/16"
106
1
POSITION ICE SHIELD OVER TUNERS IN ITEM 105
105
1
3'-1 3/16"
P/N R13061
ELBOW 3-50 EIA 6.00 X 6.00 REINFORCED
SALES ORDER LINE # 100
SEE NOTE 14
QTY 4
1032.6' AGL
TOWER SECTIONS SUPPLIED BY STAINLESS LLC SALE ORDER LINE # 74
P/N R9008242503
REDUCER 6-50 X 3-50 W/CONN
SALES ORDER LINE # 121
P/N R18319
XFMR FM 6-50 X 6-75
SALES ORDER LINE # 60
EXISTING 6-75 T/L RUN

INSTALLATION NOTES:

1. ANTENNA SHALL BE INSTALLED PER THIS INSTALLATION DRAWING. ANY DEVIATIONS WILL VOID WARRANTY UNLESS APPROVED BY SPX COMMUNICATIONS TECHNOLOGY.
2. TO ACHIEVE ANY GIVEN PATTERN STUDY PERFORMED BY SPX COMMUNICATIONS TECHNOLOGY, THE PROVIDED ANTENNA MUST BE INSTALLED AND ORIENTED AS DEPICTED IN THIS DRAWING. IF ANY SUCH PATTERN WAS NOT PROVIDED, THE ANTENNA ORIENTATION AND POSITION IS AT THE DISCRETION OF THE BUYER TO WHICH THE ANTENNA WAS SOLD. SHOULD ANY QUESTIONS ARISE DURING THE INSTALLATION PROCESS, CONTACT SPX COMMUNICATIONS TECHNOLOGY AT, 1-800-341-9678, TO ASSIST IN THIS PROCESS. BE PREPARED TO PROVIDE THE PART NUMBER OR DRAWING NUMBER SHOWN BELOW.
3. COMPONENTS ARE MATCH MARKED FOR EASE IN ASSEMBLY.
4. ITEM NUMBERS DEPICTED ON THIS DRAWING CORRESPOND TO ITEM NUMBERS LISTED ON ENCLOSED BILL OF MATERIAL.
5. APPLY THIN LAYER OF DC4 DOW CORNING COMPOUND TO ALL "O"-RING SEALS PRIOR TO ASSEMBLY.
6. UNLESS OTHERWISE SPECIFIED, THE TOP BAY MUST NOT BE LOCATED ANY CLOSER THAN 5 ft. BELOW THE TOWER TOP.
7. BAY TAP POINT DIRECTION INDICATED BY ARROWS LOCATED IN THE BAY IN ELEVATION VIEW.
8. THE VARIABLE TRANSFORMER IS SHIPPED WITH ALL PROBES FULLY INSERTED. AT INSTALLATION, BE CERTAIN TO LOOSEN LOCKNUTS AND PULL ALL PROBES TO FULL OUTWARD POSITION. ALL PROBES MUST BE IN FULL OUTWARD POSITION BEFORE POWERING UP ANTENNA. REFER TO INSTRUCTION MANUAL FOR TUNING INSTRUCTIONS.
9. SUGGESTED LOCATION FOR TERMINATION MOUNT. LOCATION MAY VARY PER TOWER DESIGN.
10. FOR HEATED ANTENNAS ONLY: HEATER HARNESS TO BE DRESSED AND SECURED TO TOWER PER INSTALLERS DISCRETION. LOOSE OR DANGLING WIRE IN RF FIELD WILL SHORT AND RESULT IN ANTENNA FAILURE.
11. REFER TO DRAWING A9212 FOR ALL HARDWARE TORQUE SPECIFICATIONS.
* FOR FIBERGLASS APPLICATIONS, TORQUE MOUNTING HARDWARE TO 190 in-lbs (15.8 ft-lbs)
12. IT IS IMPORTANT TO MAINTAIN DOCUMENT FOR HISTORICAL PURPOSES. THE MOST CRITICAL PORTION OF INFORMATION TO BE MAINTAINED IS THE PART NUMBER AS SPECIFIED.
13. AFTER ANTENNA HAS BEEN INSTALLED AND TUNED ON THE TOWER, IT IS REQUESTED THAT A COPY OF THE TEST DATA BE FORWARDED TO:
14. ELBOW COMPLEX ARRANGEMENT TO BE DETERMINED AT INSTALLATION.

SPX COMMUNICATIONS TECHNOLOGY
C/O FM ENGINEERING MANAGER
22 TOWER RD. RAYMOND, ME. 04071
PHONE 1 - 800 - 341 - 9678

SALES # 3065164
PROJECT C-04973
MOUNT BOM 11000013090

UNLESS OTHERWISE SPECIFIED

RELEASED

10000008746

SPX COMMUNICATION TECHNOLOGY Raymond, ME

TITLE
INSTALLATION
90.1 FM WABE
DORNSEP PROJECT C-04973

D 08441 016A22300

12:48:45 PM SHEET: 1 OF 1