

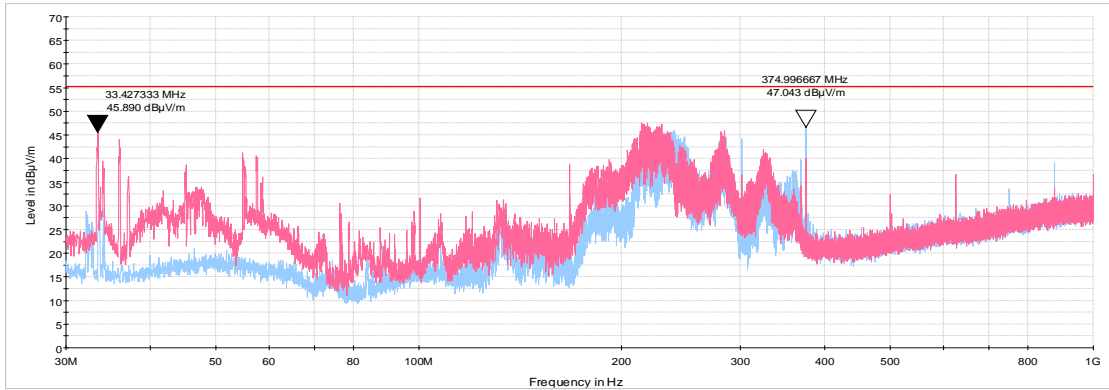


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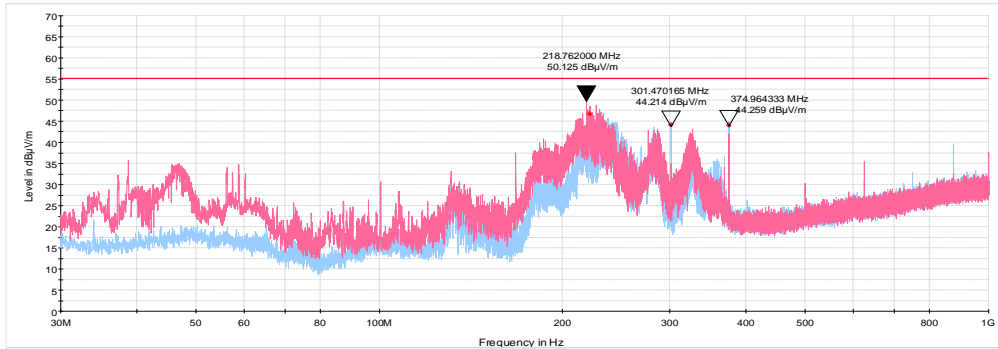
Test specification: Section 96.41(e)(2), Radiated spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict:	
Date(s):			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Plot 7.5.3 Radiated emission measurements in 30 - 1000 MHz range

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



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

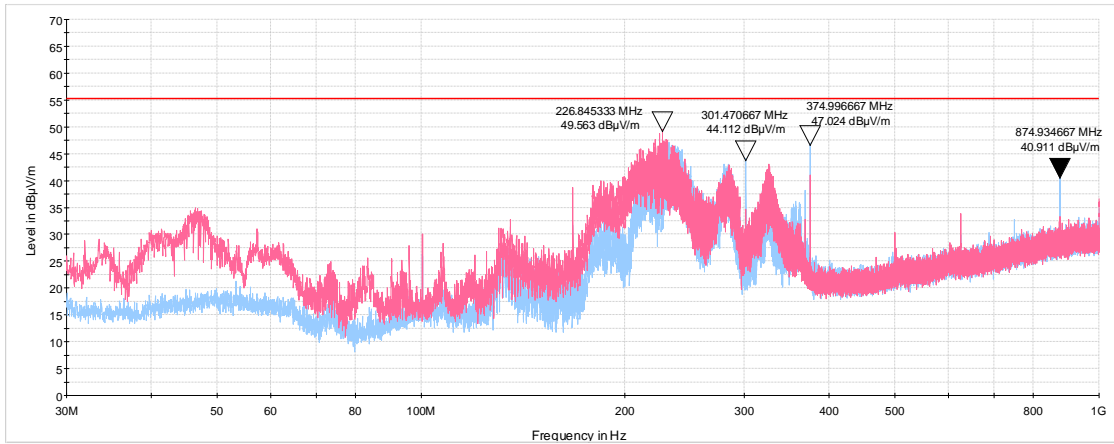




Test specification: Section 96.41(e)(2), Radiated spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict:	
Date(s):			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

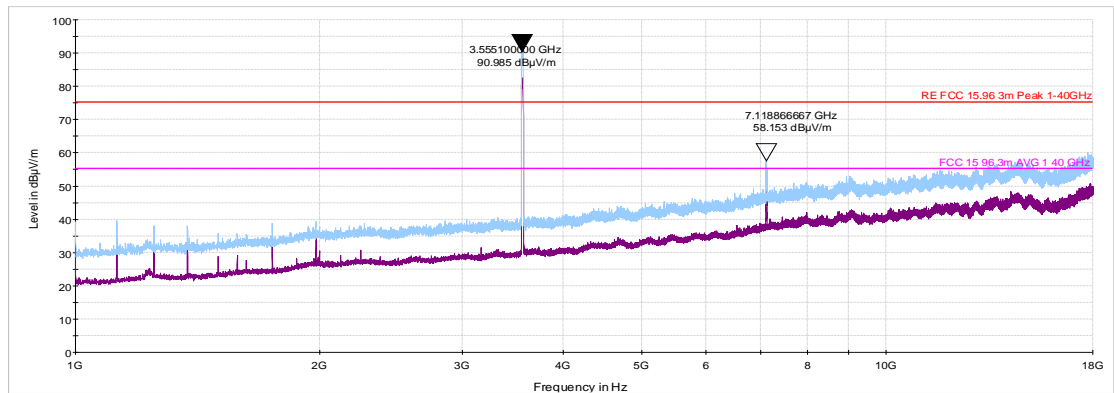
Plot 7.5.4 Radiated emission measurements in 30 - 1000 MHz range

TEST SITE: Semi anechoic chamber
 CARRIER FREQUENCY: High (3690)
 ANTENNA POLARIZATION: Vertical and Horizontal
 TEST DISTANCE: 3 m



Plot 7.5.5 Radiated emission measurements in 1000 – 18000 MHz range

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



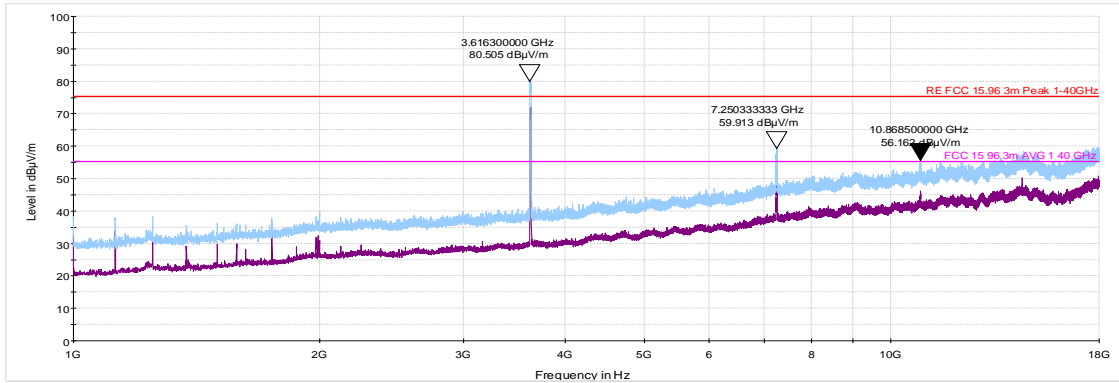


HERMON LABORATORIES

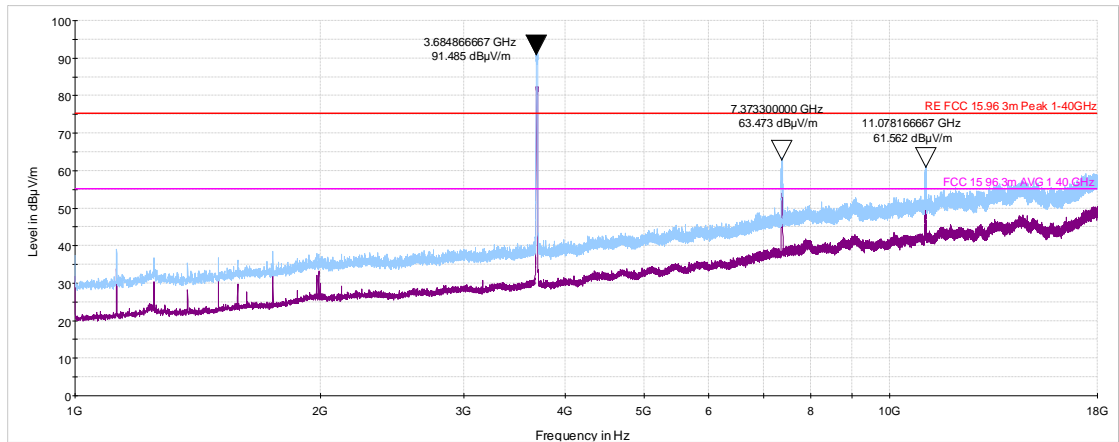
Test specification: Section 96.41(e)(2), Radiated spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict:	
Date(s):			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Plot 7.5.6 Radiated emission measurements in 1000 – 18000 MHz range

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



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

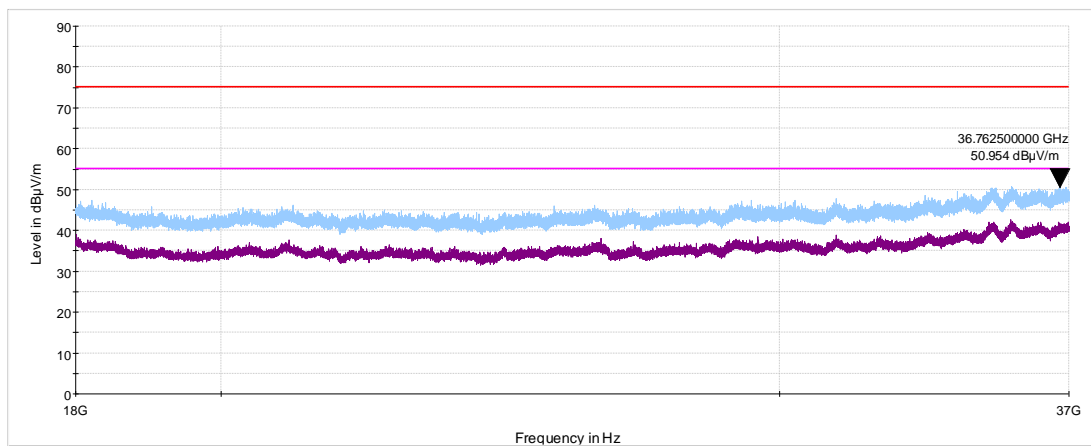




Test specification: Section 96.41(e)(2), Radiated spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict:	
Date(s):			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

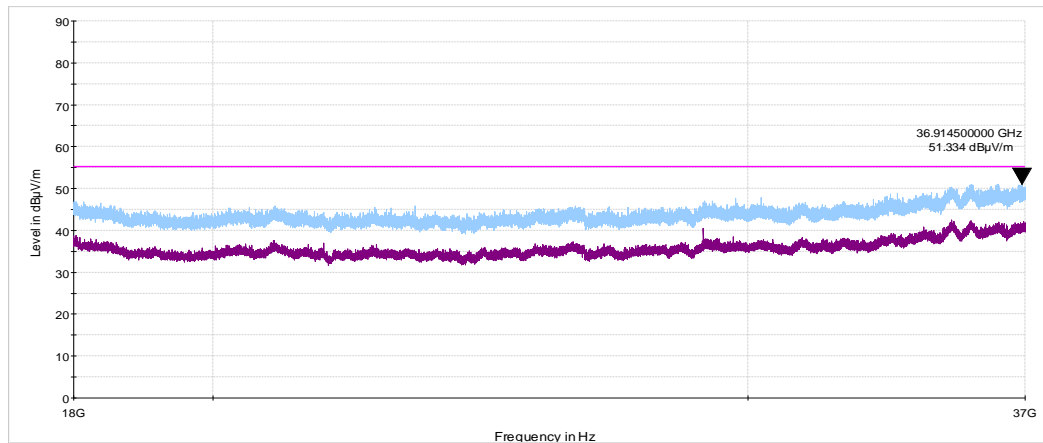
Plot 7.5.7 Radiated emission measurements in 18000 – 37000 MHz range

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



Plot 7.5.8 Radiated emission measurements in 18000 – 37000 MHz range

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



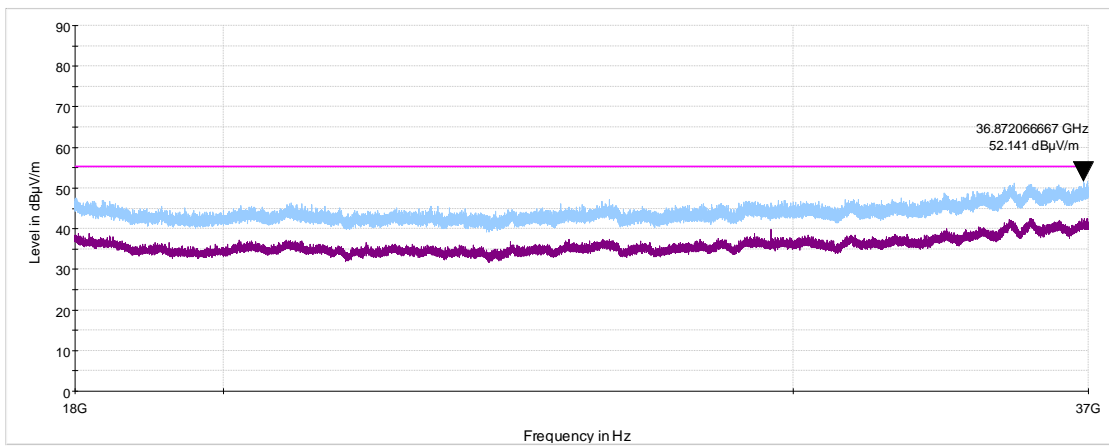


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Test specification: Section 96.41(e)(2), Radiated spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict:	
Date(s):			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Plot 7.5.9 Radiated emission measurements in 18000 – 37000 MHz range

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





Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 24-Feb-23			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

7.6 Spurious emissions at RF antenna connector test

7.6.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 7.6.1.

Table 7.6.1 Spurious emission limits

Frequency, MHz	Conducted power of spurious, dBm/MHz
0.009– below 3530.0	-40.0
3720.0 – 10th harmonic*	-40.0

* - spurious emission limits do not apply to the in band emission within $\pm 250\%$ of the authorized bandwidth from the carrier; investigated in course of emission mask testing

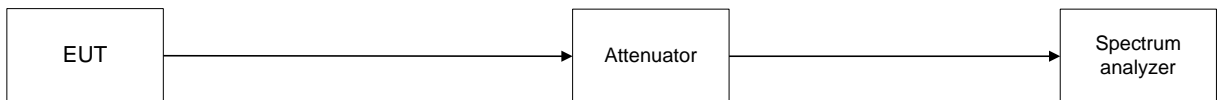
7.6.2 Test procedure

7.6.2.1 The EUT was set up as shown in Figure 7.6.1, energized and its proper operation was checked.

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

7.6.2.3 The spurious emission was measured with spectrum analyzer as provided in Table 7.6.2 and Table 7.6.3 and associated plots.

Figure 7.6.1 Spurious emission test setup





Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 24-Feb-23			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Table 7.6.2 Spurious emission test results

ASSIGNED FREQUENCY RANGE: 3550 - 3700 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 – 37000 MHz
 DETECTOR USED: Peak
 VIDEO BANDWIDTH: ≥ Resolution bandwidth
 MODULATION: QPSK
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum
 NUMBER ANTENNA PORTS: N = 4

Frequency, MHz	Peak power (VBW=3 MHz)				Average power (RMS)				Verdict
	Maximun emission per chain, dBm**	Total, dBm***	Limit, dBm	Margin, dB*	Maximun emission per chain, dBm**	Total, dBm***	Limit, dBm	Margin, dB*	
Channel bandwidth 10 MHz									
Low carrier frequency 3555 MHz									
0.0104	-48.39	-42.39	-40	-2.39	-48.39	-42.39	-40	-2.39	Pass
420.91	-50.46	-44.46	-40	-4.46	-50.46	-44.46	-40	-4.46	
3288.06	-50.89	-44.89	-40	-4.89	-50.89	-44.89	-40	-4.89	
Mid carrier frequency 3625 MHz									
1.063	-53.97	-47.97	-40	-7.97	-53.97	-47.97	-40	-7.97	Pass
0.011	-49.81	-43.81	-40	-3.81	-49.81	-43.81	-40	-3.81	
629.14	-56.29	-50.29	-40	-10.29	-56.29	-50.29	-40	-10.29	
1063.7	-53.97	-47.97	-40	-7.97	-53.97	-47.97	-40	-7.97	
3337.35	-51.57	-45.57	-40	-5.57	-51.57	-45.57	-40	-5.57	
High carrier frequency 3695 MHz									
1.132	-55.85	-49.85	-40	-9.85	-55.85	-49.85	-40	-9.85	Pass
0.0105	-50.03	-44.03	-40	-4.03	-50.03	-44.03	-40	-4.03	
280.42	-57.33	-51.33	-40	-11.33	-57.33	-51.33	-40	-11.33	
1131.7	-55.85	-49.85	-40	-9.85	-55.85	-49.85	-40	-9.85	
3359.6	-52.02	-46.02	-40	-6.02	-52.02	-46.02	-40	-6.02	

*- Margin = Total spurious emission - specification limit.
 ** - SA Reading over 1 chain = Max SA reading (Chains #1&2 or chains #3&4)
 *** - Total emission = Maximum emission per chain + 10*log(N)



Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 24-Feb-23			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Table 7.6.3 Spurious emission test results

ASSIGNED FREQUENCY RANGE: 3550 - 3700 MHz
 INVESTIGATED FREQUENCY RANGE: 0.009 – 37000 MHz
 DETECTOR USED: Peak
 VIDEO BANDWIDTH: ≥ Resolution bandwidth
 MODULATION: QPSK
 TRANSMITTER OUTPUT POWER SETTINGS: Maximum
 NUMBER ANTENNA PORTS: N = 4

Frequency, MHz	Peak power (VBW=3 MHz)				Average power (RMS)				Verdict
	Maximun emission per chain, dBm**	Total, dBm***	Limit, dBm	Margin, dB*	Maximun emission per chain, dBm**	Total, dBm***	Limit, dBm	Margin, dB*	
Channel bandwidth 20 MHz									
Low carrier frequency 3560 MHz									
0.0272	-50.34	-44.34	-40.00	-4.34	-50.34	-44.34	-40.00	-4.34	Pass
431.1	-54.54	-48.54	-40.00	-8.54	-54.54	-48.54	-40.00	-8.54	
3298.39	-51.06	-45.06	-40.00	-5.06	-51.06	-45.06	-40.00	-5.06	
Mid carrier frequency 3625 MHz									
0.0272	-51.21	-45.21	-40.00	-4.34	-51.21	-45.21	-40.00	-4.34	Pass
637.71	-58.03	-52.03	-40.00	-5.21	-58.03	-52.03	-40.00	-5.21	
1064.7	-52.48	-46.48	-40.00	-12.03	-52.48	-46.48	-40.00	-12.03	
3340.0	-52.57	-46.57	-40.00	-6.48	-52.57	-46.57	-40.00	-6.48	
High carrier frequency 3690 MHz									
0.02805	-50.98	-44.98	-40.00	-4.98	-50.98	-44.98	-40.00	-4.98	Pass
1001.0	-53.75	-47.75	-40.00	-7.75	-53.75	-47.75	-40.00	-7.75	
3364.64	-53.44	-47.44	-40.00	-7.44	-53.44	-47.44	-40.00	-7.44	

*- Margin = Total spurious emission - specification limit.
 ** - SA Reading over 1 chain = Max SA reading (Chains #1&2 or chains #3&4)
 *** - Total emission = Maximum emission per chain + 10*log(N)

Reference numbers of test equipment used

HL 5376	HL 5642	HL3358				
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Full description is given in Appendix A.

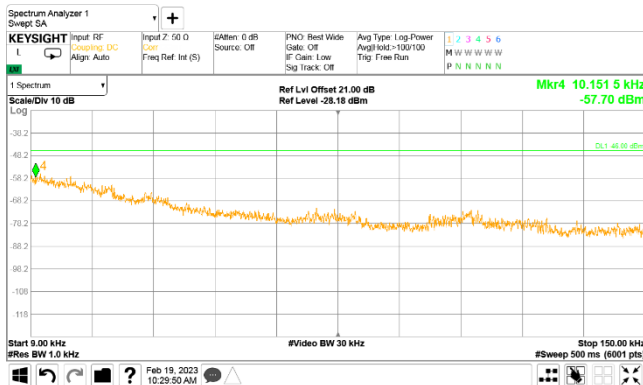


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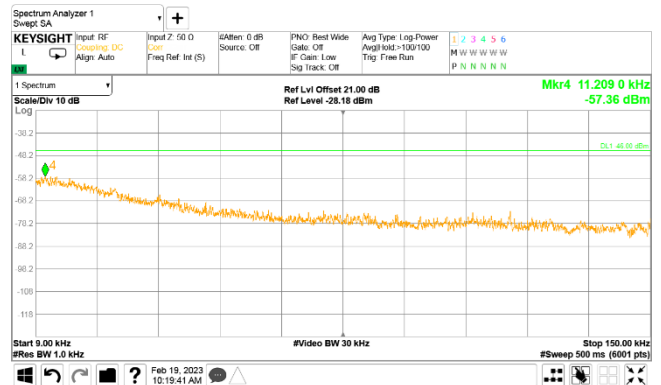
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 24-Feb-23			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Plot 7.6.1 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency

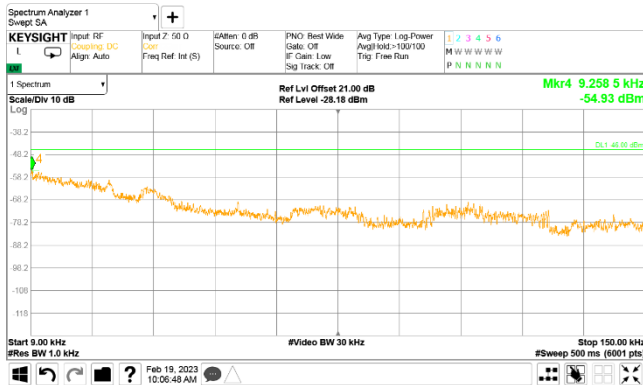
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



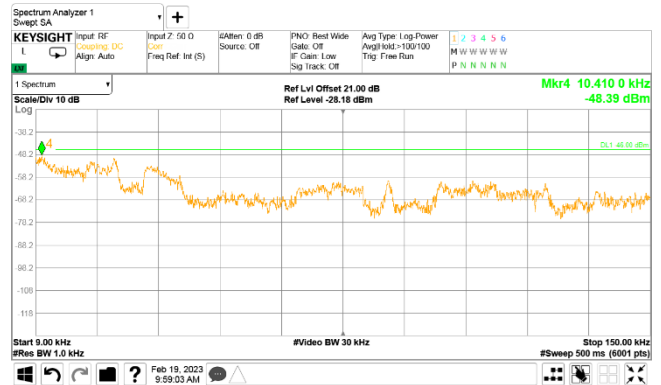
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



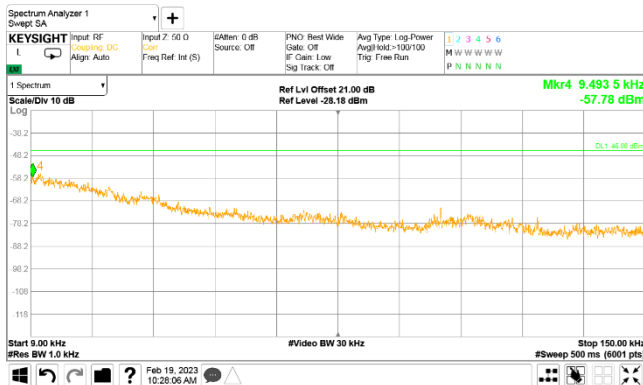


HERMON LABORATORIES

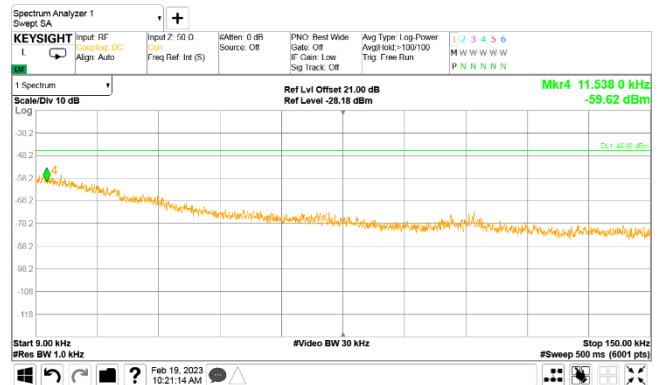
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 24-Feb-23			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Plot 7.6.2 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency

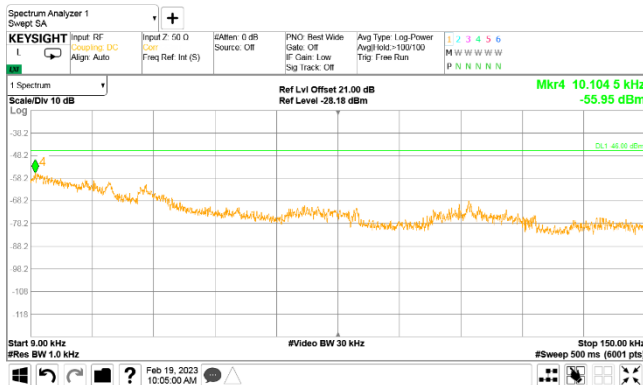
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



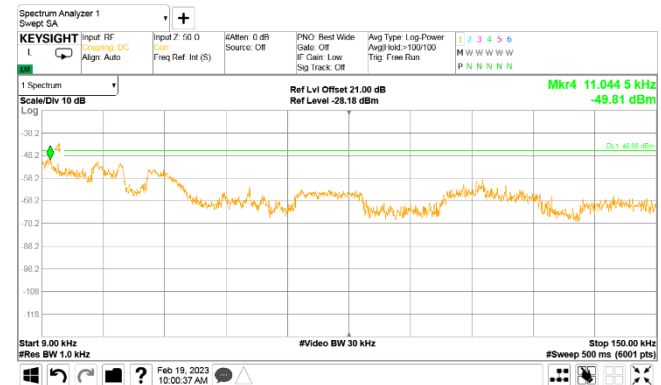
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



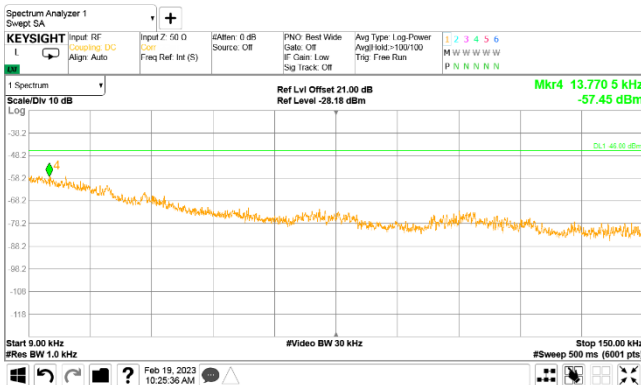


HERMON LABORATORIES

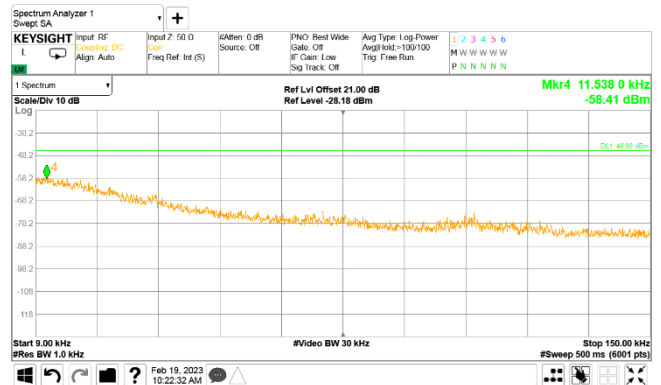
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 24-Feb-23			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Plot 7.6.3 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency

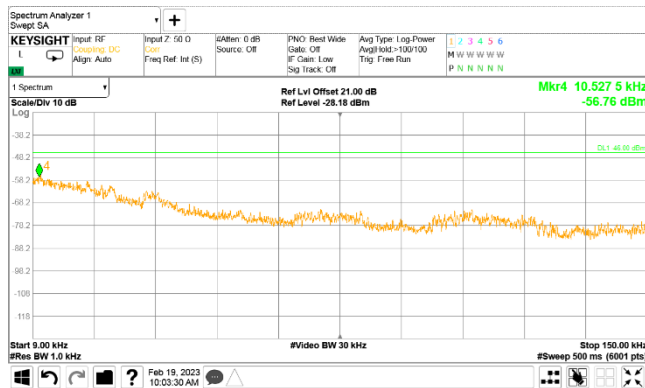
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



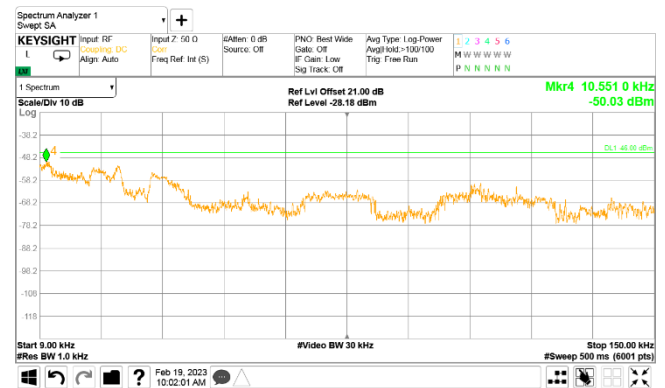
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4





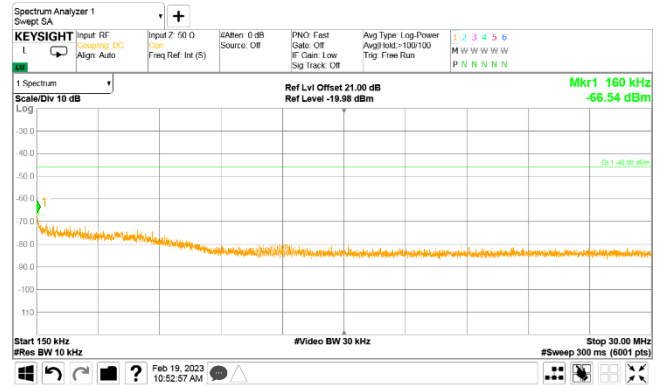
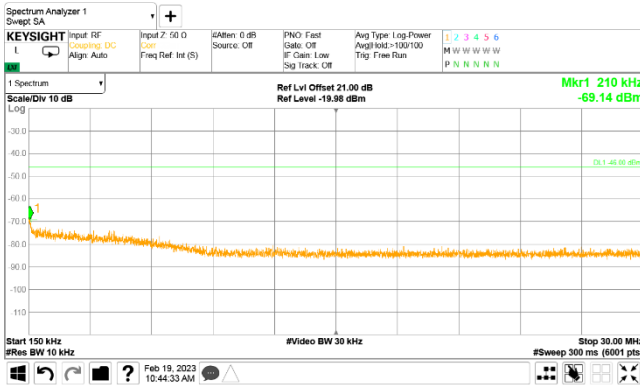
HERMON LABORATORIES

Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 24-Feb-23			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Plot 7.6.4 Spurious emission measurements in 150 kHz - 30 MHz range at low carrier frequency

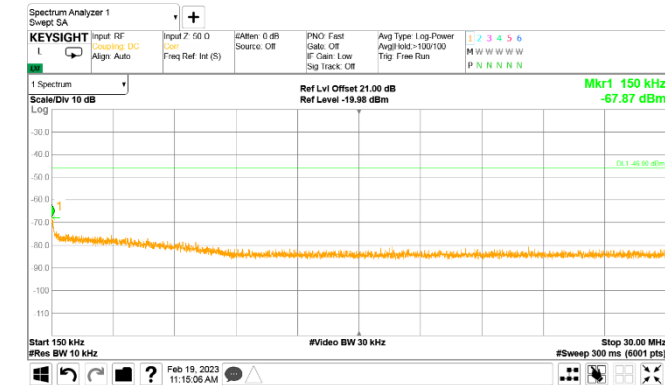
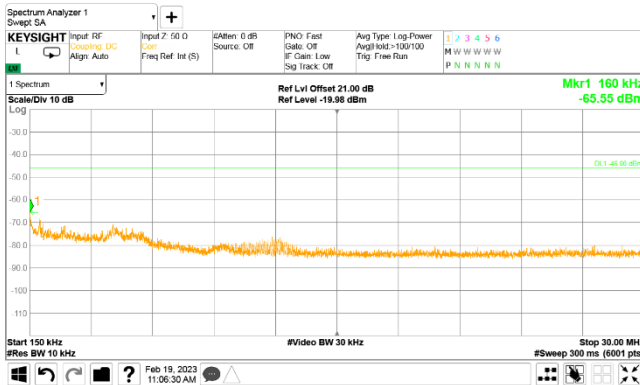
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1

QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3

ANTENNA CHAIN: #4





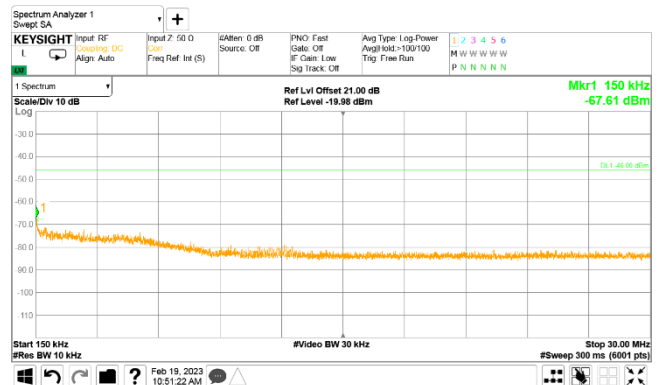
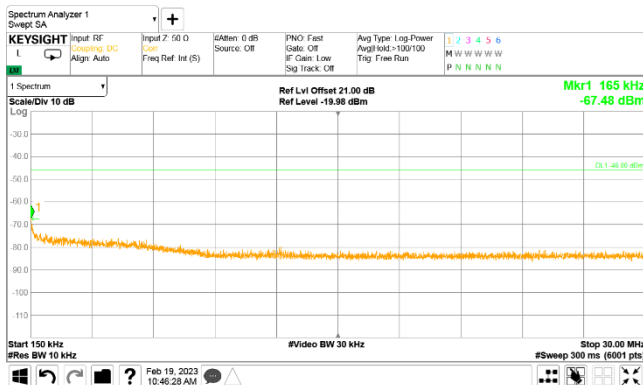
HERMON LABORATORIES

Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 24-Feb-23			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Plot 7.6.5 Spurious emission measurements in 150 kHz - 30 MHz range at mid carrier frequency

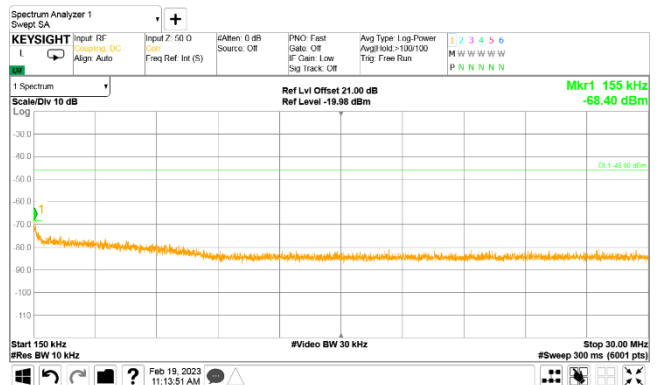
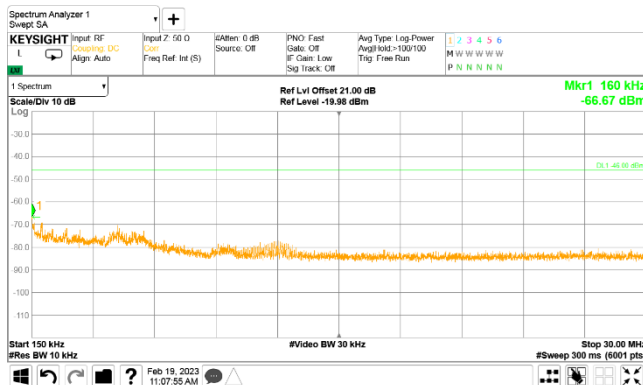
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1

QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3

ANTENNA CHAIN: #4





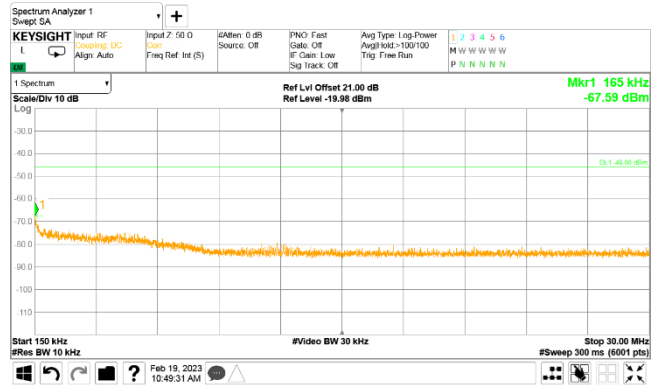
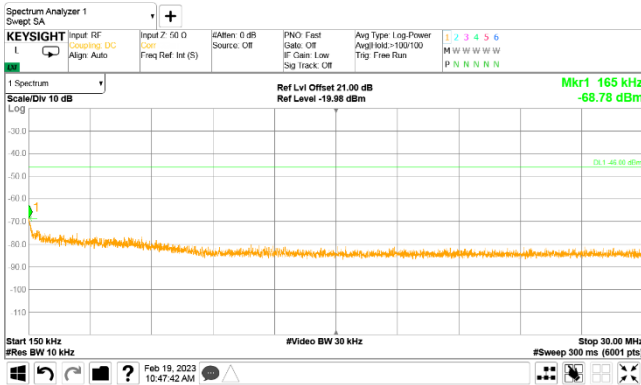
HERMON LABORATORIES

Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 24-Feb-23			
Temperature: 21 °C	Relative Humidity: 54 %	Air Pressure: 1012 hPa	Power: 110 VAC, 50 Hz
Remarks:			

Plot 7.6.6 Spurious emission measurements in 150 kHz - 30 MHz range at high carrier frequency

MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1

QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3

ANTENNA CHAIN: #4

