COMPATIBLE ELECTRONICS

FCC PART 15, SUBPART B and C TEST REPORT

for

V9

Model: F0410003

Prepared for

COMODULE OÜ
DUNKRI 9
TALLINN, ESTONIA 10123

Prepared by:_____

THOMAS SZYNAL

Approved by:_____

KYLE FUJIMOTO

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DATE: MARCH 22, 2019

	REPORT BODY	APPENDICES					TOTAL
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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: V9
Model: F0410003
S/N: N/A

Product Description: The equipment under test is designed to be connected wirelessly into existing network infrastructure to gather and transmit data and to be controlled remotely. It thus creates opportunities for the physical world to be digitalized, which results in improved efficiency, accuracy and economic benefits.

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

Customer: COMODULE OÜ
Dunkri 9
Tallinn, Estonia 10123

Test Dates: February 11, 14, 18, 19, 21 and 22, 2019

Test Specifications covered by accreditation:

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

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

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

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Spurious Radiated RF Emissions, 9 kHz –25000 MHz (Transmitter, Receiver, and Digital portion)	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 88.01 dBuV/m (Avg) @ 2480.00 MHz (*U = 3.67 dB)

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the V9, Model: F0410003. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4 and ANSI C63.10. The tests were performed 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 Code of Federal Regulations Title 47, Part 15 Subpart B sections 15.107, 15.109, & Part 15 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

COMODULE OÜ

Kristjan Maruste	CEO
Eva Raigo	Research & Development Manager

Compatible Electronics Inc.

Thomas Szynal	Test Technician
Kyle Fujimoto	Test Engineer

2.4 Date Test Sample was Received

The test sample was received prior to the date of this report.

2.5 Disposition of the Test Sample

The test sample has not been returned to COMODULE OÜ as of the date of this test report.

2.6 Abbreviations and Acronyms

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

EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
ITE	Information Technology Equipment
DoC	Declaration of Conformity
N/A	Not Applicable
Tx	Transmit
Rx	Receive
Inc.	Incorporated
RF	Radio Frequency
BLE	Bluetooth Low Energy
IoT	Internet of Things
CEO	Chief Executive Officer
N/A	Not Applicable
DC	Direct Current

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this emission 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 40 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 V9, Model: F0410003 (EUT) was setup in a stand-alone configuration. 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 and simultaneously transmitting in its BLE and cellular modes while also receiving in GPS mode.

The EUT was tested in two different setup modes: External DC Mode and Internal Battery Mode.

For external DC mode, the EUT was connected to an external DC power supply at 36 volts and an accessory laptop computer during testing, while the laptop was connected to a remotely located Ethernet router. Lastly, the remotely located Ethernet router was connected to its own AC/DC adapter.

For internal battery mode, the EUT was tested as a stand-alone device (with no attached accessories).

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

4.1.1 Cable Construction and Termination

The below cables were used for external DC mode only:

Cable 1

This is a 2-meter, braid shielded, split cable connecting the EUT to the external DC power supply and the accessory laptop computer. The cable contains a 5-pin LEMO connector at the EUT end, a metallic USB Type A connector at the accessory laptop computer end, and is hard wired at the external DC power supply ± output banana jacks port. The cable was bundled to the length of 1 meter during testing.

Cable 2

This is a 17-meter unshielded Ethernet cable connecting the accessory laptop computer to the remotely located Ethernet router. The cable contains an RJ-45 connector at each end.

Cable 3

This is a 2.2-meter unshielded power cable connecting the laptop computer to its own AC adapter. The cable contains a metallic barrel power connector at the laptop computer end and is hard wired at the AC adapter end.

Cable 4

This is a 2-meter unshielded power cable connecting the remotely located Ethernet router to its own AC/DC adapter. The cable contains a metallic barrel power connector at the remotely located Ethernet router end and is hard wired at the AC/DC adapter end.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
V9 (EUT)	COMODULE OÜ	F0410003	N/A	2AQHSF0410003 (Also contains FCC ID: XPY1CGM5NNN)
DC POWER SUPPLY (TO EXTERNALLY POWER EUT)	KEPCO	JQE 75-8M	H197373	N/A
LAPTOP COMPUTER	HEWLETT PACKARD	HSTNN-C82C	N/A	DoC
AC ADAPTER (LAPTOP)	HEWLETT PACKARD	HSTNN-DA40	N/A	N/A
ETHERNET ROUTER	NETGEAR	WNR1000 v3	2J1334A100D	PY309300117
AC/DC ADAPTER (ROUTER)	NETGEAR	AD810F10	N/A	N/A

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
RF RADIATED EMISSIONS 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 5, 2019	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
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

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.

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 (Both Vertical and Horizontal)
AC LINE CONDUCTED EMISSIONS	3-METER CHAMBER, COM-POWER LISN	2.72 dB

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 quasi-peak and/or average reading was taken only where indicated in the data sheets. A 10 dB attenuator 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.

Test Results:

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

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.

All 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 1.

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 RADIATED EMISSION RESULTS
V9
Model: F0410003

Frequency (MHz)	EMI Reading (dBuV/m)	Specification Limit (dBuV/m)	Delta (Cor. Reading – Spec. Limit) (dB)
7440.00 (V) (Y-Axis) (High Channel, Transmit Mode)	49.76 (AV)	53.97	-4.21
7440.00 (V) (Z-Axis) (High Channel, Transmit Mode)	48.85 (AV)	53.97	-5.12
7440.00 (H) (X-Axis) (High Channel, Transmit Mode)	48.81 (AV)	53.97	-5.16
2480.00 (V) (Y-Axis) (High Channel, DC Mode)	88.01 (AV)	93.97	-5.96
2480.00 (H) (X-Axis) (High Channel, Battery Mode)	87.73 (AV)	93.97	-6.24
2402.00 (H) (X-Axis) (Low Channel, DC Mode)	87.33 (AV)	93.97	-6.64

Notes:

* The complete emissions data is given in Appendix E of this report.
(V) Vertical Polarization
(H) Horizontal Polarization
(AV) Average Reading
(QP) Quasi-Peak Reading

8. CONCLUSIONS

The V9, Model: F0410003 (EUT), as tested, meets all of the specification limits defined in the **Class B** specification limits defined in FCC Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209 and 15.249.

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."

Innovation, Science and Economic Development Canada
Lab Code 2154A

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	V9 Model: F0410003 S/N: N/A

There are no additional models covered under this report.

APPENDIX D

DIAGRAMS AND CHARTS

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

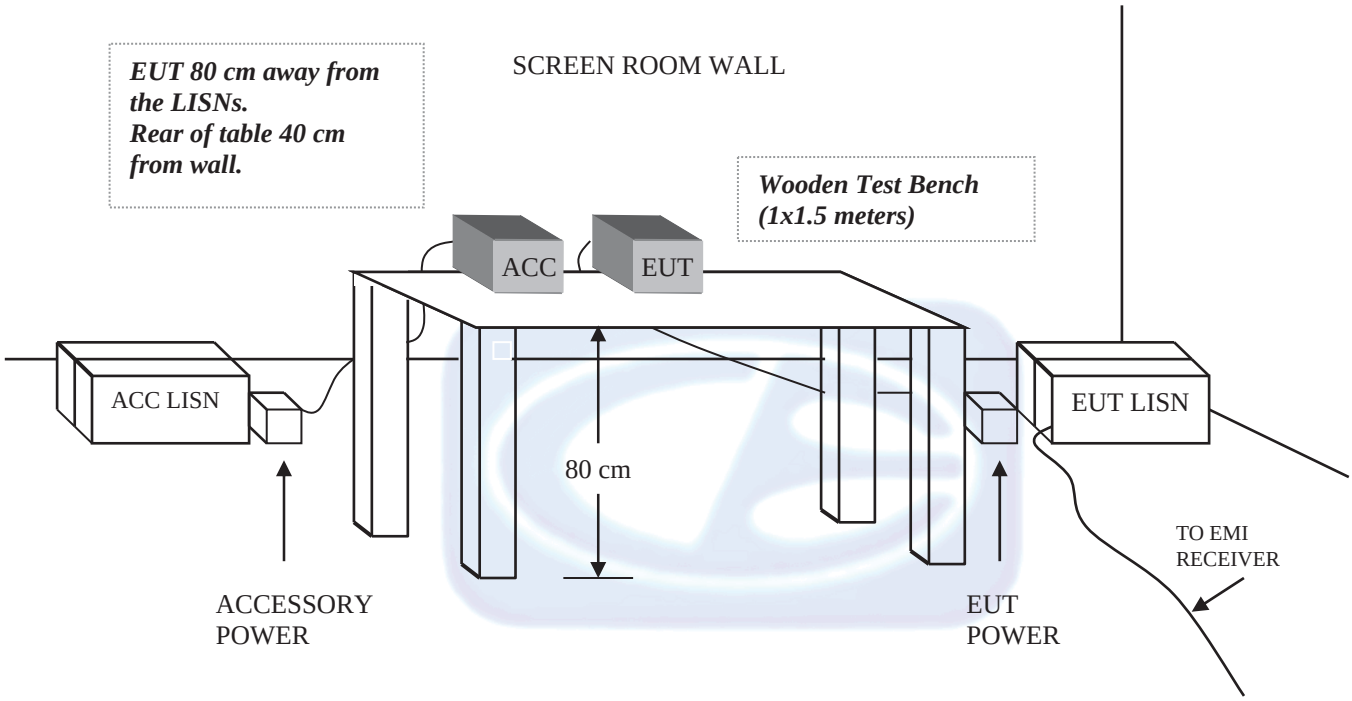
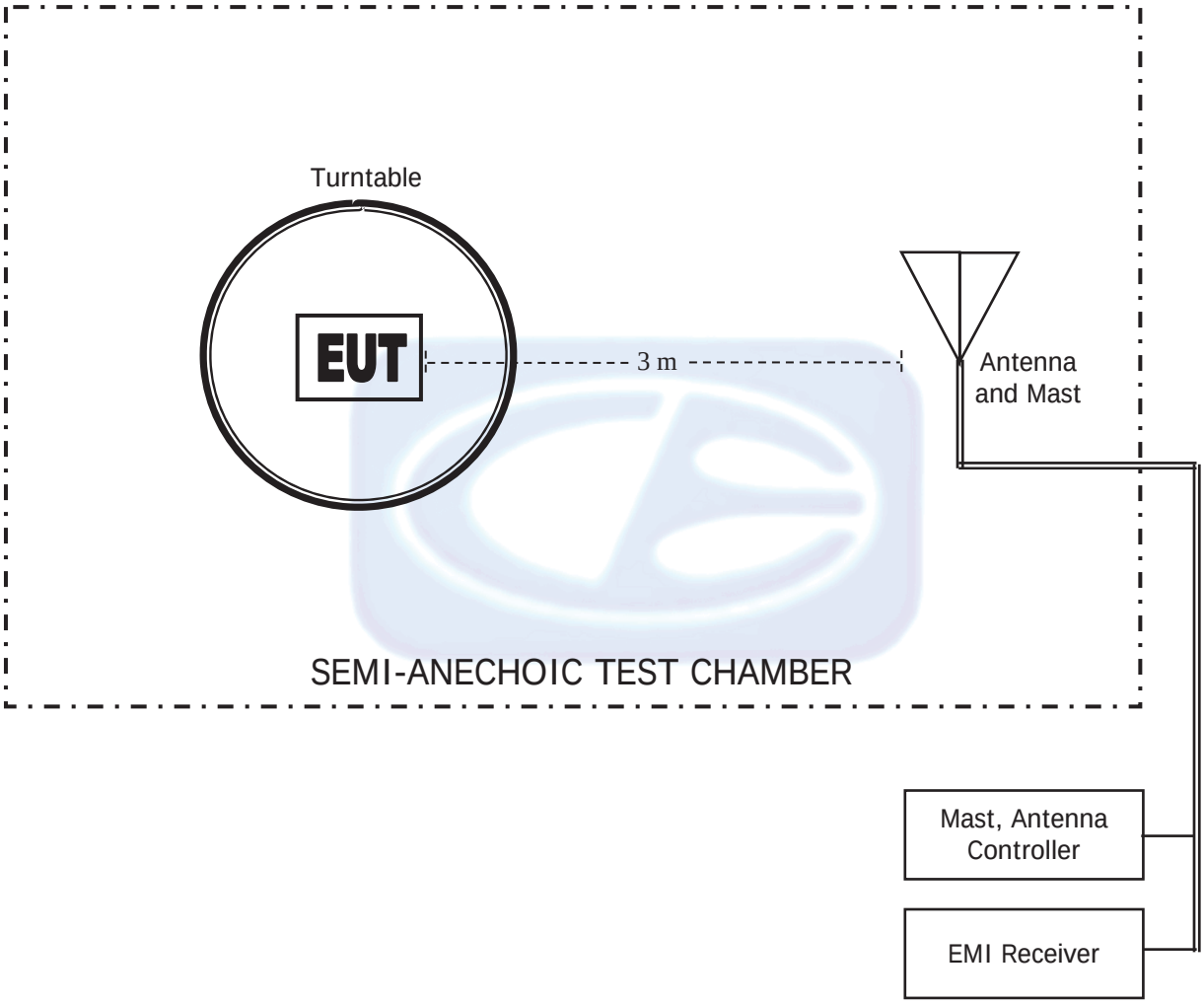


FIGURE 1: LAYOUT OF THE SEMI -ANECHOIC TEST CHAMBER



COM-POWER AL-130R

LOOP ANTENNA

S/N: 121090

CALIBRATION DATE: FEBRUARY 5, 2019

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.01	15.6	-35.9
0.02	14.8	-36.7
0.03	15.6	-35.9
0.04	15.1	-36.4
0.05	14.4	-37.0
0.06	14.6	-36.9
0.07	14.4	-37.1
0.08	14.3	-37.1
0.09	14.5	-36.9
0.10	14.1	-37.3
0.20	14.1	-37.3
0.30	14.0	-37.4
0.40	14.0	-37.4
0.50	14.2	-37.2
0.60	14.2	-37.2
0.70	14.2	-37.2
0.80	14.2	-37.3
0.90	14.3	-37.2
1.00	14.5	-37.0
2.00	14.5	-36.9
3.00	14.5	-36.9
4.00	14.7	-36.8
5.00	14.6	-36.9
6.00	14.6	-36.9
7.00	14.6	-36.9
8.00	14.6	-36.9
9.00	14.6	-36.9
10.00	14.8	-36.6
11.00	14.9	-36.6
12.00	14.8	-36.6
13.00	14.8	-36.7
14.00	14.6	-36.8
15.00	14.5	-36.9
16.00	14.5	-37.0
17.00	14.6	-36.9
18.00	14.7	-36.7
19.00	14.8	-36.6
20.00	14.9	-36.6
21.00	14.6	-36.8
22.00	14.2	-37.2
23.00	13.7	-37.7
24.00	13.3	-38.2
25.00	13.0	-38.5
26.00	12.9	-38.6
27.00	13.0	-38.5
28.00	13.1	-38.4
29.00	13.1	-38.4
30.00	12.9	-38.5

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

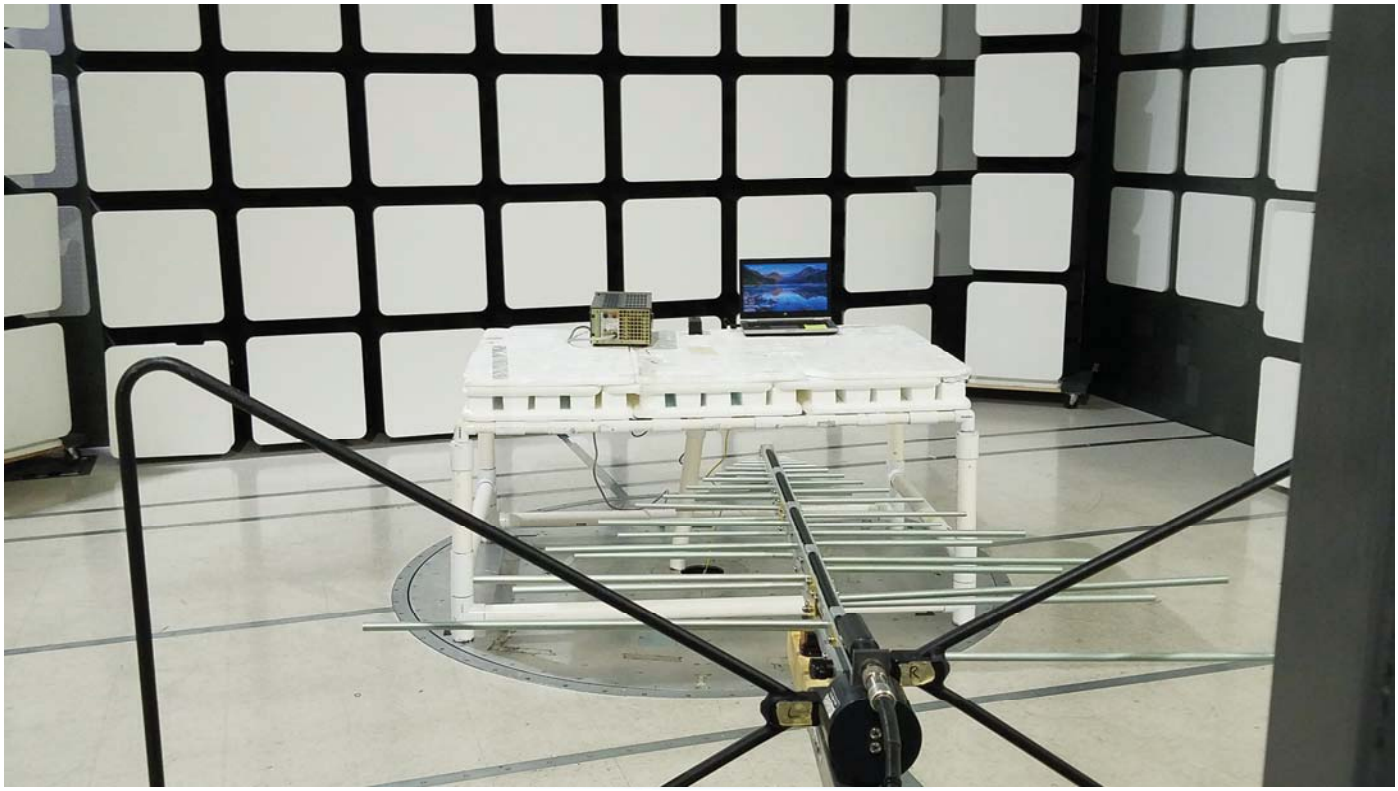
COM-POWER PA-840

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

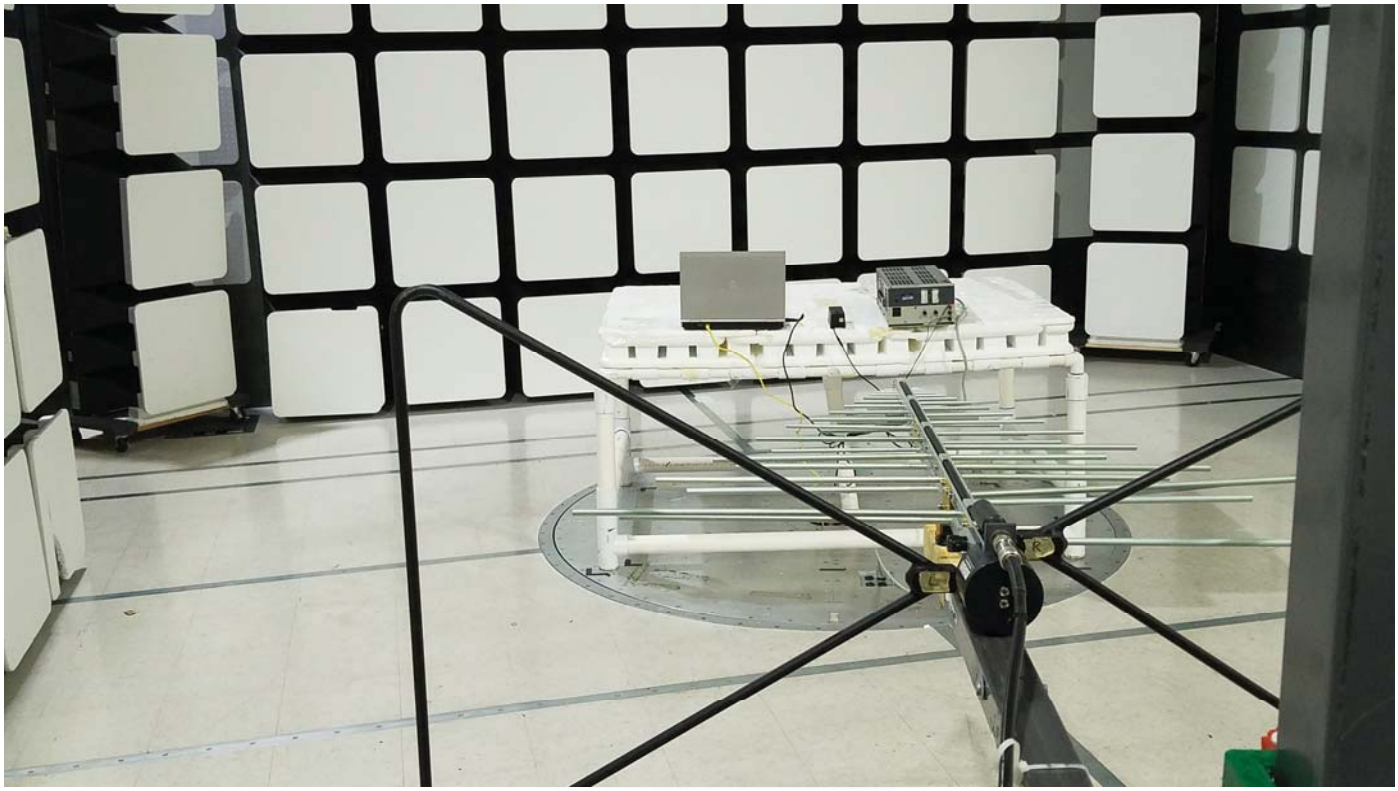


FRONT VIEW

EXTERNAL DC MODE

COMODULE OÜ
V9
MODEL: F0410003
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

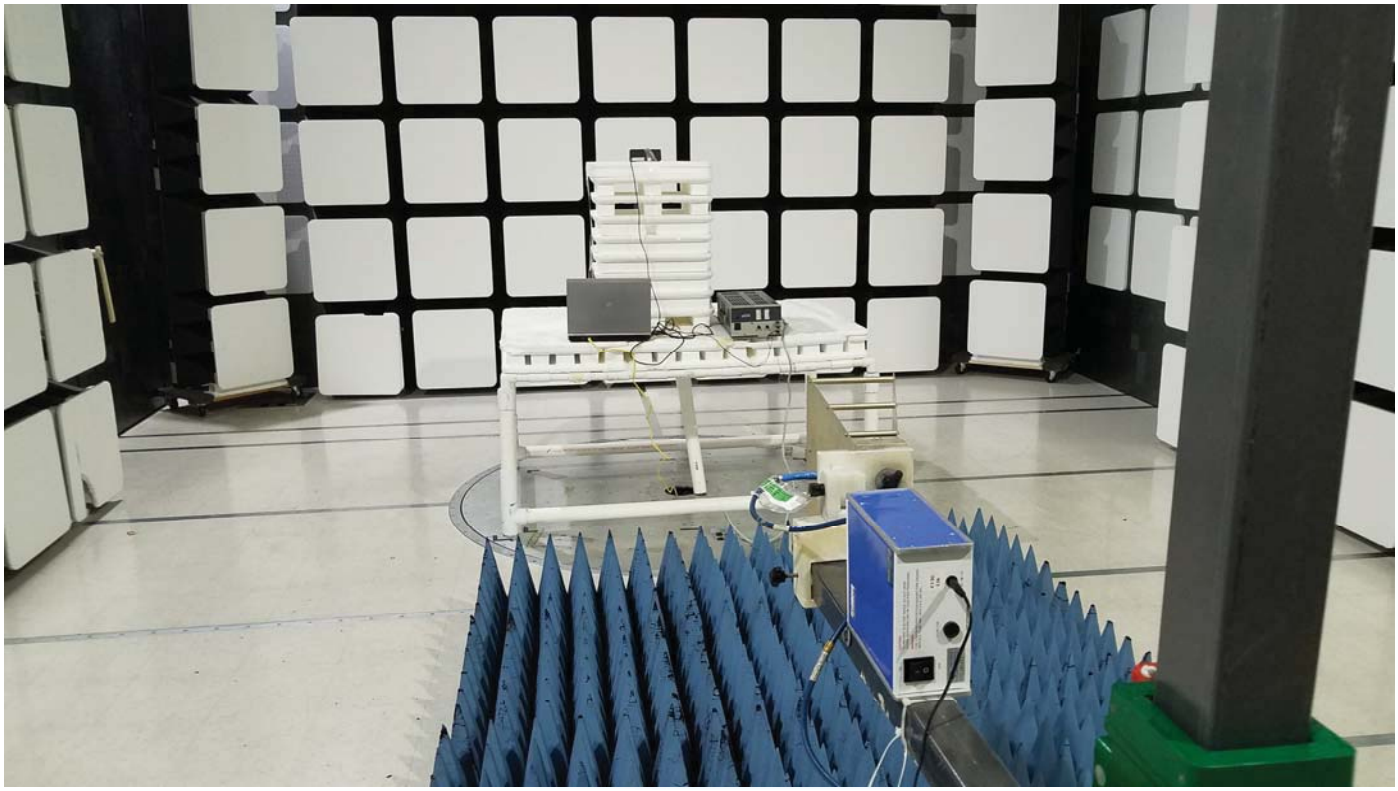


REAR VIEW

EXTERNAL DC MODE

COMODULE OÜ
V9
MODEL: F0410003
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

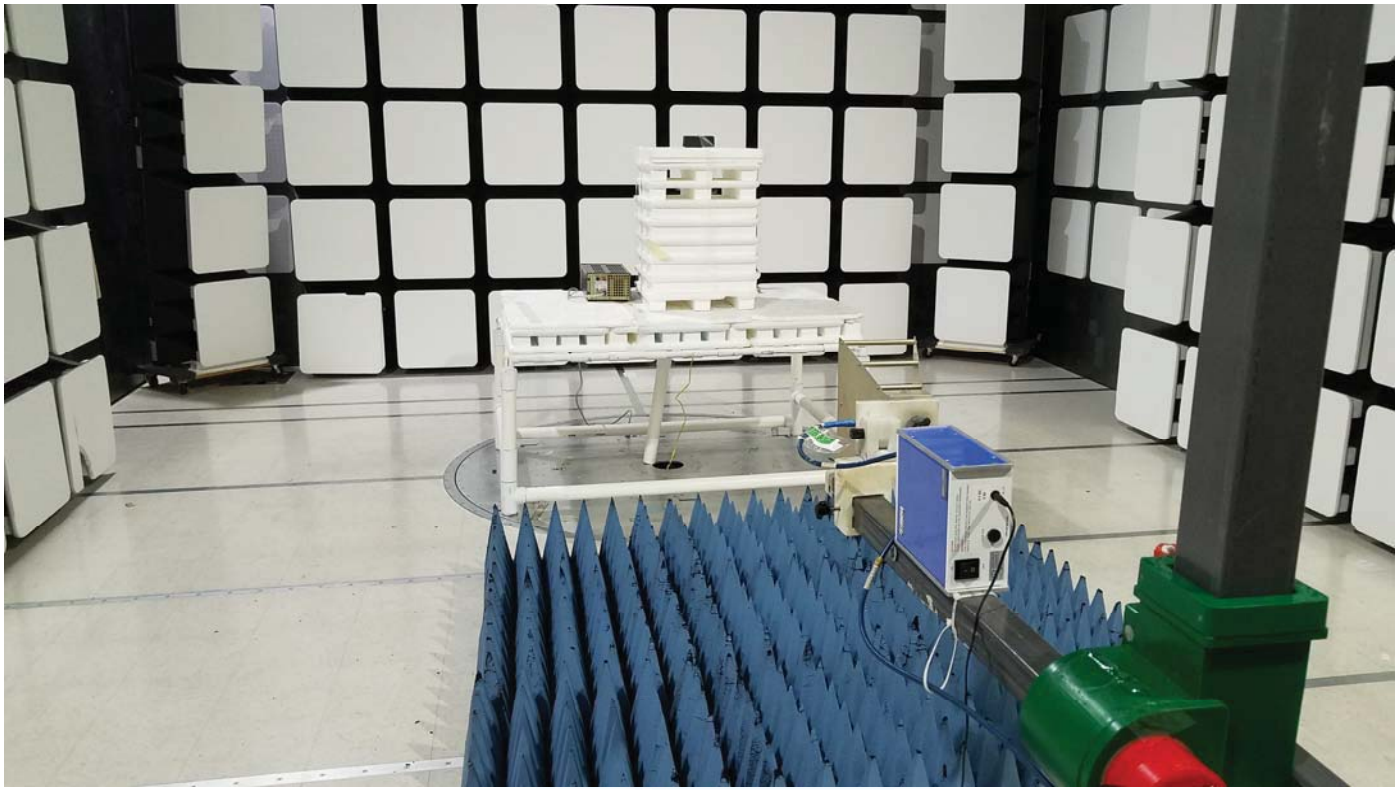


FRONT VIEW

EXTERNAL DC MODE

COMODULE OÜ
V9
MODEL: F0410003
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

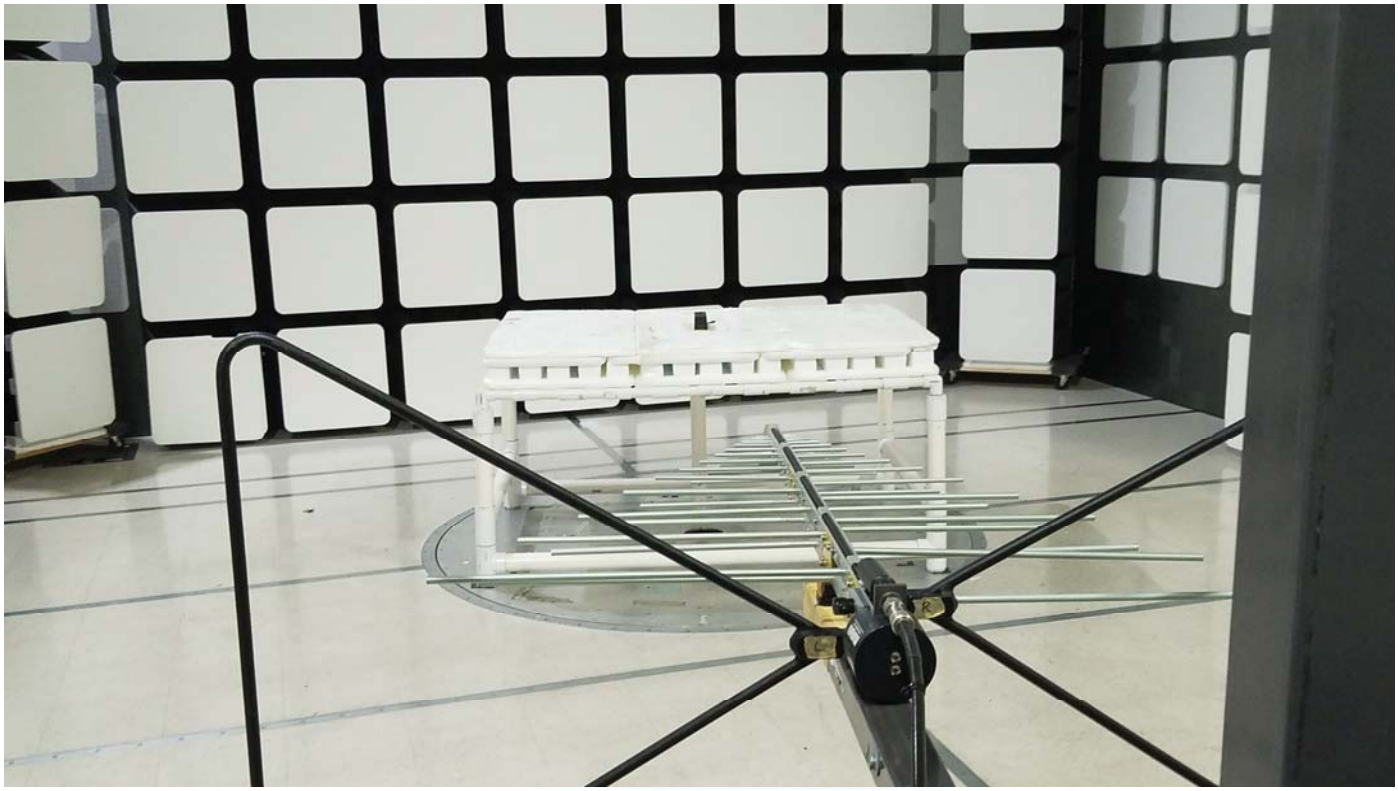


REAR VIEW

EXTERNAL DC MODE

COMODULE OÜ
V9
MODEL: F0410003
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONs



FRONT VIEW

INTERNAL BATTERY MODE

COMODULE OÜ
V9
MODEL: F0410003
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

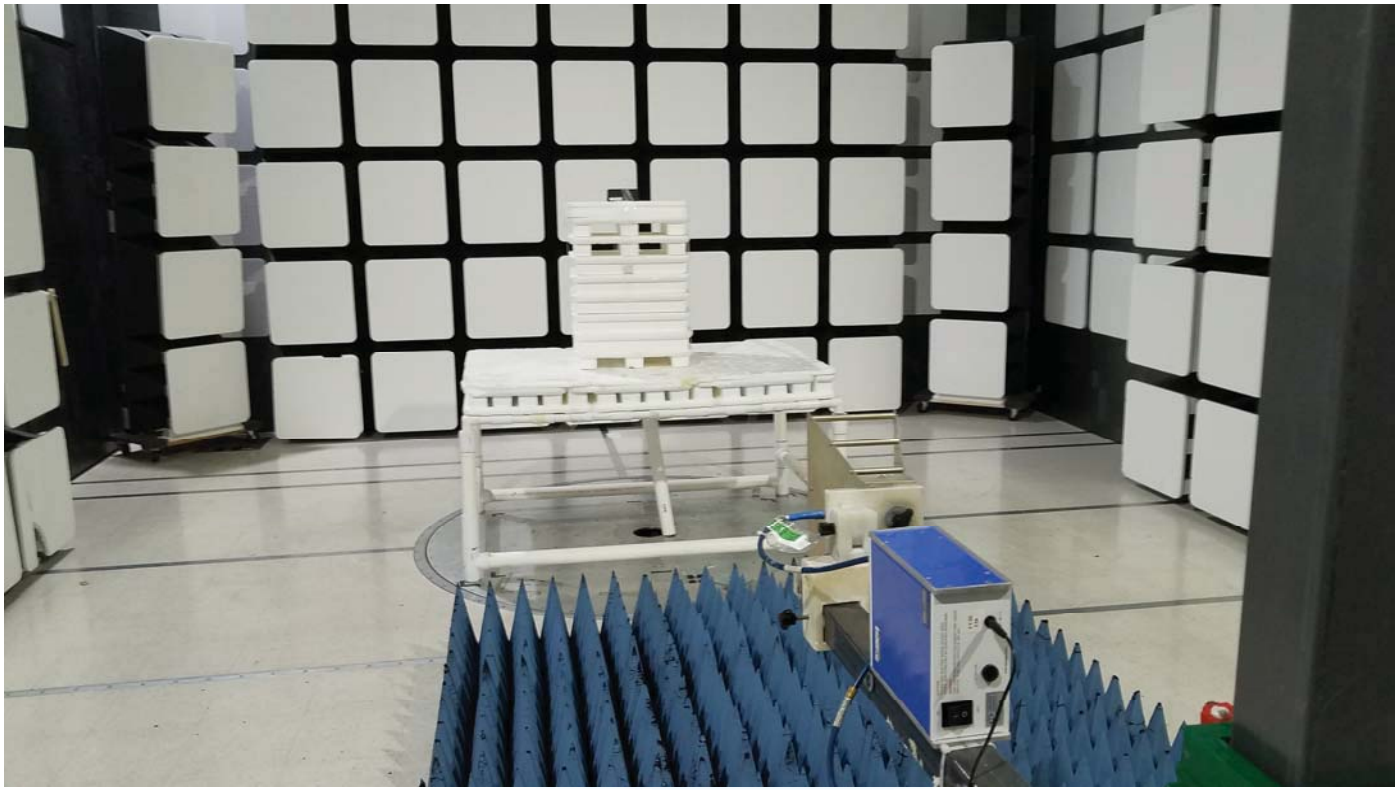
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

INTERNAL BATTERY MODE

COMODULE OÜ
V9
MODEL: F0410003
FCC SUBPART B AND C – RADIATED EMISSIONS – BELOW 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

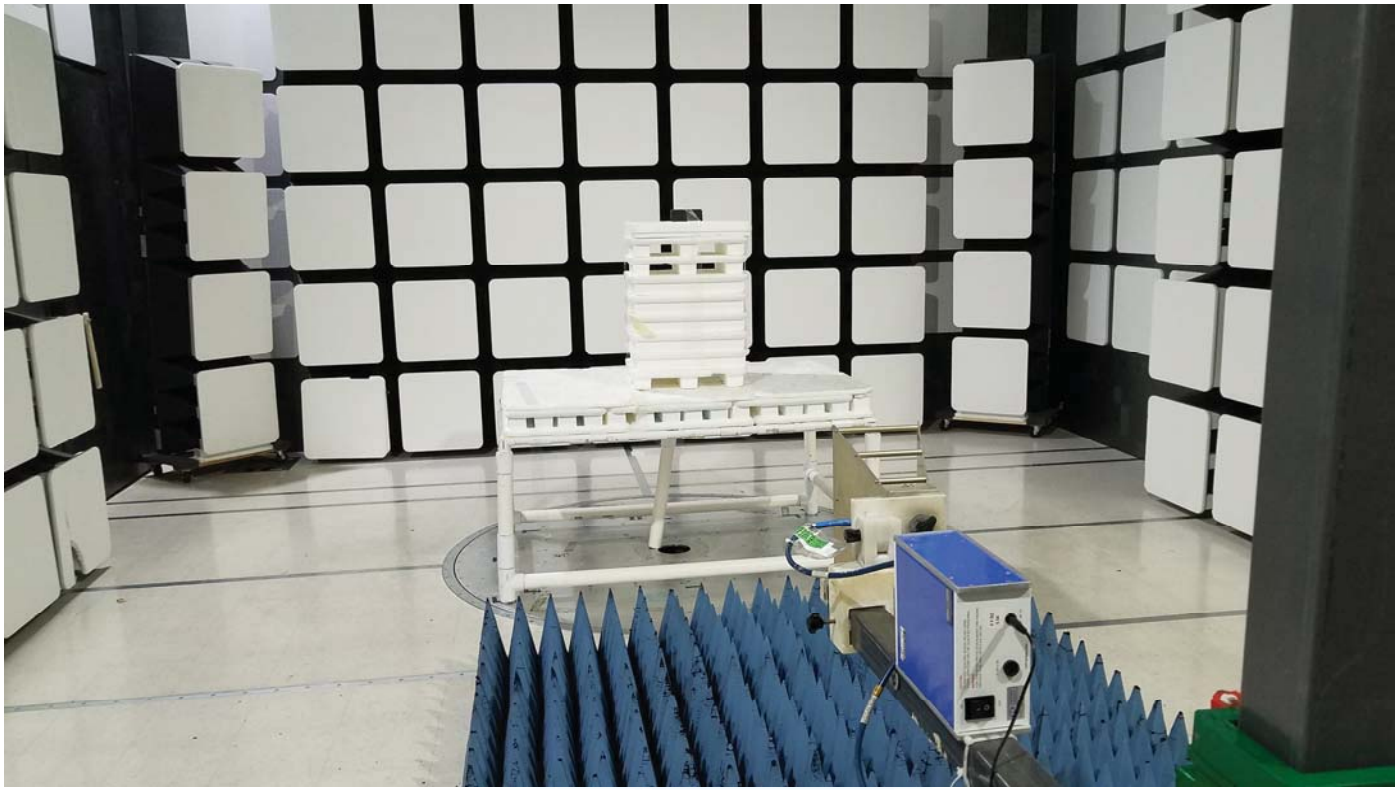


FRONT VIEW

INTERNAL BATTERY MODE

COMODULE OÜ
V9
MODEL: F0410003
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS



REAR VIEW

INTERNAL BATTERY MODE

COMODULE OÜ
V9
MODEL: F0410003
FCC SUBPART B AND C – RADIATED EMISSIONS – ABOVE 1 GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONs

APPENDIX E

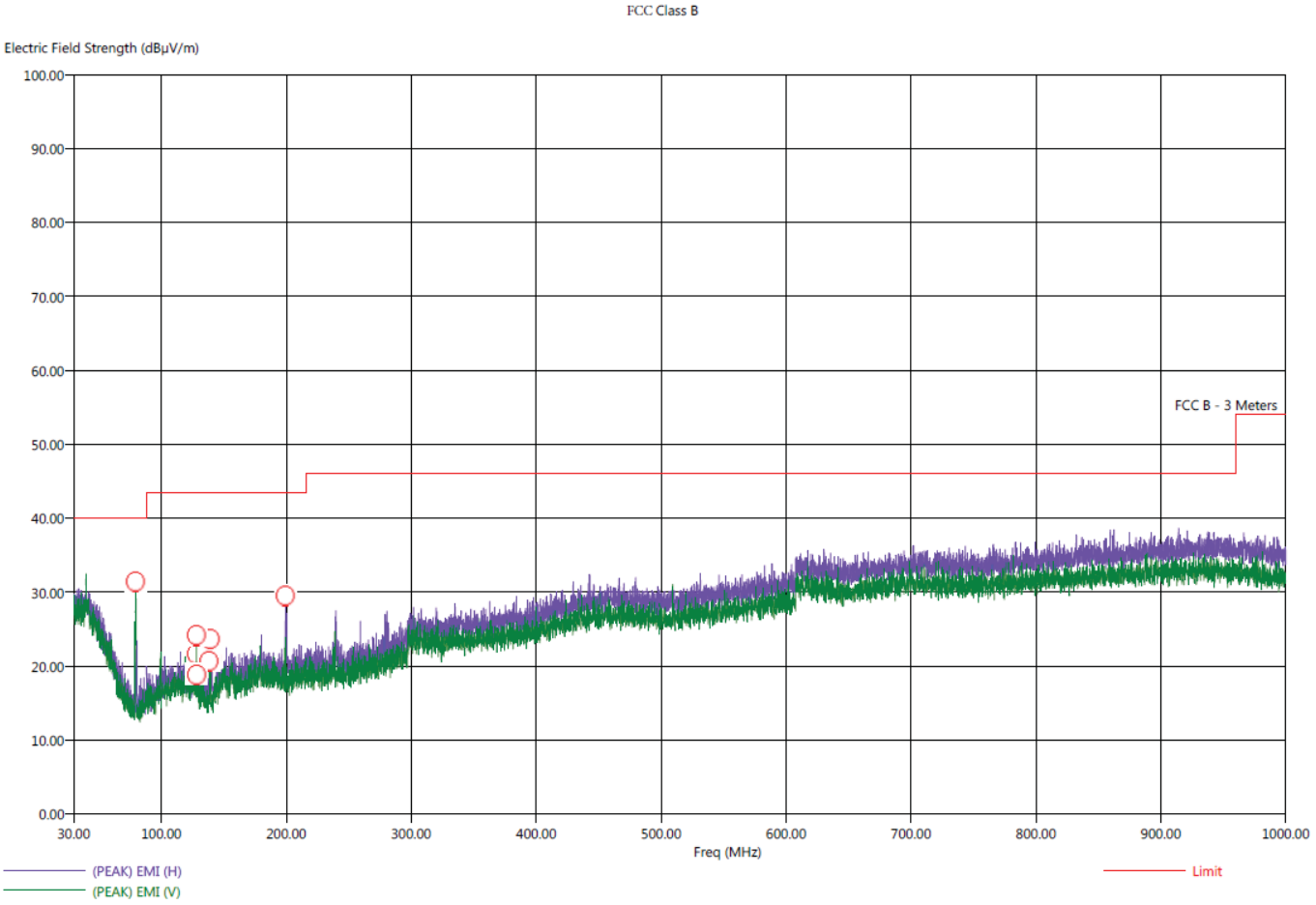
DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

Title: Pre-Scan - FCC Class B
File: Agilent - Pre-Scan #1 - DC Mode - FCC Class B - 30 MHz to 1000 MHz - 2-18-19.set
Operator: Kyle Fujimoto
EUT Type: V9
EUT Condition: The EUT is continuously transmitting at the low channel - X-Axis
Company: COMODULE OU
Model: F0410003
S/N: N/A
External DC Mode

2/18/2019 10:53:56 AM
Sequence: Preliminary Scan



Title: Radiated Final - FCC Class B
File: Agilent - Final Scan #1 - DC Mode - FCC Class B - 30 MHz to 1000 MHz - 2-18-19.set
Operator: Kyle Fujimoto
EUT Type: V9
EUT Condition: The EUT is continuously transmitting at the low channel - X-Axis
Company: COMODULE OU
Model: F0410003
S/N: N/A
External DC Mode

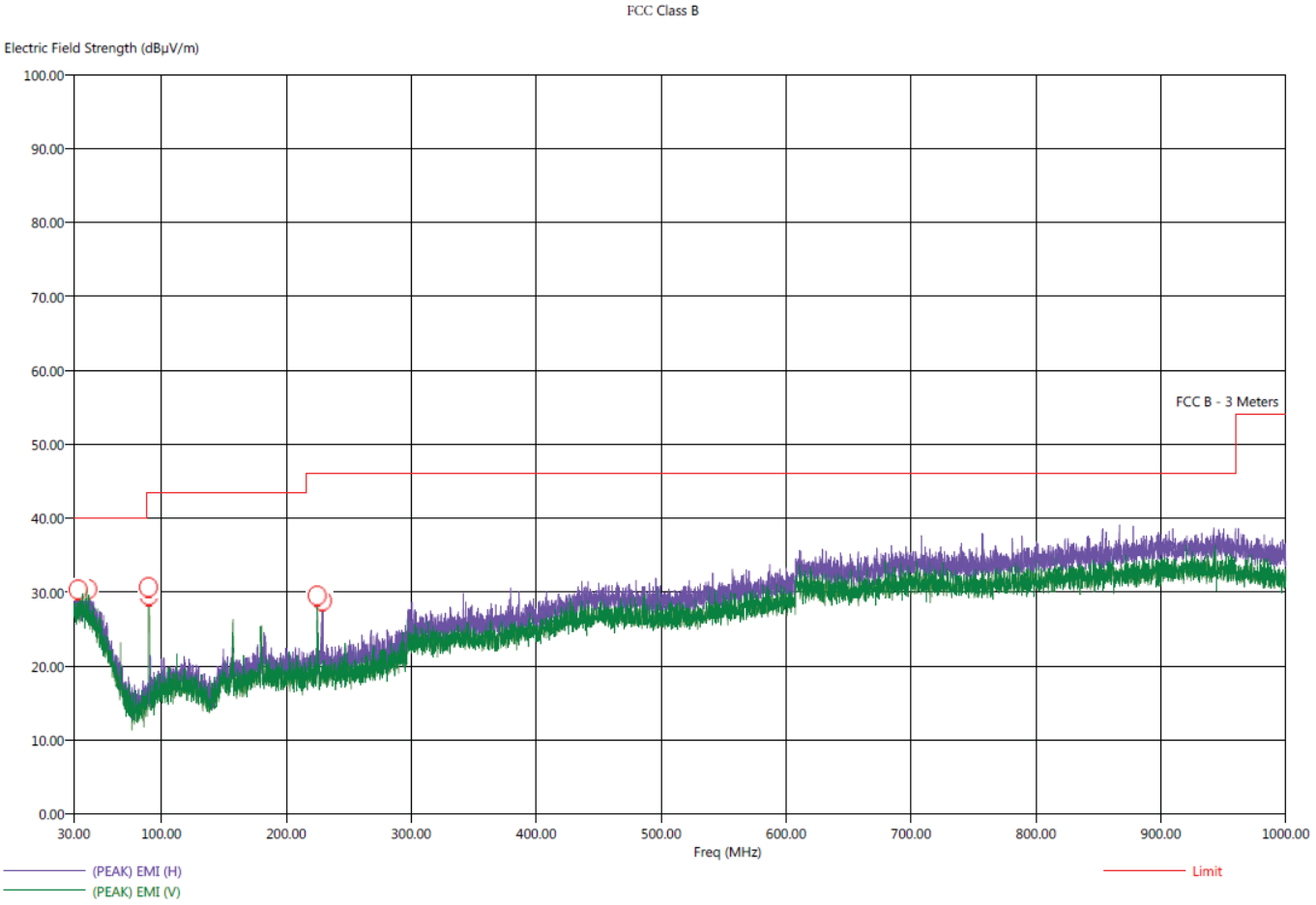
2/18/2019 11:04:42 AM
Sequence: Final Measurements

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)
79.30	V	17.98	12.80	-22.02	-27.20	40.00	11.31	1.09	66.50	143.02
128.00	H	24.42	21.65	-19.08	-21.85	43.50	14.54	1.21	217.25	318.73
128.00	V	28.30	25.03	-15.20	-18.47	43.50	14.54	1.21	314.00	127.02
128.20	V	28.99	26.41	-14.51	-17.09	43.50	14.54	1.21	301.25	111.38
138.20	V	19.82	14.24	-23.68	-29.26	43.50	13.02	1.26	16.25	191.08
139.10	V	19.20	14.23	-24.30	-29.27	43.50	12.96	1.26	191.25	127.38
140.10	H	18.96	14.11	-24.54	-29.39	43.50	12.85	1.26	175.00	318.43
140.40	H	20.93	14.26	-22.57	-29.24	43.50	13.02	1.26	197.00	397.89
199.30	H	23.29	17.72	-20.21	-25.78	43.50	14.12	1.49	218.00	365.83

Title: Pre-Scan - FCC Class B
File: Agilent - Pre-Scan #1 - FCC Class B - 30 MHz to 1000 MHz - 2-18-19.set
Operator: Kyle Fujimoto
EUT Type: V9
EUT Condition: The EUT is continuously transmitting at the low channel - X-Axis
Company: COMODULE OU
Model: F0410003
S/N: N/A
Internal Battery Mode

2/18/2019 10:11:22 AM
Sequence: Preliminary Scan



Title: Radiated Final - FCC Class B
File: Agilent - Final Scan #1 - FCC Class B - 30 MHz to 1000 MHz - 2-18-19.set
Operator: Kyle Fujimoto
EUT Type: V9
EUT Condition: The EUT is continuously transmitting at the low channel - X-Axis
Company: COMODULE OU
Model: F0410003
S/N: N/A
Internal Battery Mode

2/18/2019 10:21:04 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)
33.50	H	32.27	26.41	-7.73	-13.59	40.00	23.95	0.84	228.50	238.91
41.10	H	32.77	27.01	-7.23	-12.99	40.00	24.22	0.90	46.25	255.02
89.70	V	20.15	14.42	-23.35	-29.08	43.50	13.04	1.10	113.50	159.26
90.10	V	20.23	14.52	-23.27	-28.98	43.50	13.14	1.10	233.75	254.85
224.80	V	23.58	18.25	-22.42	-27.75	46.00	14.73	1.60	223.25	302.61
229.00	H	23.02	18.29	-22.98	-27.71	46.00	14.83	1.60	227.00	382.67

FCC 15.249
COMODULE OU
V9
Model: F0410003

Date: 02/19/2019
Lab: D
Tested By: Kyle Fujimoto

Fundamental - DC Mode
External DC Mode

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402.00	89.86	V	113.97	-24.11	Peak	22.75	143.68	X-Axis
2402.00	82.89	V	93.97	-11.08	Avg	22.75	143.68	Vertical Polarization
2402.00	86.58	V	113.97	-27.39	Peak	312.75	130.43	Y-Axis
2402.00	84.70	V	93.97	-9.27	Avg	312.75	130.43	Vertical Polarization
2402.00	86.53	V	113.97	-27.44	Peak	289.25	207.20	Z-Axis
2402.00	85.37	V	93.97	-8.60	Avg	289.25	207.20	Vertical Polarization
2402.00	89.09	H	113.97	-24.88	Peak	317.25	145.05	X-Axis
2402.00	87.33	H	93.97	-6.64	Avg	317.25	145.05	Horizontal Polarization
2402.00	81.26	H	113.97	-32.71	Peak	302.25	152.26	Y-Axis
2402.00	79.25	H	93.97	-14.72	Avg	302.25	152.26	Horizontal Polarization
2402.00	87.93	H	113.97	-26.04	Peak	315.25	128.25	Z-Axis
2402.00	85.29	H	93.97	-8.68	Avg	315.25	128.25	Horizontal Polarization

FCC 15.249
COMODULE OU
V9
Model: F0410003

Date: 02/19/2019
Lab: D
Tested By: Kyle Fujimoto

Fundamental - DC Mode
External DC Mode

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440.00	81.99	V	113.97	-31.98	Peak	49.25	170.97	X-Axis
2440.00	80.64	V	93.97	-13.33	Avg	49.25	170.97	Vertical Polarization
2440.00	84.78	V	113.97	-29.19	Peak	121.75	120.64	Y-Axis
2440.00	82.33	V	93.97	-11.64	Avg	121.75	120.64	Vertical Polarization
2440.00	82.15	V	113.97	-31.82	Peak	230.75	150.24	Z-Axis
2440.00	80.81	V	93.97	-13.16	Avg	230.75	150.24	Vertical Polarization
2440.00	88.08	H	113.97	-25.89	Peak	294.25	100.08	X-Axis
2440.00	86.75	H	93.97	-7.22	Avg	294.25	100.08	Horizontal Polarization
2440.00	81.28	H	113.97	-32.69	Peak	248.75	168.70	Y-Axis
2440.00	79.56	H	93.97	-14.41	Avg	248.75	168.70	Horizontal Polarization
2440.00	87.24	H	113.97	-26.73	Peak	234.00	211.69	Z-Axis
2440.00	85.42	H	93.97	-8.55	Avg	234.00	211.69	Horizontal Polarization

FCC 15.249
COMODULE OU
V9
Model: F0410003

Date: 02/19/2019
Lab: D
Tested By: Kyle Fujimoto

Fundamental - DC Mode
External DC Mode

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480.00	82.26	V	113.97	-31.71	Peak	50.25	172.25	X-Axis
2480.00	80.78	V	93.97	-13.19	Avg	50.25	172.25	Vertical Polarization
2480.00	89.42	V	113.97	-24.55	Peak	180.25	152.26	Y-Axis
2480.00	88.01	V	93.97	-5.96	Avg	180.25	152.26	Vertical Polarization
2480.00	83.26	V	113.97	-30.71	Peak	231.75	151.25	Z-Axis
2480.00	81.26	V	93.97	-12.71	Avg	231.75	151.25	Vertical Polarization
2480.00	90.61	H	113.97	-23.36	Peak	359.25	101.25	X-Axis
2480.00	84.97	H	93.97	-9.00	Avg	359.25	101.25	Horizontal Polarization
2480.00	82.26	H	113.97	-31.71	Peak	358.25	125.25	Y-Axis
2480.00	80.21	H	93.97	-13.76	Avg	358.25	125.25	Horizontal Polarization
2480.00	88.02	H	113.97	-25.95	Peak	225.00	212.25	Z-Axis
2480.00	86.25	H	93.97	-7.72	Avg	225.00	212.25	Horizontal Polarization

FCC 15.249
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - DC Mode
External DC Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	49.47	V	73.97	-24.50	Peak	51.00	120.58	
4804.00	37.17	V	53.97	-16.80	Avg	51.00	120.58	
7206.00	48.03	V	73.97	-25.94	Peak	238.75	135.26	
7206.00	35.94	V	53.97	-18.03	Avg	238.75	135.26	
9608.00	50.20	V	73.97	-23.77	Peak	173.00	136.25	
9608.00	37.64	V	53.97	-16.33	Avg	173.00	136.25	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - DC Mode
External DC Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	47.08	V	73.97	-26.89	Peak	313.50	131.32	
4804.00	40.89	V	53.97	-13.08	Avg	313.50	131.32	
7206.00	50.25	V	73.97	-23.72	Peak	350.00	125.25	
7206.00	38.31	V	53.97	-15.66	Avg	350.00	125.25	
9608.00	50.95	V	73.97	-23.02	Peak	109.75	125.05	
9608.00	37.87	V	53.97	-16.10	Avg	109.75	125.05	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - DC Mode
External DC Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	47.43	V	73.97	-26.54	Peak	24.25	166.37	
4804.00	37.13	V	53.97	-16.84	Avg	24.25	166.37	
7206.00	49.27	V	73.97	-24.70	Peak	184.50	142.73	
7206.00	37.22	V	53.97	-16.75	Avg	184.50	142.73	
9608.00	49.13	V	73.97	-24.84	Peak	75.75	132.16	
9608.00	37.91	V	53.97	-16.06	Avg	75.75	132.16	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - DC Mode
External DC Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	51.86	H	73.97	-22.11	Peak	253.50	183.38	
4804.00	41.29	H	53.97	-12.68	Avg	253.50	183.38	
7206.00	48.18	H	73.97	-25.79	Peak	10.25	187.86	
7206.00	35.62	H	53.97	-18.35	Avg	10.25	187.86	
9608.00	49.69	H	73.97	-24.28	Peak	125.25	187.45	
9608.00	38.57	H	53.97	-15.40	Avg	125.25	187.45	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - DC Mode
External DC Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	46.26	H	73.97	-27.71	Peak	273.50	117.59	
4804.00	35.43	H	53.97	-18.54	Avg	273.50	117.59	
7206.00	48.25	H	73.97	-25.72	Peak	86.75	131.20	
7206.00	35.68	H	53.97	-18.29	Avg	86.75	131.20	
9608.00	50.31	H	73.97	-23.66	Peak	2.50	125.25	
9608.00	37.91	H	53.97	-16.06	Avg	2.50	125.25	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - DC Mode
External DC Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	51.93	H	73.97	-22.04	Peak	350.00	135.38	
4804.00	42.42	H	53.97	-11.55	Avg	350.00	135.38	
7206.00	49.82	H	73.97	-24.15	Peak	190.00	122.85	
7206.00	39.92	H	53.97	-14.05	Avg	190.00	122.85	
9608.00	49.79	H	73.97	-24.18	Peak	287.25	135.25	
9608.00	38.03	H	53.97	-15.94	Avg	287.25	135.25	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - DC Mode
External DC Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	49.26	V	73.97	-24.71	Peak	61.00	125.25	
4880.00	36.59	V	53.97	-17.38	Avg	61.00	125.25	
7320.00	47.26	V	73.97	-26.71	Peak	225.26	145.28	
7320.00	34.59	V	53.97	-19.38	Avg	225.26	145.28	
9760.00	50.14	V	73.97	-23.83	Peak	175.00	134.25	
9760.00	37.54	V	53.97	-16.43	Avg	175.00	134.25	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - DC Mode
External DC Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	48.89	V	73.97	-25.08	Peak	314.00	173.83	
4880.00	35.49	V	53.97	-18.48	Avg	314.00	173.83	
7320.00	50.21	V	73.97	-23.76	Peak	100.75	164.28	
7320.00	39.88	V	53.97	-14.09	Avg	100.75	164.28	
9760.00	50.24	V	73.97	-23.74	Peak	94.25	133.00	
9760.00	38.03	V	53.97	-15.94	Avg	94.25	133.00	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - DC Mode
External DC Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	46.59	V	73.97	-27.38	Peak	25.25	168.35	
4880.00	32.58	V	53.97	-21.39	Avg	25.25	168.35	
7320.00	48.26	V	73.97	-25.71	Peak	183.25	141.59	
7320.00	36.21	V	53.97	-17.76	Avg	183.25	141.59	
9760.00	48.58	V	73.97	-25.39	Peak	182.25	122.25	
9760.00	36.29	V	53.97	-17.68	Avg	182.25	122.25	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - DC Mode
External DC Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	50.26	H	73.97	-23.71	Peak	254.50	185.59	
4880.00	40.29	H	53.97	-13.68	Avg	254.50	185.59	
7320.00	47.58	H	73.97	-26.39	Peak	11.25	189.96	
7320.00	34.26	H	53.97	-19.71	Avg	11.25	189.96	
9760.00	48.27	H	73.97	-25.70	Peak	135.25	188.42	
9760.00	35.26	H	53.97	-18.71	Avg	135.25	188.42	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - DC Mode
External DC Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	45.58	H	73.97	-28.39	Peak	312.50	118.52	
4880.00	33.57	H	53.97	-20.40	Avg	312.50	118.52	
7320.00	47.59	H	73.97	-26.38	Peak	87.00	135.25	
7320.00	32.68	H	53.97	-21.29	Avg	87.00	135.25	
9760.00	49.25	H	73.97	-24.72	Peak	1.50	145.25	
9760.00	35.26	H	53.97	-18.71	Avg	1.50	145.25	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - DC Mode
External DC Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	50.26	H	73.97	-23.71	Peak	349.75	145.26	
4880.00	41.29	H	53.97	-12.68	Avg	349.75	145.26	
7320.00	48.59	H	73.97	-25.38	Peak	189.75	123.69	
7320.00	37.59	H	53.97	-16.38	Avg	189.75	123.69	
9760.00	48.68	H	73.97	-25.29	Peak	288.25	145.25	
9760.00	37.28	H	53.97	-16.69	Avg	288.25	145.25	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - DC Mode
External DC Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	48.26	V	73.97	-25.71	Peak	71.00	126.25	
4960.00	35.27	V	53.97	-18.70	Avg	71.00	126.25	
7440.00	46.29	V	73.97	-27.68	Peak	225.00	145.36	
7440.00	33.28	V	53.97	-20.69	Avg	225.00	145.36	
9920.00	49.26	V	73.97	-24.71	Peak	180.00	135.25	
9920.00	35.25	V	53.97	-18.72	Avg	180.00	135.25	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - DC Mode
External DC Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	49.26	V	73.97	-24.71	Peak	152.25	101.25	
4960.00	36.58	V	53.97	-17.39	Avg	152.25	101.25	
7440.00	46.38	V	73.97	-27.59	Peak	180.25	105.50	
7440.00	35.98	V	53.97	-17.99	Avg	180.25	105.50	
9920.00	50.26	V	73.97	-23.71	Peak	193.50	107.25	
9920.00	37.29	V	53.97	-16.68	Avg	193.50	107.25	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - DC Mode
External DC Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	47.58	V	73.97	-26.39	Peak	30.25	169.25	
4960.00	31.69	V	53.97	-22.28	Avg	30.25	169.25	
7440.00	49.26	V	73.97	-24.71	Peak	184.25	142.25	
7440.00	38.21	V	53.97	-15.76	Avg	184.25	142.25	
9920.00	49.59	V	73.97	-24.38	Peak	181.00	121.25	
9920.00	37.26	V	53.97	-16.71	Avg	181.00	121.25	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - DC Mode
External DC Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	50.21	H	73.97	-23.76	Peak	253.25	184.25	
4960.00	39.58	H	53.97	-14.39	Avg	253.25	184.25	
7440.00	46.58	H	73.97	-27.39	Peak	13.25	184.23	
7440.00	33.28	H	53.97	-20.69	Avg	13.25	184.23	
9920.00	46.25	H	73.97	-27.72	Peak	139.25	178.21	
9920.00	34.29	H	53.97	-19.68	Avg	139.25	178.21	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - DC Mode
External DC Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	46.29	H	73.97	-27.68	Peak	310.25	117.48	
4960.00	34.58	H	53.97	-19.39	Avg	310.25	117.48	
7440.00	48.29	H	73.97	-25.68	Peak	92.00	148.26	
7440.00	33.57	H	53.97	-20.40	Avg	92.00	148.26	
9920.00	49.69	H	73.97	-24.28	Peak	1.25	141.26	
9920.00	36.24	H	53.97	-17.73	Avg	1.25	141.26	
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

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COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - DC Mode
External DC Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	50.69	H	73.97	-23.28	Peak	352.50	148.25	
4960.00	42.59	H	53.97	-11.38	Avg	352.50	148.25	
7440.00	49.29	H	73.97	-24.68	Peak	192.75	102.26	
7440.00	38.26	H	53.97	-15.71	Avg	192.75	102.26	
9920.00	49.29	H	73.97	-24.68	Peak	302.25	125.69	
9920.00	38.75	H	53.97	-15.22	Avg	302.25	125.69	
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
COMODULE OU
V9
Model: F0410003

Date: 02/19/2019
Lab: D
Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion - 9 kHz to 30 MHz
Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 25 GHz
External DC Mode

Freq. (MHz)	Level (dBuV/m)	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

FCC 15.249
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Fundamental - Internal Battery Mode
Low Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402.00	78.01	V	113.97	-35.96	Peak	75.25	154.26	X-Axis
2402.00	76.26	V	93.97	-17.71	Avg	75.25	154.26	Vertical Polarization
2402.00	85.19	V	113.97	-28.78	Peak	325.25	188.64	Y-Axis
2402.00	84.41	V	93.97	-9.56	Avg	325.25	188.64	Vertical Polarization
2402.00	88.14	V	113.97	-25.83	Peak	289.25	207.20	Z-Axis
2402.00	85.62	V	93.97	-8.35	Avg	289.25	207.20	Vertical Polarization
2402.00	88.18	H	113.97	-25.79	Peak	232.00	168.94	X-Axis
2402.00	87.28	H	93.97	-6.69	Avg	232.00	168.94	Horizontal Polarization
2402.00	77.87	H	113.97	-36.10	Peak	354.00	158.91	Y-Axis
2402.00	76.61	H	93.97	-17.36	Avg	354.00	158.91	Horizontal Polarization
2402.00	85.38	H	113.97	-28.59	Peak	356.25	135.50	Z-Axis
2402.00	82.92	H	93.97	-11.05	Avg	356.25	135.50	Horizontal Polarization

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COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Fundamental - Internal Battery Mode
Middle Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2440.00	75.61	V	113.97	-38.36	Peak	236.00	108.40	X-Axis
2440.00	74.26	V	93.97	-19.71	Avg	236.00	108.40	Vertical Polarization
2440.00	83.44	V	113.97	-30.53	Peak	350.00	139.32	Y-Axis
2440.00	81.36	V	93.97	-12.61	Avg	350.00	139.32	Vertical Polarization
2440.00	84.00	V	113.97	-29.98	Peak	236.50	149.35	Z-Axis
2440.00	81.98	V	93.97	-11.99	Avg	236.50	149.35	Vertical Polarization
2440.00	84.18	H	113.97	-29.79	Peak	223.25	200.10	X-Axis
2440.00	82.90	H	93.97	-11.07	Avg	223.25	200.10	Horizontal Polarization
2440.00	82.91	H	113.97	-31.06	Peak	142.25	144.70	Y-Axis
2440.00	81.33	H	93.97	-12.64	Avg	142.25	144.70	Horizontal Polarization
2440.00	83.85	H	113.97	-30.12	Peak	12.75	101.71	Z-Axis
2440.00	81.98	H	93.97	-11.99	Avg	12.75	101.71	Horizontal Polarization

FCC 15.249
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Fundamental - Internal Battery Mode
High Channel

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480.00	77.77	V	113.97	-36.20	Peak	65.50	152.70	X-Axis
2480.00	75.86	V	93.97	-18.11	Avg	65.50	152.70	Vertical Polarization
2480.00	85.69	V	113.97	-28.28	Peak	146.50	215.62	Y-Axis
2480.00	84.84	V	93.97	-9.13	Avg	146.50	215.62	Vertical Polarization
2480.00	89.79	V	113.97	-24.18	Peak	287.25	151.44	Z-Axis
2480.00	85.72	V	93.97	-8.25	Avg	287.25	151.44	Vertical Polarization
2480.00	89.84	H	113.97	-24.13	Peak	244.00	195.56	X-Axis
2480.00	87.73	H	93.97	-6.24	Avg	244.00	195.56	Horizontal Polarization
2480.00	78.92	H	113.97	-35.05	Peak	270.00	103.80	Y-Axis
2480.00	77.62	H	93.97	-16.35	Avg	270.00	103.80	Horizontal Polarization
2480.00	86.43	H	113.97	-27.54	Peak	343.75	167.62	Z-Axis
2480.00	83.57	H	93.97	-10.40	Avg	343.75	167.62	Horizontal Polarization

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COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - Internal Battery Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	49.47	V	73.97	-24.50	Peak	51.00	120.58	
4804.00	37.17	V	53.97	-16.80	Avg	51.00	120.58	
7206.00	48.03	V	73.97	-25.94	Peak	238.75	135.26	
7206.00	35.94	V	53.97	-18.03	Avg	238.75	135.26	
9608.00	50.20	V	73.97	-23.77	Peak	173.00	136.25	
9608.00	37.64	V	53.97	-16.33	Avg	173.00	136.25	
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

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COMODULE OU
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Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel
Transmit Mode - Y-Axis - Internal Battery Mode

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	51.48	V	73.97	-22.49	Peak	231.75	154.73	
4804.00	42.76	V	53.97	-11.21	Avg	231.75	154.73	
7206.00	51.14	V	73.97	-22.83	Peak	198.75	132.76	
7206.00	41.59	V	53.97	-12.38	Avg	198.75	132.76	
9608.00	49.79	V	73.97	-24.18	Peak	51.75	123.80	
9608.00	38.09	V	53.97	-15.88	Avg	51.75	123.80	
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
COMODULE OU
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Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - Internal Battery Mode
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	43.58	V	73.97	-30.39	Peak	102.75	248.26	
4804.00	34.46	V	53.97	-19.51	Avg	102.75	248.26	
7206.00	48.65	V	73.97	-25.32	Peak	148.25	165.12	
7206.00	38.49	V	53.97	-15.48	Avg	148.25	165.12	
9608.00	47.62	V	73.97	-26.35	Peak	145.25	244.65	
9608.00	36.21	V	53.97	-17.76	Avg	145.25	244.65	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - Internal Battery Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	51.86	H	73.97	-22.11	Peak	253.50	183.38	
4804.00	41.29	H	53.97	-12.68	Avg	253.50	183.38	
7206.00	48.18	H	73.97	-25.79	Peak	10.25	187.86	
7206.00	35.62	H	53.97	-18.35	Avg	10.25	187.86	
9608.00	49.15	H	73.97	-24.82	Peak	20.50	197.24	
9608.00	38.67	H	53.97	-15.30	Avg	20.50	197.24	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - Internal Battery Mode
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	53.69	H	73.97	-20.28	Peak	248.25	184.26	
4804.00	43.29	H	53.97	-10.68	Avg	248.25	184.26	
7206.00	49.26	H	73.97	-24.71	Peak	20.25	191.25	
7206.00	38.25	H	53.97	-15.72	Avg	20.25	191.25	
9608.00	50.15	H	73.97	-23.82	Peak	26.50	198.25	
9608.00	39.69	H	53.97	-14.28	Avg	26.50	198.25	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Low Channel - Internal Battery Mode
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4804.00	48.26	H	73.97	-25.71	Peak	312.50	241.24	
4804.00	39.57	H	53.97	-14.40	Avg	312.50	241.24	
7206.00	50.29	H	73.97	-23.68	Peak	102.25	157.26	
7206.00	40.27	H	53.97	-13.70	Avg	102.25	157.26	
9608.00	48.29	H	73.97	-25.68	Peak	144.25	241.21	
9608.00	37.26	H	53.97	-16.71	Avg	144.25	241.21	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - Internal Battery Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	49.10	V	73.97	-24.87	Peak	214.00	153.53	
4880.00	32.22	V	53.97	-21.75	Avg	214.00	153.53	
7320.00	52.22	V	73.97	-21.75	Peak	222.00	169.23	
7320.00	43.81	V	53.97	-10.16	Avg	222.00	169.23	
9760.00	49.12	V	73.97	-24.85	Peak	243.25	169.23	
9760.00	38.04	V	53.97	-15.93	Avg	243.25	169.23	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - Internal Battery Mode
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	45.46	V	73.97	-28.51	Peak	310.75	249.95	
4880.00	37.25	V	53.97	-16.72	Avg	310.75	249.95	
7320.00	45.79	V	73.97	-28.18	Peak	13.00	127.32	
7320.00	35.40	V	53.97	-18.57	Avg	13.00	127.32	
9760.00	50.52	V	73.97	-23.45	Peak	338.50	249.95	
9760.00	41.02	V	53.97	-12.95	Avg	338.50	249.95	
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
COMODULE OU
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Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - Internal Battery Mode
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	42.53	V	73.97	-31.44	Peak	104.75	249.13	
4880.00	33.43	V	53.97	-20.54	Avg	104.75	249.13	
7320.00	47.99	V	73.97	-25.98	Peak	183.50	175.32	
7320.00	38.18	V	53.97	-15.79	Avg	183.50	175.32	
9760.00	48.65	V	73.97	-25.32	Peak	140.00	249.91	
9760.00	37.65	V	53.97	-16.32	Avg	140.00	249.91	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - Internal Battery Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	43.14	H	73.97	-30.83	Peak	222.50	127.32	
4880.00	34.23	H	53.97	-19.74	Avg	222.50	127.32	
7320.00	45.23	H	73.97	-28.74	Peak	165.00	159.38	
7320.00	34.75	H	53.97	-19.22	Avg	165.00	159.38	
9760.00	49.01	H	73.97	-24.96	Peak	62.25	191.08	
9760.00	37.57	H	53.97	-16.40	Avg	62.25	191.08	
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
COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - Internal Battery Mode
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	41.42	H	73.97	-32.55	Peak	352.75	159.14	
4880.00	29.78	H	53.97	-24.19	Avg	352.75	159.14	
7320.00	45.33	H	73.97	-28.64	Peak	121.50	111.26	
7320.00	34.67	H	53.97	-19.30	Avg	121.50	111.26	
9760.00	48.68	H	73.97	-25.29	Peak	314.00	191.02	
9760.00	37.81	H	53.97	-16.16	Avg	314.00	191.02	
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

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COMODULE OU
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Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - Middle Channel - Internal Battery Mode
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4880.00	42.88	H	73.97	-31.09	Peak	349.25	176.94	
4880.00	32.48	H	53.97	-21.49	Avg	349.25	176.94	
7320.00	48.99	H	73.97	-24.98	Peak	14.75	223.80	
7320.00	39.76	H	53.97	-14.21	Avg	14.75	223.80	
9760.00	49.19	H	73.97	-24.78	Peak	0.00	159.38	
9760.00	37.72	H	53.97	-16.25	Avg	0.00	159.38	
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

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COMODULE OU
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Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - Internal Battery Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	50.37	V	73.97	-23.60	Peak	247.00	165.47	
4960.00	40.82	V	53.97	-13.15	Avg	247.00	165.47	
7440.00	53.73	V	73.97	-20.24	Peak	119.25	134.67	
7440.00	46.65	V	53.97	-7.32	Avg	119.25	134.67	
9920.00	49.81	V	73.97	-24.16	Peak	192.50	137.29	
9920.00	37.61	V	53.97	-16.36	Avg	192.50	137.29	
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

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COMODULE OU
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Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - Internal Battery Mode
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	45.03	V	73.97	-28.94	Peak	10.00	104.28	
4960.00	33.11	V	53.97	-20.86	Avg	10.00	104.28	
7440.00	56.59	V	73.97	-17.38	Peak	160.25	127.80	
7440.00	49.76	V	53.97	-4.21	Avg	160.25	127.80	
9920.00	49.89	V	73.97	-24.08	Peak	30.00	127.80	
9920.00	37.76	V	53.97	-16.21	Avg	30.00	127.80	
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

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COMODULE OU
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Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - Internal Battery Mode
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	47.48	V	73.97	-26.49	Peak	93.00	165.35	
4960.00	35.92	V	53.97	-18.05	Avg	93.00	165.35	
7440.00	55.00	V	73.97	-18.98	Peak	231.25	100.01	
7440.00	48.85	V	53.97	-5.12	Avg	231.25	100.01	
9920.00	49.21	V	73.97	-24.76	Peak	116.25	100.25	
9920.00	37.92	V	53.97	-16.05	Avg	166.25	100.25	
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

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COMODULE OU
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Tested By: Kyle Fujimoto

Harmonics - High Channel - Internal Battery Mode
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	44.41	H	73.97	-29.56	Peak	41.00	107.74	
4960.00	37.06	H	53.97	-16.91	Avg	41.00	107.74	
7440.00	56.53	H	73.97	-17.44	Peak	277.25	114.49	
7440.00	48.81	H	53.97	-5.16	Avg	277.25	114.49	
9920.00	50.35	H	73.97	-23.62	Peak	336.25	114.49	
9920.00	37.80	H	53.97	-16.17	Avg	336.25	114.49	
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

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Lab: D
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Harmonics - High Channel - Internal Battery Mode
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	47.99	H	73.97	-25.98	Peak	211.00	154.19	
4960.00	33.98	H	53.97	-19.99	Avg	211.00	154.19	
7440.00	52.34	H	73.97	-21.63	Peak	19.00	195.38	
7440.00	43.96	H	53.97	-10.01	Avg	19.00	195.38	
9920.00	50.59	H	73.97	-23.38	Peak	297.25	196.58	
9920.00	37.68	H	53.97	-16.29	Avg	297.25	196.58	
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

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COMODULE OU
V9
Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel - Internal Battery Mode
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
4960.00	51.69	H	73.97	-22.28	Peak	350.00	195.38	
4960.00	38.24	H	53.97	-15.73	Avg	350.00	195.38	
7440.00	53.11	H	73.97	-20.86	Peak	354.50	163.62	
7440.00	44.59	H	53.97	-9.38	Avg	354.50	163.62	
9920.00	51.08	H	73.97	-22.89	Peak	11.50	163.62	
9920.00	37.81	H	53.97	-16.16	Avg	11.50	163.62	
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

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COMODULE OU
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Model: F0410003

Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Internal Battery Mode
Non Harmonic Emissions from the Tx and Digital Portion - 9 kHz to 30 MHz
Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 25 GHz

Freq. (MHz)	Level (dBuV/m)	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

BAND EDGES

DATA SHEETS

FCC 15.249
COMODULE OU
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Model: F0410003

Date: 02/19/2019
Lab: D
Tested By: Kyle Fujimoto

Band Edges - DC Mode
External DC Mode

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402.00	89.09	H	113.97	-24.88	Peak	317.25	145.05	Fundamental - Low Ch.
2402.00	87.33	H	93.97	-6.64	Avg	317.25	145.05	X-Axis - Worst Case
2400.00	66.79	H	73.97	-7.19	Peak	317.25	145.05	Band Edge
2400.00	45.07	H	53.97	-8.90	Avg	317.25	145.05	X-Axis - Worst Case
2402.00	86.58	V	113.97	-27.39	Peak	312.75	130.43	Fundamental - Low Ch.
2402.00	84.70	V	93.97	-9.27	Avg	312.75	130.43	Y-Axis - Worst Case
2400.00	61.88	V	73.97	-12.09	Peak	289.25	207.20	Band Edge
2400.00	42.47	V	53.97	-11.50	Avg	289.25	207.20	Y-Axis - Worst Case

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Lab: D
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Band Edges - DC Mode
External DC Mode

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480.00	90.61	H	113.97	-23.36	Peak	359.25	101.25	Fundamental - High Ch.
2480.00	84.97	H	93.97	-9.00	Avg	359.25	101.25	X-Axis - Worst Case
2491.15	49.97	H	73.97	-24.00	Peak	359.25	101.25	Band Edge
2491.15	30.60	H	53.97	-23.37	Avg	359.25	101.25	X-Axis - Worst Case
2480.00	89.42	V	113.97	-24.55	Peak	180.25	152.26	Fundamental - High Ch.
2480.00	88.01	V	93.97	-5.96	Avg	180.25	152.26	Y-Axis - Worst Case
2483.50	46.24	V	73.97	-27.73	Peak	180.25	152.26	Band Edge
2483.50	30.64	V	53.97	-23.33	Avg	180.25	152.26	Y-Axis - Worst Case

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Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Band Edges - Internal Battery Mode

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2402.00	88.18	H	113.97	-25.79	Peak	232.00	168.94	Fundamental - Low Ch.
2402.00	87.28	H	93.97	-6.69	Avg	232.00	168.94	X-Axis - Worst Case
2400.00	64.56	H	73.97	-9.41	Peak	232.00	168.94	Band Edge
2400.00	44.93	H	53.97	-9.04	Avg	232.00	168.94	X-Axis - Worst Case
2402.00	88.14	V	113.97	-25.83	Peak	289.25	207.20	Fundamental - Low Ch.
2402.00	85.62	V	93.97	-8.35	Avg	289.25	207.20	Z-Axis - Worst Case
2400.00	64.94	V	73.97	-9.03	Peak	289.25	207.20	Band Edge
2400.00	43.15	V	53.97	-10.82	Avg	289.25	207.20	Z-Axis - Worst Case

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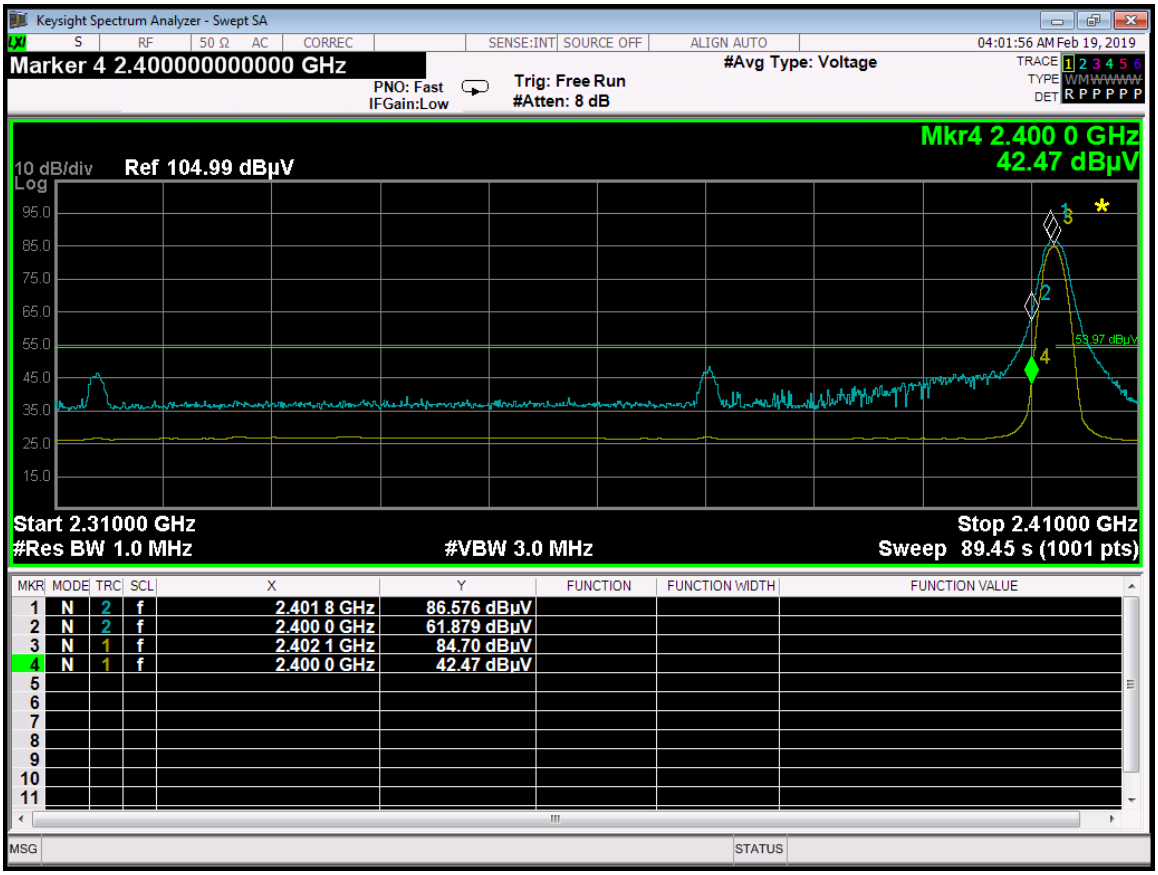
COMODULE OU
V9
Model: F0410003

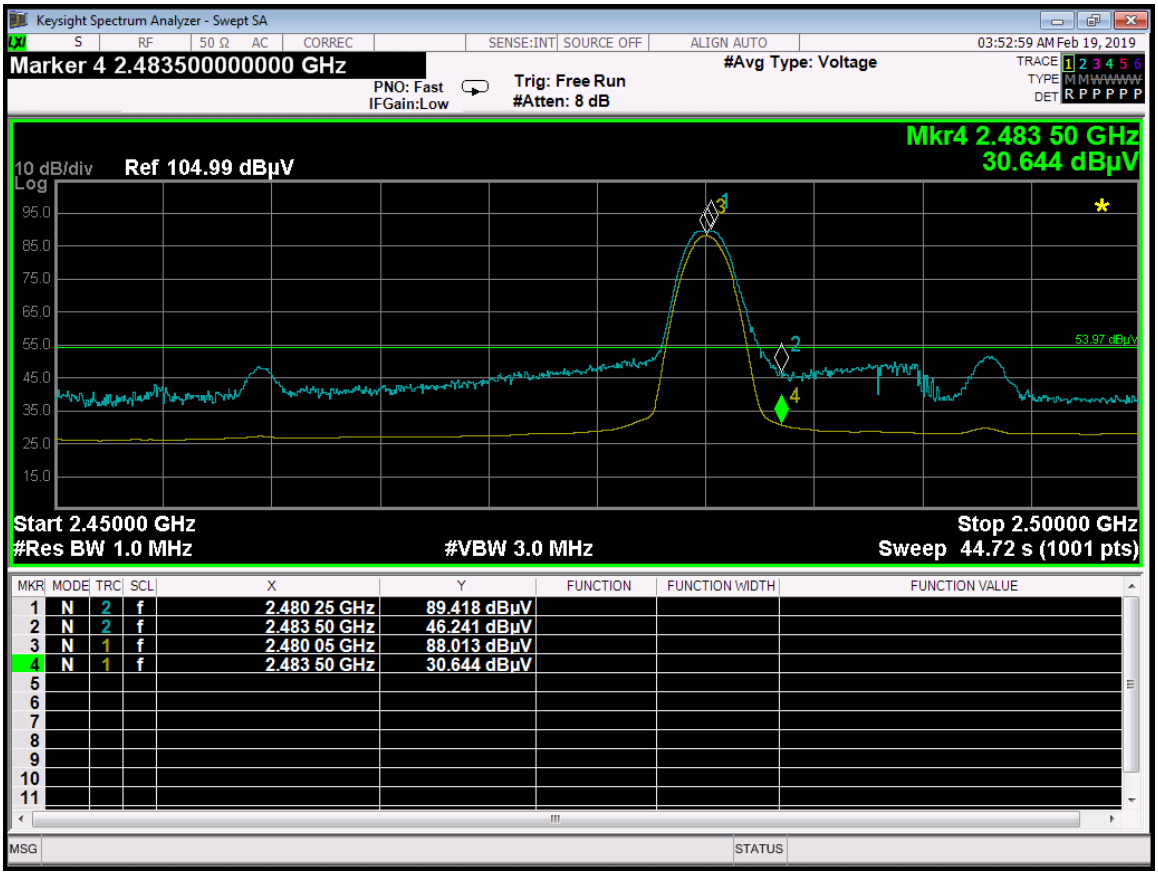
Date: 02/14/2019
Lab: D
Tested By: Kyle Fujimoto

Band Edges - Internal Battery Mode

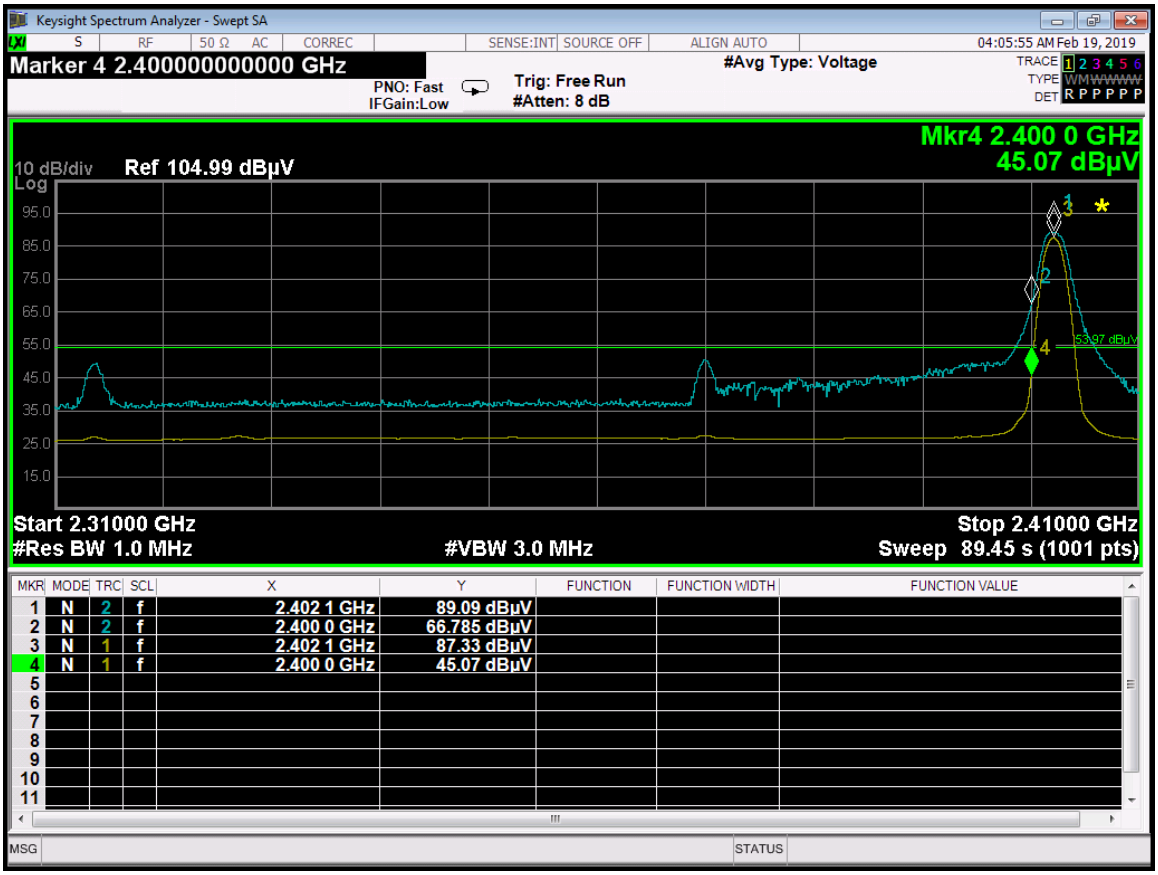
Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
2480.00	89.84	H	113.97	-24.13	Peak	244.00	195.56	Fundamental - High Ch.
2480.00	87.73	H	93.97	-6.24	Avg	244.00	195.56	X-Axis - Worst Case
2483.50	51.32	H	73.97	-22.65	Peak	244.00	195.56	Band Edge
2483.50	30.94	H	53.97	-23.03	Avg	244.00	195.56	X-Axis - Worst Case
2480.00	89.79	V	113.97	-24.18	Peak	287.25	151.44	Fundamental - High Ch.
2480.00	85.72	V	93.97	-8.25	Avg	287.25	151.44	Z-Axis - Worst Case
2483.50	43.02	V	73.97	-30.95	Peak	287.25	151.44	Band Edge
2483.50	28.49	V	53.97	-25.48	Avg	287.25	151.44	Z-Axis - Worst Case



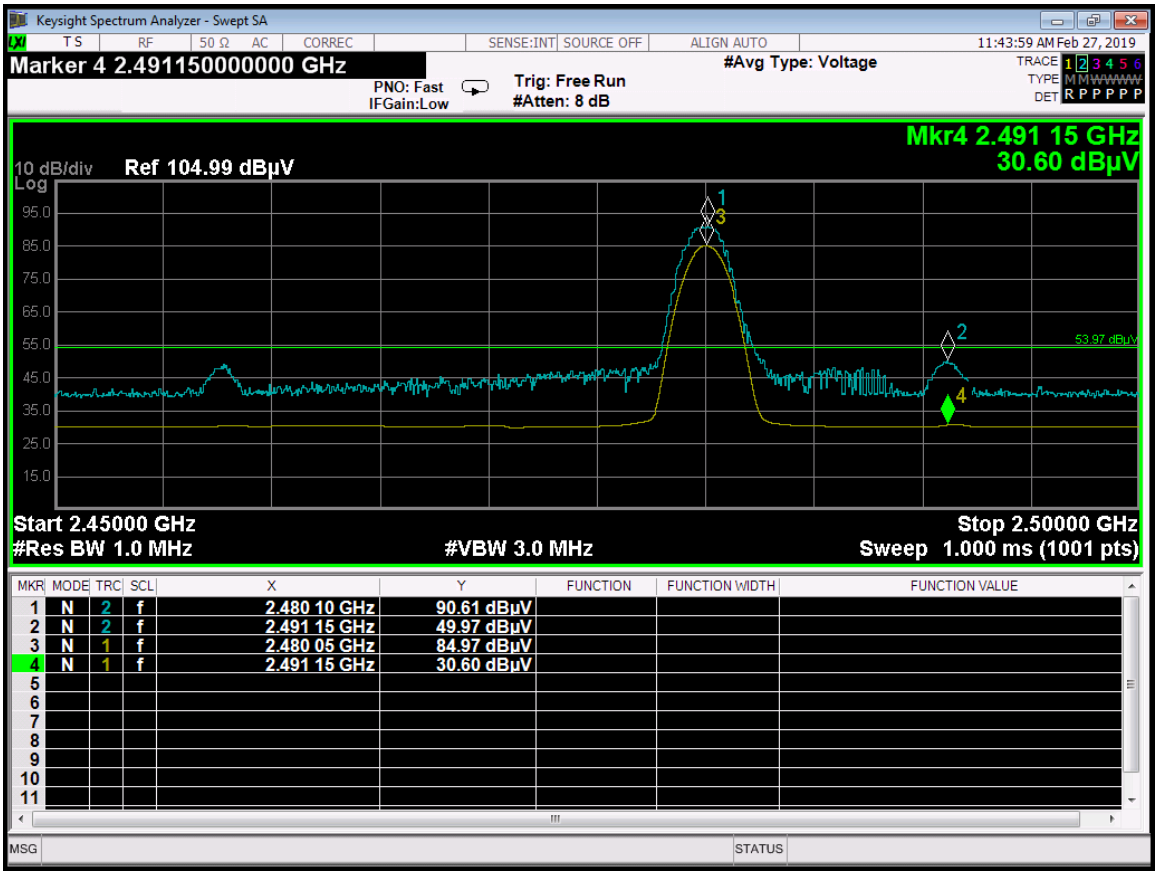
Band Edge – Vertical – External DC Mode - 2402 MHz - Y-Axis



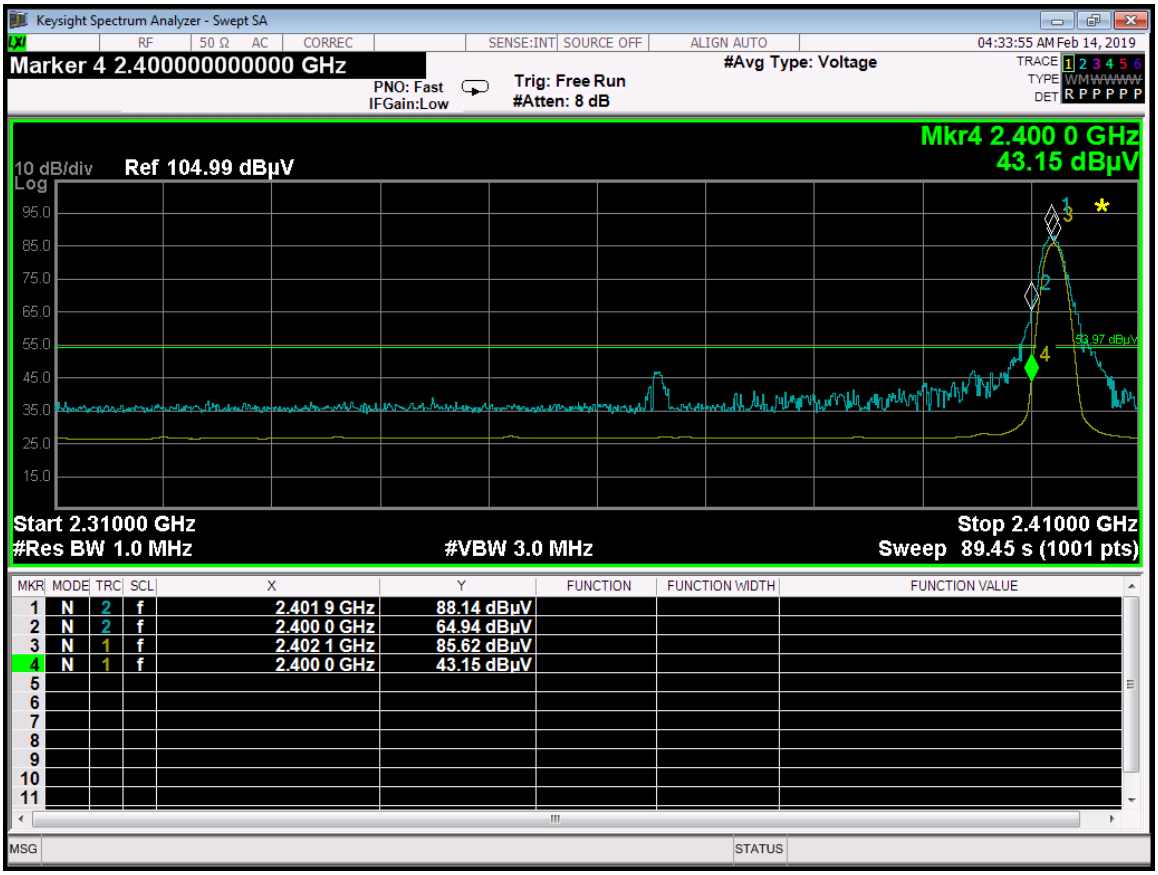
Band Edge – Vertical – External DC Mode - 2480 MHz - Y-Axis



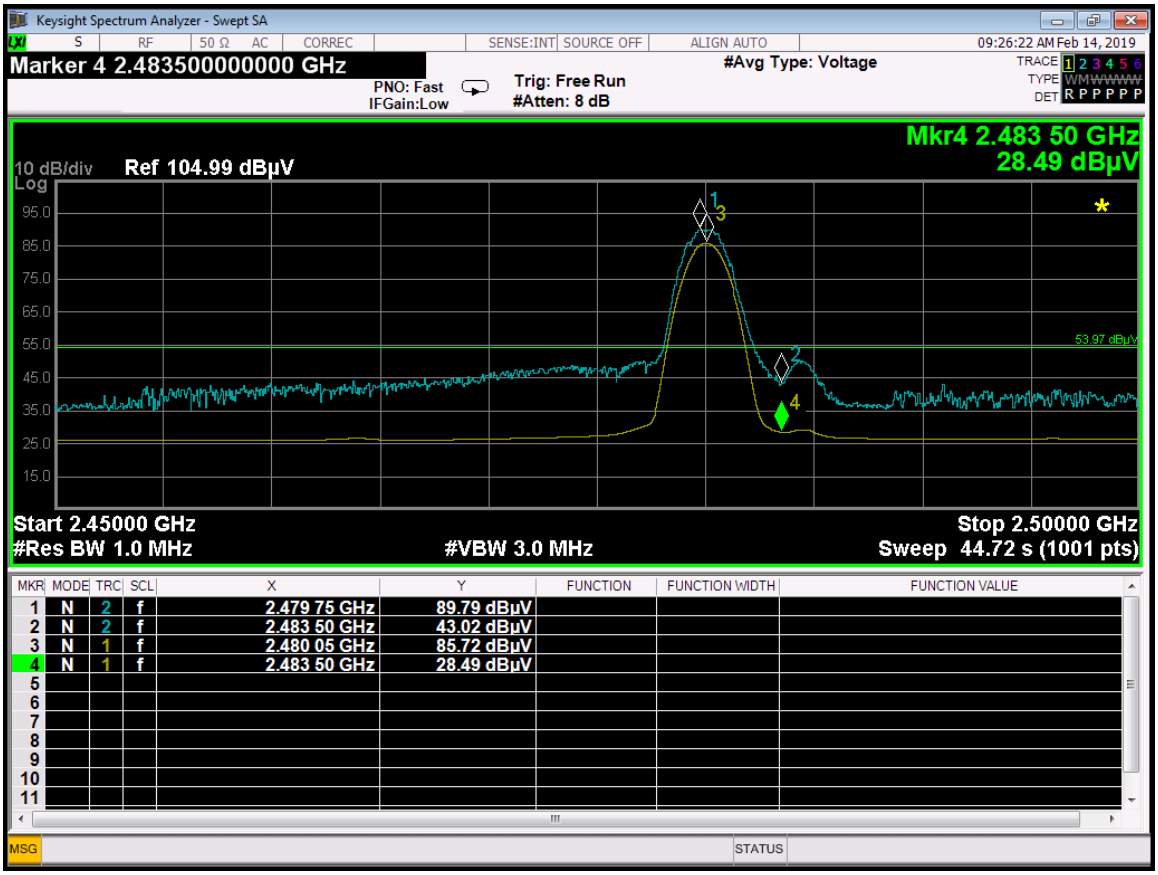
Band Edge – Horizontal – External DC Mode - 2402 MHz - X-Axis



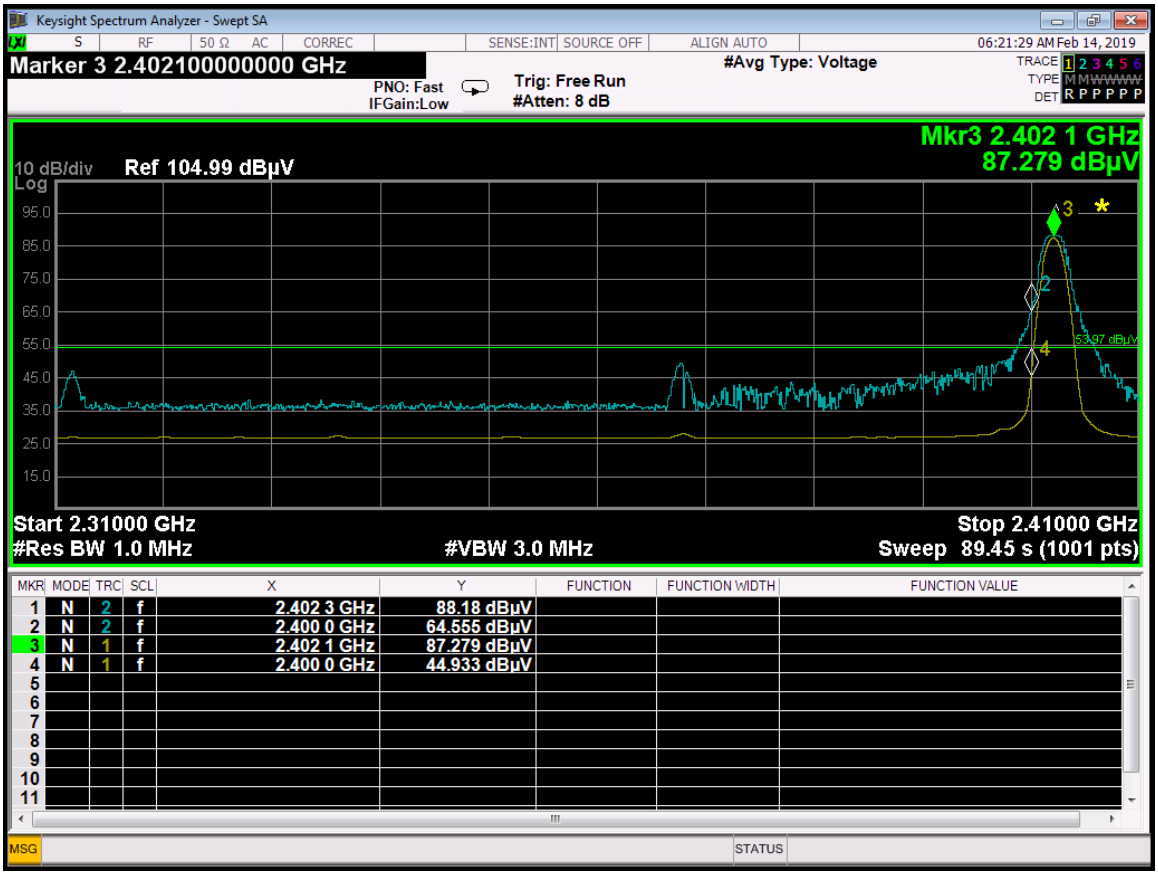
Band Edge – Horizontal – External DC Mode - 2480 MHz - X-Axis



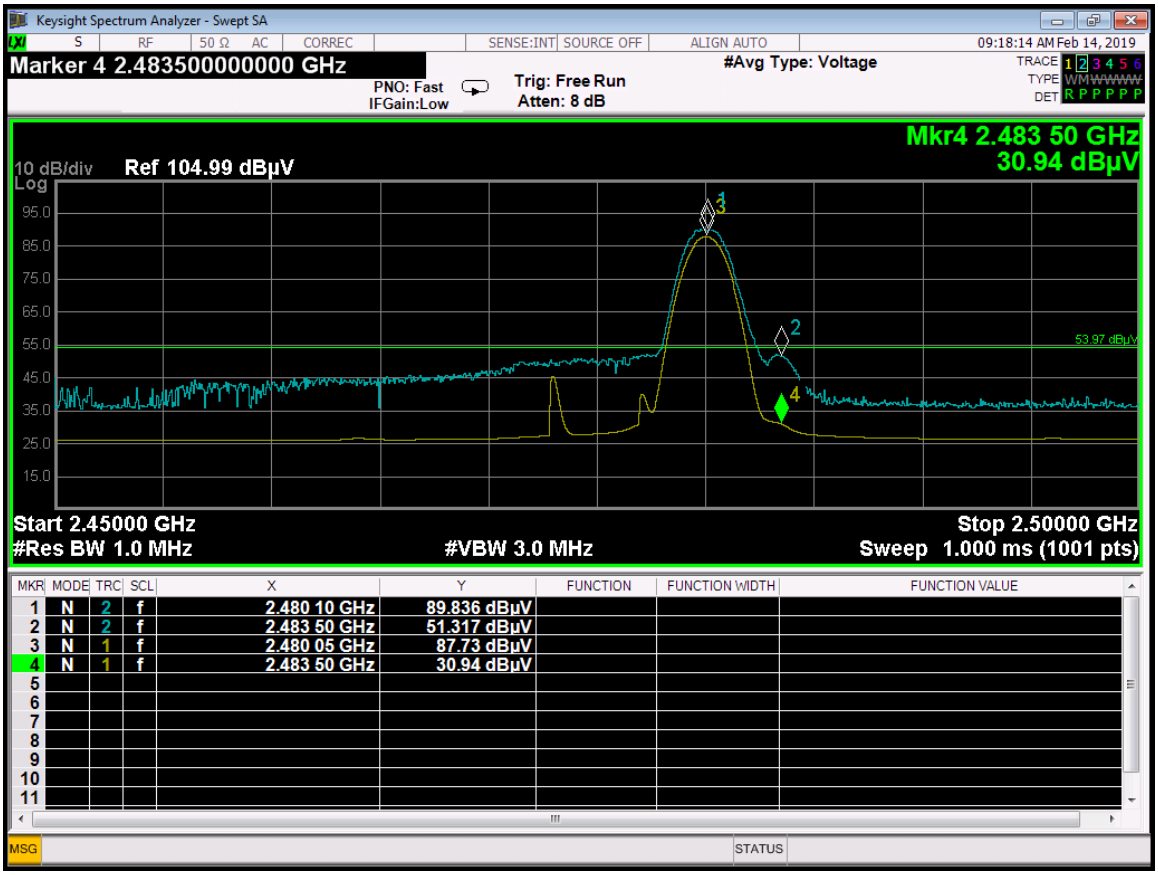
Band Edge – Vertical – Internal Battery Mode - 2402 MHz - Z-Axis



Band Edge – Vertical – Internal Battery Mode - 2480 MHz - Z-Axis



Band Edge – Horizontal – Internal Battery Mode - 2402 MHz - X-Axis



Band Edge – Horizontal – Internal Battery Mode - 2480 MHz - X-Axis