

Test Report # TR3574A

Equipment Under Test: BL654

Requirement(s): FCC: 15.247
ISED Canada: RSS-247

Test Date(s): 4/17/2023 – 5/15/2023

Prepared for: Alcon Research LLC
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Report Issued by: Anthony Smith, EMC Engineering Specialist

Signature: 

Date: 10/18/2023

Report Reviewed by: Adam Alger, Laboratory Manager

Signature: 

Date: 7/14/2023

Report Constructed by: Anthony Smith, EMC Engineering Specialist

Signature: 

Date: 7/14/2023

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Laird Connectivity Test Services in Review

The Laird Connectivity, LLC laboratory located at W66 N220 Commerce Court Cedarburg, Wisconsin, 53012 USA is recognized through the following organizations:



A2LA – American Association for Laboratory Accreditation

Accreditation based on ISO/IEC 17025:2017 with Electrical (EMC) Scope

A2LA Certificate Number: 1255.01

Scope of accreditation includes all test methods listed herein unless otherwise noted



Federal Communications Commission (FCC) – USA

Accredited Test Firm Registration Number: 953492

Recognition of two 3 meter Semi-Anechoic Chambers



Innovation, Science and Economic Development Canada

Accredited U.S. Identification Number: US0218

Recognition of two 3 meter Semi-Anechoic Chambers

Company: Alcon Research LLC	Page 3 of 34	Name: BL654
Report: TR3574A		Model: BL654
Job: C-3574		Serial: Engineering Sample

1 TEST REPORT SUMMARY

During **April 17th, 2023 to May 15th, 2023** the Equipment Under Test (EUT), **BL654**, as provided by **Alcon Research LLC** was tested to the following **Federal Communications Commission and Innovation, Science, and Economic Development Canada** requirements for the purpose of a Class 2 Permissive Change to add an antenna:

FCC 15.247, RSS-247, DTS

Requirements	Description	Specification	Method	Compliant
FCC: 15.247 (a)(2) IC: RSS-247 5.2 (1)	Digital Modulation System 6 dB bandwidth	500 kHz	ANSI C63.10	Pass
FCC: 2.1049 IC: RSS-GEN 6.6	Occupied Bandwidth	Reported	ANSI C63.10	Pass
FCC: 15.247 (b)(3) IC: RSS-247 5.4 (4)	Maximum Conducted Output Power	30 dBm	ANSI C63.10	Pass
FCC: 15.247 (e) IC: RSS-247 5.2 (2)	Digital Modulation System Power Spectral Density	8 dBm / 3 kHz	ANSI C63.10	Pass
FCC: 15.247 (d) IC: RSS-247 5.5	RF Spurious Emissions at the Transmitter Antenna Terminal	20 dBc	ANSI C63.10	Pass
FCC: 15.247 (d) IC: RSS-GEN 8.10	Spurious Radiated Emissions in Restricted Bands	FCC 15.209 RSS-GEN 8.9	ANSI C63.10	Pass
FCC: 2.1055 (d) IC: RSS-GEN 6.11	Frequency Stability	Reported	ANSI C63.10	Pass

Notice:

The results relate only to the item tested as configured and described in this report. Any additional configurations, modes of operation, or modifications made to the equipment under test after the specified test date(s) are at the decision of the client and may not apply to the data seen in this test report.

The decision rule for Pass / Fail assessment to the specification or standard listed in this test report has been agreed upon by the client and laboratory to be as follows:

Measurement Type	Rule
Emissions – Amplitude	1 dB below specified limit
Emissions – Frequency	1% less than the specification
Immunity	Tested at specified level

2 CLIENT INFORMATION

Company Name	Alcon Research LLC
Contact Person	Hakan Gokdogan
Address	20511 Lake Forest Drive Lake Forest, CA 92630

2.1 Equipment Under Test (EUT) Information

The following information has been supplied by the client

Product Name	BL654
Model Number	BL654
Serial Number	Engineering Sample
FCC ID	VMCBL654
IC ID	7345A-BL654

2.2 Product Description

The BL654 module is utilized for wireless transmission and reception in the 802.15.4 standard to establish communication with the Unity Footswitch. No BLE to be used.

2.3 Modifications Incorporated for Compliance

None noted at time of test

2.4 Deviations and Exclusions from Test Specifications

None noted at time of test

2.5 Channels and Data Rates

802.15.4 DTS Single Data Rate

Channels 1, 8, 15 operate at Power Setting +8

Channel 16 operates at Power Setting -8

2.6 Radio Programming

The 802.15.4 radio was programmed using the AlconTestTool software version 1.0.32.0.

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2.7 Additional Information

Testing performed on board referenced as “Footswitch” unit. Device uses a FlexPIFA antenna with a peak gain of 2 dBi. The testing is for a permissive change to add an EPCOS B8328 bandpass filter into the antenna trace along with a FlexPIFA antenna, peak gain of 2dBi, via MH4 connector. This is **Antenna Design 2** (of 2).

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3 REFERENCES

Publication	Edition	Date	AMD 1	AMD 2
FCC eCFR	-	2023	-	-
RSS-247	2	2017	-	-
RSS-Gen	5	2018	219	2021
ANSI C63.10	-	2013	-	-

4 UNCERTAINTY SUMMARY

Using the guidance of the following publications the calculated measurement uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level, using a coverage factor of $k = 2$.

References
CISPR 16-4-1
CISPR 16-4-2
CISPR 32
ANSI C63.23
A2LA P103
A2LA P103c
ETSI TR 100-028

Measurement Type	Configuration	Uncertainty $\pm$
Radiated Emissions	Biconical Antenna	5.0 dB
Radiated Emissions	Log Periodic Antenna	5.3 dB
Radiated Emissions	Horn Antenna	4.7 dB
AC Line Conducted Emissions	Artificial Mains Network	3.4 dB
Telecom Conducted Emissions	Asymmetric Artificial Network	4.9 dB
Disturbance Power Emissions	Absorbing Clamp	4.1 dB
Radiated Immunity	3 Volts/meter	2.2 dB
Conducted Immunity	CDN/EM/BCI	2.4/3.5/3.4 dB
EFT Burst/Surge	Peak pulse voltage	164 volts
ESD Immunity	15 kV level	1377 Volts

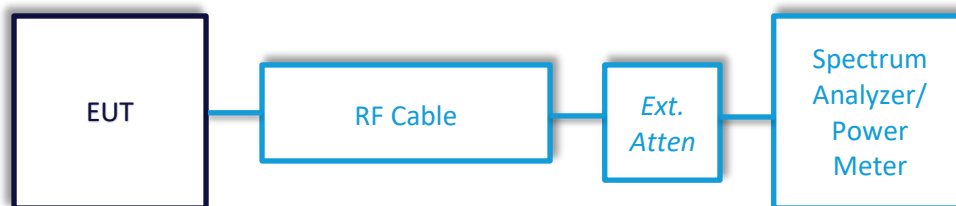
Parameter	ETSI U.C. $\pm$	U.C. $\pm$
Radio Frequency, from F0	1×10^{-7}	0.55×10^{-7}
Occupied Channel Bandwidth	5 %	2 %
RF conducted Power (Power Meter)	1.5 dB	1.2 dB
RF conducted emissions (Spectrum Analyzer)	3.0 dB	1.7 dB
All emissions, radiated	6.0 dB	5.3 dB
Temperature	1° C	0.65° C
Humidity	5 %	2.9 %
Supply voltages	3 %	1 %

5 TEST DATA

5.1 Antenna Port Conducted Emissions

Description of Measurement	The direct measurement of emissions at the antenna port of the EUT is achieved by use of a RF connection to a spectrum analyzer or power meter. The cable and attenuator factors are loaded into the analyzer or power meter allowing for direct measurement readings without the need for further corrections.
Example Calculations	Measurement (dBm) + Cable factor (dB) + External Attenuator (dB) = Corrected Reading (dBm) Margin (dB) = Limit (dBm) – Corrected Reading (dBm)

Block Diagram



Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960173	Cable	A.H. Systems, Inc.	SAC-26G-1	388	3/22/2023	3/22/2024	Active Verification
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	4/12/2023	4/12/2024	Active Calibration

EUT Parameters

Input Power	24VDC	Mode	802.15.4 Tx
Frequency	2405, 2440, 2475, 2480 MHz	Channel	1, 8, 15, 16
Power Settings	14 for channels 1,8, 15; 5 for 16		

5.1.1 Antenna Port Conducted Emissions – 6dB DTS Bandwidth

Operator	Anthony Smith	QA	Adam Alger
Temperature	21.8°C	R.H. %	32.2%
Test Date	4/17/2023	Location	Bench
Requirement	FCC 15.247 (a)(2) IC: RSS-247 5.2(a)	Method	ANSI C63.10 §11.8

Limits: BW Greater than 500 kHz

Test Parameters

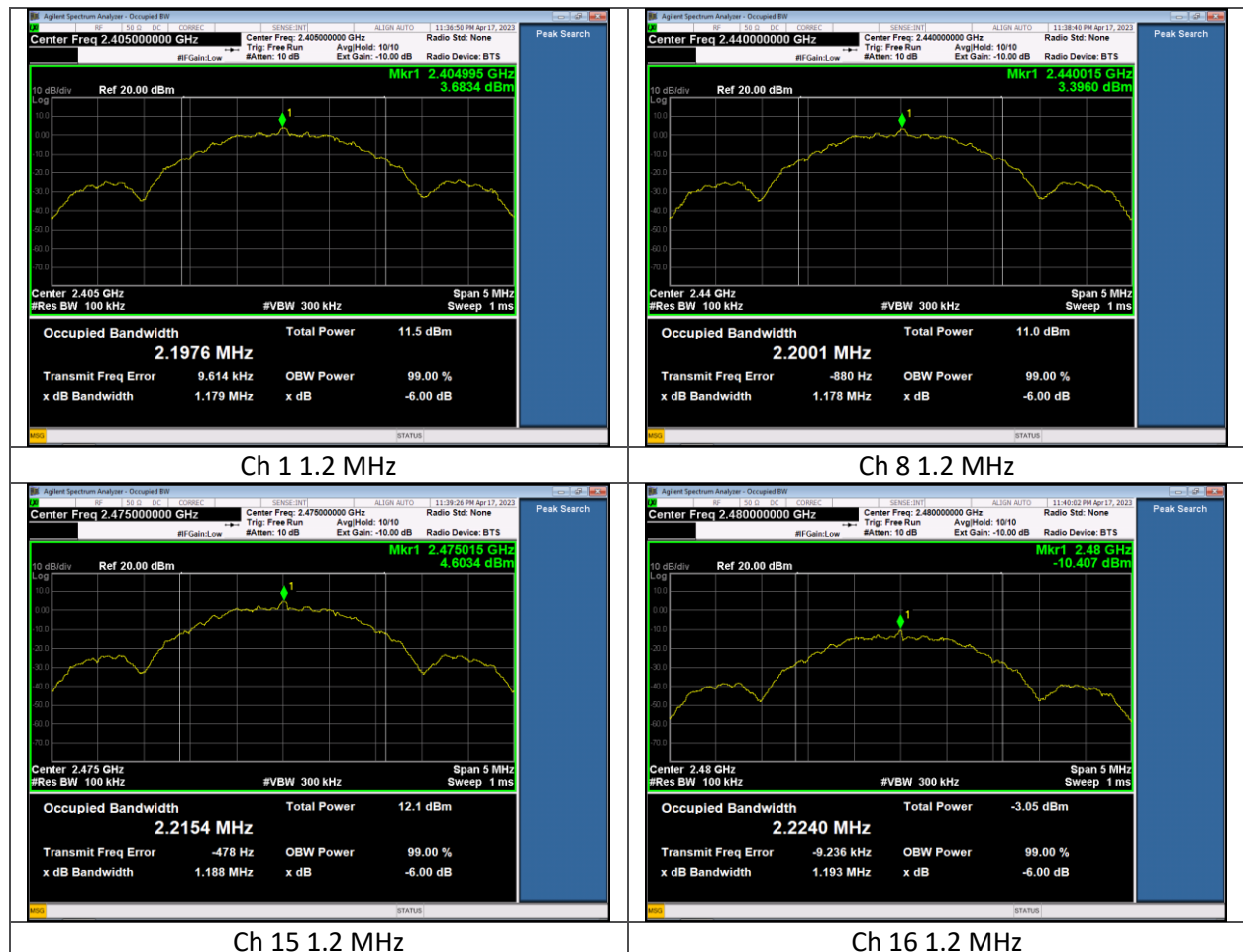
Frequency	2400-2483.5 MHz	Setup	Conducted
RBW	100 kHz	VBW	300 kHz
Detector(s)	Peak Max Hold	Sweep Time	Auto

Data

Table

Channel	DTS BW (MHz)	Limit (MHz)	Margin (MHz)
1	1.2	0.5	0.7
8	1.2	0.5	0.7
15	1.2	0.5	0.7
16	1.2	0.5	0.7

Plots



5.1.2 Antenna Port Conducted Emissions – 99% OBW

Operator	Anthony Smith	QA	Adam Alger
Temperature	21.8°C	R.H. %	32.2%
Test Date	4/17/2023	Location	Bench
Requirement	FCC 2.1049 IC: RSS-GEN 6.7	Method	ANSI C63.10 §6.9

Limits: Reported

Test Parameters

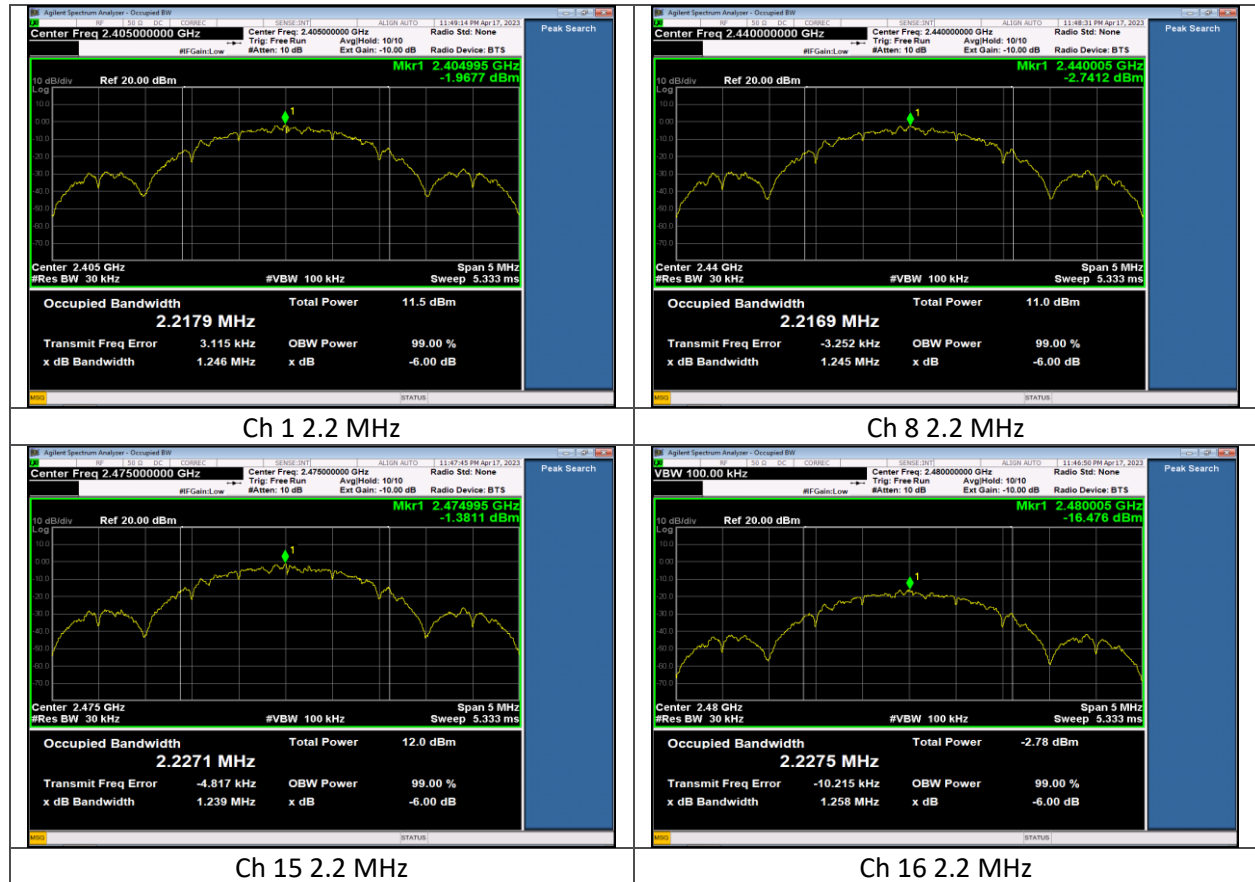
Frequency	2400-2483.5 MHz	Setup	Conducted
RBW	30 kHz	VBW	100 kHz
Detector(s)	Max Peak Hold	Sweep Time	Auto

Data

Table

Channel	OBW 99% (MHz)
1	2.2
8	2.2
15	2.2
16	2.2

Plots



5.1.3 Antenna Port Conducted Emissions – Max Conducted Output Power

Operator	Anthony Smith	QA	Adam Alger
Temperature	21.8°C	R.H. %	32.2%
Test Date	4/17/2023	Location	Bench
Requirement	FCC: 15.247 (b)(3) RSS-247 5.4 (d)	Method	ANSI C63.10 §11.9

Limits: <30 dBm

Test Parameters

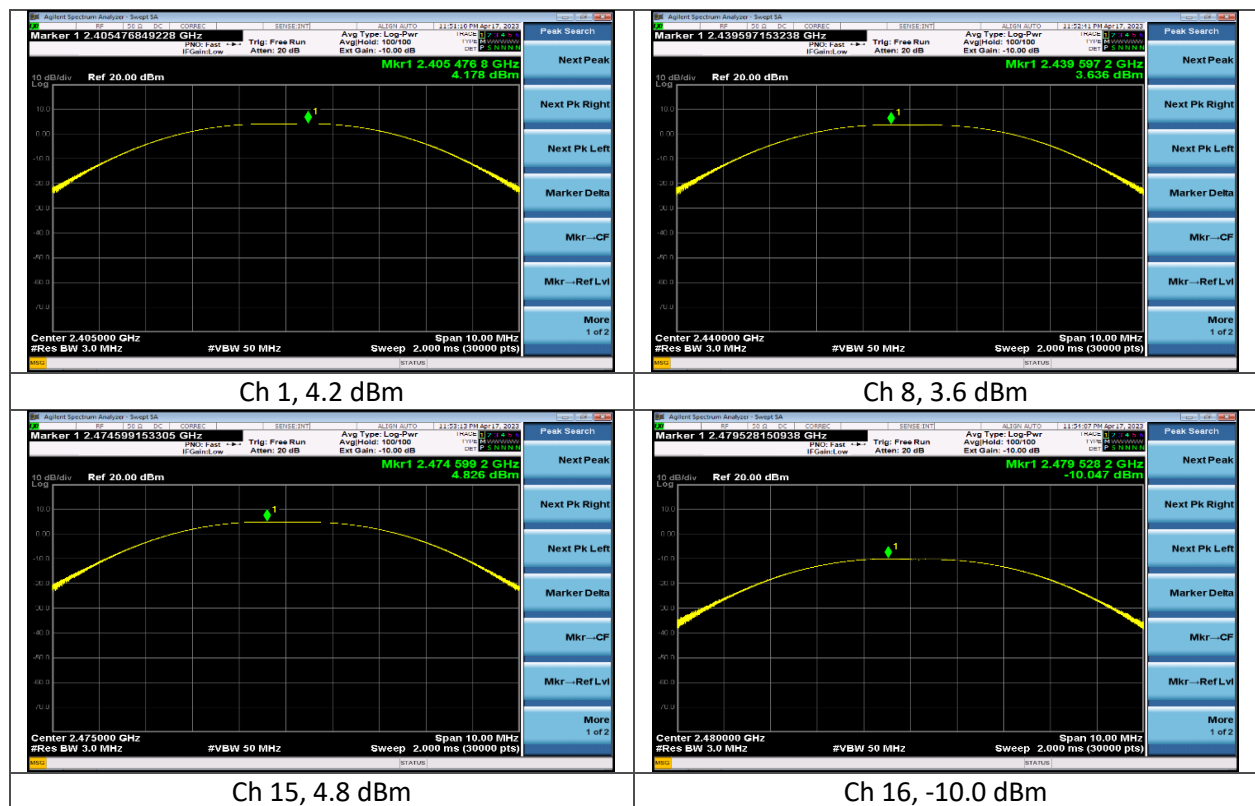
Frequency	2400-2483.5 MHz	Setup	Conducted
RBW	3 MHz	VBW	50 MHz
Detector(s)	Peak Max Hold	Sweep Time	Auto

Data

Table

Channel	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)
1	4.2	30	25.8
8	3.6	30	26.4
15	4.8	30	25.2
16	-10.0	30	40

Plots



5.1.4 Antenna Port Conducted Emissions – Peak Power Spectral Density

Operator	Anthony Smith	QA	Adam Alger
Temperature	21.8°C	R.H. %	32.2%
Test Date	4/17/2023	Location	Bench
Requirement	FCC: 15.247 (e) IC: RSS-247 5.2 (b)	Method	ANSI C63.10 §11.10

Limits: 8dBm/3kHz

Test Parameters

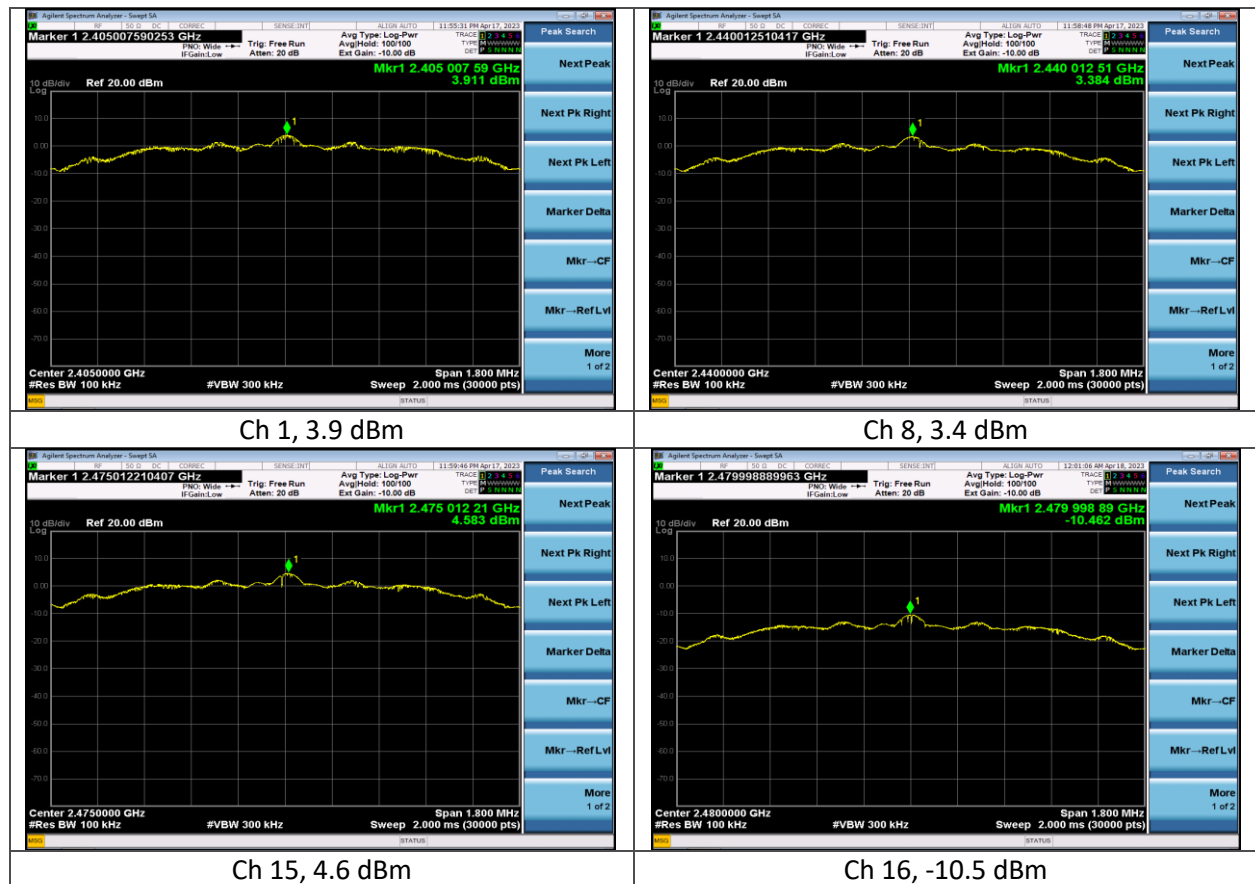
Frequency	2400-2483.5 MHz	Setup	Conducted
RBW	100 kHz	VBW	300 kHz
Detector(s)	Max Peak Hold	Sweep Time	Auto

Data

Table

Channel	PSD (dBm/100 kHz)	Limit (dBm/3 kHz)	Margin (dB)
1	3.9	8.0	4.1
8	3.4	8.0	4.6
15	4.6	8.0	3.4
16	-10.5	8.0	18.5

Plots



5.1.5 Antenna Port Conducted Emissions – RF Spurious Emissions at the Antenna Port

Operator	Anthony Smith	QA	Adam Alger
Temperature	21.8°C	R.H. %	32.2%
Test Date	4/17/2023	Location	Bench
Requirement	FCC 15.247 (d) IC: RSS-247 5.5	Method	ANSI C63.10 §11.11

Limits: 20 dBc

Reference Level = 4.6 dBm

Limit = -15.4 dBm

Test Parameters

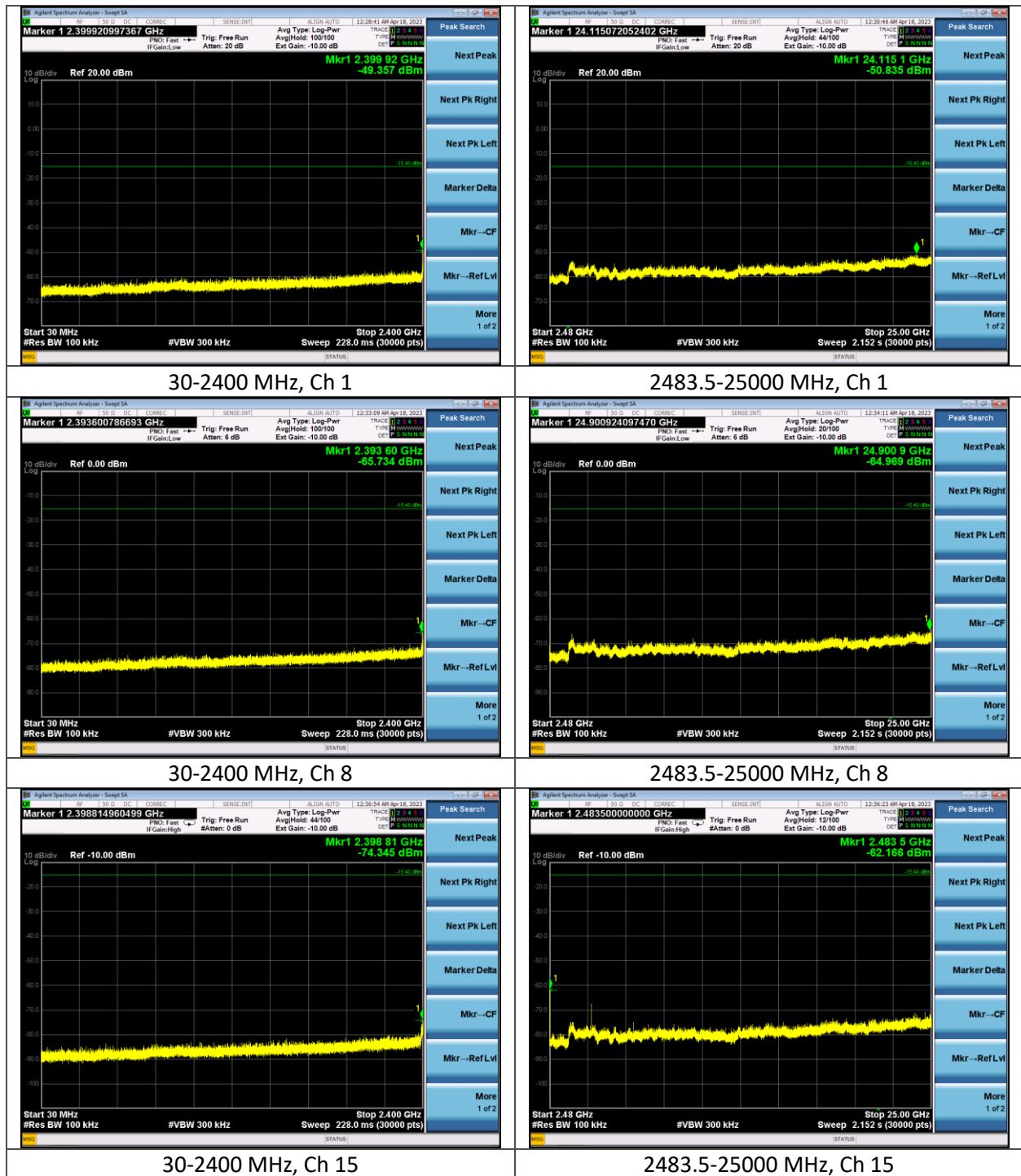
Frequency	30 MHz – 25 GHz	Setup	Conducted
RBW	100 kHz	VBW	300 kHz
Detector(s)	Max Peak Hold	Sweep Time	Auto
Limit Calculation	Reference Level (dBm) – 20 dB = Limit (dBm)		

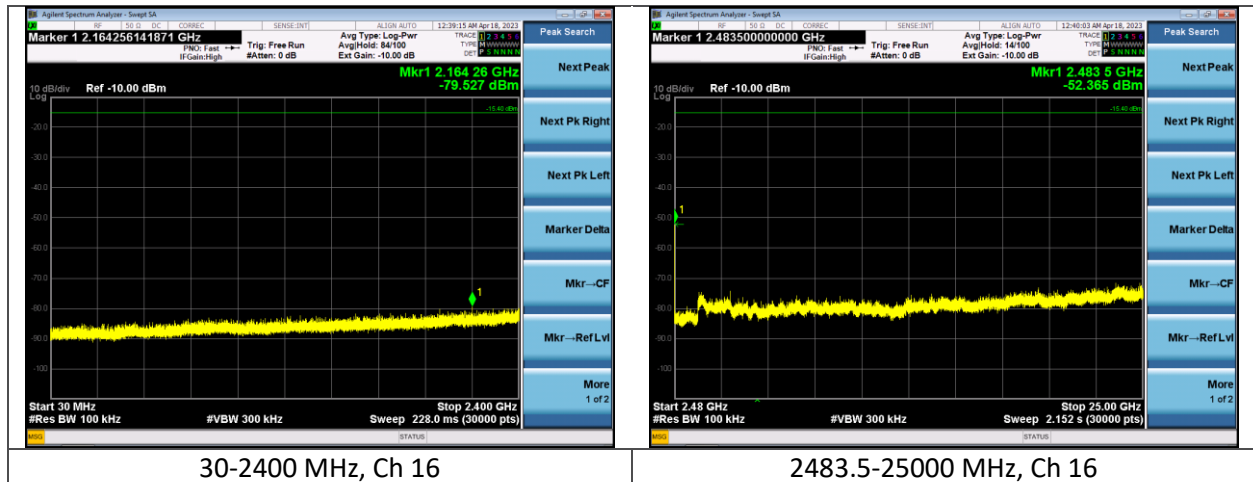
Data

Table

Channel	Freq (MHz)	Meas. (dBm)	Limit (dBm)	Margin (dB)
1	2399.9	-49.5	-15.4	34.1
1	4809.9	-64.0	-15.4	48.6
8	2391.9	-63.1	-15.4	47.7
8	4880.0	-67.6	-15.4	52.2
15	2483.9	-59.3	-15.4	43.9
15	4951.0	-66.6	-15.4	51.2
16	2483.7	-57.1	-15.4	41.7
16	4959.5	-77.2	-15.4	61.8

Plots





5.1.6 Antenna Port Conducted Emissions – Frequency Stability

Operator	Anthony Smith	QA	Adam Alger
Temperature	21.8°C	R.H. %	32.2%
Test Date	4/17/2023	Location	Bench
Requirement	FCC: 2.1055 (d) IC: RSS-GEN 6.11	Method	ANSI C63.10 §6.8

Limits: Reported

Test Parameters

Frequency	2400-2483.5 MHz	Setup	Conducted
RBW	1 kHz	VBW	3 kHz

EUT Parameters

Input Power	20.4, 24.0, 27.6VDC	Mode	Tx CW
Frequency	2405, 2440, 2475, 2480 MHz	Channel	1, 8, 15, 16

Data

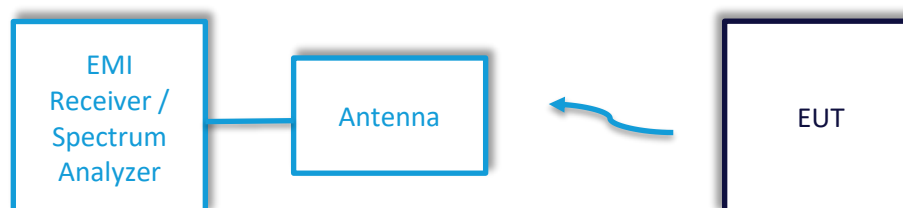
Table

Channel	20.4VDC (Hz)	24.0VDC (Hz)	27.6VDC (Hz)	Limit (Hz)	Deviation (Hz)	Margin (Hz)
1	2404998523	2404998541	2404998597	120249.9	74.0	120175.9
8	2439998509	2439998527	2439998491	121999.9	36.0	121963.9
15	2474998356	2474998352	2474998397	123749.9	45.0	123704.9
16	2479998366	2479998373	2479998379	123999.9	13.0	123986.9

5.2 Radiated Emissions

Description of Measurement	The frequency spectrum is investigated for intentional and / or unintentional signals emanating from the EUT by use of a standardized test site and measurement antenna. The antenna, cable, pre-amp, and other necessary measurement system correction factors are loaded onto the EMI receiver / spectrum analyzer when the measurements are performed allowing the data to be gathered and reported as corrected values. The maximum emissions from the EUT are determined by turn-table azimuth rotation (360°) and scanning of the measurement antenna. Maximized levels are noted at degree values of azimuth, measurement antenna height, and measurement antenna polarity.
Example Calculations	Measurement (dBμV) + Cable factor (dB) + Other (dB) + Antenna Factor (dB/m) = Corrected Reading (dBμV/m) Margin (dB) = Limit (dBμV/m) - Corrected Reading (dBμV/m) Example at 4000 MHz: Reading = 40 dBμV + 3.4 dB + 0.9 dB + 6.5 dB/m = 50.8 dBμV/m Average Limit = 20 log (500) = 54 dBμV/m Margin = 54 dBμV/m - 50.8 dBμV/m = 3.2 dB

Block Diagram



5.2.1 Radiated Emissions

Operator	Anthony Smith	QA	Jon Dilley
Temperature (°C)	23.4, 23.9, 22.0, 23.3	R.H. %	26.7, 30.8, 48.6, 34.3
Test Date	4/18/2023, 4/19/2023, 4/20/2023, 4/21/2023, 5/15/2023	Location	Chamber 3, Chamber 5
Requirement	FCC 15.247	Method	ANSI C63.10

Limits:

Frequency (MHz)	Quasi Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Peak Limit (dBuV/m)
30-88	40.0	-	-
88-216	43.5	-	-
216-960	46.0	-	-
960-1000	54.0	-	-
1000-25000	-	54.0	74.0

Test Parameters

Frequency	30-25000	Distance	3m
Detector(s)	Peak, QP, Avg	Table height	150cm Above 1 GHz 80cm Below 1 GHz
RBW	1 MHz Above 1 GHz 120 kHz Below 1 GHz	VBW	3 MHz Above 1 GHz Peak 1.2 MHz Below 1 GHz 300 Hz Above 1 GHz Average
Example Calculations	Minimum Average VBW = 1/Transmitter On Time 1/0.003471 = 288 Hz Minimum Average VBW		

EUT Parameters

Input Power	24VDC	Mode	802.15.4 Tx
Channels	1, 8, 15, 16	Power Settings	14 for Channels 1, 8, 15; 5 for Channel 16

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960081	Antenna - Double Ridge Horn	EMCO	3115	6907	1/11/2023	1/11/2024	Active Calibration
AA 960154	Filter - High Pass 2.4 GHz	KWM	HPF-L-14186	7272-02	4/13/2023	4/13/2024	Active Calibration
AA 960174	Antenna - Small Horn	ETS Lindgren	3116C-PA	00206880	9/27/2022	9/27/2023	Active Calibration
AA 960210	Antenna - Low Noise Amplifier	Mini-Circuits	ZVA-213X-S+	037101808	1/11/2023	1/11/2024	Active Calibration
AA 960216	Antenna - LPDA	A.H. Systems, Inc.	SAS-512-2	707	6/8/2022	6/8/2023	Active Calibration
AA 960217	Antenna - Biconical	A.H. Systems, Inc.	SAS-540	852	6/9/2022	6/9/2023	Active Calibration
AA 960219	Cable	A.H. Systems, Inc.	SAC-26G-6	551	2/16/2023	2/16/2024	Active Verification
AA 960220	Cable	A.H. Systems, Inc.	SAC-26G-6	552	2/16/2023	2/16/2024	Active Verification
EE 960088	Analyzer - EMI Receiver	Agilent	N9038A	MY51210138	4/12/2023	4/12/2024	Active Calibration
EE 960203	Analyzer - EMI Receiver	Keysight	N9038A	MY56400072	4/13/2023	4/13/2024	Active Calibration
LSC-300	Cable	Chamber 3 Emissions	-	-	4/26/2023	4/26/2024	Active Verification
LSC-500	Cable	Chamber 5 Emissions	-	-	4/25/2023	4/25/2024	Active Verification

Table

Quasi-Peak Emissions - Spurious

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Quasi-Peak Reading (dBμV/m)	Quasi-Peak Limit (dBμV/m)	Quasi-Peak Margin (dB)	Channel
102.7	V	100	0	17.9	40.0	22.1	8
987.0	H	100	0	30.3	54.0	23.7	8
969.8	V	100	0	30.4	54.0	23.6	8

Peak Emissions – Maximized Fundamental

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Peak Reading (dBμV/m)	EUT Orientation	Channel
2405.5	V	150	283	100.3	Horizontal	1
2472.3	V	150	269	102.4	Horizontal	15
2478.5	V	150	269	88.1	Horizontal	16

Average Measurements – Band Edge

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Average Reading (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	EUT Orientation	Channel
2483.5	V	150	269	39.6	54.0	14.4	Horizontal	15
2483.5	V	150	269	42.1	54.0	11.9	Horizontal	16
2381.4	V	150	282	38.9	54.0	15.1	Horizontal	1

Peak Measurements – Band Edge

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Peak Reading (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	EUT Orientation	Channel
2483.6	V	150	269	51.6	74.0	22.4	Horizontal	15
2483.5	V	150	269	51.6	74.0	22.4	Horizontal	16
2384.6	V	150	282	50.0	74.0	24.0	Horizontal	1

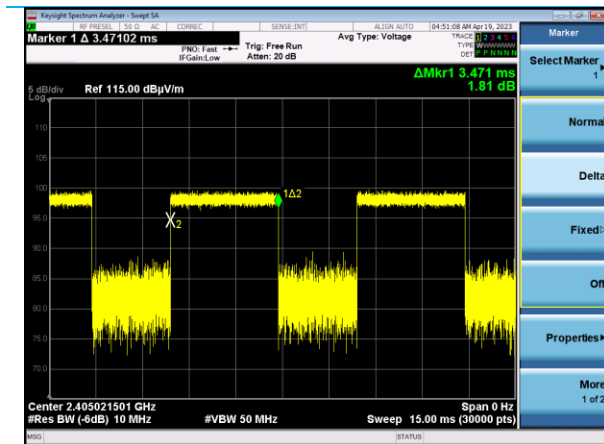
Average Measurements - Spurious

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Average Reading (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	EUT Orientation	Channel
4881.0	Horizontal	150	290	38.3	54.0	15.7	Horizontal	8
7318.7	Horizontal	195	290	39.9	54.0	14.1	Horizontal	8
12197.6	Horizontal	190	302	40.4	54.0	13.6	Horizontal	8
12197.6	Vertical	260	0	37.2	54.0	16.8	Horizontal	8
7318.7	Vertical	100	6	34.3	54.0	19.7	Horizontal	8
4881.0	Vertical	241	204	35.9	54.0	18.1	Horizontal	8
4881.0	Horizontal	182	132	35.7	54.0	18.3	Flat	8
7321.4	Horizontal	163	25	32.8	54.0	21.2	Flat	8
12198.5	Horizontal	150	0	34.5	54.0	19.5	Flat	8
12202.4	Vertical	359	266	38.7	54.0	15.3	Flat	8
7321.3	Vertical	303	288	38.4	54.0	15.6	Flat	8
4881.0	Vertical	215	179	36.4	54.0	17.6	Flat	8
4881.0	Vertical	137	24	37.6	54.0	16.4	Vertical	8
7321.3	Vertical	322	12	38.6	54.0	15.4	Vertical	8
12202.4	Vertical	359	0	36.1	54.0	17.9	Vertical	8
12202.3	Horizontal	213	319	40.4	54.0	13.6	Vertical	8
7321.3	Horizontal	175	57	36.3	54.0	17.8	Vertical	8
4880.9	Horizontal	185	306	37.2	54.0	16.8	Vertical	8
4810.9	Horizontal	139	274	37.3	54.0	16.7	Horizontal	1
12027.3	Horizontal	185	298	40.9	54.0	13.1	Horizontal	1
4950.9	Horizontal	150	233	35.9	54.0	18.1	Horizontal	15
7423.7	Horizontal	195	285	38.2	54.0	15.8	Horizontal	15
12372.6	Horizontal	184	295	38.7	54.0	15.3	Horizontal	15

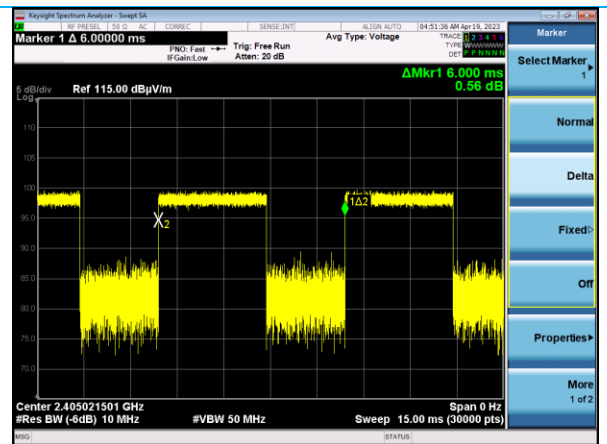
Peak Measurements - Spurious

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Peak Reading (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	EUT Orientation	Channel
4879.1	Horizontal	150	290	46.6	74.0	27.4	Horizontal	8
7318.5	Horizontal	195	290	48.5	74.0	25.5	Horizontal	8
12197.6	Horizontal	190	302	48.9	74.0	25.1	Horizontal	8
12197.3	Vertical	260	0	47.5	74.0	26.5	Horizontal	8
7318.5	Vertical	100	6	44.9	74.0	29.1	Horizontal	8
4879.1	Vertical	241	204	45.2	74.0	28.8	Horizontal	8
4879.0	Horizontal	182	132	44.9	74.0	29.1	Flat	8
7318.9	Horizontal	163	25	43.1	74.0	31.0	Flat	8
12197.4	Horizontal	150	0	45.3	74.0	28.7	Flat	8
12202.5	Vertical	359	266	47.3	74.0	26.7	Flat	8
7321.1	Vertical	303	288	46.3	74.0	27.7	Flat	8
4879.1	Vertical	215	179	44.6	74.0	29.5	Flat	8
4881.1	Vertical	137	24	46.5	74.0	27.5	Vertical	8
7321.4	Vertical	322	12	46.8	74.0	27.3	Vertical	8
12202.4	Vertical	359	0	46.8	74.0	27.2	Vertical	8
12200.0	Horizontal	213	319	49.5	74.0	24.5	Vertical	8
7321.5	Horizontal	175	57	45.9	74.0	28.1	Vertical	8
4878.9	Horizontal	185	306	45.4	74.0	28.6	Vertical	8
4808.9	Horizontal	139	274	46.1	74.0	27.9	Horizontal	1
12027.5	Horizontal	185	298	49.7	74.0	24.3	Horizontal	1
4948.9	Horizontal	150	233	44.1	74.0	29.9	Horizontal	15
7426.2	Horizontal	195	285	47.1	74.0	26.9	Horizontal	15
12372.8	Horizontal	184	295	47.7	74.0	26.3	Horizontal	15

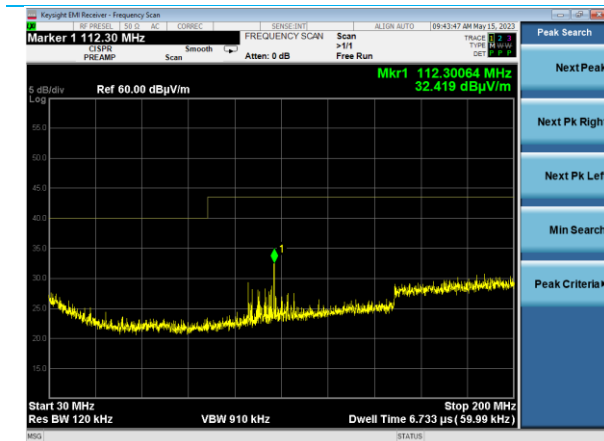
Plots



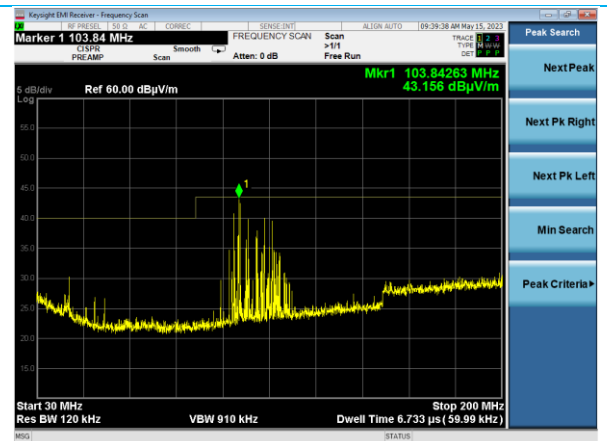
On Time 3.471ms



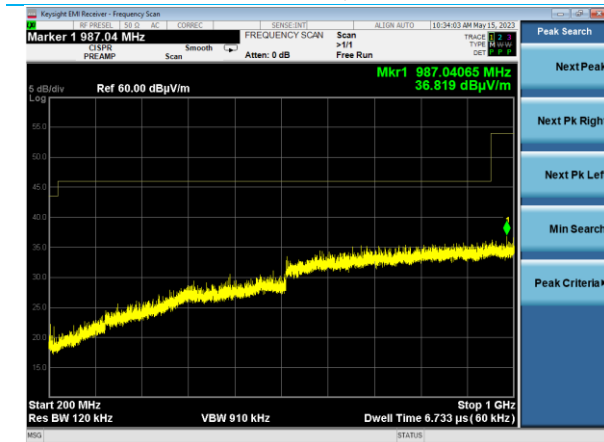
Period 6ms



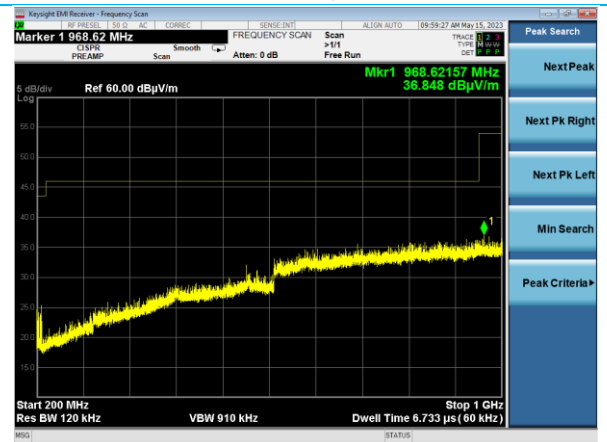
30-200 MHz Horizontal
EUT Vertical, Tx Mid



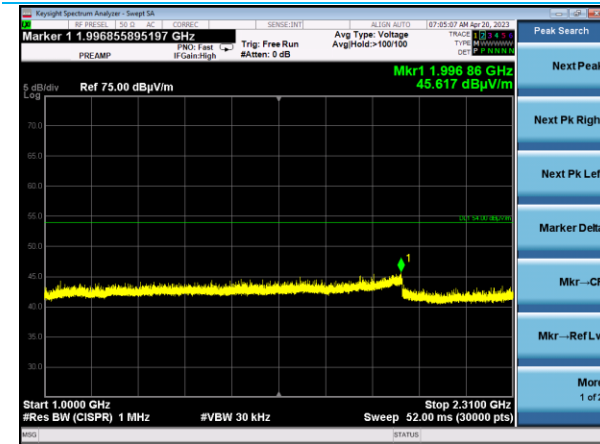
30-200 MHz Vertical
EUT Vertical, Tx Mid



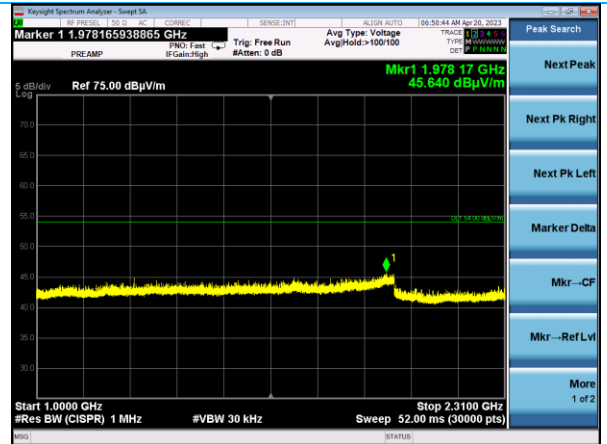
200-1000 MHz Horizontal
EUT Vertical, Tx Mid



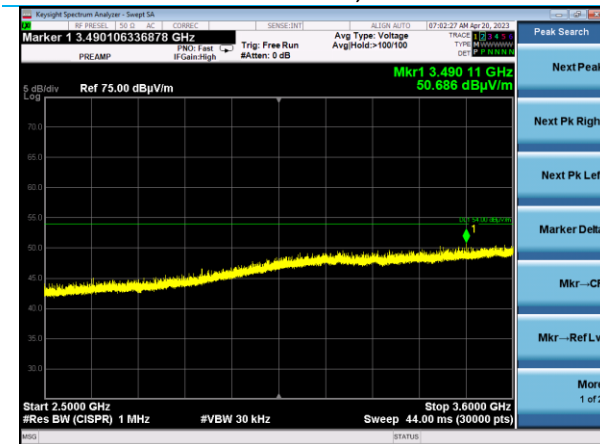
200-1000 MHz Vertical
EUT Vertical, Tx Mid



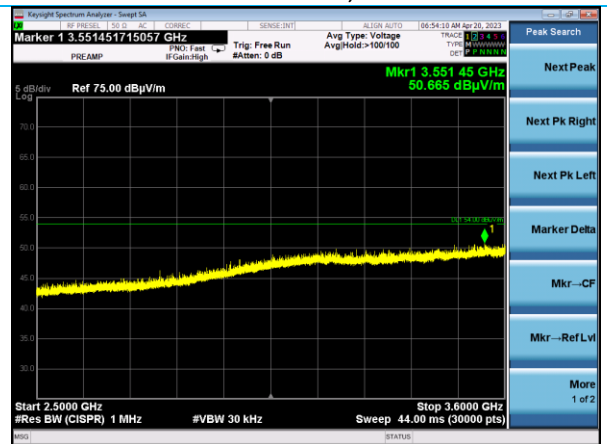
1-2.31 GHz Horizontal
EUT Horizontal, Tx Mid



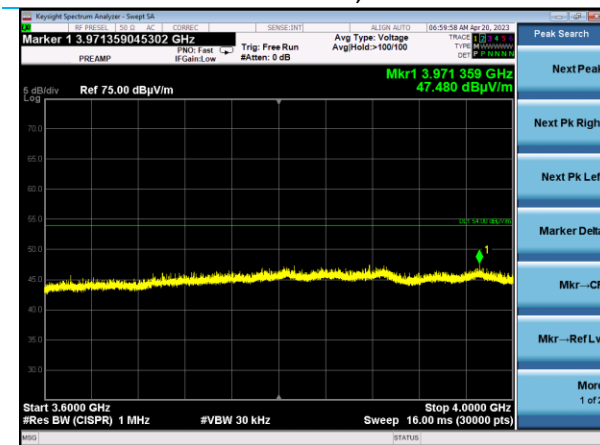
1-2.31 GHz Vertical
EUT Horizontal, Tx Mid



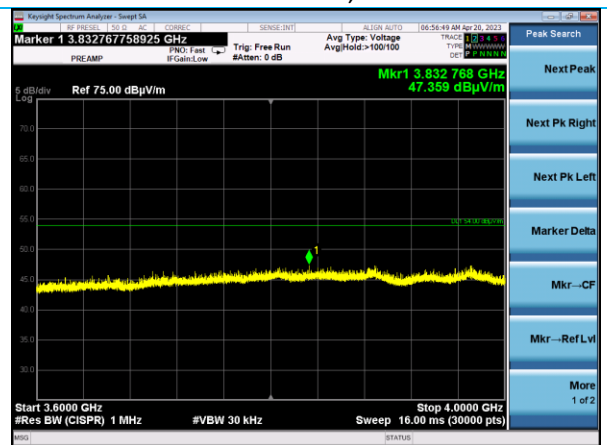
2.5-3.6 GHz Horizontal
EUT Horizontal, Tx Mid



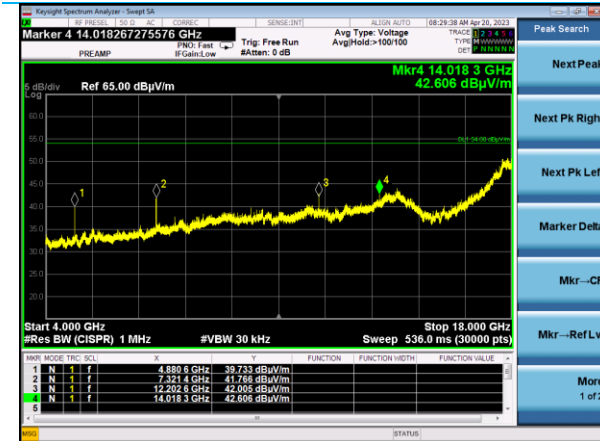
2.5-3.6 GHz Vertical
EUT Horizontal, Tx Mid



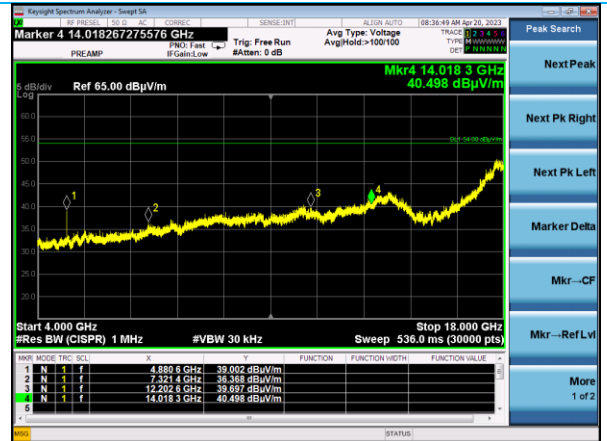
3.6-4 GHz Horizontal
EUT Horizontal, Tx Mid



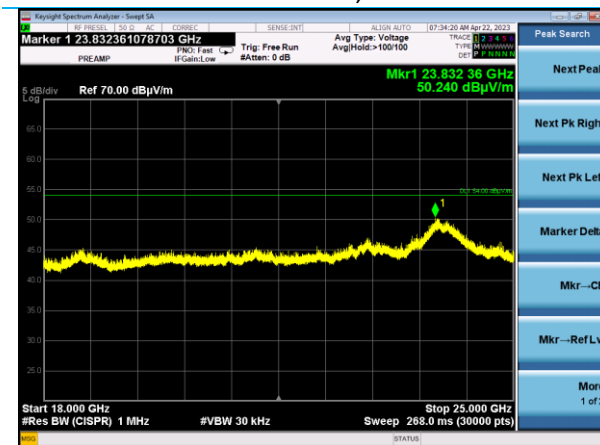
3.6-4 GHz Vertical
EUT Horizontal, Tx Mid



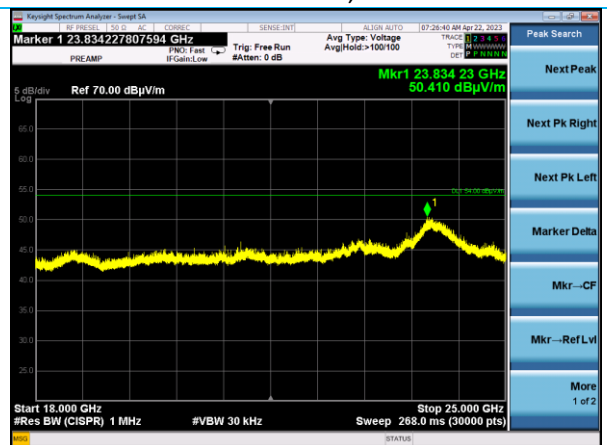
4-18 GHz Horizontal
EUT Horizontal, Tx Mid



4-18 GHz Vertical
EUT Horizontal, Tx Mid



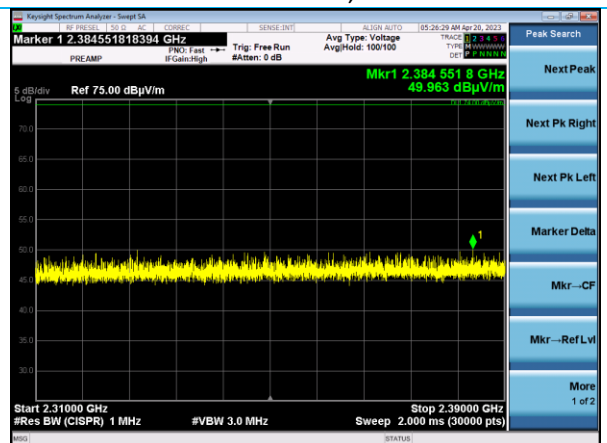
18-25 GHz Horizontal
EUT Horizontal, Tx Mid



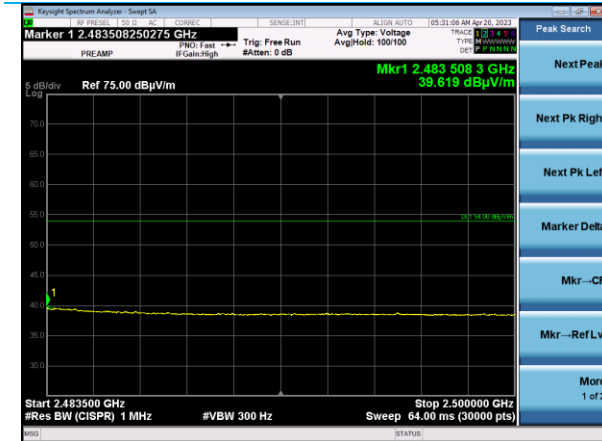
18-25 GHz Vertical
EUT Horizontal, Tx Mid



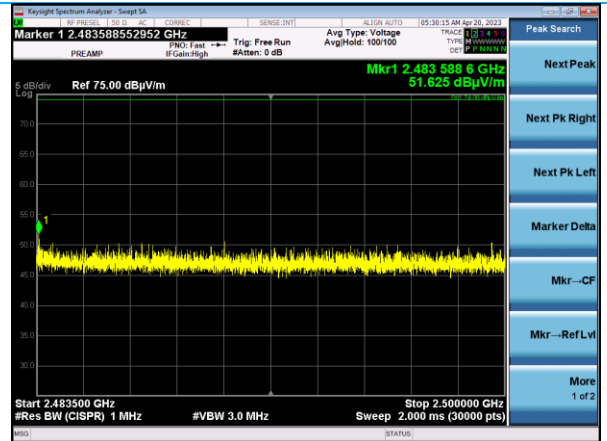
2.31-2.39 GHz Vertical
EUT Horizontal, Ch 1 Average



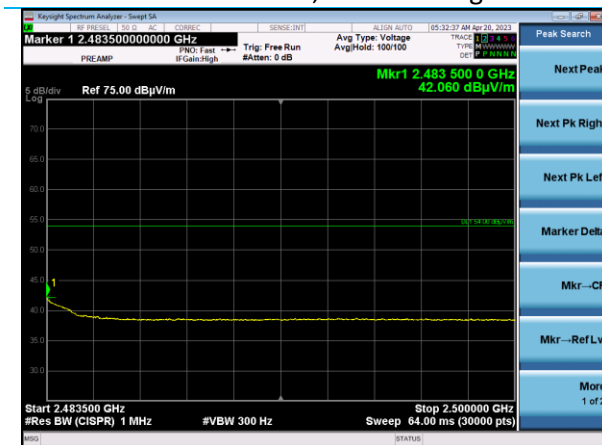
2.31-2.39 GHz Vertical
EUT Horizontal, Ch 1 Peak



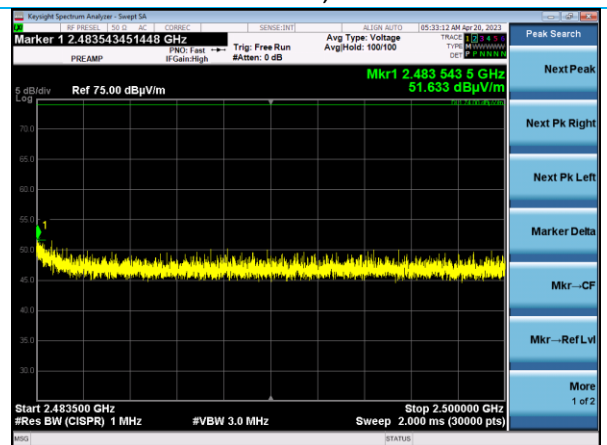
2.4835-2.5 GHz Vertical
EUT Horizontal, Ch 15 Average



2.4835-2.5 GHz Vertical
EUT Horizontal, Ch 15 Peak



2.4835-2.5 GHz Vertical
EUT Horizontal, Ch 16 Average



2.4835-2.5 GHz Vertical
EUT Horizontal, Ch 16 Peak

6 REVISION HISTORY

Version	Date	Notes	Person
0	5/11/2023	Initial Draft	Anthony Smith
1	6/7/2023	Updated Draft	Anthony Smith
2	7/14/2023	Revised Draft	Anthony Smith
3	10/18/2023	TCB Response	Anthony Smith

END OF REPORT