





 Test specification:
 Section 96.41(e), Emission mask

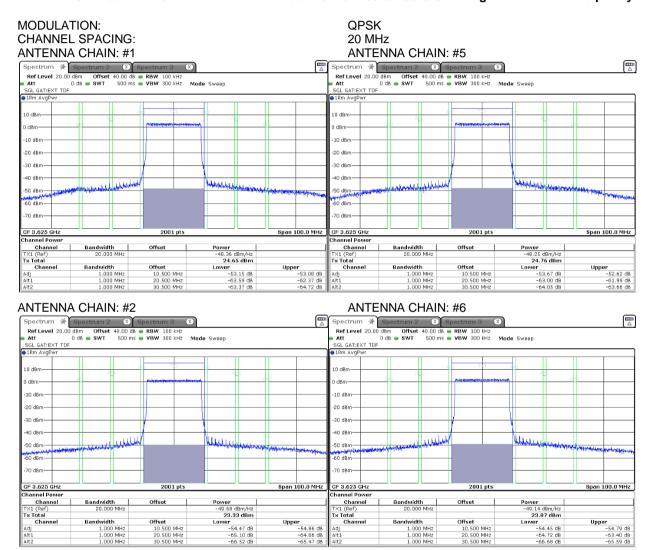
 Test procedure:
 Section 96.41(e)(3)

 Test mode:
 Compliance
 Verdict:
 PASS

 Date(s):
 04-Aug-20
 Air Pressure: 1010 hPa
 Power: 63 VAC, 50 Hz

 Remarks:
 Relative Humidity: 49 %
 Air Pressure: 1010 hPa
 Power: 63 VAC, 50 Hz

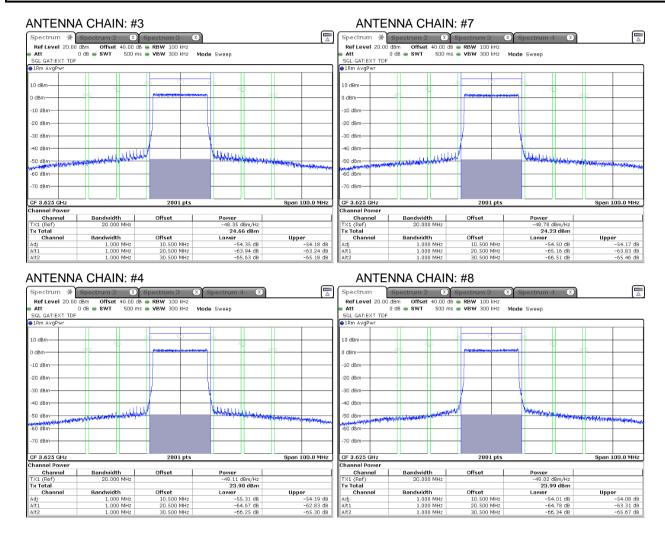
Plot 7.4.20 Emission outside the fundamental test results in 3575 - 3675 GHz range at mid carrier frequency







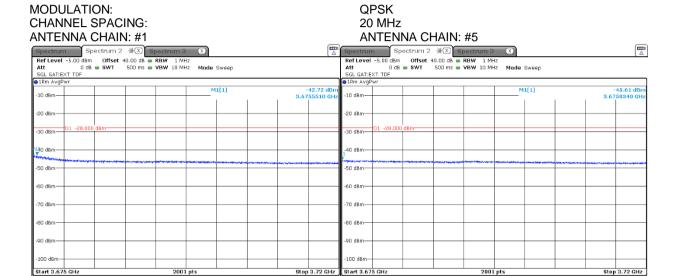
Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	04-Aug-20	verdict.	PASS
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 63 VAC, 50 Hz
Remarks:	-		

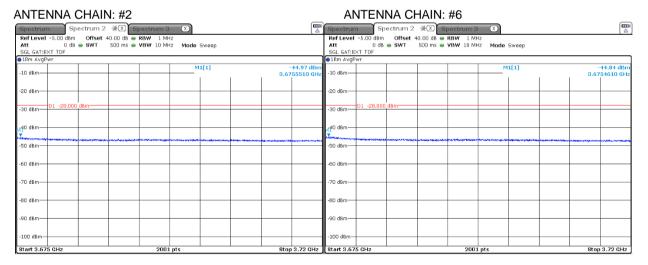






Plot 7.4.21 Emission outside the fundamental test results in 3675 - 3720 GHz range at mid carrier frequency

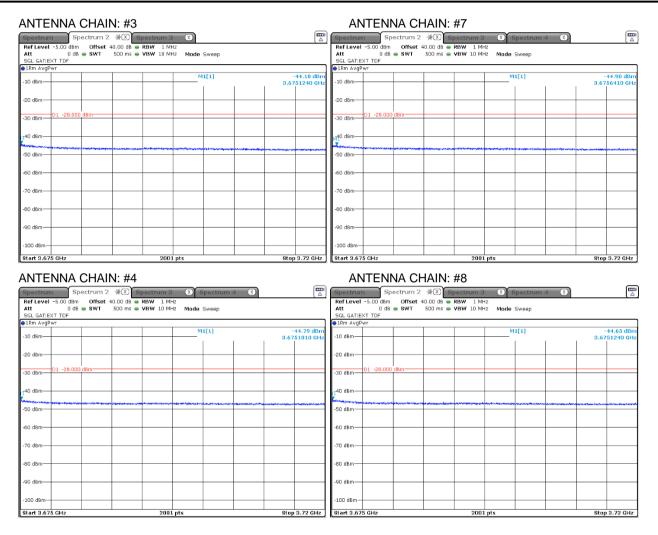








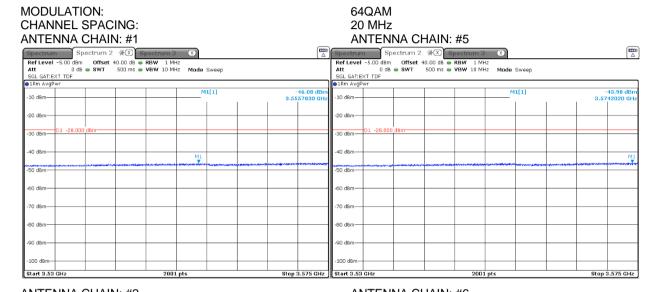
Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	04-Aug-20	verdict.	PASS
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 63 VAC, 50 Hz
Remarks:	-		

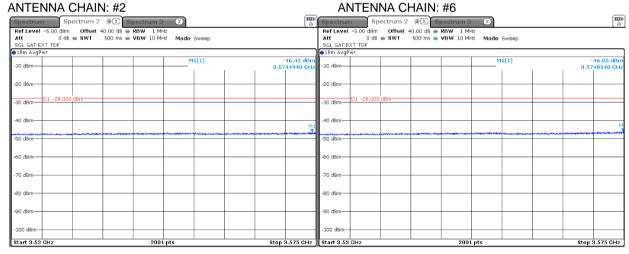






Plot 7.4.22 Emission outside the fundamental test results in 3530 - 3575 GHz range at mid carrier frequency

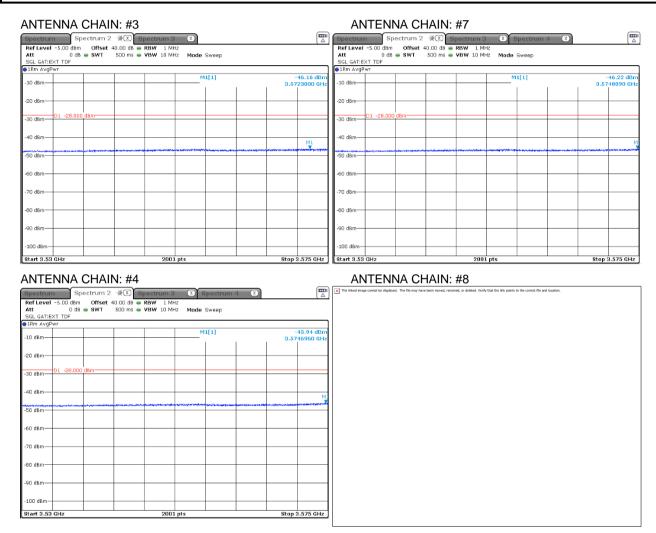








Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	04-Aug-20	verdict.	PASS
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 63 VAC, 50 Hz
Remarks:	-		







 Test specification:
 Section 96.41(e), Emission mask

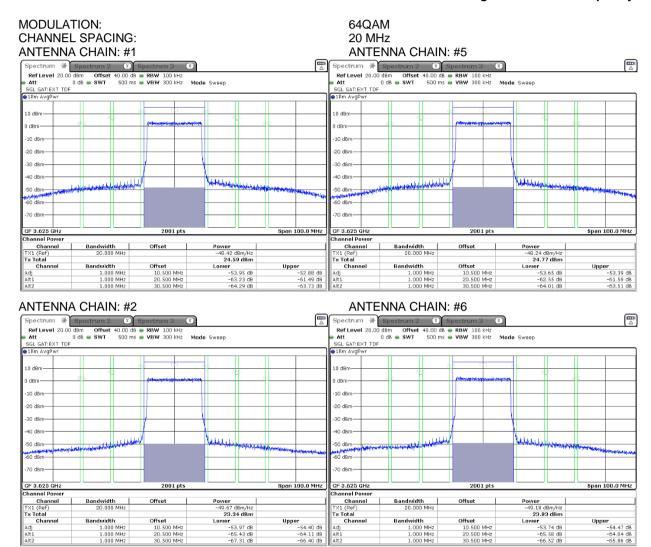
 Test procedure:
 Section 96.41(e)(3)

 Test mode:
 Compliance
 Verdict:
 PASS

 Date(s):
 04-Aug-20
 Air Pressure: 1010 hPa
 Power: 63 VAC, 50 Hz

 Remarks:
 Relative Humidity: 49 %
 Air Pressure: 1010 hPa
 Power: 63 VAC, 50 Hz

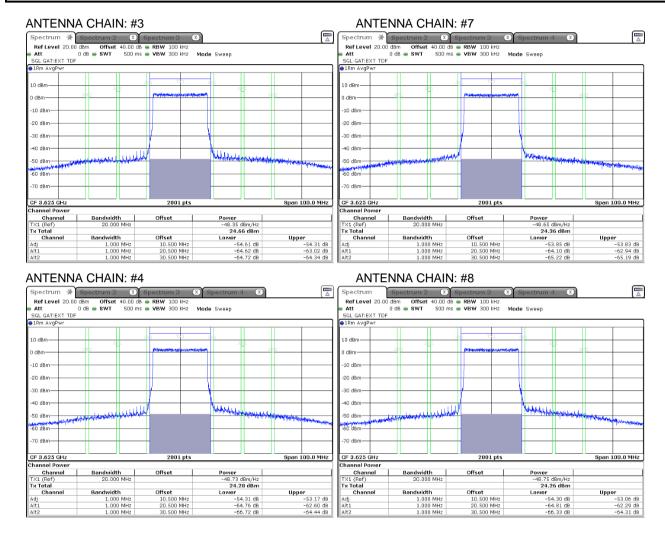
Plot 7.4.23 Emission outside the fundamental test results in 3575 - 3675 GHz range at mid carrier frequency







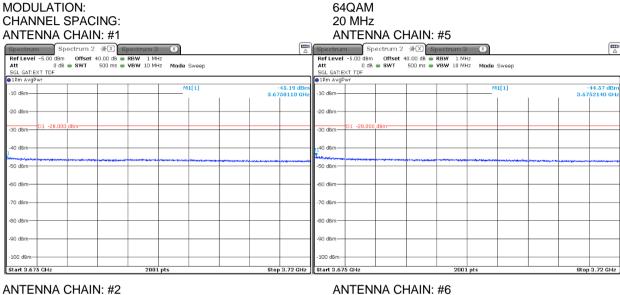
Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	04-Aug-20	verdict.	PASS
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 63 VAC, 50 Hz
Remarks:	-		

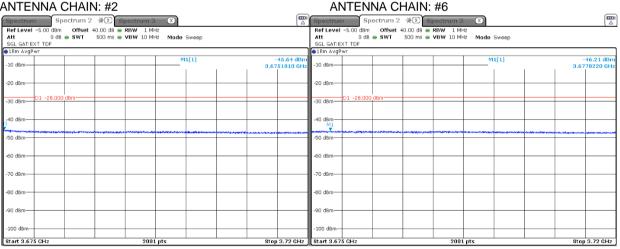






Plot 7.4.24 Emission outside the fundamental test results in 3675 - 3720 GHz range at mid carrier frequency

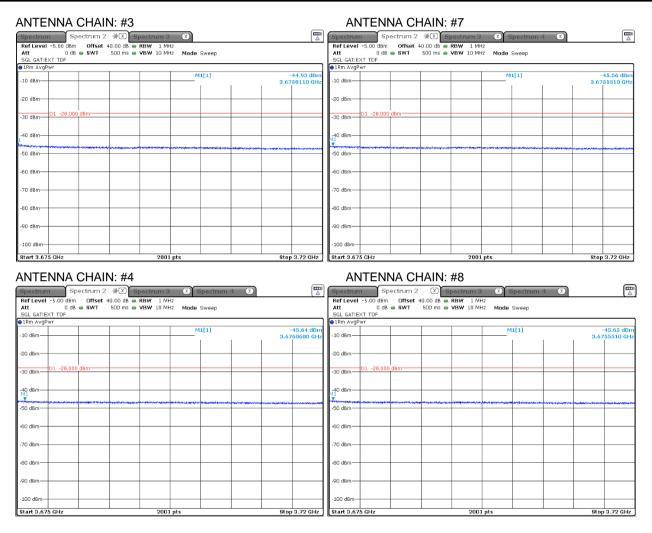








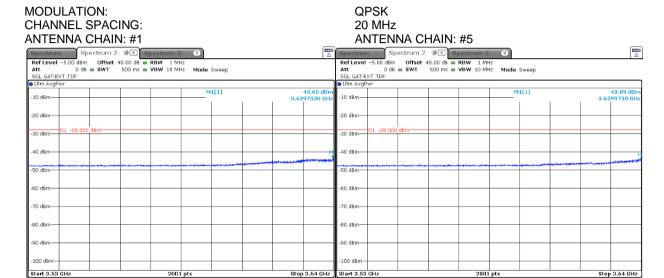
Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	04-Aug-20	verdict.	PASS
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 63 VAC, 50 Hz
Remarks:			

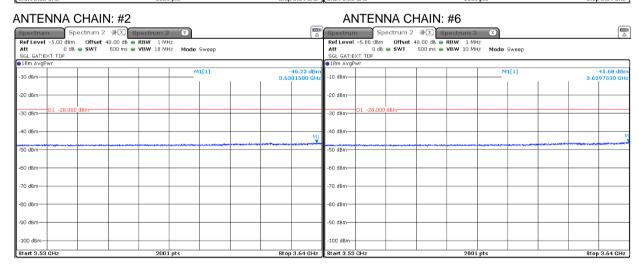


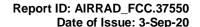




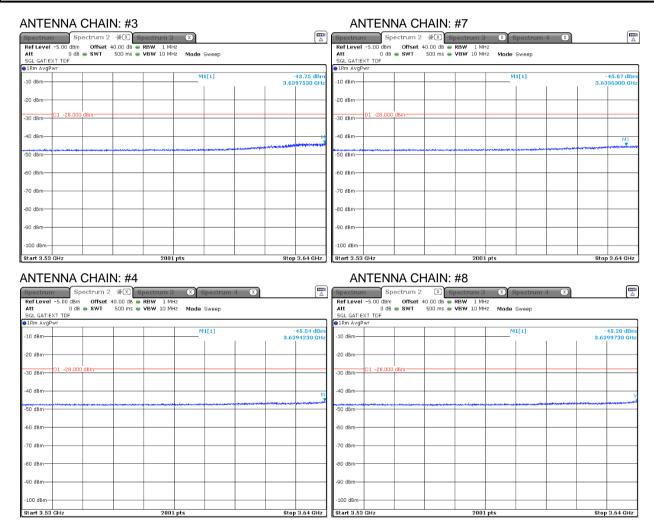
Plot 7.4.25 Emission outside the fundamental test results in 3530 – 3640 GHz range at high carrier frequency















-60 dBm-

70 dBm

CF 3.69 GH

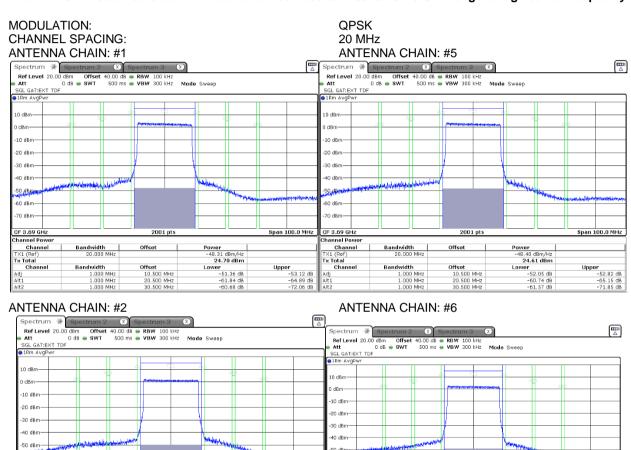
Channel
TX1 (Ref)
Tx Total
Channel

Bandwidth 20.000 MHz

Bandwidth

Test specification: Section 96.41(e), Emission mask Section 96.41(e)(3) Test procedure: Test mode: Compliance Verdict: **PASS** Date(s): 04-Aug-20 Temperature: 24.2 °C Air Pressure: 1010 hPa Power: 63 VAC, 50 Hz Relative Humidity: 49 % Remarks:

Plot 7.4.26 Emission outside the fundamental test results in 3640 - 3740 GHz range at high carrier frequency



50 dBm

60 dBm

70 dBm

Channel Power
Channel
TX1 (Ref)
Tx Total
Channel

Adj Alt1 Alt2

Bandwidth 20,000 MH;

1.000 MHz 1.000 MHz

20.500 MHz 30.500 MHz

Span 100.0 MHz

2001 pts

Offset

Power -49.61 dBm/Hz 23.40 dBm Lower -52.45 dB -62.33 dB -63.60 dB

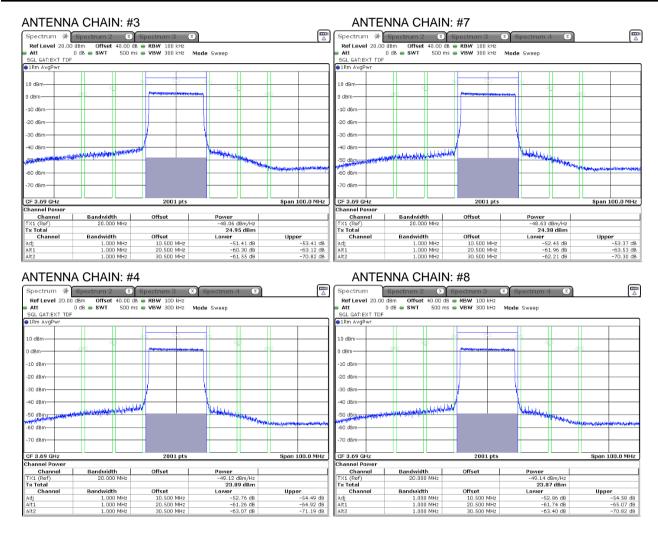
Upper -53.67 dB -64.48 dB -71.20 dB

Power
-48.97 dBm/Hz
24.04 dBm
Lower
-51.96 dB
-61.30 dB
-63.42 dB





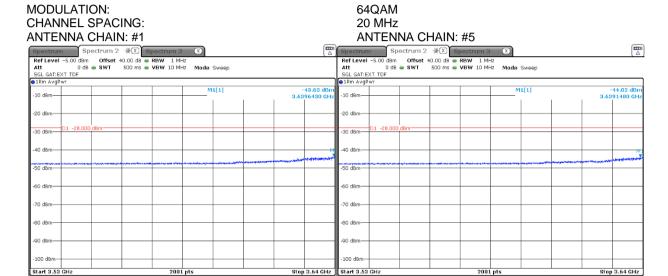
Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	04-Aug-20	verdict.	PASS
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 63 VAC, 50 Hz
Remarks:			

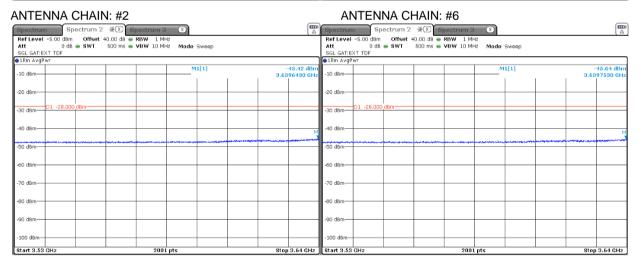






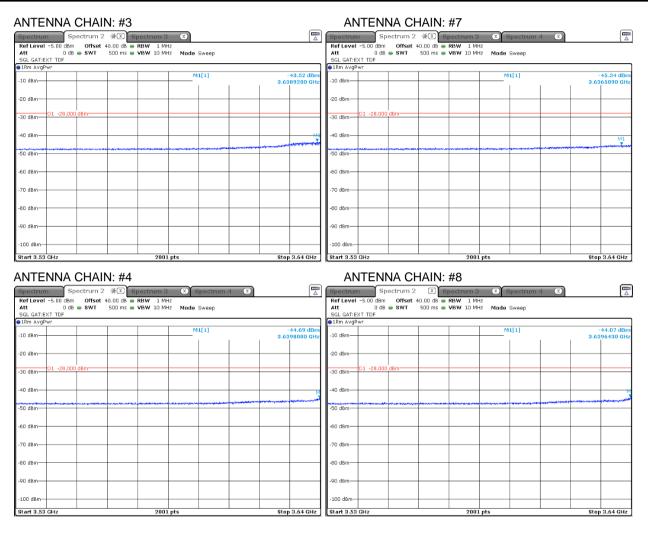
Plot 7.4.27 Emission outside the fundamental test results in 3530 - 3640 GHz range at high carrier frequency









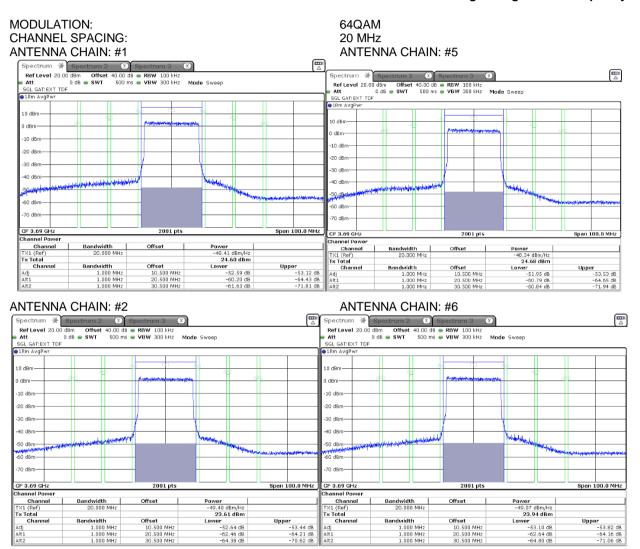






Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	04-Aug-20	verdict.	PASS
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 63 VAC, 50 Hz
Remarks:			

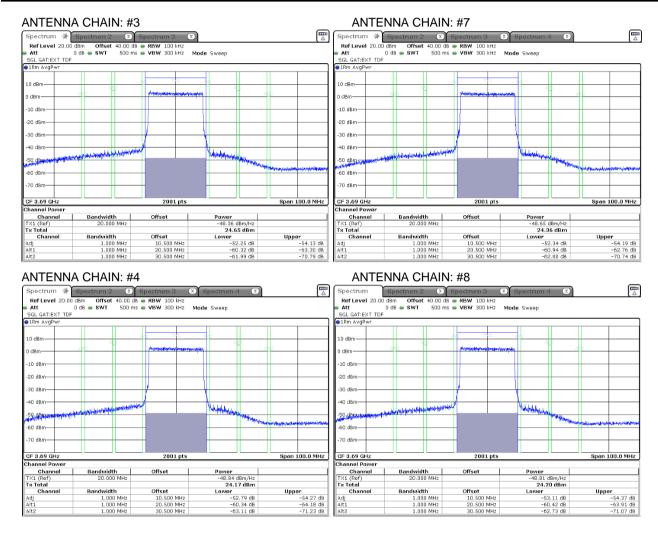
Plot 7.4.28 Emission outside the fundamental test results in 3640 - 3740 GHz range at high carrier frequency







Test specification:	Section 96.41(e), Emission mask		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	04-Aug-20	verdict.	PASS
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 63 VAC, 50 Hz
Remarks:			







Test specification:	Section 96.41(e)(2), Radiated spurious emissions		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	26-Aug-20	verdict.	PASS
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

7.5 Radiated spurious emission measurements

7.5.1 General

This test was performed to measure radiated spurious emissions from the EUT. Specification test limits are given in Table 7.5.1.

Table 7.5.1 Radiated spurious emission test limits

Frequency, MHz	EIRP of spurious, dBm	Equivalent field strength limit @ 3m, dB(μV/m)***
0.09 - below 3530.0	-40.0	55.2
3720.0 - 10th harmonic*	-40.0	55.2

^{*** -} Equivalent field strength limit was calculated from maximum allowed ERP of spurious as follows: E=sqrt(30xPx1.64)/r, where P is ERP in Watts, 1.64 is numeric gain of ideal dipole and r is antenna to EUT distance in meters

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

- 7.5.2.1 The EUT was set up as shown in Figure 7.5.1, energized and the performance check was conducted.
- **7.5.2.2** The specified frequency range was investigated with antenna connected to spectrum analyzer. To find maximum radiation the turntable was rotated 360° and the measuring antenna was rotated around its vertical axis.
- 7.5.2.3 The worst test results (the lowest margins) were recorded in Table 7.5.2 and shown in the associated plots.

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

- 7.5.3.1 The EUT was set up as shown in Figure 7.5.2, energized and the performance check was conducted.
- **7.5.3.2** The specified frequency range was investigated with antenna connected to spectrum analyzer. To find maximum radiation the turntable was rotated 360⁰ and the measuring antenna height was swept from 1 to 4 m in both, vertical and horizontal, polarizations.
- 7.5.3.3 The worst test results (the lowest margins) were recorded in Table 7.5.2 and shown in the associated plots.



Test specification:	Section 96.41(e)(2), Radiated spurious emissions		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	26-Aug-20	verdict.	PASS
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

Figure 7.5.1 Setup for spurious emission field strength measurements in 9 kHz to 30 MHz band

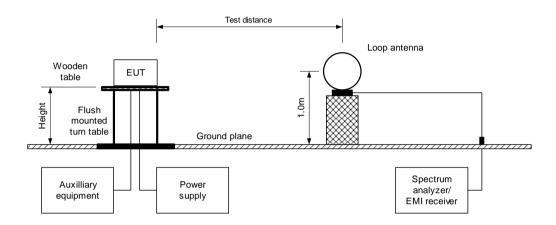
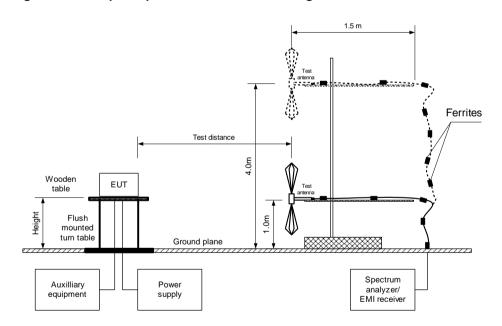


Figure 7.5.2 Setup for spurious emission field strength measurements above 30 MHz







Test specification:	Section 96.41(e)(2), Radiated spurious emissions		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	26-Aug-20	verdict.	PASS
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

Table 7.5.2 Spurious emission field strength test results

ASSIGNED FREQUENCY RANGE: 3550 - 3700 MHz

TEST DISTANCE: 3 m

TEST SITE: Semi anechoic chamber INVESTIGATED FREQUENCY RANGE: 0.009 – 1000 MHz

DETECTOR USED: Peak

VIDEO BANDWIDTH: > Resolution bandwidth
TEST ANTENNA TYPE: Active loop (9 kHz – 30 MHz)
Biconilog (30 MHz – 1000 MHz)

MODULATION: QPSK MODULATING SIGNAL: PRBS TRANSMITTER OUTPUT POWER SETTINGS: Maximum

Frequency, MHz	Field strength, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*	RBW, kHz	Antenna polarization	Antenna height, m	Turn-table position**, degrees	
34.942833	41.89	55.20	-13.31	100	V	1.02	-111.0	
39.438468	41.91	55.20	-13.29	100	V	1.04	151.0	
41.109500	37.35	55.20	-17.85	100	V	1.02	151.0	
46.103500	37.44	55.20	-17.76	100	V	1.02	35.0	
55.188833	30.81	55.20	-24.39	100	V	1.32	-180.0	
90.581500	34.69	55.20	-20.51	100	V	1.02	-116.0	
164.776167	46.99	55.20	-8.21	100	V	1.04	114.0	
212.948167	43.99	55.20	11.21	100	Н	1.32	-180.0	
236.682333	32.73	55.20	22.47	100	Н	1.00	-31.0	

^{*-} Margin = Field strength of spurious – calculated field strength limit.

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



Test specification: Section 96.41(e)(2), Radiated spurious emissions						
Test procedure:	Section 96.41(e)(3)					
Test mode:	Compliance	Verdict:	PASS			
Date(s):	26-Aug-20	verdict.	PASS			
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz			
Remarks:						

Table 7.5.3 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY RANGE: 3550 - 3700 MHz

TEST DISTANCE: 3 m

TEST SITE: Semi anechoic chamber INVESTIGATED FREQUENCY RANGE: 0.009 – 1000 MHz

DETECTOR USED: Peak

VIDEO BANDWIDTH: > Resolution bandwidth

TEST ANTENNA TYPE: Double ridged guide (above 1000 MHz)

MODULATION: QPSK
MODULATING SIGNAL: PRBS
TRANSMITTER OUTPUT POWER SETTINGS: Maximum

Frequency, MHz	Antenna		A ! 4 !-	Peak field strength(VBW=3 MHz)		Average field strength(VBW=10 Hz)			
	Polarization	Height, m	Azimuth, degrees*	Measured, dB(μV/m)	.,	Margin, dB**	Measured, dB(μV/m)	Limit, dB(μV/m)	Margin, dB***
Low carrier frequency									
No emissions were found								Pass	
Mid carrier frequency									
No emissions were found.								Pass	
High carrier frequency									
No emissions were found.								Pass	

Reference numbers of test equipment used

HL 4360	HL 5288	HL 0446	HL 5085	HL 5105	HL 4933	HL 3903	HL 5112
HL 4956							

Full description is given in Appendix A.

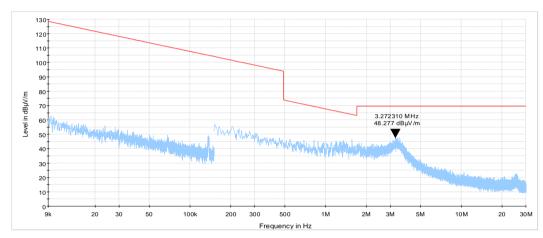


Test specification: Section 96.41(e)(2), Radiated spurious emissions						
Test procedure:	Section 96.41(e)(3)					
Test mode:	Compliance	Verdict:	PASS			
Date(s):	26-Aug-20	verdict: PASS				
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz			
Remarks:						

Plot 7.5.1 Radiated emission measurements in 9 kHz - 30 MHz range

TEST SITE: Semi anechoic chamber

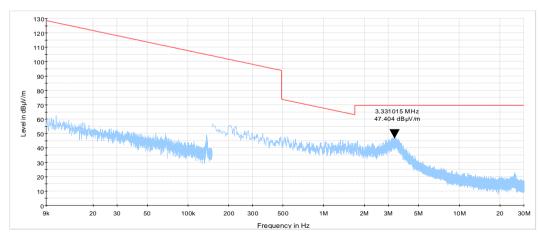
CARRIER FREQUENCY: Low TEST DISTANCE: 3 m



Plot 7.5.2 Radiated emission measurements in 9 kHz - 30 MHz range

TEST SITE: Semi anechoic chamber

CARRIER FREQUENCY: Mid TEST DISTANCE: 3 m





Test specification:	cification: Section 96.41(e)(2), Radiated spurious emissions						
Test procedure:	Section 96.41(e)(3)						
Test mode:	Compliance	Verdict:	PASS				
Date(s):	26-Aug-20	Verdict: PASS					
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz				
Remarks:							

Plot 7.5.3 Radiated emission measurements in 9 kHz - 30 MHz range

TEST SITE:

CARRIER FREQUENCY:

High
TEST DISTANCE:

Semi anechoic chamber
High
3 m

