FCC PART 15, SUBPART B and C
TEST REPORT

for

HINGE SENSOR

Model: 2.0

Prepared for

HINGE HEALTH, INC.
818 MISSION STREET, SUITE 200
SAN FRANCISCO, CALIFORNIA 94107

Prepared by: _____

JAMES ROSS

Approved by: _____

KYLE FUJIMOTO

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DATE: JULY 2, 2018

	REPORT BODY	APPENDICES					TOTAL
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NVLAP® TESTING
NVLAP LAB CODE 200528-0

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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: Hinge Sensor
Model: 2.0
S/N: N/A

Product Description: The EUT is a wearable sensor that utilizes a BLE Radio.

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

Customer: Hinge Health, Inc.
818 Mission Street, Suite 200
San Francisco, California 94107

Test Date: May 30, 2018

Test Specifications covered by accreditation:

CFR Title 47, Part 15, Subpart B; and Subpart C sections 15.205, 15.207, 15.209, and 15.249

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

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz to 30 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, section 15.207 Highest reading in relation to spec limit: 37.05 (Avg) dBuV @ 0.486 MHz (*U = 2.72 dB)
2	Spurious Radiated RF Emissions, 9 kHz to 25000MHz	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, section 15.205, 15.209 and 15.249 Highest reading in relation to spec limit 44.10 (Avg) dBuV/m @ 2400.00 MHz (*U = 3.67)
3	Variation of the Input Power	Complies with the limits of CFR Title 47, Part 15 Subpart A, section 15.31 (e)

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the Hinge Sensor, Model: 2.0. 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 15.249.

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

Hinge Health, Inc.

Simon Hunter	Vice President of Product
Daniel Lipsyc	

Compatible Electronics Inc.

Johnny Le	Test Technician
James Ross	Test Engineer
Kyle Fujimoto	Test Engineer

2.4 Date Test Sample was Received

The test sample was received prior to the initial test date of May 30, 2018.

2.5 Disposition of the Test Sample

The test sample has not been returned to Hinge Health, Inc. as of the date of this 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
ASK	Amplitude Shift Key
ITE	Information Technology Equipment
DoC	Declaration of Conformity
N/A	Not Applicable
Tx	Transmit
Rx	Receive
USB	Universal Serial Bus
BLE	Bluetooth Low Energy

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: 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 25 GHz
ANSI C63.10: 2013	American National Standard of procedure for compliance testing of unlicensed wireless devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – Emissions

The Hinge Sensor, Model: 2.0 (EUT) was fully tested in two modes of operation. See below:

AC Mode

The EUT was connected to a junction box via its mini USB port. The junction box was also connected to an AC adapter, and further contained a hard wired, unterminated cable. Further, the EUT was continuously charging during this mode of operation.

Battery Mode

The EUT was tested as a stand-alone unit that was internal battery powered. Its mini USB port was left unterminated in this mode of operation.

During both noted modes of operation, the EUT was investigated in all three orthogonal axis (X, Y, & Z) at its low, middle, and high channels (2402 MHz, 2440 MHz, and 2480 MHz), respectively. During the testing, the EUT was continuously transmitting. Finally, the EUT was tested from 9 kHz to 25 GHz.

The "X" orientation is when the EUT is parallel to the ground. The "Y" orientation is when the EUT is perpendicular to the ground mounted vertically. The "Z" orientation is when the EUT is perpendicular to the ground mounted horizontally.

A fully charged battery was installed inside the EUT prior to the testing. The EUT was programmed via an installed v1.0 firmware.

The final radiated emissions data for the EUT was taken in the X-axis (worst case). Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

Cable 1

This is a 28-centimeter braid shielded cable connecting the EUT to the junction box. The cable contained a mini USB connector at the EUT end and was hard wired at the junction box end. The shield of the cable was terminated via the connector and the hard wire.

Cable 2

This is a 15-centimeter braid shielded cable connecting the junction box to the AC adapter. The cable was hard wired at the junction box end and contained a USB Type A connector at the AC adapter end. The shield of the cable was terminated via the connector and the hard wire.

Cable 3

This is a 28-centimeter braid shielded, unterminated cable connected to the junction box. The cable was hard wired at the junction box end and contained a mini USB connector at the unterminated end. The shield of the cable was terminated via the hard wire.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
HINGE SENSOR (EUT)	HINGE HEALTH, INC.	2.0	N/A	2AQLGHINGE2
FIRMWARE	HINGE HEALTH, INC.	v1.0	N/A	N/A
JUNCTION BOX (AC MODE ONLY)	HINGE HEALTH, INC.	N/A	N/A	N/A
AC TO USB ADAPTER (AC MODE ONLY)	AMAZON	FANA7R	AH172600U2039	N/A

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
RF EMISSIONS TEST EQUIPMENT					
TDK TestLab	TDK RF Solutions, Inc.	9.22	700145	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100194	September 26, 2017	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	1 Year
Digital Multimeter	Fluke	115	Asset #: 4168	September 27, 2017	1 Year
Variable Transformer	Superior Electric	Type: 11560	Spec: BP142056	N/A	N/A
Horn Antenna	Com-Power	AH-118	071175	February 22, 2018	2 Year
Horn Antenna	Com-Power	AH-826	71957	N/A	N/A
Preamplifier	Com-Power	PAM-118A	551024	May 10, 2018	1 Year
Preamplifier	Com-Power	PA-840	711013	May 10, 2018	1 Year
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A
LISN (EUT)	Com-Power	LI-215A	191951	May 17, 2017	1 Year
Transient Limiter	Com-Power	252A910	N/A	November 1, 2017	1 Year

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 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.

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 Conducted Emissions Test

The EMI Receiver was used as a measuring meter. 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 a 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 computer software. The final qualification data is located in Appendix E.

The six highest emissions are listed in Table 1.0.

Test Results:

The EUT complies with the limits of CFR Title 47, Part 15, section 15.207; and the **Class B** limits of CFR Title 47, Part 15, Subpart B for conducted emissions.

7.1.2 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 for the harmonics above 1 GHz were averaged using a duty cycle correction factor.

All the other frequencies above 1 GHz were averaged using the average detector of 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 2.0.

Radiated Emissions Test (Continued)

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 25 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 15.249 for radiated emissions.

7.1.3 RF Emissions Test Results

Table 1.0 CONDUCTED EMISSION RESULTS
Hinge Sensor
Model: 2.0

Frequency MHz	Average Emission Level* dBuV	Average Specification Limit dBuV	Average Delta (Emission – Spec. Limit) dB
0.486 (BL)	37.05	46.08	-9.03
0.506 (BL)	36.76	46.02	-9.26
0.510 (BL)	36.76	46.04	-9.28
0.482 (BL)	36.10	46.06	-9.95
0.466 (BL)	35.55	46.13	-10.57
0.498 (WL)	33.59	46.07	-12.48

Table 2.0 RADIATED EMISSION RESULTS
Hinge Sensor
Model: 2.0

Frequency (MHz)	EMI Reading (dBuV/m)	Specification Limit (dBuV/m)	Delta (Cor. Reading – Spec. Limit) (dB)
2400.00 (H) (X-Axis) (Low) (Batt)	44.10 (Avg)	53.97	-9.87
2400.00 (V) (Z-Axis) (BE) (AC)	42.19 (Avg)	53.97	-11.78
2400.00 (H) (X-Axis) (BE) (AC)	41.50 (Avg)	53.97	-12.47
2400.00 (V) (Z-Axis) (BE) (Batt)	40.62 (Avg)	53.97	-13.35
957.90 (H) (X-Axis) (Mid) (Batt)	29.93 (QP)	46.00	-16.07
932.10 (H) (X-Axis) (Mid) (Batt)	29.90 (QP)	46.00	-16.10
932.20 (H) (X-Axis) (Mid) (AC)	29.90 (QP)	46.00	-16.10

Notes:

* The complete emissions data is given in Appendix E of this report.
(V) Vertical
(H) Horizontal
(Mid) Middle Channel
(Low) Low Channel
(High) High Channel
(BE) Band Edge
(AC) AC Mode
(Batt) Battery Mode
(QP) Quasi-Peak
(Avg) Average

7.1.4 Duty Cycle Calculation

The fundamental and harmonics were measured at a 3-meter test distance. The EMI Receiver was used to obtain the final test data. The final qualification data sheets are located in Appendix E.

Where

$$\delta(\mathrm{dB}) = 20\log\left[\sum\left(nt_1 + mt_2 + \ldots + \xi t_x\right)/T\right]$$

n is the number of pulses of duration *t*1
m is the number of pulses of duration *t*2
ξ is the number of pulses of duration *tx*
T is the period of the pulse train or 100 ms if the pulse train length is greater than 100 ms

The worst case was when the EUT was in advertising mode

Duty Cycle Correction Factor = -20 dB

Time of One Pulse = 440.881764 µs

Total On Time = 440.881764 µs

The time between pulses is 43.326653 ms

Duty Cycle = 440.881764 µs / 43.326653 ms = 0.0101757633 = 1.01757633 %

7.1.5 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 complies with the FCC Title 47, Part 15, Subpart A, section 15.31 (e) requirements.

8. CONCLUSIONS

The Hinge Sensor, Model: 2.0, as tested, meets all of the **Class B** specification limits defined in FCC Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209 and 15.249.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP® TESTING
NVLAP LAB CODE 200528-0

ilac-MRA

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 15.249 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.

No modifications were made to the EUT during the testing.

APPENDIX C

ADDITIONAL MODEL COVERED UNDER THIS REPORT

ADDITIONAL MODEL COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST	Hinge Sensor Model: 2.0 S/N: N/A

There are no additional models covered under this report.

APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

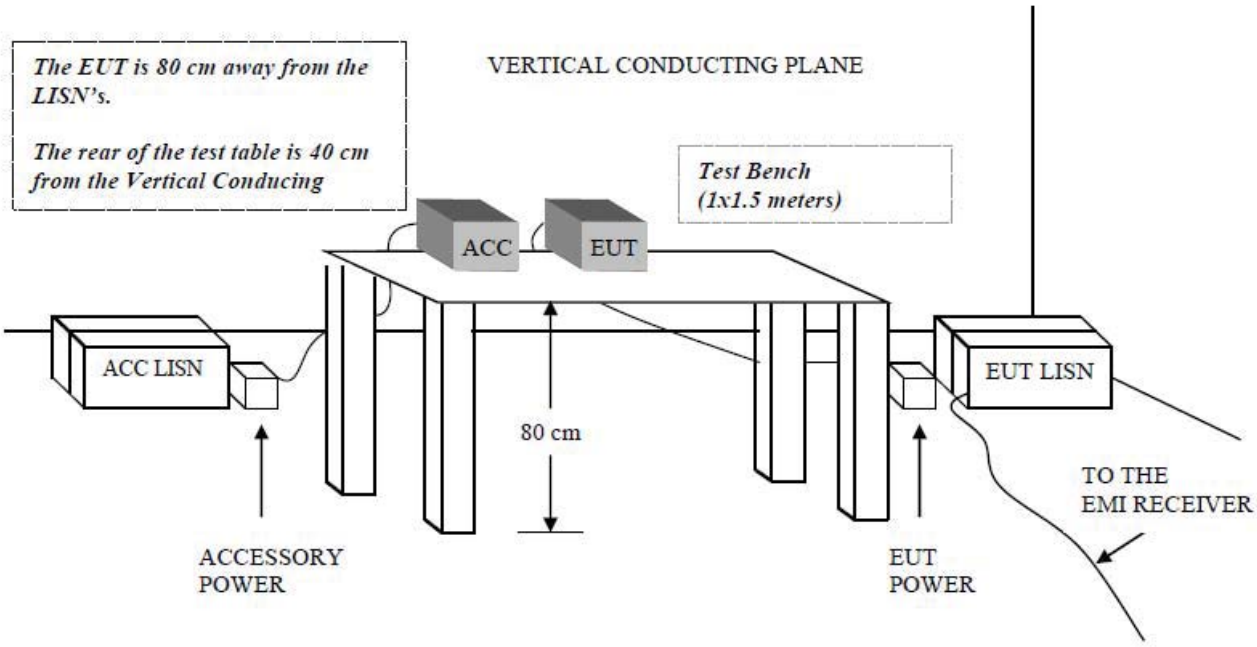
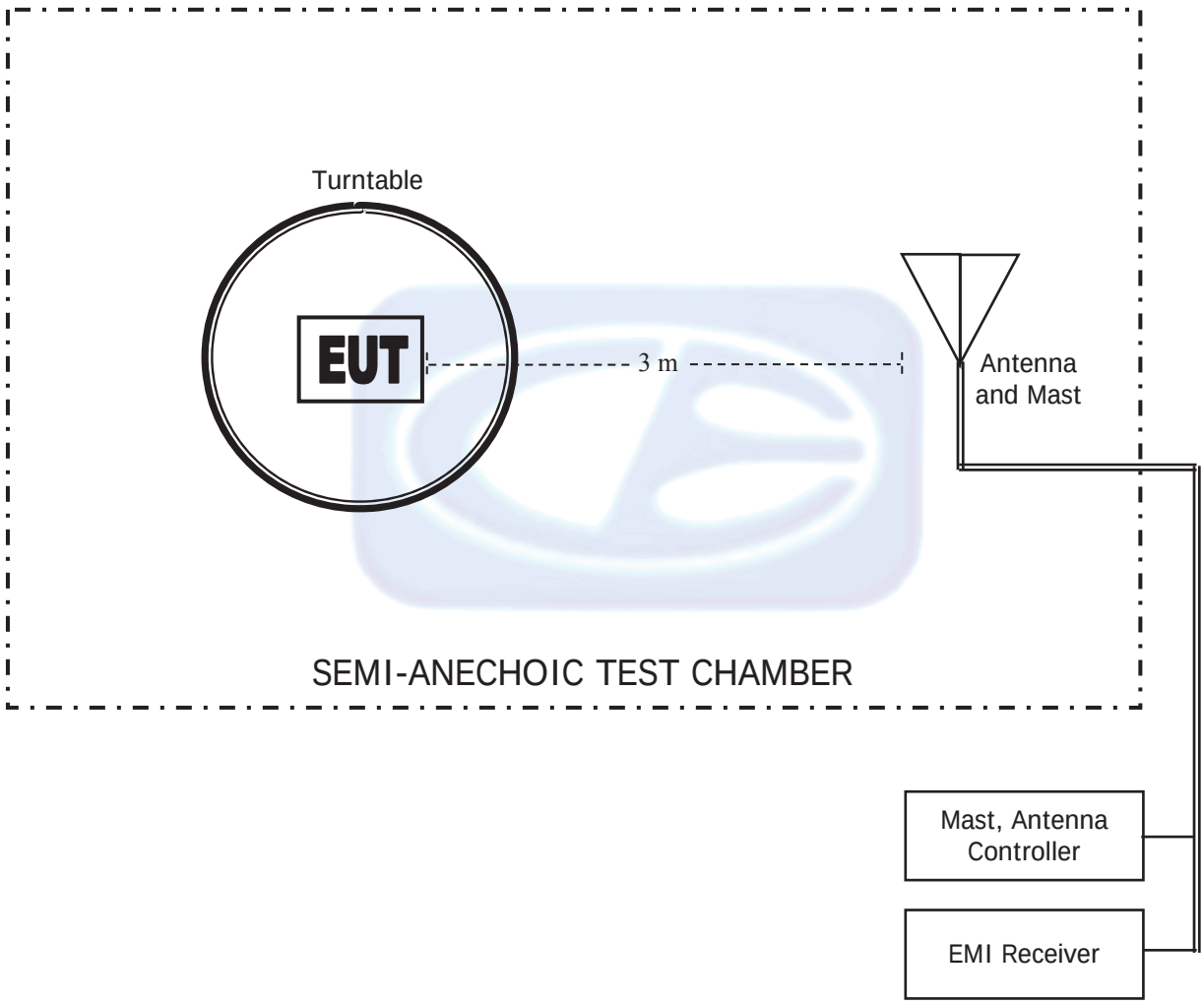


FIGURE 2: LAYOUT OF THE SEMI -ANECHOIC TEST CHAMBER



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		

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 10, 2018

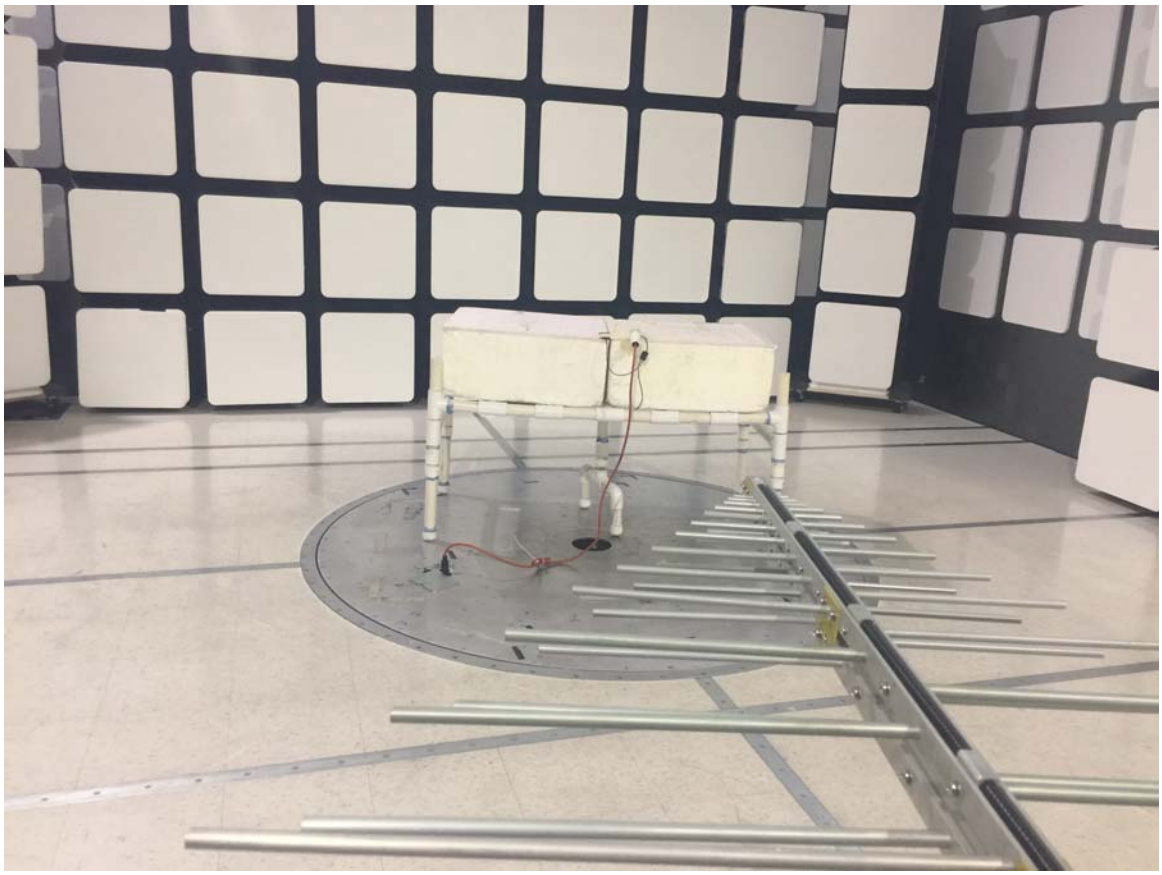
FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	26.90	31.0	24.56
19.0	24.65	31.5	25.84
20.0	25.74	32.0	26.93
21.0	24.78	32.5	27.76
22.0	24.83	33.0	25.76
23.0	24.81	33.5	26.76
24.0	25.52	34.0	26.51
25.0	24.90	34.5	27.49
26.0	25.92	35.0	27.64
26.5	26.53	35.5	27.45
27.0	26.41	36.0	25.08
27.5	24.78	36.5	25.61
28.0	25.13	37.0	24.69
28.5	29.29	37.5	24.10
29.0	28.44	38.0	24.83
29.5	27.51	38.5	24.41
30.0	27.12	39.0	24.44
30.5	26.42	39.5	22.96
		40.0	22.29

FRONT VIEW

AC MODE

HINGE HEALTH, INC.
HINGE SENSOR
MODEL: 2.0
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

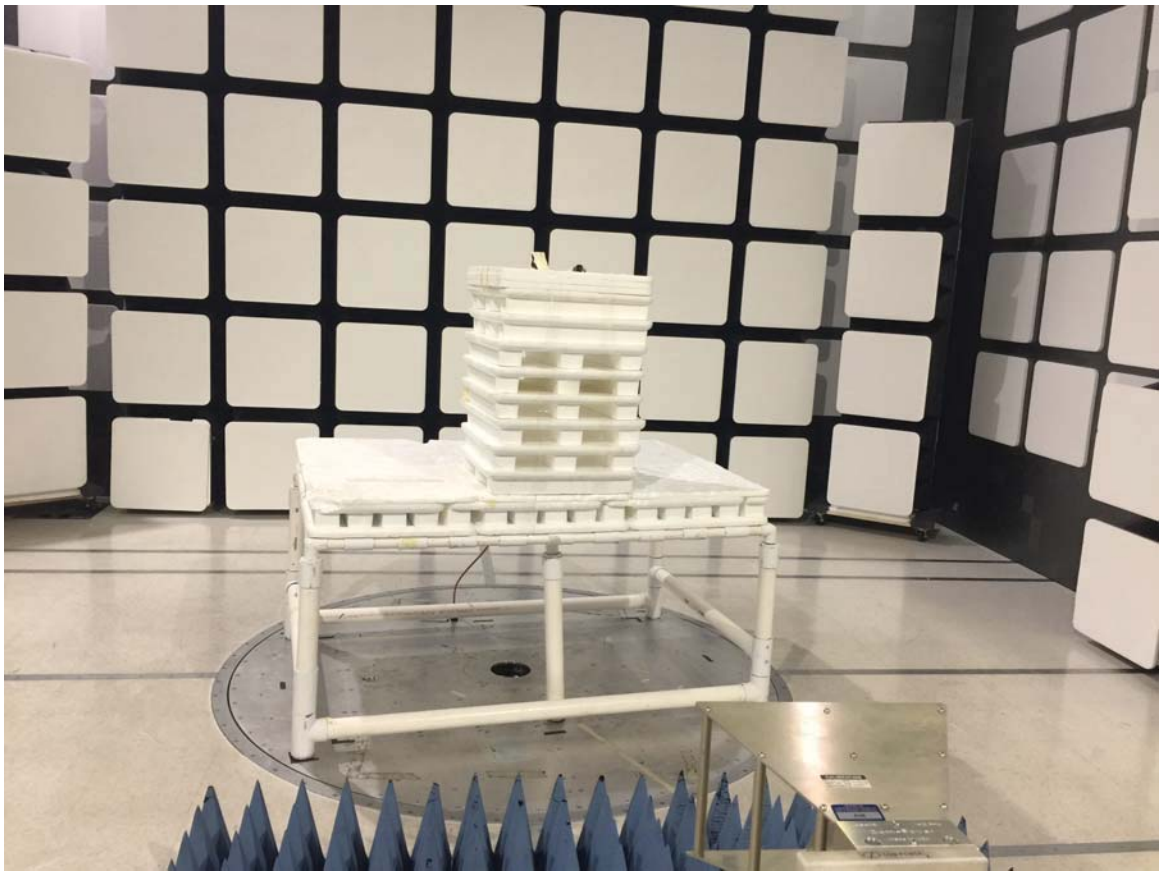


REAR VIEW

AC MODE

HINGE HEALTH, INC.
HINGE SENSOR
MODEL: 2.0
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

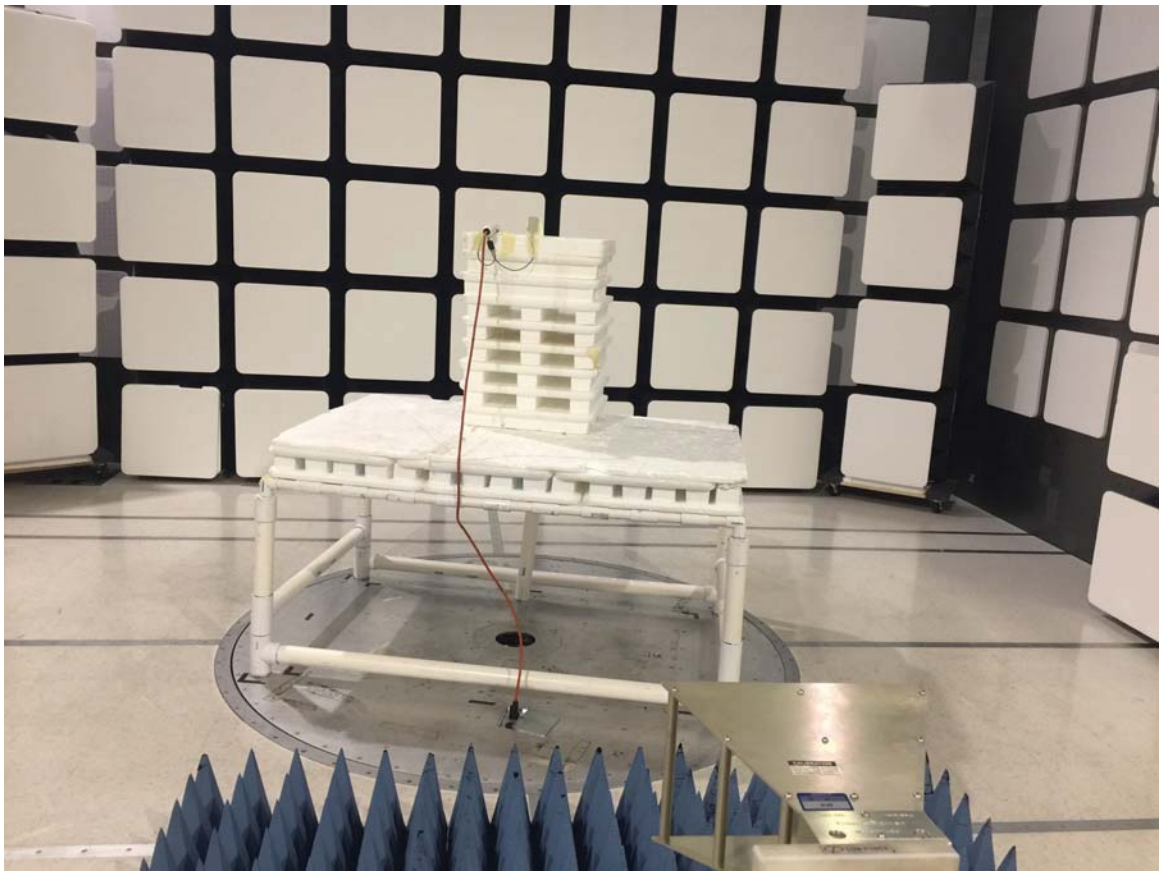


FRONT VIEW

AC MODE

HINGE HEALTH, INC.
HINGE SENSOR
MODEL: 2.0
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

AC MODE

HINGE HEALTH, INC.
HINGE SENSOR
MODEL: 2.0
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONs

FRONT VIEW

AC MODE

HINGE HEALTH, INC.
HINGE SENSOR
MODEL: 2.0
FCC SUBPART B– CONDUCTED EMISSIONS

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

AC MODE

HINGE HEALTH, INC.
HINGE SENSOR
MODEL: 2.0
FCC SUBPART B– CONDUCTED EMISSIONS

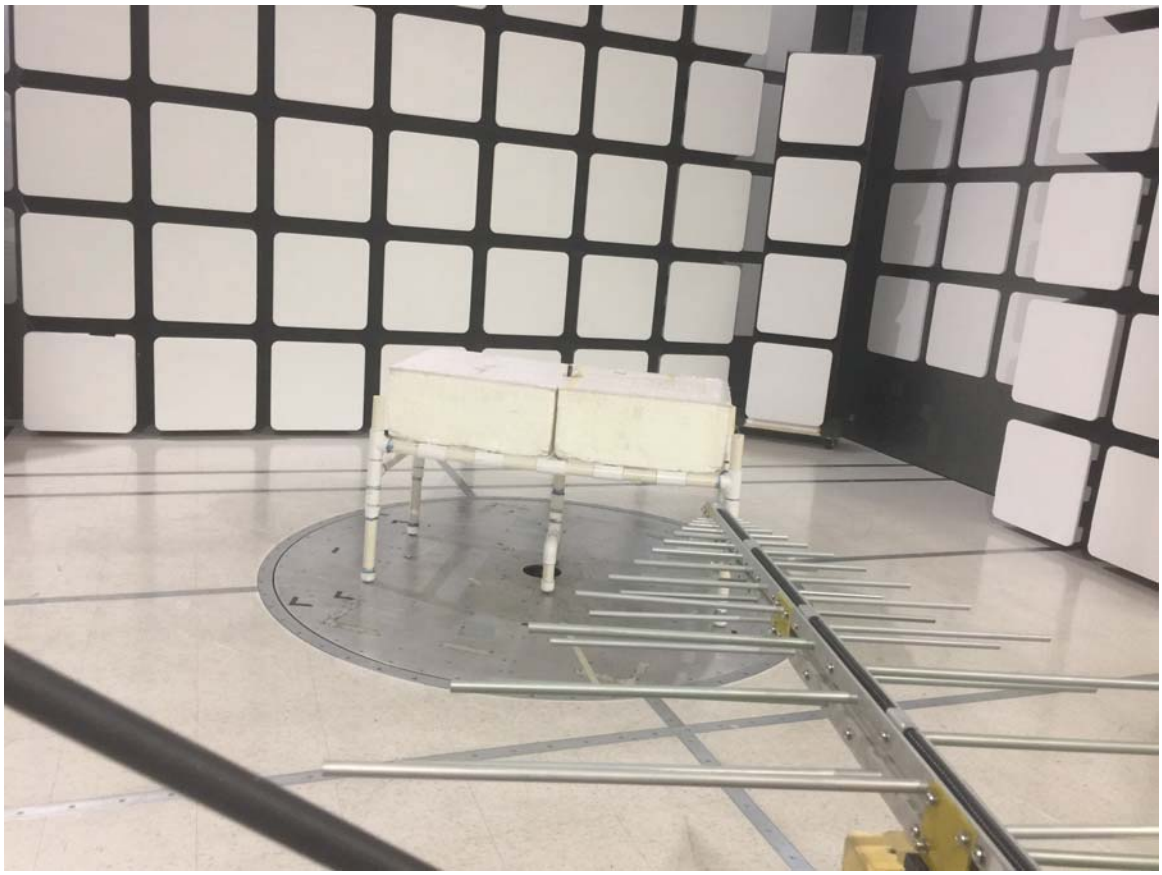
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONs

FRONT VIEW

BATTERY MODE

HINGE HEALTH, INC.
HINGE SENSOR
MODEL: 2.0
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

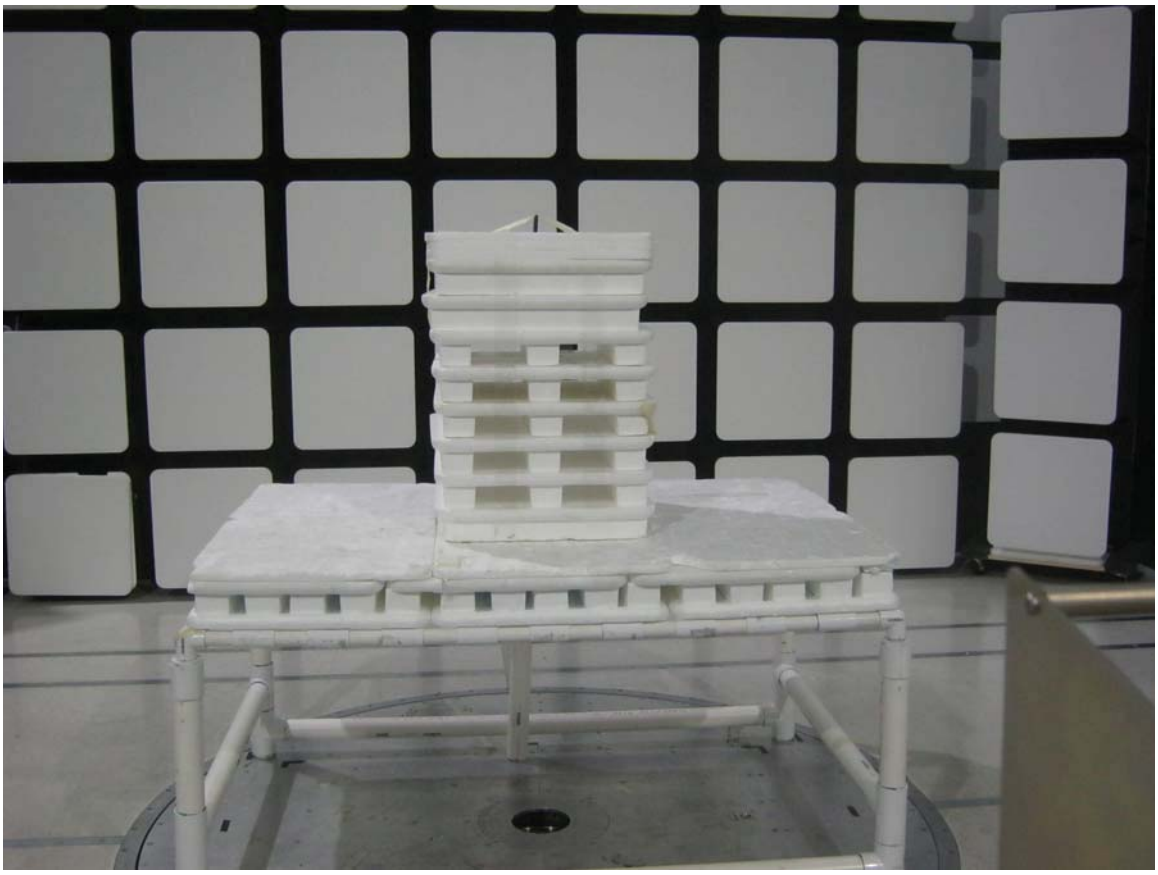


REAR VIEW

BATTERY MODE

HINGE HEALTH, INC.
HINGE SENSOR
MODEL: 2.0
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

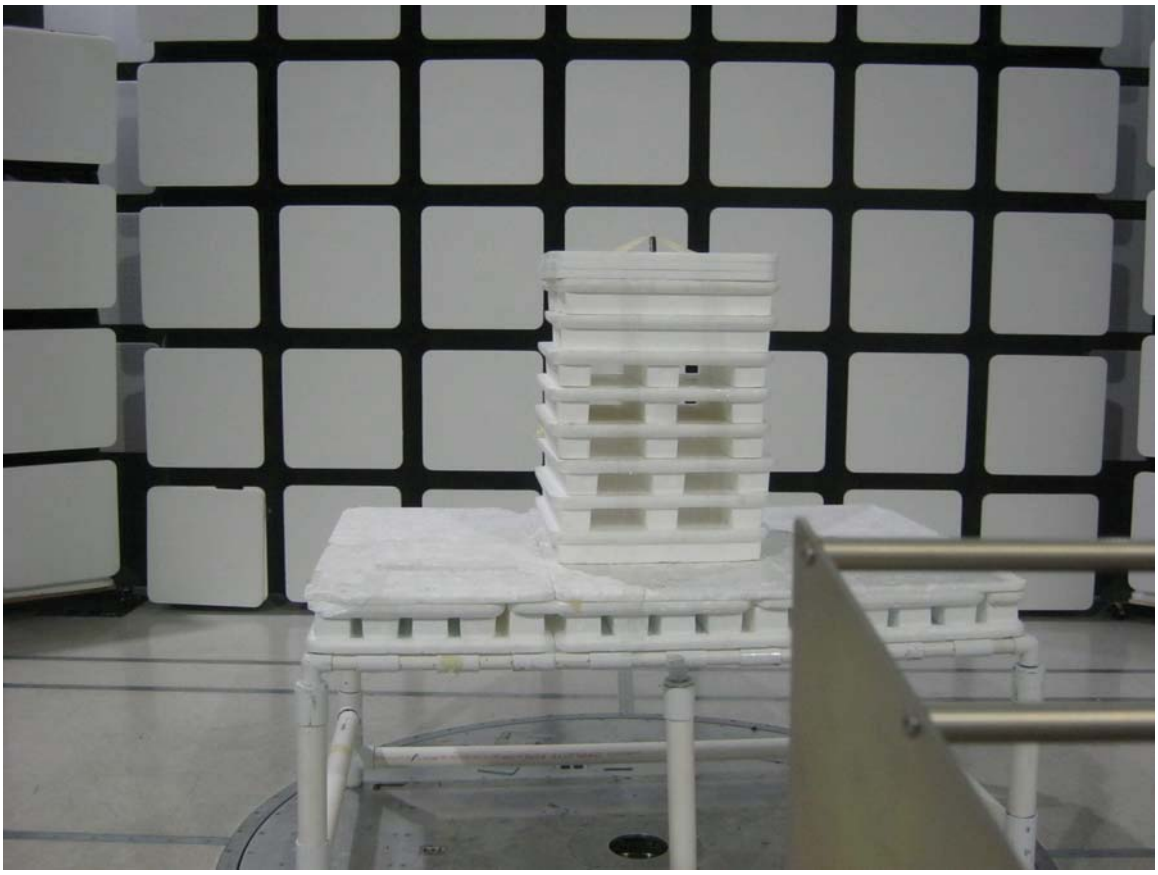


FRONT VIEW

BATTERY MODE

HINGE HEALTH, INC.
HINGE SENSOR
MODEL: 2.0
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

BATTERY MODE

HINGE HEALTH, INC.
HINGE SENSOR
MODEL: 2.0
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

AC MODE

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Fundamental - Charging Mode
Low Channel

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402	84.21	V	113.97	-29.76	Peak	331.75	133.77	**X-Axis**
2402	64.21	V	93.97	-29.76	Avg	331.75	133.77	**Vertical Polarization**
2402	73.53	V	113.97	-40.44	Peak	75.00	145.00	**Y-Axis**
2402	53.53	V	93.97	-40.44	Avg	75.00	145.00	**Vertical Polarization**
2402	85.32	V	113.97	-28.65	Peak	43.00	117.89	**Z-Axis**
2402	65.32	V	93.97	-28.65	Avg	43.00	117.89	**Vertical Polarization**
2402	85.90	H	113.97	-28.07	Peak	71.25	144.76	**X-Axis**
2402	65.90	H	93.97	-28.07	Avg	71.25	144.76	**Horizontal Polarization**
2402	79.32	H	113.97	-34.65	Peak	48.75	133.65	**Y-Axis**
2402	59.32	H	93.97	-34.65	Avg	48.75	133.65	**Horizontal Polarization**
2402	83.22	H	113.97	-30.75	Peak	81.25	155.68	**Z-Axis**
2402	63.22	H	93.97	-30.75	Avg	81.25	155.68	**Horizontal Polarization**

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Fundamental - Charging Mode
Middle Channel

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440	81.26	V	113.97	-32.71	Peak	253.75	137.23	**X-Axis**
2440	61.26	V	93.97	-32.71	Avg	253.75	137.23	**Vertical Polarization**
2440	84.25	V	113.97	-29.72	Peak	97.25	115.38	**Y-Axis**
2440	64.25	V	93.97	-29.72	Avg	97.25	115.38	**Vertical Polarization**
2440	83.80	V	113.97	-30.17	Peak	261.75	118.55	**Z-Axis**
2440	63.80	V	93.97	-30.17	Avg	261.75	118.55	**Vertical Polarization**
2440	87.36	H	113.97	-26.61	Peak	14.75	145.00	**X-Axis**
2440	67.36	H	93.97	-26.61	Avg	14.75	145.00	**Horizontal Polarization**
2440	83.95	H	113.97	-30.02	Peak	233.00	158.97	**Y-Axis**
2440	63.95	H	93.97	-30.02	Avg	233.00	158.97	**Horizontal Polarization**
2440	83.39	H	113.97	-30.58	Peak	248.75	136.52	**Z-Axis**
2440	63.39	H	93.97	-30.58	Avg	248.75	136.52	**Horizontal Polarization**

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Fundamental - Charging Mode
High Channel

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480	84.58	V	113.97	-29.39	Peak	133.50	101.71	**X-Axis**
2480	64.58	V	93.97	-29.39	Avg	133.50	101.71	**Vertical Polarization**
2480	83.61	V	113.97	-30.36	Peak	141.00	119.00	**Y-Axis**
2480	63.61	V	93.97	-30.36	Avg	141.00	119.00	**Vertical Polarization**
2480	80.81	V	113.97	-33.16	Peak	334.25	150.13	**Z-Axis**
2480	60.81	V	93.97	-33.16	Avg	334.25	150.13	**Vertical Polarization**
2480	87.16	H	113.97	-26.81	Peak	76.25	191.98	**X-Axis**
2480	67.16	H	93.97	-26.81	Avg	76.25	191.98	**Horizontal Polarization**
2480	81.71	H	113.97	-32.26	Peak	0.00	126.49	**Y-Axis**
2480	61.71	H	93.97	-32.26	Avg	0.00	126.49	**Horizontal Polarization**
2480	84.71	H	113.97	-29.26	Peak	115.75	151.38	**Z-Axis**
2480	64.71	H	93.97	-29.26	Avg	115.75	151.38	**Horizontal Polarization**

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Low Channel - Charging Mode - Vertical
Transmit Mode - X-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00								No Emission
4804.00								Detected
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Low Channel - Charging Mode
Transmit Mode - Y-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	44.72	V	73.97	-29.25	Peak	154.00	200.16	
4804.00	24.72	V	53.97	-29.25	Avg	154.00	200.16	
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Low Channel - Charging Mode
Transmit Mode - Z-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	45.06	V	73.97	-28.91	Peak	107.00	164.34	
4804.00	25.06	V	53.97	-28.91	Avg	107.00	164.34	
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Low Channel - Charging Mode
Transmit Mode - X-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	48.32	H	73.97	-25.65	Peak	26.25	164.94	
4804.00	28.32	H	53.97	-25.65	Avg	26.25	164.94	
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Low Channel - Charging Mode
Transmit Mode - Y-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	44.65	H	73.97	-29.32	Peak	303.00	209.00	
4804.00	24.65	H	53.97	-29.32	Avg	303.00	209.00	
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Low Channel - Charging Mode
Transmit Mode - Z-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	44.05	H	73.97	-29.92	Peak	260.25	149.99	
4804.00	24.05	H	53.97	-29.92	Avg	260.25	149.99	
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Middle Channel - Charging Mode
Transmit Mode - X-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	46.61	V	73.97	-27.36	Peak	215.00	117.00	
4880.00	26.61	V	53.97	-27.36	Avg	215.00	117.00	
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Middle Channel - Charging Mode
Transmit Mode - Y-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	46.40	V	73.97	-27.57	Peak	101.25	152.22	
4880.00	26.40	V	53.97	-27.57	Avg	101.25	152.22	
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Middle Channel - Charging Mode
Transmit Mode - Z-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	46.12	V	73.97	-27.85	Peak	208.25	103.32	
4880.00	26.12	V	53.97	-27.85	Avg	208.25	103.32	
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Middle Channel - Charging Mode
Transmit Mode - X-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	49.21	H	73.97	-24.76	Peak	25.25	161.65	
4880.00	29.21	H	53.97	-24.76	Avg	25.25	161.65	
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Middle Channel - Charging Mode
Transmit Mode - Y-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	44.79	H	73.97	-29.18	Peak	28.25	205.47	
4880.00	24.79	H	53.97	-29.18	Avg	28.25	205.47	
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - Middle Channel - Charging Mode
Transmit Mode - Z-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	45.25	H	73.97	-28.72	Peak	248.75	100.00	
4880.00	25.25	H	53.97	-28.72	Avg	245.75	100.00	
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - High Channel - Charging Mode
Transmit Mode - X-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	46.08	V	73.97	-27.89	Peak	243.75	166.37	
4960.00	26.08	V	53.97	-27.89	Avg	243.75	166.37	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - High Channel - Charging Mode
Transmit Mode - Y-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	47.24	V	73.97	-26.73	Peak	103.75	188.46	
4960.00	27.24	V	53.97	-26.73	Avg	103.75	188.46	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - High Channel - Charging Mode
Transmit Mode - Z-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	46.97	V	73.97	-27.00	Peak	217.00	117.11	
4960.00	26.97	V	53.97	-27.00	Avg	217.00	117.11	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - High Channel - Charging Mode
Transmit Mode - X-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	48.65	H	73.97	-25.32	Peak	20.25	138.91	
4960.00	28.65	H	53.97	-25.32	Avg	20.25	138.91	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - High Channel - Charging Mode
Transmit Mode - Y-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	46.86	H	73.97	-27.11	Peak	53.25	100.00	
4960.00	26.86	H	53.97	-27.11	Avg	53.25	100.00	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Harmonics - High Channel - Charging Mode
Transmit Mode - Z-Axis

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

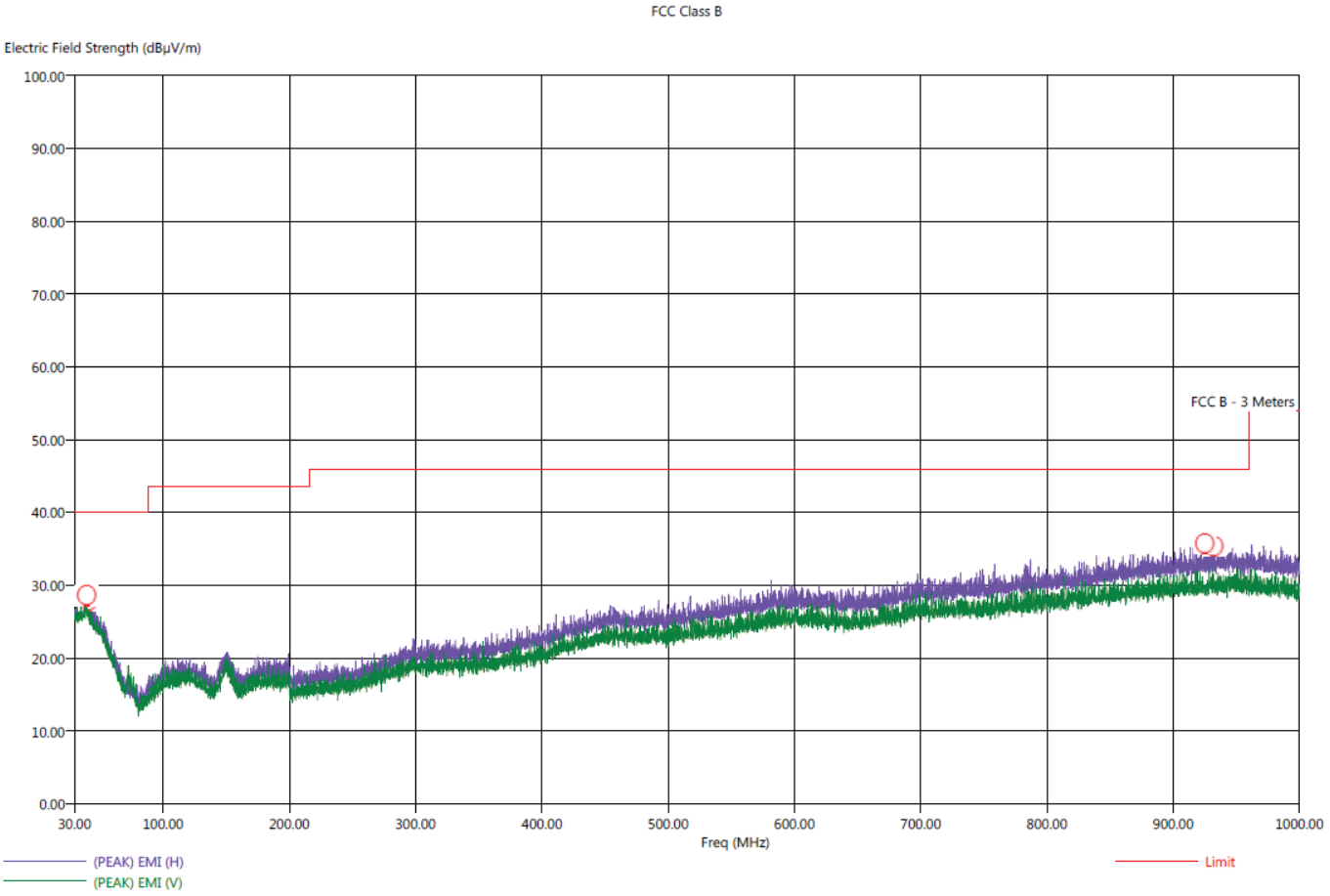
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	48.34	H	73.97	-25.63	Peak	260.25	150.00	
4960.00	28.34	H	53.97	-25.63	Avg	260.25	150.00	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Date: 05/30/2018
Lab: D
Tested By: Johnny Le
Harmonics - High Channel - Charging Mode
Non Harmonic Emissions from the Tx and Digital Portion - 9 kHz to 30 MHz - Charging Mode
Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 25 GHz - Charging Mode

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
								No Emissions Detected
								from 9 kHz to 30 MHz
								for the digital portion
								of the EUT
								No Emissions Detected
								from 9 kHz to 30 MHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								No Emissions Detected
								from 1 GHz to 25 GHz
								for the digital portion
								of the EUT
								No Emissions Detected
								from 1 GHz to 25 GHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								Investigated in the X-Axis,
								Y-Axis, and Z-Axis

Title: Pre-Scan - FCC Class B
File: 1Rohde & Schwarz - AC MODE Pre-Scan Mid Channel X axis Worst Case - FCC Class B - 30 MHz to 1000 MHz.set
Operator: Johnny
EUT Type: Hinge Sensor
EUT Condition: The EUT is continiously trasmitting at the Middle Channel
Company: Hinge Health, Inc.
Model: 2.0
S/N: TBD
NOTE:
TESTED AC MODE - MID CHANNEL - X AXIS (WORSE CASE)

5/30/2018 8:19:15 AM
Sequence: Preliminary Scan



Title: Radiated Final - FCC Class B
File: 2Rohde & Schwarz - AC MODE Final-Scan Mid Channel X axis Worst Case - FCC Class B - 30 MHz to 1000 MHz.set
Operator: Johnny
EUT Type: Hinge Sensor
EUT Condition: The EUT is continiously trasmitting at the Middle Channel
Company: Hinge Health, Inc.
Model: 2.0
S/N: N/A
NOTE:
TESTED AC MODE - MID CHANNEL - X AXIS (WORSE CASE)

5/30/2018 8:43:06 AM
Sequence: Final Measurements

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)	Ttbl Agl (deg)	Twr Ht (cm)
38.90	H	27.95	22.81	-12.05	-17.19	40.00	24.56	0.89	202.00	160.64
39.30	H	28.21	22.87	-11.79	-17.13	40.00	24.62	0.89	48.75	292.28
39.50	V	28.01	22.97	-11.99	-17.03	40.00	24.66	0.90	251.75	275.68
40.90	H	28.16	22.66	-11.84	-17.34	40.00	24.40	0.90	207.75	160.64
925.00	H	34.88	29.80	-11.12	-16.20	46.00	27.51	3.05	1.75	127.80
932.20	H	34.93	29.90	-11.07	-16.10	46.00	27.59	3.07	102.75	177.35

BATTERY MODE

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Fundamental Low Channel - Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402	73.54	V	113.97	-40.43	Peak	8.25	104.70	**X-Axis**
2402	53.54	V	93.97	-40.43	Avg	8.25	104.70	**Vertical Polarization**
2402	83.06	V	113.97	-30.91	Peak	277.00	102.85	**Y-Axis**
2402	63.06	V	93.97	-30.91	Avg	277.00	102.85	**Vertical Polarization**
2402	83.70	V	113.97	-30.27	Peak	43.00	117.89	**Z-Axis**
2402	63.70	V	93.97	-30.27	Avg	43.00	117.89	**Vertical Polarization**
2402	87.43	H	113.97	-26.54	Peak	220.00	137.71	**X-Axis**
2402	67.43	H	93.97	-26.54	Avg	220.00	137.71	**Horizontal Polarization**
2402	81.27	H	113.97	-32.70	Peak	48.75	133.65	**Y-Axis**
2402	61.27	H	93.97	-32.70	Avg	48.75	133.65	**Horizontal Polarization**
2402	85.03	H	113.97	-28.94	Peak	81.25	155.68	**Z-Axis**
2402	65.03	H	93.97	-28.94	Avg	81.25	155.68	**Horizontal Polarization**

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Fundamental Middle Channel - Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440	76.72	V	113.97	-37.25	Peak	155.75	242.25	**X-Axis**
2440	56.72	V	93.97	-37.25	Avg	155.75	242.25	**Vertical Polarization**
2440	83.32	V	113.97	-30.65	Peak	231.00	139.62	**Y-Axis**
2440	63.32	V	93.97	-30.65	Avg	231.00	139.62	**Vertical Polarization**
2440	83.20	V	113.97	-30.77	Peak	215.00	119.00	**Z-Axis**
2440	63.20	V	93.97	-30.77	Avg	215.00	119.00	**Vertical Polarization**
2440	88.47	H	113.97	-25.50	Peak	21.75	138.85	**X-Axis**
2440	68.47	H	93.97	-25.50	Avg	21.75	138.85	**Horizontal Polarization**
2440	78.53	H	113.97	-35.44	Peak	160.00	100.00	**Y-Axis**
2440	58.53	H	93.97	-35.44	Avg	160.00	100.00	**Horizontal Polarization**
2440	85.86	H	113.97	-28.11	Peak	319.50	195.02	**Z-Axis**
2440	65.86	H	93.97	-28.11	Avg	319.50	195.02	**Horizontal Polarization**

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Fundamental High Channel - Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480	74.99	V	113.97	-38.98	Peak	143.75	212.82	**X-Axis**
2480	54.99	V	93.97	-38.98	Avg	143.75	212.82	**Vertical Polarization**
2480	83.20	V	113.97	-30.77	Peak	215.00	119.00	**Y-Axis**
2480	63.20	V	93.97	-30.77	Avg	215.00	119.00	**Vertical Polarization**
2480	81.10	V	113.97	-32.87	Peak	74.00	189.89	**Z-Axis**
2480	61.10	V	93.97	-32.87	Avg	74.00	189.89	**Vertical Polarization**
2480	87.45	H	113.97	-26.52	Peak	207.25	146.97	**X-Axis**
2480	67.45	H	93.97	-26.52	Avg	207.25	146.97	**Horizontal Polarization**
2480	76.07	H	113.97	-37.90	Peak	165.50	115.68	**Y-Axis**
2480	56.07	H	93.97	-37.90	Avg	165.50	115.68	**Horizontal Polarization**
2480	82.71	H	113.97	-31.26	Peak	140.25	133.77	**Z-Axis**
2480	62.71	H	93.97	-31.26	Avg	140.25	133.77	**Horizontal Polarization**

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Low Channel - Transmit Mode - X-Axis - Vertical
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00								No Emission
4804.00								Detected
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Low Channel - Transmit Mode - Y-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	44.11	V	73.97	-29.86	Peak	115.50	149.89	
4804.00	24.11	V	53.97	-29.86	Avg	115.50	149.89	
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Low Channel - Transmit Mode - Z-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	43.54	V	73.97	-30.43	Peak	174.75	213.11	
4804.00	23.54	V	53.97	-30.43	Avg	174.75	213.11	
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Low Channel - Transmit Mode - X-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	54.21	H	73.97	-19.76	Peak	200.25	100.00	
4804.00	34.21	H	53.97	-19.76	Avg	200.25	100.00	
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Low Channel - Transmit Mode - Y-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	43.96	H	73.97	-30.01	Peak	72.00	189.93	
4804.00	23.96	H	53.97	-30.01	Avg	72.00	189.93	
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Low Channel - Transmit Mode - Z-Axis - Horizontal
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00								No Emission
4804.00								Detected
7206.00								No Emission
7206.00								Detected
9608.00								No Emission
9608.00								Detected
12010.00								No Emission
12010.00								Detected
14412.00								No Emission
14412.00								Detected
16814.00								No Emission
16814.00								Detected
19216.00								No Emission
19216.00								Detected
21618.00								No Emission
21618.00								Detected
24020.00								No Emission
24020.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Middle Channel - Transmit Mode - X-Axis - Vertical
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00								No Emission
4880.00								Detected
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Middle Channel - Transmit Mode - Y-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	44.30	V	73.97	-29.67	Peak	350.25	129.89	
4880.00	24.30	V	53.97	-29.67	Avg	350.25	129.89	
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Middle Channel - Transmit Mode - Z-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	45.05	V	73.97	-28.92	Peak	123.25	169.83	
4880.00	25.05	V	53.97	-28.92	Avg	123.25	169.83	
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Middle Channel - Transmit Mode - X-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	49.21	H	73.97	-24.76	Peak	37.75	139.98	
4880.00	29.21	H	53.97	-24.76	Avg	37.75	139.98	
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Middle Channel - Transmit Mode - Y-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	45.04	H	73.97	-28.93	Peak	193.00	149.71	
4880.00	25.04	H	53.97	-28.93	Avg	193.00	149.71	
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Middle Channel - Transmit Mode - Z-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	46.48	H	73.97	-27.49	Peak	209.75	159.92	
4880.00	26.48	H	53.97	-27.49	Avg	209.75	159.92	
7320.00								No Emission
7320.00								Detected
9760.00								No Emission
9760.00								Detected
12200.00								No Emission
12200.00								Detected
14640.00								No Emission
14640.00								Detected
17080.00								No Emission
17080.00								Detected
19520.00								No Emission
19520.00								Detected
21960.00								No Emission
21960.00								Detected
24400.00								No Emission
24400.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
High Channel - Transmit Mode - X-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	44.40	V	73.97	-29.57	Peak	345.00	209.29	
4960.00	24.40	V	53.97	-29.57	Avg	345.00	209.29	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
High Channel - Transmit Mode - Y-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	45.06	V	73.97	-28.91	Peak	239.50	171.86	
4960.00	25.06	V	53.97	-28.91	Avg	239.50	171.86	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
High Channel - Transmit Mode - Z-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	44.06	V	73.97	-29.91	Peak	211.00	161.86	
4960.00	24.06	V	53.97	-29.91	Avg	211.00	161.86	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
High Channel - Transmit Mode - X-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	48.58	H	73.97	-25.39	Peak	219.75	149.77	
4960.00	28.58	H	53.97	-25.39	Avg	219.75	149.77	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
High Channel - Transmit Mode - Y-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	46.20	H	73.97	-27.77	Peak	243.50	142.85	
4960.00	26.20	H	53.97	-27.77	Avg	243.50	142.85	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
High Channel - Transmit Mode - Z-Axis
Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	43.87	H	73.97	-30.10	Peak	145.00	110.97	
4960.00	23.87	H	53.97	-30.10	Avg	145.00	110.97	
7440.00								No Emission
7440.00								Detected
9920.00								No Emission
9920.00								Detected
12400.00								No Emission
12400.00								Detected
14880.00								No Emission
14880.00								Detected
17360.00								No Emission
17360.00								Detected
19840.00								No Emission
19840.00								Detected
22320.00								No Emission
22320.00								Detected
24800.00								No Emission
24800.00								Detected

FCC 15.249
Hinge Health
Hinge Sensor
Model: 2.0
Digital Portion of the Tx from 9 kHz to 30 MHz and 1 GHz to 25 GHz
Non-Harmonic Emissions of the Tx from 9 kHz to 30 MHz and 1 GHz to 25 GHz

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
								No Emissions Detected
								from 9 kHz to 30 MHz
								for the digital portion
								of the EUT
								No Emissions Detected
								from 9 kHz to 30 MHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								No Emissions Detected
								from 1 GHz to 25 GHz
								for the digital portion
								of the EUT
								No Emissions Detected
								from 1 GHz to 25 GHz
								for the Non-Harmonic Emissions
								of the Transmitter for the EUT
								Investigated in the X-Axis,
								Y-Axis, and Z-Axis

Title: Pre-Scan - FCC Class B
File: 3Rohde & Schwarz - BATTERY MODE Pre-Scan Mid Channel Z axis Worst Case - FCC Class B - 30 MHz to 1000 MHz.set
Operator: Johnny
EUT Type: Hinge Sensor
EUT Condition: The EUT is continiously trasmitting at the Middle Channel
Company: Hinge Health, Inc.
Model: TBD
NOTE:
TESTED BATTERY MODE - MID CHANNEL - Z AXIS (WORSE CASE)

5/30/2018 7:22:38 AM
Sequence: Preliminary Scan

Title: Radiated Final - FCC Class B
File: 4Rohde & Schwarz - BATTERY MODE Final-Scan Mid Channel Z axis Worst Case - FCC Class B - 30 MHz to 1000 MHz.set
Operator: Johnny
EUT Type: HInge Sensor
EUT Condition: The EUT is continuously trasmitting at the Middle Channel
Company: Hinge Health
Model: 2.0
S/N: N/A
NOTE:
TESTED BATTERY MODE - MID CHANNEL - Z AXIS (WORSE CASE)

5/30/2018 7:50:55 AM
Sequence: Final Measurements

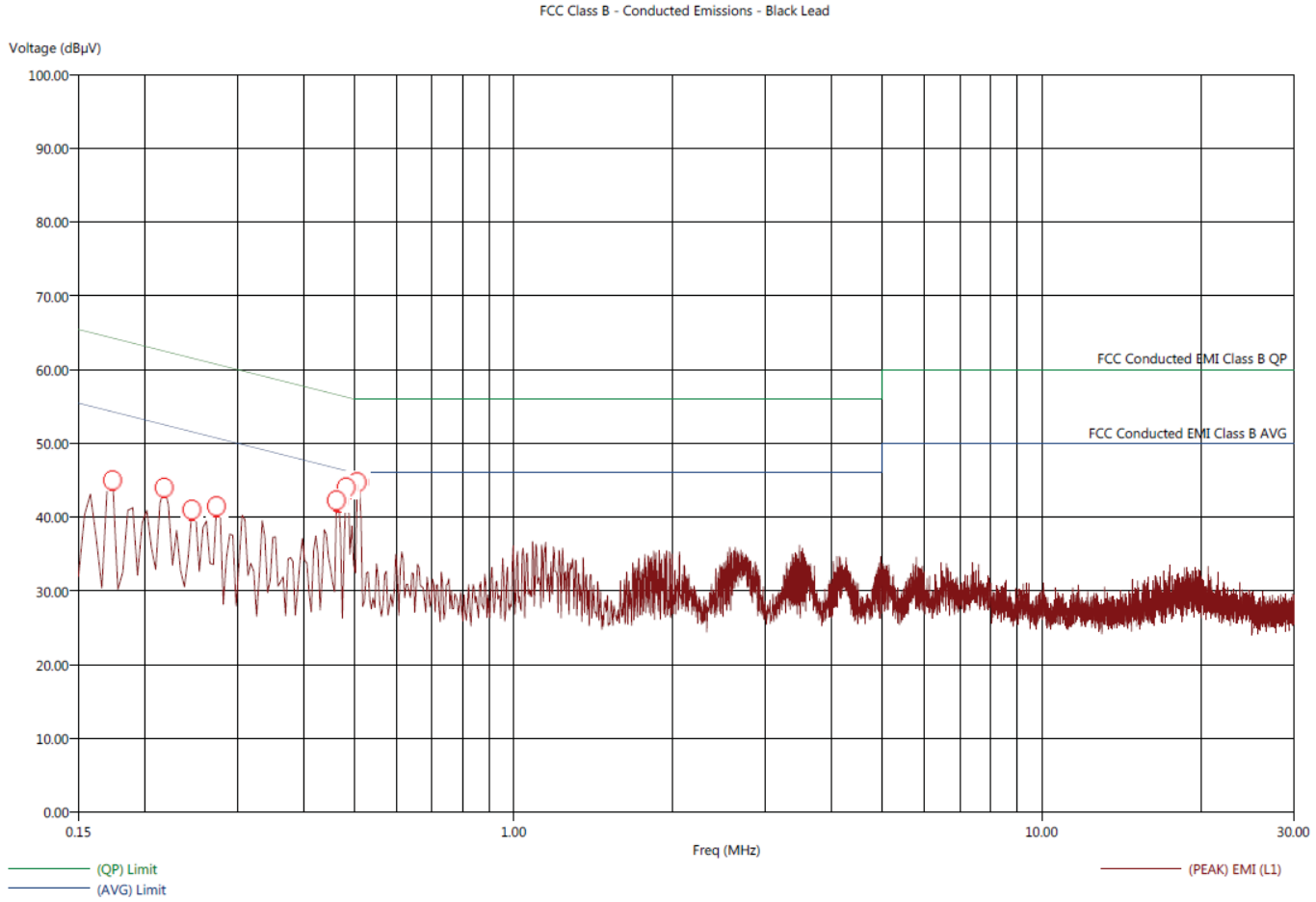
FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Agl (deg)	Twr Ht (cm)
36.60	H	27.95	22.47	-12.05	-17.53	40.00	24.25	0.87	196.50	111.20
38.60	H	27.60	22.80	-12.40	-17.20	40.00	24.50	0.89	25.50	291.86
39.80	H	28.11	22.97	-11.89	-17.03	40.00	24.65	0.90	47.50	127.86
922.50	H	34.99	29.86	-11.01	-16.14	46.00	27.47	3.05	188.75	308.58
932.10	H	35.31	29.90	-10.69	-16.10	46.00	27.59	3.06	82.50	111.50
957.90	H	35.21	29.93	-10.79	-16.07	46.00	27.64	3.10	189.00	341.71

CONDUCTED EMISSIONS DATA SHEETS

Title: FCC B - Conducted Emissions - Black Lead
File: 5Rohde & Schwarz - Conducted Device 1 - Pre-Scan - Line - FCC Class B.set
Operator: Johnny
EUT Type: HInge Sensor
EUT Condition: The EUT is continuously transmitting
Company: Hinge Health, Inc.
Model: 2.0
S/N: N/A
NOTE: AC Mode

5/30/2018 9:39:03 AM
Sequence: Preliminary Scan



Title: FCC B - Conducted Emissions - Black Lead
File: 6Rohde & Schwarz - Conducted Device 1 - Final-Scan - Line - FCC Class B.set
Operator: Johnny Le
EUT Type: HInge Sensor
EUT Condition: The EUT is continuously transmitting
Company: Hinge Heath, Inc.
Model: 2.0
S/N: N/A
NOTE: AC Mode

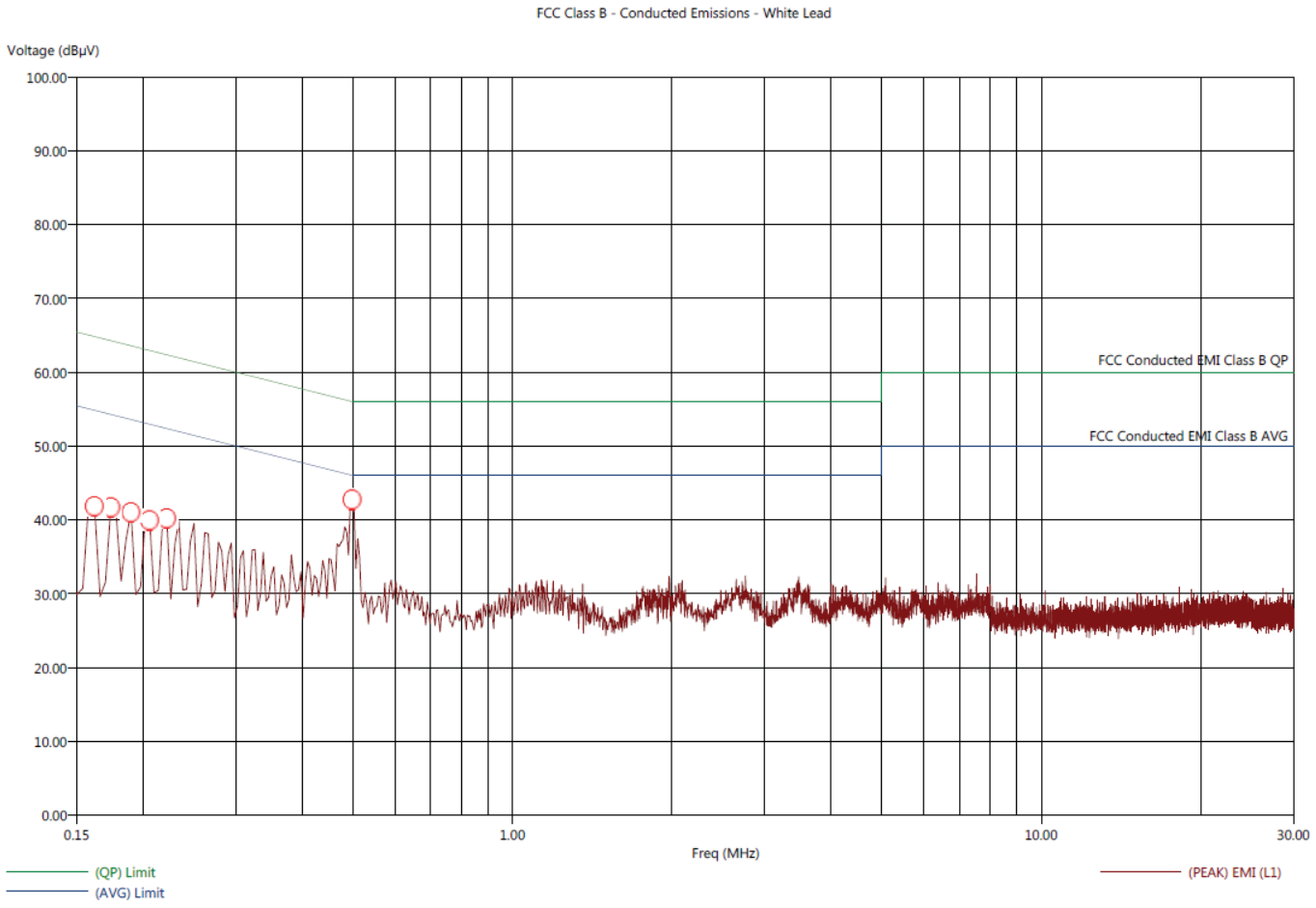
5/30/2018 9:45:06 AM
Sequence: Final Measurements

FCC Class B - Conducted Emissions - Black Lead

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin AVL (dB)	(AVG) Margin AVL (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.174	42.73	26.09	-11.75	-28.39	54.48	0.00	0.37	9.80
0.218	41.21	25.88	-11.31	-26.64	52.51	0.01	0.25	9.80
0.246	40.31	24.32	-11.49	-27.48	51.80	0.02	0.21	9.80
0.274	37.99	22.80	-12.55	-27.74	50.54	0.04	0.14	9.80
0.462	42.46	31.41	-3.81	-14.85	46.26	0.10	0.03	9.80
0.466	45.96	35.55	-0.17	-10.57	46.13	0.10	0.03	9.80
0.482	46.84	36.10	0.79	-9.95	46.06	0.10	0.03	9.80
0.486	46.81	37.05	0.73	-9.03	46.08	0.10	0.03	9.80
0.506	46.86	36.76	0.84	-9.26	46.02	0.10	0.03	9.80
0.510	46.81	36.76	0.77	-9.28	46.04	0.10	0.03	9.80

Title: FCC B - Conducted Emissions - White Lead
File: 7Rohde & Schwarz - Conducted Device 1 - Pre-Scan - Neutral - FCC Class B.set
Operator: Johnny
EUT Type: HInge Sensor
EUT Condition: The EUT is continuously transmitting
Company: Hinge Health, Inc.
Model: 2.0
S/N: N/A
NOTE: AC Mode

5/30/2018 9:51:24 AM
Sequence: Preliminary Scan



Title: FCC B - Conducted Emissions - White Lead
File: 8Rohde & Schwarz - Conducted Device 1 - Final-Scan - Neutral - FCC Class B.set
Operator: Johnny
EUT Type: Hinge Sensor
EUT Condition: The EUT is continuously looping back data on the ethernet ports
Company: Hinge Health, Inc.
Model: 2.0
S/N: N/A
Note: AC Mode

5/30/2018 9:56:08 AM
Sequence: Final Measurements

FCC Class B - Conducted Emissions - White Lead

Freq (MHz)	(PEAK) EMI (dBµV)	(AVG) EMI (dBµV)	(PEAK) Margin AVL (dB)	(AVG) Margin AVL (dB)	(AVG) Limit (dBµV)	Cable (dB)	Transducer (dB)	Filter (dB)
0.162	42.27	24.06	-12.47	-30.69	54.74	0.00	0.37	9.80
0.174	41.75	24.08	-12.75	-30.42	54.50	0.00	0.35	9.80
0.190	41.57	23.59	-11.90	-29.88	53.47	0.00	0.29	9.80
0.206	41.12	23.68	-12.09	-29.53	53.20	0.00	0.28	9.80
0.222	39.30	23.48	-12.99	-28.81	52.29	0.01	0.23	9.80
0.498	43.39	33.59	-2.68	-12.48	46.07	0.10	0.02	9.80

BAND EDGES DATA SHEETS

FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Band Edges - Charging Mode

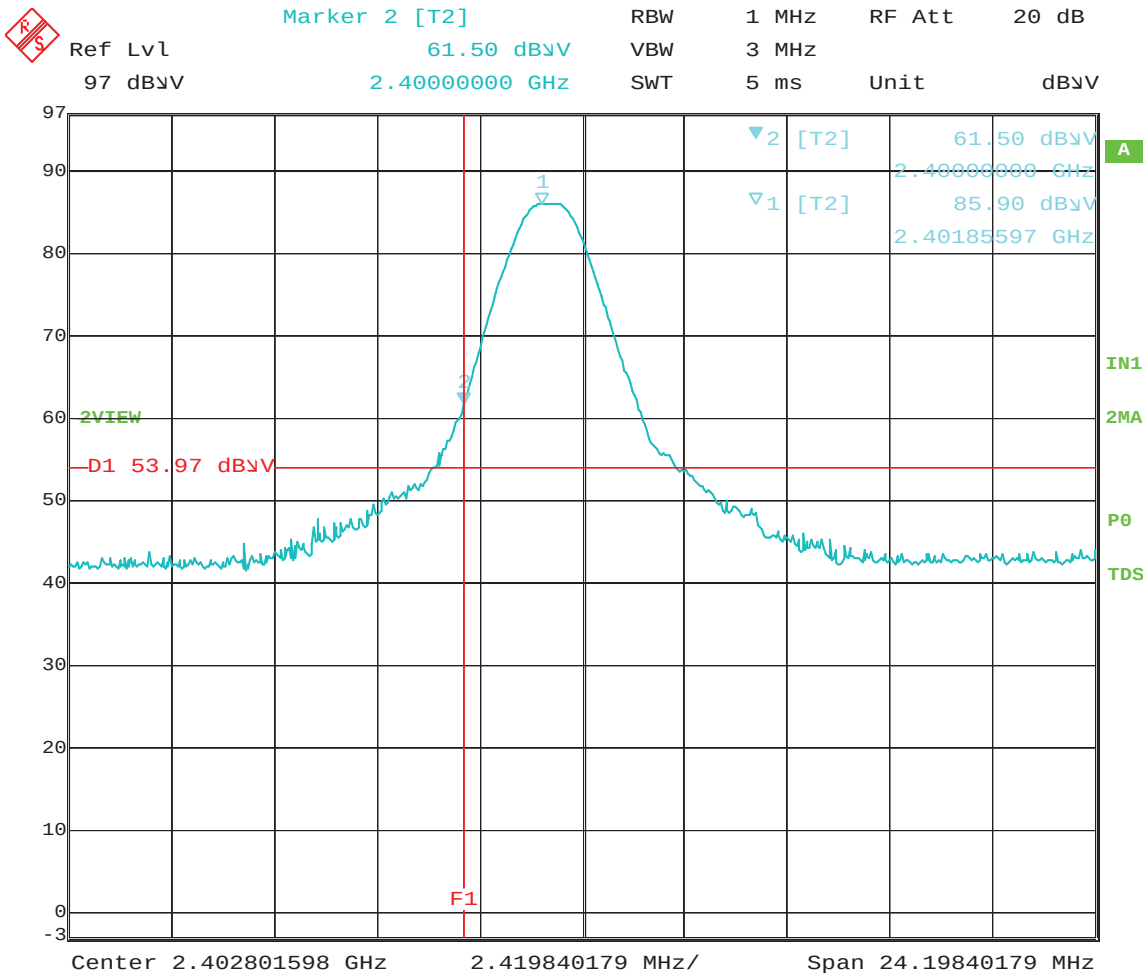
Date: 05/30/2018
Lab: D
Tested By: Johnny Le

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height c(m)	Comments
2402.00	85.90	H	113.97	-28.07	Peak	71.25	144.76	Fundamental - Low Ch.
2402.00	65.90	H	93.97	-28.07	Avg	71.25	144.76	X-Axis - Worst Case
2400.00	61.50	H	73.97	-12.47	Peak	71.25	144.76	Band Edge
2400.00	41.50	H	53.97	-12.47	Avg	71.25	144.76	X-Axis - Worst Case
2402.00	85.32	V	113.97	-28.65	Peak	43.00	117.89	Fundamental - Low Ch.
2402.00	65.32	V	93.97	-28.65	Avg	43.00	117.89	Z-Axis - Worst Case
2400.00	62.19	V	73.97	-11.78	Peak	43.00	117.89	Band Edge
2400.00	42.19	V	53.97	-11.78	Avg	43.00	117.89	Z-Axis - Worst Case
2480.00	87.10	H	113.97	-26.87	Peak	76.25	191.98	Fundamental - High Ch.
2480.00	67.10	H	93.97	-26.87	Avg	76.25	191.98	X-Axis - Worst Case
2483.50	55.93	H	73.97	-18.04	Peak	76.25	191.98	Band Edge
2483.50	33.93	H	53.97	-18.04	Avg	76.25	191.98	X-Axis - Worst Case
2480.00	84.58	V	113.97	-29.39	Peak	133.50	101.71	Fundamental - High Ch.
2480.00	64.58	V	93.97	-29.39	Avg	133.50	101.71	Y-Axis - Worst Case
2483.50	53.72	V	73.97	-20.25	Peak	133.50	101.71	Band Edge
2483.50	33.72	V	53.97	-20.25	Avg	133.50	101.71	Y-Axis - Worst Case

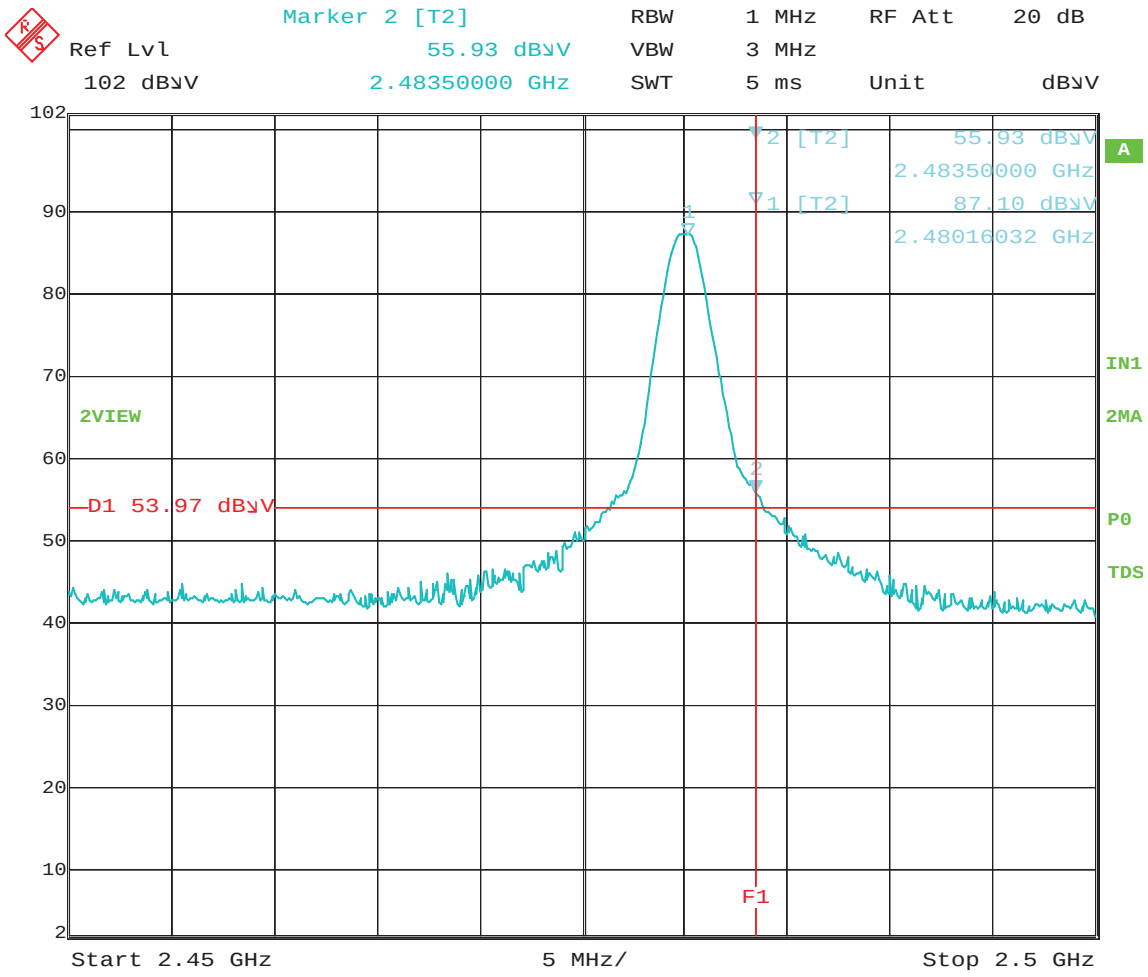
FCC 15.249
Hinge Health, Inc.
Hinge Sensor
Model: 2.0
Band Edges - Battery Mode

Date: 05/30/2018
Lab: D
Tested By: Johnny Le

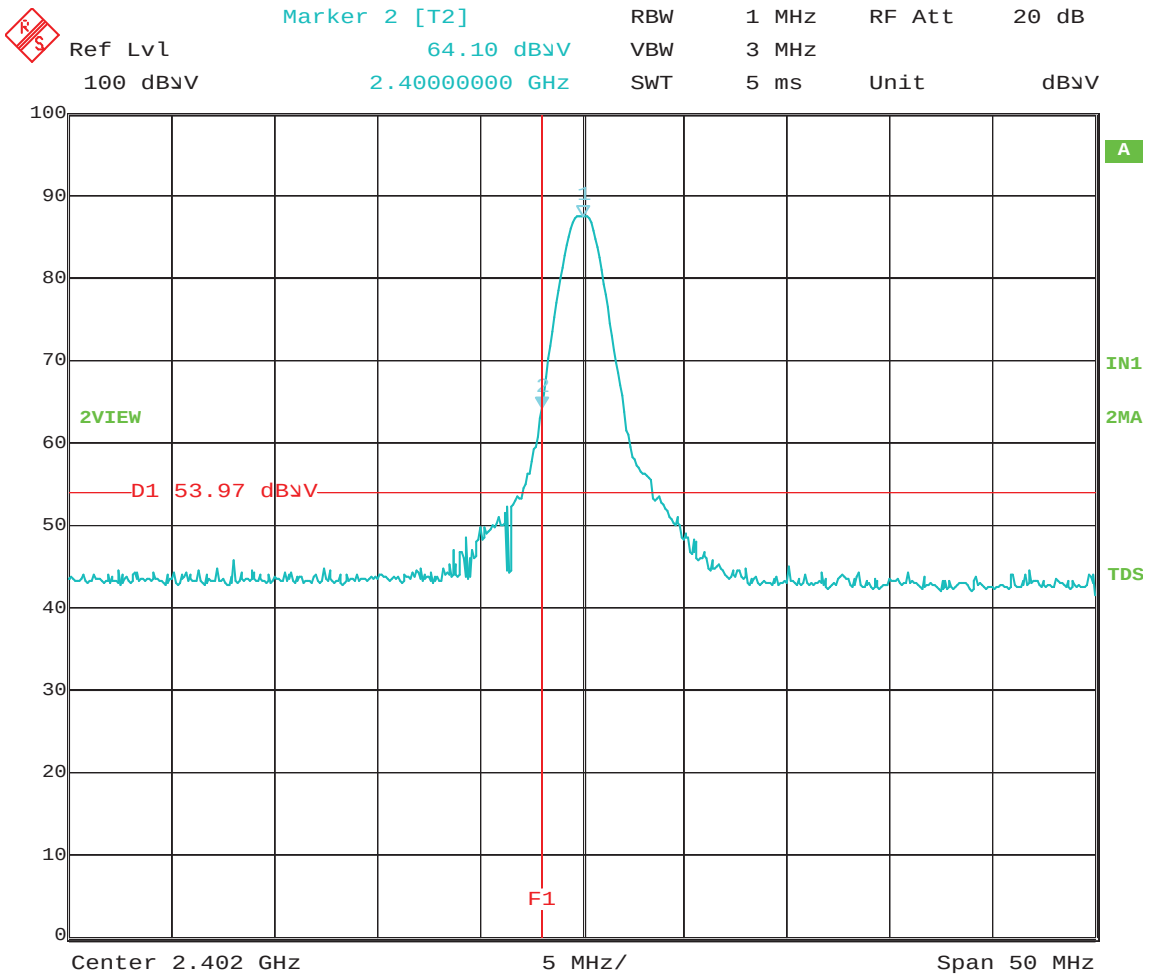
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402.00	87.43	H	113.97	-26.54	Peak	220.00	137.71	Fundamental - Low Ch.
2402.00	67.43	H	93.97	-26.54	Avg	220.00	137.71	X-Axis - Worst Case
2400.00	64.10	H	73.97	-9.87	Peak	220.00	137.71	Band Edge
2400.00	44.10	H	53.97	-9.87	Avg	220.00	137.71	X-Axis - Worst Case
2402.00	83.64	V	113.97	-30.33	Peak	347.00	109.29	Fundamental - Low Ch.
2402.00	63.64	V	93.97	-30.33	Avg	347.00	109.29	Z-Axis - Worst Case
2400.00	60.62	V	73.97	-13.35	Peak	347.00	109.29	Band Edge
2400.00	40.62	V	53.97	-13.35	Avg	347.00	109.29	Z-Axis - Worst Case
2480.00	87.45	H	113.97	-26.52	Peak	207.25	146.97	Fundamental - High Ch.
2480.00	67.45	H	93.97	-26.52	Avg	207.25	146.97	X-Axis - Worst Case
2483.50	55.60	H	73.97	-18.37	Peak	207.25	146.97	Band Edge
2483.50	35.60	H	93.97	-18.37	Avg	207.25	146.97	X-Axis - Worst Case
2480.00	83.20	V	113.97	-30.77	Peak	215.00	119.00	Fundamental - High Ch.
2480.00	63.20	V	93.97	-30.77	Avg	215.00	119.00	Y-Axis - Worst Case
2483.50	53.10	V	73.97	-20.87	Peak	215.00	119.00	Band Edge
2483.50	33.10	V	53.97	-20.87	Avg	215.00	119.00	Y-Axis - Worst Case



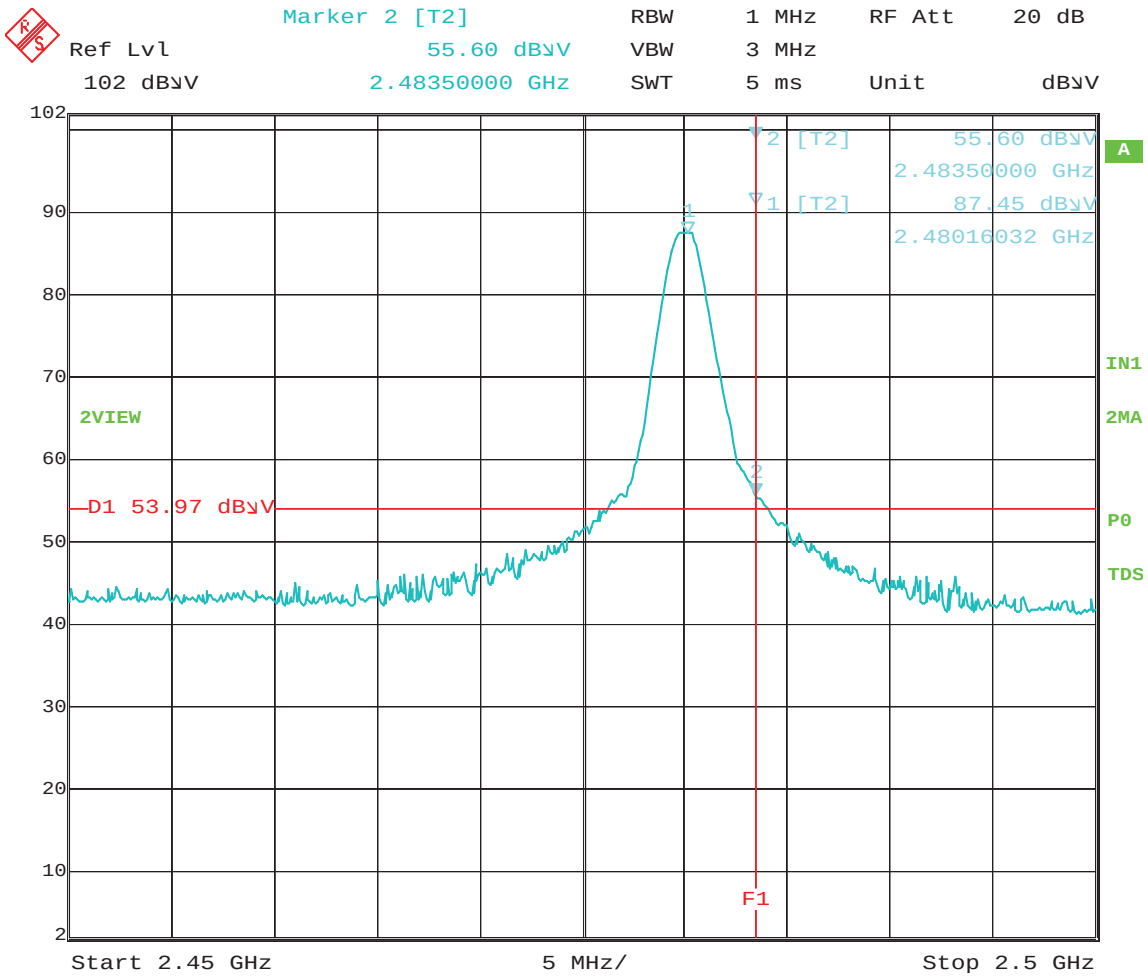
BE - Horizontal - AC Mode - 2400 MHz - X-Axis Worst Case



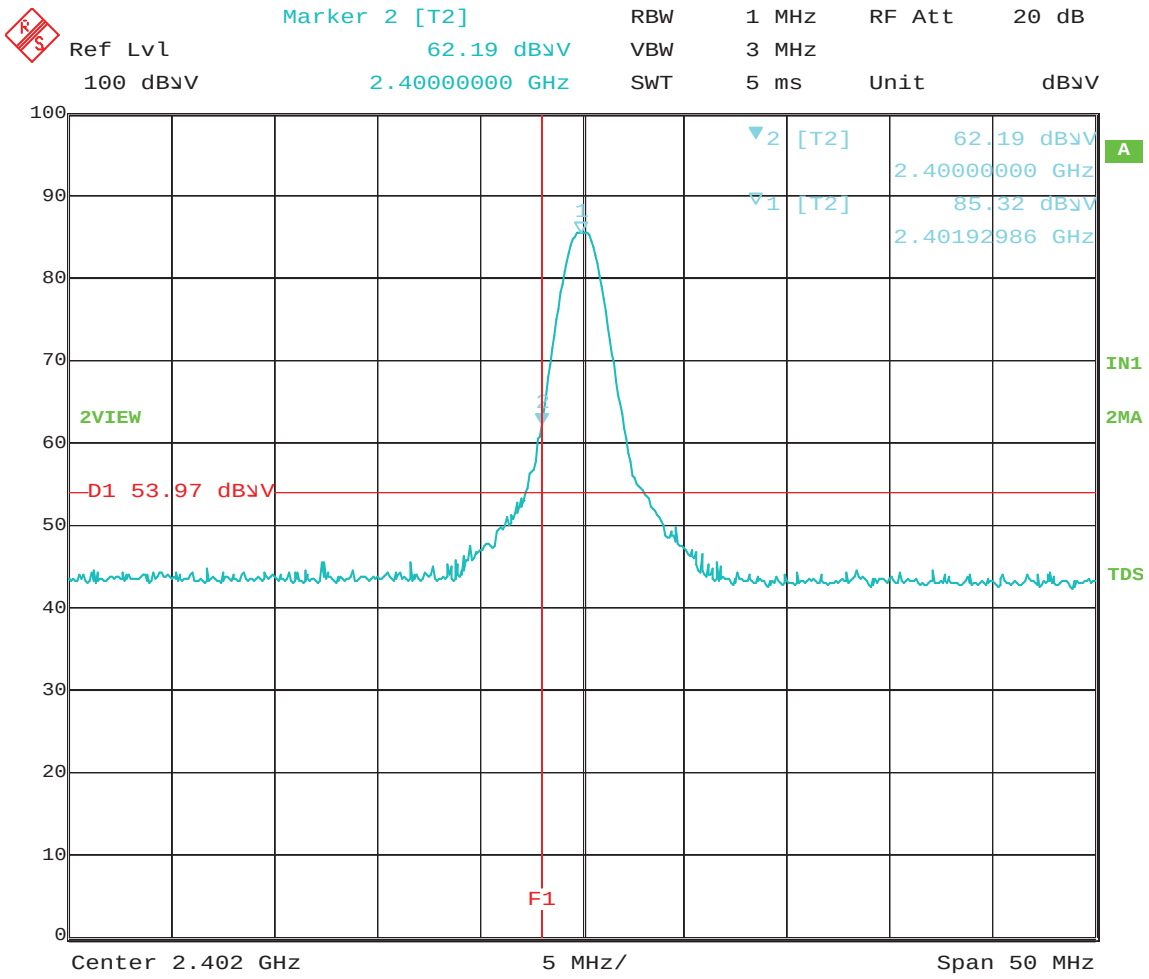
BE - Horizontal - AC Mode - 2480 MHz - X-Axis Worst Case



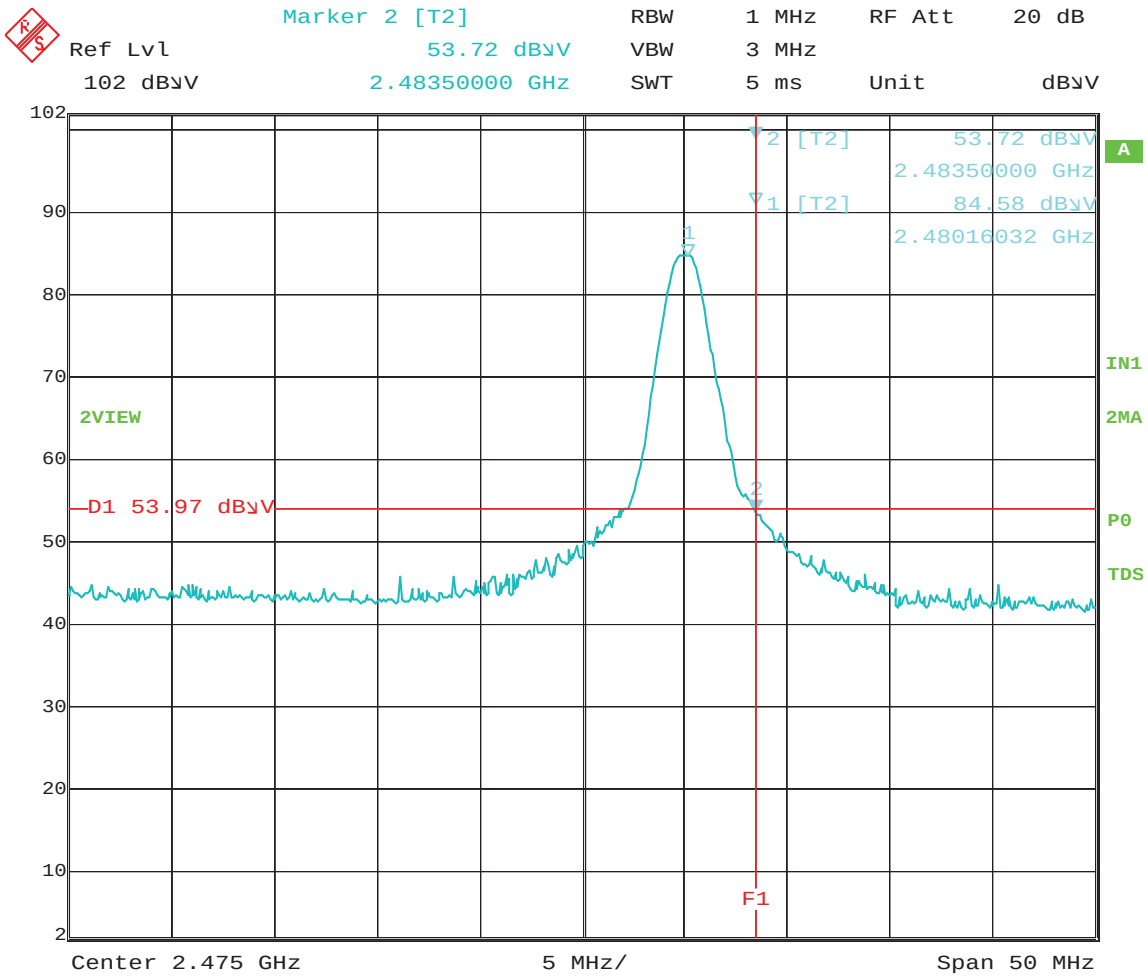
BE - Horizontal - Battery Mode - 2400 MHz - X-Axis Worst Case



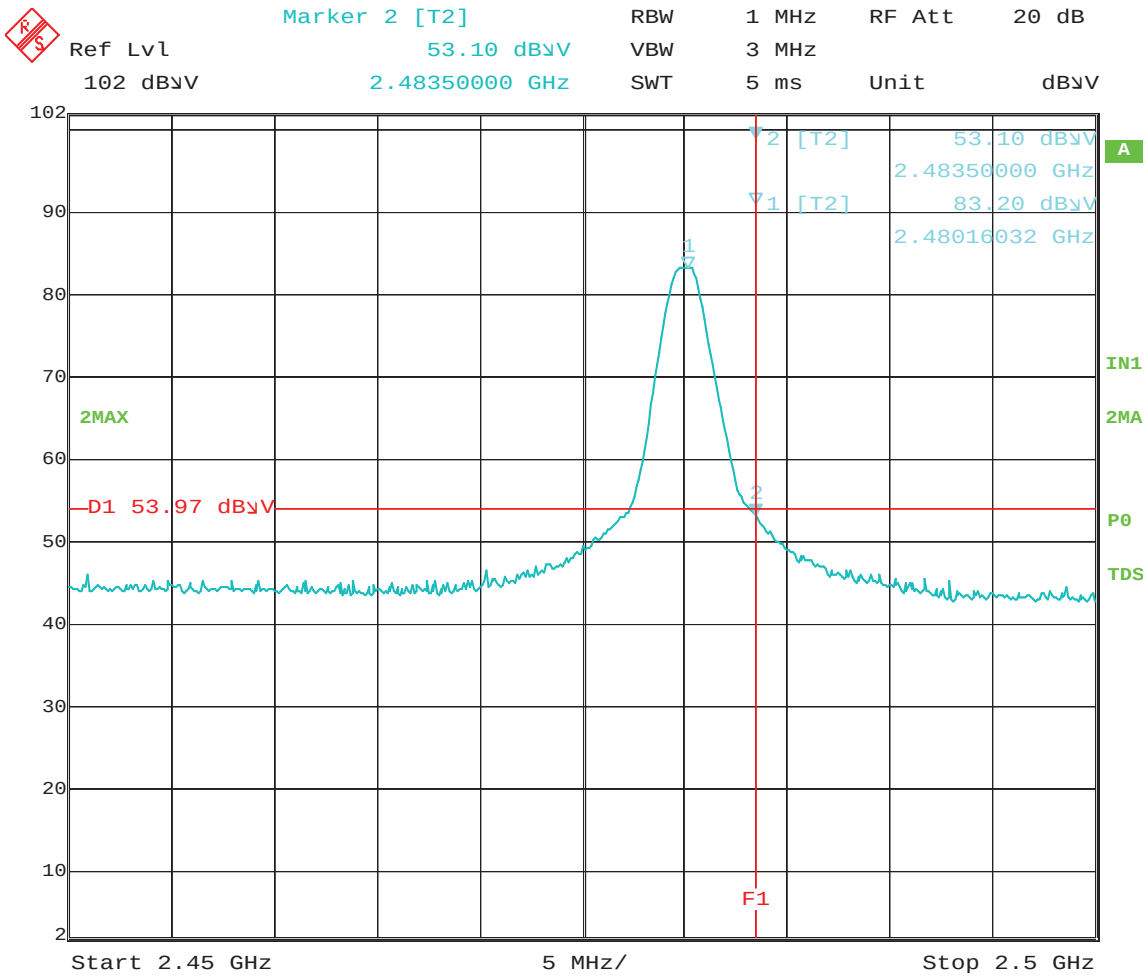
BE - Horizontal - Battery Mode - 2480 MHz - X-Axis Worst Case



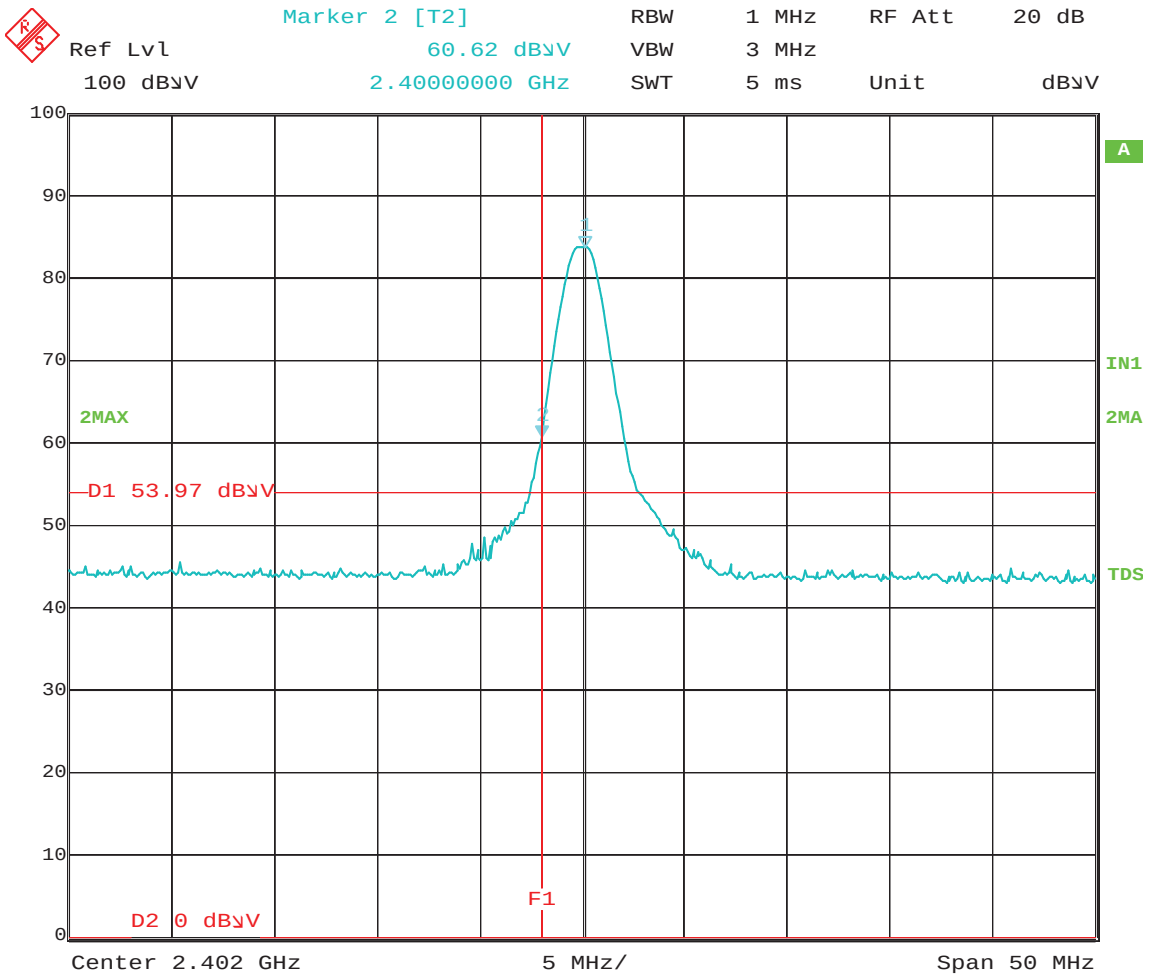
BE - Vertical - AC Mode - 2400 MHz - Z-Axis Worst Case



BE - Vertical - AC Mode - 2480 MHz - Y-Axis Worst Case

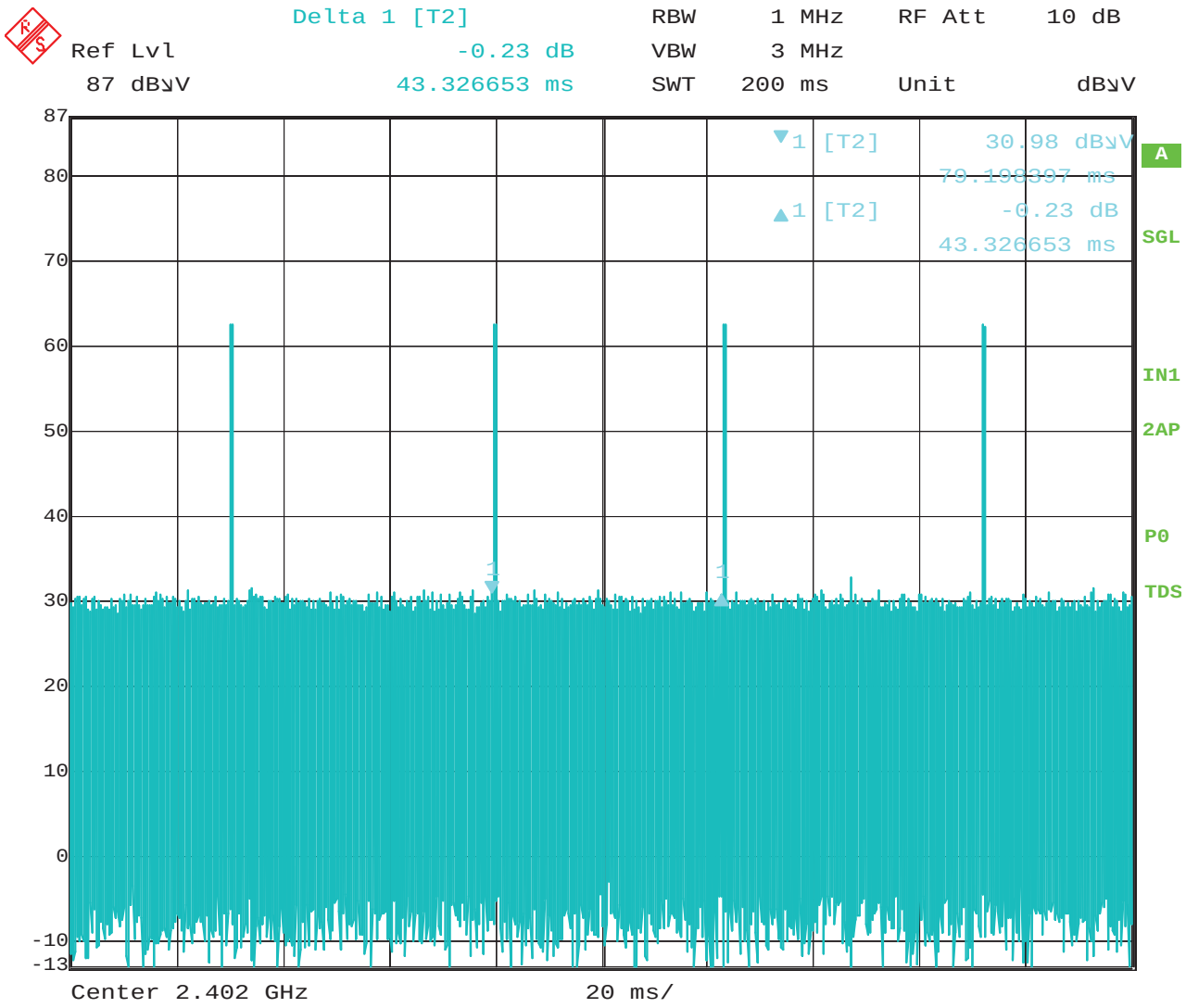


BE - Vertical - Battery Mode - 2480 MHz - Y-Axis Worst Case

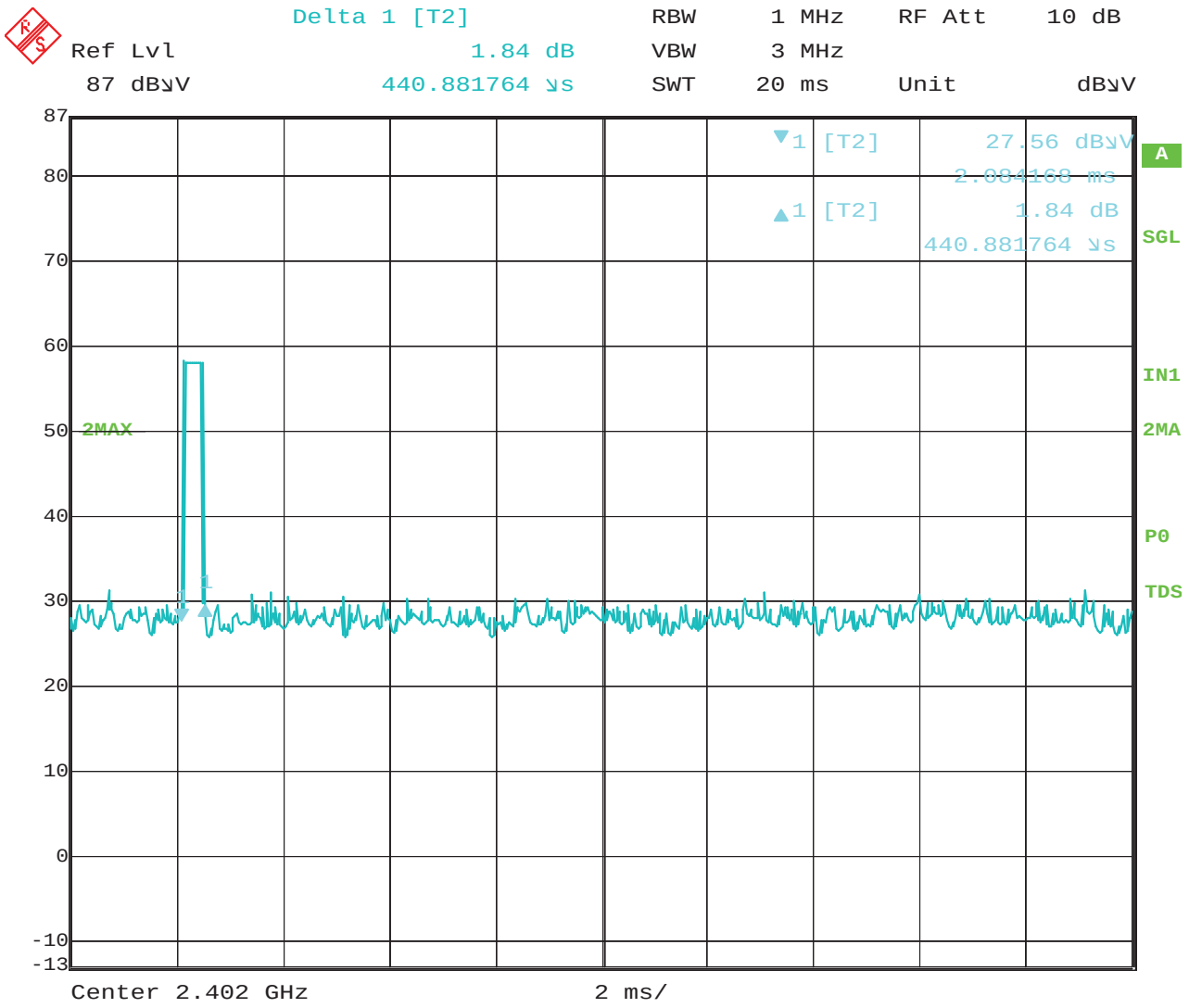


BE- Vertical - Battery Mode - 2400 MHz - Z - Axis Worst Case

DUTY CYCLE DATA SHEETS



Worst Case Time Between Pulses is 43.326653 ms – Advertising Mode

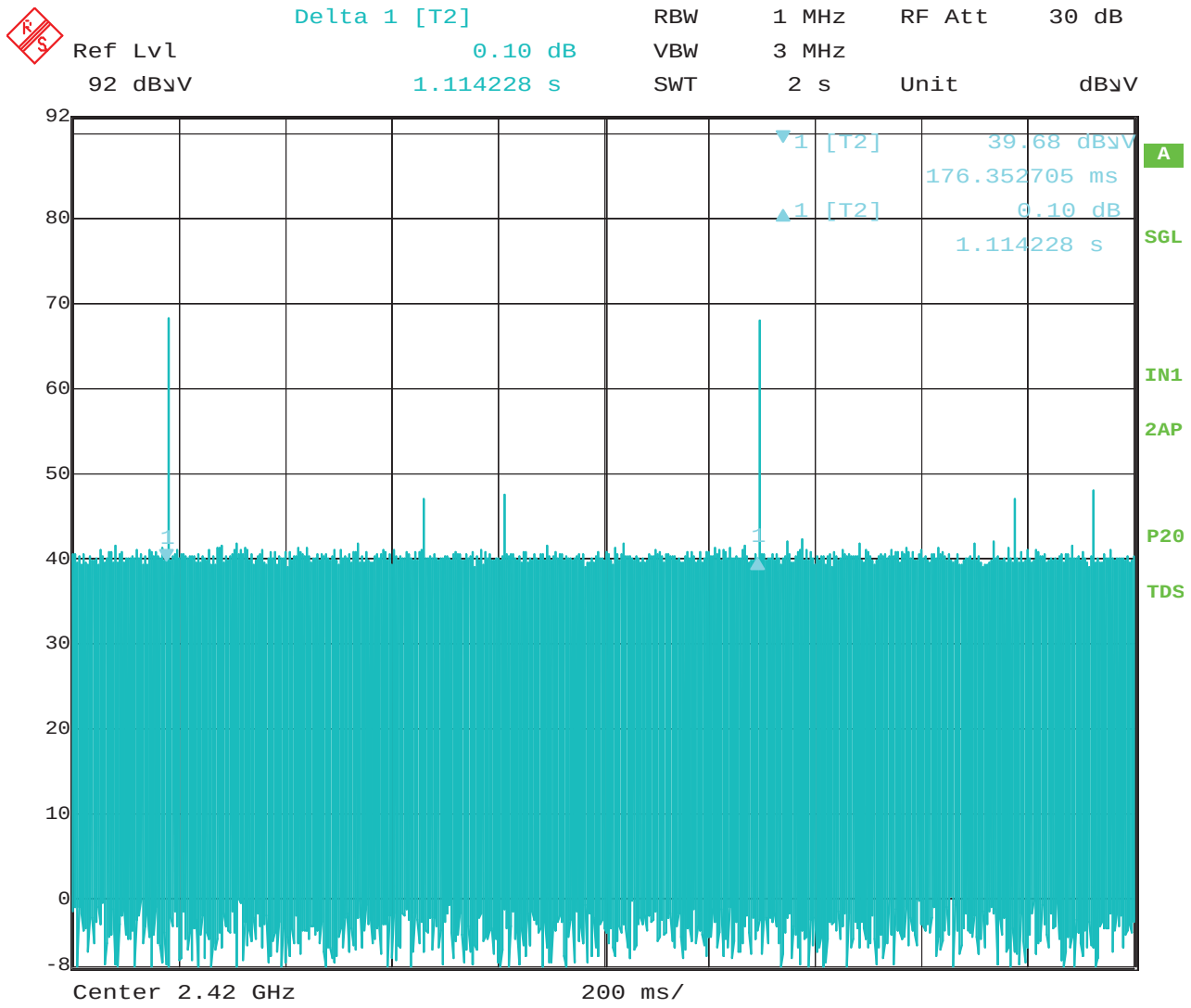


Time of pulse = 440.881764 us – Advertising Mode

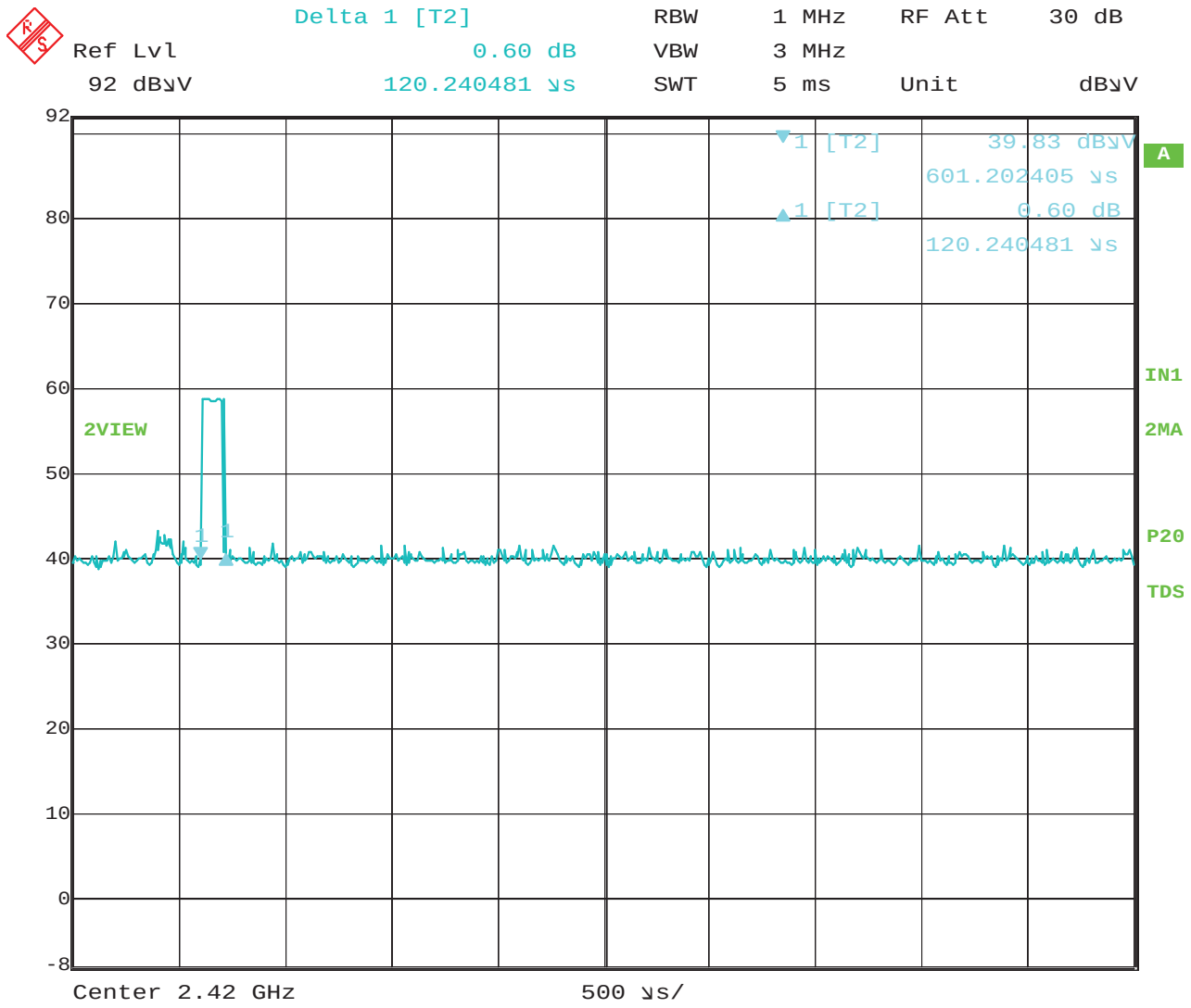
Total Duty Cycle = 440.881764 us / 43.326653 ms = 1.02%

Peak to Average Ratio = -20 dB

The maximum Peak to Average Ratio of 20 dB can be utilized because the duty cycle is less than 10%



Worst Case Time Between Pulses is 1.114228 seconds – Data Mode



Time of pulse = 120.240481 us – Data Mode

Total Duty Cycle = 120.240481 us / 100 ms = 0.1202%

Peak to Average Ratio = -20 dB

The maximum Peak to Average Ratio of 20 dB can be utilized because the duty cycle is less than 10%