



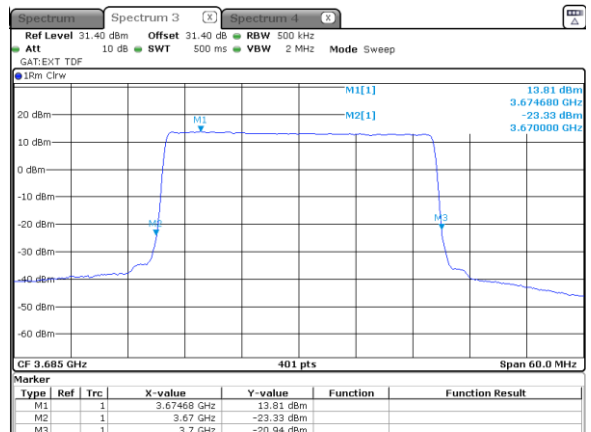
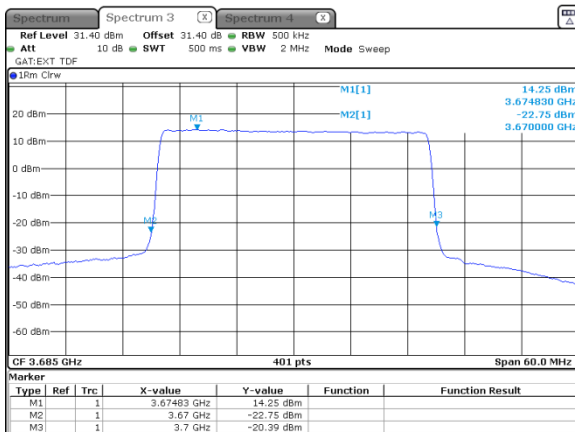
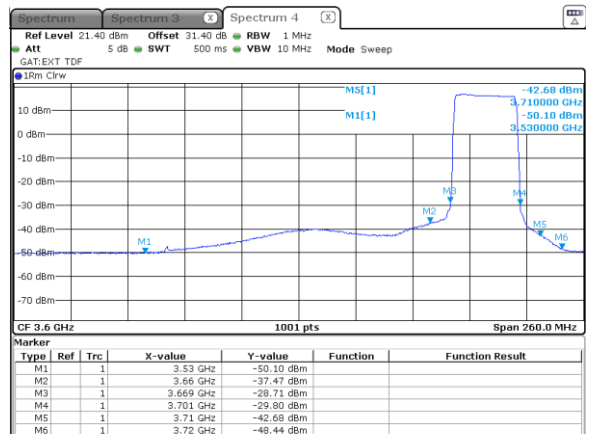
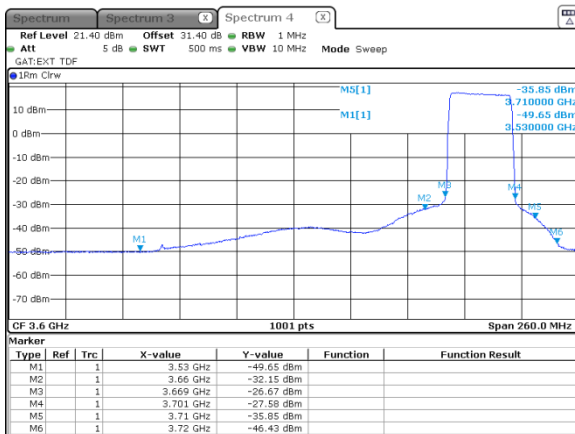
HERMON LABORATORIES

Test specification: Section 96.41(e), Emission mask			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 25 °C	Relative Humidity: 54 %	Air Pressure: 1011 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.44 Emission outside the fundamental test results at high carrier frequency

CHANNEL SPACING:
ANTENNA CHAIN:
Modulation: 64QAM

30 MHz
2
Modulation: 256QAM





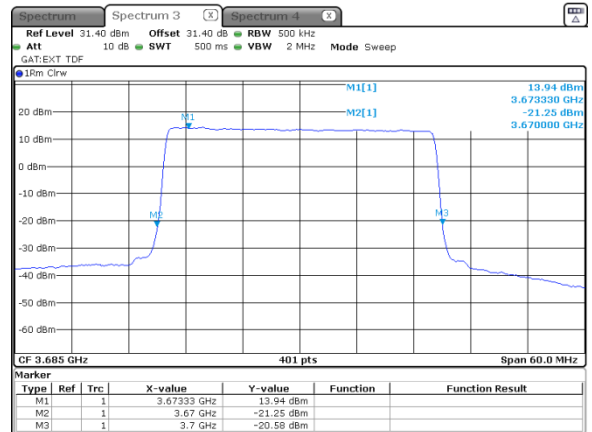
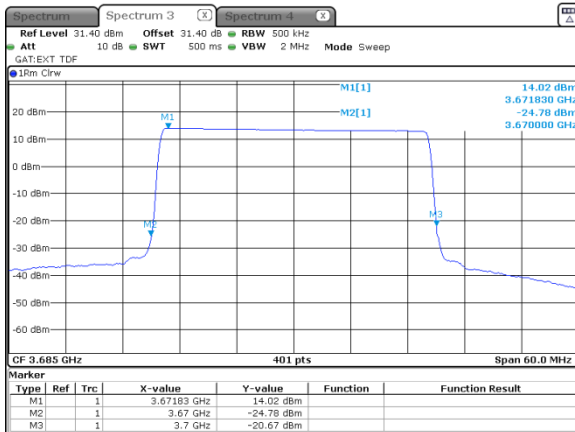
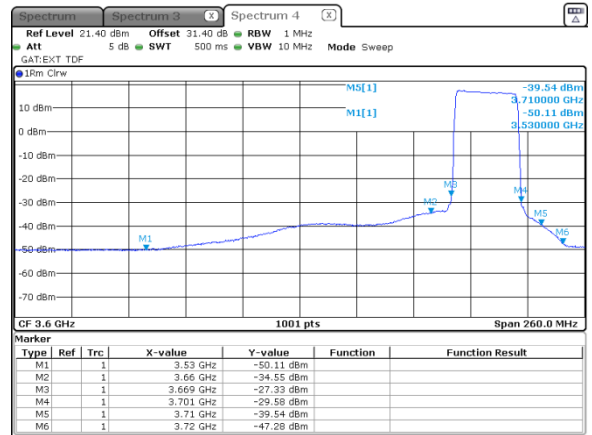
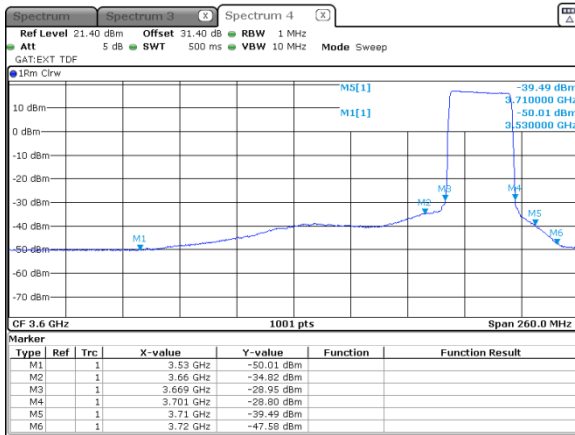
HERMON LABORATORIES

Test specification: Section 96.41(e), Emission mask			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 25 °C	Relative Humidity: 54 %	Air Pressure: 1011 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.45 Emission outside the fundamental test results at high carrier frequency

CHANNEL SPACING:
ANTENNA CHAIN:
Modulation: QPSK

30 MHz
3
Modulation: 16QAM





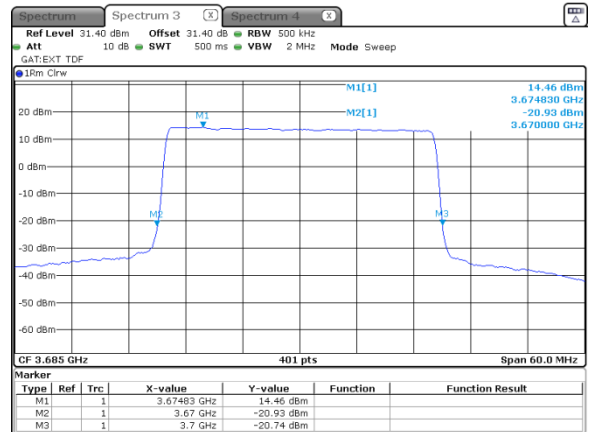
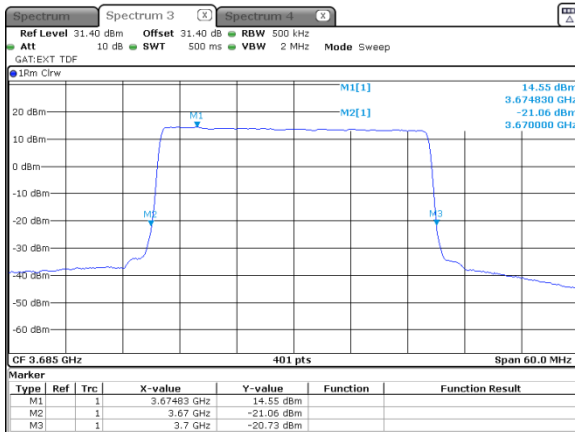
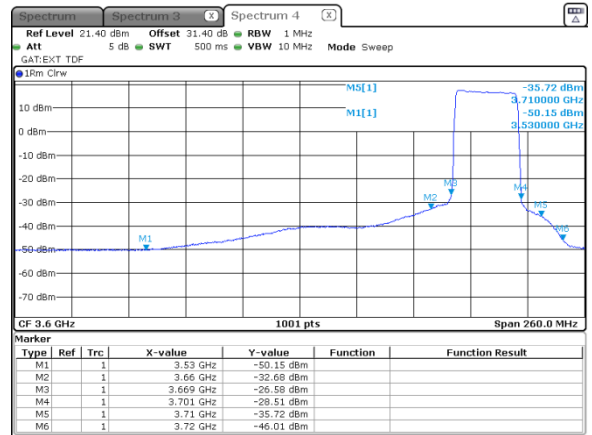
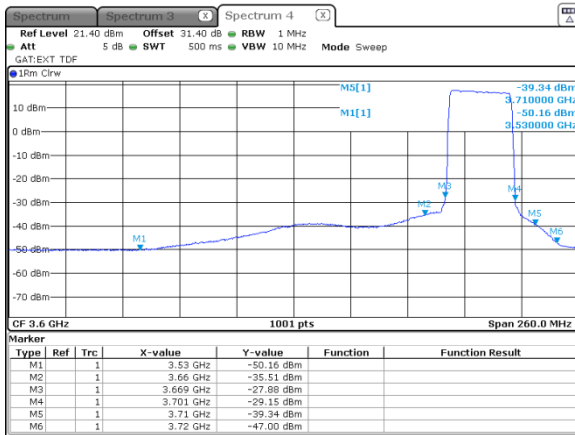
HERMON LABORATORIES

Test specification: Section 96.41(e), Emission mask			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 25 °C	Relative Humidity: 54 %	Air Pressure: 1011 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.46 Emission outside the fundamental test results at high carrier frequency

CHANNEL SPACING:
ANTENNA CHAIN:
Modulation: 64QAM

30 MHz
3
Modulation: 256QAM





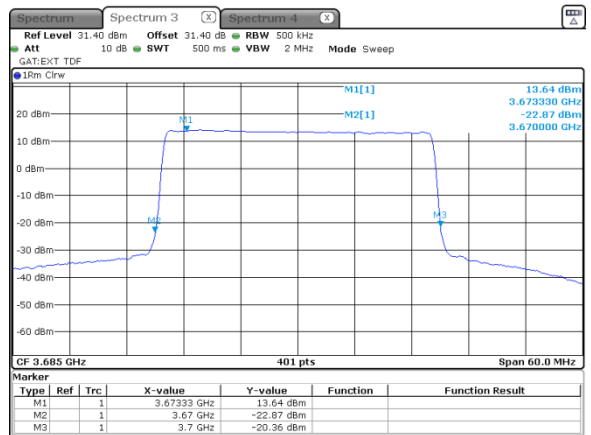
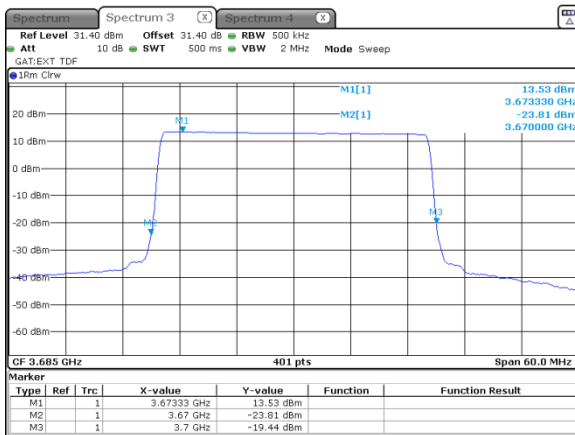
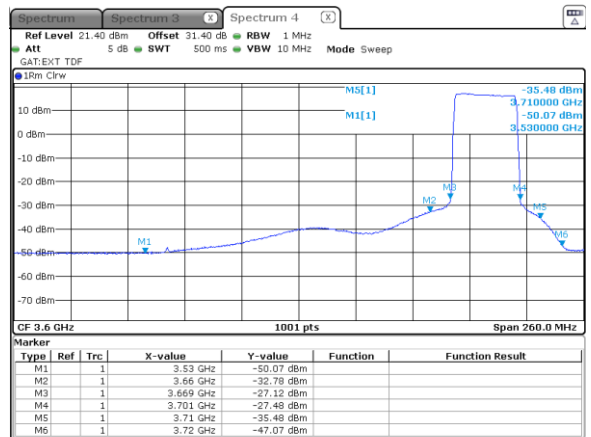
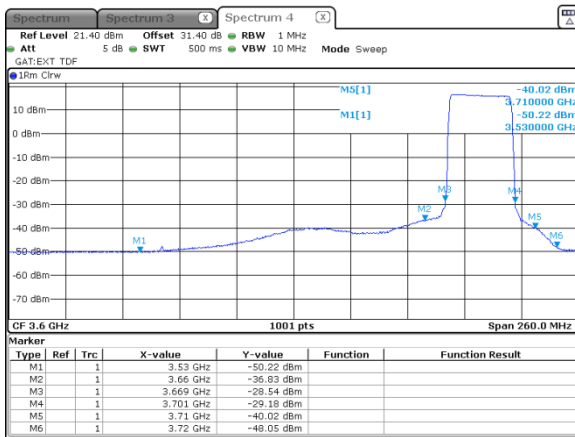
HERMON LABORATORIES

Test specification: Section 96.41(e), Emission mask			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 25 °C	Relative Humidity: 54 %	Air Pressure: 1011 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.47 Emission outside the fundamental test results at high carrier frequency

CHANNEL SPACING:
ANTENNA CHAIN:
Modulation: QPSK

30 MHz
4
Modulation: 16QAM





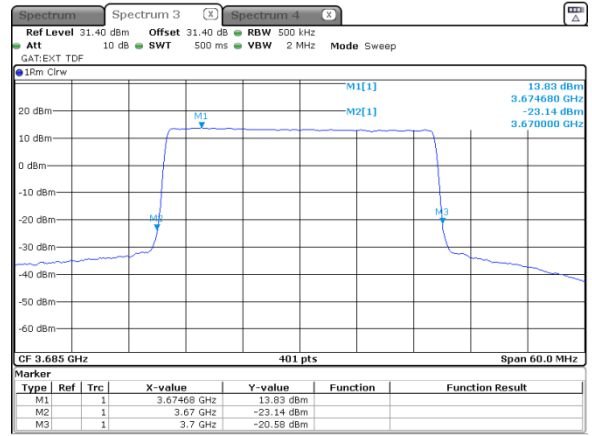
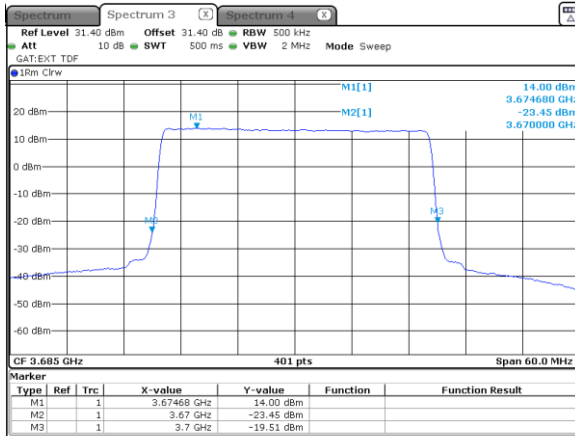
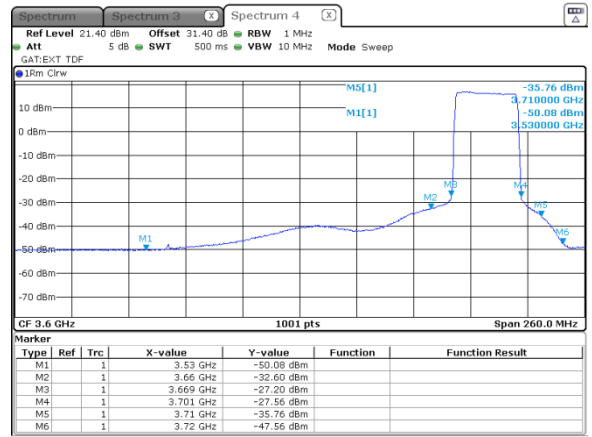
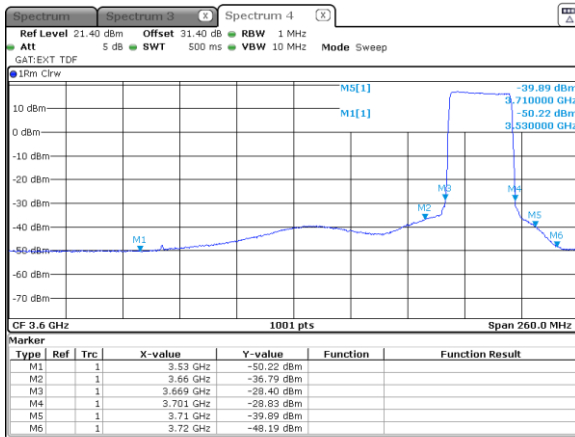
HERMON LABORATORIES

Test specification: Section 96.41(e), Emission mask			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 25 °C	Relative Humidity: 54 %	Air Pressure: 1011 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.48 Emission outside the fundamental test results at high carrier frequency

CHANNEL SPACING:
ANTENNA CHAIN:
Modulation: 64QAM

30 MHz
4
Modulation: 256QAM





Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

7.5 Spurious emissions at RF antenna connector test

7.5.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 7.5.1.

Table 7.5.1 Spurious emission limits

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

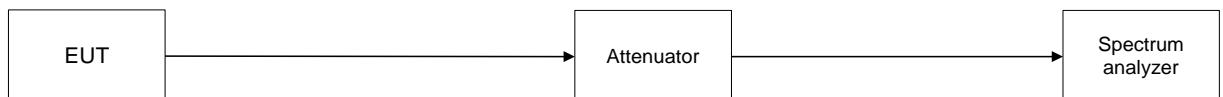
7.5.2 Test procedure

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

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

7.5.2.3 The spurious emission was measured with spectrum analyzer as provided in Table 7.5.2 and associated plots.

Figure 7.5.1 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): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Table 7.5.2 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	Average power (RMS)				Verdict
	Maximun emission per chain, dBm**	Total emission, dBm***	Limit, dBm	Margin, dB*	
Channel bandwidth 10 MHz					
Low carrier frequency 3555 MHz					
36.9777	-47.67	-41.67	-40.00	-1.67	Pass
Mid carrier frequency 3625 MHz					
36.8819	-47.53	-41.53	-40.00	-1.53	Pass
High carrier frequency 3695 MHz					
36.6207	-47.50	-41.50	-40.00	-1.50	Pass
Channel bandwidth 30 MHz					
Low carrier frequency 3565 MHz					
36.7021	-47.62	-41.62	-40.00	-1.62	Pass
Mid carrier frequency 3625 MHz					
36.9698	-47.56	-41.56	-40.00	-1.56	Pass
High carrier frequency 3685 MHz					
36.9199	-47.55	-41.55	-40.00	-1.55	Pass

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

Reference numbers of test equipment used

HL 1294	HL 1295	HL 3287	HL 3301	HL 3355	HL 3437	HL 3781	HL 4355
HL 4425	HL 5232	HL 5233	HL 5286	HL 5372	HL 5409	HL 5636	HL 5637
HL 5642	HL 5644	HL 5686					

Full description is given in Appendix A.

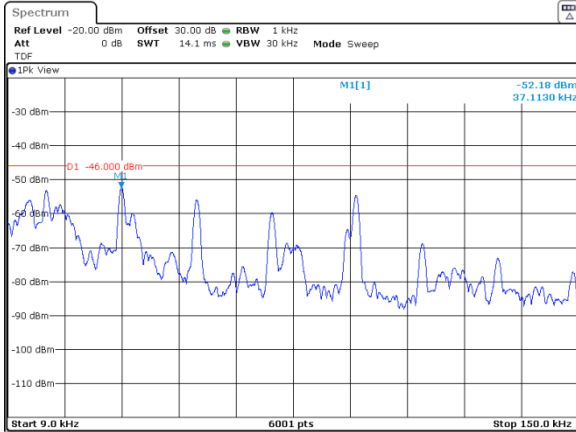


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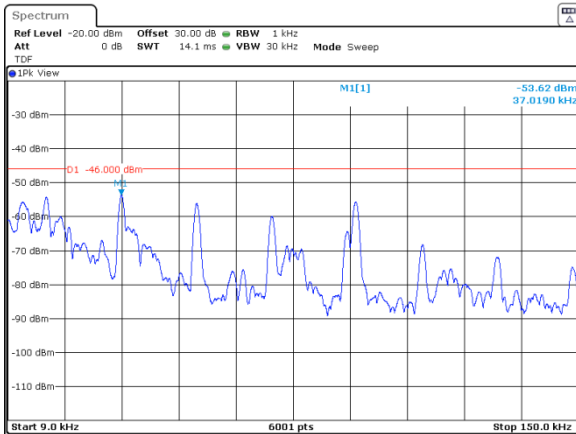
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.1 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency

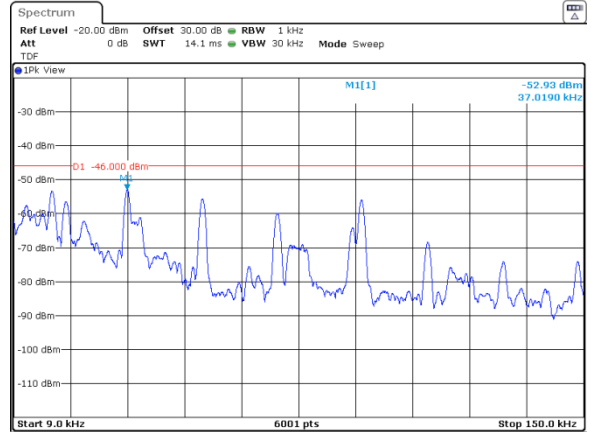
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



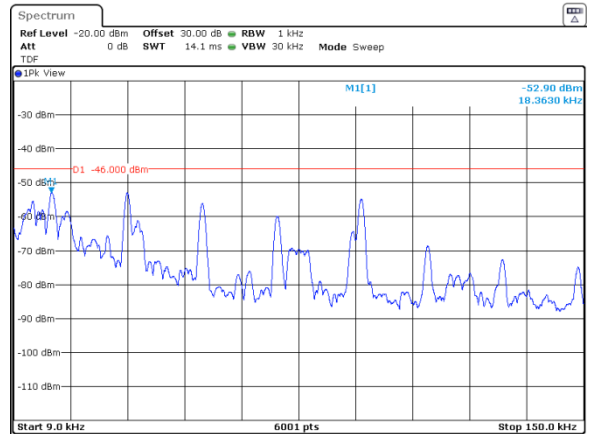
ANTENNA CHAIN: #3



QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #4



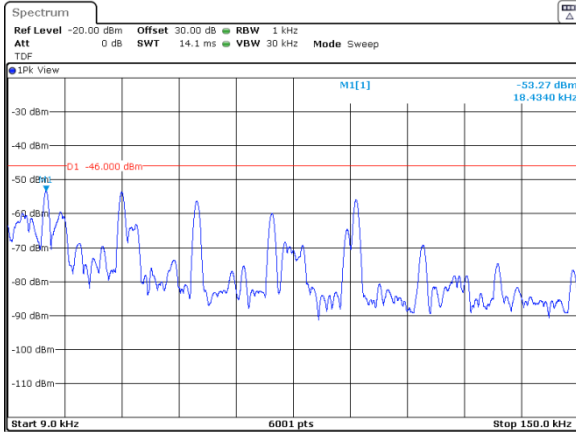


HERMON LABORATORIES

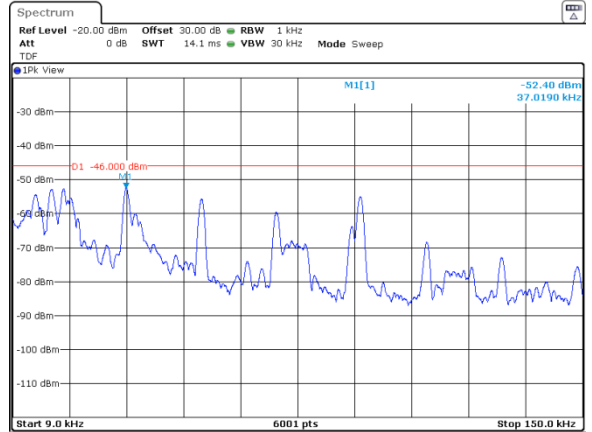
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.2 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency

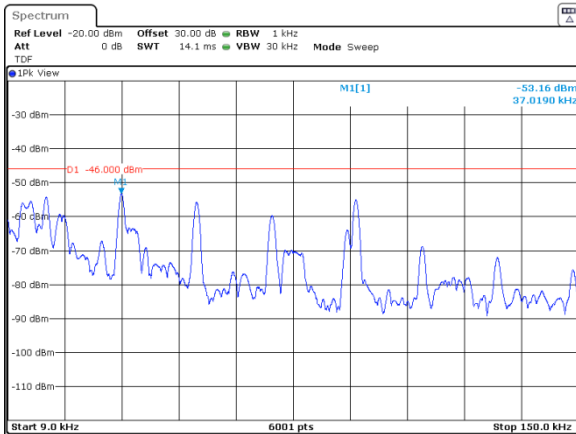
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



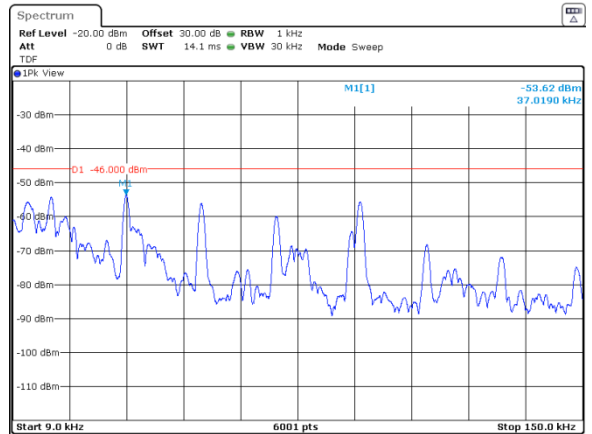
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



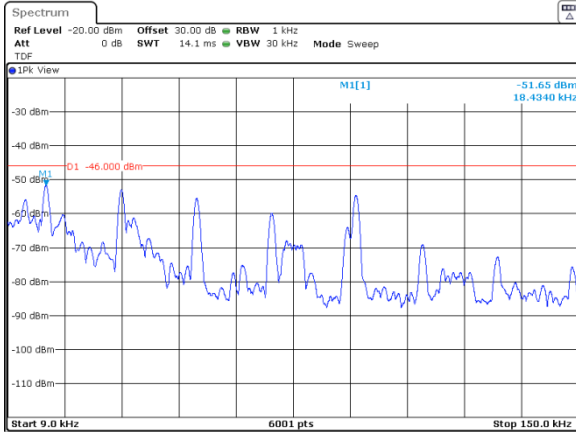


HERMON LABORATORIES

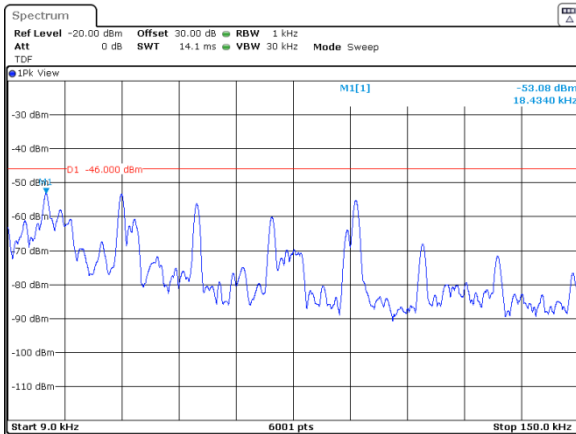
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.3 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency

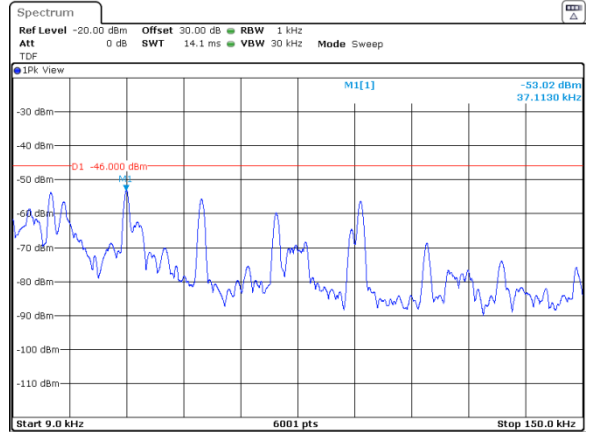
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



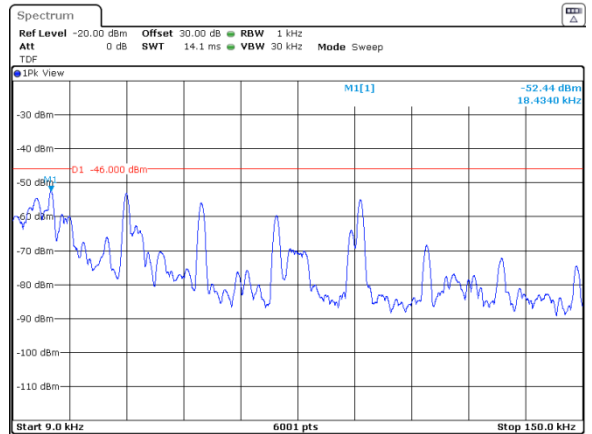
ANTENNA CHAIN: #3



QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #4



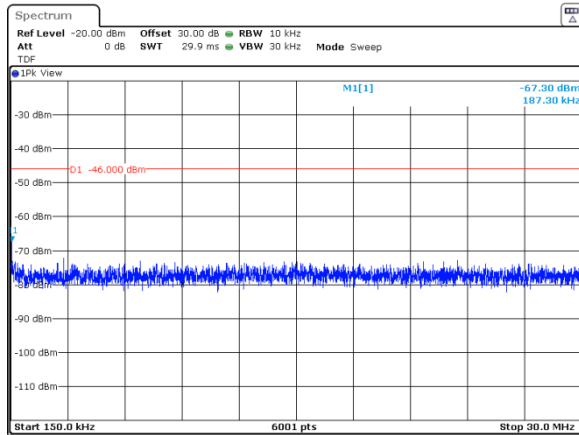


HERMON LABORATORIES

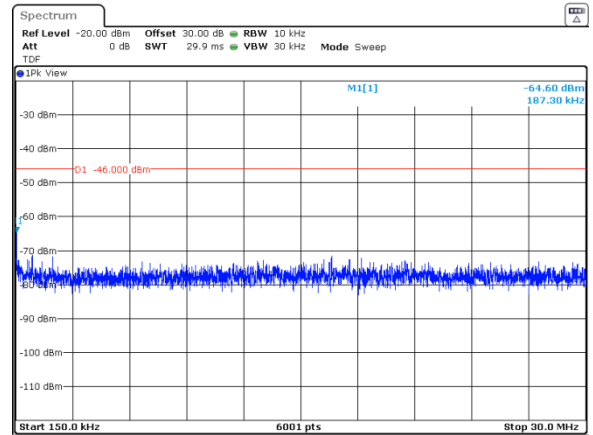
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.4 Spurious emission measurements in 150 kHz - 30 MHz range at low carrier frequency

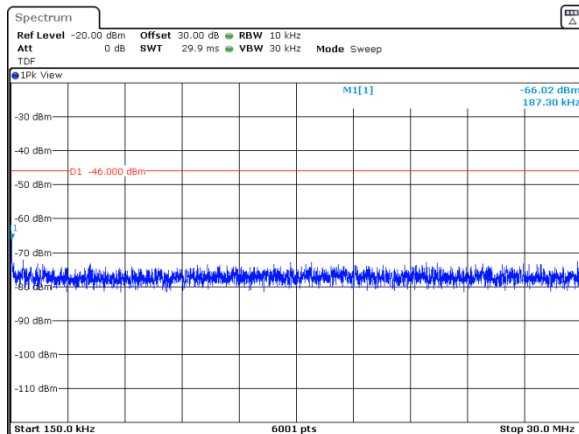
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



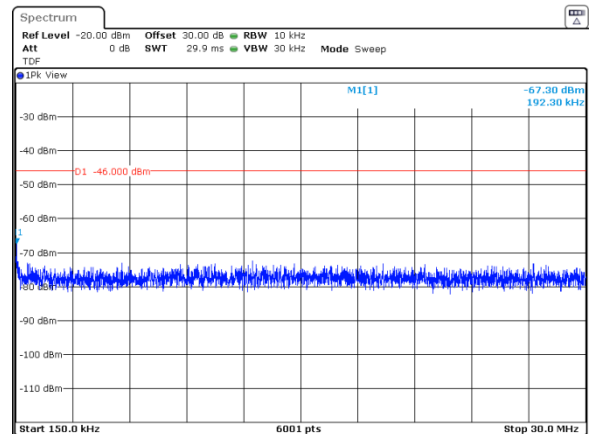
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



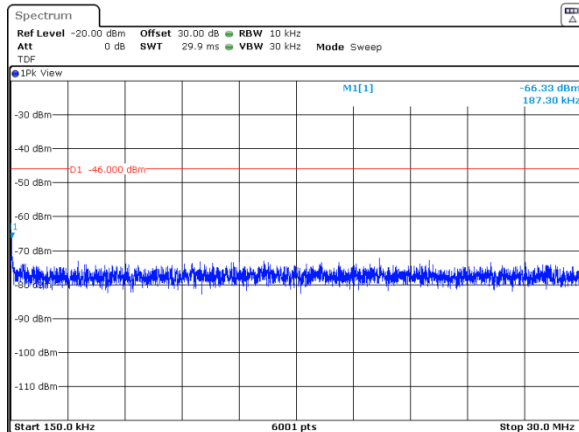


HERMON LABORATORIES

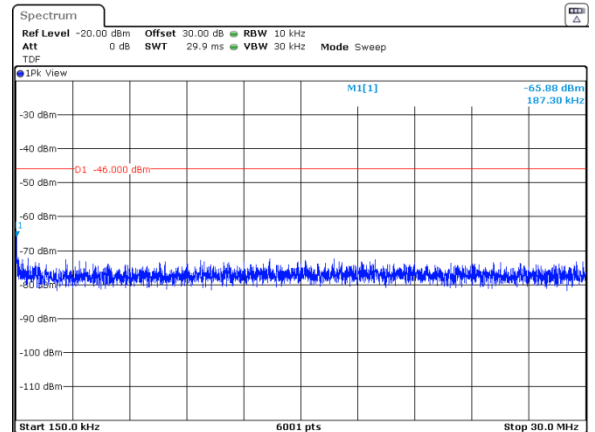
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.5 Spurious emission measurements in 150 kHz - 30 MHz range at mid carrier frequency

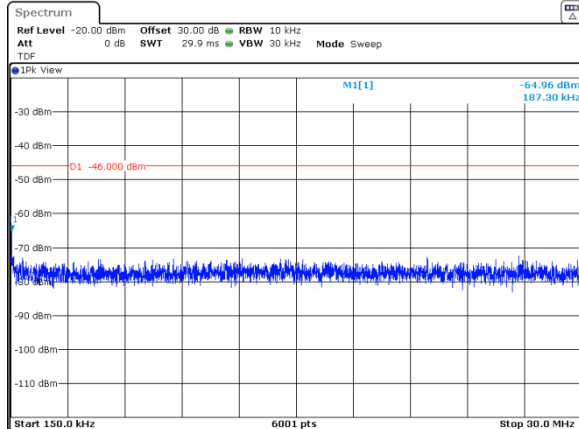
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



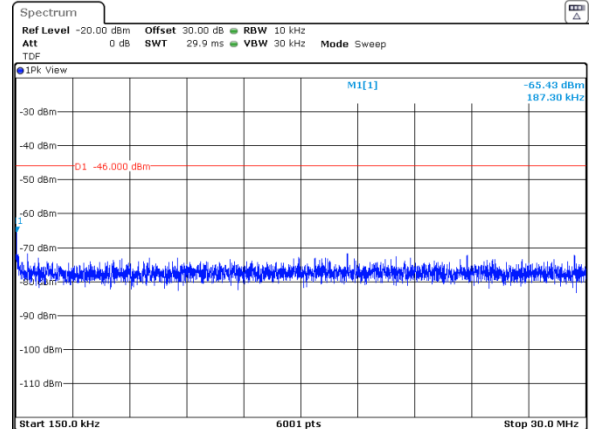
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



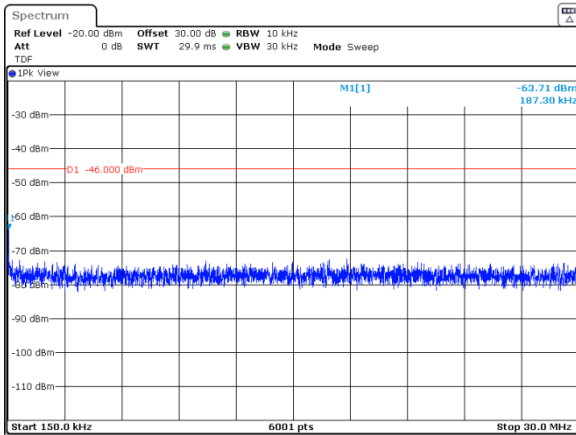


HERMON LABORATORIES

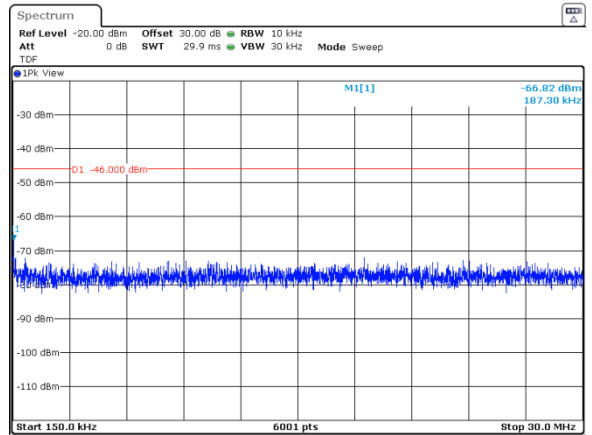
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.6 Spurious emission measurements in 150 kHz - 30 MHz range at high carrier frequency

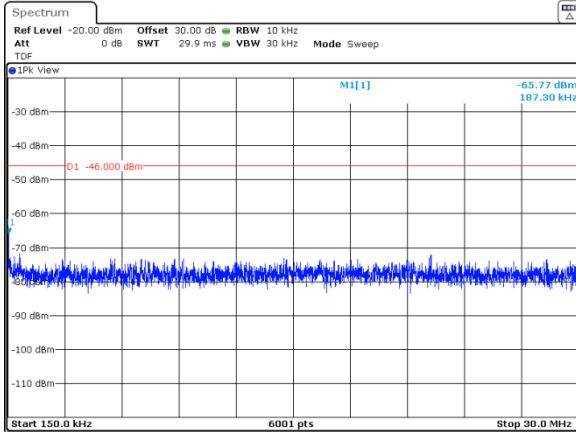
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



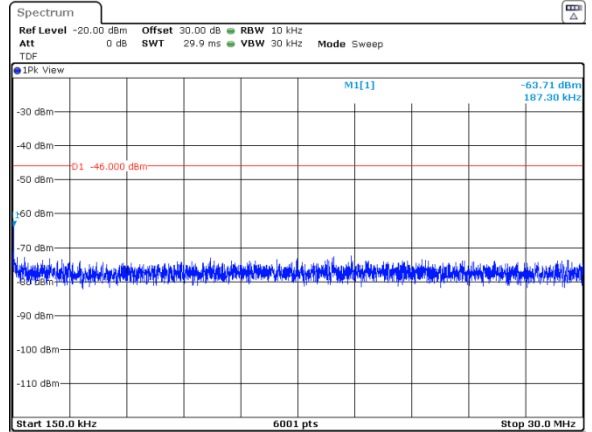
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



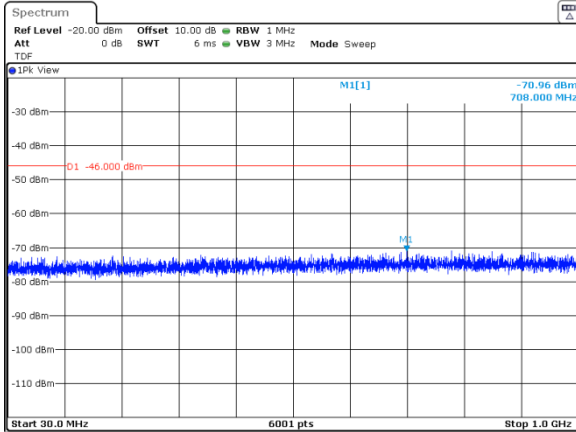


HERMON LABORATORIES

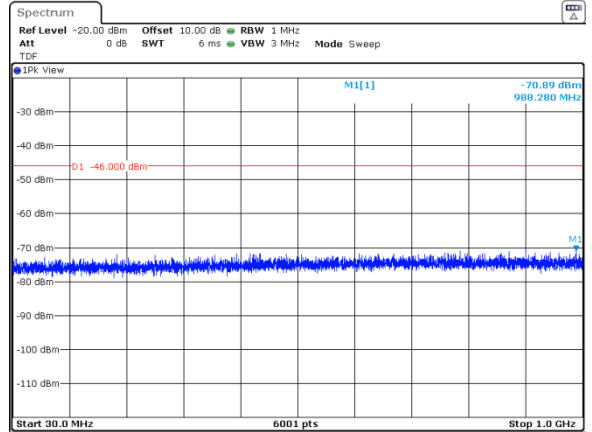
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.7 Spurious emission measurements in 30 MHz - 1000 MHz range at low carrier frequency

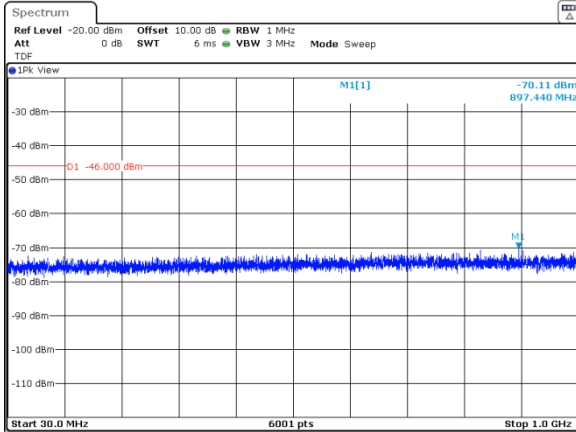
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



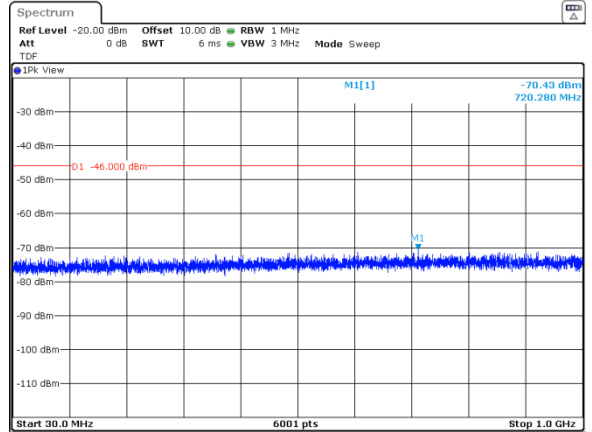
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



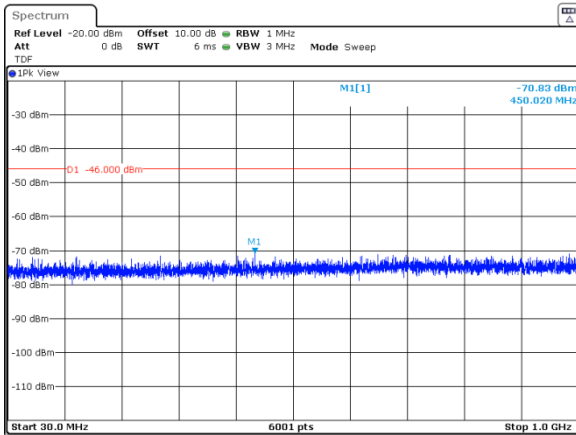


HERMON LABORATORIES

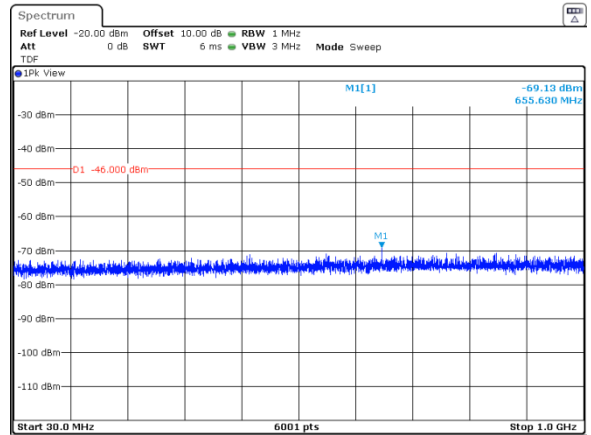
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.8 Spurious emission measurements in 30 MHz - 1000 MHz range at mid carrier frequency

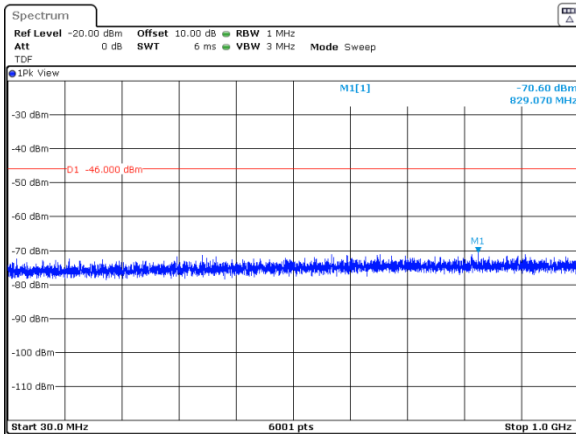
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



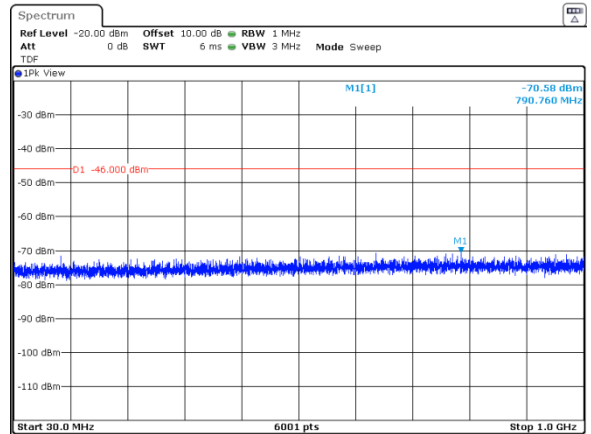
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



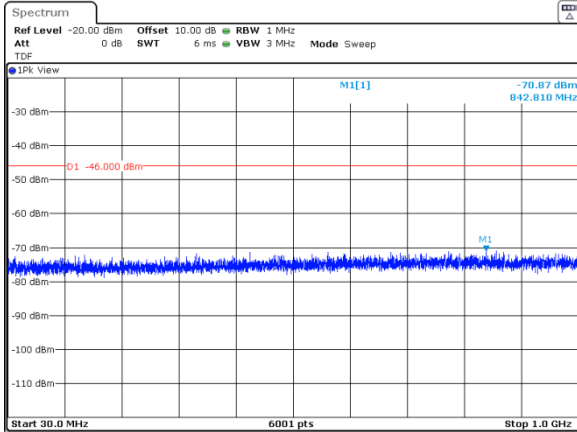


HERMON LABORATORIES

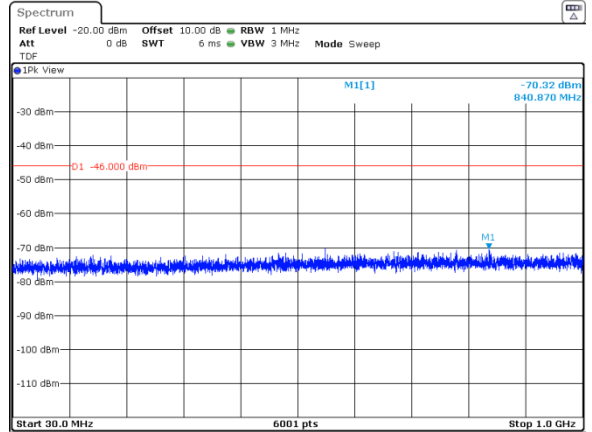
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.9 Spurious emission measurements in 30 MHz - 1000 MHz range at high carrier frequency

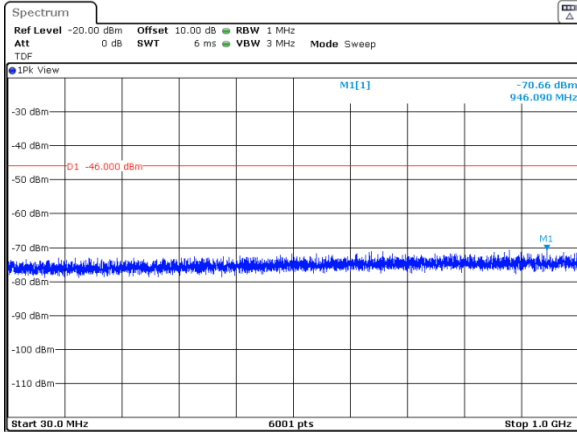
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



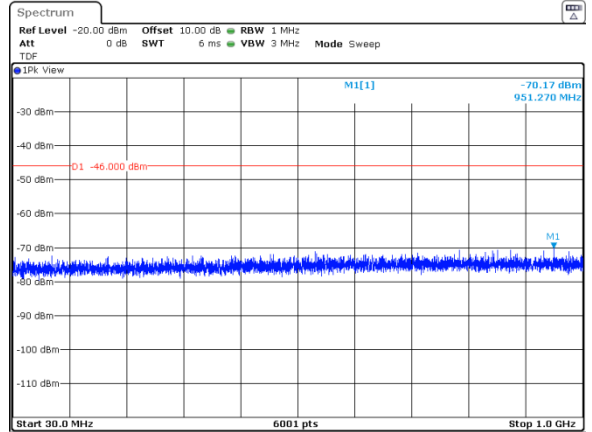
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



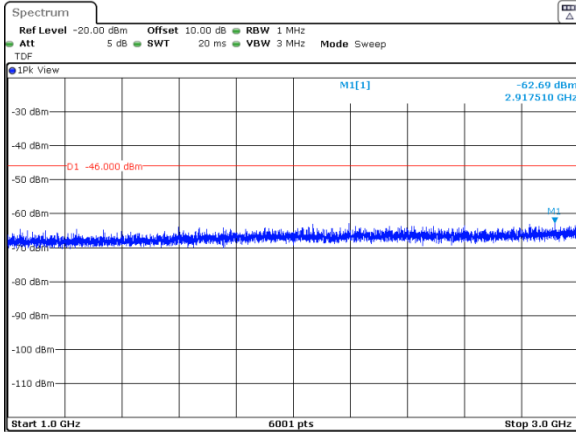


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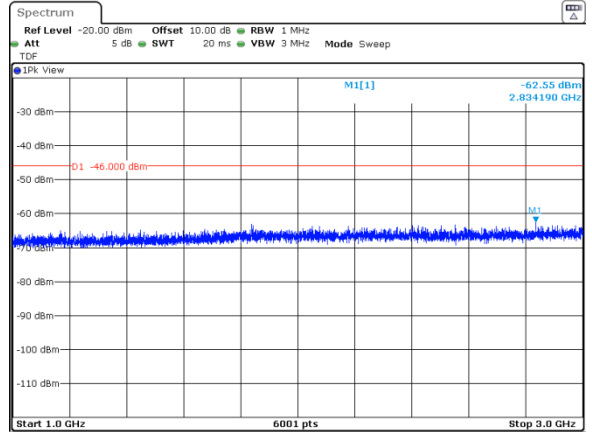
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.10 Spurious emission measurements in 1000 - 3000 MHz range at low carrier frequency

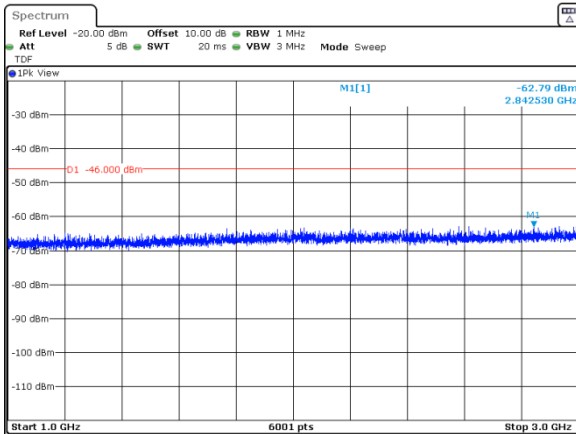
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



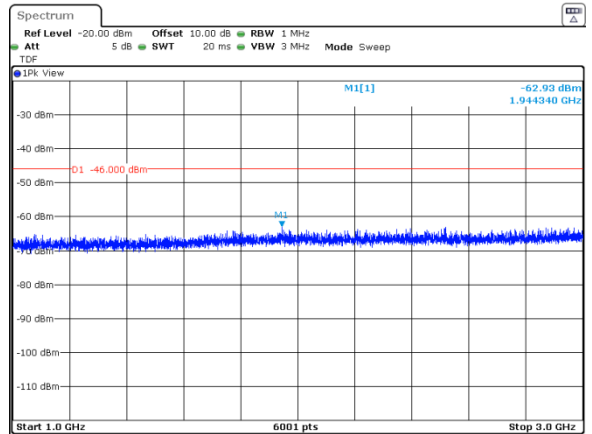
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



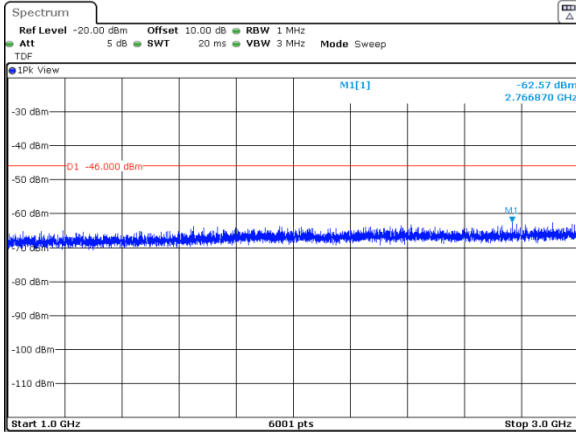


HERMON LABORATORIES

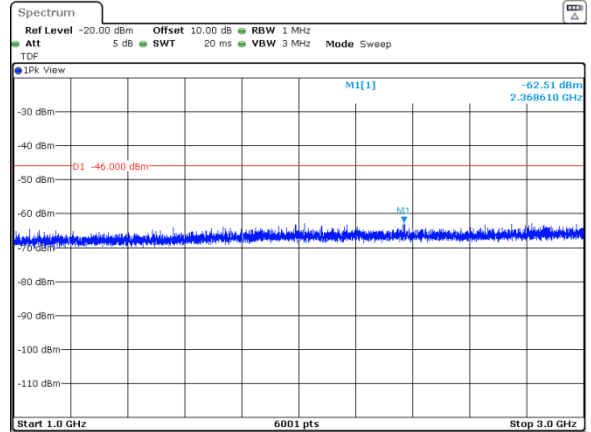
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.11 Spurious emission measurements in 1000 - 3000 MHz range at mid carrier frequency

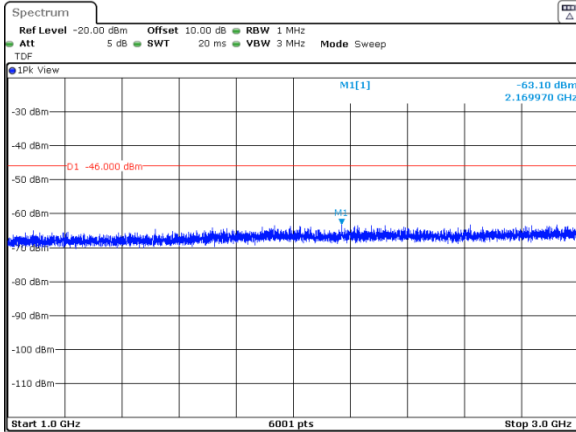
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



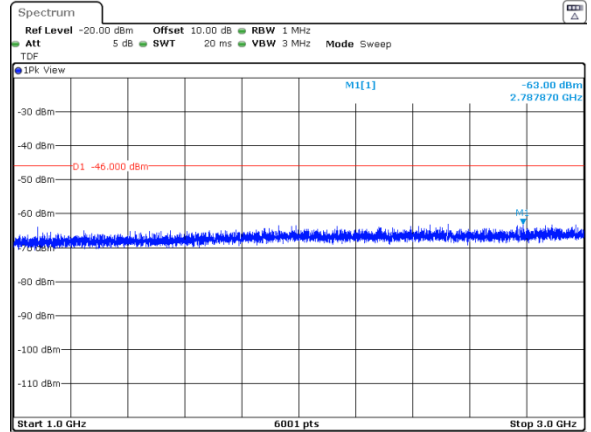
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



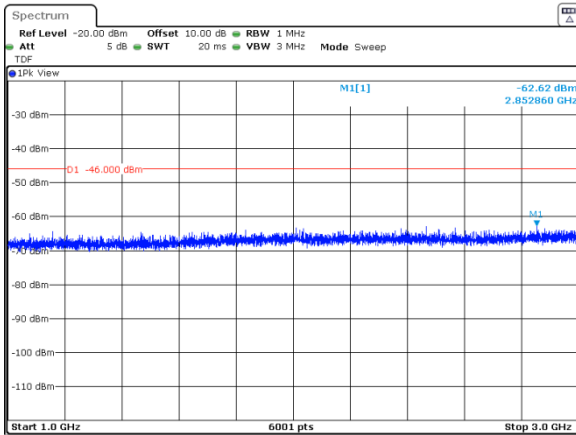


HERMON LABORATORIES

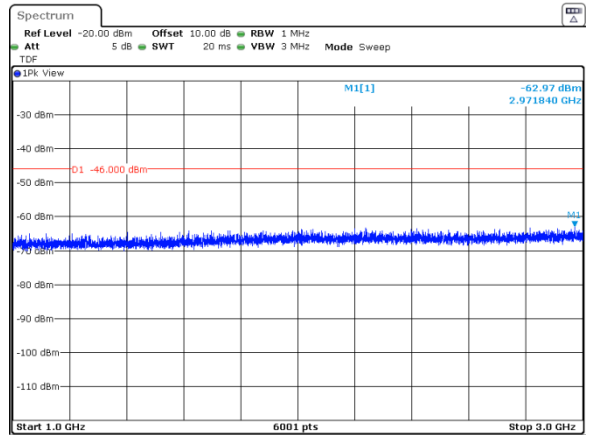
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.12 Spurious emission measurements in 1000 - 3000 MHz range at high carrier frequency

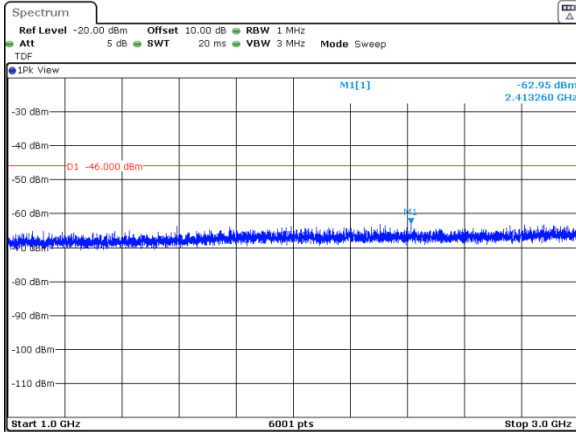
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



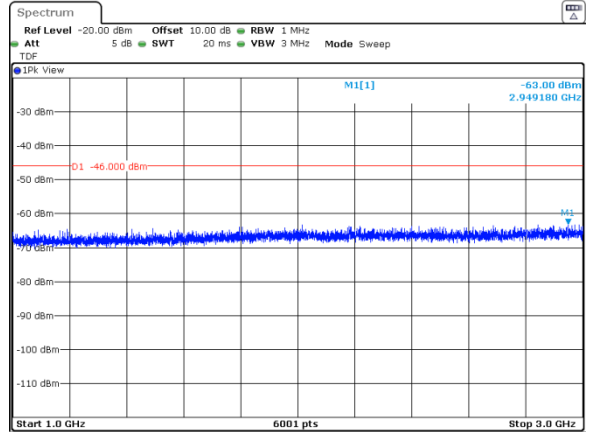
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



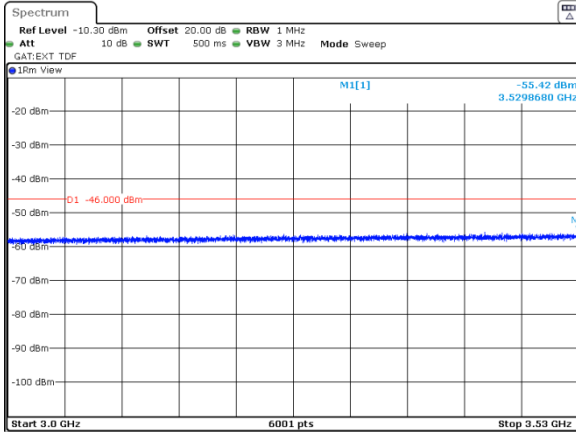


HERMON LABORATORIES

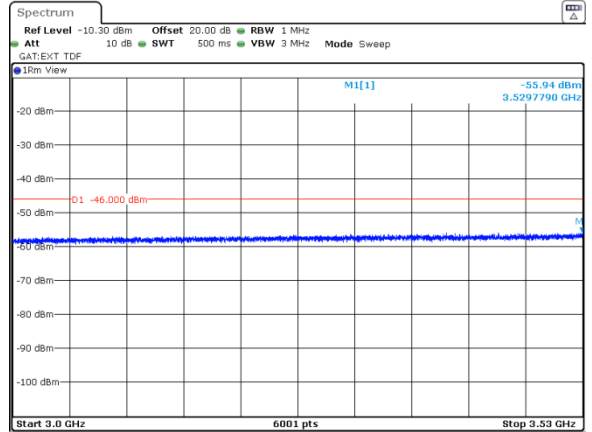
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.13 Spurious emission measurements in 3000 - 3530 MHz range at low carrier frequency

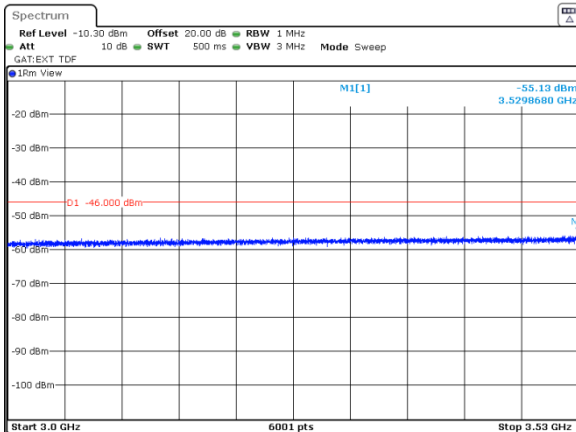
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



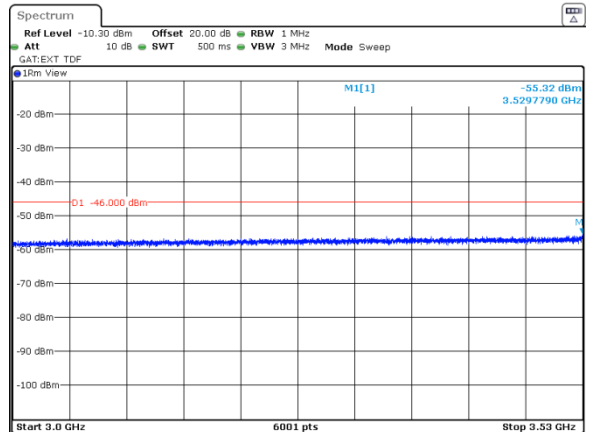
QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4



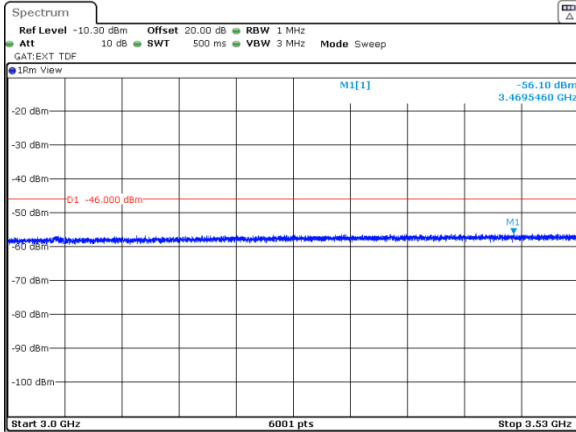


HERMON LABORATORIES

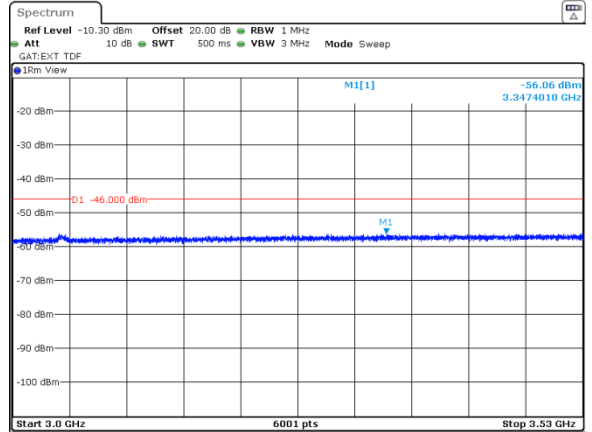
Test specification: Section 96.41(e)(3), Conducted spurious emissions			
Test procedure: Section 96.41(e)(3)			
Test mode: Compliance		Verdict: PASS	
Date(s): 14-Dec-21			
Temperature: 24 °C	Relative Humidity: 53 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.5.14 Spurious emission measurements in 3000 - 3530 MHz range at mid carrier frequency

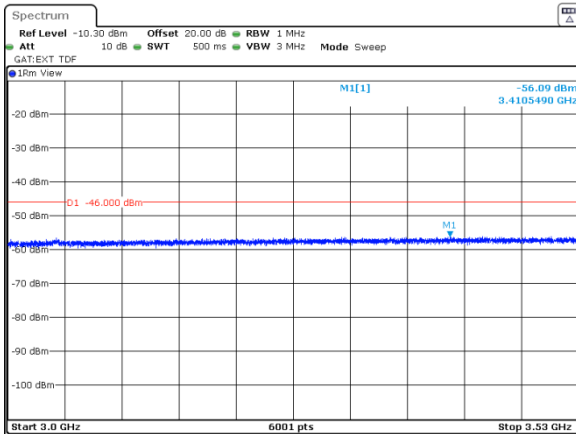
MODULATION:
CHANNEL SPACING:
ANTENNA CHAIN: #1



QPSK
10 MHz
ANTENNA CHAIN: #2



ANTENNA CHAIN: #3



ANTENNA CHAIN: #4

