

*FCC PART 15, SUBPART B and C
TEST REPORT**for***AFOS-WL****MODEL: ATG-1000**

Prepared for

YFH, dba AQUILA
8401 WASHINGTON PL. N.E.
ALBUQUERQUE, NM 87113

Prepared by: _____

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DATE: NOVEMBER 24, 2014

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the federal government.

Device Tested: AFOS-WL
Model: ATG-1000
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Customer: YFH, dba AQUILA
8401 Washington PL. N.E.
Albuquerque NM, 87113

Test Dates: November 17 and 18, 2014

Test Specifications: Emissions requirements
CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249

Test Procedure: ANSI C63.4

Test Deviations: The test procedure was not deviated from during the testing.

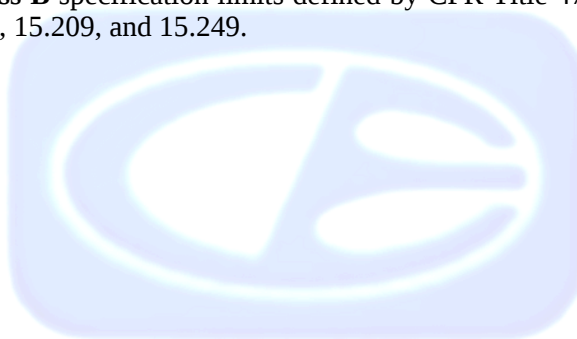
SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Spurious Radiated RF Emissions, 10 kHz – 25,000 MHz (Transmitter and Digital portion)	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B. No Spurious Emissions Detected
2	Conducted RF Emissions, AC Lines, 150 kHz – 30 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B.
3	Radiated RF Emissions, 30 MHz – 25000 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.249

*U = Expanded Uncertainty with a coverage factor of k=2

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the AFOS-WL, Model: ATG-1000 (EUT). The emissions measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The emissions tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

YFH, dba AQUILA

Erik Sanchez

Systems Engineer

Compatible Electronics Inc.

James Ross

Test Engineer

Kenneth Lee

Test Technician

2.4 Date Test Sample was Received

The test sample was received on November 14, 2014.

2.5 Disposition of the Test Sample

The test sample has not been returned to YFH, dba AQUILA as of the date of this test report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
N/A	Not Applicable

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this emissions Test Report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
ANSI C63.4 2009	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
CISPR 22: 2008	Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement
EN 50147-2: 1997	Anechoic chambers. Alternative test site suitability with respect to site attenuation

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - Emissions

The AFOS-WL, Model: ATG-1000 (EUT) is a Bluetooth Low Energy transmitter powered by the AC mains. There were six one meter unterminated wires connected to the relay that were bundled to 40 cm.

The EUT was tested for emissions at the low, middle, and high channels as well as frequency hopping mode which is the devices normal mode of operation. The EUT was continuously transmitting.

The final radiated data for the EUT as was taken in the mode described above. Please see Appendix E for the data sheets.

4.2 Cable Construction and Termination

Cable 1 This is a three meter unshielded cable connecting the wired antenna to the EUT. It is hardwired to the antenna and has an SMA connector on the EUT end.

Cable 2-7 These are all one meter unterminated, unshielded cables connected to the relay on the EUT.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
AFOS-WL	YFH, dba AQUILA	ATG-1000	N/A	2ADMLATG-1000

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
GENERAL TEST EQUIPMENT USED IN LAB B					
Computer	Compaq	CQ5210F	CNX9360CF9	N/A	N/A
Monitor	Hewlett Packard	HPs2031a	3CQ046N3MD	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2012	2 Year
GENERAL TEST EQUIPMENT USED IN LAB D					
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A
EMI Receiver, 20 Hz – 26.5 GHz	Agilent Technologies	N9038A	MY51100115	March 6, 2014	2 Year
RF RADIATED EMISSIONS TEST EQUIPMENT					
CombiLog Antenna	Com-Power	AC-220	61060	May 20, 2014	1 Year
Preamplifier	Com-Power	PA-118	181656	January 13, 2014	1 Year
Preamplifier	Com-Power	PA-840	711013	May 13, 2014	2 Year
Loop Antenna	Com-Power	AL-130	17089	January 29, 2013	2 Year
Horn Antenna	Com-Power	AH-118	071175	February 26, 2014	2 Year
Horn Antenna	Com-Power	AH-826	0071957	N/A	N/A
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
System Controller	Sunol Sciences Corporation	SC110V	112213-1	N/A	N/A
Turntable	Sunol Sciences Corporation	2011VS	N/A	N/A	N/A
Antenna-Mast	Sunol Sciences Corporation	TWR95-4	112213-3	N/A	N/A

EQUIPMENT TYPE	MANU- FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
RF CONDUCTED EMISSIONS TEST EQUIPMENT – LAB A					
Shield Room Test	Compatible Electronics	11CD	N/A	N/A	N/A
LISN	Com-Power	LI-215	12082	June 12, 2014	1 Year
LISN	Com-Power	LI-215	12090	June 12, 2014	1 Year
Transient Limiter	Com-Power	252A910	1	October 10, 2014	1 Year
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08784	May 20, 2014	1 Year
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A14530	May 20, 2014	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650A	2811A01363	May 20, 2014	1 Year

6. TEST SITE DESCRIPTION

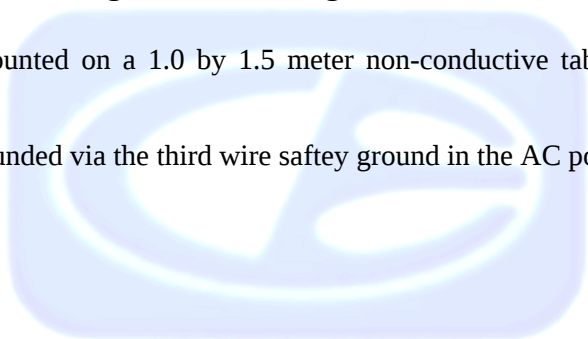
6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for emissions test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was grounded via the third wire safety ground in the AC power cable during testing.



7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 RF Emissions

7.1.1 Radiated Emissions (Spurious and Harmonics) Test – Lab B

The EMI Receiver was used as a measuring meter. A preamplifier was used to increase the sensitivity of the instrument. The Com Power Microwave Preamplifier Model: PA-118 was used for frequencies above 1 GHz and the PA 840 for frequencies above 18 GHz. The EMI Receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the EMI Receiver records the highest measured reading over all the sweeps.

For frequencies above 1 GHz, the readings were averaged by a "duty cycle correction factor", derived from 20 log (dwell time / 100 ms). This duty cycle correction factor was then subtracted from the peak reading.

The measurement bandwidth and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
1 GHz to 18 GHz	1 MHz	Horn Antenna
18 GHz to 25 GHz	1 MHz	Horn Antenna

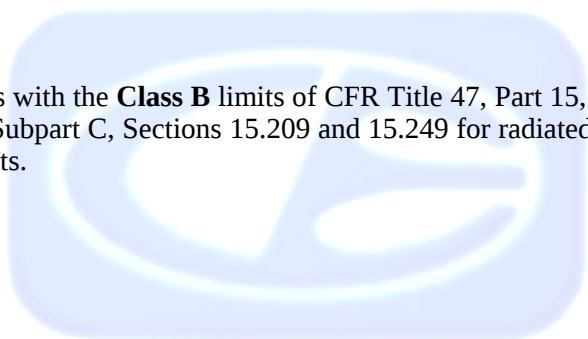
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2009. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test -- Lab B (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance from 1 GHz to 25 GHz to obtain the final test data.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.249 for radiated emissions. Please see Appendix E for the data sheets.



7.1.2 Radiated Emissions (Spurious and Harmonics) Test – Lab D

The EMI Receiver was used as the measuring meter. A built-in, internal preamplifier was used to increase the sensitivity of the instrument. The EMI Receiver was initially used with the Analyzer mode feature activated. In this mode, the EMI receiver can then record the actual frequency to be measured. This final reading is then taken accurately in the EMI Receiver mode, which takes into account the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. A quasi-peak reading was taken only for those readings, which are marked accordingly on the data sheets.

The EMI test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is set up according to ANSI C63.4, EN 50147-2 and CISPR 22. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT.

The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength).

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 1 GHz	120 kHz	CombiLog Antenna

The EUT was tested at a 3 meter test distance. The six highest emissions are listed in Table 1.0.

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.249 (d) for radiated emissions. Please see Appendix E for the data sheets.

7.1.3 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The six highest emissions are listed in Table 2.0. The final qualification data is located in Appendix E.

Test Results:

The EUT complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B for conducted emissions.

7.1.4 RF Emissions Test ResultsTable 1.0 RADIATED EMISSION RESULTS
AFOS-WL, Model: ATG-1000

Frequency MHz	Quasi Peak Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
950.20 (H) (Short Antenna) (Frequency Hopping)	39.25	46.00	-6.75
951.20 (H) (Mid Channel) (Wired Antenna)	39.24	46.00	-6.76
947.20 (H) (Low Channel) (Short Antenna)	39.22	46.00	-6.78
948.30 (H) (Short Antenna) (Frequency Hopping)	39.20	46.00	-6.80
941.70 (H) (Mid Channel) (Wired Antenna)	39.03	46.00	-6.97
932.70 (H) (Frequency Hopping) (Wired Antenna)	38.94	46.00	-7.06

Notes:

- * The complete emissions data is given in Appendix E of this report.
- (V) Vertical
- (H) Horizontal

Table 2.0 CONDUCTED EMISSION RESULTS
AFOS-WL, Model: ATG-1000

Frequency MHz	Average Emission Level* dBuV	Average Specification Limit dBuV	Delta (Emission – Spec. Limit) dB
0.580 (BL)	42.14	46.00	-3.86
0.193 (BL)	48.73	53.93	-5.19
1.166 (BL)	40.05	46.00	-5.95
0.521 (BL)	36.57	46.00	-9.43
1.359 (WL)	34.31	46.00	-11.69
0.385 (BL)	34.63	48.16	-13.53

Notes:

- * The complete emissions data is given in Appendix E of this report.
- (BL) Black Lead
- (WL) White Lead

8. CONCLUSIONS

The AFOS-WL, Model: ATG-1000, as tested, meets all of the specification limits defined in FCC Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249.



APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP LAB CODES 200063-0,
200528-0, 200527-0

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. Please follow the link to the NIST/NVLAP site for each of our facilities' NVLAP certificate and scope of accreditation

NVLAP listing links

[Agoura Division](#) / [Brea Division](#) / [Silverado/Lake Forest Division](#)

.Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."

ANSI listing [CETCB](#)

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).

US/EU MRA list [NIST MRA site](#)

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).

APEC MRA list [NIST MRA site](#)

We are also listed for IT products by the following country/agency:

VCCI Support member: Please visit http://www.vcci.jp/vcci_e/

FCC Listing, from FCC OET site

[FCC test lab search](#) <https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm>

Compatible Electronics IC listing can be found at:

<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home>

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B and FCC 15.249 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

The EUT was not modified during the testing.





APPENDIX C

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

AFOS-WL
Model: ATG-1000
S/N: N/A

There were no additional models covered under this report.

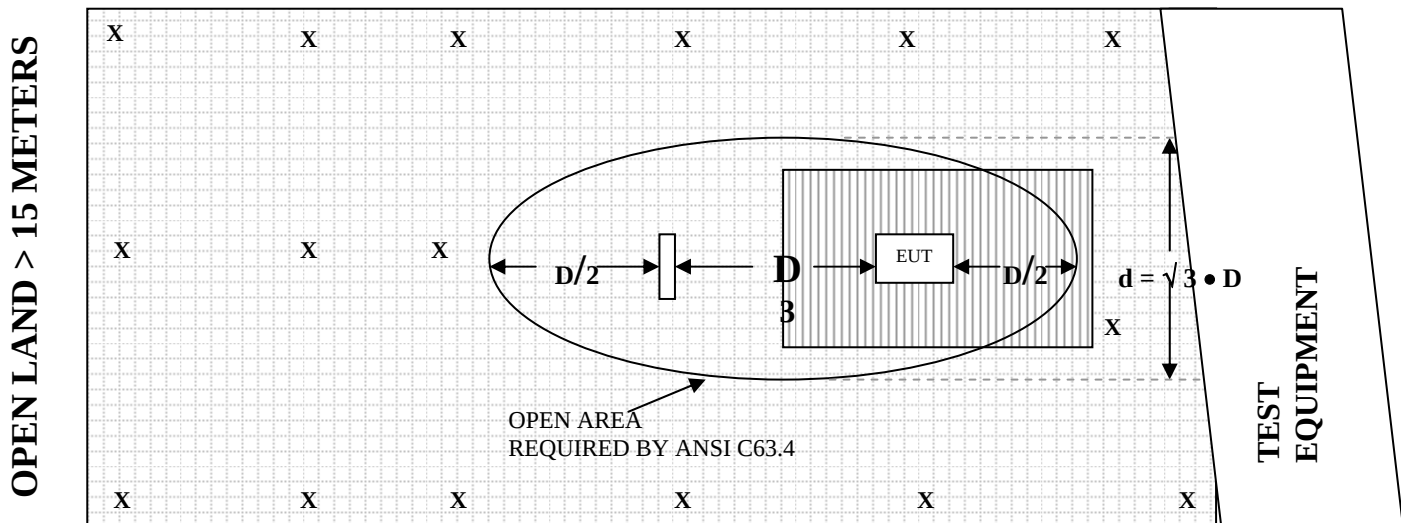


APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: PLOT MAP AND LAYOUT OF RADIATED SITE

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

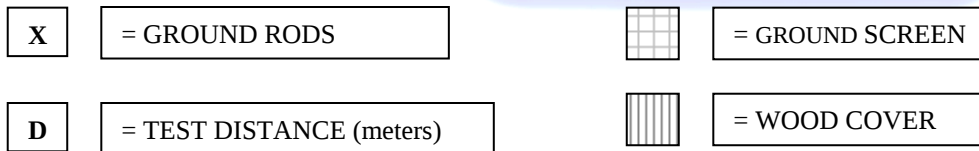


FIGURE 2: LAYOUT OF THE SEMI-ANECHOIC TEST CHAMBER

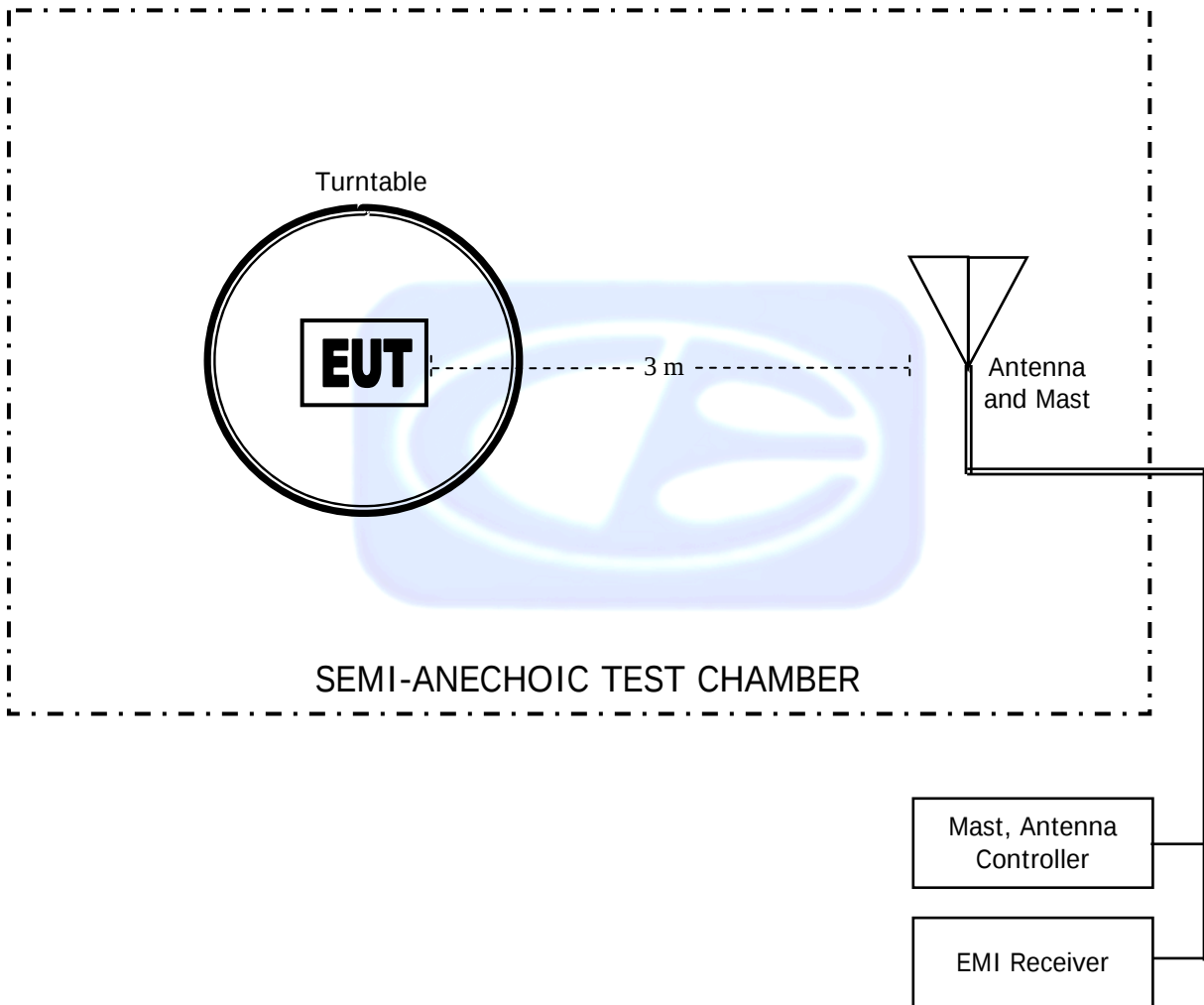
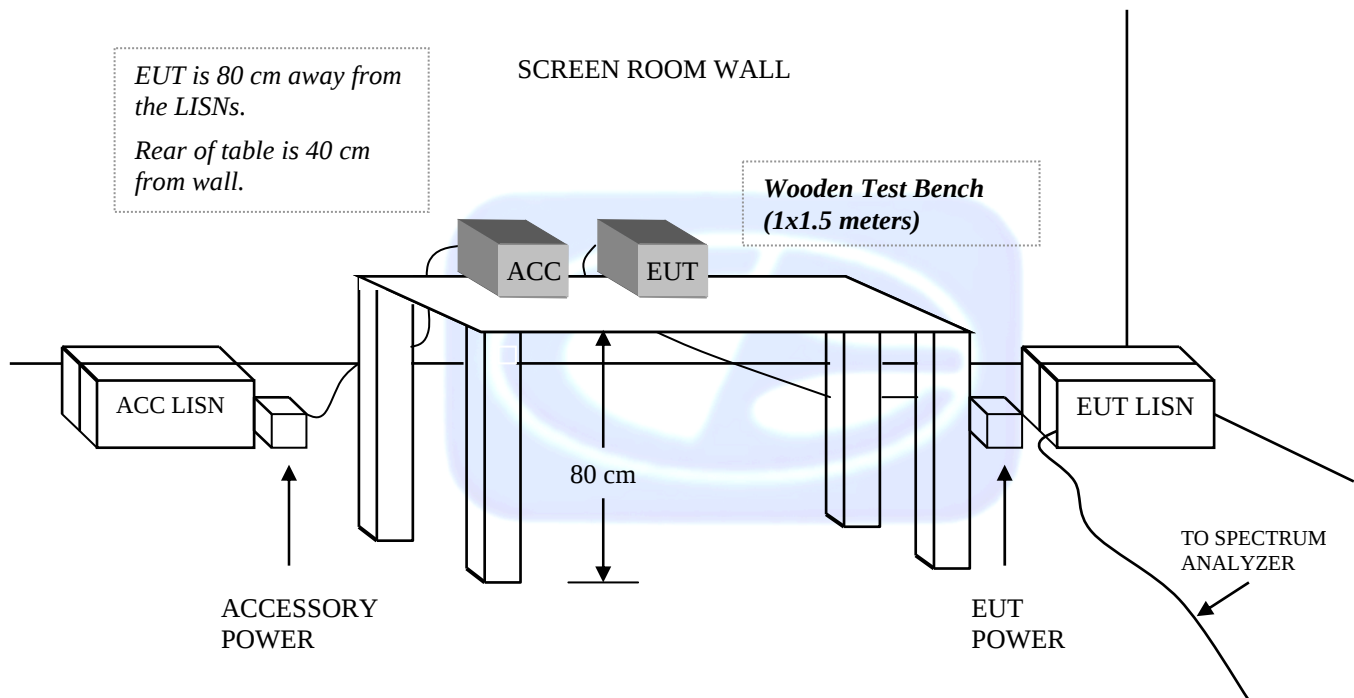


FIGURE 3: CONDUCTED EMISSIONS TEST SETUP

COM-POWER AL-130**LOOP ANTENNA**

S/N: 17089

CALIBRATION DATE: JANUARY 29, 2013

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-42.5	9
0.01	-42.3	9.2
0.02	-42.1	9.4
0.03	-41.4	10.1
0.04	-41.8	9.7
0.05	-42.4	9.1
0.06	-42.3	9.2
0.07	-42.5	9
0.08	-42.4	9.1
0.09	-42.5	9
0.1	-42.5	9
0.2	-42.7	8.8
0.3	-42.6	8.9
0.4	-42.5	9
0.5	-42.7	8.8
0.6	-42.7	8.8
0.7	-42.5	9
0.8	-42.3	9.2
0.9	-42.2	9.3
1	-42.2	9.3
2	-41.8	9.7
3	-41.7	9.8
4	-41.7	9.8
5	-41.5	10
6	-41.6	9.9
7	-41.4	10.1
8	-41	10.5
9	-40.8	10.7
10	-41.3	10.2
15	-41.4	10.1
20	-41.2	10.3
25	-42.6	8.9
30	-41.7	9.8

COM-POWER AC-220**COMBILOG ANTENNA****S/N: 61060****CALIBRATION DATE: MAY 20, 2014**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	23.40	200	14.40
35	23.70	250	16.40
40	24.20	300	17.90
45	22.60	350	15.60
50	22.10	400	19.90
60	17.90	450	20.40
70	12.70	500	21.60
80	11.60	550	21.50
90	12.20	600	22.30
100	13.20	650	23.50
120	15.70	700	23.70
125	15.80	750	25.90
140	13.60	800	25.90
150	16.90	850	26.40
160	14.20	900	27.00
175	14.90	950	27.70
180	15.00	1000	27.50

COM POWER AH-118**HORN ANTENNA****S/N: 071175****CALIBRATION DATE: FEBRUARY 26, 2014**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.23	10.0	38.43
1.5	25.84	10.5	40.19
2.0	28.14	11.0	40.49
2.5	29.51	11.5	41.39
3.0	31.20	12.0	42.02
3.5	32.17	12.5	43.30
4.0	31.40	13.0	42.77
4.5	31.86	13.5	40.18
5.0	34.82	14.0	42.59
5.5	34.38	14.5	41.74
6.0	36.31	15.0	41.84
6.5	34.81	15.5	38.48
7.0	37.48	16.0	39.52
7.5	36.98	16.5	37.85
8.0	36.66	17.0	41.33
8.5	38.47	17.5	44.96
9.0	37.22	18.0	48.50
9.5	37.86		

COM-POWER PA-118**PREAMPLIFIER**

S/N: 181656

CALIBRATION DATE: JANUARY 13, 2014

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.90	6.0	25.40
1.1	25.30	6.5	25.20
1.2	26.00	7.0	24.40
1.3	26.20	7.5	24.00
1.4	26.30	8.0	23.90
1.5	26.40	8.5	24.50
1.6	26.50	9.0	25.20
1.7	26.60	9.5	24.80
1.8	26.50	10.0	24.90
1.9	26.60	11.0	25.40
2.0	26.70	12.0	24.50
2.5	26.90	13.0	24.30
3.0	27.00	14.0	25.20
3.5	27.10	15.0	25.90
4.0	26.60	16.0	25.60
4.5	26.10	17.0	23.70
5.0	26.40	18.0	25.80
5.5	25.80		

COM-POWER AH-826**HORN ANTENNA****S/N: 71957**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	33.5	22.5	35.5
18.5	33.5	23.0	35.9
19.0	34.0	23.5	35.7
19.5	34.0	24.0	35.6
20.0	34.3	24.5	36.0
20.5	34.9	25.0	36.2
21.0	34.7	25.5	36.1
21.5	35.0	26.0	36.2
22.0	35.0	26.5	35.7

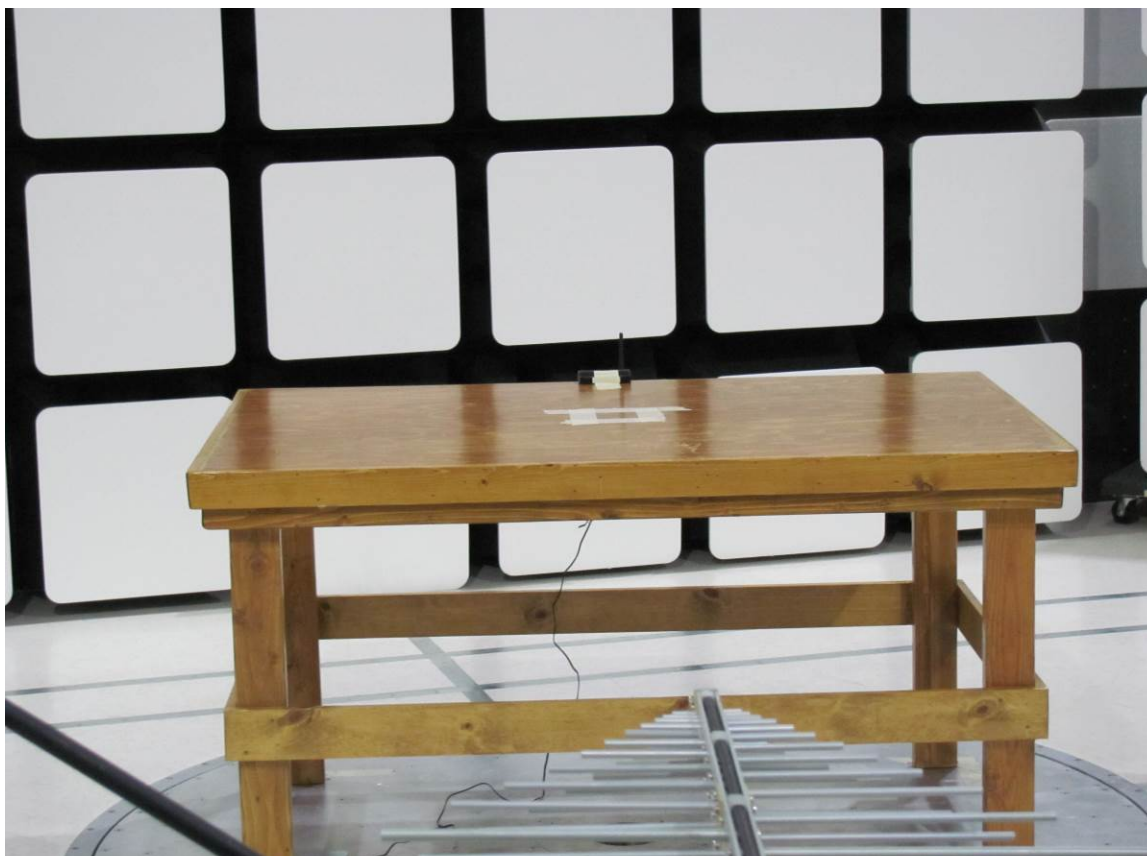
COM-POWER PA-840

MICROWAVE PREAMPLIFIER

S/N: 711013

CALIBRATION DATE: MAY 13, 2014

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.19	31.0	25.69
19.0	24.48	31.5	25.74
20.0	24.39	32.0	26.35
21.0	24.73	32.5	26.64
22.0	23.49	33.0	25.98
23.0	24.23	33.5	24.68
24.0	24.59	34.0	24.61
25.0	25.32	34.5	23.78
26.0	25.66	35.0	24.74
26.5	25.99	35.5	24.39
27.0	26.26	36.0	23.46
27.5	25.33	36.5	23.71
28.0	24.49	37.0	26.35
28.5	24.74	37.5	23.49
29.0	25.93	38.0	25.42
29.5	26.28	38.5	24.87
30.0	26.17	39.0	22.60
30.5	26.11	39.5	20.57
		40.0	19.15



FRONT VIEW

YFH, dba AQUILA

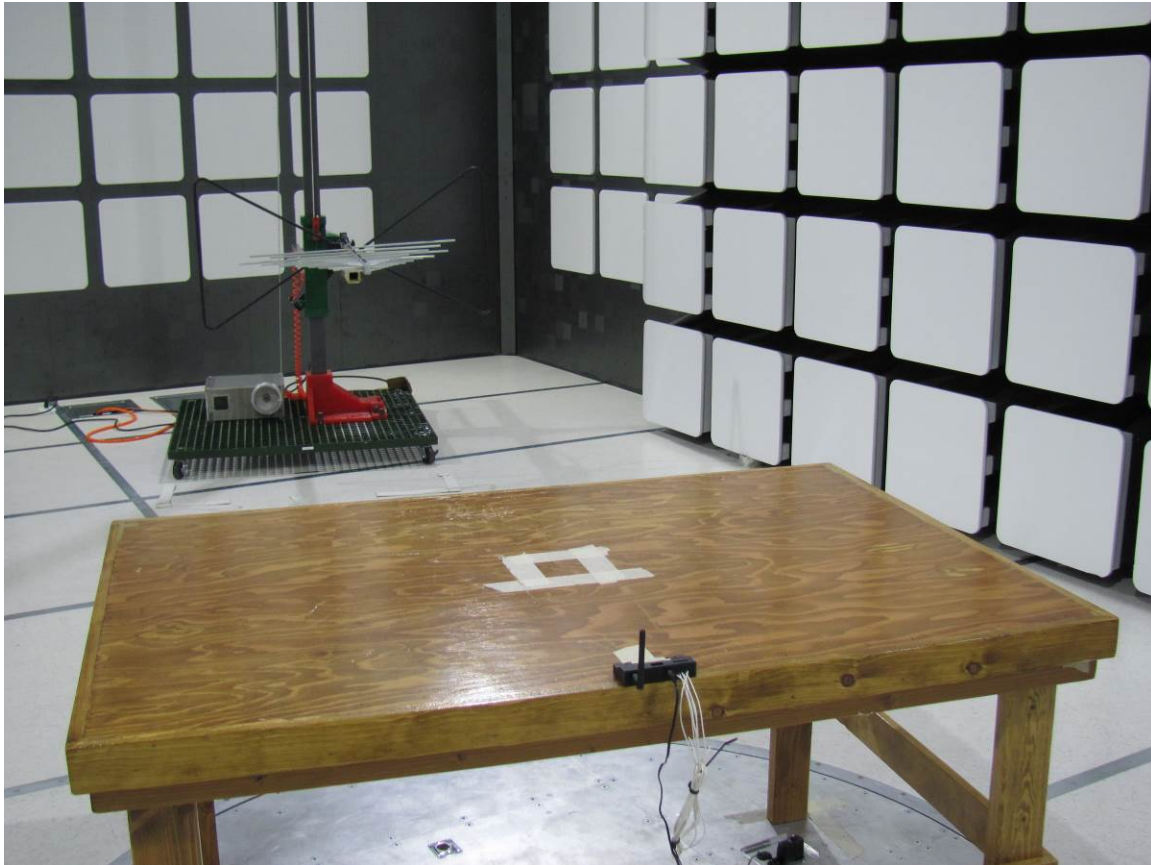
AFOS-WL

MODEL: ATG-1000

NOTE: SHORT ANTENNA

FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

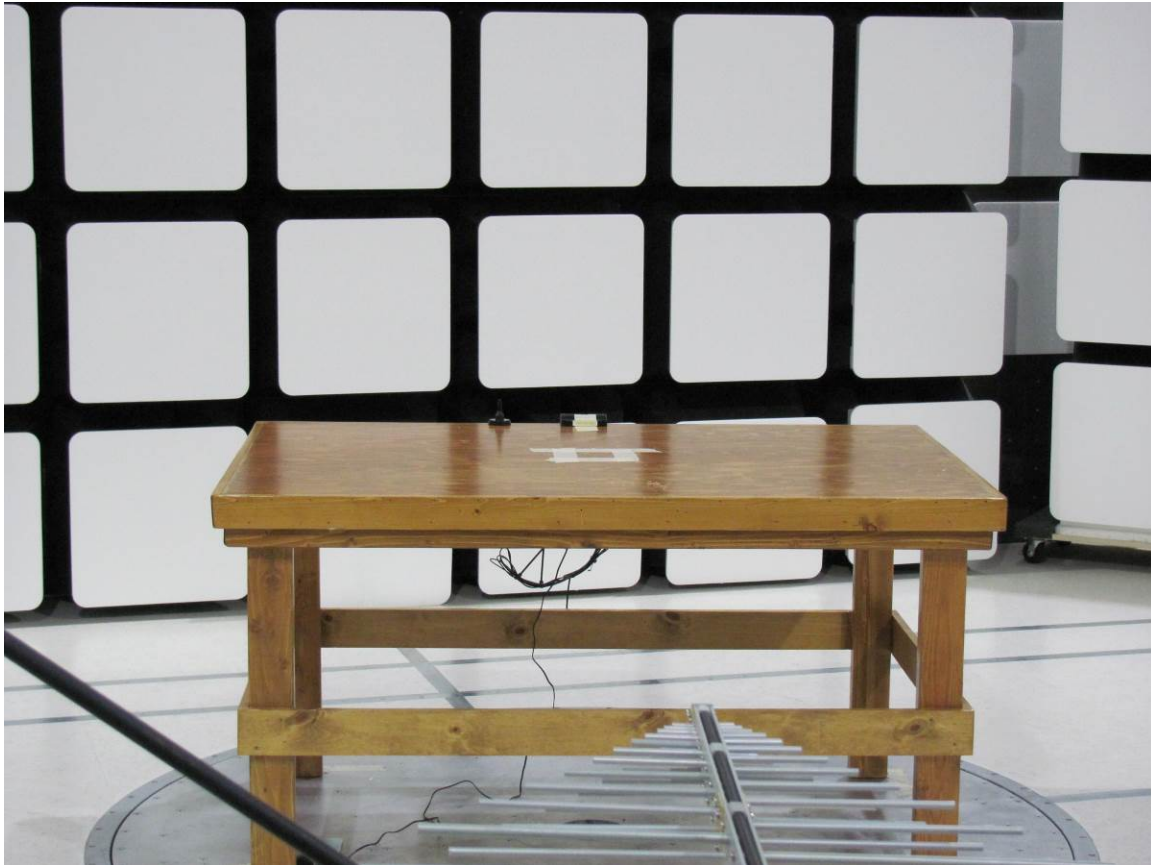
YFH, dba AQUILA AFOS-WL

MODEL: ATG-1000

NOTE: SHORT ANTENNA

FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



FRONT VIEW

YFH, dba AQUILA

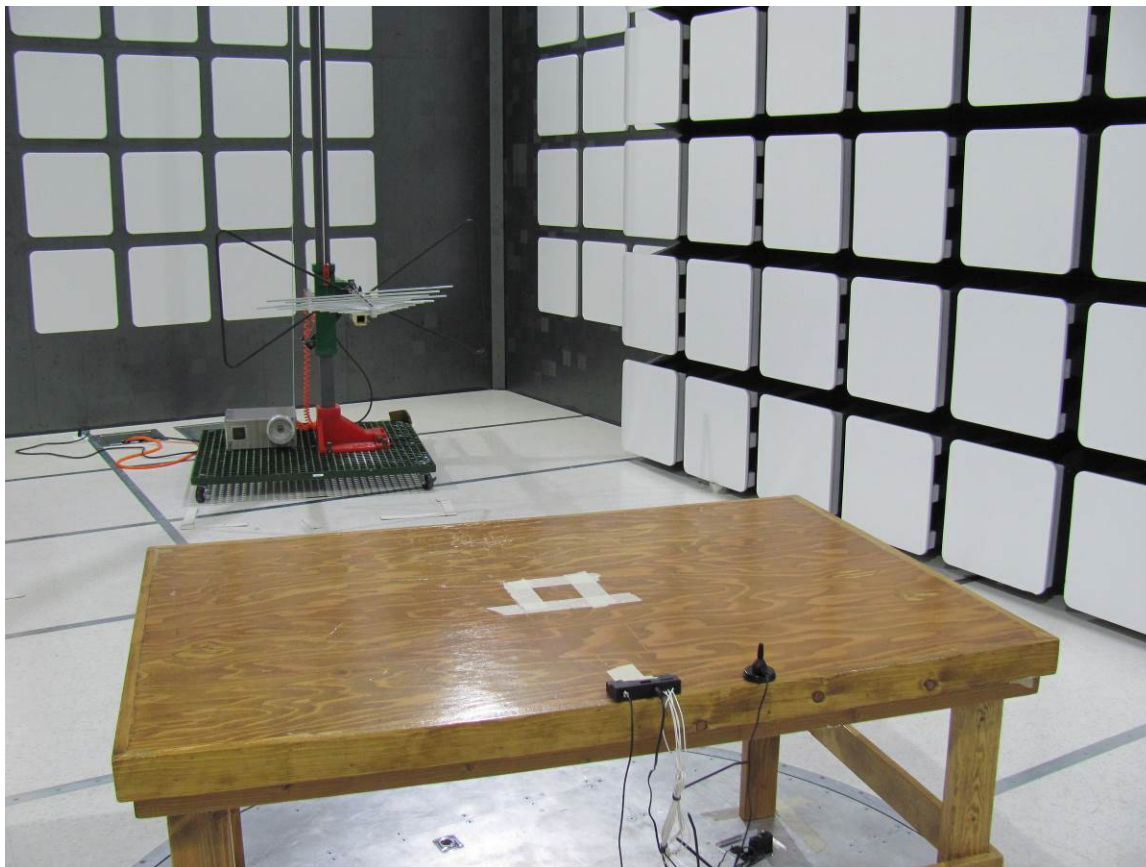
AFOS-WL

MODEL: ATG-1000

NOTE: WIRED ANTENNA

FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

YFH, dba AQUILA

AFOS-WL

MODEL: ATG-1000

NOTE: WIRED ANTENNA

FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



FRONT VIEW

YFH, dba AQUILA

AFOS-WL

MODEL: ATG-1000

NOTE: SHORT ANTENNA

FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

YFH, dba AQUILA

AFOS-WL

MODEL: ATG-1000

NOTE: SHORT ANTENNA

FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



FRONT VIEW

YFH, dba AQUILA

AFOS-WL

MODEL: ATG-1000

NOTE: WIRED ANTENNA

FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

YFH, dba AQUILA

AFOS-WL

MODEL: ATG-1000

NOTE: WIRED ANTENNA

FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



FRONT VIEW

YFH, dba AQUILA

AFOS-WL

MODEL: ATG-1000

NOTE: SHORT ANTENNA

FCC SUBPART B AND C – CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

YFH, dba AQUILA

AFOS-WL

MODEL: ATG-1000

NOTE: SHORT ANTENNA

FCC SUBPART B AND C – CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

YFH, dba AQUILA
AFOS-WL
MODEL: ATG-1000
NOTE: WIRED ANTENNA
FCC SUBPART B AND C – CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

YFH, dba AQUILA
AFOS-WL
MODEL: ATG-1000
NOTE: WIRED ANTENNA
FCC SUBPART B AND C – CONDUCTED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

APPENDIX E

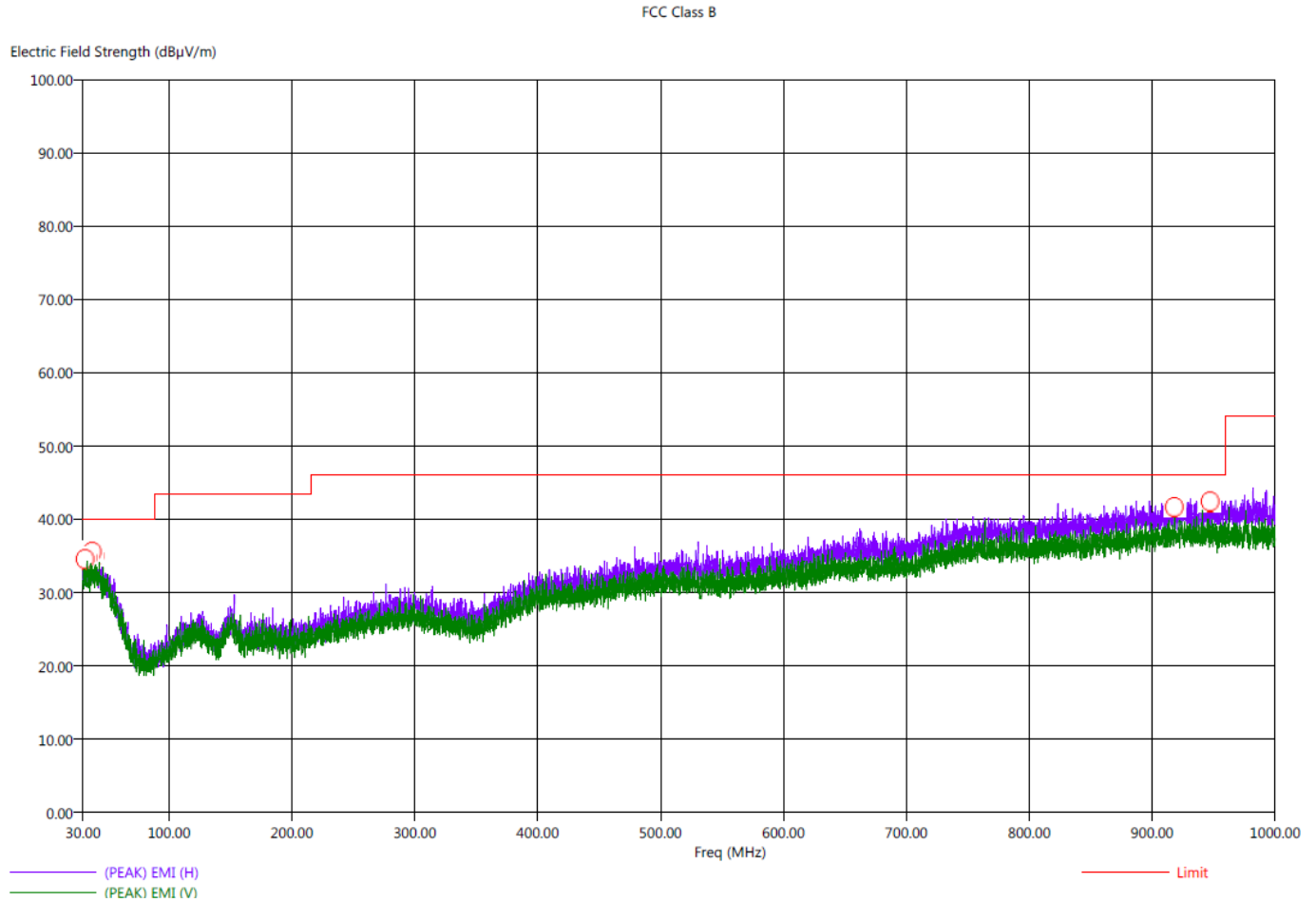
DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

Title: Pre-Scan - FCC Class B
File: Aqilent - Radiated Pre-Scan 30-1000Mhz_Low_Channel_Short Antenna_FCC Class B - 11-18-2014.set
Operator: Kenneth Lee
EUT Type: AFOS-WL
EUT Condition: Continuously Transmitting - Low Channel - Worst Case
Comments: Customer: YFH, dba AQUILA
M/N: ATG-1000
Note: Short Antenna

11/18/2014 8:50:29 AM
Sequence: Preliminary Scan



Title: Radiated Final - 30-1000 MHz - FCC Class B
File: Agilent - Radiated Final Scan 30-1000Mhz_Low Channel_Short_Antenna_FCC Class B - 11-18-2014.set
Operator: Kenneth Lee
EUT Type: AFOS-WL
EUT Condition: Continuously Transmitting - Low Channel - Worst Case
Comments: Customer: YFH, dba AQUILA
M/N: ATG-1000
Note: Short Antenna

11/18/2014 10:41:22 AM
Sequence: Final Measurements

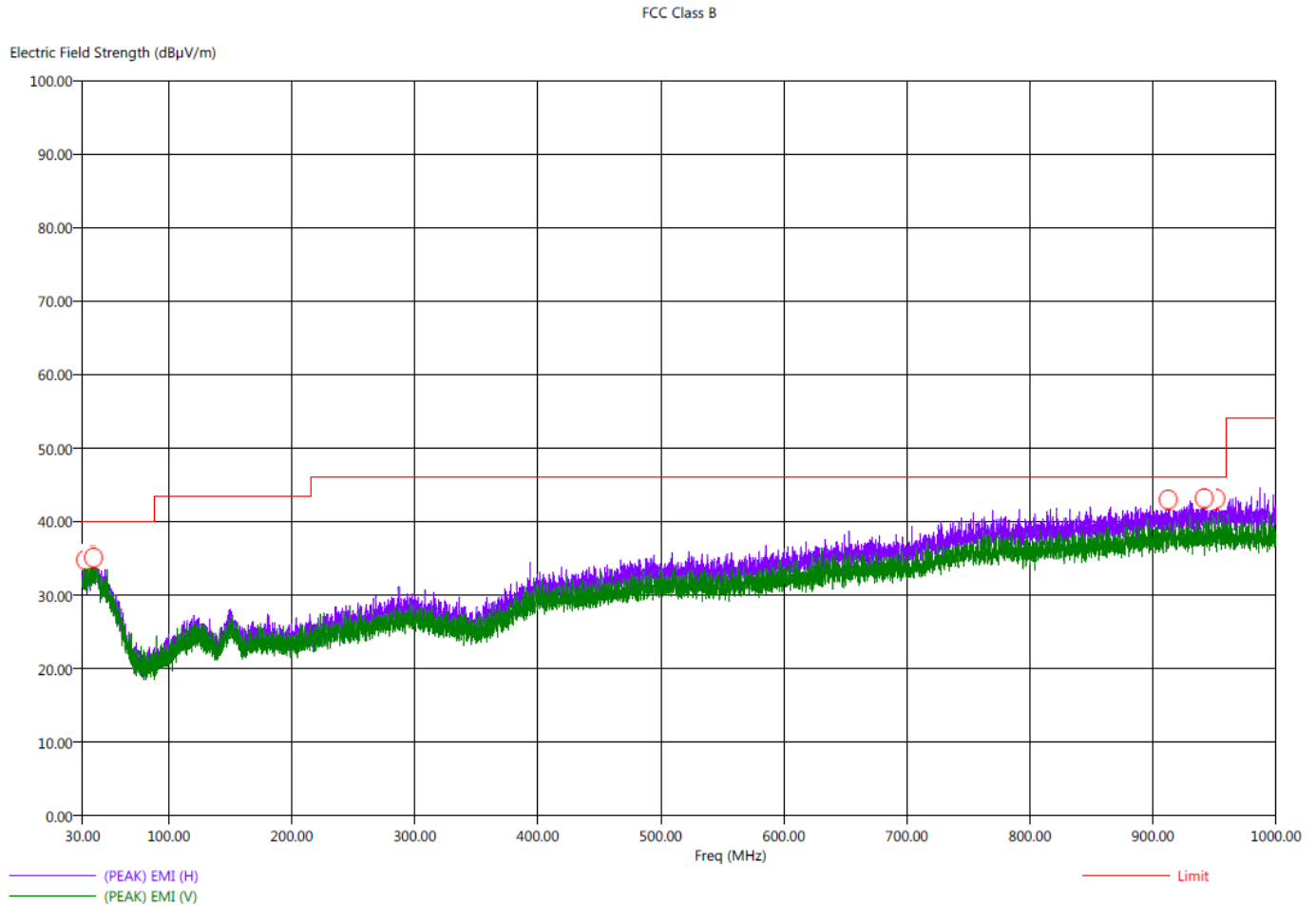
Final Scan - FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBμV/m)	(QP) EMI (dBμV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBμV/m)	Transducer (dB)	Cable (dB)	Twr Ht (cm)	Ttbl Aql (deg)
31.70	H	35.01	30.76	-4.99	-9.24	40.00	23.50	0.36	319.61	280.25
33.80	H	36.53	30.91	-3.47	-9.09	40.00	23.64	0.38	111.55	287.00
37.60	H	35.67	31.29	-4.33	-8.71	40.00	23.99	0.41	351.79	246.50
39.50	H	35.56	31.43	-4.44	-8.57	40.00	24.14	0.43	239.67	122.50
918.00	V	43.04	38.67	-2.96	-7.33	46.00	27.26	2.67	271.55	261.00
947.20	H	44.84	39.22	-1.16	-6.78	46.00	27.66	2.71	271.43	334.00



Title: Pre-Scan - FCC Class B
File: Agilent - Radiated Pre-Scan 30-1000Mhz_Mid_Channel_Wired_Antenna_FCC Class B - 11-18-2014.set
Operator: Kenneth Lee
EUT Type: AFOS-WL
EUT Condition: Continuously Transmitting - Mid Channel - Worst Case
Comments: Customer: YFH, dba AQUILA
M/N: ATG-1000
Note: Wired Antenna

11/18/2014 9:37:57 AM
Sequence: Preliminary Scan



Title: Radiated Final - 30-1000 MHz - FCC Class B
File: Agilent - Radiated Final Scan 30-1000Mhz_Mid Channel_Wired_Antenna_FCC Class B - 11-18-2014.set
Operator: Kenneth Lee
EUT Type: AFOS-WL
EUT Condition: Continuously Transmitting - Mid Channel - Worst Case
Comments: Customer: YFH, dba AQUILA
M/N: ATG-1000
Note: Wired Antenna

11/18/2014 10:09:31 AM
Sequence: Final Measurements

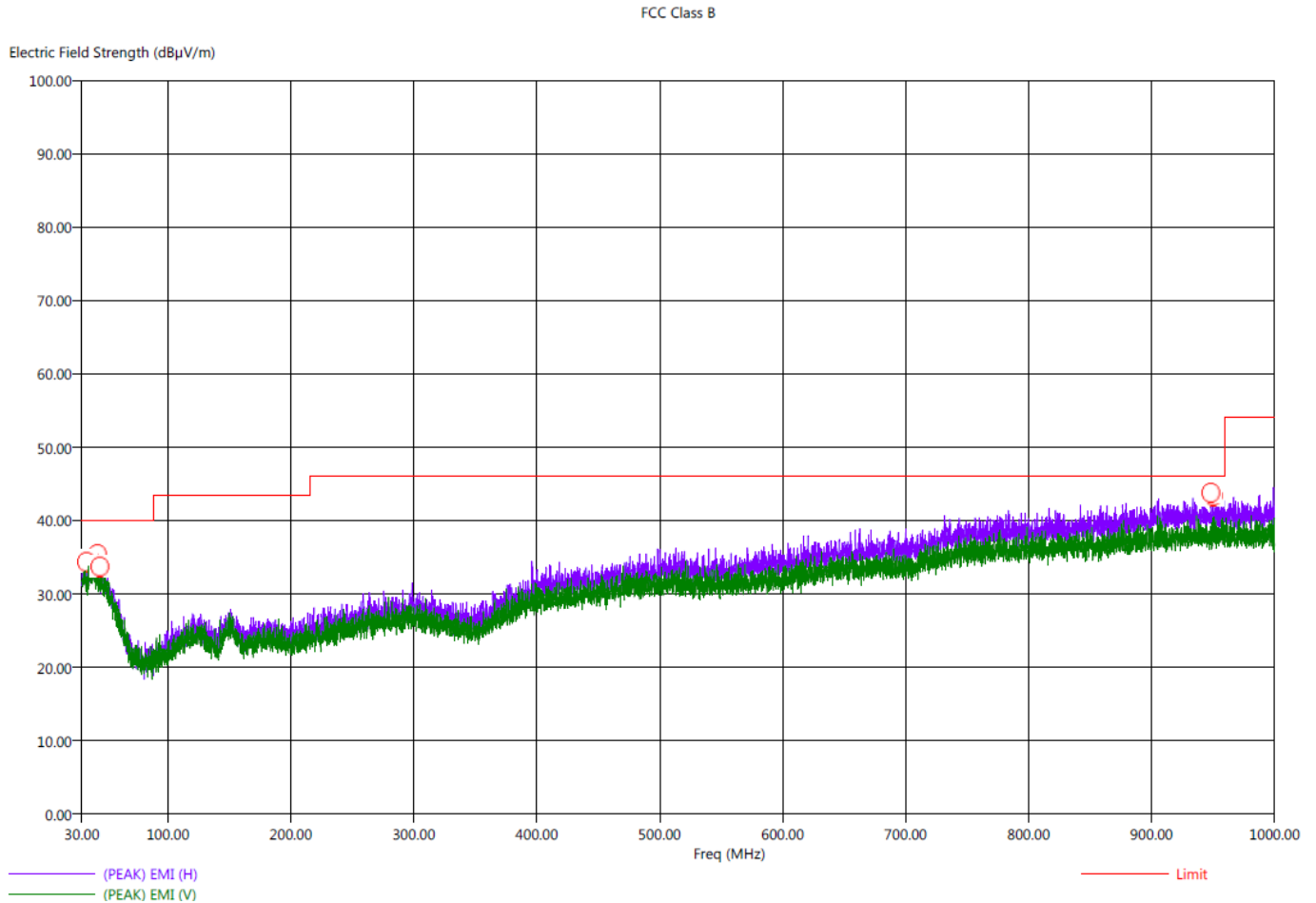
Final Scan - FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Twr Ht (cm)	Ttbl Aql (deg)
32.50	H	34.77	30.86	-5.23	-9.14	40.00	23.55	0.37	256.32	18.75
38.30	H	35.87	31.33	-4.13	-8.67	40.00	24.05	0.42	143.31	103.00
38.90	V	35.16	31.48	-4.84	-8.52	40.00	24.10	0.42	255.55	259.75
40.60	H	36.43	31.35	-3.57	-8.65	40.00	24.07	0.43	271.61	203.00
912.40	H	42.73	38.68	-3.27	-7.32	46.00	27.18	2.66	239.55	307.25
941.70	H	44.09	39.03	-1.91	-6.97	46.00	27.58	2.70	143.43	95.50
951.20	H	45.06	39.24	-0.94	-6.76	46.00	27.70	2.71	223.25	130.75



Title: Pre-Scan - FCC Class B
File: Agilent - Radiated Pre-Scan 30-1000Mhz_Freq. Hopping_Short Antenna_FCC Class B - 11-18-2014.set
Operator: Kenneth Lee
EUT Type: AFOS-WL
EUT Condition: Continuously Transmitting Frequency Hopping
Comments: Customer: YHF, dba AQUILA
M/N: ATG-1000
Note: Short Antenna

11/18/2014 11:15:15 AM
Sequence: Preliminary Scan



Title: Radiated Final - 30-1000 MHz - FCC Class B
File: Agilent - Radiated Final Scan 30-1000Mhz_Short Antenna_FCC Class B - 11-18-2014.set
Operator: Kenneth Lee
EUT Type: AFOS-WL
EUT Condition: Continuously Transmitting Frequency Hopping
Comments: Customer: YFH, dba AQUILA
M/N: ATG-1000
Note: Short Antenna

11/18/2014 11:26:30 AM
Sequence: Final Measurements

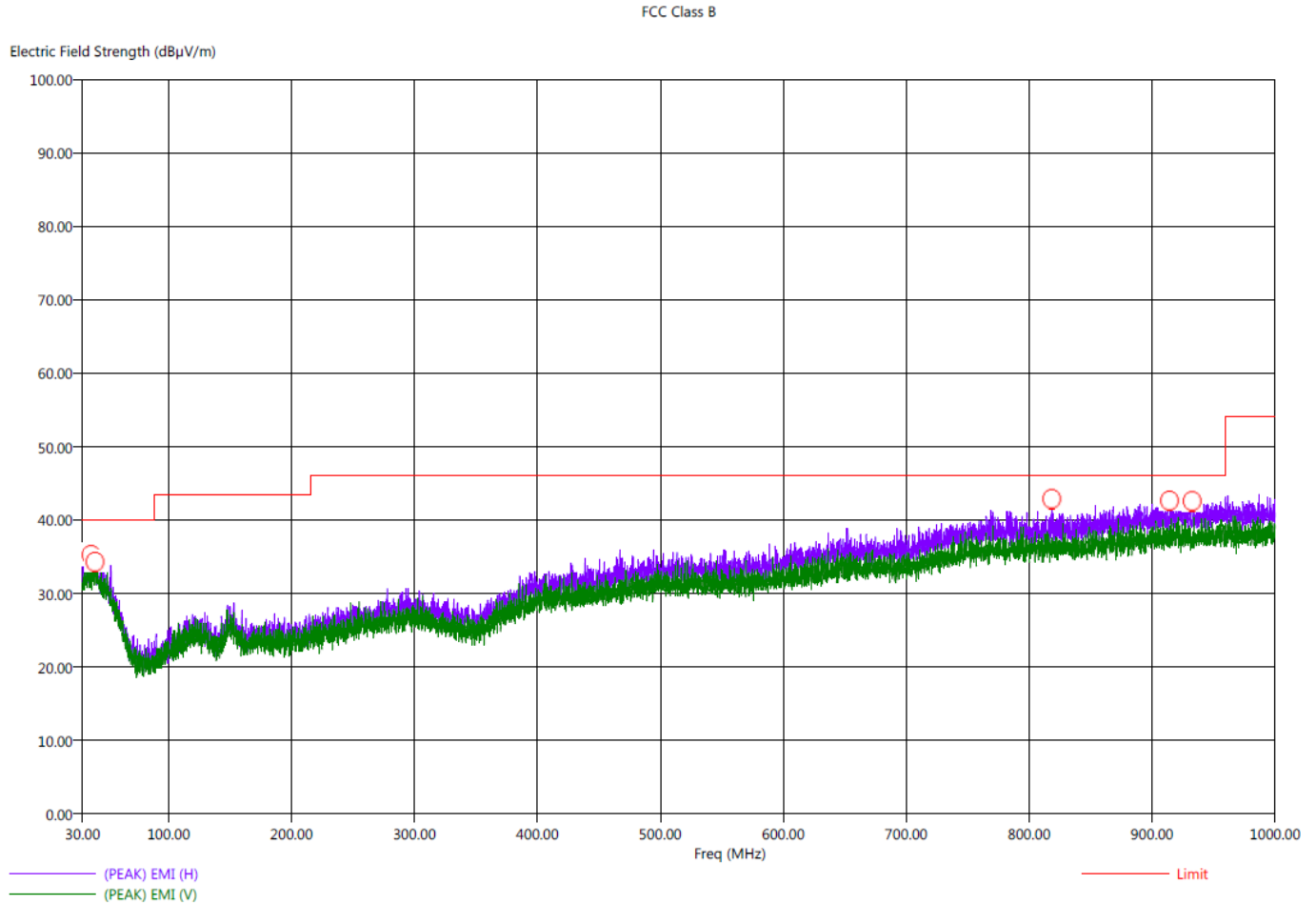
Final Scan - FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBμV/m)	(QP) EMI (dBμV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBμV/m)	Transducer (dB)	Cable (dB)	Twr Ht (cm)	Ttbl Aql (deg)
33.90	H	35.78	30.93	-4.22	-9.07	40.00	23.64	0.38	238.83	97.25
37.50	H	35.58	31.24	-4.42	-8.76	40.00	23.95	0.41	303.49	47.50
42.80	H	35.46	30.60	-4.54	-9.40	40.00	23.27	0.45	271.37	81.75
44.80	V	34.50	30.01	-5.50	-9.99	40.00	22.63	0.47	175.37	265.50
948.30	H	44.45	39.20	-1.55	-6.80	46.00	27.68	2.71	255.43	133.50
950.20	H	43.34	39.25	-2.66	-6.75	46.00	27.70	2.71	271.43	30.00



Title: Pre-Scan - FCC Class B
File: Agilent - Radiated Pre-Scan 30-1000Mhz_Freq. Hopping_Wired Antenna_FCC Class B - 11-18-2014.set
Operator: Kenneth Lee
EUT Type: AFOS-WL
EUT Condition: Continuously Transmitting Frequency Hopping
Comments: Customer: YFH, dba AQUILA
M/N: ATG-1000
Note: Wired Antenna

11/18/2014 11:51:23 AM
Sequence: Preliminary Scan



Title: Radiated Final - 30-1000 MHz - FCC Class B
File: Agilent - Radiated Final Scan 30-1000Mhz_Wired Antenna_FCC Class B - 11-18-2014.set
Operator: Kenneth Lee
EUT Type: AFOS-WL
EUT Condition: Continuously Transmitting Frequency Hopping
Comments: Customer: YFH, dba AQUILA
M/N: ATG-1000
Note: Wired Antenna

11/18/2014 1:11:21 PM
Sequence: Final Measurements

Final Scan - FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Twr Ht (cm)	Ttbl Aql (deg)
37.00	H	35.30	31.18	-4.70	-8.82	40.00	23.89	0.41	335.25	312.25
38.60	H	35.78	31.35	-4.22	-8.65	40.00	24.07	0.42	304.98	41.50
40.20	V	35.87	31.55	-4.13	-8.45	40.00	24.14	0.43	207.61	297.50
818.40	H	41.19	37.08	-4.81	-8.92	46.00	26.09	2.43	239.55	53.75
914.20	H	42.59	38.67	-3.41	-7.33	46.00	27.20	2.66	399.49	178.75
932.70	H	43.11	38.94	-2.89	-7.06	46.00	27.46	2.69	191.43	165.75



FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Short Antenna

Date: 11/17/2014
Lab: B
Tested By: Kenneth Lee

**Low Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4808	53.99	V	74	-20.01	Peak	1	185	
4808	33.99	V	54	-20.01	Avg	1	185	
7212	61.78	V	74	-12.22	Peak	1	150	
7212	41.78	V	54	-12.22	Avg	1	150	
9616								No Emissions
9616								Detected
12020								No Emissions
12020								Detected
14424								No Emissions
14424								Detected
16828								No Emissions
16828								Detected
19232								No Emissions
19232								Detected
21636								No Emissions
21636								Detected
24040								No Emissions
24040								Detected

FCC 15.249
YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Short Antenna

Date: 11/17/2014
Lab: B
Tested By: Kenneth Lee

**Low Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4808	48.69	H	74	-25.31	Peak	1	270	
4808	28.69	H	54	-25.31	Avg	1	270	
7212	60.68	H	74	-13.32	Peak	1	190	
7212	40.68	H	54	-13.32	Avg	1	190	
9616								No Emissions
9616								Detected
12020								No Emissions
12020								Detected
14424								No Emissions
14424								Detected
16828								No Emissions
16828								Detected
19232								No Emissions
19232								Detected
21636								No Emissions
21636								Detected
24040								No Emissions
24040								Detected

FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Short Antenna

Date: 11/17/2014
Lab: B
Tested By: Kenneth Lee

**Middle Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4884	50.54	V	74	-23.46	Peak	1	160	
4884	30.54	V	54	-23.46	Avg	1	160	
7326	61.58	V	74	-12.42	Peak	1.5	160	
7326	41.58	V	54	-12.42	Avg	1.5	160	
9768								No Emissions
9768								Detected
12210								No Emissions
12210								Detected
14652								No Emissions
14652								Detected
17094								No Emissions
17094								Detected
19536								No Emissions
19536								Detected
21978								No Emissions
21978								Detected
24420								No Emissions
24420								Detected

FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Short Antenna

Date: 11/17/2014
Lab: B
Tested By: Kenneth Lee

**Middle Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4884	47.84	H	74	-26.16	Peak	1	280	
4884	27.84	H	54	-26.16	Avg	1	280	
7326	59.48	H	74	-14.52	Peak	1	270	
7326	39.48	H	54	-14.52	Avg	1	270	
9768								No Emissions
9768								Detected
12210								No Emissions
12210								Detected
14652								No Emissions
14652								Detected
17094								No Emissions
17094								Detected
19536								No Emissions
19536								Detected
21978								No Emissions
21978								Detected
24420								No Emissions
24420								Detected

FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Short Antenna

Date: 11/17/2014
Lab: B
Tested By: Kenneth Lee

**High Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4956	50.28	V	74	-23.72	Peak	1	180	
4956	30.28	V	54	-23.72	Avg	1	180	
7434	57.67	V	74	-16.33	Peak	1.25	170	
7434	37.67	V	54	-16.33	Avg	1.25	170	
9912								No Emissions
9912								Detected
12390								No Emissions
12390								Detected
14868								No Emissions
14868								Detected
17346								No Emissions
17346								Detected
19824								No Emissions
19824								Detected
22302								No Emissions
22302								Detected
24780								No Emissions
24780								Detected

FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Short Antenna

Date: 11/17/2014
Lab: B
Tested By: Kenneth Lee

**High Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4956	50.58	H	74	-23.42	Peak	1.5	270	
4956	30.58	H	54	-23.42	Avg	1.5	270	
7434	60.47	H	74	-13.53	Peak	1	160	
7434	40.47	H	54	-13.53	Avg	1	160	
9912								No Emissions
9912								Detected
12390								No Emissions
12390								Detected
14868								No Emissions
14868								Detected
17346								No Emissions
17346								Detected
19824								No Emissions
19824								Detected
22302								No Emissions
22302								Detected
24780								No Emissions
24780								Detected

FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Wired Antenna

Date: 11/17/2014
Lab: B
Tested By: Kenneth Lee

**Low Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4808	52.49	V	74	-21.51	Peak	1	25	
4808	32.49	V	54	-21.51	Avg	1	25	
7212	64.88	V	74	-9.12	Peak	1.5	45	
7212	44.88	V	54	-9.12	Avg	1.5	45	
9616								No Emissions
9616								Detected
12020								No Emissions
12020								Detected
14424								No Emissions
14424								Detected
16828								No Emissions
16828								Detected
19232								No Emissions
19232								Detected
21636								No Emissions
21636								Detected
24040								No Emissions
24040								Detected

FCC 15.249YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Wired AntennaDate: 11/17/2014
Lab: B
Tested By: Kenneth Lee**Low Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4808	50.59	H	74	-23.41	Peak	1	270	
4808	30.59	H	54	-23.41	Avg	1	270	
7212	63.28	H	74	-10.72	Peak	1.25	300	
7212	43.28	H	54	-10.72	Avg	1.25	300	
9616								No Emissions
9616								Detected
12020								No Emissions
12020								Detected
14424								No Emissions
14424								Detected
16828								No Emissions
16828								Detected
19232								No Emissions
19232								Detected
21636								No Emissions
21636								Detected
24040								No Emissions
24040								Detected

FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Wired Antenna

Date: 11/17/2014
Lab: B
Tested By: Kenneth Lee

**Middle Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4884	52.04	V	74	-21.96	Peak	1.5	45	
4884	32.04	V	54	-21.96	Avg	1.5	45	
7326	63.98	V	74	-10.02	Peak	1.3	45	
7326	43.98	V	54	-10.02	Avg	1.3	45	
9768								No Emissions
9768								Detected
12210								No Emissions
12210								Detected
14652								No Emissions
14652								Detected
17094								No Emissions
17094								Detected
19536								No Emissions
19536								Detected
21978								No Emissions
21978								Detected
24420								No Emissions
24420								Detected

FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Wired Antenna

Date: 11/17/2014
Lab: B
Tested By: Kenneth Lee

**Middle Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4884	51.04	H	74	-22.96	Peak	1.15	250	
4884	31.04	H	54	-22.96	Avg	1.15	250	
7326	60.98	H	74	-13.02	Peak	1	270	
7326	40.98	H	54	-13.02	Avg	1	270	
9768								No Emissions
9768								Detected
12210								No Emissions
12210								Detected
14652								No Emissions
14652								Detected
17094								No Emissions
17094								Detected
19536								No Emissions
19536								Detected
21978								No Emissions
21978								Detected
24420								No Emissions
24420								Detected

FCC 15.249YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Wired AntennaDate: 11/17/2014
Lab: B
Tested By: Kenneth Lee**High Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4956	52.58	V	74	-21.42	Peak	1.25	0	
4956	32.58	V	54	-21.42	Avg	1.25	0	
7434	62.17	V	74	-11.83	Peak	1.65	0	
7434	42.17	V	54	-11.83	Avg	1.65	0	
9912								No Emissions Detected
9912								
12390								No Emissions Detected
12390								
14868								No Emissions Detected
14868								
17346								No Emissions Detected
17346								
19824								No Emissions Detected
19824								
22302								No Emissions Detected
22302								
24780								No Emissions Detected
24780								

FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Wired Antenna

Date: 11/17/2014
Lab: B
Tested By: Kenneth Lee

**High Channel Harmonics
Transmit Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
4956	50.98	H	74	-23.02	Peak	1	270	
4956	30.98	H	54	-23.02	Avg	1	270	
7434	60.97	H	74	-13.03	Peak	1	200	
7434	40.97	H	54	-13.03	Avg	1	200	
9912								No Emissions
9912								Detected
12390								No Emissions
12390								Detected
14868								No Emissions
14868								Detected
17346								No Emissions
17346								Detected
19824								No Emissions
19824								Detected
22302								No Emissions
22302								Detected
24780								No Emissions
24780								Detected

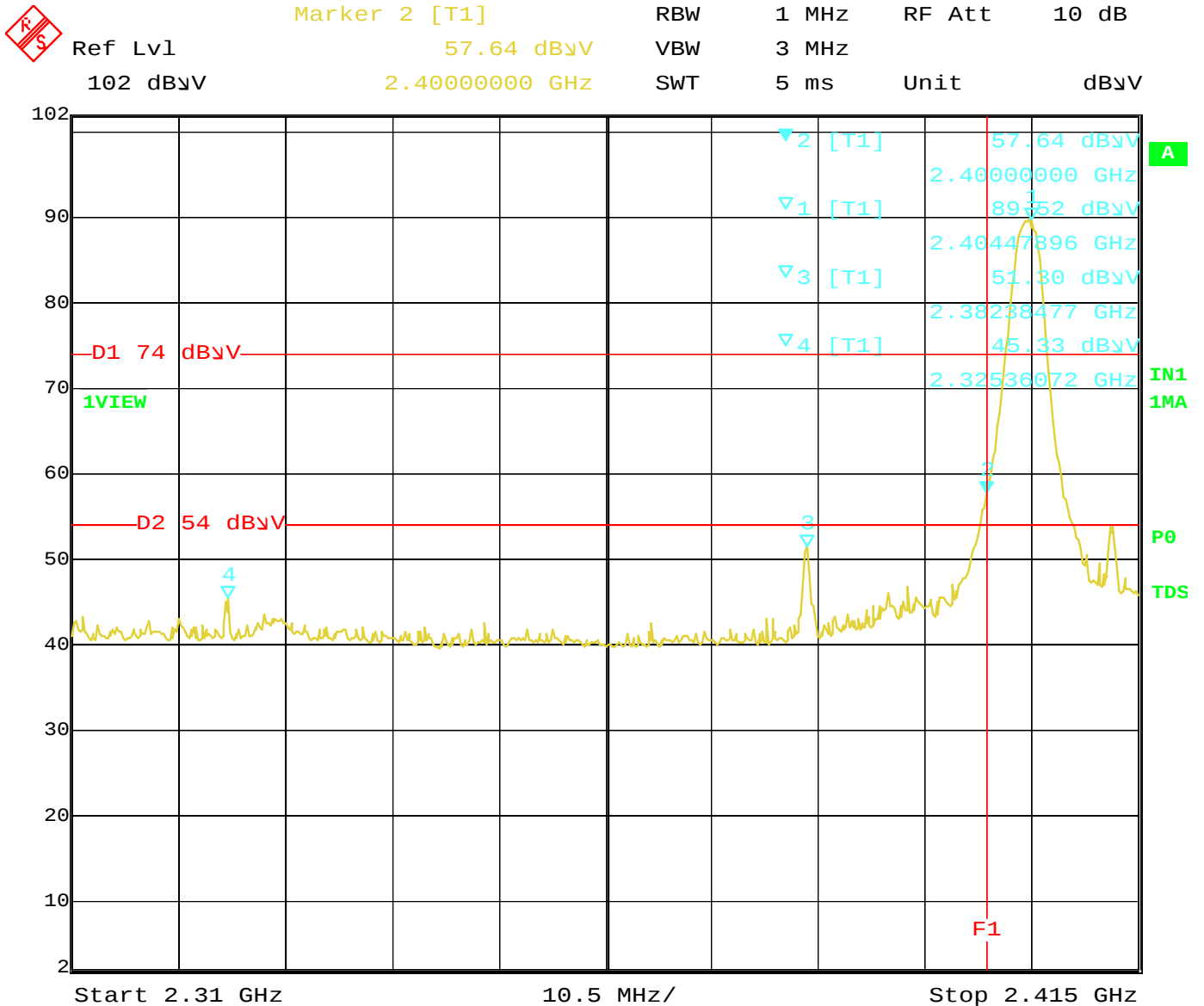
FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Short Antenna

Date: 11/17/2014
Lab: B
Tested By: Kenneth Lee

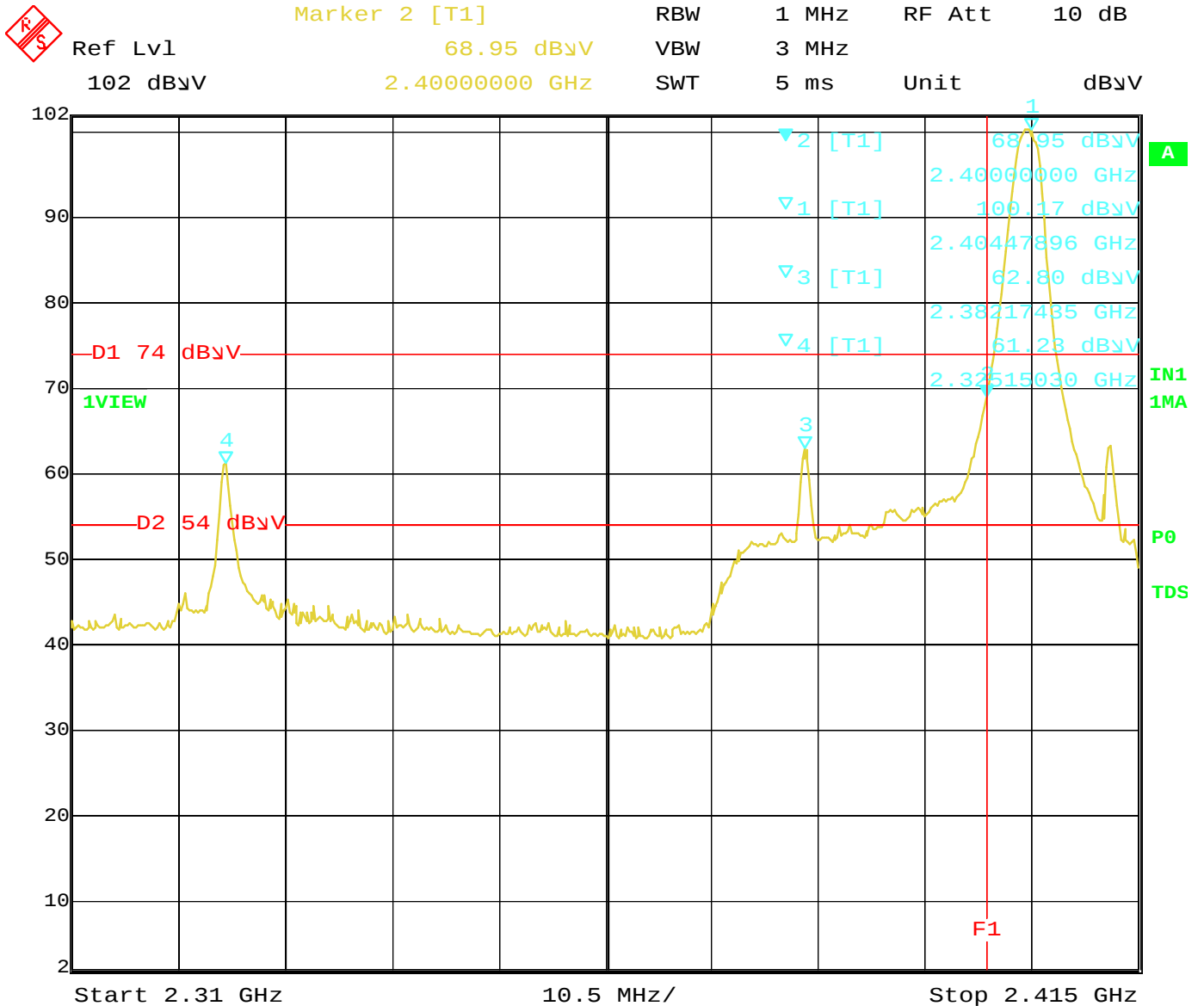
**Band Edges Using 20 dB Peak to Average
Low Channel**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2404	100.17	V	114	-13.83	Peak	1.25	225	Fundamental of Low Channel
2404	80.17	V	94	-13.83	Avg	1.25	225	@ 3 Meters
2400	68.95	V	74	-5.05	Peak	1.25	225	No Marker Delta Method
2400	48.95	V	54	-5.05	Avg	1.25	225	Method Used
2382.17	62.8	V	74	-11.2	Peak	1.25	225	No Marker Delta Method
2382.17	42.8	V	54	-11.2	Avg	1.25	225	Method Used
2325.15	61.23	V	74	-12.77	Peak	1.25	225	No Marker Delta Method
2325.15	41.23	V	54	-12.77	Avg	1.25	225	Method Used
2404	89.52	H	114	-24.48	Peak	1.35	135	Fundamental of Low Channel
2404	69.52	H	94	-24.48	Avg	1.35	135	@ 3 Meters
2400	57.64	H	74	-16.36	Peak	1.35	135	No Marker Delta Method
2400	37.64	H	54	-16.36	Avg	1.35	135	Method Used
2382.38	51.3	H	74	-22.7	Peak	1.35	135	No Marker Delta Method
2382.38	31.3	H	54	-22.7	Avg	1.35	135	Method Used
2325.36	45.33	H	74	-28.67	Peak	1.35	135	No Marker Delta Method
2325.36	25.33	H	54	-28.67	Avg	1.35	135	Method Used



Date: 17.NOV.2014 15:08:06

Band Edge – Horizontal Polarization – Low Ch – Short Antenna



Date: 17.NOV.2014 15:00:17

Band Edge – Vertical Polarization – Low Ch – Short Antenna

FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Short Antenna

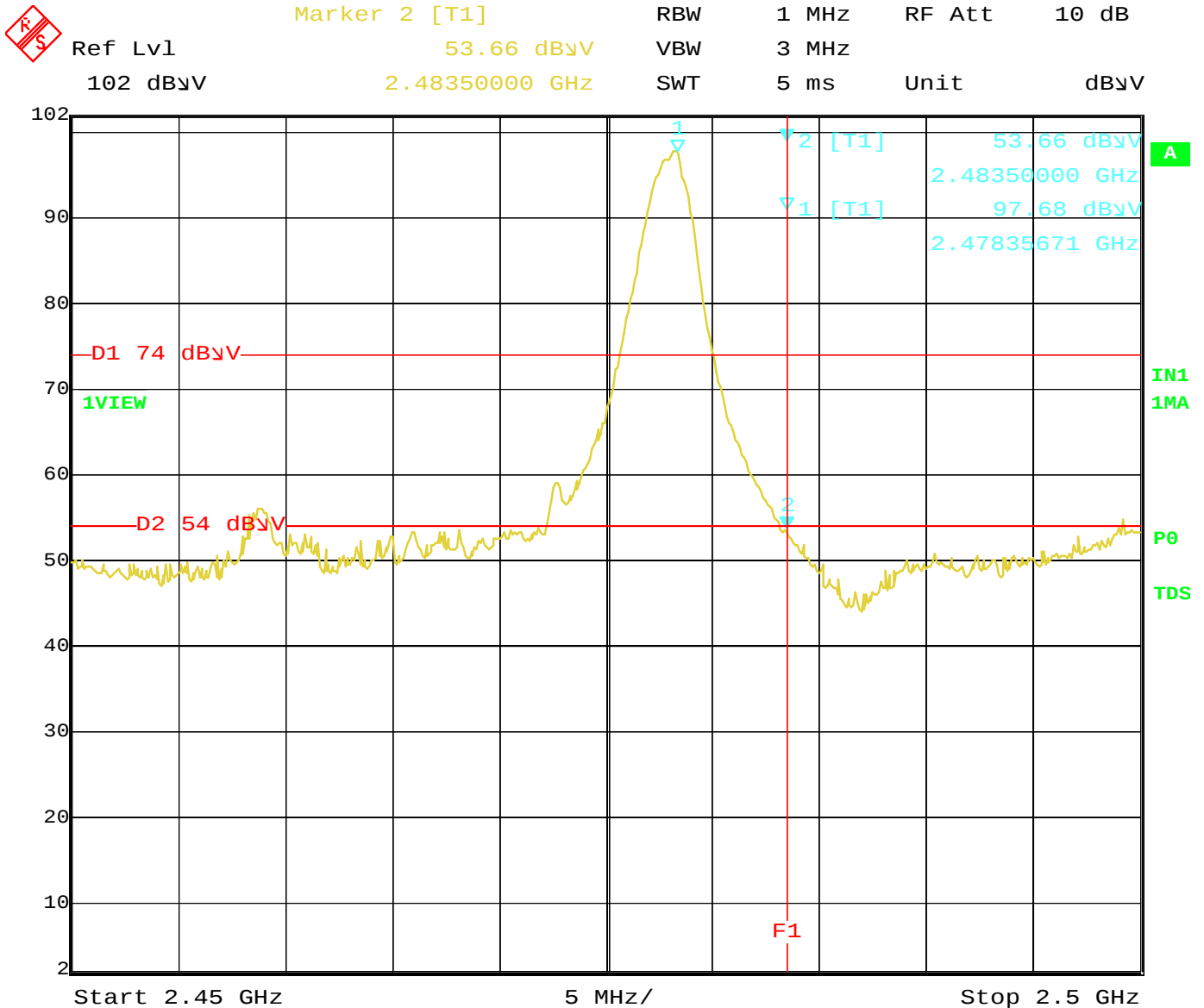
Date: 11/17/2014

Lab: B

Tested By: Kenneth Lee

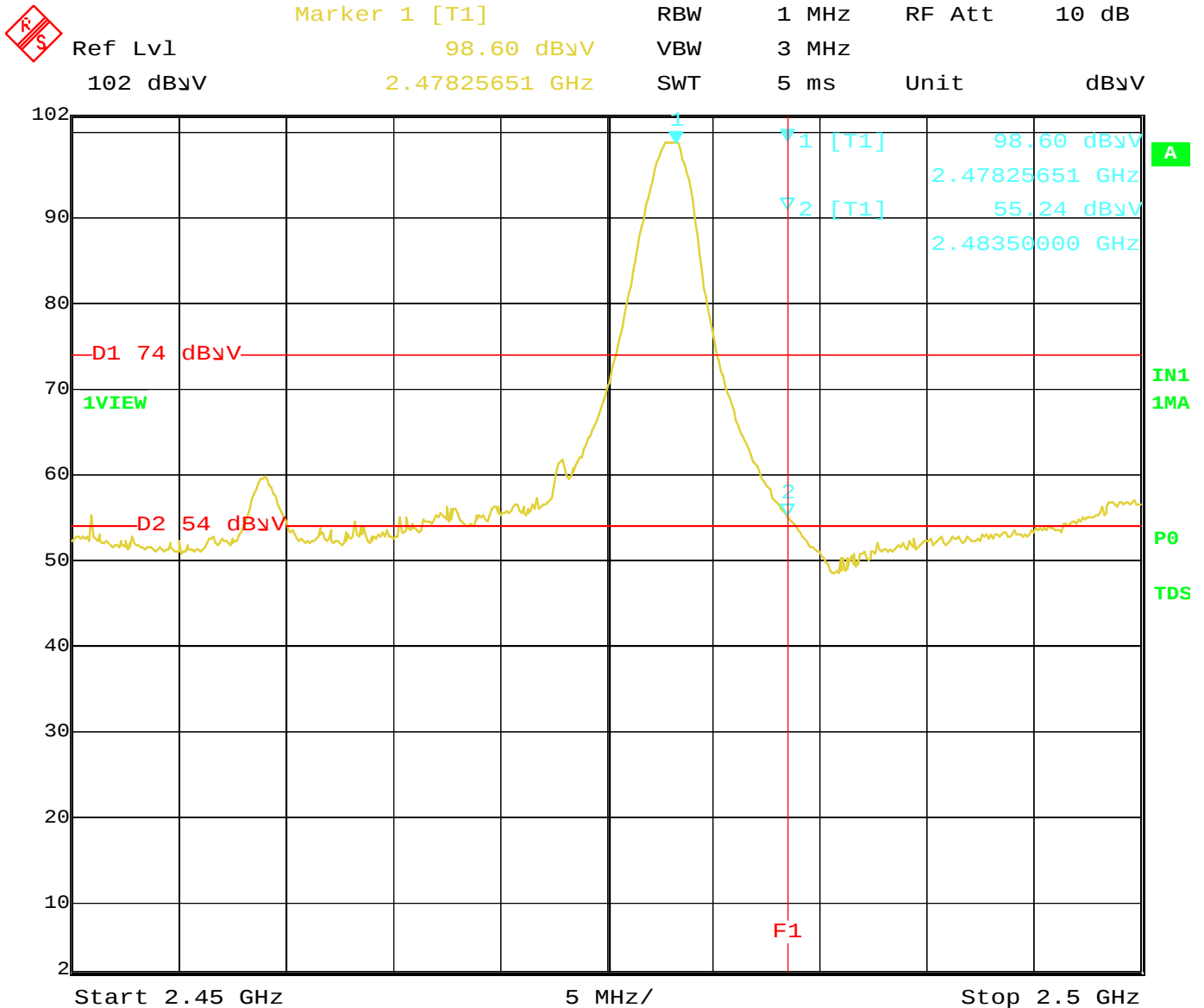
**Band Edges Using 20 dB Peak to Average
High Channel**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2478	98.6	V	114	-15.4	Peak	1.25	225	Fundamental of Low Channel
2478	78.6	V	94	-15.4	Avg	1.25	225	@ 3 Meters
2483.5	55.24	V	74	-18.76	Peak	1.25	225	No Marker Delta Method
2483.5	35.24	V	54	-18.76	Avg	1.25	225	Method Used
2498.19	56.47	V	74	-17.53	Peak	1.25	225	No Marker Delta Method
2498.19	36.47	V	54	-17.53	Avg	1.25	225	Method Used
2478	97.68	H	114	-16.32	Peak	1.25	270	Fundamental of Low Channel
2478	77.68	H	94	-16.32	Avg	1.25	270	@ 3 Meters
2483.5	53.66	H	74	-20.34	Peak	1.25	270	No Marker Delta Method
2483.5	33.66	H	54	-20.34	Avg	1.25	270	Method Used
2498.4	54.1	H	74	-19.9	Peak	1.25	270	No Marker Delta Method
2498.4	34.1	H	54	-19.9	Avg	1.25	270	Method Used



Date: 17.NOV.2014 15:33:03

Band Edge – Horizontal Polarization – High Ch – Short Antenna



Date: 17.NOV.2014 15:36:36

Band Edge – Vertical Polarization – High Ch – Short Antenna

FCC 15.249

YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Wired Antenna

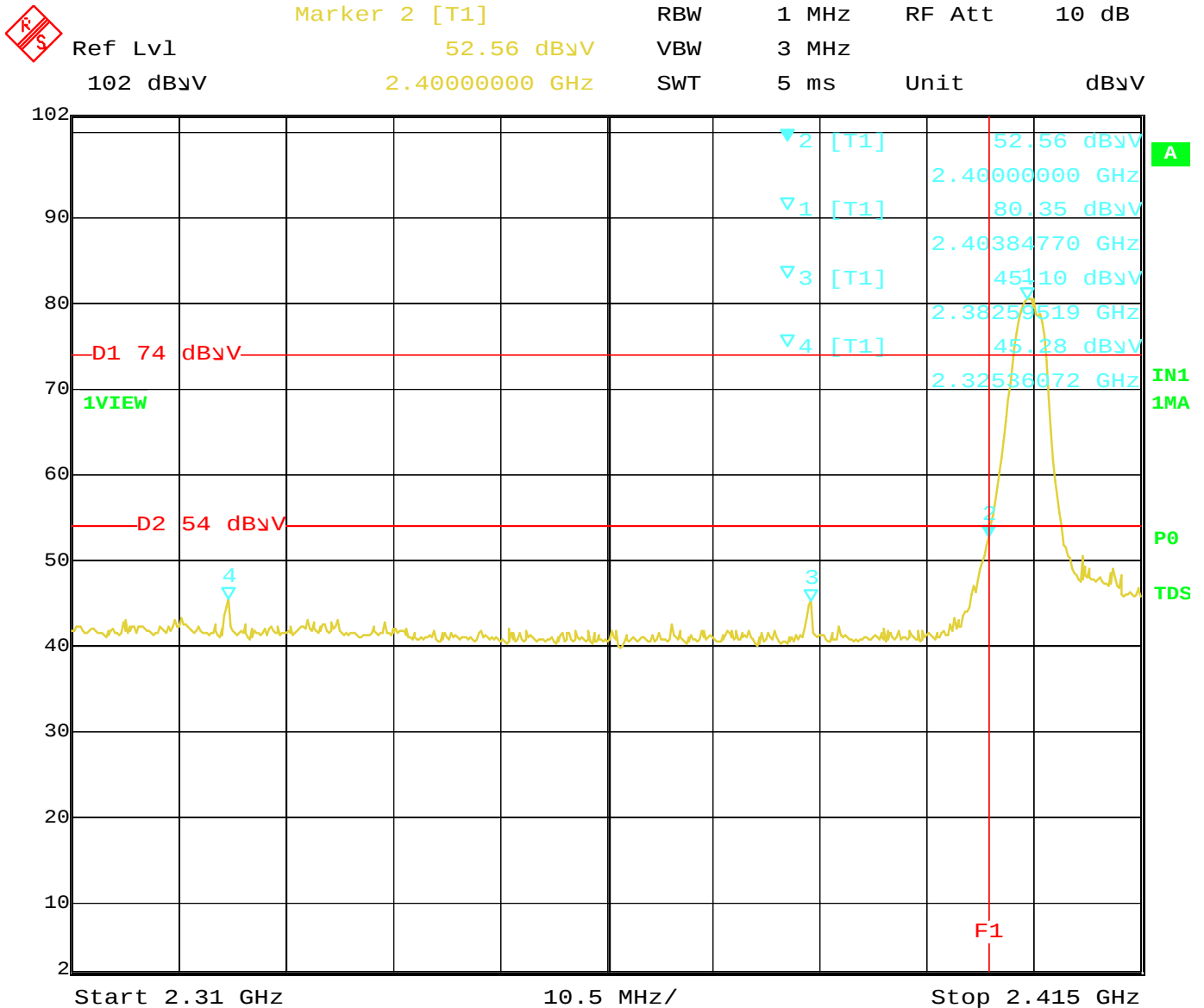
Date: 11/17/2014

Lab: B

Tested By: Kenneth Lee

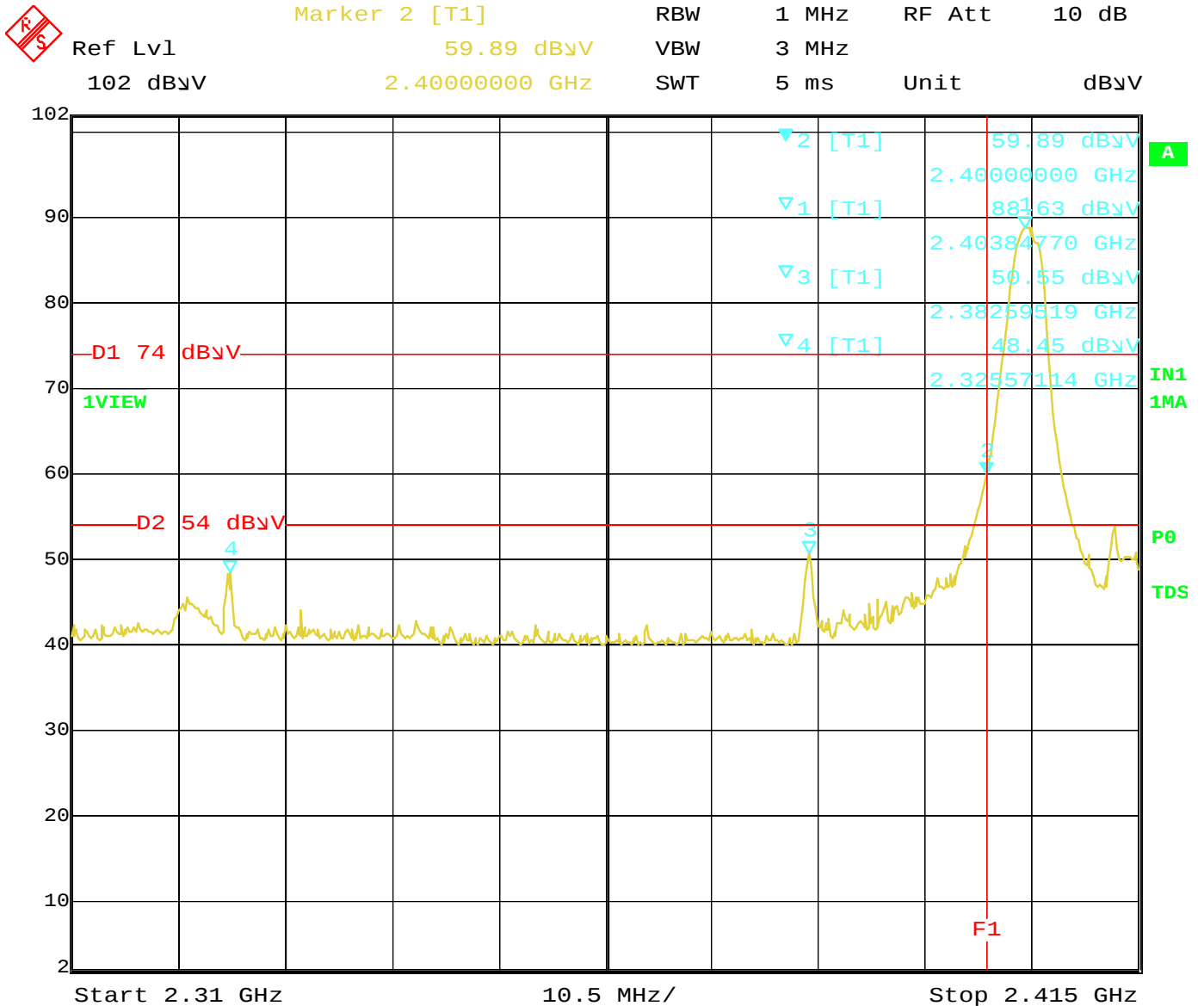
**Band Edges Using 20 dB Peak to Average
Low Channel**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2404	88.63	V	114	-25.37	Peak	1.25	135	Fundamental of Low Channel
2404	68.63	V	94	-25.37	Avg	1.25	135	@ 3 Meters
2400	59.89	V	74	-14.11	Peak	1.25	135	No Marker Delta Method
2400	39.89	V	54	-14.11	Avg	1.25	135	Method Used
2382.6	50.55	V	74	-23.45	Peak	1.25	135	No Marker Delta Method
2382.6	30.55	V	54	-23.45	Avg	1.25	135	Method Used
2325.57	48.45	V	74	-25.55	Peak	1.25	135	No Marker Delta Method
2325.57	28.45	V	54	-25.55	Avg	1.25	135	Method Used
2404	80.35	H	114	-33.65	Peak	1.35	45	Fundamental of Low Channel
2404	60.35	H	94	-33.65	Avg	1.35	45	@ 3 Meters
2400	52.56	H	74	-21.44	Peak	1.35	45	No Marker Delta Method
2400	32.56	H	54	-21.44	Avg	1.35	45	Method Used
2382.6	45.1	H	74	-28.9	Peak	1.35	45	No Marker Delta Method
2382.6	25.1	H	54	-28.9	Avg	1.35	45	Method Used
2325.36	45.28	H	74	-28.72	Peak	1.35	45	No Marker Delta Method
2325.36	25.28	H	54	-28.72	Avg	1.35	45	Method Used



Date: 17.NOV.2014 15:14:28

Band Edge – Horizontal Polarization – Low Ch – Wired Antenna

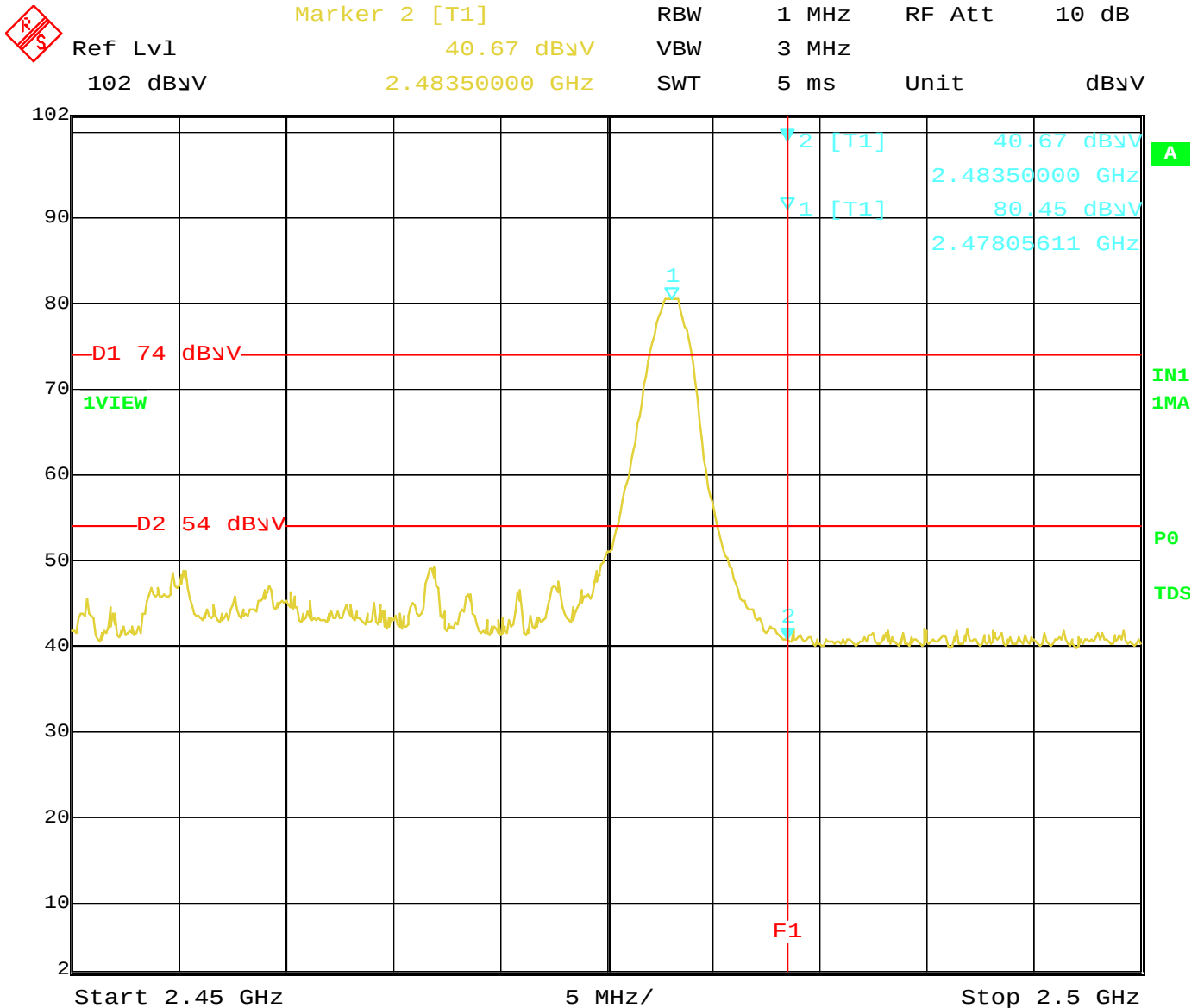


Date: 17.NOV.2014 15:18:52

Band Edge – Vertical Polarization – Low Ch – Wired Antenna

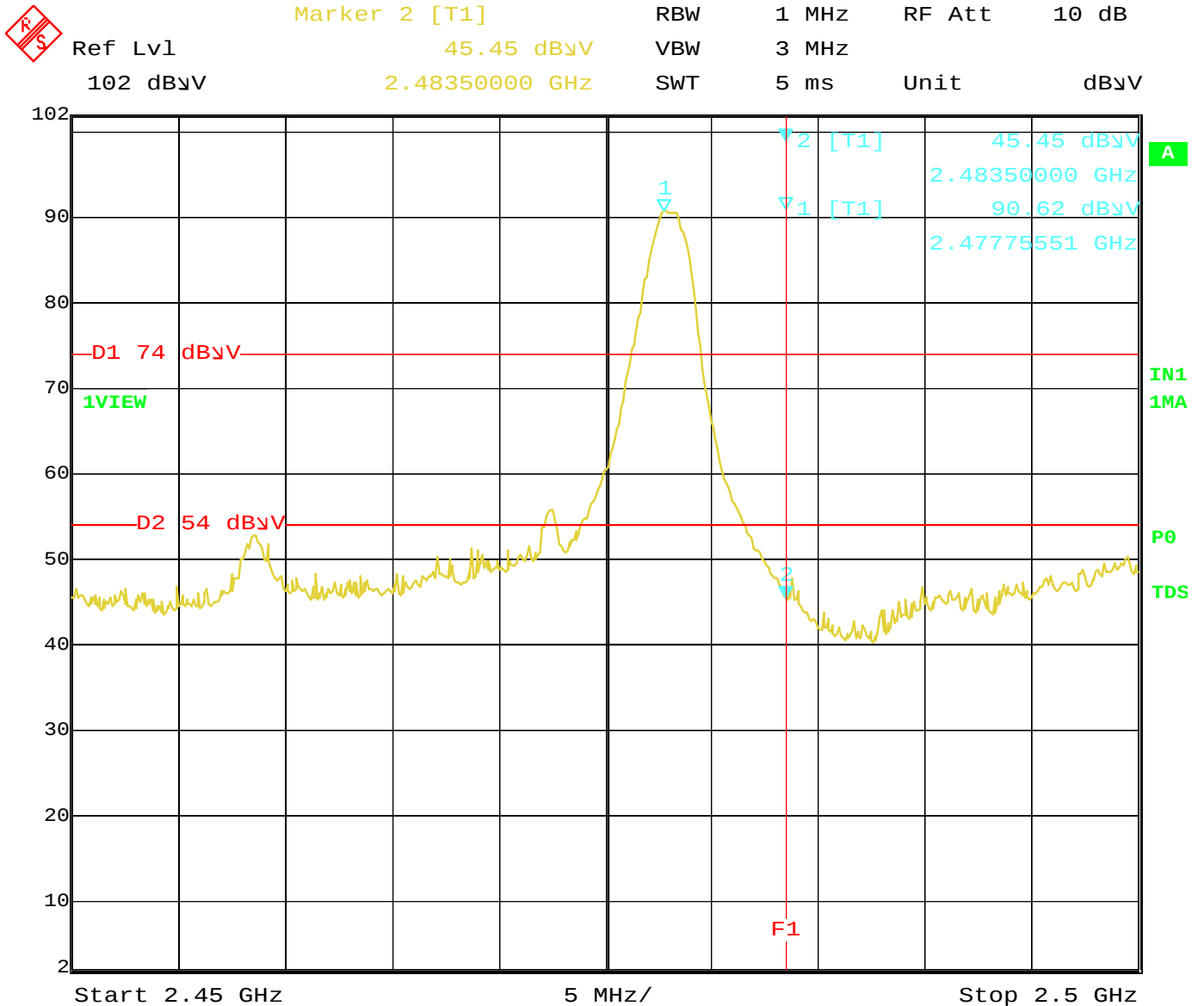
FCC 15.249YFH, dba AQUILA
AFOS-WL
Model: ATG-1000
Note: Wired AntennaDate: 11/17/2014
Lab: B
Tested By: Kenneth Lee**Band Edges Using 20 dB Peak to Average
High Channel**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2478	90.62	V	114	-23.38	Peak	1.25	135	Fundamental of Low Channel
2478	70.62	V	94	-23.38	Avg	1.25	135	@ 3 Meters
2483.5	45.45	V	74	-28.55	Peak	1.25	135	No Marker Delta Method
2483.5	25.45	V	54	-28.55	Avg	1.25	135	Method Used
2478	80.45	H	114	-33.55	Peak	1.15	270	Fundamental of Low Channel
2478	60.45	H	94	-33.55	Avg	1.15	270	@ 3 Meters
2483.5	40.67	H	74	-33.33	Peak	1.15	270	No Marker Delta Method
2483.5	20.67	H	54	-33.33	Avg	1.15	270	Method Used



Date: 17.NOV.2014 15:28:26

Band Edge – Horizontal Polarization – High Ch – Wired Antenna

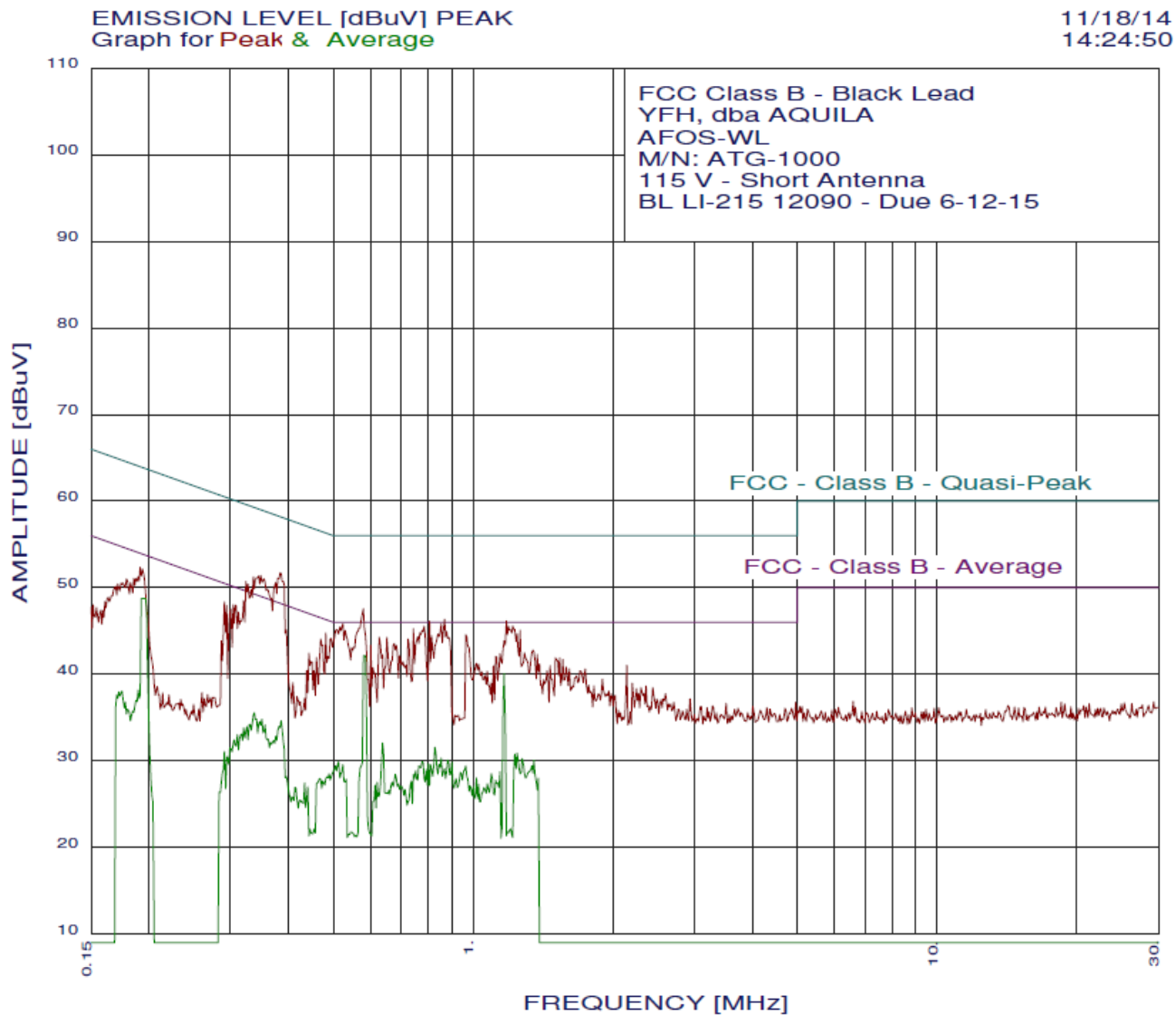


Date: 17.NOV.2014 15:24:20

Band Edge – Vertical Polarization – High Ch – Wired Antenna

CONDUCTED EMISSIONS

DATA SHEETS



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11/18/14 14:24:50

FCC Class B - Black Lead
YFH, dba AQUILA
AFOS-WL
M/N: ATG-1000
115 V - Short Antenna
BL LI-215 12090 - Due 6-12-15
Test Engineer : Kenneth Lee

30 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.10 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.383	51.71	48.21	3.51**
2	0.348	51.41	49.00	2.41**
3	0.345	51.32	49.09	2.23**
4	0.375	50.61	48.38	2.23**
5	0.354	51.00	48.87	2.14**
6	0.336	51.26	49.31	1.95**
7	0.580	47.54	46.00	1.54**
8	0.324	50.71	49.62	1.09**
9	0.360	49.81	48.73	1.07**
10	0.327	50.39	49.53	0.87**
11	0.332	49.77	49.39	0.38**
12	0.867	46.34	46.00	0.34**
13	1.178	46.16	46.00	0.16**
14	0.805	46.14	46.00	0.14**
15	0.524	45.84	46.00	-0.16**
16	0.853	45.84	46.00	-0.16**
17	1.217	45.56	46.00	-0.44**
18	1.191	45.56	46.00	-0.44**
19	0.783	45.54	46.00	-0.46**
20	0.516	45.44	46.00	-0.56**
21	0.743	45.24	46.00	-0.76**
22	0.508	45.15	46.00	-0.85**
23	1.262	45.07	46.00	-0.93**
24	0.530	45.04	46.00	-0.96**
25	0.775	45.04	46.00	-0.96**
26	0.876	44.94	46.00	-1.06**
27	0.320	48.52	49.71	-1.18**
28	0.767	44.74	46.00	-1.26**
29	1.243	44.66	46.00	-1.34**
30	0.839	44.64	46.00	-1.36**

**Please See the Average Readings on the previous graph and following DATA sheet.

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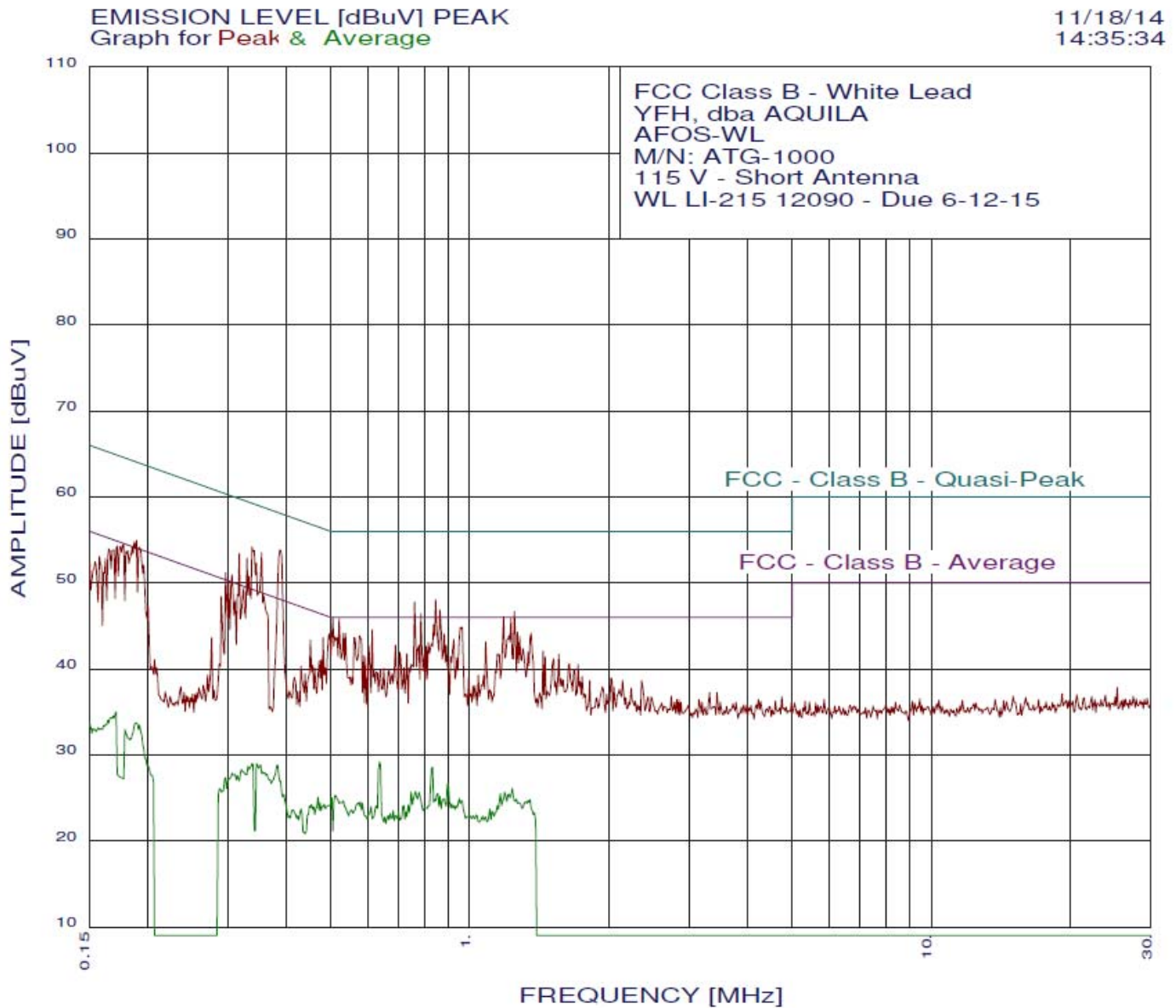
11/18/14 14:24:50

FCC Class B - Black Lead
YFH, dba AQUILA
AFOS-WL
M/N: ATG-1000
115 V - Short Antenna
BL LI-215 12090 - Due 6-12-15
Test Engineer : Kenneth Lee

30 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.10 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.580	42.14	46.00	-3.86
2	0.193	48.73	53.93	-5.19
3	1.166	40.05	46.00	-5.95
4	0.385	34.63	48.16	-13.53
5	0.338	35.53	49.26	-13.73
6	0.637	32.04	46.00	-13.96
7	0.350	34.80	48.95	-14.15
8	0.381	33.97	48.25	-14.28
9	0.826	31.54	46.00	-14.46
10	0.347	34.52	49.04	-14.53
11	0.356	34.12	48.82	-14.70
12	1.243	30.90	46.00	-15.10
13	0.331	34.20	49.44	-15.24
14	1.230	30.75	46.00	-15.25
15	0.375	32.83	48.38	-15.55
16	0.325	33.93	49.57	-15.64
17	0.853	30.31	46.00	-15.69
18	1.276	30.24	46.00	-15.76
19	0.189	38.18	54.06	-15.88
20	0.881	30.07	46.00	-15.93
21	0.320	33.77	49.71	-15.93
22	1.352	30.04	46.00	-15.96
23	0.513	29.90	46.00	-16.10
24	0.371	32.34	48.47	-16.13
25	0.775	29.86	46.00	-16.14
26	0.899	29.79	46.00	-16.21
27	0.801	29.62	46.00	-16.38
28	0.844	29.58	46.00	-16.42
29	0.524	29.54	46.00	-16.46
30	0.809	29.54	46.00	-16.46



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FCC Class B - White Lead
YFH, dba AQUILA
AFOS-WL
M/N: ATG-1000
115 V - Short Antenna
WL LI-215 12090 - Due 6-12-15
Test Engineer : Kenneth Lee

30 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.10 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.389	53.82	48.08	5.74**
2	0.338	54.15	49.26	4.89**
3	0.354	53.51	48.87	4.65**
4	0.317	53.42	49.79	3.63**
5	0.329	52.88	49.48	3.40**
6	0.345	52.33	49.09	3.24**
7	0.844	48.04	46.00	2.04**
8	0.759	47.74	46.00	1.74**
9	0.332	50.77	49.39	1.38**
10	0.189	54.93	54.06	0.87**
11	0.305	50.96	50.10	0.86**
12	0.862	46.84	46.00	0.84**
13	0.296	51.19	50.36	0.82**
14	1.249	46.66	46.00	0.66**
15	0.187	54.74	54.15	0.59**
16	0.783	46.44	46.00	0.44**
17	0.193	54.12	53.93	0.19**
18	1.184	46.06	46.00	0.06**
19	0.185	54.24	54.24	0.01**
20	0.505	45.95	46.00	-0.05**
21	0.178	54.47	54.59	-0.12**
22	1.230	45.86	46.00	-0.14**
23	0.521	45.85	46.00	-0.15**
24	0.324	49.40	49.62	-0.22**
25	0.358	48.51	48.78	-0.26**
26	0.300	49.87	50.23	-0.36**
27	0.175	54.28	54.72	-0.44**
28	0.172	54.29	54.86	-0.57**
29	0.182	53.76	54.41	-0.66**
30	0.180	53.66	54.50	-0.84**

**Please See the Average Readings on the previous graph and following DATA sheet.

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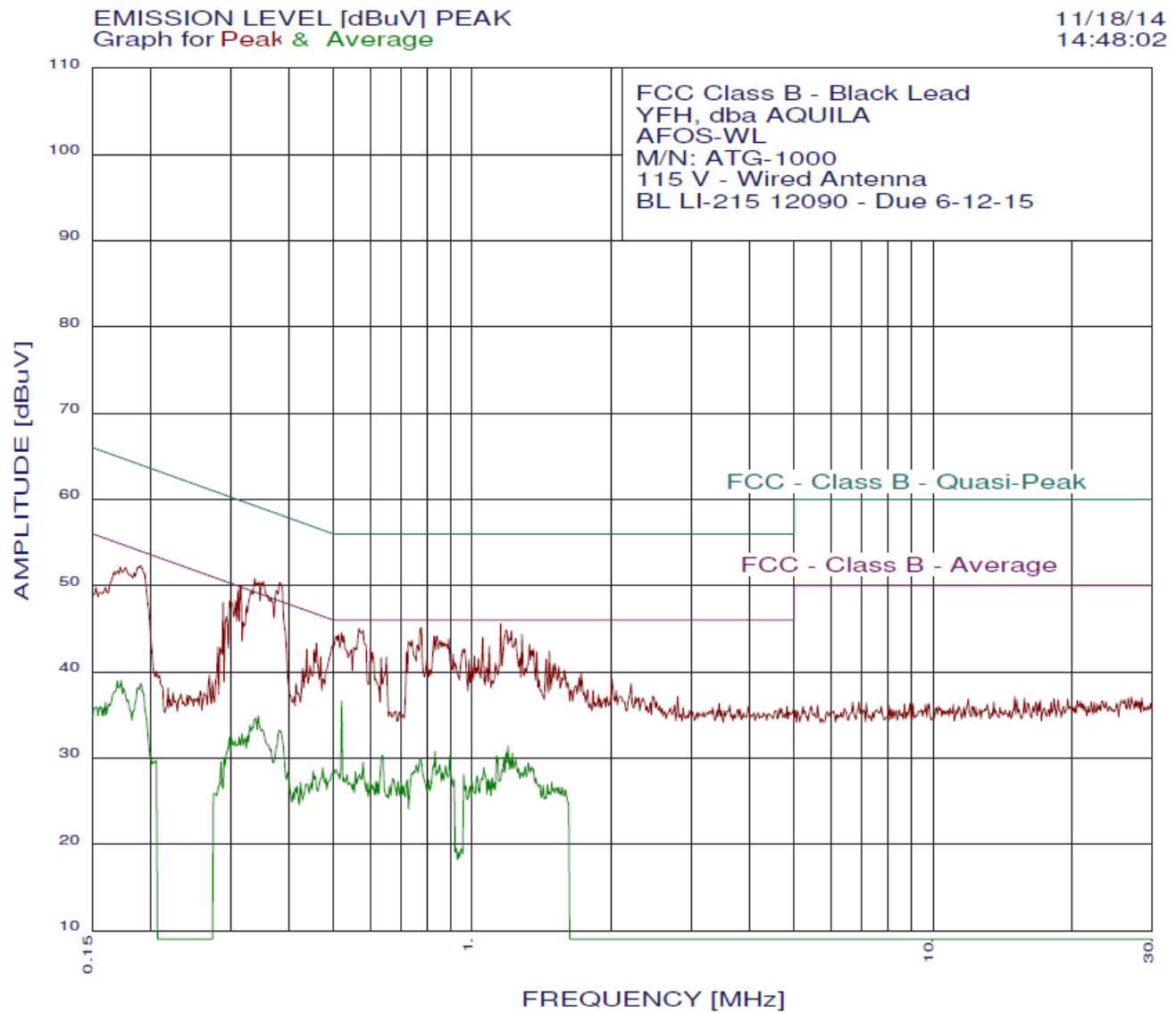
11/18/14 14:35:34

FCC Class B - White Lead
YFH, dba AQUILA
AFOS-WL
M/N: ATG-1000
115 V - Short Antenna
WL LI-215 12090 - Due 6-12-15
Test Engineer : Kenneth Lee

30 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.10 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.637	29.17	46.00	-16.83
2	0.831	28.55	46.00	-17.45
3	0.383	28.85	48.21	-19.36
4	0.899	26.60	46.00	-19.40
5	1.236	26.10	46.00	-19.90
6	0.171	34.98	54.90	-19.91
7	0.352	28.84	48.91	-20.07
8	0.347	28.96	49.04	-20.08
9	0.763	25.75	46.00	-20.25
10	0.338	28.99	49.26	-20.27
11	0.747	25.69	46.00	-20.31
12	1.191	25.65	46.00	-20.35
13	0.775	25.63	46.00	-20.37
14	0.188	33.70	54.10	-20.40
15	0.193	33.47	53.93	-20.46
16	0.853	25.52	46.00	-20.48
17	0.169	34.52	55.03	-20.50
18	1.166	25.48	46.00	-20.52
19	1.217	25.42	46.00	-20.58
20	0.510	25.24	46.00	-20.76
21	0.331	28.67	49.44	-20.77
22	0.356	28.02	48.82	-20.80
23	0.862	25.17	46.00	-20.83
24	0.363	27.76	48.65	-20.89
25	0.502	25.06	46.00	-20.94
26	0.948	24.92	46.00	-21.08
27	0.881	24.86	46.00	-21.14
28	1.262	24.82	46.00	-21.18
29	0.839	24.80	46.00	-21.20
30	1.352	24.77	46.00	-21.23



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11/18/14 14:48:02

FCC Class B - Black Lead
YFH, dba AQUILA
AFOS-WL
M/N: ATG-1000
115 V - Wired Antenna
BL LI-215 12090 - Due 6-12-15
Test Engineer : Kenneth Lee

30 highest peaks above -50.00 dB of FCC - Class B - Average limit line
Peak criteria : 0.10 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.383	50.31	48.21	2.11**
2	0.352	50.50	48.91	1.59**
3	0.338	50.85	49.26	1.59**
4	0.345	50.42	49.09	1.33**
5	0.348	50.31	49.00	1.31**
6	0.341	50.24	49.18	1.06**
7	0.375	49.41	48.38	1.03**
8	0.360	48.91	48.73	0.17**
9	0.313	49.95	49.88	0.07**
10	0.365	48.51	48.61	-0.10**
11	0.331	49.28	49.44	-0.16**
12	1.154	45.55	46.00	-0.45**
13	0.310	49.46	49.97	-0.50**
14	0.775	45.14	46.00	-0.86**
15	0.567	45.04	46.00	-0.96**
16	1.184	44.86	46.00	-1.14**
17	0.580	44.84	46.00	-1.16**
18	1.217	44.76	46.00	-1.24**
19	0.521	44.54	46.00	-1.46**
20	1.283	44.37	46.00	-1.63**
21	0.513	44.34	46.00	-1.66**
22	0.190	52.34	54.01	-1.67**
23	0.307	48.27	50.05	-1.78**
24	0.508	44.15	46.00	-1.85**
25	0.527	44.14	46.00	-1.86**
26	0.826	44.14	46.00	-1.86**
27	0.839	44.14	46.00	-1.86**
28	0.188	52.15	54.10	-1.95**
29	0.299	48.31	50.28	-1.97**
30	0.324	47.61	49.62	-2.01**

**Please See the Average Readings on the previous graph and following DATA sheet.

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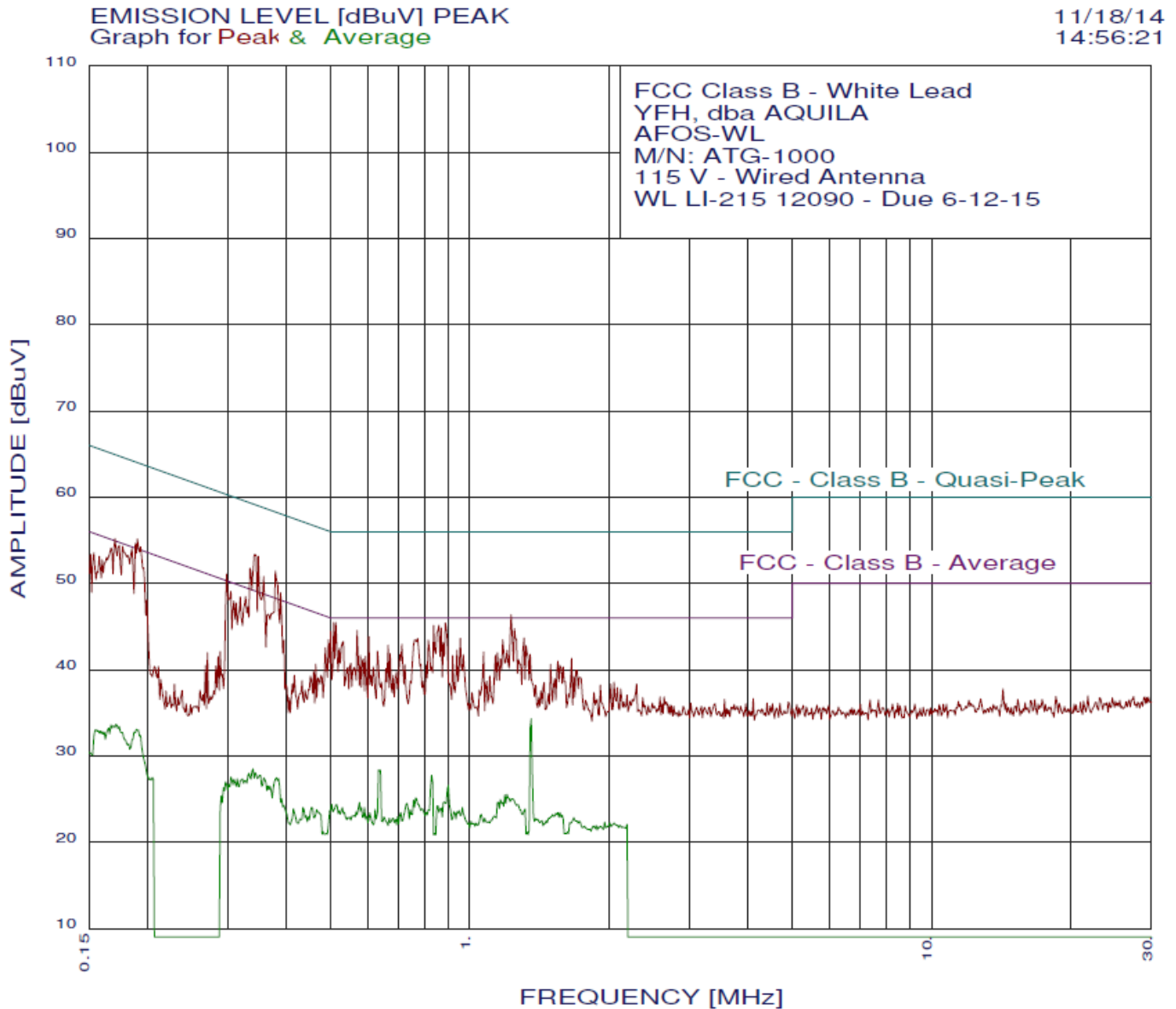
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FCC Class B - Black Lead
YFH, dba AQUILA
AFOS-WL
M/N: ATG-1000
115 V - Wired Antenna
BL LI-215 12090 - Due 6-12-15
Test Engineer : Kenneth Lee

30 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.10 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.521	36.57	46.00	-9.43
2	0.343	34.91	49.13	-14.22
3	1.197	31.41	46.00	-14.59
4	0.339	34.58	49.22	-14.64
5	0.381	33.24	48.25	-15.01
6	0.831	30.76	46.00	-15.24
7	0.190	38.64	54.01	-15.37
8	1.184	30.62	46.00	-15.38
9	1.223	30.59	46.00	-15.41
10	0.350	33.32	48.95	-15.63
11	0.329	33.80	49.48	-15.68
12	0.637	30.31	46.00	-15.69
13	1.130	30.22	46.00	-15.78
14	0.895	30.21	46.00	-15.79
15	0.173	38.99	54.81	-15.82
16	1.172	30.12	46.00	-15.88
17	0.332	33.46	49.39	-15.93
18	0.187	38.13	54.15	-16.01
19	0.170	38.95	54.98	-16.03
20	0.771	29.90	46.00	-16.10
21	1.243	29.78	46.00	-16.22
22	1.210	29.78	46.00	-16.22
23	0.580	29.51	46.00	-16.49
24	1.325	29.43	46.00	-16.57
25	0.175	38.09	54.72	-16.63
26	0.849	29.21	46.00	-16.79
27	0.755	29.17	46.00	-16.83
28	0.876	29.14	46.00	-16.86
29	0.822	29.10	46.00	-16.90
30	0.317	32.82	49.79	-16.98



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FCC Class B - White Lead
YFH, dba AQUILA
AFOS-WL
M/N: ATG-1000
115 V - Wired Antenna
WL LI-215 12090 - Due 6-12-15
Test Engineer : Kenneth Lee

30 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.10 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.341	53.34	49.18	4.16**
2	0.348	53.12	49.00	4.12**
3	0.379	51.42	48.29	3.12**
4	0.334	51.76	49.35	2.41**
5	0.358	50.81	48.78	2.04**
6	0.190	55.13	54.01	1.11**
7	0.389	48.92	48.08	0.84**
8	0.297	51.08	50.32	0.76**
9	0.188	54.63	54.10	0.53**
10	1.230	46.36	46.00	0.36**
11	0.194	54.22	53.88	0.33**
12	0.170	55.20	54.94	0.26**
13	0.185	54.04	54.24	-0.19**
14	0.177	54.27	54.63	-0.36**
15	0.174	54.38	54.77	-0.38**
16	0.508	45.45	46.00	-0.55**
17	0.513	45.45	46.00	-0.55**
18	0.885	45.44	46.00	-0.56**
19	0.858	45.14	46.00	-0.86**
20	0.835	45.14	46.00	-0.86**
21	0.167	54.11	55.11	-1.01**
22	0.327	48.49	49.53	-1.04**
23	0.304	49.06	50.14	-1.08**
24	0.182	53.26	54.41	-1.16**
25	0.867	44.84	46.00	-1.16**
26	1.249	44.76	46.00	-1.24**
27	0.318	48.41	49.75	-1.34**
28	0.570	44.54	46.00	-1.46**
29	0.500	44.45	46.01	-1.56**
30	0.309	47.95	50.01	-2.06**

**Please See the Average Readings on the previous graph and following DATA sheet.

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FCC Class B - White Lead
YFH, dba AQUILA
AFOS-WL
M/N: ATG-1000
115 V - Wired Antenna
WL LI-215 12090 - Due 6-12-15
Test Engineer : Kenneth Lee

30 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.10 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	1.359	34.31	46.00	-11.69
2	0.634	28.38	46.00	-17.62
3	0.826	27.74	46.00	-18.26
4	0.899	26.55	46.00	-19.45
5	1.204	25.54	46.00	-20.46
6	1.191	25.48	46.00	-20.52
7	0.339	28.48	49.22	-20.74
8	0.381	27.45	48.25	-20.80
9	0.385	27.36	48.16	-20.80
10	0.763	25.11	46.00	-20.89
11	0.189	33.08	54.06	-20.98
12	1.236	25.01	46.00	-20.99
13	1.166	24.94	46.00	-21.06
14	0.343	28.05	49.13	-21.09
15	0.755	24.86	46.00	-21.14
16	0.350	27.75	48.95	-21.20
17	0.171	33.66	54.90	-21.23
18	0.881	24.67	46.00	-21.33
19	0.358	27.44	48.78	-21.33
20	0.174	33.39	54.77	-21.37
21	1.154	24.62	46.00	-21.38
22	0.577	24.61	46.00	-21.39
23	0.332	27.99	49.39	-21.40
24	0.170	33.48	54.98	-21.50
25	0.731	24.48	46.00	-21.52
26	0.167	33.59	55.11	-21.53
27	0.502	24.36	46.00	-21.64
28	0.513	24.30	46.00	-21.70
29	0.853	24.22	46.00	-21.78
30	0.165	33.23	55.20	-21.98
