

Test Report

Product	Impedance plethysmography		
Name and address of the applicant	Mode Sensors AS Professor Brochs Gate 2 7030 Trondheim, Norway		
Name and address of the manufacturer	Mode Sensors AS Professor Brochs Gate 2 7030 Trondheim, Norway		
Model	PCT005A		
Rating	3V Primary Battery		
Trademark	Re:Balans®		
Additional information	Bluetooth Low Energy		
Tested according to	FCC Part 15.247 Digital Transmission Systems Industry Canada RSS-247, Issue 2 Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices		
Order number	451844		
Tested in period	2022-05-02 to 2022-05-04		
Issue date	2023-03-09		
Name and address of the testing laboratory	 Instituttveien 6 Kjeller, Norway www.nemko.com ISED Number: 2040D CAB Number: FCC: NO0001 ISED: NO0470   An accredited technical test executed under the Norwegian accreditation scheme		
 Prepared by [Frode Sveinsen]  Approved by [G.Suhantakumar]			
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Revision history

Revision	Date	Comment	Sign
00	2023-03-09	First edition	FS



THIS TEST REPORT APPLIES ONLY TO THE ITEMS AND CONFIGURATIONS TESTED.

Deviations from, additions to, or exclusions from the test specifications are described in "Summary of Test Data".

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1 INFORMATION

1.1 Test Item

Name	ReBalans
Model/version	PCT005A
FCC ID	2A6Z8-PCT005
Serial number	PCT005
Hardware identity and/or version	BRD008A
Software identity and/or version	PFW108A
Frequency Range	2402 – 2480 MHz
Number of Channels	40
Operating Modes	Bluetooth Low Energy, 1Mbit / 2Mbit
Type of Modulation	GFSK
Conducted Output Power	0.54 mW
Antenna Connector	None
Number of Antennas	1
Diversity or Smart Antennas	No
Power Supply	Primary Battery (3.0V Lithium Battery)
Desktop Charger	None

Description of Test Item

The EUT is a sensor with Bluetooth Low Energy.

1.2 Normal test condition

Temperature:	20 - 24 °C
Relative humidity:	20 - 50 %
Normal test voltage:	5.0 V _{DC} (USB Voltage)

The values are the limit registered during the test period.

The EUT was powered from the Silicon Labs test-jig and indirectly from the Radio Communications tester R&S CMW500. In normal use the EUT will be powered from a primary battery.

1.3 Test Engineer(s)

Frode Sveinsen

1.4 Antenna Requirement

Does the EUT have detachable antenna(s)?	☐ YES	☒ NO
If detachable, is the antenna connector(s) non-standard?	☐ YES	☐ NO
The tested equipment has only integral antennas. Conducted tests were performed with a temporary antenna connector.		

Requirement: FCC 15.203, 15.204

1.5 EUT Operating Modes

Description of operating modes	All tests were performed with the EUT in BQB Direct Test Mode and controlled by the CMW500. The EUT was connected to the CMW500 through the Silicon Labs test board and through a USB-RS232 interface.
Additional information	The EUT was programmed to transmit continuously with maximum duty cycle. Output Power: Maximum Bit rate: 1 Mbit and 2 Mbit Modulation: GFSK

1.6 Comments

None.

2 TEST REPORT SUMMARY

2.1 General

All measurements are traceable to national standards.

The tests were conducted for demonstrating compliance with FCC CFR 47 Part 15, paragraph 15.247 and ISSED RSS-247 Issue 2 and RSS-GEN Issue 5.

Tests were performed in accordance with ANSI C63.4-2014 and ANSI C63.10-2013.

Radiated tests were performed in a semi-anechoic chamber at measuring distances of 3m.

A description of the test facility is on file with the FCC and ISSED.

☒ New Submission	☒ Production Unit
☐ Class II Permissive Change	☐ Pre-production Unit
DTS Equipment Code	☐ Family Listing

2.2 Test Summary

Name of test	FCC Part 15 reference	RSS-247 Issue 2, RSS-GEN Issue 5 reference	ANSI C63.10-2013 Reference	Result
Supply Voltage Variations	15.31(e)	6.11 (RSS-GEN)	5.13	N/A
Antenna Requirement	15.203	6.8 (RSS-GEN)	5.8	Complies
Power Line Conducted Emission	15.107(a) 15.207(a)	7.2 / 8.8 (RSS-GEN)	6.2	N/A
Occupied Bandwidth (99% BW)	N/A	6.7 (RSS-GEN)	6.9.3	N/A
DTS Bandwidth	15.247(a)(2)	5.2 (1) (RSS-247)	11.8 Option 2	Complies
Peak Power Output	15.247(b)	5.4 (RSS-247)	11.9.1.1	Complies
Power Spectral Density	15.247(d)	5.2 (2) (RSS-247)	11.10.2 PKPSD (DTS)	Complies
Spurious Emissions (Antenna Conducted)	15.247(c)	5.5 (RSS-247)	6.7 11.11 (DTS)	Complies
Spurious Emissions (Radiated)	15.247(c) 15.109(a) 15.209(a)	5.5 (RSS-247) 7.3 (RSS-GEN) 8.9 (RSS-GEN)	6.3, 6.5, 6.6, 6.10 11.12, 11.13 (DTS)	Complies

3 TEST RESULTS

3.1 Occupied Bandwidth (99% BW)

ISED Canada RSS-GEN Issue 5, Clause 6.7

Measurement procedure: ANSI C63.10-2013 Clause 6.9.2

Test Results: Complies

Measurement Data:

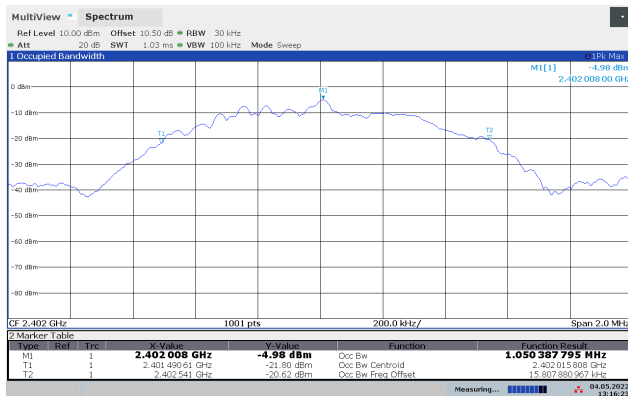
Modulation and Bitrate	99% Occupied Bandwidth (MHz)		
	2402 MHz	2440 MHz	2480 MHz
GFSK 1Mb	1.05	1.05	1.05
GFSK 2Mb	2.07	2.08	2.08

Occupied Bandwidth is the same for all channels

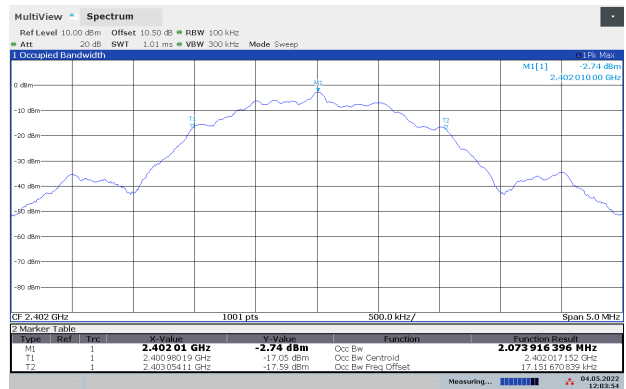
See attached plots

Requirements:

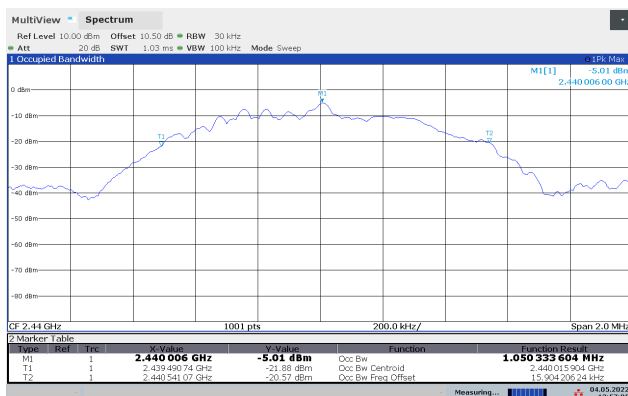
No requirements for Digital Transmission Systems.



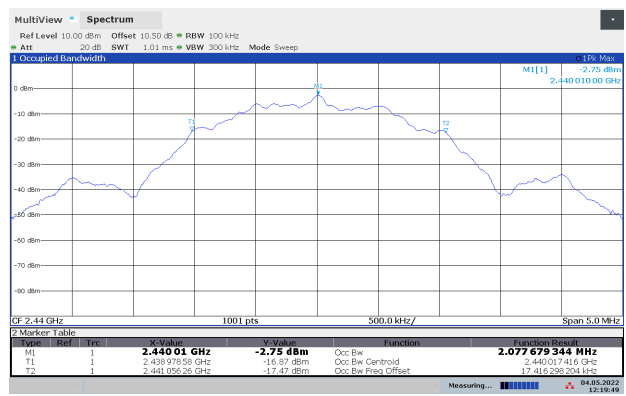
99% Occupied BW, 2402 MHz, 1Mbit



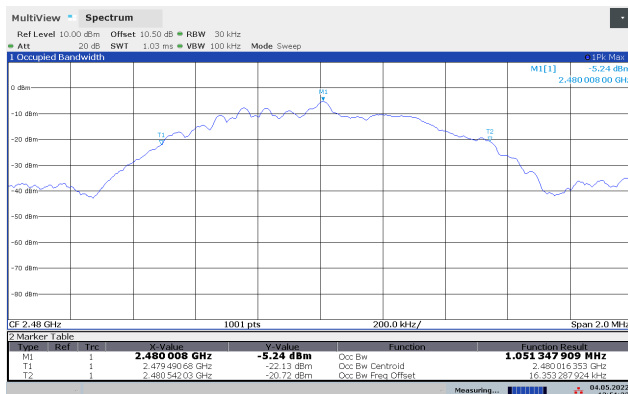
99% Occupied BW, 2402 MHz, 2Mbit



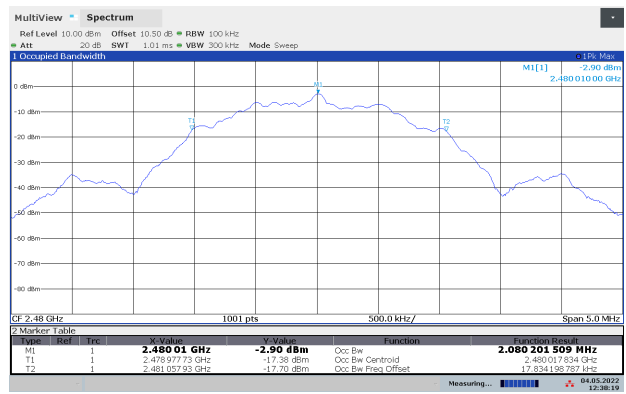
99% Occupied BW, 2440 MHz, 1Mbit



99% Occupied BW, 2440 MHz, 2Mbit



99% Occupied BW, 2480 MHz, 1Mbit



99% Occupied BW, 2480 MHz, 2Mbit

3.2 DTS Bandwidth

FCC Part 15.247 (a)(2)

ISED Canada RSS-247 Issue 2, Clause 5.2 (a)

Measurement procedure: ANSI C63.10-2013 Clause 11.8

Test Results: Complies

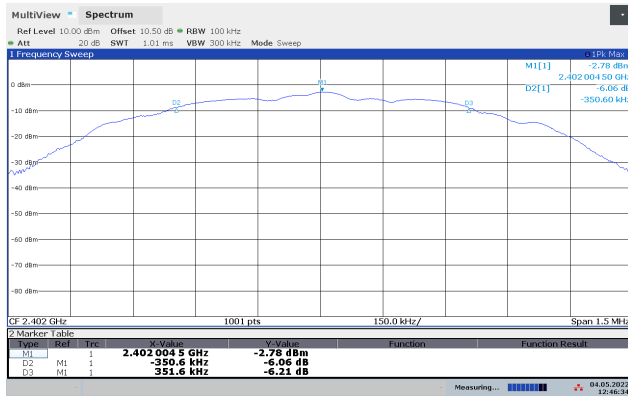
Measurement Data:

Modulation and Bitrate	Measured DTS Bandwidth (MHz)		
	2402 MHz	2440 MHz	2480 MHz
GFSK 1Mb	0.70	0.71	0.70
GFSK 2Mb	1.16	1.16	1.16

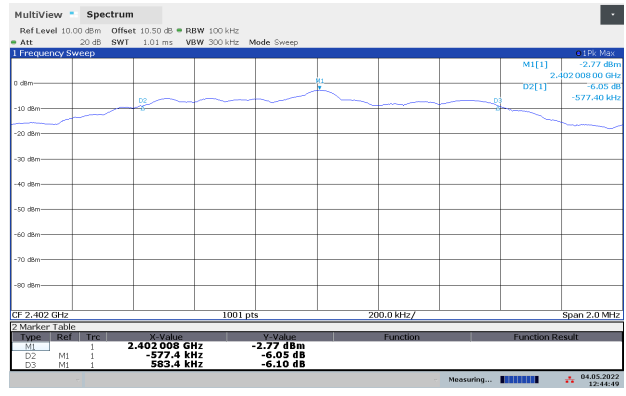
Power supply variation within 85 % to 115% of nominal value has no influence on measured value.

Requirements:

For Digital Transmission Systems in the 2400-2483.5 MHz band the minimum 6 dB bandwidth shall be at least 500 KHz.



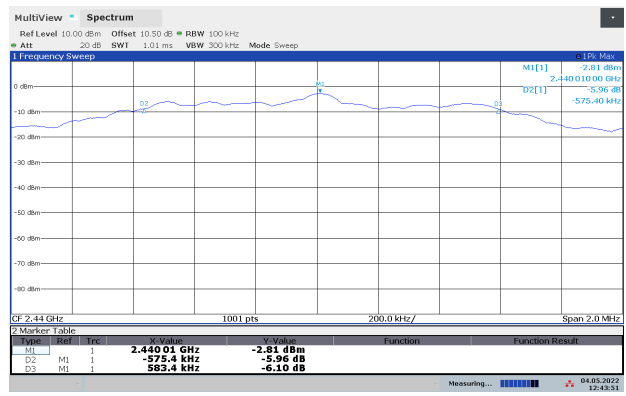
DTS BW, 2402 MHz, GFSK 1Mb



DTS BW, 2402 MHz, GFSK 2Mb



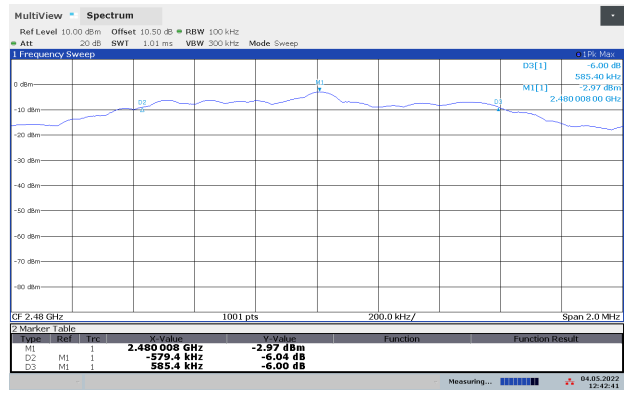
DTS BW, 2440 MHz, GFSK 1Mb



DTS BW, 2440 MHz, GFSK 2Mb



DTS BW, 2480 MHz, GFSK 1Mb



DTS BW, 2480 MHz, GFSK 2Mb

3.3 Peak Power Output

FCC Part 15.247 (b)

ISED Canada RSS-247 Issue 2, Clause 5.4

Measurement procedure: ANSI C63.10-2013 Clause 11.9.1.2

Test Results: Complies

Measurement Data:

Carrier Frequency and Bitrate	Peak Conducted Power, dBm	Calculated Peak EIRP, dBm	Calculated Antenna Gain, dBi
2402 MHz, 1Mbit	-2.7	1.7	4.4
2402 MHz, 1Mbit	-2.7	1.2	3.9
2440 MHz, 1Mbit	-2.7	0.5	3.2
2440 MHz, 2Mbit	-2.7	0.4	3.2
2480 MHz, 1Mbit	-2.9	-0.8	2.1
2480 MHz, 2Mbit	-2.8	-0.6	2.3

Output Power reported is Maximum Peak Power.

Radiated Power was calculated from measured Field Strength using the method described in FCC KDB 412172 D01.

Antenna Gain is less than 6 dBi.

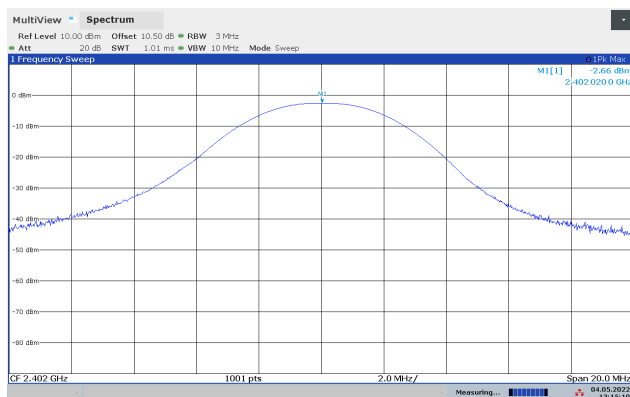
See attached plots.

Requirements:

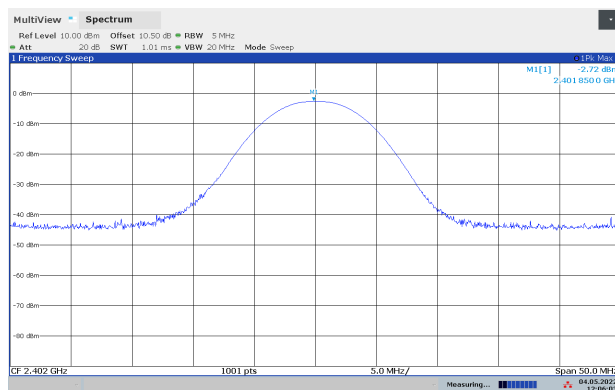
The maximum peak output power shall not exceed the following limits:

For Digital Transmission Systems in the 2400 - 2483.5 MHz band: 1 Watt

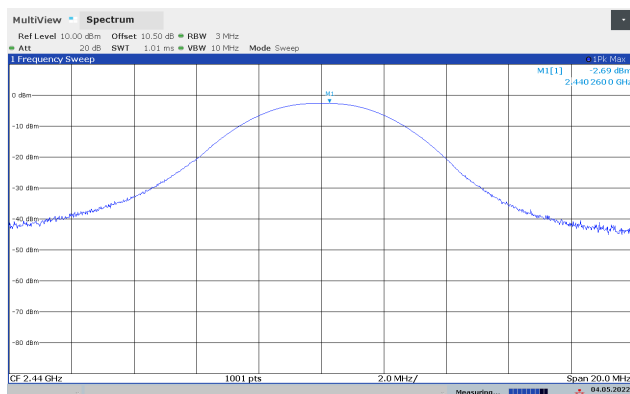
If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced below the stated value above by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



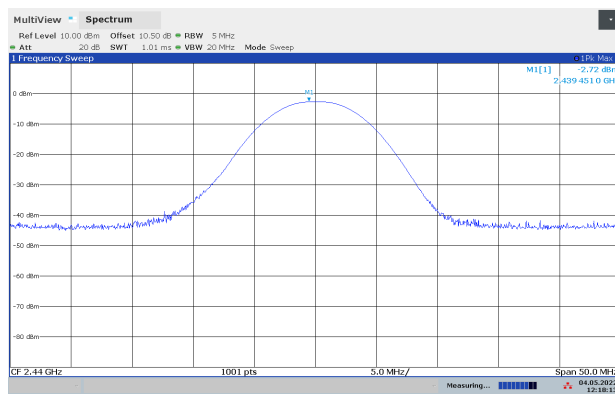
Peak Power, 2402 MHz, 1Mbit



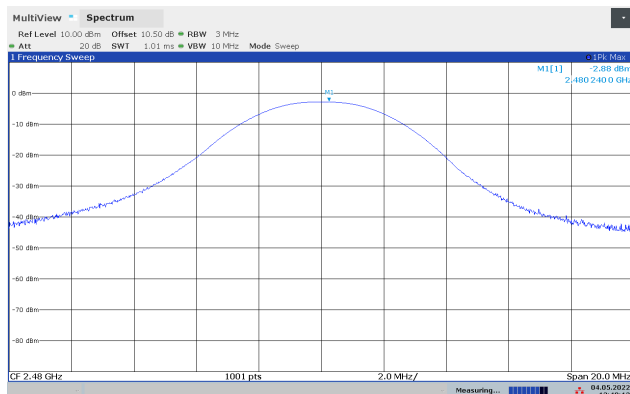
Peak Power, 2402 MHz, 2Mbit



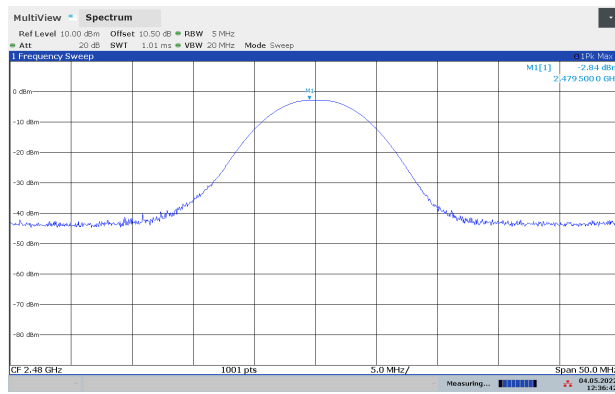
Peak Power, 2440 MHz, 1Mbit



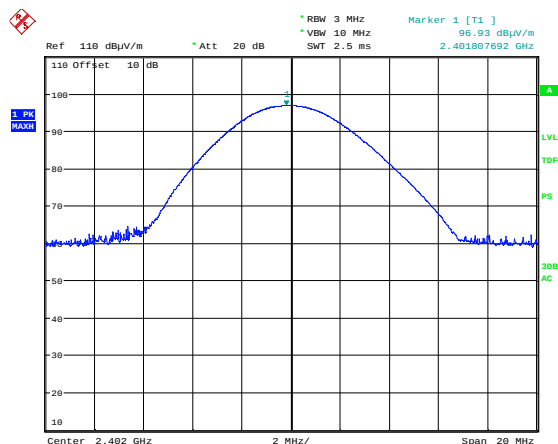
Peak Power, 2440 MHz, 2Mbit



Peak Power, 2480 MHz, 1Mbit

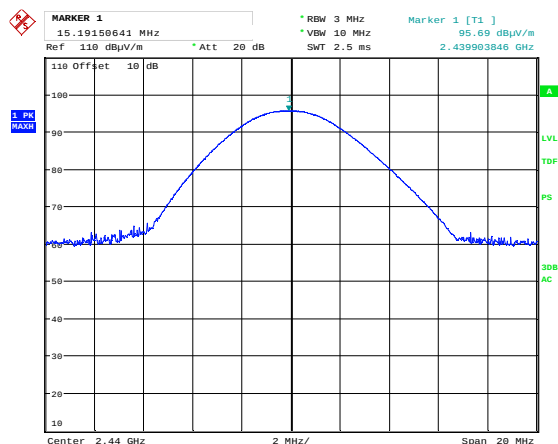


Peak Power, 2480 MHz, 2Mbit



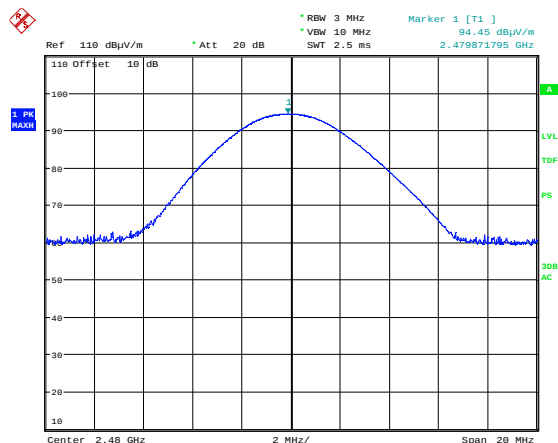
Date: 2.MAY.2022 13:13:13

Field Strength, 2402 MHz, 1Mbit, VP, 1Mbit



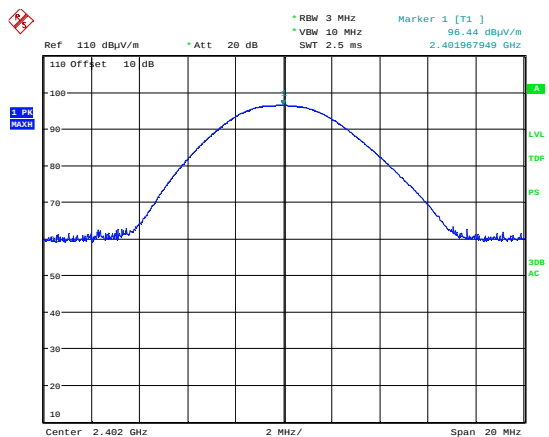
Date: 2.MAY.2022 13:21:21

Field Strength, 2440 MHz, 1Mbit, VP, 1Mbit



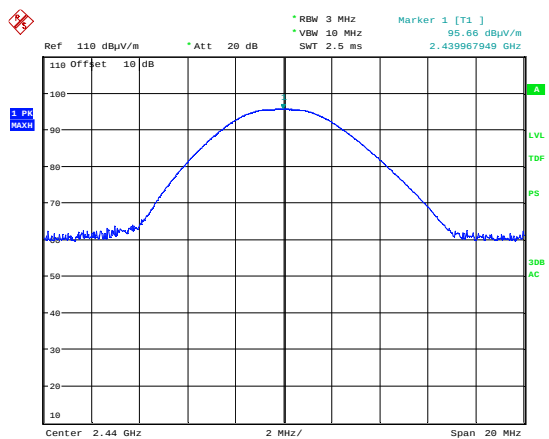
Date: 2.MAY.2022 13:25:32

Field Strength, 2480 MHz, 1Mbit, HP, 1Mbit



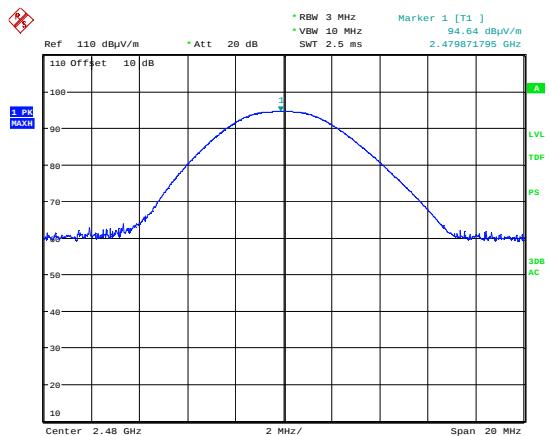
Date: 2.MAY.2022 13:48:47

2Mbit



Date: 2.MAY.2022 13:59:54

2Mbit



Date: 2.MAY.2022 13:48:13

2Mbit

3.4 Conducted Emissions at Antenna Connector

FCC Part 15.247 (d)

ISED Canada RSS-247 Issue 2, Clause 5.5

Measurement procedure: ANSI C63.10-2013 Clause 11.11

Test Results: Complies

Measurement Data:

Carrier Frequency	Highest Value (dBc)	Margin (dB)	Verdict
2402 MHz	>40	>20	Pass
2440 MHz	>40	>20	Pass
2480 MHz	>40	>20	Pass

Measured with Peak Detector

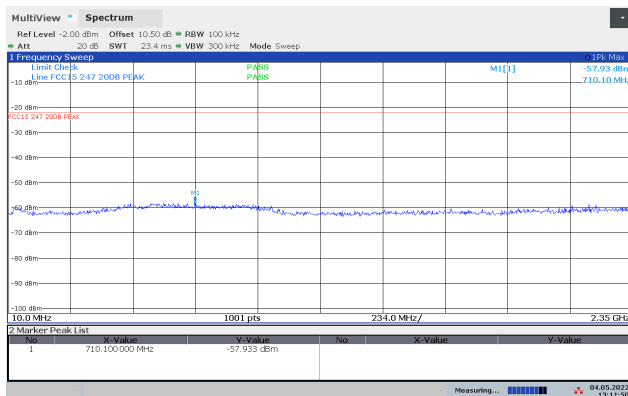
RF conducted power to 26 GHz: see attached plots.

Limit

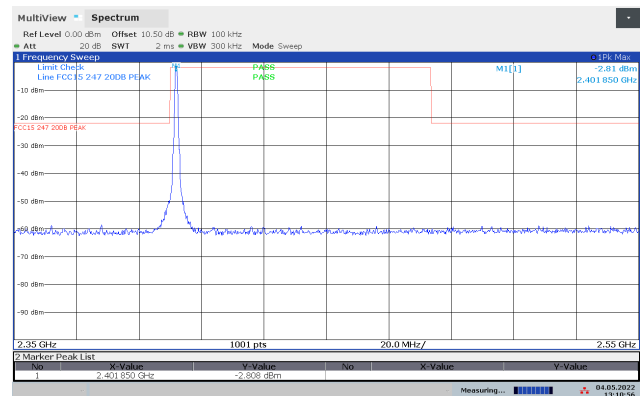
Peak measurement	RMS averaging
20 dBc or more in 100 kHz bandwidth	30 dBc or more in 100 kHz bandwidth

Detector type shall be the same as used for measuring Output Power.

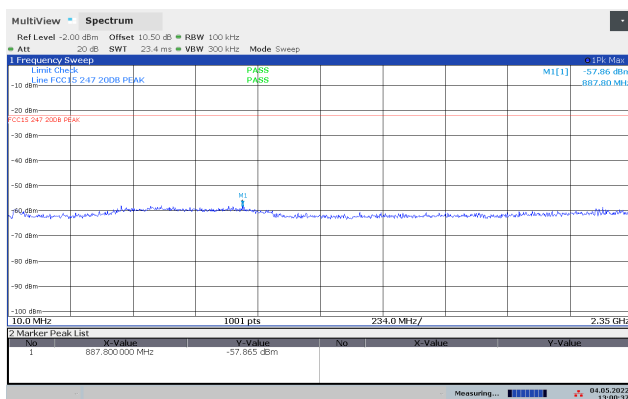
Attenuation below the general limits specified in part 15.209(a) is not required.



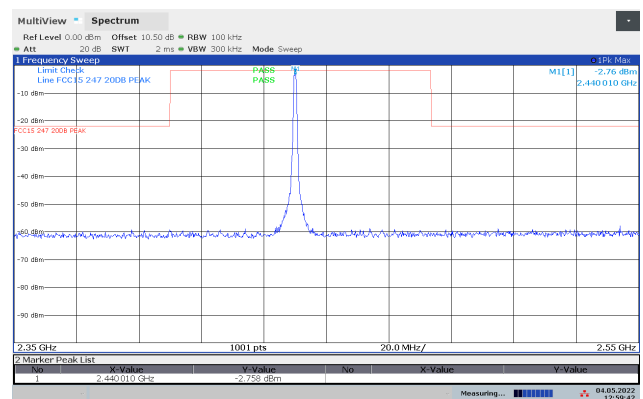
Conducted Emissions 10-2350 MHz, 2402 MHz, 1Mb



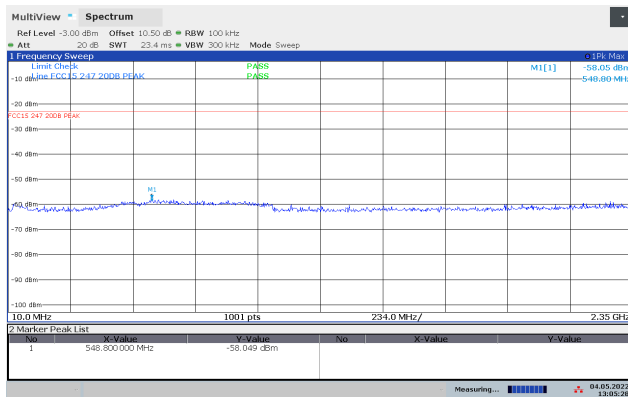
Conducted Emissions 2350-2550 MHz, 2402 MHz, 1Mb



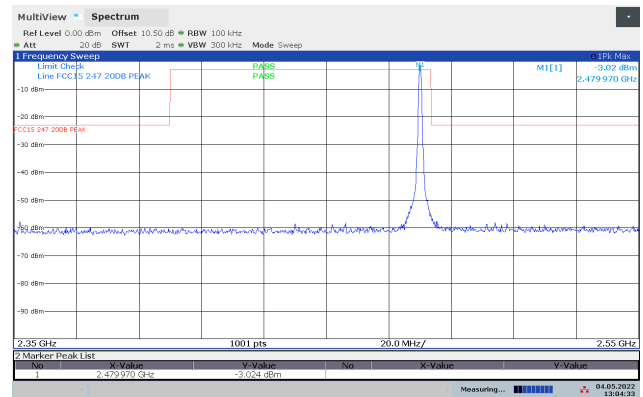
Conducted Emissions 10-2350 MHz, 2440 MHz, 1Mb



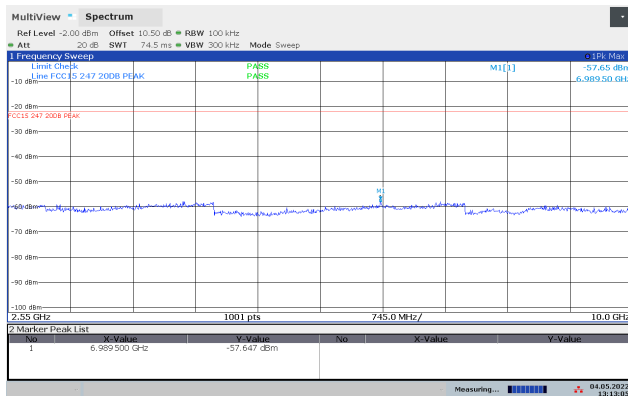
Conducted Emissions 2350-2550 MHz, 2440 MHz, 1Mb



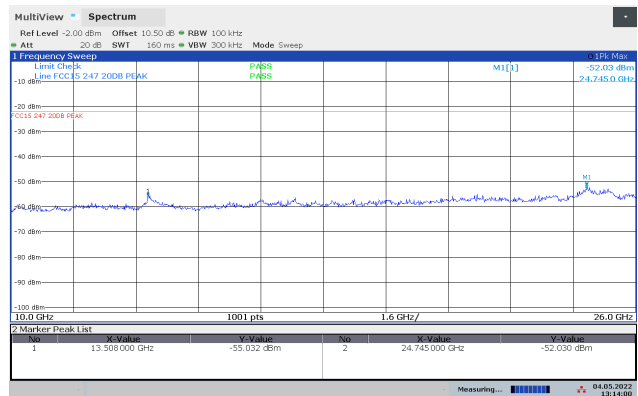
Conducted Emissions 10-2350 MHz, 2480 MHz, 1Mb



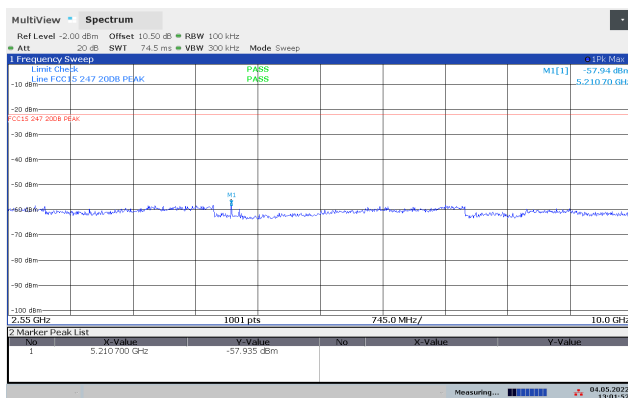
Conducted Emissions 2350-2550 MHz, 2480 MHz, 1Mb



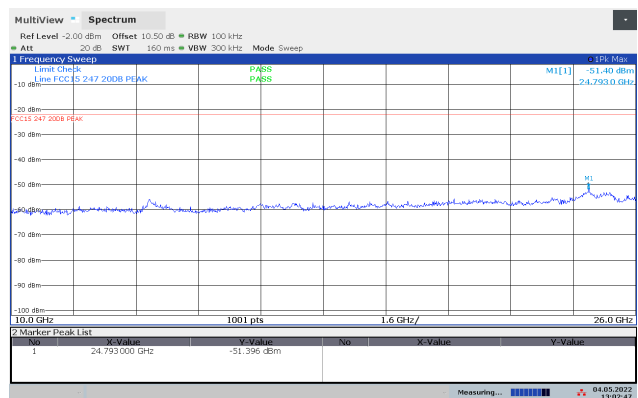
Conducted Emissions 2.55-10 GHz, 2402 MHz, 1Mb



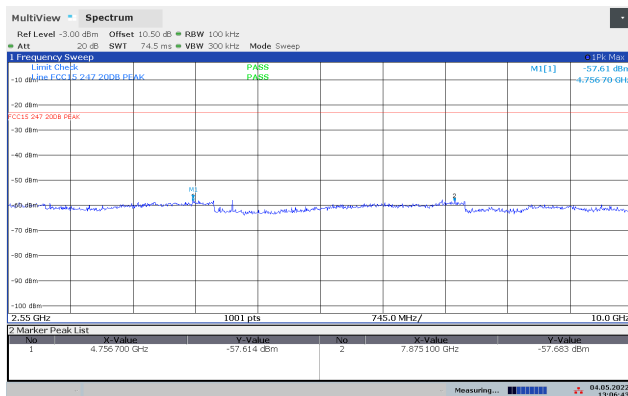
Conducted Emissions 10-26 GHz, 2402 MHz, 1Mb



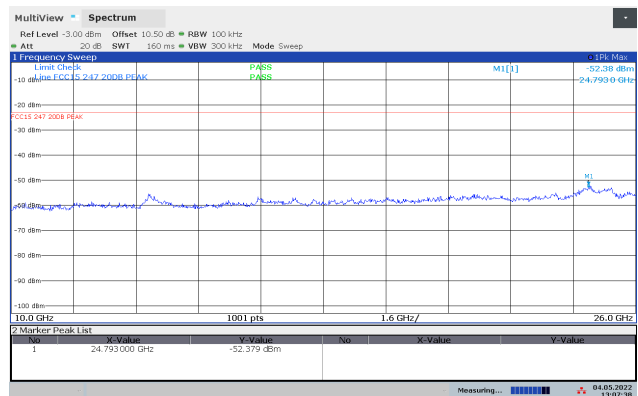
Conducted Emissions 2.55-10 GHz, 2440 MHz, 1Mb



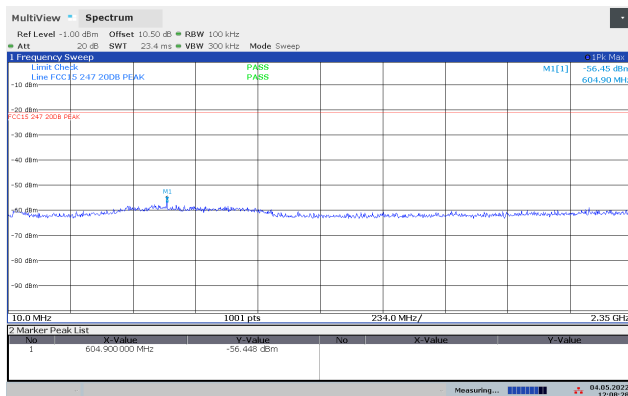
Conducted Emissions 10-26 GHz, 2440 MHz, 1Mb



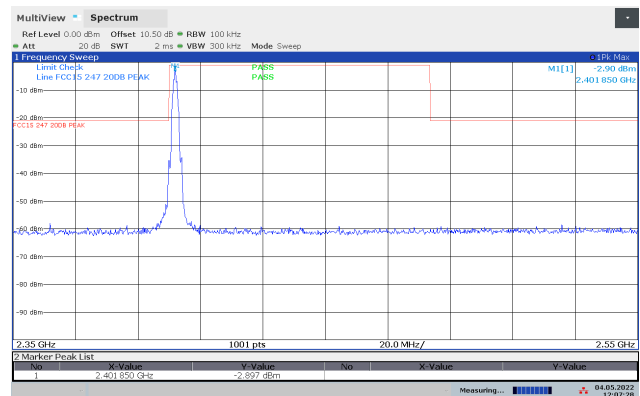
Conducted Emissions 2.55-10 GHz, 2480 MHz, 1Mb



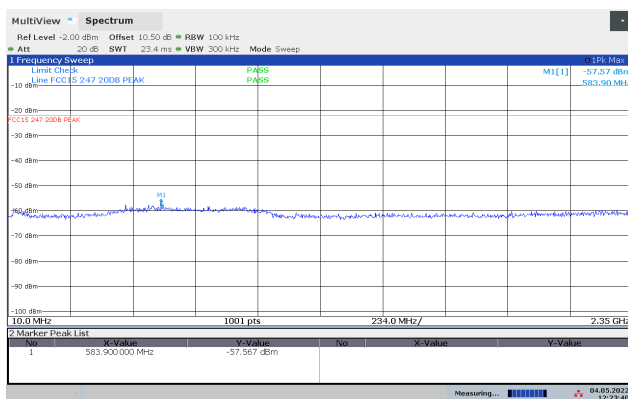
Conducted Emissions 10-26 GHz, 2480 MHz, 1Mb



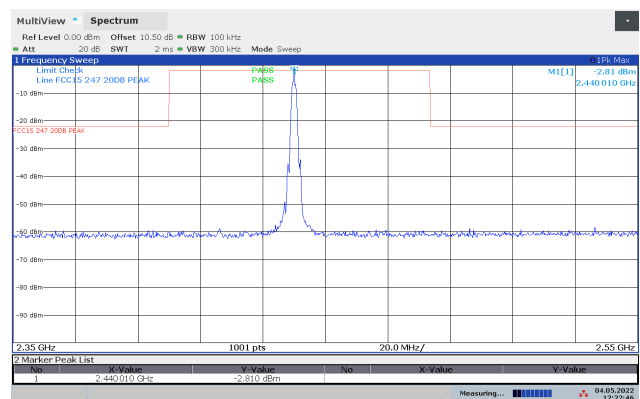
Conducted Emissions 10-2350 MHz, 2402 MHz, 2Mb



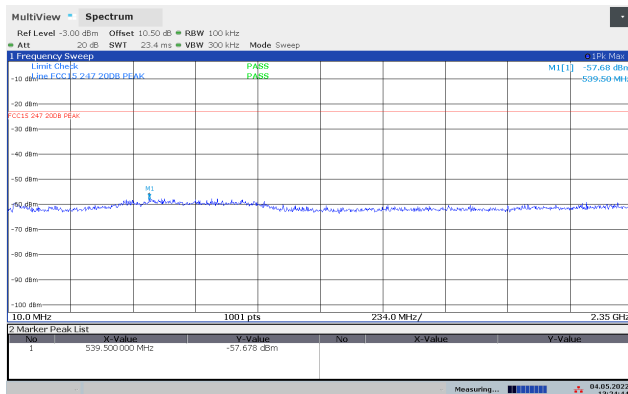
Conducted Emissions 2350-2550 MHz, 2402 MHz, 2Mb



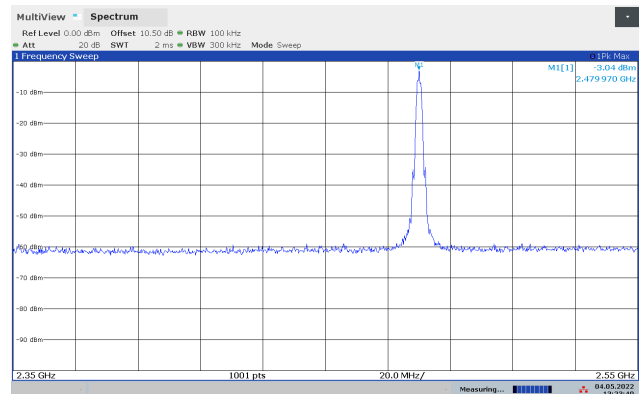
Conducted Emissions 10-2350 MHz, 2440 MHz, 2Mb



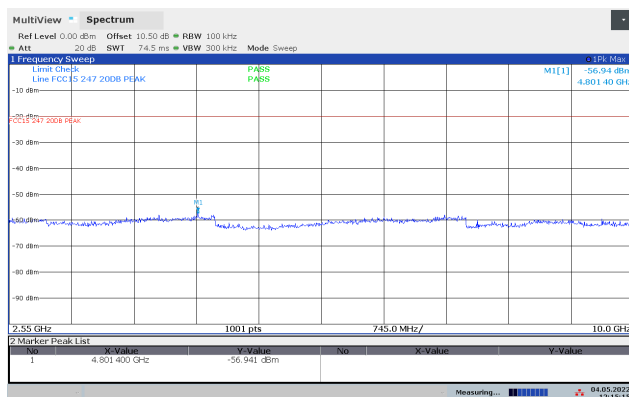
Conducted Emissions 2350-2550 MHz, 2440 MHz, 2Mb



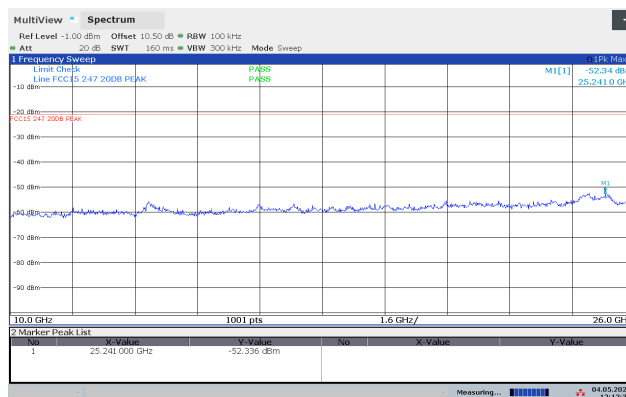
Conducted Emissions 10-2350 MHz, 2480 MHz, 2Mb



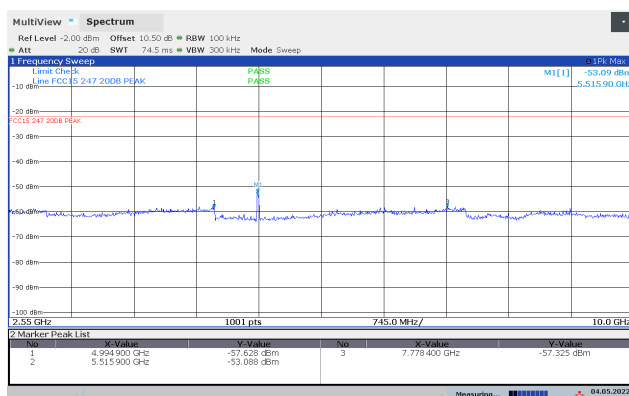
Conducted Emissions 2350-2550 MHz, 2480 MHz, 2Mb



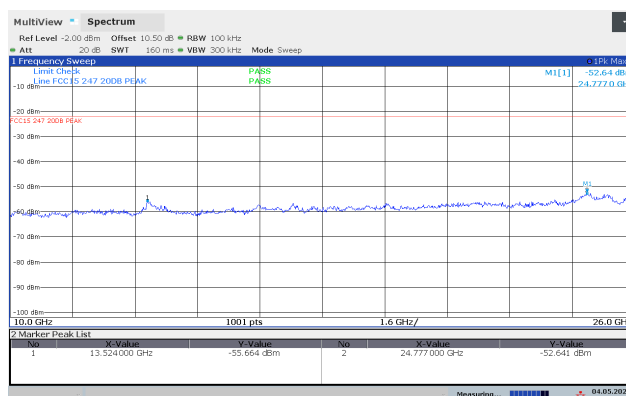
Conducted Emissions 2.55-10 GHz, 2402 MHz, 2Mb



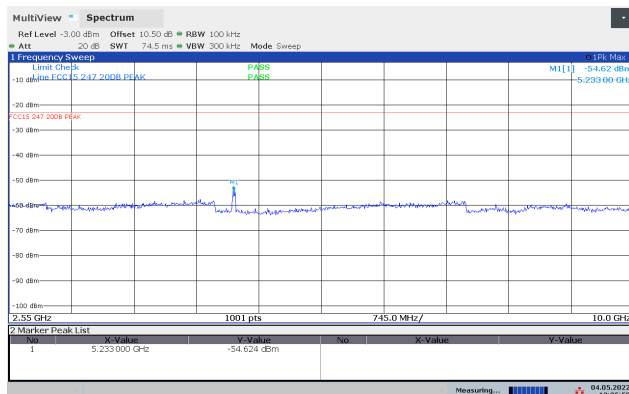
Conducted Emissions 10-26 GHz, 2402 MHz, 2Mb



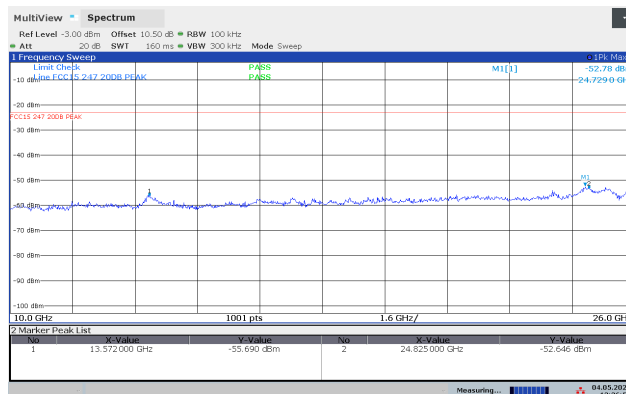
Conducted Emissions 2.55-10 GHz, 2440 MHz, 2Mb



Conducted Emissions 10-26 GHz, 2440 MHz, 2Mb



Conducted Emissions 2.55-10 GHz, 2480 MHz, 2Mb



Conducted Emissions 10-26 GHz, 2480 MHz, 2Mb

3.5 Restricted Bands of operation

Restricted Bands of operation for FCC and ISSED are defined in FCC Part 15.205 and ISSED RSS-GEN, Issue 5 clause 8.10.

Generally, no fundamentals are allowed in the restricted bands and all emissions must comply with the limits in FCC 15.209 or RSS-GEN, Issue 5, clause 8.9.

FCC (MHz)	ISSED (MHz)	FCC (GHz)	ISSED (GHz)
0.090-0.110		0.96-1.24 1.3-1.427	0.96-1.427
0.495-0.505		1.435-1.6265	
2.1735-2.1905		1.6455-1.6465	
	3.020-3.026	1.660-1.710	
4.125-4.128		1.7188-1.7222	
4.17725-4.17775		2.2-2.3	
4.20725-4.20775		2.31-2.39	
	5.677-5.683	2.4835-2.5	
6.215-6.218		2.69-2.9	2.655-2.9
6.26775-6.26825		3.26-3.267	
6.31175-6.31225		3.332-3.339	
8.291-8.294		3.3458-3.358	
8.362-8.366		3.6-4.4	3.5-4.4
8.37625-8.38675		4.5-5.15	
8.41425-8.41475		5.35-5.46	
12.29-12.293		7.25-7.75	
12.51975-12.52025		8.025-8.5	
12.57675-12.57725		9.0-9.2	
13.36-13.41		9.3-9.5	
16.42-16.423		10.6-12.7	
16.69475-16.69525		13.25-13.4	
16.80425-16.80475		14.47-14.5	
25.5-25.67		15.35-16.2	
37.5-38.25		17.7-21.4	
73-74.6		22.01-23.12	
74.8-75.2		23.6-24.0	
108-121.94 123-138	108-138	31.2-31.8	
149.9-150.05		36.43-36.5	
156.52475-156.52525		Above 38.6	
156.7-156.9			
162.0125-167.17			
167.72-173.2			
240-285			
322-335.4			
399.9-410			
608-614			

Frequencies in **Bold** text are specific for FCC or ISSED, all other frequencies are common.

3.6 Radiated Emissions, Band Edge

FCC Part 15.209 (a)

ISED Canada RSS-GEN Issue 5, Clause 7.3 / 8.9

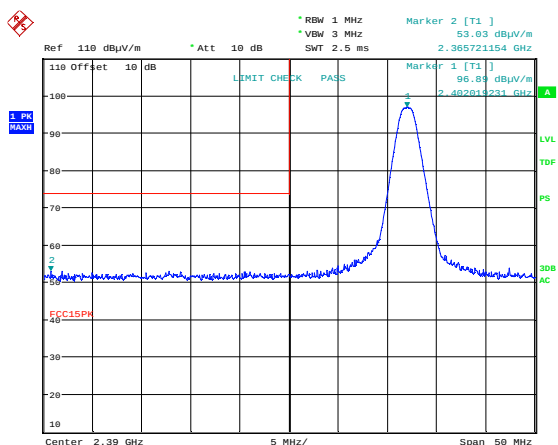
Measurement procedure: ANSI C63.10-2013 Clause 11.12

Test Results: Complies

Measurement Data:

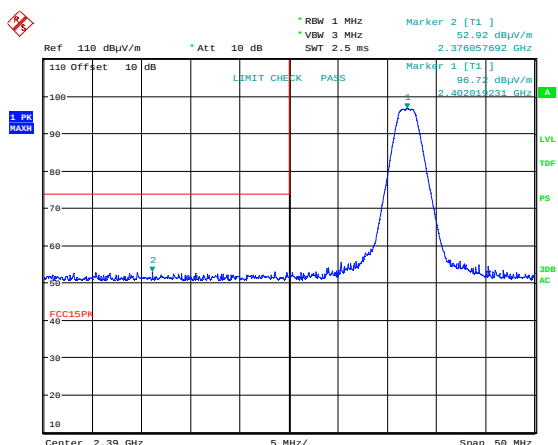
Frequency and Bitrate	Measured field strength (dB μ V/m)		Limit (dB)		Margin	
	Peak	Average	Peak	Average	Peak	Average
2390 MHz, 1Mbit	53.0	41.3	74	54	21.0	12.7
2390 MHz, 2Mbit	52.9	45.5	74	54	21.1	8.5
2483.5 MHz, 1Mbit	57.1	51.2	74	54	16.9	2.8
2483.5 MHz, 2Mbit	59.0	54.0	74	54	15.0	0.0

See attached plots.



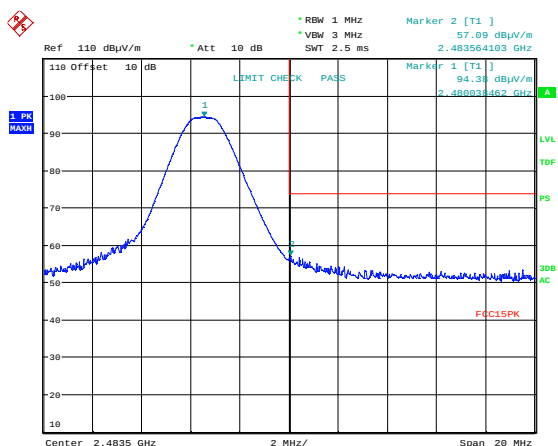
Date: 2.MAY.2022 13:14:55

Lower Band Edge, 2402 MHz, 1Mb, Peak



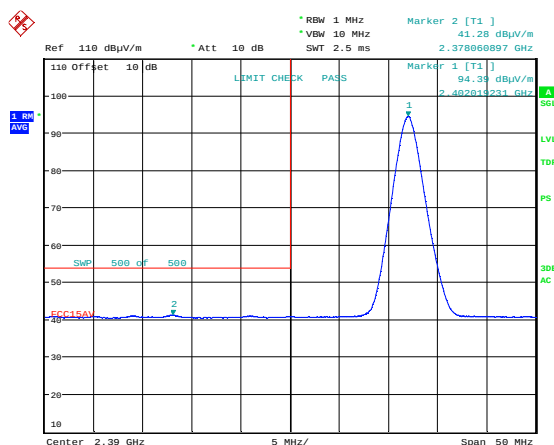
Date: 2.MAY.2022 13:53:01

Lower Band Edge, 2402 MHz, 2Mb, Peak



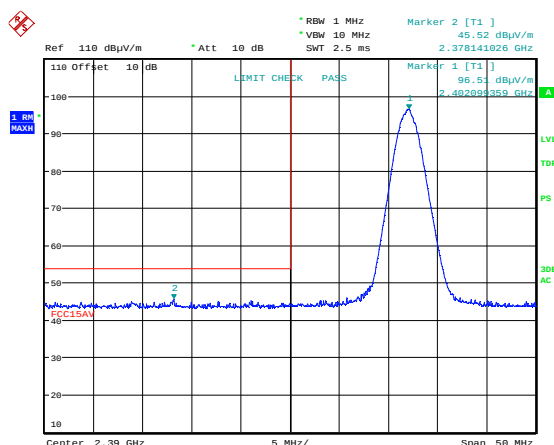
Date: 2.MAY.2022 13:26:49

Upper Band Edge, 2480 MHz, 1Mb, Peak



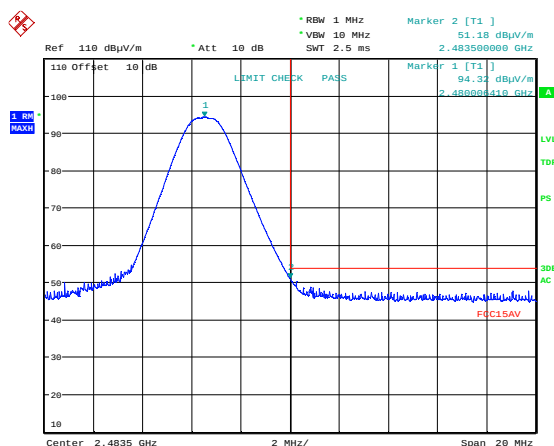
Date: 2.MAY.2022 13:15:48

Av



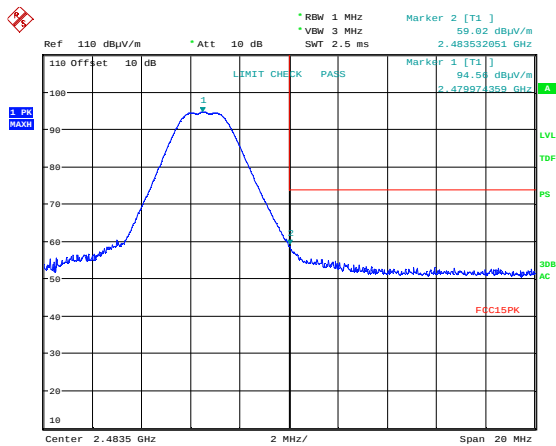
Date: 2.MAY.2022 13:55:12

Av



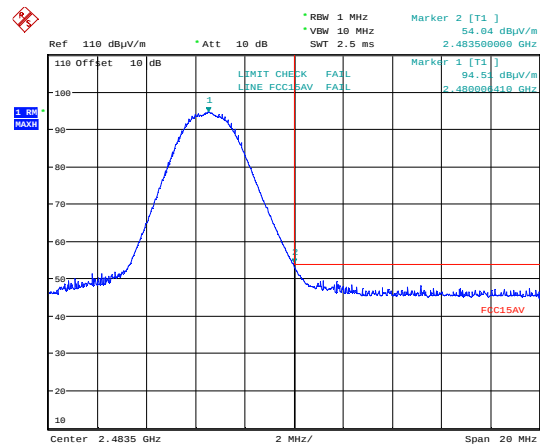
Date: 2.MAY.2022 13:28:17

Av



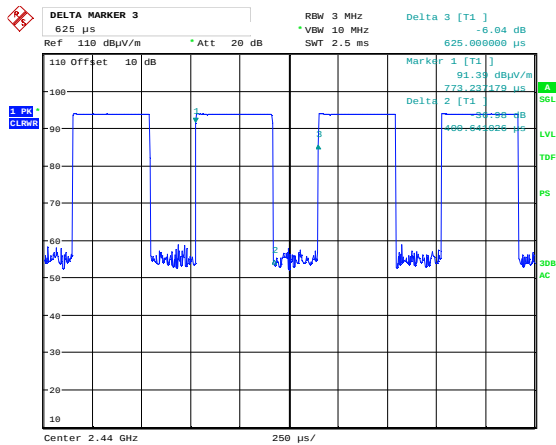
Date: 2.MAY.2022 13:41:20

Upper Band Edge, 2480 MHz, 2Mb, Peak



Date: 2.MAY.2022 13:45:13

Av



Date: 2.MAY.2022 13:18:57

Duty Cycle (64%)

3.7 Radiated Emissions, 30 – 1000 MHz.

FCC Part 15.209 (a)

ISED Canada RSS-GEN Issue 5, Clause 7.3/8.9

Measurement procedure: ANSI C63.10-2013 Clause 11.12

Test Results: Complies

Measurement Data:

Detector: Quasi-Peak

Measuring distance 3m

Tested in with BLE active on 2440 MHz

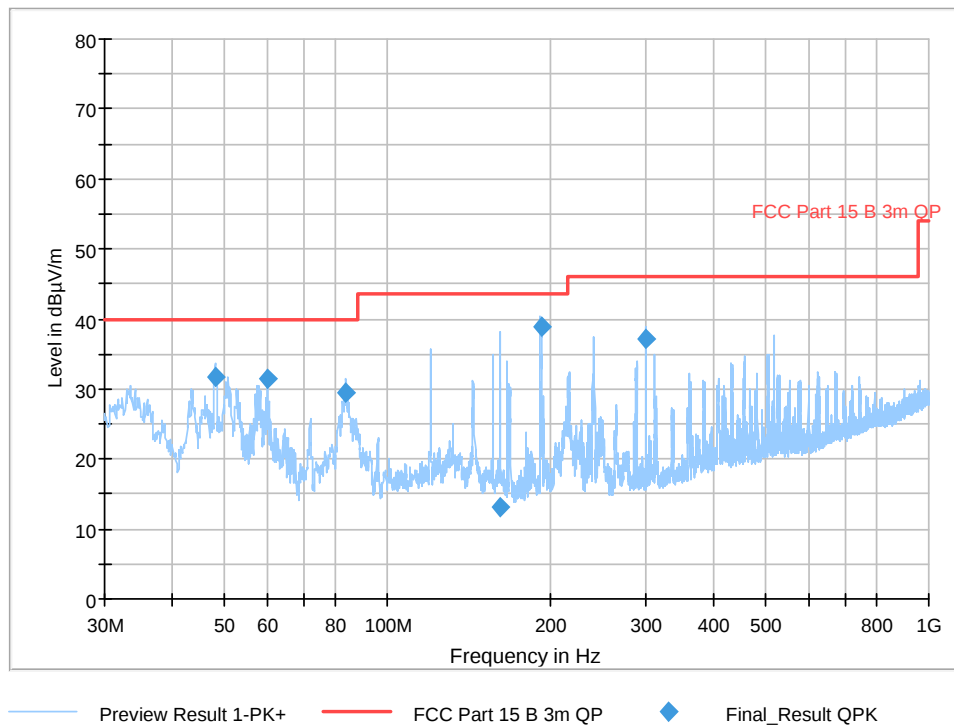
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
48.008650	31.70	40.00	8.30	1000.0	120.000	104.0	V	214.0
60.002050	31.49	40.00	8.51	1000.0	120.000	100.0	V	189.0
84.007900	29.37	40.00	10.63	1000.0	120.000	185.0	V	152.0
161.271350	13.22	43.50	30.28	1000.0	120.000	100.0	V	71.0
192.101700	38.78	43.50	4.72	1000.0	120.000	161.0	H	228.0
300.016650	37.17	46.00	8.83	1000.0	120.000	103.0	H	238.0

See attached plots

Requirements/Limit

FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 5, Clause 8.9 @ frequencies defined in clause 8.10	
Frequency	Radiated emission limit @3 meters	
30 – 88 MHz	100 μV/m	40.0 dBμV/m
88 – 216 MHz	150 μV/m	43.5 dBμV/m
216 – 960 MHz	200 μV/m	46.0 dBμV/m
960 – 1000 MHz	500 μV/m	54.0 dBμV/m
Limits above are with Quasi Peak Detector		

Full Spectrum



Radiated Emissions 30 - 1000 MHz, 2440 MHz

3.8 Radiated Emissions, 1 – 26 GHz

FCC Part 15.209 (a)

ISED Canada RSS-GEN Issue 5, Clause 7.3/8.9

Measurement procedure: ANSI C63.10-2013 Clause 11.12

Test Results: Complies

Measurement Data:

Measuring distance: 3m (1 – 18 GHz)

A pre-scan was performed above 18 GHz

RBW/VBW = 1MHz/3MHz

Carrier Frequency (MHz)	Measured Frequency (GHz)	Measured Emission (dBµV/m)		Limit (dBµV/m)		Margin (dB)	
		Peak	Average	Pk	Av	Pk	Av
Any	Any	< 58	< 46	74	54	>16	>8

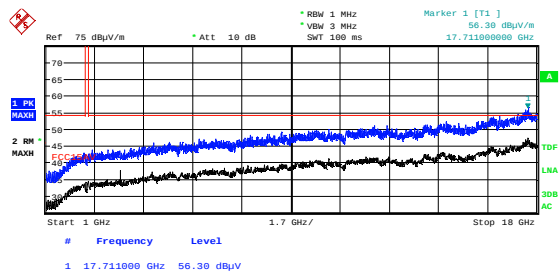
A Band Reject Filter was used for measurements from 1 GHz to 18 GHz

Antenna factor, amplifier gain and cable loss are included in spectrum analyzer "Transducer factor".

See plots.

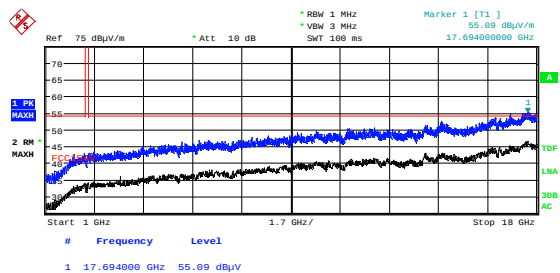
Requirements/Limit

FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 5, clause 8.9 @ frequencies defined in clause 8.10	
	Radiated emission limit @3 meters	
Frequency	Average Detector	Peak Detector
1 – 26 GHz	54.0 dBµV/m	74.0 dBµV/m



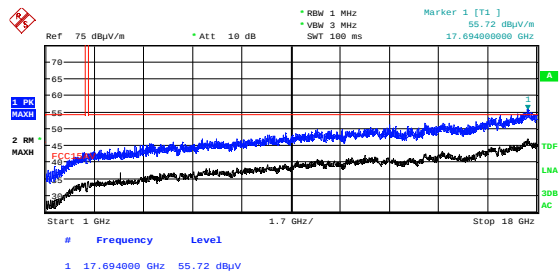
Date: 2.MAY.2022 14:30:44

Radiated Emissions 1 - 18 GHz, 2402 MHz, 2Mb, VP



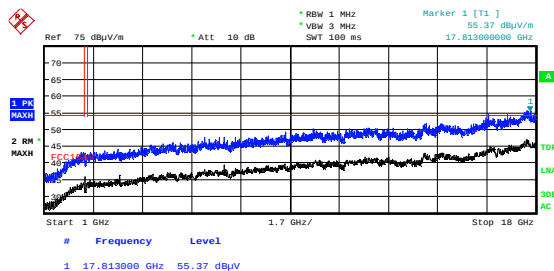
Date: 2.MAY.2022 14:25:56

Radiated Emissions 1 - 18 GHz, 2440 MHz, 2Mb, VP



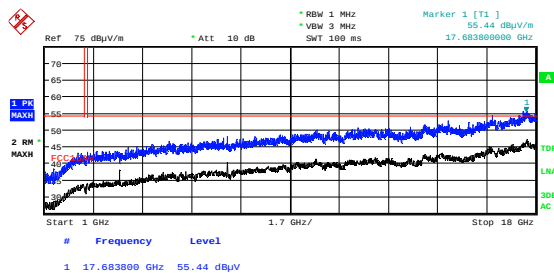
Date: 2.MAY.2022 14:35:32

Radiated Emissions 1 - 18 GHz, 2480 MHz, 2Mb, VP



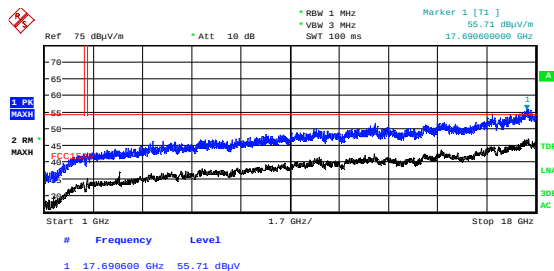
Date: 2.MAY.2022 14:32:43

HP



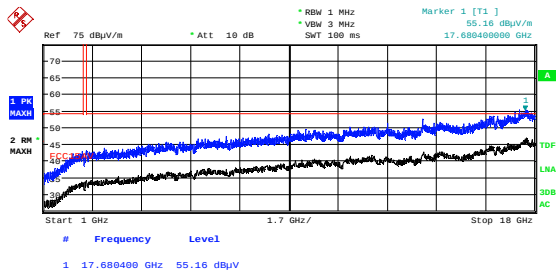
Date: 2.MAY.2022 14:27:45

HP



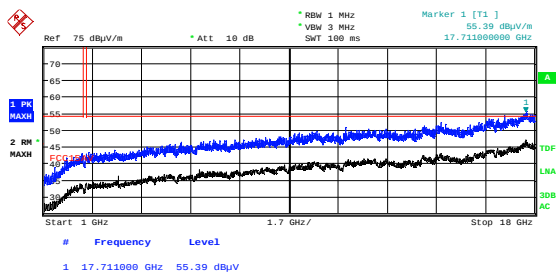
Date: 2.MAY.2022 14:37:30

HP



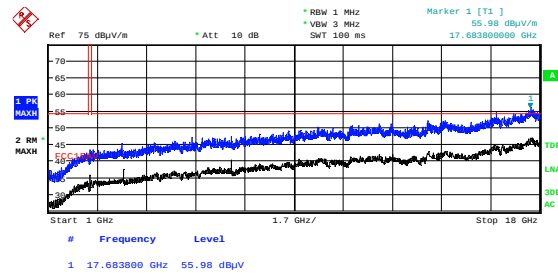
Date: 2.MAY.2022 14:56:10

Radiated Emissions 1 - 18 GHz, 2402 MHz, 1Mb, VP



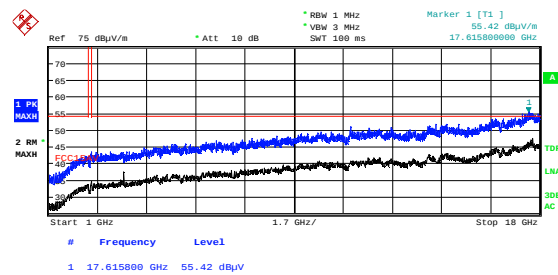
Date: 2.MAY.2022 14:43:14

Radiated Emissions 1 - 18 GHz, 2480 MHz, 1Mb, VP



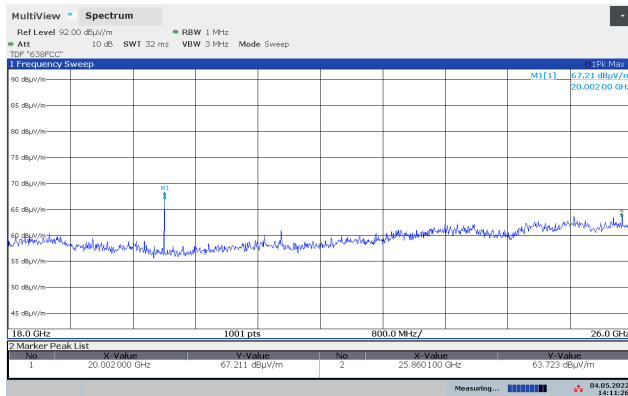
Date: 2.MAY.2022 15:06:04

HP

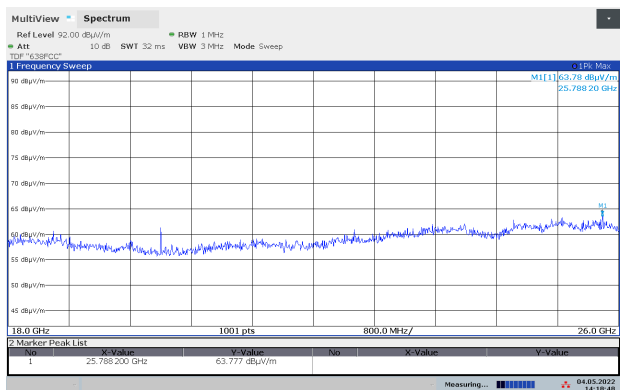


Date: 2.MAY.2022 14:45:12

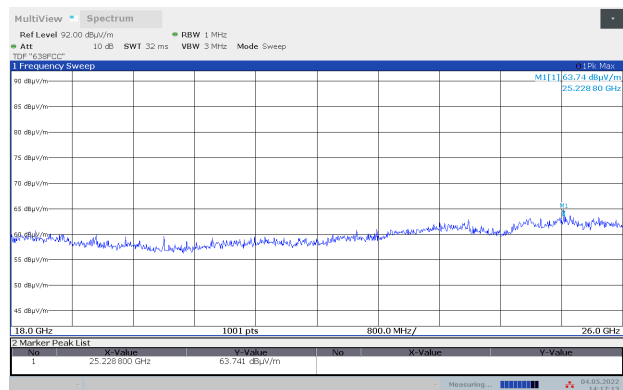
HP



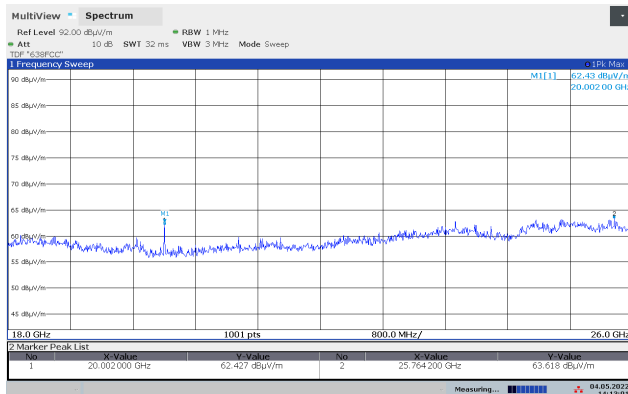
Pre-scan 18 - 26 GHz, 2402 MHz, 1Mbit, @10cm



Pre-scan 18 - 26 GHz, 2440 MHz, 1Mbit, @10cm



2Mbit, @10cm



Pre-scan 18 - 26 GHz, 2480 MHz, 1Mbit, @10cm

3.9 Power Spectral Density (PSD)

FCC part 15.247(d)

ISED Canada RSS-247 Issue 2, Clause 5.2 (2)

Measurement procedure: ANSI C63.10-2013 Clause 11.10

Test Results: Complies

Measurement Data:

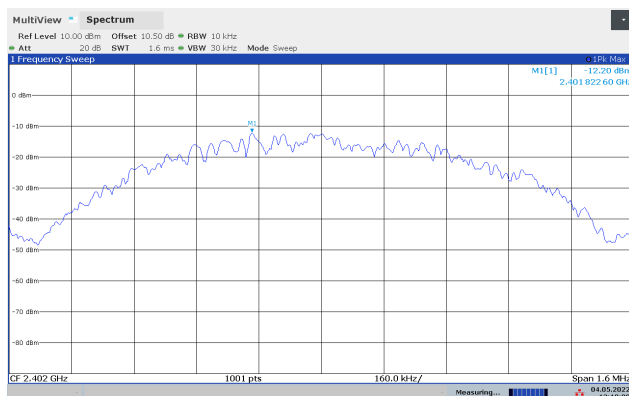
The measurement procedure PKPSD described in ANSI C63.10-2013 was used.

Carrier Frequency	Measured Power Spectral Density (dBm/3kHz)	
	1 Mbit	2 Mbit
2402 MHz	-17.4	-18.0
2440 MHz	-17.6	-18.0
2480 MHz	-17.8	-18.2

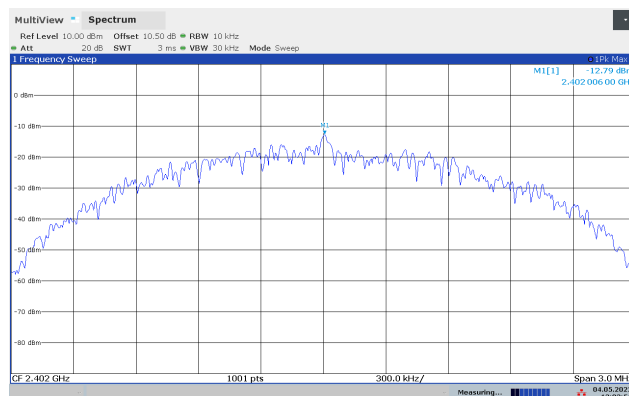
The measured values with 10kHz RBW are corrected by a Bandwidth Correction Factor of -5.2 dB.

Requirements:

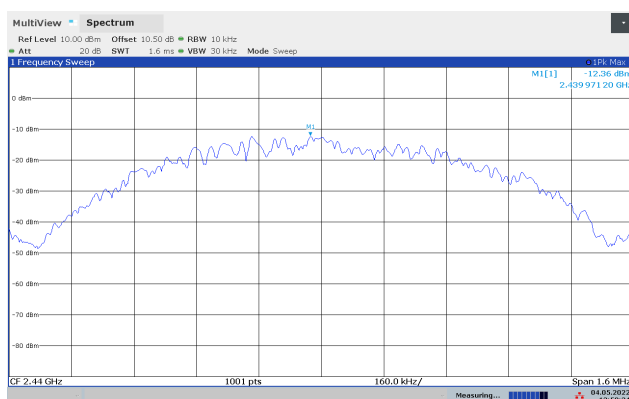
The Power Spectral Density of a Digital Transmission System shall be no greater than +8 dBm in any 3 kHz band



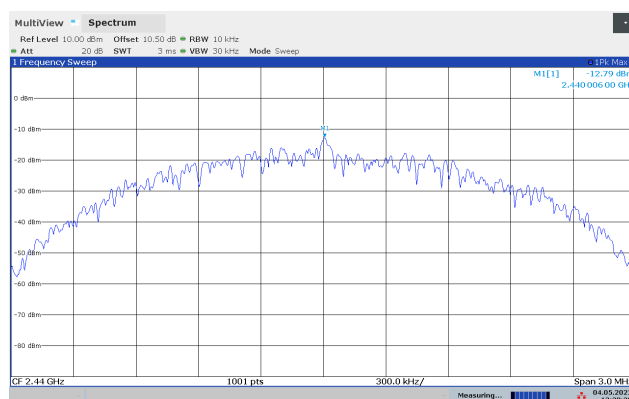
PSD, 2402 MHz, 1Mbit



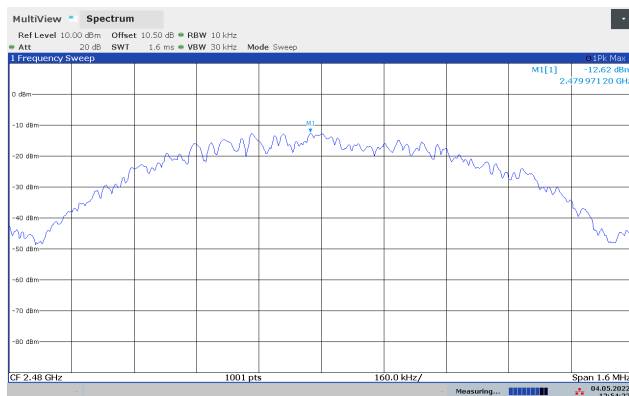
2Mbit



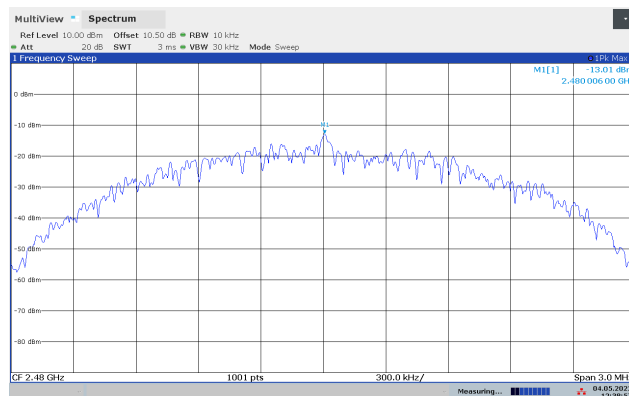
PSD, 2440 MHz, 1Mbit



2Mbit



PSD, 2480 MHz, 1Mbit



2Mbit

4 Measurement Uncertainty

Measurement Uncertainty Values		
Test Item		Uncertainty
Output Power		±0.5 dB
Power Spectral Density		±0.5 dB
Out of Band Emissions, Conducted	< 3.6 GHz	±0.6 dB
	> 3.6 GHz	±0.9 dB
Spurious Emissions, Radiated	< 1 GHz	±2.5 dB
	> 1 GHz	±2.2 dB
Emission Bandwidth		±4 %
Power Line Conducted Emissions		+2.9 / -4.1 dB
Spectrum Mask Measurements	Frequency	±5 %
	Amplitude	±1.0 dB
Frequency Error		±0.6 ppm
Temperature Uncertainty		±1 °C

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2

5 LIST OF TEST EQUIPMENT

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Test Laboratory.

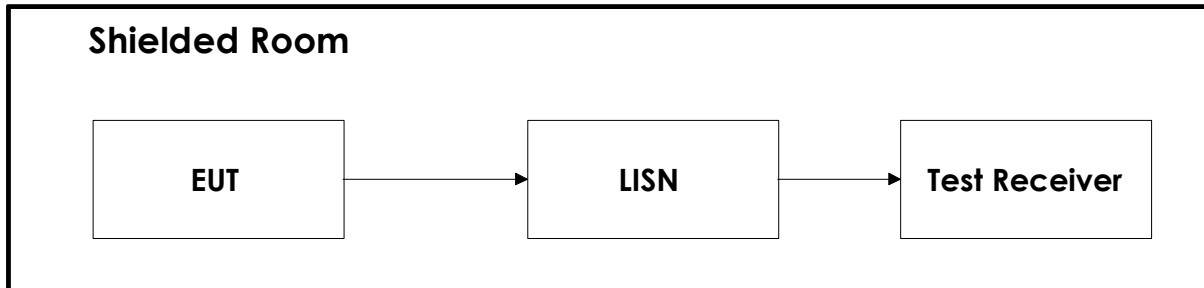
No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1	FSW43	Spectrum Analyzer	Rohde & Schwarz	LR 1690	2022-01	2023-01
2	ESU40	Measuring Receiver	Rohde & Schwarz	LR 1639	2022-01	2023-01
3	6810.17B	Attenuator	Suhner	LR 1669	2021-08	2022-08
4	NO324415	Band Reject Filter (2.4)	Microwave Circuits	LR 1760	COU	
5	JB3	BiLog Antenna	Sunol Sciences	N-4525	2020-03	2023-03
6	310	Preamplifier	Sonoma Inst.	LR 1686	2021-08	2022-08
7	3117-PA	Horn Antenna +PreAmp	EMCO	LR 1717	2021-08	2022-08
8	3115	Horn Antenna	EMCO	LR 1330	2016-10	2026-10
9	638	Antenna Horn	Narda	LR 1480	N/A	
10	8449A	Pre-amplifier	Hewlett Packard	LR 1666	2021-08	2022-08
11	L01G18G1	Low Pass Filter	Microwave Circuits	LR 1768	COU	
12	CMW500	Radio Comm Tester	Rohde & Schwarz	LR 1791	2022-02	2023-02
13	ST18/SMA/N/36	RF Cable	Suhner	LR 1627	COU	

The software listed below has been used for one or more tests.

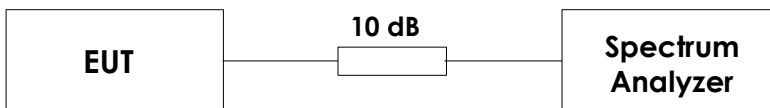
No.	Manufacturer	Name	Version	Comment
1	Rohde & Schwarz	EMC32	10.50.40	Radiated Emission test software
2	Nemko	RSPlot	1.0.8.0	Screenshots from R&S Spectrum Analyzers

6 BLOCK DIAGRAM

6.1 Power Line Conducted Emission

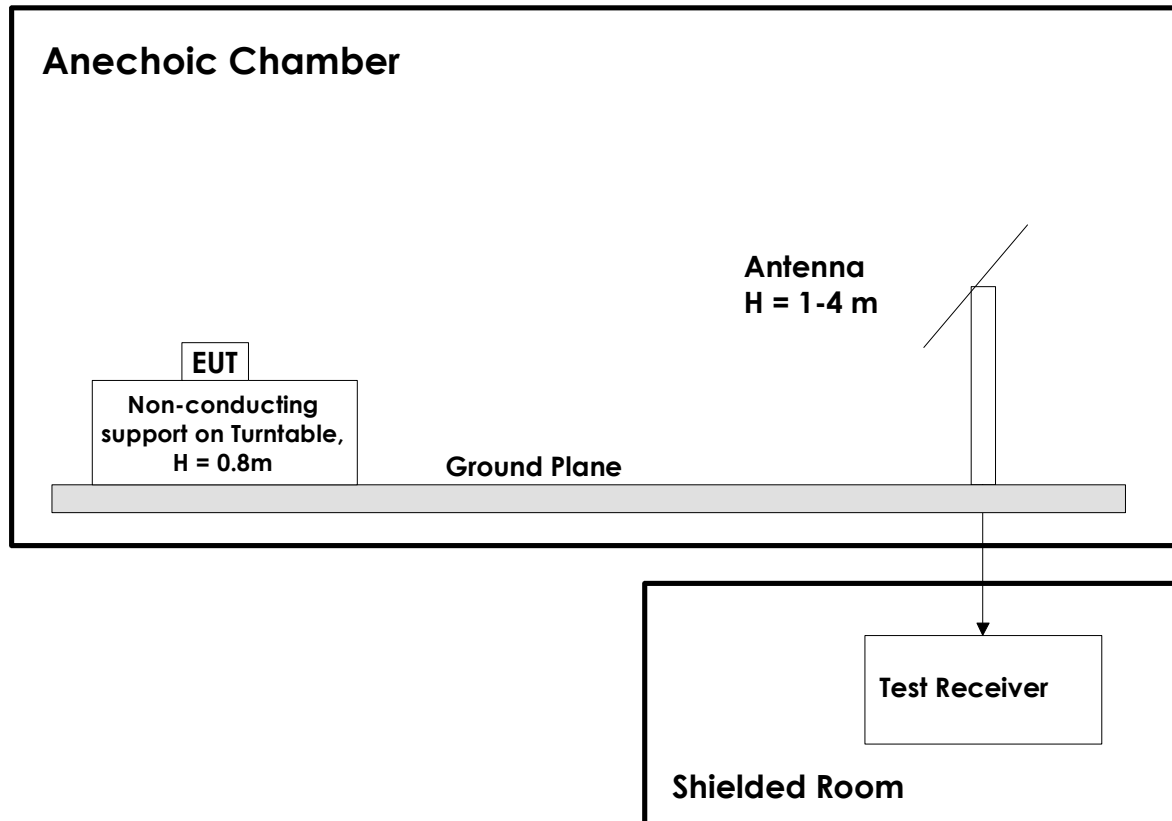


6.2 Conducted Tests



This test set-up is used for all Conducted tests.
For Frequency Stability test the EUT was placed in a climatic chamber.

6.3 Test Site Radiated Emission



This test setup is used for all radiated emissions tests. For frequencies below 30 MHz the measuring distance is 10m, for all other frequencies it is 3m or 1m. Emissions above 1 GHz are measured with a Spectrum Analyzer and Horn Antenna. For measurements above 18 GHz the test receiver is moved inside the anechoic chamber and located next to the antenna to minimize the cable loss. All measurements at 1GHz and above were performed with turntable height 1.5m and with the ground plane covered by absorbers. A pre-amplifier is used for all measurements above 30 MHz, and High-Pass or Band-Pass filter is used for all harmonics.