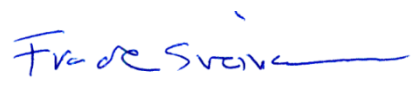


Test Report

Product	Reader and Communication Controller		
Name and address of the applicant	ASSA ABLOY Global Solutions Norway AS Postboks 340, Anolitveien 1-3, 1402 Ski, Norway		
Name and address of the manufacturer	ASSA ABLOY Global Solutions Norway AS Postboks 340, Anolitveien 1-3, 1402 Ski, Norway		
Model	RCC1601		
Rating	4.5 VDC, (3x1.5 VDC secondary Batteries)		
Trademark	ASSA ABLOY		
Serial number	See page 3		
Additional information	This test report covers Bluetooth Low Energy		
Tested according to	FCC Part 15.247 Frequency Hopping Transmitters / 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	480298		
Tested in period	2022-11-15 – 2022-11-18		
Issue date	2023-02-14		
Name and address of the testing laboratory	Nemko Scandinavia AS Instituttveien 6, 2007 Kjeller, Norway CAB Number: FCC: NO0001 ISED: NO0470  		
An accredited technical test executed under the Norwegian accreditation scheme			
 Prepared by [G.Suhanthakumar]		 Approved by [Frode Sveinsen]	
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Revision history

Revision	Date	Comment	Sign
A	2023-02-14	First Issue	gns



THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) 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	ASSA ABLOY
Model/version	RCC1601
FCC ID	Y7V-RCC1601C1
ISED ID	9514A-RCC1601C1
Serial number	2241 Flex 00762 Marked as (Radiated sample: 1B, Conducted sample: 3B)
Hardware identity and/or version	RCC1601C1
Software identity and/or version	Ver.1.0
Frequency Range	2402–2480 MHz
Number of Channels	40
Operating Modes	TX/RX
Type of Modulation	GFSK
Conducted Output Power	0.76 mW (Peak)
Antenna Connector	integral antenna type: PCB
Number of Antennas	1
Diversity or Smart Antennas	NA
Power Supply	4.5V DC Secondary batteries (3x 1.5V DC AA batteries)
Desktop Charger	NA

Description of Test Item

The Reader and Communication Controller is an electronic module located inside the external door handle of the electro-mechanic lock. The device is designed to implement several functions: user interface by the RGB LED, Touch sensor and proximity detector; setup and emergency power function by the USB-C service connector; communication function by BLE (for mobile phone access and interaction) and ZigBee technologies (for a local system monitoring) realized in a single chip solution and finally the function of reading the RFID card through the RFID reader. The device is powered by the Lock Case Controller (the device that control the mechanical part) by two of the six wires, the remaining wires are used for signaling. The 3 mentioned radio technologies: RFID, BLE and ZigBee cannot operate simultaneously, and his test report covers only the BLE operation.

1.2 Normal test condition

Temperature:	20 - 24 °C
Relative humidity:	20 - 50 %
Normal test voltage:	4.5V DC

The values are the limit registered during the test period.

1.3 Test Engineer(s)

G.Suhanthakumar

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	Continuous TX with GFSK modulation
Additional information	The following settings were used for all tests: Power Setting: 4 dBm Data rate: 1Mbit/s
	BLE in Test mode

1.6 Comments

All measurements were done with the EUT powered by a fully charged battery.

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 Industry Canada 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 made in a semi-anechoic chamber at measuring distances of 1m, 3m and 10m.

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

☒ 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 ¹
Antenna Requirement	15.203	6.8 (RSS-GEN)	5.8	Complies ²
Power Line Conducted Emission	15.107(a) 15.207(a)	7.2 / 8.8 (RSS-GEN)	6.2	N/A ¹
Occupied Bandwidth (99% BW)	N/A	6.7 (RSS-GEN)	6.9.3	-
DTS Bandwidth	15.247(a)(2)	5.2 (1) (RSS-247)	11.8 Option 1	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) 7.8.6 (FHSS) 7.8.8 (FHSS)	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

¹ The EUT is battery operated

² Integral antenna

- For information only

3 TEST RESULTS

3.1 Occupied Bandwidth (99% BW)

FCC Part 15.247 (a)(1)(iii)

ISED Canada RSS-247 Issue 2, Clause 5.1

ISED Canada RSS-GEN Issue 5, Clause 6.7

Measurement procedure: ANSI C63.10-2013 Clause 6.9.3 / 7.8.3

Test Results: Complies

Measurement Data:

Carrier Frequency and Data Rate	Occupied Bandwidth (99% BW)
2402 MHz/1Mbit/s	1.040 MHz
2440 MHz/1Mbit/s	1.046 MHz
2480 MHz/1Mbit/s	1.047 MHz

Occupied Bandwidth is the same for all channels

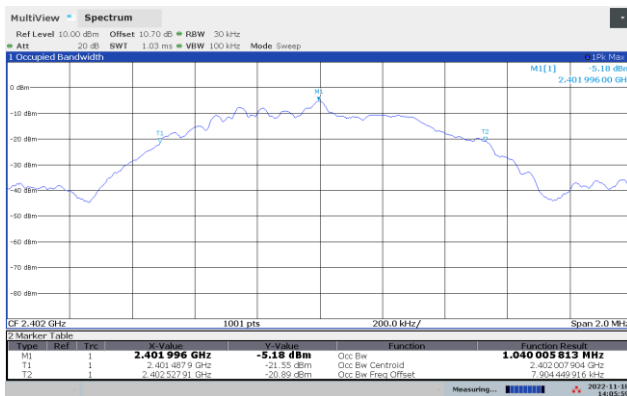
See attached plots.

Requirements:

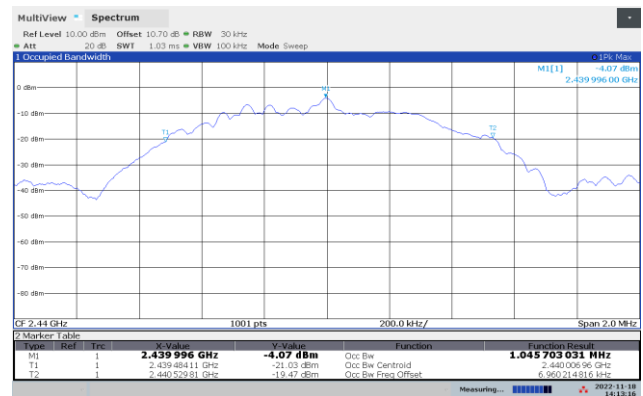
Frequency hopping systems in the 2400 - 2483.5 MHz band shall use at least 15 non-overlapping channels. No requirements for bandwidth for this frequency band.

No requirements for Digital Transmission Systems.

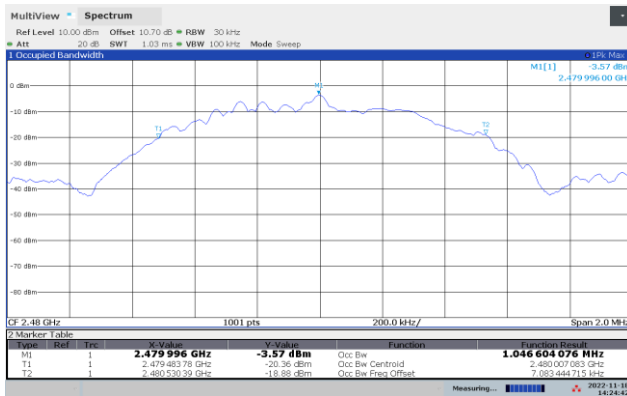
No requirement for 99% BW, reported for information only.



99% Occupied BW, GFSK, ch2402MHz



99% Occupied BW, GFSK, ch2440MHz



99% Occupied BW, GFSK, ch2480MHz

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

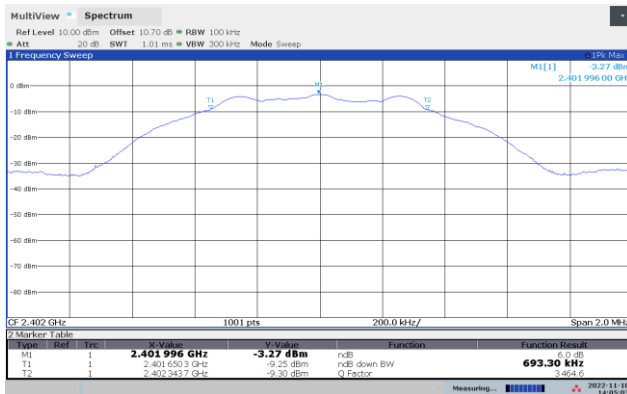
Measurement Data:

Operating Mode	DTS Bandwidth (6dB BW)		
	2402 MHz	2440 MHz	2480 MHz
GFSK, 1Mb/s	693.3 kHz	693.3 kHz	693.3 kHz

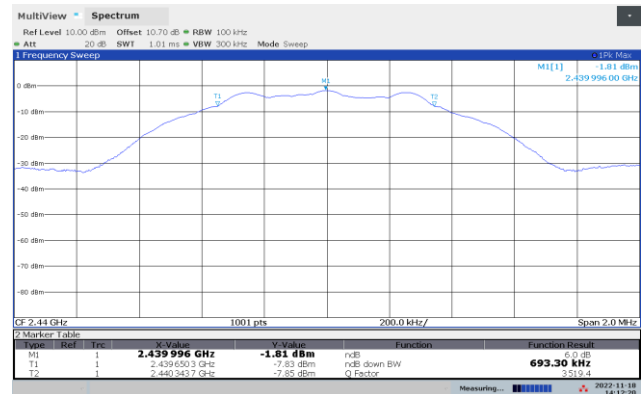
Requirements:

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

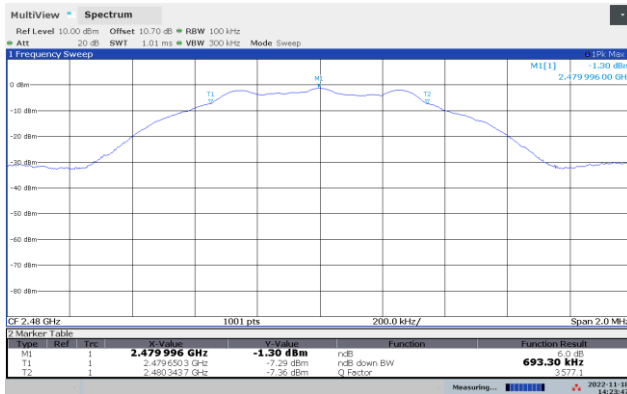
No requirements for Frequency Hopping Systems.



DTS BW, 2402 MHz, 1Mb/s



DTS BW, 2440 MHz, 1Mb/s



DTS BW, 2480 MHz, 1Mb/s

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 (MHz)	Modulation Type	Conducted Power (dBm)	Conducted Power (mW)	Field Strength (dBμV/m)	EIRP (mW)	Antenna gain (dBi)
2402	GFSK	-2.3	0.59	96.6	1.37	3.6
2440	GFSK	-1.7	0.68	97.2	1.57	3.7
2480	GFSK	-1.2	0.76	96.8	1.43	2.8

The maximum radiated field strength is obtained in XZ plane and Horizontal polarization.

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:

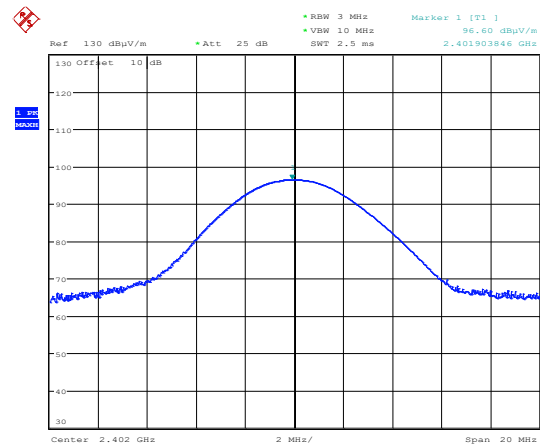
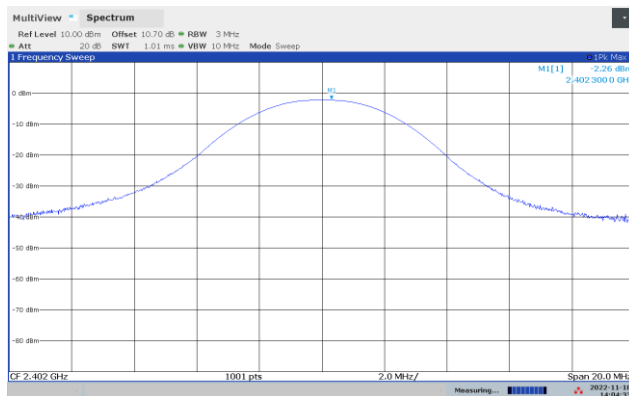
The maximum peak output power shall not exceed the following limits:

For frequency hopping systems employing at least 75 hopping channels: 1 Watt

For all other frequency hopping systems in the 2400 - 2483.5 MHz band: 0.125 Watts

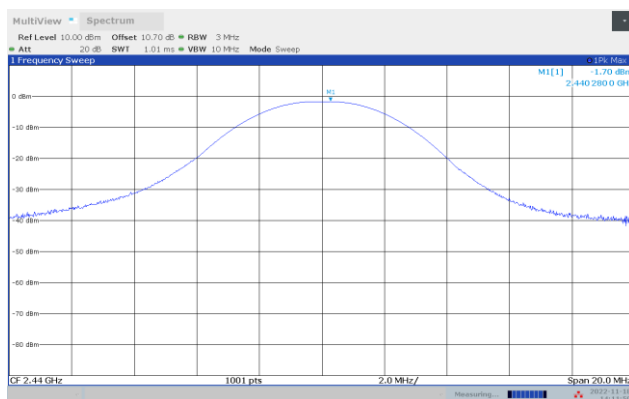
For Digital Transmission Systems in the 2400 - 2483.5 MHz band: 1 Watt

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.

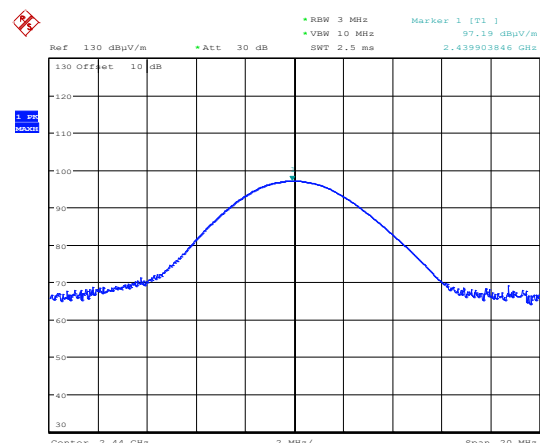


Date: 18.NOV.2022 07:41:26

Peak Power, 2402 MHz, GFSK

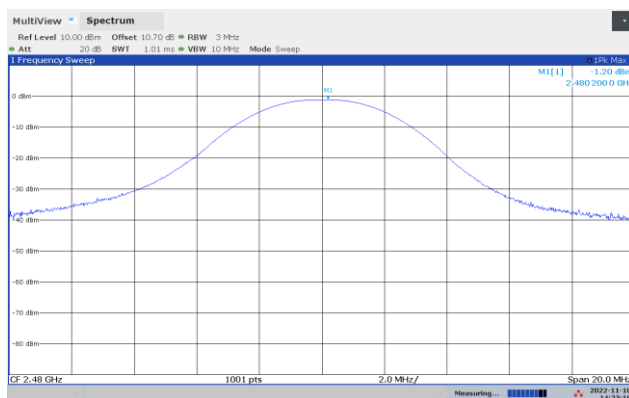


Maximum Field Strength, 2402 MHz, GFSK, XZ plane, HP

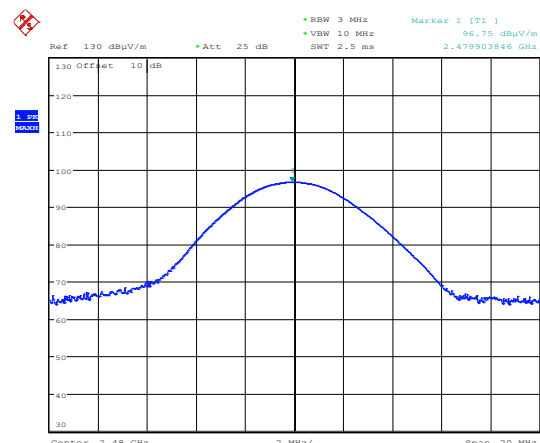


Date: 18.NOV.2022 07:59:56

Peak Power, 2440 MHz, GFSK



Maximum Field Strength, 2440 MHz, GFSK, XZ plane, HP



Date: 18.NOV.2022 08:10:10

Peak Power, 2480 MHz, GFSK

Maximum Field Strength, 2480 MHz, GFSK, XZ plane, HP

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	52.74	> 20	Pass
2440 MHz	38.57	> 20	Pass
2480 MHz	54.42	> 20	Pass

Measured with Peak Detector

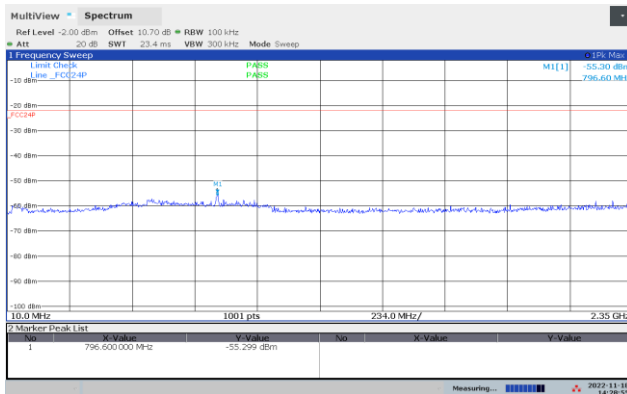
RF conducted power to 25 GHz: see attached plots.

Limit

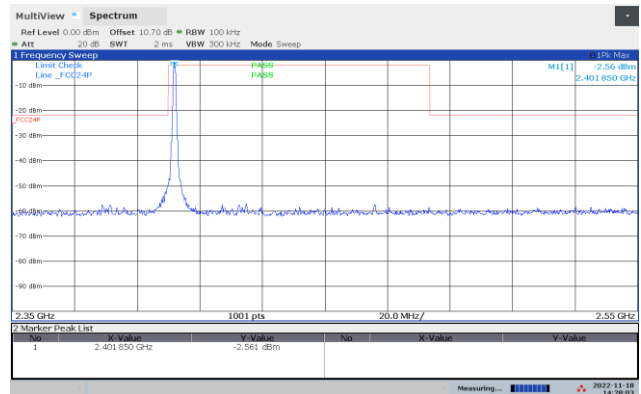
Peak measurement	RMS averaging
20 dBc or more in 100 kHz bandwidth	30 dBc or more in 100 kHz bandwidth

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

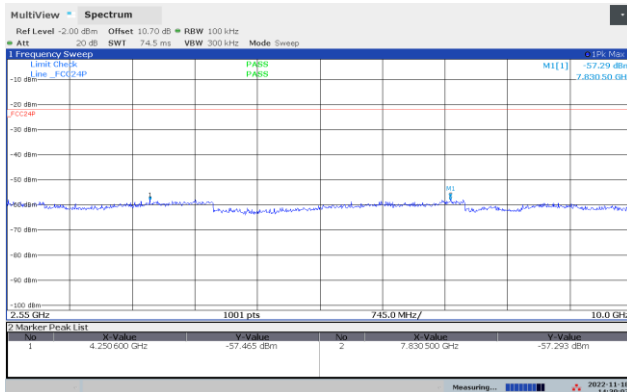
Attenuation below the general limits specified in part 15.209(a) is not required.



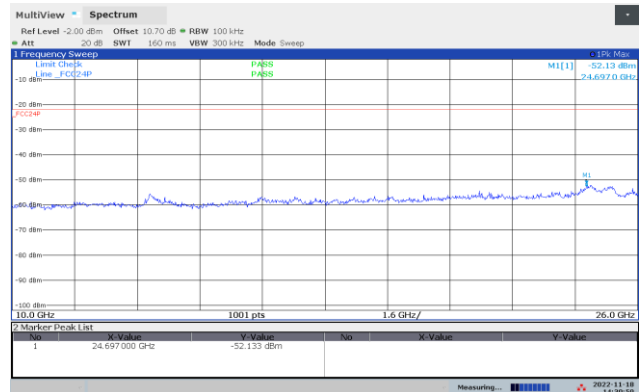
Conducted Emissions 10-2350 MHz, 2402 MHz, GFSK



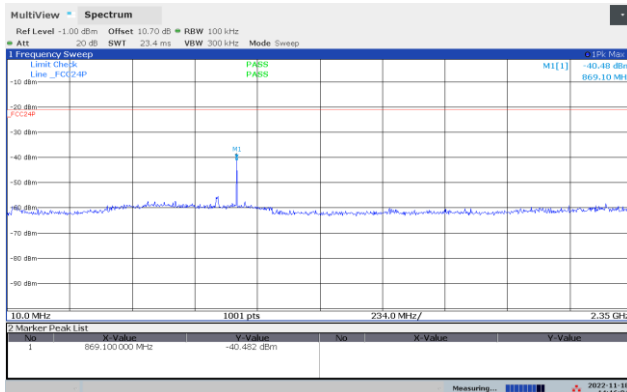
Conducted Emissions 2350 - 2550 MHz, 2402 MHz, GFSK



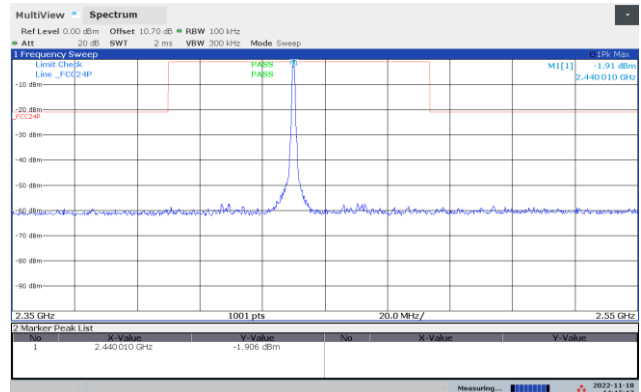
Conducted Emissions 2350 - 2550 MHz, 2402 MHz, GFSK



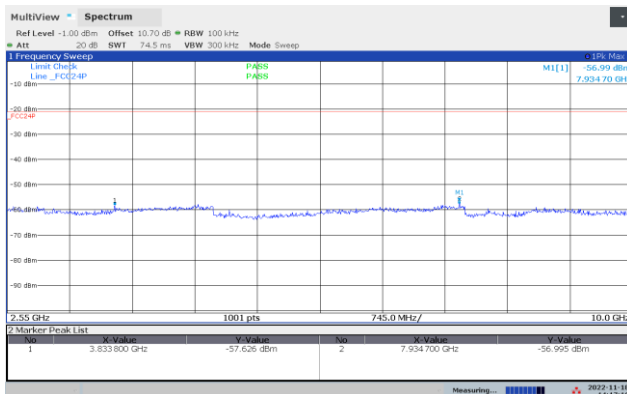
Conducted Emissions 2550-10000 MHz, 2402 MHz, GFSK



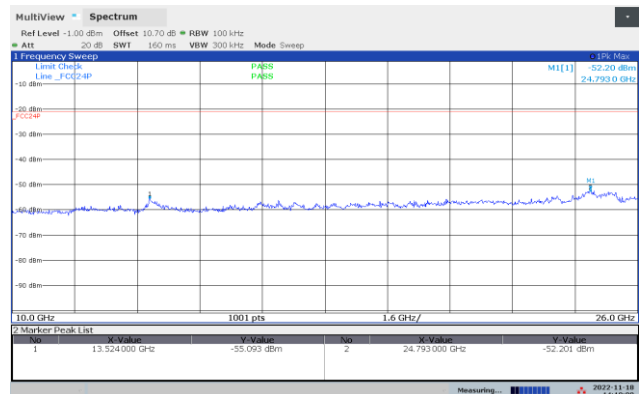
Conducted Emissions 2550-10000 MHz, 2402 MHz, GFSK



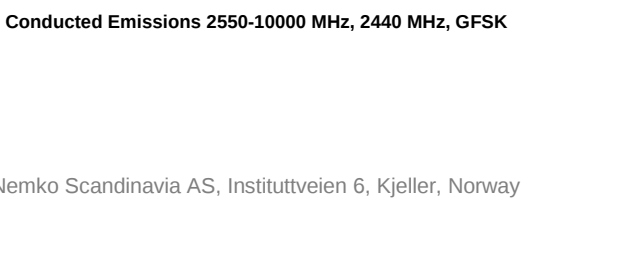
Conducted Emissions 10000-26000 MHz, 2402 MHz, GFSK



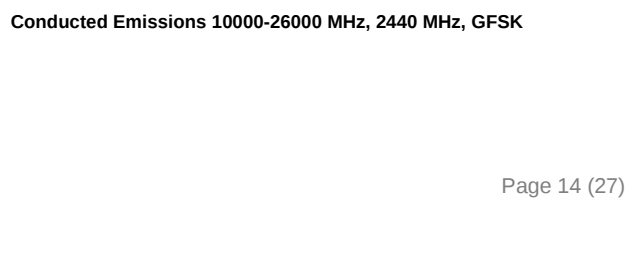
Conducted Emissions 10-2350 MHz, 2440 MHz, GFSK



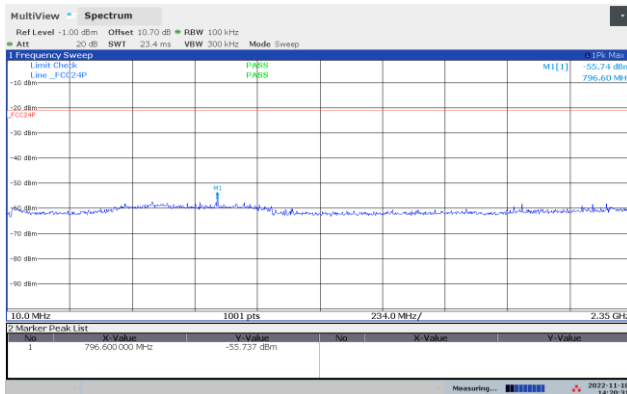
Conducted Emissions 2350 - 2550 MHz, 2440 MHz, GFSK



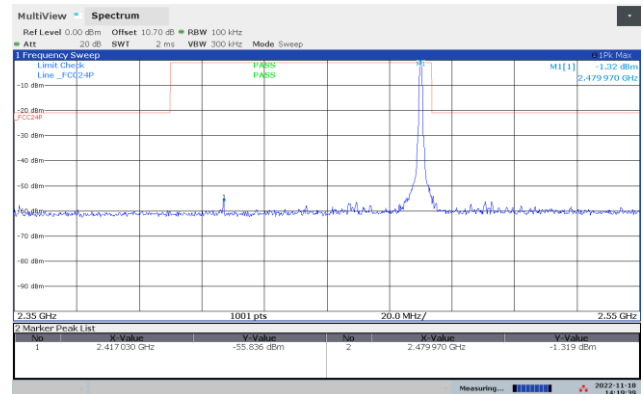
Conducted Emissions 2550-10000 MHz, 2440 MHz, GFSK



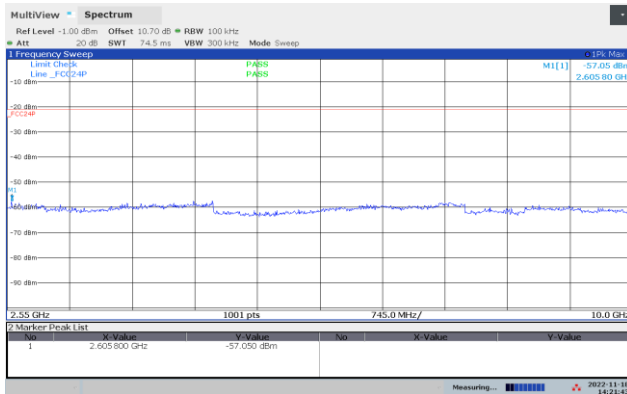
Conducted Emissions 10000-26000 MHz, 2440 MHz, GFSK



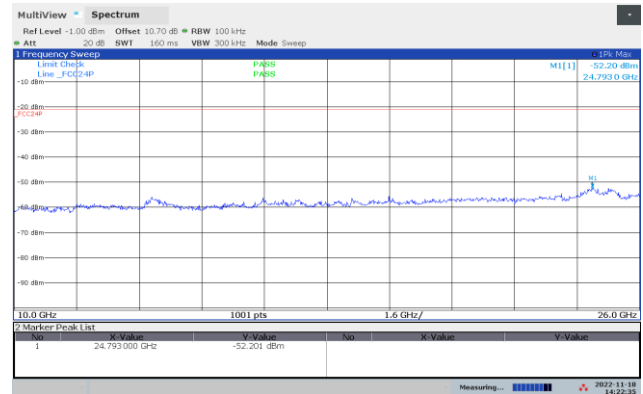
Conducted Emissions 10-2350 MHz, 2480 MHz, GFSK



Conducted Emissions 2350 - 2550 MHz, 2480 MHz, GFSK



Conducted Emissions 2550-10000 MHz, 2480 MHz, GFSK



Conducted Emissions 10000-26000 MHz, 2480 MHz, GFSK

3.5 Restricted Bands of operation

Restricted Bands of operation for FCC and ISED are defined in FCC Part 15.205 and ISED 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)	ISED Canada (MHz)	FCC (GHz)	ISED Canada (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 ISED, 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

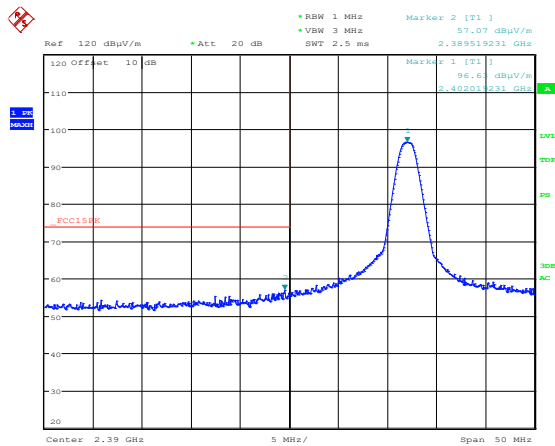
Test Results: Complies

Measurement Data:

Carrier Frequency and Data Rate	Band Edge Frequency	Measured Field Strength (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)	
		Peak Detector	Average Detector	Peak Det	Average Det	Peak Det	Average Det
2402 MHz GFSK	2390 MHz	57.07	42.53	74	54	16.93	11.47
2480 MHz GFSK	2483.5 MHz	62.03	50.08			11.97	3.92

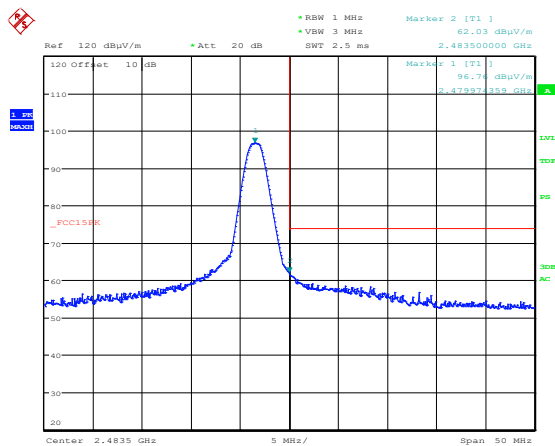
Average Detector values are measured with Average Detector and Peak values are measured with Peak detector

See attached plots.



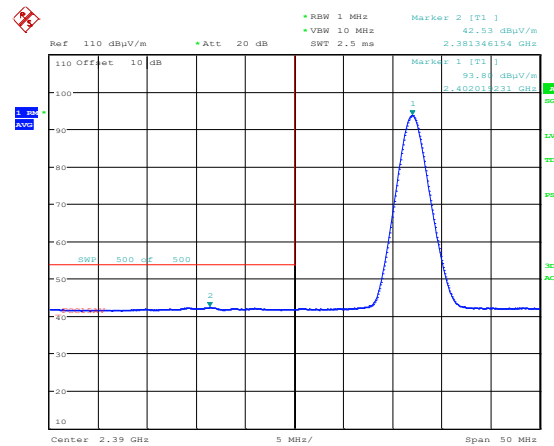
Date: 18.NOV.2022 07:42:31

Lower Band Edge 2402 MHz, GFSK, Peak



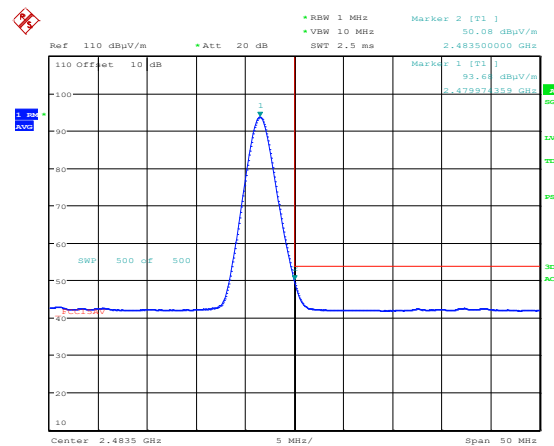
Date: 18.NOV.2022 08:11:15

Lower Band Edge 2480 MHz, GFSK, Peak



Date: 18.NOV.2022 07:42:58

Upper Band Edge 2402 MHz, GFSK, AV



Date: 18.NOV.2022 08:11:40

Upper Band Edge 2480 MHz, GFSK, AV

3.8 Radiated Emission, 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

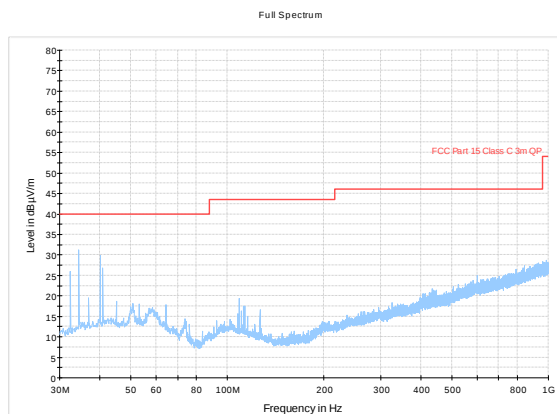
Measurement Data:

Detector: Peak (found frequencies were measured with Quasi-Peak Detector)

Measuring distance 3 m

Tested in active mode.

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
---	---	---	---	---	---	---	---	---



Radiated Emissions 30 - 1000 MHz, GFSK

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		

3.9 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 and no spurious emissions were detected.

Peak Detector, RBW=1 MHz

Carrier freq. (MHz)	Measured Frequency (GHz)	Modulation	Measured Emission (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2402	/	GFSK	/	74	/
2440	7.32	GFSK	51.46	74	22.54
2480	7.439	GFSK	52.05	74	21.96

Average Detector, RBW=1 MHz

Carrier freq. (MHz)	Measured Frequency (GHz)	Modulation	Measured Emission (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2402	/	GFSK	/	54	/
2440	7.32	GFSK	/	54	/
2480	7.439	GFSK	/	54	/

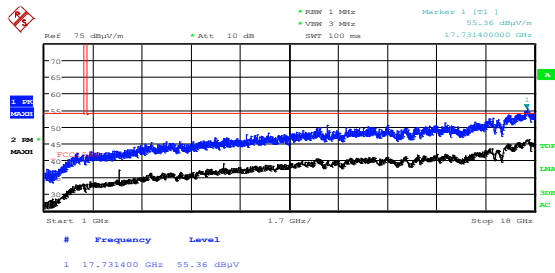
A Band Reject Filter was used for measurements from 1 GHz to 18 GHz

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

See plots

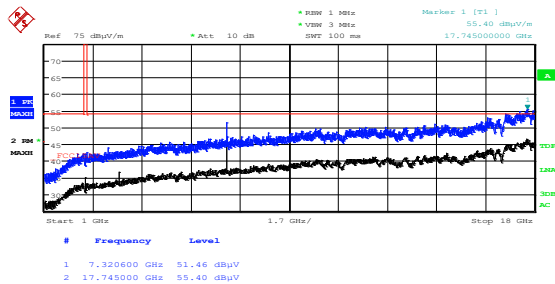
Requirements/Limit

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



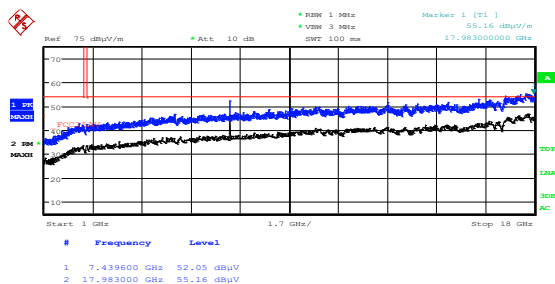
Date: 18.NOV.2022 08:41:59

Radiated Emissions 1 - 18 GHz, 2402 MHz, GFSK, HP



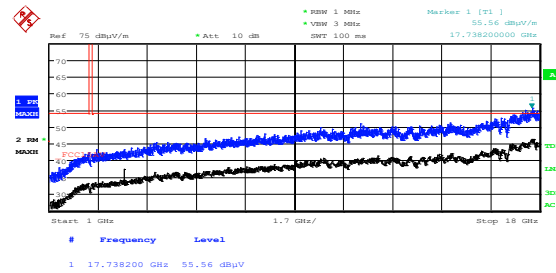
Date: 18.NOV.2022 08:51:46

Radiated Emissions 1 - 18 GHz, 2440 MHz, GFSK, HP



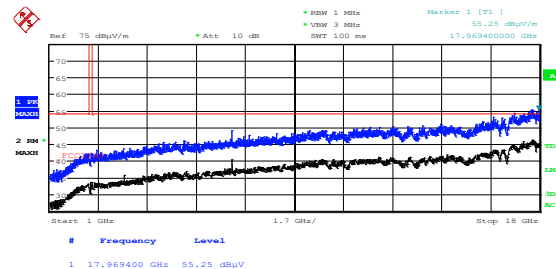
Date: 18.NOV.2022 08:25:09

Radiated Emissions 1 - 18 GHz, 2480 MHz, GFSK, HP



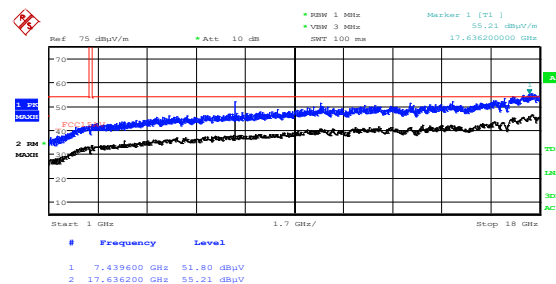
Date: 18.NOV.2022 08:44:51

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



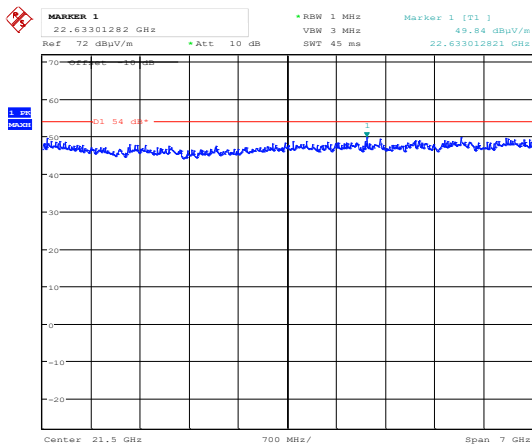
Date: 18.NOV.2022 08:49:48

Radiated Emissions 1 - 18 GHz, 2440 MHz, GFSK, VP



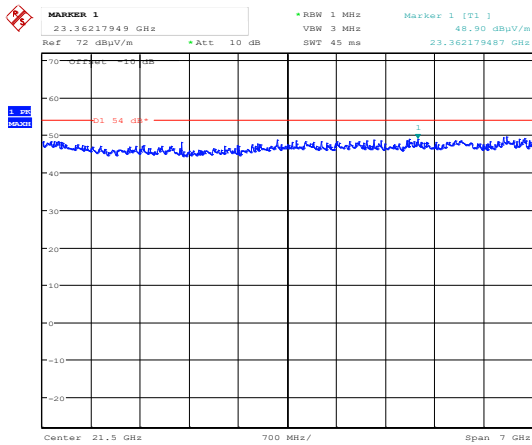
Date: 18.NOV.2022 08:23:20

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



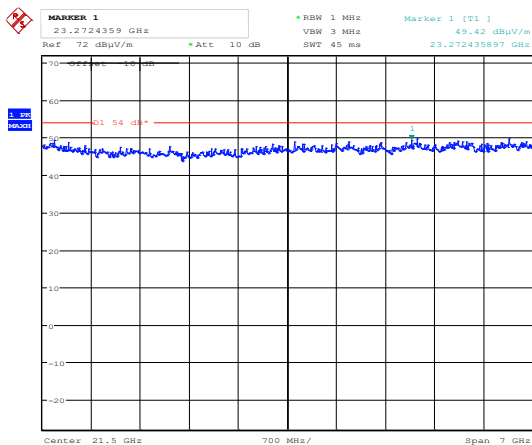
Date: 18.NOV.2022 10:47:07

Radiated Emissions 18 - 26 GHz, 2402 MHz, GFSK, HP, pk scan @1m



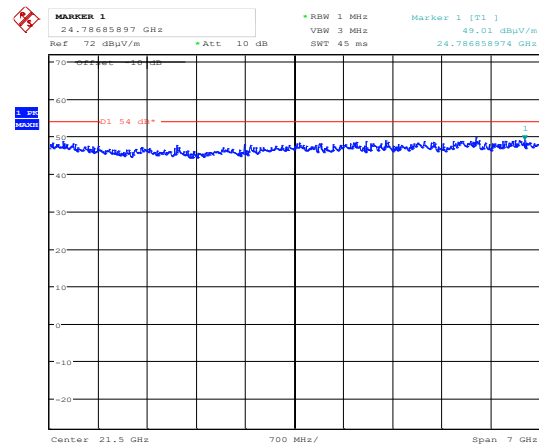
Date: 18.NOV.2022 10:46:40

Radiated Emissions 18 - 26 GHz, 2440 MHz, GFSK, HP,pk scan @1m



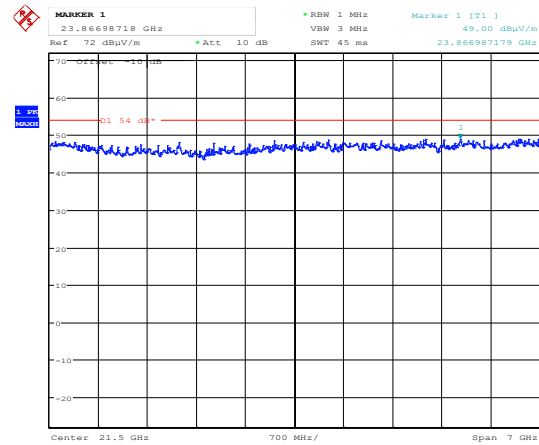
Date: 18.NOV.2022 10:45:54

Radiated Emissions 18 - 26 GHz, 2480 MHz, GFSK, HP,pk scan @1m



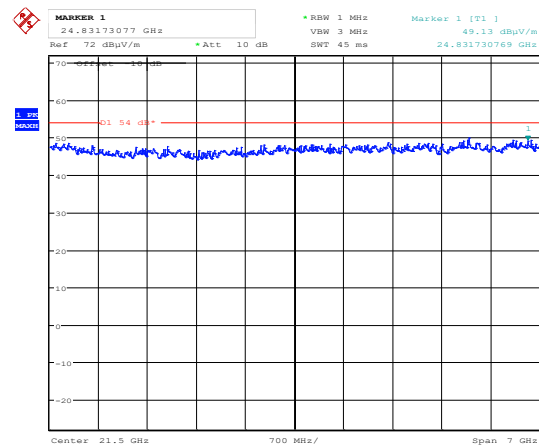
Date: 18.NOV.2022 10:47:18

Radiated Emissions 18 - 26 GHz, 2402 MHz, GFSK, VP, pk scan @1m



Date: 18.NOV.2022 10:46:30

Radiated Emissions 18 - 26 GHz, 2440 MHz, GFSK, VP,pk scan @1m



Date: 18.NOV.2022 10:46:09

Radiated Emissions 18 - 26 GHz, 2480 MHz, GFSK, VP,pk scan @1m

3.10 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:

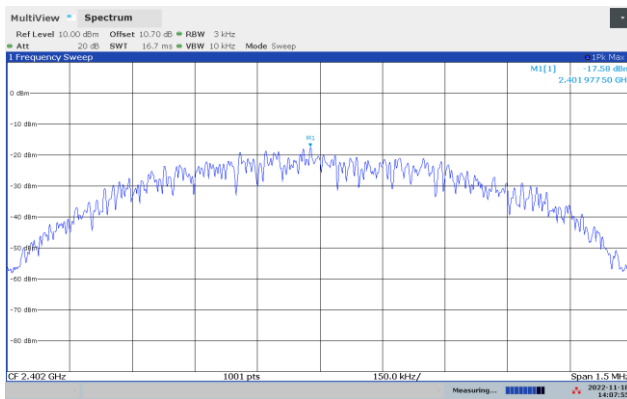
The measurement procedure PKPSD described in ANSI C63.10-2013 was used.

Modulation Type	Measured Power Spectral Density (dBm/3kHz)		
	2402 MHz	2440 MHz	2480 MHz
GFSK	-17.58	-16.98	-16.52

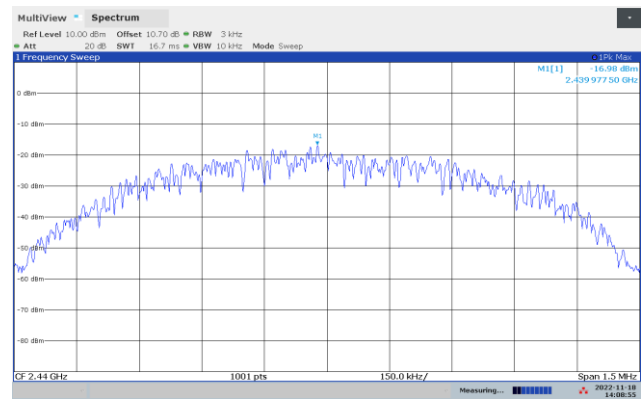
Requirements:

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

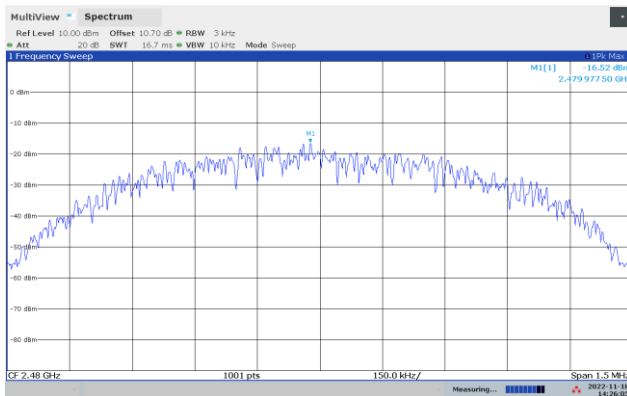
No requirements for Frequency Hopping Systems.



PSD, 2402 MHz, GFSK



PSD, 2440 MHz, GFSK



PSD, 2480 MHz, GFSK

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.

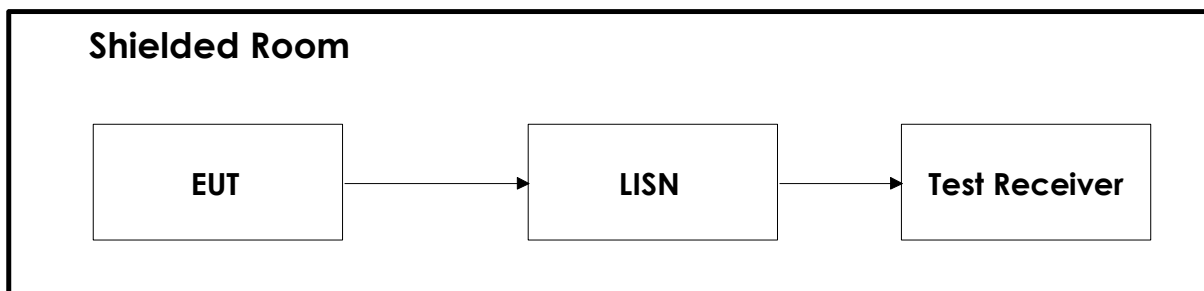
No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1.	ESU 40	EMI Receiver	Rohde & Schwarz	LR 1639	2022-01	2023-01
2.	FSU26	Spectrum Analyzer	Rohde & Schwarz	LR 1504	2022-01	2023-01
3.	6810.17B	Attenuator	Suhner	LR 1668	COU	
4.	NO324415	Band Reject Filter	Microwave Circuits	LR 1760	COU	
5.	VULB9163	Bilog	Schwarzbeck	LR 1616	2020-05	2023-05
6.	316	Preamplifier	Sonoma Inst.	LR 1686	2022-08	2023-08
7.	3117-PA	Horn Antenna +PreAmp	EMCO	LR 1717	2017-08	2023-08
8.	8449A	Pre-amplifier	Hewlett Packard	LR 1322	2022-08	2023-08
9.	3115	Double Ridged, Horn antenna	EMCO	LR 1226	N/A	
10	638	Antenna Horn	Narda	LR 1480	N/A	
11	4768-10	Attenuator	Narda	LR 1670	COU	
12	Model 87V	Multimeter	Fluke	LR 1599	2021-01	2023-01
13	ST18/SMA/N/36	RF Cable	Suhner	LR 1627	COU	

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

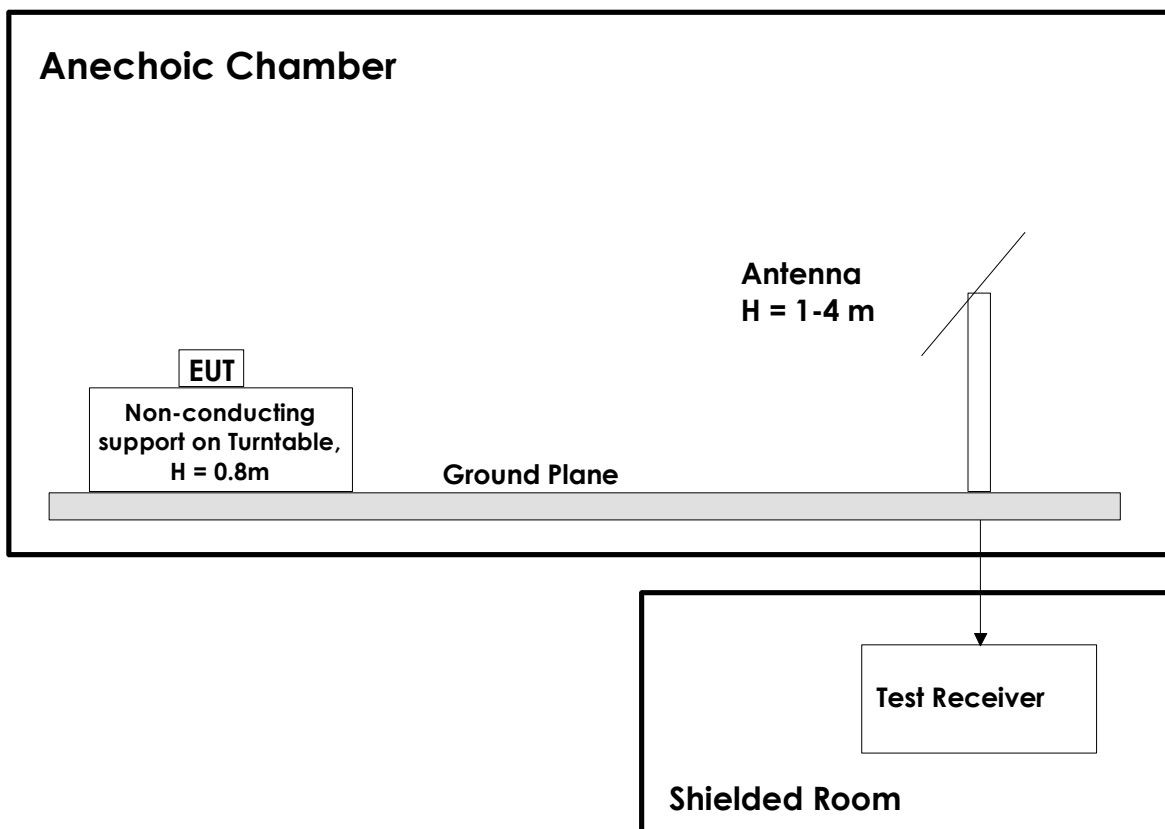
No.	Manufacturer	Name	Version	Comment
1	Rohde & Schwarz	EMC32	10.30.10	Power Line Conducted test software
2	Rohde & Schwarz	EMC32	10.30.10	Radiated Emission test software
3	Nemko AS	RSPlot	1.0.8.0	Screen capture from R&S Spectrum Analyzers

6 BLOCK DIAGRAM

6.1 Power Line Conducted Emission



6.2 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.