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ELECTRICAL TESTING
1633.01

TEST REPORT

ACCORDING TO:

FCC 47 CFR part 15 subpart C §15.247

FCC 47 CFR Part 15, Subpart B, ANSI C63.4:2014

FOR:

SCIO SOLUTIONS LTD

SCiO Cup

Model: SCCUP01B

FCC ID: 2BLF2-SCM004

Revision table

Revision	Description	Affected pages	Date	Approval
–	New release	All	09.09.2024	Michael
Rev.1	FCC ID added on main page	Page 1	14.11.2024	Michael

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1 Applicant information

Client name:	SCIO SOLUTIONS LTD
Address:	6 Hanagar St., Hod Hasharon 4527703, Israel
Telephone:	054-4595460
E-mail:	uk@consumerphysics.com
Contact name:	Uri Kinrot

2 Equipment under test attributes

Product name:	SCiO Cup
Model(s):	SCCUP01B
Serial number:	Prototype
Hardware version:	6.3
Condition of equipment:	Operational
Receipt date:	02-May-24

3 Manufacturer information

Manufacturer name:	SCIO SOLUTIONS LTD
Address:	6 Hanagar St., Hod Hasharon 4527703, Israel
Telephone:	054-4595460
E-Mail:	uk@consumerphysics.com
Contact name:	Uri Kinrot

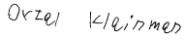
4 Test details

Project ID:	50320
Location:	Hermon Laboratories Ltd. HaSivim 43, Petach Tikva, Israel
Test started:	20-Mar-24
Test completed:	16-Jun-24
Test specification(s):	FCC 47 CFR part 15 subpart C §15.247

5 Tests summary

Test	Status
Transmitter tests according to 47CFR part 15 subpart C requirements	
Section 15.247(a)2, 6 dB bandwidth	Pass
Section 15.247(d), Radiated spurious emissions	Pass
Section 15.247(b)3, Peak output power	Pass
Section 15.247(b)5, RF exposure	Not required
Section 15.247(d), Band edge emissions	Pass
Section 15.247(d), Peak power density	Pass
Section 15.207(a), Conducted emission	Pass
Emission tests according to 47CFR part 15 subpart B requirements	
Section 15.107, Conducted emission at AC power port	Pass
Section 15.109, Radiated emission	Pass

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested.
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

	Name and Title	Date	Signature
Testing performed by:	Ortal Klainman, Test Engineer, EMC and Radio	30.07.2024	
	Michael Shtier, Test Engineer, EMC and Radio	30.07.2024	
	Guy Arhondov, Test Engineer, EMC and Radio	30.07.2024	
Test report prepared by:	Bina Talkar, Technical Writer, EMC and Radio	30.07.2024	
Test report reviewed by:	Michael Gudovsky, Team Leader, EMC and Radio	30.07.2024	
Test report approved by:	Michael Nikishin, Head of Department, EMC and Radio	30.07.2024	

6 General information

6.1 EUT details

Note: Details in §6.1 below are provided by the customer and represent his sole responsibility.

6.1.1 Description

The SCiO Cup (shortly, “Cup”) is a Near-Infrared (NIR) spectrometer intended for laboratory and field use, shaped as a large cup. It provides material analysis for samples inserted into the Cup sample volume.
The Cup includes two main sections: (1) sample volume, and (2) spectrometer. The interface between the two sections is the upper body of the Cup together with a glass dome.
The sample for analysis is placed in the sample volume and covers a hemi-spherical glass dome. The sample is typically agriculture foods such as seeds, silage and legume.
To measure the sample characteristics, an illumination source (a 1.25W incandescent bulb) located inside the glass dome illuminates the sample through the transparent glass dome. The proprietary spectrometer located in the center of the glass dome receives some of the light reflected from the sample, and measures the spectral distribution of the reflected illumination. The characteristics of the intensity and spectral distribution received by the spectrometer is analyzed partly by a DSP inside the Cup and partly using mobile phone application and web services. The mobile phone and the Cup are connected using Bluetooth Low Energy (BLE) wireless connection.

The EUT device includes hardware and firmware embedded in the main DSP processor and in the BLE chip. In normal operation it is connected by the Bluetooth radio to a host device (smartphone). The host device sends SCAN commands to the EUT through the Bluetooth link, receives the sampled data and upload the data to the cloud via internet (through WiFi or cellular connection of the host). For the certification tests, we use a software apps called SCiO LAB (version 3.0.9) that allows to operate the EUT in the maximum rate and get the data in a format that allows to test it quickly. This ‘raw’ data is loaded to the cloud. In some tests, when we only need to operate at maximum rate but there is no need to load the data to the cloud, another SW is used (SDK, version 1.3.6.0). Normal users use different SW applications that do not have the features needed for the certification tests. However, the interface of the different SW with the EUT is the same in all cases.

For some radio emission tests, the EUT main board with radio is connected to 3rd party HW and SW to enable manual control of the radio parameters required by the test procedure.

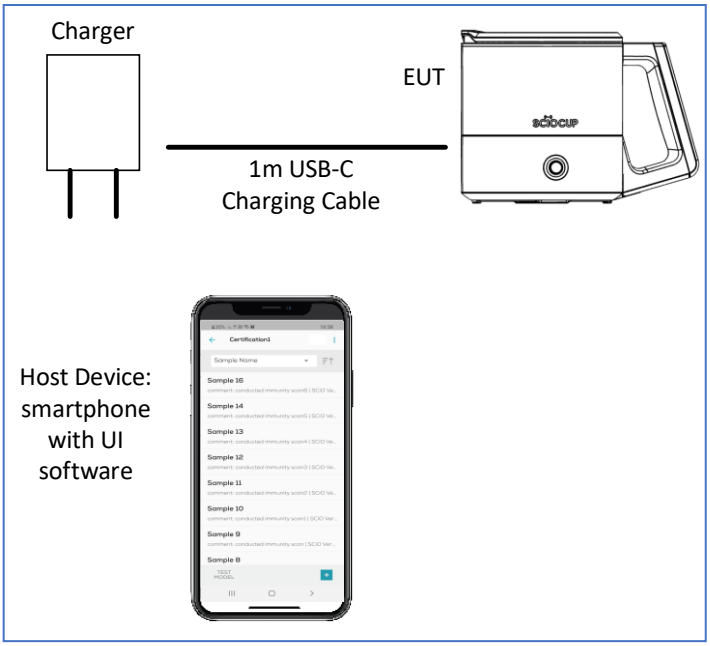
Product environment/platform/ classification: suitable for indoor and outdoor operation.

Supplied power: the Cup is powered by a rechargeable 1800mAh Polymer Li-ion battery that can be charged at any time (also during operation).

6.1.2 Mechanical characteristics

The Equipment Under Test (EUT) measures (H) 236 mm by (W) 160 mm by (D) 170 mm.
The Equipment Under Test (EUT) weighs 0.8 kg.

6.1.3 EUT configuration:



6.1.4 Power supply

Type	Min	Nominal	Max
Charger			
Voltage (V)	4.2	5	5.5
Current (A)	0	0.5	0.9
Frequency (Hz)	DC	DC	DC
Battery			
Voltage (V)	3.5	3.7	4.2
Current (A)	0	0.2	2.4
Frequency (Hz)	DC	DC	DC

6.1.5 Options/configurations

Mode	Description	Configuration
Power Off	Shutoff	3s press on button from power on modes
Not Connected	Power is on, before BLE connection with host is established	1s press on button from power off mode
Connected, Standby	Connection with host is established, waiting for scan command from host or button	Use host SW interface to connect to EUT BLE
Connected, Active	scan command from host or button was received	Use host SW to configure sample conditions

Note: Tests were performed according to the following sequence:

1. Power Off → Not Connected (press button for 1s).
2. Not Connected → Connected, Standby (via host application on smartphone).
3. Connected, Standby → Active (SCAN command from smartphone).
4. Connected, Active → Standby (after sending the data to the host, the EUT automatically returns to Standby, waiting for next SCAN command).
5. Repeat steps 3 and 4 until no additional scans is required.
6. Connected → Power Off (by the user at end of test).

6.1.6 Auxiliary equipment

Description	Manufacturer	Model number	Serial number
smartphone	Samsung	S21	N/A

6.1.7 EUT Modules

Description	Manufacturer	Model or P/N	Hardware rev.	Serial number	Slot
SCiO Cup	Verifood Ltd.	SCCUP01B	6.3	N/A (prototype)	N/A

6.1.8 Ports and lines

Port type	Port description	Conn. from	Conn. to	Qty.	Cable type	Cable length	Indoor / outdoor
USB	USB-C	External charge cable	Internal circuits	1	USB3.0	1m	Indoor / outdoor

6.1.9 Operating frequencies

Location	Frequency [MHz]
Scan operating frequency	1/8 Hz
Bluetooth operating frequency	2402-2480MHz

6.1.10 Performance verification:

The EUT collects data that is always partly random due to inherent physical effects. In order to verify that the device performs normally and is not affected due to the test conditions, a fixed reference (a white lid closing the Cup) is scanned by the EUT and the deviation from the nominal scan result is compared to the expected deviation of scanning the same white lid in normal conditions. If the random deviation is similar in magnitude to the expected variation then the result is accepted.

6.1.11 Performance criteria

Performance criterion A:

The EUT shall continue to operate as intended. No degradation of performance or loss of functionality is allowed below a performance level specified by the manufacturer.
Normal Performance for criteria A is specified as:

- All initiated scans are completed and transferred to the host device.
- All scans of test lid are within expected normal random variation from a reference scan.

Performance criterion B:

The EUT shall continue to operate as intended after the test. No degradation of performance or loss of functionality is allowed below a performance level specified by the manufacturer. During the exposure to electromagnetic phenomenon, degradation of performance is, however, allowed. No change of actual operation state or stored data is allowed.
Minimum performance level for criteria B is specified as:

- All scans are either completed and transferred to the host device and within normal random variation from a reference scan, or identified to the user as not completed properly.

Performance criterion C:

Temporary loss of functionality is allowed, provided the function is self- recoverable or can be restored by the operation of the controls.

Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

7 Transmitter tests according to 47CFR part 15 subpart C requirements

7.1 Minimum 6 dB bandwidth

7.1.1 General

This test was performed to measure 6 dB bandwidth of the EUT carrier frequency. Specification test limits are given in Table 7.1.1.

Table 7.1.1 6 dB bandwidth limits

Assigned frequency, MHz	Modulation envelope reference points*, dBc	Minimum bandwidth, kHz
902.0 – 928.0	6.0	500.0
2400.0 – 2483.5		
5725.0 – 5850.0		

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

7.1.2 Test procedure

7.1.2.1 The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.

7.1.2.2 The EUT was set to transmit modulated carrier.

7.1.2.3 The transmitter minimum 6 dB bandwidth was measured with spectrum analyzer as frequency delta between reference points on modulation envelope and provided in Table 7.1.2 and associated plot.

Figure 7.1.1 6 dB bandwidth test setup

Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Photograph 7.1.1 6 dB bandwidth test setup

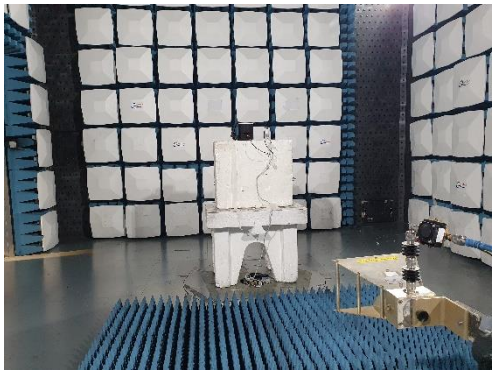
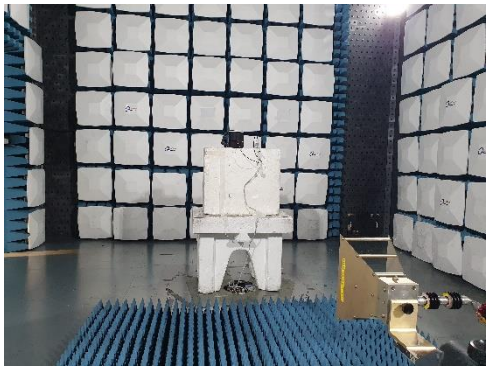
Vertical	Horizontal
	

Table 7.1.2 6 dB bandwidth test results

ASSIGNED FREQUENCY BAND: 2400-2483.5MHz
DETECTOR USED: Peak
SWEEP MODE: Single
SWEEP TIME: Auto
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
MODULATION ENVELOPE REFERENCE POINTS: 6.0 dBc
MODULATION: GFSK

BIT RATE: 1Mbps

Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
Low frequency				
2402	692.4	500	192.4	pass
Mid frequency				
2440	683.9	500	183.9	pass
High frequency				
2480	690.4	500	190.4	pass

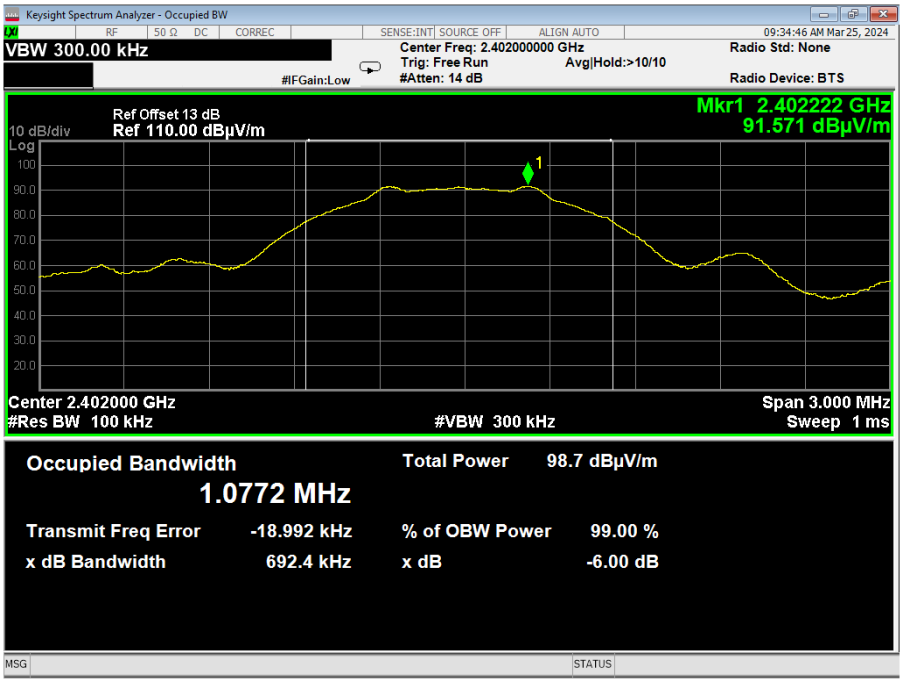
Reference numbers of test equipment used

HL 6574	HL 6576	HL 6678	HL 6892	HL 8092			

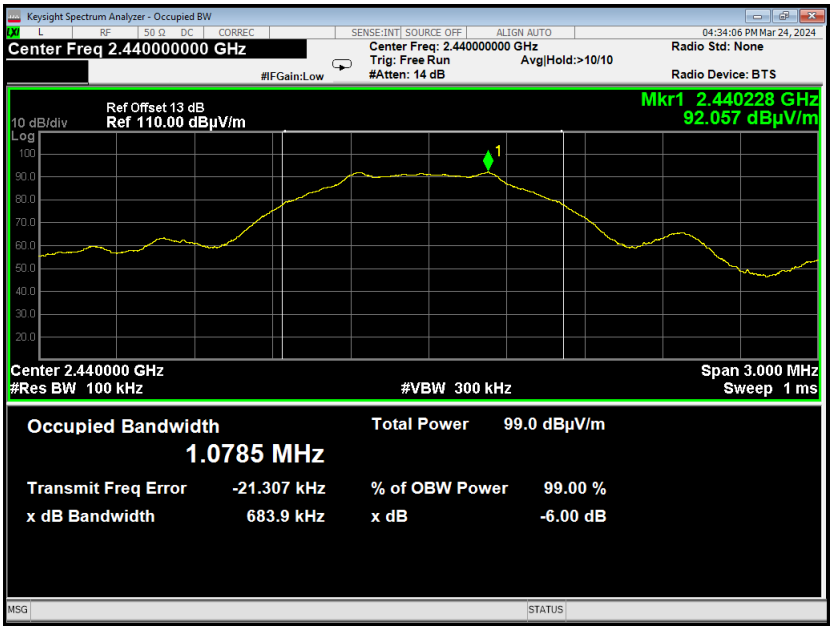
Full description is given in Appendix A.

Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Plot 7.1.1 6 dB bandwidth test result at low frequency

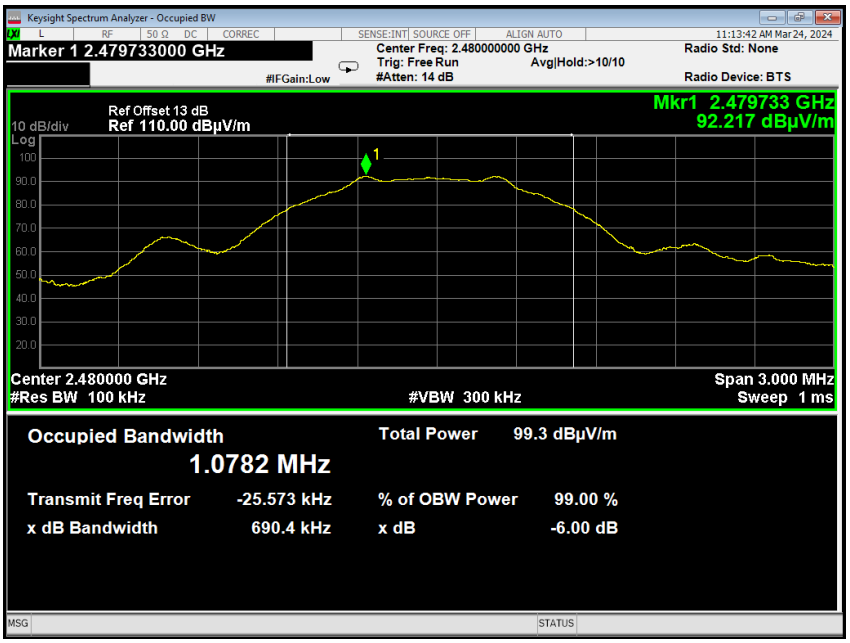


Plot 7.1.2 6 dB bandwidth test result at mid frequency



Test specification:	Section 15.247(a)2, 6 dB bandwidth		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Plot 7.1.3 6 dB bandwidth test result at high frequency



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

7.2 Field strength of spurious emissions

7.2.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 7.2.1.

Table 7.2.1 Radiated spurious emissions limits

Frequency, MHz	Field strength at 3 m within restricted bands, dB(μV/m)*			Attenuation of field strength of spurious versus carrier outside restricted bands, dBc***
	Peak	Quasi Peak	Average	
0.009 – 0.090	148.5 – 128.5	NA	128.5 – 108.5**	20.0
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	NA	73.8 – 63.0**	NA	
1.705 – 30.0*		69.5		
30 – 88		40.0		
88 – 216		43.5		
216 – 960		46.0		
960 - 1000		54.0		
1000 – 10th harmonic	74.0	NA	54.0	

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

$$Lim_{S2} = Lim_{S1} + 40 \log (S_1/S_2),$$

where S_1 and S_2 – standard defined and test distance respectively in meters.
**- The limit decreases linearly with the logarithm of frequency.
*** - The 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.

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 specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0 and the measuring antenna was rotated around its vertical axis.

7.2.2.3 The worst test results (the lowest margins) were recorded and shown in the associated plots.

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

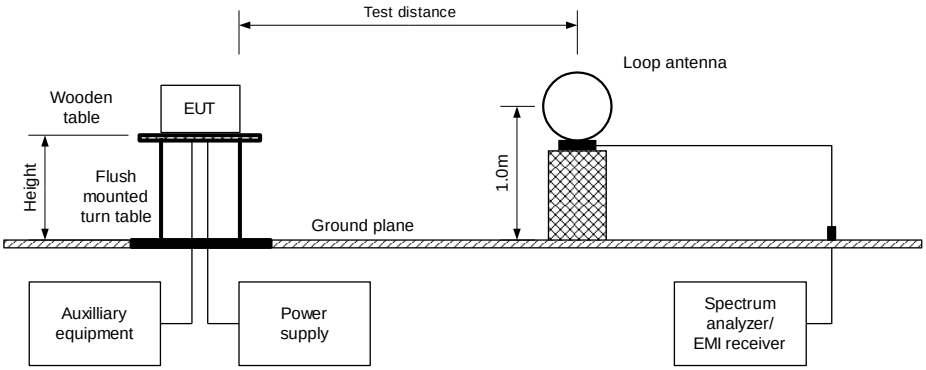
7.2.3.1 The EUT was set up as shown in Figure 7.2.2, energized and the performance check was conducted.

7.2.3.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

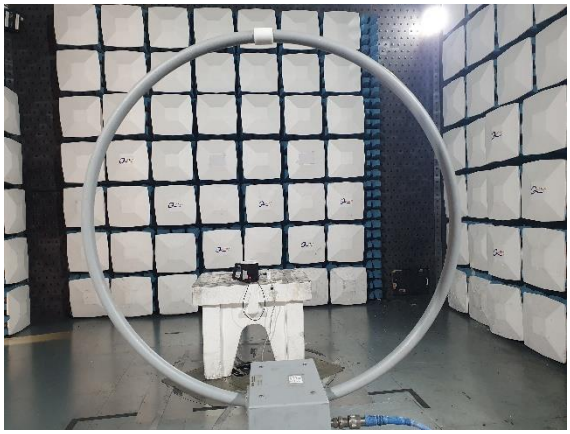
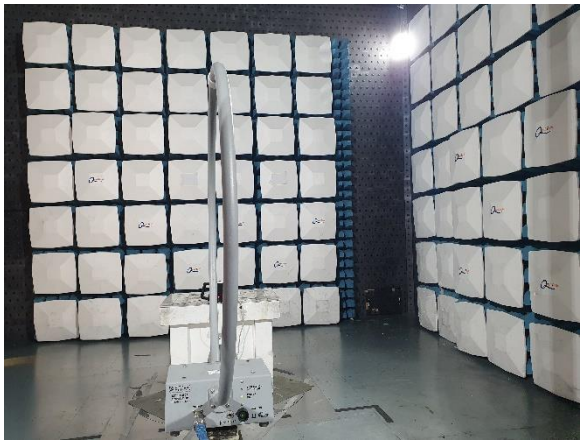
7.2.3.3 The worst test results (the lowest margins) were recorded and shown in the associated plots.

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

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



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

Coaxial	Vertical coplanar
	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

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

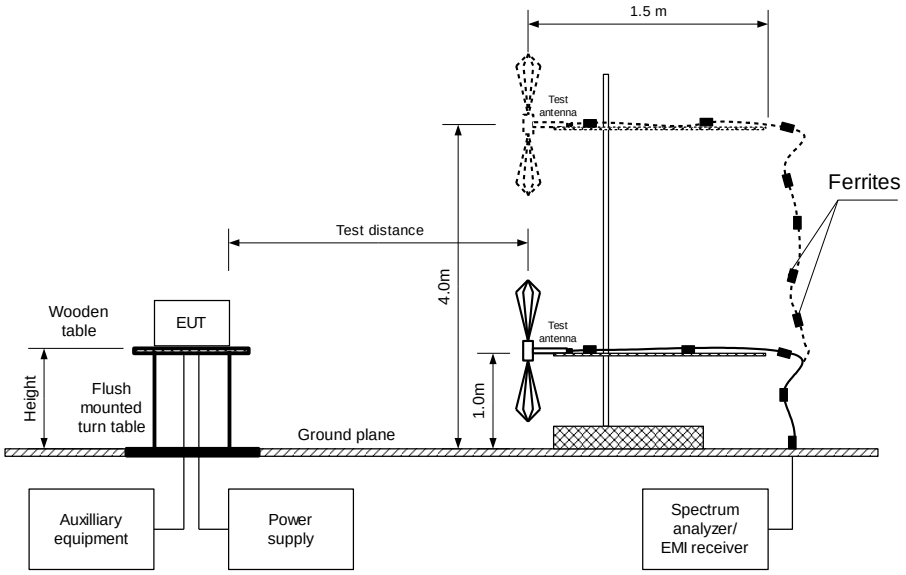
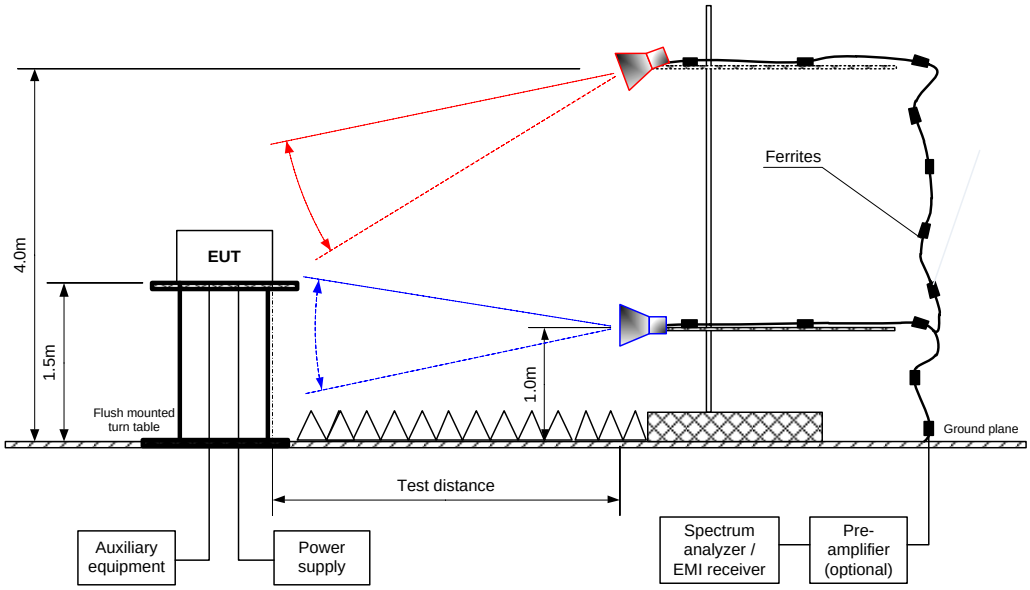
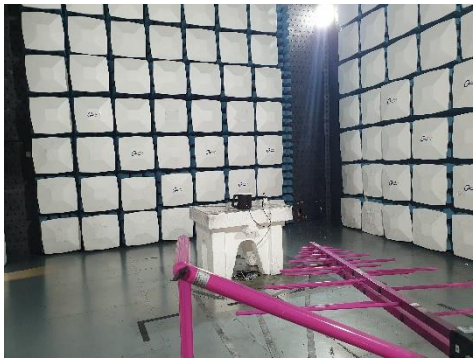


Figure 7.2.3 Setup for spurious emission field strength measurements above1000 MHz

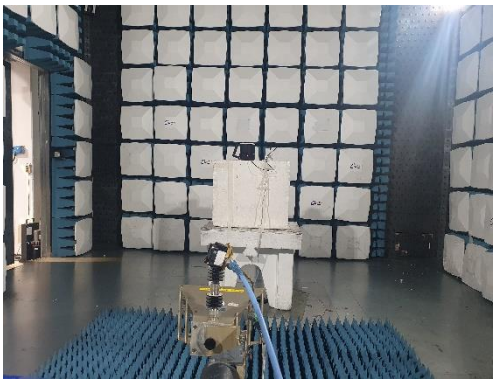
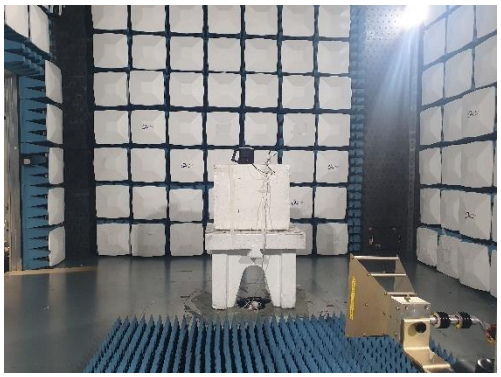
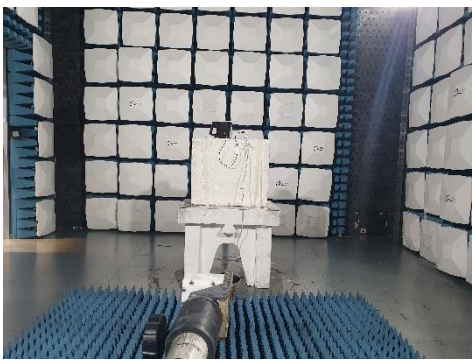


Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Photograph 7.2.2 Setup for spurious emission field strength measurements from 30 to 1000 MHz

Vertical	Horizontal
	

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

Vertical	Horizontal
	
	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Table 7.2.2 Field strength of emissions outside restricted bands

ASSIGNED FREQUENCY:	2400.0 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 - 25000 MHz
TEST DISTANCE:	3 m
MODULATION:	GFSK
BIT RATE:	Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
DETECTOR USED:	Peak
RESOLUTION BANDWIDTH:	100 kHz
VIDEO BANDWIDTH:	300 kHz
TEST ANTENNA TYPE:	Active loop (9 kHz – 30 MHz) Biconilog (30 MHz – 1000 MHz) Double ridged guide (above 1000 MHz)

Frequency, MHz	Field strength of spurious, dB(µV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	Field strength of carrier, dB(µV/m)	Attenuation below carrier, dBc	Limit, dBc	Margin, dB**	Verdict
Low carrier frequency 2402MHz									
46.081	48.773	Vertical	1.00	296	91.698	-42.925	20.0	-22.925	Pass
51.587	37.279	Vertical	1.75	118		-54.975		-34.975	
62.257	41.974	Vertical	1.22	310		-52.105		-32.105	
82.205	38.122	Vertical	1.00	0		-53.146		-33.146	
509.991	45.878	Vertical	1.00	79		-46.035		-26.035	
629.992	41.484	Vertical	1.00	107		-49.206		-29.206	
509.997	48.68	Horizontal	1.87	57	91.575	-42.895		-22.895	
539.990	40.35	Horizontal	1.87	194		-51.225		-31.225	
627.364	47.35	Horizontal	1.43	273		-44.225		-24.225	
689.990	42.52	Horizontal	1.26	269		-49.055		-29.055	
749.982	43.51	Horizontal	1.18	253		-48.065		-28.065	
809.975	45.15	Horizontal	1.01	260		-46.425		-26.425	
Mid carrier frequency 2440 MHz									
46.754	45.361	Vertical	1.14	255	92.560	-47.199	20.0	-27.199	Pass
48.679	39.728	Vertical	1.43	172		-52.832		-32.832	
65.473	39.311	Vertical	2.94	228		-53.249		-33.249	
509.981	45.868	Vertical	1.02	76		-46.692		-26.692	
629.982	41.663	Vertical	1.00	85		-50.897		-30.897	
31.350	33.50	Horizontal	3.97	301	91.388	-57.888		-37.888	
509.985	48.89	Horizontal	1.87	64		-42.498		-22.498	
540.000	40.45	Horizontal	1.92	200		-50.938		-30.938	
629.989	47.25	Horizontal	1.38	274		-44.138		-24.138	
749.985	43.62	Horizontal	1.10	269		-47.768		-27.768	
809.985	45.38	Horizontal	1.06	267		-46.008		-26.008	

Test specification:	**Section 15.247(d), Radiated spurious emissions**		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	**Air Pressure:** 1008 hPa	**Relative Humidity:** 37 %	**Power Supply:** 3.7 VDC
Remarks:			

Frequency, MHz	Field strength of spurious, dB(µV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	Field strength of carrier, dB(µV/m)	Attenuation below carrier, dBc	Limit, dBc	Margin, dB**	Verdict
High carrier frequency 2480 MHz									
30.461	33.351	Vertical	2.95	13	91.932	-58.581	20.0	-38.581	Pass
38.883	35.145	Vertical	1.15	47		-56.787		-36.787	
179.999	36.669	Vertical	1.01	252		-55.263		-35.263	
509.991	43.095	Vertical	1.38	82		-48.837		-28.837	
841.664	37.903	Vertical	3.79	0		-54.029		-34.029	
30.360	34.49	Horizontal	4.00	162	90.805	-56.315		-36.315	
509.995	48.23	Horizontal	1.93	309		-42.575		-22.575	
539.987	45.03	Horizontal	1.85	280		-45.775		-25.775	
569.989	43.01	Horizontal	1.63	90		-47.795		-27.795	
629.984	40.08	Horizontal	1.35	343		-50.725		-30.725	
749.983	41.33	Horizontal	1.11	340		-49.475		-29.475	

*****- EUT front panel refers to 0 degrees position of turntable.
******- Margin = Attenuation below carrier – specification limit.

Table 7.2.3 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY: 2400.0 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE: 1000 - 25000 MHz
TEST DISTANCE: 3 m
MODULATION: GFSK
BIT RATE: 1 Mbps
DUTY CYCLE: 100 %
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 1000 kHz
TEST ANTENNA TYPE: Double ridged guide

Frequency, MHz	Antenna		Azimuth, degrees*	Peak field strength(VBW=3 MHz)			Average field strength(VBW=1 Hz)				Verdict
	Polarization	Height, m		Measured, dB(µV/m)	Limit, dB(µV/m)	Margin, dB**	Measured, dB(µV/m)	Calculated, dB(µV/m)	Limit, dB(µV/m)	Margin, dB***	
Low carrier frequency 2402 MHz											
4803.45	Vertical	1.71	291	61.12	74	-12.88	53.21	N A	54	-0.79	Pass
4803.60	Horizontal	2.55	303	57.67	74	-16.33	44.64	N A	54	-9.36	
17905.99	Vertical	2.50	148	57.13	74	-16.87	43.76	NA	54	-10.24	
17987.60	Horizontal	3.95	0	57.19	74	-16.81	44.08	N A	54	-9.92	
Mid carrier frequency 2440 MHz											
4880.06	Vertical	2.25	285	58.90	74	-15.10	50.61	NA	54	-3.39	Pass
4880.06	Horizontal	3.98	305	56.04	74	-17.96	36.22	NA	54	-17.78	
17889.84	Vertical	1.59	139	58.80	74	-15.2	44.74	NA	54	-9.26	
17900.87	Horizontal	1.92	8	57.28	74	-16.72	44.25	NA	54	-9.75	
High carrier frequency2480 MHz											
4959.04	Vertical	1.88	295	61.11	74	-12.89	52.47	NA	54	-1.53	Pass
4960.43	Horizontal	3.34	112	57.64	74	-16.36	49.34	NA	54	-4.66	
17985.52	Vertical	3.68	0	57	74	-17.00	43.92	NA	54	-10.08	
17903.60	Horizontal	2.07	313	56.48	74	-17.52	43.76	NA	54	-10.24	

*****- EUT front panel refers to 0 degrees position of turntable.
******- Margin = Measured field strength - specification limit.
***- Margin = Calculated field strength - specification limit,
where Calculated field strength = Measured field strength + average factor.
****-13dB was added to the results because during the test we used a 13 dB attenuator

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Table 7.2.4 Average factor calculation

Transmission pulse		Transmission burst		Transmission train duration, ms	Average factor, dB
Duration, ms	Period, ms	Duration, ms	Period, ms		
N.A	N.A	N.A	N.A	N.A	N.A

*- Average factor was calculated as follows

for pulse train shorter than 100 ms: $$Average\ factor = 20 \times \log_{10}\left(\frac{Pulse\ duration}{Pulse\ period} \times \frac{Burst\ duration}{Train\ duration} \times Number\ of\ bursts\ within\ pulse\ train\right)$$

for pulse train longer than 100 ms: $$Average\ factor = 20 \times \log_{10}\left(\frac{Pulse\ duration}{Pulse\ period} \times \frac{Burst\ duration}{100\ ms} \times Number\ of\ bursts\ within\ 100\ ms\right)$$

Table 7.2.5 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY:	2400.0 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 – 1000 MHz
TEST DISTANCE:	3 m
MODULATION:	GFSK
BIT RATE:	1 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
TRANSMITTER OUTPUT POWER:	dBm at low carrier frequency dBm at mid carrier frequency dBm at high carrier frequency
RESOLUTION BANDWIDTH:	0.2 kHz (9 kHz – 150 kHz) 9.0 kHz (150 kHz – 30 MHz) 120 kHz (30 MHz – 1000 MHz)
VIDEO BANDWIDTH:	> Resolution bandwidth
TEST ANTENNA TYPE:	Active loop (9 kHz – 30 MHz) Biconilog (30 MHz – 1000 MHz)

Frequency, MHz	Peak emission, dB(µV/m)	Quasi-peak			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
		Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB*				
Low carrier frequency 2402 MHz								
All emissions were more than 20 dB below the limit								Pass
Mid carrier frequency 2440 MHz								
119.993	39.073	38.561	43.5	-4.94	Vertical	1.07	327	Pass
High carrier frequency 2480 MHz								
119.992	41.734	40.826	43.5	-2.67	Vertical	1.01	262	Pass

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

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Table 7.2.6 Restricted bands

MHz	MHz	MHz	MHz	MHz	GHz
0.09 - 0.11	8.37625 - 8.38675	73 - 74.6	399.9 - 410	2690 - 2900	10.6 - 12.7
0.495 - 0.505	8.41425 - 8.41475	74.8 - 75.2	608 - 614	3260 - 3267	13.25 - 13.4
2.1735 - 2.1905	12.29 - 12.293	108 - 121.94	960 - 1240	3332 - 3339	14.47 - 14.5
4.125 - 4.128	12.51975 - 12.52025	123 - 138	1300 - 1427	3345.8 - 3358	15.35 - 16.2
4.17725 - 4.17775	12.57675 - 12.57725	149.9 - 150.05	1435 - 1626.5	3600 - 4400	17.7 - 21.4
4.20725 - 4.20775	13.36 - 13.41	156.52475 - 156.52525	1645.5 - 1646.5	4500 - 5150	22.01 - 23.12
6.215 - 6.218	16.42 - 16.423	156.7 - 156.9	1660 - 1710	5350 – 5460	23.6 - 24
6.26775 - 6.26825	16.69475 - 16.69525	162.0125 - 167.17	1718.8 - 1722.2	7250 - 7750	31.2 - 31.8
6.31175 - 6.31225	16.80425 - 16.80475	167.72 - 173.2	2200 - 2300	8025 – 8500	36.43 - 36.5
8.291 - 8.294	25.5 - 25.67	240 - 285	2310 - 2390	9000 - 9200	Above 38.6
8.362 - 8.366	37.5 - 38.25	322 - 335.4	2483.5 - 2500	9300 - 9500	

Reference numbers of test equipment used

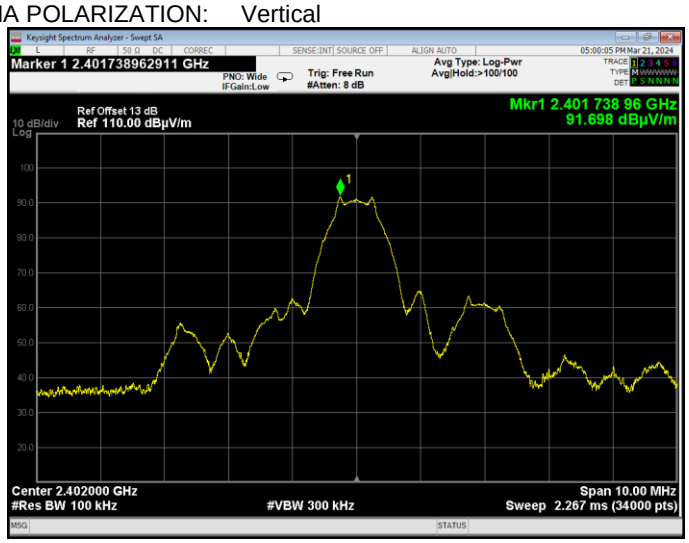
HL 5111	HL 6238	HL 6573	HL 6574	HL 6576	HL 6678	HL 6679	HL 6892
HL 7737	HL 8092						

Full description is given in Appendix A.

Test specification:	**Section 15.247(d), Radiated spurious emissions**		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	**Air Pressure:** 1008 hPa	**Relative Humidity:** 37 %	**Power Supply:** 3.7 VDC
Remarks:			

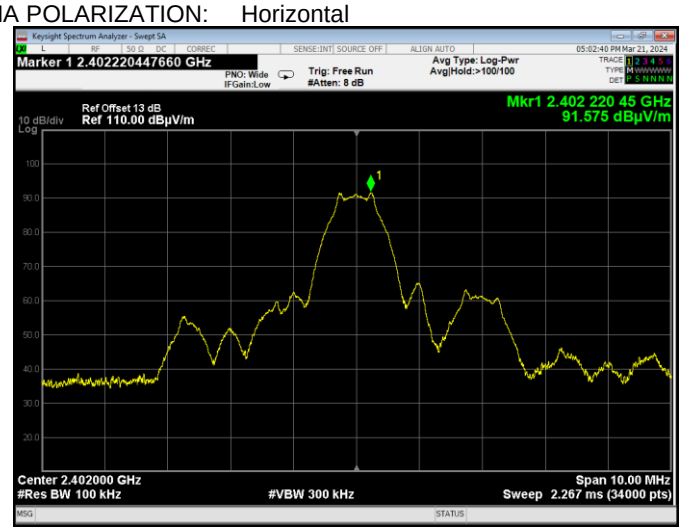
Plot 7.2.1 Radiated emission measurements at the low carrier frequency

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



Plot 7.2.2 Radiated emission measurements at the low carrier frequency

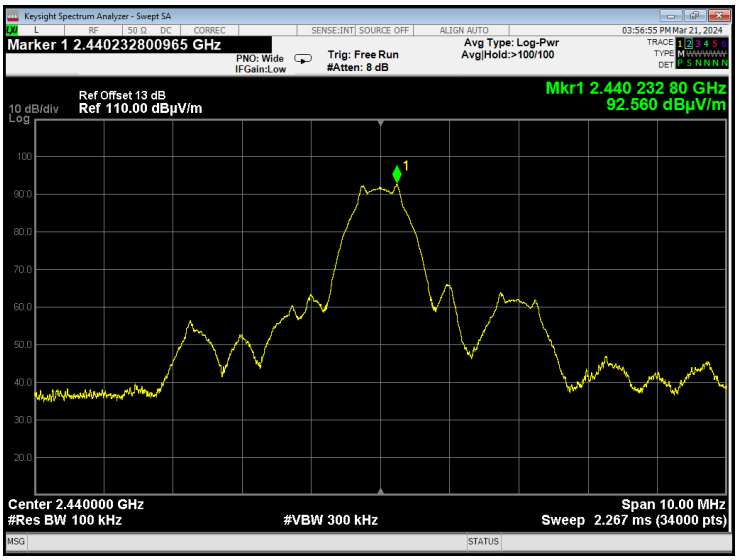
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

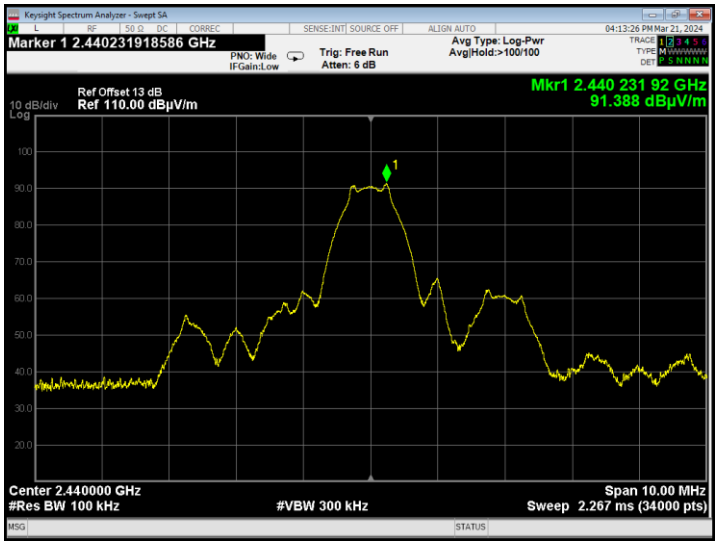
Plot 7.2.3 Radiated emission measurements at the mid carrier frequency

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



Plot 7.2.4 Radiated emission measurements at the mid carrier frequency

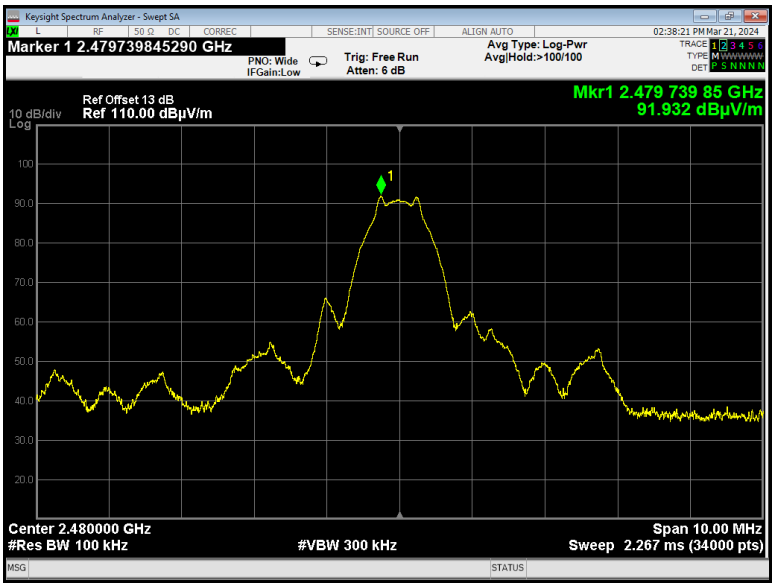
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

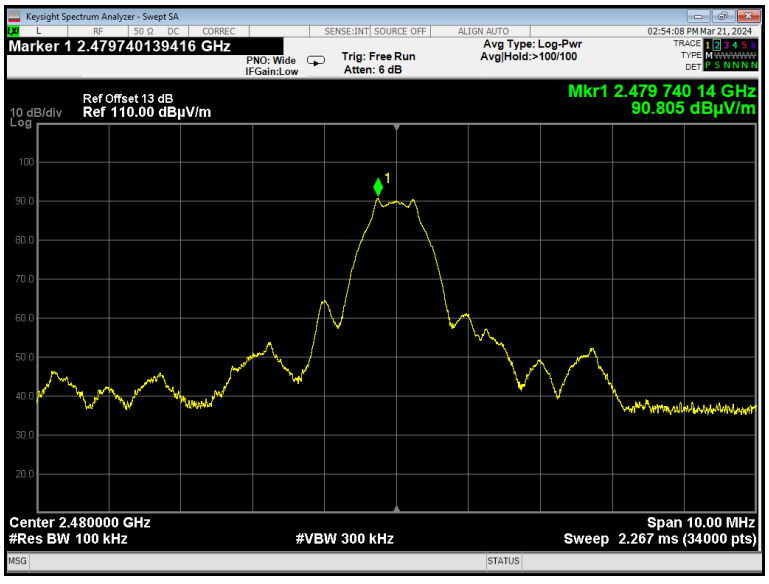
Plot 7.2.5 Radiated emission measurements at the high carrier frequency

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



Plot 7.2.6 Radiated emission measurements at the high carrier frequency

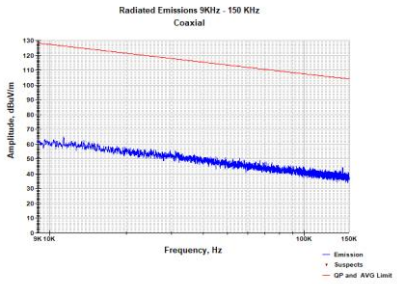
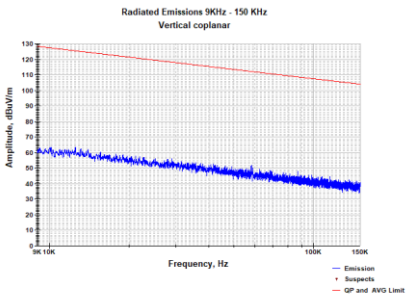
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Horizontal



Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

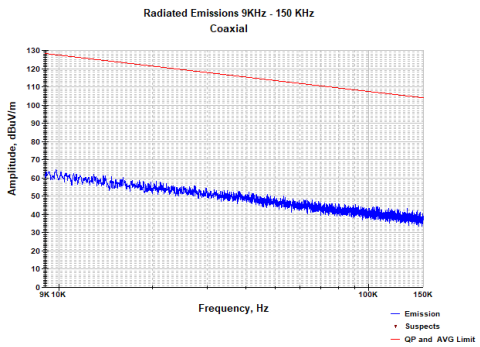
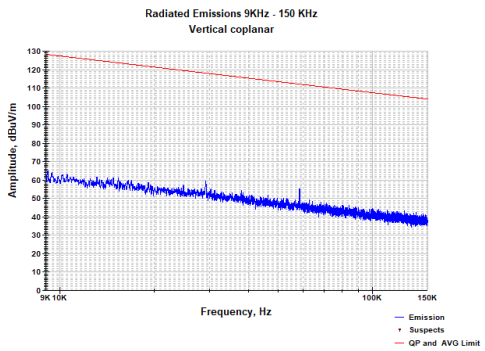
Plot 7.2.7 Radiated emission measurements from 9 to 150 kHz at the low carrier frequency

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

Coaxial	Vertical coplanar
	

Plot 7.2.8 Radiated emission measurements from 9 to 150 kHz at the mid carrier frequency

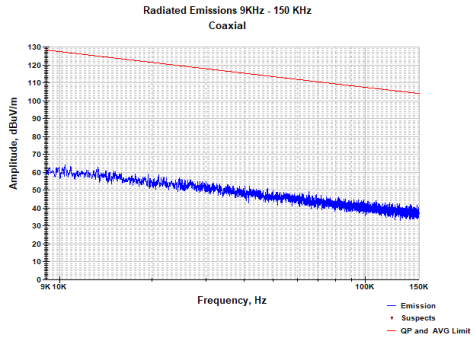
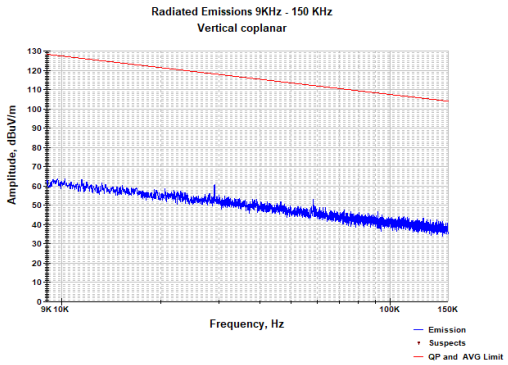
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Coaxial, Vertical coplanar

Coaxial	Vertical coplanar
	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

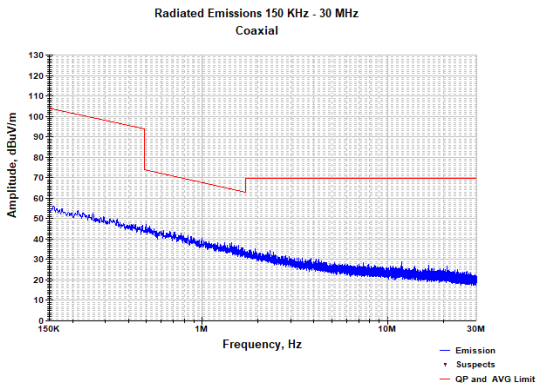
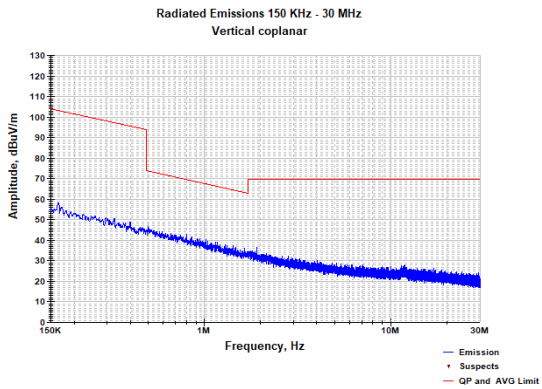
Plot 7.2.9 Radiated emission measurements from 9 to 150 kHz at the high carrier frequency

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

Coaxial	Vertical coplanar
	

Plot 7.2.10 Radiated emission measurements from 0.15 to 30 MHz at the low carrier frequency

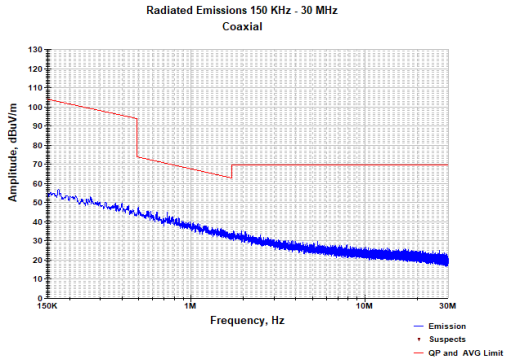
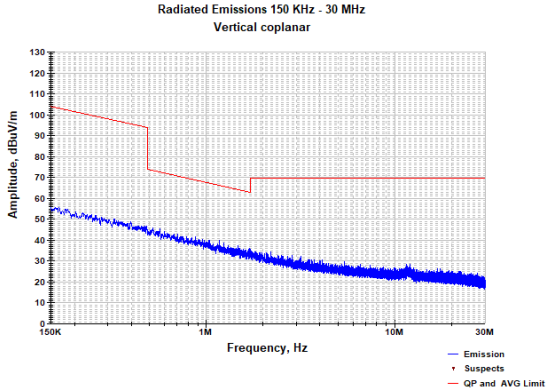
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Coaxial, Vertical coplanar

Coaxial	Vertical coplanar
	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

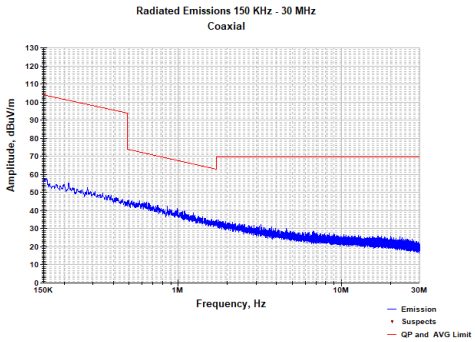
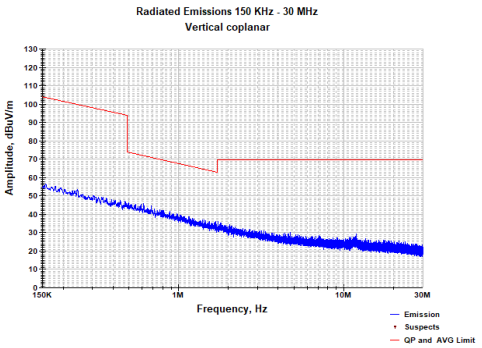
Plot 7.2.11 Radiated emission measurements from 0.15 to 30 MHz at the mid carrier frequency

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

Coaxial	Vertical coplanar
	

Plot 7.2.12 Radiated emission measurements from 0.15 to 30 MHz at the high carrier frequency

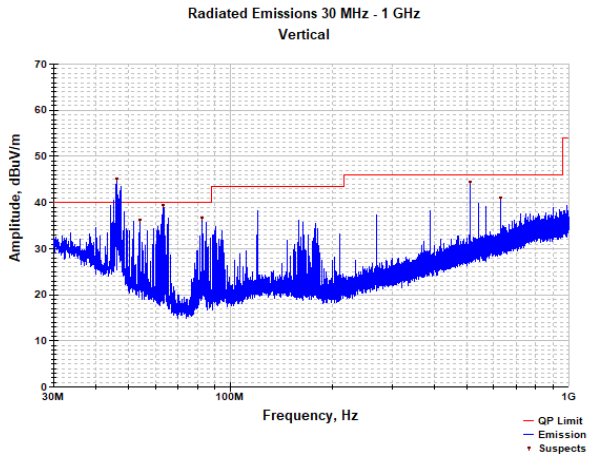
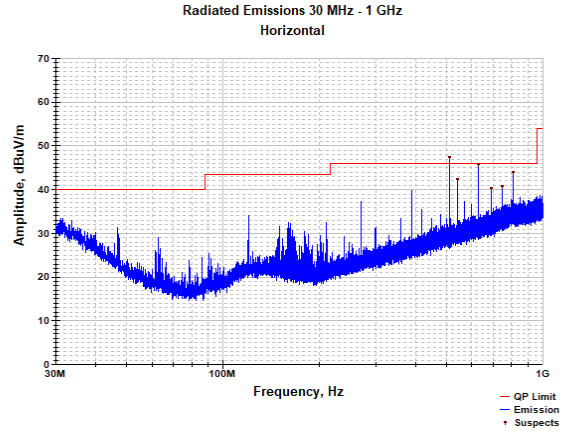
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Coaxial, Vertical coplanar

Coaxial	Vertical coplanar
	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

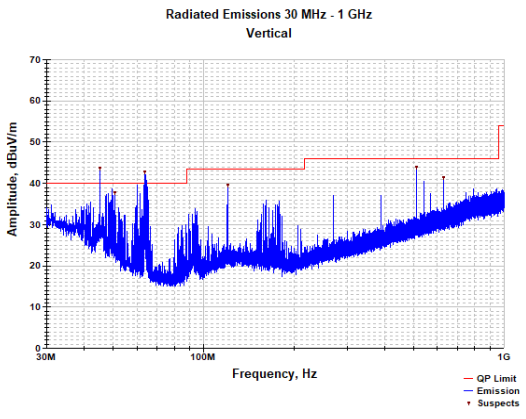
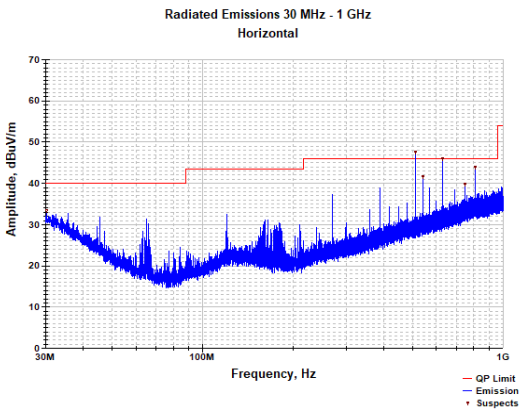
Plot 7.2.13 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency

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

Vertical	Horizontal
	

Plot 7.2.14 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency

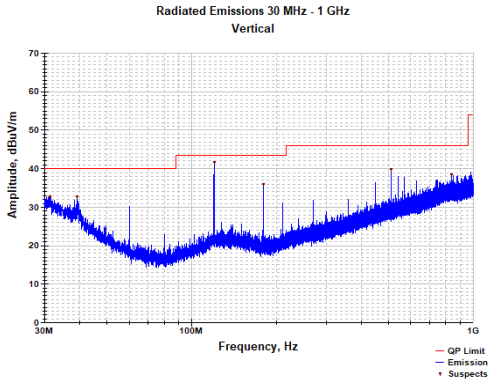
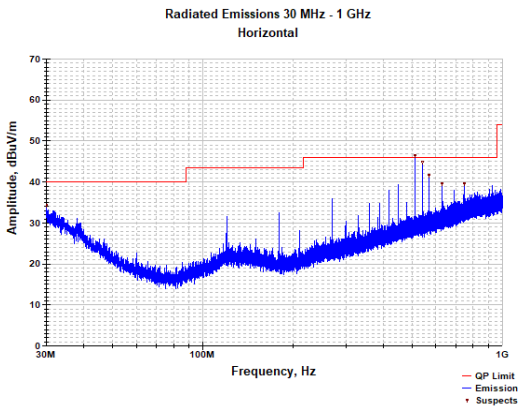
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

Vertical	Horizontal
	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Plot 7.2.15 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency

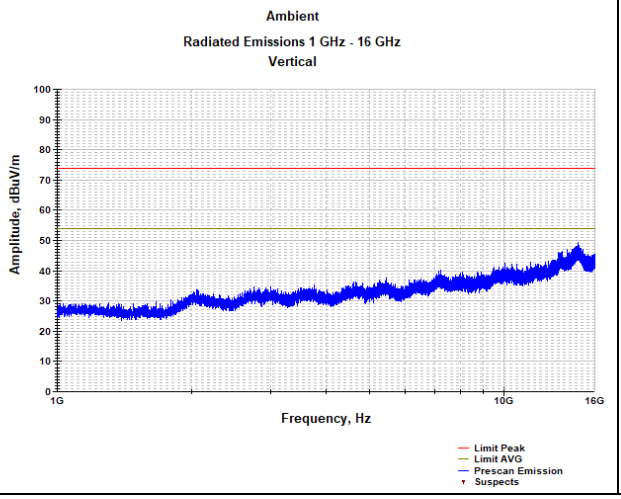
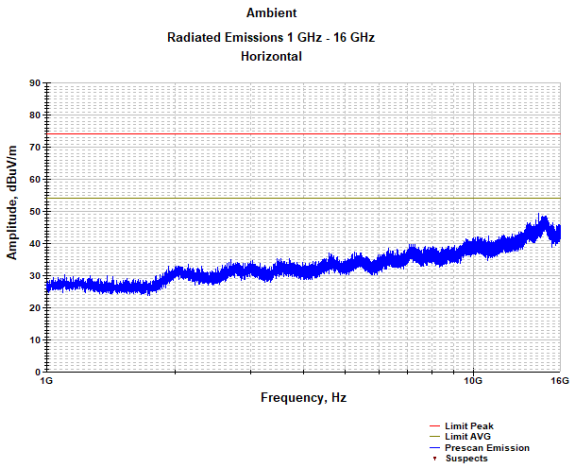
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

Vertical	Horizontal
	

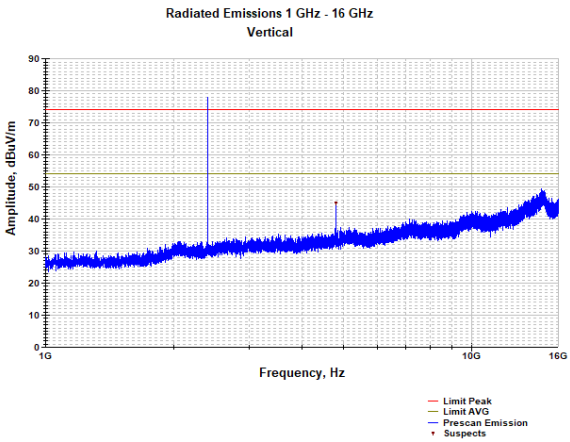
Plot 7.2.16 Radiated emission measurements from 1000 to 16000 MHz at the low carrier frequency

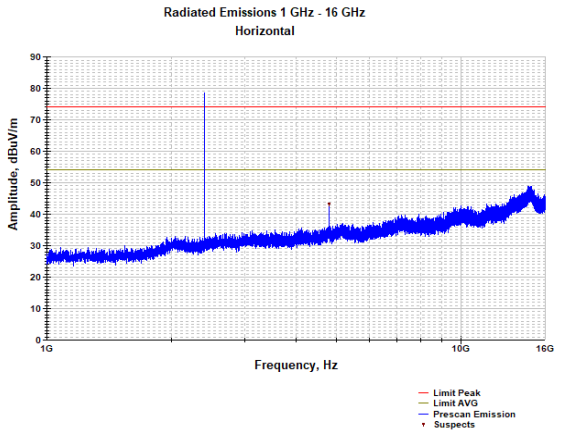
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

*Value shown with 13db attenuation added

Vertical	Horizontal
	

Test specification:	**Section 15.247(d), Radiated spurious emissions**		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	**Air Pressure:** 1008 hPa	**Relative Humidity:** 37 %	**Power Supply:** 3.7 VDC
Remarks:			



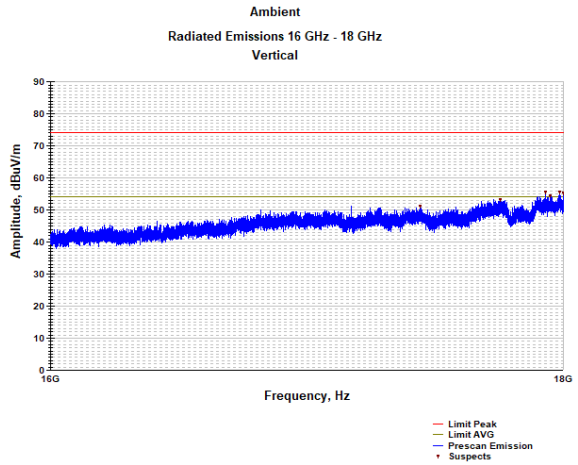
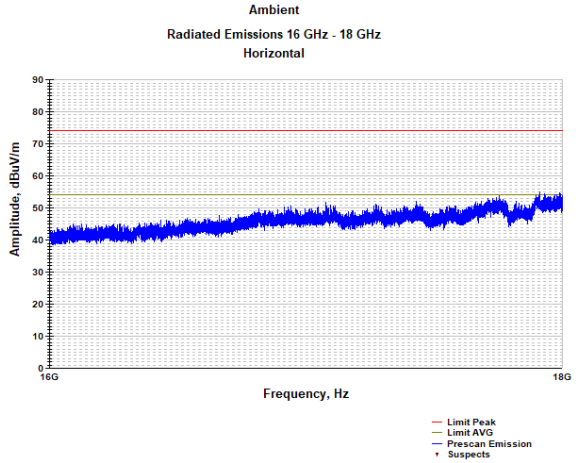
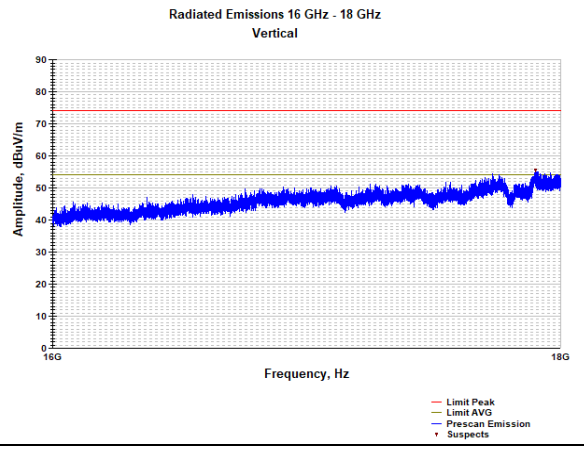
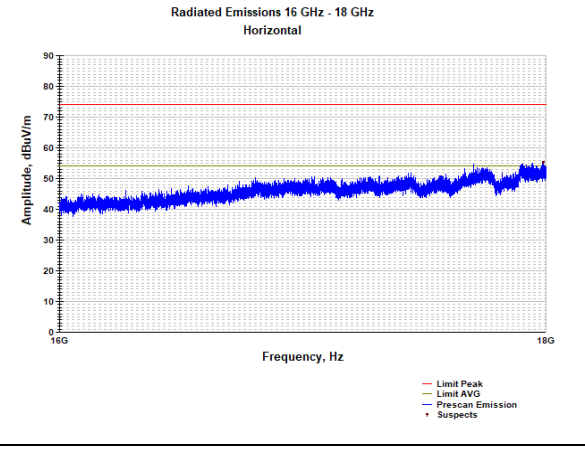


Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Plot 7.2.17 Radiated emission measurements from 16000 to 18000 MHz at the low carrier frequency

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

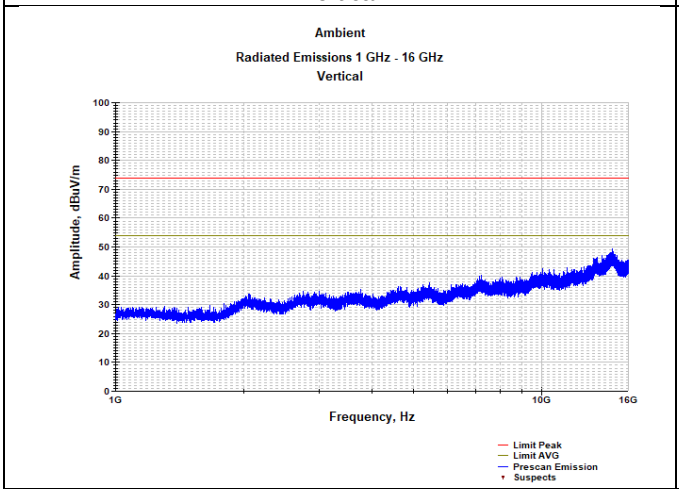
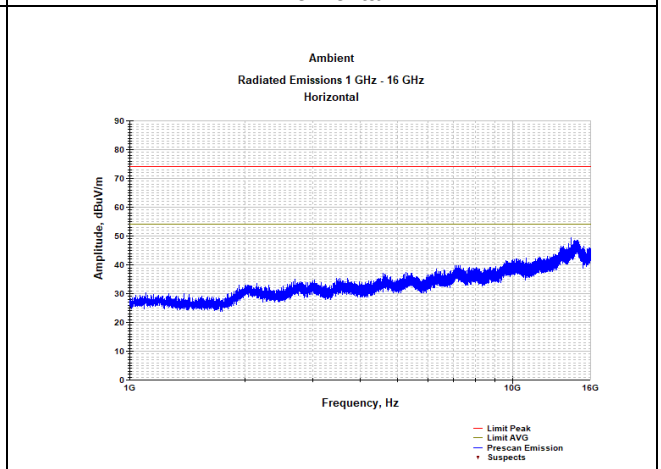
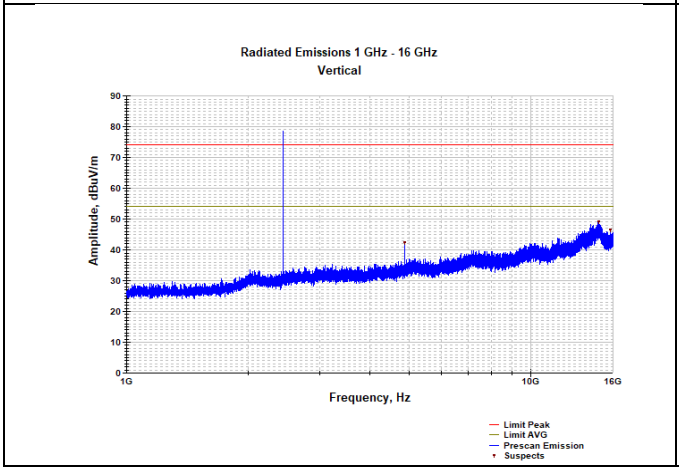
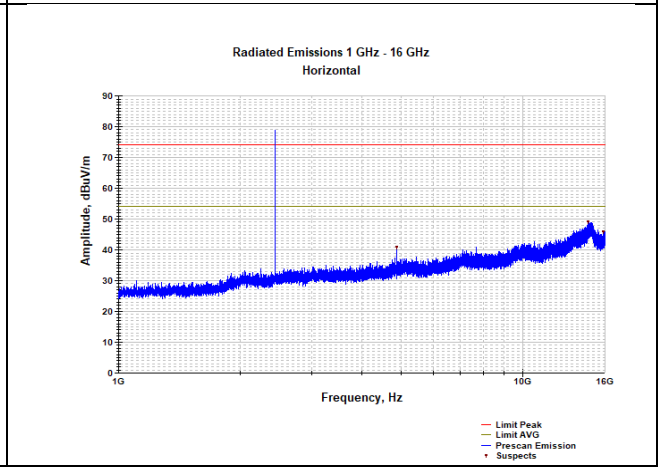
*Value shown with 13db attenuation added

Vertical	Horizontal
	
	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Plot 7.2.18 Radiated emission measurements from 1000 to 16000 MHz at the mid carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
*Value shown with 13db attenuation added

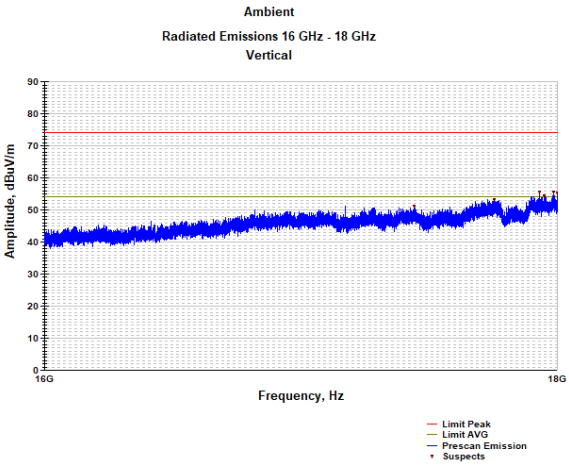
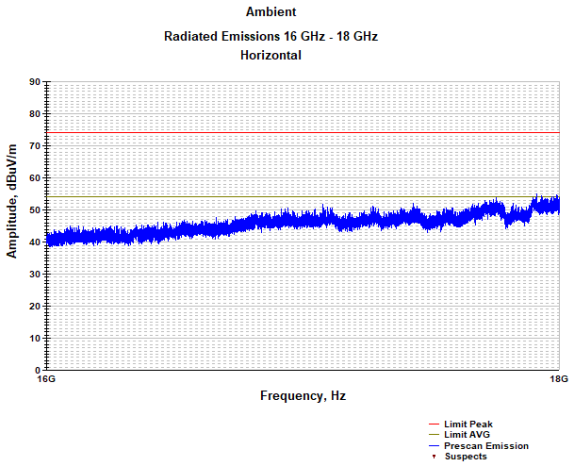
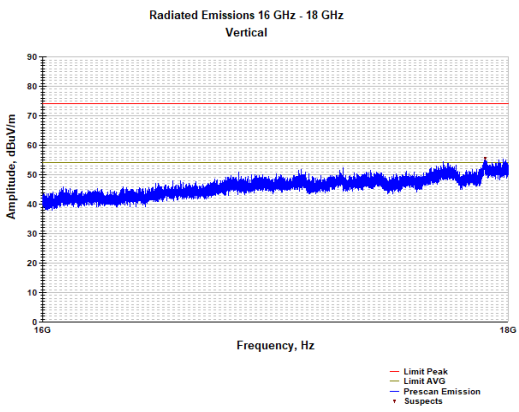
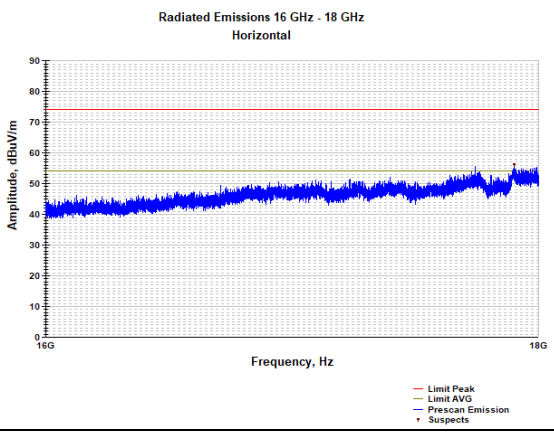
Vertical	Horizontal
	
	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Plot 7.2.19 Radiated emission measurements from 16000 to 18000 MHz at the mid carrier frequency

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

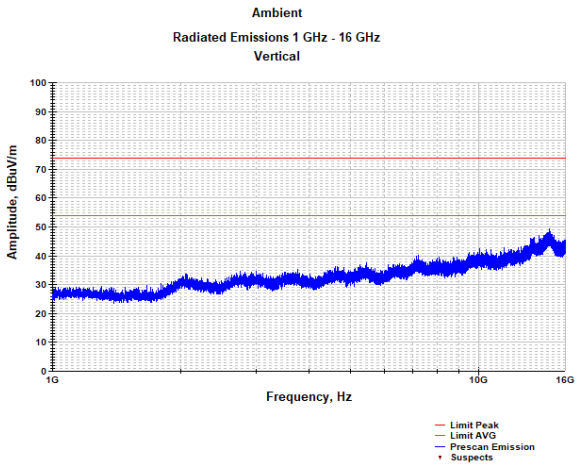
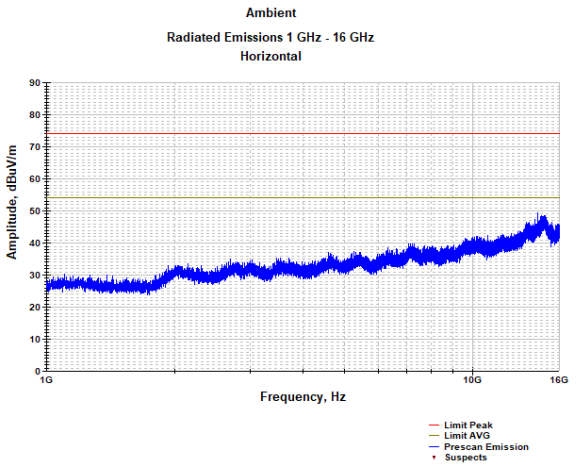
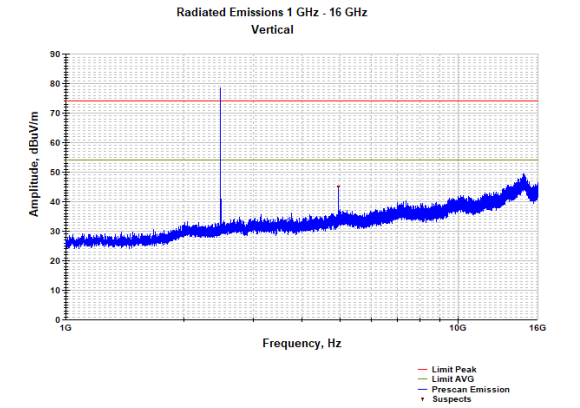
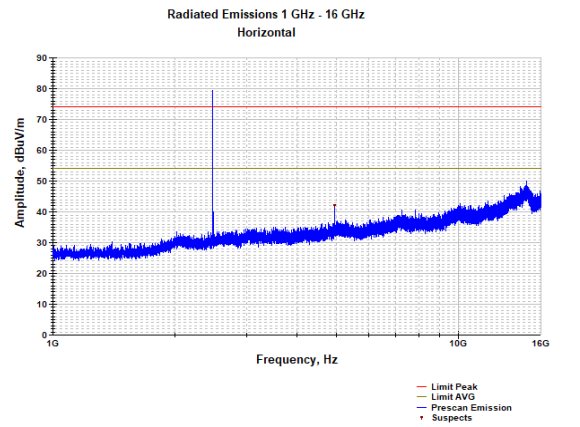
*Value shown with 13db attenuation added

Vertical	Horizontal
	
	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Plot 7.2.20 Radiated emission measurements from 1000 to 16000 MHz at the high carrier frequency

TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
*Value shown with 13db attenuation added

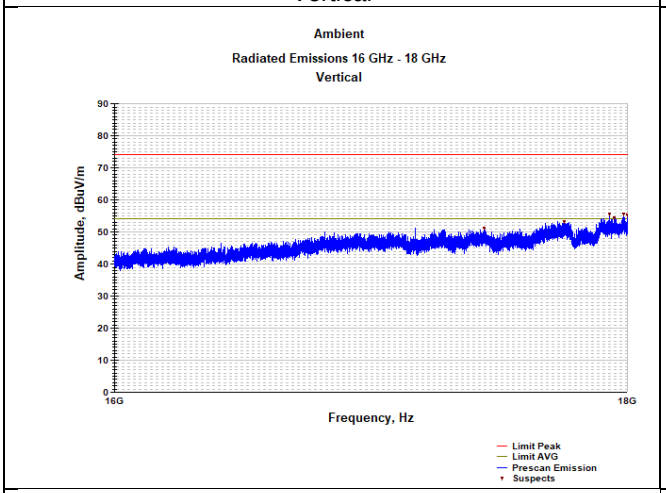
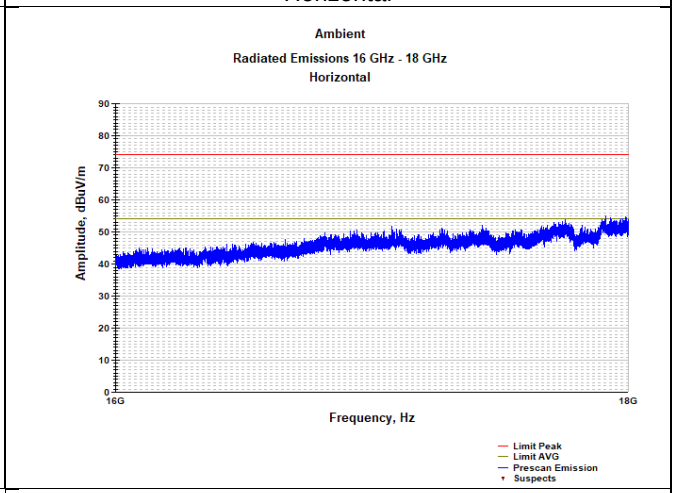
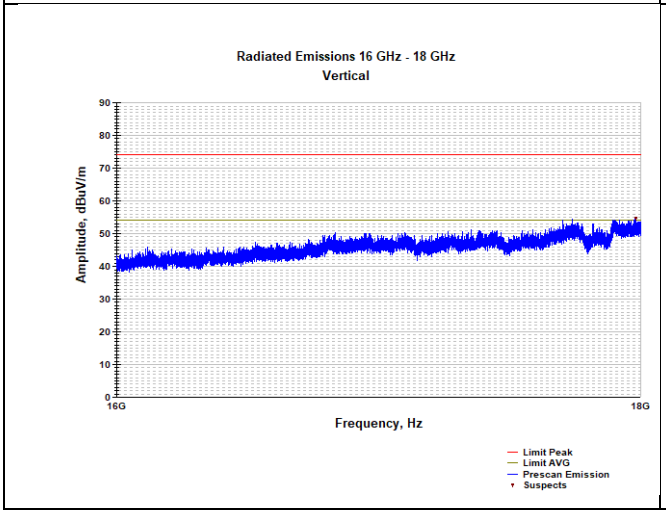
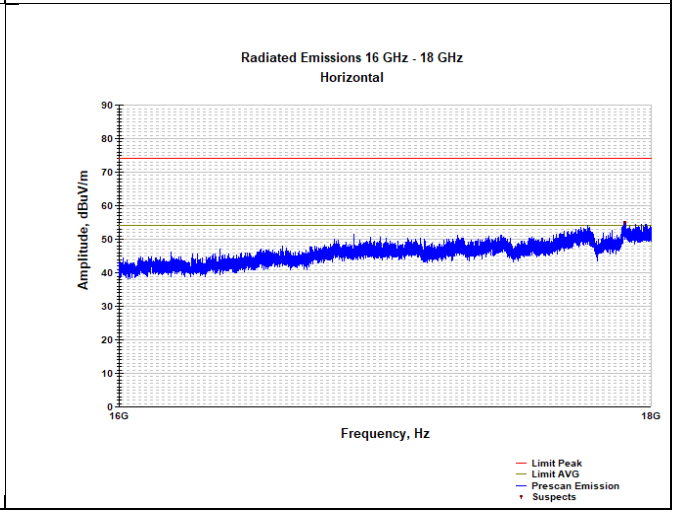
Vertical	Horizontal
	
	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Plot 7.2.21 Radiated emission measurements from 16000 to 18000 MHz at the high carrier frequency

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

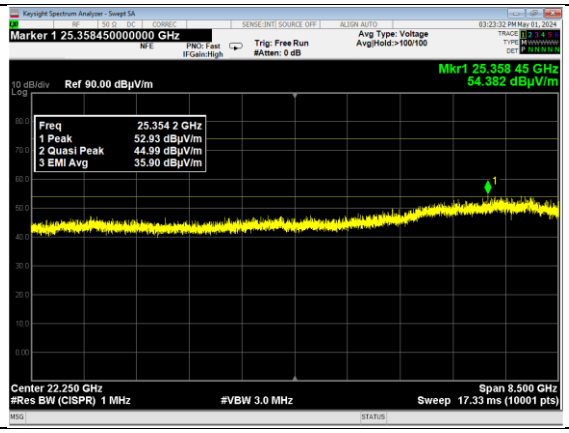
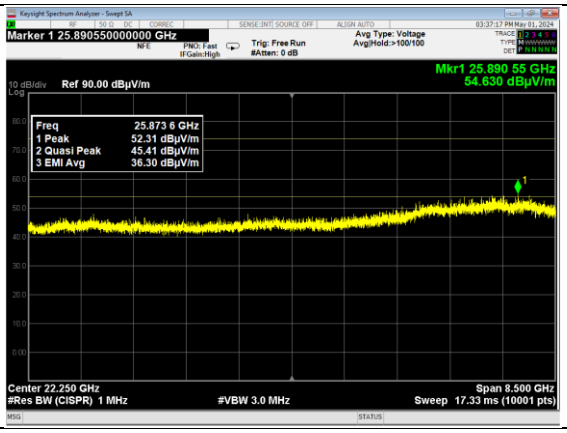
*Value shown with 13db attenuation added

Vertical	Horizontal
	
	

Test specification:	**Section 15.247(d), Radiated spurious emissions**		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	**Verdict:**	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	**Air Pressure:** 1008 hPa	**Relative Humidity:** 37 %	**Power Supply:** 3.7 VDC
Remarks:			

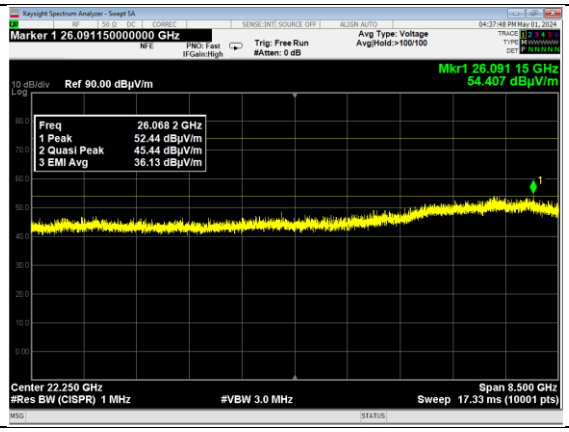
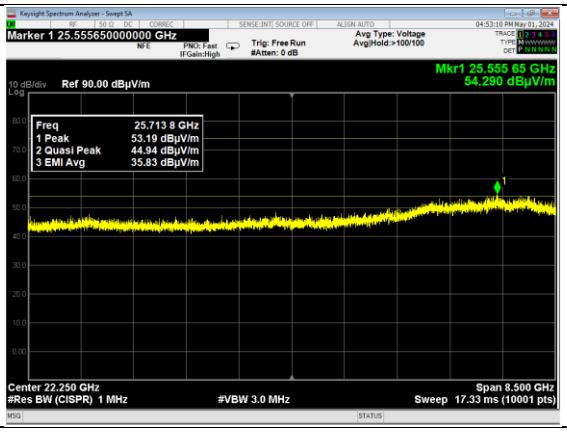
Plot 7.2.22 Radiated emission measurements from 18000 to 26500 MHz at the low carrier frequency

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

Vertical	Horizontal
	

Plot 7.2.23 Radiated emission measurements from 18000 to 26500 MHz at the mid carrier frequency

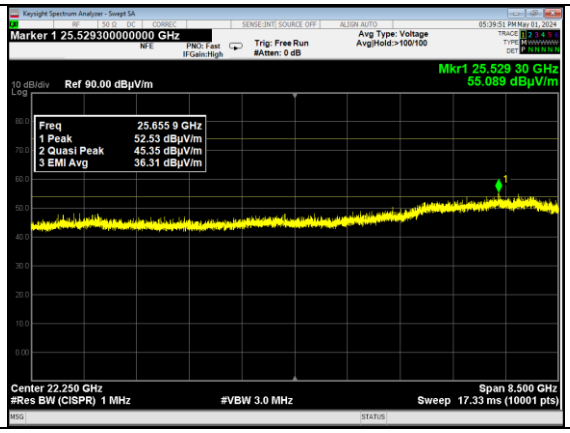
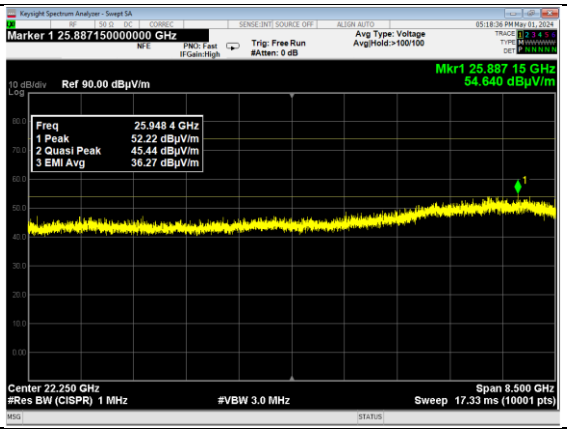
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

Vertical	Horizontal
	

Test specification:	Section 15.247(d), Radiated spurious emissions		
Test procedure:	Section 15.247(a)2		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	24-Mar-24 - 25-Mar-24		
Temperature: 21.6 ºC	Air Pressure: 1008 hPa	Relative Humidity: 37 %	Power Supply: 3.7 VDC
Remarks:			

Plot 7.2.24 Radiated emission measurements from 18000 to 26500 MHz at the high carrier frequency

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

Vertical	Horizontal
	

Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	21-Mar-24 - 24-Mar-24		
Temperature: 22.8 ºC	Air Pressure: 1008 hPa	Relative Humidity: 34 %	Power Supply: 3.7 VDC
Remarks:			

7.3 Peak output power

7.3.1 General

This test was performed to measure the maximum peak output power radiated by transmitter. Specification test limits are given in Table 7.3.1.

Table 7.3.1 Peak output power limits

Assigned frequency range, MHz	Maximum antenna gain, dBi	Peak output power*		Equivalent field strength limit @ 3m, dB(μV/m)**
		W	dBm	
902.0 – 928.0	6.0	1.0	30.0	131.2
2400.0 – 2483.5				
5725.0 – 5850.0				

*- The limit is provided in terms of conducted RF power at the antenna connector. If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power limit shall be reduced below the stated value as follows:

by 1 dB for every 3 dB that the directional gain of antenna exceeds 6 dBi for fixed point-to-point transmitters operate in 2400-2483.5 MHz band;

without any corresponding reduction for fixed point-to-point transmitters operate in 5725-5850 MHz band;

by the amount in dB that the directional gain of antenna exceeds 6 dBi for the rest of transmitters.

**- Equivalent field strength limit was calculated from the peak output power as follows: E=sqrt(30×P×G)/r, where P is peak output power in Watts, r is antenna to EUT distance in meters and G is transmitter antenna gain in dBi.

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

7.3.2.3 The resolution bandwidth of spectrum analyzer was set wider than 6 dB bandwidth of the EUT and the field strength of the EUT carrier frequency was measured with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0 and the measuring antenna height was swept in both vertical and horizontal polarizations.

7.3.2.4 The maximum field strength of the EUT carrier frequency was measured as provided in Table 7.3.2 and associated plots.

7.3.2.5 The maximum peak output power was calculated from the field strength of carrier as follows:

$$P = (E \times d)^2 / (30 \times G),$$

where P is the peak output power in W, E is the field strength in V/m, d is the test distance and G is the transmitter numeric antenna gain over an isotropic radiator.

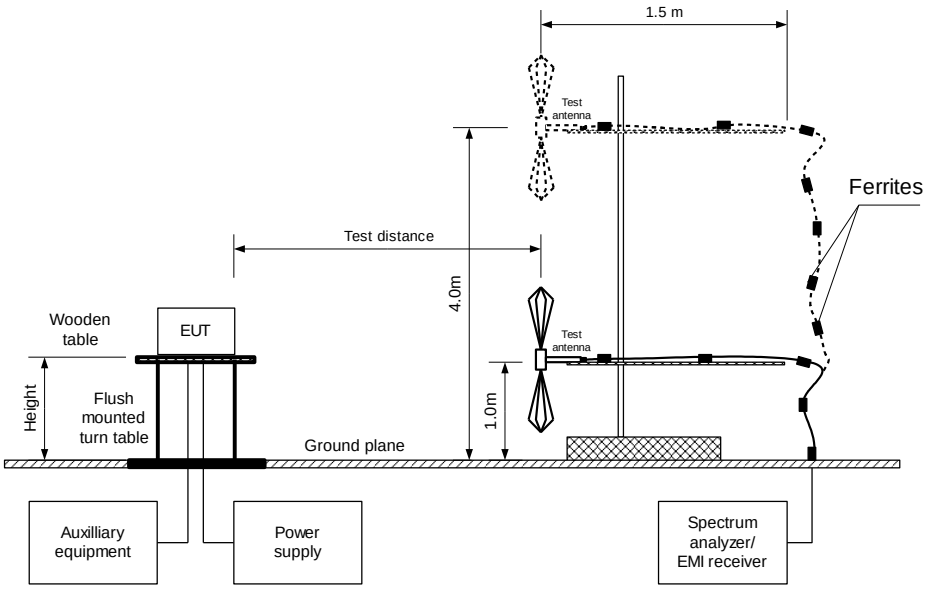
The above equation was converted in logarithmic units for 3 m test distance:

Peak output power in dBm = Field strength in dB(μV/m) - Transmitter antenna gain in dBi – 95.2 dB

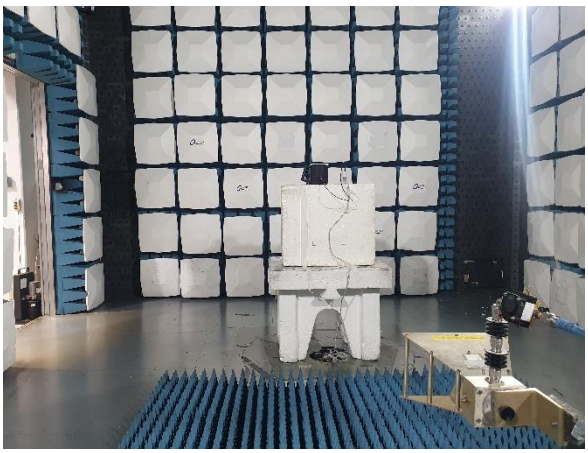
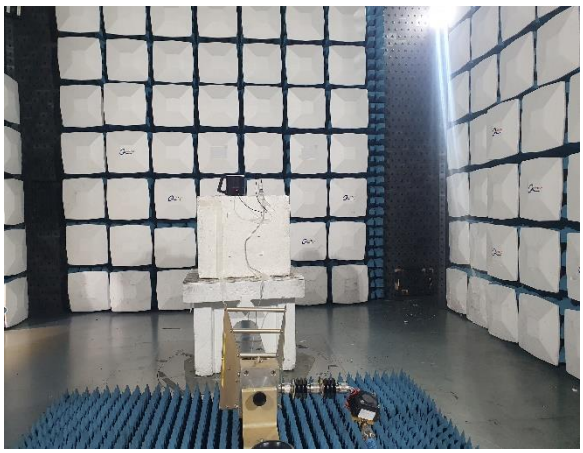
7.3.2.6 The worst test results (the lowest margins) were recorded in Table 7.3.2.

Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	21-Mar-24 - 24-Mar-24		
Temperature: 22.8 ºC	Air Pressure: 1008 hPa	Relative Humidity: 34 %	Power Supply: 3.7 VDC
Remarks:			

Figure 7.3.1 Setup for carrier field strength measurements



Photograph 7.3.1 Setup for carrier field strength measurements

VERTICAL	Horizontal
	

Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	21-Mar-24 - 24-Mar-24		
Temperature: 22.8 ºC	Air Pressure: 1008 hPa	Relative Humidity: 34 %	Power Supply: 3.7 VDC
Remarks:			

Table 7.3.2 Peak output power test results

ASSIGNED FREQUENCY: 2400.0 – 2483.5 MHz
TEST DISTANCE: 3 m
TEST SITE: Semi anechoic chamber
EUT HEIGHT: 1.5 m
DETECTOR USED: Peak
TEST ANTENNA TYPE: Double ridged guide (above 1000 MHz)
MODULATION: GFSK
BIT RATE: 1 Mbps
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 2 MHz
VIDEO BANDWIDTH: 8 MHz

Frequency, MHz	Field strength, dB(□V/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
2402	92.193	VERTICAL	2.621	18	0.9	-3.907	30	-33.907	pass
2402	92.079	Horizontal	2.88	301	0.9	-4.021	30	-34.021	pass
2440	92.829	VERTICAL	2.25	297	0.9	-3.271	30	-33.271	pass
2440	91.744	Horizontal	3.79	311	0.9	-4.357	30	-34.357	pass
2480	92.179	VERTICAL	1.99	299	1.3	-4.321	30	-34.321	pass
2480	92.649	Horizontal	3.92	306	1.3	-3.851	30	-33.851	pass

*****- EUT front panel refer to 0 degrees position of turntable.
******- Peak output power was calculated from the field strength of carrier as follows: $P = (E \times d)^2 / (30 \times G)$,
where P is the peak output power in W, E is the field strength in V/m, d is the test distance in meters and G is the transmitter numeric antenna gain over an isotropic radiator. The above equation was converted in logarithmic units for 3 m test distance: *Peak output power in dBm = Field strength in dB(μV/m) - Transmitter antenna gain in dBi – 95.2 dB*
***- Margin = Peak output power – specification limit.
Note: Maximum peak output power was obtained at Unom (115%Unom, 85%Unom) input power voltage.

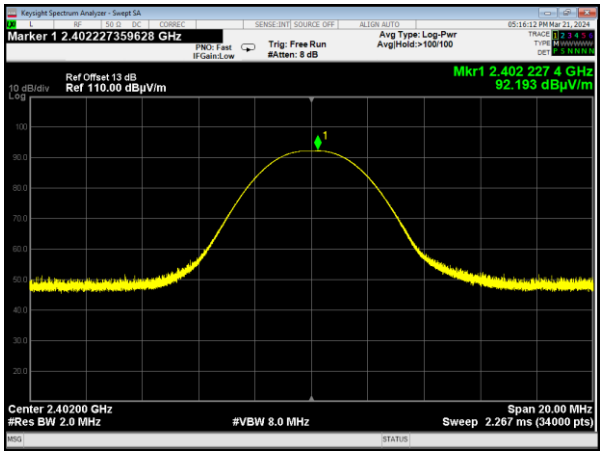
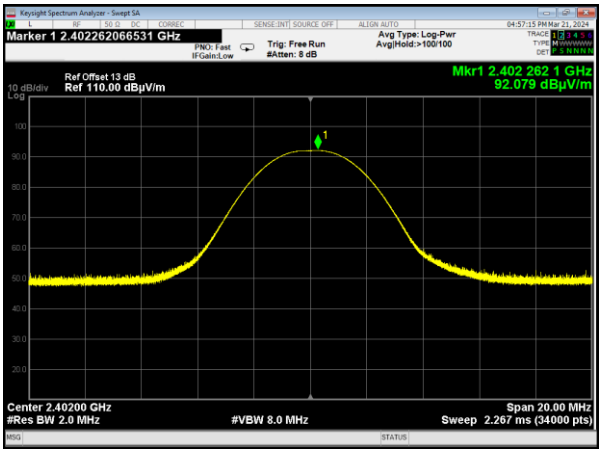
Reference numbers of test equipment used

HL 6574	HL 6678	HL 6892	HL 6907	HL 8092			

Full description is given in Appendix A.

Test specification:	Section 15.247(b)3, Peak output power		
Test procedure:	Section 15.247(d)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	21-Mar-24 - 24-Mar-24		
Temperature: 22.8 ºC	Air Pressure: 1008 hPa	Relative Humidity: 34 %	Power Supply: 3.7 VDC
Remarks:			

Plot 7.3.1 Field strength of carrier at low frequency and Unom

VERTICAL	Horizontal
	

Plot 7.3.2 Field strength of carrier at mid frequency and Unom

VERTICAL	Horizontal