

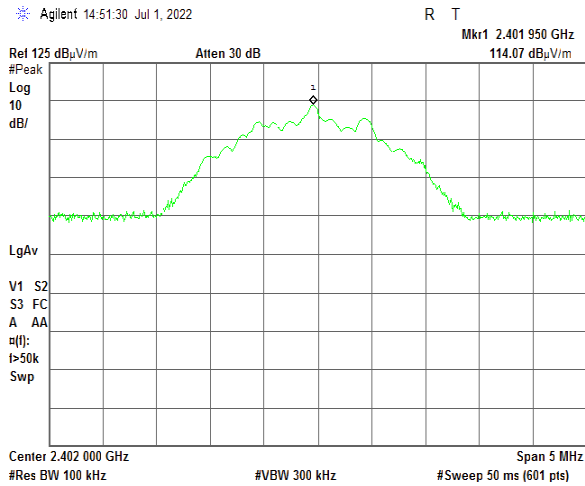


<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		<b>Verdict: PASS</b>	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Plot 7.6.1 Radiated emission measurements at the low carrier frequency

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

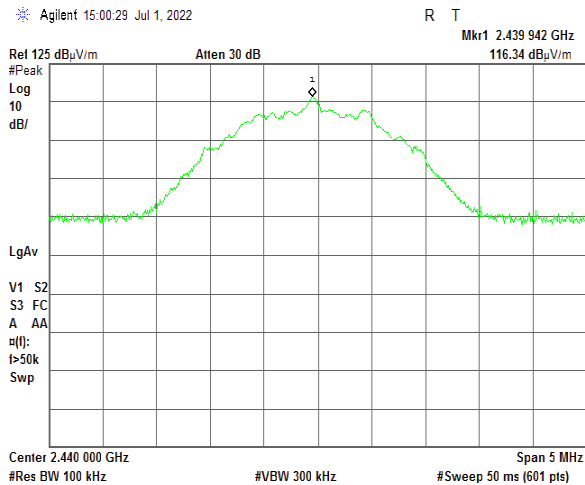
Agilent 14:51:30 Jul 1, 2022



Plot 7.6.2 Radiated emission measurements at the mid carrier frequency

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

Agilent 15:00:29 Jul 1, 2022





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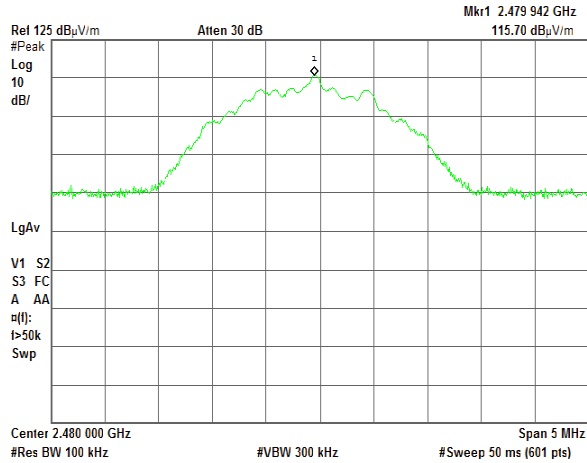
<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		<b>Verdict: PASS</b>	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

**Plot 7.6.3 Radiated emission measurements at the high carrier frequency**

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

\* Agilent 15:03:39 Jul 1, 2022

R T

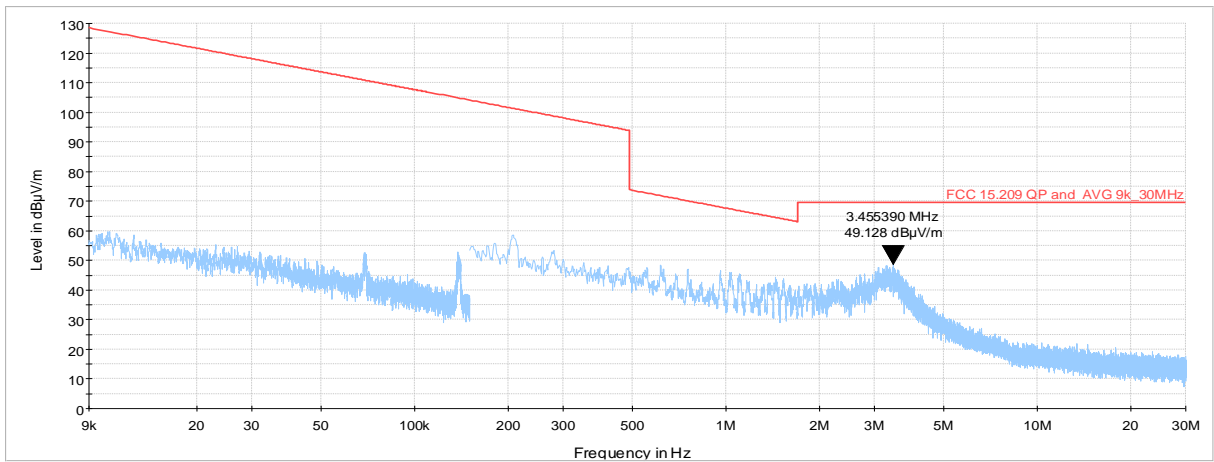




<b>Test specification:</b> Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
<b>Test procedure:</b> ANSI C63.10, sections 6.5, 6.6			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 01-Jul-22 - 08-Jul-22			
<b>Temperature:</b> 24 °C	<b>Relative Humidity:</b> 48 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 110 VAC, 50 Hz
<b>Remarks:</b>			

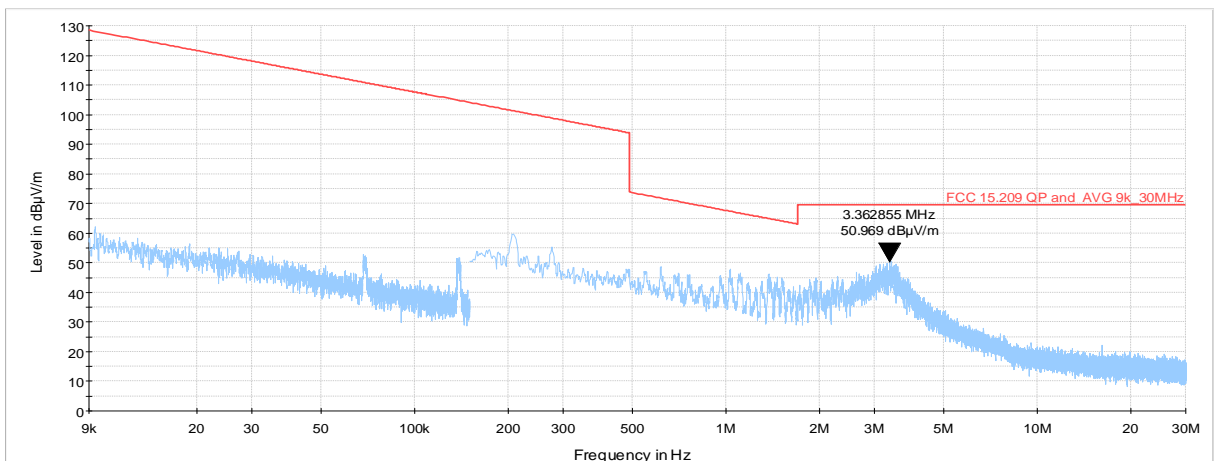
**Plot 7.6.4 Radiated emission measurements from 9k to 30M Hz at the low carrier frequency**

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



**Plot 7.6.5 Radiated emission measurements from 9k to 30M Hz at the low carrier frequency**

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

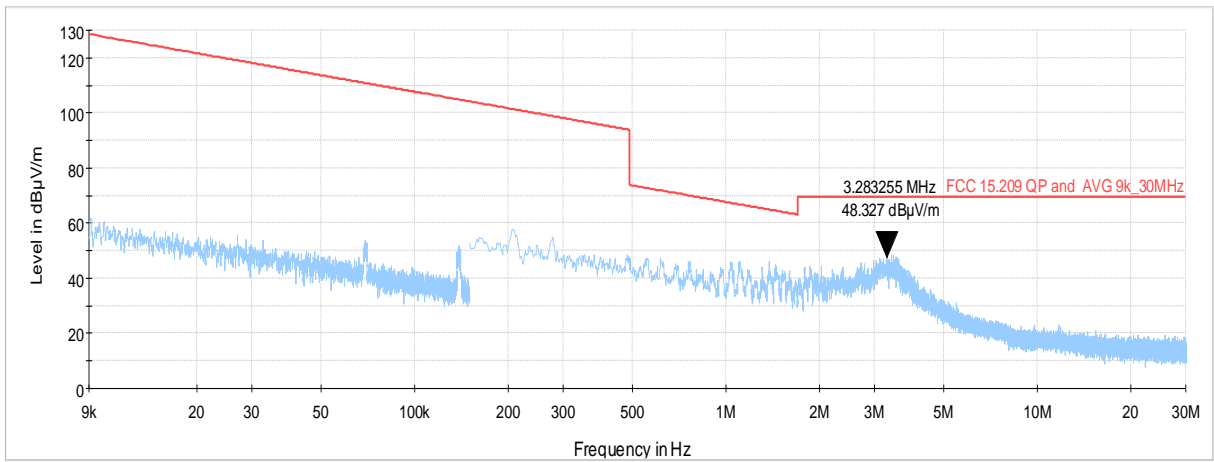




<b>Test specification:</b> Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
<b>Test procedure:</b> ANSI C63.10, sections 6.5, 6.6			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 01-Jul-22 - 08-Jul-22			
<b>Temperature:</b> 24 °C	<b>Relative Humidity:</b> 48 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 110 VAC, 50 Hz
<b>Remarks:</b>			

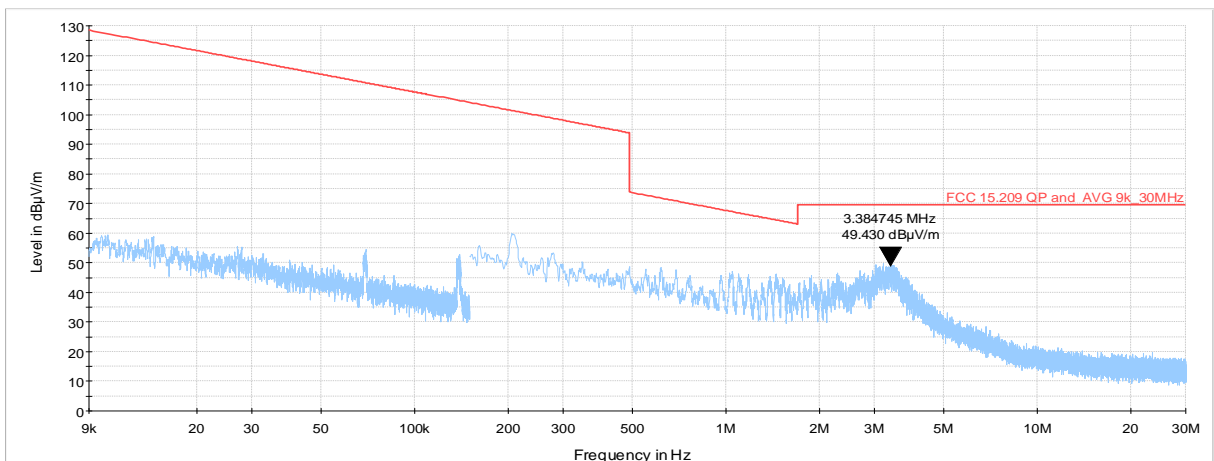
**Plot 7.6.6 Radiated emission measurements from 9k to 30M at the mid carrier frequency**

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



**Plot 7.6.7 Radiated emission measurements from 9k to 30M at the mid carrier frequency**

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

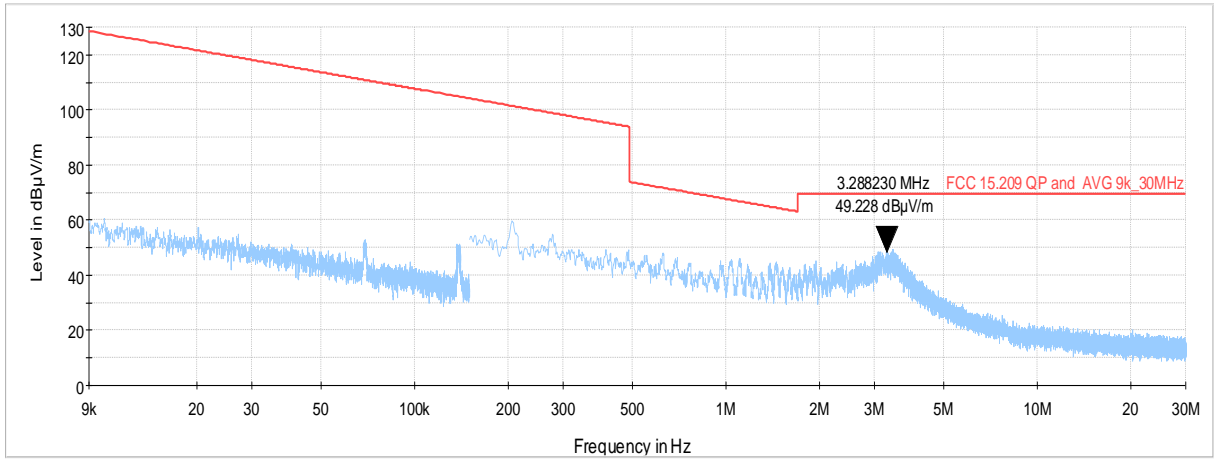




<b>Test specification:</b> Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
<b>Test procedure:</b> ANSI C63.10, sections 6.5, 6.6			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 01-Jul-22 - 08-Jul-22			
<b>Temperature:</b> 24 °C	<b>Relative Humidity:</b> 48 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 110 VAC, 50 Hz
<b>Remarks:</b>			

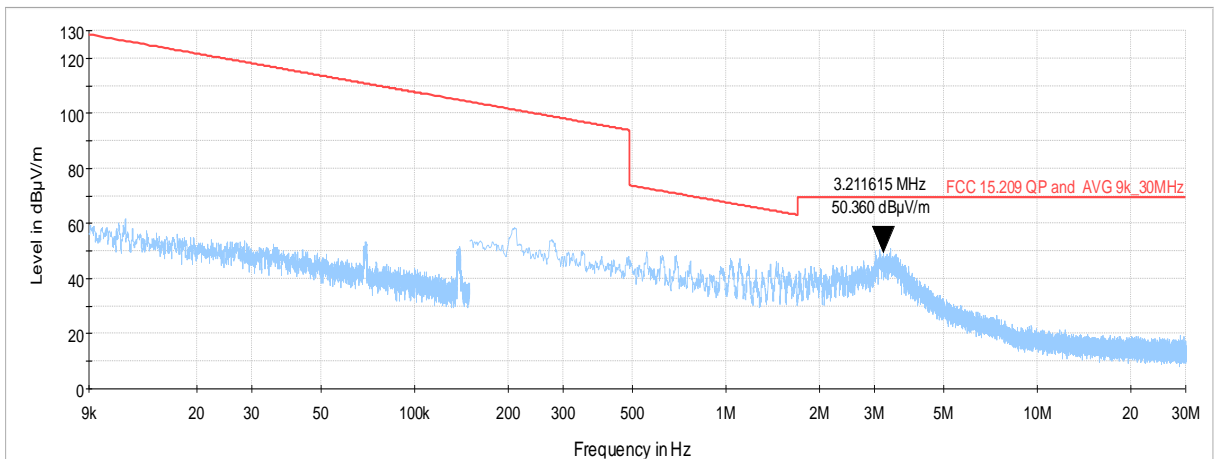
**Plot 7.6.8 Radiated emission measurements from 9k to 30M at the high carrier frequency**

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



**Plot 7.6.9 Radiated emission measurements from 9k to 30M at the high carrier frequency**

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

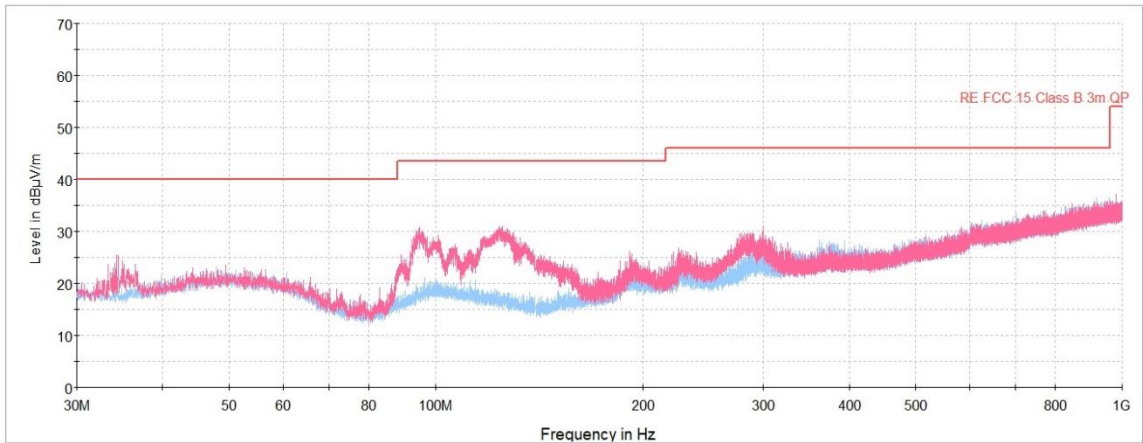




<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

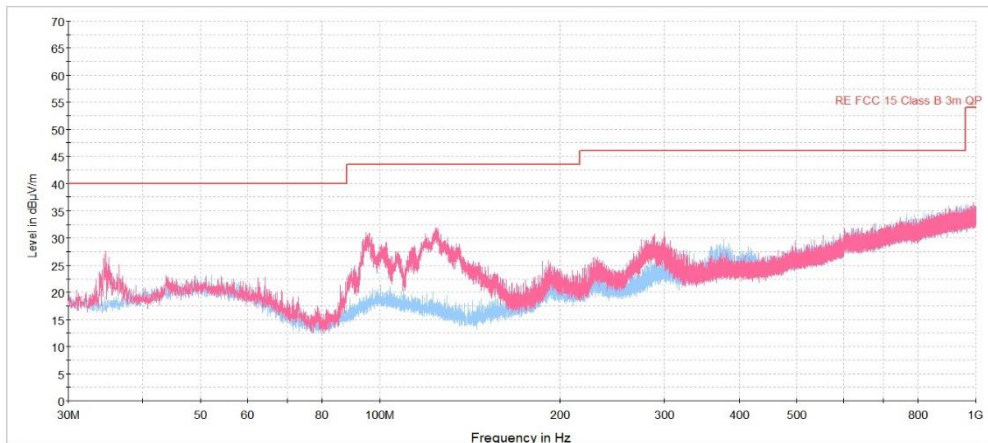
Plot 7.6.10 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

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



Plot 7.6.11 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



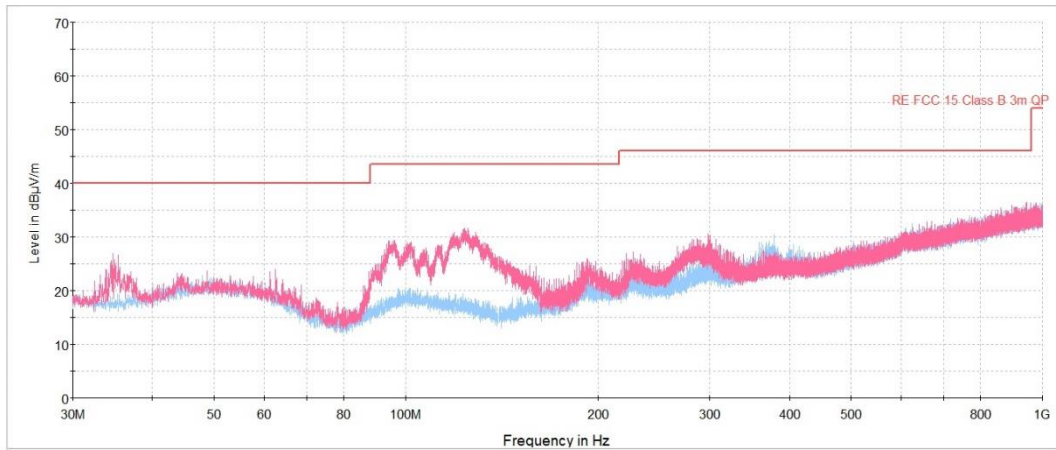


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<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

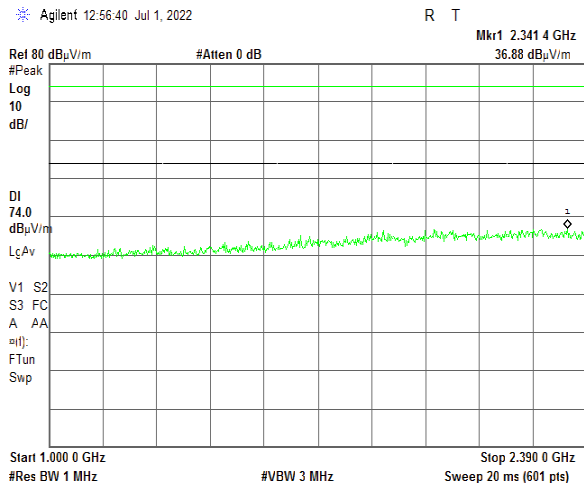
Plot 7.6.12 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

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



Plot 7.6.13 Radiated emission measurements from 1000 to 2390 MHz at the low carrier frequency

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



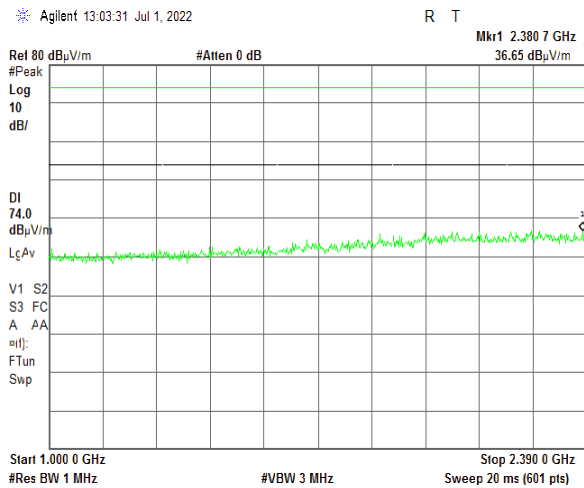


HERMON LABORATORIES

<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

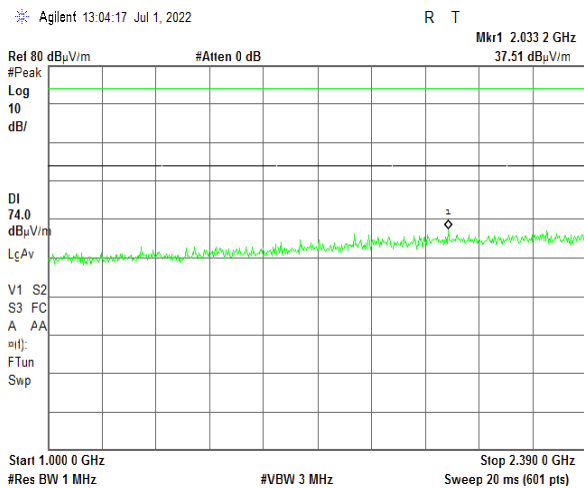
Plot 7.6.14 Radiated emission measurements from 1000 to 2390 MHz at the mid carrier frequency

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



Plot 7.6.15 Radiated emission measurements from 1000 to 2390 MHz at the high carrier frequency

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





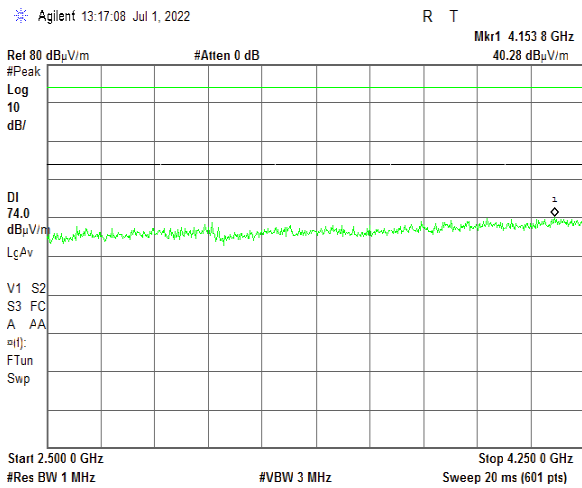


HERMON LABORATORIES

<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

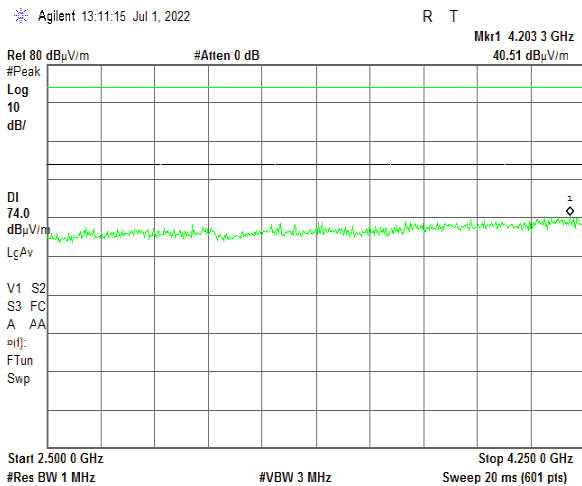
Plot 7.6.16 Radiated emission measurements from 2500 to 4250 MHz at the low carrier frequency

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



Plot 7.6.17 Radiated emission measurements from 2500 to 4250 MHz at the mid carrier frequency

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

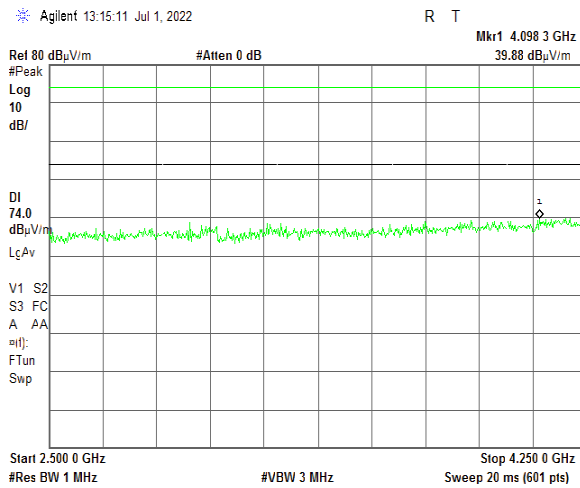




<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

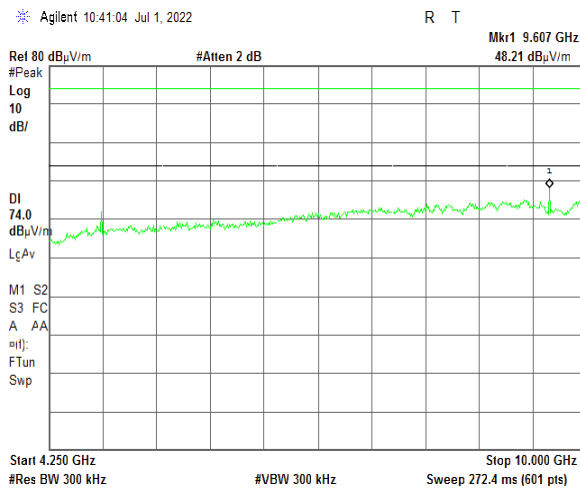
Plot 7.6.18 Radiated emission measurements from 2500 to 4250 MHz at the high carrier frequency

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



Plot 7.6.19 Radiated emission measurements from 4250 to 10000 MHz at the low carrier frequency

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



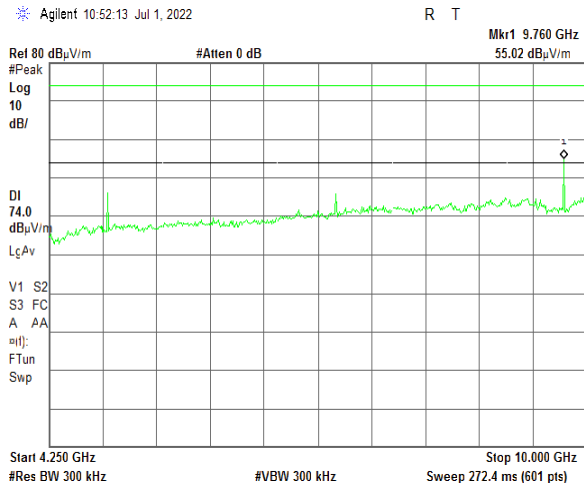


HERMON LABORATORIES

<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

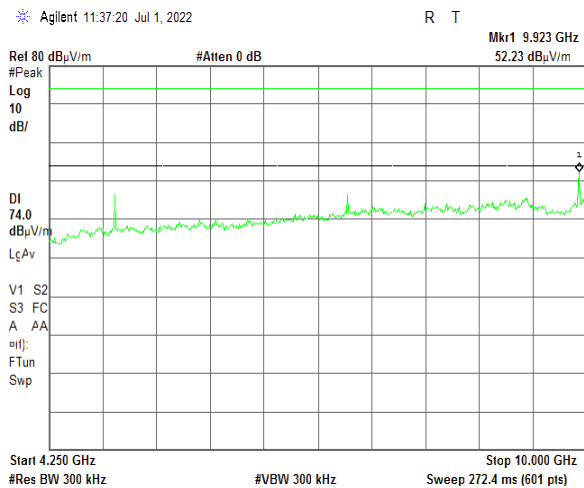
Plot 7.6.20 Radiated emission measurements from 4250 to 10000 MHz at the mid carrier frequency

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



Plot 7.6.21 Radiated emission measurements from 4250 to 10000 MHz at the high carrier frequency

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



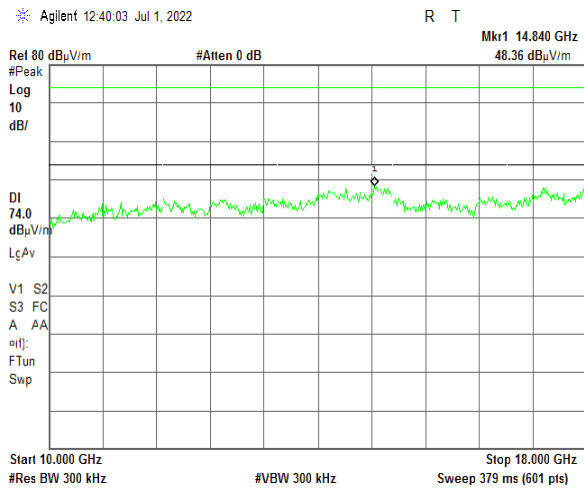


HERMON LABORATORIES

<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

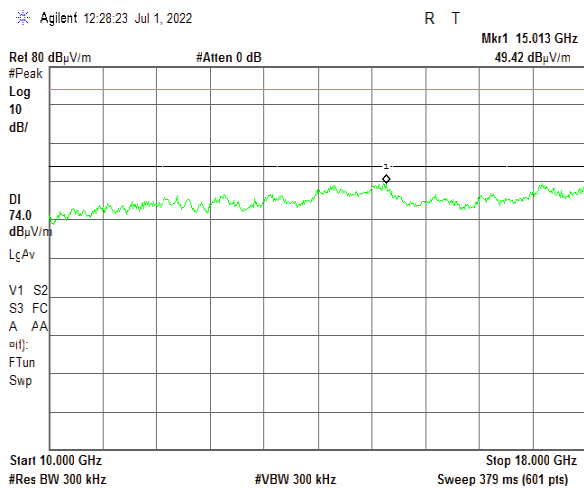
Plot 7.6.22 Radiated emission measurements from 10000 to 18000 MHz at the low carrier frequency

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



Plot 7.6.23 Radiated emission measurements from 10000 to 18000 MHz at the mid carrier frequency

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



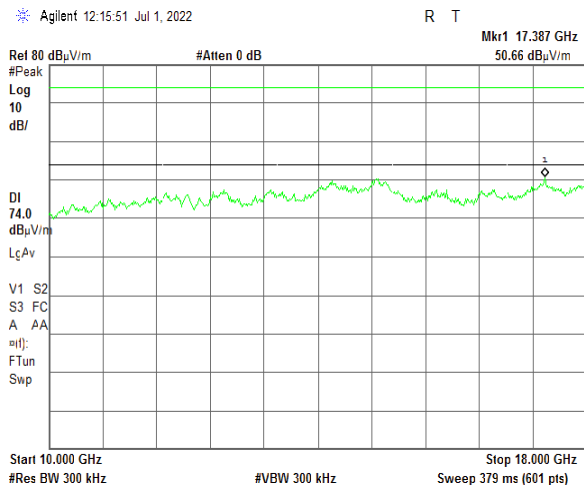


HERMON LABORATORIES

<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

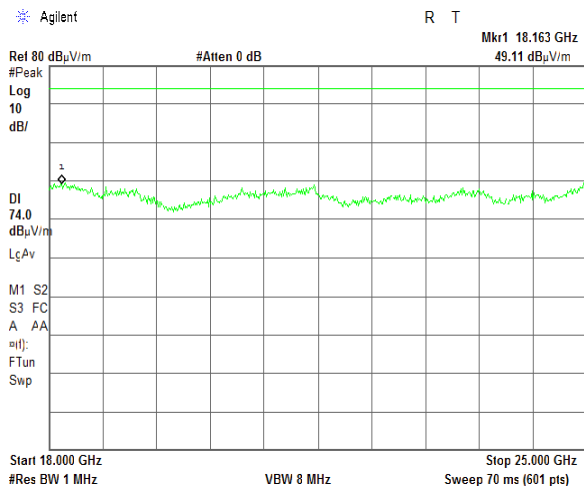
Plot 7.6.24 Radiated emission measurements from 10000 to 18000 MHz at the high carrier frequency

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



Plot 7.6.25 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



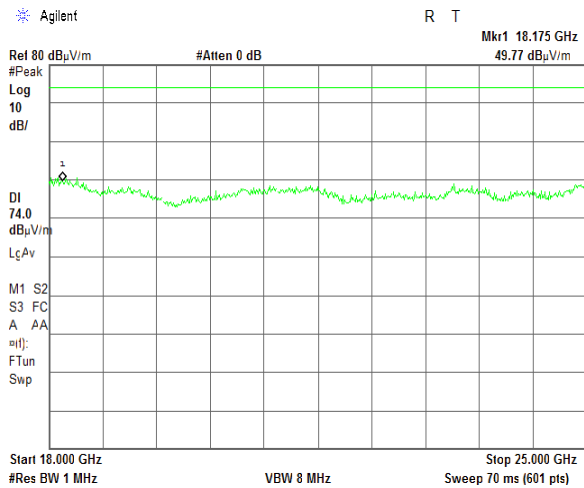


HERMON LABORATORIES

<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: <b>PASS</b>	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

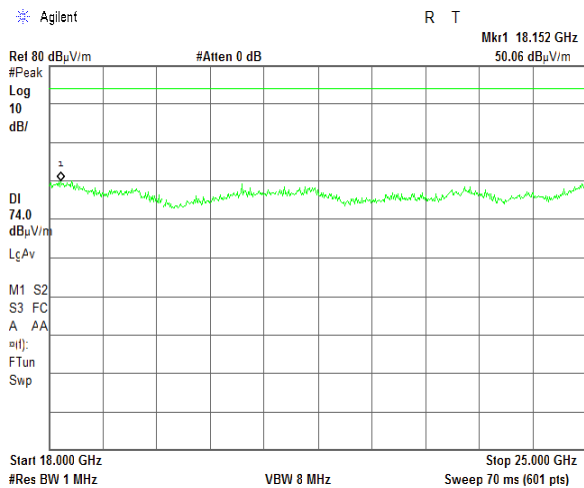
Plot 7.6.26 Radiated emission measurements from 18000 to 25000 MHz at the mid carrier frequency

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



Plot 7.6.27 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

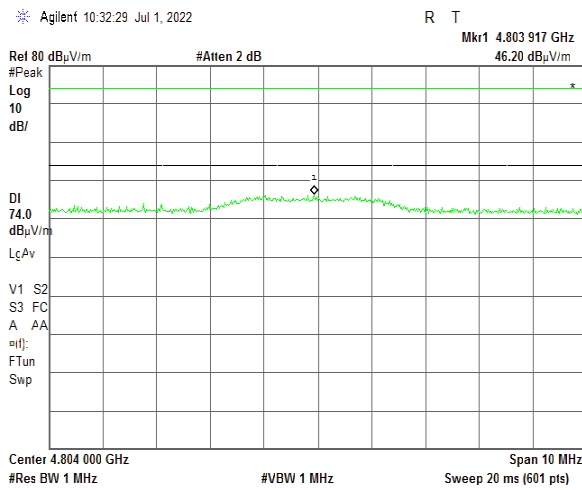




<b>Test specification:</b> Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
<b>Test procedure:</b> ANSI C63.10, sections 6.5, 6.6			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 01-Jul-22 - 08-Jul-22			
<b>Temperature:</b> 24 °C	<b>Relative Humidity:</b> 48 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 110 VAC, 50 Hz
<b>Remarks:</b>			

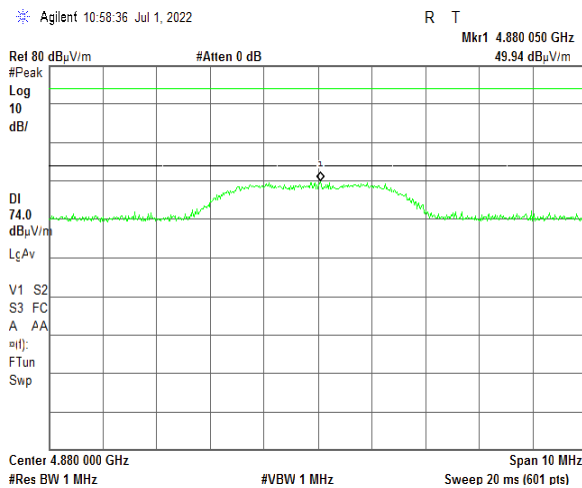
Plot 7.6.28 Radiated emission measurements at the second harmonic of low carrier frequency

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.6.29 Radiated emission measurements at the second harmonic of mid carrier frequency

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



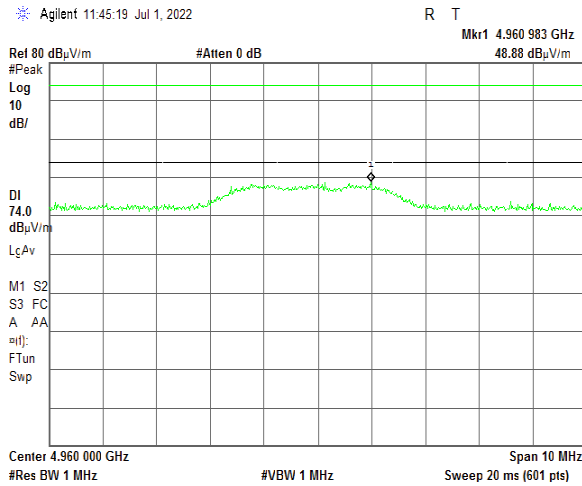


HERMON LABORATORIES

<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

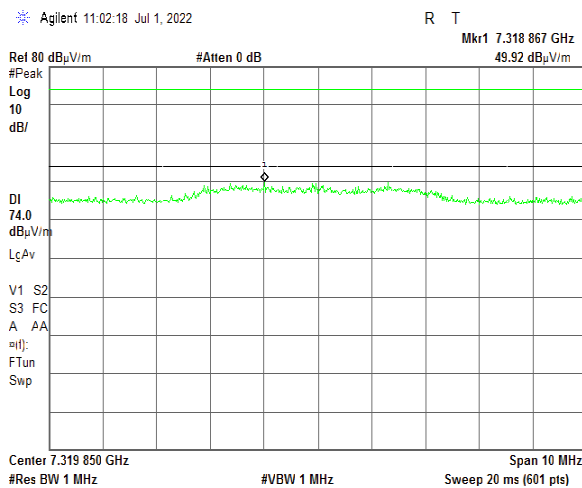
**Plot 7.6.30 Radiated emission measurements at the second harmonic of high carrier frequency**

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



**Plot 7.6.31 Radiated emission measurements at the third harmonic of mid carrier frequency**

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m





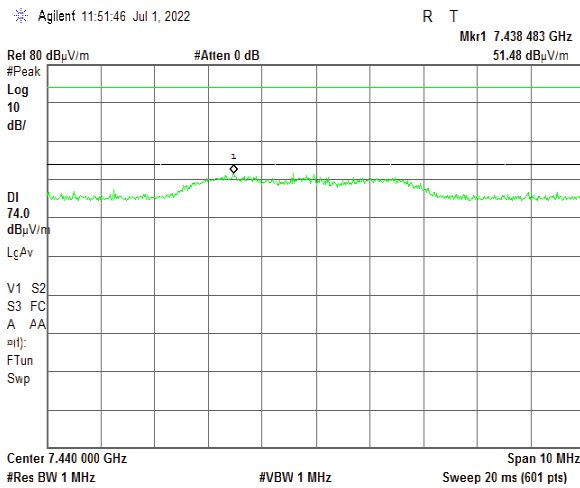


HERMON LABORATORIES

<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		Verdict: PASS	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

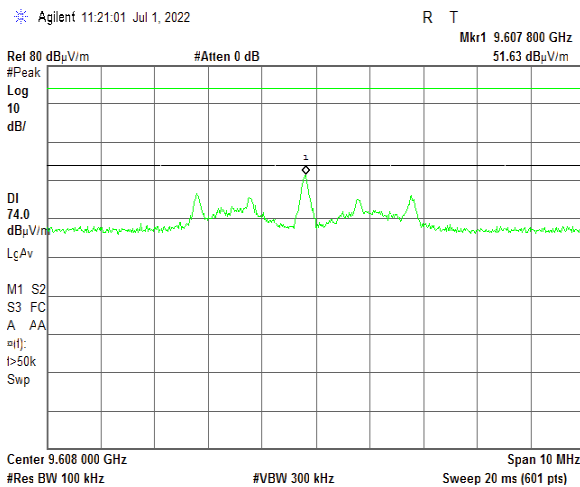
Plot 7.6.32 Radiated emission measurements at the third harmonic of high carrier frequency

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.6.33 Radiated emission measurements at the fourth harmonic of low carrier frequency

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



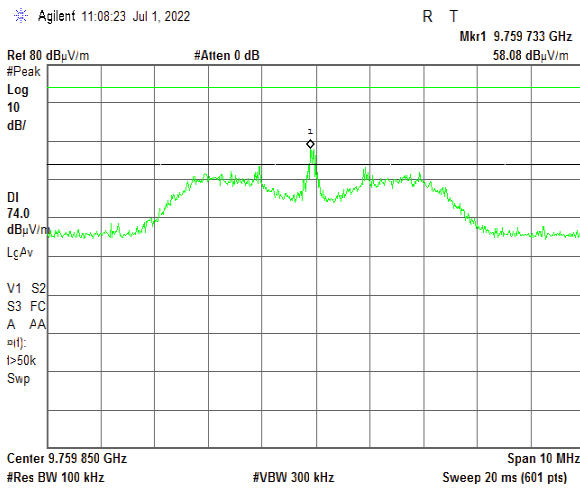


HERMON LABORATORIES

<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions</b>			
Test procedure: ANSI C63.10, sections 6.5, 6.6			
Test mode: Compliance		<b>Verdict: PASS</b>	
Date(s): 01-Jul-22 - 08-Jul-22			
Temperature: 24 °C	Relative Humidity: 48 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

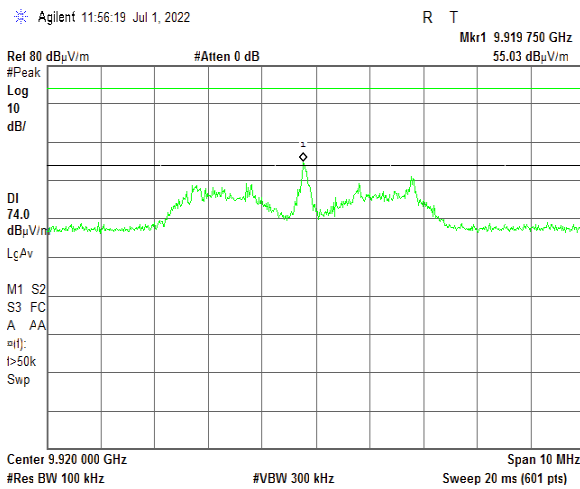
Plot 7.6.34 Radiated emission measurements at the fourth harmonic of mid carrier frequency

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m



Plot 7.6.35 Radiated emission measurements at the fourth harmonic of high carrier frequency

TEST SITE: Semi anechoic chamber  
TEST DISTANCE: 3 m

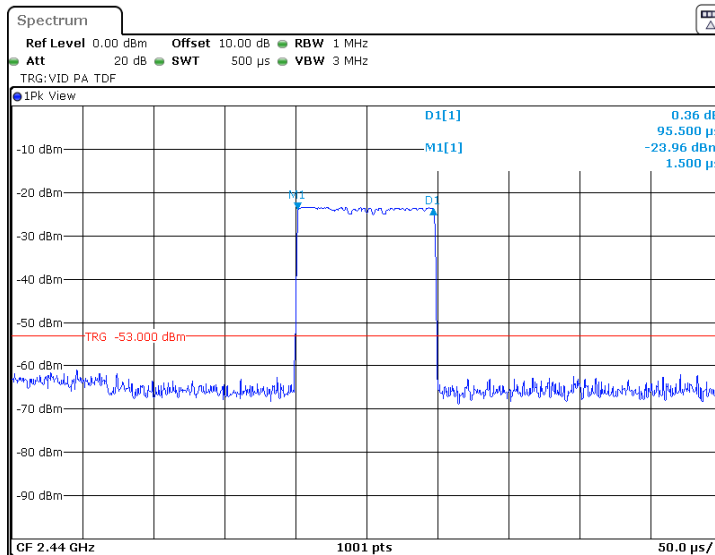




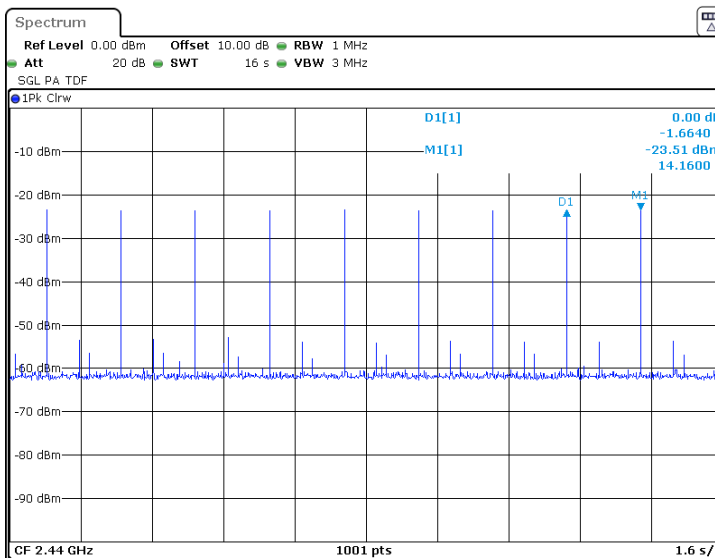
HERMON LABORATORIES

<b>Test specification:</b> Section 15.247(d), RSS-247 section 5.5, Radiated spurious emissions			
<b>Test procedure:</b> ANSI C63.10, sections 6.5, 6.6			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 01-Jul-22 - 08-Jul-22			
<b>Temperature:</b> 24 °C	<b>Relative Humidity:</b> 48 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 110 VAC, 50 Hz
<b>Remarks:</b>			

Plot 7.6.36 Single transmission duration



Plot 7.6.37 Single transmission period





<b>Test specification:</b> Section 15.247(d), RSS-247 section 5.5, Emissions at band edges			
<b>Test procedure:</b> ANSI C63.10, section 7.8.6			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 08-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 58 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 110 VAC, 50 Hz
<b>Remarks:</b>			

## 7.7 Band edge radiated emissions

### 7.7.1 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 7.7.1.

Table 7.7.1 Band edge emission limits

Assigned frequency, MHz	Attenuation below carrier*, dBc	Field strength at 3 m within restricted bands, dB(μV/m)	
		Peak	Average
902.0 – 928.0	20.0	74.0	54.0
2400.0 – 2483.5			
5725.0 – 5850.0			

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

### 7.7.2 Test procedure

- 7.7.2.1 The EUT was set up as shown in Figure 7.9.1, energized normally modulated at the maximum data rate with its hopping function disabled and its proper operation was checked.
- 7.7.2.2 The EUT was adjusted to produce maximum available to end user RF output power at the lowest carrier frequency.
- 7.7.2.3 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.
- 7.7.2.4 The spectrum analyzer was set in max hold mode and allowed trace to stabilize. The highest emission level within the authorized band was measured.
- 7.7.2.5 The maximum band edge emission and modulation product outside of the band were measured as provided in Table 7.7.2 and associated plots and referenced to the highest emission level measured within the authorized band.
- 7.7.2.6 The above procedure was repeated with the EUT adjusted to produce maximum RF output power at the highest carrier frequency.
- 7.7.2.7 The above procedure was repeated with the frequency hopping function enabled.

Figure 7.7.1 Band edge emission test setup





<b>Test specification:</b> Section 15.247(d), RSS-247 section 5.5, Emissions at band edges			
<b>Test procedure:</b> ANSI C63.10, section 7.8.6			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 08-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 58 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 110 VAC, 50 Hz
<b>Remarks:</b>			

Table 7.7.2 Band edge emission outside restricted band test results

ASSIGNED FREQUENCY RANGE: 2400-2483.5 MHz  
 DETECTOR USED: Peak  
 MODULATION: GFSK  
 BIT RATE: 2 Mbps  
 RESOLUTION BANDWIDTH: ≥ 1% of the span  
 VIDEO BANDWIDTH: ≥ RBW

Frequency, MHz	Band edge emission, dBuV/m	Emission at carrier, dBuV/m	Attenuation below carrier, dBc	Limit, dBc	Margin, dB	Verdict
<b>Frequency hopping disabled</b>						
2402	73.74	113.83	40.09	20.0	20.09	Pass
<b>Frequency hopping enabled</b>						
2402	73.33	113.58	40.25	20.0	20.25	Pass

Table 7.7.3 Band edge emission within restricted band test results

Frequency, MHz	Peak field strength			Average field strength			Verdict
	Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*	Calculated field strength dB(μV/m)	Limit, dB(μV/m)	Margin, dB**	
<b>Frequency hopping disabled</b>							
2483.5	66.52	74.0	-7.48	6.52	54.0	-47.48	Pass
<b>Frequency hopping enabled</b>							
2483.5	68.93	74.0	-5.07	8.93	54.0	-45.07	Pass

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

\*\* - Margin = Calculated field strength - specification limit,

Where Calculated field strength = Measured field strength + average factor.

**Reference numbers of test equipment used**

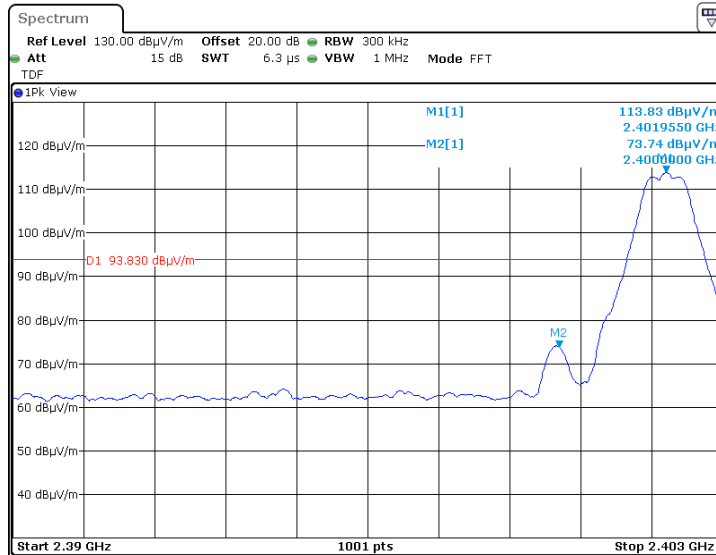
HL 4355	HL 3903	HL 5902	HL 4933	HL 5622		
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Full description is given in Appendix A.

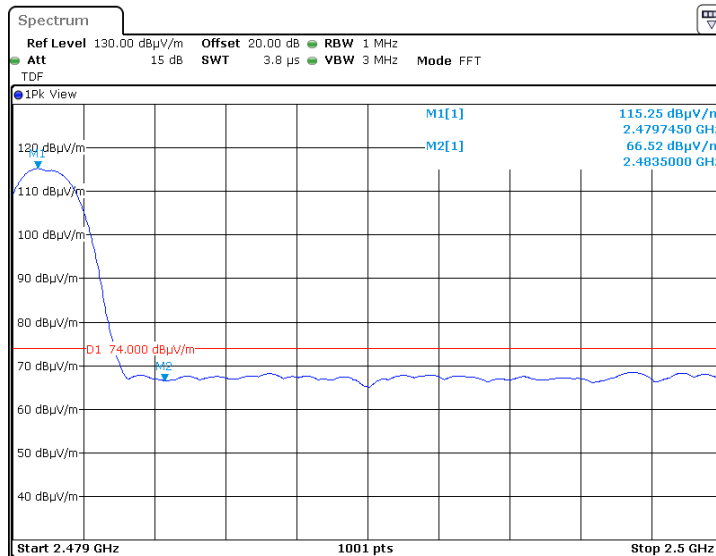


<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Emissions at band edges</b>			
<b>Test procedure: ANSI C63.10, section 7.8.6</b>			
<b>Test mode: Compliance</b>		<b>Verdict: PASS</b>	
<b>Date(s): 08-Jul-22</b>			
<b>Temperature: 25 °C</b>	<b>Relative Humidity: 58 %</b>	<b>Air Pressure: 1012 hPa</b>	<b>Power: 110 VAC, 50 Hz</b>
<b>Remarks:</b>			

Plot 7.7.1 The highest band edge emission at low carrier frequency with hopping function disabled



Plot 7.7.2 The highest band edge emission at high carrier frequency with hopping function disabled

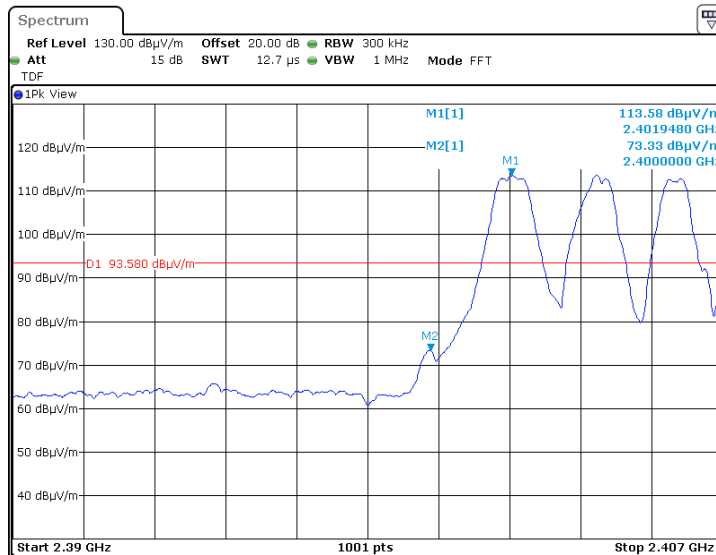




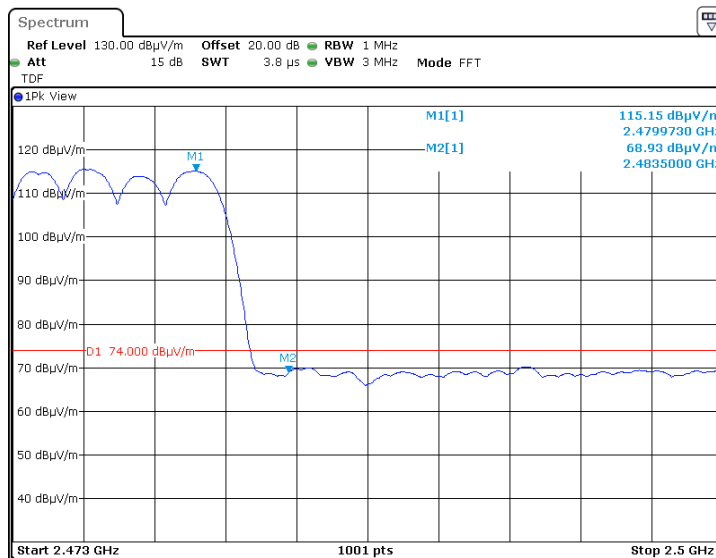
HERMON LABORATORIES

<b>Test specification: Section 15.247(d), RSS-247 section 5.5, Emissions at band edges</b>			
<b>Test procedure: ANSI C63.10, section 7.8.6</b>			
<b>Test mode: Compliance</b>		<b>Verdict: PASS</b>	
<b>Date(s): 08-Jul-22</b>			
<b>Temperature: 25 °C</b>	<b>Relative Humidity: 58 %</b>	<b>Air Pressure: 1012 hPa</b>	<b>Power: 110 VAC, 50 Hz</b>
<b>Remarks:</b>			

Plot 7.7.3 The highest band edge emission at low carrier frequency with hopping function enabled



Plot 7.7.4 The highest band edge emission at high carrier frequency with hopping function enabled





<b>Test specification:</b> Section 15.207(a), RSS-Gen section 8.8, Conducted emission			
<b>Test procedure:</b> ANSI C63.10, section 6.2			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 08-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 58 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 110 VAC, 50 Hz
<b>Remarks:</b>			

## 7.8 Conducted emissions

### 7.8.1 General

This test was performed to measure the common mode conducted emissions at the EUT power port. The specification test limits are given in Table 7.8.1.

Table 7.8.1 Limits for conducted emissions

Frequency, MHz	Class B limit, dB(μV)		Class A limit, dB(μV)	
	QP	AVRG	QP	AVRG
0.15 - 0.5	66 - 56*	56 - 46*	79	66
0.5 - 5.0	56	46	73	60
5.0 - 30	60	50	73	60

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

### 7.8.2 Test procedure

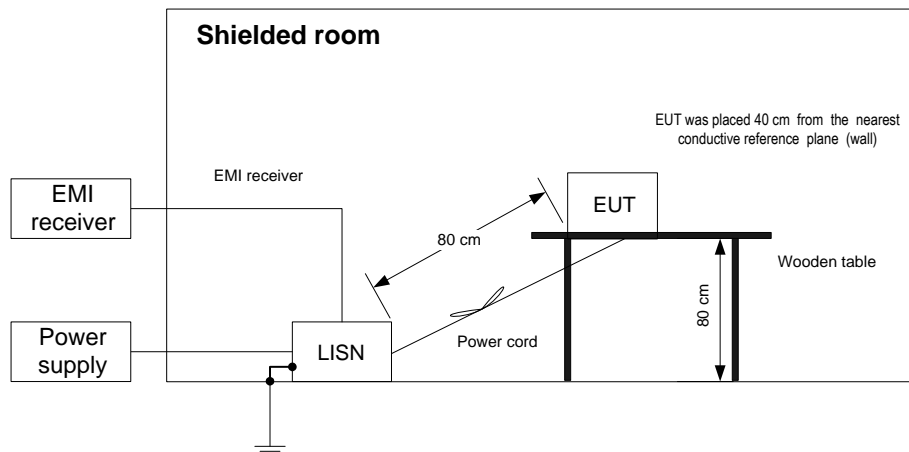
7.8.2.1 The EUT was set up as shown in Figure 7.8.1 and the associated photographs, energized and the EUT performance was checked.

7.8.2.2 The measurements were performed at the EUT power terminals with the LISN connected to the EMI receiver in the frequency range referred to in Table 7.8.2. The unused coaxial connector of the LISN was terminated with 50 Ohm.

7.8.2.3 The position of the EUT cables was varied to find the highest emission.

7.8.2.4 The worst test results with respect to the limits were recorded in Table 7.8.2 and shown in the associated plots.

Figure 7.8.1 Setup for conducted emission measurements, table-top EUT







<b>Test specification:</b> Section 15.207(a), RSS-Gen section 8.8, Conducted emission			
<b>Test procedure:</b> ANSI C63.10, section 6.2			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 08-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 58 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 110 VAC, 50 Hz
<b>Remarks:</b>			

Table 7.8.2 Conducted emission test results

LINE: AC mains  
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*		
All emissions are more than 20 dB below the limit								L1	Pass
All emissions are more than 20 dB below the limit								L2	Pass

\*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

HL 0787	HL 1501	HL 3016	HL 5476	HL 5707			
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Full description is given in Appendix A.

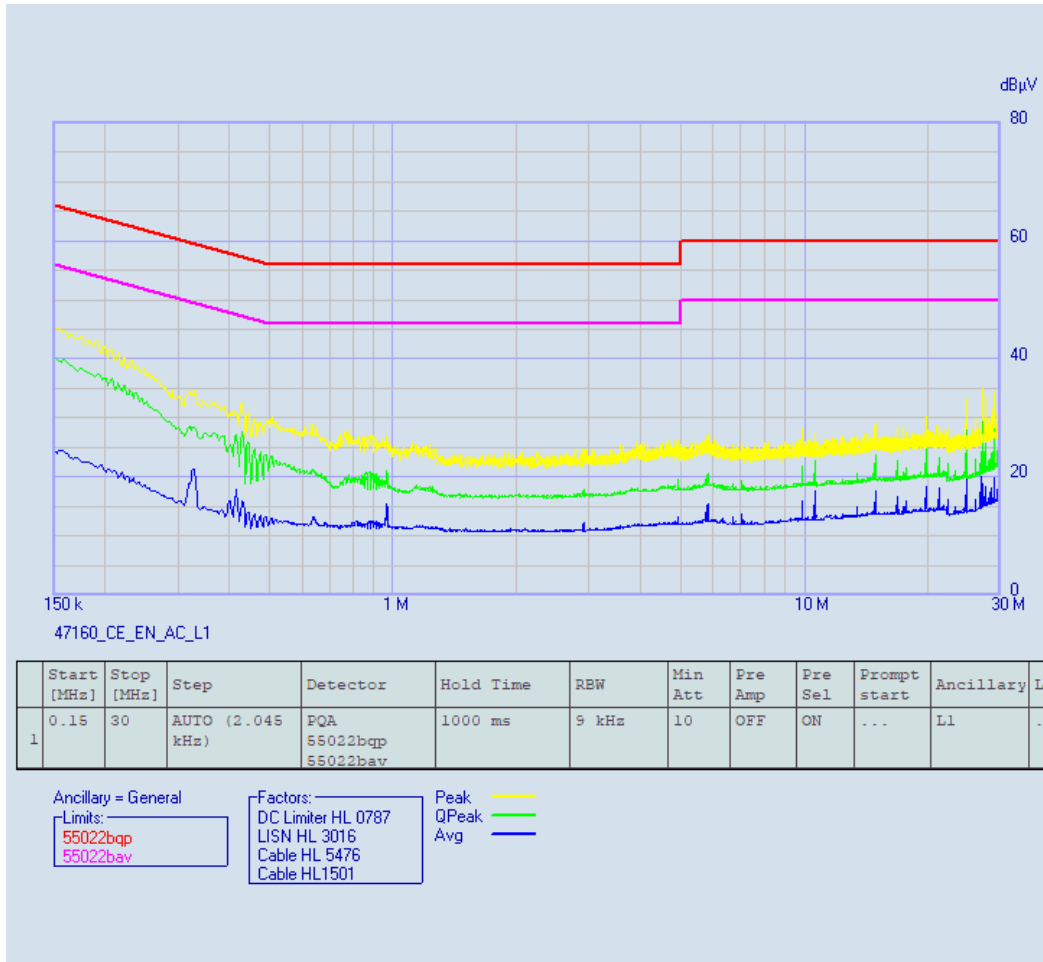


HERMON LABORATORIES

<b>Test specification:</b> Section 15.207(a), RSS-Gen section 8.8, Conducted emission			
<b>Test procedure:</b> ANSI C63.10, section 6.2			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 08-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 58 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 110 VAC, 50 Hz
<b>Remarks:</b>			

Plot 7.8.1 Conducted emission measurements

LINE: L1  
LIMIT: QUASI-PEAK, AVERAGE  
DETECTOR: PEAK



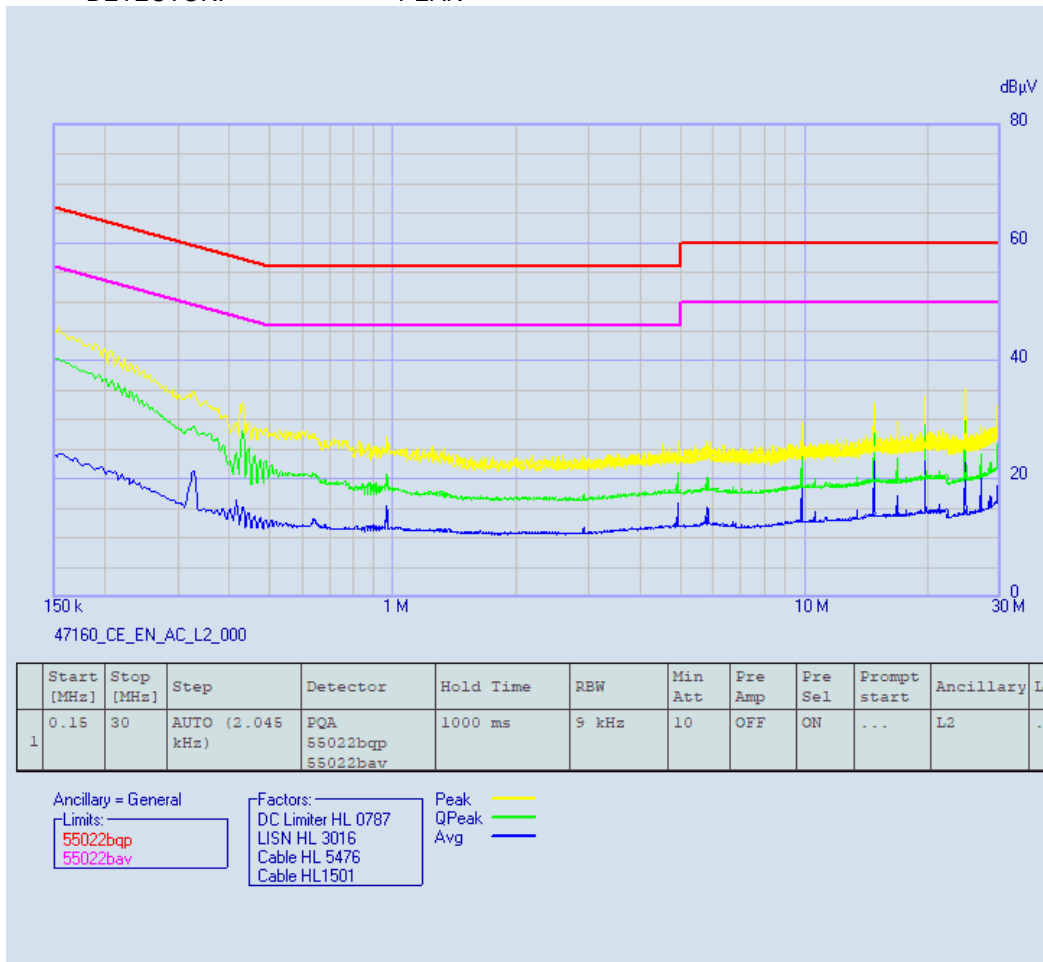


HERMON LABORATORIES

<b>Test specification:</b> Section 15.207(a), RSS-Gen section 8.8, Conducted emission			
<b>Test procedure:</b> ANSI C63.10, section 6.2			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 08-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 58 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 110 VAC, 50 Hz
<b>Remarks:</b>			

**Plot 7.8.2 Conducted emission measurements**

LINE: L2  
LIMIT: QUASI-PEAK, AVERAGE  
DETECTOR: PEAK





<b>Test specification:</b> Section 15.203, RSS-Gen section 6.8, Antenna requirements			
<b>Test procedure:</b> Visual inspection			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 21-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 55 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 120 VAC, 60 Hz
<b>Remarks:</b>			

### 7.9 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 7.9.1.

Table 7.9.1 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	



<b>Test specification: Section 15.107, ICES-003, Conducted emission at AC power port</b>			
Test procedure: ANSI C63.4, Sections 7.3, 12.2.4			
Test mode: Compliance		Verdict: PASS	
Date(s): 21-Jul-22			
Temperature: 25 °C	Relative Humidity: 55 %	Air Pressure: 1012 hPa	Power: 120 VAC, 60 Hz
Remarks:			

## 8 Emissions tests according to FCC 47CFR part 15 subpart B and ICES-003 requirements

### 8.1 Conducted emissions

#### 8.1.1 General

This test was performed to measure the common mode conducted emissions at the EUT power port. The specification test limits are given in Table 8.1.1.

Table 8.1.1 Limits for conducted emissions

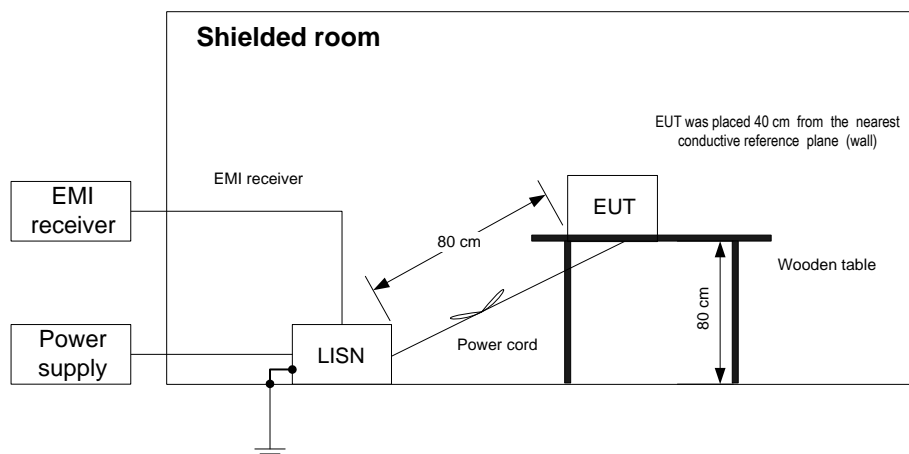
Frequency, MHz	Class B limit, dB(μV)		Class A limit, dB(μV)	
	QP	AVRG	QP	AVRG
0.15 - 0.5	66 - 56*	56 - 46*	79	66
0.5 - 5.0	56	46	73	60
5.0 - 30	60	50	73	60

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

#### 8.1.2 Test procedure

- 8.1.2.1 The EUT was set up as shown in Figure 8.1.1 and the associated photographs, energized and the EUT performance was checked.
- 8.1.2.2 The measurements were performed at the EUT power terminals with the LISN connected to the EMI receiver in the frequency range referred to in Table 8.2.1. The unused coaxial connector of the LISN was terminated with 50 Ohm.
- 8.1.2.3 The position of the EUT cables was varied to find the highest emission.
- 8.1.2.4 The worst test results with respect to the limits were recorded in Table 8.2.1 and shown in the associated plots.

Figure 8.1.1 Setup for conducted emission measurements, table-top EUT





<b>Test specification:</b> Section 15.107, ICES-003, Conducted emission at AC power port			
<b>Test procedure:</b> ANSI C63.4, Sections 7.3, 12.2.4			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 21-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 55 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 120 VAC, 60 Hz
<b>Remarks:</b>			

Table 8.1.2 Conducted emission test results

LINE: AC mains  
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*		
All emissions are more than 20 dB below the limit								L1	Pass
All emissions are more than 20 dB below the limit								L2	Pass

\*- Margin = Measured emission - specification limit.

Reference numbers of test equipment used

HL 0787	HL 1501	HL 3016	HL 5476	HL 5707			
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Full description is given in Appendix A.

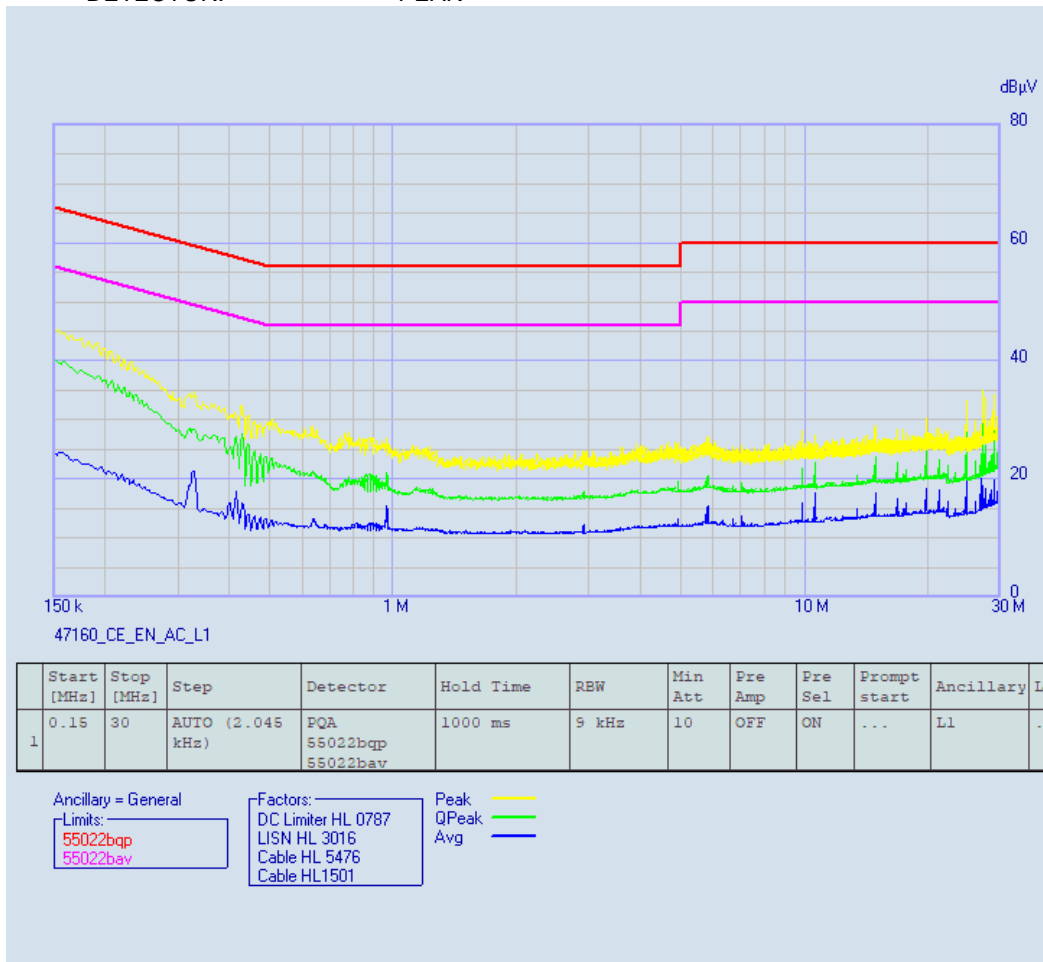


HERMON LABORATORIES

<b>Test specification: Section 15.107, ICES-003, Conducted emission at AC power port</b>			
<b>Test procedure:</b> ANSI C63.4, Sections 7.3, 12.2.4			
<b>Test mode:</b> Compliance		<b>Verdict: PASS</b>	
<b>Date(s):</b> 21-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 55 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 120 VAC, 60 Hz
<b>Remarks:</b>			

Plot 8.1.1 Conducted emission measurements

LINE: L1  
LIMIT: QUASI-PEAK, AVERAGE  
DETECTOR: PEAK



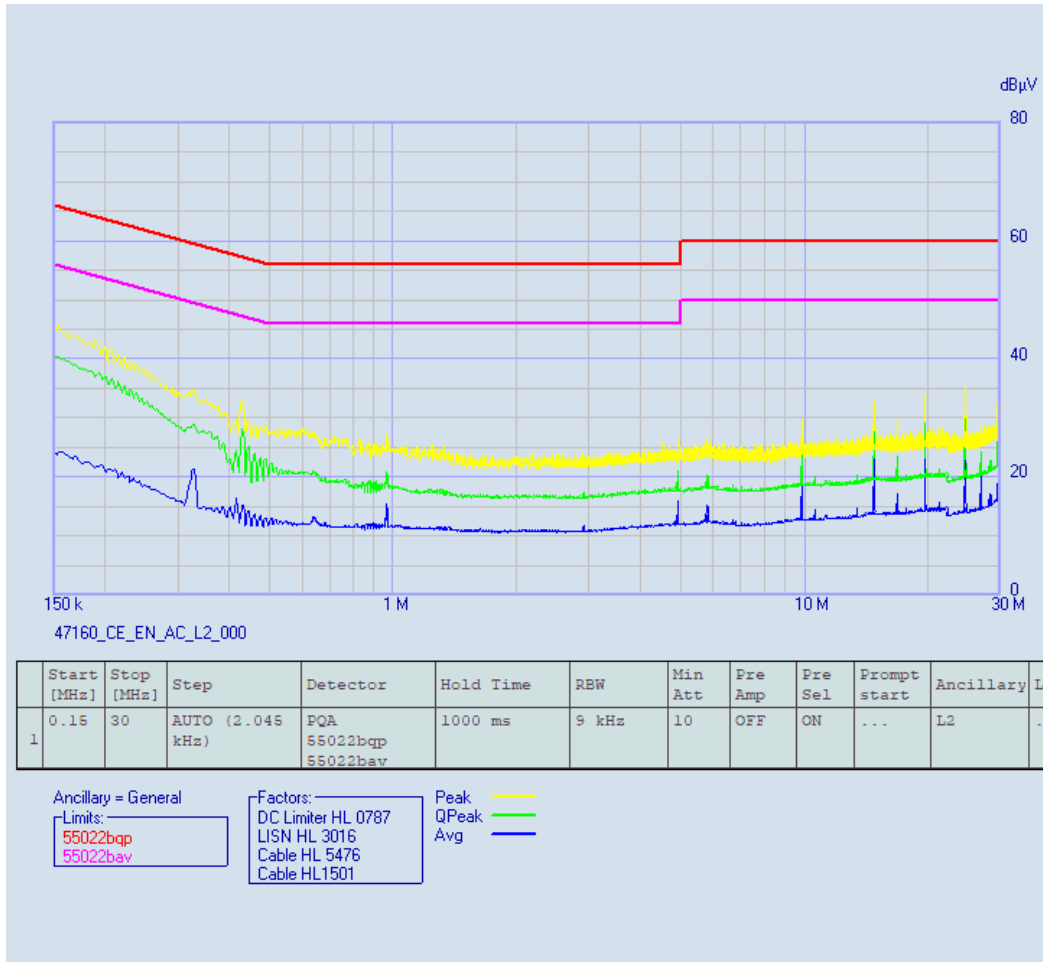


HERMON LABORATORIES

<b>Test specification:</b> Section 15.107, ICES-003, Conducted emission at AC power port			
<b>Test procedure:</b> ANSI C63.4, Sections 7.3, 12.2.4			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 21-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 55 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 120 VAC, 60 Hz
<b>Remarks:</b>			

**Plot 8.1.2 Conducted emission measurements**

LINE: L2  
LIMIT: QUASI-PEAK, AVERAGE  
DETECTOR: PEAK







<b>Test specification: Section 15.109 / ICES-003, Radiated emission</b>			
<b>Test procedure:</b> ANSI C63.4, Sections 8.3, 12.2.5			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 21-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 55 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 120 VAC, 60 Hz
<b>Remarks:</b>			

## 8.2 Radiated emission measurements

### 8.2.1 General

This test was performed to measure radiated emissions from the EUT enclosure. The specification test limits are given in Table 8.2.1.

**Table 8.2.1 Radiated emission test limits**

Frequency, MHz	Class B limit, dB( $\mu$ V/m)		Class A limit, dB( $\mu$ V/m)	
	10 m distance	3 m distance	10 m distance	3 m distance
30 - 88	29.5*	40.0	39.0	49.5*
88 - 216	33.0*	43.5	43.5	54.0*
216 - 960	35.5*	46.0	46.4	56.9*
Above 960	43.5*	54.0	49.5	60.0*

\* - The limit for a test distance other than specified was calculated using the inverse linear distance extrapolation factor as follows:  $Lim_{S_2} = Lim_{S_1} + 20 \log(S_1/S_2)$ , where  $S_1$  and  $S_2$  – the standard defined and the test distance respectively in meters.

### 8.2.2 Test procedure for measurements in semi-anechoic chamber

**8.2.2.1** The EUT was set up as shown in Figure 8.2.1 and the associated photographs, energized and the EUT performance was checked.

**8.2.2.2** The measurements were performed in the anechoic chamber at 3 m test distance. The specified frequency range was investigated with the antenna connected to the EMI receiver. To find the highest emission the turntable was rotated 360° and the measuring antenna height was swept from 1 to 4 m in both, vertical and horizontal polarizations. The EUT cables position was varied to maximize emission.

**8.2.2.3** The worst test results with respect to the limits were recorded in Table 8.2.2 and shown in the associated plots.



<b>Test specification: Section 15.109 / ICES-003, Radiated emission</b>			
<b>Test procedure:</b> ANSI C63.4, Sections 8.3, 12.2.5			
<b>Test mode:</b> Compliance		<b>Verdict: PASS</b>	
<b>Date(s):</b> 21-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 55 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 120 VAC, 60 Hz
<b>Remarks:</b>			

8.2.2.4 Figure 8.2.1 Setup for radiated emission measurements in anechoic chamber, table-top EUT

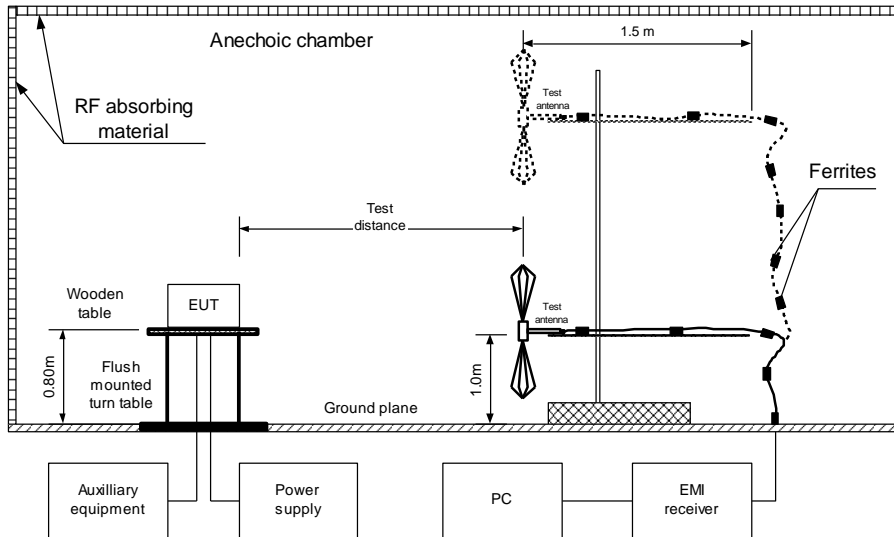
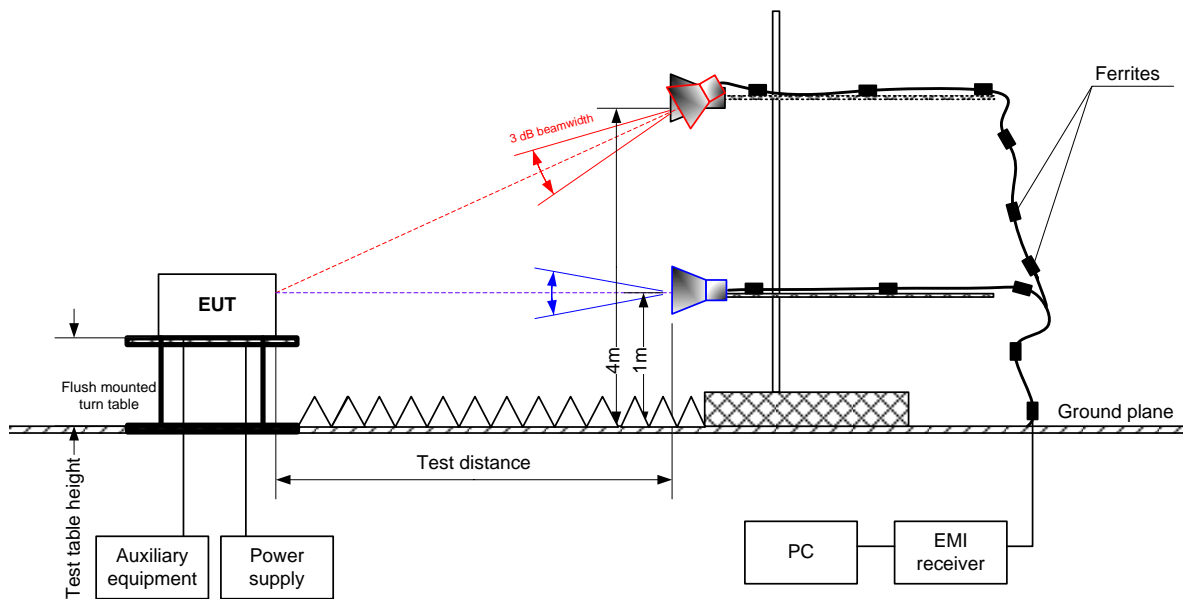


Figure 8.2.2 Setup for radiated emission measurements in 1000 – 40000 MHz range, table-top EUT





<b>Test specification:</b> Section 15.109 / ICES-003, Radiated emission			
<b>Test procedure:</b> ANSI C63.4, Sections 8.3, 12.2.5			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 21-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 55 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 120 VAC, 60 Hz
<b>Remarks:</b>			

Table 8.2.2 Radiated emission test results

EUT SET UP: TABLE-TOP  
 TEST SITE: OATS / SEMI ANECHOIC CHAMBER  
 TEST DISTANCE: 10 m  
 DETECTORS USED: PEAK / QUASI-PEAK  
 FREQUENCY RANGE: 30 MHz – 1000 MHz  
 RESOLUTION BANDWIDTH: 120 kHz

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*				
43.287	31.19	27.24	40.0	-12.76	Vertical	1.02	129	Pass
197.664	41.39	36.49	43.5	-7.01	Vertical	1.02	42	
200.369	42.84	37.68	43.5	-5.82	Vertical	1.02	-56	
200.441	41.83	37.01	43.5	-6.49	Vertical	1.02	42	
200.495	43.07	37.90	43.5	-5.60	Vertical	1.00	-56	
388.087	39.44	32.28	46.0	-13.72	Horizontal	1.00	166	

TEST SITE: SEMI ANECHOIC CHAMBER  
 TEST DISTANCE: 3 m  
 DETECTORS USED: PEAK / AVERAGE  
 FREQUENCY RANGE: 1000 MHz – 13000 MHz  
 RESOLUTION BANDWIDTH: 1000 kHz

Frequency, MHz	Peak			Average			Antenna polarization	Antenna tilt, degrees	Antenna height, m	Turn-table position**, degrees	Verdict
	Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB*	Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB*					
All emissions are more than 20 dB below the limit											Pass

\*- Margin = Measured emission - specification limit.  
 \*\*- EUT front panel refers to 0 degrees position of turntable.

Reference numbers of test equipment used

HL 3903	HL 4360	HL 4933	HL 5288			
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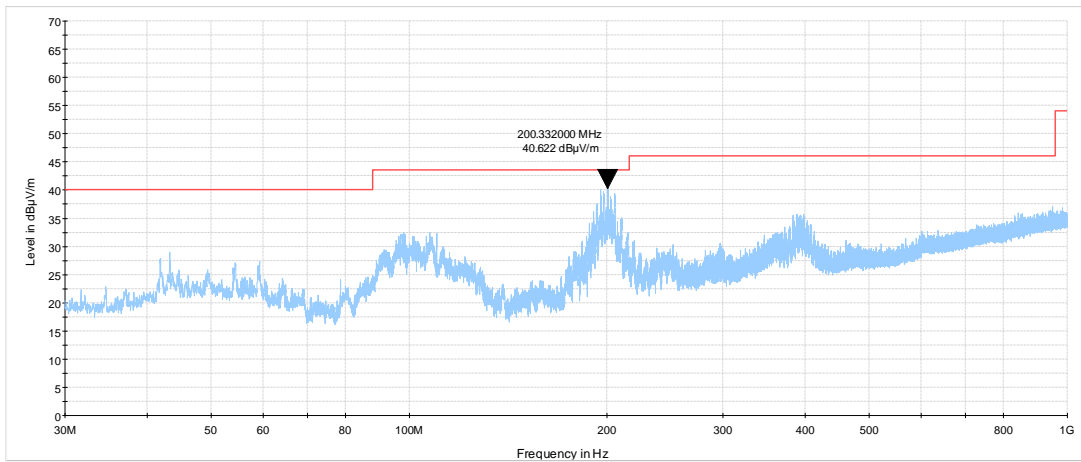
Full description is given in Appendix A.



<b>Test specification: Section 15.109 / ICES-003, Radiated emission</b>			
<b>Test procedure:</b> ANSI C63.4, Sections 8.3, 12.2.5			
<b>Test mode:</b> Compliance		<b>Verdict:</b> PASS	
<b>Date(s):</b> 21-Jul-22			
<b>Temperature:</b> 25 °C	<b>Relative Humidity:</b> 55 %	<b>Air Pressure:</b> 1012 hPa	<b>Power:</b> 120 VAC, 60 Hz
<b>Remarks:</b>			

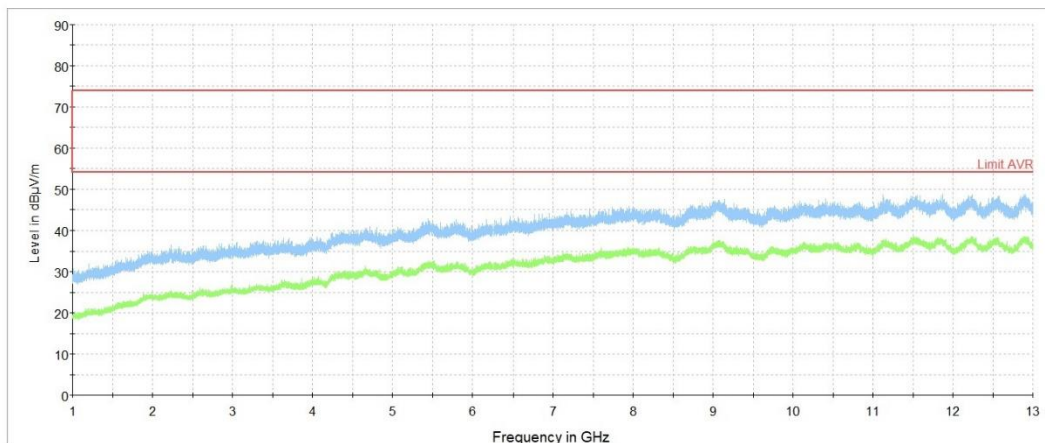
**Plot 8.2.1 Radiated emission measurements in 30 - 1000 MHz range**

TEST SITE: Semi Anechoic chamber  
 TEST DISTANCE: 3 m  
 ANTENNA POLARIZATION: Vertical & Horizontal



**Plot 8.2.2 Radiated emission measurements above 1000 MHz**

TEST SITE: Semi Anechoic chamber  
 TEST DISTANCE: 3 m  
 ANTENNA POLARIZATION: Vertical & Horizontal



**9 APPENDIX A Test equipment and ancillaries used for tests**

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal./ Check	Due Cal./ Check
0337	Probe Set, Hand held, 5 probes	Electro-Metrics	EHFP-30	238	30-May-22	30-May-23
0787	Transient Limiter 9 kHz-200 MHz	Hewlett Packard	11947A	3107A01877	04-Oct-21	04-Oct-22
1501	Cable RF, 6 m, BNC/BNC	Belden	M17/167 MIL-C-17	1501	11-Oct-21	11-Oct-22
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	08-Feb-22	08-Feb-23
3437	Precision Fixed Attenuator, 50 Ohm, 5 W, 10 dB, DC to 18 GHz	Mini-Circuits	BW-S10W5+	NA	13-Sep-21	13-Sep-22
3818	PSA Series Spectrum Analyzer, 3 Hz- 44 GHz	Agilent Technologies	E4446A	MY48250288	02-Aug-21	02-Aug-22
3903	Microwave Cable Assembly, 40.0 GHz, 1.5 m, SMA/SMA	Huber-Suhner	SUCOFLEX 102A	1226/2A	07-Apr-22	07-Apr-23
4114	Antenna, Double-Ridged Waveguide Horn, 1 to 18 GHz	ETS Lindgren	3117	00123515	08-Jun-22	08-Jun-23
4136	Shield Box	TESCOM CO., LTD	TC-5916A	5916A000137	28-Apr-22	28-Apr-23
4355	Signal and Spectrum Analyzer, 9 kHz to 7 GHz	Rohde & Schwarz	FSV 7	101630	20-Sep-21	20-Sep-22
4360	EMI Test Receiver, 20 Hz to 40 GHz.	Rohde & Schwarz	ESU40	100322	13-Jan-22	13-Jan-23
4372	High Pass Filter, 50 Ohm, 8.0 to 18.0 GHz,SMA-FM / SMA-FM	Tiger Micro-Electronics Institute	TGF-A2118-001	r-JSFG308-001	15-Jun-21	15-Jun-23
4529	High Pass Filter, 50 Ohm, 4250 to 10000 MHz., SMA-FM / SMA-M	Mini-Circuits	VHF-3800+	NA	15-Jun-21	15-Jun-23
4933	Active Horn Antenna, 1 GHz to 18 GHz	COM-POWER CORPORATION	AHA-118	701046	13-Jan-22	13-Jan-23
5112	RF cable, 40 GHz, 5.5 m, K-type	Huber-Suhner	SF102EA/11 SK/11SK/55 00MM	502494/2EA	25-Apr-22	25-Apr-23
5288	Trilog Antenna, 25 MHz - 8 GHz, 100W	Frankonia	ALX-8000E	00809	24-Mar-22	24-Apr-25
5376	EXA Signal Analyzer, 10 Hz - 32 GHz	Keysight Technologies	N9010B	MY57470404	01-Nov-21	01-Nov-22
5397	H-field near field probe, 3 cm	ETS Lindgren	7405-902	NA	16-Aug-20	16-Aug-22
5476	Cable, BNC/BNC, 10.5 m	Western wire	MIL-C-17G	NA	22-May-22	22-May-23
5608	Precision Fixed Attenuator, 50 Ohm, 5 W, 10 dB, DC to 18 GHz	Mini Circuits	BW-S10W5+	NA	13-Sep-21	13-Sep-22
5622	Precision Fixed Attenuator, 50 Ohm, 5 W, 20 dB, DC to 18 GHz	Mini Circuits	BW-N20W5+	NA	06-Oct-19	06-Oct-20
5645	Cable, 50 Ohm, DC to 18 GHz, 1.8 m, SMA/SMA	Mini Circuits	CBL-6FT-SMSM+	NA	01-Nov-21	01-Nov-22
5707	EMI receiver	PMM / Narda	PMM 9010F	060WW91101	02-Feb-22	02-Feb-23
5902	RF cable, 18 GHz, 6.0m, N-type	Huber-Suhner	SF126EA/11 N/11N/6000	NA	16-Jan-22	16-Jan-23



### 10 APPENDIX B Test equipment correction factors

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 $\mu$ V to obtain field strength in dB $\mu$ 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 $\mu$ V to obtain field strength in dB $\mu$ V/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 $\mu$ V to obtain field strength in dB $\mu$ V/m.



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





## 12 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 are R-10808 for OATS, R-1082 for anechoic chamber, 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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## 13 APPENDIX E Specification references

FCC 47CFR part 15: 2020	Radio Frequency Devices
ANSI C63.10: 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
ANSI C63.4: 2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
RSS-247 Issue 2: 2017	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
ICES-003: 2020, Issue 7	Information Technology Equipment (Including Digital Apparatus) – Limits and methods of measurement



## 14 APPENDIX F Abbreviations and acronyms

A	ampere
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( $\mu$ V)	decibel referred to one microvolt
dB( $\mu$ V/m)	decibel referred to one microvolt per meter
dB( $\mu$ A)	decibel referred to one microampere
DC	direct current
EIRP	equivalent isotropically radiated power
ERP	effective radiated power
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
$\mu$ s	microsecond
NA	not applicable
NB	narrow band
OATS	open area test site
$\Omega$	Ohm
PM	pulse modulation
PS	power supply
ppm	part per million ( $10^{-6}$ )
QP	quasi-peak
RE	radiated emission
RF	radio frequency
rms	root mean square
Rx	receive
s	second
T	temperature
Tx	transmit
V	volt
WB	wideband

END OF DOCUMENT