

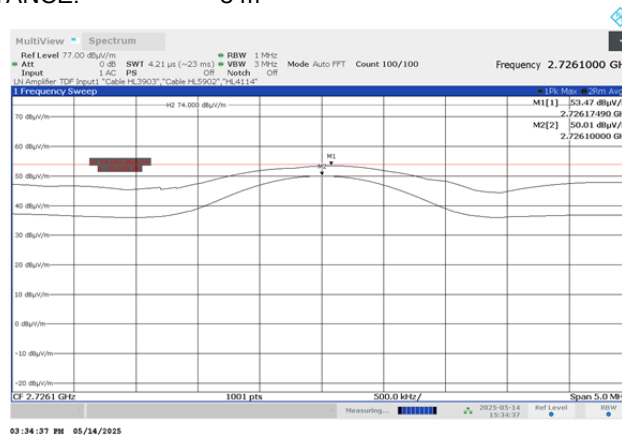


HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

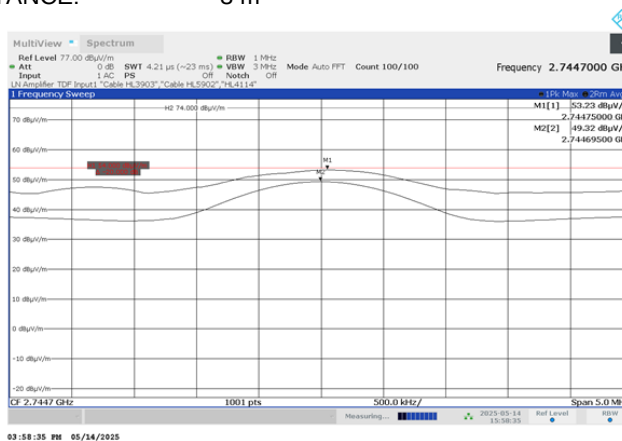
Plot 7.9.14 Radiated emission measurements at the third harmonic of mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m



Plot 7.9.15 Radiated emission measurements at the third harmonic of high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m

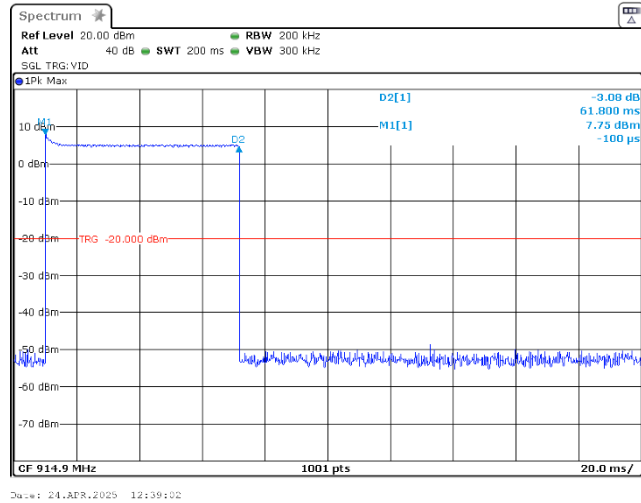




HERMON LABORATORIES

Test specification:		Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions	
Test procedure:		ANSI C63.10, sections 6.5, 6.6	
Test mode:		Verdict: PASS	
Date(s):			
17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Plot 7.9.16 Transmission pulse duration





Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

7.10 Field strength of spurious emissions at AT57-7-22-5-OM-1 (WC)

7.10.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 7.10.1.

Table 7.10.1 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.

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

7.10.2.1 The EUT was set up as shown in Figure 7.10.1, energized and the performance check was conducted.

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

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

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

7.10.3.1 The EUT was set up as shown in Figure 7.10.2, Figure 7.10.3, energized and the performance check was conducted.

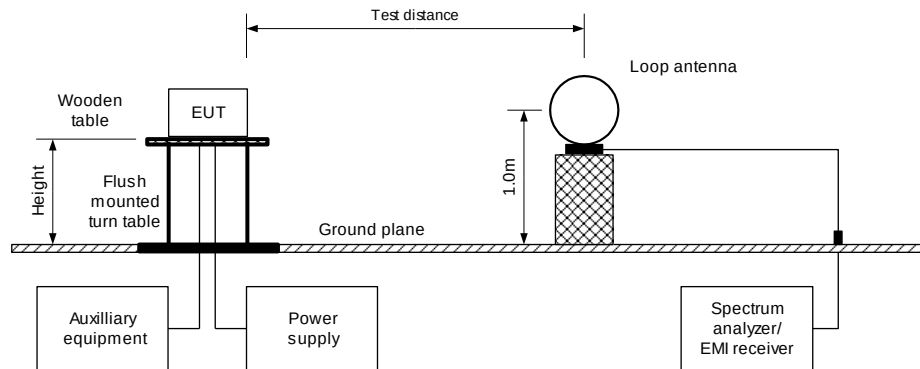
7.10.3.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360°, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

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



Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Figure 7.10.1 Setup for spurious emission field strength measurements below 30 MHz





Test specification:		Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions	
Test procedure:		ANSI C63.10, sections 6.5, 6.6	
Test mode:		Verdict: PASS	
Date(s):			
17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Figure 7.10.2 Setup for spurious emission field strength measurements from 30 to 1000 MHz

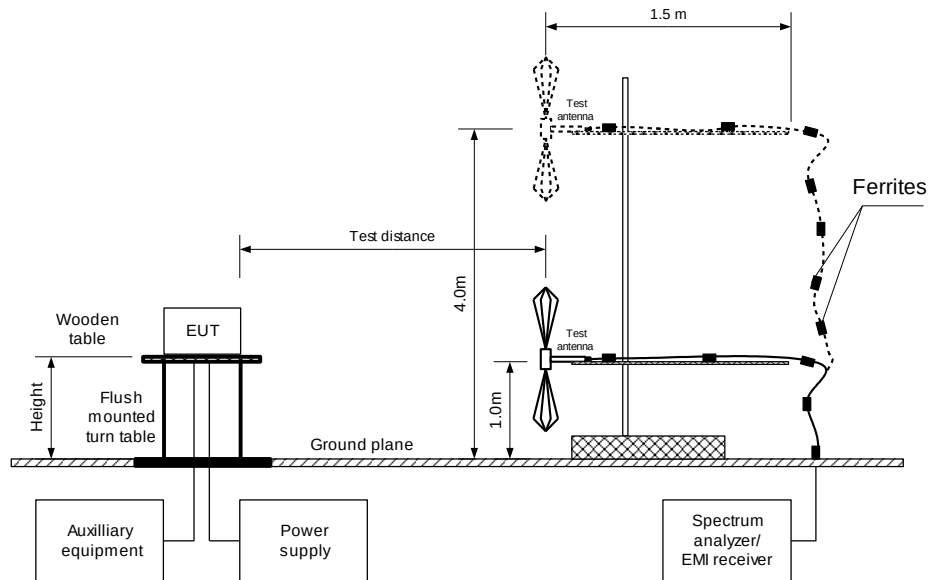
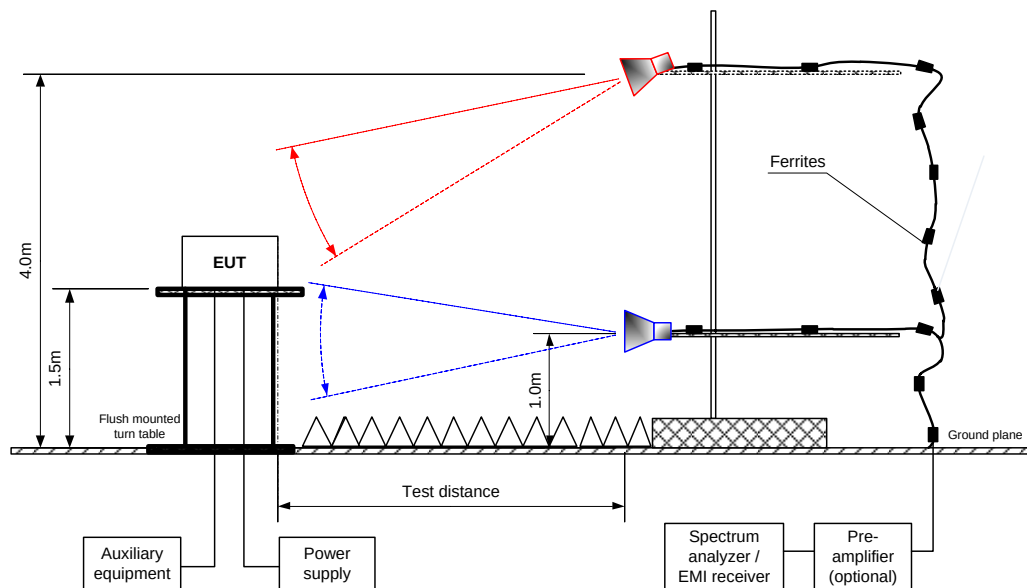


Figure 7.10.3 Setup for spurious emission field strength measurements above 1000 MHz





HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Table 7.10.2 Field strength of emissions outside restricted bands

ASSIGNED FREQUENCY: 902-928 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 -9500 MHz
 TEST DISTANCE: 3 m
 MODULATION: LoRa
 BIT RATE: 5.47 Mbps
 TRANSMITTER OUTPUT POWER: 28.06 dBm at low carrier frequency
 27.02 dBm at mid carrier frequency
 26.71 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)
 FREQUENCY HOPPING: Disabled

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, Mid, High carrier frequency									
All emission were greater then 20dB below the limit									Pass

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

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



Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Table 7.10.3 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY: 902-928 MHz
 INVESTIGATED FREQUENCY RANGE: 1000 – 9500 MHz
 TEST DISTANCE: 3 m
 MODULATION: LoRa
 BIT RATE: 5.47 Mbps
 TRANSMITTER OUTPUT POWER: 28.06 dBm at low carrier frequency
 27.02 dBm at mid carrier frequency
 26.71 dBm at high carrier frequency
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 1000 kHz
 TEST ANTENNA TYPE: Double ridged guide
 FREQUENCY HOPPING: Disabled

Antenna			Azimuth, degrees*	Peak field strength ⁴⁹			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											
2706.9	V	1.6	-27	51.6	74	-22.2	51.6	47.4	54	-6.6	Pass
3609.2	V	1.1	-129	43.3	74	-30.3	43.3	39.1	54	-14.9	Pass
Mid carrier frequency											
2726.1	V	1.6	-29	51.2	74	-22.8	51.2	49.0	54	-5.0	Pass
3634.8	H	3.3	180	50.3	74	-23.7	50.3	46.1	54	-7.9	Pass
High carrier frequency											
2744.7	V	2.1	-55	52.7	74	-21.3	52.7	48.5	54	-5.5	Pass

*- 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 7.10.4 Average factor calculation

Transmission pulse		Transmission burst		Transmission train duration, ms	Average factor, dB
Duration, ms	Number of pulses within 100 ms	Duration, ms	Period, ms		
61.6	1	NA	NA	NA	-4.2

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



HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Table 7.10.5 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY: 902-928 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 – 1000 MHz
 TEST DISTANCE: 3 m
 MODULATION: LoRa
 BIT RATE: 5.47 Mbps
 TRANSMITTER OUTPUT POWER: 28.06 dBm at low carrier frequency
 27.02 dBm at mid carrier frequency
 26.71 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)
 Biconical (30 MHz – 200 MHz)
 Log periodic (200 MHz – 1000 MHz)
 Biconilog (30 MHz – 1000 MHz)
 FREQUENCY HOPPING: Disabled

Frequency not found					Disabled			
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 carrier frequency								
All emissions were greater then 20dB below the limit								Pass
Mid carrier frequency								
38.17	36.3	23.8	40.0	-16.2	V	1.0	-110	Pass
High carrier frequency								
All emission were greater then 20dB below the limit								Pass

*- Margin = Measured emission - specification limit.

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



HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Table 7.10.6 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 7.10.7 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

HL7585	HL0446	HL0604	HL4933	HL3903	HL5903	HL4921	HL6252
HL4339							

Full description is given in Appendix A.

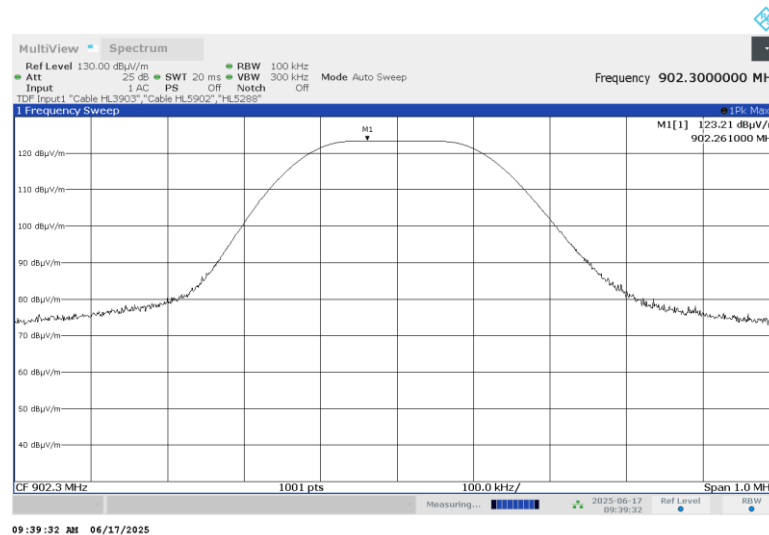


HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

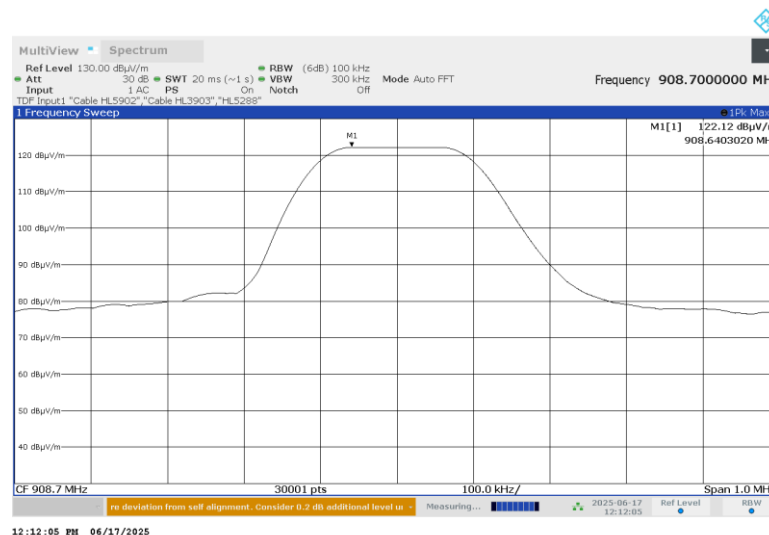
Plot 7.10.1 Radiated emission measurements at the low carrier frequency

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



Plot 7.10.2 Radiated emission measurements at the mid carrier frequency

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



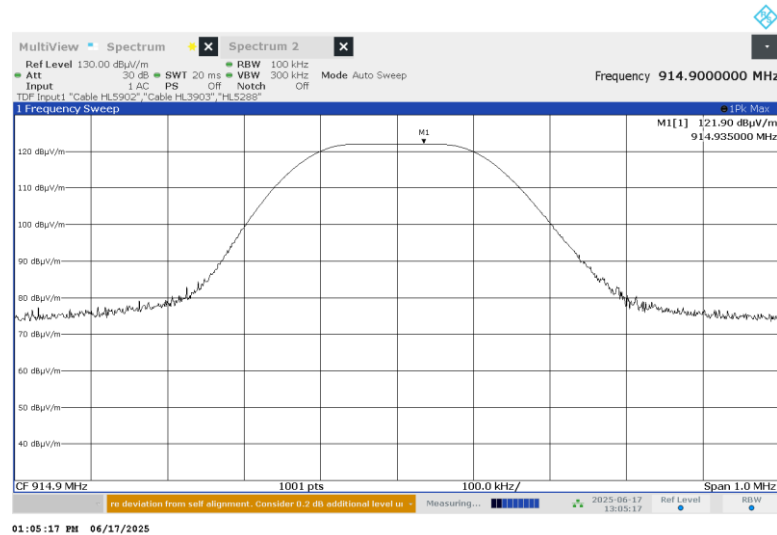


HERMON LABORATORIES

Test specification:		Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions	
Test procedure:		ANSI C63.10, sections 6.5, 6.6	
Test mode:		Verdict: PASS	
Date(s):			
17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Plot 7.10.3 Radiated emission measurements at the high carrier frequency

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



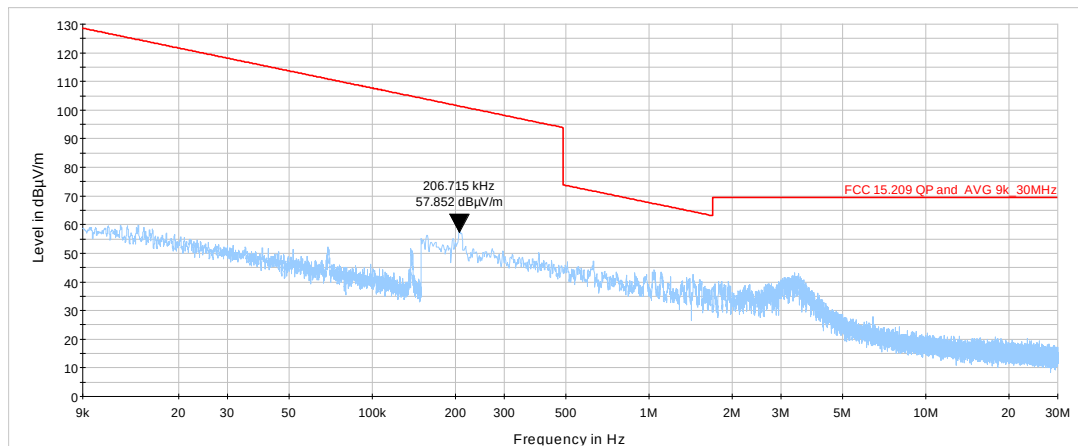


HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

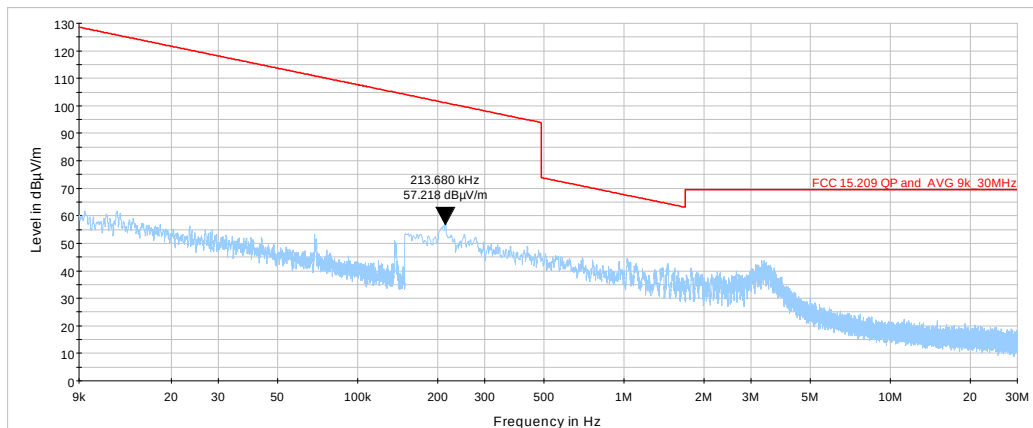
Plot 7.10.4 Radiated emission measurements from 0.009 to 30 MHz at the low carrier frequency

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



Plot 7.10.5 Radiated emission measurements from 0.009 to 30 MHz at the mid carrier frequency

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



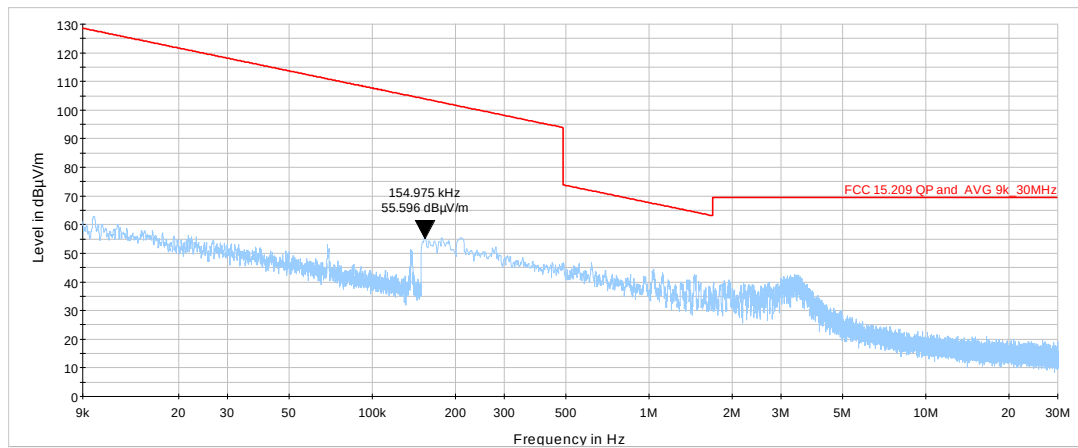


HERMON LABORATORIES

Test specification:		Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions	
Test procedure:		ANSI C63.10, sections 6.5, 6.6	
Test mode:		Verdict: PASS	
Date(s):			
17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Plot 7.10.6 Radiated emission measurements from 0.009 to 30 MHz at the high carrier frequency

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



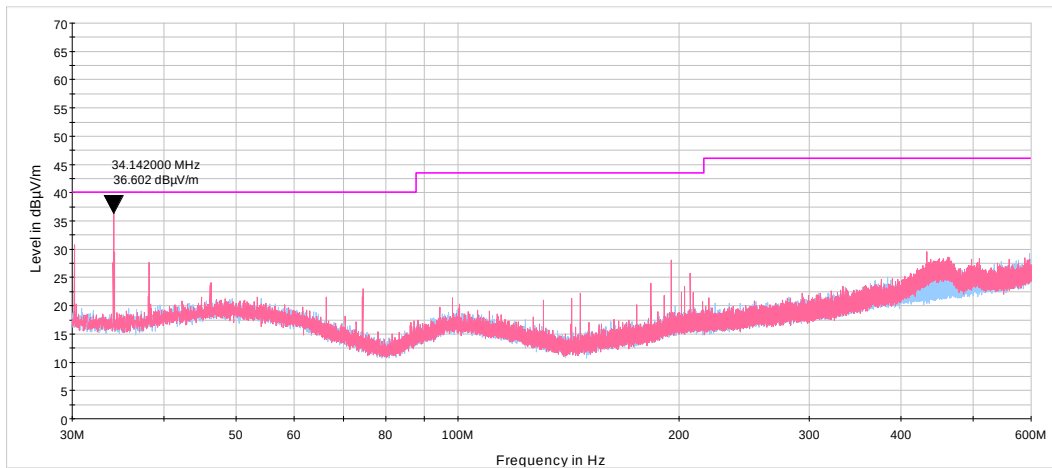


HERMON LABORATORIES

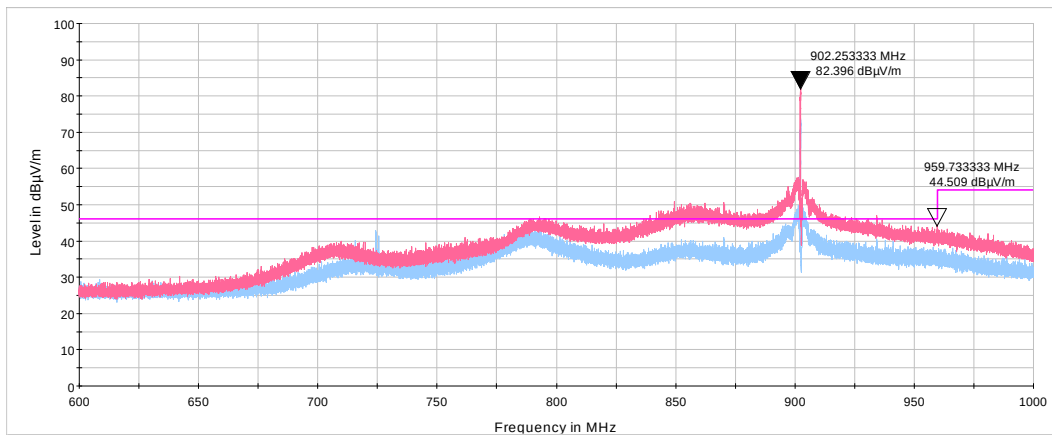
Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Plot 7.10.7 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



With filter HL 4921



With filter HL 6252

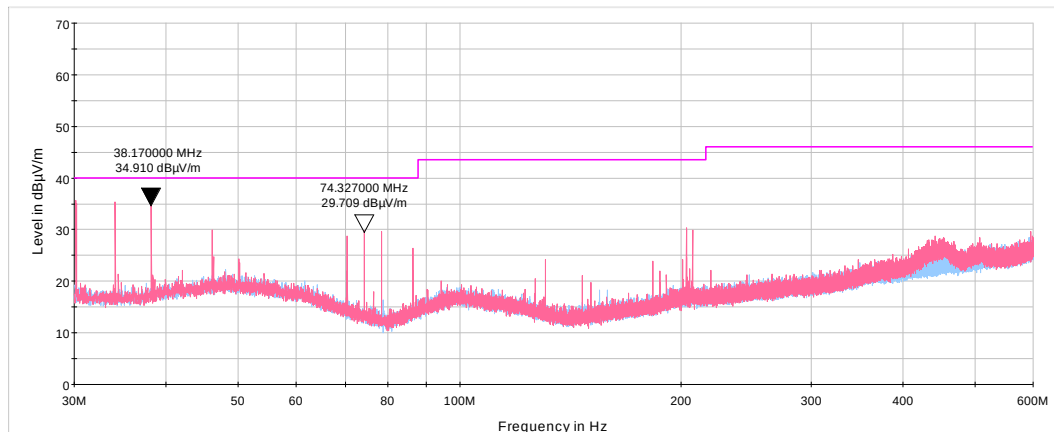


HERMON LABORATORIES

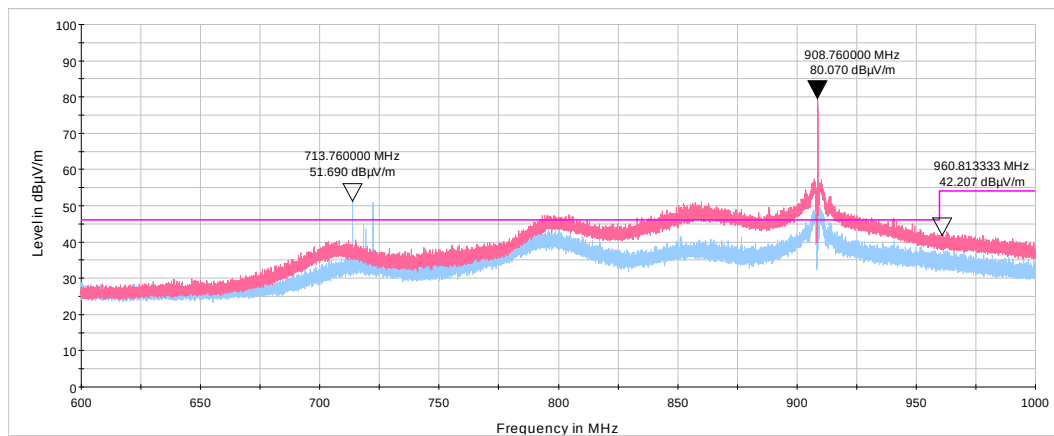
Test specification:		Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions	
Test procedure:		ANSI C63.10, sections 6.5, 6.6	
Test mode:		Verdict: PASS	
Date(s):			
17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Plot 7.10.8 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



With filter HL 4921



With filter HL 6252

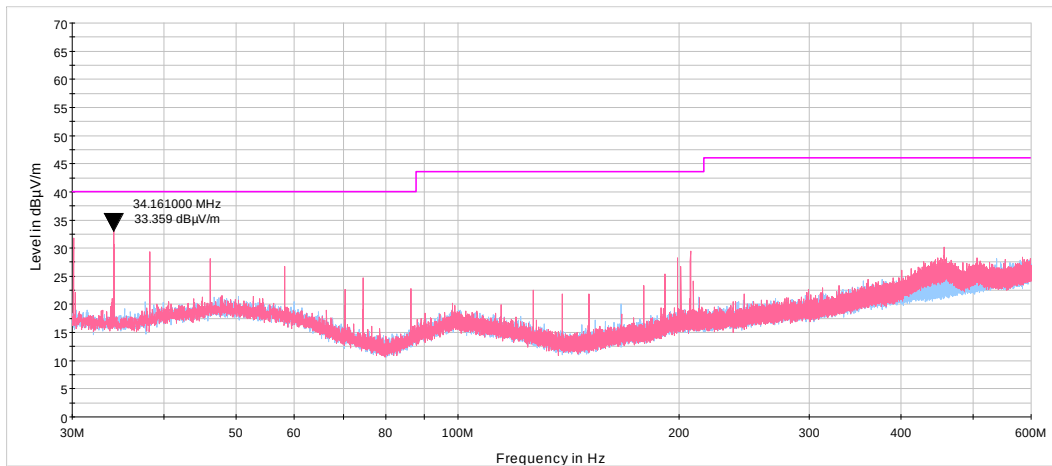


HERMON LABORATORIES

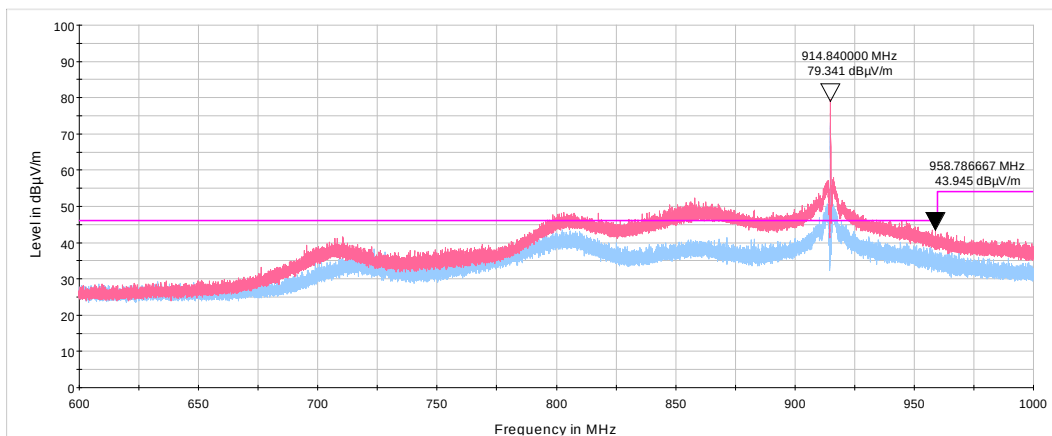
Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Plot 7.10.9 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



With filter HL 4921



With filter HL 6252

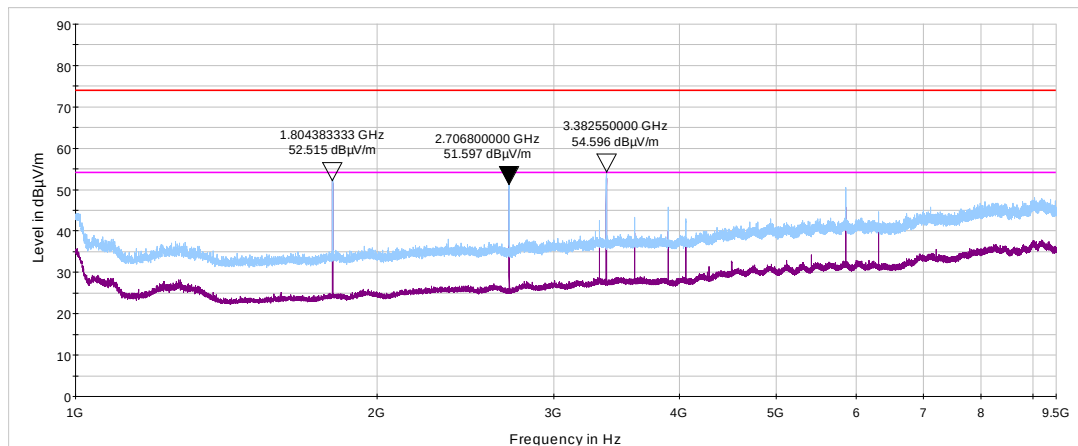


HERMON LABORATORIES

Test specification:		Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions	
Test procedure:		ANSI C63.10, sections 6.5, 6.6	
Test mode:		Verdict: PASS	
Date(s):			
17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Plot 7.10.10 Radiated emission measurements from 1000 to 9500 MHz at the low carrier frequency

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



With filter HL 4339

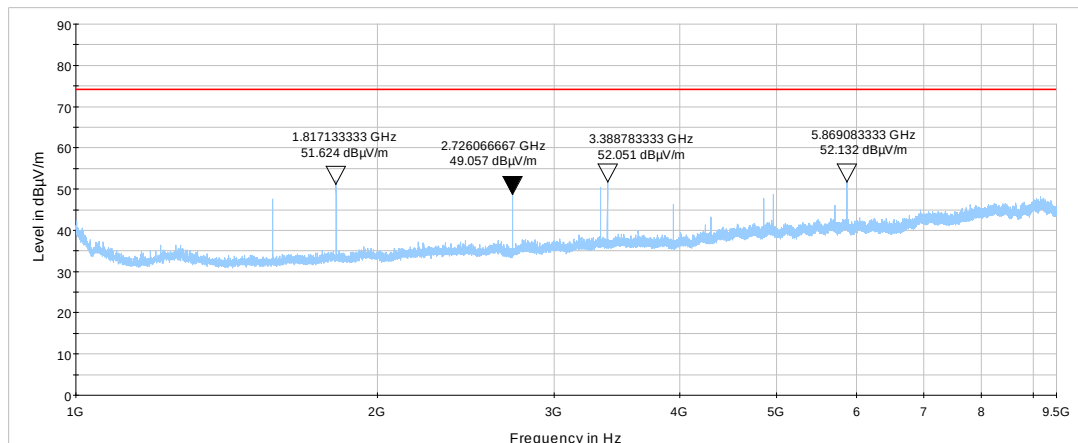


HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Plot 7.10.11 Radiated emission measurements from 1000 to 9500 MHz at the mid carrier frequency

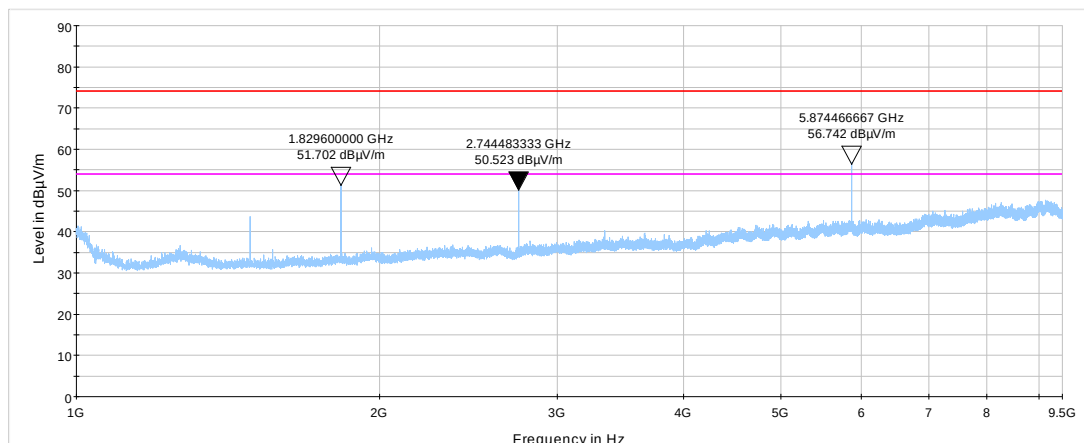
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



With filter HL 4339

Plot 7.10.12 Radiated emission measurements from 1000 to 9500 MHz at the high carrier frequency

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



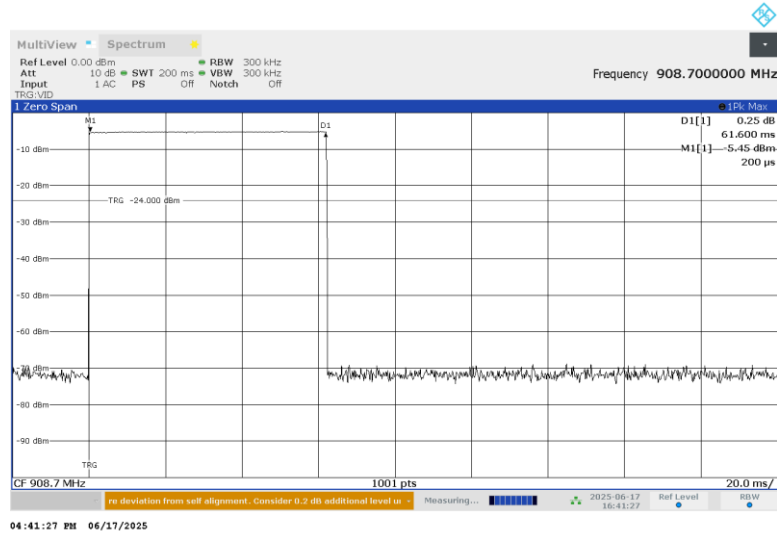
With filter HL 4339



HERMON LABORATORIES

Test specification:		Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions	
Test procedure:		ANSI C63.10, sections 6.5, 6.6	
Test mode:		Verdict: PASS	
Date(s):			
17-Jun-25			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1012 hPa	Power: 3.6 VDC
Remarks:			

Plot 7.10.13 Transmission pulse duration





Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

7.11 Field strength of spurious emissions at AT57-7-2-25-S-1 (WC)

7.11.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 7.11.1.

Table 7.11.1 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.

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

7.11.2.1 The EUT was set up as shown in Figure 7.11.1, energized and the performance check was conducted.

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

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

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

7.11.3.1 The EUT was set up as shown in Figure 7.11.2, Figure 7.11.3, energized and the performance check was conducted.

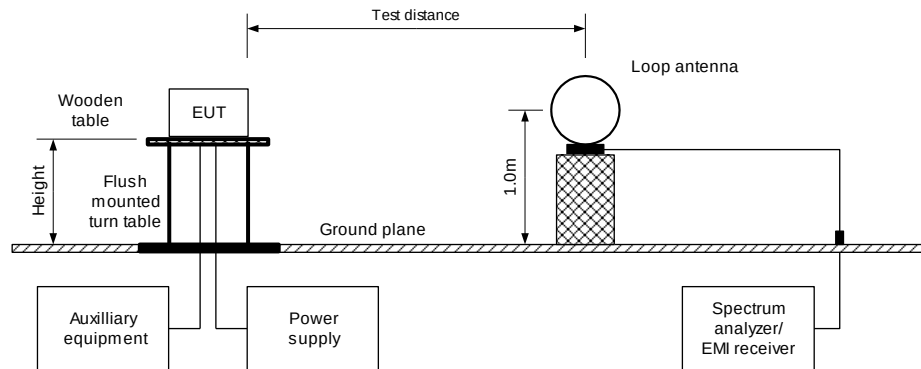
7.11.3.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360°, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

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



Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

Figure 7.11.1 Setup for spurious emission field strength measurements below 30 MHz





Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

Figure 7.11.2 Setup for spurious emission field strength measurements from 30 to 1000 MHz

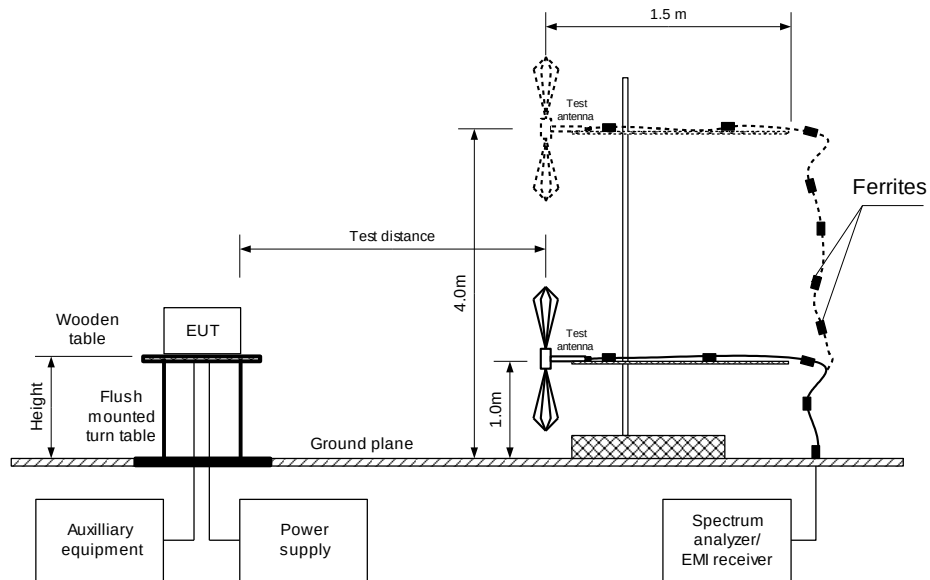
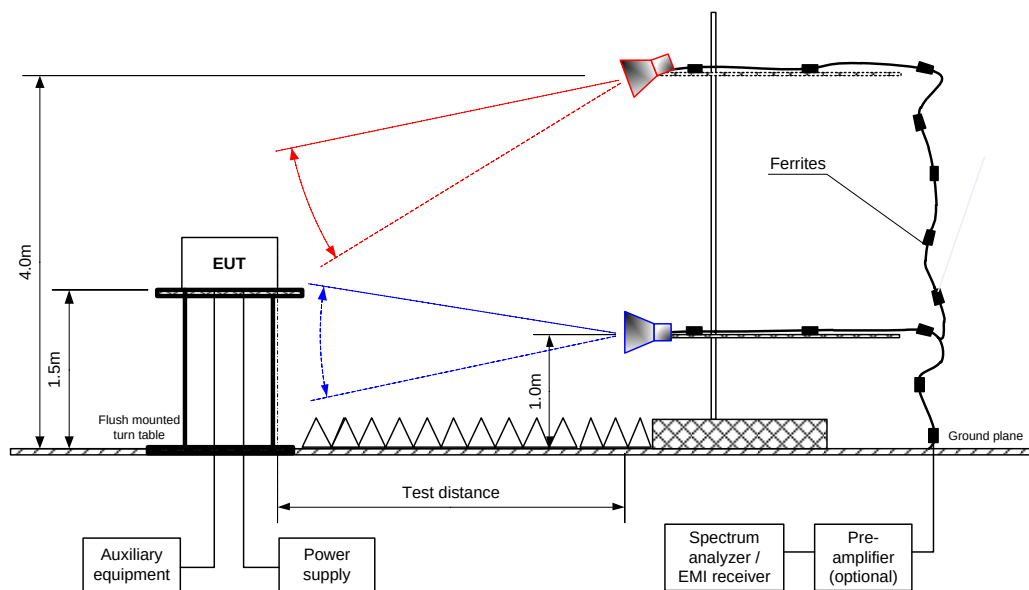


Figure 7.11.3 Setup for spurious emission field strength measurements above 1000 MHz





Test specification:		Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions	
Test procedure:		ANSI C63.10, sections 6.5, 6.6	
Test mode:		Verdict: PASS	
Date(s):			
17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

Table 7.11.2 Field strength of emissions outside restricted bands

ASSIGNED FREQUENCY: 902-928 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 - 9300 MHz
 TEST DISTANCE: 3 m
 MODULATION: LoRa
 BIT RATE: 980 bps
 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)
 FREQUENCY HOPPING: Disabled

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									
1804.6	40.8	Vertical	2.0	91	122.0	81.20	20.0	61.20	Pass
6316.1	56.12	Horizontal	2.3	121		65.88		45.88	
Mid carrier frequency									
1817.4	46.1	Vertical	1.5	26	121.4	75.3	20.0	55.3	Pass
6360.9	53.8	Horizontal	2.3	126					
High carrier frequency									
1829.8	49.2	Vertical	1.2	-31	121.0	71.8	20.0	51.8	Pass
6404.3	51.1	Horizontal	2.5	130		69.9		49.9	

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

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



Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

Table 7.11.3 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY: 902-928 MHz
 INVESTIGATED FREQUENCY RANGE: 1000 - 9300 MHz
 TEST DISTANCE: 3 m
 MODULATION: LoRa
 BIT RATE: 980 bps
 DETECTOR USED: Peak
 RESOLUTION BANDWIDTH: 1000 kHz
 TEST ANTENNA TYPE: Double ridged guide
 FREQUENCY HOPPING: Disabled

Frequency, MHz	Antenna		Azimuth, degrees*	Peak field strength			Average field strength				Verdict
	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											
2706.9	Vertical	1.5	25	45.5	74	-28.5	45.5	41.3	54	-12.7	Pass
3609.2	Vertical	1.4	51	54.4	74	-20.4	54.4	50.2	54	-3.8	
Mid carrier frequency											
2726.1	Vertical	1.6	-95	44.2	74	-29.8	44.2	40.0	54	-14.0	Pass
3634.8	Vertical	1.3	16	53.7	74	-20.3	53.7	49.5	54	-4.5	
High carrier frequency											
2744.7	Vertical	1.5	35	50.4	74	-23.6	50.4	46.2	54	-7.8	Pass
3659.6	Vertical	1.7	18	52.1	74	-21.9	52.1	47.9	54	-6.1	

*- 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 7.11.4 Average factor calculation

Transmission pulse		Transmission burst		Transmission train duration, ms	Average factor, dB
Duration, ms	Number of pulses within 100 ms	Duration, ms	Period, ms		
61.6	1	NA	NA	NA	-4.2

*- 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:

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



HERMON LABORATORIES

Test specification:		Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions	
Test procedure:		ANSI C63.10, sections 6.5, 6.6	
Test mode:		Verdict: PASS	
Date(s):			
17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

Table 7.11.5 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY: 902-928 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 – 1000 MHz
 TEST DISTANCE: 3 m
 MODULATION: LoRa
 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 HOPPING: Disabled

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 spurious were founded								Pass

*- Margin = Measured emission - specification limit.

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



HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

Table 7.11.6 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 7.11.7 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

HL7585	HL 3903	HL 5902	HL 6252	HL 4921	HL 446	HL 5288	HL 4933
HL4339							

Full description is given in Appendix A.

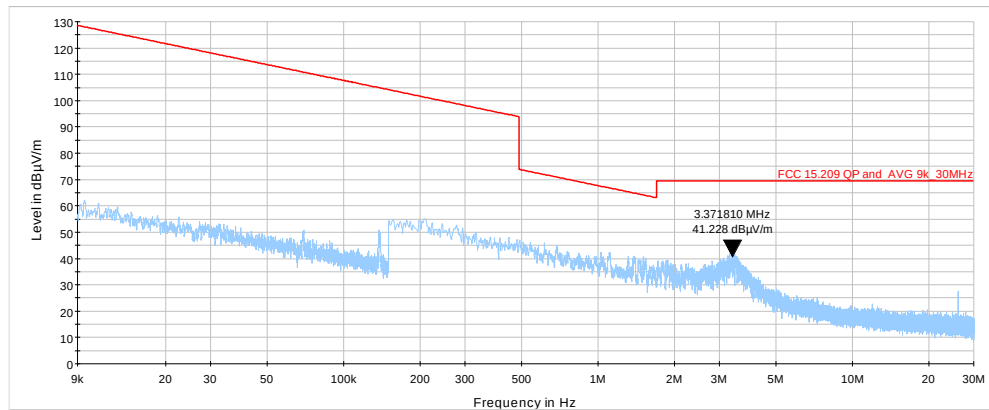


HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

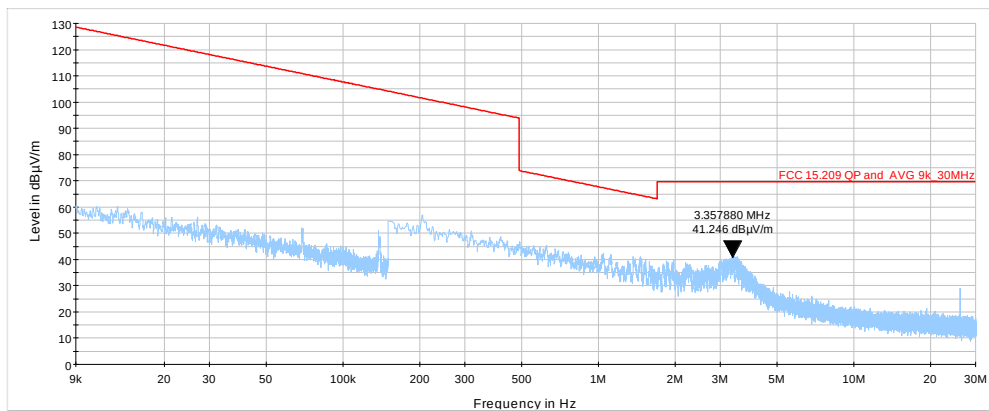
Plot 7.11.1 Radiated emission measurements from 9 kHz to 30 MHz at the low carrier frequency

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



Plot 7.11.2 Radiated emission measurements from 9 kHz to 30 MHz at the mid carrier frequency

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



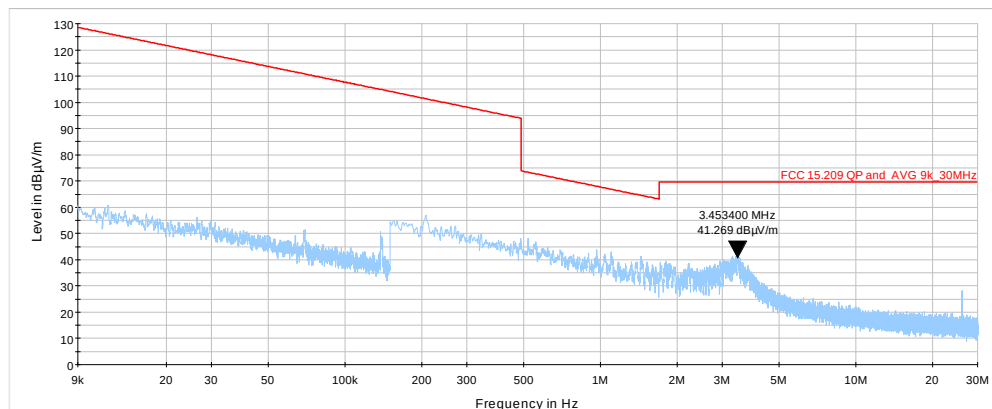


HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

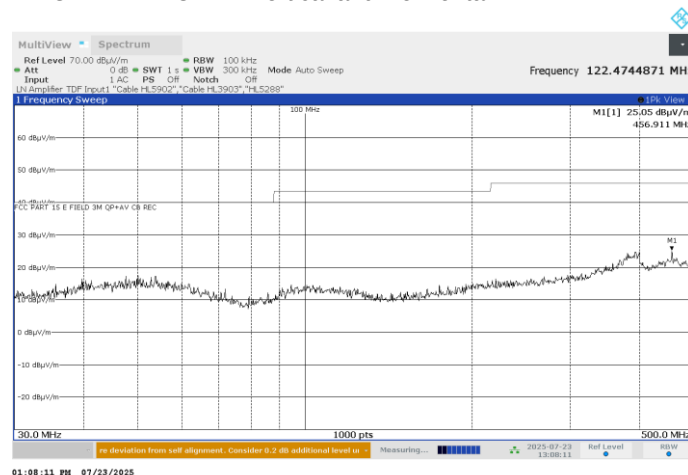
Plot 7.11.3 Radiated emission measurements from 9 kHz to 30 MHz at the high carrier frequency

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



Plot 7.11.4 Radiated emission measurements from 30 to 500 MHz at the low carrier frequency

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



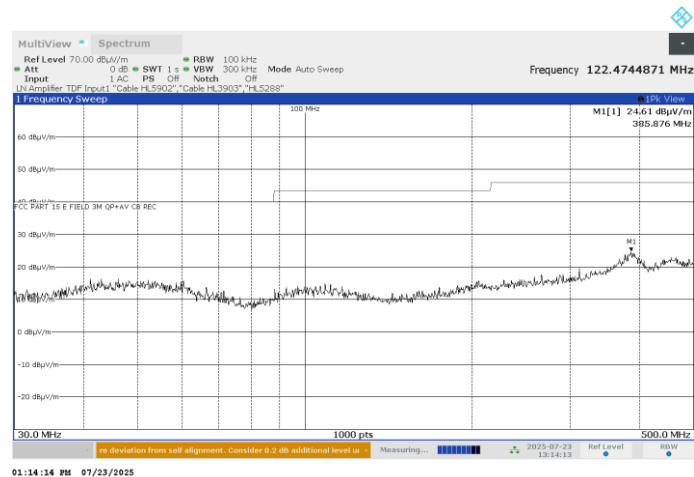


HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

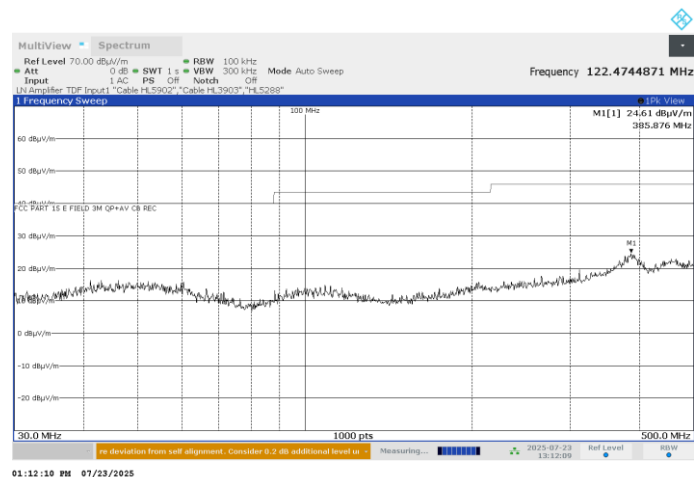
Plot 7.11.5 Radiated emission measurements from 30 to 500 MHz at the mid carrier frequency

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



Plot 7.11.6 Radiated emission measurements from 30 to 500 MHz at the high carrier frequency

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



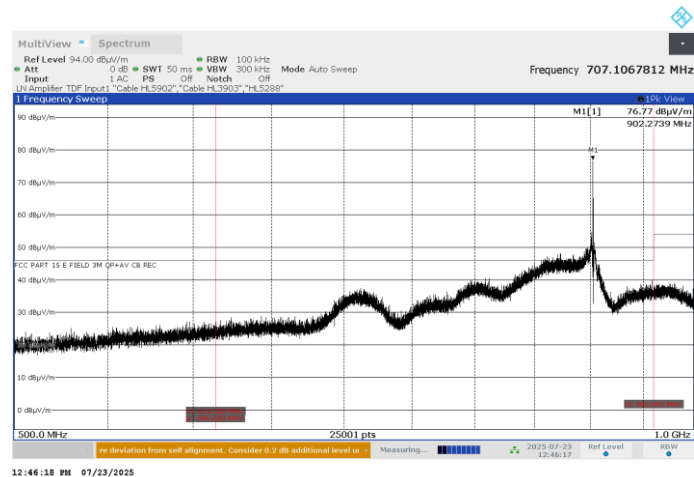


HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

Plot 7.11.7 Radiated emission measurements from 500 to 1000 MHz at the low carrier frequency

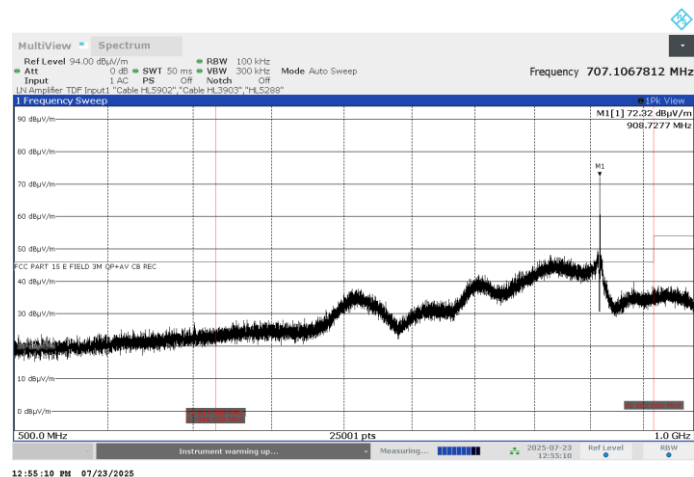
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



With Filter HL 6252

Plot 7.11.8 Radiated emission measurements from 500 to 1000 MHz at the mid carrier frequency

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



With Filter HL 6252

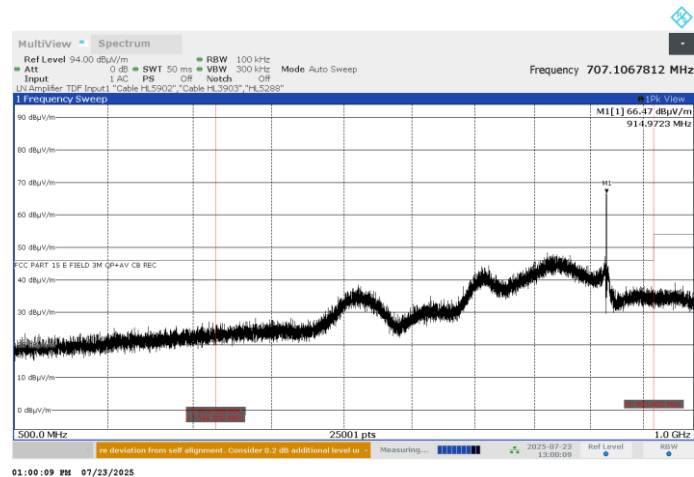


HERMON LABORATORIES

Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 17-Apr-26			
Temperature: 24 °C	Relative Humidity: 51 %	Air Pressure: 1003 hPa	Power: 3.6 VDC
Remarks:			

Plot 7.11.9 Radiated emission measurements from 500 to 1000 MHz at the high carrier frequency

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



With Filter HL 6252

Plot 7.11.10 Radiated emission measurements from 1000 to 9300 MHz at the low carrier frequency

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

