

FCC PART 15, SUBPART B and C
TEST REPORT
for
WILDLIFE CALLER REMOTE
MODEL: MIGHTY ATOM

Prepared for

WILDLIFE TECHNOLOGIES
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	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	20	2	2	2	11	42	79



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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: Wildlife Caller Remote
Model: Mighty Atom
S/N: N/A

Product Description: The EUT is a remote used to activate animal calls on a Wildlife Portable Sound System.

Modifications: The EUT was not modified in order to meet the specifications.

Customer: Wildlife Technologies
115 Wolcott Street
Manchester, New Hampshire 03103

Test Dates: Janaury 24 and 25, 2019; and February 1, 2019

Test Specification covered by accreditation:



Test Specifications: Emissions requirements
CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247

Test Procedures: ANSI C63.4: 2013, ANSI C63.10: 2014

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

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz	This test was not performed because the EUT is battery powered only.
2	Radiated RF Emissions, 9 kHz – 9300 MHz	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, 15.205, 15.209 and 15.247 (d) Highest reading in relation to spec limit: 51.68 (Avg) dBuV/m @ 3664.64 MHz (*U = 3.67 dB)
3	20 dB Bandwidth	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)(i)
4	Peak Power Output	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(2)
5	RF Band Edges	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (d)
6	Number of Hopping Frequencies	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (a)(1)(i)
7	RF Conducted Antenna Test	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (d)
8	Carrier Frequency Separation	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)
9	Average Time of Occupancy	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (a)(1)(i)
10	Variation of Input Power	This test was not performed because the EUT is battery powered only.

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the Wildlife Caller Remote, Model: Mighty Atom. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4 and ANSI C63.10. 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, 15.207, 15.209, and 15.247.



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
558074 D01 DTS Meas Guidance v04	Guidance for Performing Compliance Measurements on Digital Transmissions Systems (DTS) Operating Under Section 15.247
EN 50147-2: 1997	Anechoic chambers. Alternative test site suitability with respect to site attenuation
ANSI C63.4 2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI C63.10 2013	American National Standard for Testing Unlicensed Wireless Devices

4. DESCRIPTION OF TEST CONFIGURATION

The Wildlife Caller Remote, Model: Mighty Atom (EUT) was tested as a stand alone device and tested in three orthogonal axis.

For configuring the EUT for the intentional radiator portion of the test: A code was entered into the EUT that allowed the EUT to be locked into the low or high channel during the testing and continuously transmit. The EUT was tested in three orthogonal axis. The carrier was modulated in the same way it would be when the EUT was in its normal operating mode.

For configuring the EUT for the unintentional radiator portion of the test: A code was entered into the EUT using the keypad that allowed the EUT to frequency hop on a continuous basis.

The firmware is a special firmware that allowed the EUT to be programmed to do the test above. The firmware version is 1.0.

This firmware is located on the company's servers.

The X-Axis is when the EUT is parallel to the ground reference plane. The Y-Axis is when the EUT is perpendicular to the ground reference plane. The Z-Axis is when the front of the EUT is rotated 90 degrees and perpendicular to the ground reference plane.

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

4.1.1 Cable Construction and Termination

The EUT had no external cables.

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

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
WILDLIFE CALLER REMOTE	WILDLIFE TECHNOLOGIES	MIGHTY ATOM	5900002	NW6WTMAPWSS
FIRMWARE*	WILDLIFE TECHNOLOGIES	Version 1.0	N/A	N/A

*This is the firmware used to program the EUT so that it can transmit in the low and high channels and also transmit in its normal operation on a continuous basis.

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
RF RADIATED EMISSIONS AND 99% BANDWIDTH TEST EQUIPMENT					
TDK TestLab	TDK RF Solutions, Inc.	9.22	700145	N/A	N/A
EMI Receiver, 20 Hz – 26.5 GHz	Keysight Technologies	N9038A	MY51210150	July 26, 2018	1 Year
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
Loop Antenna	Com-Power	AL-130R	121090	February 9, 2017	2 Year
CombiLog Antenna	Com-Power	AC-220	61060	July 27, 2017	2 Year
Horn Antenna	Com-Power	AH-118	071175	February 22, 2018	2 Year
Preamplifier	Com-Power	PAM-118A	551024	May 10, 2018	1 Year
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A

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

For frequencies 1 GHz and below: The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

For frequencies above 1 GHz: The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 1.5 meters above the ground plane.

The EUT was not grounded.

6.3 Measurement Uncertainty

The uncertainty values are in the table below.

The uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level, using a coverage factor of k=2

MEASUREMENT TYPE	PARTICULAR CONFIGURATION	UNCERTAINTY VALUES
RADIATED EMISSIONS	3-METER CHAMBER, COMBILOG ANTENNA	3.26 dB (Vertical) 3.19 dB (Horizontal)
RADIATED EMISSIONS	3-METER CHAMBER, HORN ANTENNA	3.67 dB

7. CHARACTERISTICS OF THE TRANSMITTER

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

7.1 Channel Number and Frequencies

The EUT has 50 channels using a pseudo random technique. It uses GFSK modulation. The channels are separated by approximately 50 kHz.

Low Channel: 913.73 MHz
High Channel: 916.16 MHz

See Appendix E for the a plot showing that there were 50 channels

7.2 Antenna

The EUT is an integral antenna.

8. TEST PROCEDURES

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

8.1 RF Emissions

8.1.1 Conducted Emissions Test

The EMI Receiver was used as a measuring meter. A quasi-peak and/or average reading was taken only where indicated in the data sheets. A transient limiter was used for the protection of the EMI Receiver input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the EMI Receiver. 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 63:4. 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 computer software. The final qualification data is located in Appendix E.

The EUT was tested at 120 VAC. The six highest emissions are listed in Table 1.0.

Test Results:

This test was not performed because the EUT operates on battery power only and cannot be connected to the AC public mains.

8.1.2 Radiated Emissions Test

The EMI Receiver was used as the measuring meter. Preamplifiers were 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. The effective measurement bandwidth used for the radiated emissions test was according to the frequency measured.

The frequencies below 1 GHz were quasi-peaked using the quasi-peak detector of the EMI Receiver.

The frequencies above 1 GHz were averaged using the RMS detector average function on the EMI Receiver.

The EMI test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4. 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 EUT was tested at a 3-meter test distance. The six highest emissions are listed in Table 1.0.

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

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Loop Antenna
150 kHz to 30 MHz	9 kHz	Loop Antenna
30 MHz to 1 GHz	120 kHz	CombiLog Antenna
1 GHz to 9.3 GHz	1 MHz	Horn Antenna

Test Results:

The EUT complies with the **Class B** limits of **CFR** Title 47, Part 15, Subpart B; and Subpart C sections 15.205, 15.209, and 15.247 (d) for radiated emissions.

8.1.3 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS
Wildlife Caller Remote
Model: Mighty Atom

Frequency MHz	EMI Reading (dBuV/m)	Specification Limit (dBuV/m)	Delta (Cor. Reading – Spec. Limit) dB
3664.64 (H) (Z-Axis)	51.68 (Avg)	53.97	-2.29
3664.64 (V) (X-Axis)	51.29 (Avg)	53.97	-2.68
3654.92 (H) (Z-Axis)	50.88 (Avg)	53.97	-3.09
3654.92 (V) (X-Axis)	50.11 (Avg)	53.97	-3.86
3654.92 (H) (X-Axis)	46.16 (Avg)	53.97	-7.81
3664.64 (H) (X-Axis)	45.10 (Avg)	53.97	-8.87

Notes:

- * The complete emissions data is given in Appendix E of this report.
- (BL) Black Lead
- (WL) White Lead
- (V) Vertical
- (H) Horizontal
- (QP) Quasi-Peak

8.2 20 dB Bandwidth

The 20 dB Bandwidth was measured using the EMI Receiver. The resolution bandwidth was within 1 % to 5 % of the occupied bandwidth and the video bandwidth was approximately ≥ 3 times the RBW.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1)(i). The 20 dB bandwidth is less than the separation between channels. Please see the data sheets located in Appendix E.

8.3 Peak Output Power

The Peak Output Power was measured using the EMI Receiver. The resolution bandwidth was 3 MHz and the video bandwidth was 50 MHz.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (b)(2). The maximum peak output power is less than 1 Watt. Please see the data sheets located in Appendix E.

8.4 RF Antenna Conducted Test

The RF antenna conducted test was performed using the EMI Receiver. The RF antenna conducted test measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth was 100 kHz, and the video bandwidth was 300 kHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). Please see the data sheets located in Appendix E.

8.5 RF Band Edges

The RF band edges were taken at the edges of the ISM spectrum (902 MHz when the EUT was on the low channel and 928 MHz when the EUT was on the high channel) using the EMI Receiver. The RBW was set to 100 kHz and the VBW was set to 300 kHz. Plots of the fundamental were taken to ensure the amplitude at the band edges were at least 20 dB down from the peak of the fundamental emission. The plots were taken in both frequency hopping mode and single channel mode.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power at the band edges at 902 MHz and 928 MHz meet the requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). Please see the data sheets located in Appendix E.

8.6 Carrier Frequency Separation

The Channel Hopping Separation Test was measured using the EMI Receiver. The EUT was operating in its normal operating mode. The resolution bandwidth was approximately 30% of the channel spacing, and the video bandwidth $\geq$ RBW. The frequency span was wide enough to include the peaks of two adjacent channels.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1). The Channel Hopping Separation is greater than the 20 dB bandwidth. Please see the data sheets located in Appendix E.

8.7 Number of Hopping Frequencies

The Number of Hopping Frequencies was measured using the EMI Receiver. The EUT was operating in its normal operating mode. The resolution bandwidth was set to approximately 30% of the channel spacing, and the video bandwidth was $\geq$ RBW. The frequency span was wide enough to include all of the peaks in the frequency band of operation.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1) and 15.247 (a)(1)(i). Please see the data sheets located in Appendix E.

8.8 Average Time of Occupancy Test

The Average Time of Occupancy Test was measured using the EMI Receiver. The EUT was operating in normal operating mode. The frequency span was taken to 0 Hz to determine the time for each transmission and the number of transmissions over a 20 second period.

Test Results:

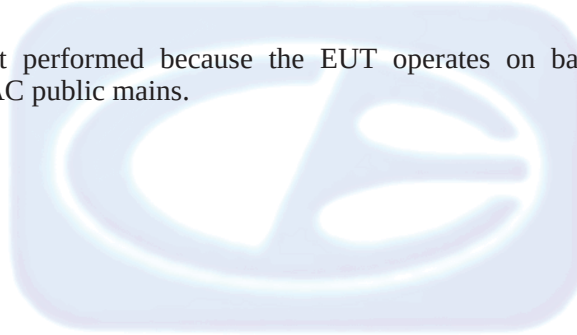
The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(1)(i). Please see the data sheets located in Appendix E.

8.9 Variation of the Input Power

The variation of the input power test was performed using the EMI Receiver. The EUT input power was varied between 85% and 115% of the nominal rated supply voltage. The carrier frequency was monitored for any change in amplitude.

Test Results:

This test was not performed because the EUT operates on battery power only and cannot be connected to the AC public mains.



9. CONCLUSIONS

The Wildlife Caller Remote, Model: Mighty Atom, as tested, meets all of the specification limits defined in FCC Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.247.



APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS



For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025.

For the most up-to-date version of our scopes and certificates please visit
<http://celectronics.com/quality/scope/>

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."



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 15.247 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.

No modifications were made to the EUT during the testing.



APPENDIX C

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

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Wildlife Caller Remote
Model: Mighty Atom
S/N: N/A

There are no additional models covered under this report.





APPENDIX D

DIAGRAMS AND CHARTS

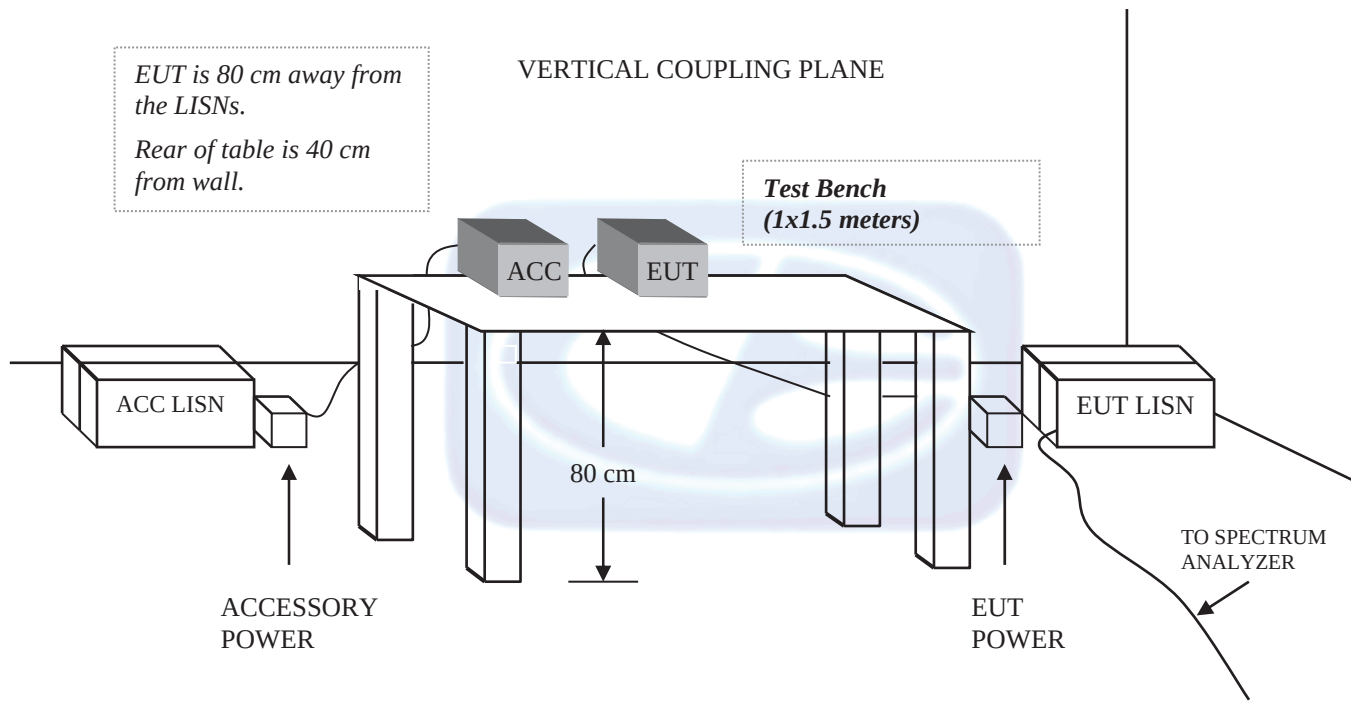
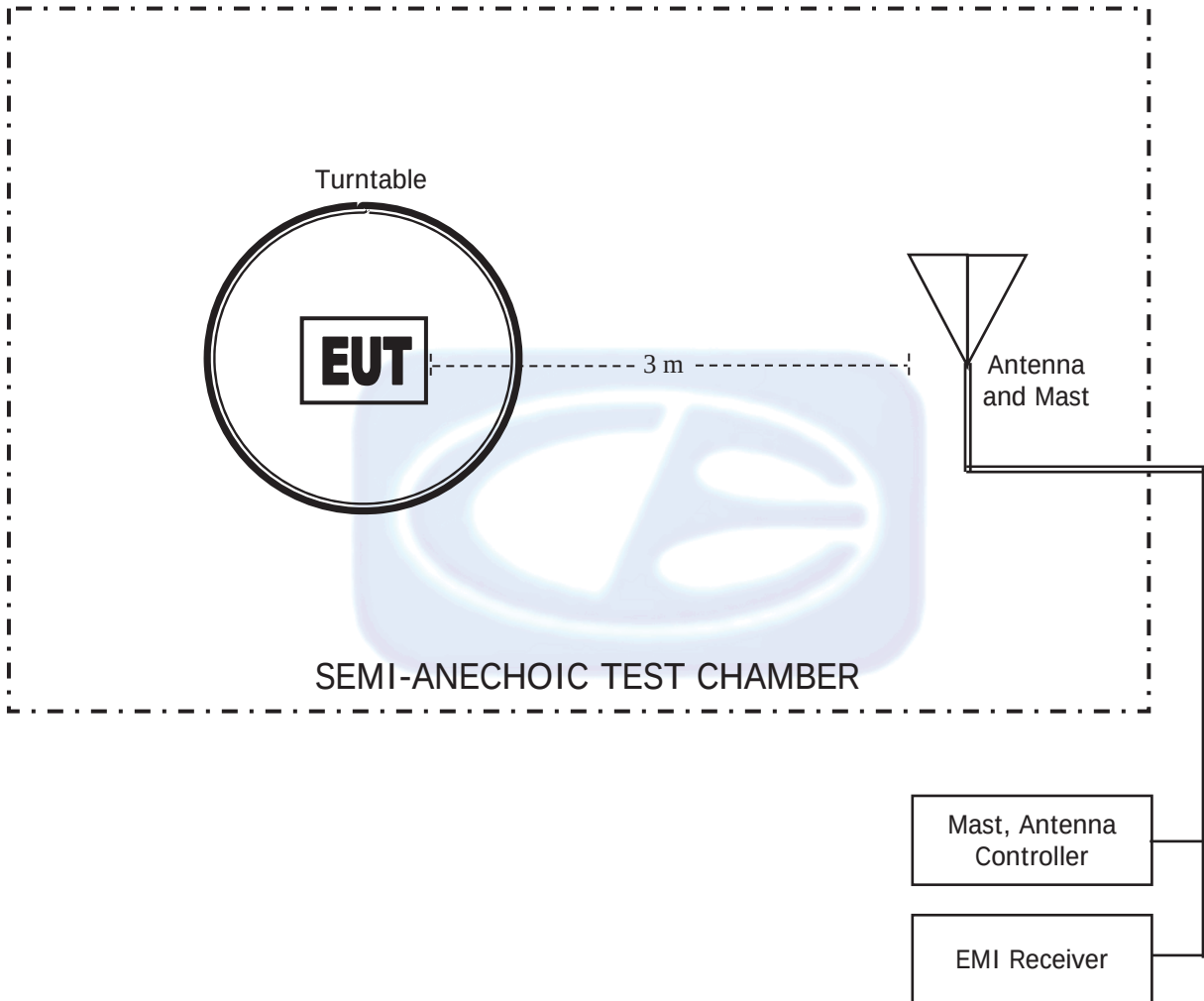
FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

FIGURE 2: LAYOUT OF THE SEMI MI-ANECHOIC TEST CHAMBER



COM-POWER AL-130R**LOOP ANTENNA****S/N: 121090****CALIBRATION DATE: FEBRUARY 9, 2017**

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-36.17	15.33
0.01	-35.86	15.64
0.02	-37.30	14.20
0.03	-36.58	14.92
0.04	-36.99	14.51
0.05	-37.66	13.84
0.06	-37.53	13.97
0.07	-37.64	13.86
0.08	-37.52	13.98
0.09	-37.62	13.88
0.1	-37.59	13.91
0.2	-37.79	13.71
0.3	-37.80	13.70
0.4	-37.70	13.80
0.5	-37.79	13.71
0.6	-37.79	13.71
0.7	-37.69	13.81
0.8	-37.49	14.01
0.9	-37.39	14.11
1	-37.39	14.11
2	-37.09	14.41
3	-37.09	14.41
4	-37.19	14.31
5	-36.98	14.52
6	-37.17	14.33
7	-37.05	14.45
8	-36.85	14.65
9	-36.84	14.66
10	-36.75	14.75
15	-37.16	14.34
20	-36.44	15.06
25	-37.88	13.62
30	-39.14	12.36

COM-POWER AC-220**COMBILOG ANTENNA****S/N: 61060****CALIBRATION DATE: JULY 27, 2017**

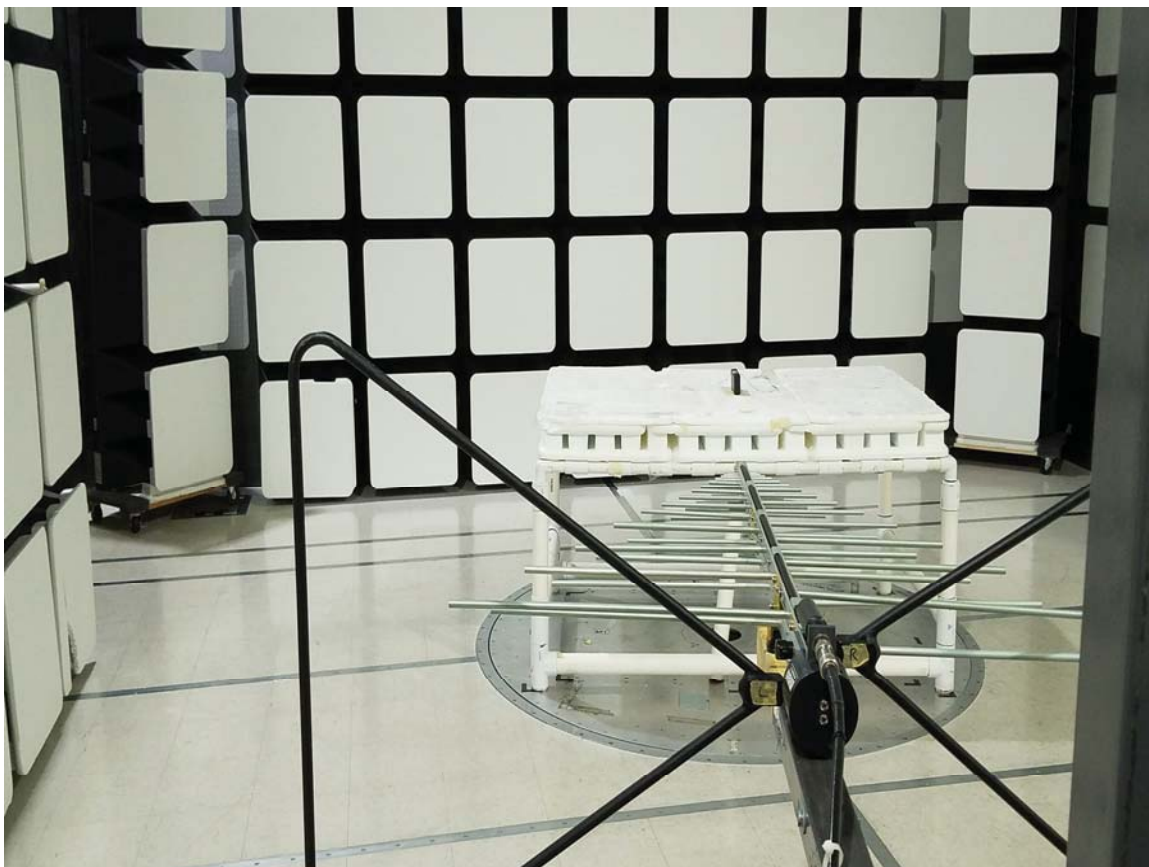
FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	23.80	200	14.10
35	24.00	250	15.30
40	24.70	300	17.70
45	22.90	350	17.70
50	22.10	400	19.00
60	17.60	450	21.30
70	12.70	500	21.00
80	11.20	550	22.30
90	13.10	600	23.40
100	14.40	650	22.90
120	15.30	700	24.60
125	15.00	750	24.50
140	12.80	800	25.40
150	16.50	850	26.40
160	12.90	900	27.20
175	14.30	950	27.80
180	14.50	1000	26.80

COM POWER AH-118**HORN ANTENNA****S/N: 071175****CALIBRATION DATE: FEBRUARY 22, 2018**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.71	10.0	40.08
1.5	25.46	10.5	40.75
2.0	29.26	11.0	41.78
2.5	27.95	11.5	41.02
3.0	29.03	12.0	40.32
3.5	29.70	12.5	40.96
4.0	30.71	13.0	40.29
4.5	31.62	13.5	39.48
5.0	33.23	14.0	39.89
5.5	35.07	14.5	42.75
6.0	34.43	15.0	40.98
6.5	34.98	15.5	38.54
7.0	36.75	16.0	39.40
7.5	37.10	16.5	39.40
8.0	37.66	17.0	41.74
8.5	39.29	17.5	42.58
9.0	37.75	18.0	44.68
9.5	38.23		

COM-POWER PAM-118A**PREAMPLIFIER****S/N: 551024****CALIBRATION DATE: MAY 10, 2018**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	40.99	6.0	39.01
1.1	39.77	6.5	39.00
1.2	39.02	7.0	39.69
1.3	39.44	7.5	38.96
1.4	39.64	8.0	38.57
1.5	40.23	8.5	39.17
1.6	40.17	9.0	38.82
1.7	40.23	9.5	39.30
1.8	39.48	10.0	38.90
1.9	39.85	11.0	38.86
2.0	39.99	12.0	39.87
2.5	40.38	13.0	39.55
3.0	40.64	14.0	38.92
3.5	40.68	15.0	39.33
4.0	40.87	16.0	39.60
4.5	40.04	17.0	40.28
5.0	39.54	18.0	39.58
5.5	39.58		



FRONT VIEW

WILDLIFE TECHNOLOGIES
WILDLIFE CALLER REMOTE
MODEL: MIGHTY ATOM
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

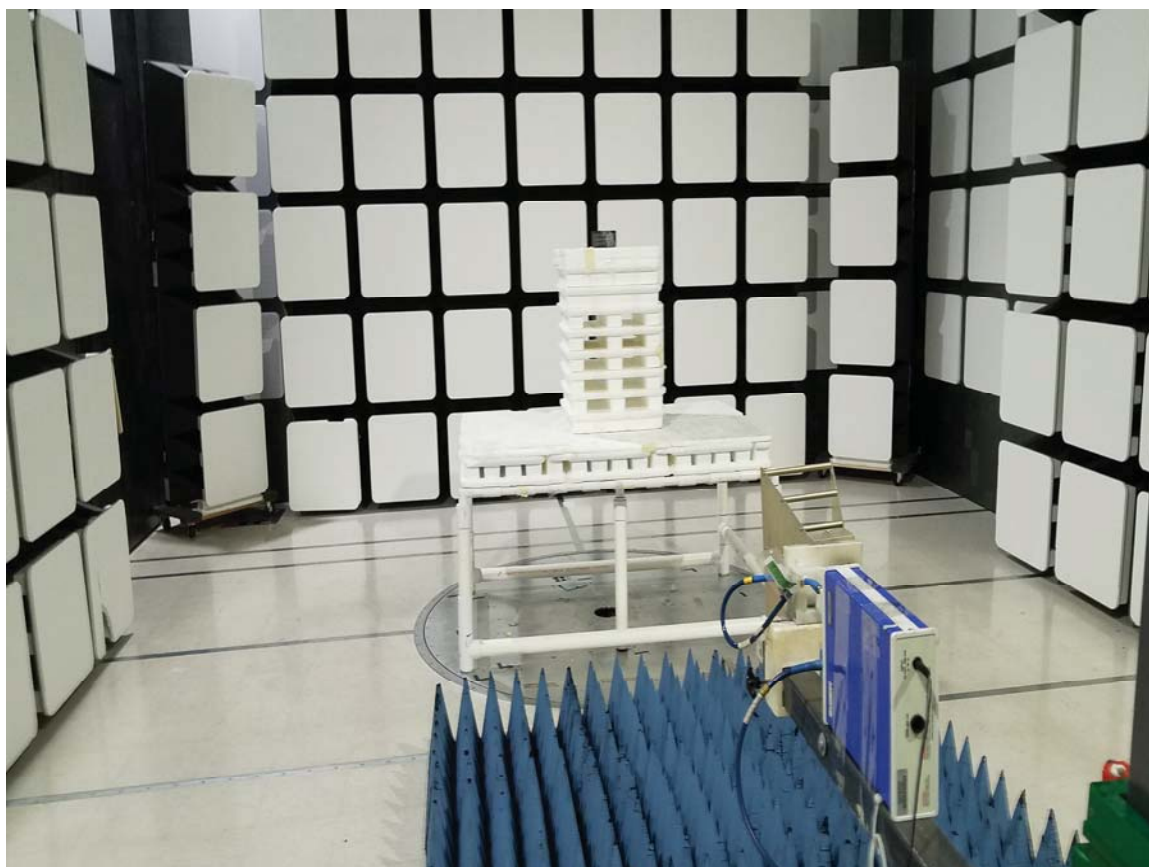
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

WILDLIFE TECHNOLOGIES
WILDLIFE CALLER REMOTE
MODEL: MIGHTY ATOM
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

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



FRONT VIEW

WILDLIFE TECHNOLOGIES
WILDLIFE CALLER REMOTE
MODEL: MIGHTY ATOM
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

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



REAR VIEW

WILDLIFE TECHNOLOGIES
WILDLIFE CALLER REMOTE
MODEL: MIGHTY ATOM
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

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

APPENDIX E

DATA SHEETS

***RADIATED EMISSIONS
DATA SHEETS***

FCC 15.247

Wildlife Technologies
Wildlife Caller Remote
Model: Mighty Atom

Date: 1/24/19
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1827.46								N/A - Not
1827.46								in Restricted Band
2741.19	43.91	V	73.97	-30.06	Peak	210.00	157.77	
2741.19	39.98	V	53.97	-13.99	Avg	210.00	157.77	
3654.92	52.04	V	73.97	-21.93	Peak	69.50	163.44	
3654.92	50.11	V	53.97	-3.86	Avg	69.50	163.44	
4568.65	42.96	V	73.97	-31.01	Peak	2.25	148.82	
4568.65	31.18	V	53.97	-22.79	Avg	2.25	148.82	
5482.38								N/A - Not
5482.38								in Restricted Band
6396.11								N/A - Not
6396.11								in Restricted Band
7309.84								No emissions
7309.84								detected
8223.57								No emissions
8223.57								detected
9137.30								No emissions
9137.30								detected

FCC 15.247

Wildlife Technologies
Wildlife Caller Remote
Model: Mighty Atom

Date: 1/24/19
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1827.46								N/A - Not
1827.46								in Restricted Band
2741.19	44.04	V	73.97	-29.93	Peak	355.00	115.02	
2741.19	39.72	V	53.97	-14.25	Avg	355.00	115.02	
3654.92	48.06	V	73.97	-25.92	Peak	44.00	182.49	
3654.92	44.53	V	53.97	-9.44	Avg	44.00	182.49	
4568.65	43.91	V	73.97	-30.06	Peak	279.75	154.85	
4568.65	34.60	V	53.97	-19.37	Avg	279.75	154.85	
5482.38								N/A - Not
5482.38								in Restricted Band
6396.11								N/A - Not
6396.11								in Restricted Band
7309.84								No emissions
7309.84								detected
8223.57								No emissions
8223.57								detected
9137.30								No emissions
9137.30								detected

FCC 15.247Wildlife Technologies
Wildlife Caller Remote
Model: Mighty AtomDate: 1/24/19
Lab: D
Tested By: Kyle Fujimoto**Harmonics - Low Channel**
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1827.46								N/A - Not
1827.46								in Restricted Band
2741.19	40.88	V	73.97	-33.09	Peak	176.50	166.55	
2741.19	34.65	V	53.97	-19.32	Avg	176.50	166.55	
3654.92	46.48	V	73.97	-27.49	Peak	245.25	154.67	
3654.92	43.26	V	53.97	-10.71	Avg	245.25	154.67	
4568.65	42.53	V	73.97	-31.44	Peak	248.50	150.25	
4568.65	31.67	V	53.97	-22.30	Avg	248.50	150.25	
5482.38								N/A - Not
5482.38								in Restricted Band
6396.11								N/A - Not
6396.11								in Restricted Band
7309.84								No emissions
7309.84								detected
8223.57								No emissions
8223.57								detected
9137.30								No emissions
9137.30								detected

FCC 15.247Wildlife Technologies
Wildlife Caller Remote
Model: Mighty AtomDate: 1/24/19
Lab: D
Tested By: Kyle Fujimoto**Harmonics - Low Channel
Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1827.46								N/A - Not
1827.46								in Restricted Band
2741.19	41.81	H	73.97	-32.16	Peak	155.50	176.58	
2741.19	36.31	H	53.97	-17.66	Avg	155.50	176.58	
3654.92	48.85	H	73.97	-25.12	Peak	180.25	121.95	
3654.92	46.16	H	53.97	-7.81	Avg	180.25	121.95	
4568.65	43.06	H	73.97	-30.91	Peak	81.75	121.95	
4568.65	31.21	H	53.97	-22.77	Avg	81.75	121.95	
5482.38								N/A - Not
5482.38								in Restricted Band
6396.11								N/A - Not
6396.11								in Restricted Band
7309.84								No emissions
7309.84								detected
8223.57								No emissions
8223.57								detected
9137.30								No emissions
9137.30								detected

FCC 15.247

Wildlife Technologies
Wildlife Caller Remote
Model: Mighty Atom

Date: 1/24/19
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1827.46								N/A - Not
1827.46								in Restricted Band
2741.19	41.81	H	73.97	-32.16	Peak	354.75	121.95	
2741.19	33.54	H	53.97	-20.43	Avg	354.75	121.95	
3654.92	46.61	H	73.97	-27.36	Peak	267.75	160.28	
3654.92	44.02	H	53.97	-9.95	Avg	267.75	160.28	
4568.65	43.38	H	73.97	-30.59	Peak	99.50	177.00	
4568.65	35.35	H	53.97	-18.62	Avg	99.50	177.00	
5482.38								N/A - Not
5482.38								in Restricted Band
6396.11								N/A - Not
6396.11								in Restricted Band
7309.84								No emissions
7309.84								detected
8223.57								No emissions
8223.57								detected
9137.30								No emissions
9137.30								detected

FCC 15.247

Wildlife Technologies
 Wildlife Caller Remote
 Model: Mighty Atom

Date: 1/24/19
 Lab: D
 Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1827.46								N/A - Not
1827.46								in Restricted Band
2741.19	44.61	H	73.97	-29.36	Peak	33.50	140.16	
2741.19	40.02	H	53.97	-13.95	Avg	33.50	140.16	
3654.92	52.78	H	73.97	-21.19	Peak	274.50	125.23	
3654.92	50.88	H	53.97	-3.09	Avg	274.50	125.23	
4568.65	42.78	H	73.97	-31.19	Peak	79.50	112.76	
4568.65	32.10	H	53.97	-21.87	Avg	79.50	112.76	
5482.38								N/A - Not
5482.38								in Restricted Band
6396.11								N/A - Not
6396.11								in Restricted Band
7309.84								No emissions
7309.84								detected
8223.57								No emissions
8223.57								detected
9137.30								No emissions
9137.30								detected

FCC 15.247

Wildlife Technologies
Wildlife Caller Remote
Model: Mighty Atom

Date: 1/24/19
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.32								N/A - Not
1832.32								in Restricted Band
2748.48	41.16	V	73.97	-32.81	Peak	253.75	143.92	
2748.48	35.92	V	53.97	-18.05	Avg	253.75	143.92	
3664.64	52.73	V	73.97	-21.24	Peak	77.25	138.97	
3664.64	51.29	V	53.97	-2.68	Avg	77.25	138.97	
4580.80	42.63	V	73.97	-31.34	Peak	327.25	145.25	
4580.80	30.02	V	53.97	-23.95	Avg	327.25	145.25	
5496.96								N/A - Not
5496.96								in Restricted Band
6413.12								N/A - Not
6413.12								in Restricted Band
7329.28								No emissions
7329.28								detected
8245.44								No emissions
8245.44								detected
9161.60								No emissions
9161.60								detected

FCC 15.247

Wildlife Technologies
Wildlife Caller Remote
Model: Mighty Atom

Date: 1/24/19
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.32								N/A - Not
1832.32								in Restricted Band
2748.48	43.79	V	73.97	-30.19	Peak	7.75	119.20	
2748.48	40.32	V	53.97	-13.65	Avg	7.75	119.20	
3664.64	47.74	V	73.97	-26.23	Peak	293.00	134.73	
3664.64	43.17	V	53.97	-10.80	Avg	293.00	134.73	
4580.80	42.84	V	73.97	-31.13	Peak	5.25	138.37	
4580.80	34.36	V	53.97	-19.61	Avg	5.25	138.37	
5496.96								N/A - Not
5496.96								in Restricted Band
6413.12								N/A - Not
6413.12								in Restricted Band
7329.28								No emissions
7329.28								detected
8245.44								No emissions
8245.44								detected
9161.60								No emissions
9161.60								detected

FCC 15.247Wildlife Technologies
Wildlife Caller Remote
Model: Mighty AtomDate: 1/24/19
Lab: D
Tested By: Kyle Fujimoto**Harmonics - High Channel
Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.32								N/A - Not
1832.32								in Restricted Band
2748.48	41.21	V	73.97	-32.76	Peak	82.00	133.59	
2748.48	35.71	V	53.97	-18.26	Avg	82.00	133.59	
3664.64	47.43	V	73.97	-26.54	Peak	249.75	181.11	
3664.64	44.02	V	53.97	-9.95	Avg	249.75	181.11	
4580.80	41.89	V	73.97	-32.08	Peak	41.00	178.13	
4580.80	29.38	V	53.97	-24.59	Avg	41.00	178.13	
5496.96								N/A - Not
5496.96								in Restricted Band
6413.12								N/A - Not
6413.12								in Restricted Band
7329.28								No emissions
7329.28								detected
8245.44								No emissions
8245.44								detected
9161.60								No emissions
9161.60								detected

FCC 15.247

Wildlife Technologies
 Wildlife Caller Remote
 Model: Mighty Atom

Date: 1/24/19
 Lab: D
 Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.32								N/A - Not
1832.32								in Restricted Band
2748.48	42.28	H	73.97	-31.69	Peak	174.25	198.73	
2748.48	37.51	H	53.97	-16.46	Avg	174.25	198.73	
3664.64	48.77	H	73.97	-25.20	Peak	249.50	151.92	
3664.64	45.10	H	53.97	-8.87	Avg	249.50	151.92	
4580.80	42.77	H	73.97	-31.20	Peak	302.50	151.92	
4580.80	30.69	H	53.97	-23.28	Avg	302.50	151.92	
5496.96								N/A - Not
5496.96								in Restricted Band
6413.12								N/A - Not
6413.12								in Restricted Band
7329.28								No emissions
7329.28								detected
8245.44								No emissions
8245.44								detected
9161.60								No emissions
9161.60								detected

FCC 15.247

Wildlife Technologies
Wildlife Caller Remote
Model: Mighty Atom

Date: 1/24/19
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.32								N/A - Not
1832.32								in Restricted Band
2748.48	40.41	H	73.97	-33.56	Peak	342.25	117.89	
2748.48	34.06	H	53.97	-19.91	Avg	342.25	117.89	
3664.64	47.84	H	73.97	-26.13	Peak	241.75	129.71	
3664.64	44.86	H	53.97	-9.11	Avg	241.75	129.71	
4580.80	41.61	H	73.97	-32.36	Peak	198.75	128.28	
4580.80	29.75	H	53.97	-24.23	Avg	198.75	128.28	
5496.96								N/A - Not
5496.96								in Restricted Band
6413.12								N/A - Not
6413.12								in Restricted Band
7329.28								No emissions
7329.28								detected
8245.44								No emissions
8245.44								detected
9161.60								No emissions
9161.60								detected

FCC 15.247Wildlife Technologies
Wildlife Caller Remote
Model: Mighty AtomDate: 1/24/19
Lab: D
Tested By: Kyle Fujimoto**Harmonics - High Channel
Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.32								N/A - Not
1832.32								in Restricted Band
2748.48	44.94	H	73.97	-29.03	Peak	232.75	138.30	
2748.48	41.58	H	53.97	-12.39	Avg	232.75	138.30	
3664.64	53.40	H	73.97	-20.57	Peak	129.25	151.50	
3664.64	51.68	H	53.97	-2.29	Avg	129.25	151.50	
4580.80	43.98	H	73.97	-29.99	Peak	126.00	114.91	
4580.80	36.86	H	53.97	-17.11	Avg	126.00	114.91	
5496.96								N/A - Not
5496.96								in Restricted Band
6413.12								N/A - Not
6413.12								in Restricted Band
7329.28								No emissions
7329.28								detected
8245.44								No emissions
8245.44								detected
9161.60								No emissions
9161.60								detected

Report Number: **B90131D1**
FCC Part 15 Subpart B and FCC Section 15.247 Test Report
Wildlife Caller Remote
Model: Mighty Atom

Title: Radiated Emissions - FCC Class B

File: Agilent - Pre-Scan - FCC Class B - Frequency Hopping - Rx - Y-axis - 01-08-19.set

Operator: Kyle Fujimoto

EUT Type: Wildlife Caller Remote

EUT Condition: The EUT is continuously frequency hopping from 913.725 MHz to 916.275 MHz

Company: Wildlife Technologies

M/N: Mighty Atom

S/N: N/A

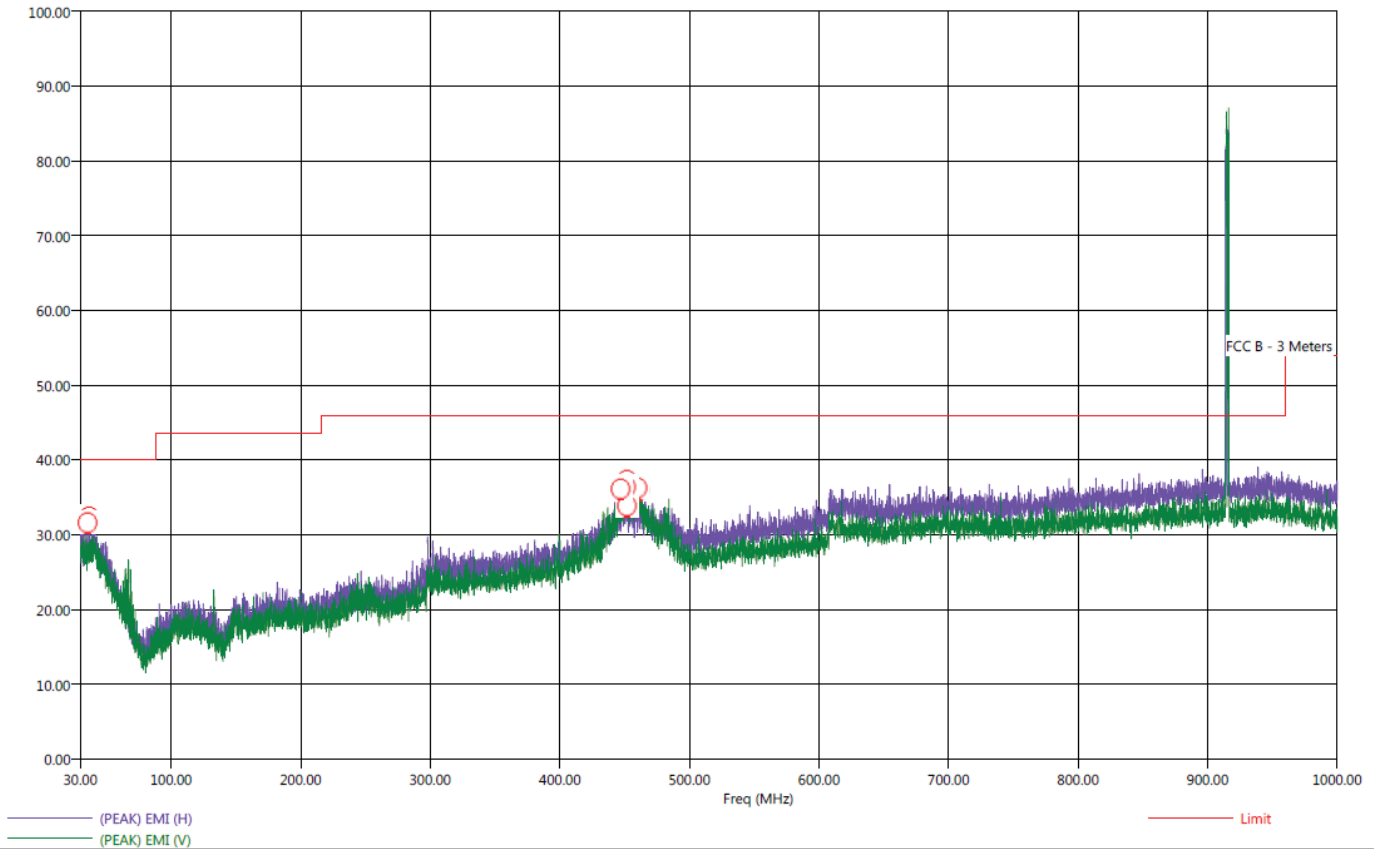
Note: The Frequency from 913.725 MHz to 916.275 MHz are the transmit signal from the Wildlife Caller Transmitter inside the test chamber and not the EUT.

Note #2: Y-Axis is the worst case Axis.

1/25/2019 4:17:23 PM

Sequence: Preliminary Scan

FCC Class B

Electric Field Strength (dB μ V/m)

Title: Radiated Emissions - FCC Class B
File: Agilent - Final Scan - FCC Class B - Frequency Hopping - Rx - Y-axis - 01-08-19.set
Operator: Kyle Fujimoto
EUT Type: Wildlife Caller Remote
EUT Condition: The EUT is continuously frequency hopping from 913.725 MHz to 916.275 MHz
Company: Wildlife Technologies
M/N: Mighty Atom
S/N: N/A
Y-Axis is worst case axis.

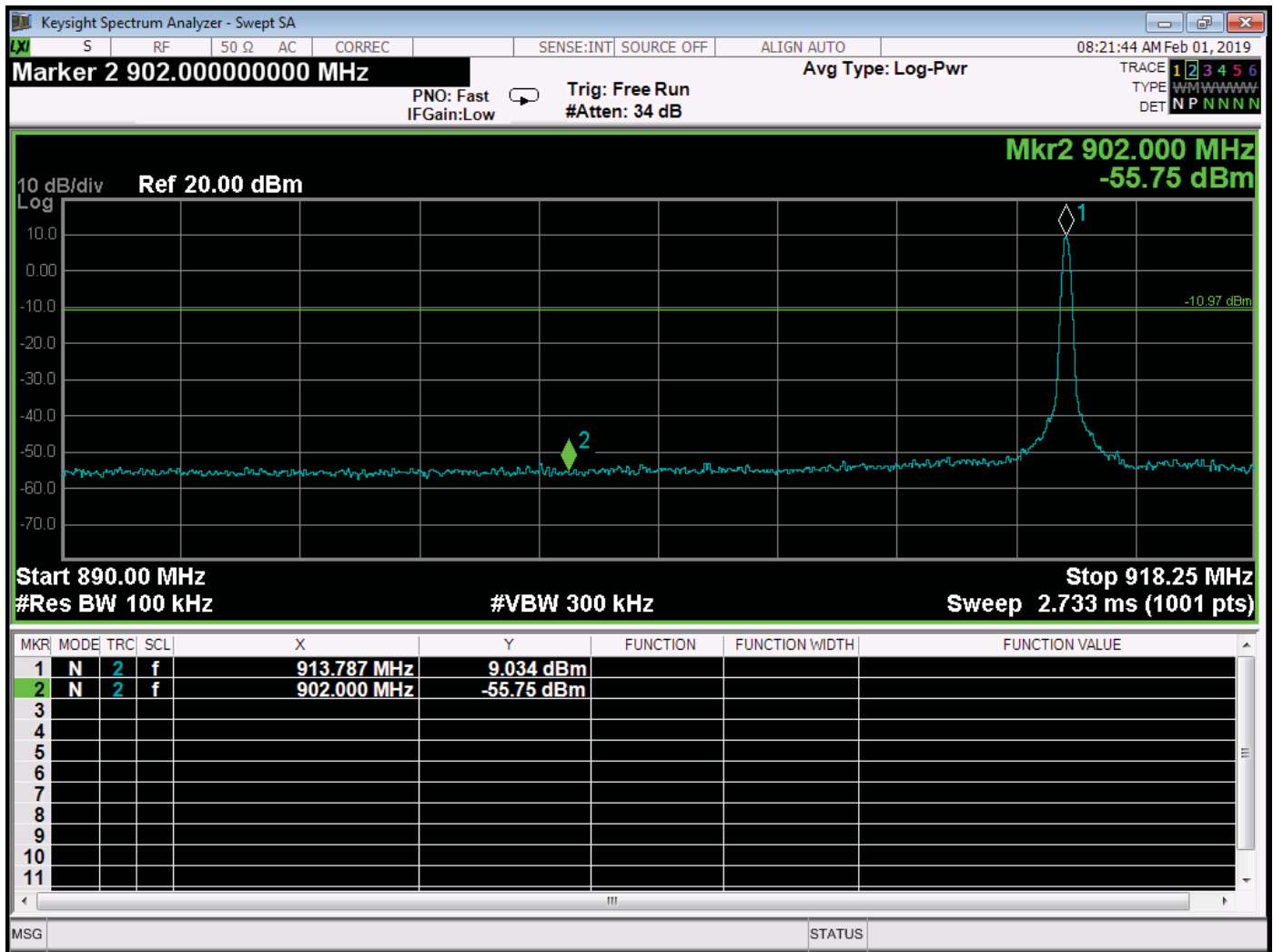
1/25/2019 4:26:56 PM
Sequence: Final Measurements

FCC Class B

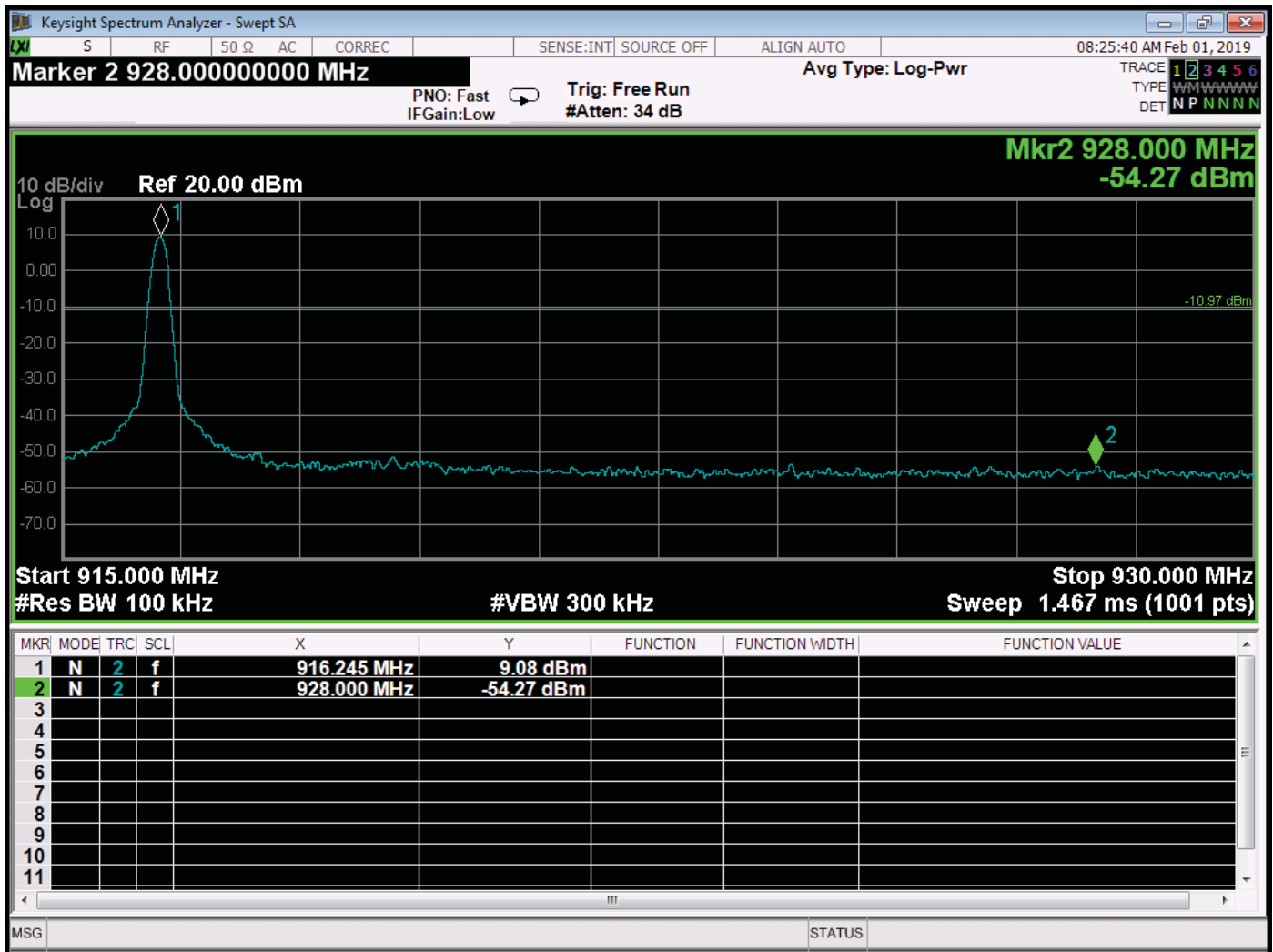
Freq (MHz)	Pol	(PEAK) EMI (dBμV/m)	(OP) EMI (dBμV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBμV/m)	Transducer (dB)	Cable (dB)	TtBl Aql (deq)	Twr Ht (cm)
35.50	H	32.17	26.58	-7.83	-13.42	40.00	24.05	0.86	347.75	222.85
36.80	H	32.11	26.72	-7.89	-13.28	40.00	24.24	0.87	231.25	143.26
447.00	V	39.26	34.96	-6.74	-11.04	46.00	21.18	2.19	66.50	111.44
451.20	V	37.87	33.10	-8.13	-12.90	46.00	21.29	2.20	74.75	206.97
451.80	V	40.39	35.84	-5.61	-10.16	46.00	21.29	2.20	79.50	111.38
451.90	V	35.22	30.93	-10.78	-15.07	46.00	21.29	2.20	94.50	175.02
459.90	V	37.21	32.94	-8.79	-13.06	46.00	21.24	2.20	87.25	191.38
461.30	V	36.08	31.05	-9.92	-14.95	46.00	21.23	2.20	123.00	190.97
462.20	V	40.08	35.08	-5.92	-10.92	46.00	21.22	2.20	96.25	111.44



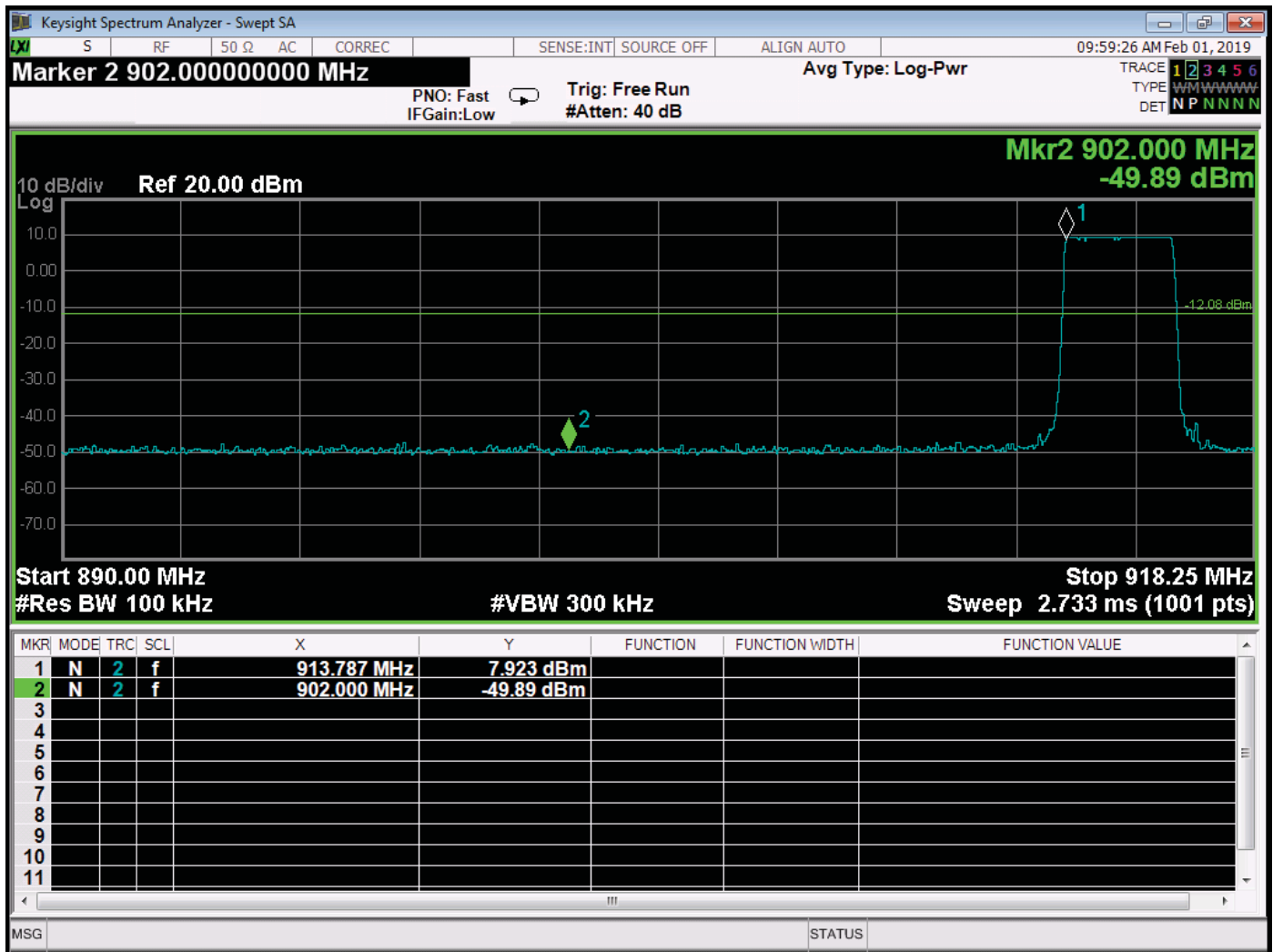
***BAND EDGES
DATA SHEETS***



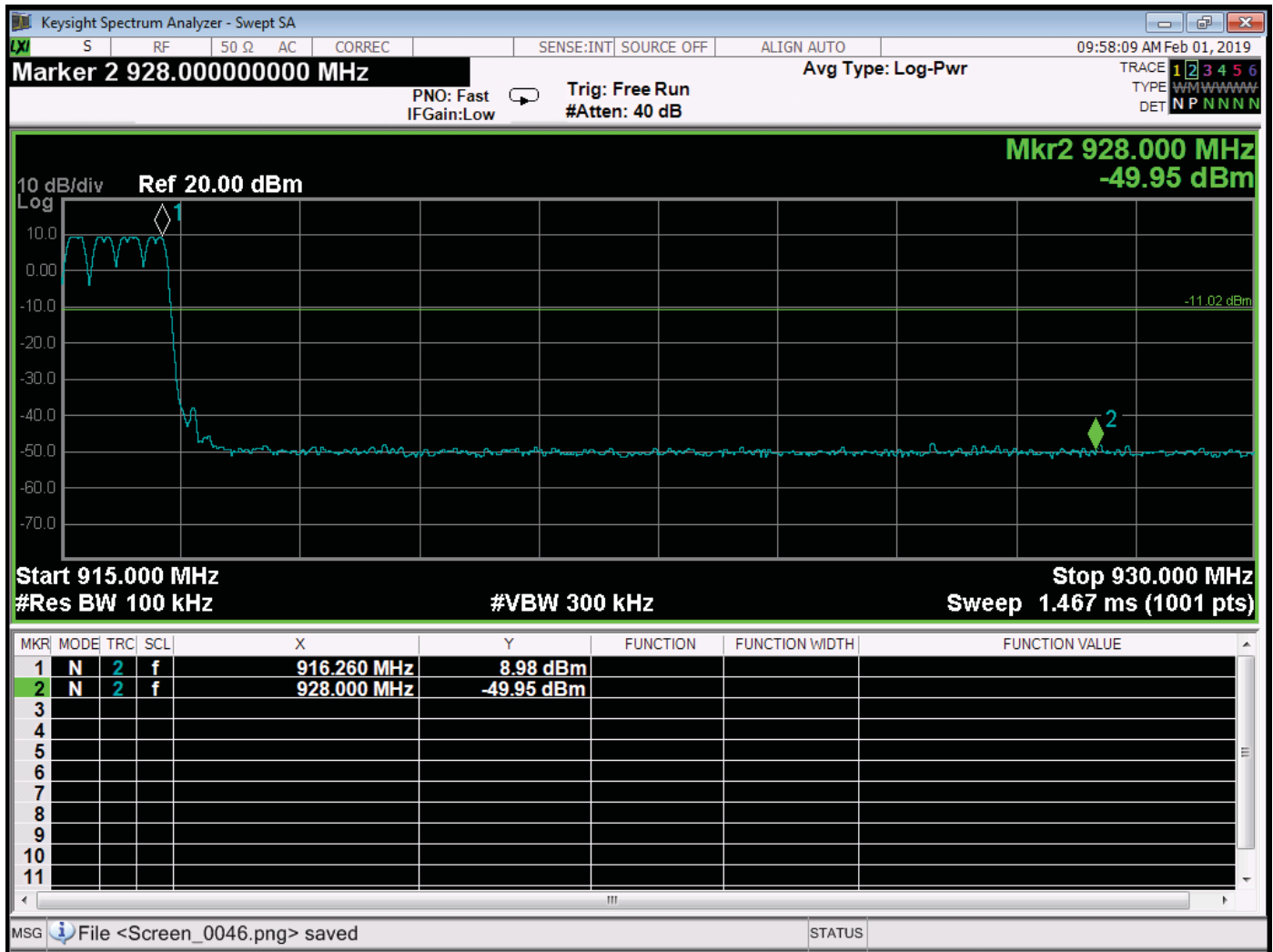
Band Edge – Low Channel – Fixed Frequency Mode



Band Edge – High Channel – Fixed Frequency Mode

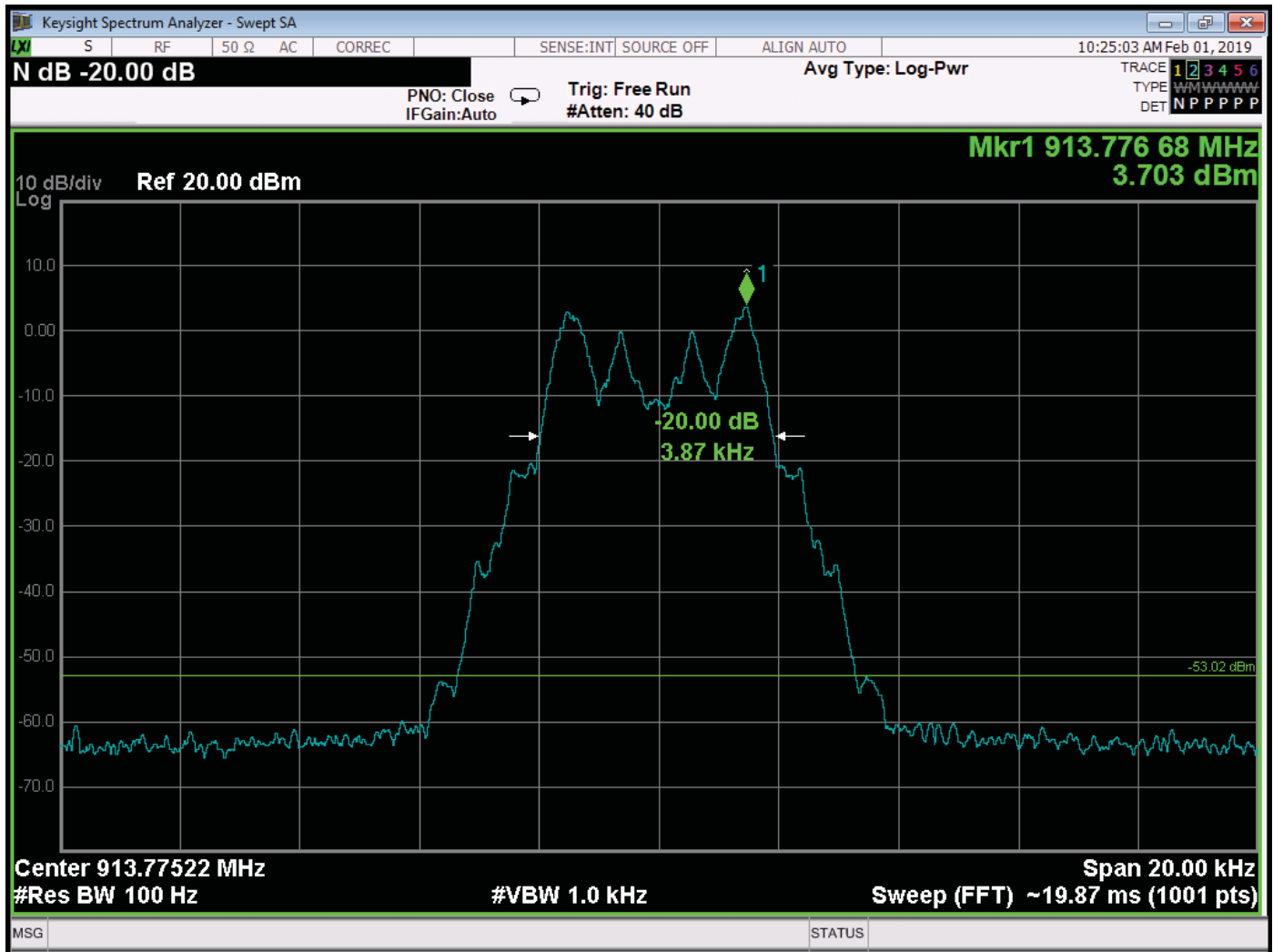


Band Edge – Low Channel – Frequency Hopping Mode

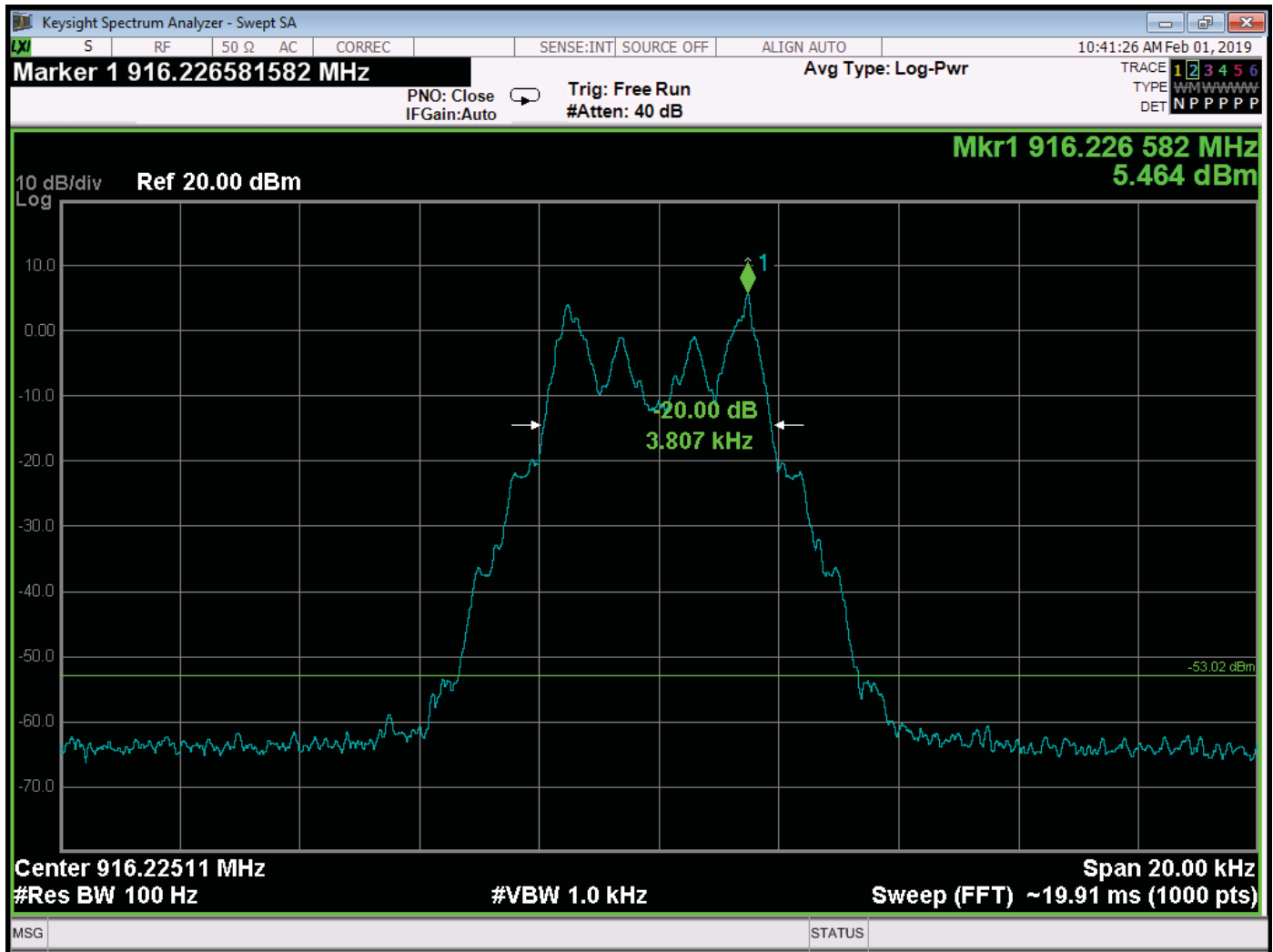


Band Edge – High Channel – Frequency Hopping Mode

***-20 DB BANDWIDTH
DATA SHEETS***

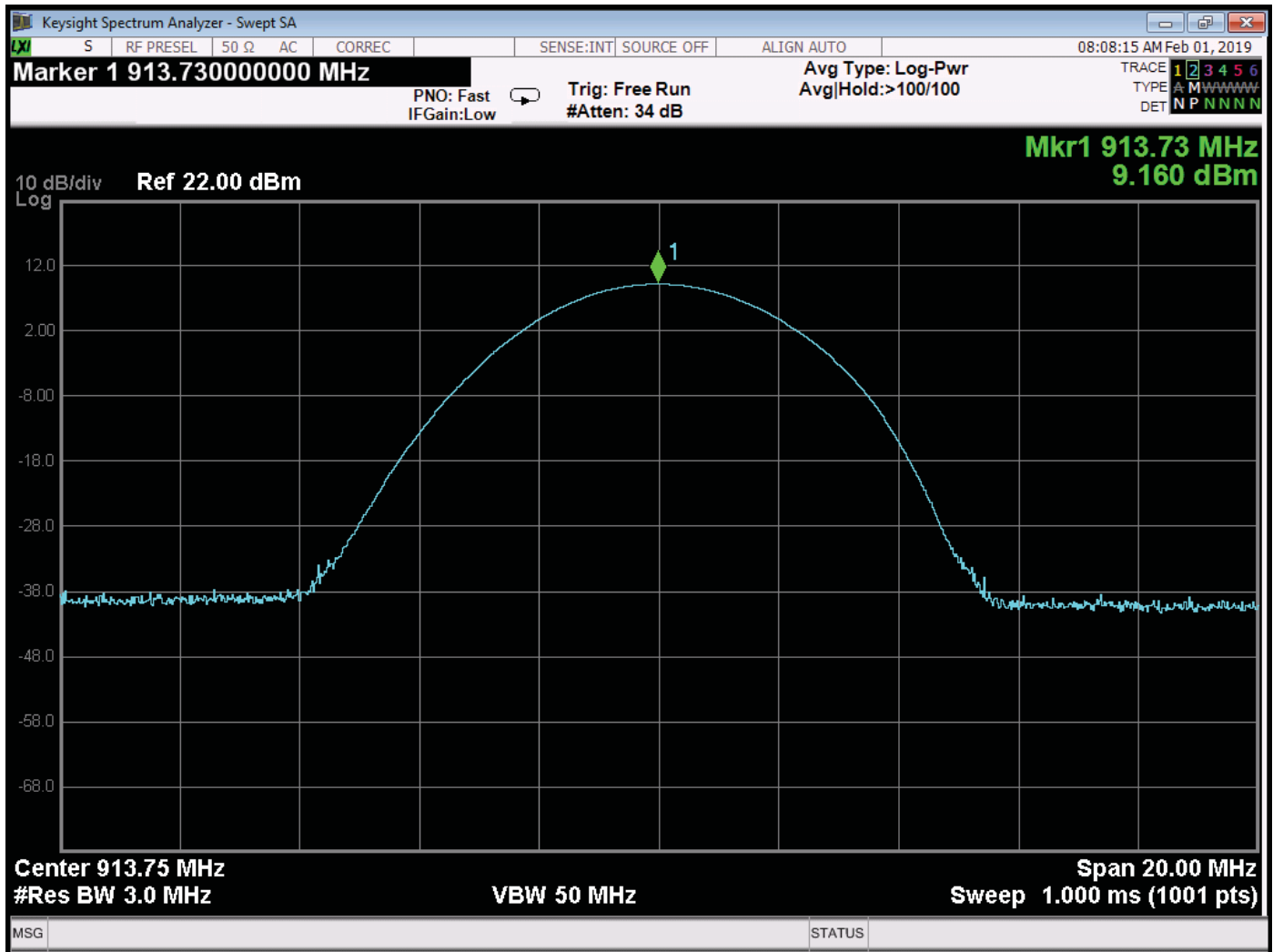


-20 dB Bandwidth – Low Channel

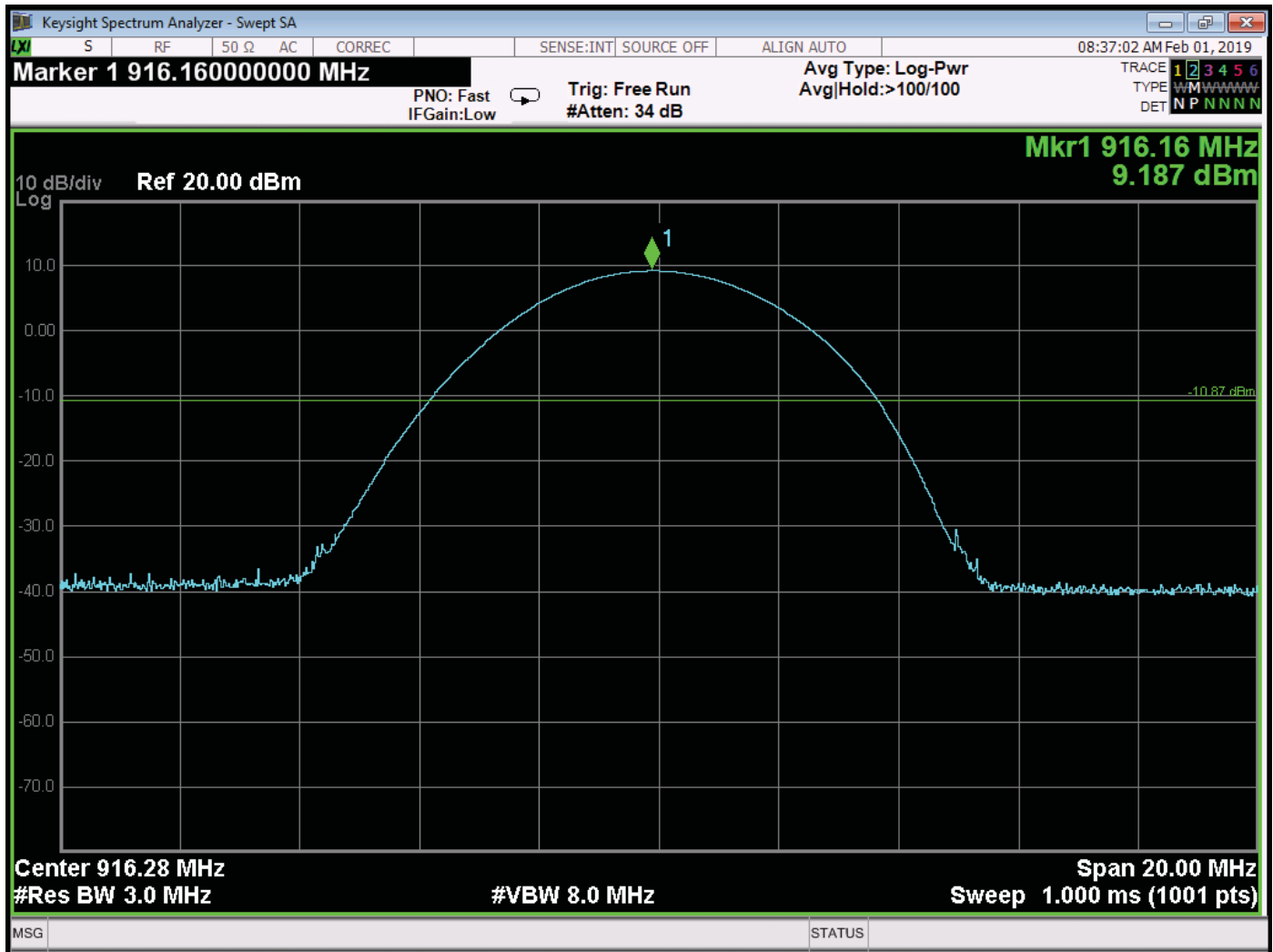


-20 dB Bandwidth – High Channel

***PEAK POWER OUTPUT
DATA SHEETS***

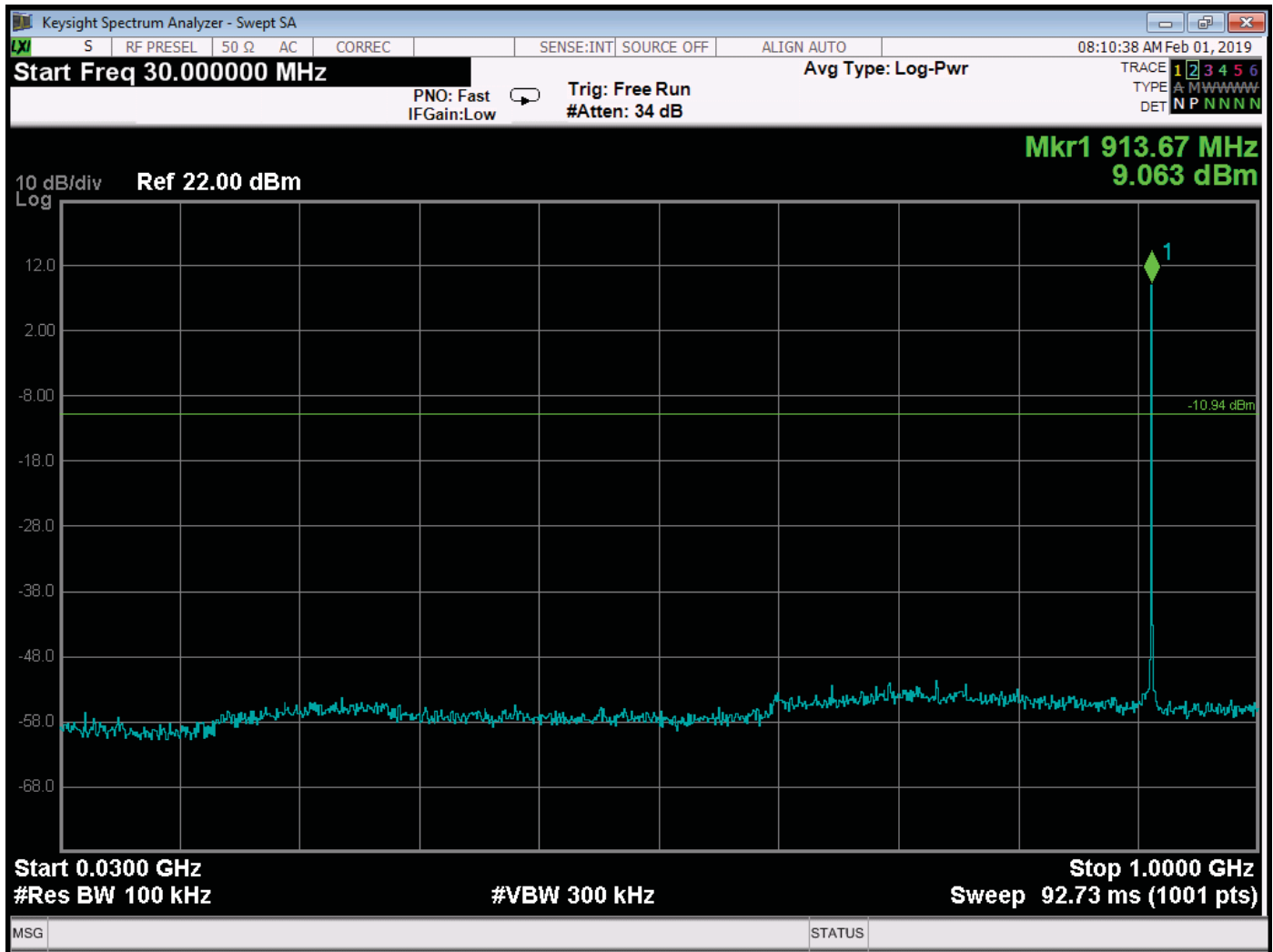


Peak Power Output – Low Channel

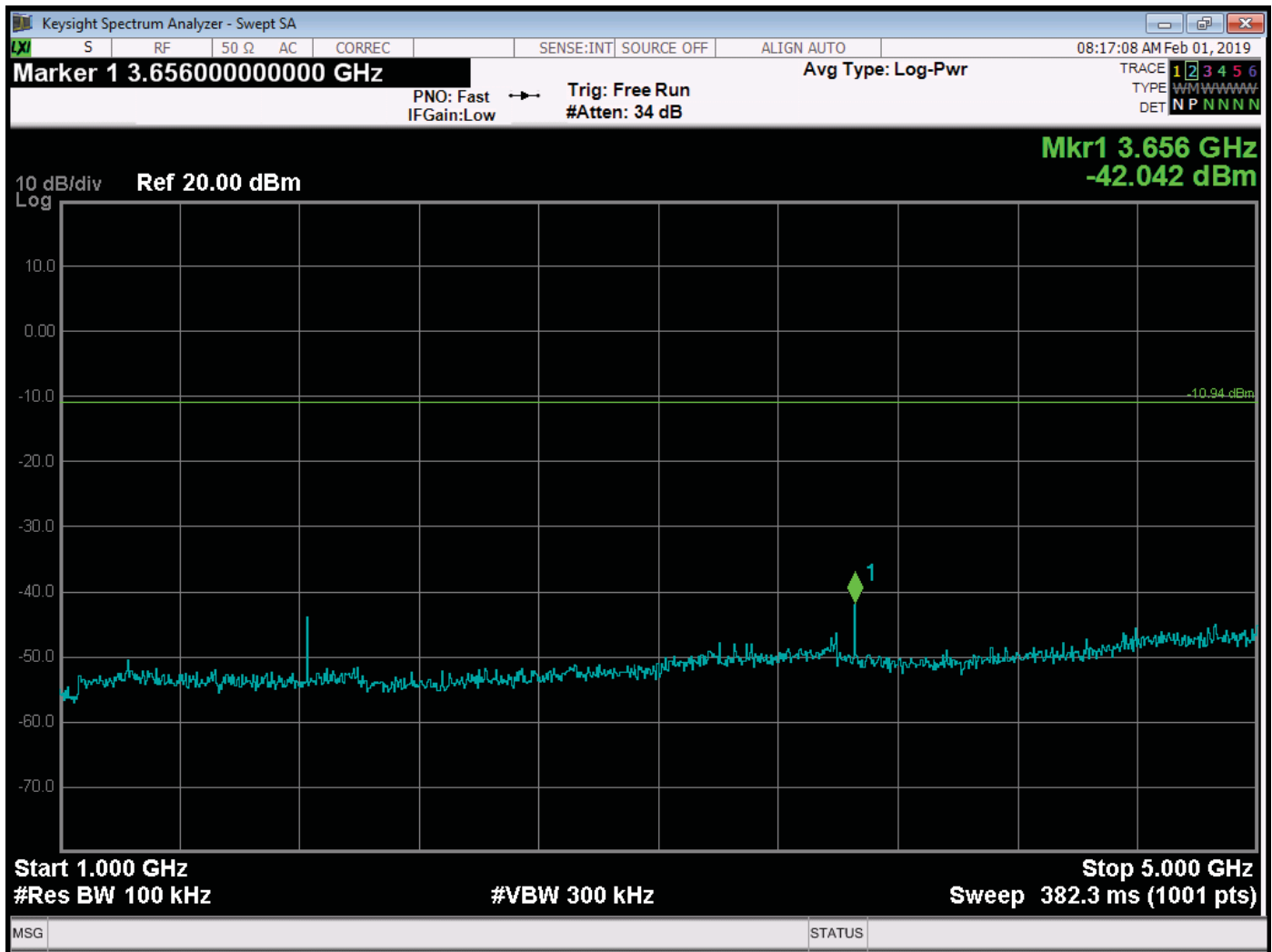


Peak Power Output – High Channel

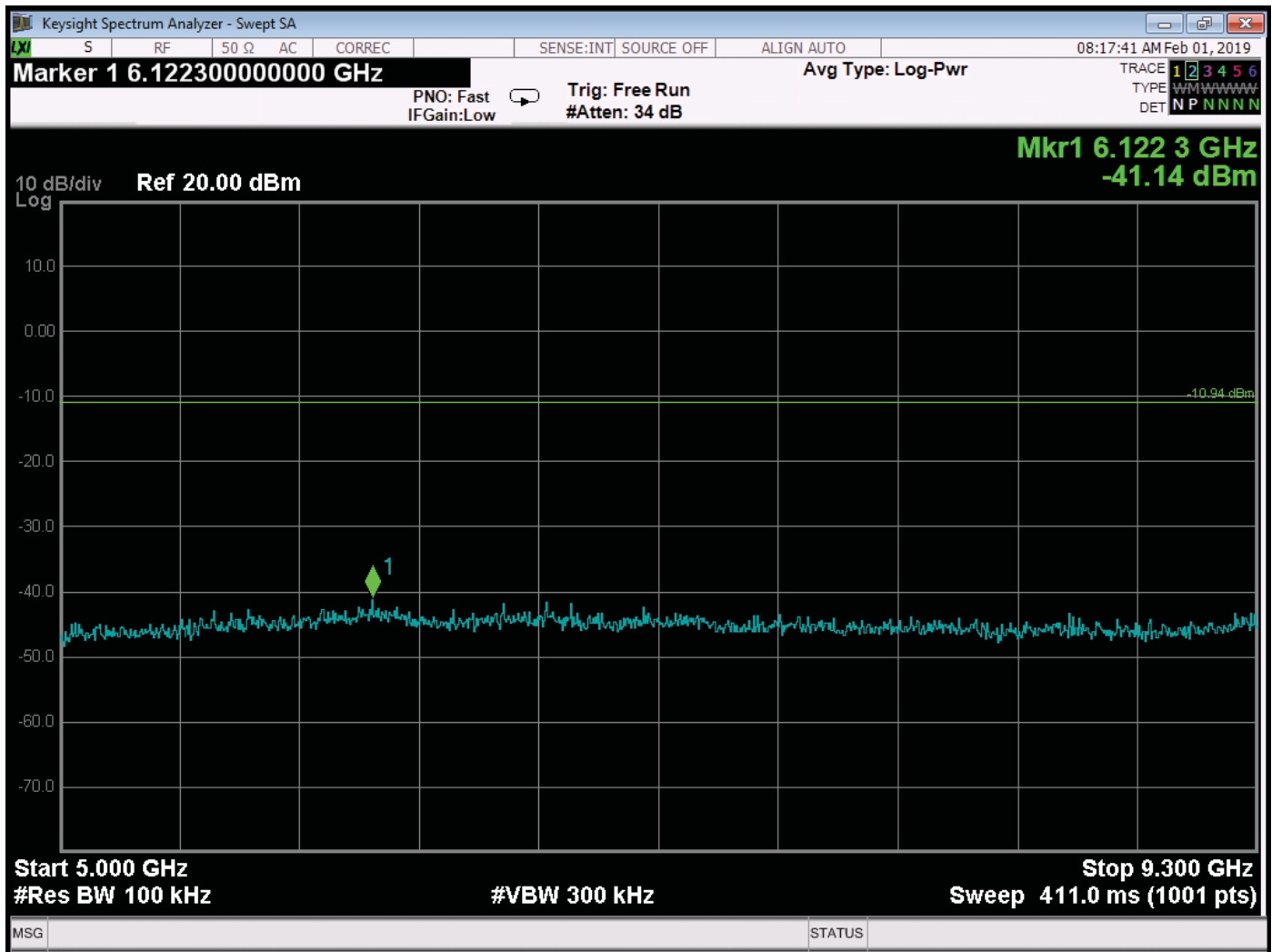
***RF ANTENNA CONDUCTED
DATA SHEETS***



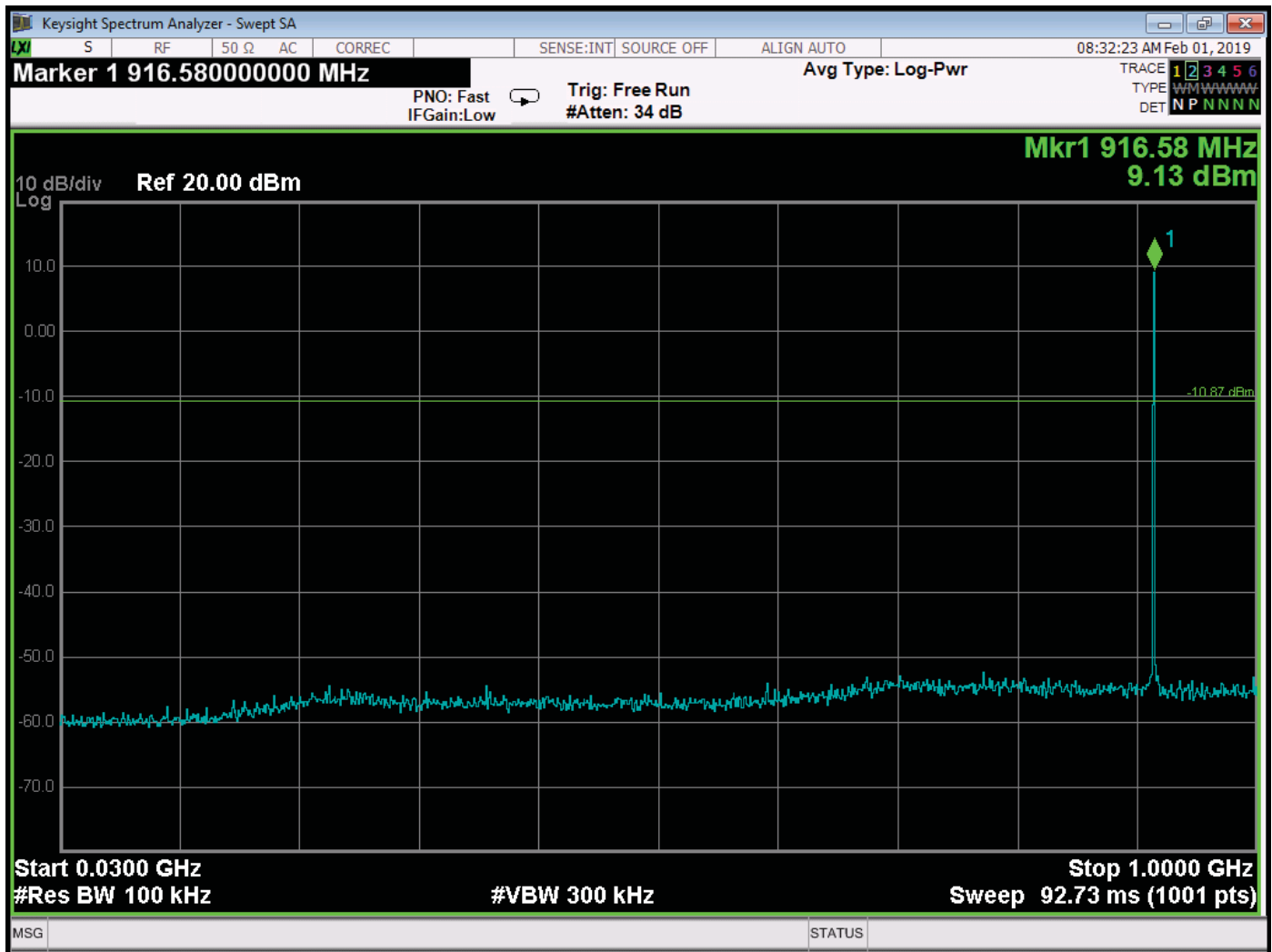
RF Antenna Conducted Test – Low Channel – 30 MHz to 1 GHz



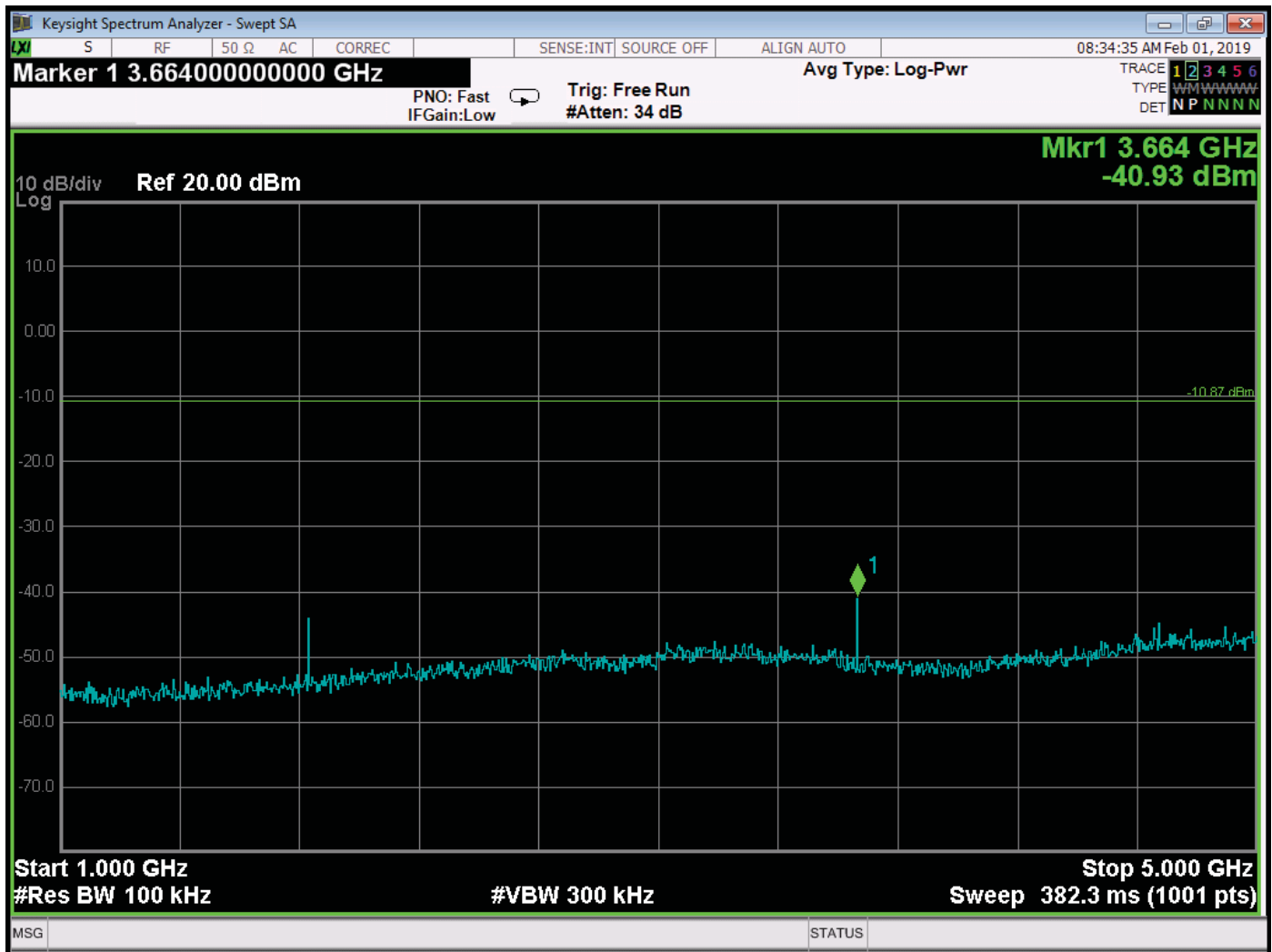
RF Antenna Conducted Test – Low Channel – 1 GHz to 5 GHz



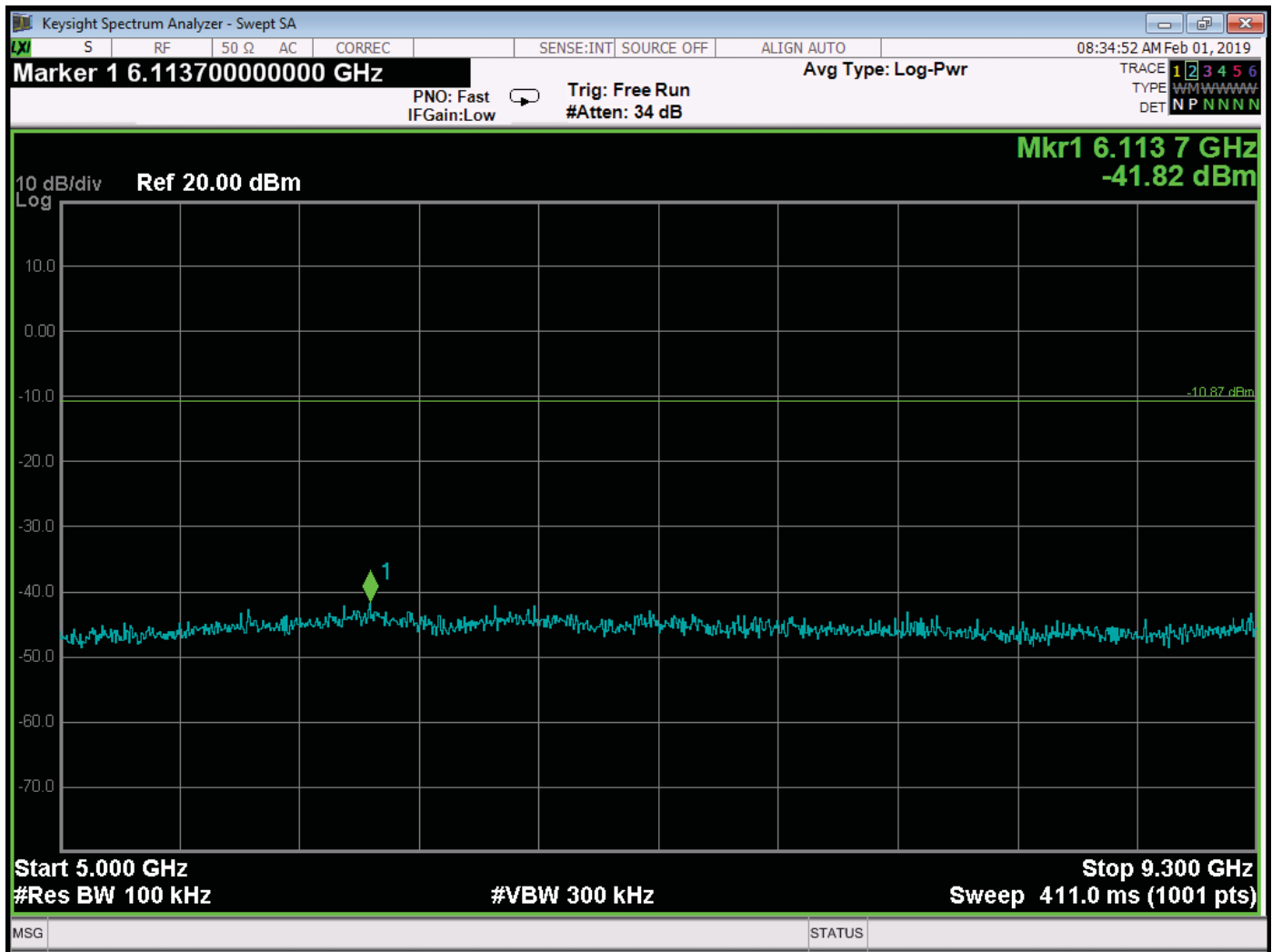
RF Antenna Conducted Test – Low Channel – 5 GHz to 9.3 GHz



RF Antenna Conducted Test – High Channel – 30 MHz to 1 GHz

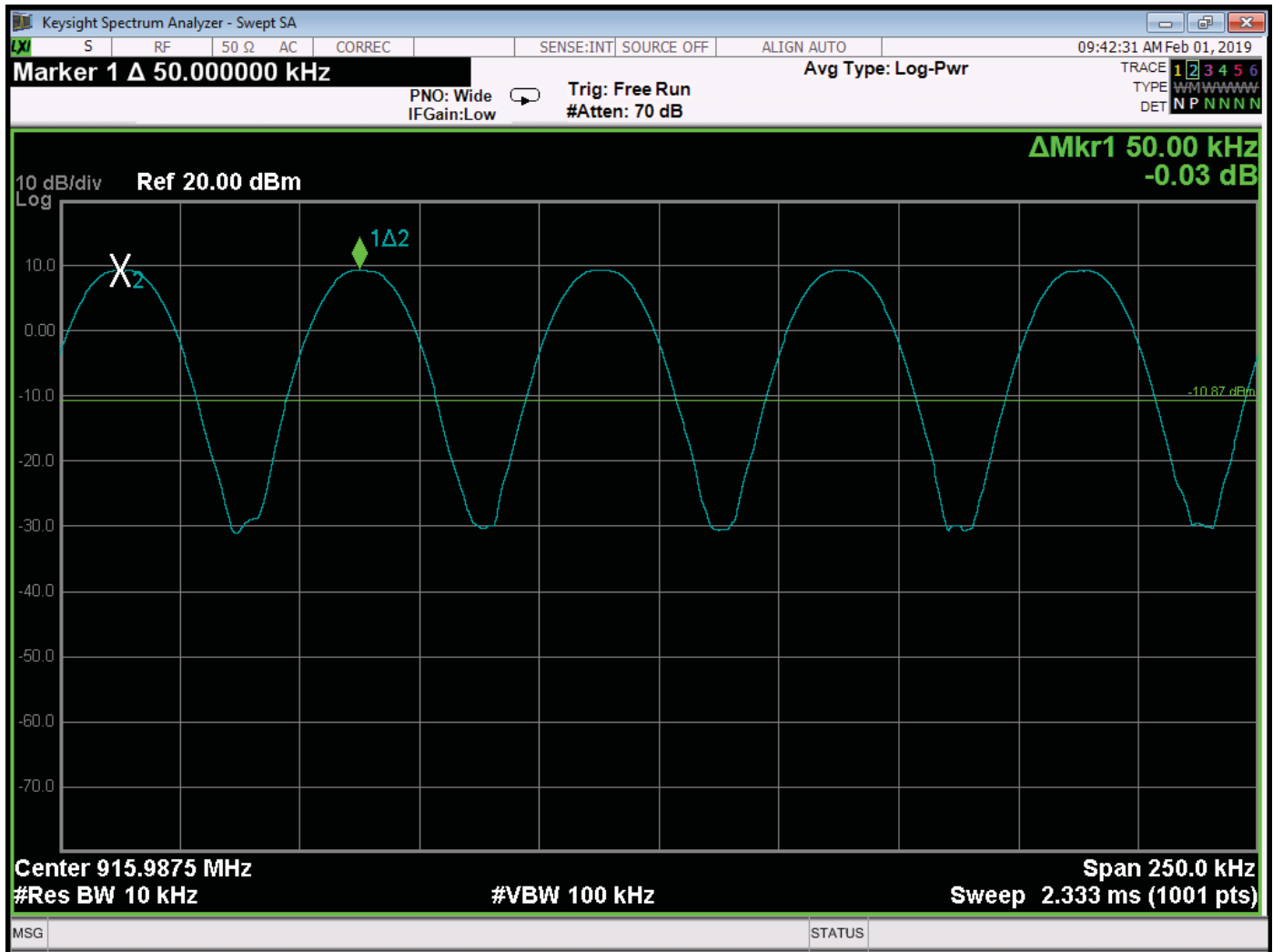


RF Antenna Conducted Test – High Channel – 1 GHz to 5 GHz



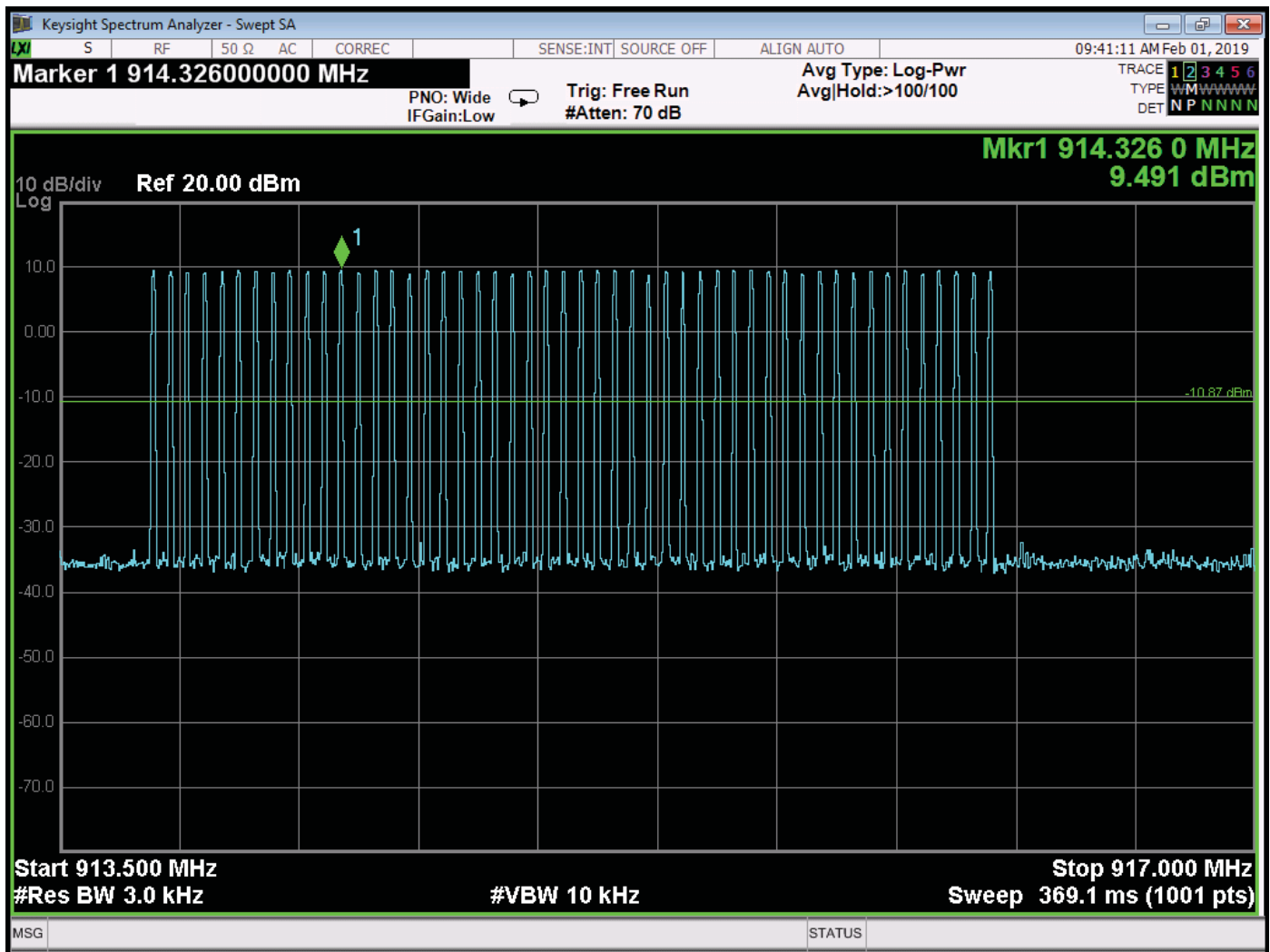
RF Antenna Conducted Test – High Channel – 5 GHz to 9.3 GHz

***CHANNEL FREQUENCY SEPARATION
DATA SHEET***



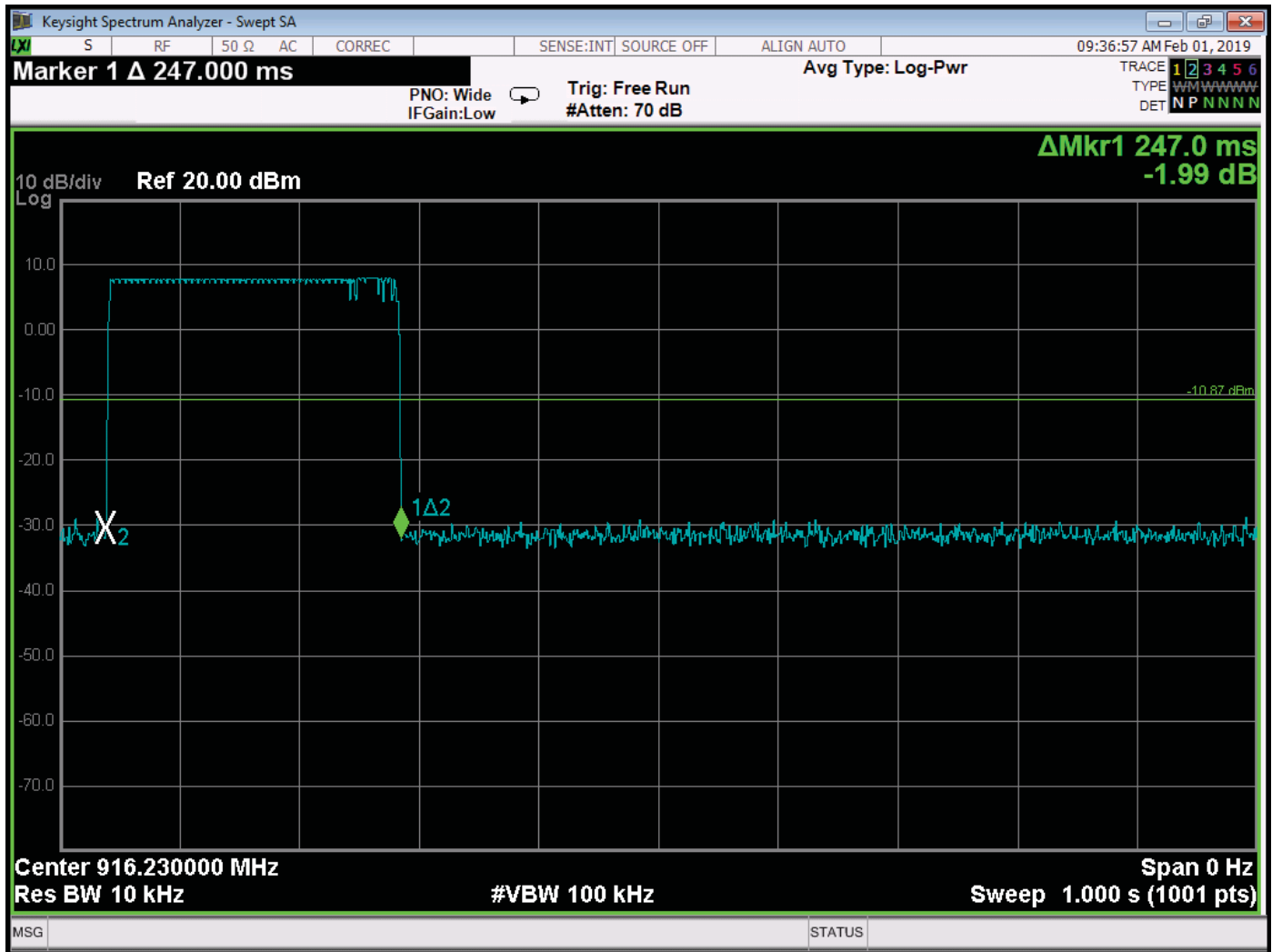
Channel Frequency Separation

NUMBER OF FREQUENCIES
DATA SHEET

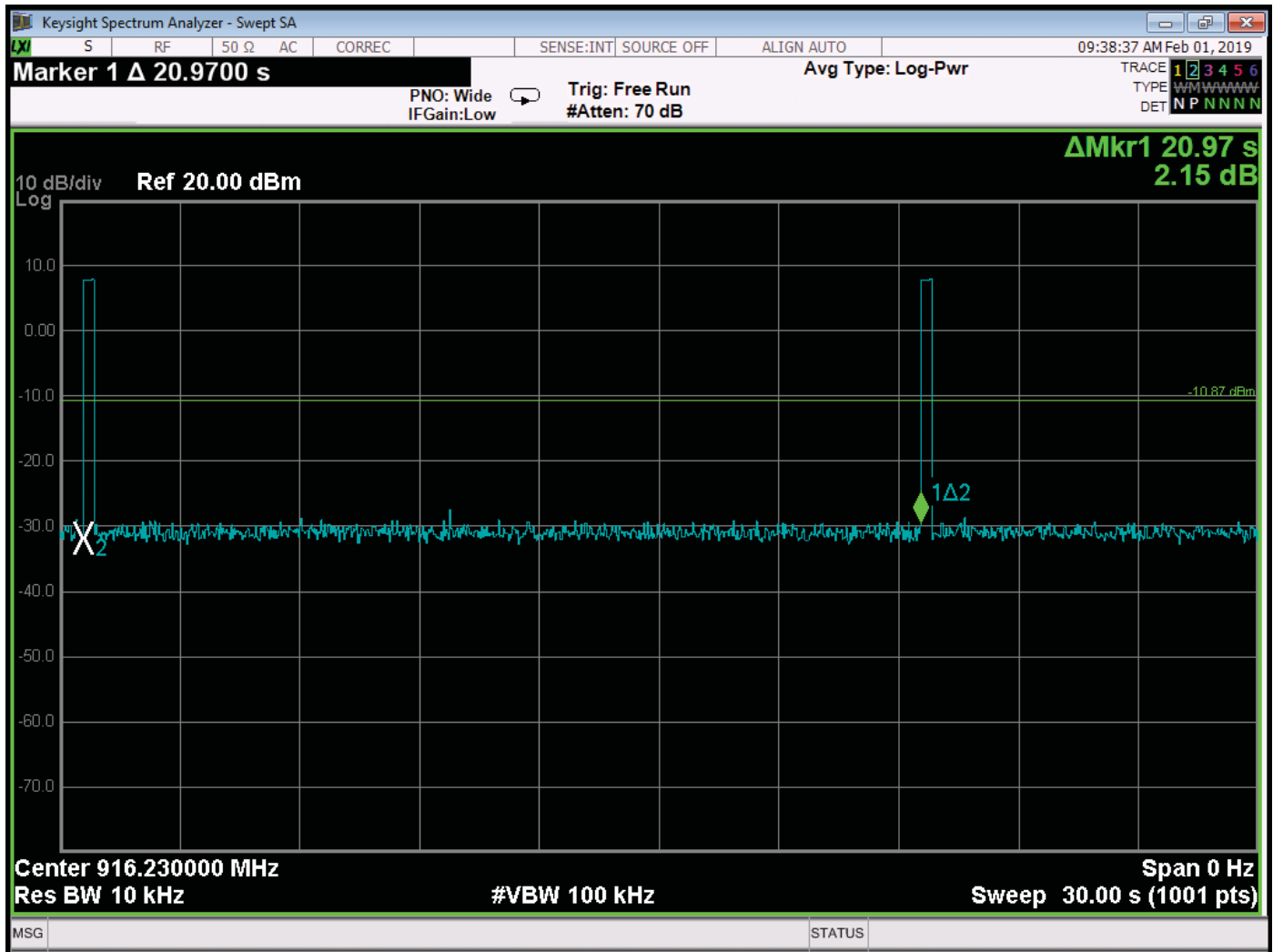


Number of Channels is 50

TIME OF OCCUPANCY
DATA SHEETS



Time of One Pulse – 247 ms



One Pulse Per 20 Seconds
 Total Time = 247 ms per 20 seconds
 Limit = 400 ms per 20 seconds