REP048188

Test Report

Product	Mesh network hub (Cellular gateway)
Name and address of the applicant	Anticimex Innovation Center A/S Skovgaardsvej 23E Helsinge 3200 Denmark
Name and address of the manufacturer	Anticimex Innovation Center A/S Skovgaardsvej 23E Helsinge 3200 Denmark
Model	Connect 3-300120
Rating	100-240V AC 50/60Hz (ACDC adapter); 5.0V DC (Internal Battery)
Trademark	Anticimex
Additional information	SRD band 917-926 MHz
Tested according to	**FCC Part 15.247** Frequency Hopping Transmitters / Digital Transmission Systems **Industry Canada RSS-247, Issue 3** Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
Order number	PRJ0048537
Tested in period	2024-05-20 – 2024-06-10
Issue date	2024-09-26
Name and address of the testing laboratory	Nemko Scandinavia AS Instituttveien 6 2007 Kjeller, Norway www.nemko.com CAB Number: FCC: NO0001 ISED: NO470 ISED No: 2040D-1 **An accredited technical test executed under the Norwegian accreditation scheme**

Prepared by [Jan G Eriksen]	Approved by [Frode Sveinsen]

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Revision history

Revision	Date	Comment	Sign
A	2024-07-10	First edition	JGER
B	2024-09-26	Editorials	JGER

GENERAL REMARKS

This report applies only to the sample(s) tested. It is the manufacturer's responsibility to ensure the additional production units of this product are manufactured with identical electrical and mechanical components. The manufacturer is solely responsible for any modifications to the product that could result in non-compliance with the relevant regulations.

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Opinions expressed within this report regarding general assessments and qualifications for PASS or FAIL to the standards limits and requirements, are not part of the current accreditation. Neither are opinions expressed regarding model variants covered by the testing of this report.

CALIBRATION

All instruments used in the tests given in this test report are calibrated and traceable to national or international standards. Between calibrations all test set-ups are controlled and verified on a regular basis by periodic checks to ensure, with 95% confidence, that the instruments remain within the calibrated levels.

MEASUREMENT UNCERTAINTY

Measurement uncertainties are calculated or considered for all instruments and instrument set-ups used during these tests. Uncertainty figures are found in a separate clause in this report.

CONTENTS

1 INFORMATION

1.1 Test Item

Name	**Connect**
Model/version	**Connect 3-300120**
FCC ID	**2AOFP-300120**
IC	**/**
Serial number	**Radiated: #1 - 6CC4** **Conducted #3 - 6AD4**
Hardware identity and/or version	**Connect 3-300120 Rev A**
Software identity and/or version	**CC1354: 30.003; BG95-M5: BG95M5LAR02A03**
Chipset	**TI CC1354R10**
Frequency Range	**917 - 926 MHz**
Number of Channels	**Non-channelized**
Operating Modes	**SRD TX 917, 921, 926 MHz**
Type of Modulation	**WB-DSSS GFSK**
Conducted Output Power	**+14 dBm nominal value**
Antenna Connector	**None**
Number of Antennas	**1**
Diversity or Smart Antennas	**No**
Power Supply	**DC 5V input from AC/DC converter and internal batteries 5V**
Desktop Charger	**None**

Description of Test Item

The tested item is a gateway which receives messages at SRD (Short Range Devices) frequencies in the range 917-926 MHz and forwards these over cellular interface 4G (LTE) or 2G (GSM) to the cloud.

1.2 Normal test condition

Temperature	**20 - 24 °C**
Relative humidity	**20 - 50 %**
Normal test voltage	**5.0 V DC from AC/DC converter**

The values are the limit registered during the test period.

1.3 Test Engineers

Jan G Eriksen

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	Radiated Emissions and Power Line Conducted Emissions were performed with the EUT set to transmit at channels with the highest output power as worst-case scenario.
Additional information	-

1.6 Comments

The measurements were done with the EUT powered by 115 V AC. It was checked that power variations between 85% and 115% did not have any influence on the measurements.

All measurements were also done with the EUT powered by fully charged batteries in addition to 5V DC from ACDC converter.

All ports were populated during spurious emission measurements.

2 TEST REPORT SUMMARY

2.1 General

The tests were conducted on a sample of the equipment for demonstrating compliance with one or more of the following standards.

Standard	Description
FCC CFR 47 Part 15.247	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz
ISED RSS-247, Issue 3	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
ISED RSS-GEN Issue 5	General Requirements for Compliance of Radio Apparatus

The following standards and documents were used for one or more measurements:

Standard	Description
ANSI C63.4-2014	Unintentional Radiators
ANSI C63.10-2013	Intentional Radiators
FCC KDB 558074 D01	15.247 Measurement Guidance for DTS and Frequency Hopping Systems
FCC KDB 412172 D01	Determining ERP and EIRP

All measurements are traceable to national standards.

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

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

2.2 Test Summary

Name of test	FCC Part 15 reference	RSS-247 Issue 3, RSS-GEN Issue 5 reference	ANSI C63.10-2013 Reference	Result
Supply Voltage Variations	**15.31(e)**	**6.11 (RSS-GEN)**	**5.13**	**Pass**
Antenna Requirement	**15.203**	**6.8 (RSS-GEN)**	**5.8**	**Pass**
Power Line Conducted Emission	**15.107(a)** **15.207(a)**	**7.2 / 8.8 (RSS-GEN)**	**6.2**	**Pass**
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**	**Pass**
Peak Power Output	**15.247(b)**	**5.4 (RSS-247)**	**11.9.1.1**	**Pass**
Power Spectral Density	**15.247(d)**	**5.2 (2) (RSS-247)**	**11.10.2 PKPSD (DTS)**	**Pass**
Spurious Emissions (Antenna Conducted)	**15.247(c)**	**5.5 (RSS-247)**	**6.7** **11.11 (DTS)**	**Pass**
Spurious Emissions (Radiated)	**15.247(c)** **15.109(a)** **15.209(a)**	**3.3 (RSS-247)** **7.3 (RSS-GEN)** **8.9 (RSS-GEN)**	**6.3, 6.5, 6.6, 6.10** **11.12, 11.13 (DTS)**	**Pass**

3 TEST RESULTS

3.1 Power Line Conducted Emissions

FCC Part 15.207

ISED RSS-GEN Issue 5, Clause 7.2 / 8.8

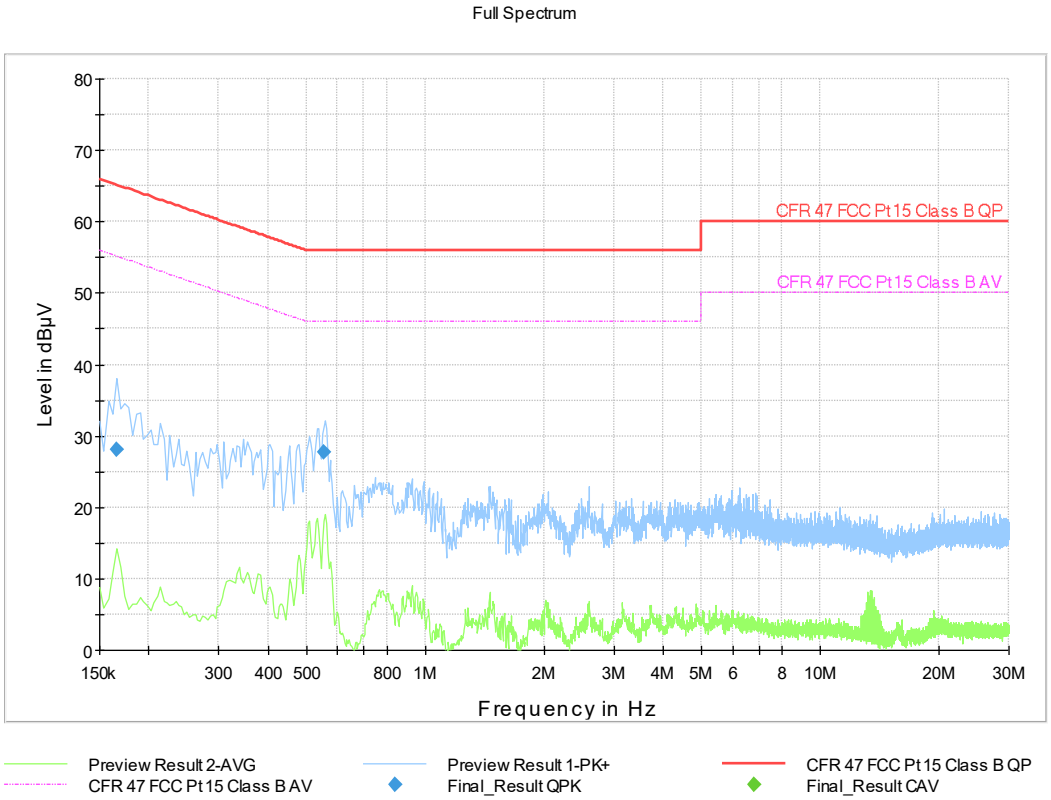
Measurement procedure: **ANSI C63.4-2014 using 50 µH/50 ohms LISN**

Test Results: **Complies**

Measurement Data: **See attached plots**

Highest measured value (L1 and N):

Frequency	Detector	Measured value	Limit	Margin
KHz	Peak/QP/AV	dBµV	dBµV	dB
166.0	QP	28.0	65.2	39.8
	AV	/	55.2	/
554.0	QP	27.7	56.0	28.3
	AV	/	46.0	/



Note that the blue (Peak Detector) and green (Average Detector) are the worst-case levels from measurements on **both** mains lines (N and L1).

3.2 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

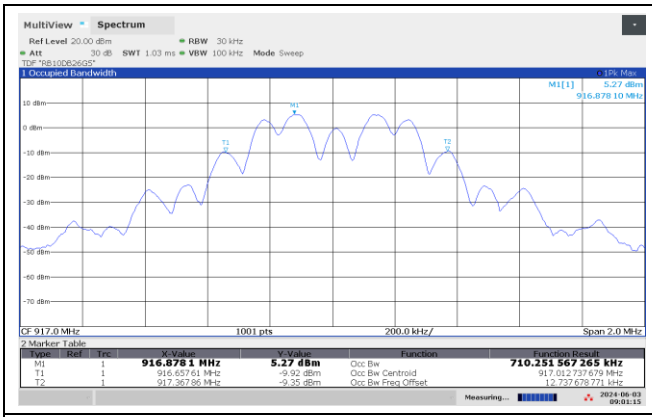
Measurement Data:

Carrier Frequency, Data Rate	Occupied Bandwidth (99% BW)
917 MHz	710.251 kHz
921 MHz	708.816 kHz
926 MHz	738.554 kHz

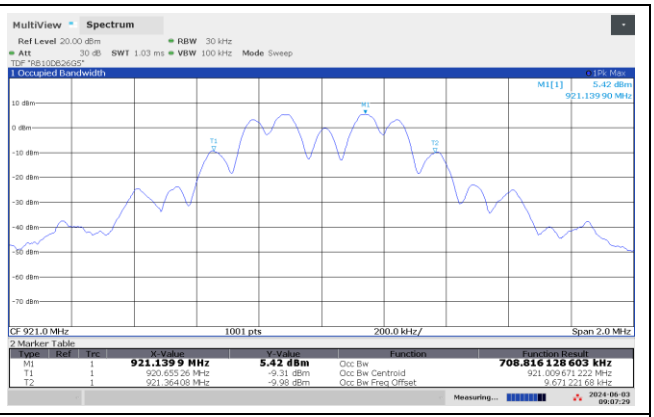
See attached plots

Requirements:

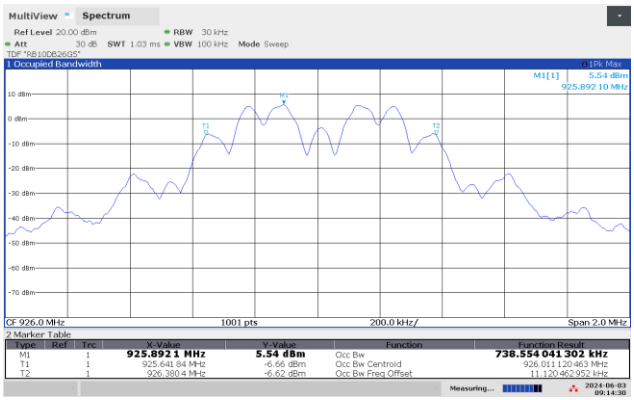
No requirement for 99% BW, reported for information only.



99% Occupied BW, 917 MHz



99% Occupied BW, 921 MHz



99% Occupied BW, 926 MHz

3.3 DTS Bandwidth

FCC Part 15.247 (a)(2)

ISED Canada RSS-247 Issue 3, Clause 5.2 (a)

Measurement procedure: **ANSI C63.10-2013 Clause 11.8**

Test Results: **Complies**

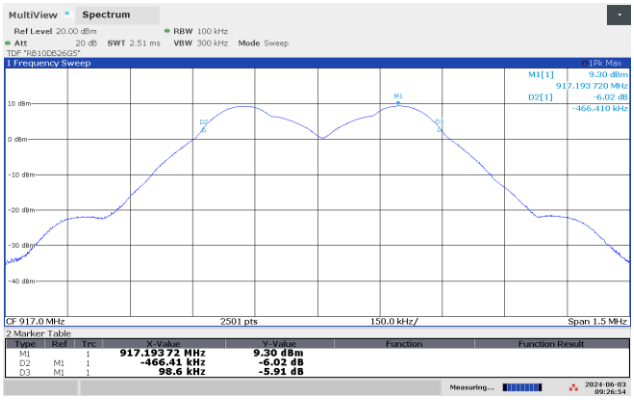
Measurement Data:

Modulation type and bitrate	Measured DTS Bandwidth (kHz)		
	917 MHz	921 MHz	926 MHz
	565.01	551.78	587.11

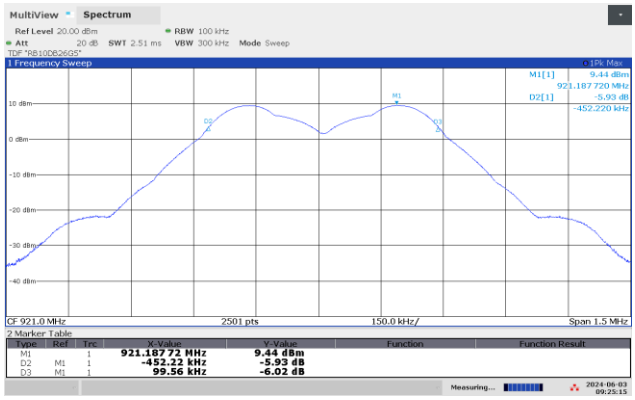
Power supply variation within 85 % to 115% of nominal value has no influence on measured value.

Frequency Band	Requirement for systems using Digital Modulation
902-928 MHz	The minimum 6 dB bandwidth shall be at least 500 kHz.
2400-2483.5 MHz	
5725-5850 MHz	

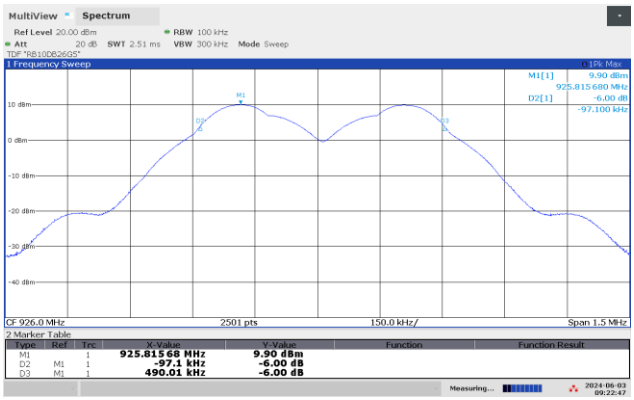
No requirements for Frequency Hopping Systems.



DTS BW, 917 MHz



DTS BW, 921 MHz



DTS BW, 926 MHz

3.4 Peak Power Output

FCC Part 15.247 (b)

ISED Canada RSS-247 Issue 3, Clause 5.4

Measurement procedure: ANSI C63.10-2013 Clause 11.9.1.2

Test Results: Complies

Measurement Data:

Carrier Frequency	Peak Conducted Power, dBm	Peak radiated ERP, dBuV/m	Peak radiated ERP, dBm	Antenna gain, dBd
917 MHz	10.47	107.77	12.54	-0.08
921 MHz	10.50	108.57	13.34	0.69
926 MHz	11.05	110.00	14.77	1.57

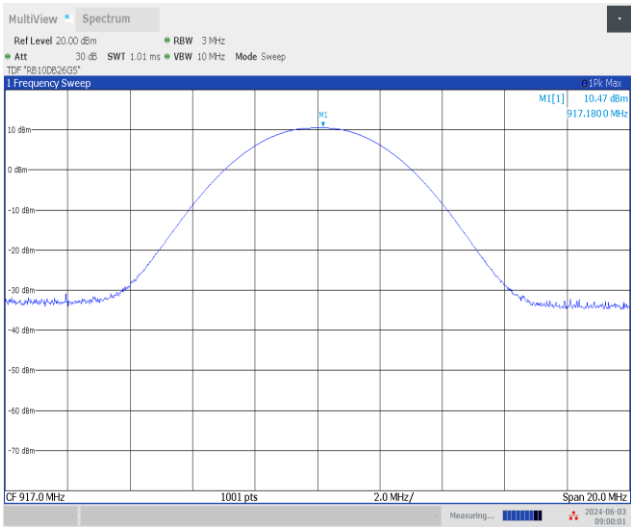
Output Power reported is Maximum Peak Power.

Radiated Power was calculated from measured Field Strength using the method described in ANSI C63.10-2013 Annex G.

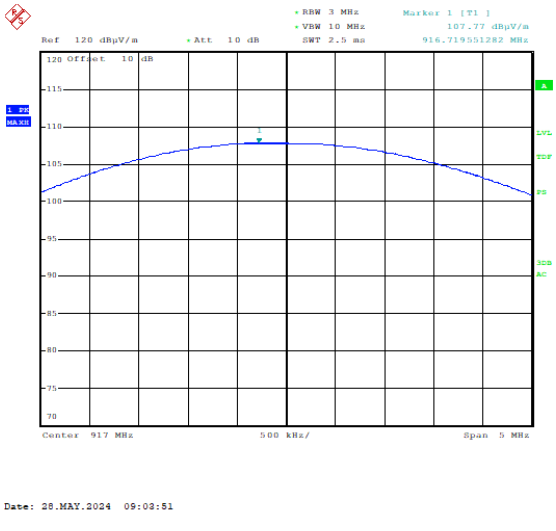
Antenna Gain is less than 6 dBi.

See attached plots.

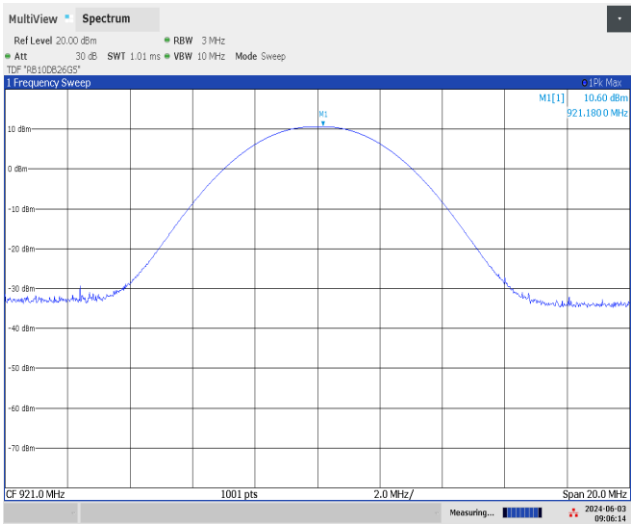
Frequency Band	Requirements for Frequency Hopping systems
902-928 MHz	For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels
2400-2483.5 MHz	For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels: 1 watt For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts
5725-5850 MHz	For all frequency hopping systems in the 5725-5850 MHz band: 1 watt
Requirements for Digital Modulation systems	
For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the 1 Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.	
Maximum allowed Antenna Gain	
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.	



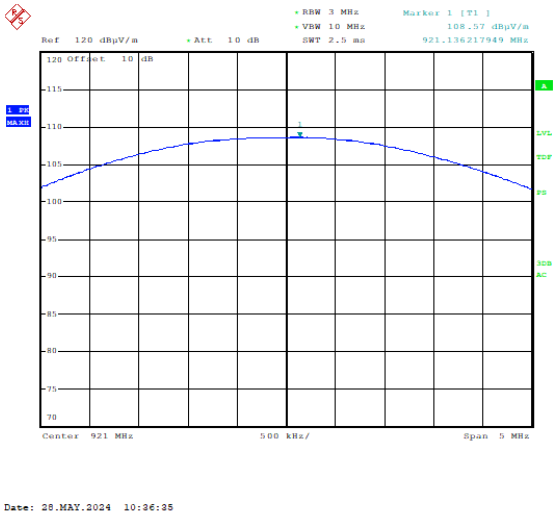
Peak Power conducted, 917 MHz



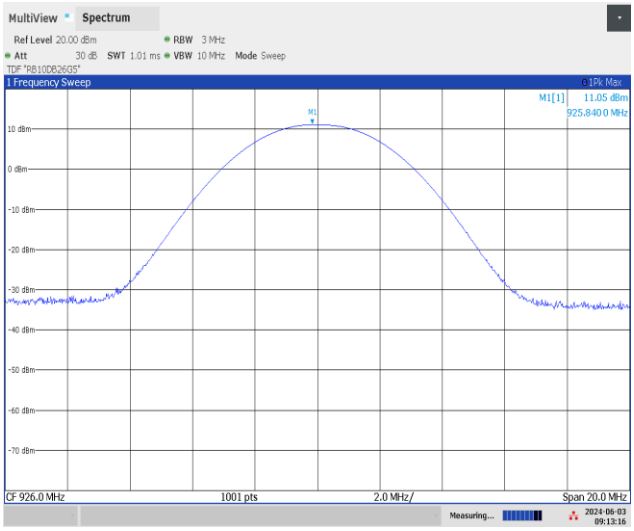
Peak ERP Radiated, 917 MHz



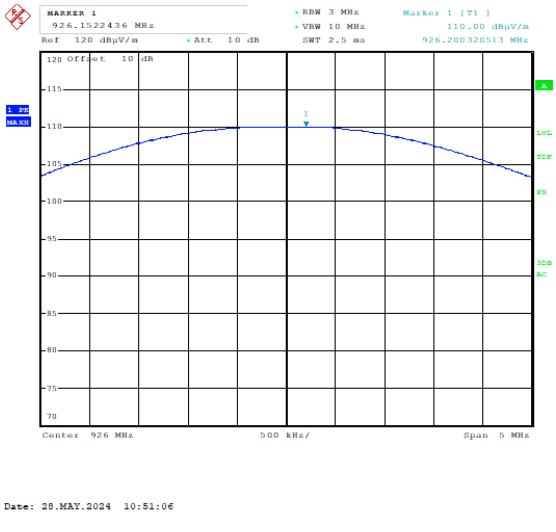
Peak Power conducted, 921 MHz



Peak ERP Radiated, 921 MHz



Peak Power conducted, 926 MHz



Peak ERP Radiated, 926 MHz

3.5 Conducted Emissions at Antenna Connector

FCC Part 15.247 (d)

ISED Canada RSS-247 Issue 3, Clause 5.5

Measurement procedure: ANSI C63.10-2013 Clause 11.11

Test Results: Complies

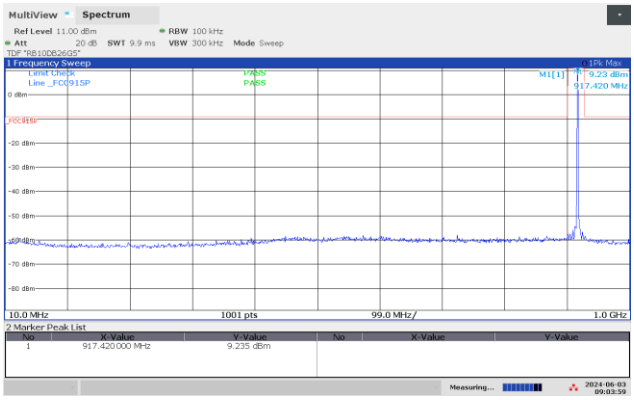
Measurement Data:

Carrier Frequency	Highest Value (dBc)	Margin (dB)	Verdict
917 MHz	64.4	44.4	Pass
921 MHz	65.7	45.7	Pass
926 MHz	65.5	45.5	Pass

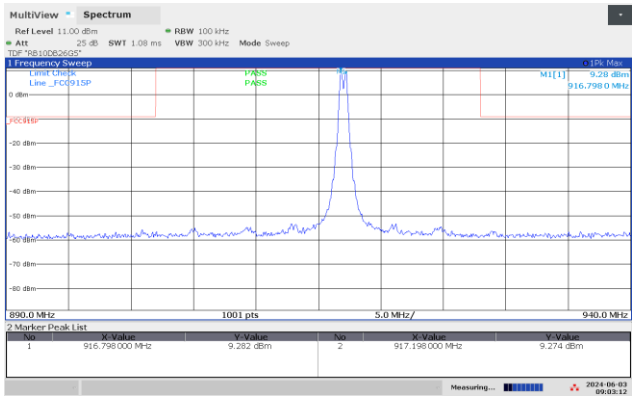
Measured with Peak Detector

RF conducted power to 26 GHz: see attached plots.

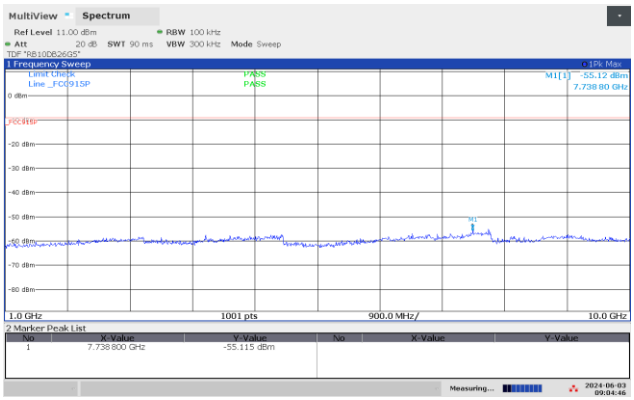
Requirements for all systems	
Peak measurement	**RMS averaging (alternative measurement)**
20 dB or more below carrier measured in 100 kHz bandwidth	30 dB or more below carrier measured in 100 kHz bandwidth
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.	



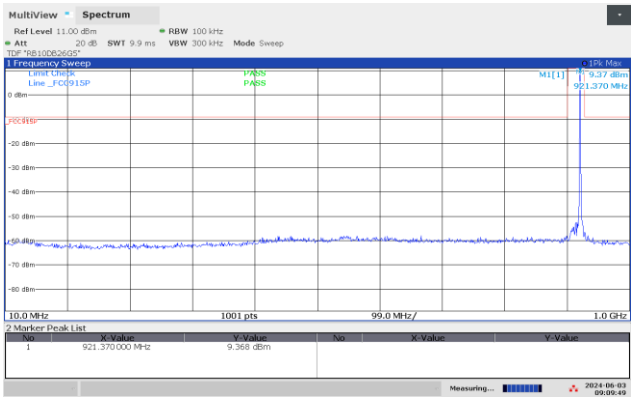
Conducted Emissions 10-1000 MHz, 917 MHz



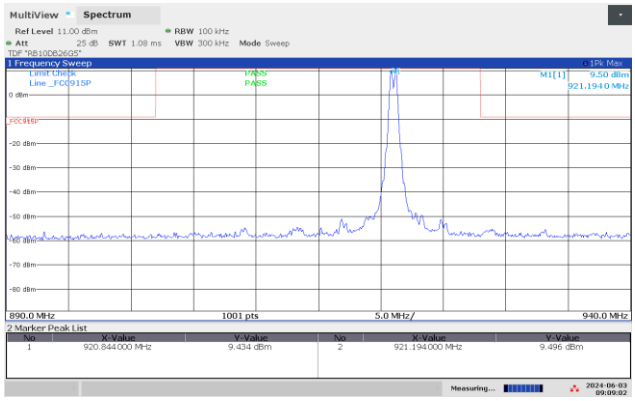
Conducted Emissions 890-940 MHz, 917 MHz



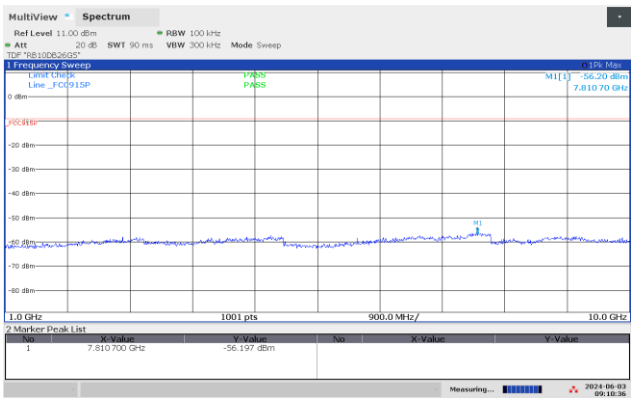
Conducted Emissions 1000-10000 MHz, 917 MHz



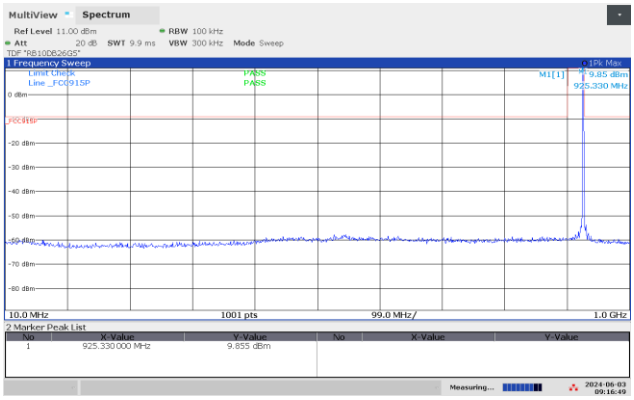
Conducted Emissions 10-1000 MHz, 921 MHz



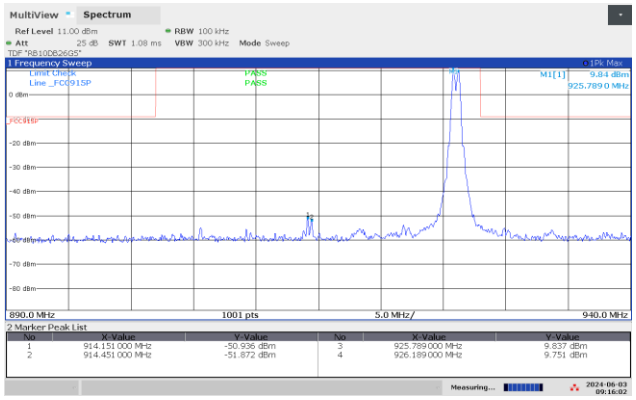
Conducted Emissions 890-940 MHz, 921 MHz



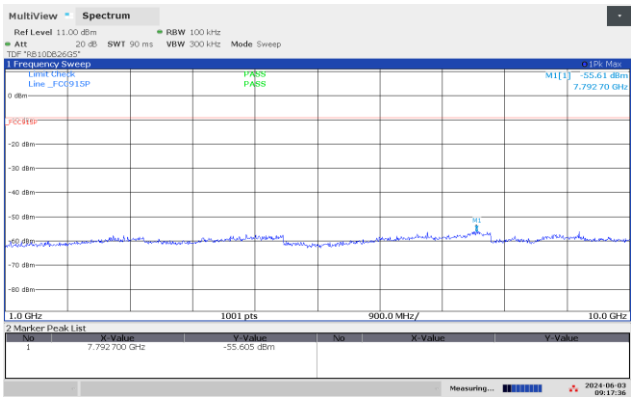
Conducted Emissions 1000-10000 MHz, 921 MHz



Conducted Emissions 10-1000 MHz, 926 MHz



Conducted Emissions 890-940 MHz, 926 MHz



Conducted Emissions 1000-10000 MHz, 926 MHz

3.6 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 (MHz)	FCC (GHz)	ISED (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.

3.7 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 3 m

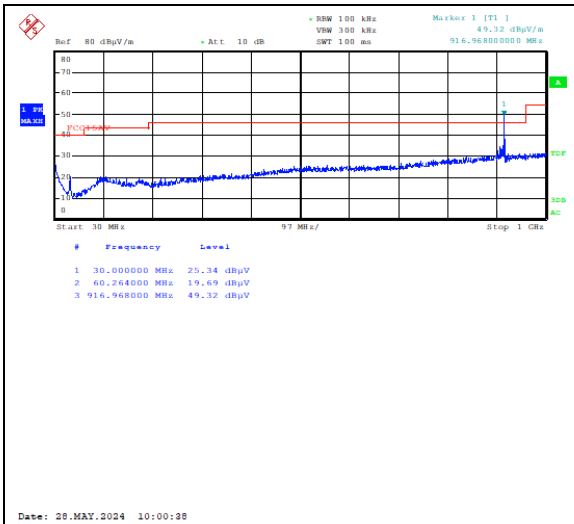
Tested in test mode with EUT transmitting on ch19

Measured Frequency (MHz)	Carrier Frequency (MHz)	Modulation	Measured Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
30 – 88	917 / 921 / 916	FSK	< 30	40.0	> 10
88 – 216	917 / 921 / 916	FSK	< 33	43.5	> 10
216 – 960	917 / 921 / 916	FSK	< 33	46.0	> 10
960 – 1000	917 / 921 / 916	FSK	< 34	54.0	> 10

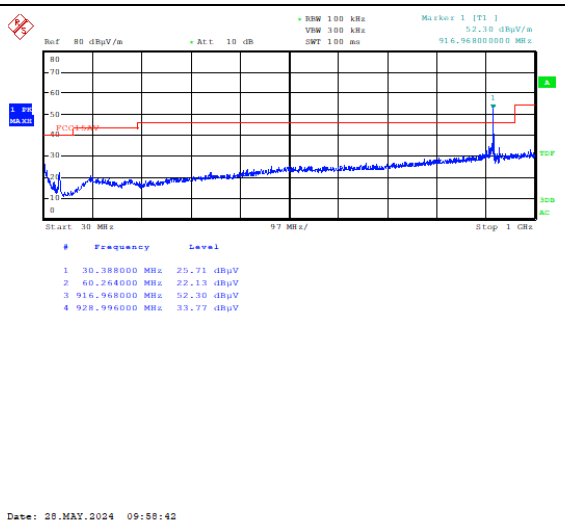
See attached plots

Requirements/Limit

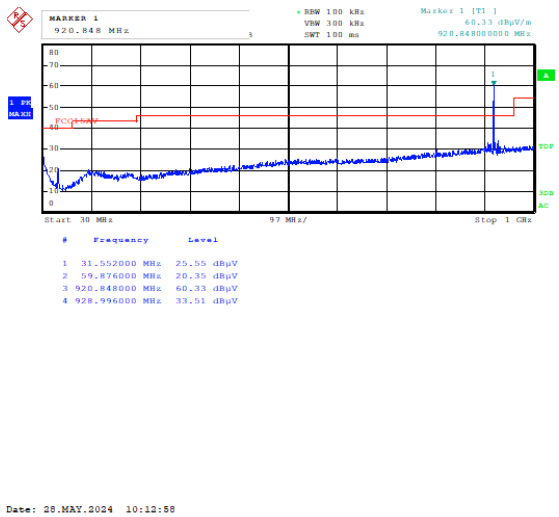
FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 5, Clause 8.9 @ frequencies defined in clause 8.10	
Frequency	Radiated emission limit @3 meters	
30 – 88 MHz	100 µV/m	40.0 dBµV/m
88 – 216 MHz	150 µV/m	43.5 dBµV/m
216 – 960 MHz	200 µV/m	46.0 dBµV/m
960 – 1000 MHz	500 µV/m	54.0 dBµV/m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



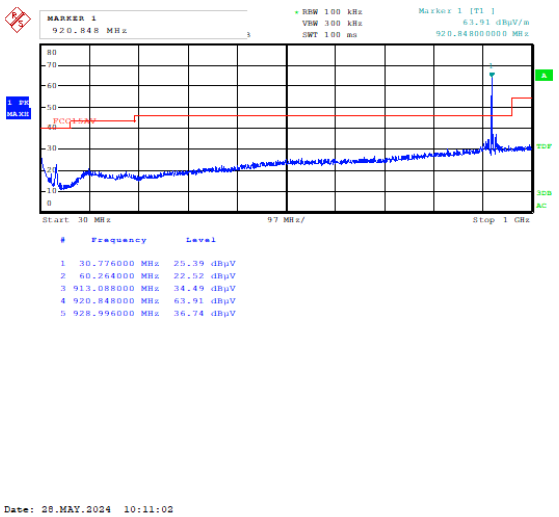
Radiated Emissions 30 - 1000 MHz, 917 MHz, HP



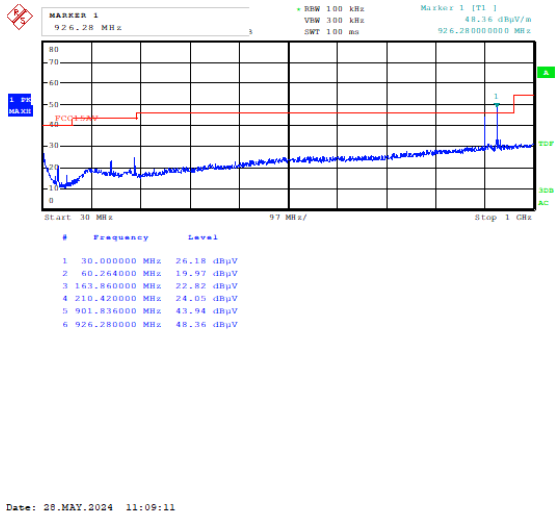
Radiated Emissions 30 - 1000 MHz, 917 MHz, VP



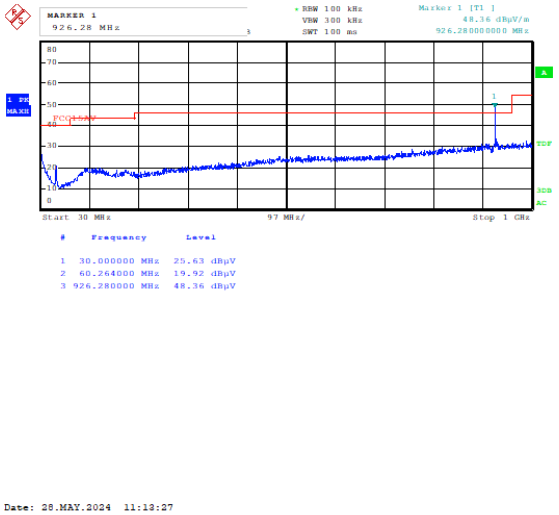
Radiated Emissions 30 - 1000 MHz, 921 MHz, HP



Radiated Emissions 30 - 1000 MHz, 921 MHz, VP



Radiated Emissions 30 - 1000 MHz, 926 MHz, HP



Radiated Emissions 30 - 1000 MHz, 926 MHz, VP

3.8 Radiated Emissions, 1 – 9.5 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 – 9.5 GHz)

RBW=1 MHz

Carrier Frequency (MHz)	Measured Frequency (GHz)	Mode	Measured Emissions (dBµV/m)		Limit (dBµV/m)		Margin (dB)	
			Peak	Average	Pk	Av	Pk	Av
917	1-2.5	FSK	44.96	-	74	54	29.0	9.0
917	2.5-9.5	FSK	48.68	-	74	54	25.3	5.3
921	1-2.5	FSK	44.94	-	74	54	29.1	9.1
921	2.5-9.5	FSK	49.04	-	74	54	25.0	5.0
926	1-2.5	FSK	45.33	-	74	54	28.7	8.7
926	2.5-9.5	FSK	48.74	-	74	54	25.3	5.3

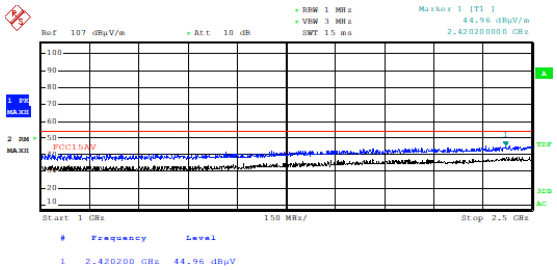
A Band Reject Filter was used for measurements from 1 to 2.5 GHz and a High-Pass filter was used from 2.5 to 18 GHz

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

See plots.

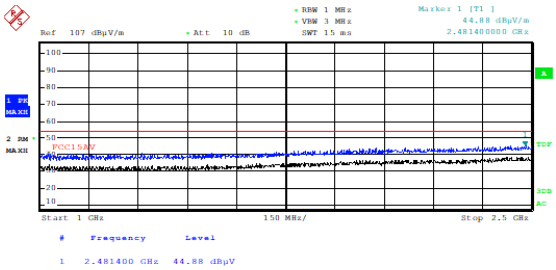
Requirements/Limit

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 – 9.5 GHz	54.0 dBµV/m	74.0 dBµV/m



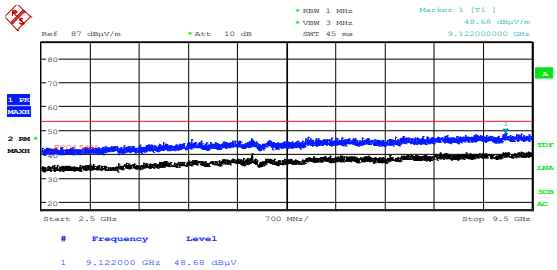
Date: 28.MAY.2024 12:47:41

Radiated Emissions 1 – 2.5 GHz, 917 MHz, HP



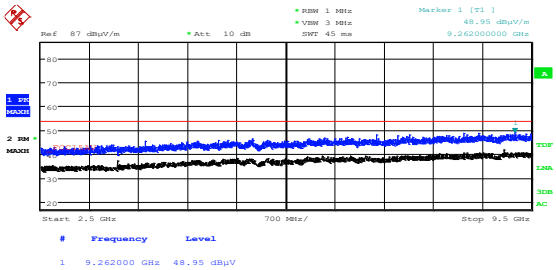
Date: 28.MAY.2024 12:45:45

Radiated Emissions 1 – 2.5 GHz, 917 MHz, VP



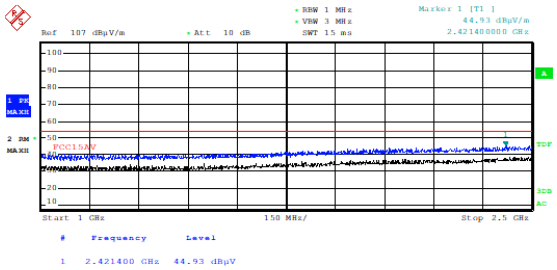
Date: 29.MAY.2024 09:52:55

Radiated Emissions 2.5 – 9.5 GHz, 917 MHz, HP



Date: 29.MAY.2024 09:50:58

Radiated Emissions 2.5 – 9.5 GHz, 917 MHz, VP



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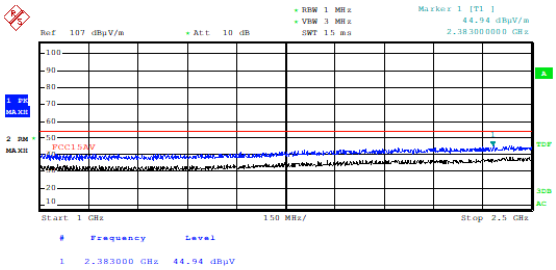
Radiated Emissions 1 – 2.5 GHz, 921 MHz, HP



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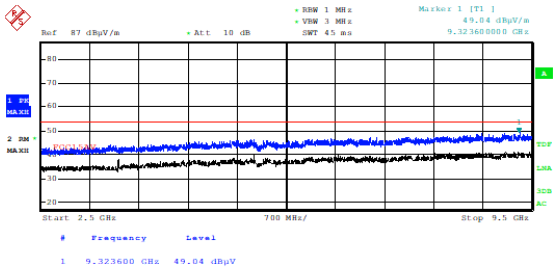
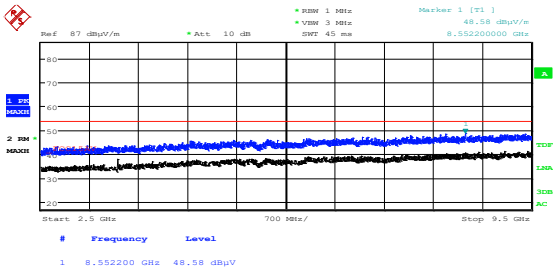
Radiated Emissions 1 – 2.5 GHz, 921 MHz, VP



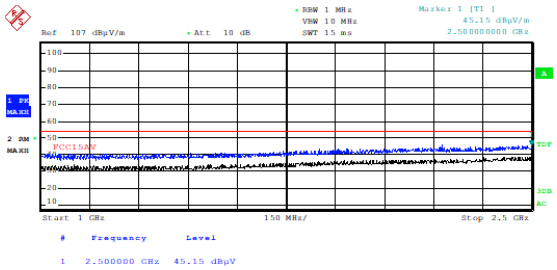
Date: 29.MAY.2024 09:43:36

Radiated Emissions 2.5 – 9.5 GHz, 921 MHz, HP



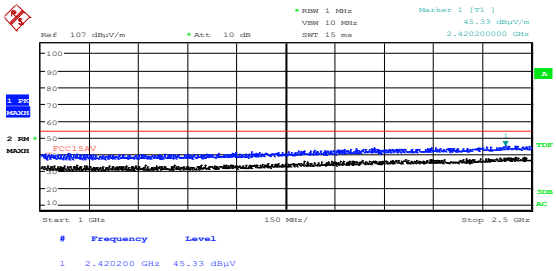
Date: 29.MAY.2024 09:41:40

Radiated Emissions 2.5 – 9.5 GHz, 921 MHz, VP



Date: 28.MAY.2024 11:41:58

Radiated Emissions 1 – 2.5 GHz, 926 MHz, HP



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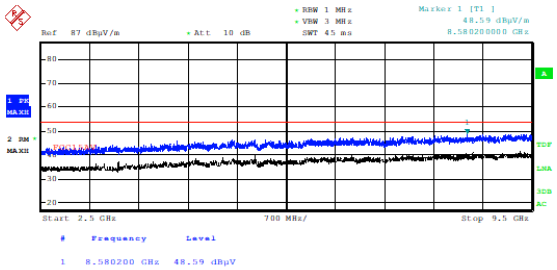
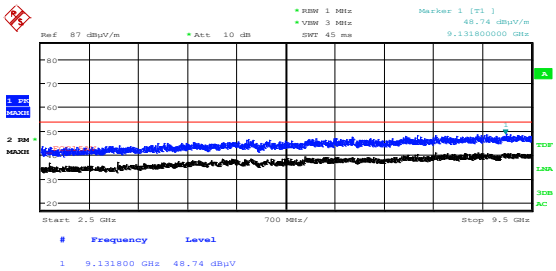
Radiated Emissions 1 – 2.5 GHz, 926 MHz, VP



Date: 29.MAY.2024 09:58:35

Radiated Emissions 2.5 – 9.5 GHz, 926 MHz, HP



Date: 29.MAY.2024 09:56:40

Radiated Emissions 2.5 – 9.5 GHz, 926 MHz, VP

3.9 Power Spectral Density (PSD)

FCC part 15.247(d)

ISED Canada RSS-247 Issue 3, Clause 5.2 (2)

Measurement procedure: ANSI C63.10-2013 Clause 11.10

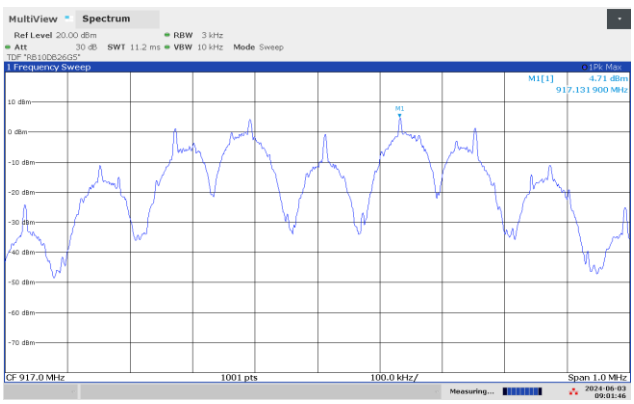
Test Results: Complies

Measurement Data:

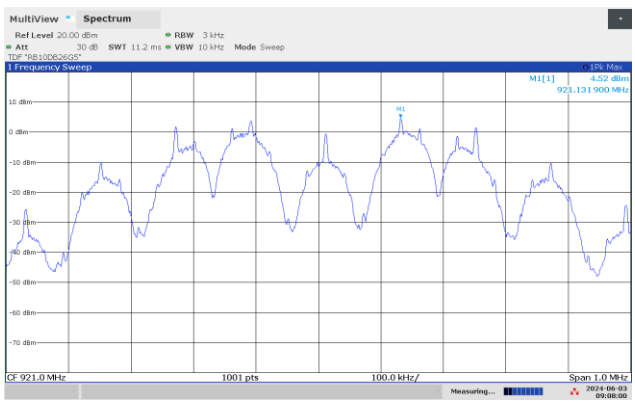
The measurement procedure PKPSD described in ANSI C63.10-2013 was used.

Modulation Type and Bitrate	Measured Power Spectral Density (dBm/3kHz)		
	917 MHz	921 MHz	926 MHz
FSK	4.71	4.52	4.61

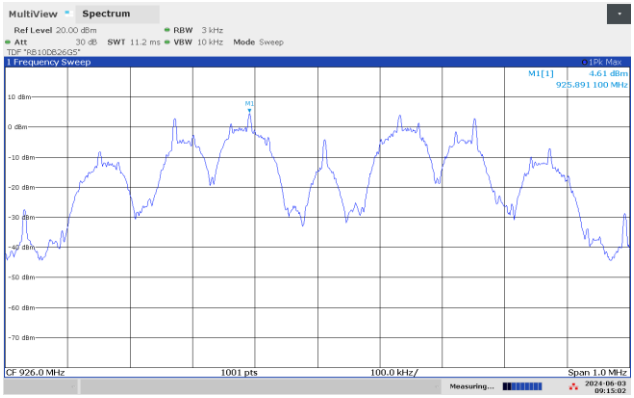
Requirement for systems using Digital Modulation
The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.



PSD, 917 MHz



PSD, 921 MHz



PSD, 926 MHz

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 testhouse.

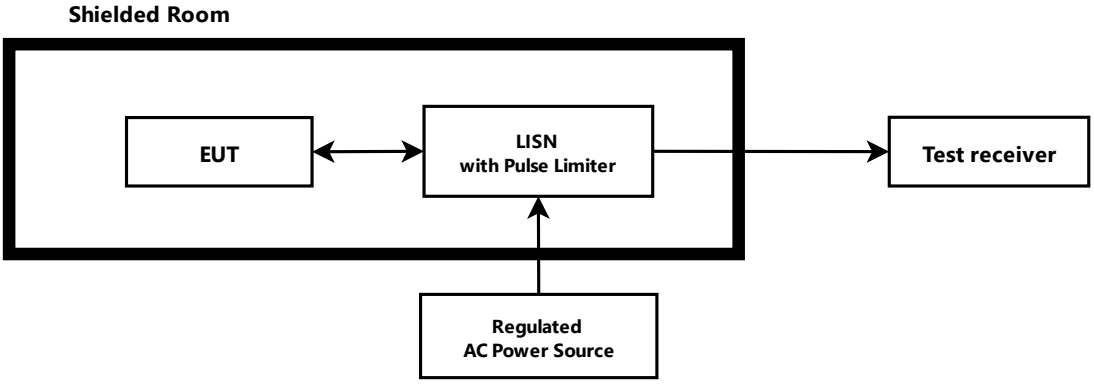
No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1	FSW43	Spectrum Analyzer	Rohde & Schwarz	LR 1690	2024.01	2025.01
2	ESU40	Measuring Receiver	Rohde & Schwarz	LR 1639	2024-01	2025-01
3	6810.17B	Attenuator	Suhner	LR 1669	Cal-B4-use	
4	NO324415	Band Reject Filter	Microwave Circuits	LR 1760	Cal-B4-use	
5	JB1	Bilog Antenna	SunAR	LR 1734	2023.04	2025.04
6	3117	Preamplifier	EMCO	LR 1717	2024-07	2025-07
7	3117-PA	Horn Antenna +PreAmp	EMCO	LR 1717	2022-04	2025-04
8	3115	Double Ridged Horn Antenna	EMCO	LR 1226	2022.12	2025.12
9	8449A	Pre-amplifier	Hewlett Packard	LR 1322	2023-09	2024-09
10	Model 87V	Multimeter	Fluke	LR 1599	2023.04	2025.04
11	CPX400S	DC Source	AimTTi	LR-1711	LT 5218 for control	
12	45 DMM	Multimeter	Fluke	LT-5218	2023.04	2025.04
13	ST18/SMA/N/36	RF Cable	Suhner	LR 1627	Cal-B4-use	
14	Filter	2.5 GHz high pass	Thrilitic	LR 1615	Cal-B4-use	
15	Filter	Notch 917 MHz (tunable)	Wainwright	LR 1624	Cal-B4-use	

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

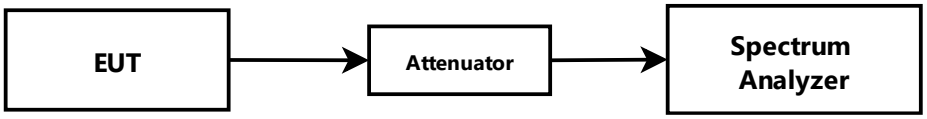
No.	Manufacturer	Name	Version	Comment
1	Rohde & Schwarz	EMC32	10.50.40	EMC test software
2	Rohde & Schwarz	GPIBShot	2.7	Screenshots from R&S Spectrum Analyzers

6 BLOCK DIAGRAM

6.1 Power Line Conducted Emission

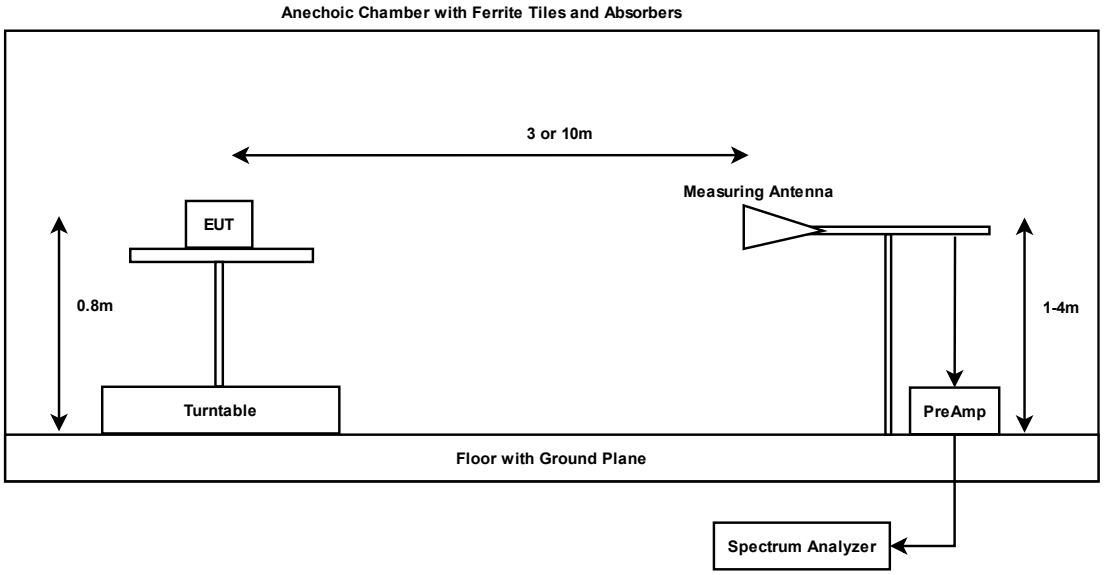


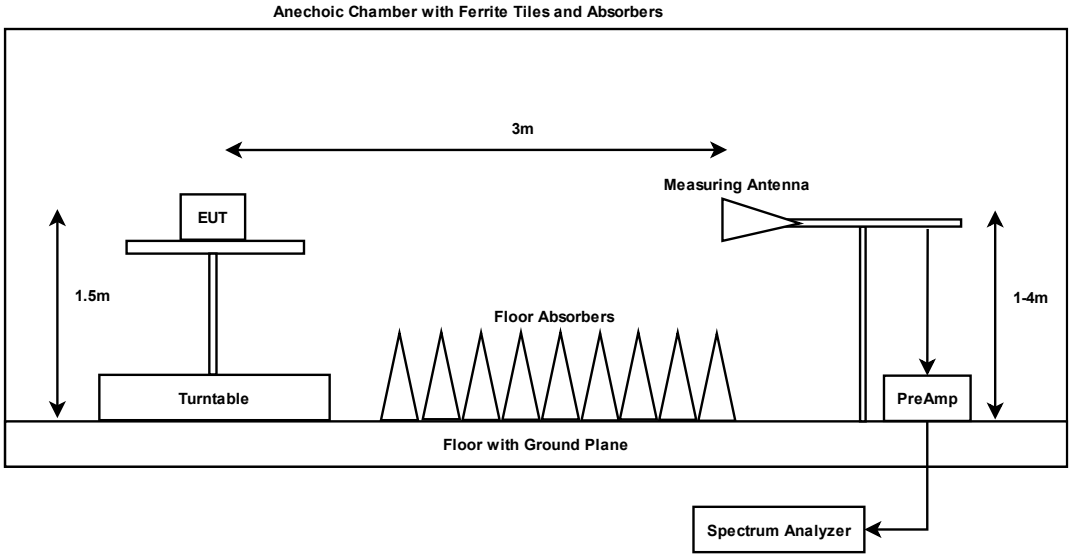
6.2 Conducted Tests



This test set-up is used for all Conducted tests.

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.