



HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

7.2 Field strength of emissions with 37.1 dBi antenna gain

7.2.1 General

This test was performed to measure field strength of fundamental and spurious emissions from the EUT. Specification test limits are given in Table 7.2.1, Table 7.2.2, Table 7.2.3, Table 7.2.4

Table 7.2.1 Radiated fundamental emission limits

Fundamental frequency, MHz	Field strength at 3 m, dB(µV/m)		
	Peak	Average	Quasi-Peak
24000 – 24250	128.0	108.0	NA

Table 7.2.2 Harmonics limits

Fundamental frequency, MHz	Field strength at 3 m, dB(µV/m)	
	Peak	Average
24000 – 24250	88.0	68.0

Table 7.2.3 Radiated spurious emissions limits (other than harmonics)

Frequency, MHz	Field strength at 3 m, dB(µV/m)*				
	Peak	Quasi Peak	Average	Attenuation below carrier	
0.009 – 0.090	148.5 – 128.5	NA	128.5 – 108.5**	50 dBc (whichever is the less stringent)	
0.090 – 0.110	NA	108.5 – 106.8**	NA		
0.110 – 0.490	126.8 – 113.8	NA	106.8 – 93.8**		
0.490 – 1.705		73.8 – 63.0**			
1.705 – 30.0*		69.5			
30 – 88	NA	40.0	NA		
88 – 216		43.5			
216 – 960		46.0			
960 - 1000		54.0			
Above 1000	74.0	NA	54.0		

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

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

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

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

Note: The above field strength limits applied from the lowest radio frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency but not exceeding 40 GHz for intentional radiators operated below 10 GHz and up to the fifth harmonic of the highest fundamental frequency but not exceeding 100 GHz for intentional radiators operated above 10 GHz.



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Test specification:	Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6		
Test mode:	Compliance		Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa	Power: -48 VDC
Remarks: EUT with 37.1 dBi antenna gain			

Table 7.2.4 Radiated spurious emissions limits (other than harmonics)

Frequency, GHz	Distance, m	Field strength dB(µV/m)*, peak	Field strength dB(µV/m)*, average
40 - 60	0.50	89.56*	69.56*
60 - 75	0.10	103.54*	83.54*
75 - 100	0.05	109.60*	89.60*

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

$$\text{LimS2} = \text{LimS1} + 20 \log (\text{S1}/\text{S2}),$$

where S1 and S2 – standard defined and test distance respectively in meters.



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Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

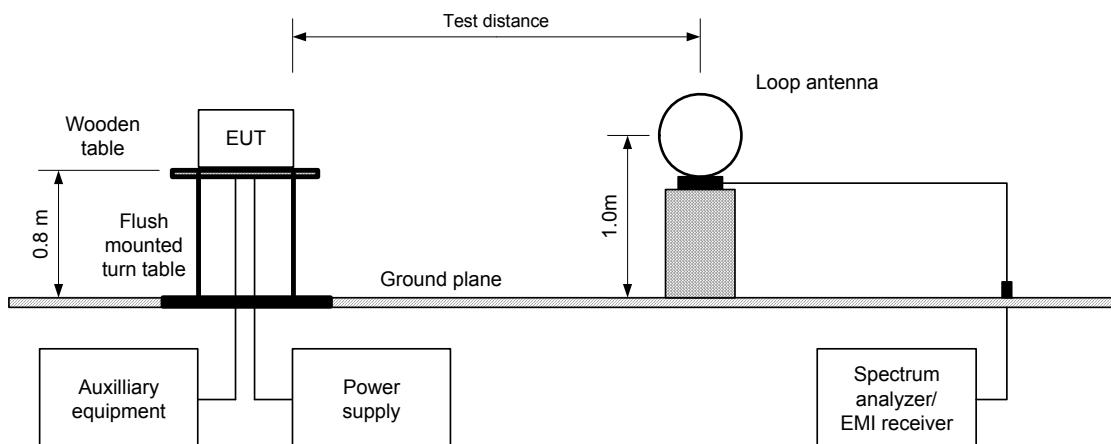
7.2.2 Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

- 7.2.2.1 The EUT was set up as shown in Figure 7.2.1, energized and the performance check was conducted.
- 7.2.2.2 The measurements were performed in the typical position
- 7.2.2.3 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360° and the measuring antenna was rotated around its vertical axis.
- 7.2.2.4 The worst test results (the lowest margins) were recorded in the associated tables and shown in the associated plots.

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

- 7.2.3.1 The EUT was set up as shown in Figure 7.2.2, Figure 7.2.3, energized and the performance check was conducted.
- 7.2.3.2 The measurements were performed in the typical position
- 7.2.3.3 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360°, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.
- 7.2.3.4 The worst test results (the lowest margins) were recorded in the associated tables and shown in the associated plots

Figure 7.2.1 Setup for spurious emission field strength measurements below 30 MHz



Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Figure 7.2.2 Setup for spurious emission field strength measurements in 30 -1000 MHz

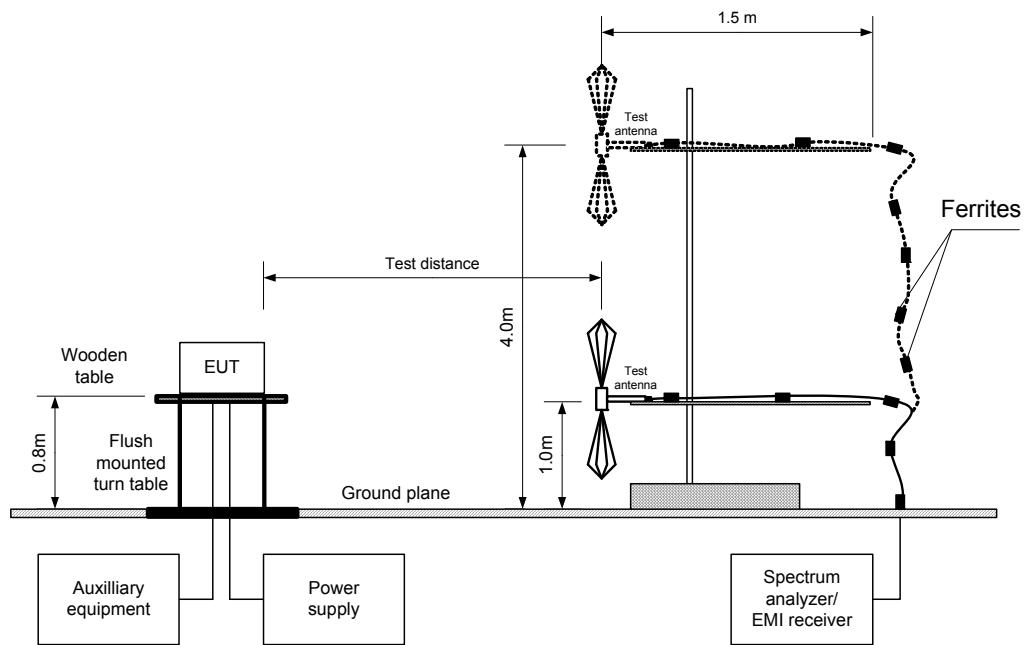
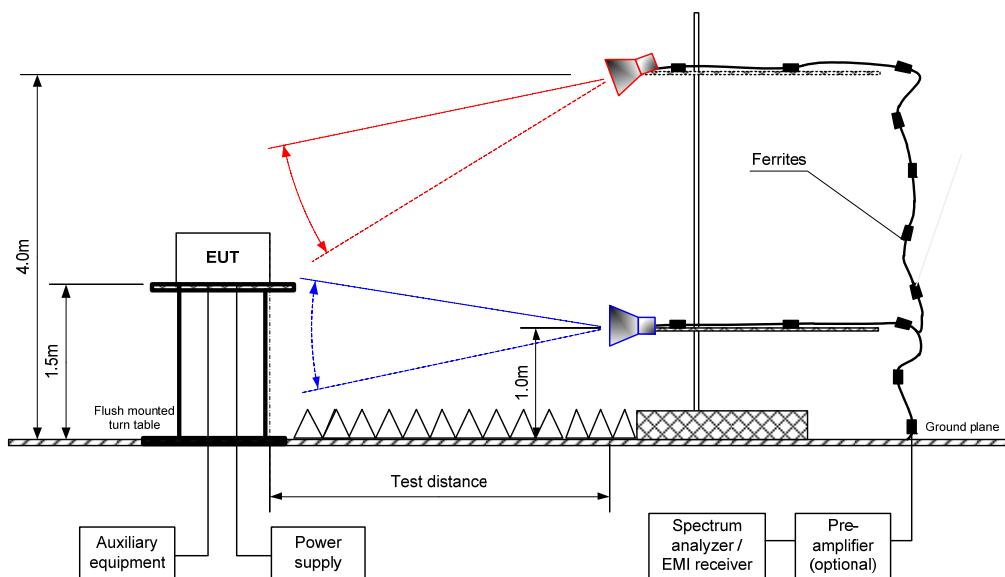


Figure 7.2.3 Setup for spurious emission field strength measurements above 1000 MHz





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Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions											
Test procedure: ANSI C63.10 sections 6.5, 6.6											
Test mode: Compliance						Verdict: PASS					
Date(s): 05-Feb-18 - 07-Feb-18											
Temperature: 23.7 °C			Relative Humidity: 48 %			Air Pressure: 1021 hPa			Power: -48 VDC		
Remarks: EUT with 37.1 dBi antenna gain											

Table 7.2.5 Field strength of fundamental emission and spurious emissions

TEST DISTANCE:	3 m
EUT POSITION:	Typical
MODULATING SIGNAL:	PRBS
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
INVESTIGATED FREQUENCY RANGE:	0.009 – 100 000 MHz
DETECTOR USED:	Peak
RESOLUTION BANDWIDTH:	1.0 kHz (9 kHz – 150 kHz) 9.0 kHz (150 kHz – 30 MHz) 120 kHz (30 MHz – 1000 MHz) 1.0 MHz (above 1000 MHz) ≥ Resolution bandwidth
VIDEO BANDWIDTH:	Active loop (9 kHz – 30 MHz)
TEST ANTENNA TYPE:	Biconilog (30 MHz – 1000 MHz) Double ridged guide (above 1000 MHz)

Fundamental emission

Frequency, MHz	Antenna		Azimuth, degrees*	Peak field strength			Avr factor, dB	Average field strength			Verdict			
	Pol.	Height, m		Measured, B(µV/m)	Limit, dB(µV/m)	Margin, dB**		Measured, dB(µV/m)	Limit, dB(µV/m)	Margin, dB**				
Channel bandwidth 20 MHz														
Modulation QPSK														
24010.0	Vert	1.5	0	119.91	128.0	-8.09	0	106.44	108.0	-1.56	Pass			
24070.0	Vert	1.5	0	119.67	128.0	-8.33	0	106.63	108.0	-1.37				
24180.0	Vert	1.5	0	119.77	128.0	-8.23	0	106.60	108.0	-1.40				
24240.0	Vert	1.5	0	120.29	128.0	-7.71	0	107.10	108.0	-0.90				
Modulation 2048 QAM														
24010.0	Vert	1.5	0	117.75	128.0	-10.25	0	106.57	108.0	-1.43	Pass			
24070.0	Vert	1.5	0	117.34	128.0	-10.66	0	106.46	108.0	-1.54				
24180.0	Vert	1.5	0	117.24	128.0	-10.76	0	106.84	108.0	-1.16				
24240.0	Vert	1.5	0	117.59	128.0	-10.41	0	106.88	108.0	-1.12				
Channel bandwidth 30 MHz														
Modulation QPSK														
24015.0	Vert	1.5	0	119.81	128.0	-8.19	0	104.87	108.0	-3.13	Pass			
24065.0	Vert	1.5	0	118.94	128.0	-9.06	0	105.79	108.0	-2.21				
24185.0	Vert	1.5	0	119.63	128.0	-8.37	0	105.34	108.0	-2.66				
24235.0	Vert	1.5	0	119.10	128.0	-8.9	0	105.37	108.0	-2.63				
Modulation 2048 QAM														
24015.0	Vert	1.5	0	117.29	128.0	-10.71	0	106.42	108.0	-1.58	Pass			
24065.0	Vert	1.5	0	118.59	128.0	-9.41	0	106.48	108.0	-1.52				
24185.0	Vert	1.5	0	116.74	128.0	-11.26	0	105.50	108.0	-2.50				
24235.0	Vert	1.5	0	117.11	128.0	-10.89	0	105.64	108.0	-2.36				
Channel bandwidth 40 MHz														
Modulation QPSK														
24020.0	Vert	1.5	0	119.60	128.0	-8.4	0	105.65	108.0	-2.35	Pass			
24060.0	Vert	1.5	0	119.43	128.0	-8.57	0	105.51	108.0	-2.49				
24190.0	Vert	1.5	0	118.26	128.0	-9.74	0	104.41	108.0	-3.59				
24230.0	Vert	1.5	0	119.50	128.0	-8.5	0	104.46	108.0	-3.54				
Modulation 2048 QAM														
24020.0	Vert	1.5	0	116.02	128.0	-11.98	0	105.02	108.0	-2.98	Pass			
24060.0	Vert	1.5	0	116.67	128.0	-11.33	0	105.15	108.0	-2.85				
24190.0	Vert	1.5	0	115.19	128.0	-12.81	0	104.39	108.0	-3.61				
24230.0	Vert	1.5	0	115.32	128.0	-12.68	0	104.6	108.0	-3.40				



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Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions											
Test procedure: ANSI C63.10 sections 6.5, 6.6											
Test mode: Compliance						Verdict: PASS					
Date(s): 05-Feb-18 - 07-Feb-18											
Temperature: 23.7 °C			Relative Humidity: 48 %			Air Pressure: 1021 hPa			Power: -48 VDC		
Remarks: EUT with 37.1 dBi antenna gain											

Table 7.2.4 Field strength of fundamental emission and spurious emissions (continued)

TEST DISTANCE:	3 m
EUT POSITION:	Typical
MODULATING SIGNAL:	PRBS
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
INVESTIGATED FREQUENCY RANGE:	0.009 – 100 000 MHz
DETECTOR USED:	Peak
RESOLUTION BANDWIDTH:	1.0 kHz (9 kHz – 150 kHz) 9.0 kHz (150 kHz – 30 MHz) 120 kHz (30 MHz – 1000 MHz) 1.0 MHz (above 1000 MHz)
VIDEO BANDWIDTH:	≥ Resolution bandwidth
TEST ANTENNA TYPE:	Active loop (9 kHz – 30 MHz) Biconilog (30 MHz – 1000 MHz) Double ridged guide (above 1000 MHz)

Fundamental emission

Frequency, MHz	Antenna		Azimuth, degrees*	Peak field strength			Avr factor, dB	Average field strength			Verdict			
	Pol.	Height, m		Measured, B(µV/m)	Limit, dB(µV/m)	Margin, dB**		Measured, dB(µV/m)	Limit, dB(µV/m)	Margin, dB**				
Channel bandwidth 50 MHz														
Modulation QPSK														
24025.0	Vert	1.5	0	118.81	128.0	-9.19	0	104.39	108.0	-3.61	Pass			
24055.0	Vert	1.5	0	119.14	128.0	-8.86	0	104.52	108.0	-3.48				
24195.0	Vert	1.5	0	117.91	128.0	-10.09	0	103.77	108.0	-4.23				
24225.0	Vert	1.5	0	117.88	128.0	-10.12	0	103.84	108.0	-4.16				
Modulation 2048 QAM														
24025.0	Vert	1.5	0	114.54	128.0	-13.46	0	104.30	108.0	-3.70	Pass			
24055.0	Vert	1.5	0	115.62	128.0	-12.38	0	104.30	108.0	-3.70				
24195.0	Vert	1.5	0	114.52	128.0	-13.48	0	103.73	108.0	-4.27				
24225.0	Vert	1.5	0	114.96	128.0	-13.04	0	103.48	108.0	-4.52				
Channel bandwidth 60 MHz														
Modulation QPSK														
24030.0	Vert	1.5	0	117.11	128.0	-10.89	0	103.42	108.0	-4.58	Pass			
24050.0	Vert	1.5	0	117.46	128.0	-10.54	0	103.07	108.0	-4.93				
24200.0	Vert	1.5	0	116.44	128.0	-11.56	0	103.02	108.0	-4.98				
24220.0	Vert	1.5	0	116.68	128.0	-11.32	0	103.7	108.0	-4.30				
Modulation 2048 QAM														
24030.0	Vert	1.5	0	114.04	128.0	-13.96	0	103.13	108.0	-4.87	Pass			
24050.0	Vert	1.5	0	113.96	128.0	-14.04	0	102.73	108.0	-5.27				
24200.0	Vert	1.5	0	113.91	128.0	-14.09	0	102.90	108.0	-5.10				
24220.0	Vert	1.5	0	113.56	128.0	-14.44	0	102.64	108.0	-5.36				



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Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions							
Test procedure:	ANSI C63.10 sections 6.5, 6.6						
Test mode:	Compliance				Verdict:		PASS
Date(s):	05-Feb-18 - 07-Feb-18						
Temperature: 23.7 °C	Relative Humidity: 48 %		Air Pressure: 1021 hPa		Power: -48 VDC		
Remarks: EUT with 37.1 dBi antenna gain							

Table 7.2.4 Field strength of fundamental emission and spurious emissions (continued)

Spurious emission

Frequency, MHz	Antenna		Azimuth, degrees*	Peak emission, dB(µV/m)	Quasi-peak			Verdict
	Pol.	Height, m			Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB**	
32.0	V	1.0	30	42.2	36.7	40.0	-3.3	Pass
147.2	H	1.2	258	40.8	38.6	43.5	-4.9	
220.0	H	1.5	71	41.7	41.1	43.5	-2.4	
375.0	H	1.0	56	34.1	33.8	46.0	-12.2	
660.0	H	1.3	280	41.5	40.4	46.0	-5.6	
875.0	V	1.0	333	43.9	43.3	46.0	-2.7	

F, MHz	Antenna		Azimuth, degrees*	Peak field strength			Avr factor, dB	Average field strength			Verdict
	Pol.	Height, m		Measured, dB(µV/m)	Limit, dB(µV/m)	Margin, dB**		Measured, dB(µV/m)	Limit, dB(µV/m)	Margin, dB**	
Spurious emissions											Pass
1125	V	1.3	340	49.7	74.0	-24.3	0	46.1	54.0	-7.9	
1625	H	1.6	251	41.6	74.0	-32.4	0	36.8	54.0	-17.2	
2000	V	1.3	104	43.6	74.0	-30.4	0	38.6	54.0	-15.4	
2125	V	1.3	104	42.3	74.0	-31.7	0	38.6	54.0	-15.4	
2500	H	1.4	57	44.8	74.0	-29.2	0	41.3	54.0	-12.7	
3330	H	1.5	194	41.7	74.0	-32.3	0	37.2	54.0	-16.8	

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

**- Margin, dB =Measured (calculated) value, dB(µV/m)-Limit, dB(µV/m).

Table 7.2.6 Average factor calculation

Transmission pulse		Transmission burst		Transmission train duration, ms	Average factor, dB
Duration, ms	Period, ms	Duration, ms	Period, ms		
NA	NA	NA	NA	NA	0

*- Average factor was calculated as follows

for pulse train shorter than 100 ms:

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

Reference numbers of test equipment used

HL 0446	HL 0604	HL 0770	HL 0771	HL 0772	HL 1299	HL 1300	HL 2909
HL 3235	HL 3294	HL 3297	HL 3305	HL 3433	HL 3434	HL 3818	HL 4280
HL 4353	HL 4933	HL 4956	HL 5112				

Full description is given in Appendix A.



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Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance	Verdict: PASS	
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.1 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

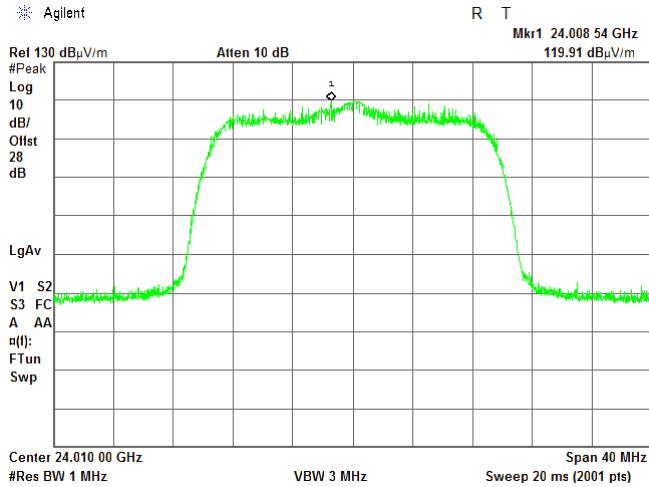
EMISSION BANDWIDTH:

20 MHz QPSK

CARRIER FREQUENCY: Low

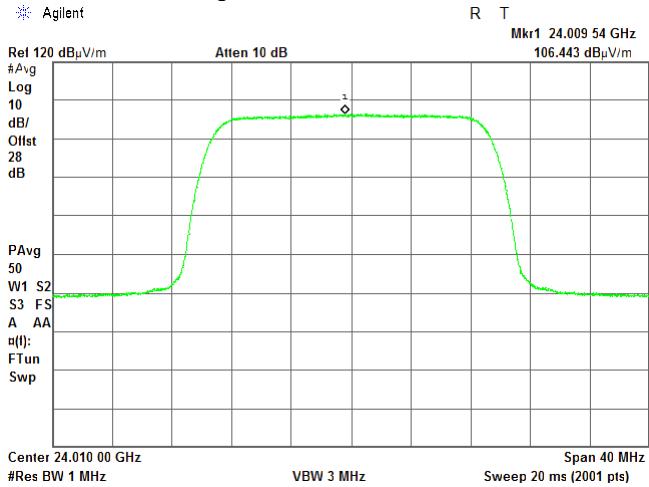
DETECTOR: Peak

* Agilent



DETECTOR: Average

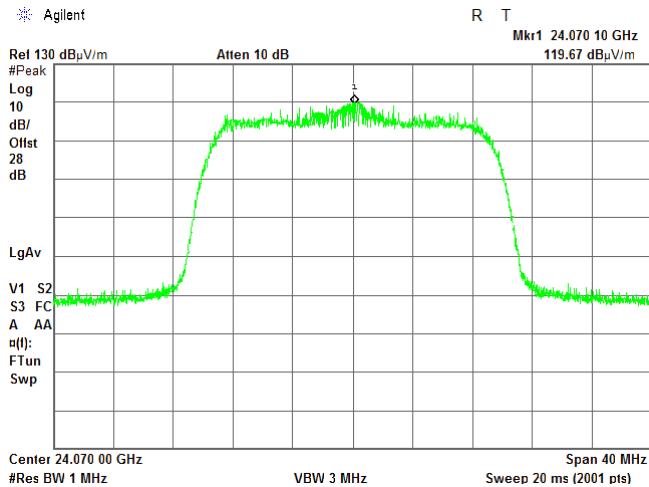
* Agilent



CARRIER FREQUENCY: Mid

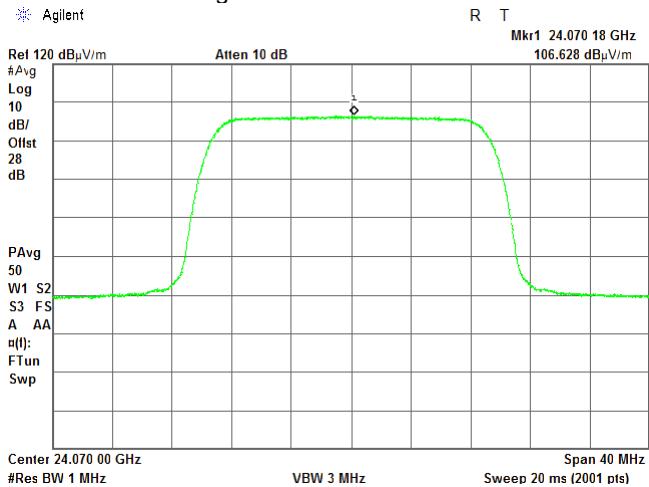
DETECTOR: Peak

* Agilent



DETECTOR: Average

* Agilent





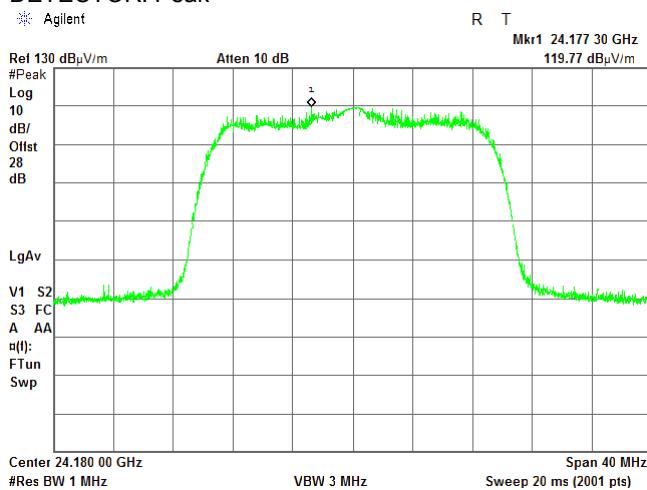
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Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

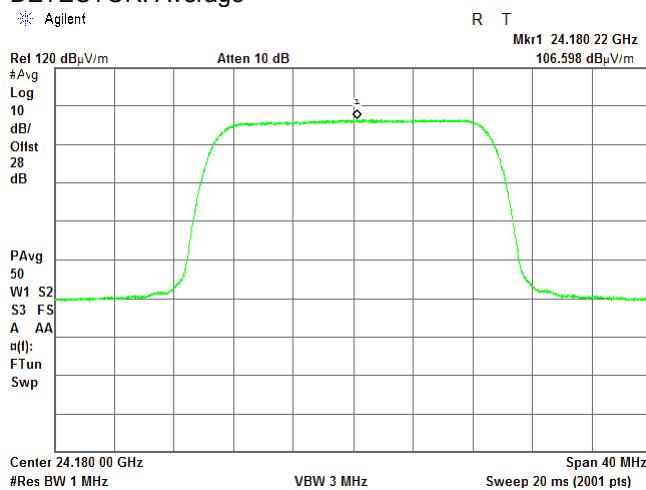
Plot 7.2.2 Radiated emission measurements at the fundamental frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical
 EUT POSITION: Typical (Vertical)
 EMISSION BANDWIDTH: 20 MHz QPSK

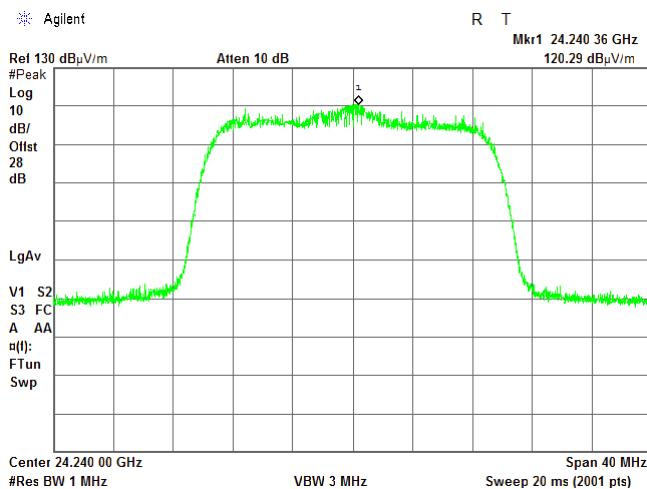
CARRIER FREQUENCY: Mid
 DETECTOR: Peak



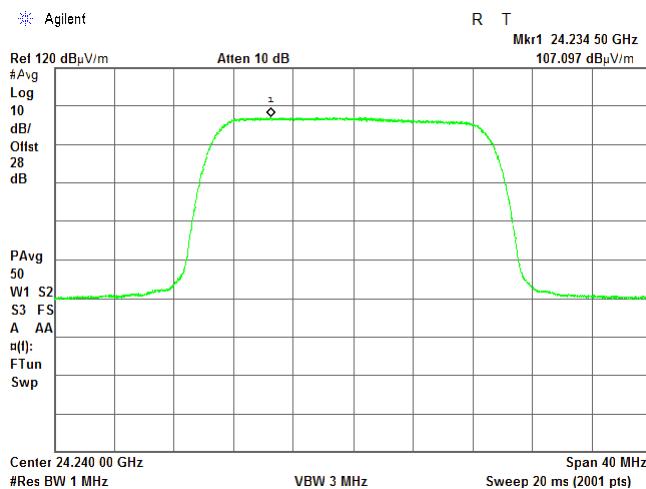
DETECTOR: Average



CARRIER FREQUENCY: High
 DETECTOR: Peak



DETECTOR: Average





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Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance	Verdict: PASS	
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.3 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

Typical (Vertical)

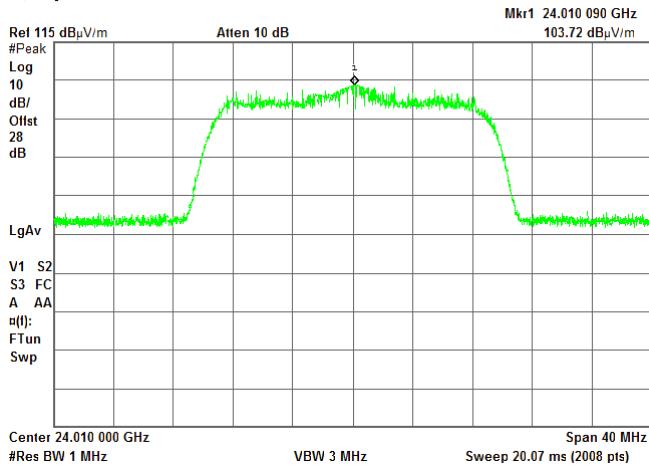
EMISSION BANDWIDTH:

20 MHz QPSK

CARRIER FREQUENCY: Low

DETECTOR: Peak

* Agilent



DETECTOR: Average

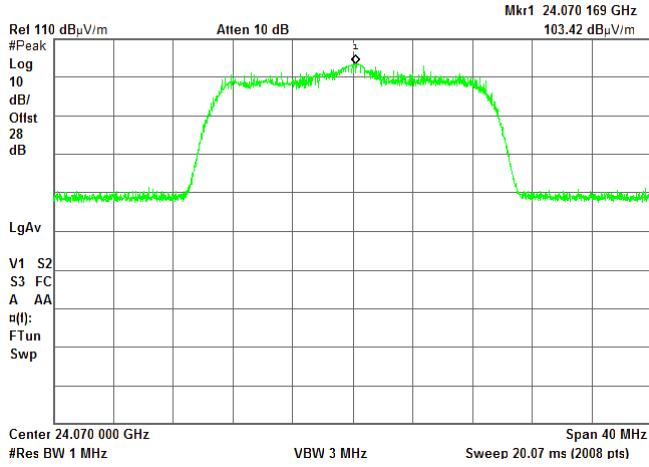
* Agilent



CARRIER FREQUENCY: Mid

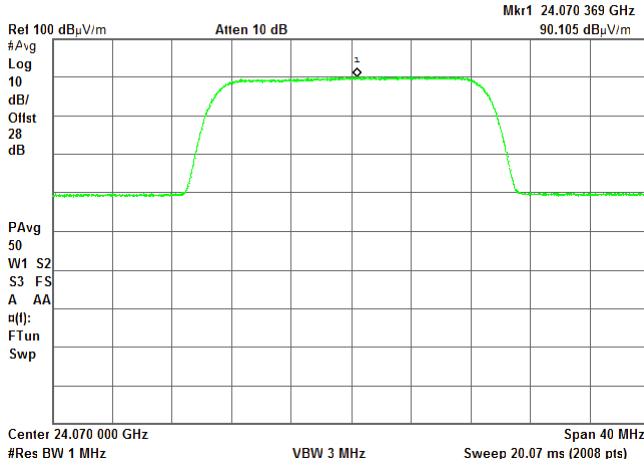
DETECTOR: Peak

* Agilent



DETECTOR: Average

* Agilent





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.4 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

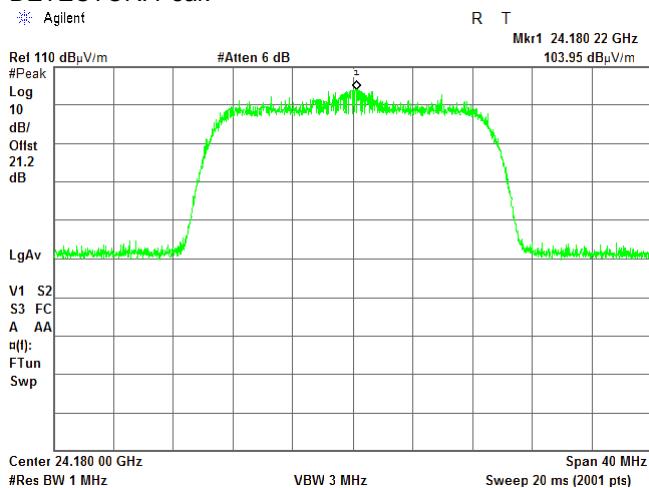
Typical (Vertical)

EMISSION BANDWIDTH:

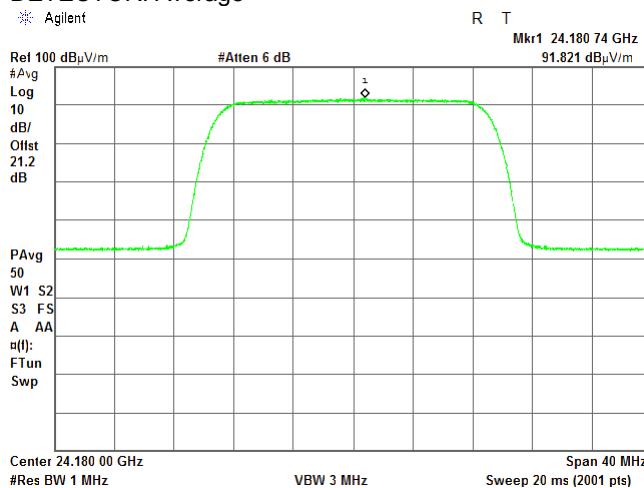
20 MHz QPSK

CARRIER FREQUENCY: Mid

DETECTOR: Peak

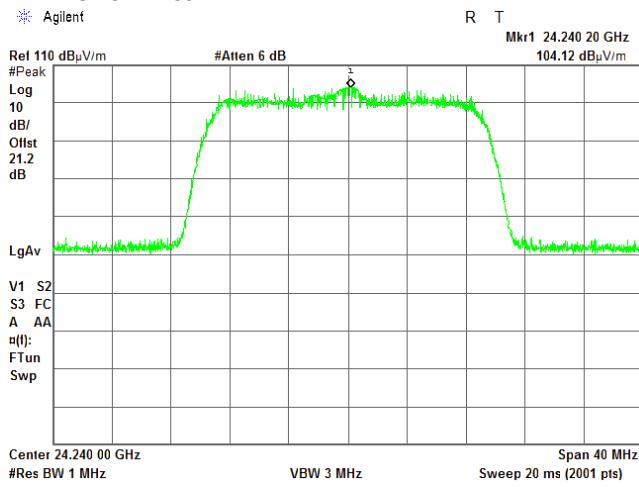


DETECTOR: Average

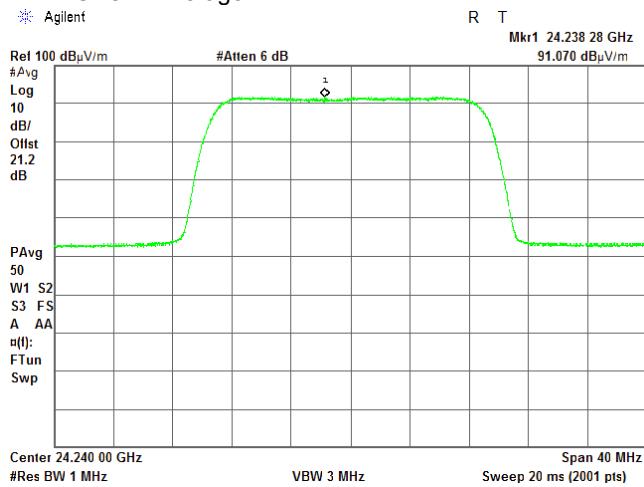


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.5 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

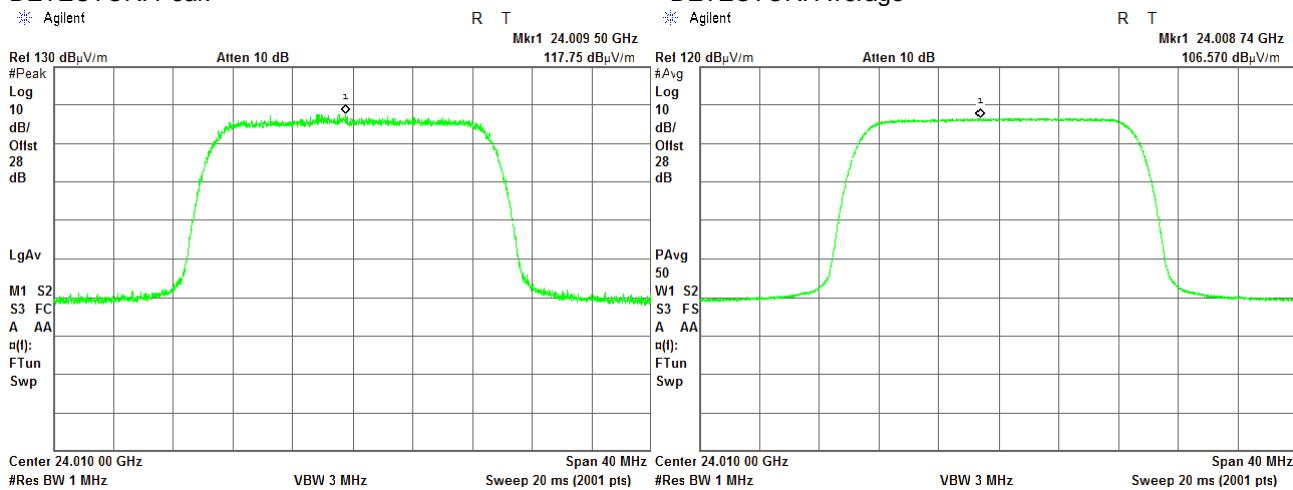
Vertical

EUT POSITION:

Typical (Vertical)

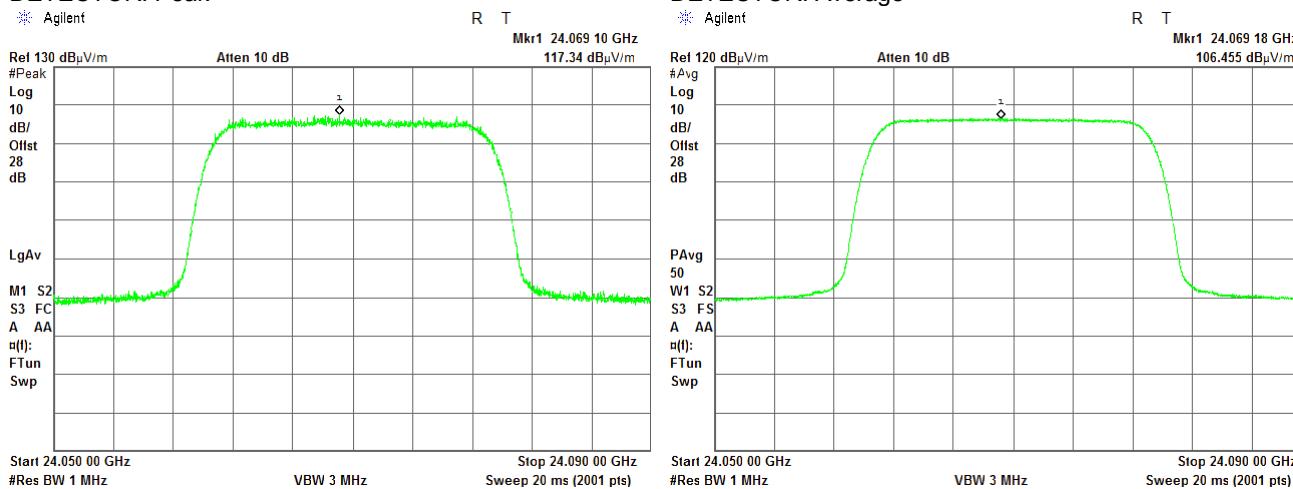
CARRIER FREQUENCY: Low

DETECTOR: Peak



CARRIER FREQUENCY: Mid

DETECTOR: Peak





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.6 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

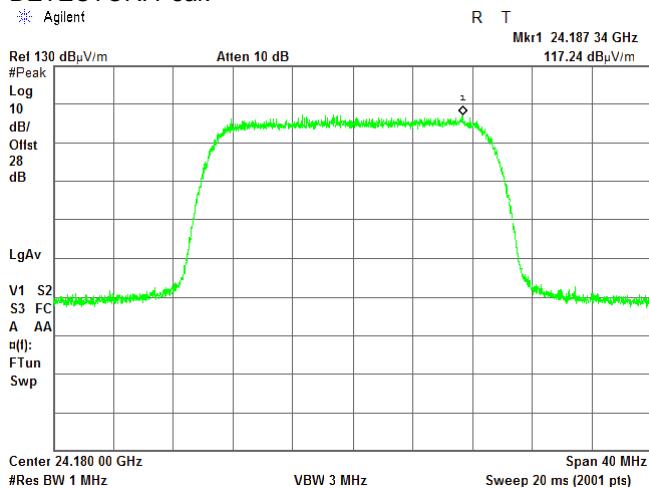
Vertical

EUT POSITION:

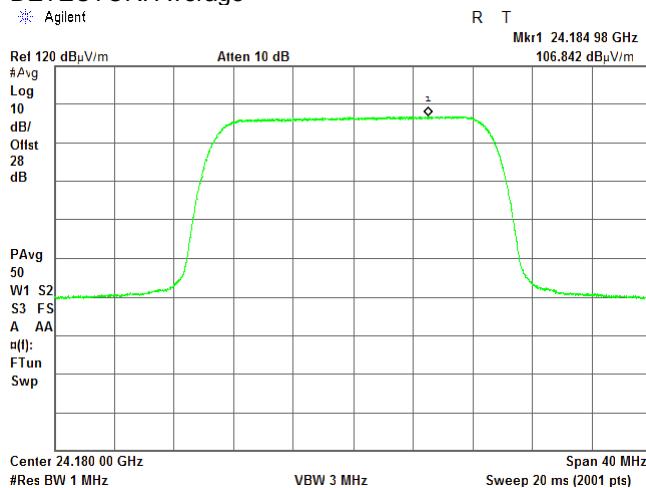
Typical (Vertical)

CARRIER FREQUENCY: Mid

DETECTOR: Peak

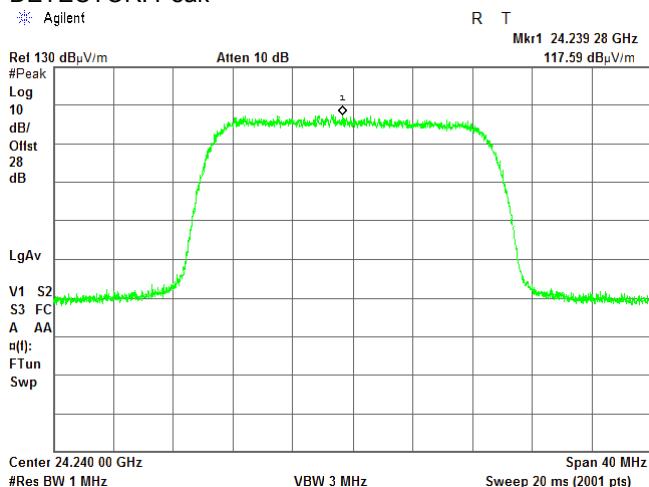


DETECTOR: Average

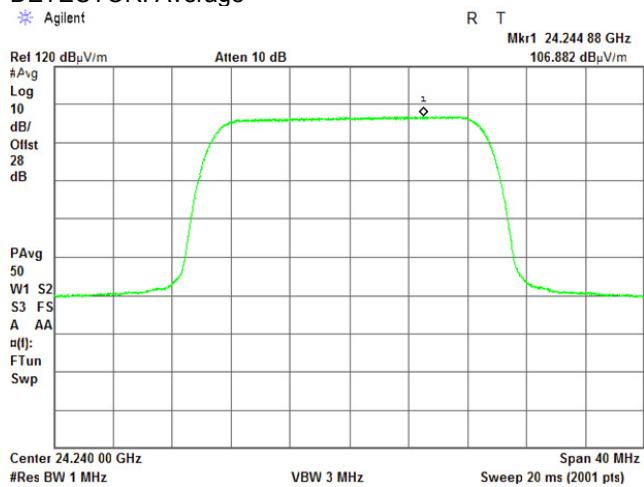


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance	Verdict: PASS	
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.7 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

Typical (Vertical)

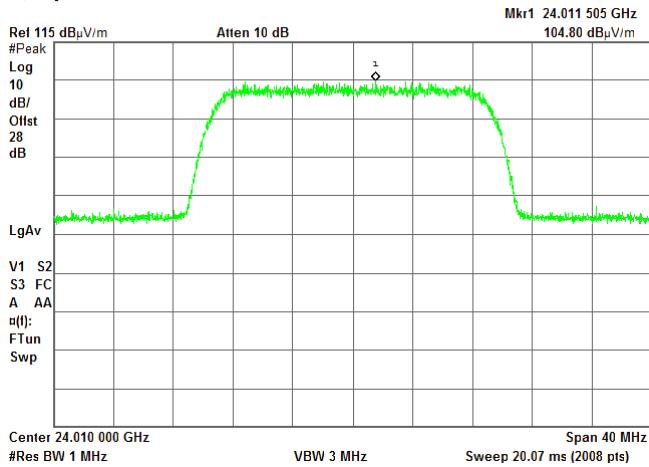
EMISSION BANDWIDTH:

20 MHz 2048QAM

CARRIER FREQUENCY: Low

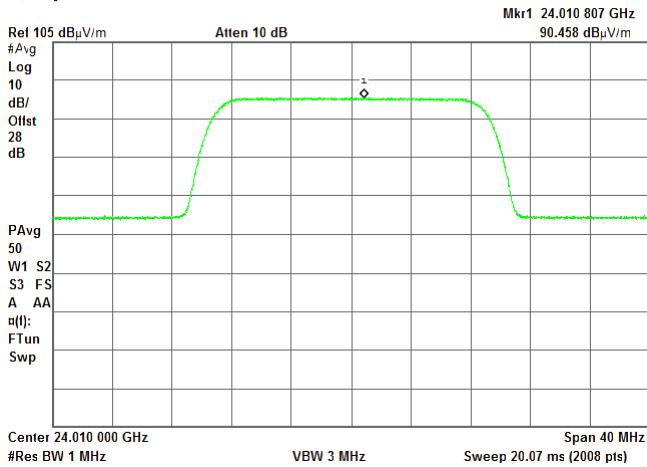
DETECTOR: Peak

* Agilent



DETECTOR: Average

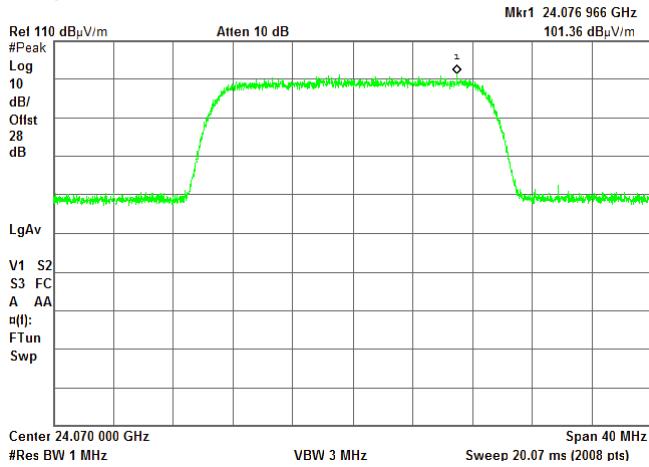
* Agilent



CARRIER FREQUENCY: Mid

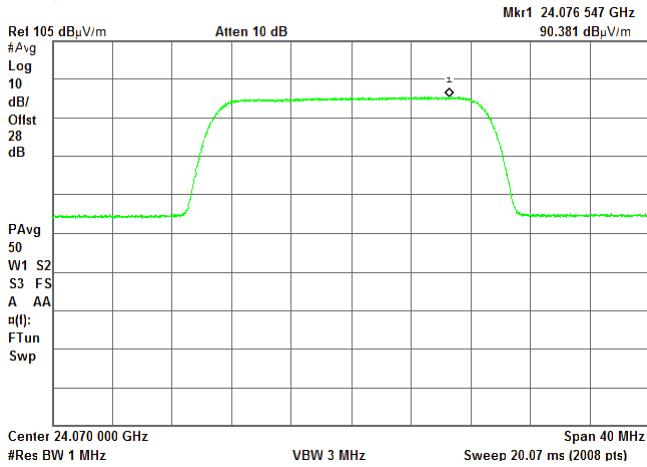
DETECTOR: Peak

* Agilent



DETECTOR: Average

* Agilent





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.8 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

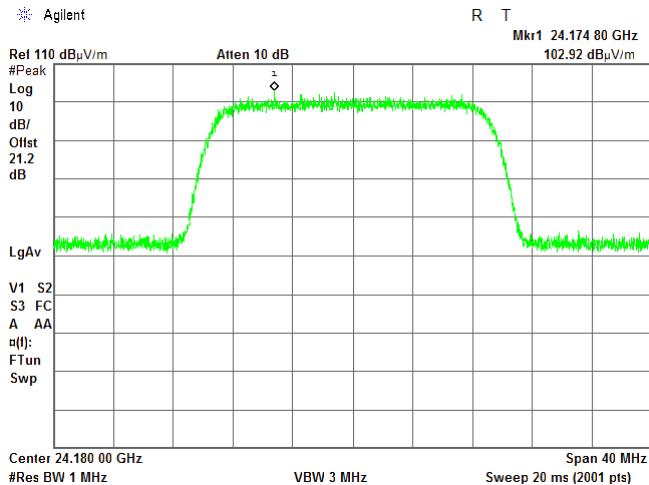
Typical (Vertical)

EMISSION BANDWIDTH:

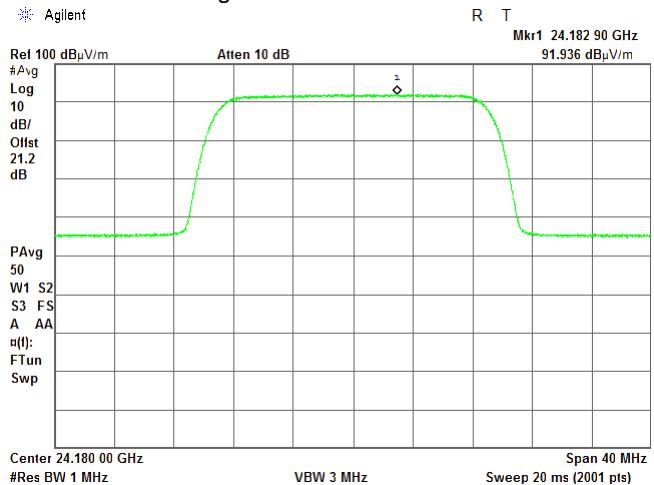
20 MHz 2048QAM

CARRIER FREQUENCY: Mid

DETECTOR: Peak

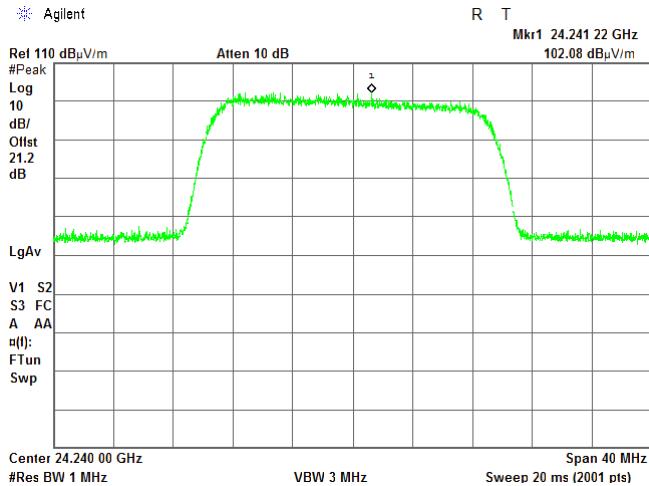


DETECTOR: Average

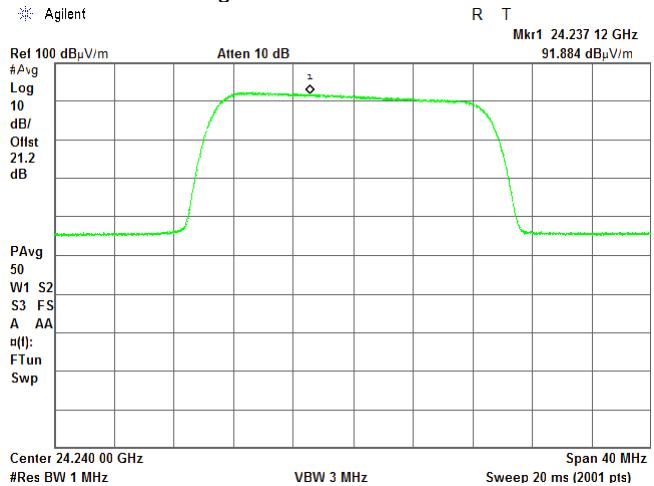


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions			
Test procedure: ANSI C63.10 sections 6.5, 6.6			
Test mode: Compliance			Verdict: PASS
Date(s): 05-Feb-18 - 07-Feb-18			
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa	Power: -48 VDC
Remarks: EUT with 37.1 dBi antenna gain			

Plot 7.2.9 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

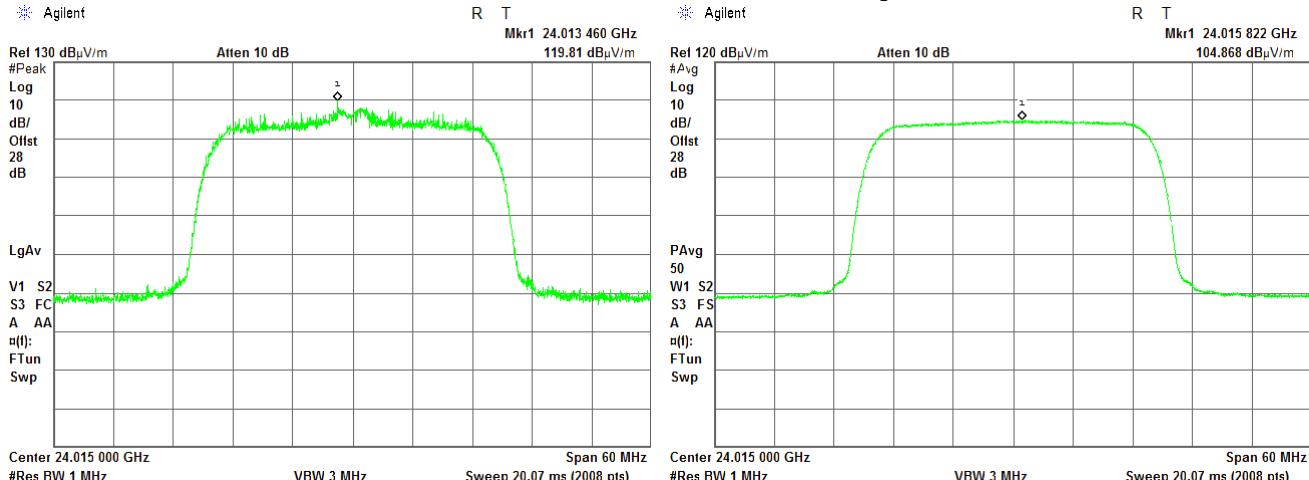
Typical (Vertical)

EMISSION BANDWIDTH:

30 MHz QPSK

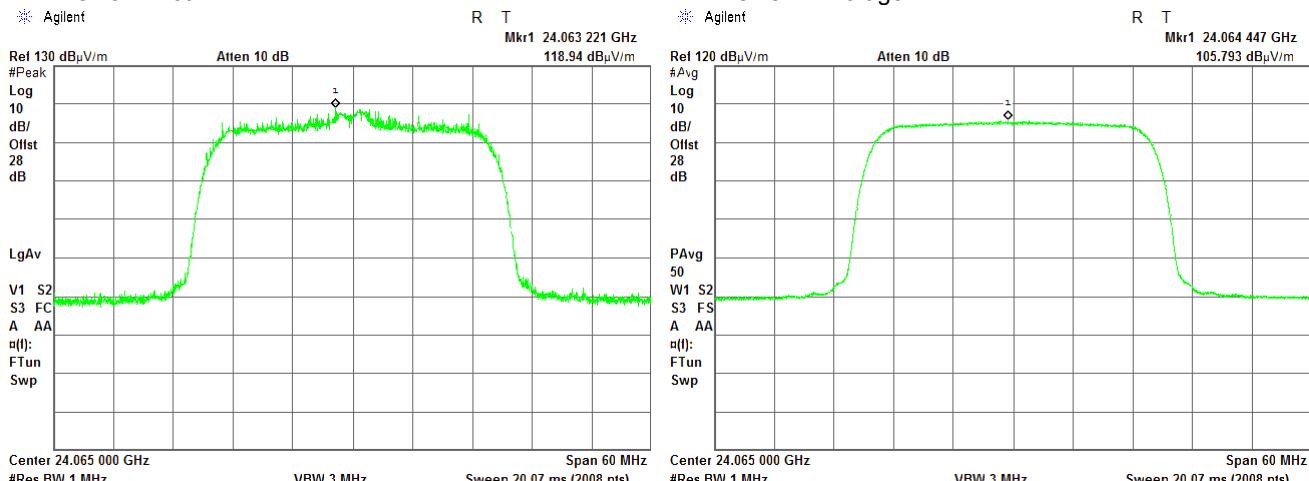
CARRIER FREQUENCY: Low

DETECTOR: Peak



CARRIER FREQUENCY: Mid

DETECTOR: Peak





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.10 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

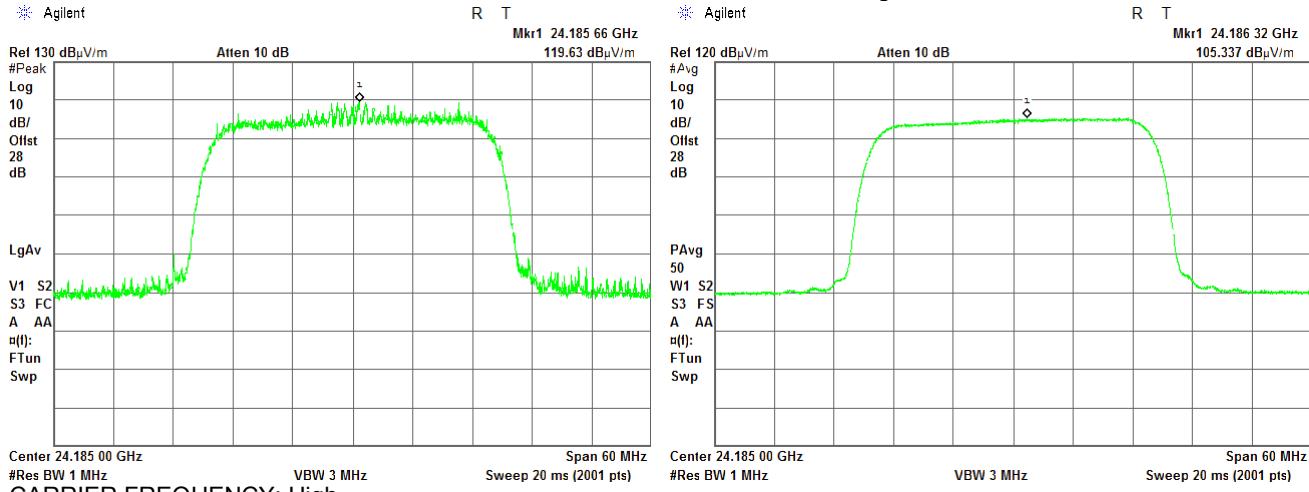
Typical (Vertical)

EMISSION BANDWIDTH:

30 MHz QPSK

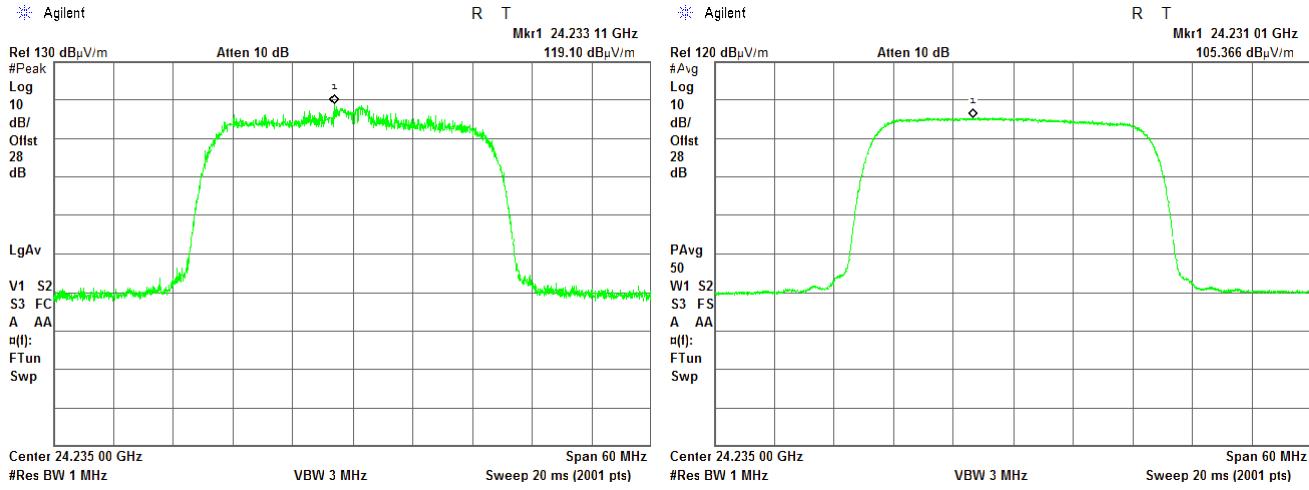
DETECTOR: Peak

DETECTOR: Average



CARRIER FREQUENCY: High

DETECTOR: Peak

DETECTOR: Average
CARRIER FREQUENCY: Mid



HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.11 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

Typical (Vertical)

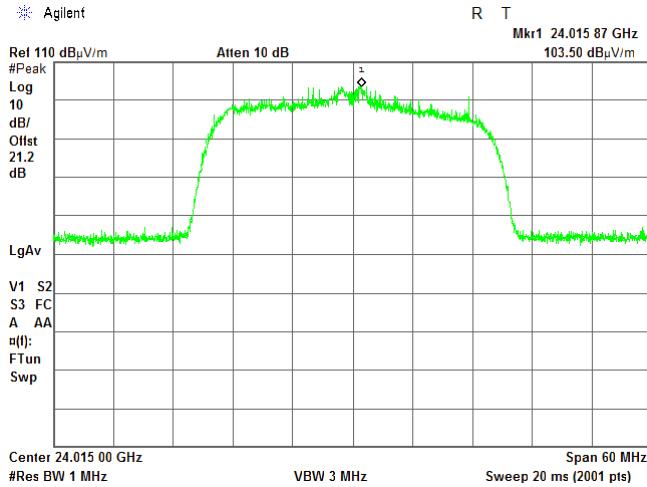
EMISSION BANDWIDTH:

30 MHz QPSK

CARRIER FREQUENCY: Low

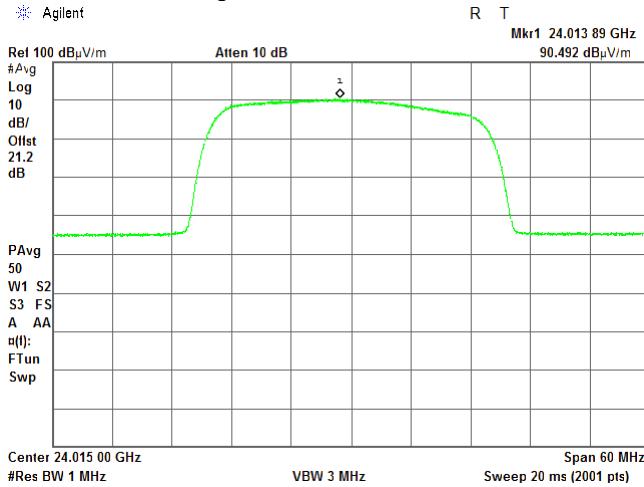
DETECTOR: Peak

Agilent



DETECTOR: Average

Agilent



Plot 7.2.12 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

Typical (Vertical)

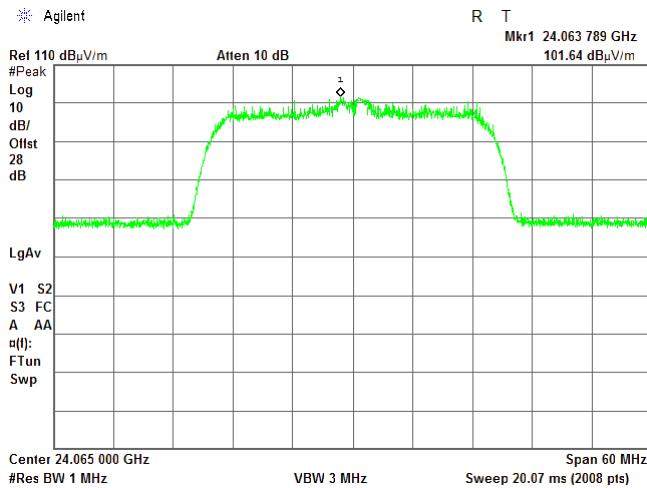
EMISSION BANDWIDTH:

30 MHz QPSK

CARRIER FREQUENCY: Mid

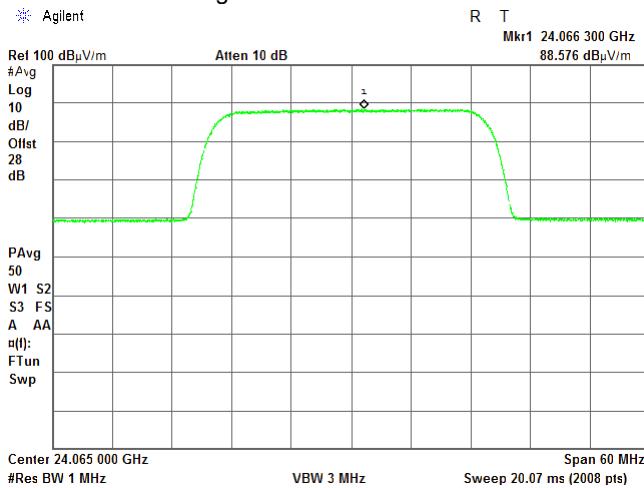
DETECTOR: Peak

Agilent



DETECTOR: Average

Agilent





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.13 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

Typical (Vertical)

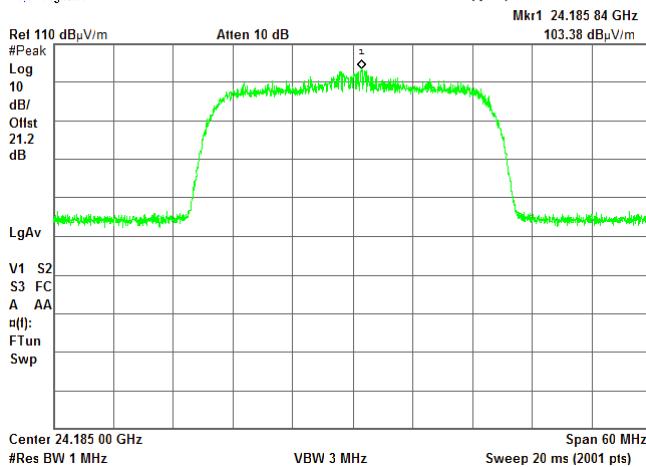
EMISSION BANDWIDTH:

30 MHz QPSK

CARRIER FREQUENCY: Mid

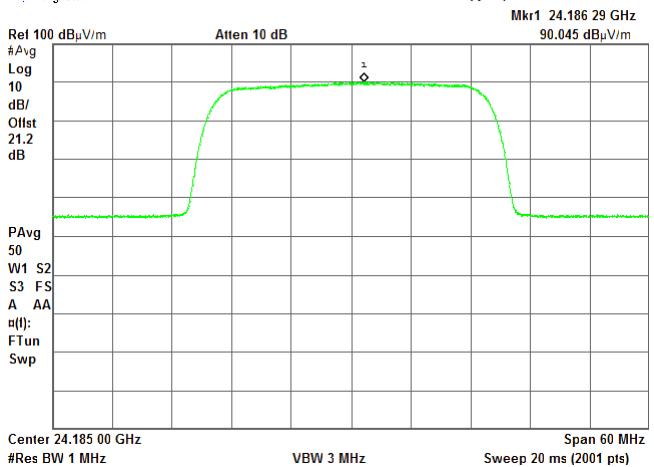
DETECTOR: Peak

Agilent



DETECTOR: Average

Agilent



Plot 7.2.14 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

Typical (Vertical)

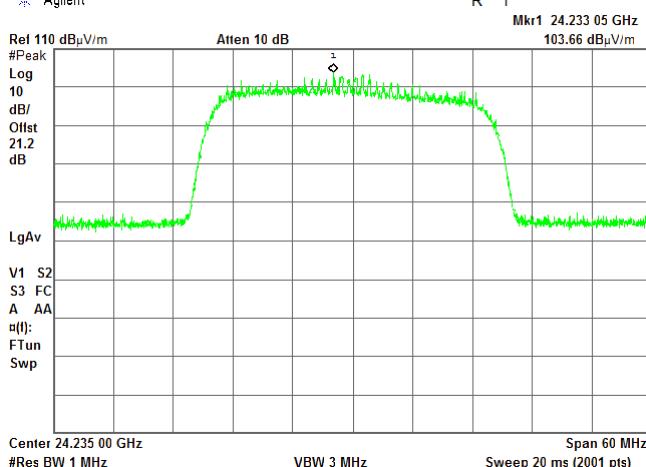
EMISSION BANDWIDTH:

30 MHz QPSK

CARRIER FREQUENCY: High

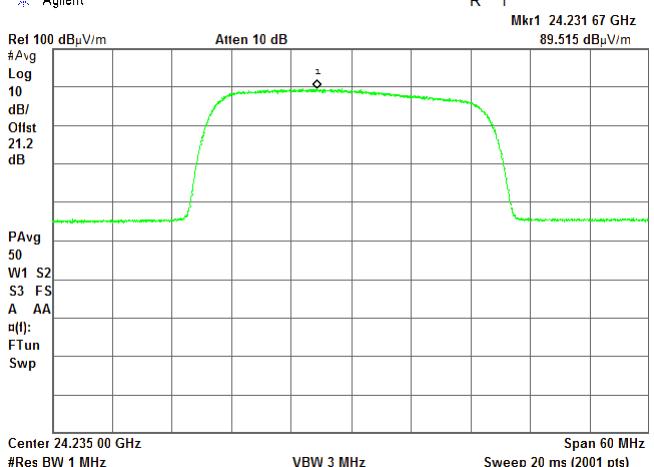
DETECTOR: Peak

Agilent



DETECTOR: Average

Agilent





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.15 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

30 MHz 2048QAM

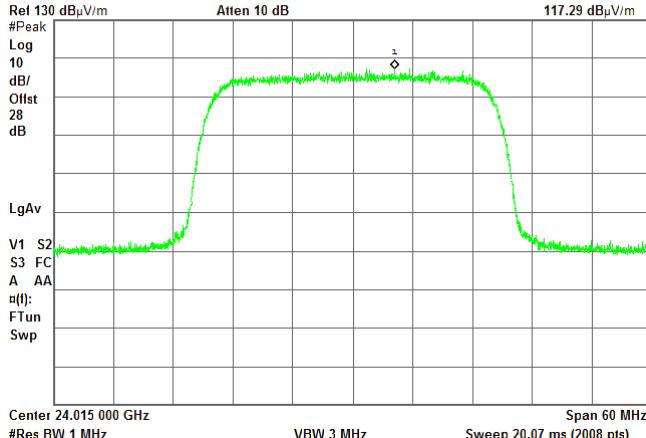
CARRIER FREQUENCY: Low

DETECTOR: Peak

Agilent

R T

Mkr1 24.019 200 GHz

117.29 dB μ V/m

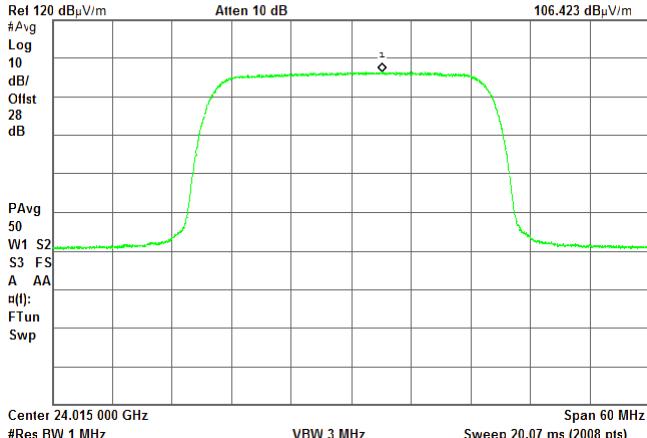
DETECTOR: Average

Agilent

R T

Mkr1

24.018 094 GHz

106.423 dB μ V/m

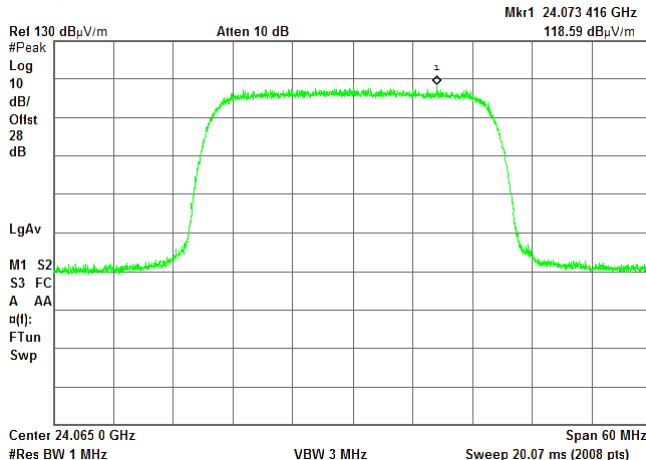
CARRIER FREQUENCY: Mid

DETECTOR: Peak

Agilent

R T

Mkr1 24.073 416 GHz

118.59 dB μ V/m

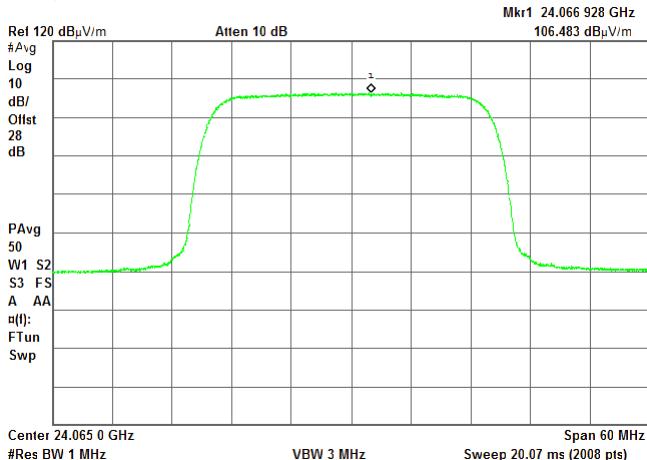
DETECTOR: Average

Agilent

R T

Mkr1

24.066 928 GHz

106.483 dB μ V/m



HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.16 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

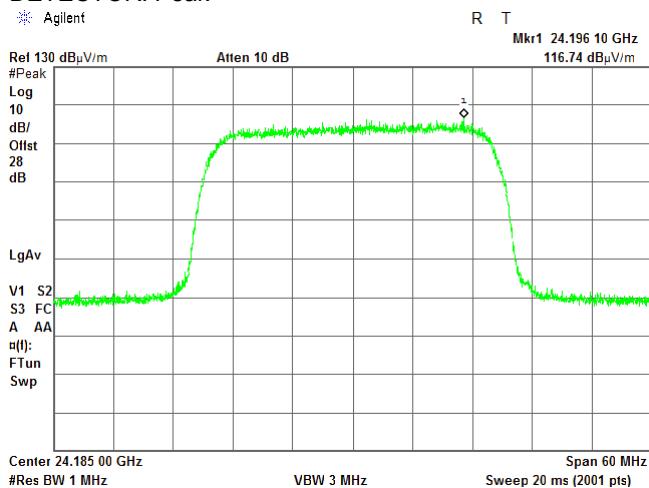
Typical (Vertical)

EMISSION BANDWIDTH:

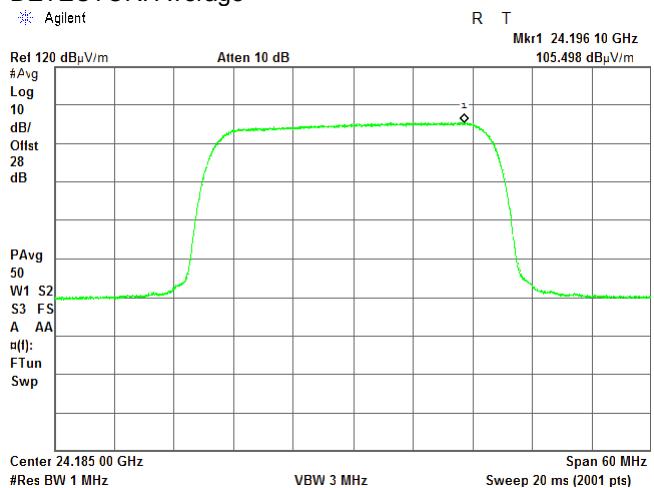
30 MHz 2048QAM

CARRIER FREQUENCY: Mid

DETECTOR: Peak

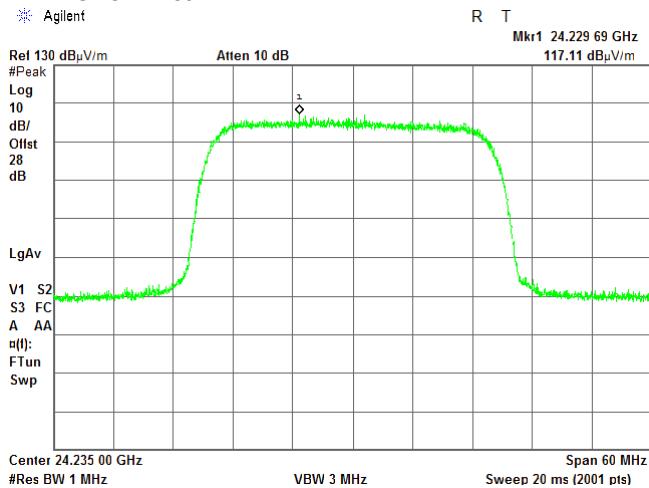


DETECTOR: Average

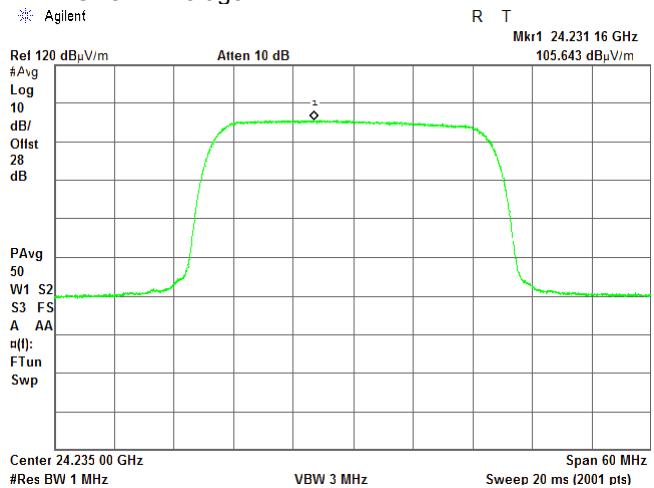


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.17 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

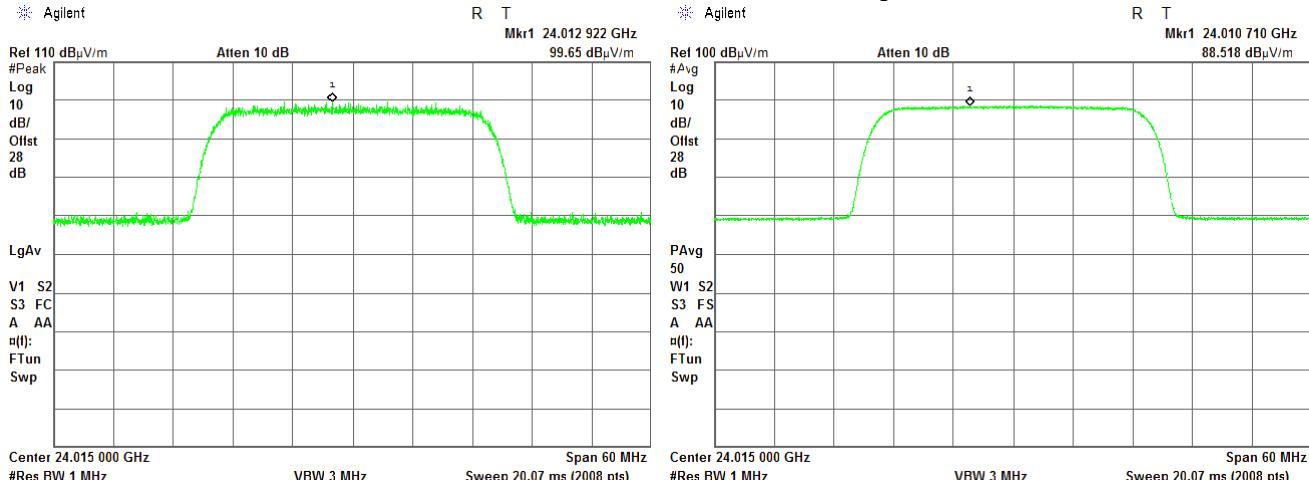
Typical (Vertical)

EMISSION BANDWIDTH:

30 MHz 2048QAM

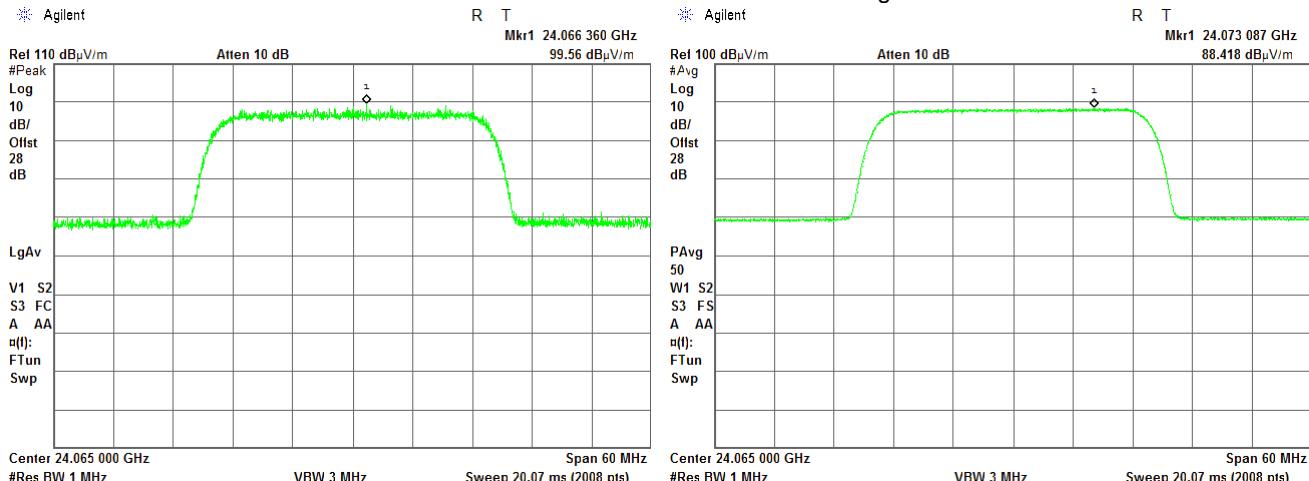
CARRIER FREQUENCY: Low

DETECTOR: Peak



CARRIER FREQUENCY: Mid

DETECTOR: Peak



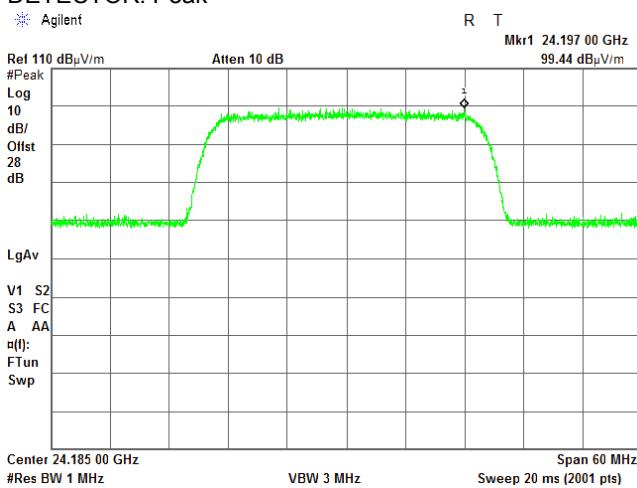


HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

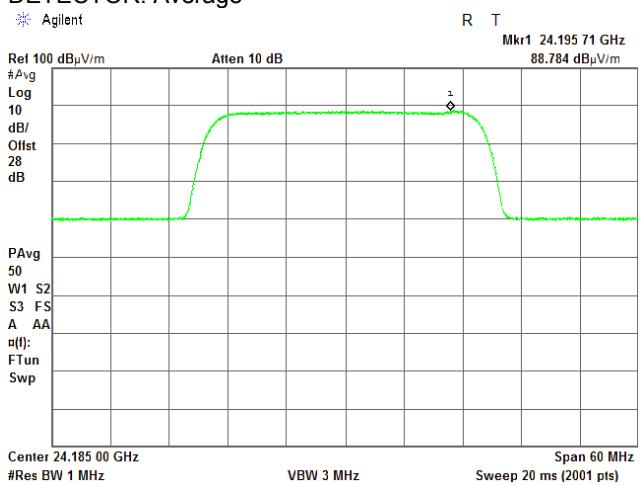
Plot 7.2.18 Radiated emission measurements at the fundamental frequency

TEST SITE:
TEST DISTANCE:
ANTENNA POLARIZATION:
EUT POSITION:
EMISSION BANDWIDTH:
CARRIER FREQUENCY: Mid
DETECTOR: Peak



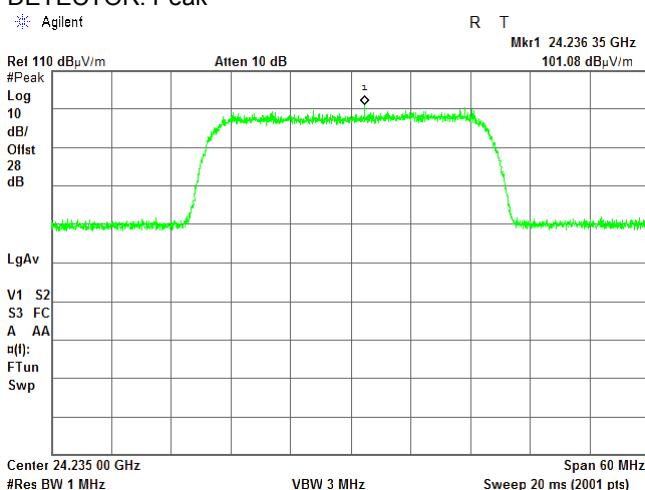
Semi anechoic chamber
3 m
Horizontal
Typical (Vertical)
30 MHz 2048QAM

DETECTOR: Average



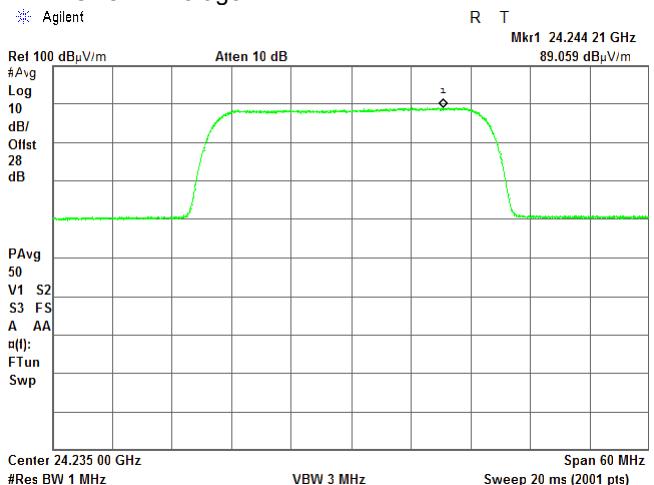
Plot 7.2.19 Radiated emission measurements at the fundamental frequency

TEST SITE:
TEST DISTANCE:
ANTENNA POLARIZATION:
EUT POSITION:
EMISSION BANDWIDTH:
CARRIER FREQUENCY: High
DETECTOR: Peak



Semi anechoic chamber
3 m
Horizontal
Typical (Vertical)
30 MHz 2048QAM

DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Power: -48 VDC		
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.20 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

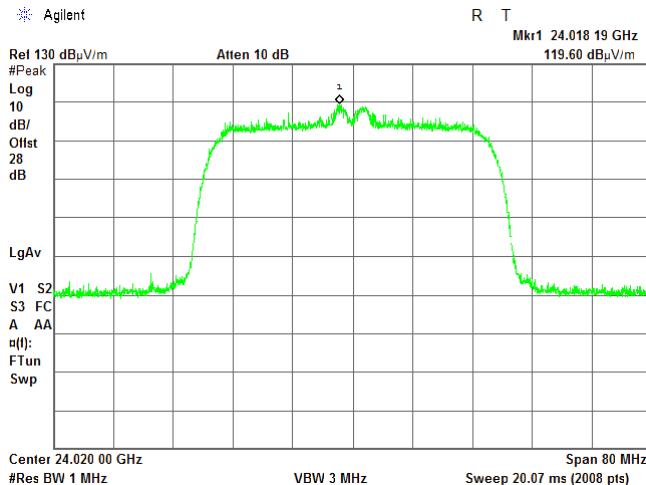
Typical (Vertical)

EMISSION BANDWIDTH:

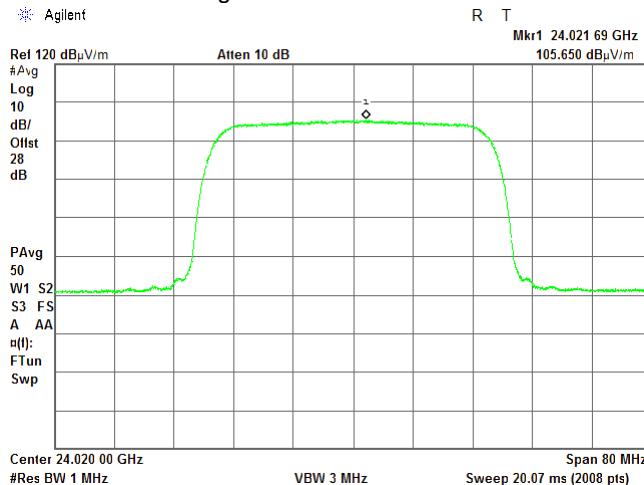
40 MHz QPSK

CARRIER FREQUENCY: Low

DETECTOR: Peak

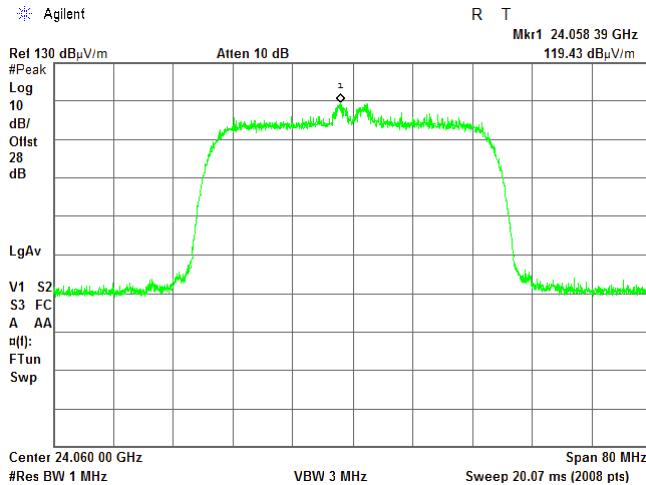


DETECTOR: Average

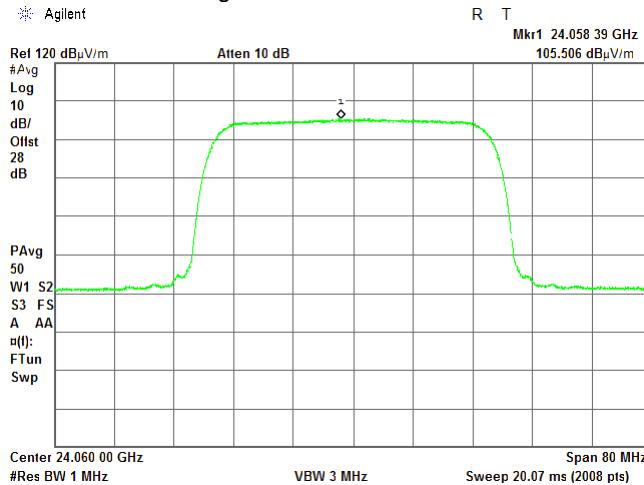


CARRIER FREQUENCY: Mid

DETECTOR: Peak



DETECTOR: Average





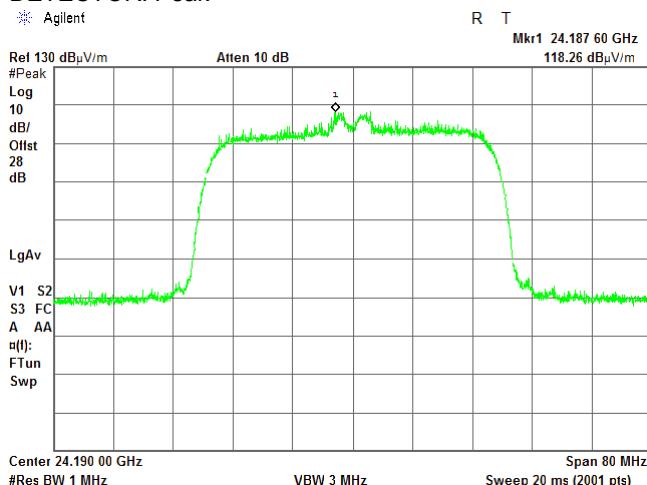
HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

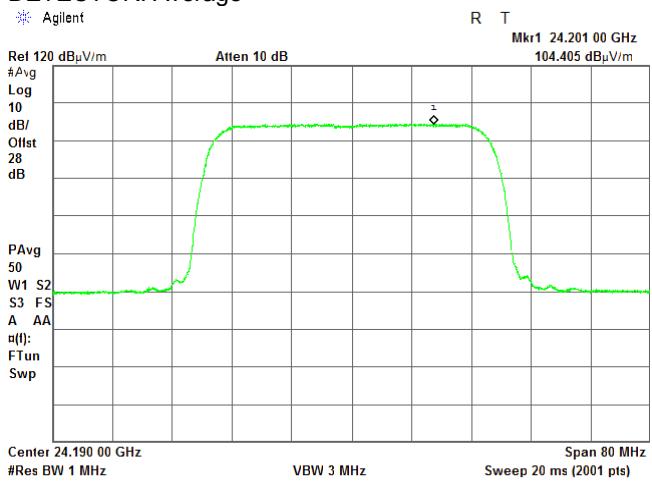
Plot 7.2.21 Radiated emission measurements at the fundamental frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical
 EUT POSITION: Typical (Vertical)
 EMISSION BANDWIDTH: 40 MHz QPSK

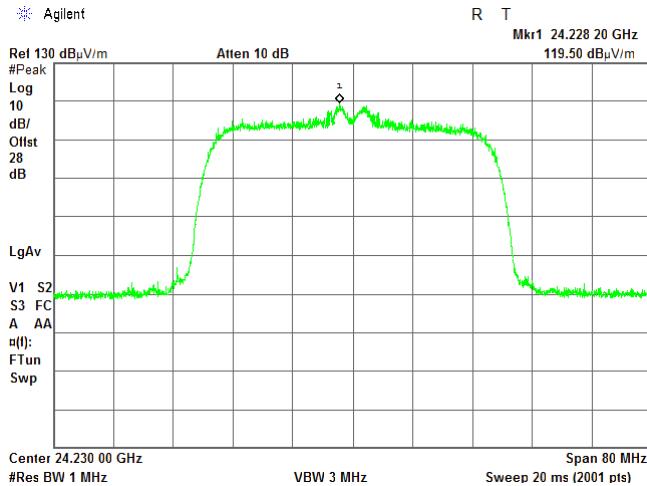
CARRIER FREQUENCY: Mid
 DETECTOR: Peak



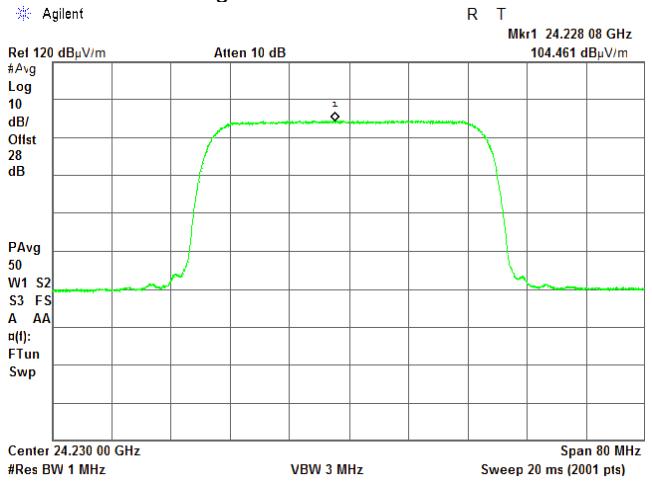
DETECTOR: Average



CARRIER FREQUENCY: High
 DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.22 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

40 MHz QPSK

CARRIER FREQUENCY: Low

DETECTOR: Peak

* Agilent

R T

Mkr1 24.018 19 GHz

102.24 dB μ V/mRef 110 dB μ V/m

#Peak

Log

10

dB/

Offst

28

dB

LgAv

V1 S2

S3 FC

A AA

a(t):

FTun

Swp

Center 24.020 00 GHz

#Res BW 1 MHz

Atten 10 dB

VBW 3 MHz

Sweep 20.07 ms (2008 pts)

Span 80 MHz

R T

Mkr1 24.018 19 GHz

102.24 dB μ V/m

R T

Mkr1 24.018 31 GHz

87.418 dB μ V/m

DETECTOR: Average

* Agilent

Ref 100 dB μ V/m

#Avg

Log

10

dB/

Offst

28

dB

PAvg

50

W1 S2

S3 FS

A AA

a(t):

FTun

Swp

Center 24.020 00 GHz

#Res BW 1 MHz

Atten 10 dB

VBW 3 MHz

Sweep 20.07 ms (2008 pts)

Span 80 MHz

Center 24.020 00 GHz

#Res BW 1 MHz

CARRIER FREQUENCY: Mid

DETECTOR: Peak

* Agilent

R T

Mkr1 24.058 39 GHz

101.98 dB μ V/mRef 110 dB μ V/m

#Peak

Log

10

dB/

Offst

28

dB

LgAv

V1 S2

S3 FC

A AA

a(t):

FTun

Swp

Center 24.060 00 GHz

#Res BW 1 MHz

Atten 10 dB

VBW 3 MHz

Sweep 20.07 ms (2008 pts)

Span 80 MHz

R T

Mkr1 24.058 39 GHz

101.98 dB μ V/m

R T

Mkr1 24.061 69 GHz

86.961 dB μ V/m

DETECTOR: Average

* Agilent

Ref 100 dB μ V/m

#Avg

Log

10

dB/

Offst

28

dB

PAvg

50

W1 S2

S3 FS

A AA

a(t):

FTun

Swp

Center 24.060 00 GHz

#Res BW 1 MHz

Atten 10 dB

VBW 3 MHz

Sweep 20.07 ms (2008 pts)

Span 80 MHz



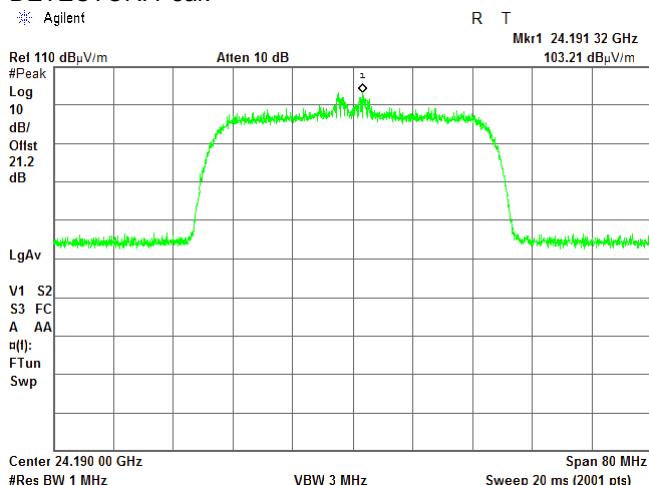
HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

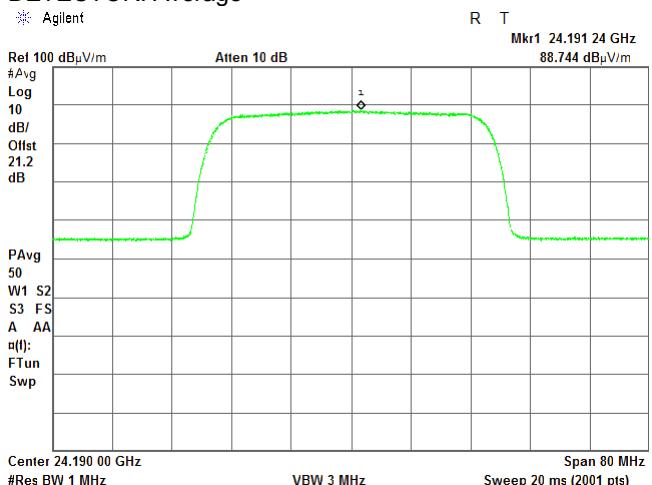
Plot 7.2.23 Radiated emission measurements at the fundamental frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Horizontal
 EUT POSITION: Typical (Vertical)
 EMISSION BANDWIDTH: 40 MHz QPSK

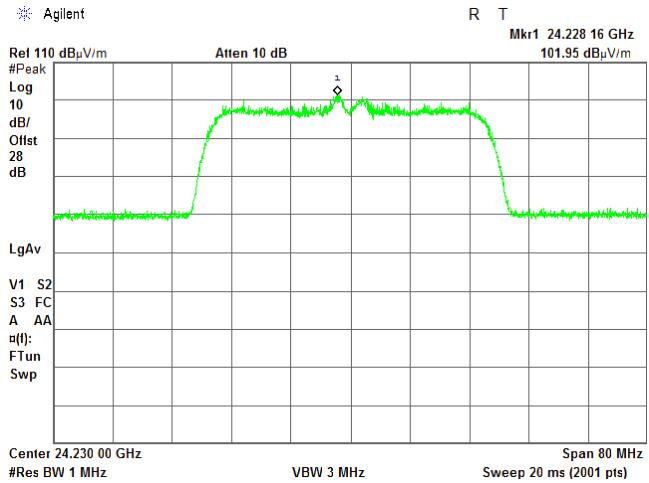
CARRIER FREQUENCY: Mid
 DETECTOR: Peak



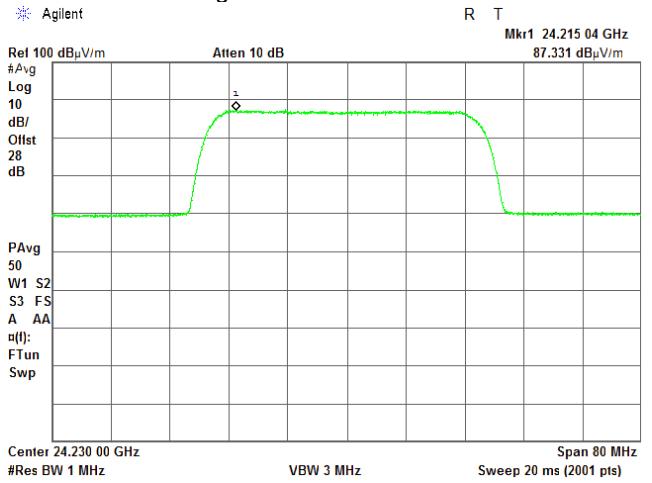
DETECTOR: Average



CARRIER FREQUENCY: High
 DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.24 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

40 MHz 2048QAM

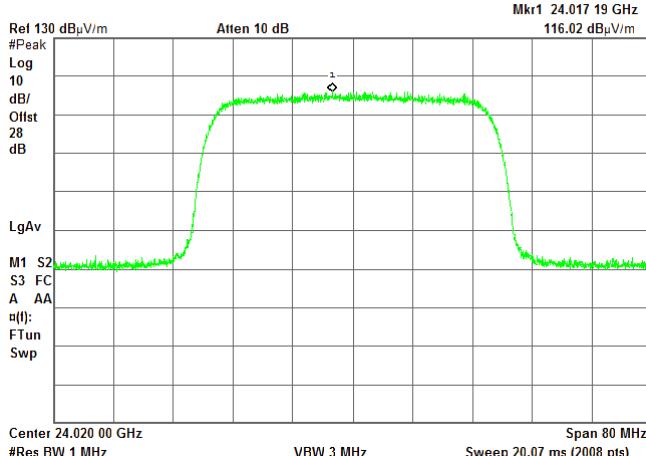
CARRIER FREQUENCY: Low

DETECTOR: Peak

* Agilent

R T

Mkr1 24.017 19 GHz

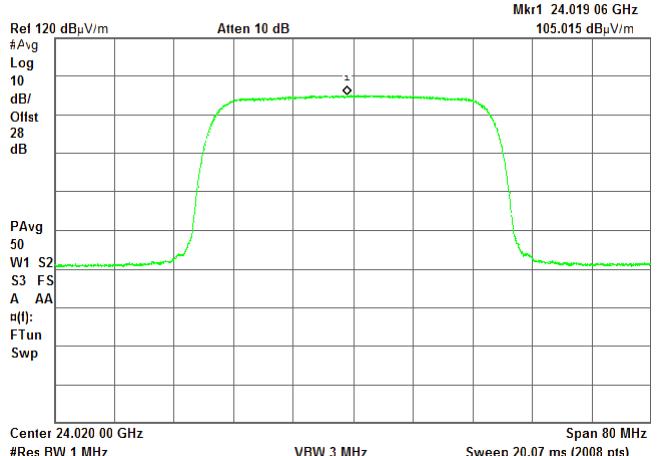
116.02 dB μ V/m

DETECTOR: Average

* Agilent

R T

Mkr1 24.019 06 GHz

105.015 dB μ V/m

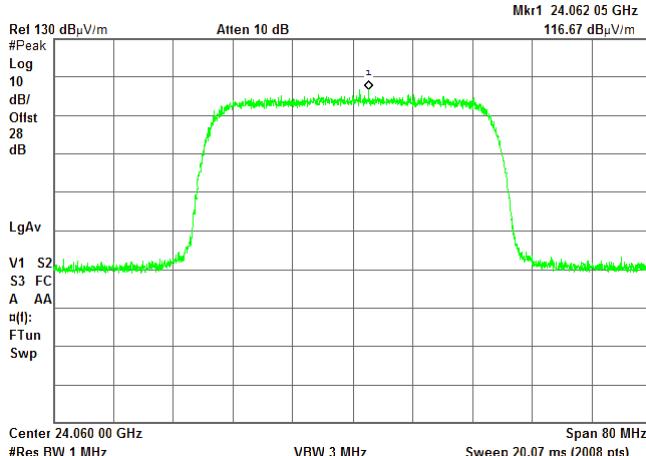
CARRIER FREQUENCY: Mid

DETECTOR: Peak

* Agilent

R T

Mkr1 24.062 05 GHz

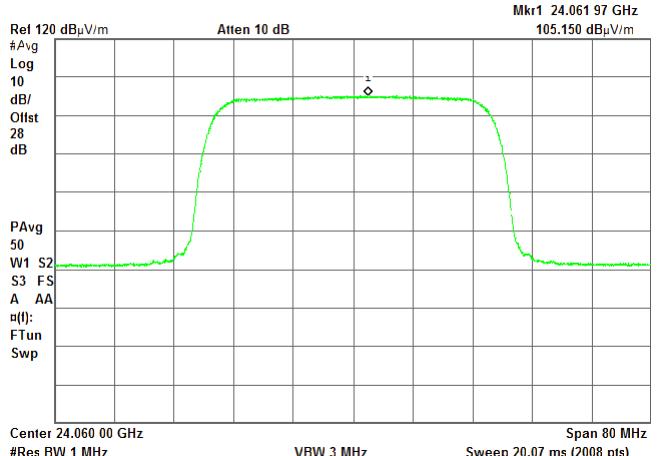
116.67 dB μ V/m

DETECTOR: Average

* Agilent

R T

Mkr1 24.061 97 GHz

105.150 dB μ V/m



HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.25 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

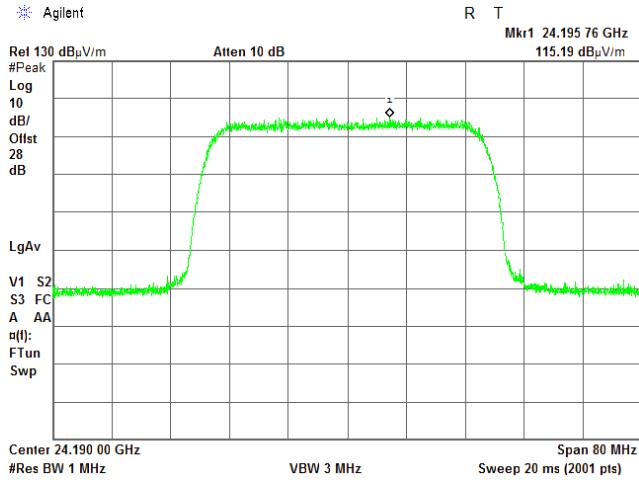
Typical (Vertical)

EMISSION BANDWIDTH:

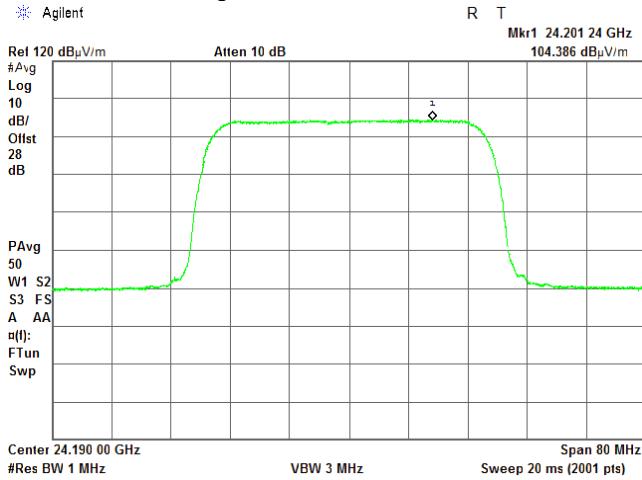
40 MHz 2048QAM

CARRIER FREQUENCY: Mid

DETECTOR: Peak

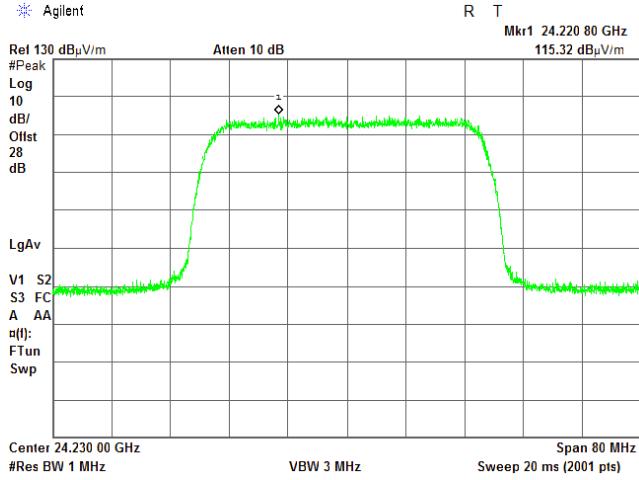


DETECTOR: Average

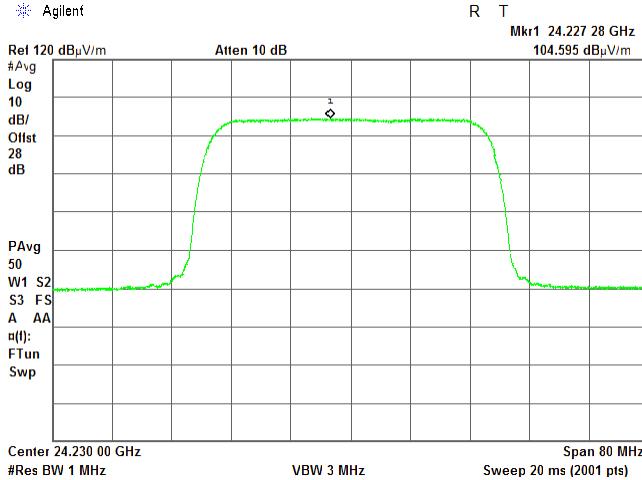


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.26 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

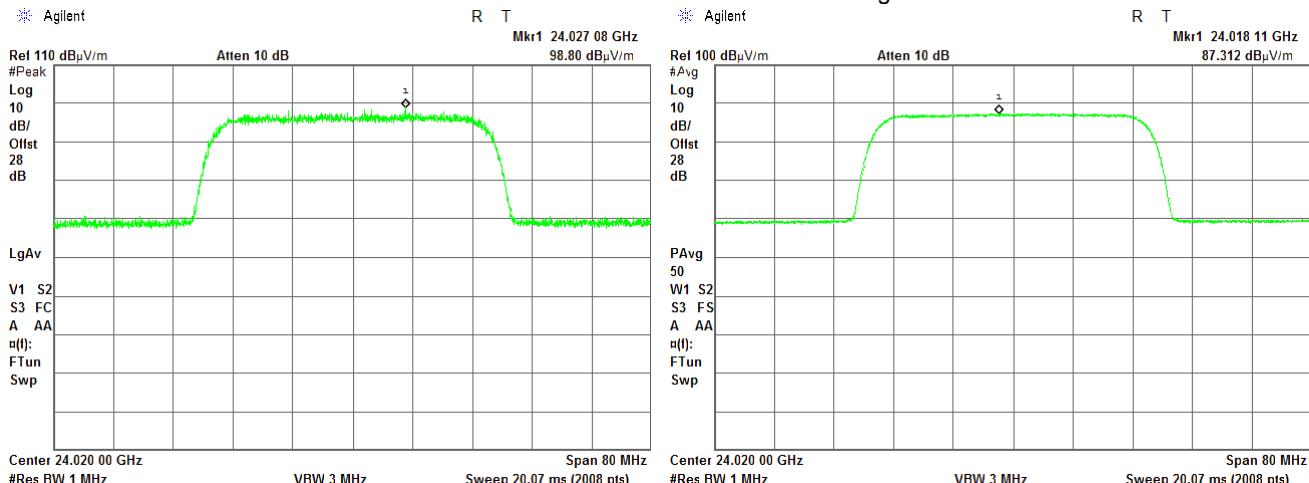
Typical (Vertical)

EMISSION BANDWIDTH:

40 MHz 2048QAM

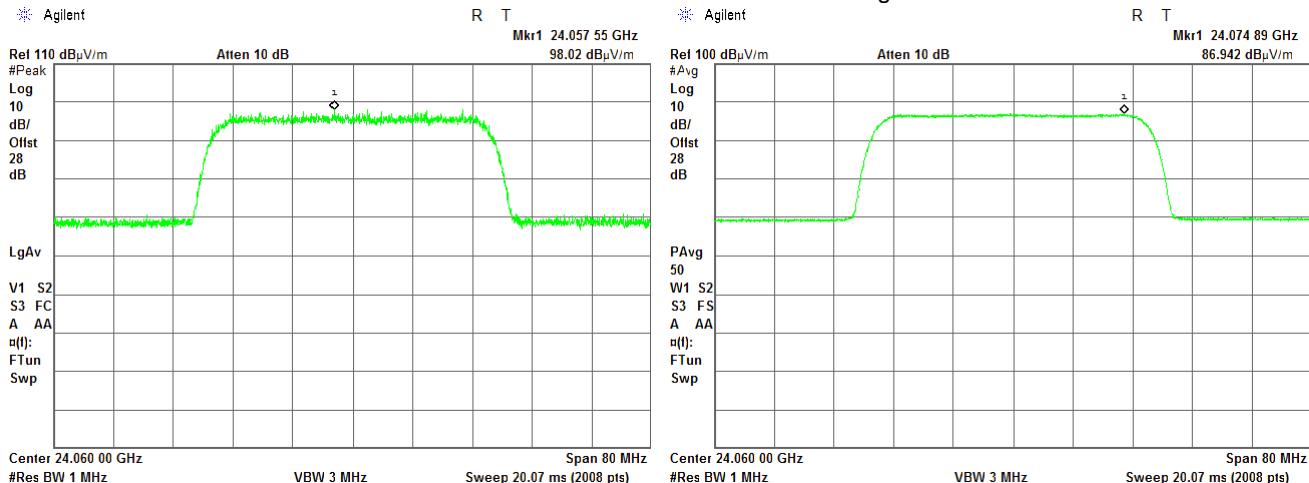
CARRIER FREQUENCY: Low

DETECTOR: Peak



CARRIER FREQUENCY: Mid

DETECTOR: Peak





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.27 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

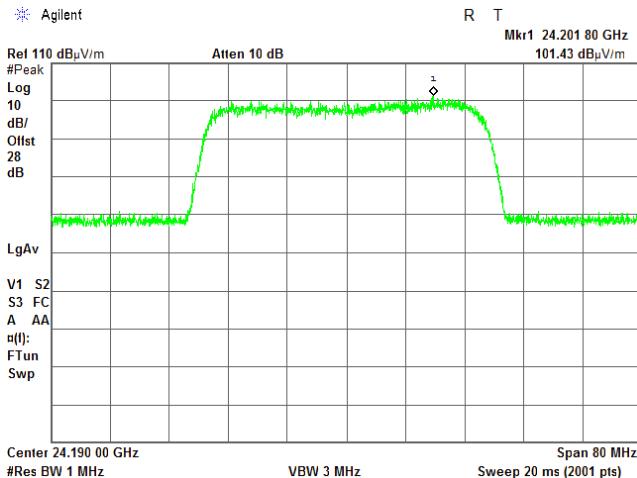
Typical (Vertical)

EMISSION BANDWIDTH:

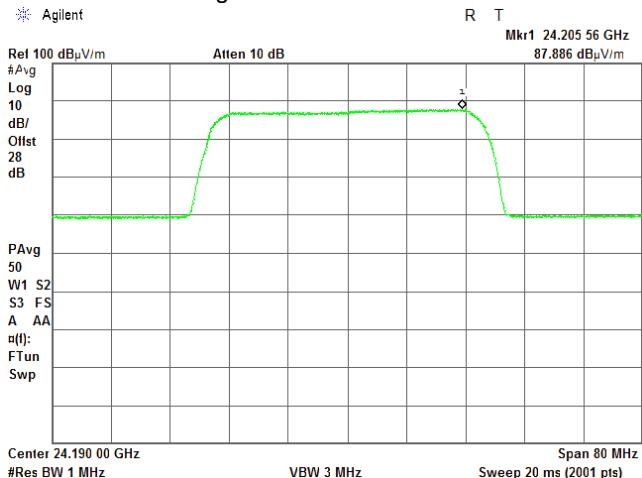
40 MHz 2048QAM

CARRIER FREQUENCY: Mid

DETECTOR: Peak

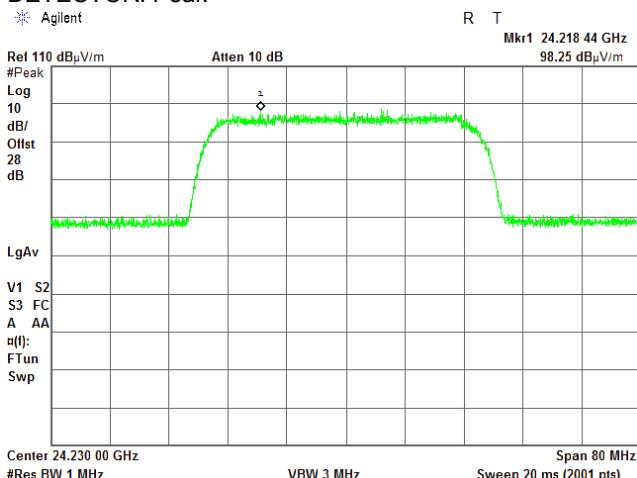


DETECTOR: Average

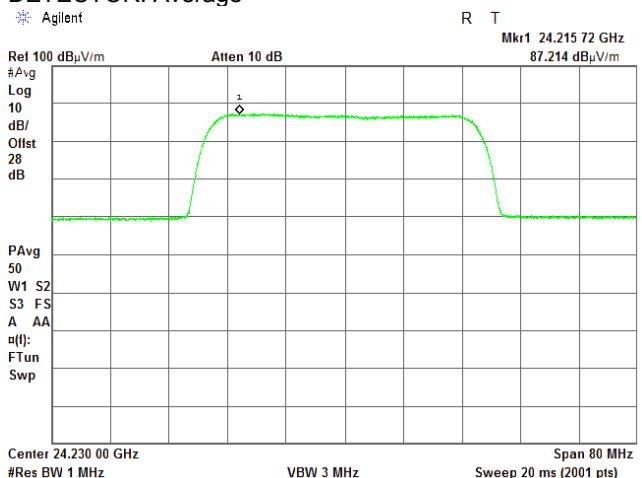


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions			
Test procedure:	ANSI C63.10 sections 6.5, 6.6		
Test mode:	Compliance		
Date(s):	05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa	Power: -48 VDC
Remarks: EUT with 37.1 dBi antenna gain			

Plot 7.2.28 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

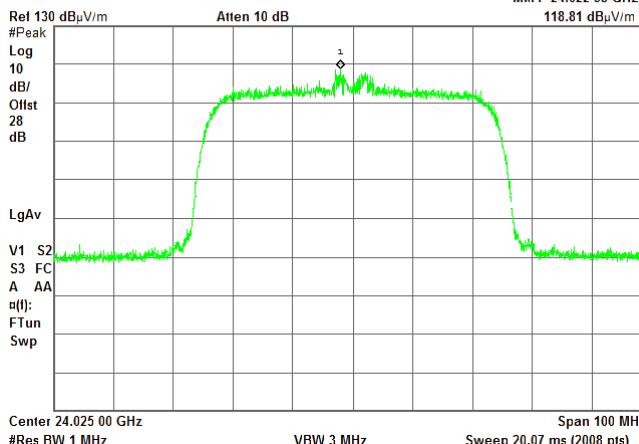
50 MHz QPSK

CARRIER FREQUENCY: Low

DETECTOR: Peak

* Agilent

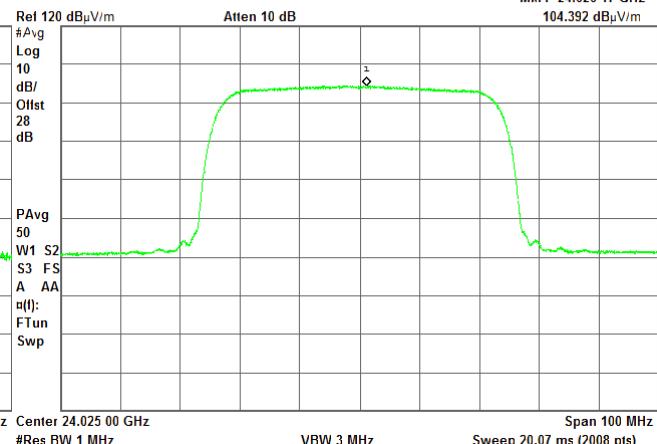
R T

Mkr1 24.022 93 GHz
118.81 dB μ V/m

DETECTOR: Average

* Agilent

R T

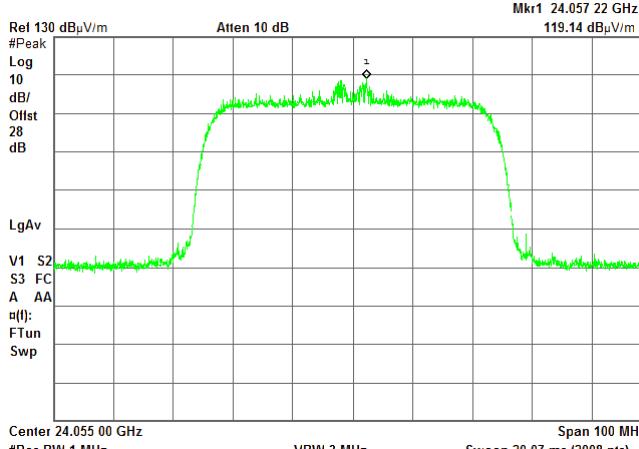
Mkr1 24.026 17 GHz
104.392 dB μ V/m

CARRIER FREQUENCY: Mid

DETECTOR: Peak

* Agilent

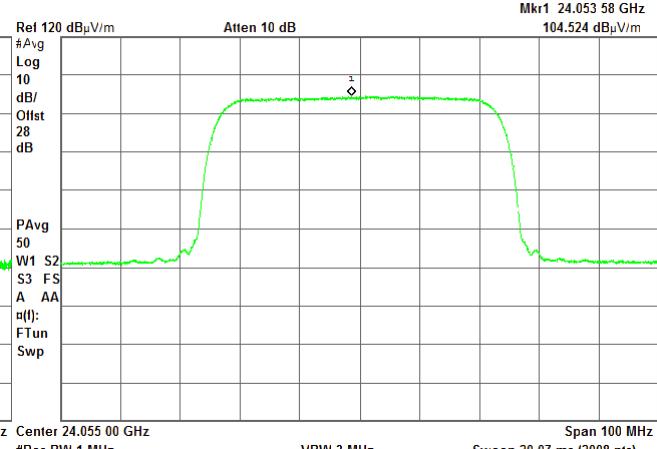
R T

Mkr1 24.057 22 GHz
119.14 dB μ V/m

DETECTOR: Average

* Agilent

R T

Mkr1 24.053 58 GHz
104.524 dB μ V/m



HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.29 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

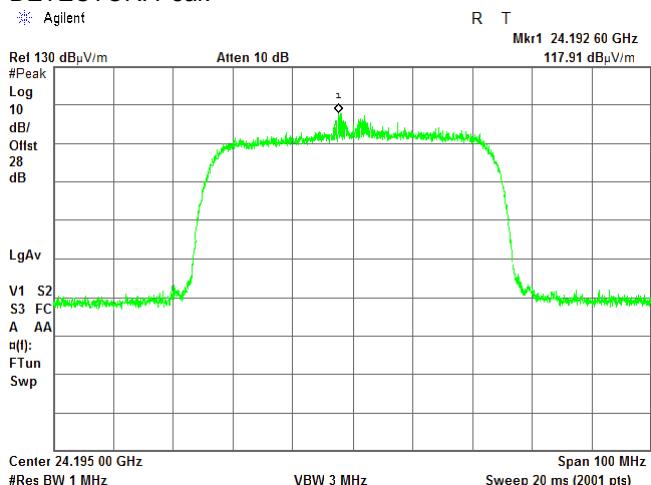
Typical (Vertical)

EMISSION BANDWIDTH:

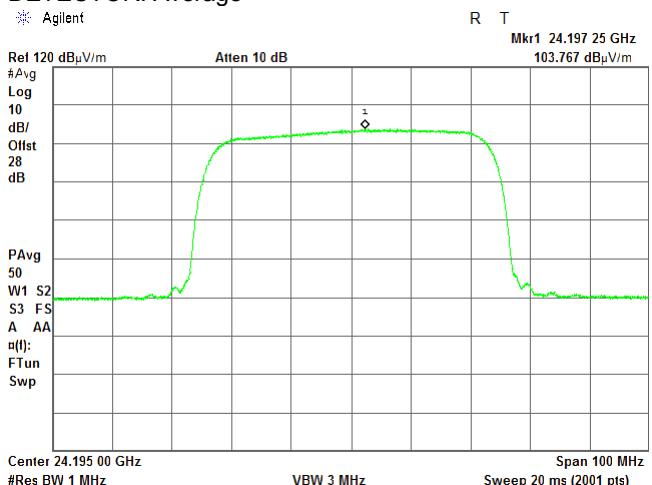
50 MHz QPSK

CARRIER FREQUENCY: Mid

DETECTOR: Peak

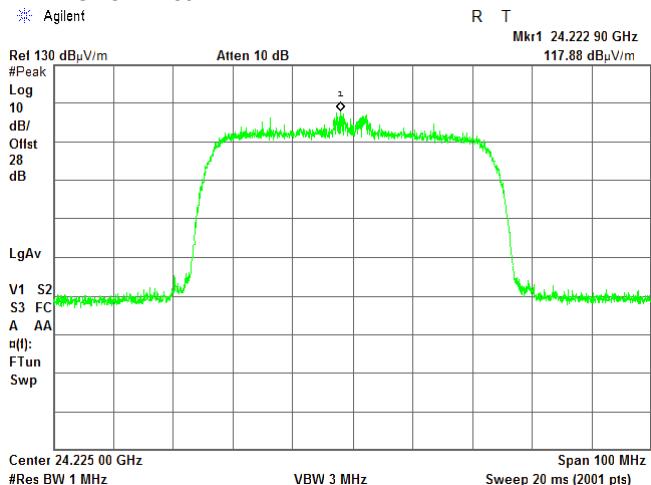


DETECTOR: Average

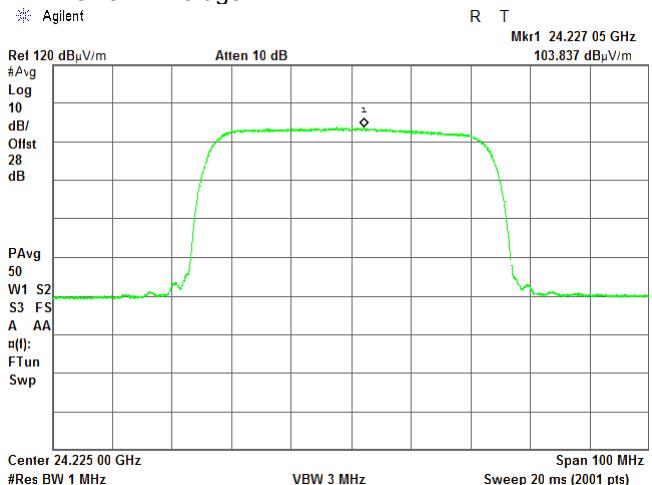


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.30 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

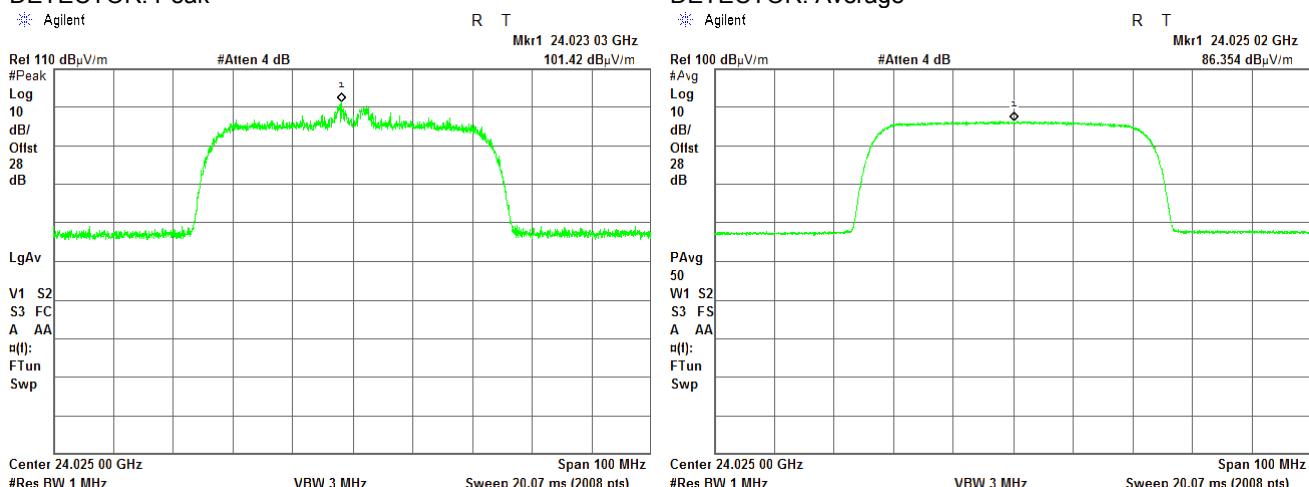
Typical (Vertical)

EMISSION BANDWIDTH:

50 MHz QPSK

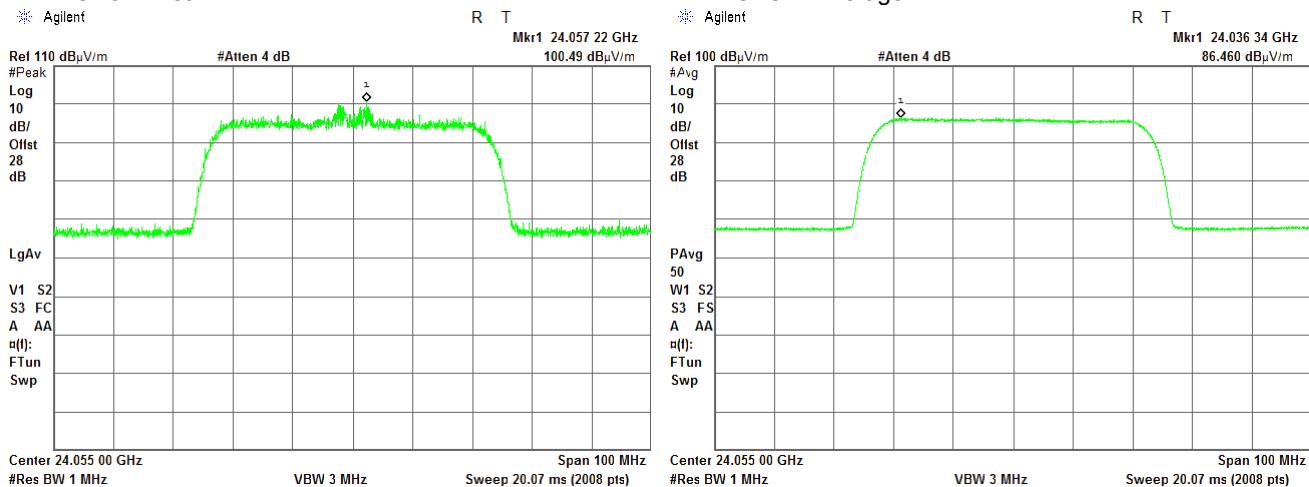
CARRIER FREQUENCY: Low

DETECTOR: Peak



CARRIER FREQUENCY: Mid

DETECTOR: Peak





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.31 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

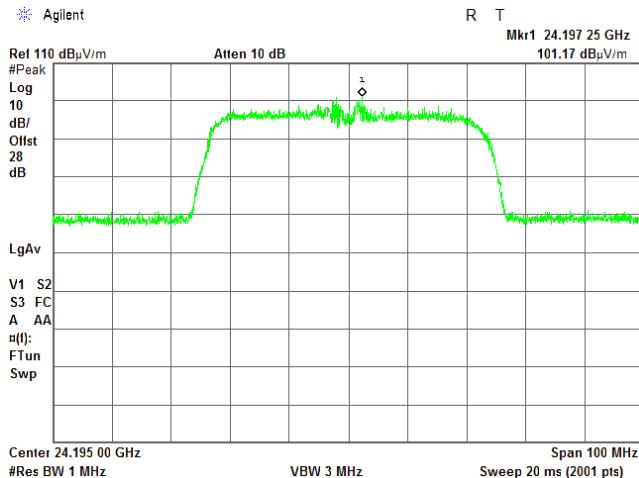
Typical (Vertical)

EMISSION BANDWIDTH:

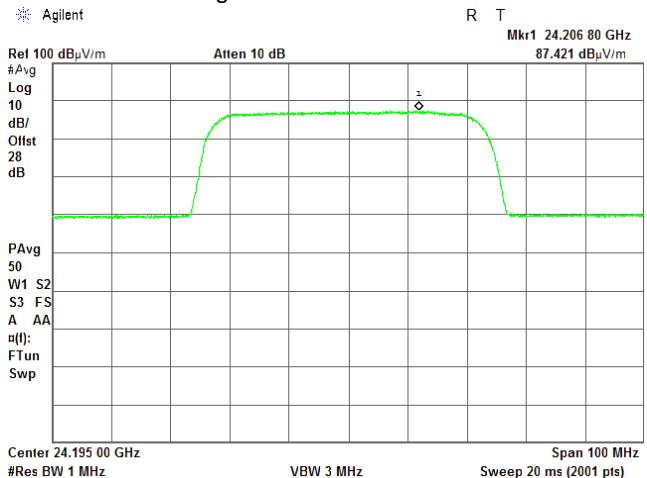
50 MHz QPSK

CARRIER FREQUENCY: Mid

DETECTOR: Peak

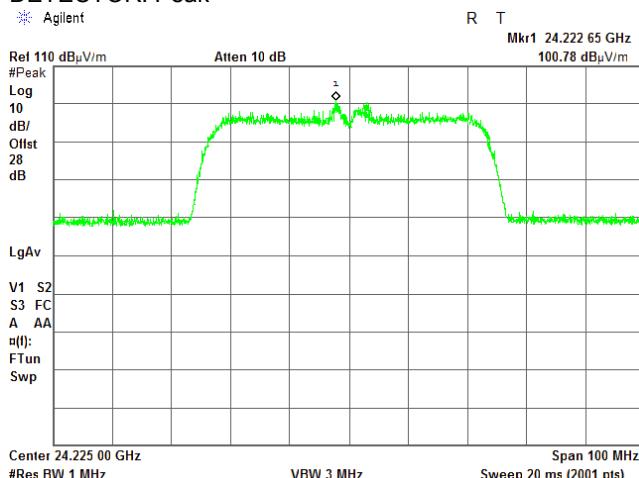


DETECTOR: Average

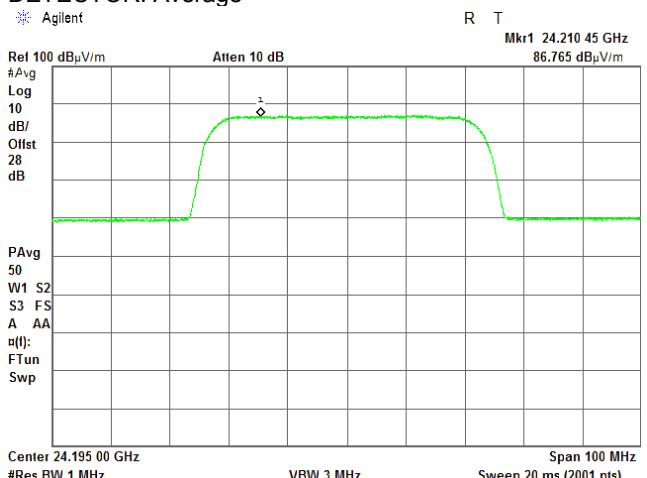


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.32 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

50 MHz 2048QAM

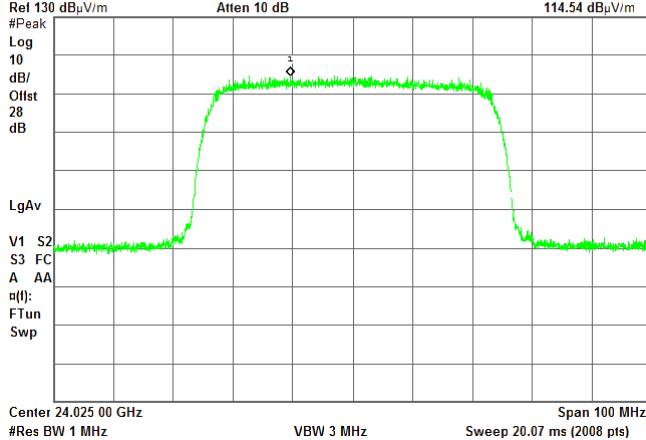
CARRIER FREQUENCY: Low

DETECTOR: Peak

* Agilent

R T

Mkr1 24.014 66 GHz

114.54 dB μ V/m

DETECTOR: Average

* Agilent

R T

Mkr1 24.024 53 GHz

104.304 dB μ V/m

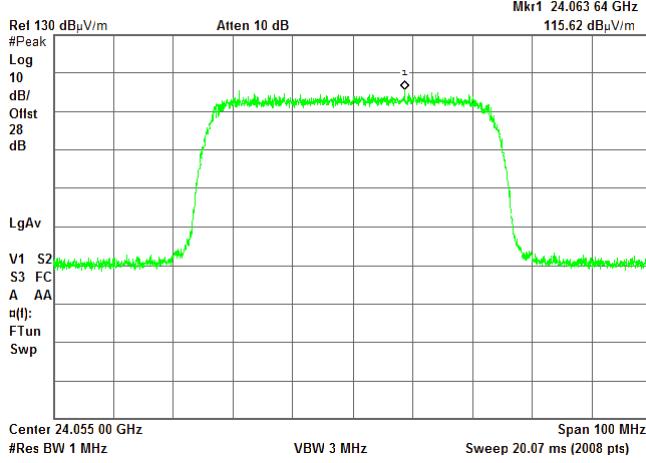
CARRIER FREQUENCY: Mid

DETECTOR: Peak

* Agilent

R T

Mkr1 24.063 64 GHz

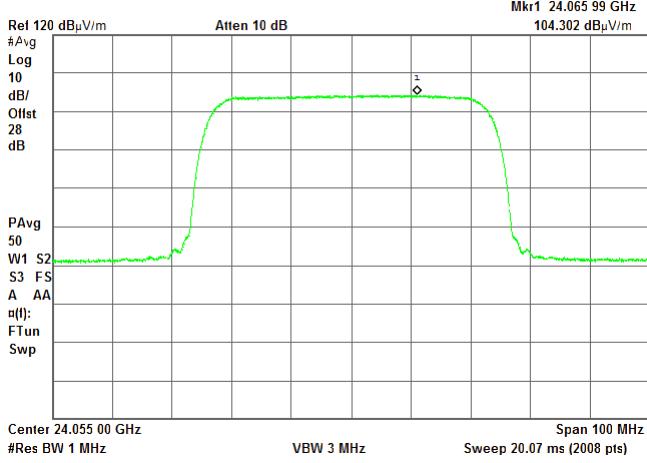
115.62 dB μ V/m

DETECTOR: Average

* Agilent

R T

Mkr1 24.065 99 GHz

104.302 dB μ V/m



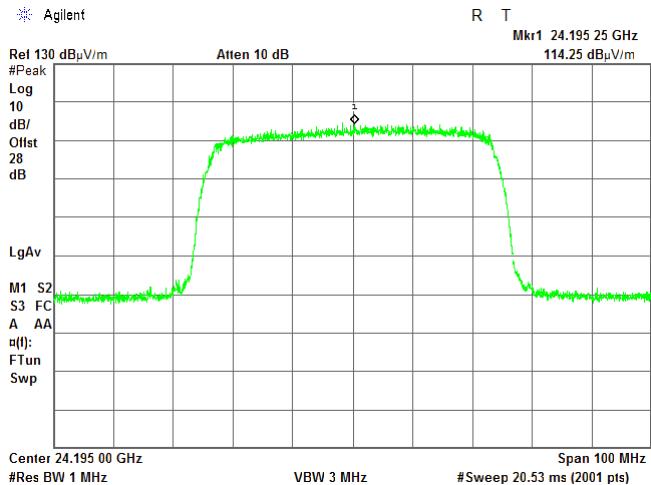
HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

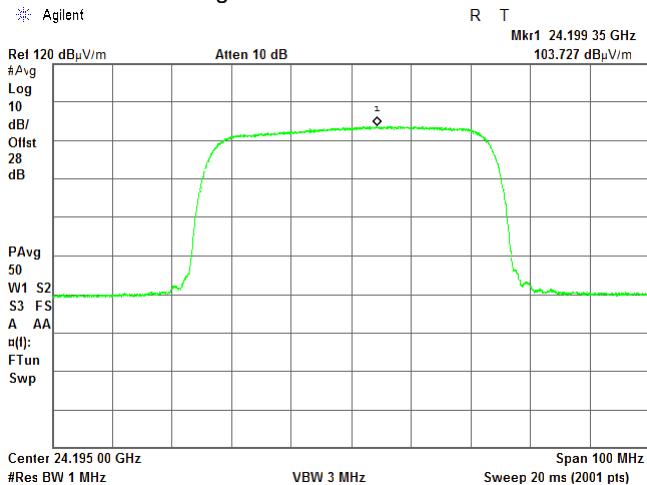
Plot 7.2.33 Radiated emission measurements at the fundamental frequency

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical
 EUT POSITION: Typical (Vertical)
 EMISSION BANDWIDTH: 50 MHz 2048QAM

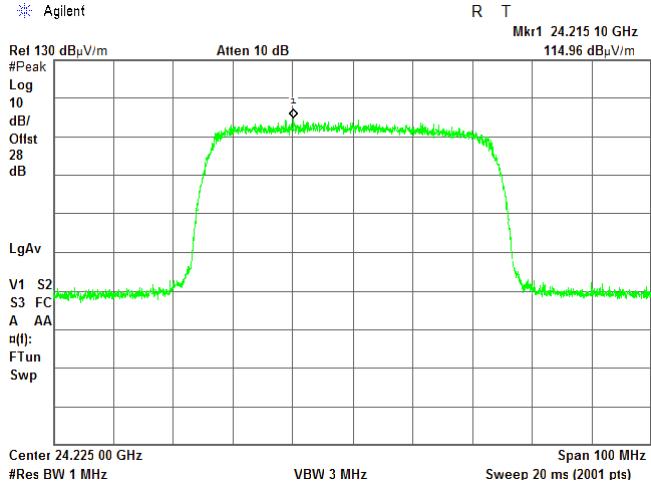
CARRIER FREQUENCY: Mid
 DETECTOR: Peak



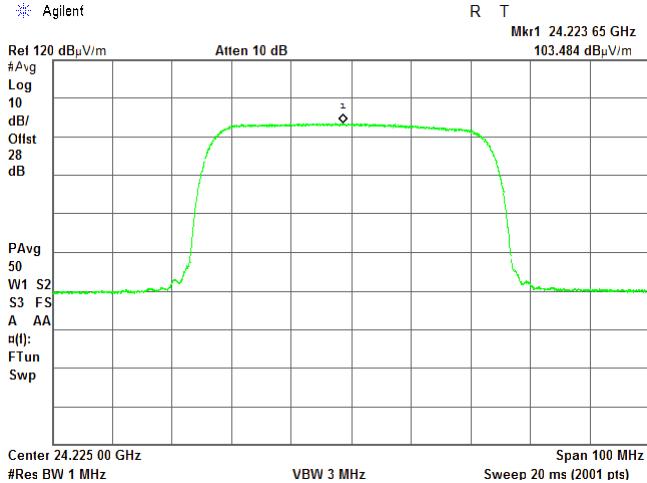
DETECTOR: Average



CARRIER FREQUENCY: High
 DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.34 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

50 MHz 2048QAM

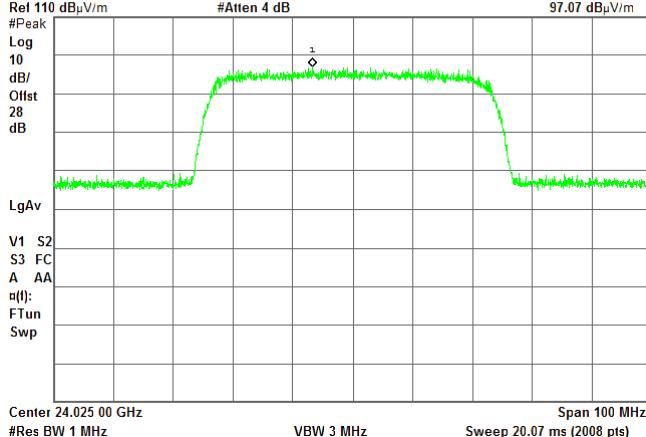
CARRIER FREQUENCY: Low

DETECTOR: Peak

* Agilent

R T

Mkr1 24.018 40 GHz

97.07 dB μ V/m

DETECTOR: Average

* Agilent

R T

Mkr1 24.027 27 GHz

86.253 dB μ V/m

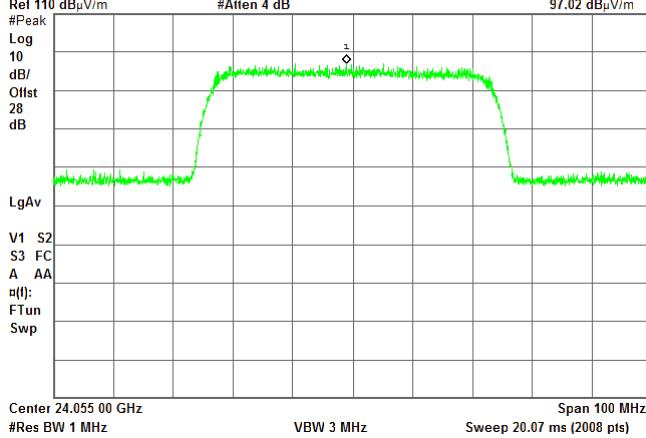
CARRIER FREQUENCY: Mid

DETECTOR: Peak

* Agilent

R T

Mkr1 24.053 83 GHz

97.02 dB μ V/m

DETECTOR: Average

* Agilent

R T

Mkr1 24.039 83 GHz

86.196 dB μ V/m



HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.35 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

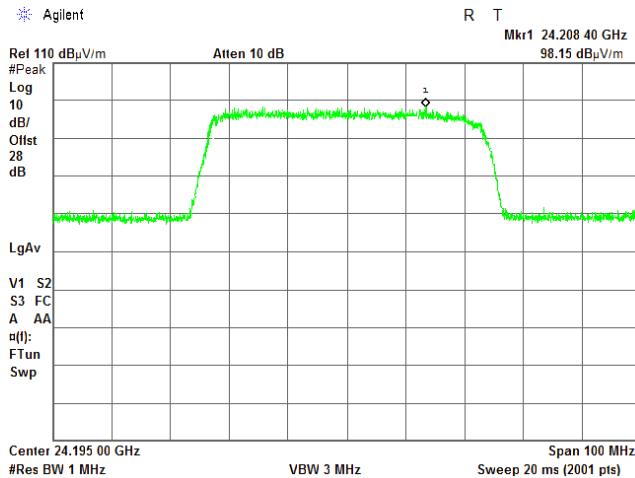
Typical (Vertical)

EMISSION BANDWIDTH:

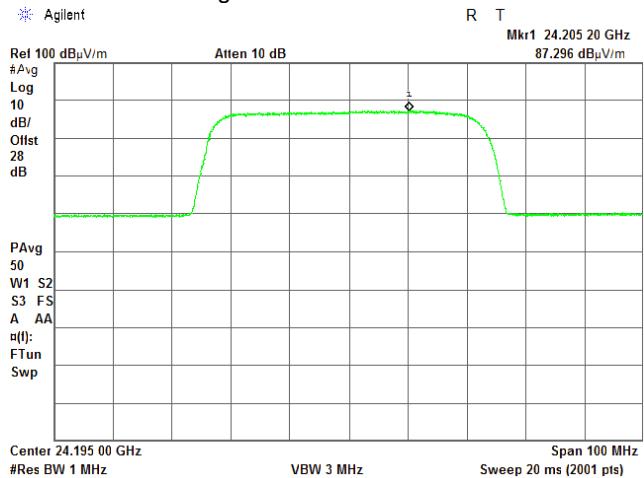
50 MHz 2048QAM

CARRIER FREQUENCY: Mid

DETECTOR: Peak

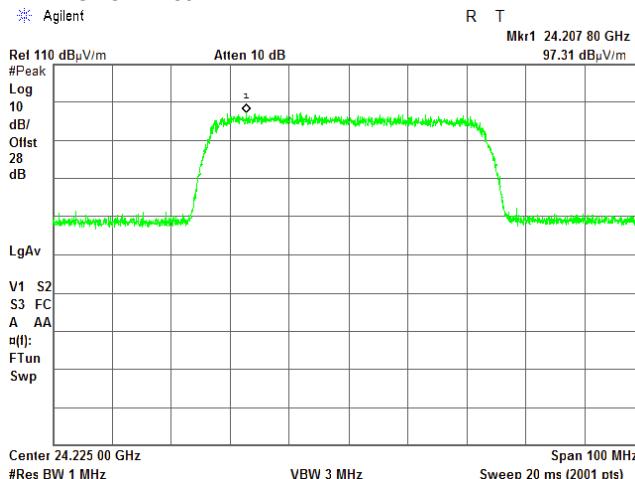


DETECTOR: Average

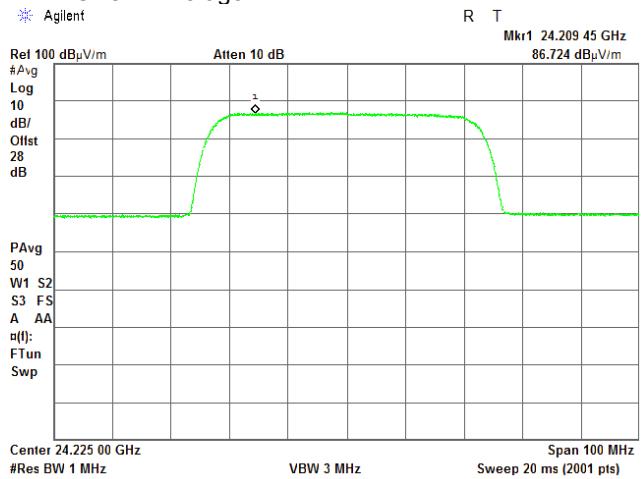


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.36 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

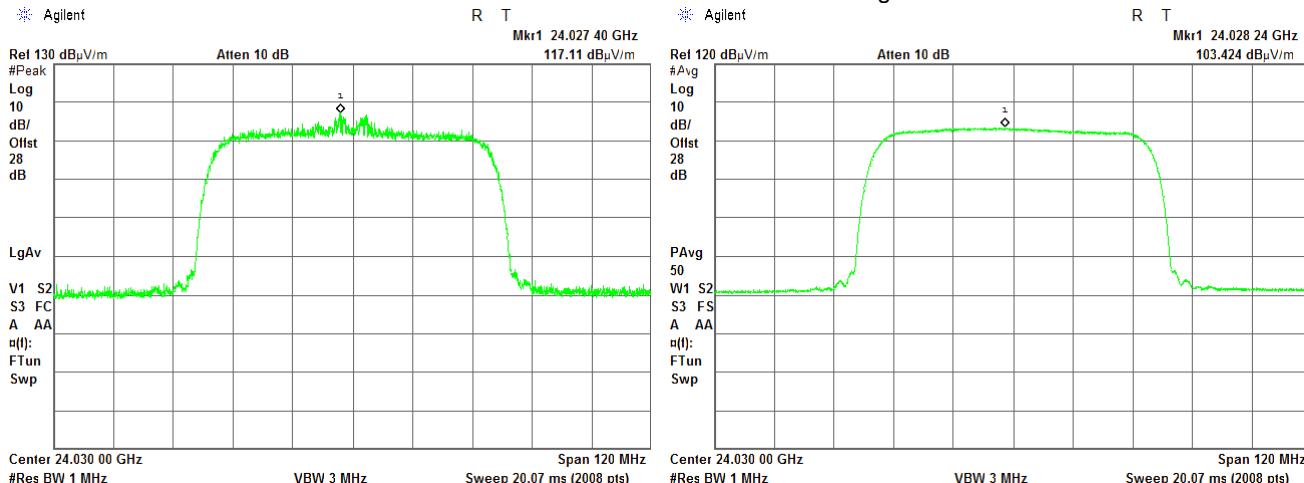
Typical (Vertical)

EMISSION BANDWIDTH:

60 MHz QPSK

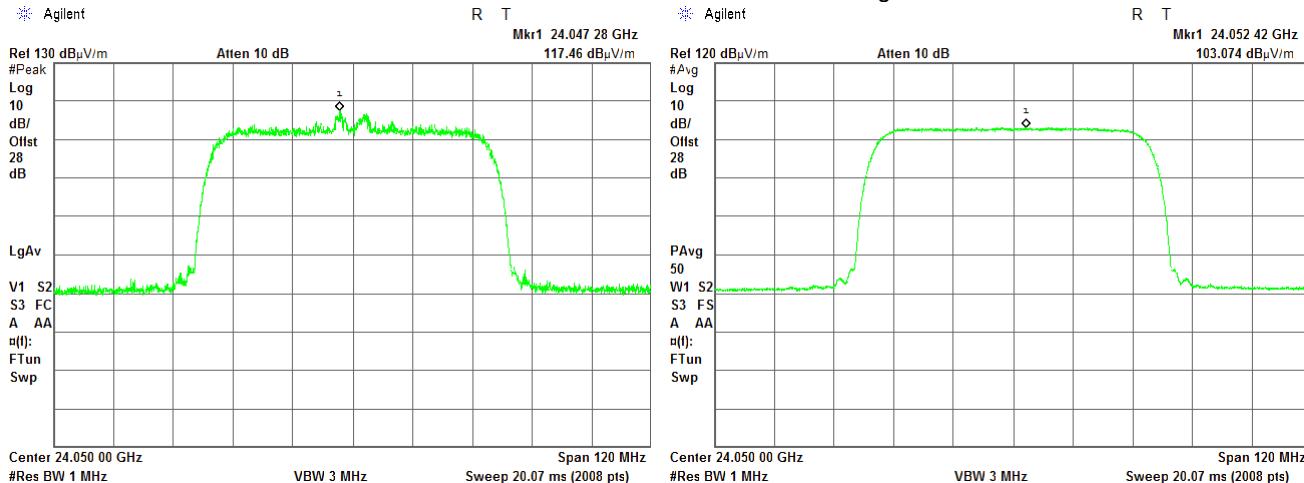
CARRIER FREQUENCY: Low

DETECTOR: Peak



CARRIER FREQUENCY: Mid

DETECTOR: Peak





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.37 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

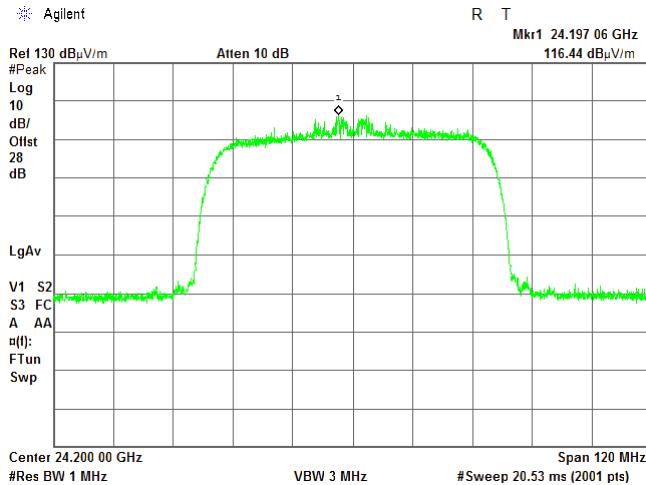
Typical (Vertical)

EMISSION BANDWIDTH:

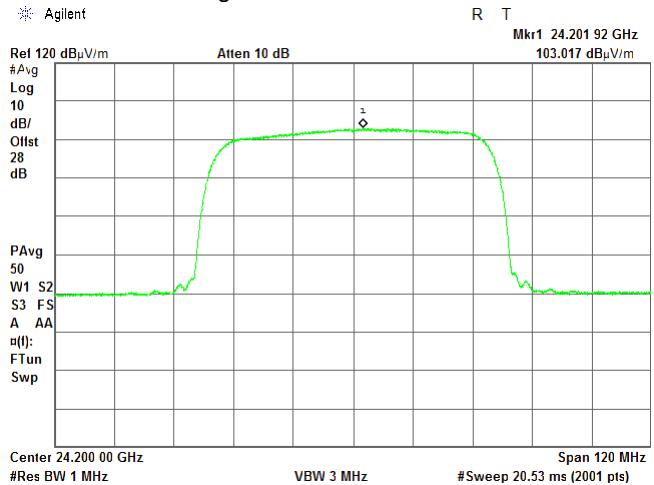
60 MHz QPSK

CARRIER FREQUENCY: Mid

DETECTOR: Peak

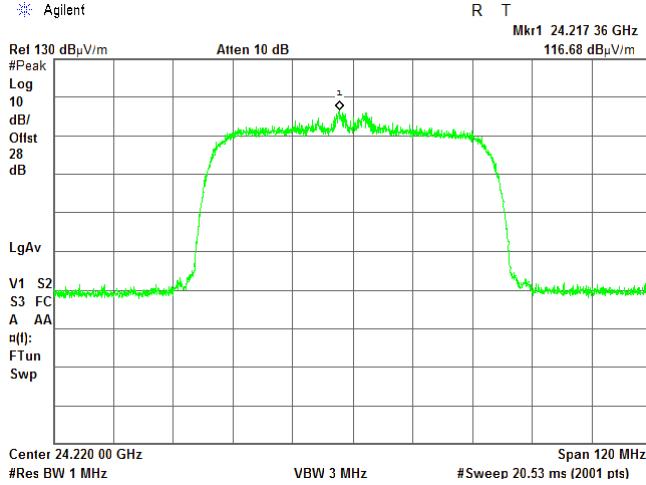


DETECTOR: Average

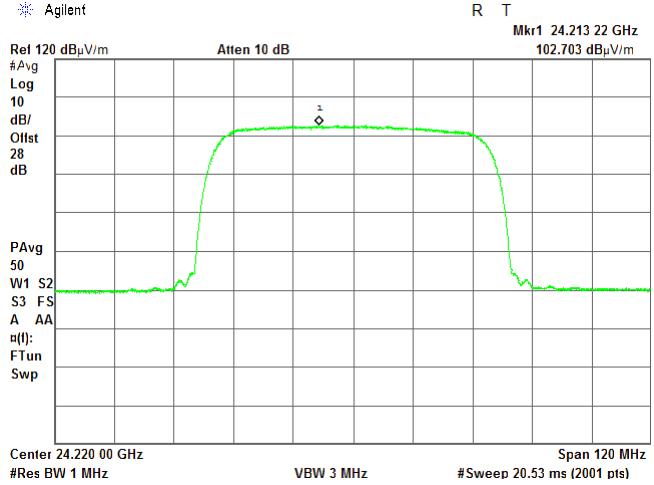


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.38 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

60 MHz QPSK

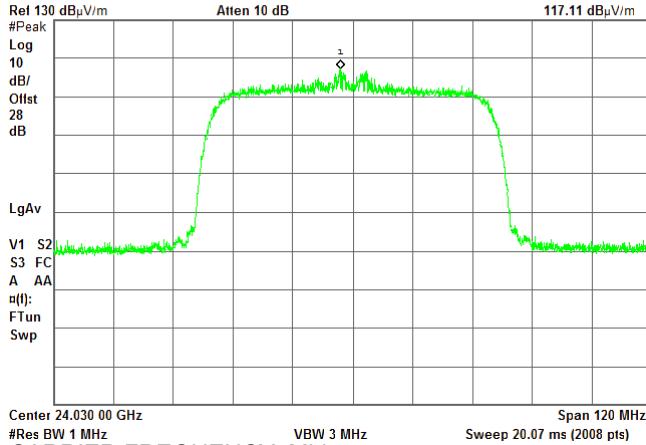
CARRIER FREQUENCY: Low

DETECTOR: Peak

* Agilent

R T

Mkr1 24.027 40 GHz

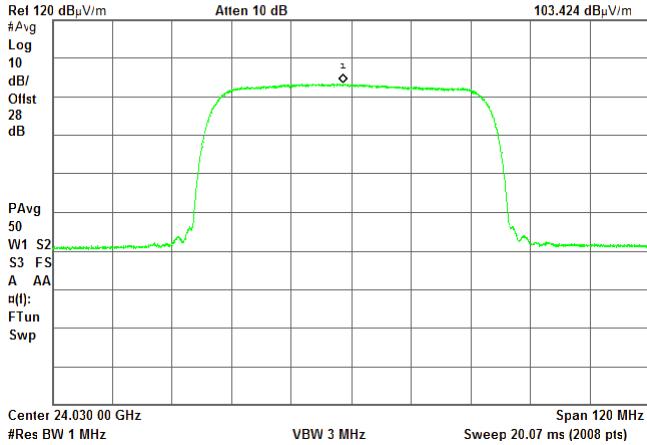
117.11 dB μ V/m

DETECTOR: Average

* Agilent

R T

Mkr1 24.028 24 GHz

103.424 dB μ V/m

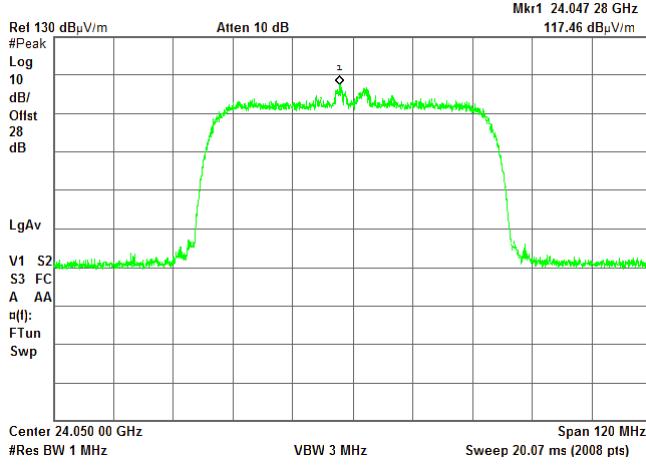
CARRIER FREQUENCY: Mid

DETECTOR: Peak

* Agilent

R T

Mkr1 24.047 28 GHz

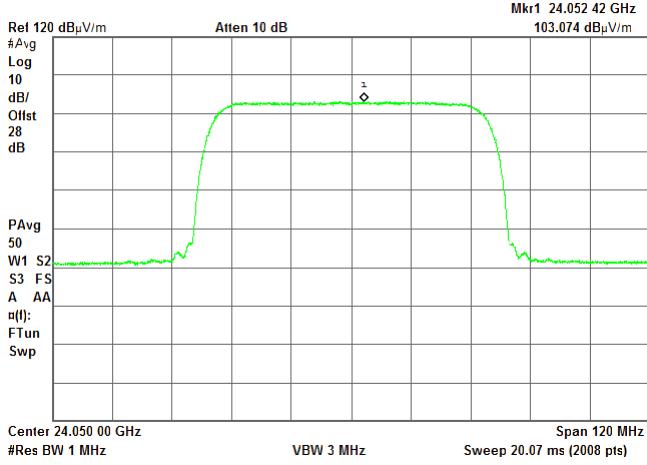
117.46 dB μ V/m

DETECTOR: Average

* Agilent

R T

Mkr1 24.052 42 GHz

103.074 dB μ V/m



HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.39 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

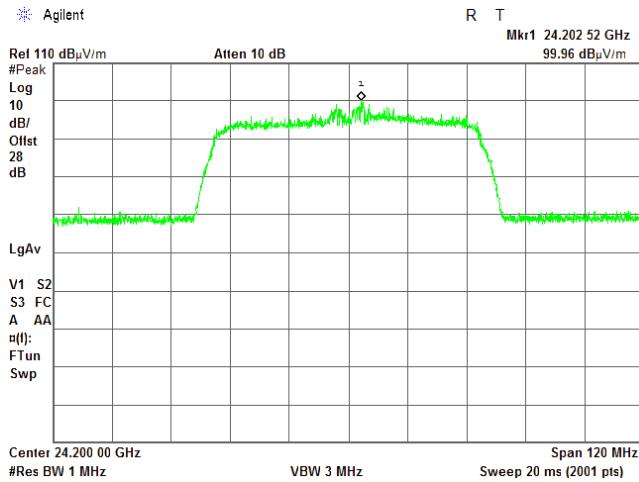
Typical (Vertical)

EMISSION BANDWIDTH:

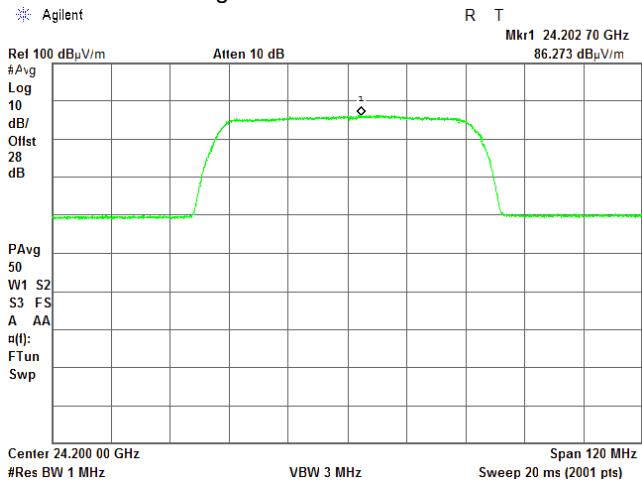
60 MHz QPSK

CARRIER FREQUENCY: Mid

DETECTOR: Peak

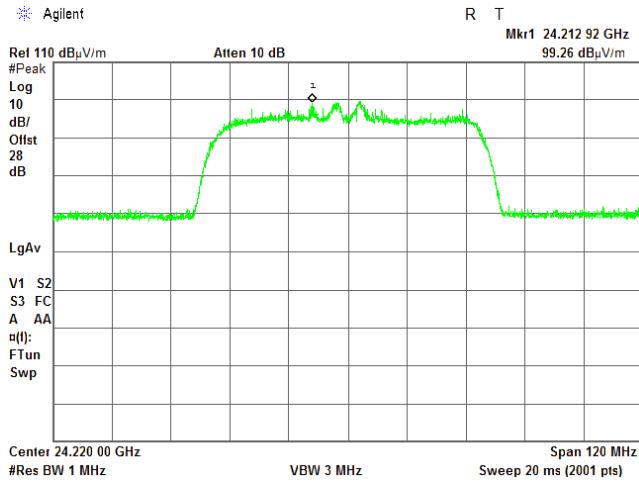


DETECTOR: Average

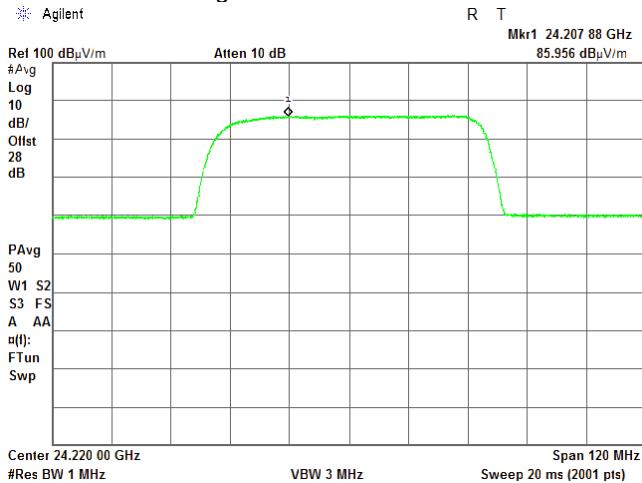


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.40 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

60 MHz 2048QAM

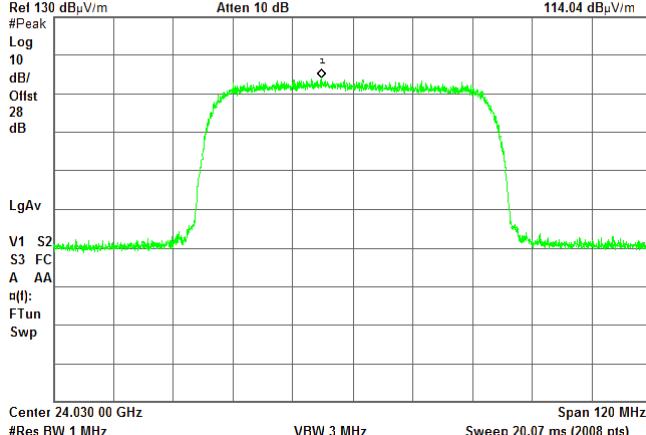
CARRIER FREQUENCY: Low

DETECTOR: Peak

* Agilent

R T

Mkr1 24.023 81 GHz

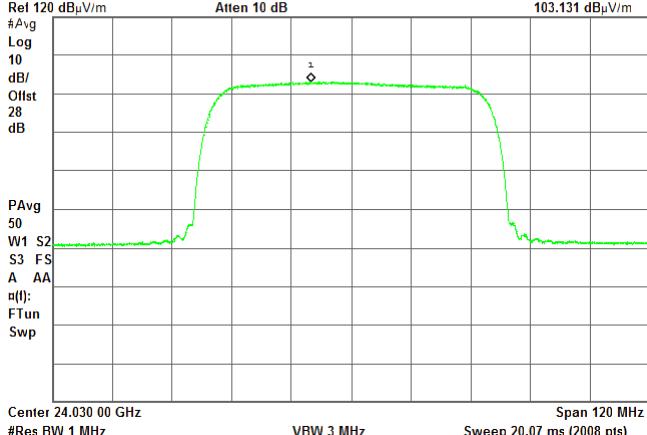
114.04 dB μ V/m

DETECTOR: Average

* Agilent

R T

Mkr1 24.022 08 GHz

103.131 dB μ V/m

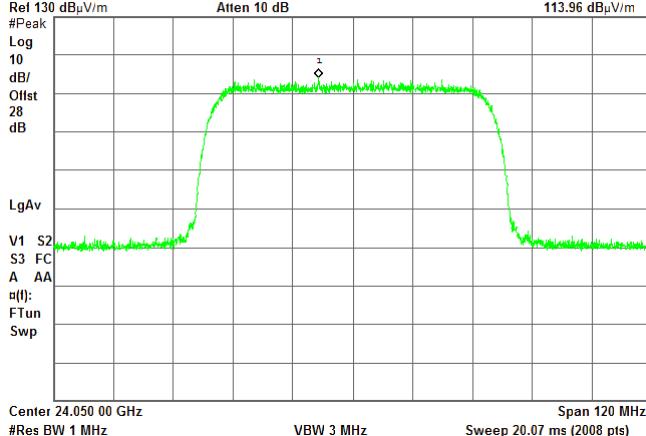
CARRIER FREQUENCY: Mid

DETECTOR: Peak

* Agilent

R T

Mkr1 24.043 33 GHz

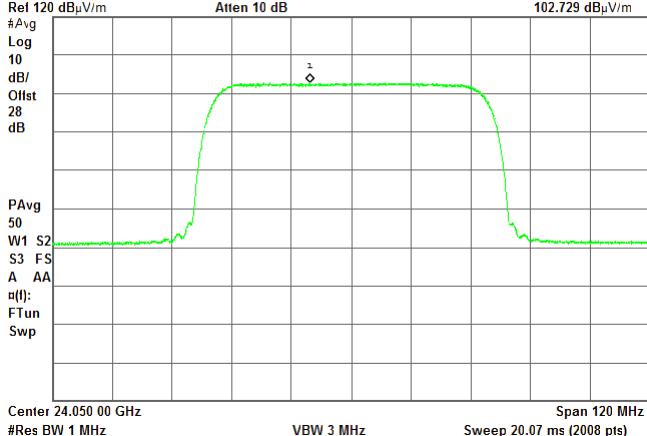
113.96 dB μ V/m

DETECTOR: Average

* Agilent

R T

Mkr1 24.041 78 GHz

102.729 dB μ V/m



HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.41 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

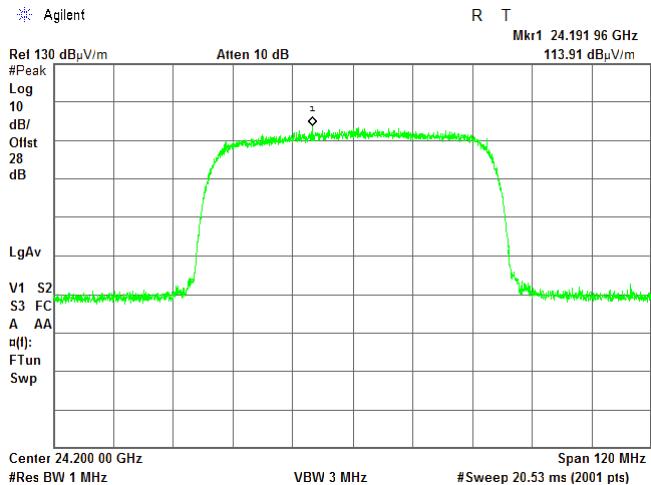
Typical (Vertical)

EMISSION BANDWIDTH:

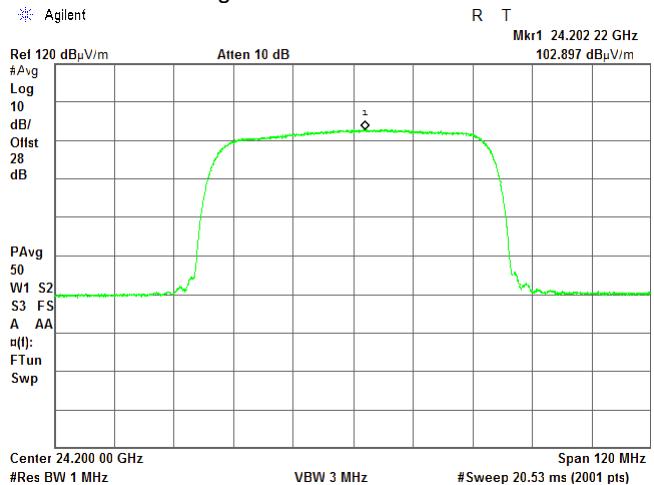
60 MHz 2048QAM

CARRIER FREQUENCY: Mid

DETECTOR: Peak

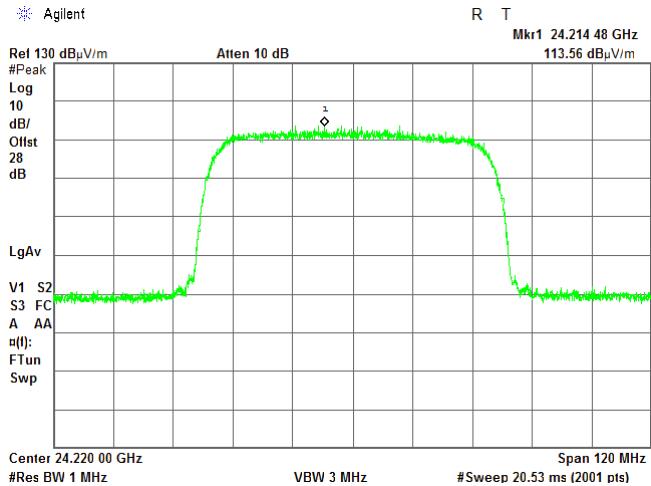


DETECTOR: Average

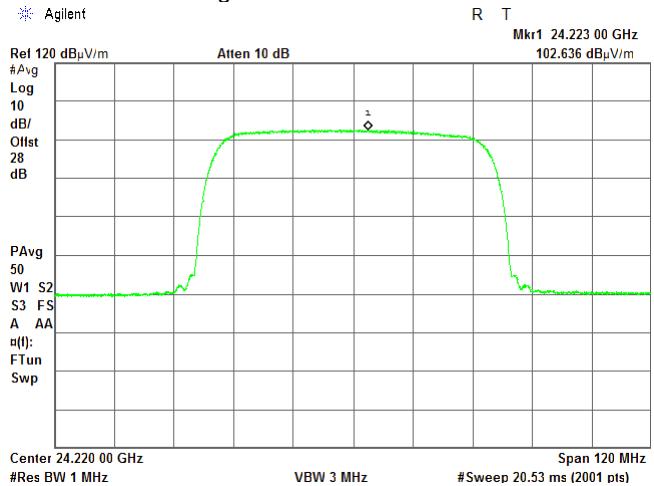


CARRIER FREQUENCY: High

DETECTOR: Peak



DETECTOR: Average





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.42 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

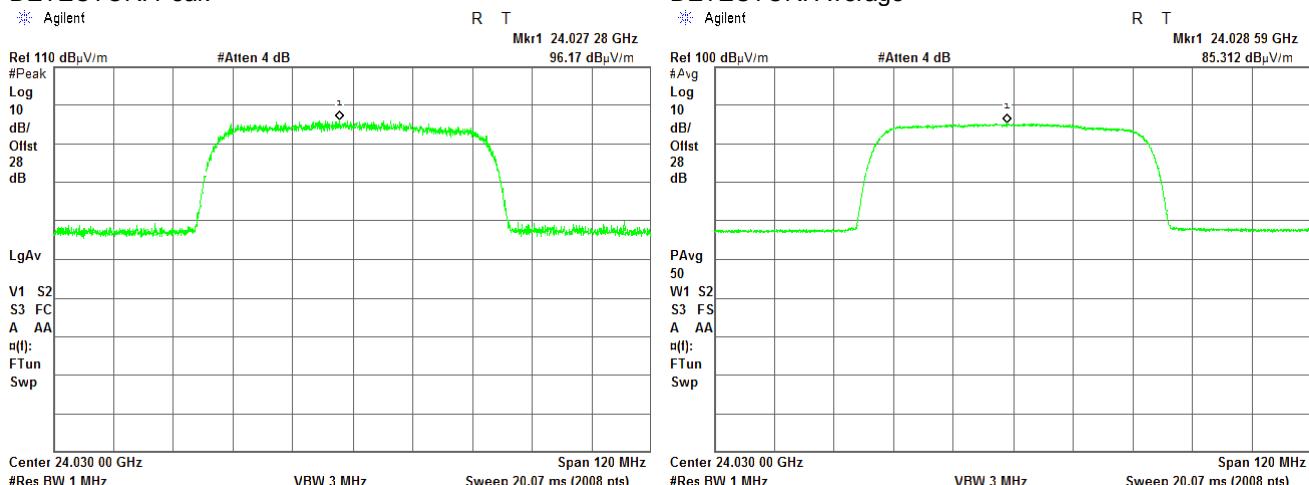
Typical (Vertical)

EMISSION BANDWIDTH:

60 MHz 2048QAM

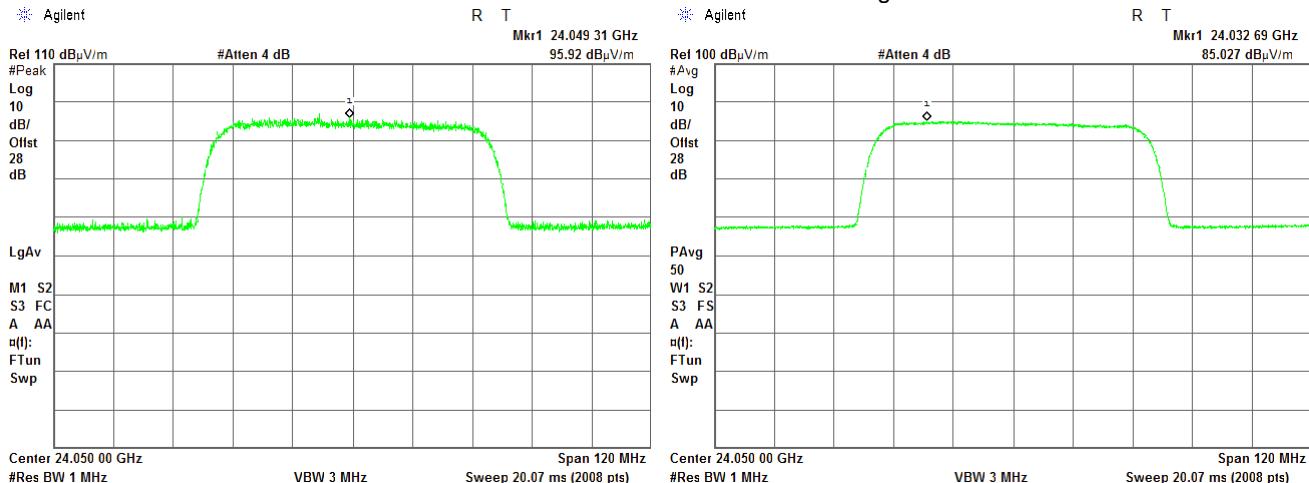
CARRIER FREQUENCY: Low

DETECTOR: Peak



CARRIER FREQUENCY: Mid

DETECTOR: Peak





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance	Verdict: PASS	
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.43 Radiated emission measurements at the fundamental frequency

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Horizontal

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

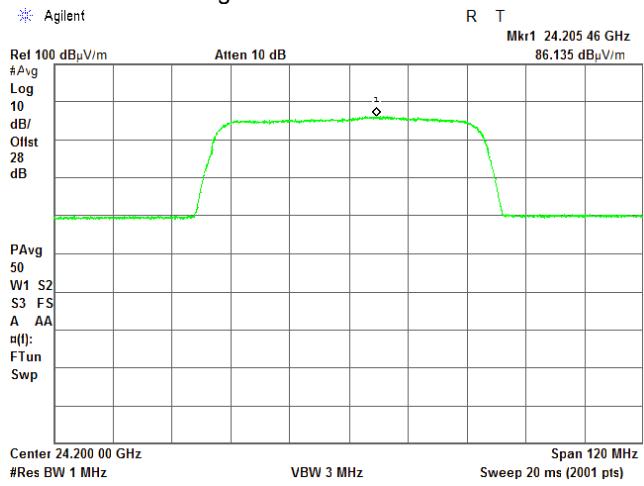
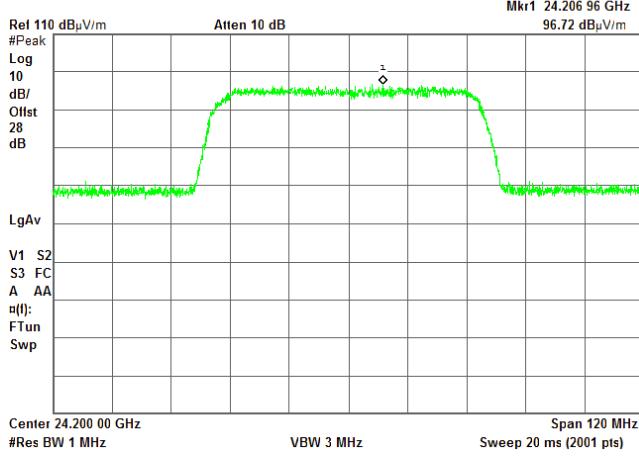
60 MHz 2048QAM

DETECTOR: Peak

DETECTOR: Average

* Agilent

* Agilent

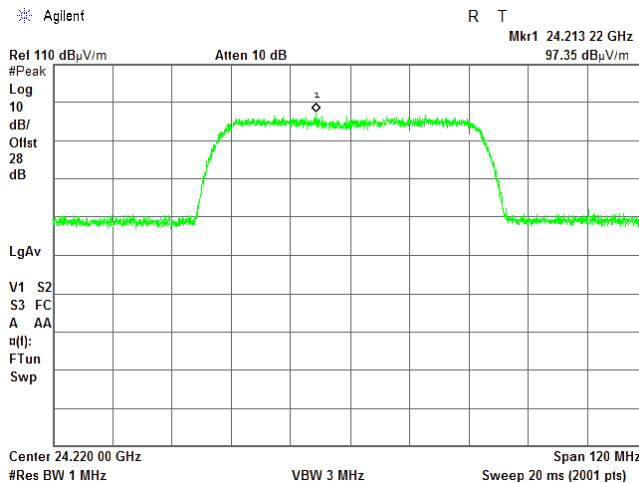


CARRIER FREQUENCY: High

DETECTOR: Average

DETECTOR: Peak

* Agilent





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.44 Radiated emission measurements from 9 to 150 kHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

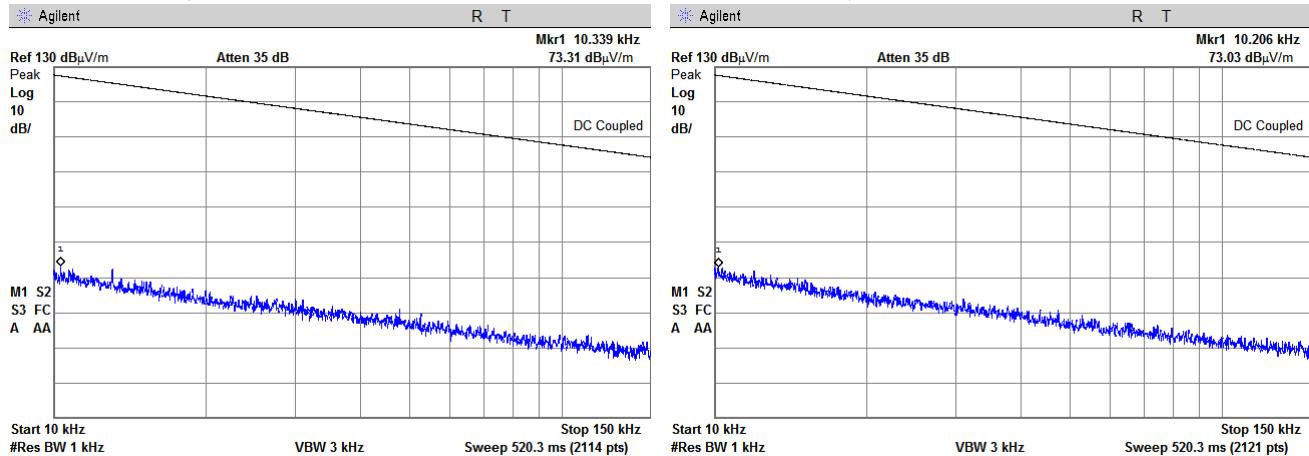
Typical (Vertical)

EMISSION BANDWIDTH:

20 MHz

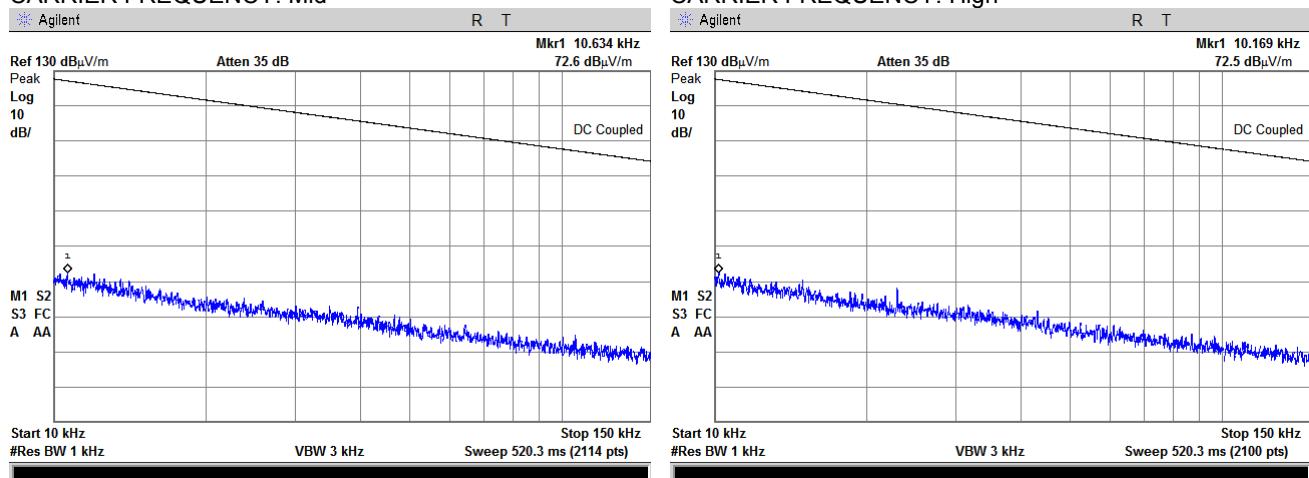
CARRIER FREQUENCY: Low

CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: Mid

CARRIER FREQUENCY: High





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.45 Radiated emission measurements from 0.15 to 30 MHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

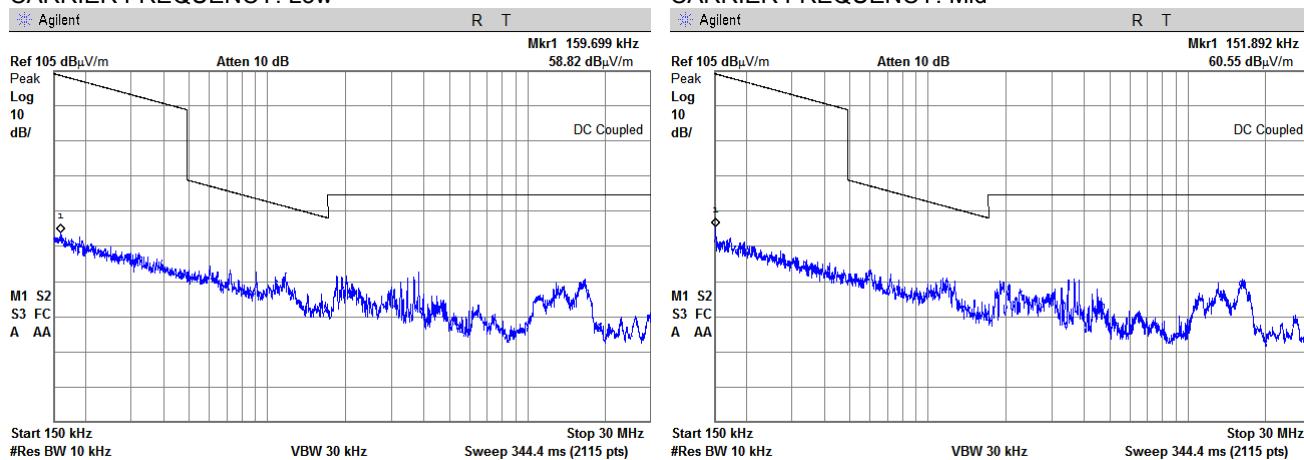
Typical (Vertical)

EMISSION BANDWIDTH:

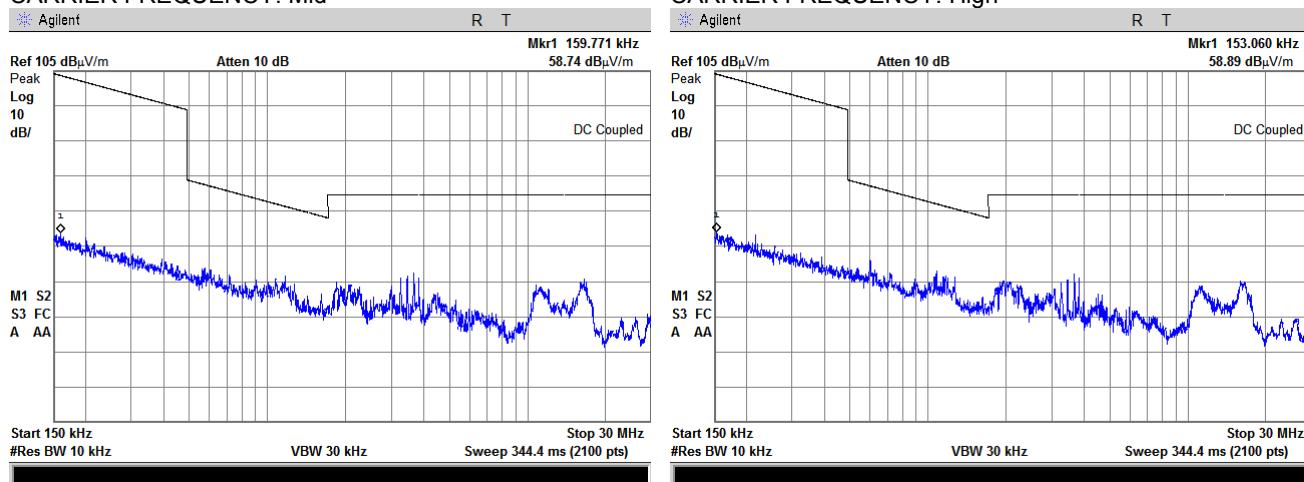
20 MHz

CARRIER FREQUENCY: Low

CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: Mid





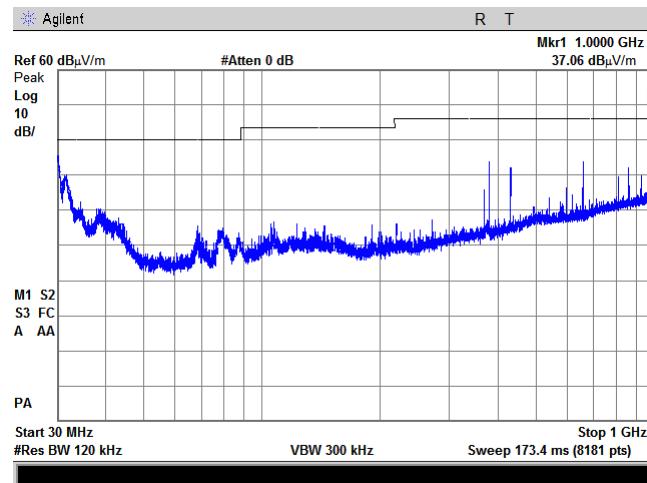
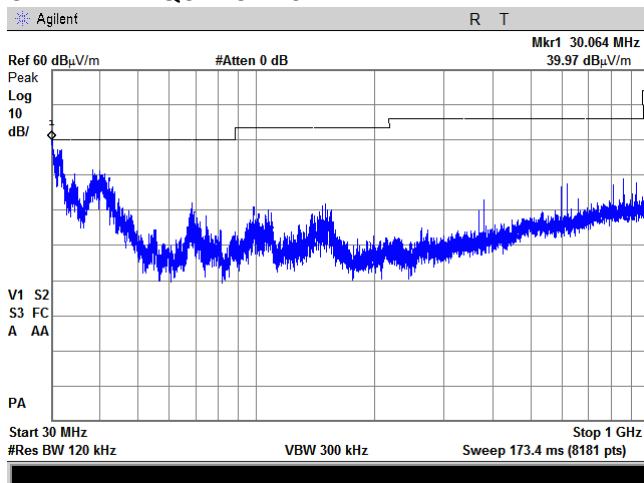
HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

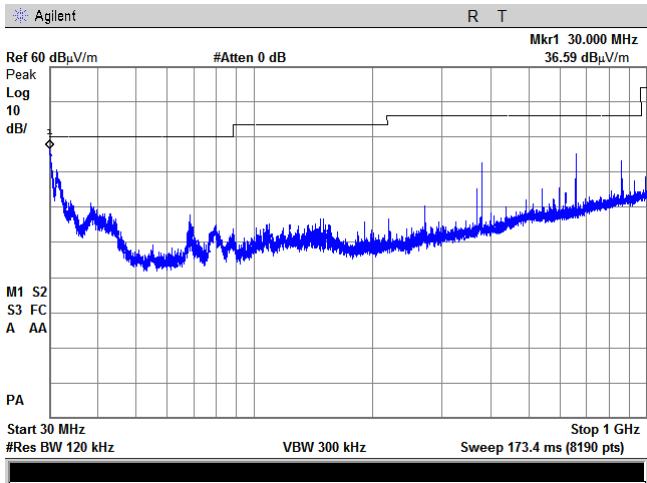
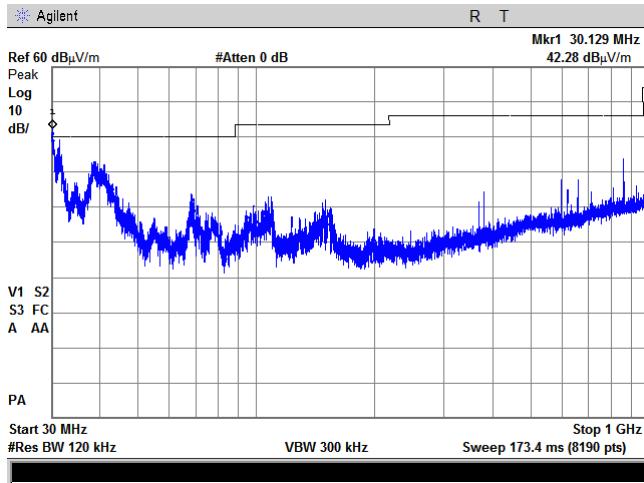
Plot 7.2.46 Radiated emission measurements from 30 to 1000 MHz

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: Typical (Vertical)

CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid





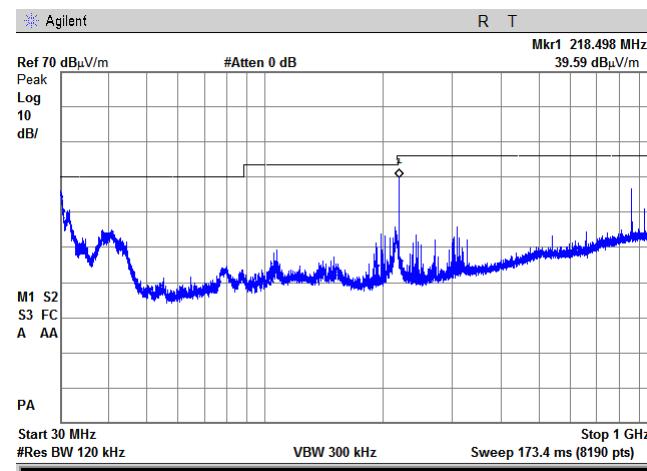
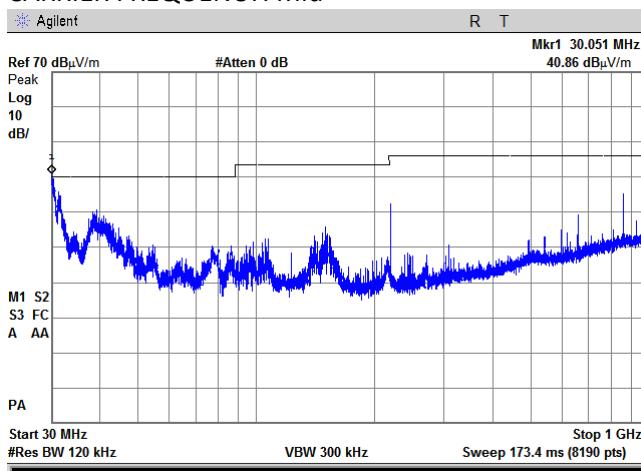
HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance	Verdict: PASS	
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

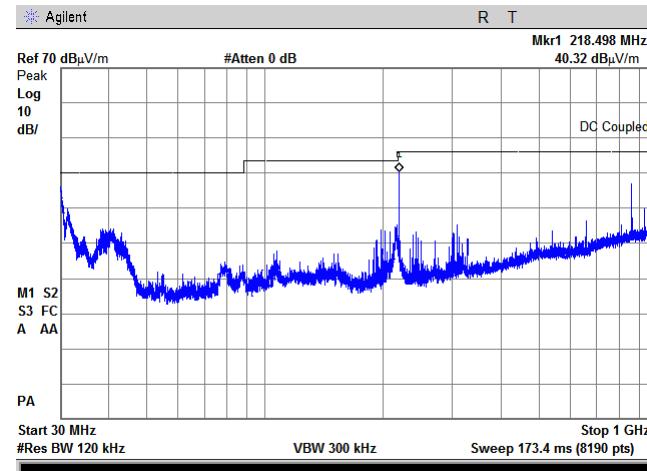
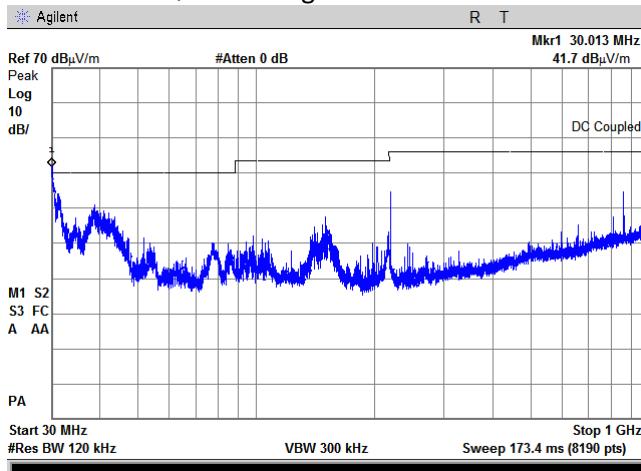
Plot 7.2.47 Radiated emission measurements from 30 to 1000 MHz

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: Typical (Vertical)

CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High



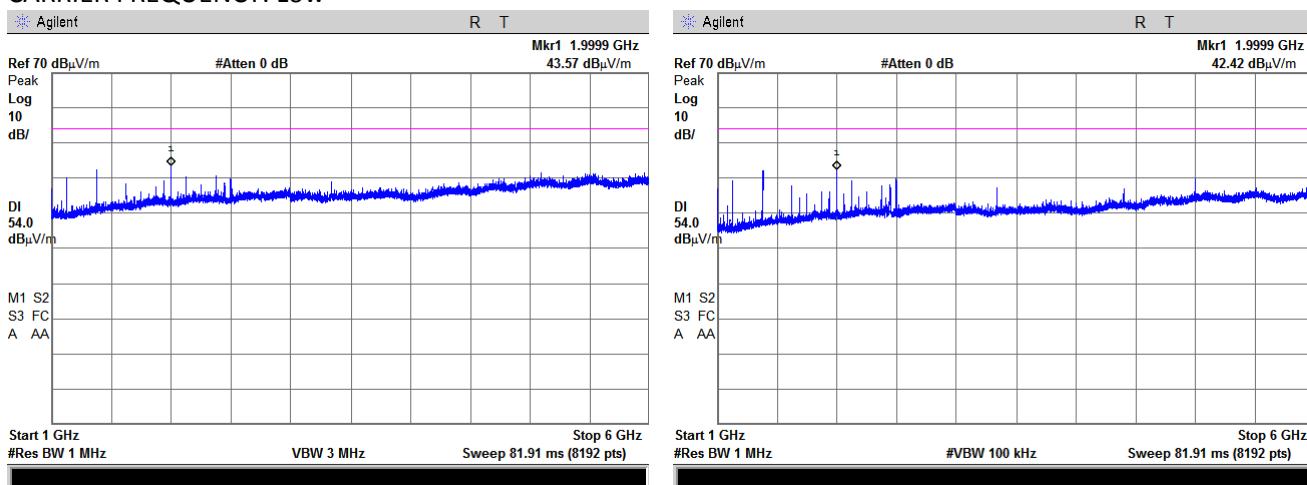


HERMON LABORATORIES

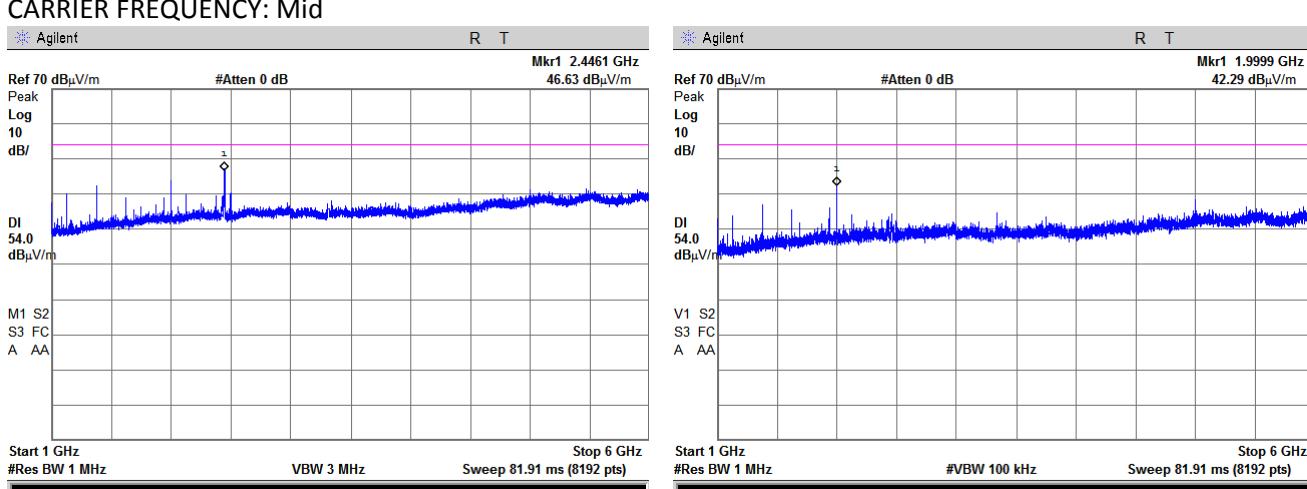
Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.48 Radiated emission measurements from 1.0 to 6.0MHz

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 EMISSION BANDWIDTH: 20 MHz
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 CARRIER FREQUENCY: Low

**Plot 7.2.49 Radiated emission measurements from 1.0 to 6.0MHz**

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 EMISSION BANDWIDTH: 20 MHz
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 CARRIER FREQUENCY: Mid



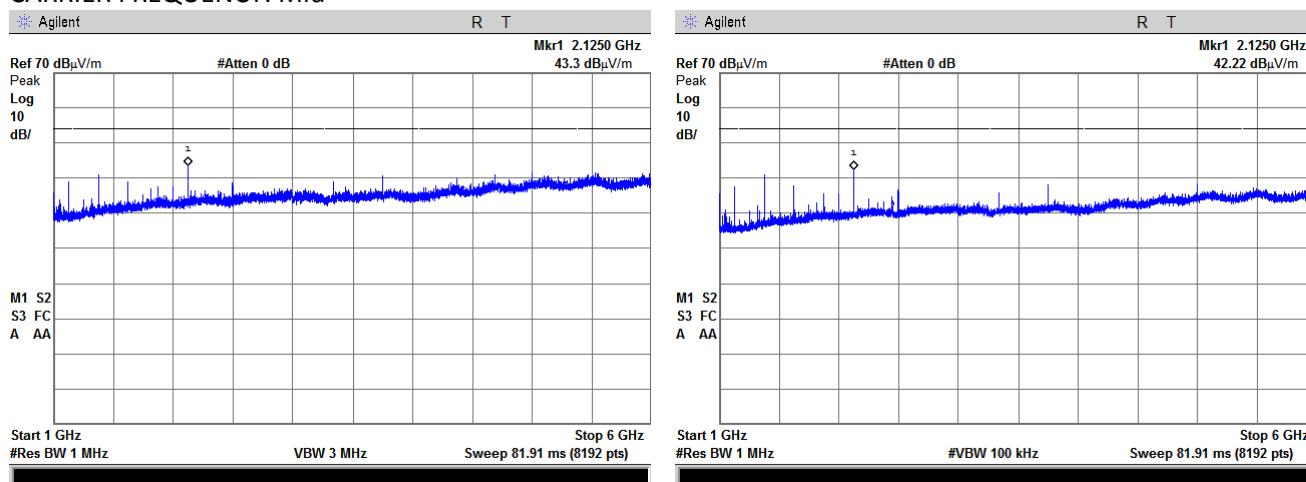


HERMON LABORATORIES

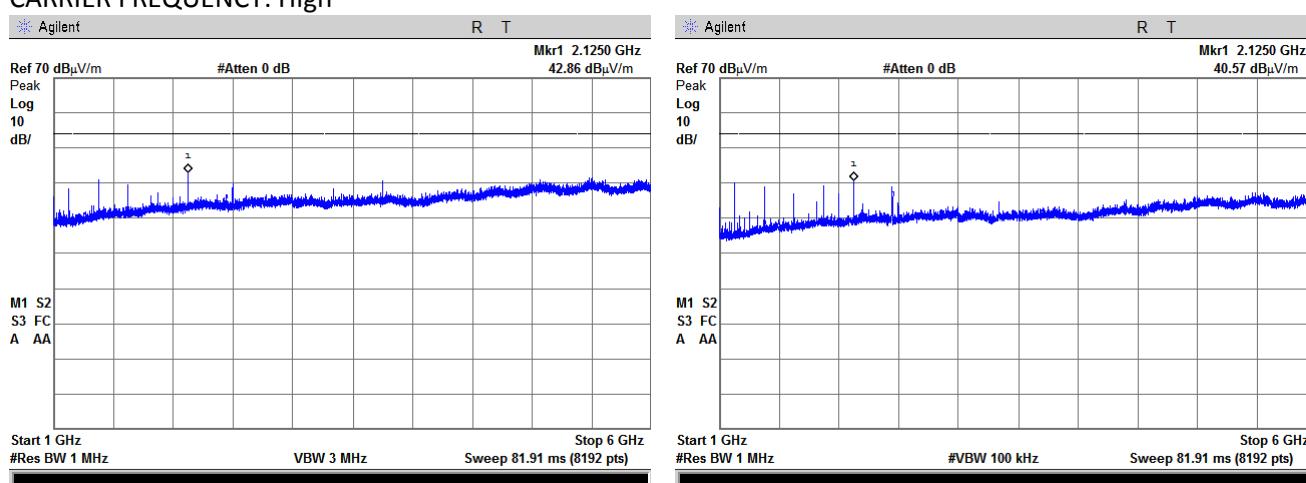
Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.50 Radiated emission measurements from 1.0 to 6.0MHz

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 EMISSION BANDWIDTH: 20 MHz
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 CARRIER FREQUENCY: Mid

**Plot 7.2.51 Radiated emission measurements from 1.0 to 6.0MHz**

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 EMISSION BANDWIDTH: 20 MHz
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 CARRIER FREQUENCY: High



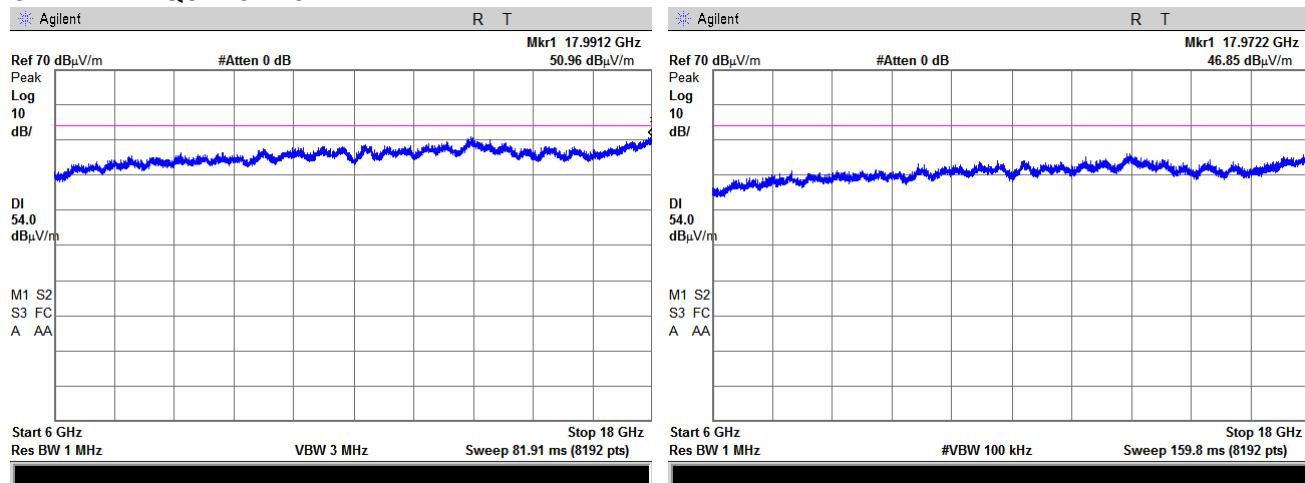


HERMON LABORATORIES

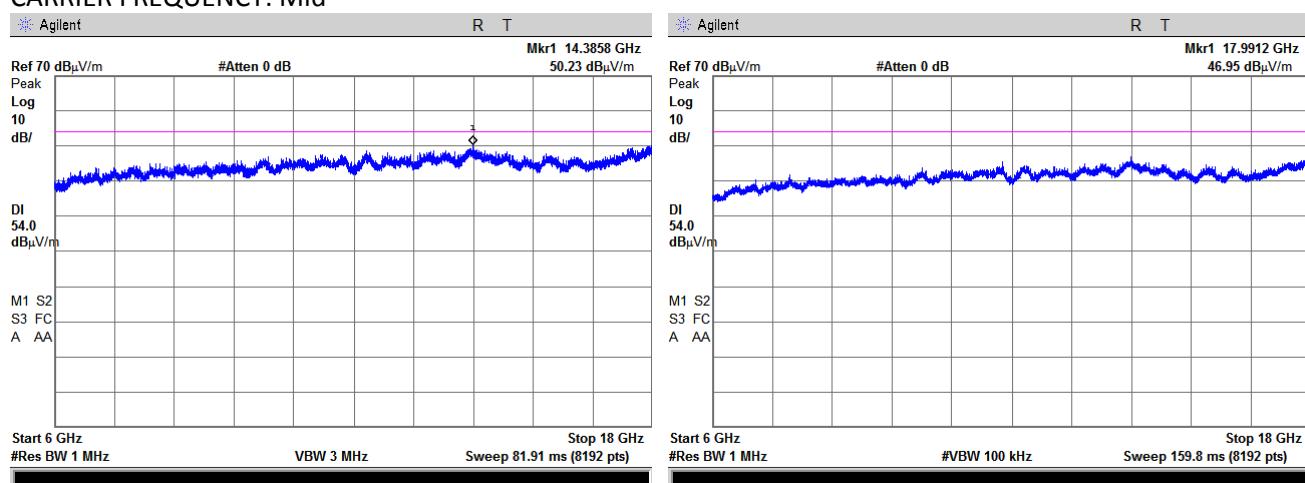
Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.52 Radiated emission measurements from 6.0 to 18.0 GHz

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 EMISSION BANDWIDTH: 20 MHz
 CARRIER FREQUENCY: Low/Mid /High
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 CARRIER FREQUENCY: Low
 DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

**Plot 7.2.53 Radiated emission measurements from 6.0 to 18.0 GHz**

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 EMISSION BANDWIDTH: 20 MHz
 CARRIER FREQUENCY: Low/Mid /High
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 CARRIER FREQUENCY: Mid
 DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.54 Radiated emission measurements from 6.0 to 18.0 GHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical and Horizontal

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

20 MHz

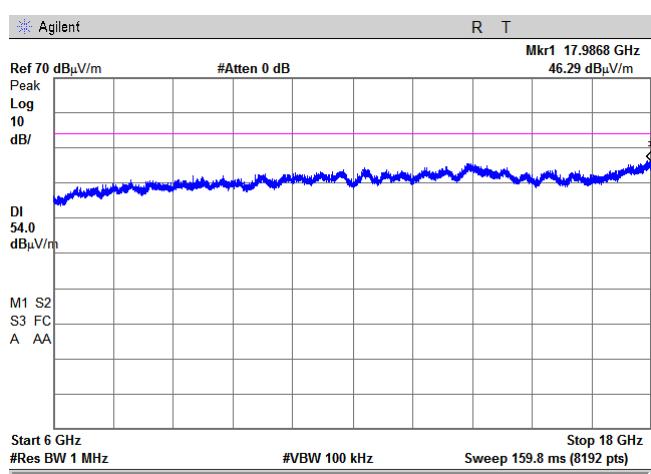
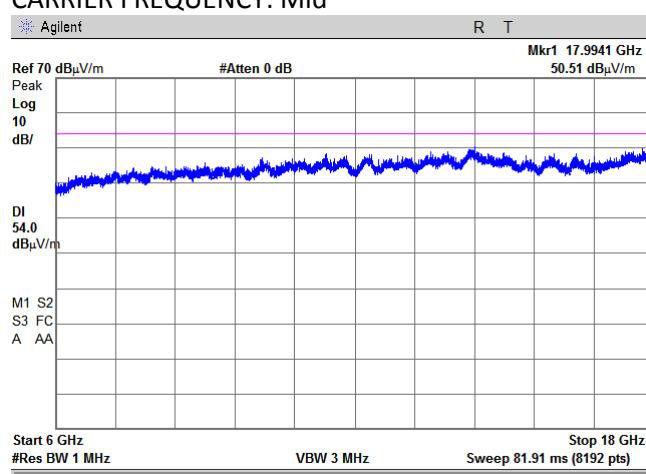
CARRIER FREQUENCY:

Low/Mid /High

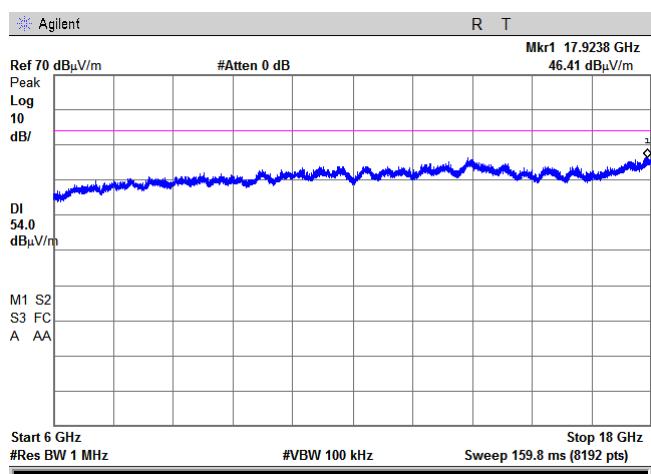
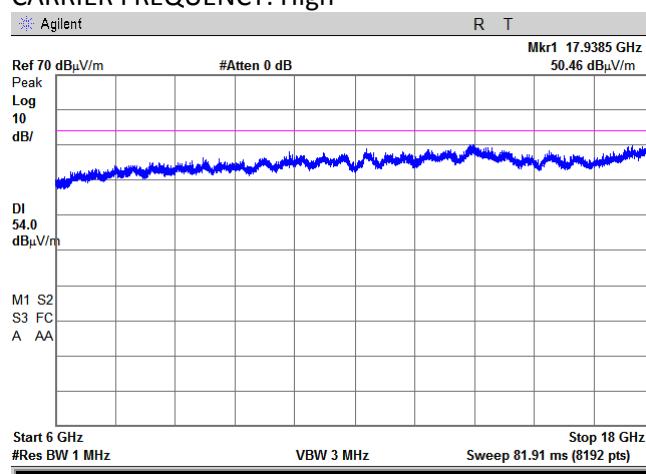
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High



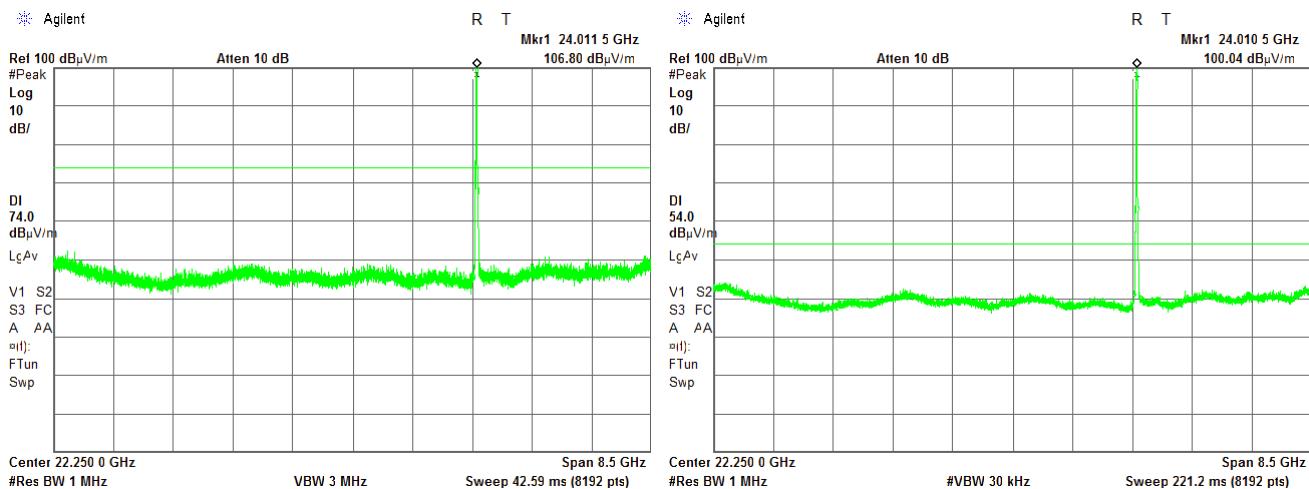


HERMON LABORATORIES

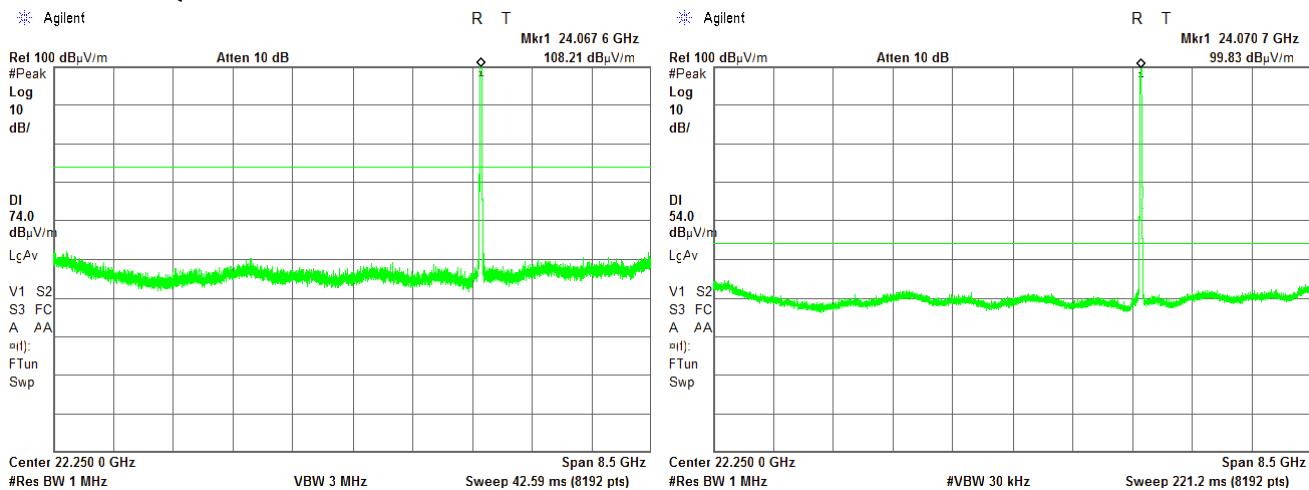
Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.55 Radiated emission measurements from 18.0 to 26.5 GHz

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 3 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz
 CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.56 Radiated emission measurements from 18.0 to 26.5 GHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical and Horizontal

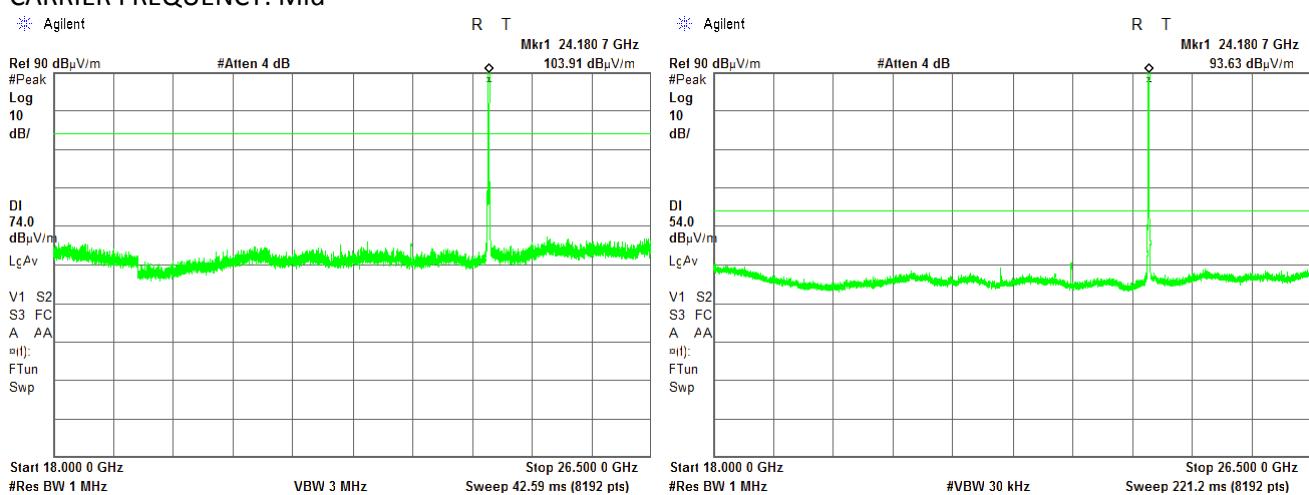
EUT POSITION:

Typical (Vertical)

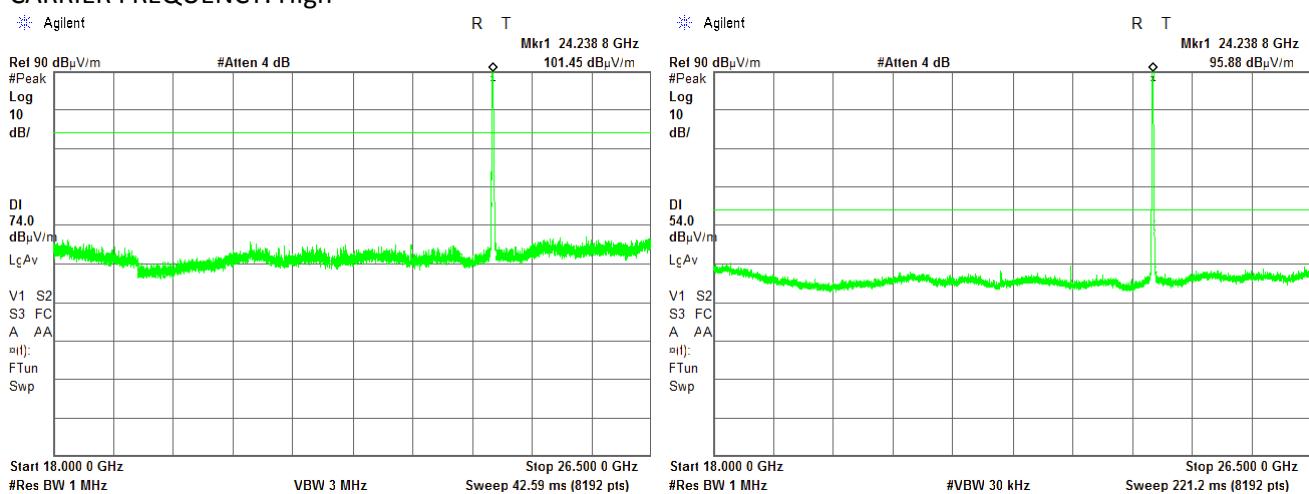
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.57 Radiated emission measurements from 26.5 to 33.0 GHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

0.5 m

ANTENNA POLARIZATION:

Vertical and Horizontal

EMISSION BANDWIDTH:

20 MHz

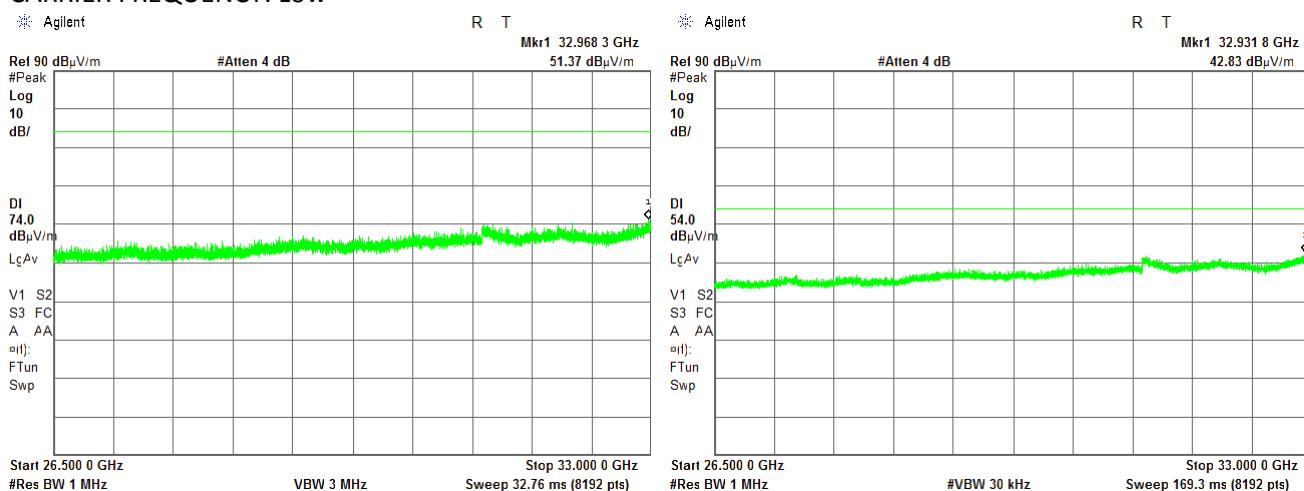
EUT POSITION:

Typical (Vertical)

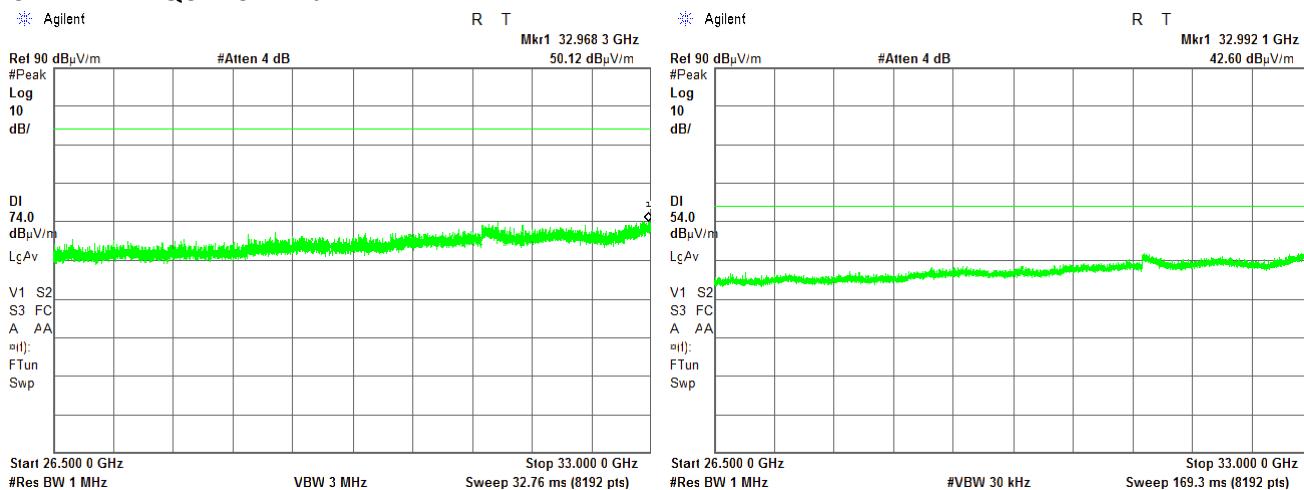
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.58 Radiated emission measurements from 26.5 to 33.0 GHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

0.5 m

ANTENNA POLARIZATION:

Vertical and Horizontal

EMISSION BANDWIDTH:

20 MHz

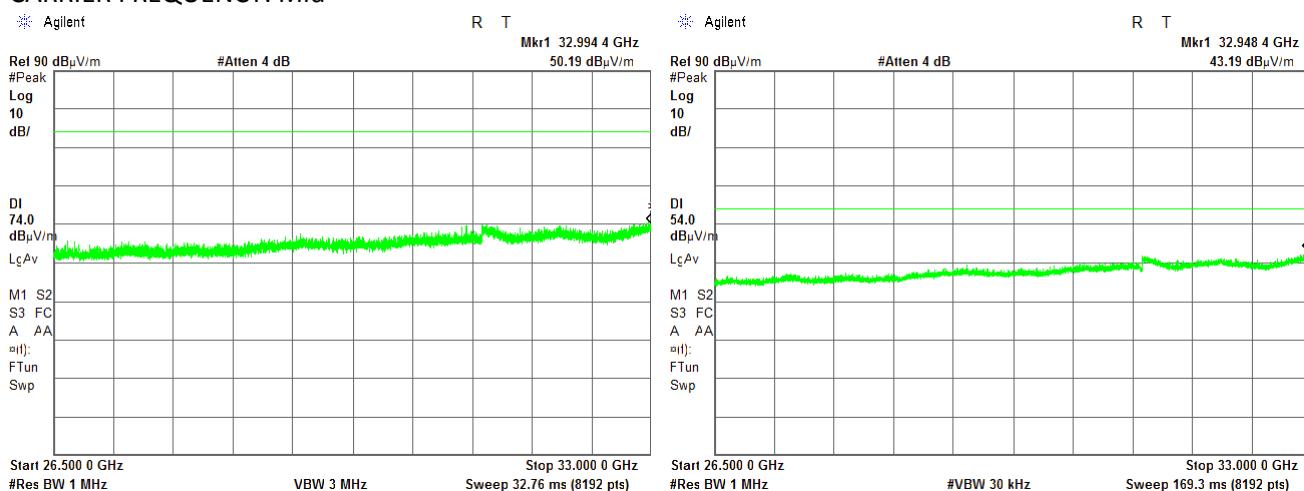
EUT POSITION:

Typical (Vertical)

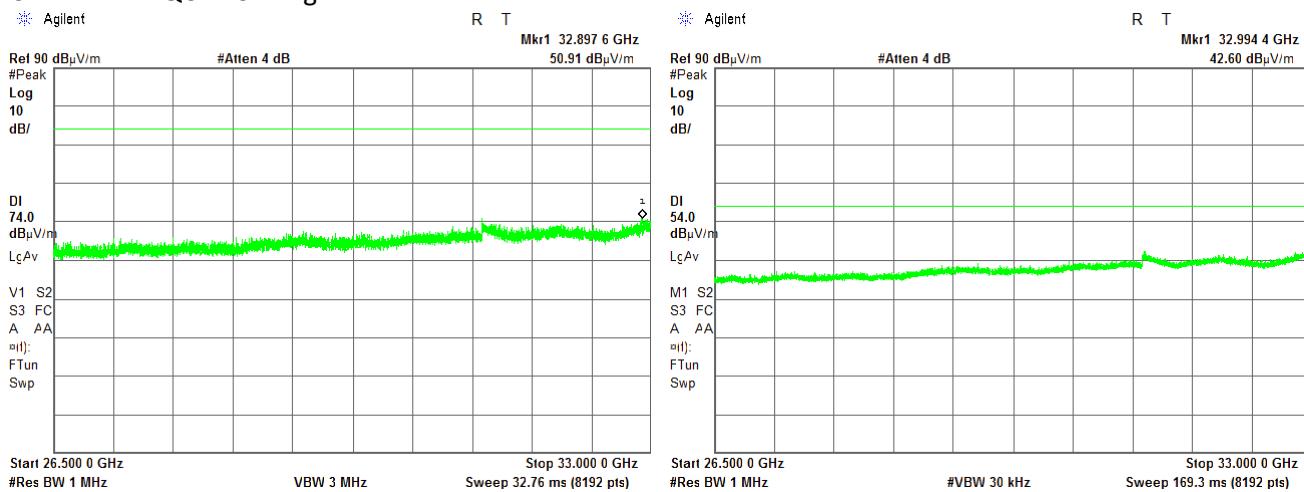
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.59 Radiated emission measurements from 33.0 to 40.0 GHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

0.5 m

ANTENNA POLARIZATION:

Vertical and Horizontal

EMISSION BANDWIDTH:

20 MHz

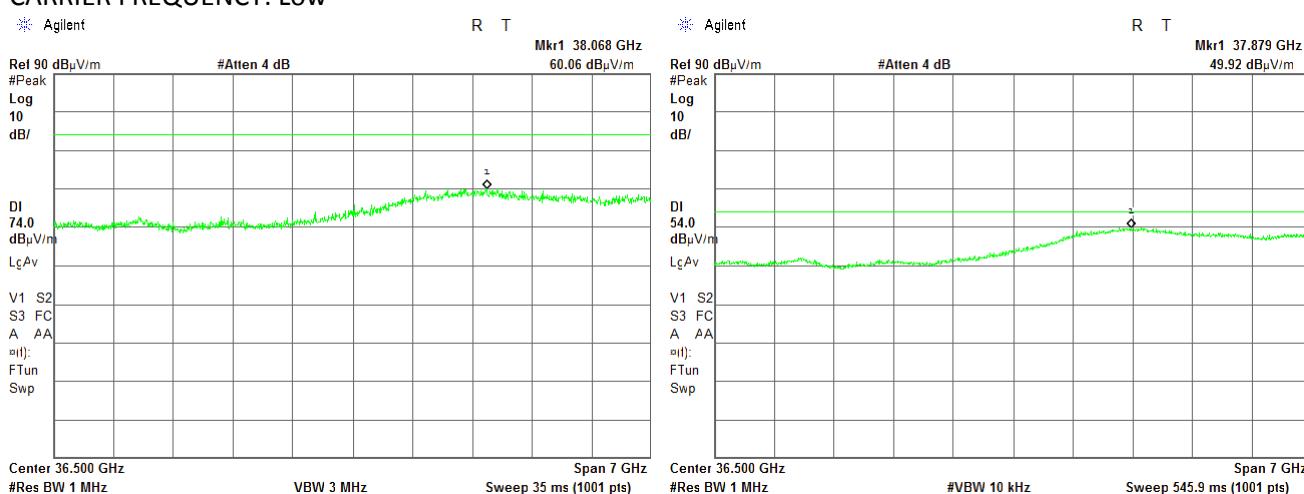
EUT POSITION:

Typical (Vertical)

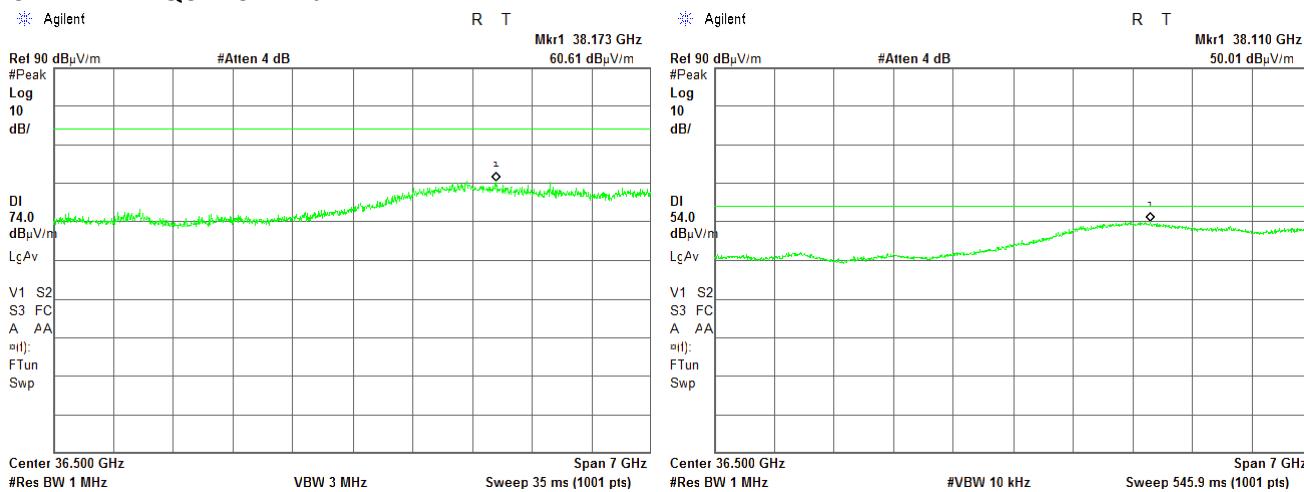
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.60 Radiated emission measurements from 33.0 to 40.0 GHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

0.5 m

ANTENNA POLARIZATION:

Vertical and Horizontal

EMISSION BANDWIDTH:

20 MHz

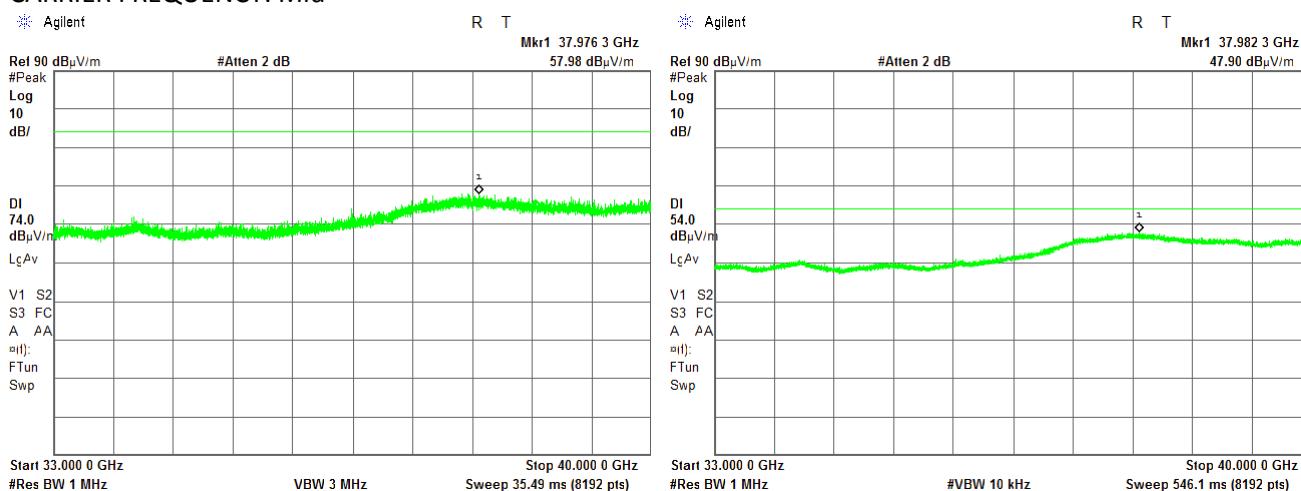
EUT POSITION:

Typical (Vertical)

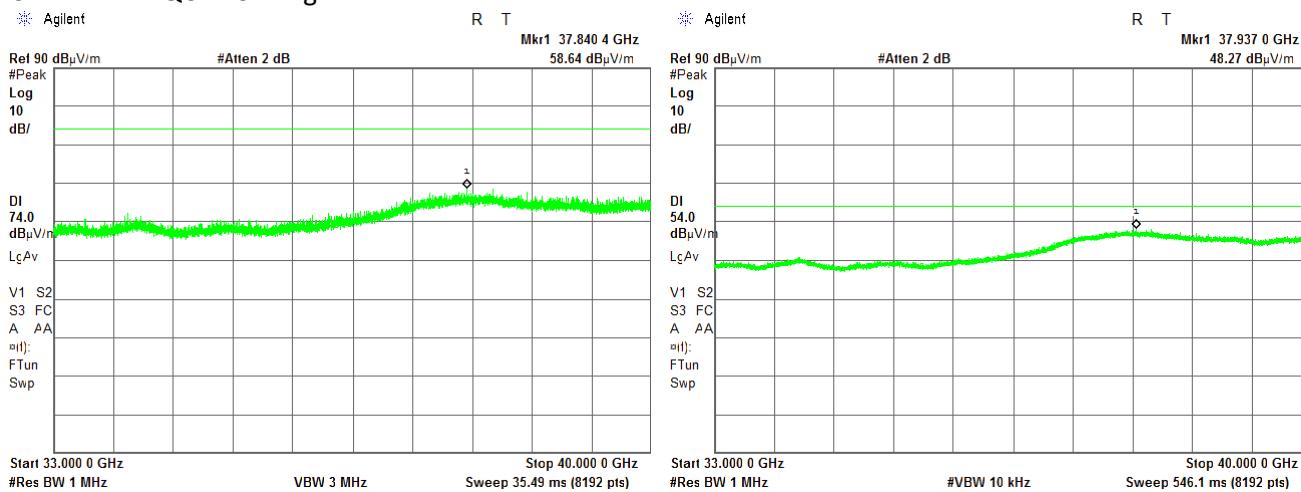
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.61 Radiated emission measurements from 40.0 to 50.0 GHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

0.5 m

ANTENNA POLARIZATION:

Vertical and Horizontal

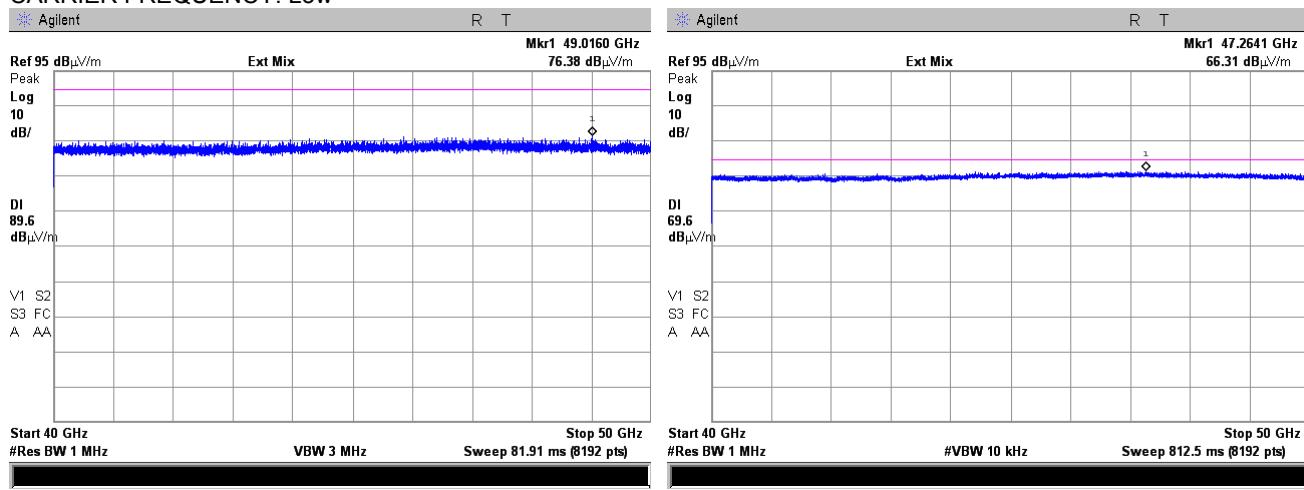
EUT POSITION:

Typical (Vertical)

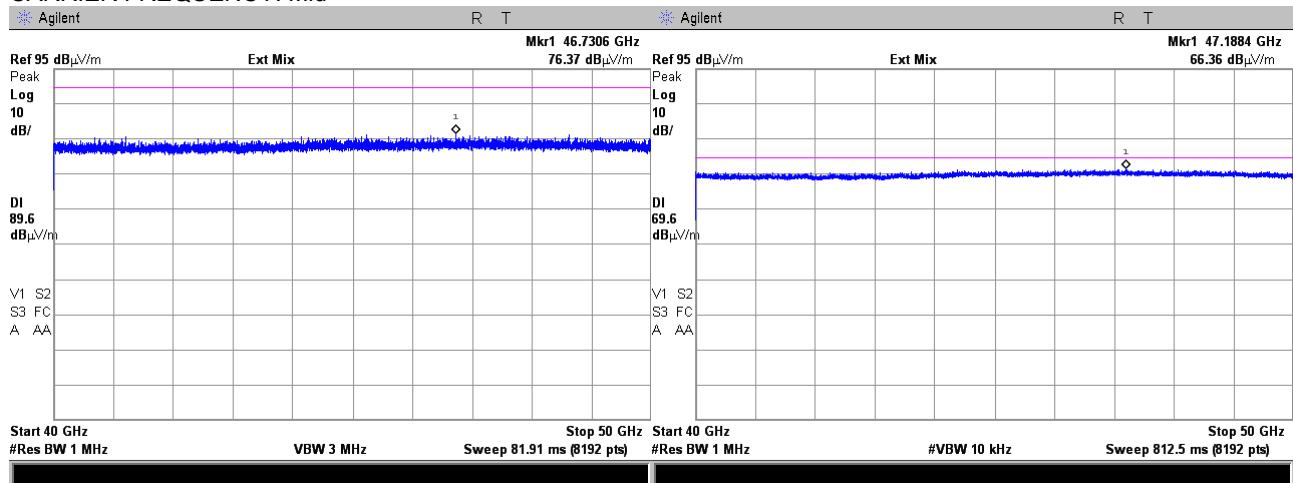
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid



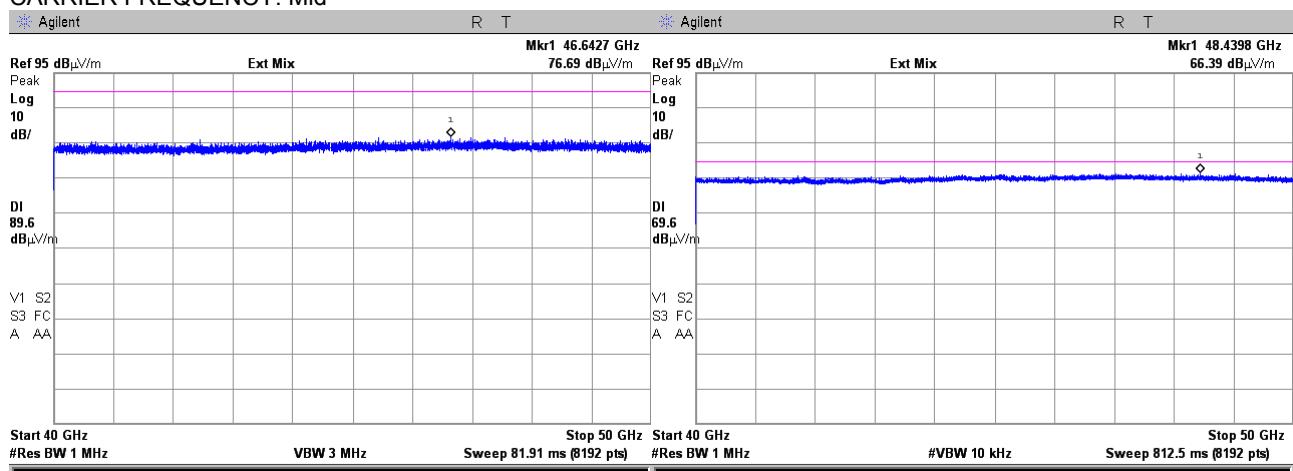
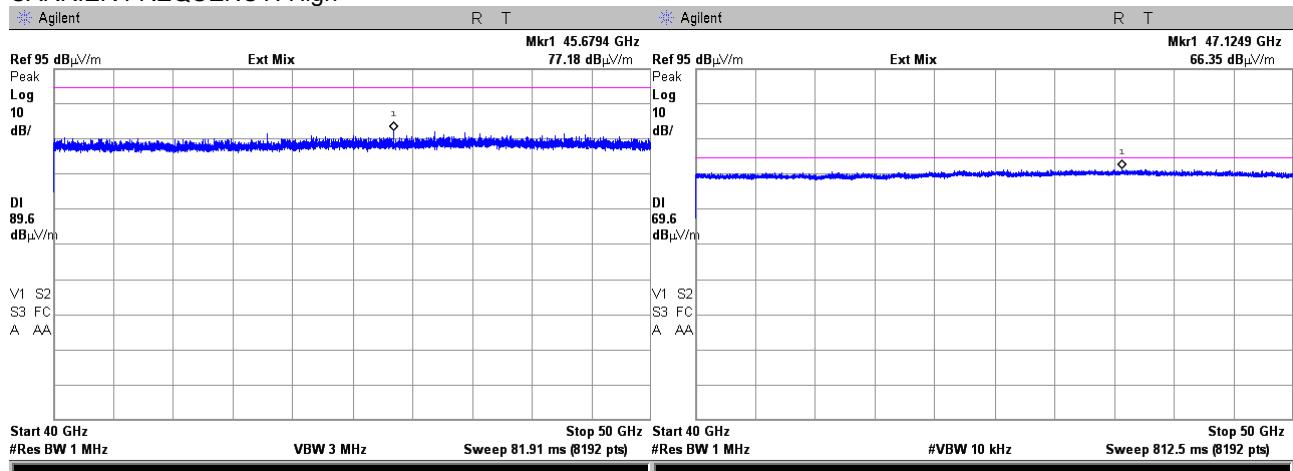


HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.62 Radiated emission measurements from 40.0 to 50.0 GHz

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 0.5 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 CARRIER FREQUENCY: Mid
 DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

**CARRIER FREQUENCY: High**

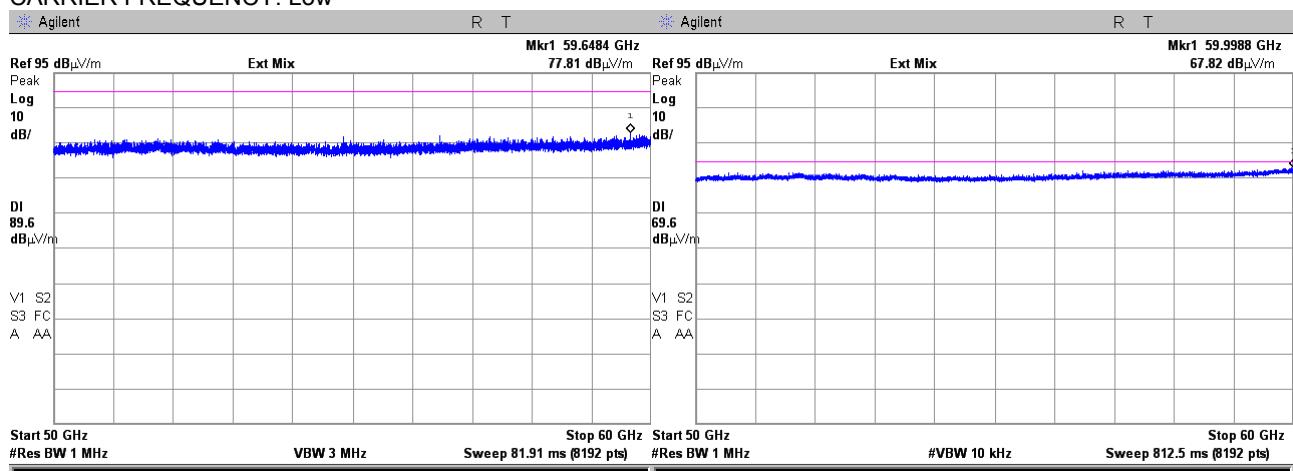


HERMON LABORATORIES

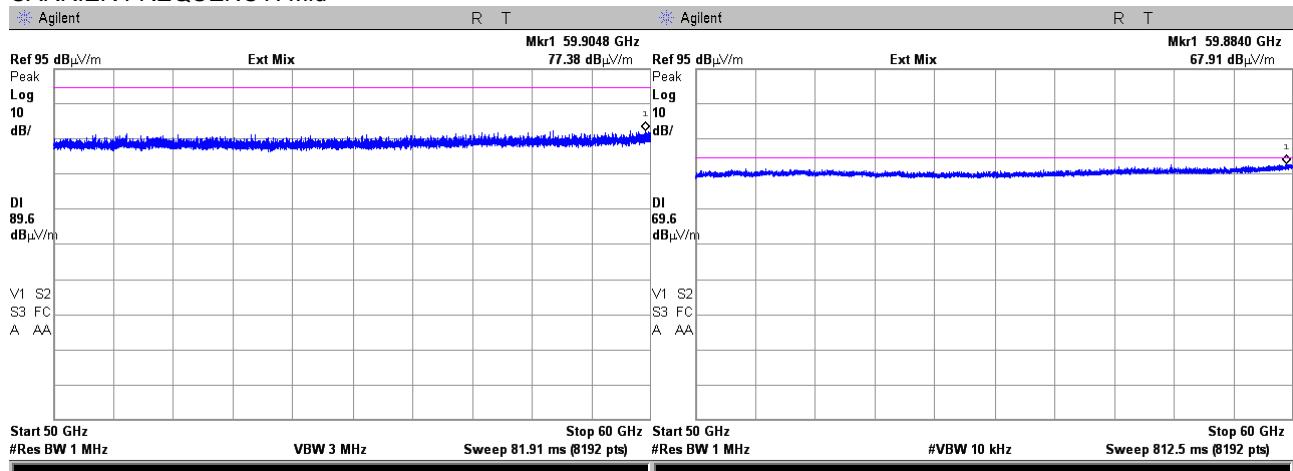
Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.63 Radiated emission measurements from 50.0 to 60.0 GHz

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 0.5 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: Typical (Vertical)
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
CARRIER FREQUENCY: Low
DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz



CARRIER FREQUENCY: Mid



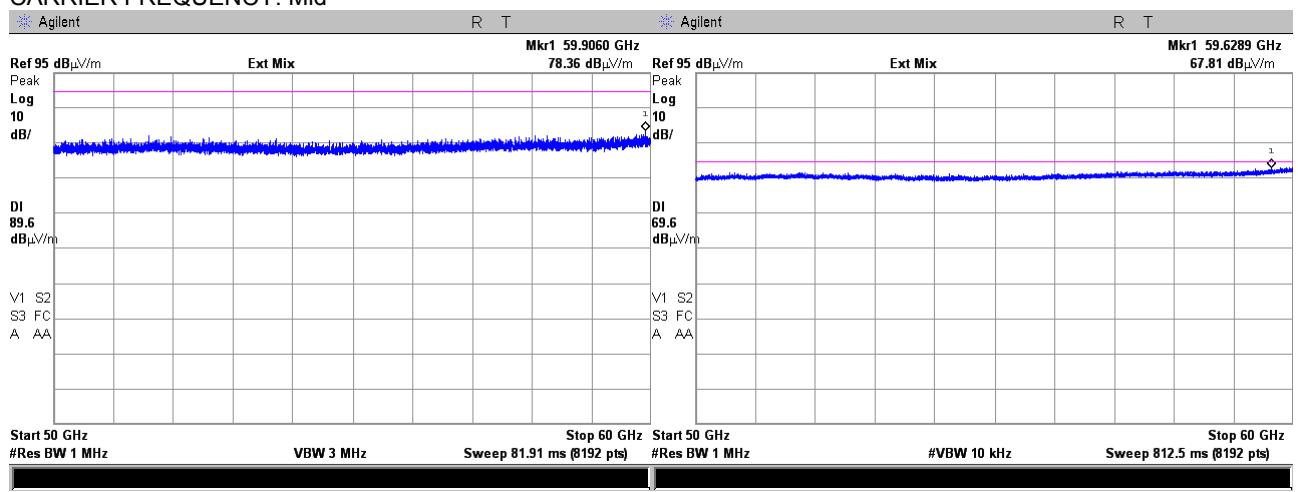


HERMON LABORATORIES

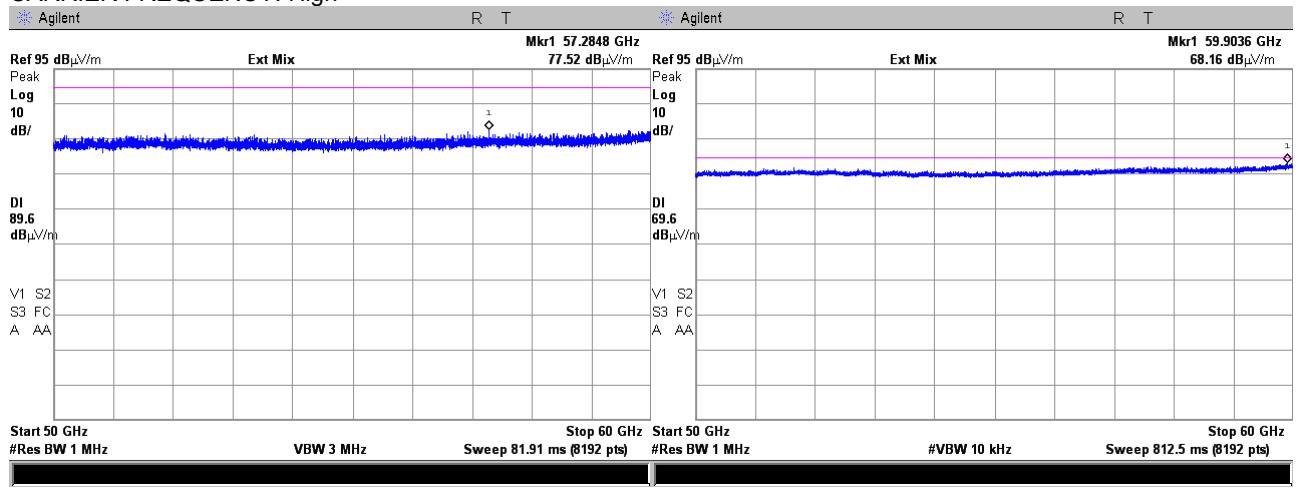
Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.64 Radiated emission measurements from 50.0 to 60.0 GHz

TEST SITE: Semi anechoic chamber
 TEST DISTANCE: 0.5 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 CARRIER FREQUENCY: Mid
 DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz



CARRIER FREQUENCY: High





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.65 Radiated emission measurements from 60.0 to 68.0 GHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

0.1 m

ANTENNA POLARIZATION:

Vertical and Horizontal

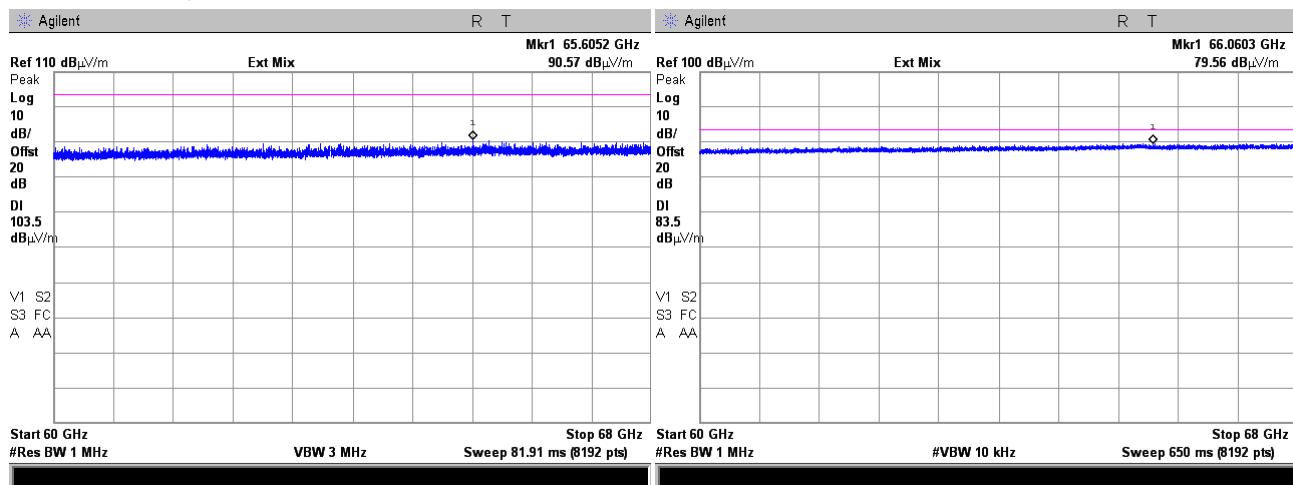
EUT POSITION:

Typical (Vertical)

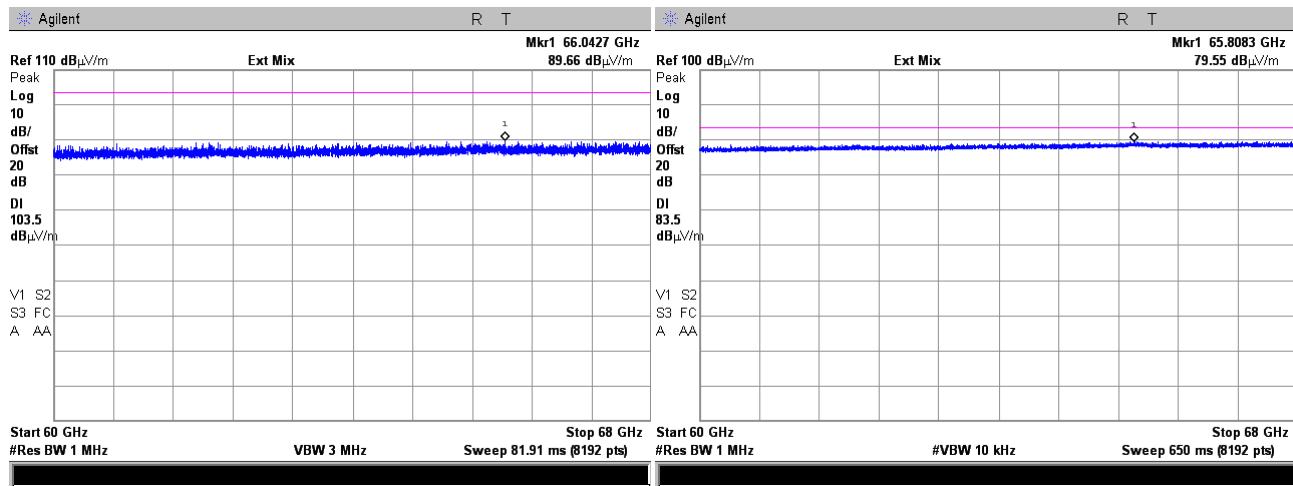
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance		Verdict: PASS
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.66 Radiated emission measurements from 60.0 to 68.0 GHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

0.1 m

ANTENNA POLARIZATION:

Vertical and Horizontal

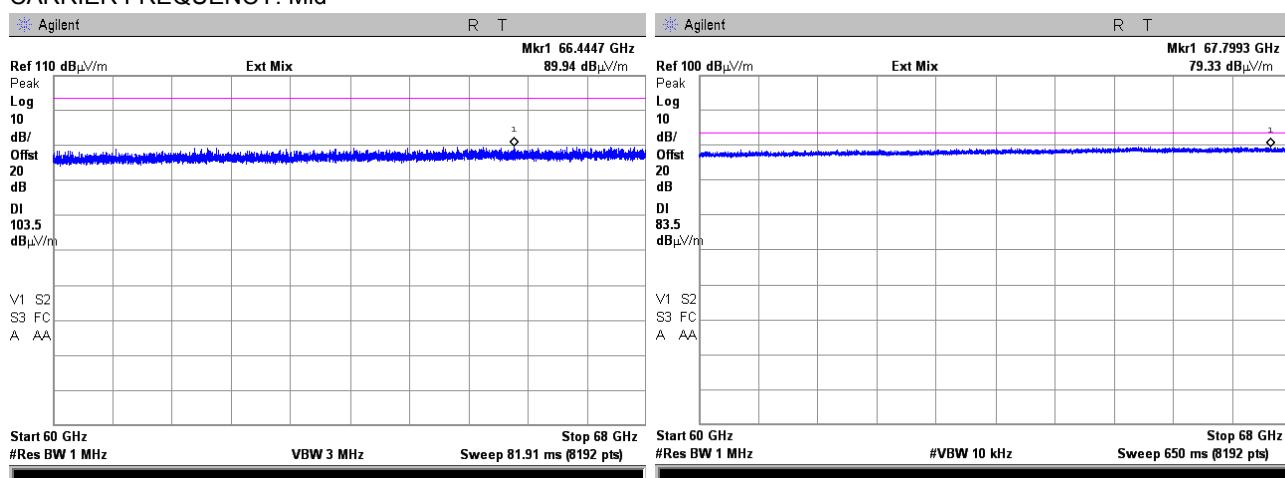
EUT POSITION:

Typical (Vertical)

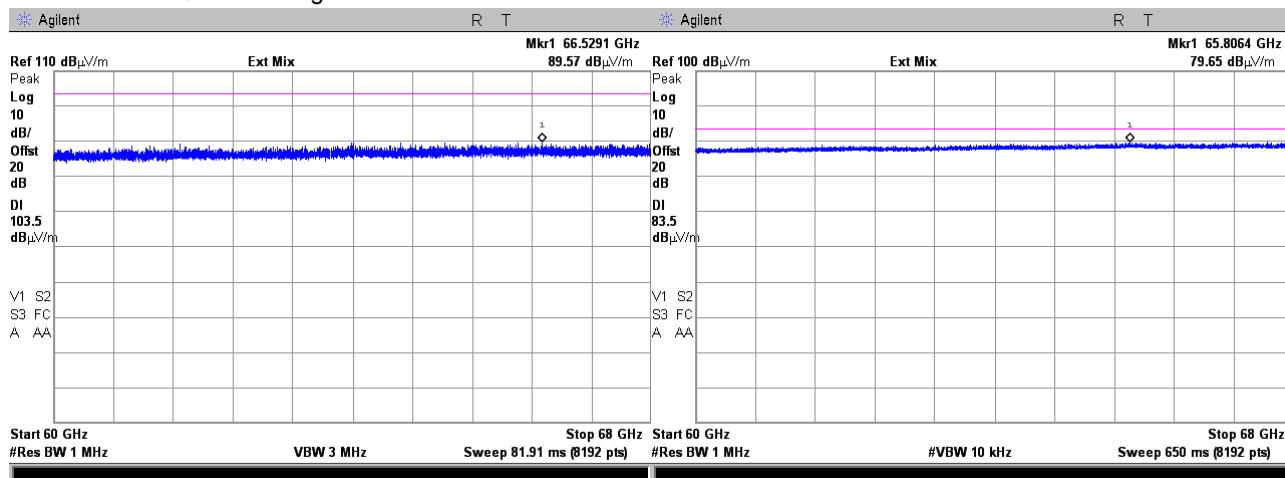
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High



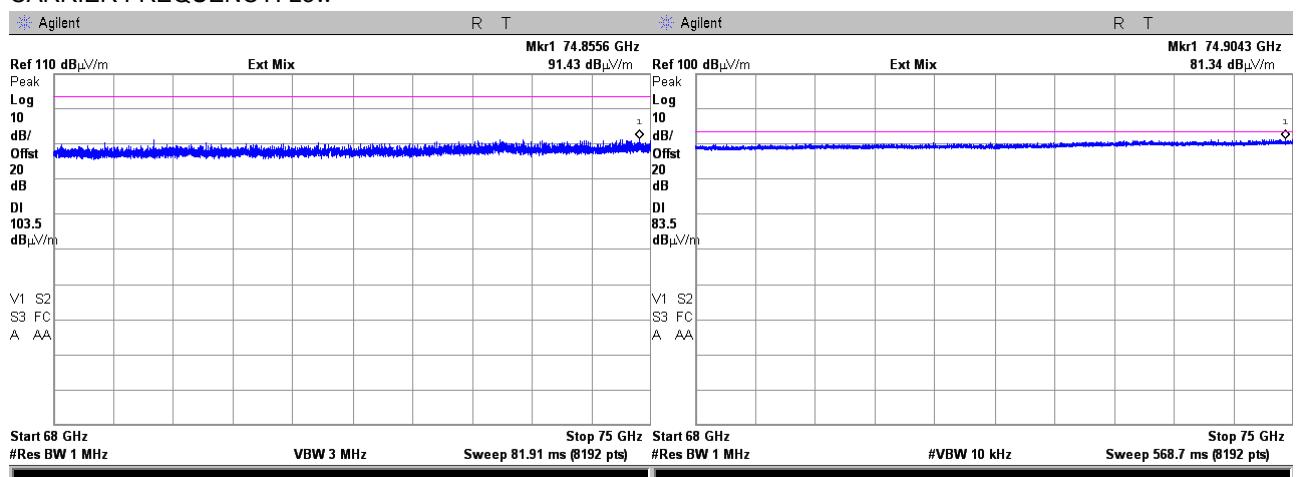
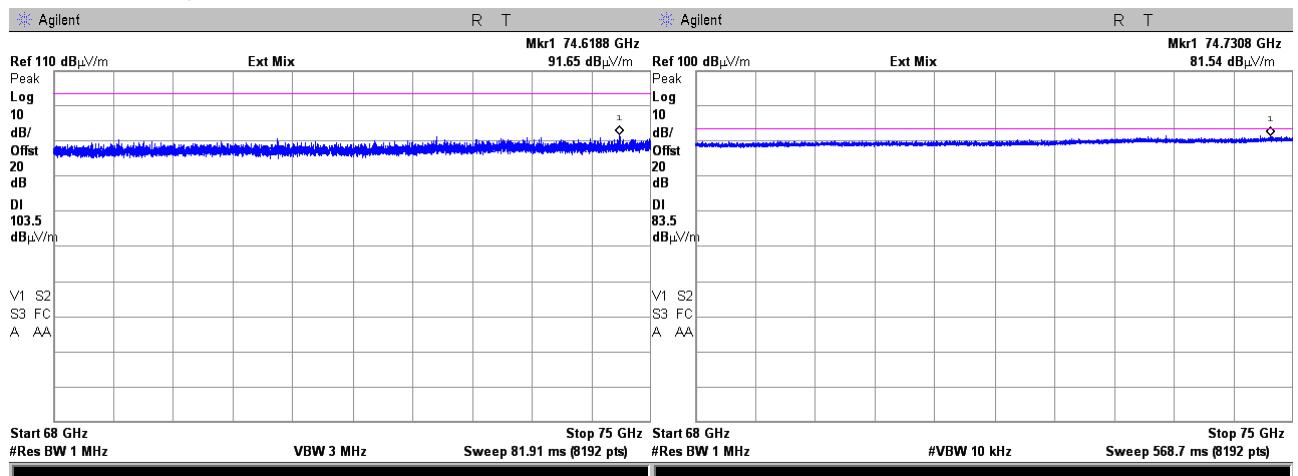


HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance	Verdict: PASS	
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.67 Radiated emission measurements from 68.0 to 75.0 GHz

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 0.1 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: Typical (Vertical)
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
CARRIER FREQUENCY: Low

**CARRIER FREQUENCY: Mid**



HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance	Verdict: PASS	
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.68 Radiated emission measurements from 68.0 to 75.0 GHz

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

0.1 m

ANTENNA POLARIZATION:

Vertical and Horizontal

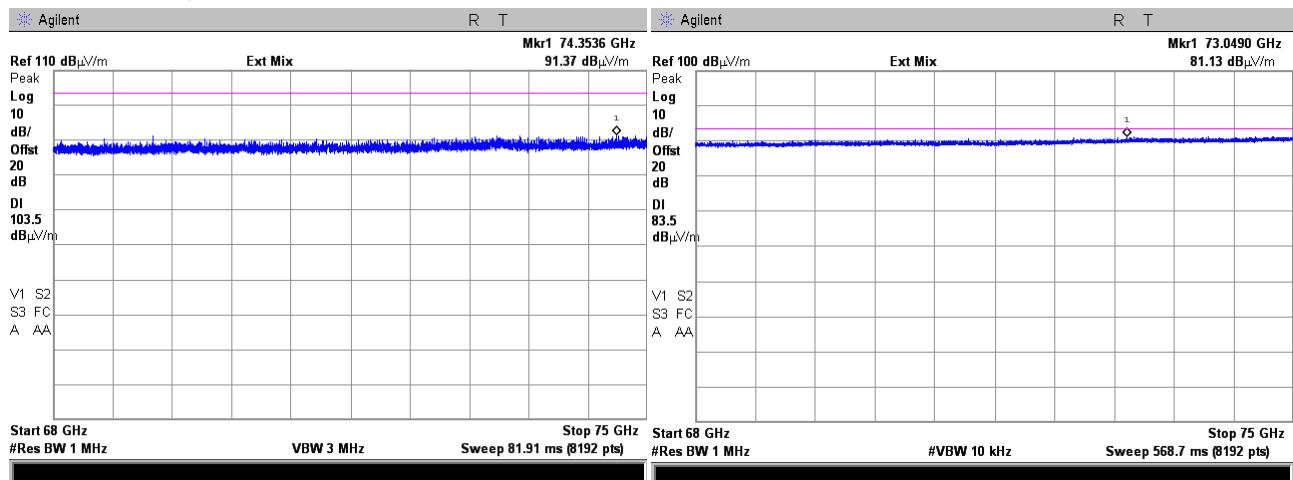
EUT POSITION:

Typical (Vertical)

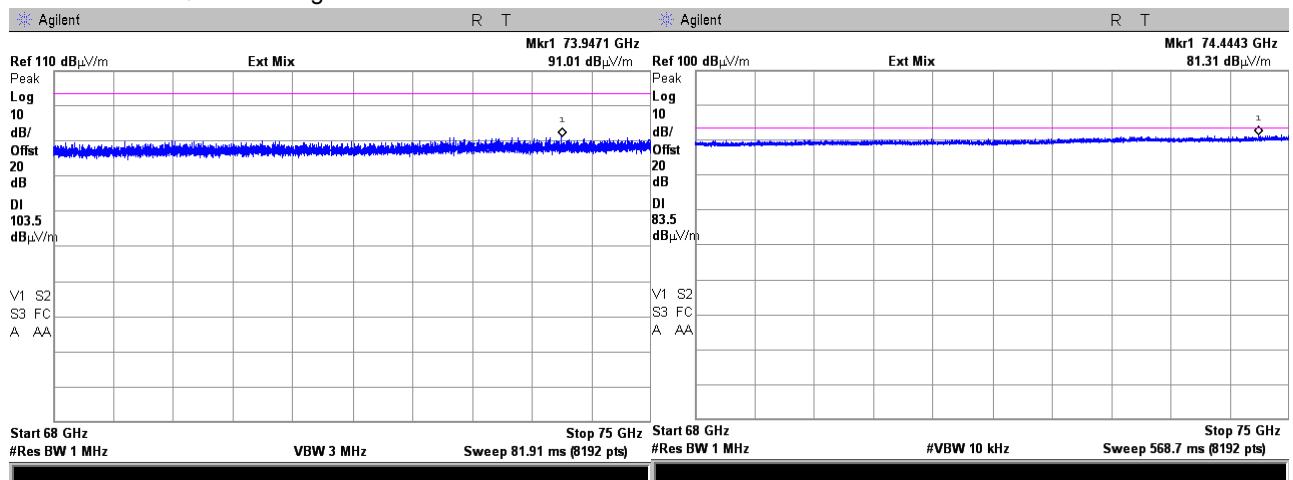
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High



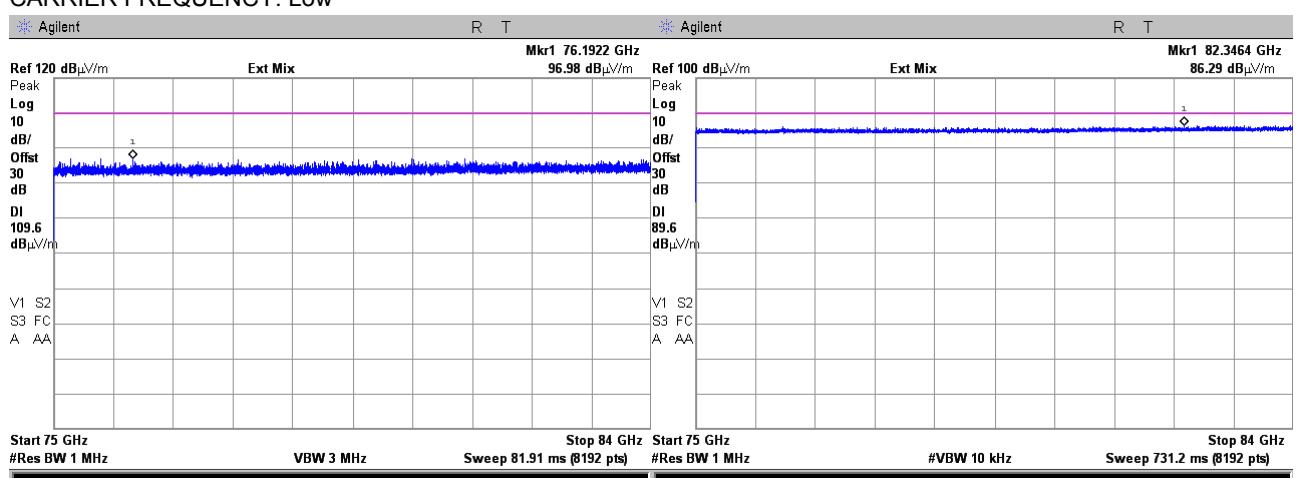


HERMON LABORATORIES

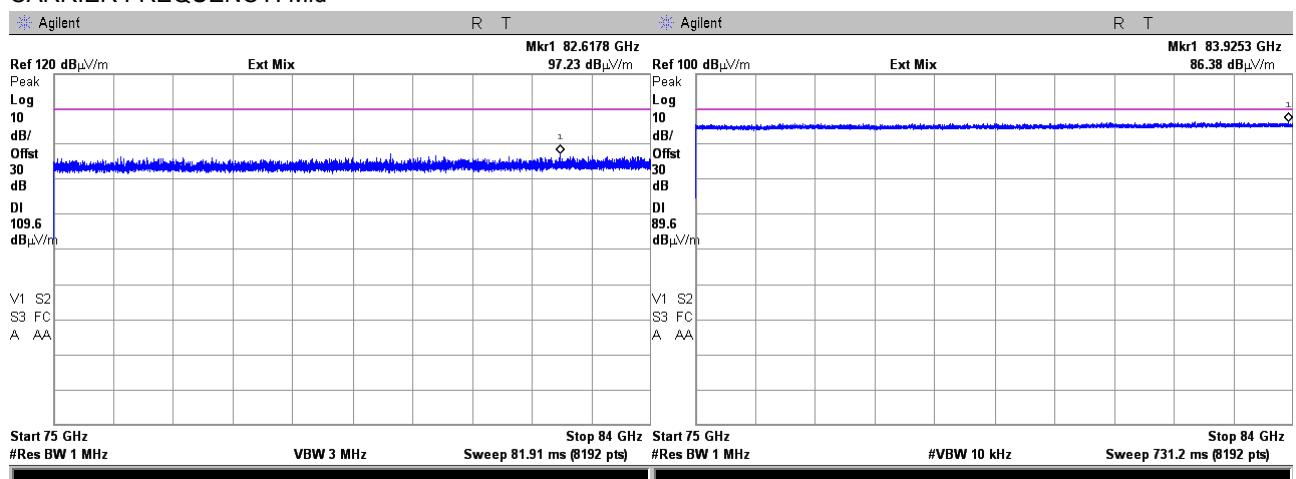
Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.69 Radiated emission measurements from 75.0 to 84.0 GHz

TEST SITE: OATS
 TEST DISTANCE: 0.05 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid





HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance	Verdict: PASS	
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.70 Radiated emission measurements from 75.0 to 84.0 GHz

TEST SITE:

OATS

TEST DISTANCE:

0.05 m

ANTENNA POLARIZATION:

Vertical and Horizontal

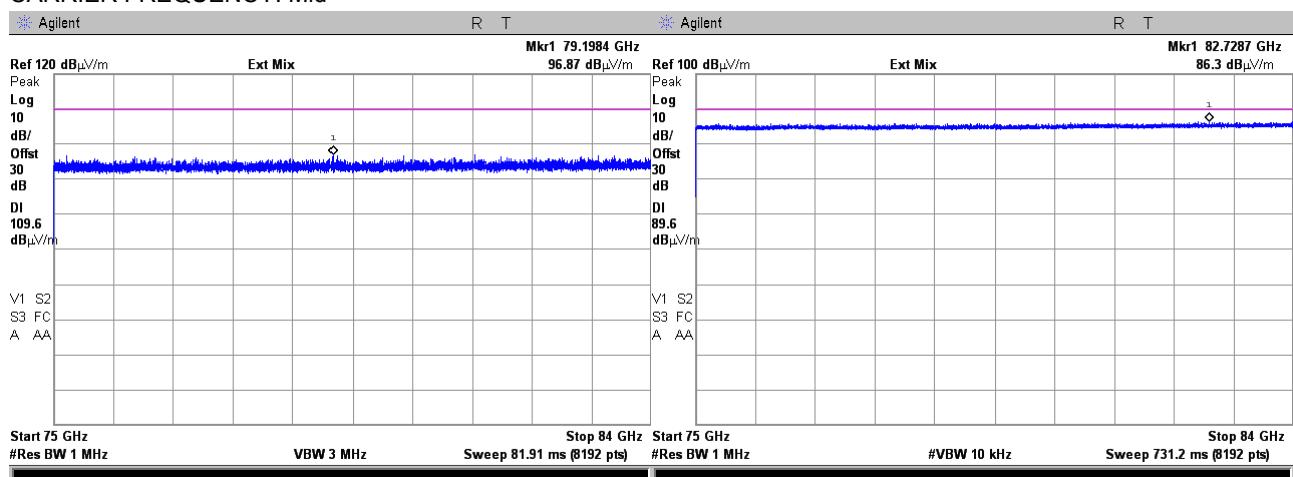
EUT POSITION:

Typical (Vertical)

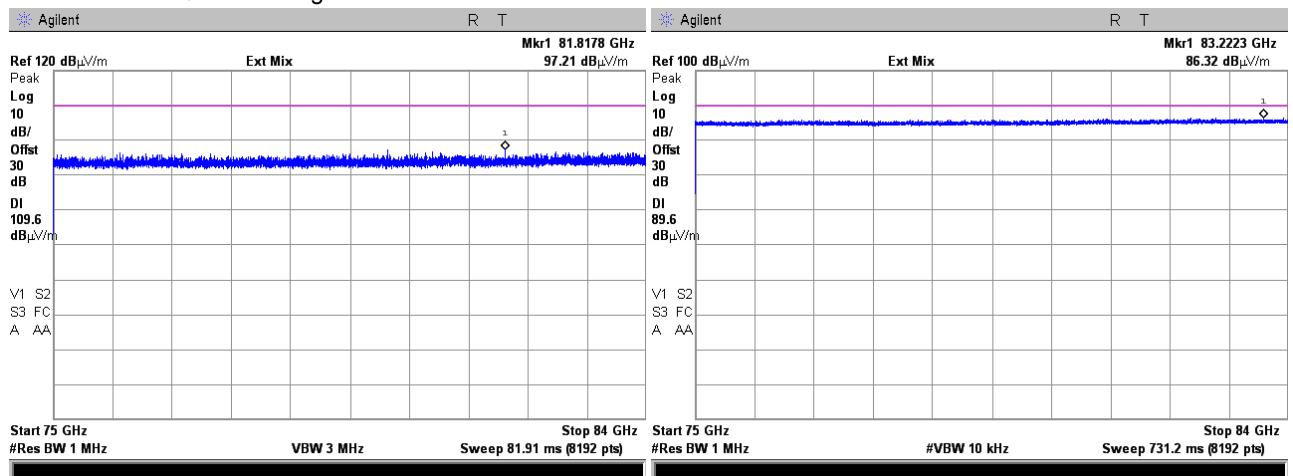
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High



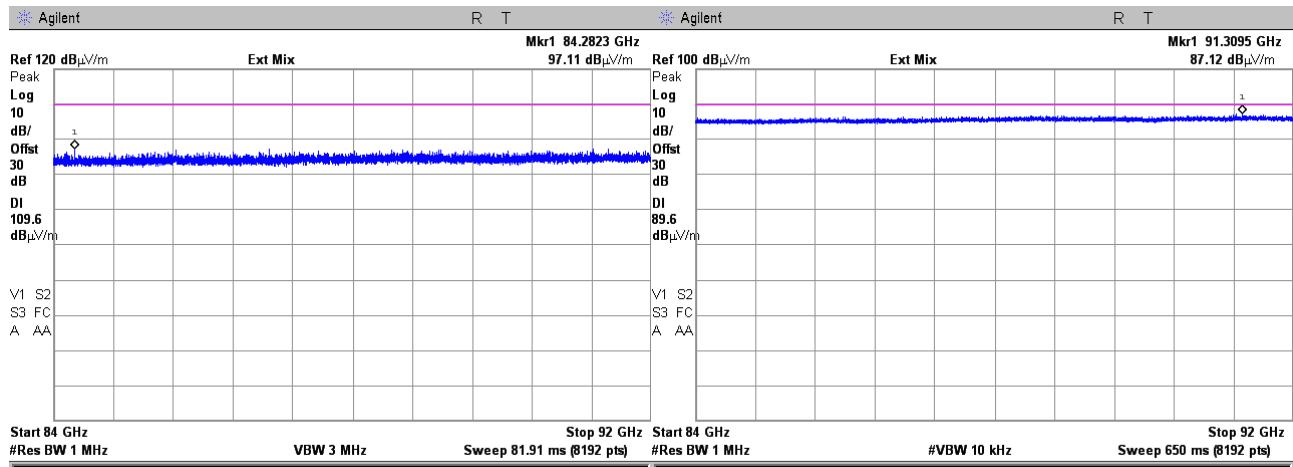


HERMON LABORATORIES

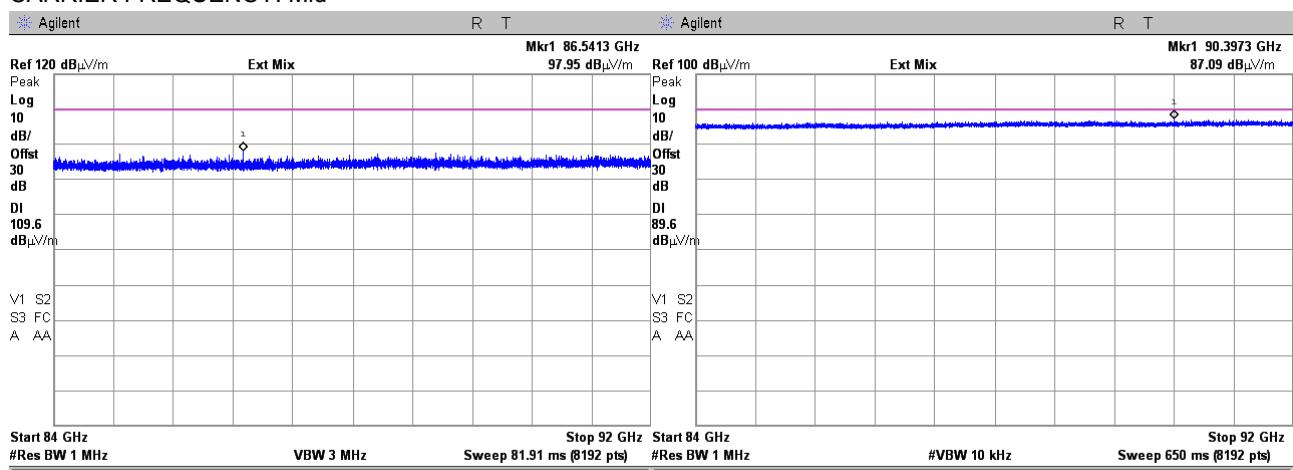
Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.71 Radiated emission measurements from 84.0 to 92.0 GHz

TEST SITE: OATS
 TEST DISTANCE: 0.05 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid



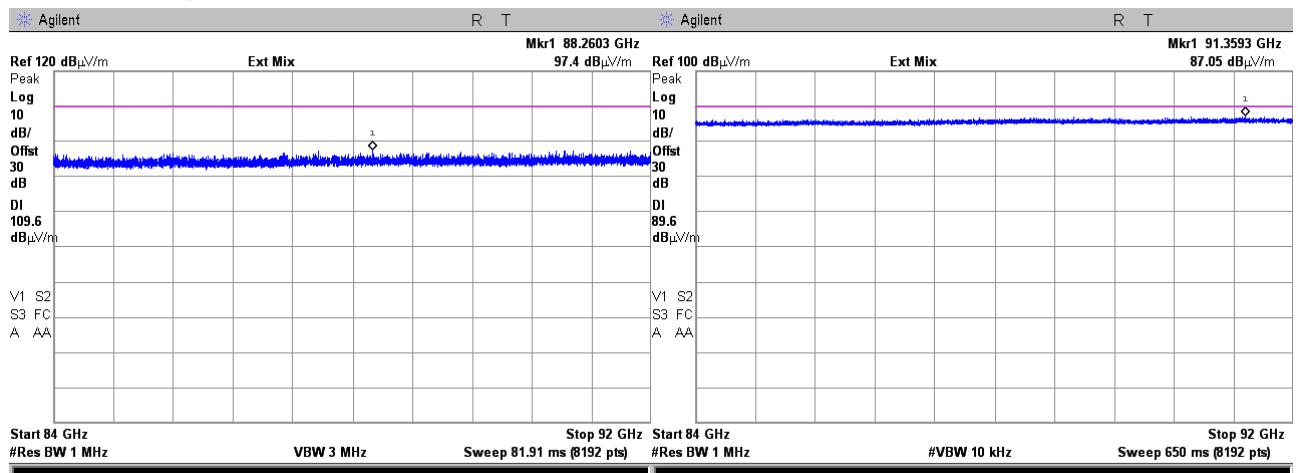


HERMON LABORATORIES

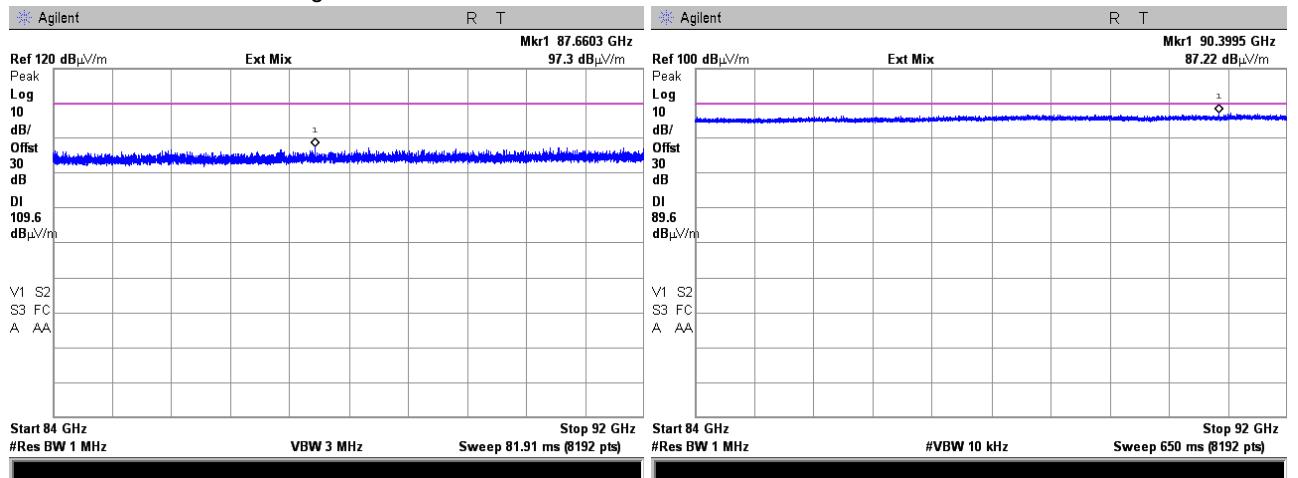
Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.72 Radiated emission measurements from 84.0 to 92.0 GHz

TEST SITE: OATS
 TEST DISTANCE: 0.05 m
 ANTENNA POLARIZATION: Vertical and Horizontal
 EUT POSITION: Typical (Vertical)
 DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
 CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High



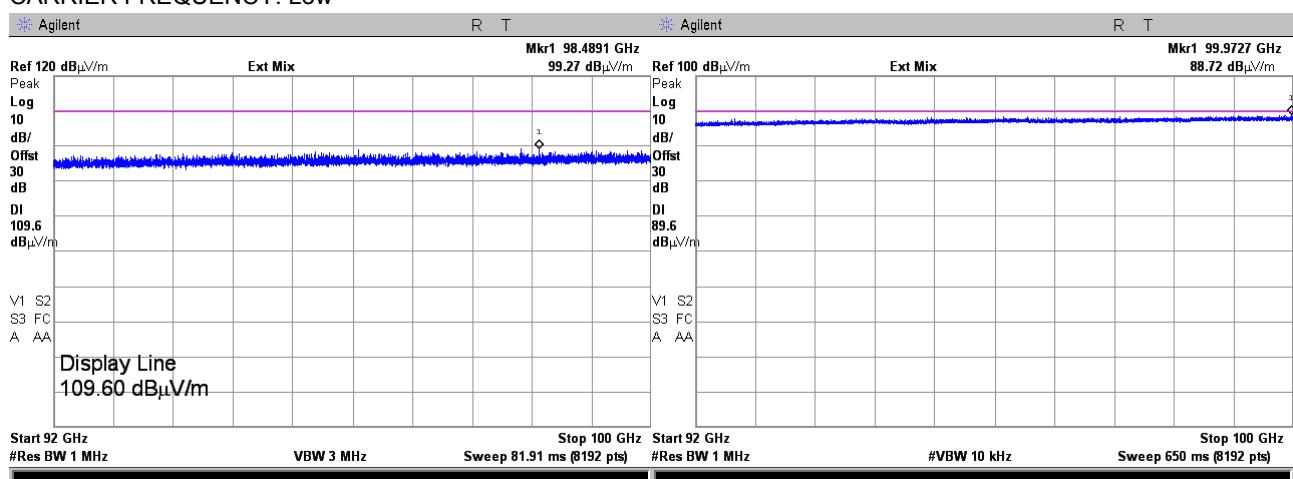
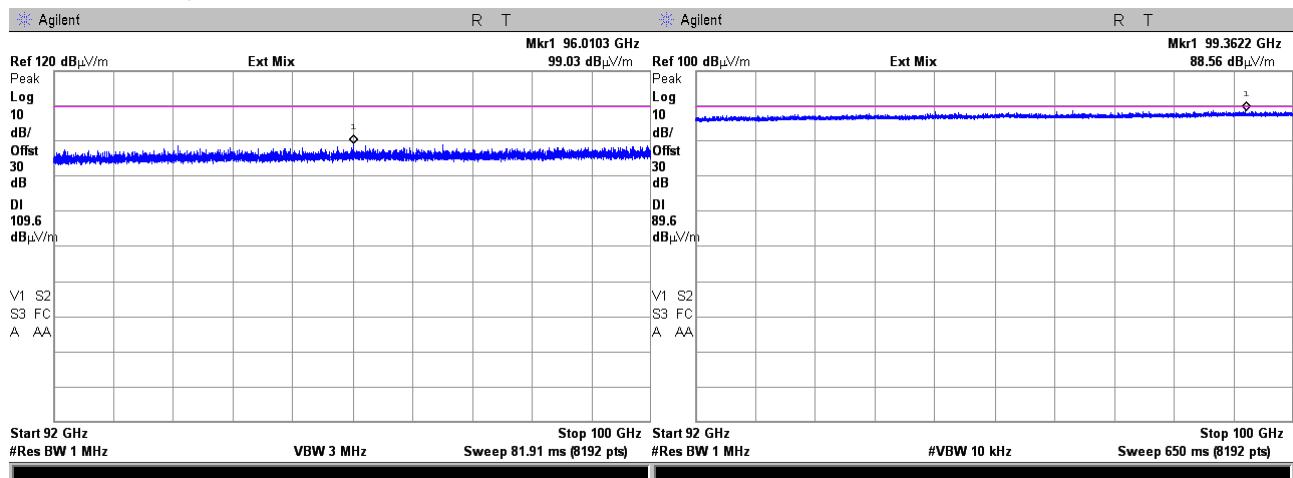


HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure: ANSI C63.10 sections 6.5, 6.6		
Test mode: Compliance	Verdict: PASS	
Date(s): 05-Feb-18 - 07-Feb-18		
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		

Plot 7.2.73 Radiated emission measurements from 92.0 to 100.0 GHz

TEST SITE: OATS
TEST DISTANCE: 0.05 m
ANTENNA POLARIZATION: Vertical and Horizontal
EUT POSITION: Typical (Vertical)
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz
CARRIER FREQUENCY: Low

**CARRIER FREQUENCY: Mid**



HERMON LABORATORIES

Test specification: Section 15.249(a)(d)/RSS-310, section 3.10, Field strength of emissions		
Test procedure:	ANSI C63.10 sections 6.5, 6.6	
Test mode:	Compliance	Verdict: PASS
Date(s):	05-Feb-18 - 07-Feb-18	
Temperature: 23.7 °C	Relative Humidity: 48 %	Air Pressure: 1021 hPa
Remarks: EUT with 37.1 dBi antenna gain		Power: -48 VDC

Plot 7.2.74 Radiated emission measurements from 92.0 to 100.0 GHz

TEST SITE:

OATS

TEST DISTANCE:

0.05 m

ANTENNA POLARIZATION:

Vertical and Horizontal

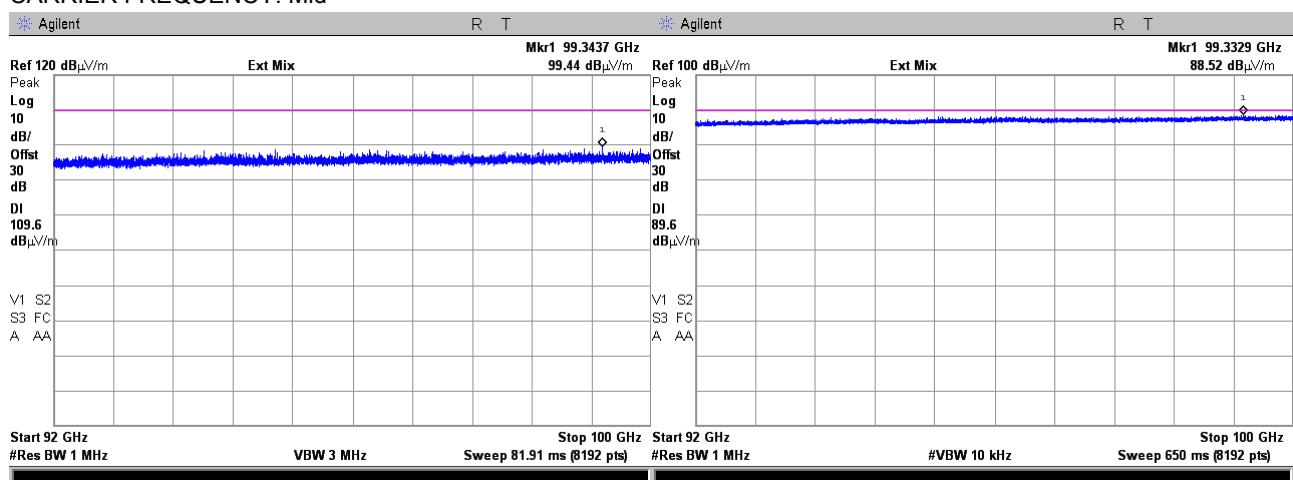
EUT POSITION:

Typical (Vertical)

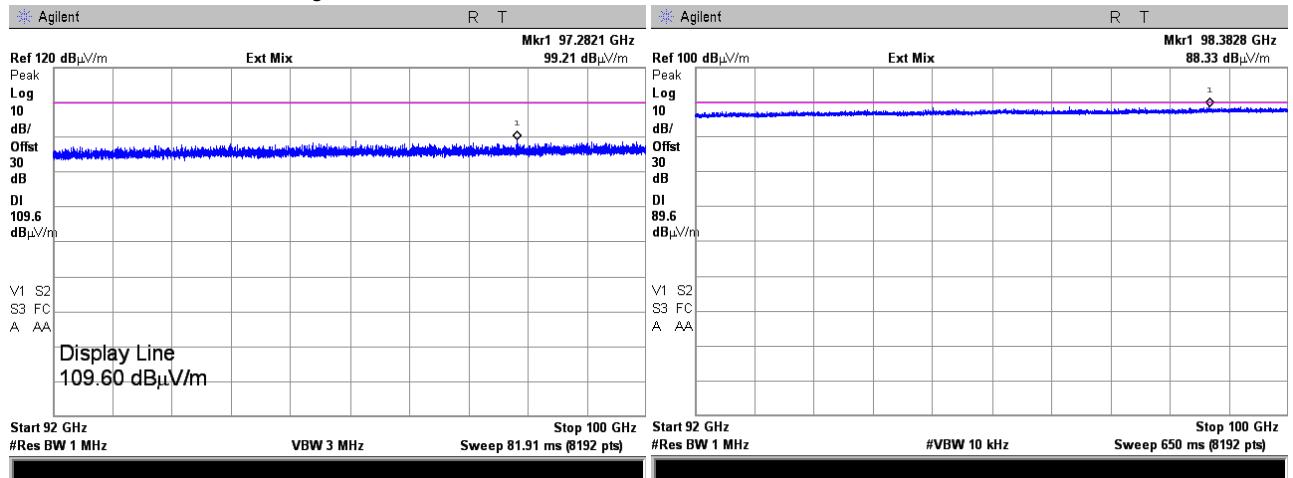
DETECTOR PEAK: RBW = 1 MHz; VBW = 3 MHz

DETECTOR AVERAGE: RBW = 1 MHz; VBW = 10 kHz

CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High





HERMON LABORATORIES

Test specification:	Section 15.215(c), Occupied bandwidth		
Test procedure:	ANSI C63.10 section 6.9.2		
Test mode:	Compliance	Verdict:	PASS
Date(s):	02-Oct-17		
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa	Power: 48 VDC
Remarks:			

7.3 Occupied bandwidth test

7.3.1 General

This test was performed to verify that the 20 dB bandwidth of the emissions was contained within the standard specified frequency band according to FCC §15.215 requirements. Specification test limits are given in Table 7.3.1.

Table 7.3.1 Occupied bandwidth limits

Assigned frequency, MHz	Modulation envelope reference points*, dBc
902 - 928	
2400 - 2483.5	
5725 - 5875	20.0
24000 - 24250	

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

7.3.2 Test procedure

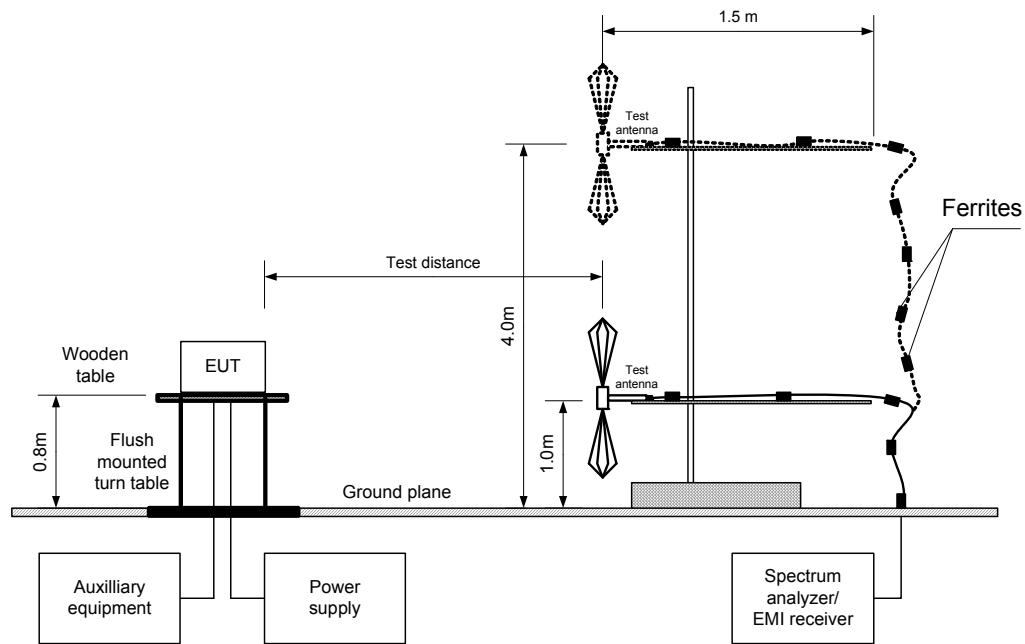
- 7.3.2.1 The EUT was set up as shown in Figure 7.3.1, energized and its proper operation was checked.
- 7.3.2.2 The spectrum analyzer sweep time and bandwidth were set to capture all major modulation sidebands of emission and sweep time was set sufficiently slow to ensure peak measurements. Spectrum analyzer was set in peak hold mode and time sufficient for trace stabilization was allowed.
- 7.3.2.3 The peak of emission was measured. The transmitter occupied bandwidth was measured with spectrum analyzer as frequency delta between reference points on modulation envelope and provided in Table 7.3.2 and associated plots.



HERMON LABORATORIES

Test specification: Section 15.215(c), Occupied bandwidth		
Test procedure: ANSI C63.10 section 6.9.2		
Test mode: Compliance		Verdict: PASS
Date(s): 02-Oct-17		
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa
Power: 48 VDC		
Remarks:		

Figure 7.3.1 Occupied bandwidth test setup





HERMON LABORATORIES

Test specification: Section 15.215(c), Occupied bandwidth					
Test procedure: ANSI C63.10 section 6.9.2					
Test mode: Compliance			Verdict: PASS		
Date(s): 02-Oct-17					
Temperature: 24.3 °C		Relative Humidity: 47 %	Air Pressure: 1009 hPa	Power: 48 VDC	
Remarks:					

Table 7.3.2 Occupied bandwidth test results

ASSIGNED FREQUENCY BAND 24000.0 – 24250.0 MHz
 DETECTOR USED: Peak hold
 MODULATION ENVELOPE REFERENCE POINTS: 20 dBc
 VIDEO BANDWIDTH: 8 x RBW

Modulation	Frequency, MHz	RBW, kHz	Occupied bandwidth, MHz	Limit, MHz	Verdict
Channel bandwidth 20 MHz					
QPSK	24010.0	300	19.737	NA	Pass
	24070.0	300	19.652	NA	Pass
	24240.0	300	19.656	NA	Pass
2048 QAM	24010.0	300	19.940	NA	Pass
	24070.0	300	19.784	NA	Pass
	24240.0	300	19.943	NA	Pass
Channel bandwidth 30 MHz					
QPSK	24015.0	390	29.971	NA	Pass
	24065.0	390	29.916	NA	Pass
	24235.0	390	29.930	NA	Pass
2048 QAM	24015.0	390	29.976	NA	Pass
	24065.0	390	29.989	NA	Pass
	24235.0	390	29.943	NA	Pass
Channel bandwidth 40 MHz					
QPSK	24020.0	1000	39.993	NA	Pass
	24060.0	1000	39.938	NA	Pass
	24230.0	430	39.975	NA	Pass
2048 QAM	24020.0	1000	39.966	NA	Pass
	24060.0	1000	39.978	NA	Pass
	24230.0	430	39.943	NA	Pass
Channel bandwidth 50 MHz					
QPSK	24025.0	1000	49.916	NA	Pass
	24055.0	1000	49.885	NA	Pass
	24225.0	510	49.970	NA	Pass
2048 QAM	24025.0	1000	49.906	NA	Pass
	24055.0	1000	49.995	NA	Pass
	24225.0	510	49.960	NA	Pass
Channel bandwidth 60 MHz					
QPSK	24030.0	1000	59.678	NA	Pass
	24050.0	1000	59.683	NA	Pass
	24220.0	1000	59.487	NA	Pass
2048 QAM	24030.0	1000	59.607	NA	Pass
	24050.0	1000	59.344	NA	Pass
	24220.0	1000	59.404	NA	Pass

Reference numbers of test equipment used

HL 2909	HL 3818	HL 5112	HL 5174	HL 5175			
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Full description is given in Appendix A.



HERMON LABORATORIES

Test specification: Section 15.215(c), Occupied bandwidth		
Test procedure:	ANSI C63.10 section 6.9.2	
Test mode:	Compliance	Verdict: PASS
Date(s):	02-Oct-17	
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa
Power: 48 VDC		
Remarks:		

Plot 7.3.1 Occupied bandwidth test result

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

20 MHz

MODULATION:

QPSK

CARRIER FREQUENCY: Low

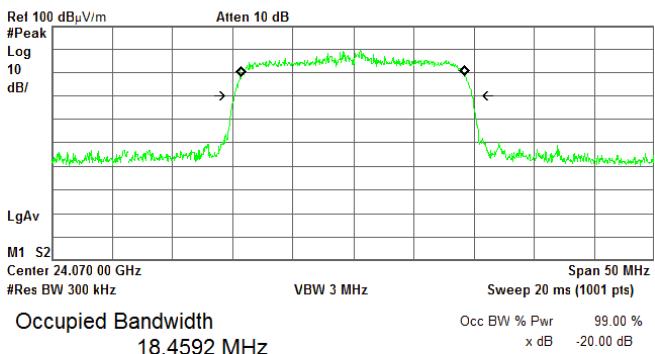
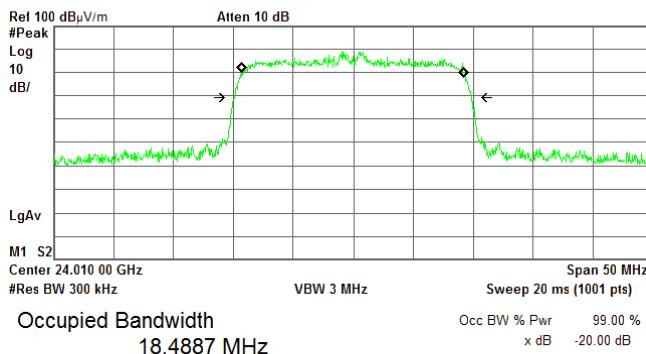
CARRIER FREQUENCY: Mid

Agilent

R T

Agilent

R T



CARRIER FREQUENCY: Mid

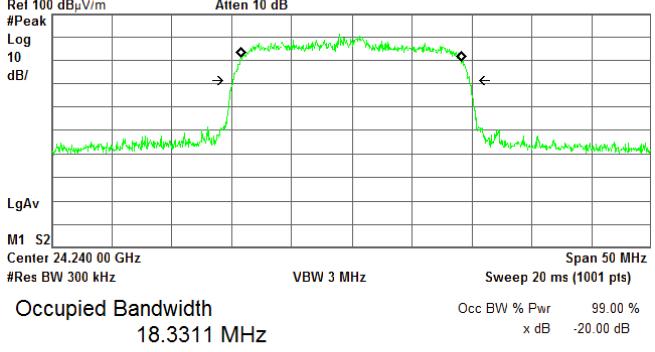
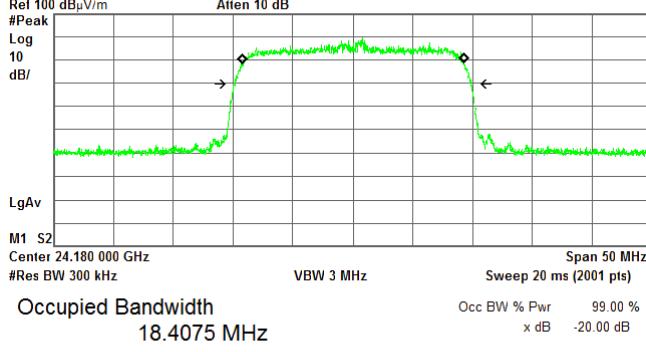
CARRIER FREQUENCY: High

Agilent

R T

Agilent

R T





HERMON LABORATORIES

Test specification: Section 15.215(c), Occupied bandwidth		
Test procedure: ANSI C63.10 section 6.9.2		
Test mode: Compliance	Verdict: PASS	
Date(s): 02-Oct-17		
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa
Remarks:		

Plot 7.3.2 Occupied bandwidth test result

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

20 MHz

MODULATION:

2048QAM

CARRIER FREQUENCY: Low

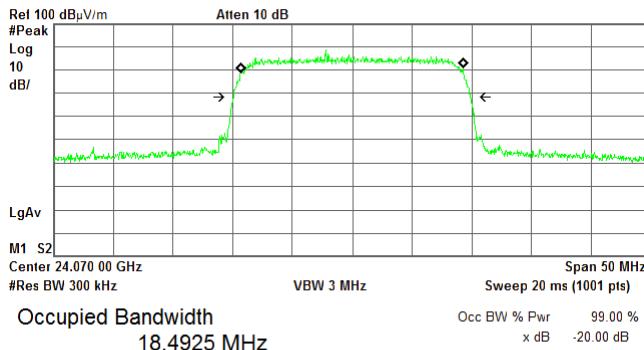
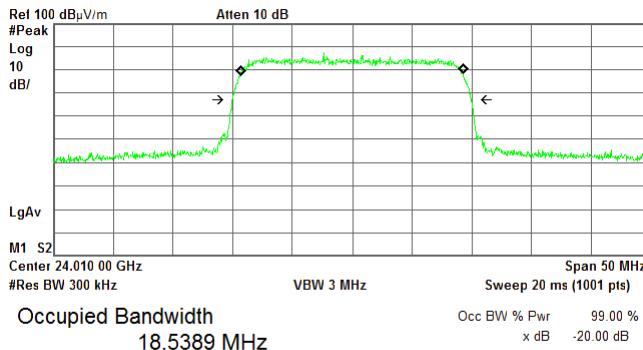
CARRIER FREQUENCY: Mid

Agilent

R T

Agilent

R T

Transmit Freq Error -31.751 kHz
x dB Bandwidth 19.940 MHzTransmit Freq Error 6.127 kHz
x dB Bandwidth 19.784 MHz

CARRIER FREQUENCY: Mid

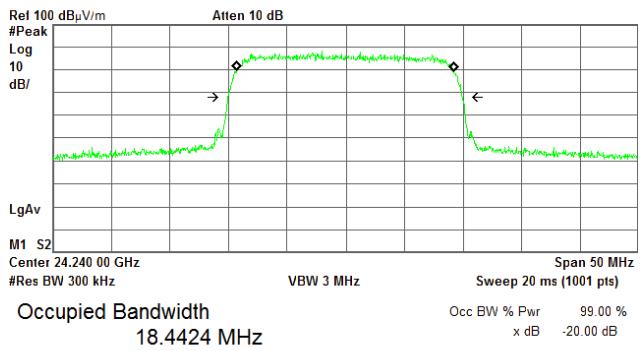
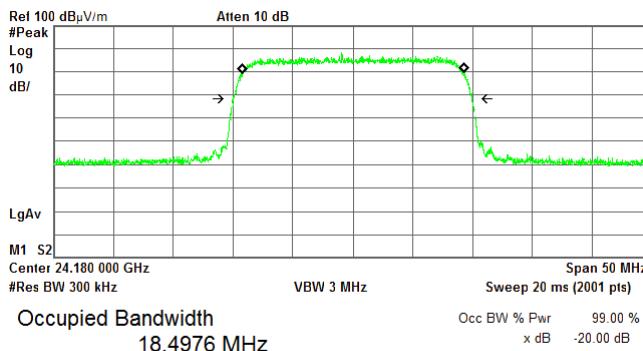
CARRIER FREQUENCY: High

Agilent

R T

Agilent

R T

Transmit Freq Error 23.246 kHz
x dB Bandwidth 19.960 MHzTransmit Freq Error -44.421 kHz
x dB Bandwidth 19.943 MHz



HERMON LABORATORIES

Test specification: Section 15.215(c), Occupied bandwidth		
Test procedure:	ANSI C63.10 section 6.9.2	
Test mode:	Compliance	Verdict: PASS
Date(s):	02-Oct-17	
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa
Power: 48 VDC		
Remarks:		

Plot 7.3.3 Occupied bandwidth test result

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

30 MHz

MODULATION:

QPSK

CARRIER FREQUENCY: Low

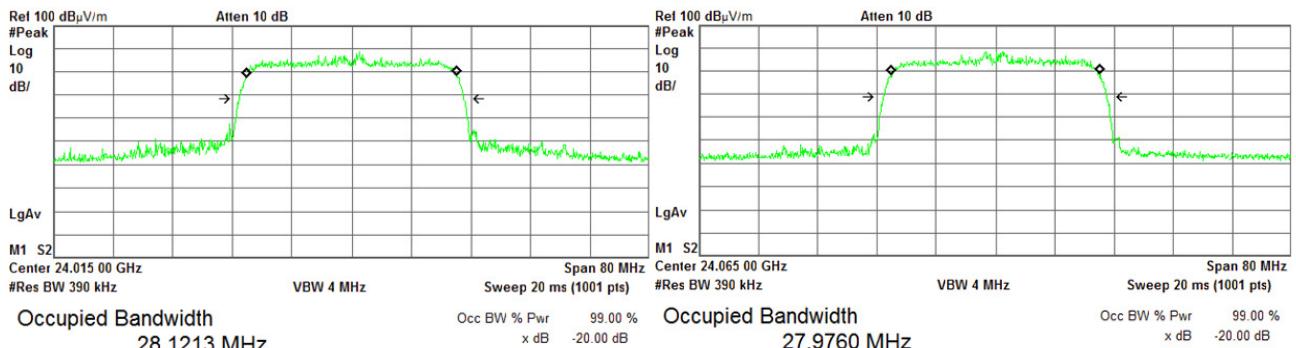
CARRIER FREQUENCY: Mid

Agilent

R T

Agilent

R T



Transmit Freq Error

54.664 kHz

x dB Bandwidth

29.971 MHz

Transmit Freq Error

-23.455 kHz

x dB Bandwidth

29.916 MHz

CARRIER FREQUENCY: Mid

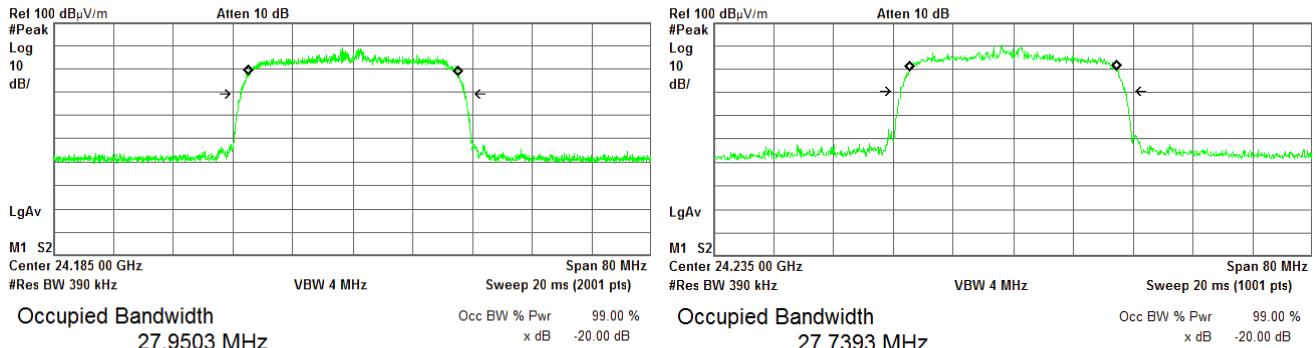
Agilent

R T

CARRIER FREQUENCY: High

Agilent

R T



Transmit Freq Error

20.744 kHz

x dB Bandwidth

29.946 MHz

Transmit Freq Error

301.939 Hz

x dB Bandwidth

29.930 MHz



HERMON LABORATORIES

Test specification: Section 15.215(c), Occupied bandwidth		
Test procedure:	ANSI C63.10 section 6.9.2	
Test mode:	Compliance	Verdict: PASS
Date(s):	02-Oct-17	
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa
Power: 48 VDC		
Remarks:		

Plot 7.3.4 Occupied bandwidth test result

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

30 MHz

MODULATION:

2048QAM

CARRIER FREQUENCY: Low

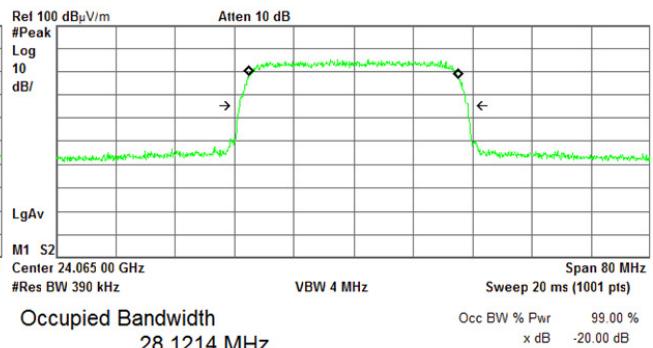
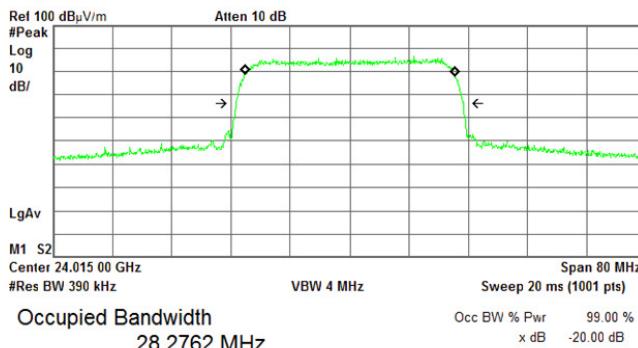
CARRIER FREQUENCY: Mid

Agilent

R T

Agilent

R T

Transmit Freq Error 27.966 kHz
x dB Bandwidth 29.976 MHzTransmit Freq Error -17.988 kHz
x dB Bandwidth 29.989 MHz

CARRIER FREQUENCY: Mid

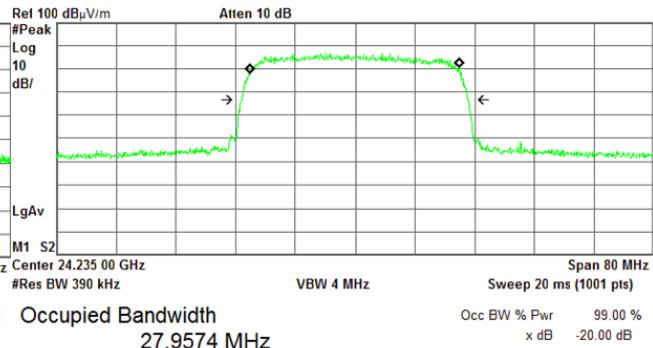
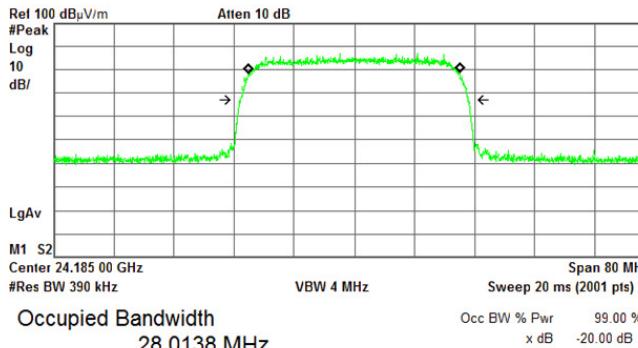
CARRIER FREQUENCY: High

Agilent

R T

Agilent

R T

Transmit Freq Error 5.470 kHz
x dB Bandwidth 29.915 MHzTransmit Freq Error -48.773 kHz
x dB Bandwidth 29.943 MHz



HERMON LABORATORIES

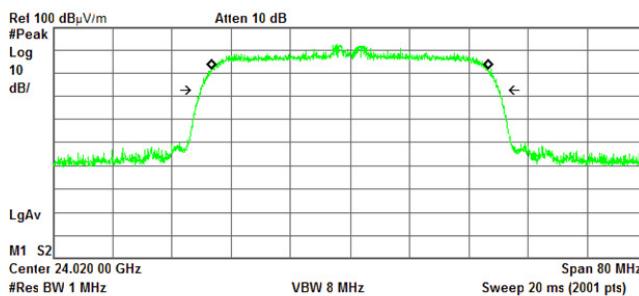
Test specification: Section 15.215(c), Occupied bandwidth		
Test procedure: ANSI C63.10 section 6.9.2		
Test mode: Compliance		Verdict: PASS
Date(s): 02-Oct-17		
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa
Remarks:		

Plot 7.3.5 Occupied bandwidth test result

TEST SITE:
TEST DISTANCE:
ANTENNA POLARIZATION:
EUT POSITION:
EMISSION BANDWIDTH:
MODULATION:
CARRIER FREQUENCY: Low

Agilent

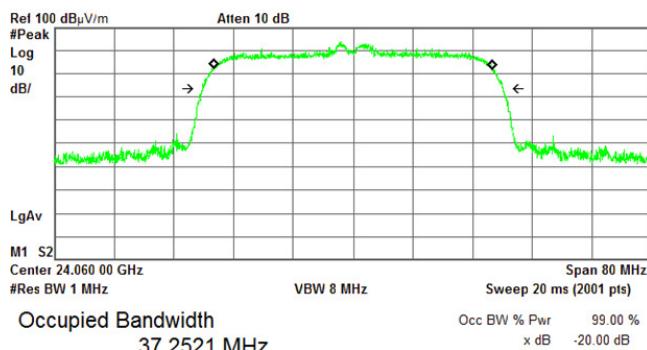
R T



Semi anechoic chamber
3 m
Vertical
Typical (Vertical)
40 MHz
QPSK
CARRIER FREQUENCY: Mid

Agilent

R T



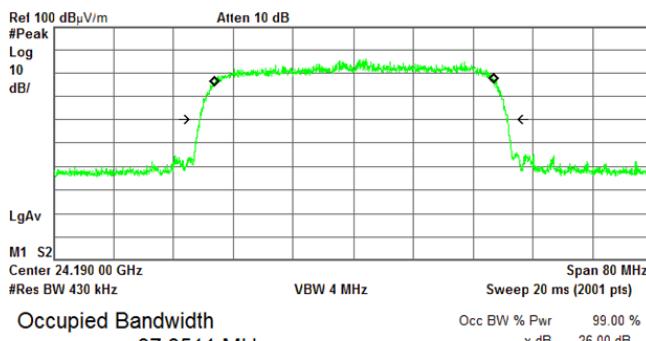
Transmit Freq Error: -13.092 kHz
x dB Bandwidth: 39.993 MHz

Transmit Freq Error: -25.357 kHz
x dB Bandwidth: 39.938 MHz

CARRIER FREQUENCY: Mid

Agilent

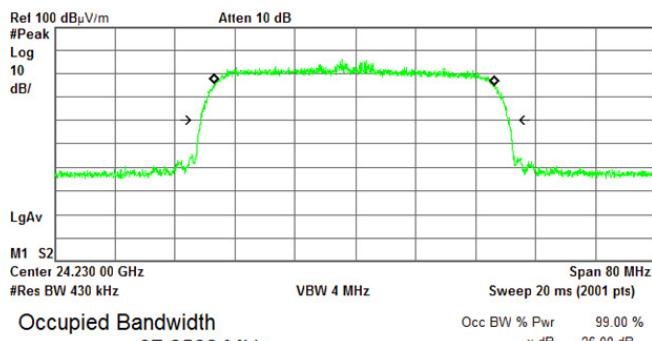
R T



CARRIER FREQUENCY: High

Agilent

R T



Transmit Freq Error: 142.537 kHz
x dB Bandwidth: 39.918 MHz

Transmit Freq Error: -120.619 kHz
x dB Bandwidth: 39.975 MHz



HERMON LABORATORIES

Test specification: Section 15.215(c), Occupied bandwidth		
Test procedure: ANSI C63.10 section 6.9.2		
Test mode: Compliance	Verdict: PASS	
Date(s): 02-Oct-17		
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa
Remarks:		

Plot 7.3.6 Occupied bandwidth test result

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

40 MHz

MODULATION:

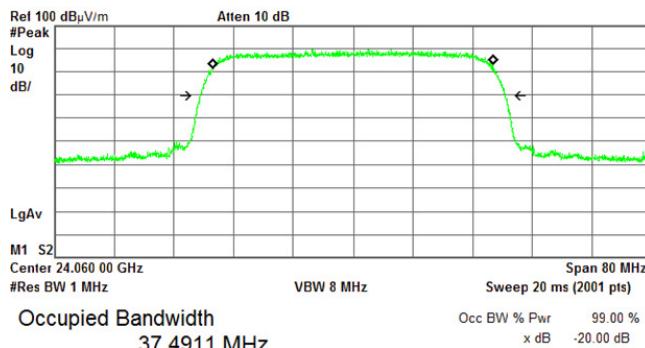
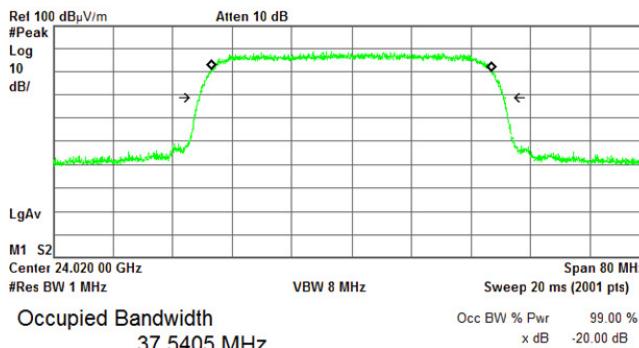
2048QAM

CARRIER FREQUENCY: Low

CARRIER FREQUENCY: Mid

* Agilent

R T

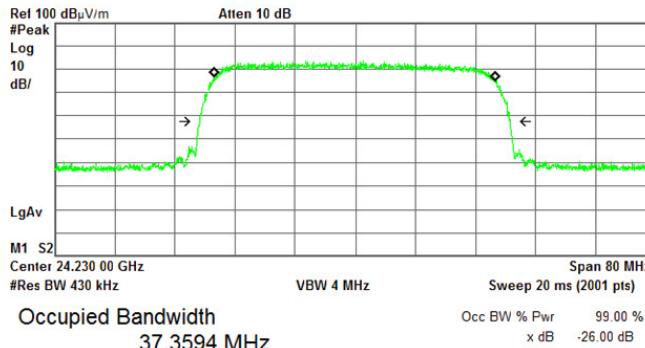
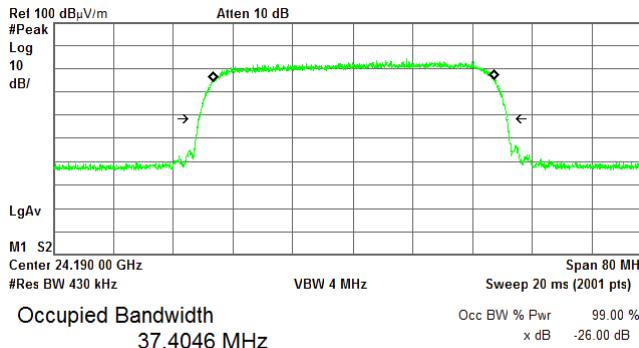
Transmit Freq Error -37.613 kHz
x dB Bandwidth 39.966 MHzTransmit Freq Error -25.121 kHz
x dB Bandwidth 39.978 MHz

CARRIER FREQUENCY: Mid

CARRIER FREQUENCY: High

* Agilent

R T

Transmit Freq Error 145.917 kHz
x dB Bandwidth 41.157 MHzTransmit Freq Error -104.725 kHz
x dB Bandwidth 39.943 MHz



HERMON LABORATORIES

Test specification: Section 15.215(c), Occupied bandwidth		
Test procedure:	ANSI C63.10 section 6.9.2	
Test mode:	Compliance	Verdict: PASS
Date(s):	02-Oct-17	
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa
Power: 48 VDC		
Remarks:		

Plot 7.3.7 Occupied bandwidth test result

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

50 MHz

MODULATION:

QPSK

CARRIER FREQUENCY: Low

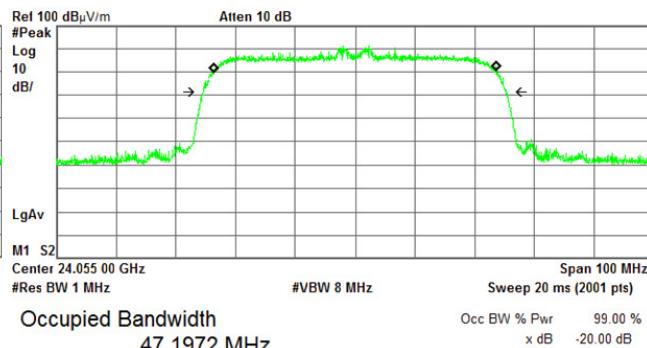
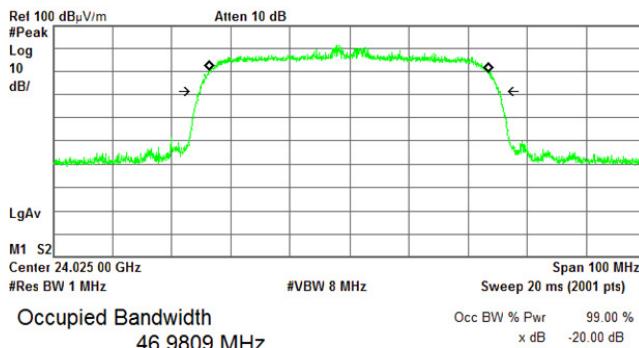
CARRIER FREQUENCY: Mid

Agilent

R T

Agilent

R T

Transmit Freq Error
x dB Bandwidth-64.547 kHz
49.916 MHzTransmit Freq Error
x dB Bandwidth-42.815 kHz
49.885 MHz

CARRIER FREQUENCY: Mid

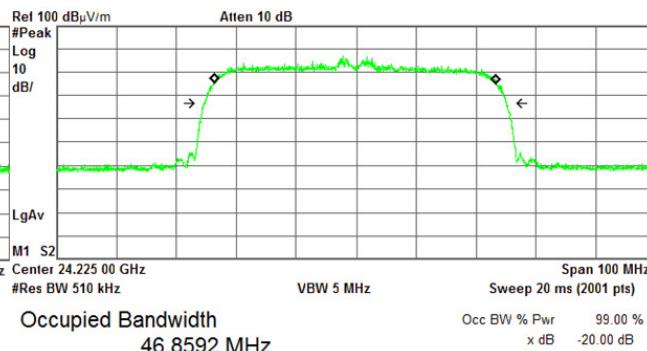
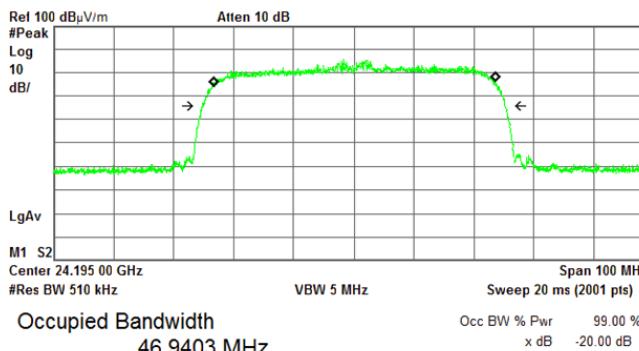
Agilent

R T

CARRIER FREQUENCY: High

Agilent

R T

Transmit Freq Error
x dB Bandwidth172.082 kHz
49.965 MHzTransmit Freq Error
x dB Bandwidth-128.400 kHz
49.970 MHz



HERMON LABORATORIES

Test specification: Section 15.215(c), Occupied bandwidth		
Test procedure:	ANSI C63.10 section 6.9.2	
Test mode:	Compliance	Verdict: PASS
Date(s):	02-Oct-17	
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa
Power: 48 VDC		
Remarks:		

Plot 7.3.8 Occupied bandwidth test result

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

50 MHz

MODULATION:

2048QAM

CARRIER FREQUENCY: Low

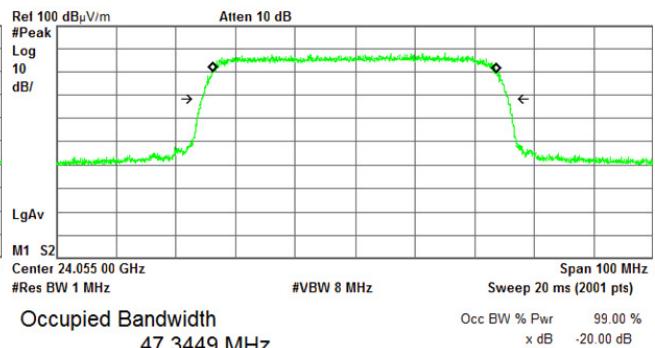
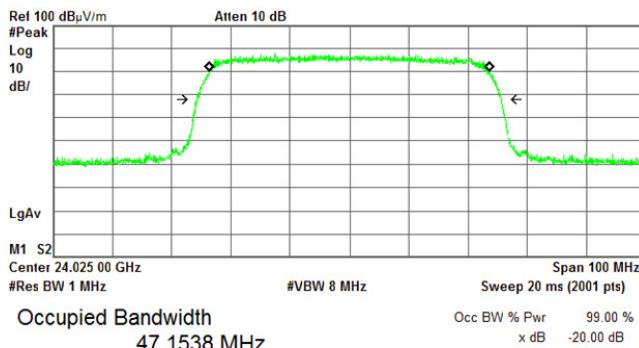
CARRIER FREQUENCY: Mid

Agilent

R T

Agilent

R T

Transmit Freq Error
x dB Bandwidth-6.750 kHz
49.906 MHzTransmit Freq Error
x dB Bandwidth-58.578 kHz
49.995 MHz

CARRIER FREQUENCY: Mid

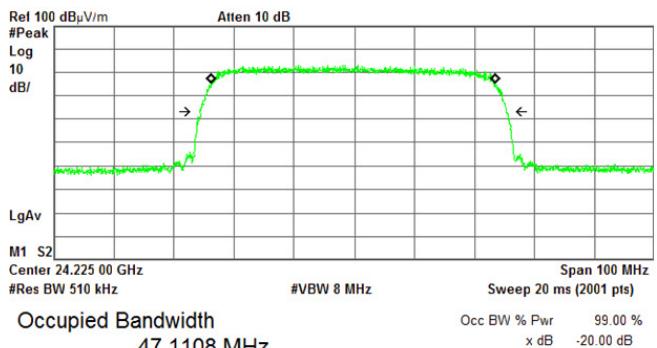
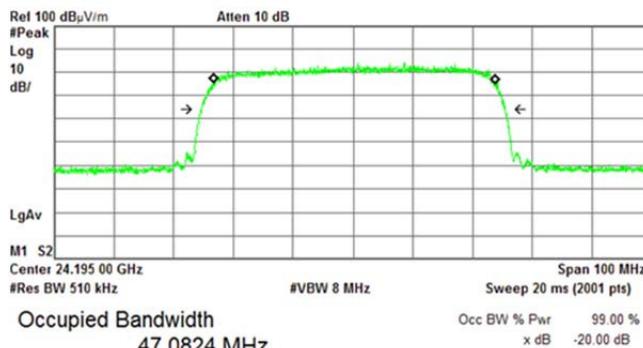
CARRIER FREQUENCY: High

Agilent

R T

Agilent

R T

Transmit Freq Error
x dB Bandwidth184.495 kHz
49.993 MHzTransmit Freq Error
x dB Bandwidth-123.697 kHz
49.960 MHz



HERMON LABORATORIES

Test specification: Section 15.215(c), Occupied bandwidth		
Test procedure: ANSI C63.10 section 6.9.2		
Test mode: Compliance		Verdict: PASS
Date(s): 02-Oct-17		
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa
Power: 48 VDC		
Remarks:		

Plot 7.3.9 Occupied bandwidth test result

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

60 MHz

MODULATION:

QPSK

CARRIER FREQUENCY: Low

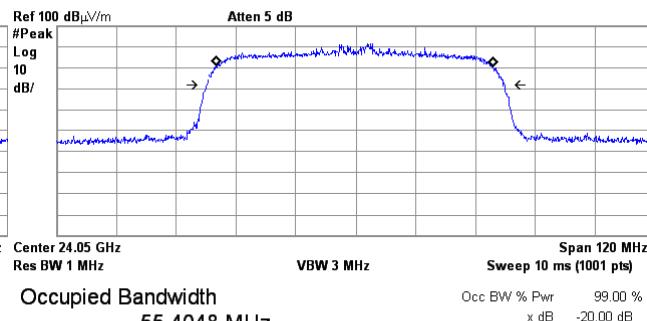
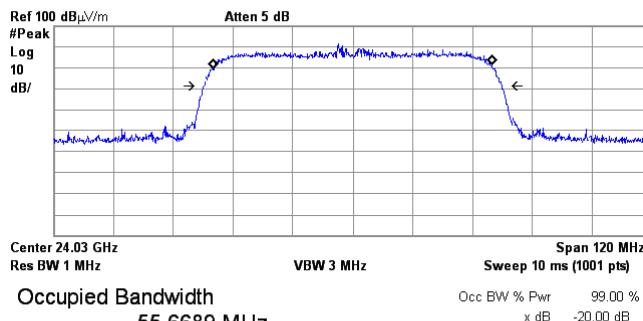
CARRIER FREQUENCY: Mid

Agilent

R T

Agilent

R T



CARRIER FREQUENCY: Mid

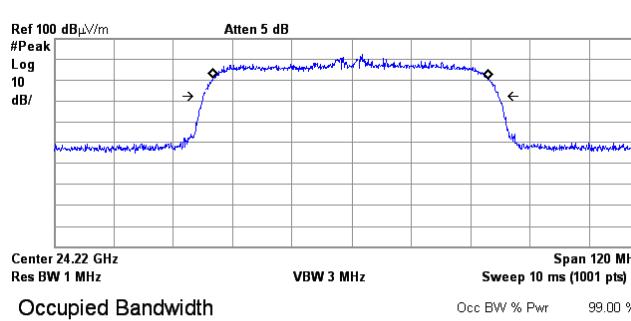
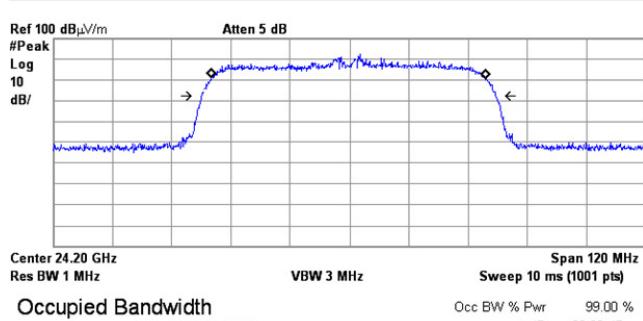
Agilent

R T

CARRIER FREQUENCY: High

Agilent

R T





HERMON LABORATORIES

Test specification: Section 15.215(c), Occupied bandwidth		
Test procedure: ANSI C63.10 section 6.9.2		
Test mode: Compliance	Verdict: PASS	
Date(s): 02-Oct-17		
Temperature: 24.3 °C	Relative Humidity: 47 %	Air Pressure: 1009 hPa
Remarks:		

Plot 7.3.10 Occupied bandwidth test result

TEST SITE:

Semi anechoic chamber

TEST DISTANCE:

3 m

ANTENNA POLARIZATION:

Vertical

EUT POSITION:

Typical (Vertical)

EMISSION BANDWIDTH:

60 MHz

MODULATION:

2048QAM

CARRIER FREQUENCY: Low

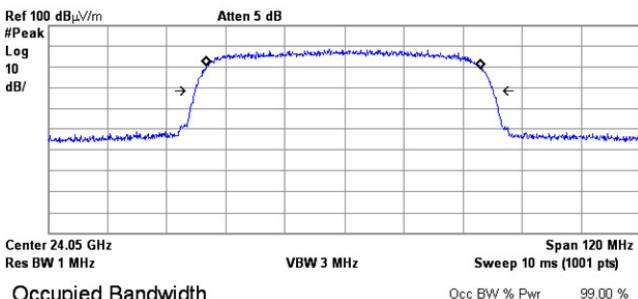
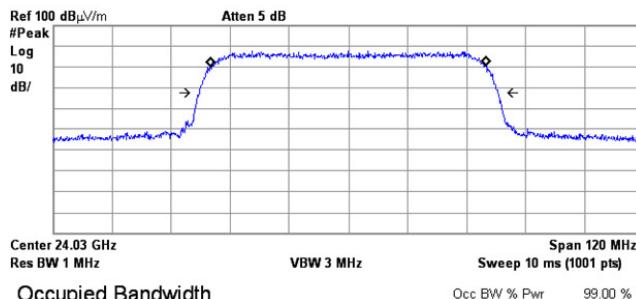
CARRIER FREQUENCY: Mid

Agilent

R T

Agilent

R T



Transmit Freq Error

9.487 kHz

x dB Bandwidth

59.607 MHz

Transmit Freq Error

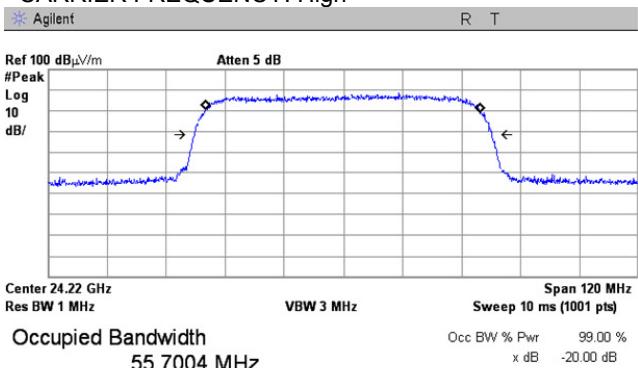
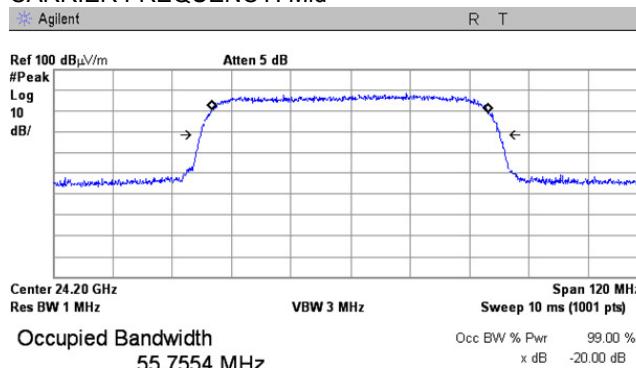
-79.373 kHz

x dB Bandwidth

59.344 MHz

CARRIER FREQUENCY: Mid

CARRIER FREQUENCY: High



Transmit Freq Error

-83.354 kHz

x dB Bandwidth

59.934 MHz

Transmit Freq Error

-83.250 kHz

x dB Bandwidth

59.404 MHz