

TEST REPORT

ACCORDING TO: FCC 47CFR part 15 subpart C §15.247 (DTS),
RSS-247 Issue 4:2025, RSS-Gen Issue 5

FOR:

Maytronics Ltd.
Pool surface cleaner
Model: SKIMMI2
FCC ID: WCHSKIM2
IC: 29982-SKIM2

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1 Applicant information

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Contact name: Mr. Eugene Plotnichenko

2 Equipment under test attributes

Product name: Pool surface cleaner
Product type: Transceiver
Model(s): SKIMMI2
Serial number: prototype
Hardware version: 2
Software release: 20.49
Receipt date 19-May-25

3 Manufacturer information

Manufacturer name: Maytronics Ltd.
Address: Kibbutz Yizre'el, 1935000, Israel
Telephone: +972 4-6598113
Fax: +972 4-6522485
E-Mail: Eugene.Plotnichenko@Maytronics.com
Contact name: Mr. Eugene Plotnichenko

4 Test details

Project ID: 56775
Location: Hermon Laboratories Ltd. P.O. Box 23, Binyamina 3055001, Israel
Test started: 22-May-25
Test completed: 18-Jun-25
Test specification(s): FCC 47CFR part 15 subpart C §15.247 (DTS),
RSS-247 Issue 4:2025, RSS-Gen Issue 5

5 Tests summary

Test	Status
Transmitter characteristics	
FCC Section 15.247(a)2 / RSS-247 section 5.2(1), 6 dB bandwidth	Pass
FCC Section 15.247(b)3/ RSS-247 section 5.4(4), Peak output power	Pass
FCC Section 15.247(d) / RSS-247 section 5.5, Radiated spurious emissions	Pass
FCC Section 15.247(d)/ RSS-247 section 5.5, Emissions at band edges	Pass
FCC Section 15.247(e) / RSS-247 section 5.2(2), Peak power density	Pass
FCC section 15.203 / RSS-Gen section 6.8, Antenna requirement	Pass
Section 15.207(a), Conducted emission	Pass

This test report supersedes the previously issued test report identified by Doc ID: MAYRAD_FCC.56775

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested.

The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

	Name and Title	Date	Signature
Tested by:	Mr. S. Sugatov, test engineer, EMC & Radio	22-May-25 – 18-Jun-25	
Reviewed by:	Mrs. S. Peysahov Sheynin, certification engineer, EMC & Radio	18-Oct-25	
Approved by:	Mr. M. Nikishin, group leader, EMC & Radio	04-Feb-26	

6 EUT description

Note: The following data in this clause is provided by the customer and represents his sole responsibility

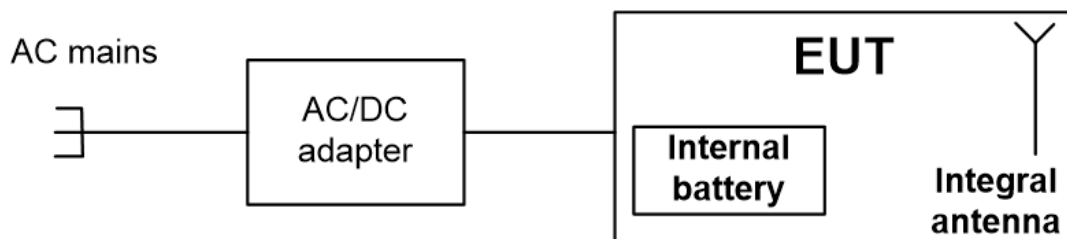
6.1 General information

The EUT is a Pool surface cleaner. It has internal Li-Ion battery pack charged by a solar panel. The battery pack is powering drive motors and electronics including BLE transceiver. External AC/DC charger charging the battery when the EUT is out of cleaning mode

6.2 Changes made in EUT

No changes were performed in the EUT during testing.

6.3 Test configuration



6.4 Transmitter characteristics

Type of equipment					
V	Stand-alone (Equipment with or without its own control provisions)				
	Combined equipment (Equipment where the radio part is fully integrated within another type of equipment)				
	Plug-in card (Equipment intended for a variety of host systems)				
Assigned frequency range		2400 -2483.5 MHz			
Operating frequencies		2402-2480 MHz			
Maximum rated output power		Peak output power 1.64 dBm			
Is transmitter output power variable?		V	No		
		Yes	continuous variable		
			stepped variable with stepsize		dB
			minimum RF power		dBm
			maximum RF power		dBm
Antenna connection					
unique coupling		standard connector		V	Integral
				V	with temporary RF connector without temporary RF connector
Antenna/s technical characteristics					
Type		Manufacturer		Model number	
Internal		Maytronics		N/A	
Gain		1.95 dBi			
Transmitter aggregate data rate/s		1 Mbps			
Type of modulation		GFSK			
Modulating test signal (baseband)		PRBS			
Transmitter power source					
V	Battery	Nominal rated voltage	10.8 VDC	Battery type	Lithium Ion
	DC	Nominal rated voltage			
V	AC mains	Nominal rated voltage	120 V	Frequency	60 Hz



Test specification: Section 15.247(a)2 / RSS-247 section 5.2(1), 6 dB bandwidth			
Test procedure: ANSI C63.10 section 11.8.1			
Test mode: Compliance		Verdict: PASS	
Date(s): 22-May-25 - 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

7 Transmitter tests according to 47CFR part 15 subpart C and RSS-247 requirements

7.1 Minimum 6 dB and 99% bandwidth

7.1.1 General

This test was performed to measure 6 dB bandwidth of the EUT carrier frequency. Specification test limits are given in Table 7.1.1.

Table 7.1.1 6 dB bandwidth limits

Assigned frequency, MHz	Modulation envelope reference points*, dBc	Minimum bandwidth, kHz
2400.0 – 2483.5	6.0	500.0

* - Modulation envelope reference points provided in terms of attenuation below the peak of modulated carrier.

Table 7.1.2 The 99% bandwidth limits

Assigned frequency, MHz	Modulation envelope reference points	Limit, MHz
2400.0 – 2483.5	99%	NA

7.1.2 Test procedure

7.1.2.1 The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.

7.1.2.2 The EUT was set to transmit modulated carrier.

7.1.2.3 The transmitter minimum 6 dB bandwidth was measured with spectrum analyzer as frequency delta between reference points on modulation envelope and provided in Table 7.1.2 and associated plot.

Figure 7.1.1 6 dB bandwidth test setup





Test specification: Section 15.247(a)2 / RSS-247 section 5.2(1), 6 dB bandwidth			
Test procedure: ANSI C63.10 section 11.8.1			
Test mode: Compliance		Verdict: PASS	
Date(s): 22-May-25 - 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Table 7.1.3 6 dB bandwidth test results

ASSIGNED FREQUENCY BAND: 2400 – 2483.5 MHz
 DETECTOR USED: Peak
 SWEEP TIME: Auto
 RESOLUTION BANDWIDTH: 100 kHz
 VIDEO BANDWIDTH: 300 kHz
 MODULATION ENVELOPE REFERENCE POINTS: 6.0 dBc
 MODULATION: GFSK

BIT RATE: 1 Mbps

Carrier frequency, MHz	99% bandwidth, kHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2402	1679	674	500	174	Pass
2440	1436	669	500	169	Pass
2480	1089	669	500	169	Pass

BIT RATE: 2 Mbps

Carrier frequency, MHz	99% bandwidth, kHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2402	2191	1150	500	650	Pass
2440	2109	1150	500	650	Pass
2480	2069	1140	500	640	Pass

Reference numbers of test equipment used

HL 3903	HL 4474	HL 5902	HL 7585				
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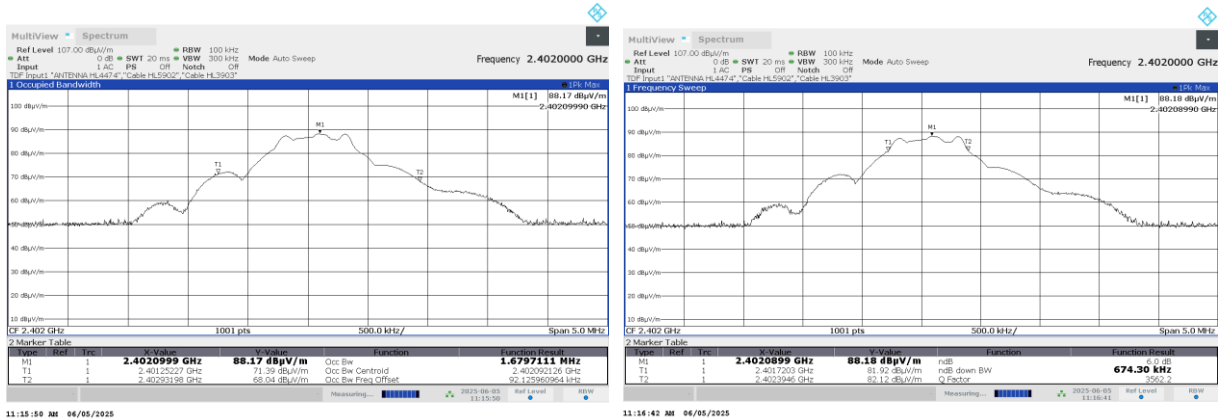
Full description is given in Appendix A.



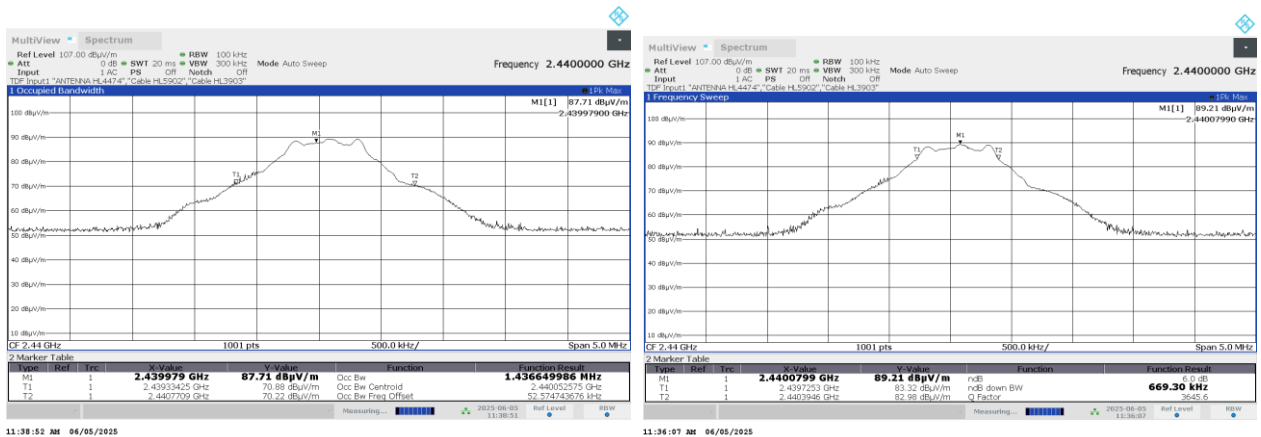
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Test specification: Section 15.247(a)2 / RSS-247 section 5.2(1), 6 dB bandwidth			
Test procedure: ANSI C63.10 section 11.8.1			
Test mode: Compliance		Verdict: PASS	
Date(s): 22-May-25 - 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

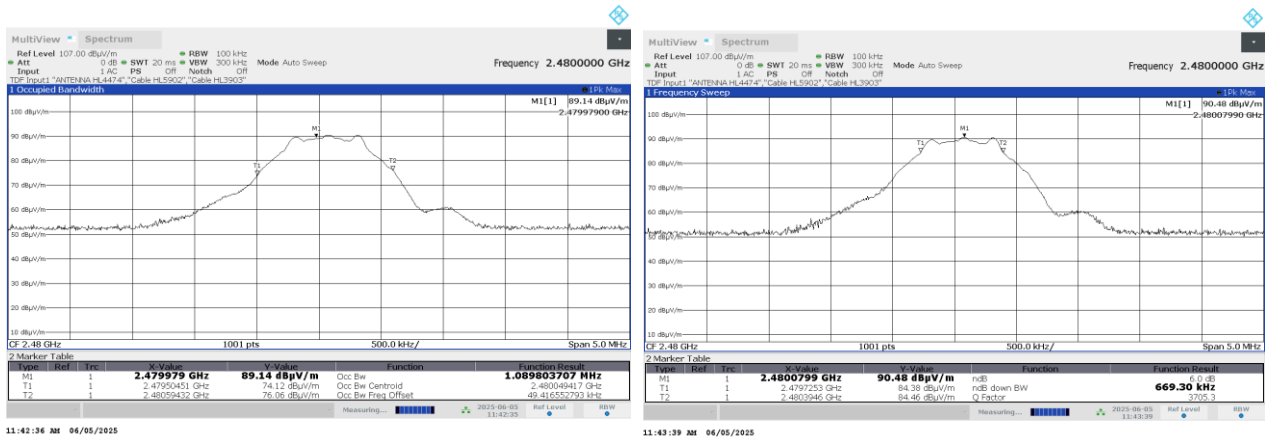
Plot 7.1.1 6 dB bandwidth and 99% bandwidth test result at low frequency (1 Mbps)



Plot 7.1.2 6 dB bandwidth and 99% bandwidth test result at mid frequency (1 Mbps)



Plot 7.1.3 6 dB bandwidth and 99% bandwidth test result at high frequency (1 Mbps)

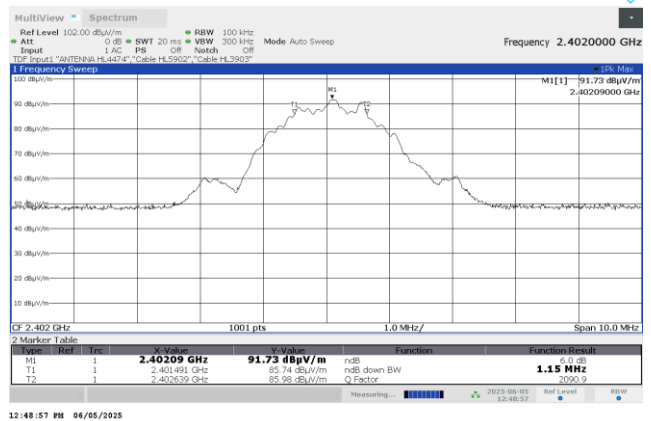
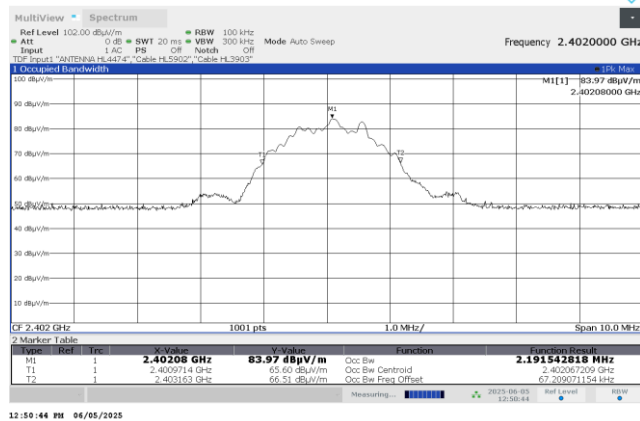




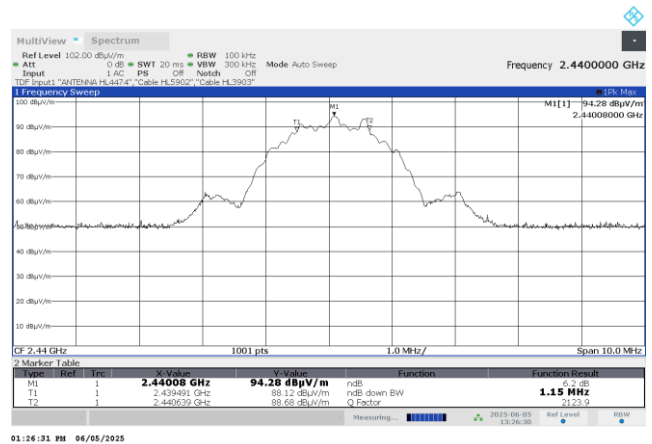
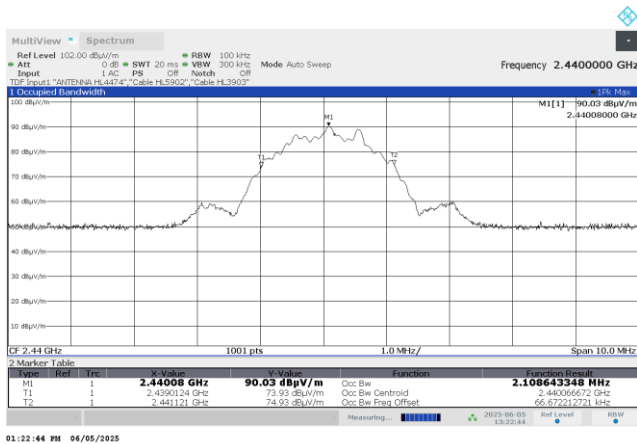
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Test specification: Section 15.247(a)2 / RSS-247 section 5.2(1), 6 dB bandwidth			
Test procedure: ANSI C63.10 section 11.8.1			
Test mode: Compliance		Verdict: PASS	
Date(s): 22-May-25 - 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

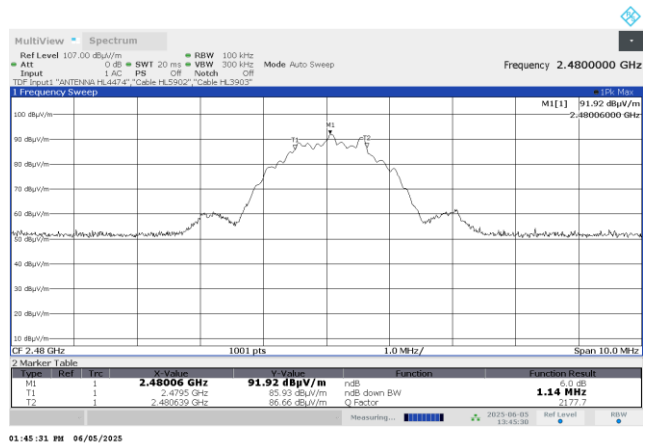
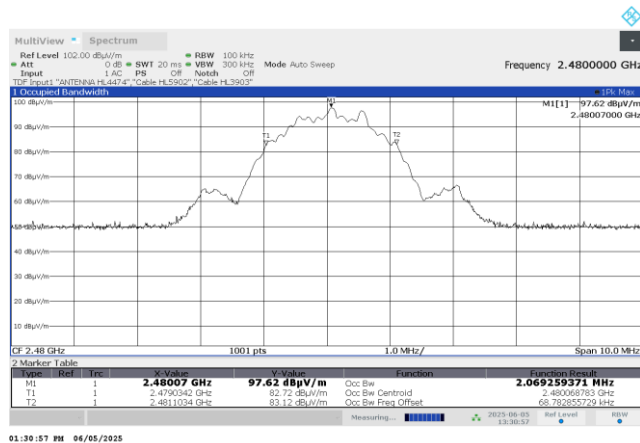
Plot 7.1.4 6 dB bandwidth and 99% bandwidth result at low frequency (2 Mbps)



Plot 7.1.5 6 dB bandwidth and 99% bandwidth test result at mid frequency (2 Mbps)



Plot 7.1.6 6 dB bandwidth and 99% bandwidth test result at high frequency (2 Mbps)





Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

7.2 Peak output power

7.2.1 General

This test was performed to measure the maximum peak output power radiated by transmitter. Specification test limits are given in Table 7.2.1.

Table 7.2.1 Peak output power limits

Assigned frequency range, MHz	Maximum antenna gain, dBi	Peak output power*		Equivalent field strength limit @ 3m, dB(μV/m)**
		W	dBm	
2400.0 – 2483.5	6.0	1.0	30.0	131.2

*- The limit is provided in terms of conducted RF power at the antenna connector. If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power limit shall be reduced below the stated value as follows:

by 1 dB for every 3 dB that the directional gain of antenna exceeds 6 dBi for fixed point-to-point transmitters operate in 2400-2483.5 MHz band;

** - Equivalent field strength limit was calculated from the peak output power as follows: $E = \sqrt{30 \times P \times G} / r$, where P is peak output power in Watts, r is antenna to EUT distance in meters and G is transmitter antenna gain in dBi.

7.2.2 Test procedure

7.2.2.1 The EUT was set up as shown in Figure 7.2.1, energized and its proper operation was checked.

7.2.2.2 The EUT was adjusted to produce maximum available to end user RF output power.

7.2.2.3 The resolution bandwidth of spectrum analyzer was set wider than 6 dB bandwidth of the EUT and the field strength of the EUT carrier frequency was measured with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360° and the measuring antenna height was swept in both vertical and horizontal polarizations.

7.2.2.4 The maximum field strength of the EUT carrier frequency was measured as provided in Table 7.2.2 and associated plots.

7.2.2.5 The maximum peak output power was calculated from the field strength of carrier as follows:

$$P = (E \times d)^2 / (30 \times G),$$

where P is the peak output power in W, E is the field strength in V/m, d is the test distance and G is the transmitter numeric antenna gain over an isotropic radiator.

The above equation was converted in logarithmic units for 3 m test distance:

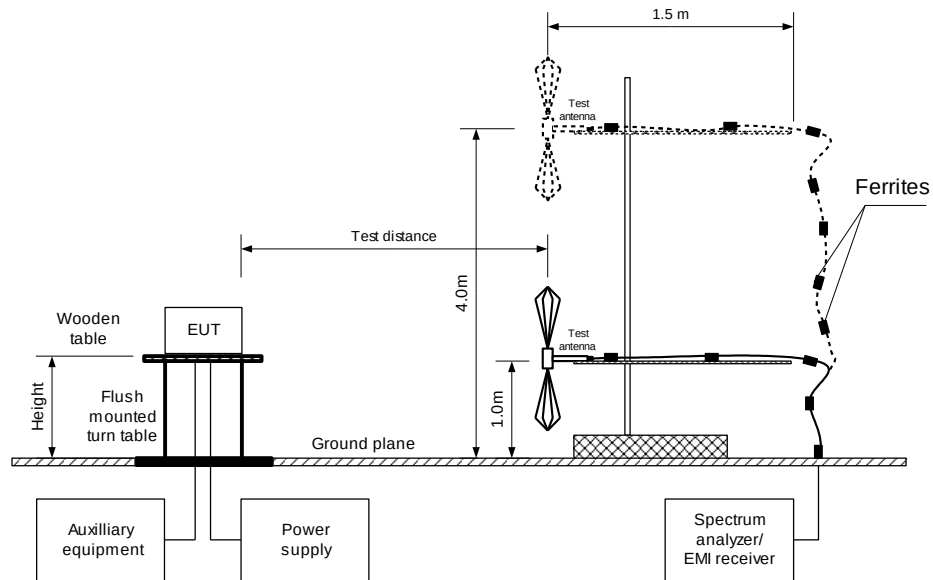
$$\text{Peak output power in dBm} = \text{Field strength in dB}(\mu\text{V/m}) - \text{Transmitter antenna gain in dBi} - 95.2 \text{ dB}$$

7.2.2.6 The worst test results (the lowest margins) were recorded in Table 7.2.2.



Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Figure 7.2.1 Setup for carrier field strength measurements





Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Table 7.2.2 Peak output power test results

ASSIGNED FREQUENCY: 2400 – 2483.5 MHz
 TEST DISTANCE: 3 m
 TEST SITE: Semi anechoic chamber
 EUT HEIGHT: 1.5 m
 DETECTOR USED: Peak
 TEST ANTENNA TYPE: Double ridged guide (above 1000 MHz)
 MODULATION: GFSK
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 3 MHz
 VIDEO BANDWIDTH: 10 MHz

BIT RATE: 1 Mbps

Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
2402	93.79	Horizontal	1.15	120	1.95	-3.36	30	-33.36	Pass
2440	96.28	Horizontal	1.60	115	1.95	-0.87	30	-30.87	Pass
2480	98.58	Horizontal	1.30	110	1.95	1.43	30	-28.57	Pass

BIT RATE: 2 Mbps

Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
2402	93.50	Horizontal	1.70	110	1.95	-3.65	30	-33.65	Pass
2440	95.27	Horizontal	1.78	112	1.95	-1.88	30	-31.88	Pass
2480	98.79	Horizontal	1.50	120	1.95	1.64	30	-28.36	Pass

*- EUT front panel refer to 0 degrees position of turntable.

**- Peak output power was calculated from the field strength of carrier as follows: $P = (E \times d)^2 / (30 \times G)$,
 where P is the peak output power in W, E is the field strength in V/m, d is the test distance in meters and G is the transmitter numeric antenna gain over an isotropic radiator. The above equation was converted in logarithmic units for 3 m test distance: *Peak output power in dBm = Field strength in dB(μV/m) - Transmitter antenna gain in dBi - 95.2 dB*

***- Margin = Peak output power – specification limit.

Reference numbers of test equipment used

HL 3903	HL 4474	HL 5902	HL 7585				
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Full description is given in Appendix A.

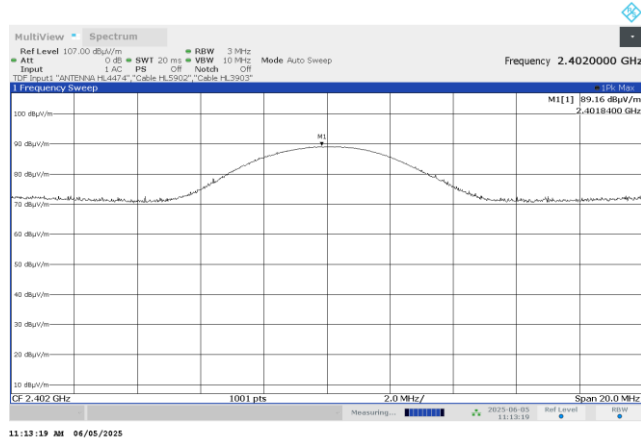


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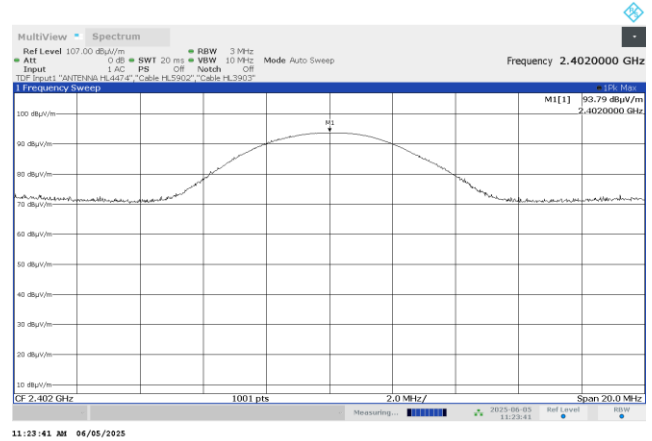
Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.2.1 Field strength of carrier at low frequency for bitrate 1 Mbps

Vertical polarization

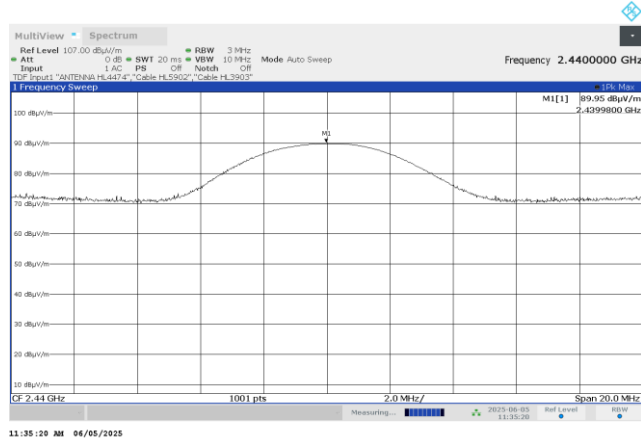


Horizontal polarization

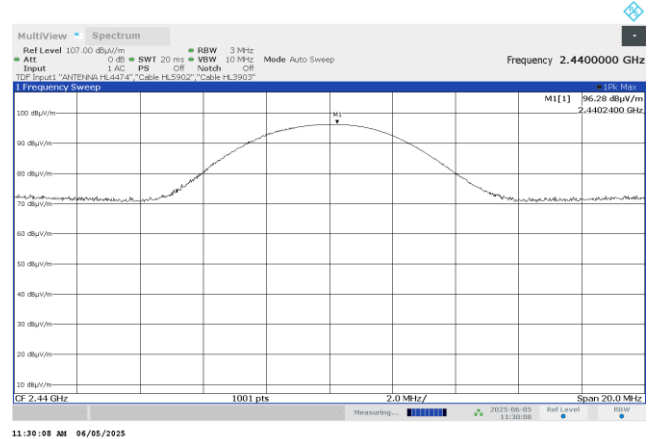


Plot 7.2.2 Field strength of carrier at mid frequency for bitrate 1 Mbps

Vertical polarization



Horizontal polarization



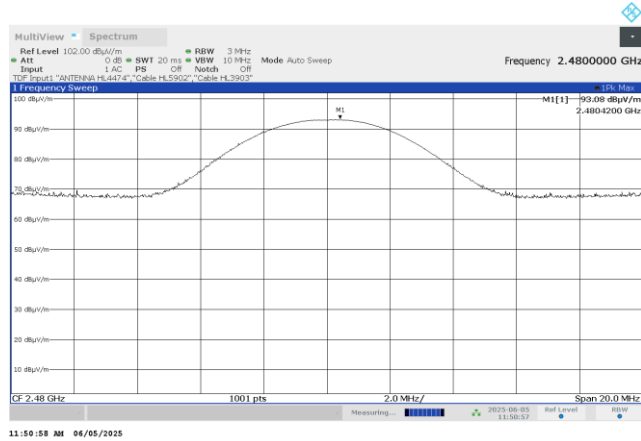


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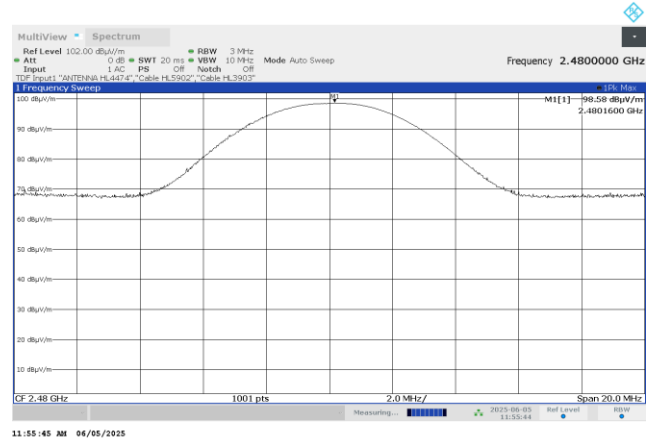
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Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.2.3 Field strength of carrier at high frequency for bitrate 1 Mbps

Vertical polarization



Horizontal polarization



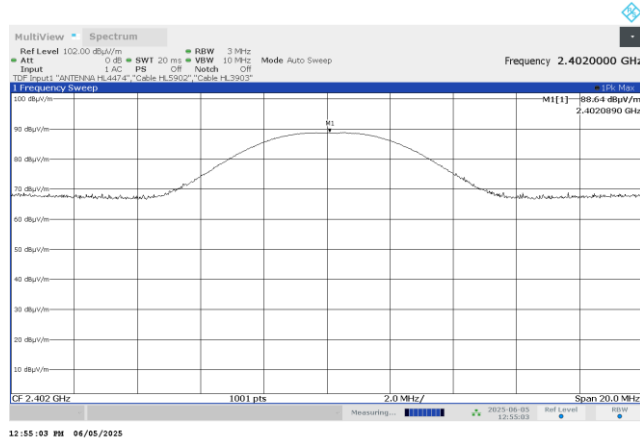


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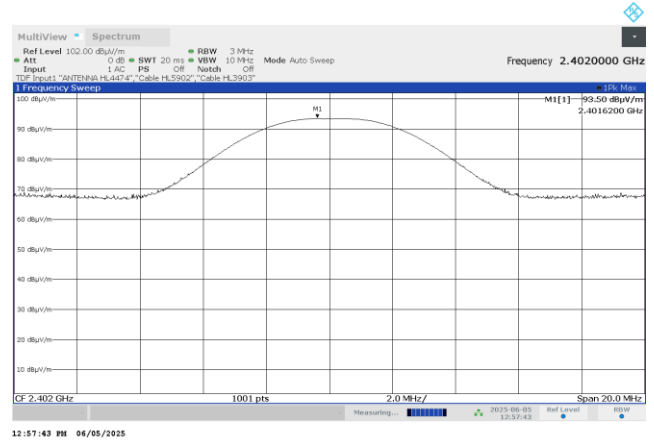
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Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.2.4 Field strength of carrier at low frequency for bitrate 2 Mbps

Vertical polarization

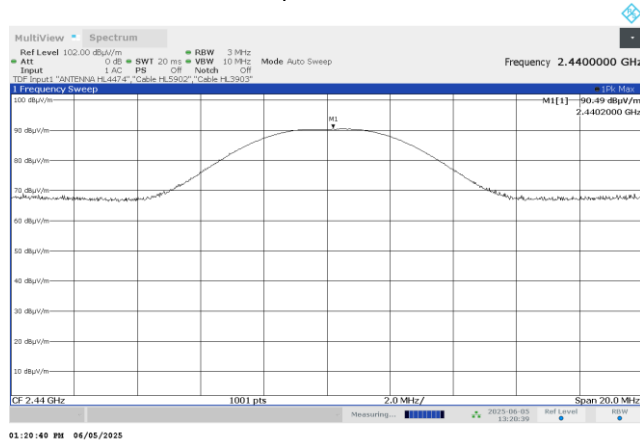


Horizontal polarization

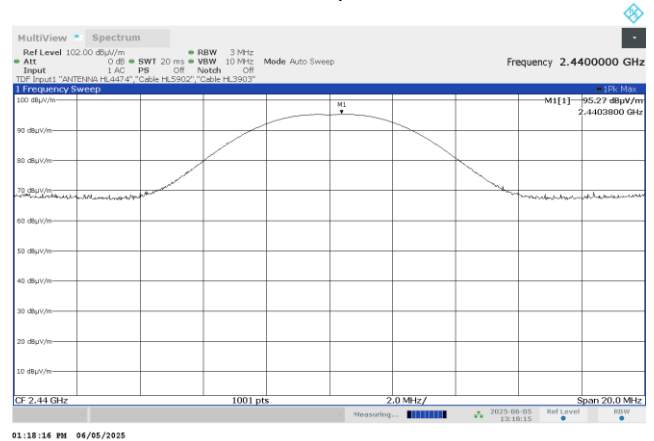


Plot 7.2.5 Field strength of carrier at mid frequency for bitrate 2 Mbps

Vertical polarization



Horizontal polarization



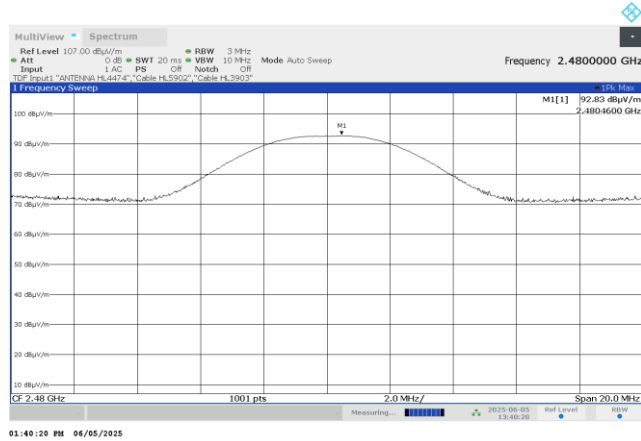


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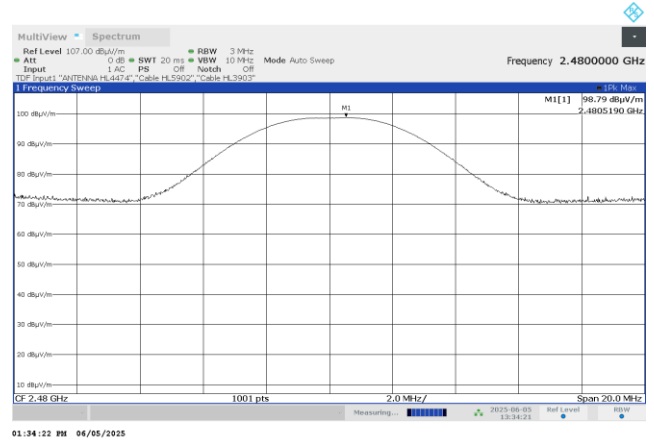
Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.2.6 Field strength of carrier at high frequency for bitrate 2 Mbps

Vertical polarization



Horizontal polarization





Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

7.3 Field strength of spurious emissions

7.3.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 7.3.1.

Table 7.3.1 Radiated spurious emissions limits

Frequency, MHz	Field strength at 3 m within restricted bands, dB(μV/m)*			Attenuation of field strength of spurious versus carrier outside restricted bands, dBc***
	Peak	Quasi Peak	Average	
0.009 – 0.090	148.5 – 128.5	NA	128.5 – 108.5**	20.0
0.090 – 0.110	NA	108.5 – 106.8**	NA	
0.110 – 0.490	126.8 – 113.8	NA	106.8 – 93.8**	
0.490 – 1.705	NA	73.8 – 63.0**	NA	
1.705 – 30.0*		69.5		
30 – 88		40.0		
88 – 216		43.5		
216 – 960		46.0		
960 - 1000		54.0		
1000 – 10 th harmonic	74.0	NA	54.0	

*- The limit for 3 m test distance was calculated using the inverse square distance extrapolation factor as follows:

$$\text{Lim}_{S2} = \text{Lim}_{S1} + 40 \log (S_1/S_2),$$

where S_1 and S_2 – standard defined and test distance respectively in meters.

** - The limit decreases linearly with the logarithm of frequency.

*** - The field strength limits applied from the lowest radio frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency.

7.3.1 Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

7.3.1.1 The EUT was set up as shown in Figure 7.3.1, energized and the performance check was conducted.

7.3.1.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360° and the measuring antenna was rotated around its vertical axis.

7.3.1.3 The worst test results (the lowest margins) were recorded and shown in the associated plots.

7.3.2 Test procedure for spurious emission field strength measurements above 30 MHz

7.3.2.1 The EUT was set up as shown in Figure 7.3.2, Figure 7.3.3, energized and the performance check was conducted.

7.3.2.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360°, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

7.3.2.3 The worst test results (the lowest margins) were recorded and shown in the associated plots.



Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Figure 7.3.1 Setup for spurious emission field strength measurements below 30 MHz

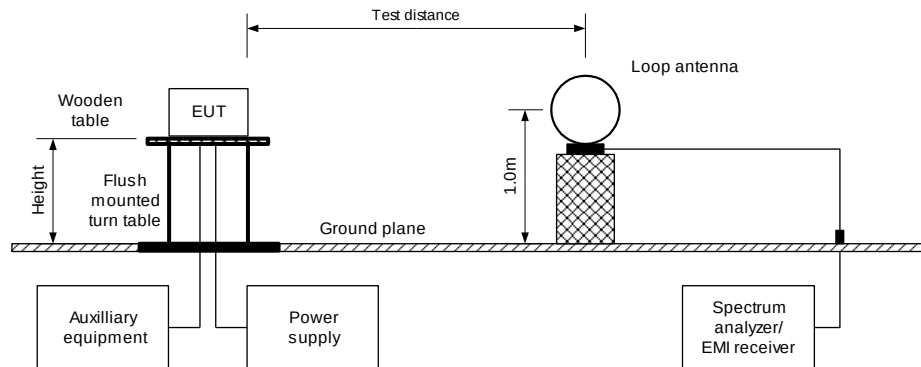
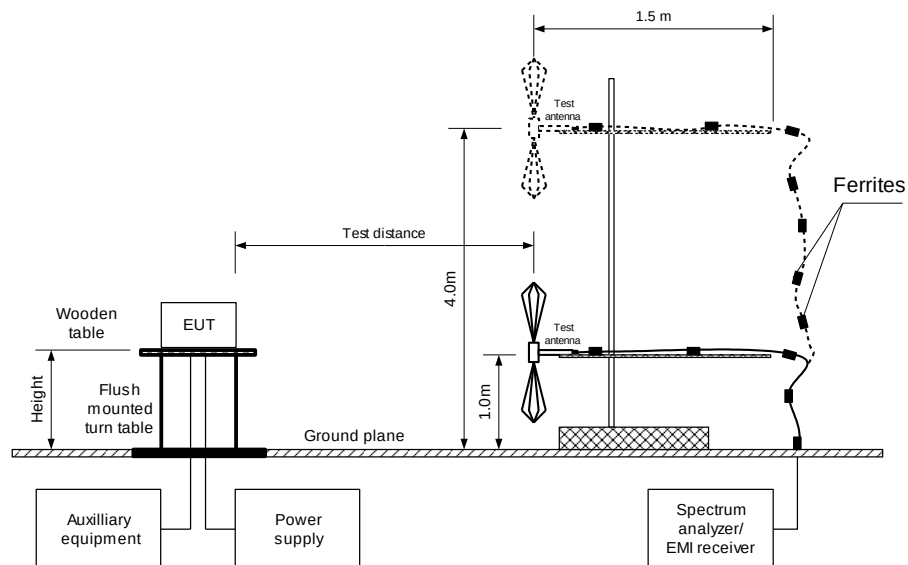


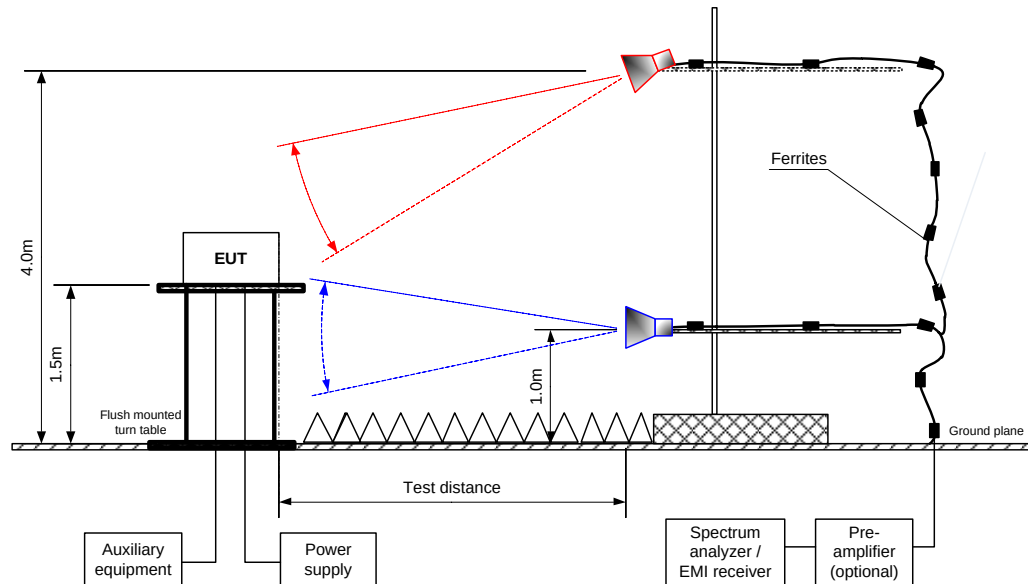
Figure 7.3.2 Setup for spurious emission field strength measurements in 30 – 1000 MHz





Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Figure 7.3.3 Setup for spurious emission field strength measurements above 1000 MHz





Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Table 7.3.2 Field strength of emissions outside restricted bands

ASSIGNED FREQUENCY: 2400.0 – 2483.5 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 - 25000 MHz
 TEST DISTANCE: 3 m
 MODULATION: GFSK
 BIT RATE: 1 Mbps
 TRANSMITTER OUTPUT POWER: -3.36 dBm at low carrier frequency
 -0.87 dBm at mid carrier frequency
 1.43 dBm at high carrier frequency
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 100 kHz
 VIDEO BANDWIDTH: 300 kHz
 TEST ANTENNA TYPE: Active loop (9 kHz – 30 MHz)
 Biconilog (30 MHz – 1000 MHz)
 Double ridged guide (above 1000 MHz)

Double sided guide (above 1000 MHz)									
Frequency, MHz	Field strength of spurious, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	Field strength of carrier, dB(μV/m)	Attenuation below carrier, dBc	Limit, dBc	Margin, dB**	Verdict
Low carrier frequency									
7207.665	53.69	Vertical	1.5	-125	91.85	38.16	20.0	18.16	Pass
9608.455	48.61	Vertical	1.5	-126		43.24		23.24	
Mid carrier frequency									
9760.275	51.92	Vertical	1.5	51	93.88	41.96	20.0	21.96	Pass
High carrier frequency									
9920.275	54.46	Vertical	1.5	58	97.19	42.73	20.0	22.73	Pass

*- EUT front panel refers to 0 degrees position of turntable.

**- Margin = Attenuation below carrier – specification limit.



Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Table 7.3.3 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY: 2400.0 – 2483.5 MHz
 INVESTIGATED FREQUENCY RANGE: 1000 - 25000 MHz
 TEST DISTANCE: 3 m
 MODULATION: GFSK
 BIT RATE: 1 Mbps
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum
 TRANSMITTER OUTPUT POWER: -3.36 dBm at low carrier frequency
 -0.87 dBm at mid carrier frequency
 1.43 dBm at high carrier frequency

DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 1000 kHz
 TEST ANTENNA TYPE: Double ridged guide

Antenna			Azimuth, degrees*	Peak field strength			Average field strength				Verdict
Frequency, MHz	Polarization	Height, m		Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	Measured, dB(μV/m)	Calculated, dB(μV/m)	Limit, dB(μV/m)	Margin, dB***	
Low carrier frequency											
4804.325	Vertical	1.50	-148	62.13	74.00	-11.87	62.13	23.93	54.00	-30.07	Pass
Mid carrier frequency											
4879.165	Vertical	1.50	115	61.12	74.00	-12.88	61.12	22.92	54.00	-31.08	Pass
7318.675	Vertical	1.50	125	58.59	74.00	-15.41	58.59	20.39	54.00	-33.61	
High carrier frequency											
4959.175	Vertical	1.50	-41	60.96	74.00	-13.04	60.96	22.76	54.00	-31.24	Pass
7438.655	Vertical	1.50	-140	57.20	74.00	-16.80	57.20	19.00	54.00	-35.00	

*- EUT front panel refers to 0 degrees position of turntable.

**- Margin = Measured field strength - specification limit.

***- Margin = Calculated field strength - specification limit,
where Calculated field strength = Measured field strength + average factor.

Table 7.3.4 Average factor calculation

Transmission pulse		Transmission burst		Transmission train duration, ms	Average factor, dB
Duration, ms	Period, ms	Duration, ms	Number of bursts within 100 ms		
N/A	N/A	1.229	1	N/A	-38.2

*- Average factor was calculated as follows

for pulse train shorter than 100 ms:

$$\text{Average factor} = 20 \times \log_{10} \left(\frac{\text{Pulse duration}}{\text{Pulse period}} \times \frac{\text{Burst duration}}{\text{Train duration}} \times \text{Number of bursts within pulse train} \right)$$

for pulse train longer than 100 ms:

$$\text{Average factor} = 20 \times \log_{10} \left(\frac{\text{Pulse duration}}{\text{Pulse period}} \times \frac{\text{Burst duration}}{100 \text{ ms}} \times \text{Number of bursts within 100 ms} \right)$$



Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Table 7.3.5 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY: 2400.0 – 2483.5 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 – 1000 MHz
 TEST DISTANCE: 3 m
 MODULATION: GFSK
 BIT RATE: 1 Mbps
 TRANSMITTER OUTPUT POWER:
 -3.36 dBm at low carrier frequency
 -0.87 dBm at mid carrier frequency
 1.43 dBm at high carrier frequency
 RESOLUTION BANDWIDTH:
 0.2 kHz (9 kHz – 150 kHz)
 9.0 kHz (150 kHz – 30 MHz)
 120 kHz (30 MHz – 1000 MHz)
 VIDEO BANDWIDTH:
 > Resolution bandwidth
 TEST ANTENNA TYPE:
 Active loop (9 kHz – 30 MHz)
 Biconilog (30 MHz – 1000 MHz)

Frequency, MHz	Peak emission, dB(μV/m)	Quasi-peak			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
		Measured emission, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*				
Low, mid, high carrier frequency								
No emissions were detected.								Pass

*- Margin = Measured emission - specification limit.

** - EUT front panel refer to 0 degrees position of turntable.



Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Table 7.3.6 Restricted bands according to FCC section 15.205

MHz	MHz	MHz	MHz	MHz	GHz
0.09 - 0.11	8.37625 - 8.38675	73 - 74.6	399.9 - 410	2690 - 2900	10.6 - 12.7
0.495 - 0.505	8.41425 - 8.41475	74.8 - 75.2	608 - 614	3260 - 3267	13.25 - 13.4
2.1735 - 2.1905	12.29 - 12.293	108 - 121.94	960 - 1240	3332 - 3339	14.47 - 14.5
4.125 - 4.128	12.51975 - 12.52025	123 - 138	1300 - 1427	3345.8 - 3358	15.35 - 16.2
4.17725 - 4.17775	12.57675 - 12.57725	149.9 - 150.05	1435 - 1626.5	3600 - 4400	17.7 - 21.4
4.20725 - 4.20775	13.36 - 13.41	156.52475 - 156.52525	1645.5 - 1646.5	4500 - 5150	22.01 - 23.12
6.215 - 6.218	16.42 - 16.423	156.7 - 156.9	1660 - 1710	5350 - 5460	23.6 - 24
6.26775 - 6.26825	16.69475 - 16.69525	162.0125 - 167.17	1718.8 - 1722.2	7250 - 7750	31.2 - 31.8
6.31175 - 6.31225	16.80425 - 16.80475	167.72 - 173.2	2200 - 2300	8025 - 8500	36.43 - 36.5
8.291 - 8.294	25.5 - 25.67	240 - 285	2310 - 2390	9000 - 9200	Above 38.6
8.362 - 8.366	37.5 - 38.25	322 - 335.4	2483.5 - 2500	9300 - 9500	

Table 7.3.7 Restricted bands according to RSS-Gen

MHz	MHz	MHz	MHz	MHz	GHz
0.09 - 0.11	8.291 - 8.294	16.80425 - 16.80475	399.9 - 410	3260 - 3267	10.6 - 12.7
2.1735 - 2.1905	8.362 - 8.366	25.5 - 25.67	608 - 614	3332 - 3339	13.25 - 13.4
3.020 - 3.026	8.37625 - 8.38675	37.5 - 38.25	960 - 1427	3345.8 - 3358	14.47 - 14.5
4.125 - 4.128	8.41425 - 8.41475	73 - 74.6	1435 - 1626.5	3500 - 4400	15.35 - 16.2
4.17725 - 4.17775	12.29 - 12.293	74.8 - 75.2	1645.5 - 1646.5	4500 - 5150	17.7 - 21.4
4.20725 - 4.20775	12.51975 - 12.52025	108 - 138	1660 - 1710	5350 - 5460	22.01 - 23.12
5.677 - 5.683	12.57675 - 12.57725	156.52475 - 156.52525	1718.8 - 1722.2	7250 - 7750	23.6 - 24
6.215 - 6.218	13.36 - 13.41	156.7 - 156.9	2200 - 2300	8025 - 8500	31.2 - 31.8
6.26775 - 6.26825	16.42 - 16.423	240 - 285	2310 - 2390	9000 - 9200	36.43 - 36.5
6.31175 - 6.31225	16.69475 - 16.69525	322 - 335.4	2655 - 2900	9300 - 9500	Above 38.6

Reference numbers of test equipment used

HL 0446	HL 3903	HL 4474	HL 4933	HL 4956	HL 5112	HL 5288	HL 5902
HL 7585							

Full description is given in Appendix A.

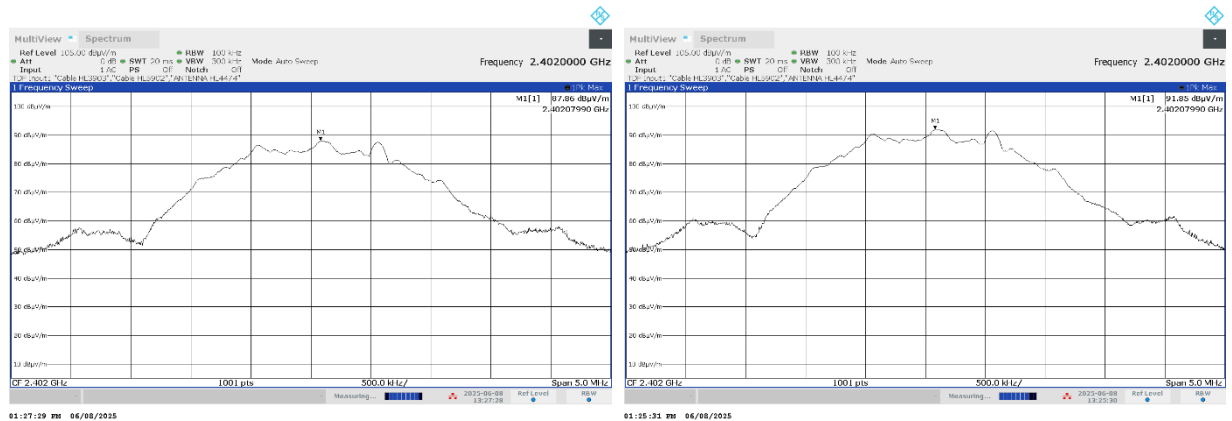


HERMON LABORATORIES

Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

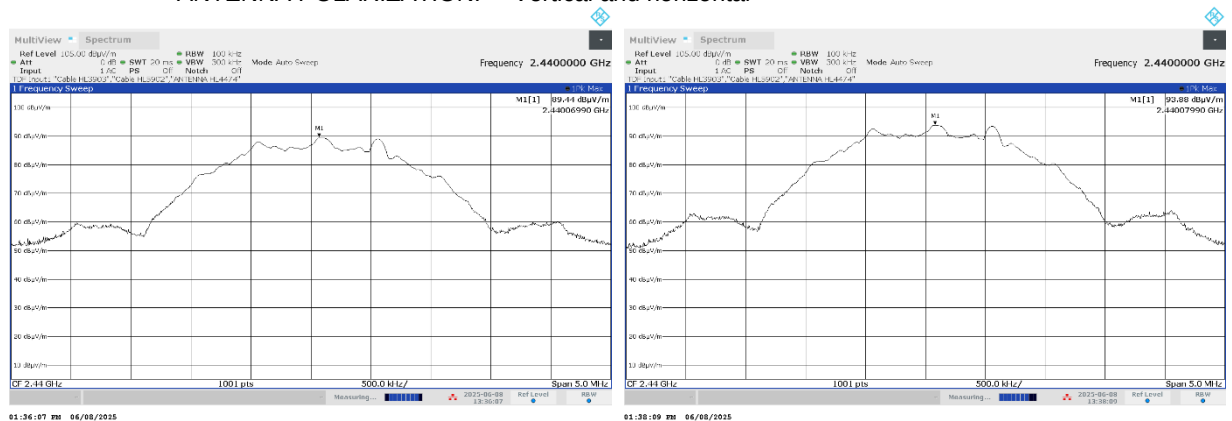
Plot 7.3.1 Radiated emission measurements at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and horizontal



Plot 7.3.2 Radiated emission measurements at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and horizontal



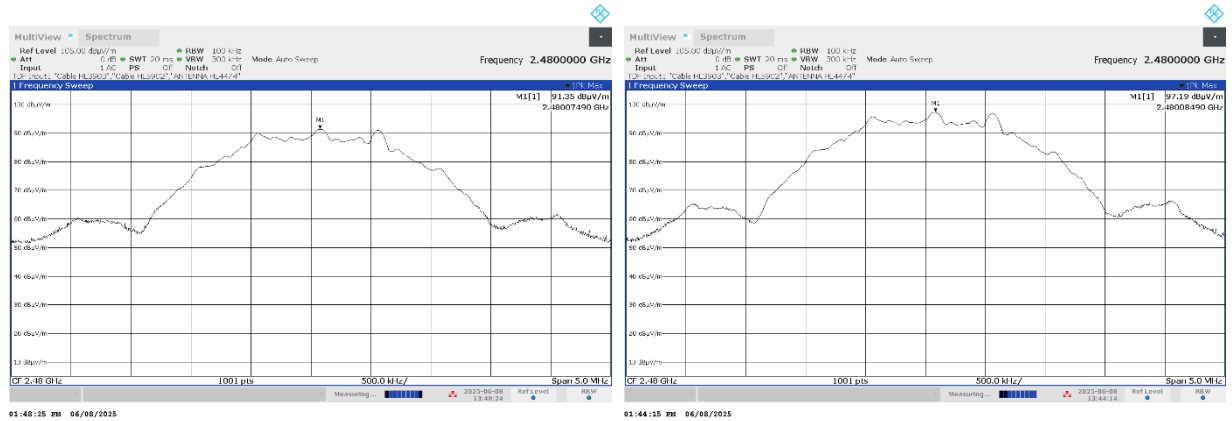


HERMON LABORATORIES

Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.3.3 Radiated emission measurements at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

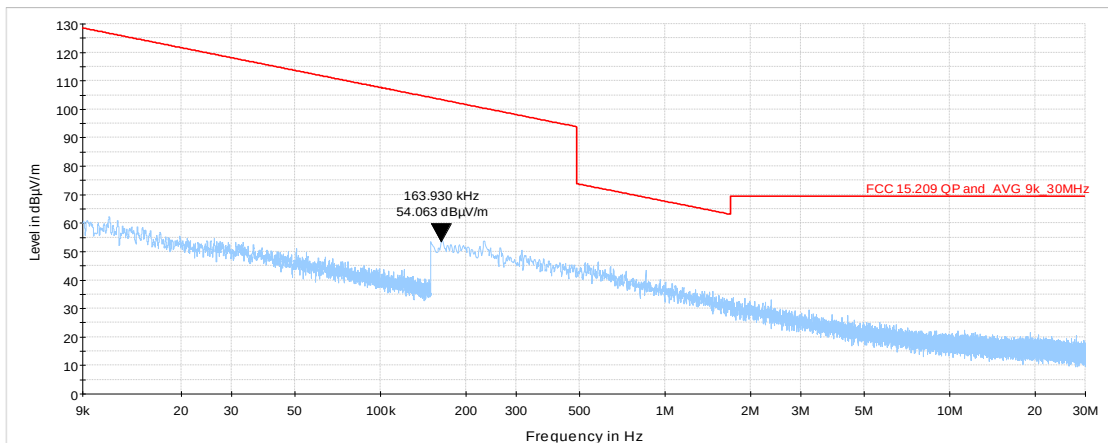




Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

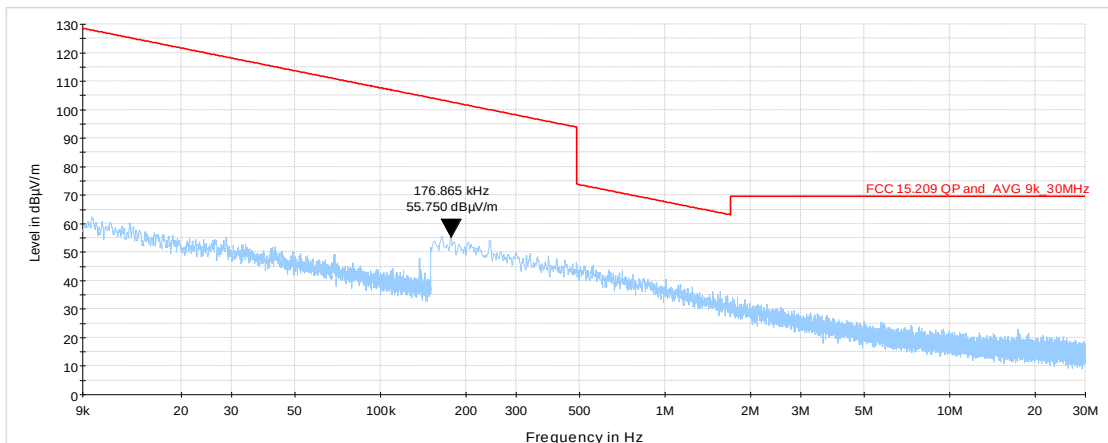
Plot 7.3.4 Radiated emission measurements from 9kHz to 30 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.3.5 Radiated emission measurements from 9kHz to 30 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



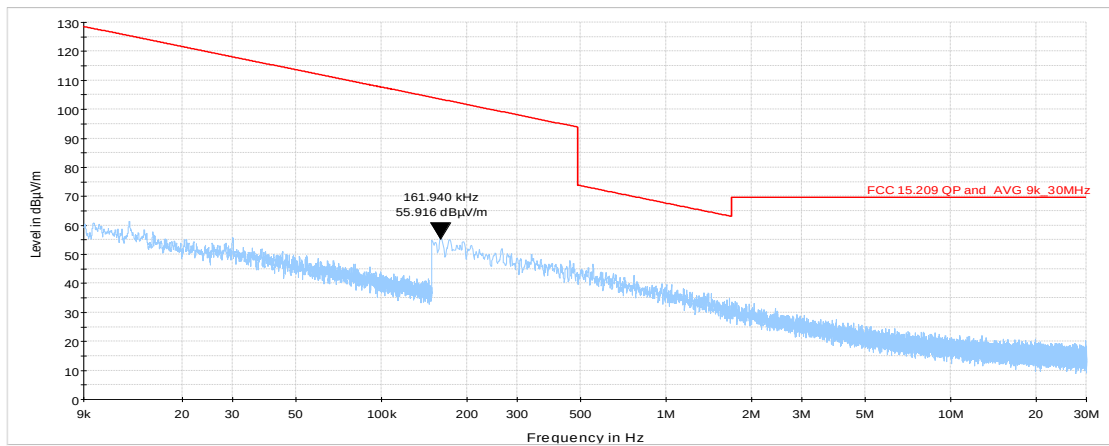


HERMON LABORATORIES

Test specification:		Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power	
Test procedure:		ANSI C63.10 sections 11.9.2.2.4	
Test mode:		Verdict: PASS	
Date(s):			
05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.3.6 Radiated emission measurements from 9kHz to 30 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



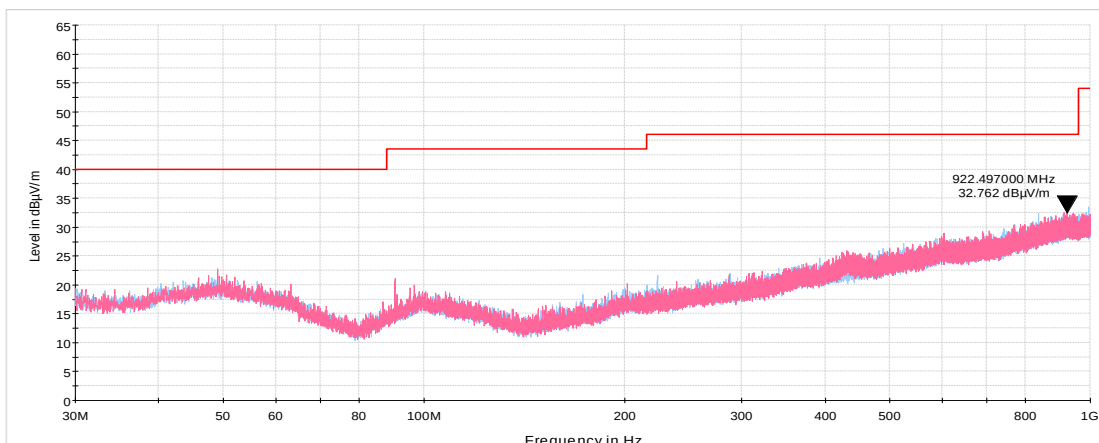


HERMON LABORATORIES

Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

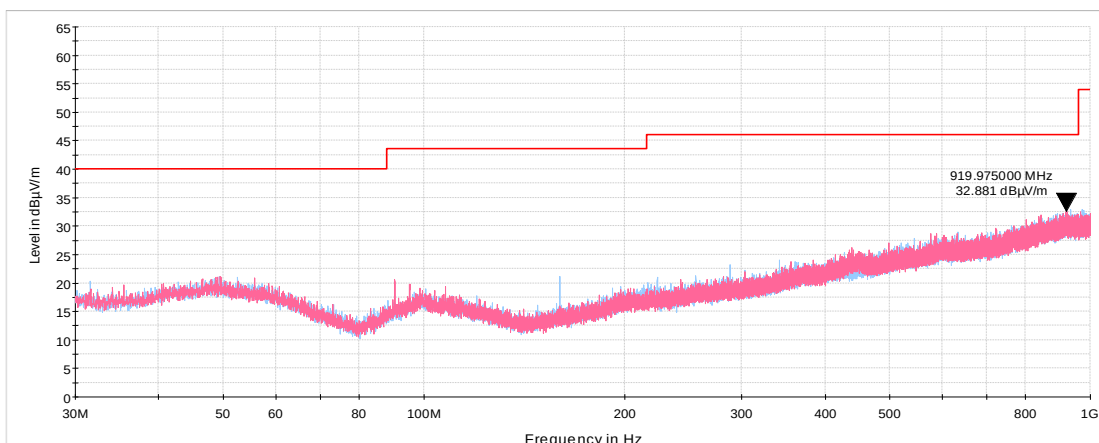
Plot 7.3.7 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 7.3.8 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal





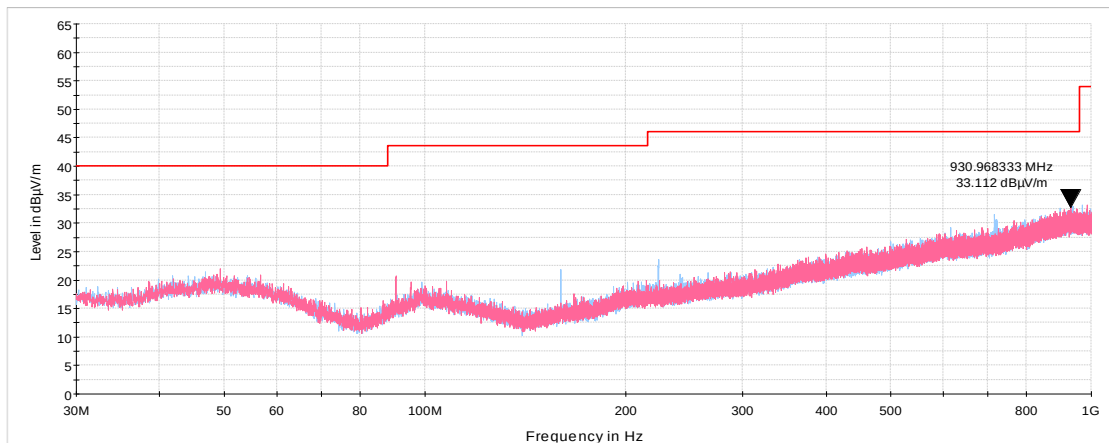
HERMON LABORATORIES

Report ID: MAYRAD_FCC.56775_Rev1.docx
Date of Issue: 4-Feb-26

Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.3.9 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal





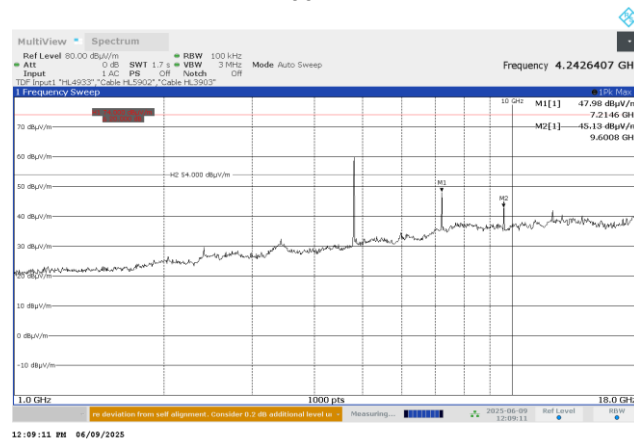
HERMON LABORATORIES

Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

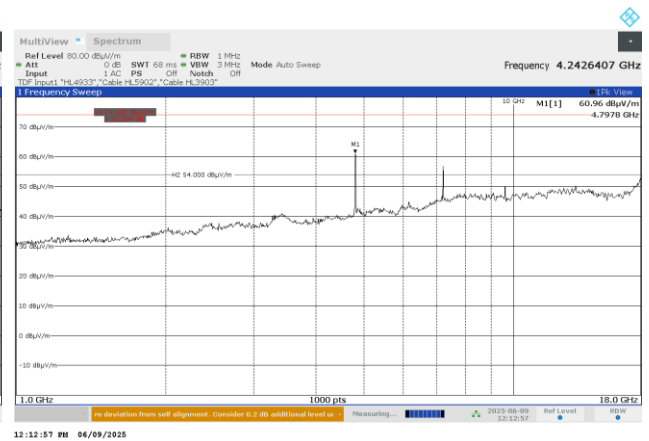
Plot 7.3.10 Radiated emission measurements from 1000 to 18000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

100 kHz RBW

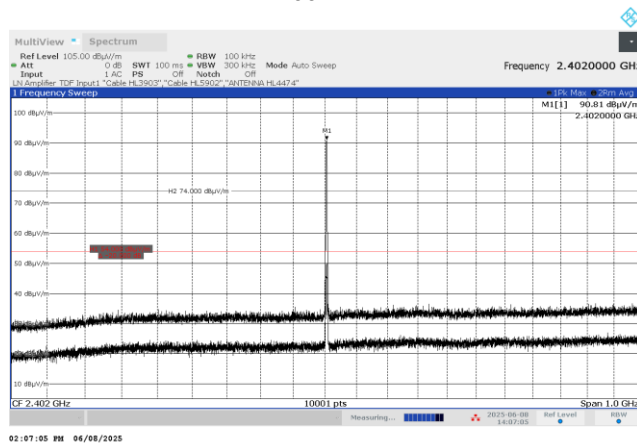


1 MHz RBW

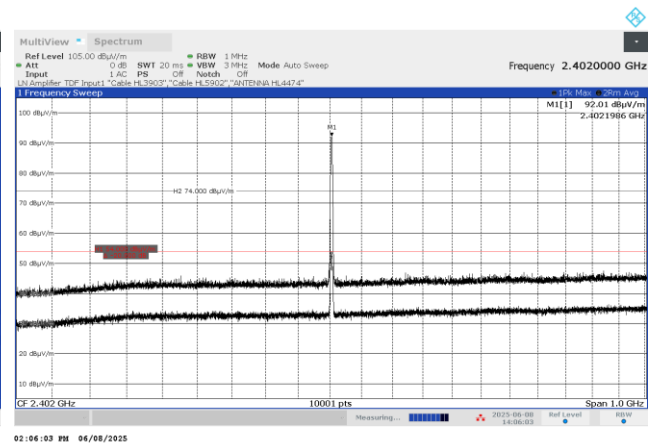


With filter HL 4338

Band 2000 – 3000 MHz (without filter HL 4338)
100 kHz RBW



1 MHz RBW





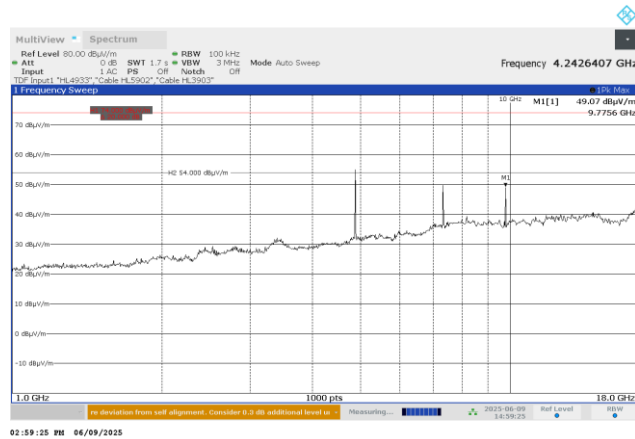
HERMON LABORATORIES

Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

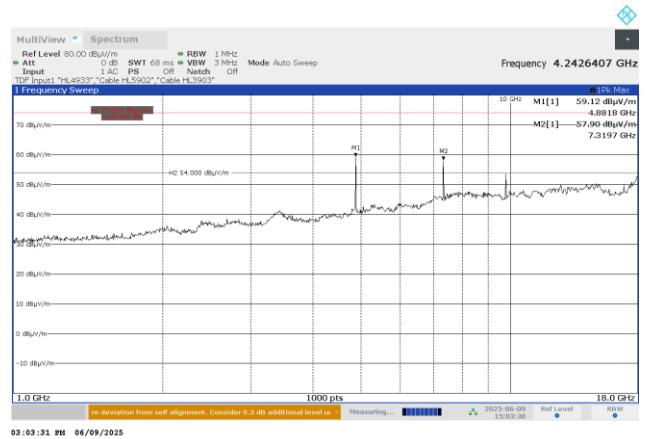
Plot 7.3.11 Radiated emission measurements from 1000 to 18000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

100 kHz RBW

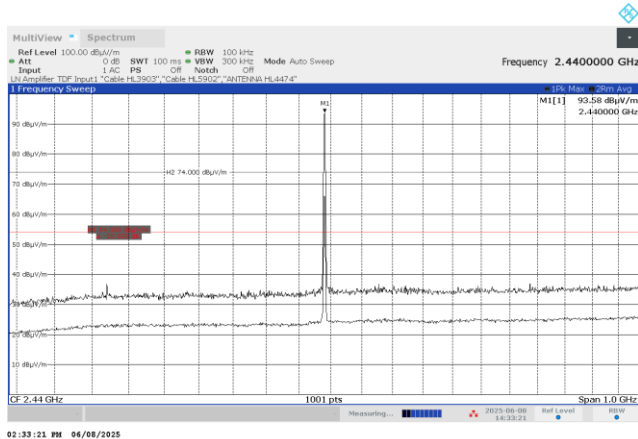


1 MHz RBW

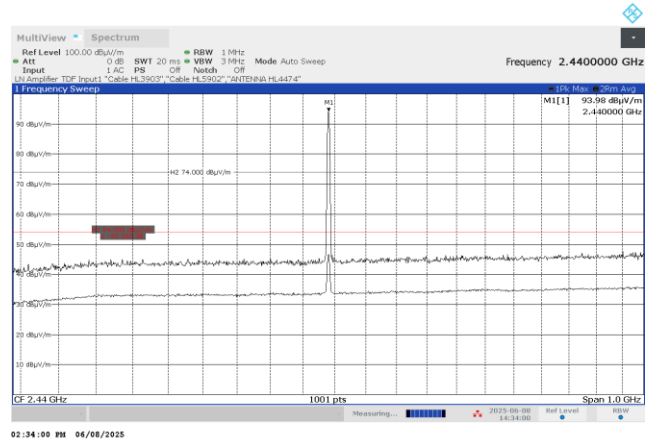


With filter HL 4338

Band 2000 – 3000 MHz (without filter HL 4338)
100 kHz RBW



1 MHz RBW





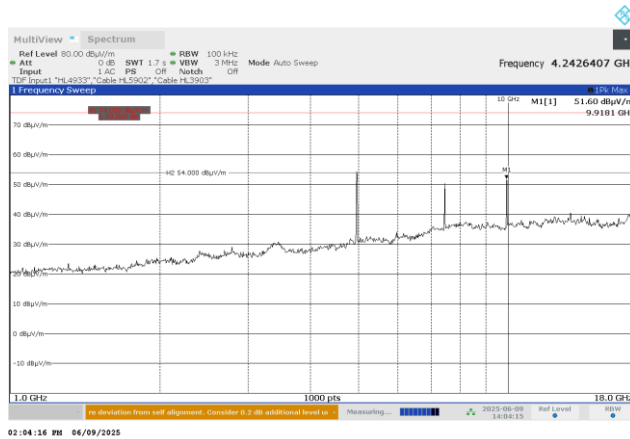
HERMON LABORATORIES

Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

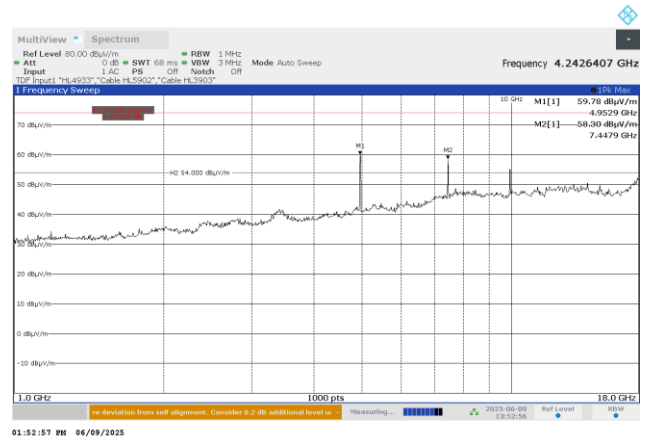
Plot 7.3.12 Radiated emission measurements from 1000 to 18000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

100 kHz RBW

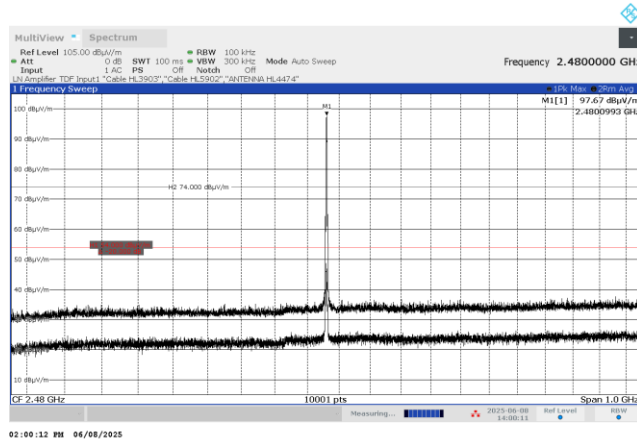


1 MHz RBW

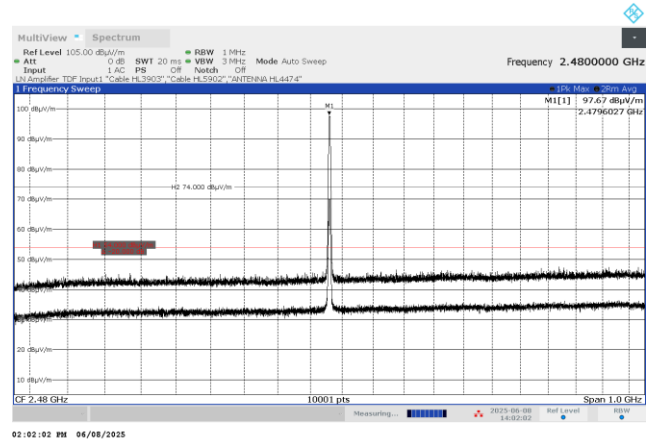


With filter HL 4338

Band 2000 – 3000 MHz (without filter HL 4338)
100 kHz RBW



1 MHz RBW





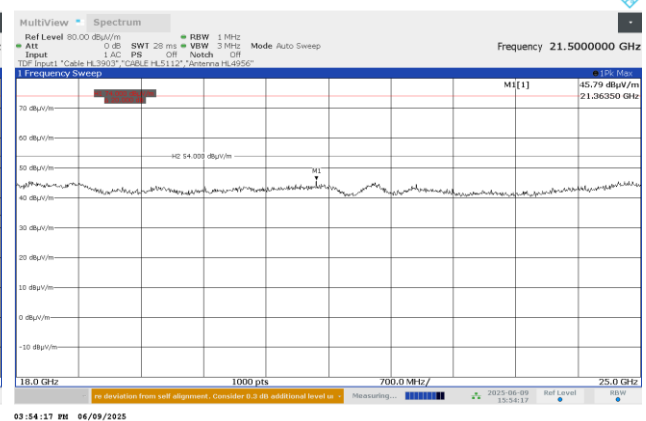
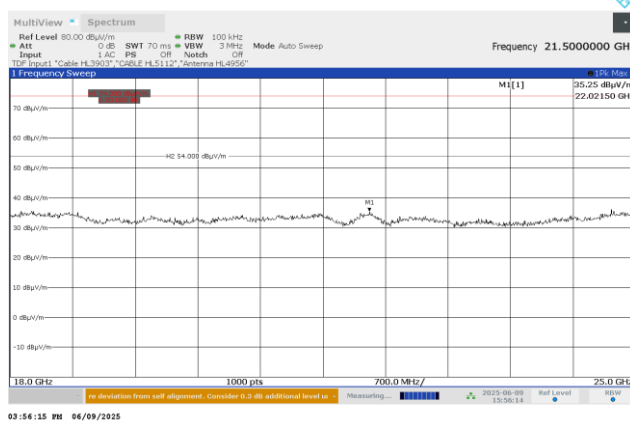
HERMON LABORATORIES

Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.3.13 Radiated emission measurements from 18000 to 25000 MHz at the low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
100 kHz RBW

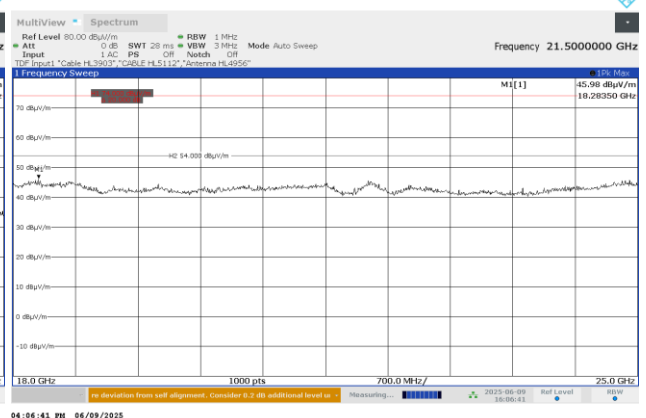
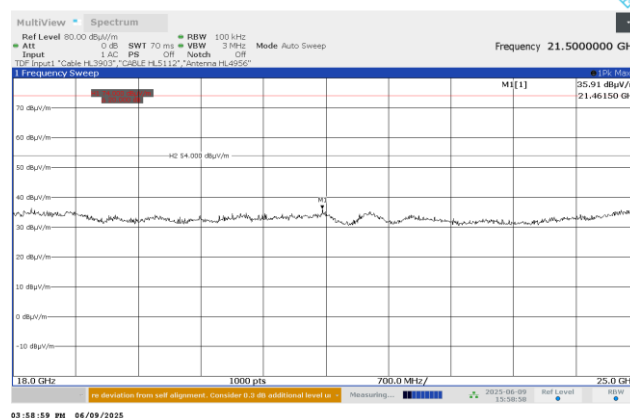
1 MHz RBW



Plot 7.3.14 Radiated emission measurements from 18000 to 25000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
100 kHz RBW

1 MHz RBW





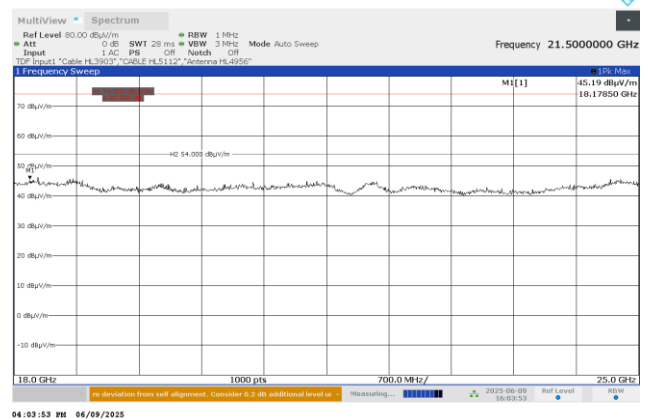
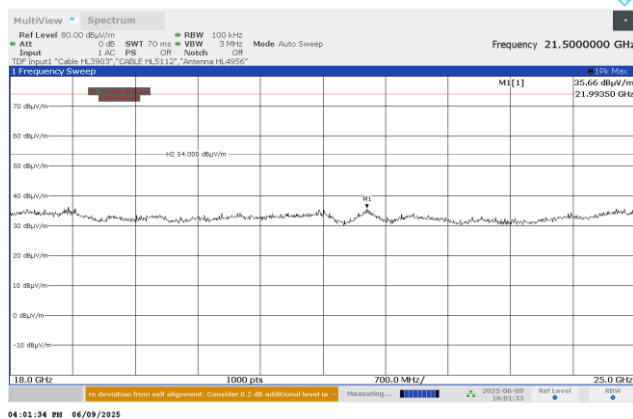
HERMON LABORATORIES

Test specification:		Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power	
Test procedure:		ANSI C63.10 sections 11.9.2.2.4	
Test mode:		Verdict: PASS	
Date(s):			
05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.3.15 Radiated emission measurements from 18000 to 25000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
100 kHz RBW

1 MHz RBW



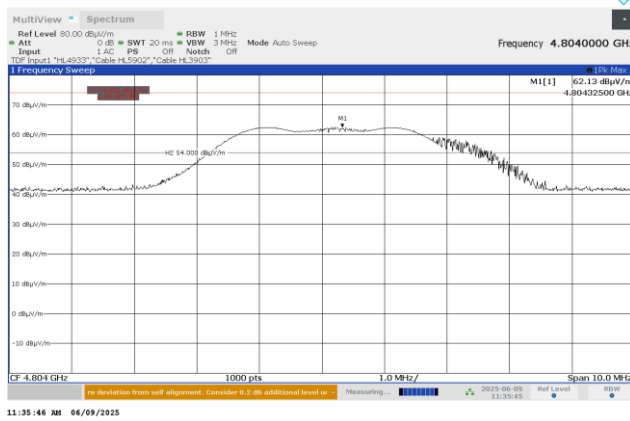


HERMON LABORATORIES

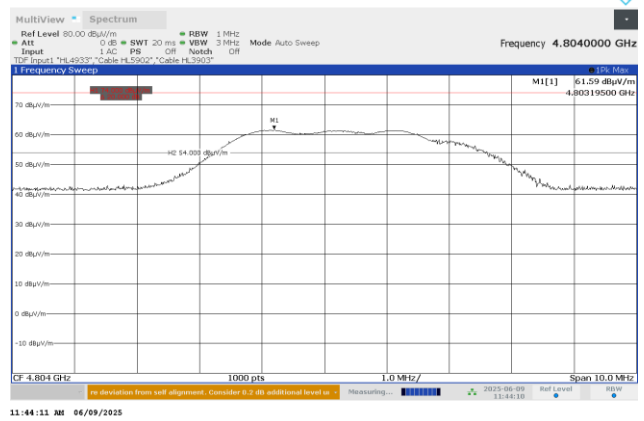
Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.3.16 Radiated emission measurements at the second harmonic of low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m



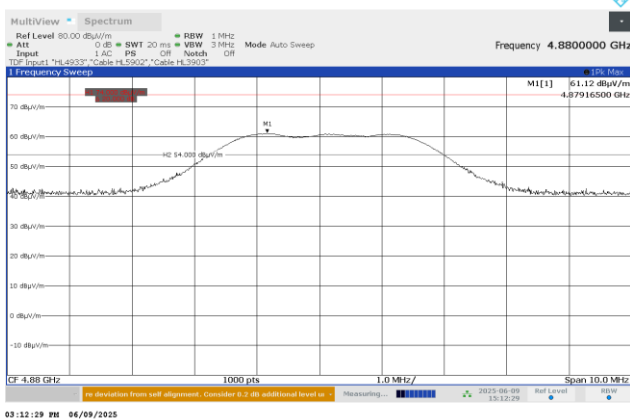
Vertical antenna polarization



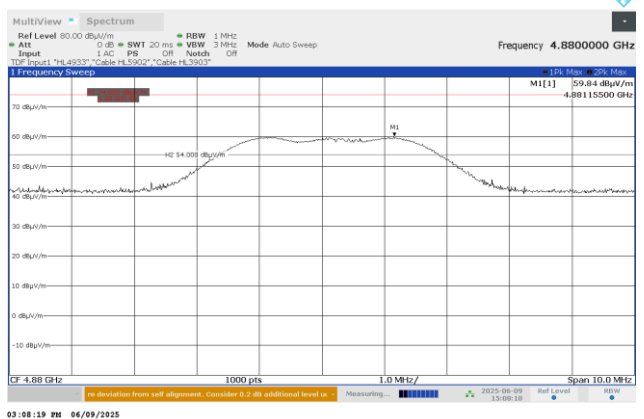
Horizontal antenna polarization

Plot 7.3.17 Radiated emission measurements at the second harmonic of mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m



Vertical antenna polarization



Horizontal antenna polarization



HERMON LABORATORIES

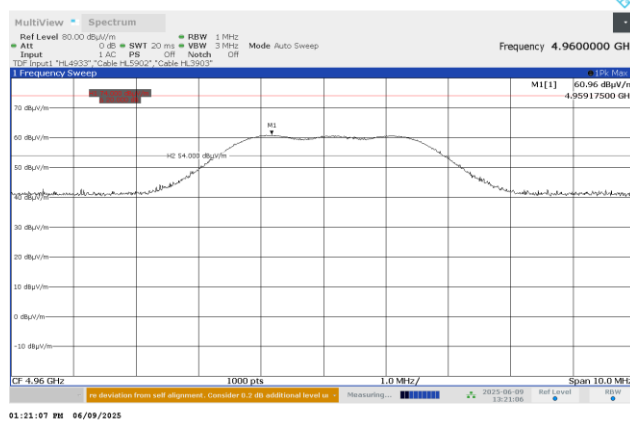
Report ID: MAYRAD_FCC.56775_Rev1.docx

Date of Issue: 4-Feb-26

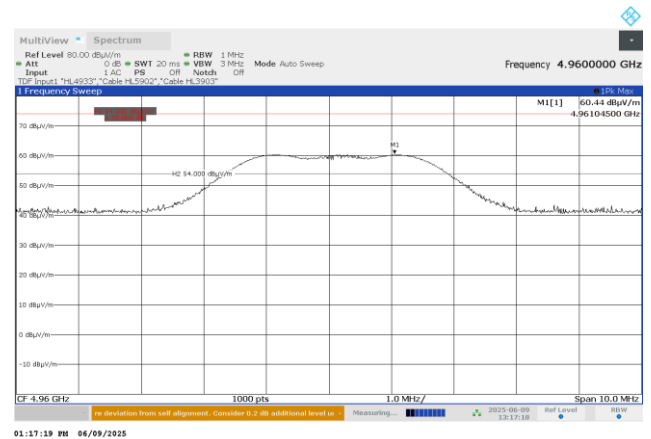
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Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.3.18 Radiated emission measurements at the second harmonic of high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m



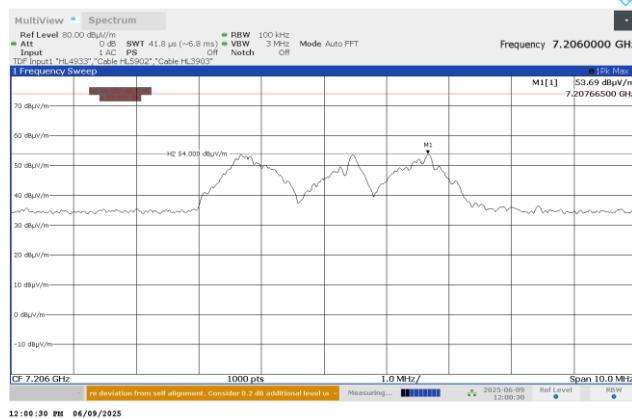
Vertical antenna polarization



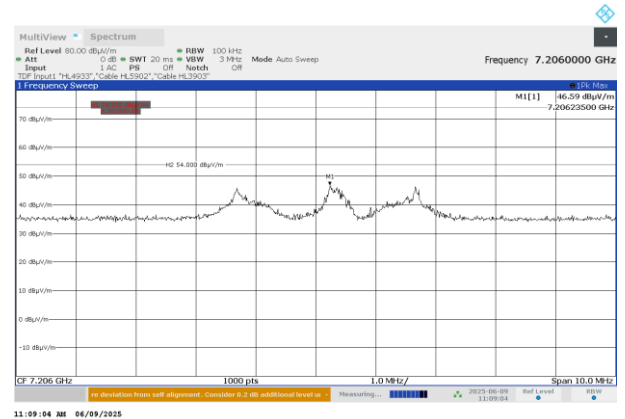
Horizontal antenna polarization

Plot 7.3.19 Radiated emission measurements at the third harmonic of low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m



Vertical antenna polarization



Horizontal antenna polarization

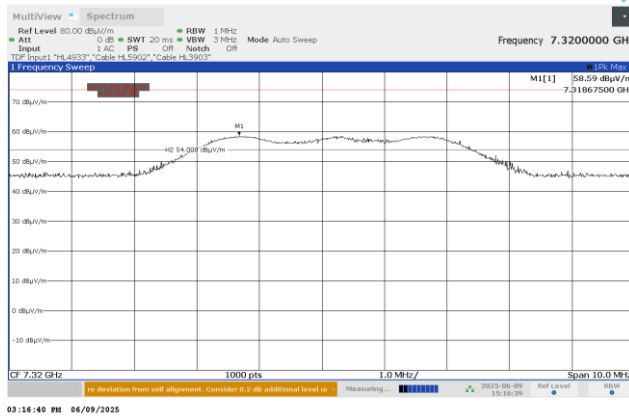


HERMON LABORATORIES

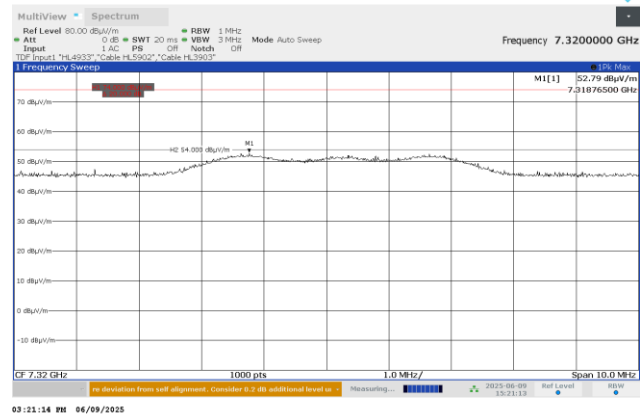
Test specification:		Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power	
Test procedure:		ANSI C63.10 sections 11.9.2.2.4	
Test mode:		Verdict: PASS	
Date(s):			
05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.3.20 Radiated emission measurements at the third harmonic of mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m



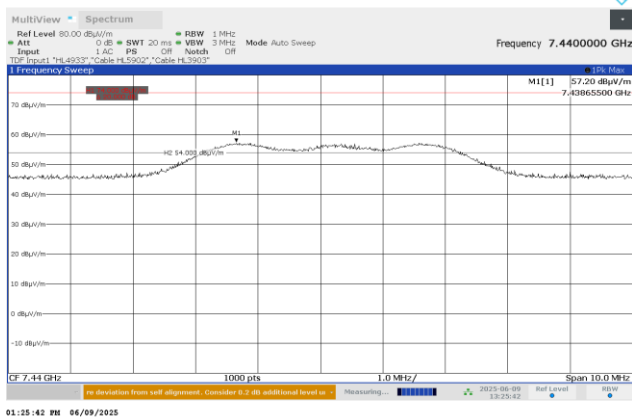
Vertical antenna polarization



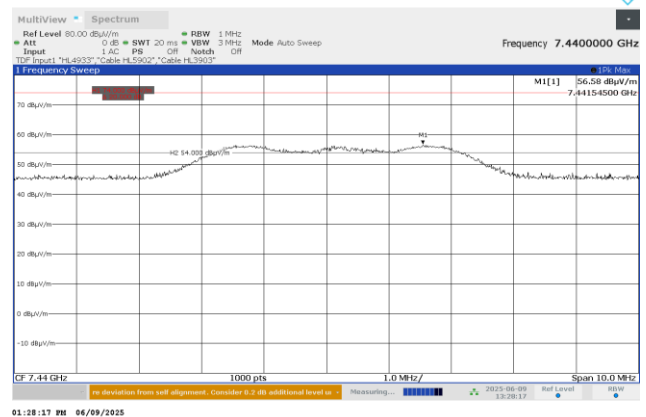
Horizontal antenna polarization

Plot 7.3.21 Radiated emission measurements at the third harmonic of high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m



Vertical antenna polarization



Horizontal antenna polarization

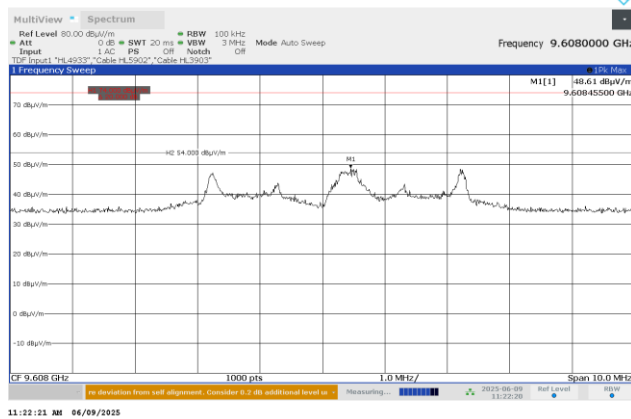


HERMON LABORATORIES

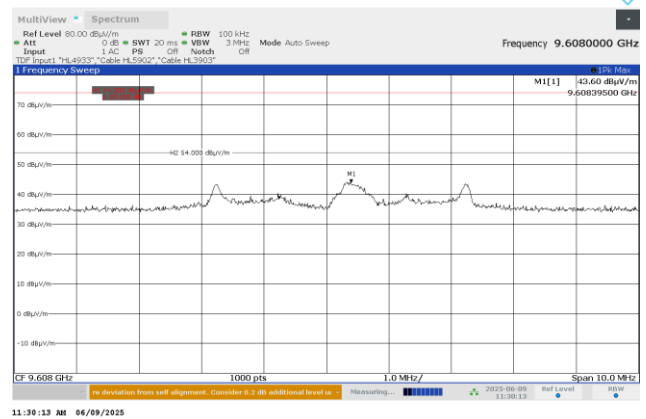
Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.3.22 Radiated emission measurements at the fourth harmonic of low carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m



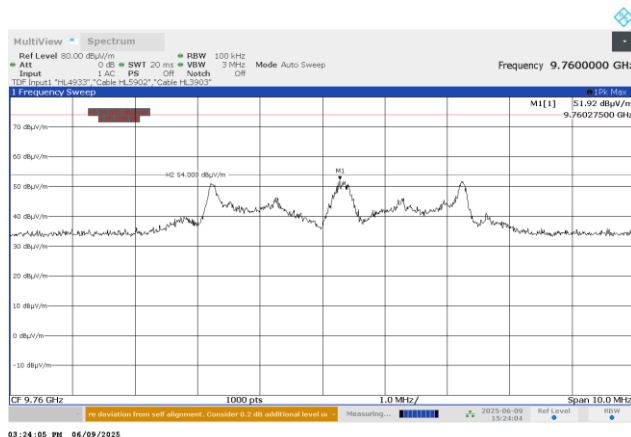
Vertical antenna polarization



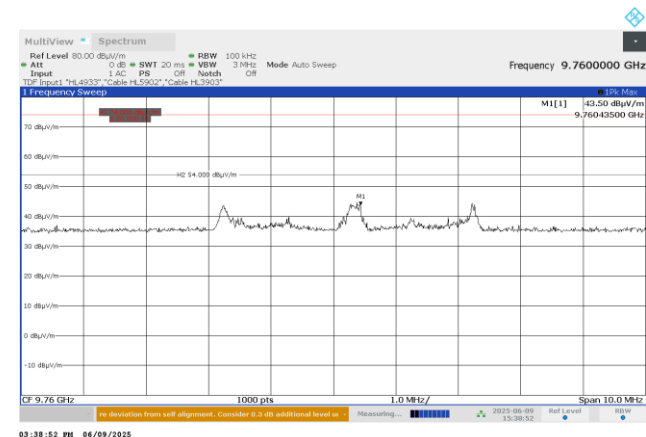
Horizontal antenna polarization

Plot 7.3.23 Radiated emission measurements at the fourth harmonic of mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m



Vertical antenna polarization



Horizontal antenna polarization



HERMON LABORATORIES

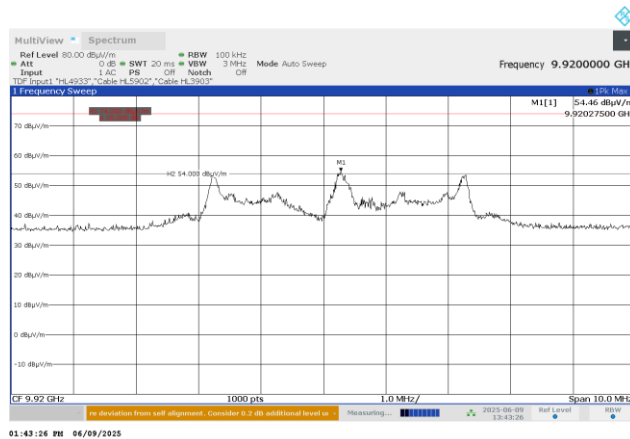
Report ID: MAYRAD_FCC.56775_Rev1.docx

Date of Issue: 4-Feb-26

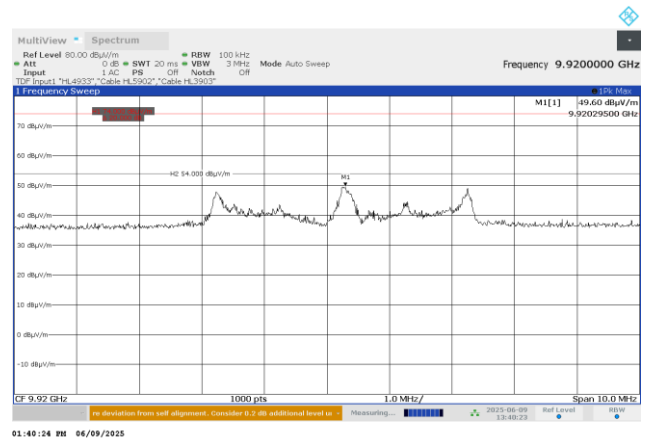
Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.3.24 Radiated emission measurements at the fourth harmonic of high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m



Vertical antenna polarization



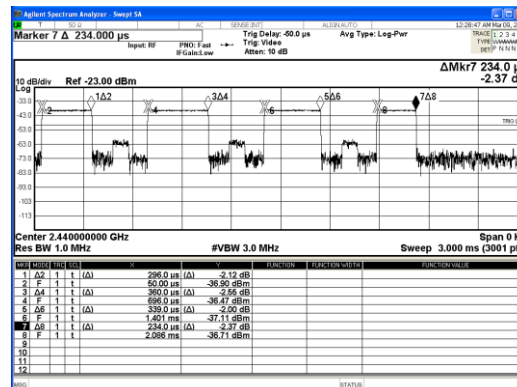
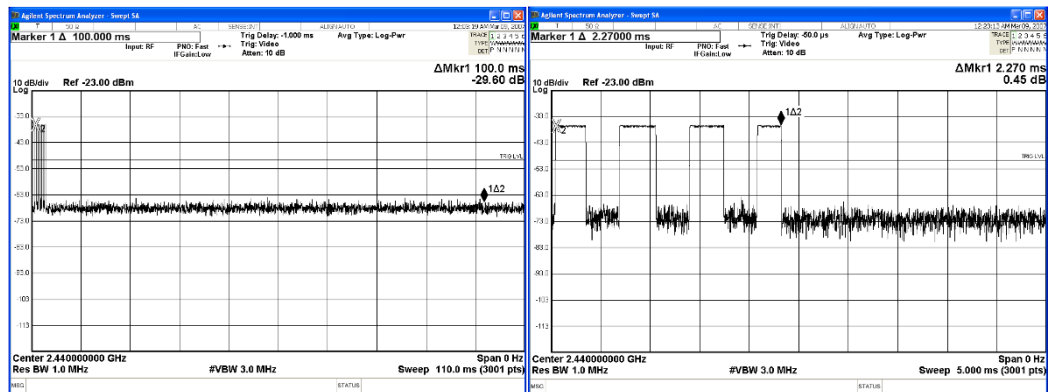
Horizontal antenna polarization



HERMON LABORATORIES

Test specification: Section 15.247(b)3 / RSS-247 section 5.4(4), Maximum output power			
Test procedure: ANSI C63.10 sections 11.9.2.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.3.25 Transmission pulse duration and period



Signal from nearby accompanying device

$$AF=20\text{Log}((0.296+0.36+0.339+0.234)/100)= 20\text{Log}(1.229/100)= -38.2 \text{ dB}$$



Test specification: Section 15.247(d) / RSS-247 section 5.5, Band edge emissions			
Test procedure: ANSI C63.10 section 11.12.1			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

7.4 Band edge radiated emissions

7.4.1 General

This test was performed to measure emissions, radiated from the EUT at the assigned frequency band edges. Specification test limits are given in Table 7.4.1.

Table 7.4.1 Band edge emission limits

Output power	Assigned frequency, MHz	Attenuation below carrier*, dBc	Field strength at 3 m within restricted bands, dB(μV/m)	
			Peak	Average
Peak	2400.0 – 2483.5	20.0	74.0	54.0

* - Band edge emission limit is provided in terms of attenuation below the peak of modulated carrier measured with the same resolution bandwidth.

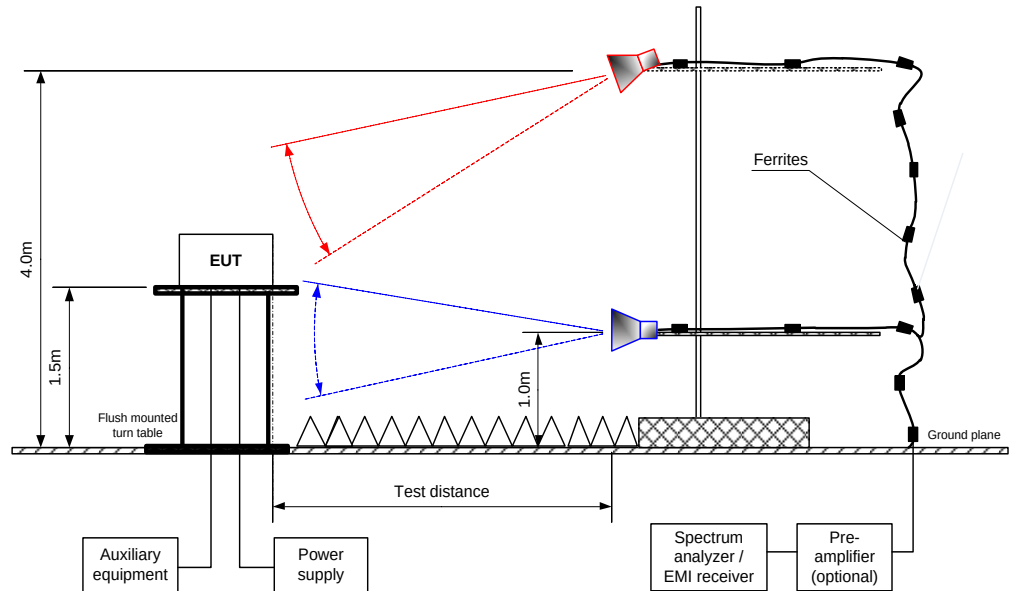
7.4.2 Test procedure

- 7.4.2.1 The EUT was set up as shown in Figure 7.4.1, energized normally modulated at the maximum data rate and its proper operation was checked.
- 7.4.2.2 The EUT was adjusted to produce maximum available to end user RF output power at the lowest carrier frequency.
- 7.4.2.3 The spectrum analyzer span was set to capture the carrier frequency and associated modulation products. The resolution bandwidth was set wider than 1 % of the frequency span.
- 7.4.2.4 The spectrum analyzer was set in max hold mode and allowed trace to stabilize. The highest emission level within the authorized band was measured.
- 7.4.2.5 The maximum band edge emission and modulation product outside of the band were measured as provided in Table 7.4.2 and associated plots and referenced to the highest emission level measured within the authorized band.
- 7.4.2.6 The above procedure was repeated with the EUT adjusted to produce maximum RF output power at the highest carrier frequency.



Test specification: Section 15.247(d) / RSS-247 section 5.5, Band edge emissions			
Test procedure: ANSI C63.10 section 11.12.1			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Figure 7.4.1 Band edge emission test setup





Test specification: Section 15.247(d) / RSS-247 section 5.5, Band edge emissions			
Test procedure: ANSI C63.10 section 11.12.1			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Table 7.4.2 Band edge emission outside restricted bands test results

ASSIGNED FREQUENCY RANGE: 2400 – 2483.5 MHz
DETECTOR USED: Peak
MODULATION: GFSK
RESOLUTION BANDWIDTH: 100 kHz

BIT RATE: 1 Mbps

Frequency, MHz	Band edge emission, dBuV/m	Emission at carrier, dBuV/m	Attenuation below carrier, dBc	Limit, dBc	Margin, dB*	Verdict
2400	49.97	92.96	42.99	20	22.99	Pass

BIT RATE: 2 Mbps

Frequency, MHz	Band edge emission, dBuV/m	Emission at carrier, dBuV/m	Attenuation below carrier, dBc	Limit, dBc	Margin, dB*	Verdict
2400	60.17	93.13	32.96	20	12.96	Pass

*- Margin = Attenuation below carrier – specification limit.

Table 7.4.3 Band edge emission inside restricted bands test results

ASSIGNED FREQUENCY RANGE: 2400.0 – 2483.5 MHz
DETECTOR USED: Peak
MODULATION: GFSK
RESOLUTION BANDWIDTH: 1000 kHz

BIT RATE: 1 Mbps

Frequency, MHz	Peak field strength			Average field strength			Verdict
	Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*	Measured Peak, dB(μV/m)	Limit AVR, dB(μV/m)	Margin, dB*	
2390.0	44.38	74.0	-29.62	44.38	54.0	-9.62	Pass
2483.5	50.93	74.0	-23.07	50.93	54.0	-3.07	Pass

*- Margin = Attenuation below carrier – specification limit.

BIT RATE: 2 Mbps

Frequency, MHz	Peak field strength			Average field strength			Verdict
	Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*	Measured Peak, dB(μV/m)	Limit AVR, dB(μV/m)	Margin, dB*	
2390.0	43.67	74.0	-30.33	43.67	54.0	-10.33	Pass
2483.5	52.33	74.0	-21.67	52.33	54.0	-1.67	Pass

*- Margin = Attenuation below carrier – specification limit.

Reference numbers of test equipment used

HL 3903	HL 4474	HL 5902	HL 7585				
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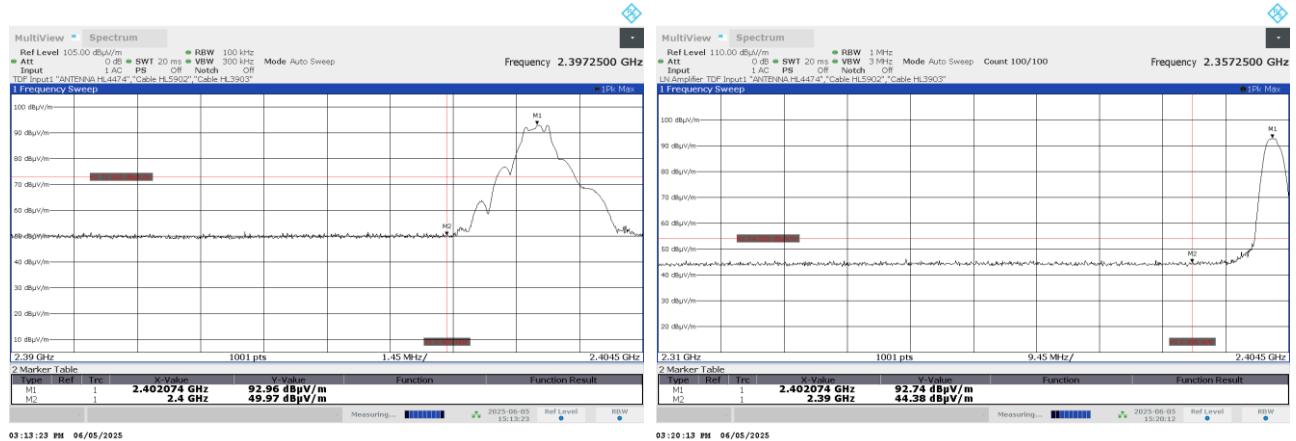
Full description is given in Appendix A.



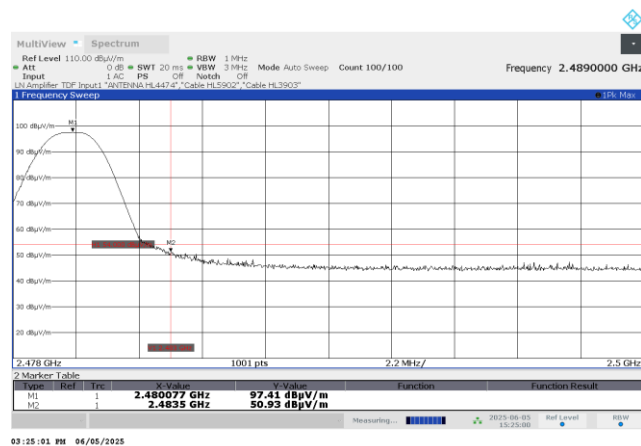
HERMON LABORATORIES

Test specification: Section 15.247(d) / RSS-247 section 5.5, Band edge emissions			
Test procedure: ANSI C63.10 section 11.12.1			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.4.1 The highest band edge emission at low carrier frequency, 1 Mbps



Plot 7.4.2 The highest band edge emission at high carrier frequency, 1 Mbps

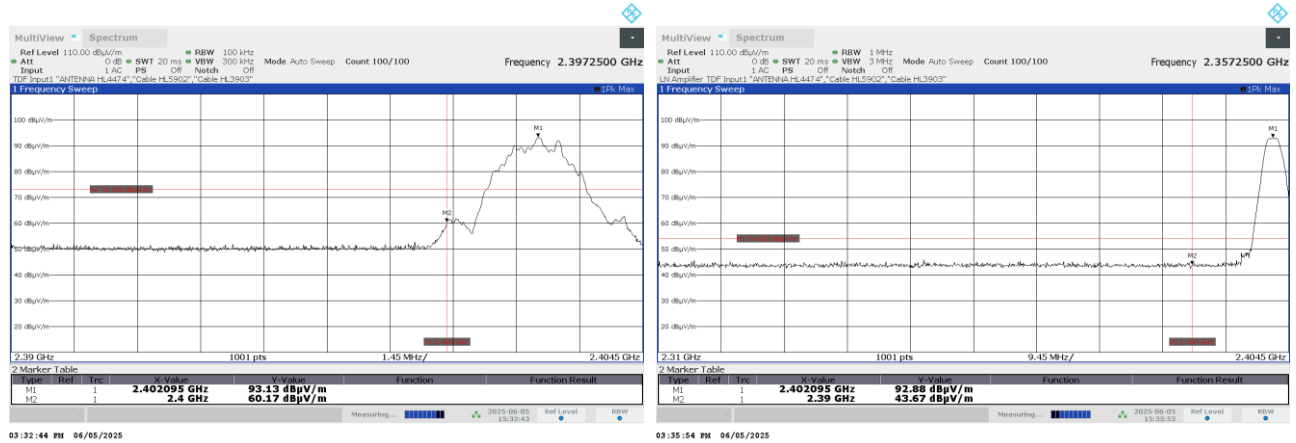




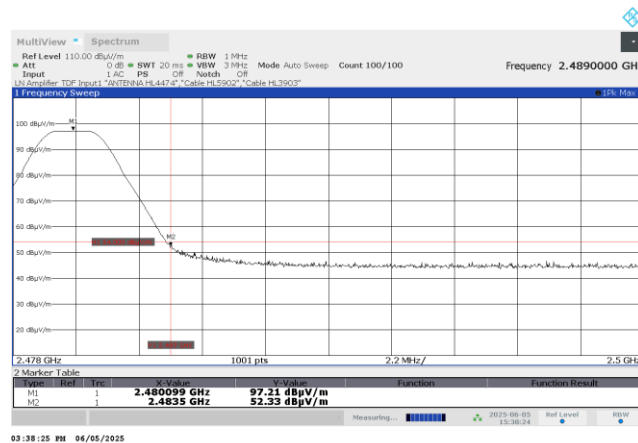
HERMON LABORATORIES

Test specification: Section 15.247(d) / RSS-247 section 5.5, Band edge emissions			
Test procedure: ANSI C63.10 section 11.12.1			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.4.3 The highest band edge emission at low carrier frequency, 2 Mbps



Plot 7.4.4 The highest band edge emission at high carrier frequency, 2 Mbps





Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Maximum power spectral density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

7.5 Peak spectral power density

7.5.1 General

This test was performed to measure the peak spectral power density radiated by the transmitter RF antenna. Specification test limits are given in Table 7.5.1.

Table 7.5.1 Peak spectral power density limits

Assigned frequency range, MHz	Measurement bandwidth, kHz	Peak spectral power density, dBm	Equivalent field strength limit @ 3m, dB(μV/m)*
902.0 – 928.0	3.0	8.0	103.2
2400.0 – 2483.5			
5725.0 – 5850.0			

* - Equivalent field strength limit was calculated from the peak spectral power density as follows: $E = \sqrt{30 \times P} / r$, where P is peak spectral power density and r is antenna to EUT distance in meters.

7.5.2 Test procedure for field strength measurements

7.5.2.1 The EUT was set up as shown in Figure 7.5.1, energized and its proper operation was checked.

7.5.2.2 The EUT was adjusted to produce maximum available to end user RF output power.

7.5.2.3 The field strength of the EUT carrier frequency was measured with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360° and the measuring antenna height was swept in both vertical and horizontal polarizations.

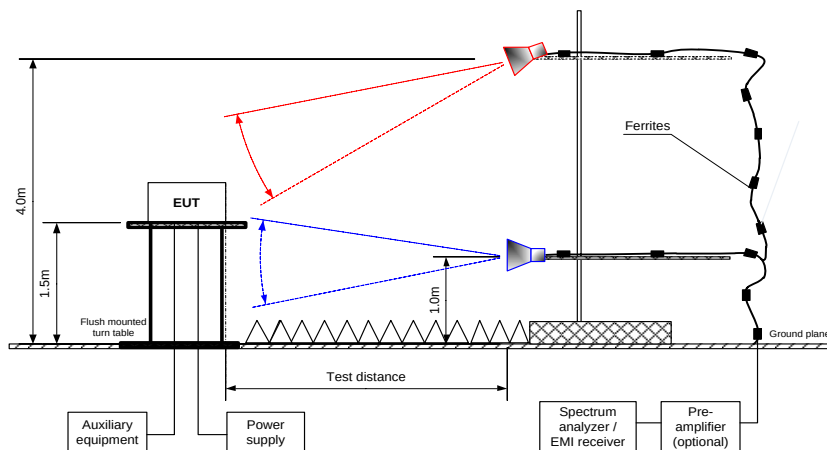
7.5.2.4 The frequency span of spectrum analyzer was set to capture the entire 6 dB band of the transmitter, in peak hold mode with resolution bandwidth set to 3.0 kHz, video bandwidth wider than resolution bandwidth, auto sweep time and sufficient number of sweeps was allowed for trace stabilization. The spectrum lines spacing was verified to be wider than 3 kHz. Otherwise the resolution bandwidth was reduced until individual spectrum lines were resolved and the power of individual spectrum lines was integrated over 3 kHz band.

7.5.2.5 The peak of emission was zoomed with span set just wide enough to capture the emission peak area and sweep time was set equal to span width divided by resolution bandwidth. Spectrum analyzer was set in peak hold mode, sufficient number of sweeps was allowed for trace stabilization and peak spectral power density was measured as provided in Table 7.5.2 and associated plots.



Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Maximum power spectral density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Figure 7.5.1 Setup for carrier field strength measurements





Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Maximum power spectral density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Table 7.5.2 Field strength measurement of peak spectral power density

ASSIGNED FREQUENCY: 2400 – 2483.5 MHz
 TEST DISTANCE: 3 m
 TEST SITE: Semi anechoic chamber
 EUT HEIGHT: 1.5 m
 DETECTOR USED: Peak
 TEST ANTENNA TYPE: Double ridged guide (above 1000 MHz)
 MODULATION: GFSK
 BIT RATE: 1 Mbps

Frequency, MHz	Peak spectral power density, dB(μV/m)	EUT antenna gain, dBi	Limit, dB(μV/m)	Margin, dB*	Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
2402	92.99	1.95	103.2	-12.16	Horizontal	1.20	120	Pass
2440	96.34	1.95	103.2	-8.81	Horizontal	1.15	115	Pass
2480	96.97	1.95	103.2	-8.18	Horizontal	1.30	110	Pass

BIT RATE: 2Mbps

Frequency, MHz	Peak spectral power density, dB(μV/m)	EUT antenna gain, dBi	Limit, dB(μV/m)	Margin, dB*	Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
2402	93.14	1.95	103.2	-12.01	Horizontal	1.70	110	Pass
2440	93.90	1.95	103.2	-11.25	Horizontal	1.78	112	Pass
2480	96.76	1.95	103.2	-8.39	Horizontal	1.50	120	Pass

*- Margin = Peak spectral power density - EUT antenna gain - 95.2 - calculated Peak spectral power density limit.

** - EUT front panel refer to 0 degrees position of turntable.

Reference numbers of test equipment used

HL 3903	HL 4474	HL 5902	HL 7585				
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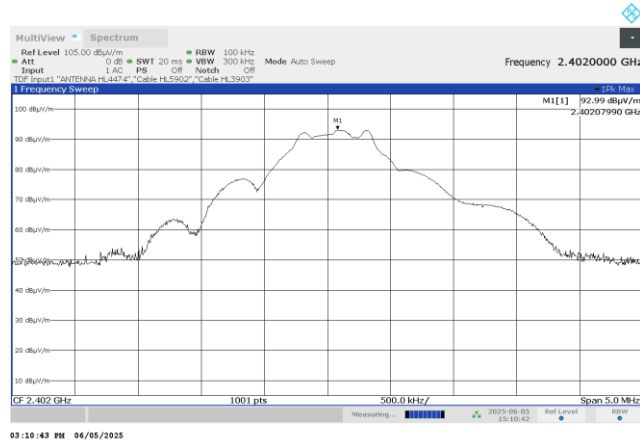
Full description is given in Appendix A.



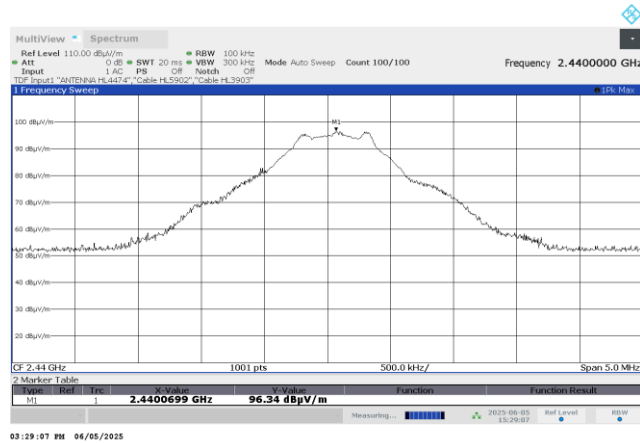
HERMON LABORATORIES

Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Maximum power spectral density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.5.1 Peak spectral power density at low frequency for bitrate 1 Mbps



Plot 7.5.2 Peak spectral power density at mid frequency for bitrate 1 Mbps





HERMON LABORATORIES

Test specification:		Section 15.247(e) / RSS-247 section 5.2(2), Maximum power spectral density	
Test procedure:		ANSI C63.10 section 11.10.2	
Test mode:		Verdict: PASS	
Date(s):			
05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.5.3 Peak spectral power density at high frequency for bitrate 1 Mbps





HERMON LABORATORIES

Test specification: Section 15.247(e) / RSS-247 section 5.2(2), Maximum power spectral density			
Test procedure: ANSI C63.10 section 11.10.2			
Test mode: Compliance		Verdict: PASS	
Date(s): 05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.5.4 Peak spectral power density at low frequency for bitrate 2 Mbps



Plot 7.5.5 Peak spectral power density at mid frequency for bitrate 2 Mbps





HERMON LABORATORIES

Test specification:		Section 15.247(e) / RSS-247 section 5.2(2), Maximum power spectral density	
Test procedure:		ANSI C63.10 section 11.10.2	
Test mode:		Verdict: PASS	
Date(s):			
05-Jun-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 10.8 VDC
Remarks:			

Plot 7.5.6 Peak spectral power density at high frequency for bitrate 2 Mbps





Test specification:		Section 15.207(a), Conducted emission	
Test procedure:		ANSI C63.4, Section 13.1.3	
Test mode:		Verdict: PASS	
Date(s):			
25-May-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 120 VAC, 60 Hz
Remarks:			

7.6 Conducted emissions

7.6.1 General

This test was performed to measure common mode conducted emissions at the power port. Specification test limits are given in Table 7.6.1. The worst test results (the lowest margins) were recorded in Table 7.6.2 and shown in the associated plots.

Table 7.6.1 Limits for conducted emissions

Frequency, MHz	Class B limit, dB(μV)	
	QP	AVRG
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5.0	56	46
5.0 - 30	60	50

* The limit decreases linearly with the logarithm of frequency.

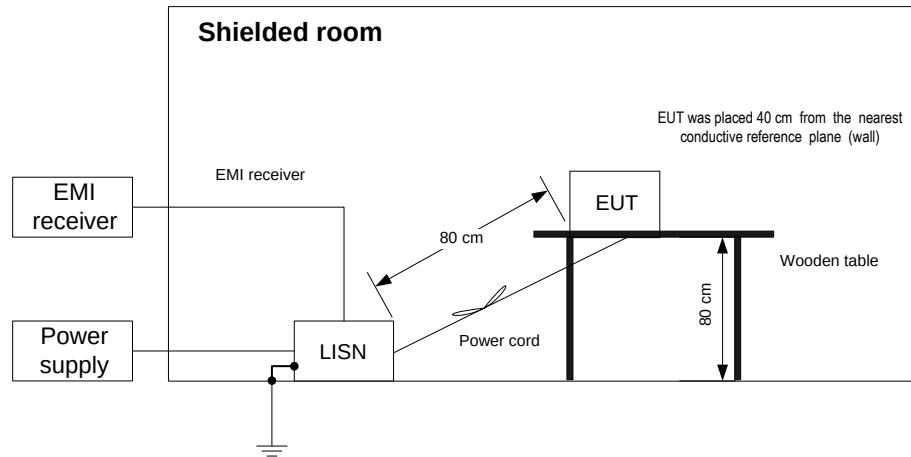
7.6.2 Test procedure

- 7.6.2.1** The EUT was set up as shown in Figure 7.6.1 and associated photographs, energized and the performance check was conducted.
- 7.6.2.2** The measurements were performed at power terminals with the LISN, connected to a spectrum analyzer in the frequency range referred to in Table 7.6.2. Unused coaxial connector of the LISN was terminated with 50 Ohm. Quasi-peak and average detectors were used throughout the testing.
- 7.6.2.3** The position of the device cables was varied to determine maximum emission level.



Test specification: Section 15.207(a), Conducted emission			
Test procedure: ANSI C63.4, Section 13.1.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 25-May-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 120 VAC, 60 Hz
Remarks:			

Figure 7.6.1 Setup for conducted emission measurements, table-top equipment





HERMON LABORATORIES

Test specification: Section 15.207(a), Conducted emission			
Test procedure: ANSI C63.4, Section 13.1.3			
Test mode: Compliance		Verdict: PASS	
Date(s): 25-May-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 120 VAC, 60 Hz
Remarks:			

Table 7.6.2 Conducted emission test results

LINE: AC mains
 EUT OPERATING MODE: Transmit
 EUT SET UP: TABLE-TOP
 TEST SITE: SHIELDED ROOM
 DETECTORS USED: PEAK / QUASI-PEAK / AVERAGE
 FREQUENCY RANGE: 150 kHz - 30 MHz
 RESOLUTION BANDWIDTH: 9 kHz

Frequency, MHz	Peak emission, dB(μV)	Quasi-peak			Average			Line ID	Verdict
		Measured emission, dB(μV)	Limit, dB(μV)	Margin, dB*	Measured emission, dB(μV)	Limit, dB(μV)	Margin, dB*		
0.420	NA	42.89	57.45	-14.56	34.51	47.45	-12.94	L1	Pass
0.422	NA	43.41	57.41	-14.00	34.87	47.41	-12.54		
0.424	NA	43.77	57.37	-13.60	34.98	47.37	-12.39		
0.426	NA	44.16	57.33	-13.17	34.61	47.33	-12.72		
0.428	NA	44.37	57.29	-12.92	34.01	47.29	-13.28		
0.430	NA	44.58	57.25	-12.67	33.60	47.25	-13.65		
0.422	NA	44.37	57.41	-13.04	36.49	47.41	-10.92	L2	Pass
0.424	NA	44.60	57.37	-12.77	36.84	47.37	-10.53		
0.426	NA	44.96	57.33	-12.37	36.81	47.33	-10.52		
0.428	NA	45.26	57.29	-12.03	36.42	47.29	-10.87		
0.440	NA	45.30	57.06	-11.76	36.40	47.06	-10.66		
0.442	NA	44.95	57.02	-12.07	36.41	47.02	-10.61		

*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

HL 1501	HL 2874	HL 3016	HL 3047	HL 5476	HL 5707		
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Full description is given in Appendix A.

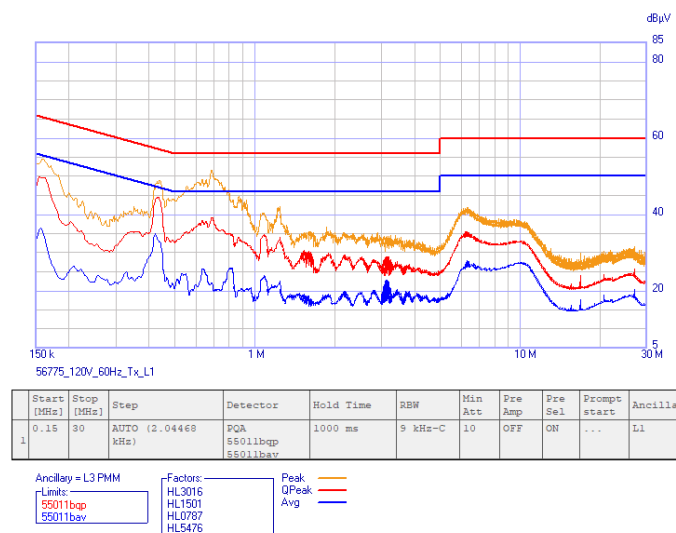


HERMON LABORATORIES

Test specification:		Section 15.207(a), Conducted emission	
Test procedure:		ANSI C63.4, Section 13.1.3	
Test mode:		Verdict: PASS	
Date(s):			
25-May-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 120 VAC, 60 Hz
Remarks:			

Plot 7.6.1 Conducted emission measurements

LINE: L1
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK, QUASI-PEAK, AVERAGE



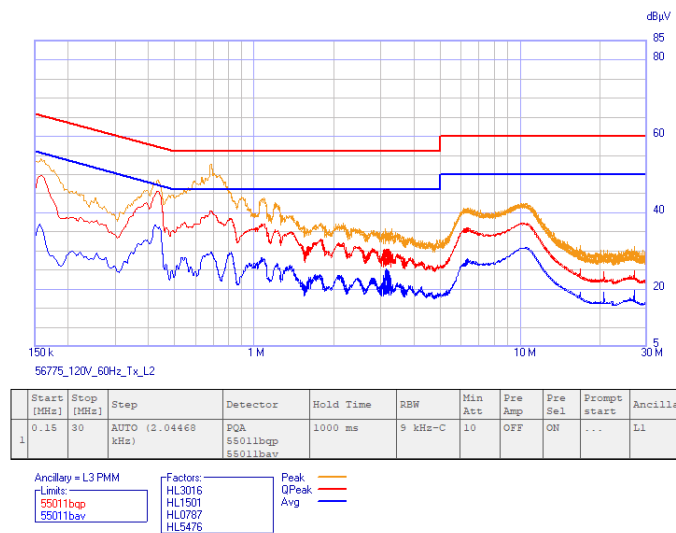


HERMON LABORATORIES

Test specification:		Section 15.207(a), Conducted emission	
Test procedure:		ANSI C63.4, Section 13.1.3	
Test mode:		Verdict: PASS	
Date(s):			
25-May-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 120 VAC, 60 Hz
Remarks:			

Plot 7.6.2 Conducted emission measurements

LINE: L2
EUT OPERATING MODE: Transmit
LIMIT: QUASI-PEAK, AVERAGE
DETECTOR: PEAK, QUASI-PEAK, AVERAGE





Test specification: FCC Part 15, Section 203 / RSS-Gen, Section 6.8, Antenna requirements			
Test procedure: Visual inspection / supplier declaration			
Test mode: Compliance		Verdict: PASS	
Date(s): 25-May-25			
Temperature: 24 °C	Relative Humidity: 42 %	Air Pressure: 1015 hPa	Power: 120 VAC, 60 Hz
Remarks:			

7.7 Antenna requirements

The EUT was verified for compliance with antenna requirements. A transmitter shall be designed to ensure that no antenna other than that furnished by the responsible party will be used with the device. It may be either permanently attached or employs a unique antenna connector for every antenna proposed for use with the EUT. This requirement does not apply to professionally installed transmitters.

The rationale for compliance with the above requirements was either visual inspection results or supplier declaration. The summary of results is provided in Table 7.7.1.

Table 7.7.1 Antenna requirements

Requirement	Rationale	Verdict
The transmitter antenna is permanently attached	Visual inspection	Comply
The transmitter employs a unique antenna connector	NA	
The transmitter requires professional installation	NA	

8 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal./ Check	Due Cal./ Check
0446	Antenna, Loop, Active, 10 (9) kHz - 30 MHz	EMCO	6502	2857	18-Feb-25	18-Feb-26
1501	Cable RF, 6 m, BNC/BNC	Belden	M17/167 MIL-C-17	1501	08-May-25	08-May-26
2874	Life - Guard Extreme Isolation Transformer, 230/230, 50 Hz, 1Phase, 1.8 kVA	Taiyo Yuden, Inc.	LGY1.8k-21	FI0412	25-Feb-25	25-Feb-26
3016	LISN, Two-line V-network, 9 kHz to 30 MHz, (50 uH+5 Ohm), CISPR16-1, MIL-461E	Rohde & Schwarz	ESH 3-Z5	892239/002	13-Jan-25	13-Jan-26
3047	AC Power Supply, 0 - 130 & 260v, 45 - 2000 Hz	BEHLMAN	150-C-202	5033	07-Oct-24	07-Oct-25
3903	Microwave Cable Assembly, 40.0 GHz, 1.5 m, SMA/SMA	Huber-Suhner	SUCOFL EX 102A	1226/2A	06-May-24	06-May-25
4474	Double Ridged Waveguide Antenna, 0.8 to 18 GHz	FT-RT Antenna, Inc.	HA-08M18G-NF	2012060901	27-Oct-24	27-Oct-25
4933	Active Horn Antenna, 1 GHz to 18 GHz	COM-POWER CORPORATION	AHA-118	701046	19-Feb-25	19-Feb-26
4956	Active horn antenna, 18 to 40 GHz	COM-POWER CORPORATION	AHA-840	105004	25-Mar-25	25-Mar-26
5112	RF cable, 40 GHz, 5.5 m, K-type	Huber-Suhner	SF102EA/11SK/11SK/5500MM	502494/2EA	02-Jun-24	02-Jun-25
5288	Trilog Antenna, 25 MHz - 8 GHz, 100W	Frankonia	ALX-8000E	00809	08-Apr-25	08-Apr-27
5476	Cable, BNC/BNC, 10.5 m	Western wire	MIL-C-17G	NA	08-May-25	08-May-26
5707	EMI receiver	PMM / Narda	PMM 9010F	060WW91101	19-Jun-24	19-Jun-25
5902	RF cable, 18 GHz, 6.0m, N-type	Huber-Suhner	SF126EA/11N/11N/6000	NA	24-Apr-25	24-Apr-26
7585	EMI Test Receiver, 1 Hz to 44 GHz	Rohde & Schwarz	ESW44	103130	24-Sep-24	24-Sep-25

9 APPENDIX B Test equipment correction factors

HL 0446: Active Loop Antenna
EMCO, model: 6502, s/n 2857

Frequency,	Measured antenna factor, dBS/m	Measurement uncertainty, dB
10	-33.4	±1.0
20	-37.8	±1.0
50	-40.5	±1.0
75	-41.0	±1.0
100	-41.2	±1.0
150	-41.2	±1.0
250	-41.1	±1.0
500	-41.2	±1.0
750	-41.3	±1.0
1000	-41.3	±1.0

Frequency,	Measured antenna factor, dBS/m	Measurement uncertainty, dB
2000	-41.4	±1.0
3000	-41.4	±1.0
4000	-41.5	±1.0
5000	-41.5	±1.0
10000	-41.7	±1.0
15000	-42.1	±1.0
20000	-42.7	±1.0
25000	-44.2	±1.0
30000	-45.8	±1.0

The antenna factor shall be added to receiver reading in dB μ V to obtain field strength in dB μ A/m.

HL 4933: Active Horn Antenna
COM-POWER CORPORATION, model: AHA-118, s/n 701046

Frequency, MHz	Measured antenna factor (with preamplifier), dB/m
1000	-16.1
1500	-15.1
2000	-10.9
2500	-11.9
3000	-11.1
3500	-10.6
4000	-8.6
4500	-8.3
5000	-5.9
5500	-5.7
6000	-3.3
6500	-4.0
7000	-2.2
7500	-1.7
8000	1.1
8500	-0.8
9000	-1.5
9500	-0.2

Frequency, MHz	Measured antenna factor (with preamplifier), dB/m
10000	1.8
10500	1.0
11000	0.3
11500	-0.5
12000	3.1
12500	1.4
13000	-0.3
13500	-0.4
14000	2.5
14500	2.2
15000	1.9
15500	0.5
16000	2.1
16500	1.2
17000	0.6
17500	3.1
18000	4.2

The antenna factor shall be added to receiver reading in dB μ V to obtain field strength in dB μ V/m.



HERMON LABORATORIES

Antenna factor, HL 4956



Active Horn Antenna Factor Calibration

18 GHz to 40 GHz

Equipment:			ACTIVE HORN ANTENNA		
Model:			AHA-840		
Serial Number:			105004		
Calibration Distance:			3 meter		
Polarization:			Horizontal		
Calibration Date:			1/26/2015		
Frequency (GHz)	Preamplifier Gain (dB)	Antenna Factor with pre-amp (dB/m)	Frequency (GHz)	Preamplifier Gain (dB)	Antenna Factor with pre-amp (dB/m)
18	38.83	-1.06	29.5	42.47	-5.33
18.5	39.34	-2.65	30	41.91	-4.86
19	39.71	-3.88	30.5	41.60	-4.64
19.5	39.87	-4.35	31	41.52	-4.60
20	39.98	-3.97	31.5	41.56	-4.79
20.5	40.42	-3.68	32	41.80	-5.21
21	41.12	-4.06	32.5	42.29	-5.54
21.5	41.74	-5.46	33	42.79	-5.63
22	42.14	-6.22	33.5	42.88	-5.38
22.5	42.35	-6.42	34	42.62	-4.76
23	42.50	-6.59	34.5	42.63	-4.84
23.5	42.65	-6.82	35	43.15	-5.13
24	42.81	-7.01	35.5	43.91	-5.83
24.5	42.86	-7.37	36	44.59	-6.39
25	42.73	-7.53	36.5	45.04	-6.64
25.5	42.77	-7.45	37	45.08	-6.40
26	42.85	-7.21	37.5	44.82	-5.75
26.5	42.98	-7.17	38	44.16	-4.58
27	43.14	-7.22	38.5	42.90	-2.66
27.5	43.18	-7.32	39	42.39	-1.71
28	43.04	-7.10	39.5	43.76	-2.49
28.5	43.01	-6.73	40	45.98	-5.21
Calibration per ANSI C63.5: 2006 Standard Site Method, Equations 1-6 (3-antenna) Corrected Reading (dBμV/m) = Meter Reading (dBμV) + AFE(dB/m)					

HL 5288: Trilog Antenna
Frankonia, model: ALX-8000E, s/n: 00809
30-1000 MHz

Frequency, MHz	Antenna factor, dB/m
30	14.96
35	15.33
40	16.37
45	17.56
50	17.95
60	16.87
70	13.22
80	10.56
90	13.61
100	15.46
120	14.03
140	12.23

Frequency, MHz	Antenna factor, dB/m
160	12.67
180	13.34
200	15.40
250	16.42
300	17.28
400	19.98
500	21.11
600	22.90
700	24.13
800	25.25
900	26.35
1000	27.18

The antenna factor shall be added to receiver reading in dB μ V to obtain field strength in dB μ V/m.

above 1000 MHz

Frequency, MHz	Antenna factor, dB/m
1000	26.9
1100	28.1
1200	28.4
1300	29.6
1400	29.1
1500	30.4
1600	30.7
1700	31.5
1800	32.3
1900	32.6
2000	32.5
2100	32.9
2200	33.5
2300	33.2
2400	33.7
2500	34.6
2600	34.7
2700	34.6
2800	35.0
2900	35.5
3000	36.2
3100	36.8
3200	36.8
3300	37.0
3400	37.5
3500	38.2

Frequency, MHz	Antenna factor, dB/m
3600	38.9
3700	39.4
3800	39.4
3900	39.6
4000	39.7
4100	39.8
4200	40.5
4300	40.9
4400	41.1
4500	41.4
4600	41.3
4700	41.6
4800	41.9
4900	42.3
5000	42.7
5100	43.0
5200	42.9
5300	43.5
5400	43.6
5500	44.3
5600	44.7
5700	45.0
5800	45.0
5900	45.3
6000	45.9

The antenna factor shall be added to receiver reading in dB μ V to obtain field strength in dB μ V/m.

10 APPENDIX C Measurement uncertainties

Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Conducted carrier power at RF antenna connector	Below 12.4 GHz: ± 1.7 dB 12.4 GHz to 40 GHz: ± 2.3 dB
Conducted emissions at RF antenna connector	9 kHz to 2.9 GHz: ± 2.6 dB 2.9 GHz to 6.46 GHz: ± 3.5 dB 6.46 GHz to 13.2 GHz: ± 4.3 dB 13.2 GHz to 22.0 GHz: ± 5.0 dB 22.0 GHz to 26.8 GHz: ± 5.5 dB 26.8 GHz to 40.0 GHz: ± 4.8 dB
Occupied bandwidth	± 8.0 %
Duty cycle, timing (Tx ON / OFF) and average factor measurements	± 1.0 %
Conducted emissions with LISN	9 kHz to 150 kHz: ± 3.9 dB 150 kHz to 30 MHz: ± 3.8 dB
Radiated emissions at 3 m measuring distance Horizontal polarization Vertical polarization	Biconilog antenna: ± 5.3 dB Biconical antenna: ± 5.0 dB Log periodic antenna: ± 5.3 dB Double ridged horn antenna: ± 5.3 dB Biconilog antenna: ± 6.0 dB Biconical antenna: ± 5.7 dB Log periodic antenna: ± 6.0 dB Double ridged horn antenna: ± 6.0 dB

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.

11 APPENDIX D Test laboratory description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, Radio, Safety, Environmental and Telecommunication testing facility.

Hermon Laboratories is recognized and accredited by the Federal Communications Commission (USA) for relevant parts of Code of Federal Regulations 47 (CFR 47), Test Firm Registration Number is 927748, Designation Number is IL1001; Recognized by Innovation, Science and Economic Development Canada for wireless and terminal testing (ISED), ISED #2186A, CAB identifier is IL1001; Certified by VCCI, Japan (the registration numbers for OATS are R-10808 for RE measurements below 1 GHz, G-20112 for RE measurements above 1 GHz, R-11082 for anechoic chamber for RE measurements below 1 GHz, G-10869 for RE measurements above 1 GHz, C-10845 for conducted emissions site and T-11606 for conducted emissions at telecommunication ports).

The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing, environmental simulation and calibration (for exact scope please refer to Certificate No. 839.01, 839.03 and 839.04).

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12 APPENDIX E Specification references

FCC 47CFR part 15: 2023	Radio Frequency Devices
ANSI C63.10: 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
RSS-247 Issue 4: 2025	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSS) and Licence- Exempt Local Area Network (LE-LAN) Devices
RSS-Gen Issue 5 with_amendment_1_2: 2021	General Requirements and Information for the Certification of Radiocommunication Equipment

13 APPENDIX F Abbreviations and acronyms

AC	alternating current
A/m	ampere per meter
AM	amplitude modulation
AVRG	average (detector)
cm	centimeter
dB	decibel
dBm	decibel referred to one milliwatt
dB(μ V)	decibel referred to one microvolt
dB(μ V/m)	decibel referred to one microvolt per meter
dB(μ A)	decibel referred to one microampere
DC	direct current
EUT	equipment under test
F	frequency
GHz	gigahertz
GND	ground
H	height
HL	Hermon laboratories
Hz	hertz
k	kilo
kHz	kilohertz
LO	local oscillator
m	meter
MHz	megahertz
min	minute
mm	millimeter
ms	millisecond
μ s	microsecond
NA	not applicable
OATS	open area test site
Ω	Ohm
PS	power supply
QP	quasi-peak
RE	radiated emission
RF	radio frequency
rms	root mean square
Rx	receiver
s	second
T	temperature
Tx	transmit
V	volt

END OF DOCUMENT