

# Report on the Testing of the Landis + Gyr Technology, Inc. Series 6 Gen 2 mSBR

In accordance with:  
FCC 47 CFR part 15.247  
ISED RSS-247 Issue 3, August 2023

Prepared for: Landis + Gyr Technology, Inc.  
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Thierry Jean-Charles	Senior Engineer TÜV SUD America Inc.	Authorized Signatory	05/21/2025

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FCC Accreditation Designation Number US1233  
FCC Test Site Registration Number 967699  
Innovation, Science, and Economic Development Canada Lab Code 23932

### EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with the standards listed above.



A2LA Cert. No. 2955.09

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## 1 Report Summary

### 1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

**Table 1.1-1 – Modification Record**

Issue	Description of Change	Date of Issue
0	First Issue	1/7/2025
1	Second Issue – Updated Model Name	5/21/2025

### 1.2 Introduction

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC's Code of Federal Regulations Section 15.247 and Innovation Science and Economic Development Canada's Radio Standards Specification RSS-247 for the tests documented herein.

Applicant	Mr. Raghav Goteti
Manufacturer	Landis + Gyr Technology, Inc.
Applicant's Email Address	<a href="mailto:Raghav.Goteti@landisgyr.com">Raghav.Goteti@landisgyr.com</a>
Model Name & Number(s)	S6G2 N651
Product Marketing Name(s)	Series 6 Gen 2 Network Node
Serial Number(s)	NA
FCC ID	R7PMGPM2B1
ISED Certification Number	5294A-MGPM2B1
Hardware Version(s)	M1502
Software Version(s)	RF Mesh: 20.20 RF Mesh IP/Wi-SUN: 30.03
Number of Samples Tested	2
Test Specification/Issue/Date	US Code of Federal Regulation (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2024 ISED Canada Radio Standards Specification: RSS-247 – Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Network (LE-LAN) Devices, Issue 3, August 2023.
Order Number	721002294
Date of Receipt of EUT	8/1/2024
Start of Test	8/1/2024



Finish of Test	8/27/2024
Related Document(s)	<p>ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Device.</p> <p>FCC OET KDB 558074 D01 15.247 Meas Guidance v05r02: Guidance for Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating under Section 15.247 of the FCC Rules, April 2, 2019</p> <p>US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2024.</p> <p>ISED Canada Radio Standards Specification: RSS-GEN – General Requirements for Compliance of Radio Apparatus, Issue 5, Amendment 1 (March 2019), Amendment 2 (February 2021)</p>



### 1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC Part 15.247 and ISED Canada's RSS-247 is shown below.

**Table 1.3-1: Test Result Summary**

Test Parameter	Test Plan (Yes/No)	Test Result	FCC 47 CFR Rule Part	ISED Canada's RSS	Test Report Page No
Antenna Requirement	Yes	Pass	15.203, 15.204	-----	11
6 dB Bandwidth	Yes	Pass	15.247(a)(2)	RSS-247 5.2(a)	19
99% Bandwidth	Yes	Pass	-----	RSS-GEN 6.7	19
Average Output Power	Yes	Pass	15.247(b)(3)	RSS-247 5.4(d)	17
Band-Edge Compliance of RF Conducted Emissions	Yes	Pass	15.247(d)	RSS-247 5.5	28
RF Conducted Spurious Emissions	Yes	Pass	15.247(d)	RSS-247 5.5	30
Radiated Spurious Emissions into Restricted Frequency Bands	Yes	Pass	15.205, 15.209	RSS-GEN 8.9, 8.10	33
Power Spectral Density	Yes	Pass	15.247(e)	RSS-247 5.2(b)	24
Power Line Conducted Emissions	Yes	Pass	15.207	RSS-GEN 8.8	12
Duty Cycle	No	-----			-----



## 1.4 Product Information

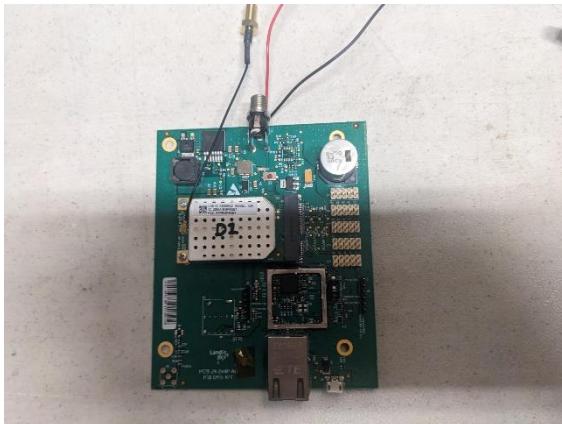
### 1.4.1 Technical Description

The Series-6 RF Mesh platform supports half-duplex operation in both the Sub-GHz and 2.4-GHz bands. There are 2 types of RF Mesh Communication Stacks supported by the Series-6 platform: Mesh IP (SBS) and Wi-SUN (WSN).

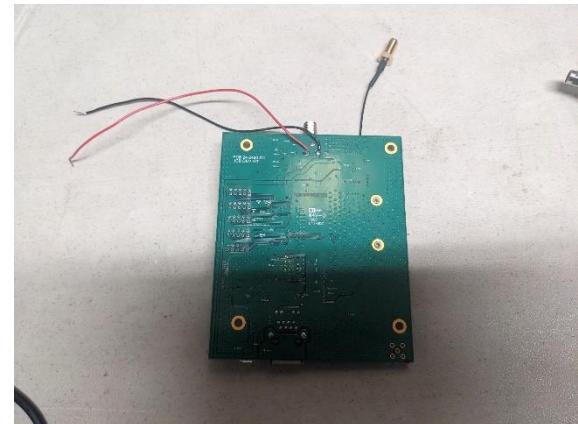
**Table 1.4-1 – Wireless Technical Information**

Detail	Description
FCC ID	R7PMGPM2B1
ISED Certification Number	5294A-MGPM2B1
Model(s) / HVIN(s)	S6G2 N651
PMN(s)	Series 6 Gen 2 Network Node
Frequency Range	902.2 – 927.8 MHz
Modulation Format	FSK, OFDM
Antenna Type / Description:	Dipole Antenna / 5.7 dBi Gain Sector Antenna / 9.0 dBi Gain

A full description and detailed product specification details are available from the manufacturer.



**Figure 1.4.1-1: Front view of the EUT module With evaluation board.**



**Figure 1.4.1-2: Rear View of the EUT module With evaluation board.**

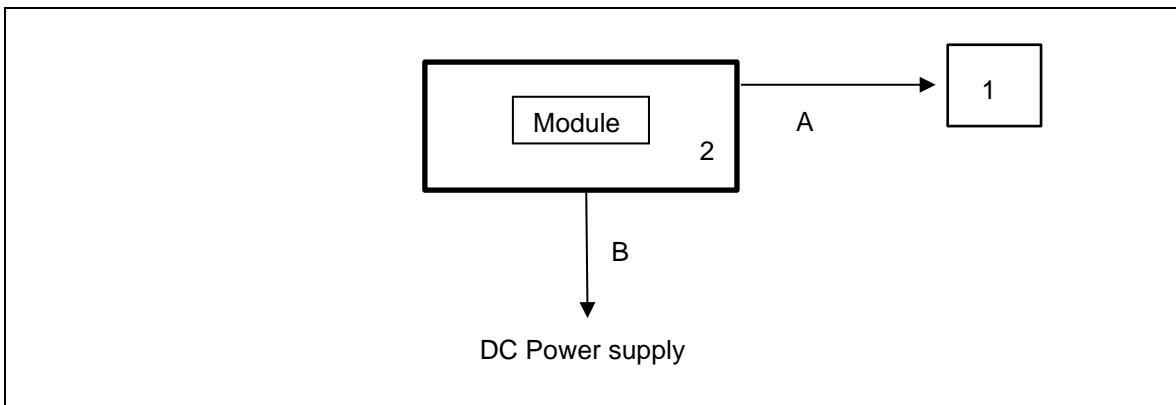


Figure 1.4.1-3 – Test Setup Block Diagram

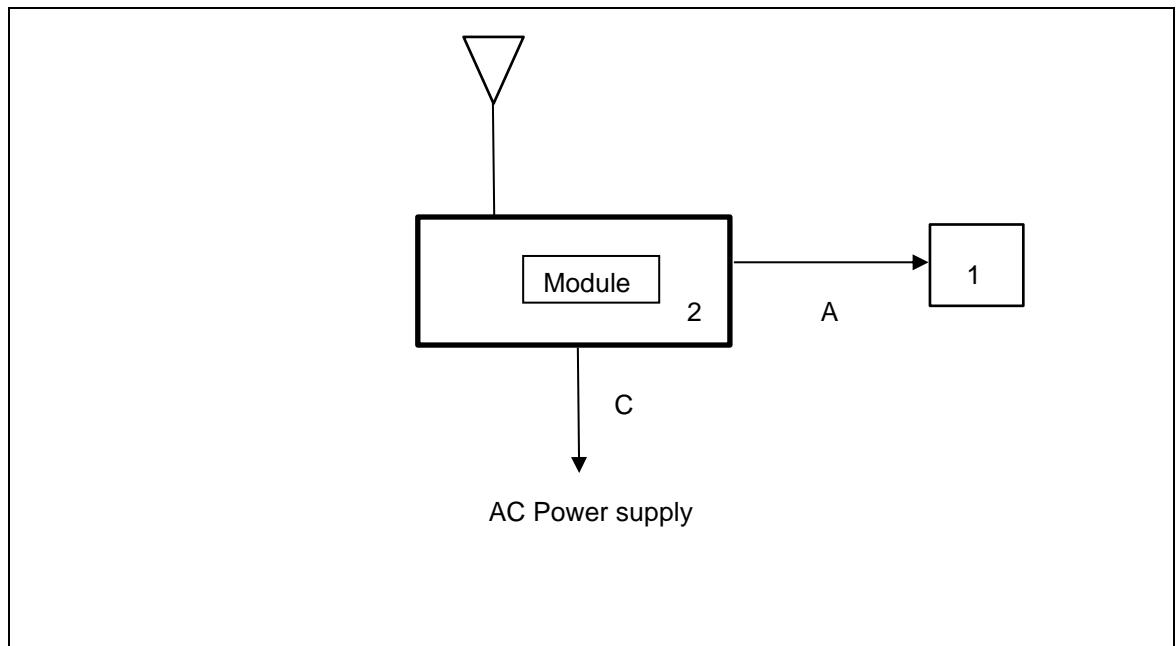


Figure 1.4.1-4 – AC Power Line Conducted Emissions Test Setup Block Diagram

Table 1.4.1-1 – Cable Descriptions

Item	Cable/Port	Description
A	USB Serial cable	Programming cable connected to laptop
B	DC Power Supply Cable	Power Supply DC power supply
C	AC Adapter Cable	AC Power Supply

Table 1.4.1-2 – Support Equipment Descriptions

Item	Make/Model	Description
1	Thinkpad	Laptop for configuration
2	Landis & Gyr	Evaluation Board



#### 1.4.2 Modes of Operation

The Landis + Gyr Series 6 Gen 2 mSBR is an electricity metering module which includes a 900 MHz ISM transmitter.

This test report documents the compliance of the 900 MHz Digital Transmission Systems mode of operation. This model provides distinct proprietary modes of operation using DTS classification as outlined below.

Mode of Operation	Frequency Range (MHz)	Number of Channels	Channel Separation (kHz)	Stack / Mode	Data Rates Supported (kbps)	Classification
1	904 – 926.8	20	1200	Mesh IP (OFDM Option 1)	MCS0 – MCS6	DTS
2	903.2 – 927.2	21	1200	WiSUN (OFDM Option 1)	MCS5 – MCS6	DTS
3	902.8 – 926.8	31	800	WiSUN (OFDM Option 2)	MCS3 – MCS5	DTS



### 1.4.3 Monitoring of Performance

For radiated emissions and AC Power Line conducted emissions, the EUT was evaluated with external dipole and sector antennas. For radiated emissions, the EUT was evaluated in three orthogonal orientations. The worst-case orientation was Y-position. See test setup photos for more information. The EUT was programmed to generate a continuously modulated signal on each channel evaluated.

For RF conducted measurements, the EUT was connected to the test equipment with a U.fl antenna connector to SMA connector.

The worst-case mode for all parameters measured is listed below:

Mode	Classification	6dB/99% Bandwidth	Average Output Power	RF Conducted Spurious Emissions	Band-Edge RF Conducted Emissions	RSE into Restricted Frequency Bands	Band-Edge RF Radiated Emissions	Power Spectral Density
		Data Rate (kbps) / MCS						
1	DTS	MCS0	MCS0	MCS0	MCS0	MCS0**	NA	MCS0
2	DTS	MCS5	MCS5	MCS5	MCS5	*	NA	MCS5
3	DTS	MCS3	MCS3	MCS3	MCS3	MCS3**	NA	MCS3

\* Addressed by mode 3

\*\* RSE testing was performed with both Dipole and sector antennas.

Power setting during test for both Dipole & Sector Antenna:

Mode of operation 1: 260

Mode of operation 2: 230

Mode of operation 3: 260



## 1.5 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

## 1.6 EUT Modification Record

The table below details modifications made to the EUT during the test program. The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
0	Initial State		

The equipment was tested as provided without any modifications.

## 1.7 Test Location

TÜV SÜD conducted the following tests at our Alpharetta, GA test laboratory.

Test Name	Name of Engineer(s)	Accreditation
Antenna Requirement	Bhagyashree Chaudhary	A2LA
Power Line Conducted Emissions	Bhagyashree Chaudhary	A2LA
Average Output Power	Bhagyashree Chaudhary	A2LA
6dB / 99% Bandwidth	Bhagyashree Chaudhary	A2LA
Band-Edge Compliance of RF Conducted Emissions	Bhagyashree Chaudhary	A2LA
RF Conducted Spurious Emissions	Bhagyashree Chaudhary	A2LA
Radiated Spurious Emissions into Restricted Frequency Bands	Bhagyashree Chaudhary	A2LA
Power Spectral Density	Bhagyashree Chaudhary	A2LA

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 5945 Cabot Parkway, Suite 100  
 Alpharetta, GA 30005, USA



## 2 Test Details

### 2.1 Antenna Requirement

#### 2.1.1 Specification Reference

FCC Section: 15.203, 15.204

#### 2.1.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state "0", as noted in §1.6.

#### 2.1.3 Date of Observation

8/1/2024

#### 2.1.4 Test Method

N/A

#### 2.1.5 Environmental Conditions

N/A

#### 2.1.6 Observation

The EUT utilizes two external antennas, dipole antenna with peak gain 5.7 dBi and sector antenna with peak gain 9 dBi. Connection to the module is via U.fl to SMA adapter cable, therefore satisfying the requirements of Section 15.203.



## 2.2 Power Line Conducted Emissions

### 2.2.1 Specification Reference

FCC Section: 15.207  
ISED Canada: RSS-Gen 8.8

### 2.2.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state “0”, as noted in §1.6.

### 2.2.3 Date of Test

8/27/2024

### 2.2.4 Test Method

ANSI C63.10 section 6 was the guiding documents for this evaluation. Conducted emissions were performed from 150kHz to 30MHz with the spectrum analyzer's resolution bandwidth set to 9kHz and the video bandwidth set to 30kHz. The calculation for the conducted emissions is as follows:

**Corrected Reading = Analyzer Reading + LISN Loss + Cable Loss**

**Margin = Corrected Reading - Applicable Limit**

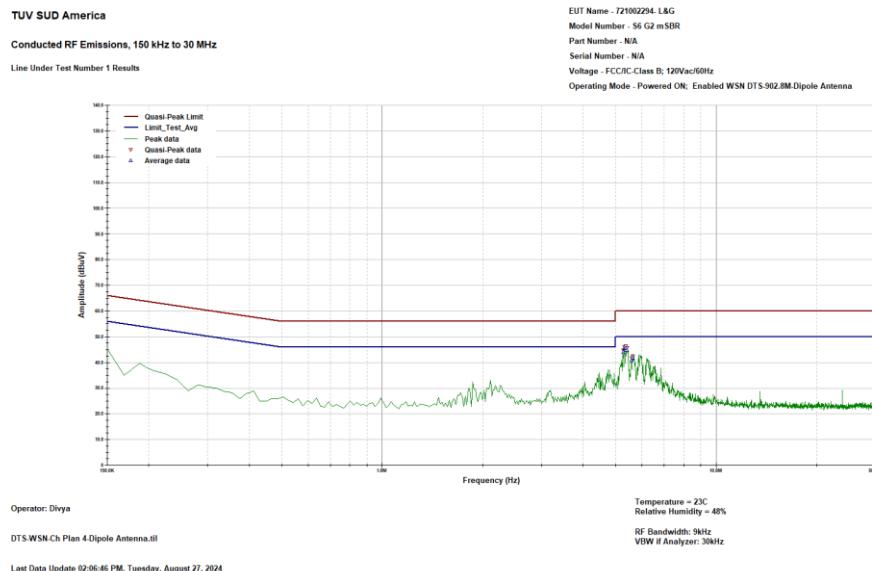
### 2.2.5 Environmental Conditions

The EUT was evaluated within the temperature, humidity and pressure range of the EUT as specified by the standard. The laboratory shall have an ambient temperature range of 15°C to 35°C, relative humidity range of 30% to 60% and atmospheric pressure range of 86 kPa to 106 kPa.

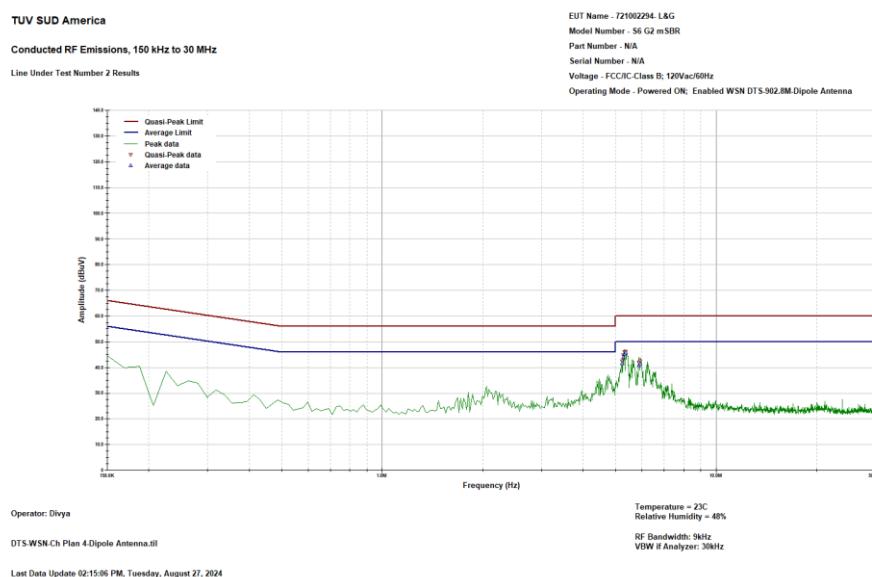
Ambient Temperature	23 °C
Relative Humidity	48 %
Atmospheric Pressure	972.2 mbar



## 2.2.6 Test Results



**Figure 2.2.6-1: Conducted Emission Plot – Line 1 – Dipole Antenna**



**Figure 2.2.6-2: Conducted Emission Plot – Neutral – Dipole Antenna**

**Table 2.2.6-1: Conducted EMI Results-Avg – Line 1 – Dipole Antenna**

Frequency	Avg Limit	Avg Level Corr	Avg Level	CF	Avg Margin	Result
MHz	dBuV	dBuV	dBuV	dB	dB	
5.28	50	43.9	34.1	9.82	-6.1	PASS
5.32	50	45.5	35.6	9.82	-4.5	PASS
5.36	50	45.8	36	9.82	-4.2	PASS
5.4	50	44.8	35	9.82	-5.2	PASS
5.6	50	40.8	31	9.818	-9.2	PASS
5.64	50	41.7	31.9	9.817	-8.3	PASS

**Table 2.2.6-2: Conducted EMI Results-QP – Line 1 – Dipole Antenna**

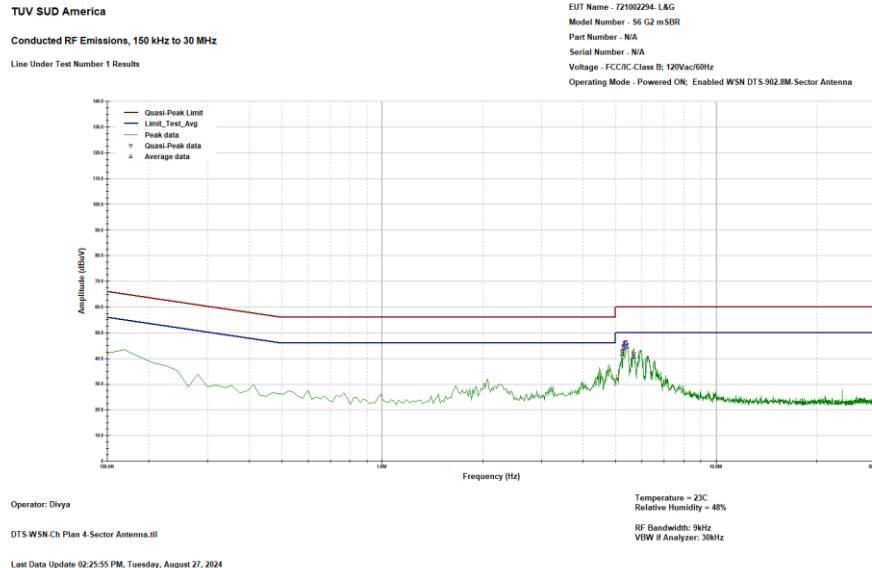
Frequency	QP Limit	QP Level Corr	QP Level	CF	QP Margin	Result
MHz	dBuV	dBuV	dBuV	dB	dB	
5.28	60	44.7	34.9	9.82	-15.3	PASS
5.32	60	46	36.2	9.82	-14	PASS
5.36	60	46.5	36.6	9.82	-13.5	PASS
5.4	60	45.7	35.9	9.82	-14.3	PASS
5.6	60	41.7	31.9	9.818	-18.3	PASS
5.64	60	42.5	32.7	9.817	-17.5	PASS

**Table 2.2.6-3: Conducted EMI Results-Avg – Neutral – Dipole Antenna**

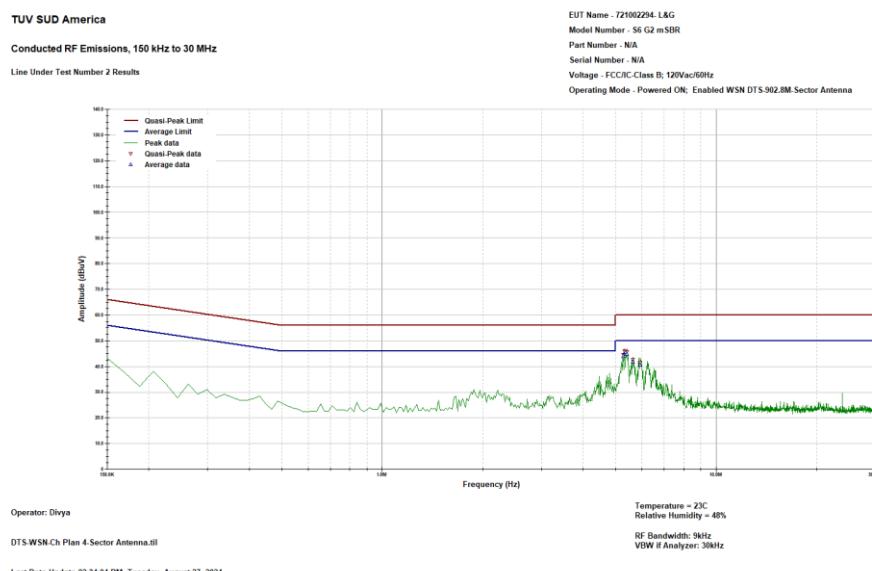
Frequency	Avg Limit	Avg Level Corr	Avg Level	CF	Avg Margin	Result
MHz	dBuV	dBuV	dBuV	dB	dB	
5.24	50	41.5	31.7	9.8	-8.5	PASS
5.28	50	43.9	34.1	9.801	-6.1	PASS
5.32	50	45.3	35.5	9.803	-4.7	PASS
5.36	50	45.7	35.9	9.804	-4.3	PASS
5.88	50	40.9	31.1	9.818	-9.1	PASS
5.92	50	41.5	31.7	9.818	-8.5	PASS

**Table 2.2.6-4: Conducted EMI Results-QP – Neutral – Dipole Antenna**

Frequency	QP Limit	QP Level Corr	QP Level	CF	QP Margin	Result
MHz	dBuV	dBuV	dBuV	dB	dB	
5.24	60	42.4	32.6	9.8	-17.6	PASS
5.28	60	44.7	34.9	9.801	-15.3	PASS
5.32	60	45.9	36.1	9.803	-14.1	PASS
5.36	60	46.2	36.4	9.804	-13.8	PASS
5.88	60	42	32.1	9.818	-18	PASS
5.92	60	42.4	32.6	9.818	-17.6	PASS



**Figure 2.2.6-3: Conducted Emission Plot – Line 1 – Sector Antenna**



**Figure 2.2.6-4: Conducted Emission Plot – Neutral – Sector Antenna**

**Table 2.2.6-5: Conducted EMI Results-Avg – Line 1 – Sector Antenna**

Frequency	Avg Limit	Avg Level Corr	Avg Level	CF	Avg Margin	Result
MHz	dBuV	dBuV	dBuV	dB	dB	
5.24	50	41.9	32	9.82	-8.1	PASS
5.28	50	44.1	34.3	9.82	-5.9	PASS
5.32	50	45.4	35.6	9.82	-4.6	PASS
5.36	50	45.9	36	9.82	-4.1	PASS
5.4	50	44.5	34.7	9.82	-5.5	PASS
5.68	50	40.6	30.7	9.816	-9.4	PASS

**Table 2.2.6-6: Conducted EMI Results-QP – Line 1 – Sector Antenna**

Frequency	QP Limit	QP Level Corr	QP Level	CF	QP Margin	Result
MHz	dBuV	dBuV	dBuV	dB	dB	
5.24	60	42.7	32.9	9.82	-17.3	PASS
5.28	60	44.8	35	9.82	-15.2	PASS
5.32	60	46	36.2	9.82	-14	PASS
5.36	60	46.5	36.6	9.82	-13.5	PASS
5.4	60	45.4	35.5	9.82	-14.6	PASS
5.68	60	41.7	31.9	9.816	-18.3	PASS

**Table 2.2.6-7: Conducted EMI Results-Avg – Neutral – Sector Antenna**

Frequency	Avg Limit	Avg Level Corr	Avg Level	CF	Avg Margin	Result
MHz	dBuV	dBuV	dBuV	dB	dB	
5.28	50	43.9	34.1	9.801	-6.1	PASS
5.32	50	45.3	35.5	9.803	-4.7	PASS
5.36	50	45.6	35.8	9.804	-4.4	PASS
5.4	50	44.8	35	9.806	-5.2	PASS
5.64	50	41.7	31.9	9.813	-8.3	PASS
5.92	50	40.5	30.7	9.818	-9.5	PASS

**Table 2.2.6-8: Conducted EMI Results-QP – Neutral – Sector Antenna**

Frequency	QP Limit	QP Level Corr	QP Level	CF	QP Margin	Result
MHz	dBuV	dBuV	dBuV	dB	dB	
5.28	60	44.6	34.8	9.801	-15.4	PASS
5.32	60	45.9	36.1	9.803	-14.1	PASS
5.36	60	46.3	36.5	9.804	-13.7	PASS
5.4	60	45.7	35.9	9.806	-14.3	PASS
5.64	60	42.6	32.8	9.813	-17.4	PASS
5.92	60	41.5	31.7	9.818	-18.5	PASS



## 2.3 Average Output Power

### 2.3.1 Specification Reference

FCC Sections: 15.247(b)(3)  
ISED Canada: RSS-247 5.4(d)

### 2.3.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state "0", as noted in §1.6.

### 2.3.3 Date of Test

08/01/2024 to 08/09/2024

### 2.3.4 Test Method

The Average conducted output power was measured in accordance with ANSI C63.10 Subclause 11.9.2.3.1 Method AVGPM (Average Power Meter). The RF output port of the EUT was directly connected to the input of an Average power meter. The resulting average value was recorded.

### 2.3.5 Environmental Conditions

The EUT was evaluated within the temperature, humidity and pressure range of the EUT as specified by the standard. The laboratory shall have an ambient temperature range of 15°C to 35°C, relative humidity range of 30% to 60% and atmospheric pressure range of 86 kPa to 106 kPa.

Ambient Temperature	22.3 °C
Relative Humidity	53.8 %
Atmospheric Pressure	972.2 mbar

### 2.3.6 Test Results

**Test Summary: EUT was set to transmit mode as per sections 1.4.2 / 1.4.3.**

**Test Results: Pass**

See data below for detailed results.

**Table 2.3.6-1: RF Output Power – DTS – Dipole Antenna**

Frequency [MHz]	Average Output Power (dBm)	E.I.R.P (dBm)	Coding Scheme	Mode(s)
904.0	26.49	32.19	MCS0	1
903.2	23.94	29.64	MCS5	2
902.8	26.5	32.20	MCS3	3
914.8	26.5	32.20	MCS0	1
915.2	23.83	29.53	MCS5	2
914.8	26.45	32.15	MCS3	3
926.8	26.38	32.08	MCS0	1
927.2	23.74	29.44	MCS5	2
926.8	26.41	32.11	MCS3	3

**Table 2.3.6-2: RF Output Power – DTS – Sector Antenna**

Frequency [MHz]	Average Output Power (dBm)	E.I.R.P (dBm)	Coding Scheme	Mode(s)
904.0	26.49	35.49	MCS0	1
903.2	23.94	32.94	MCS5	2
902.8	26.5	35.50	MCS3	3
914.8	26.5	35.50	MCS0	1
915.2	23.83	32.83	MCS5	2
914.8	26.45	35.45	MCS3	3
926.8	26.38	35.38	MCS0	1
927.2	23.74	32.74	MCS5	2
926.8	26.41	35.41	MCS3	3



## 2.4 6dB / 99% Bandwidth

### 2.4.1 Specification Reference

FCC Sections: 15.247(a)(2)  
ISED Canada: RSS-247 5.2(a), RSS-GEN 6.7

### 2.4.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state "0", as noted in §1.6.

### 2.4.3 Date of Test

08/02/2024 to 08/09/2024

### 2.4.4 Test Method

The 6dB bandwidth was measured in accordance with the ANSI C63.10 Section 11.8. The Resolution Bandwidth (RBW) of the spectrum analyzer was set to 100 kHz. The Video Bandwidth (VBW) was set to  $\geq 3$  times the RBW. The trace was set to max hold with a peak detector active. The marker-delta function of the spectrum analyzer was utilized to determine the 6 dB bandwidth of the emission.

The occupied bandwidth measurement function of the spectrum analyzer was used to measure the 99% bandwidth. The span of the analyzer was set to capture all products of the modulation process, including the emission sidebands. The resolution bandwidth was set to 1% to 5% of the occupied bandwidth. The video bandwidth was set to 3 times the resolution bandwidth. A peak detector was used.

### 2.4.5 Environmental Conditions

The EUT was evaluated within the temperature, humidity and pressure range of the EUT as specified by the standard. The laboratory shall have an ambient temperature range of 15°C to 35°C, relative humidity range of 30% to 60% and atmospheric pressure range of 86 kPa to 106 kPa.

Ambient Temperature	22.3 °C
Relative Humidity	53.8 %
Atmospheric Pressure	972.2 mbar

### 2.4.6 Test Results

**Test Summary: EUT was set to transmit mode.**

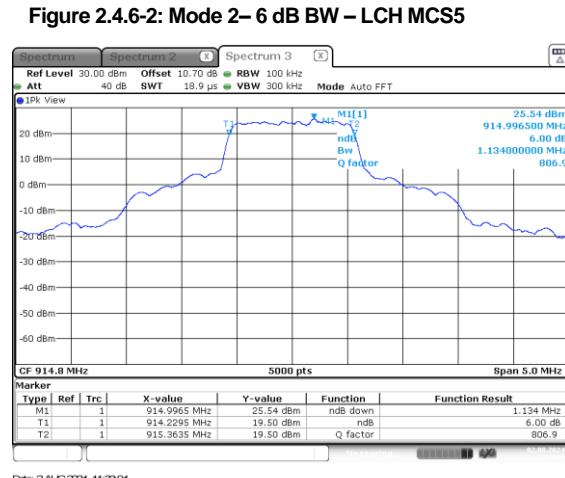
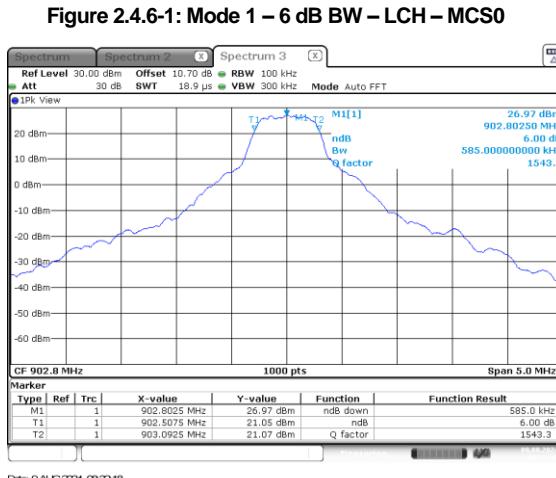
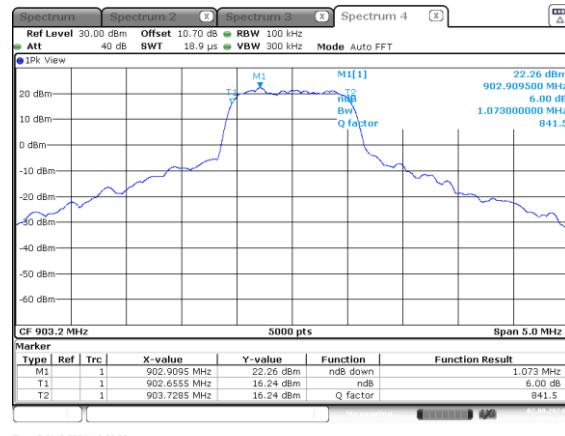
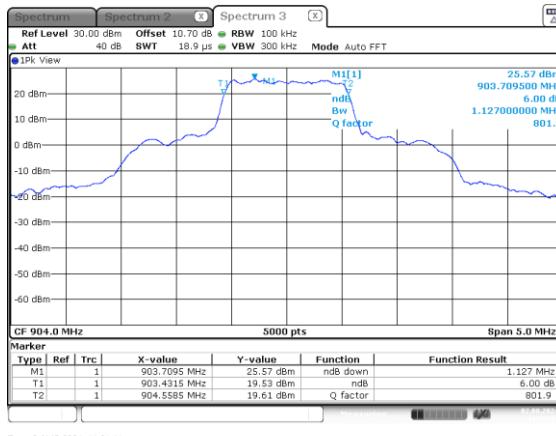
**Test Results: Pass**

See data below for detailed results.



Table 2.4.6-1: 6dB / 99% Bandwidth

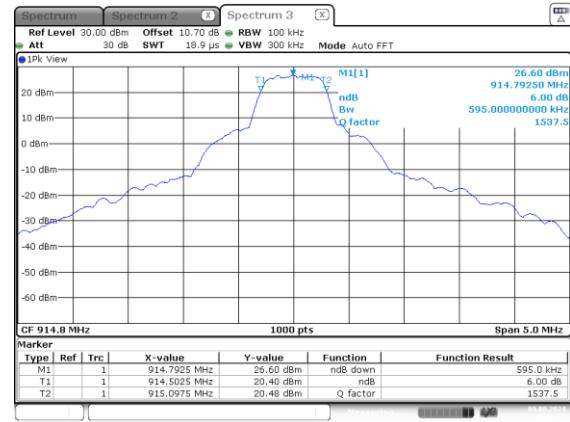
Frequency [MHz]	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Coding Scheme	Mode(s)
904.0	1.127	1.126	MCS0	1
903.2	1.073	1.087	MCS5	2
902.8	0.585	0.596	MCS3	3
914.8	1.134	1.130	MCS0	1
915.2	1.093	1.086	MCS5	2
914.8	0.595	0.578	MCS3	3
926.8	1.125	1.120	MCS0	1
927.2	1.085	1.088	MCS5	2
926.8	0.590	0.568	MCS3	3





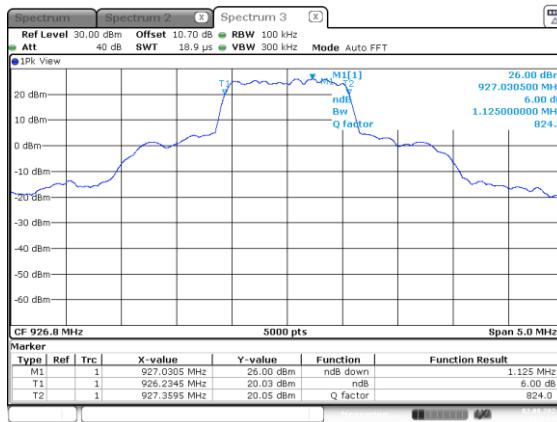
Date: 2 AUG 2024 13:27:45

Figure 2.4.6-5: Mode 2 – 6 dB BW – MCH – MCS5



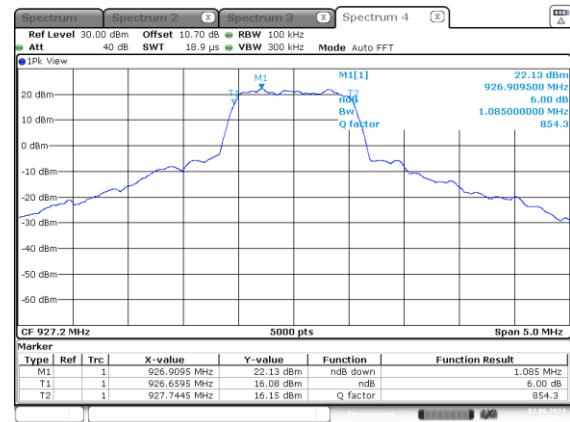
Date: 9 AUG 2024 08:36:51

Figure 2.4.6-6: Mode 3 – 6 dB BW – MCH – MCS3



Date: 2 AUG 2024 11:51:16

Figure 2.4.6-7: Mode 1 – 6 dB BW – HCH – MCS0



Date: 2 AUG 2024 14:07:24

Figure 2.4.6-8: Mode 2 – 6 dB BW – HCH MCS5

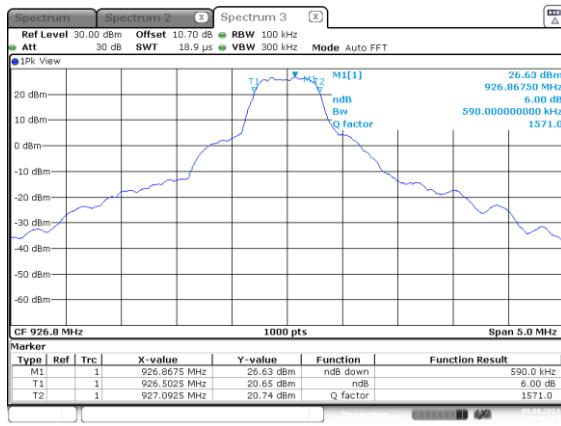


Figure 2.4.6-9: Mode 3 – 6 dB BW – HCH – MCS3

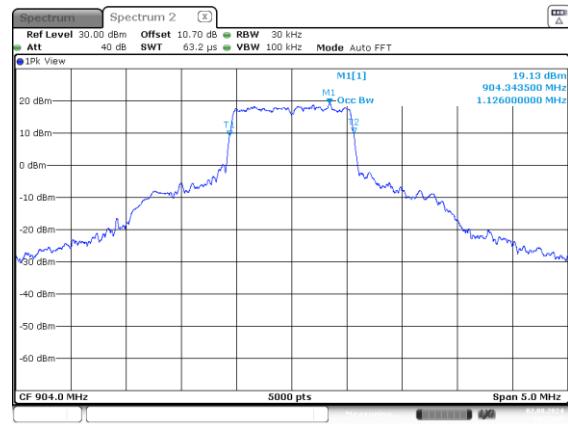


Figure 2.4.6-10: Mode 1 – 99% OBW – LCH – MCS0

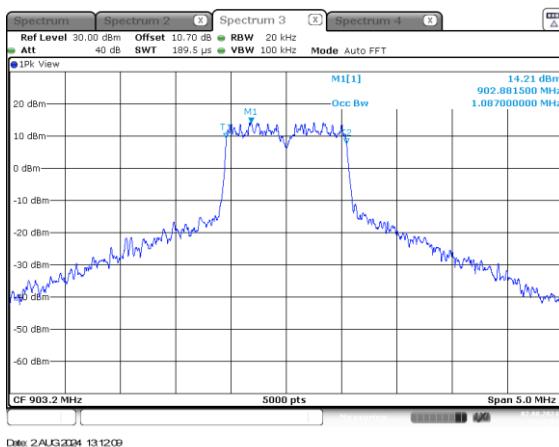


Figure 2.4.6-11: Mode 2 – 99% OBW – LCH – MCS5

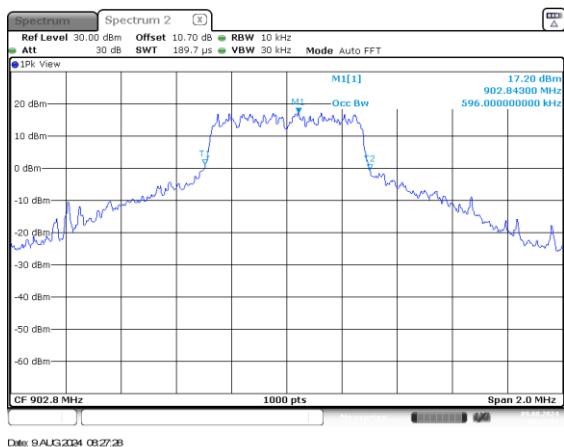
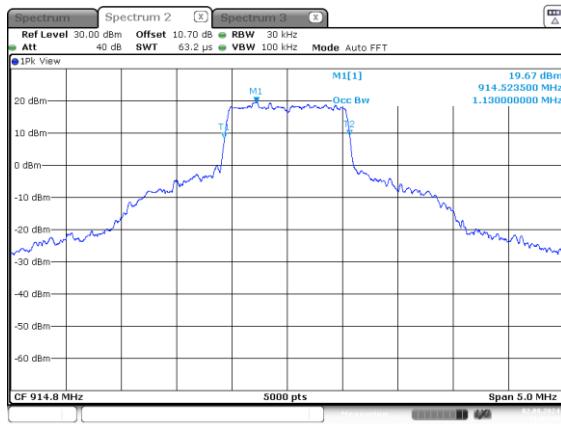
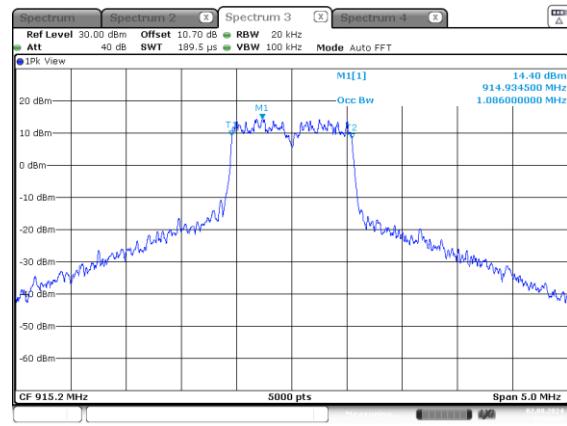


Figure 2.4.6-12: Mode 3 – 99% OBW – LCH – MCS3



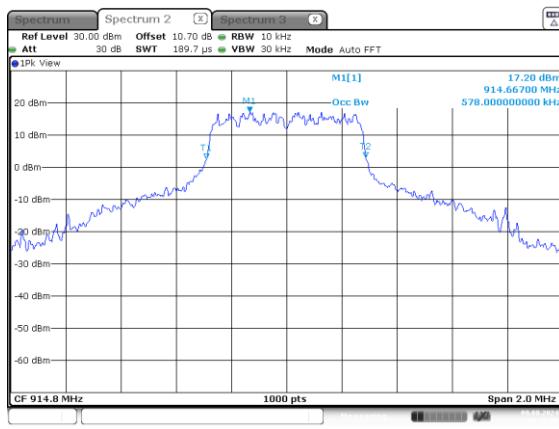
Date: 2/AUG/2024 11:37:00

Figure 2.4.6-13: Mode 1 – 99% OBW – MCH – MCS0



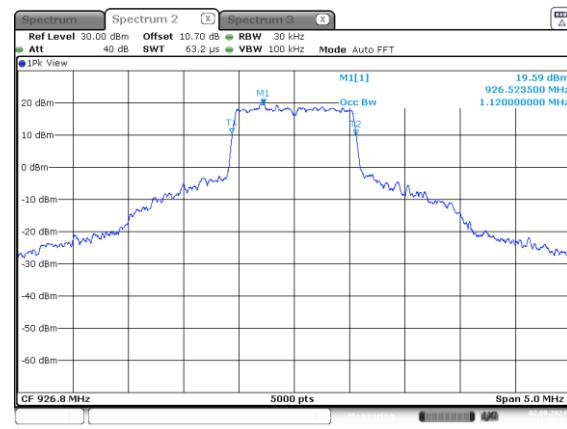
Date: 2/AUG/2024 13:26:27

Figure 2.4.6-14: Mode 2 – 99% OBW – MCH – MCS5



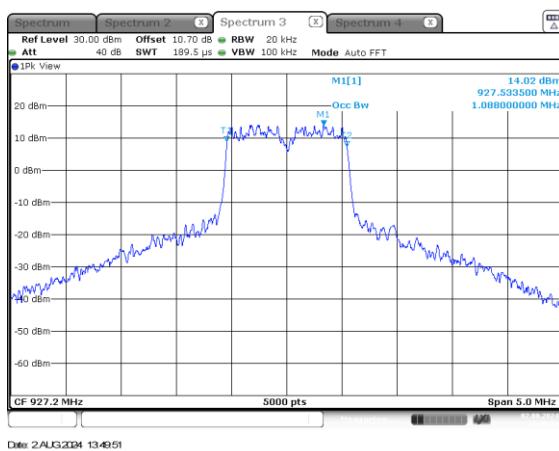
Date: 9/AUG/2024 08:42:05

Figure 2.4.6-15: Mode 3 – 99% OBW – MCH – MCS3



Date: 2/AUG/2024 11:47:42

Figure 2.4.6-16: Mode 1 – 99% OBW – HCH – MCS0



Date: 2/AUG/2024 13:49:51

Figure 2.4.6-17: Mode 2 – 99% OBW – HCH – MCS5



Date: 9/AUG/2024 08:44:59

Figure 2.4.6-18: Mode 3 – 99% OBW – HCH – MCS3



## 2.5 Maximum Power Spectral Density in the Fundamental Emission

### 2.5.1 Specification Reference

FCC Sections: 15.247(e)  
ISED Canada: RSS-247 5.2(b)

### 2.5.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state "0", as noted in §1.6.

### 2.5.3 Date of Test

08/02/2024 – 08/09/2024

### 2.5.4 Test Method

The power spectral density was measured in accordance with the ANSI 63.10 Subclause 11.10.3 Method AVGPSD-1. The RF output of the equipment under test was directly connected to the input of the spectrum analyzer applying suitable attenuation. The Resolution Bandwidth (RBW) of the spectrum analyzer was set to 3 kHz. The Video Bandwidth (VBW) was set to 10 kHz. Span was set to 1.5 times the OBW. The RMS average detector is used, with the trace set to average hold. The marker is placed on the highest peak of the resulting trace.

### 2.5.5 Environmental Conditions

The EUT was evaluated within the temperature, humidity and pressure range of the EUT as specified by the standard. The laboratory shall have an ambient temperature range of 15°C to 35°C, relative humidity range of 30% to 60% and atmospheric pressure range of 86 kPa to 106 kPa.

Ambient Temperature	22.3 °C
Relative Humidity	53.8 %
Atmospheric Pressure	972.2 mbar

### 2.5.6 Test Results

**Test Summary: EUT was set to transmit mode as per sections 1.4.2 / 1.4.3.**

**Test Results: Pass**

See data below for detailed results.

Table 2.5.6-1: RF Power Spectral Density

Frequency [MHz]	Average PSD (dBm)	Coding Scheme	Mode(s)
904.0	-9.19	MCS0	1
903.2	-13.52	MCS5	2
902.8	1.99	MCS3	3
914.8	-6.53	MCS0	1
915.2	-13.47	MCS5	2
914.8	1.79	MCS3	3
926.8	-5.14	MCS0	1
927.2	-14.16	MCS5	2
926.8	1.06	MCS3	3

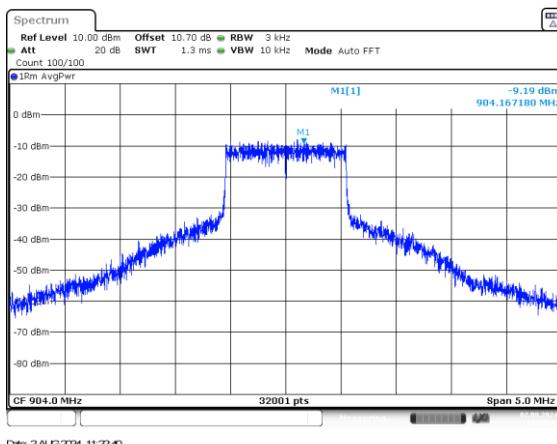


Figure 2.5.6-1: Mode 1 – PSD – LCH – MCS0

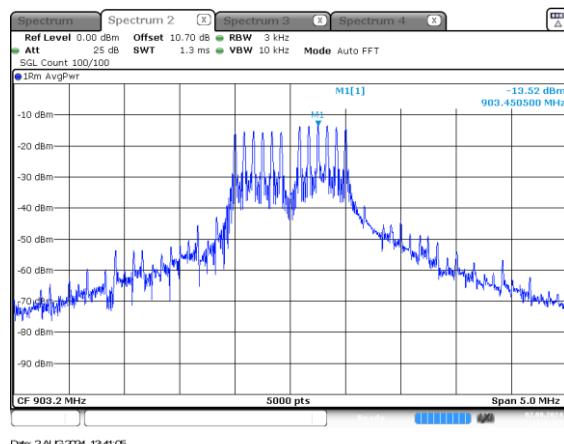


Figure 2.5.6-2: Mode 2 – PSD – LCH – MCS5

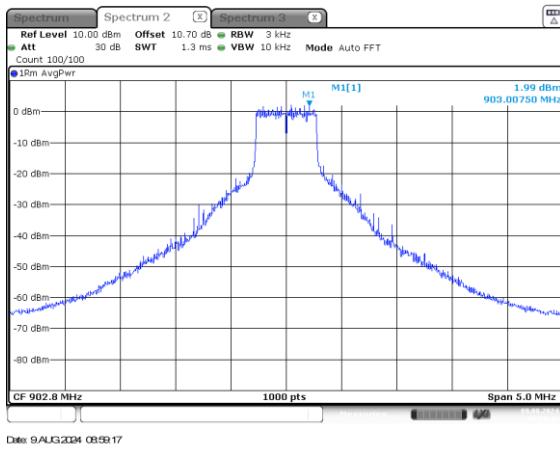


Figure 2.5.6-3: Mode 3 – PSD – LCH – MCS3

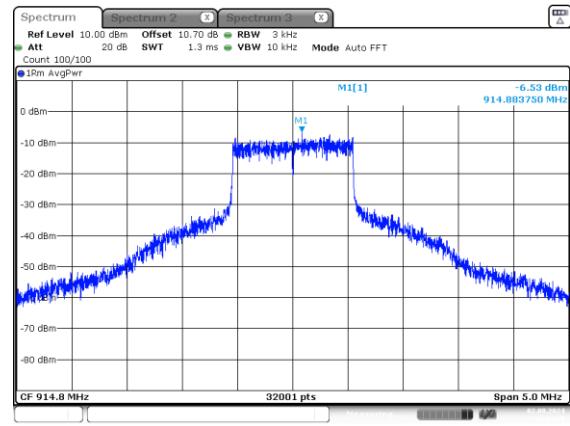


Figure 2.5.6-4: Mode 1 – PSD – MCH – MCS0

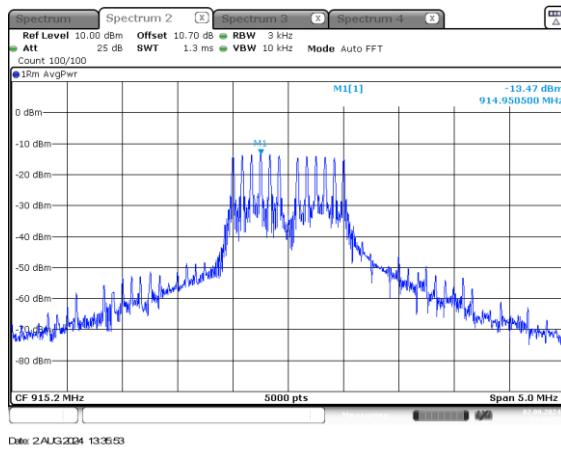


Figure 2.5.6-5: Mode 2 – PSD – MCH – MCS5

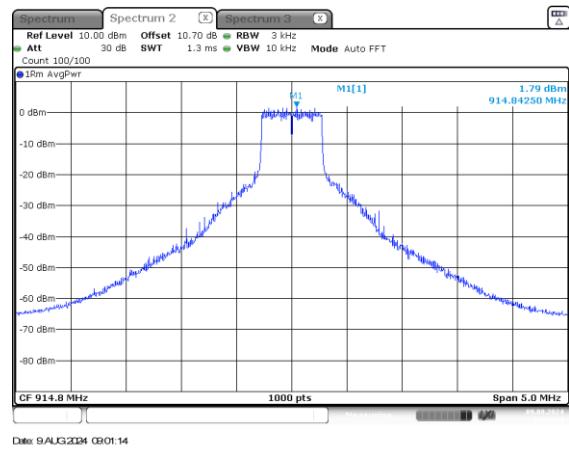


Figure 2.5.6-6: Mode 3 – PSD – MCH – MCS3

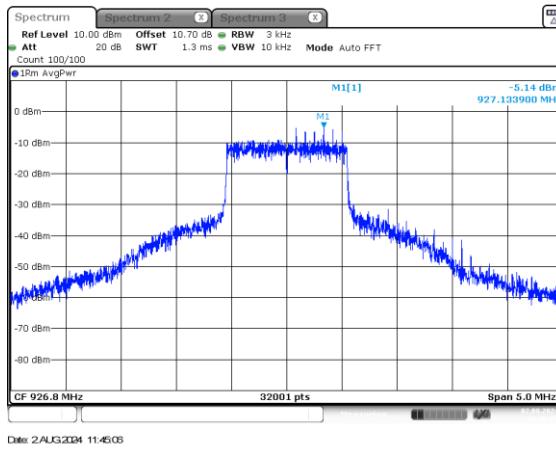


Figure 2.5.6-7: Mode 1 – PSD – HCH – MCS0

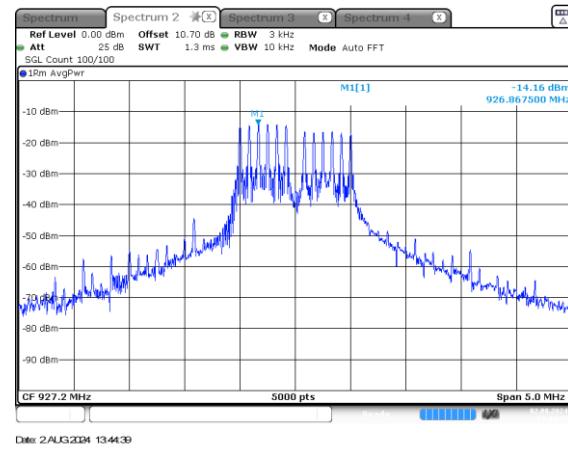


Figure 2.5.6-8: Mode 2 – PSD – HCH – MCS5

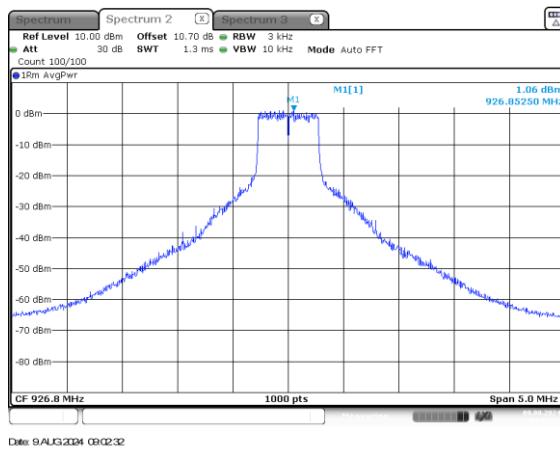


Figure 2.5.6-9: Mode 3 – PSD – HCH – MCS3



## 2.6 Band-Edge Compliance of RF Conducted Emissions

### 2.6.1 Specification Reference

FCC Sections: 15.247(d)  
ISED Canada: RSS-247 5.5

### 2.6.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state "0", as noted in §1.6.

### 2.6.3 Date of Test

08/02/2024

### 2.6.4 Test Method

The RF output port of the EUT was directly connected to the input of the spectrum analyzer with suitable attenuation. The EUT was investigated at the lowest and highest channel available to determine band-edge compliance. For each measurement, the spectrum analyzer's RBW was set to 100kHz and the VBW was set to 300kHz.

If maximum conducted (average) output power was used to determine compliance, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc). Mode 5 band edge frequency attenuated by 30 dBc.

### 2.6.5 Environmental Conditions

The EUT was evaluated within the temperature, humidity and pressure range of the EUT as specified by the standard. The laboratory shall have an ambient temperature range of 15°C to 35°C, relative humidity range of 30% to 60% and atmospheric pressure range of 86 kPa to 106 kPa.

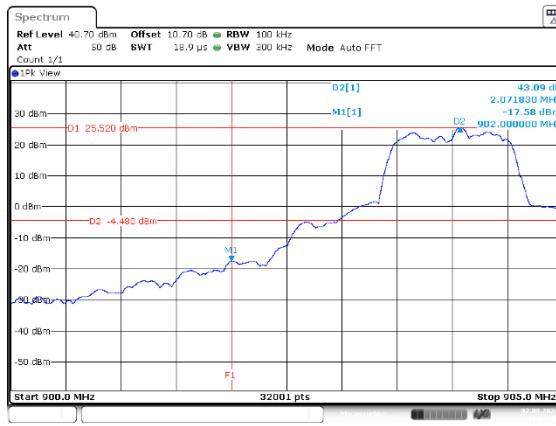
Ambient Temperature	22.3 °C
Relative Humidity	53.8 %
Atmospheric Pressure	972.2 mbar

### 2.6.6 Test Results

**Test Summary: EUT was set to transmit mode as per sections 1.4.2 / 1.4.3.**

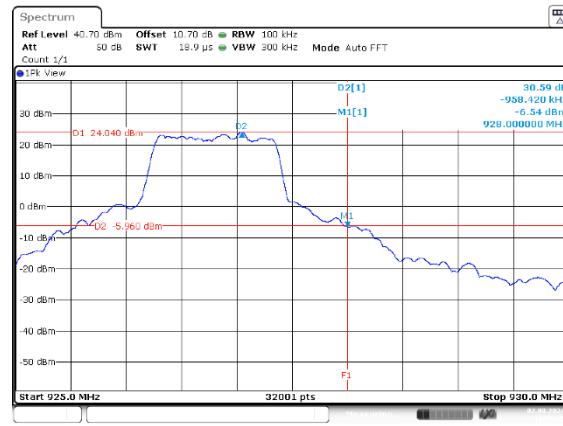
**Test Results: Pass**

See data below for detailed results.



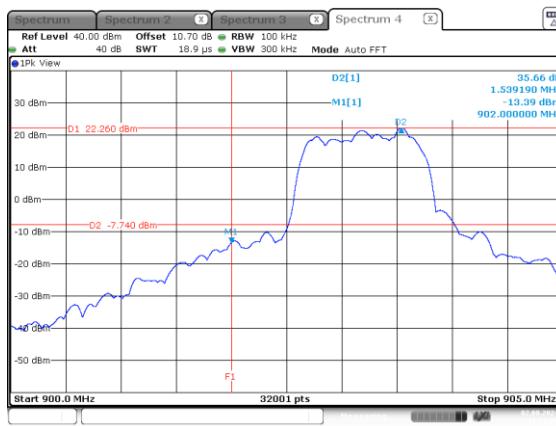
Date: 2 AUG 2024 11:04:15

Figure 2.6.6-1: Lower Band edge – Mode 1 – MCS0



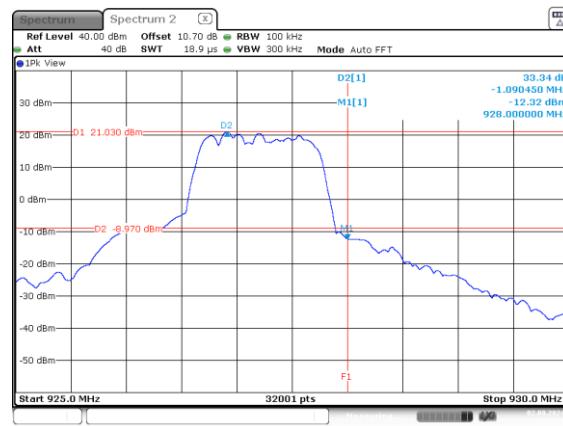
Date: 2 AUG 2024 11:03:25

Figure 2.6.6-2: Upper Band edge – Mode 1 – MCS0



Date: 2 AUG 2024 11:58:28

Figure 2.6.6-3: Lower Band edge – Mode 2 – MCS5



Date: 2 AUG 2024 12:31:51

Figure 2.6.6-4: Upper Band edge – Mode 2 – MCS5



Date: 2 AUG 2024 15:10:46

Figure 2.6.6-5: Lower Band edge – Mode 3 – MCS3



Date: 2 AUG 2024 15:04:36

Figure 2.6.6-6: Upper Band edge – Mode 3 – MCS3



## 2.7 RF Conducted Spurious Emissions

### 2.7.1 Specification Reference

FCC Sections: 15.247(d)  
ISED Canada: RSS-247 5.5

### 2.7.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state "0", as noted in §1.6.

### 2.7.3 Date of Test

08/02/2024 – 08/09/2024

### 2.7.4 Test Method

The RF output port of the EUT was directly connected to the input of the spectrum analyzer. The EUT was investigated for conducted spurious emissions from 30MHz to 10 GHz, 10 times the highest fundamental frequency. Measurements were made at the low, center, and high channels of the EUT. For each measurement, the spectrum analyzer's RBW was set to 100kHz. A peak detector function was used with the trace set to max hold.

If maximum conducted (average) output power was used to determine compliance, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc). Mode 5 band edge frequency attenuated by 30 dBc.

### 2.7.5 Environmental Conditions

The EUT was evaluated within the temperature, humidity and pressure range of the EUT as specified by the standard. The laboratory shall have an ambient temperature range of 15°C to 35°C, relative humidity range of 30% to 60% and atmospheric pressure range of 86 kPa to 106 kPa.

Ambient Temperature	22.3 °C
Relative Humidity	53.8 %
Atmospheric Pressure	972.2 mbar

### 2.7.6 Test Results

**Test Summary: EUT was set to transmit mode as per sections 1.4.2 / 1.4.3.**

**Test Results: Pass**

See data below for detailed results.

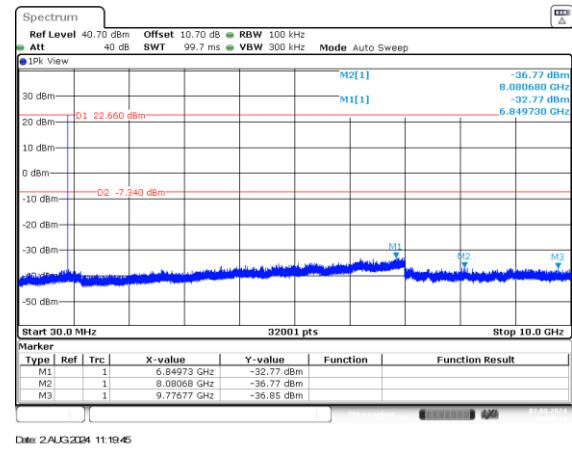
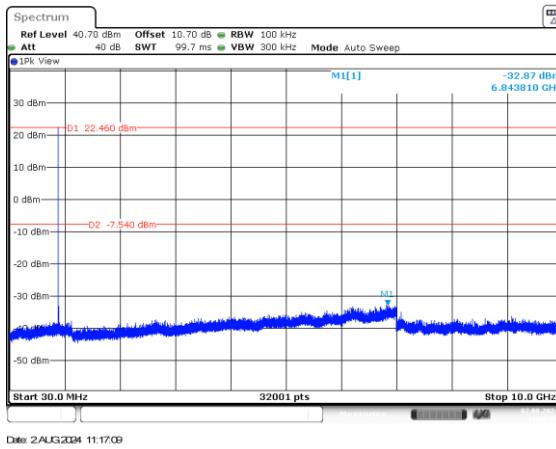


Figure 2.7.6-1: 30MHz – 10GHz – LCH – Mode 1-MCS0

Figure 2.7.6-2: 30MHz – 10GHz – MCH – Mode 1 – MCS0

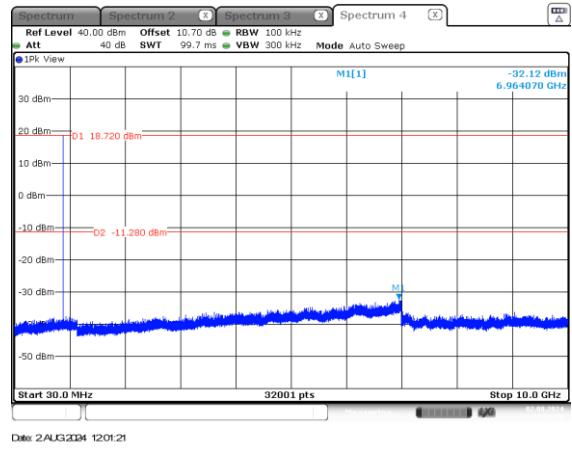
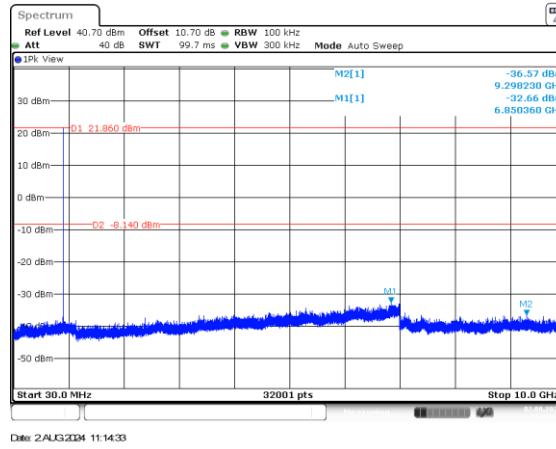


Figure 2.7.6-3: 30MHz – 10GHz – HCH – Mode 1-MCS0

Figure 2.7.6-4: 30MHz – 10GHz – LCH – Mode 2-MCS5

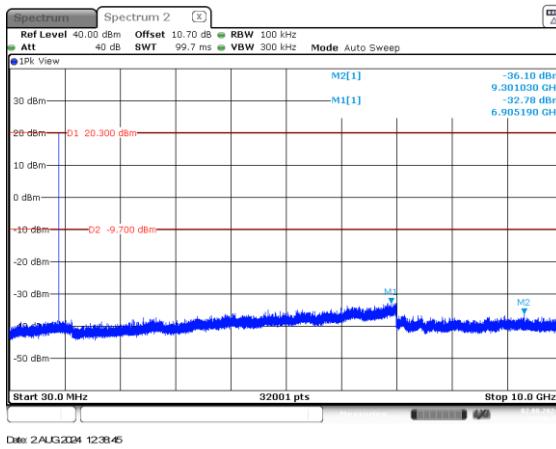


Figure 2.7.6-5:30MHz – 10GHz – MCH – Mode 2-MCS5

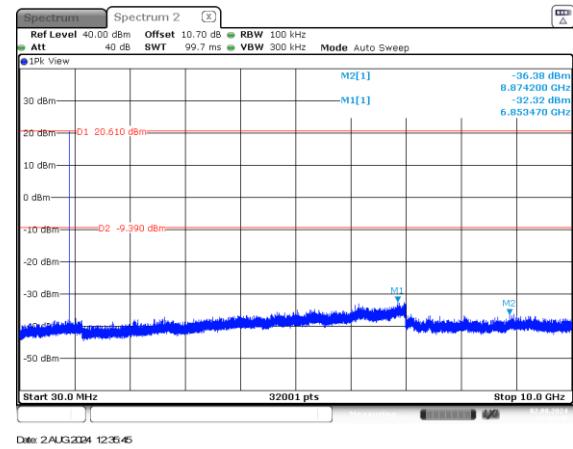


Figure 2.7.6-6:30MHz – 10GHz – HCH – Mode 2- MCS5

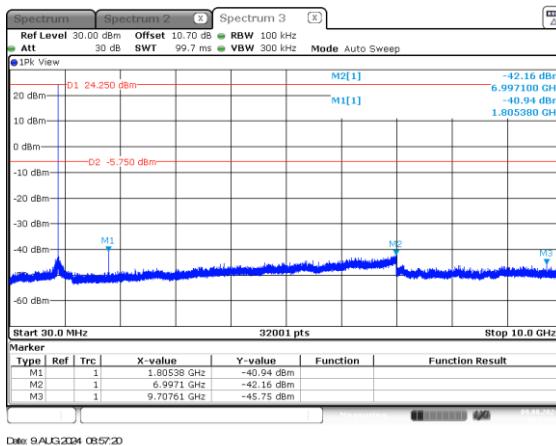


Figure 2.7.6-7:30MHz – 10GHz – LCH – Mode 3-MCS3

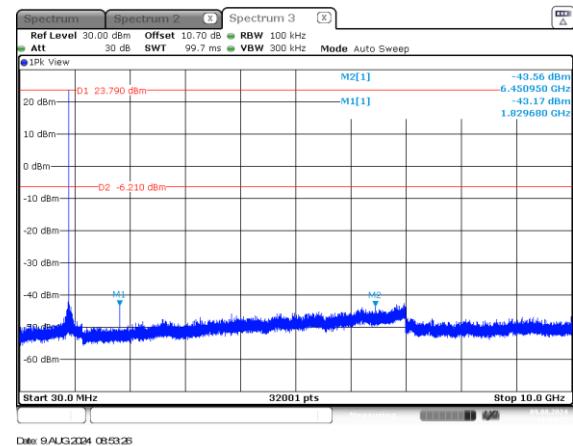


Figure 2.7.6-8:30MHz – 10GHz – MCH – Mode 3- MCS3

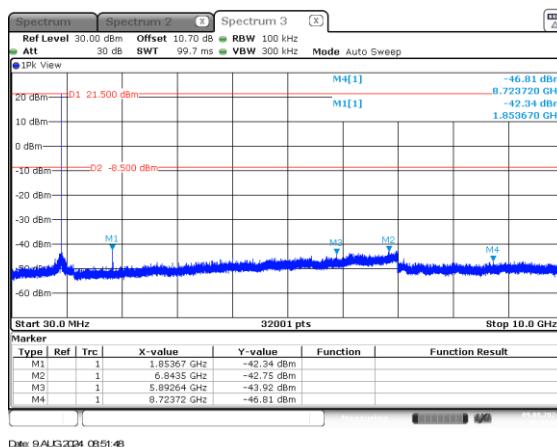


Figure 2.7.6-9:30MHz – 10GHz – HCH – Mode 3-MCS3



## 2.8 Radiated Spurious Emissions into Restricted Frequency Bands

### 2.8.1 Specification Reference

FCC Sections: 15.205, 15.209.  
ISED Canada: RSS – Gen 8.9/8.10

### 2.8.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state “0”, as noted in §1.6.

### 2.8.3 Date of Test

08/05/2024 to 08/12/2024

### 2.8.4 Test Method

Radiated emissions tests were made over the frequency range of 9 kHz to 10 GHz, 10 times the highest fundamental frequency of 900 MHz. Each emission found to be in a restricted band as defined by section 15.205, including any emission at the operational band-edge, was compared to the radiated emission limits as defined in Section 15.209.

The EUT was rotated through 360° and the receive antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. For frequencies below 150 kHz, quasi-peak measurements were made using a resolution bandwidth RBW of 300 Hz and a video bandwidth VBW of 1 kHz and frequencies between 150 kHz and 30MHz, quasi-peak measurements were made using a resolution bandwidth RBW of 10 kHz and a video bandwidth VBW of 30 kHz. For frequencies between 30 MHz and 1000 MHz, quasi-peak measurements were made using a resolution bandwidth RBW of 100 kHz and a video bandwidth VBW of 300 kHz. For frequencies above 1000 MHz, peak and average measurements were made with RBW of 1 MHz and VBW of 3 MHz.

### 2.8.5 Environmental Conditions

The EUT was evaluated within the temperature, humidity and pressure range of the EUT as specified by the standard. The laboratory shall have an ambient temperature range of 15°C to 35°C, relative humidity range of 30% to 60% and atmospheric pressure range of 86 kPa to 106 kPa.

Ambient Temperature	22.3 °C
Relative Humidity	53.8 %
Atmospheric Pressure	972.2 mbar



## 2.8.6 Test Results

**Test Summary:** EUT was set to transmit mode as per sections 1.4.2 / 1.4.3.

### Test Results: Pass

See data below for detailed results.

**Table 2.8.6-1: Radiated Spurious Emissions Tabulated Data – Mode 1 – MCS0 – Dipole Antenna**

Frequency	Peak Value	QP/Avg Value	Peak Limit	QP/Avg Limit	Peak Margin	QP/Avg Margin	Polarity	Peak Limit Results	QP/Avg Limit Results
MHz	dB $\mu$ V/m	dB $\mu$ V/m	dB $\mu$ V/m	dB $\mu$ V/m	dB	dB	H/V	Pass/Fail	Pass/Fail
<b>LCH – 904 MHz</b>									
271.991	----	21.028	----	46	----	24.97	V	----	PASS
1002.75	39.651	26.139	74	54	34.35	27.86	H	PASS	PASS
1008.5	38.494	25.124	74	54	35.51	28.88	H	PASS	PASS
1004.95	38.942	25.447	74	54	35.06	28.55	V	PASS	PASS
1021.6	39.383	25.984	74	54	34.62	28.02	V	PASS	PASS
2712.125	44.338	30.362	74	54	29.66	23.64	H	PASS	PASS
2711.85	45.147	30.377	74	54	28.85	23.62	V	PASS	PASS
3616.125	48.855	32.989	74	54	25.14	21.01	V	PASS	PASS
<b>MCH – 914.8 MHz</b>									
131.778	----	15.705	----	43.5	----	27.8	H	----	PASS
271.99	----	20.936	----	46	----	25.06	V	----	PASS
1000.7	48.303	32.196	74	54	25.7	21.8	H	PASS	PASS
1012.05	42.151	26.382	74	54	31.85	27.62	V	PASS	PASS
1022.8	58.582	41.226	74	54	15.42	12.77	V	PASS	PASS
1087.675	47.123	31.575	74	54	26.88	22.43	V	PASS	PASS
2744.5	45.016	30.633	74	54	28.98	23.37	H	PASS	PASS
3659.025	47.365	32.859	74	54	26.64	21.14	H	PASS	PASS
2744.3	45.41	30.739	74	54	28.59	23.26	V	PASS	PASS
<b>HCH – 926.8 MHz</b>									
128.597	----	15.599	----	43.5	----	27.9	H	----	PASS
129.985	----	16.004	----	43.5	----	27.5	V	----	PASS
271.991	----	20.966	----	46	----	25.03	V	----	PASS
1001.025	45.093	30.014	74	54	28.91	23.99	H	PASS	PASS
1021.25	53.857	36.849	74	54	20.14	17.15	V	PASS	PASS
1056.475	50.603	33.821	74	54	23.4	20.18	V	PASS	PASS
2780.55	44.62	30.066	74	54	29.38	23.93	H	PASS	PASS
3707.05	47.425	32.984	74	54	26.58	21.02	H	PASS	PASS
2322.775	45.209	30.836	74	54	28.79	23.16	V	PASS	PASS
2780.225	45.396	30.164	74	54	28.6	23.84	V	PASS	PASS



**Table 2.8.6-2: Radiated Spurious Emissions Tabulated Data – Mode 1 – MCS0 – Sector Antenna**

Frequency	Peak Value	QP/Avg Value	Peak Limit	QP/Avg Limit	Peak Margin	QP/Avg Margin	Polarity	Peak Limit Results	QP/Avg Limit Results
MHz	dB $\mu$ V/m	dB $\mu$ V/m	dB $\mu$ V/m	dB $\mu$ V/m	dB	dB	H/V	Pass/Fail	Pass/Fail
<b>LCH – 904 MHz</b>									
130.393	----	15.262	----	43.5	----	28.24	V	----	PASS
272	----	15.798	----	46	----	30.2	V	----	PASS
1000.6	58.427	41.519	74	54	15.57	12.48	H	PASS	PASS
1115.175	43.245	27.956	74	54	30.75	26.04	H	PASS	PASS
1001.2	59.744	38.52	74	54	14.26	15.48	V	PASS	PASS
1044.525	49.531	29.093	74	54	24.47	24.91	V	PASS	PASS
1087.925	44.492	24.099	74	54	29.51	29.9	V	PASS	PASS
2707.05	45.017	30.312	74	54	28.98	23.69	H	PASS	PASS
3609.825	48.04	32.914	74	54	25.96	21.09	H	PASS	PASS
4512.25	52.307	36.389	74	54	21.69	17.61	H	PASS	PASS
2707.425	44.847	30.62	74	54	29.15	23.38	V	PASS	PASS
3609.625	47.644	33.254	74	54	26.36	20.75	V	PASS	PASS
4511.975	52.346	36.639	74	54	21.65	17.36	V	PASS	PASS
<b>MCH – 914.8 MHz</b>									
271.991	----	15.715	----	46	----	30.29	H	----	PASS
271.99	----	20.806	----	46	----	25.19	V	----	PASS
1001.8	58.079	40.612	74	54	15.92	13.39	H	PASS	PASS
1010.975	56.786	40.653	74	54	17.21	13.35	H	PASS	PASS
1029.675	56.876	33.563	74	54	17.12	20.44	V	PASS	PASS
1060.425	44.826	28.077	74	54	29.17	25.92	V	PASS	PASS
2744.65	45.165	30.534	74	54	28.84	23.47	H	PASS	PASS
3659.425	47.209	32.807	74	54	26.79	21.19	H	PASS	PASS
2744.6	45.741	30.553	74	54	28.26	23.45	V	PASS	PASS
3659.4	47.145	32.874	74	54	26.86	21.13	V	PASS	PASS
<b>HCH – 926.8 MHz</b>									
272.017	----	15.881	----	46	----	23.01	V	----	PASS
1021.35	58.359	40.904	74	54	15.64	13.1	H	PASS	PASS
1094.15	46.152	29.682	74	54	27.85	24.32	H	PASS	PASS
1030	55.887	33.546	74	54	18.11	20.45	V	PASS	PASS
1047.7	51.58	30.279	74	54	22.42	23.72	V	PASS	PASS
2780.375	45.432	29.956	74	54	28.57	24.04	H	PASS	PASS
3707.175	48.274	32.895	74	54	25.73	21.11	H	PASS	PASS
2780.525	44.573	29.936	74	54	29.43	24.06	V	PASS	PASS



3707.15	47.195	32.85	74	54	26.8	21.15	V	PASS	PASS
2780.225	45.396	30.164	74	54	28.6	23.84	V	PASS	PASS

**Table 2.8.6-3: Radiated Spurious Emissions Tabulated Data – Mode 3 – MCS3 – Dipole Antenna**

Frequency	Peak Value	QP/Avg Value	Peak Limit	QP/Avg Limit	Peak Margin	QP/Avg Margin	Polarity	Peak Limit Results	QP/Avg Limit Results
MHz	dB $\mu$ V/m	dB $\mu$ V/m	dB $\mu$ V/m	dB $\mu$ V/m	dB	dB	H/V	Pass/Fail	Pass/Fail
<b>LCH – 902.8 MHz</b>									
115.093	----	34.767	----	43.5	----	8.73	H	----	PASS
112.356	----	28.719	----	43.5	----	14.78	V	----	PASS
137.014	----	26.194	----	43.5	----	17.31	V	----	PASS
1001.975	45.388	28.492	74	54	28.61	25.51	H	PASS	PASS
1008.05	45.721	27.753	74	54	28.28	26.25	H	PASS	PASS
1010.45	49.658	31.102	74	54	24.34	22.9	V	PASS	PASS
1055.7	40.267	24.941	74	54	33.73	29.06	V	PASS	PASS
2708.3	45.617	30.27	74	54	29.31	24.33	H	PASS	PASS
3611.05	46.978	32.902	74	54	28.38	23.73	H	PASS	PASS
4514.25	50.482	34.956	74	54	27.02	21.1	H	PASS	PASS
2708.625	46.426	30.309	74	54	27.57	23.69	V	PASS	PASS
3611.125	48.982	33.532	74	54	25.02	20.47	V	PASS	PASS
4514.125	52.865	35.913	74	54	21.14	18.09	V	PASS	PASS
<b>MCH – 914.8 MHz</b>									
115.871	----	35.128	----	43.5	----	8.37	H	----	PASS
112.259	----	28.074	----	43.5	----	15.43	V	----	PASS
1010.625	46.562	28.965	74	54	27.44	25.04	H	PASS	PASS
1018.525	48.612	29.907	74	54	25.39	24.09	V	PASS	PASS
2744.525	45.009	30.581	74	54	28.99	23.42	H	PASS	PASS
3659.3	47.744	32.798	74	54	26.26	21.2	H	PASS	PASS
4574.25	48.334	33.611	74	54	25.67	20.39	H	PASS	PASS
2744.575	45.357	30.608	74	54	28.64	23.39	V	PASS	PASS
3659.225	48.301	33.407	74	54	25.7	20.59	V	PASS	PASS
4574.25	51.532	34.667	74	54	22.47	19.33	V	PASS	PASS
<b>HCH – 926.8 MHz</b>									
114.969	----	34.776	----	43.5	----	8.72	H	----	PASS
111.505	----	25.358	----	43.5	----	18.14	V	----	PASS
1000.325	42.351	26.714	74	54	31.65	27.29	H	PASS	PASS
1019.525	59.047	38.074	74	54	14.95	15.93	V	PASS	PASS
2780.45	44.683	29.99	74	54	29.32	24.01	H	PASS	PASS



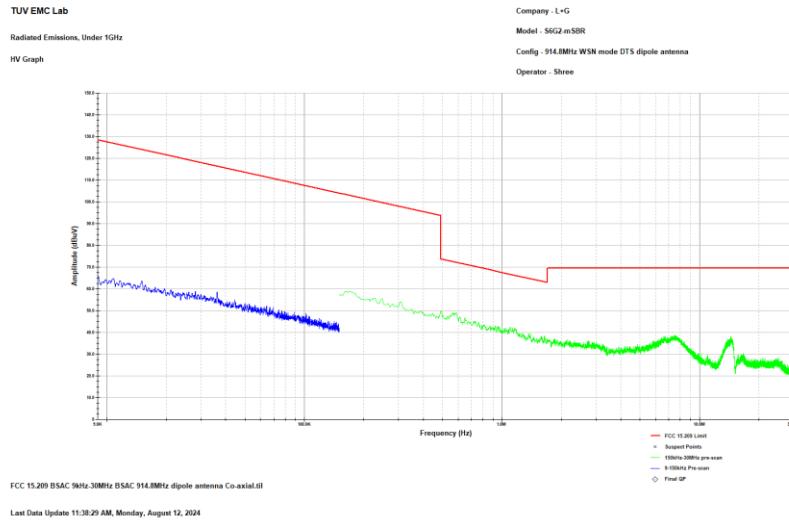
3707.45	46.9	32.935	74	54	27.1	21.07	H	PASS	PASS
4634.2	48.578	33.297	74	54	25.42	20.7	H	PASS	PASS
2780.6	44.765	30.093	74	54	29.23	23.91	V	PASS	PASS
3707.05	47.947	33.083	74	54	26.05	20.92	V	PASS	PASS
4634.125	49.627	34.098	74	54	24.37	19.9	V	PASS	PASS

**Table 2.8.6-4: Radiated Spurious Emissions Tabulated Data – Mode 3 – MCS3 – Sector Antenna**

Frequency	Peak Value	QP/Avg Value	Peak Limit	QP/Avg Limit	Peak Margin	QP/Avg Margin	Polarity	Peak Limit Results	QP/Avg Limit Results
MHz	dB $\mu$ V/m	dB $\mu$ V/m	dB $\mu$ V/m	dB $\mu$ V/m	dB	dB	H/V	Pass/Fail	Pass/Fail
<b>LCH - 902.8MHz</b>									
271.975	----	19.815	----	46	----	26.18	V	----	PASS
1001.975	59.012	38.06	74	54	14.99	15.94	H	PASS	PASS
1008.825	56.922	35.798	74	54	17.08	18.2	H	PASS	PASS
1027.6	54.928	34.329	74	54	19.07	19.67	H	PASS	PASS
1001.45	59.946	34.099	74	54	14.05	19.9	V	PASS	PASS
1019.675	56.76	31.597	74	54	17.24	22.4	V	PASS	PASS
1032.225	47.168	27.926	74	54	26.83	26.07	V	PASS	PASS
2708.25	44.937	30.188	74	54	29.06	23.81	H	PASS	PASS
3611.3	47.378	32.958	74	54	26.62	21.04	H	PASS	PASS
4513.775	51.453	35.205	74	54	22.55	18.8	H	PASS	PASS
2708.65	44.652	30.234	74	54	29.35	23.77	V	PASS	PASS
3611.225	48.347	33.558	74	54	25.65	20.44	V	PASS	PASS
4513.975	53.145	36.155	74	54	20.85	17.85	V	PASS	PASS
<b>MCH - 914.8 MHz</b>									
271.991	----	18.993	----	46	----	27.01	V	----	PASS
1006.775	55.164	35.232	74	54	18.84	18.77	H	PASS	PASS
1012.425	56.063	36.324	74	54	17.94	17.68	H	PASS	PASS
1001.1	55.913	34.748	74	54	18.09	19.25	V	PASS	PASS
1028.85	55.451	30.887	74	54	18.55	23.11	V	PASS	PASS
1037.9	55.271	30.291	74	54	18.73	23.71	V	PASS	PASS
2744.55	44.619	30.584	74	54	29.38	23.42	H	PASS	PASS
3658.95	47.616	32.755	74	54	26.38	21.25	H	PASS	PASS
4573.9	49.442	34.089	74	54	24.56	19.91	H	PASS	PASS
2744.225	45.053	30.555	74	54	28.95	23.44	V	PASS	PASS
3659.15	47.477	32.776	74	54	26.52	21.22	V	PASS	PASS
4574.05	53.556	35.513	74	54	20.44	18.49	V	PASS	PASS

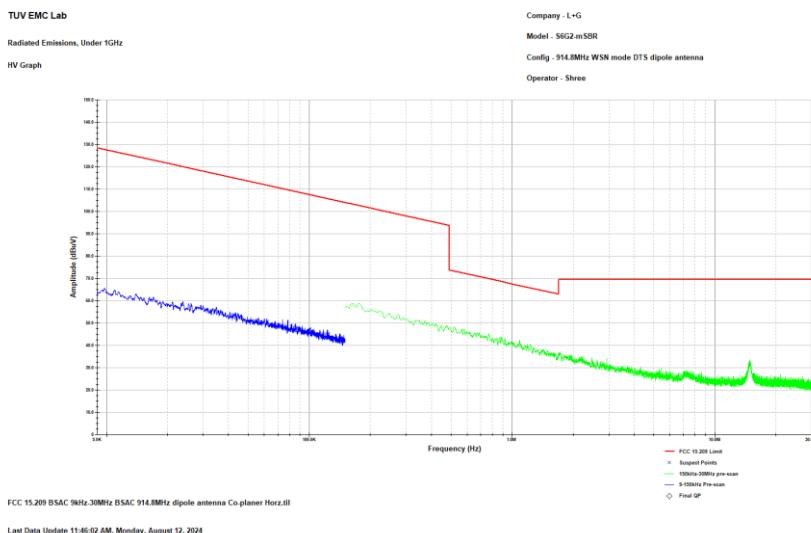


HCH – 926.8 MHz									
271.99	----	19.996	----	46	-----	26.0	V	----	PASS
1001.425	54.74	25.698	74	54	19.26	28.3	H	PASS	PASS
1031.95	52.889	25.512	74	54	21.11	28.49	H	PASS	PASS
1060.725	57.299	24.86	74	54	16.7	29.14	H	PASS	PASS
1002.025	59.497	26.414	74	54	14.5	27.59	V	PASS	PASS
1009.85	48.805	24.564	74	54	25.19	29.44	V	PASS	PASS
1035.3	50.269	24.062	74	54	23.73	29.94	V	PASS	PASS
2780.475	44.196	30.043	74	54	29.8	23.96	H	PASS	PASS
3707.175	47.231	32.868	74	54	26.77	21.13	H	PASS	PASS
4634.15	48.235	33.112	74	54	25.77	20.89	H	PASS	PASS
2780.5	44.637	30.089	74	54	29.36	23.91	V	PASS	PASS
3706.95	48.365	32.878	74	54	25.63	21.12	V	PASS	PASS
4634.2	47.78	33.16	74	54	26.22	20.84	V	PASS	PASS



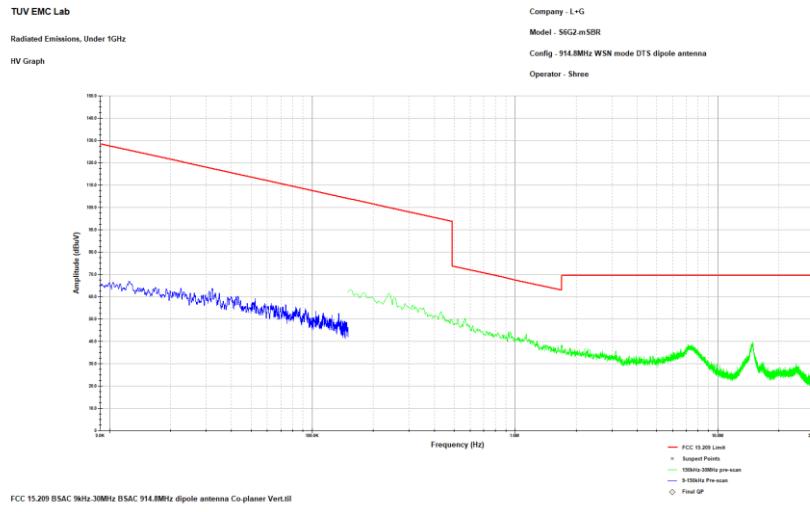
**Figure 1: Reference plot for Radiated Spurious Emissions – 9 kHz – 30 MHz- Co-axial – Mode 3 – MCH – Dipole Antenna**

Note: Emissions above the noise floor are ambient not associated with the EUT.



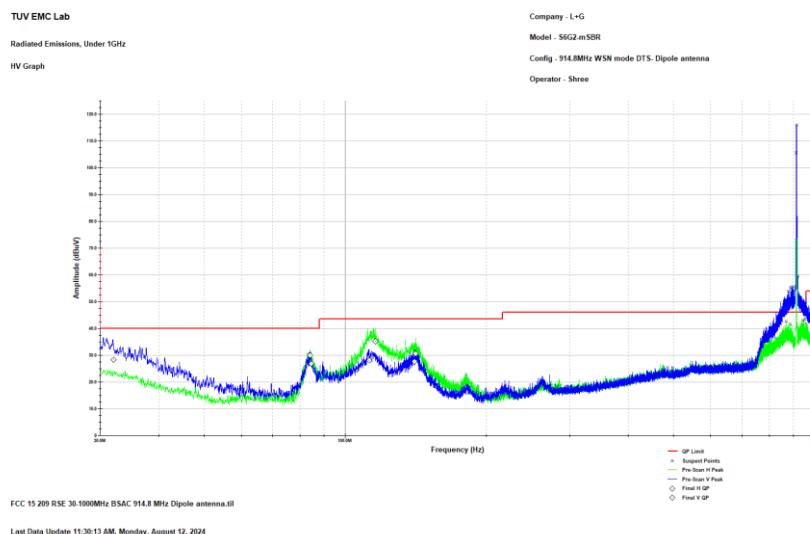
**Figure 2: Reference plot for Radiated Spurious Emissions – 9 kHz – 30 MHz- Co-Planar Horz. – Mode 3 – MCH – Dipole Antenna**

Note: Emissions above the noise floor are ambient not associated with the EUT.



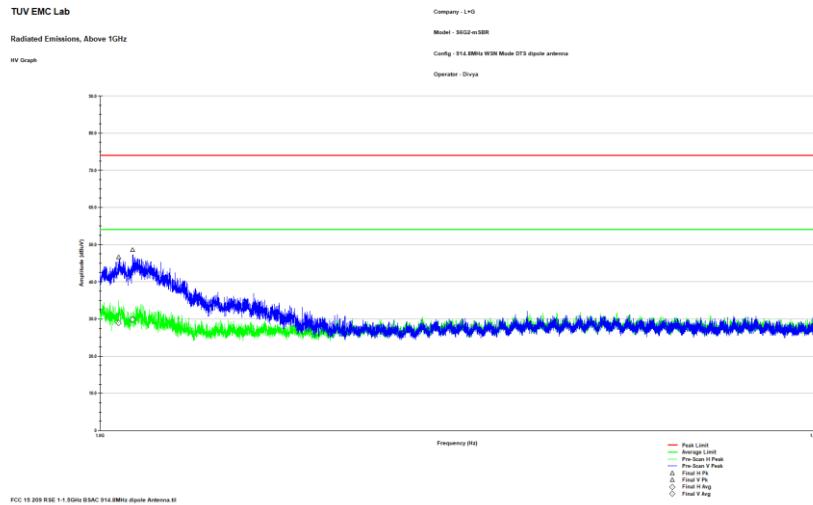
**Figure 3: Reference plot for Radiated Spurious Emissions – 9 kHz – 30 MHz- Co-Planar Vert. – Mode 3 – MCH – Dipole Antenna**

Note: Emissions above the noise floor are ambient not associated with the EUT.

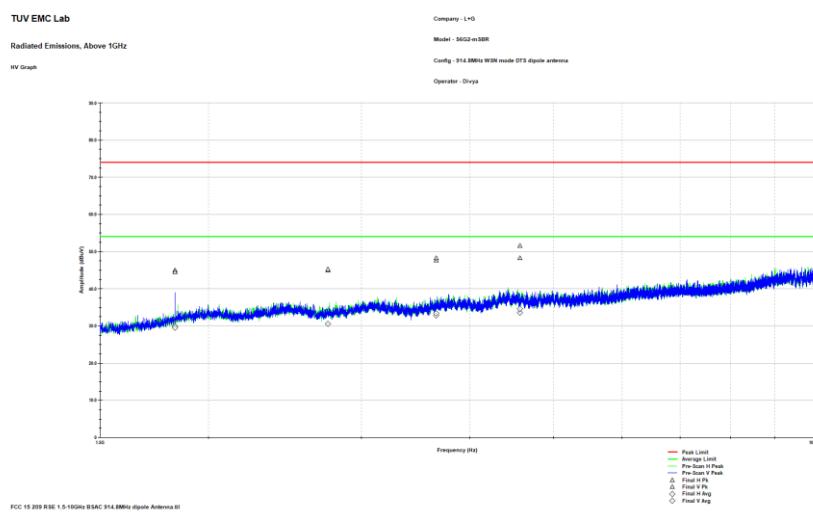


**Figure 4: Reference plot for Radiated Spurious Emissions – 30 MHz – 1 GHz – Mode 3 – MCH – Dipole Antenna**

Note: Emissions within restricted bands were evaluated.

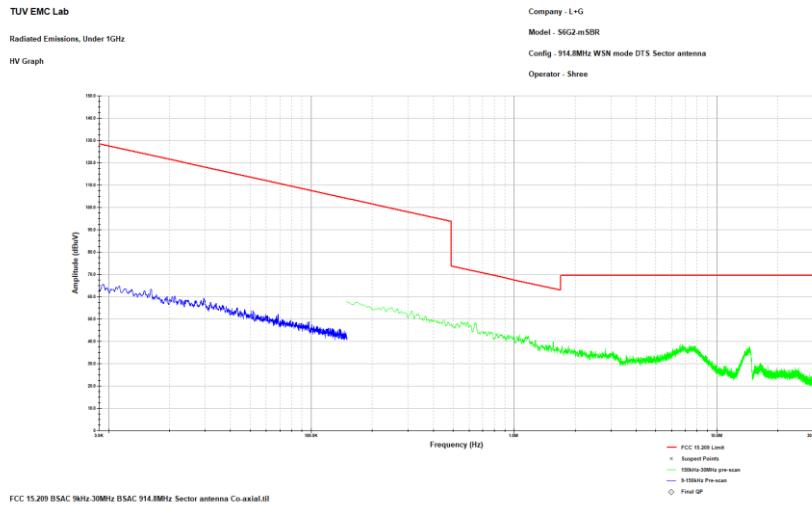


**Figure 5: Reference plot for Radiated Spurious Emissions – 1 GHz – 1.5 GHz – Mode 3 – MCH – Dipole Antenna**



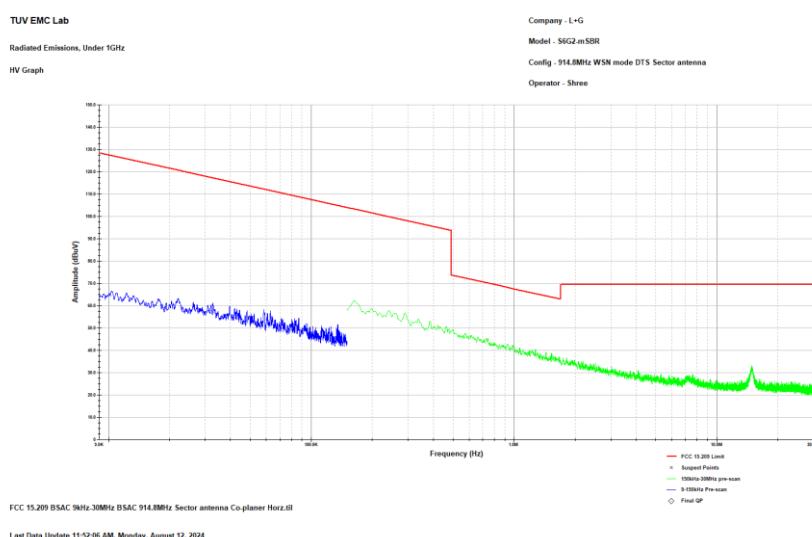
**Figure 6: Reference plot for Radiated Spurious Emissions – 1.5 GHz – 10 GHz – Mode 3 – MCH – Dipole Antenna**

Note: Emissions within restricted bands were evaluated.



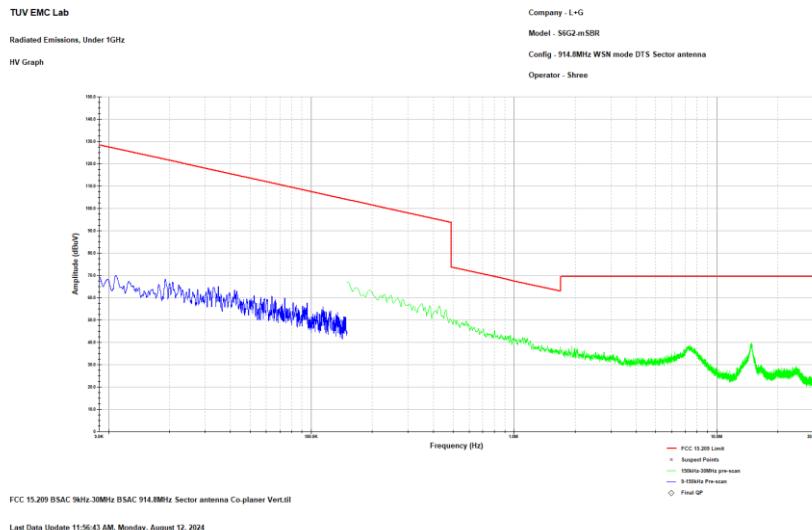
**Figure 7: Reference plot for Radiated Spurious Emissions – 9 kHz – 30 MHz- Co-axial – Mode 3 – MCH – Sector Antenna**

Note: Emissions above the noise floor are ambient not associated with the EUT.



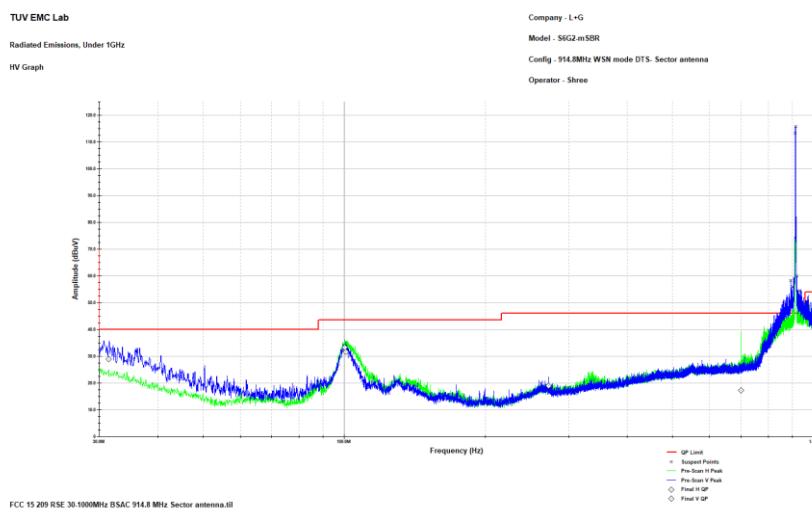
**Figure 8: Reference plot for Radiated Spurious Emissions – 9 kHz – 30 MHz- Co-Planar Horz. – Mode 3 – MCH – Sector Antenna**

Note: Emissions above the noise floor are ambient not associated with the EUT.



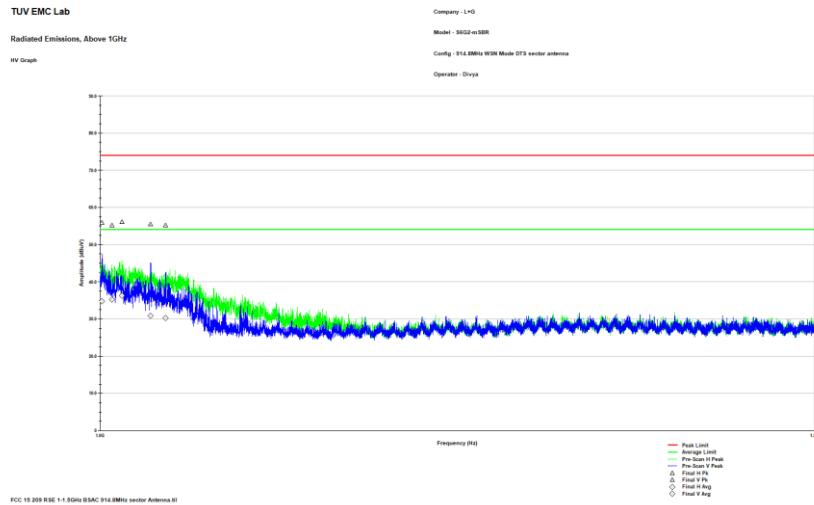
**Figure 9: Reference plot for Radiated Spurious Emissions – 9 kHz – 30 MHz- Co-Planar Vert. – Mode 3 – MCH – Sector Antenna**

Note: Emissions above the noise floor are ambient not associated with the EUT.

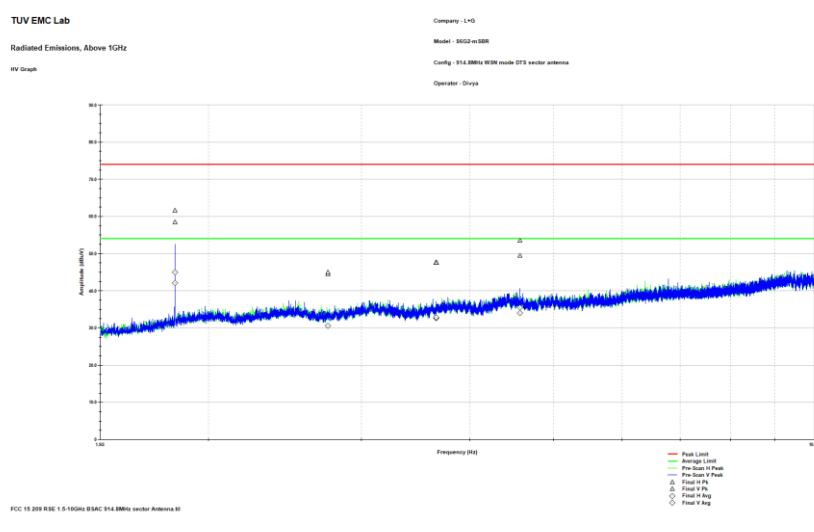


**Figure 10: Reference plot for Radiated Spurious Emissions – 30 MHz – 1 GHz – Mode 3 – MCH – Sector Antenna**

Note: Emissions within restricted bands were evaluated.



**Figure 11: Reference plot for Radiated Spurious Emissions – 1 GHz – 1.5 GHz – Mode 3 – MCH – Sector Antenna**



**Figure 12: Reference plot for Radiated Spurious Emissions – 1.5 GHz – 10 GHz – Mode 3 – MCH – Sector Antenna**

Note: Emissions within restricted bands were evaluated.



## 2.9 Test Equipment Used

Table 2.9-1 –Equipment List

Asset ID	Manufacturer	Model	Equipment Type	Serial Number	Last Calibration Date	Calibration Due Date
628	EMCO	6502	Active Loop Antenna 10kHz-30MHz	9407-2877	06/20/2023	06/20/2025
853	Teseq	CBL6112D	BiLog Antenna	51616	7/26/2023	7/26/2025
884	ETS Lindgren (EMCO)	3117	DOUBLE-RIDGED GUIDE ANTENNA	240106	5/16/2023	5/16/2025
889	Com Power	PAM 103	Pre-amplifier	18020215	10/02/2023	10/02/2024
338	Hewlett Packard	8449B	High Frequency Pre-Amp	3008A01111	6/18/2024	6/18/2026
882	Rohde & Schwarz	ESW44	ESW44 EMI TEST RECEIVER	101961	6/18/2024	6/18/2025
22	Teledyne Storm Microwave	90-195-456	BSAC Cable	N/A	07/15/2024	07/15/2025
20	Teledyne Storm Microwave	R-90-195-036	BSAC Cable	N/A	07/15/2024	07/15/2025
21	Teledyne Storm Microwave	R-90-195-072	BSAC Cable	N/A	07/15/2024	07/15/2025
337	Microwave Circuits	H1G513G1	Microwave filter	282706	06/03/2024	06/03/2025
827	Rohde & Schwarz	RF Cable set	TS8997 Rack cable set	N/A	01/02/2024	01/02/2025
622	Rohde & Schwarz	FSV40 (v3.40)	FSV Signal Analyzer 10Hz to 40GHz	101338	12/06/2023	12/06/2024
267	Hewlett Packard	N1911A	Power Meter	MY45100129	06/22/2023	06/22/2025
268	Hewlett Packard	N1921A	Power Sensor	MY45240184	08/22/2023	08/22/2025
346	Aero flex /Weinschel	54A-10	10dB Attenuator	T1362	06/20/2024	06/20/2025
872	HP	E7402A	EMI Receiver	US40240258	6/20/2024	6/20/2025
871	ACS	n/a	Conducted EMI Cable	871	03/22/2024	03/22/2025
3010	Rohde & Schwarz	ENV216	Two-Line V-Network	3010	6/18/2024	6/18/2025

N/A – Not Applicable

### 3 Diagram of Test Set-ups

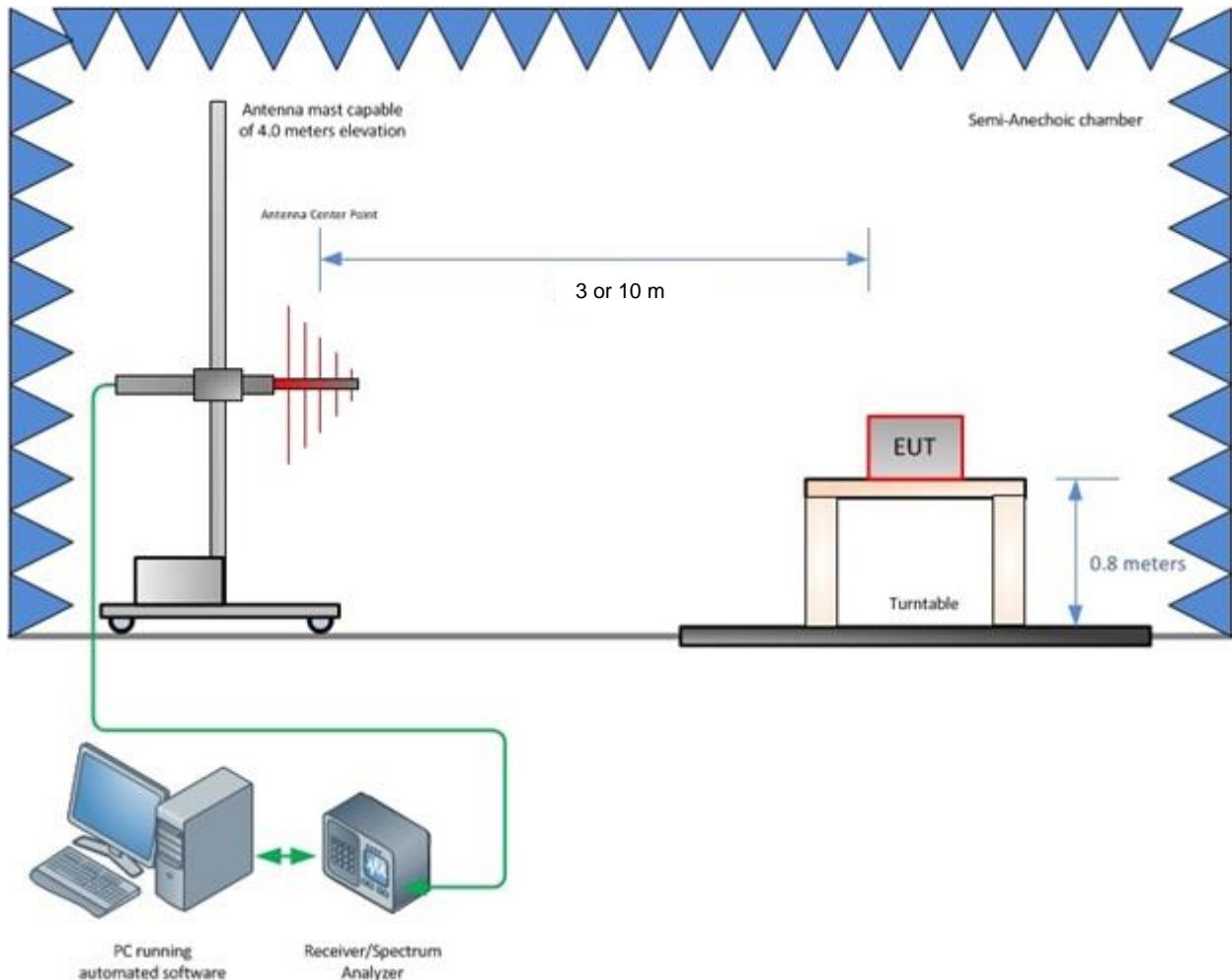


Figure 3-1 – Radiated Emissions Test Setup up to 1 GHz

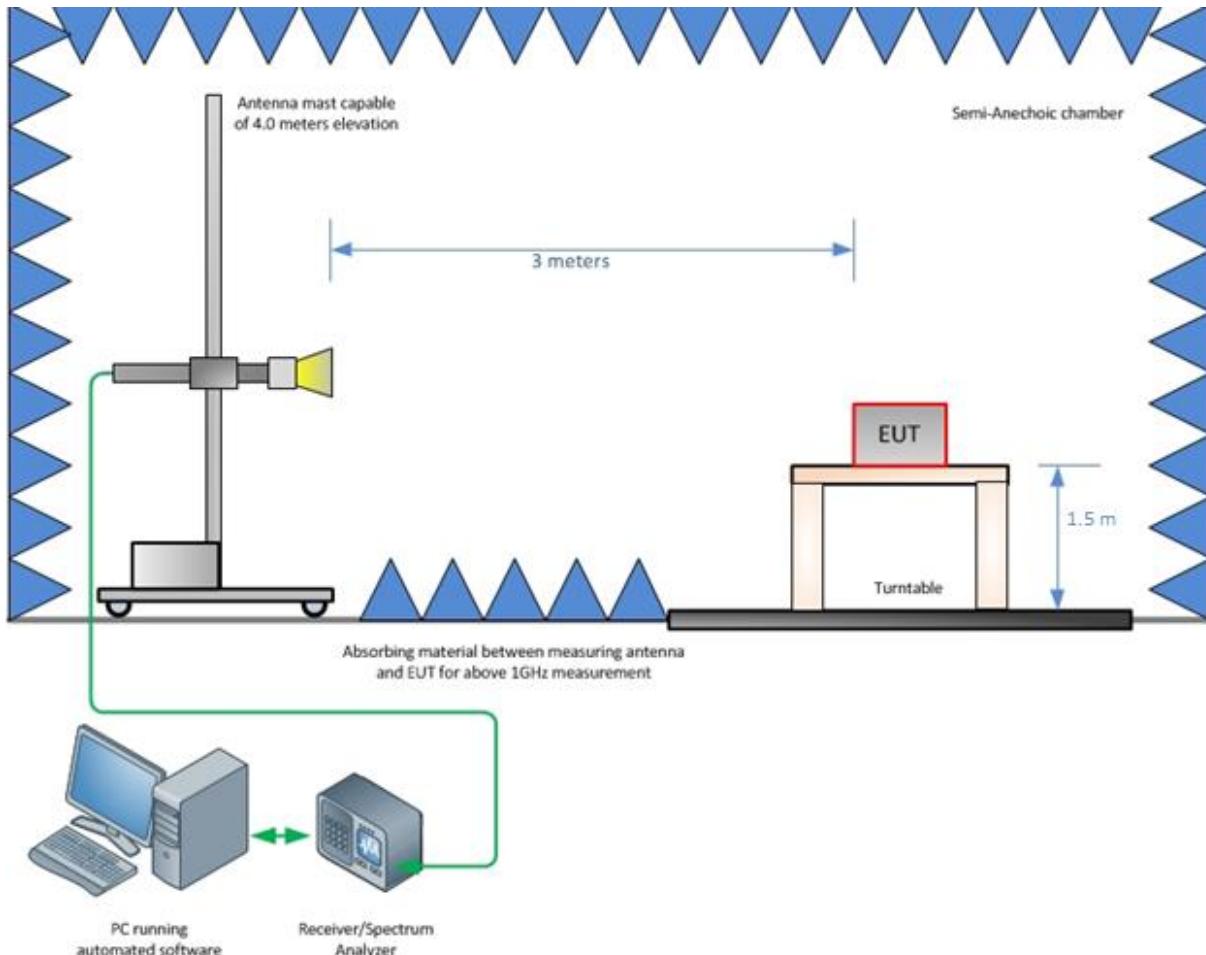


Figure 3-2 – Radiated Emissions Test Setup above 1 GHz

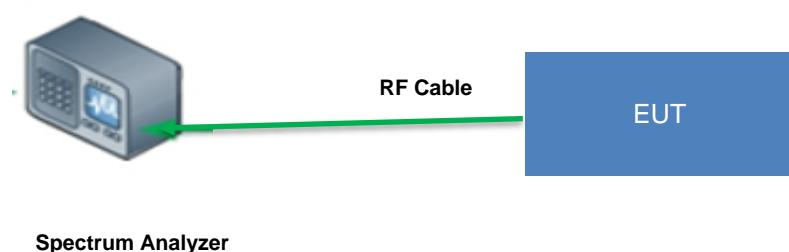


Figure 3-3 – Conducted Test Setup: Antenna Port measurement



## 4 Accreditation, Disclaimers and Copyright

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### STATEMENT OF MEASUREMENT UNCERTAINTY

The expanded laboratory measurement uncertainty figures ( $U_{\text{Lab}}$ ) provided below correspond to an expansion factor (coverage factor)  $k = 1.96$  which provide confidence levels of 95%.

**Table 4-1: Estimation of Measurement Uncertainty**

Parameter	$U_{\text{Lab}}$
Occupied Channel Bandwidth	$\pm 0.009 \%$
RF Conducted Output Power	$\pm 0.349 \text{ dB}$
Power Spectral Density	$\pm 0.372 \text{ dB}$
Antenna Port Conducted Emissions	$\pm 1.264 \text{ dB}$
Radiated Emissions $\leq 1 \text{ GHz}$	$\pm 5.814 \text{ dB}$
Radiated Emissions $> 1 \text{ GHz}$	$\pm 4.318 \text{ dB}$
Temperature	$\pm 0.860 \text{ }^{\circ}\text{C}$
Radio Frequency	$\pm 2.832 \times 10^{-8}$
AC Power Line Conducted Emissions	$\pm 3.360 \text{ dB}$

### TEST EQUIPMENT

All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated to meet test method standard requirements and/or manufacturer's specifications.