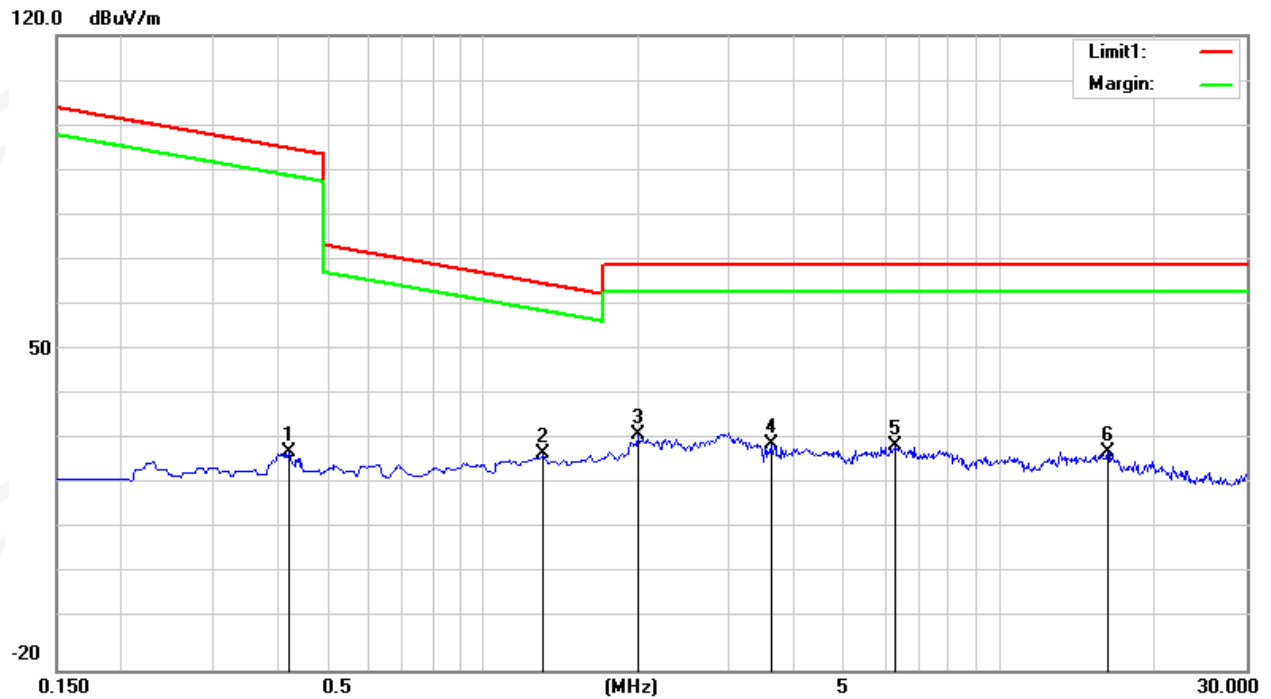




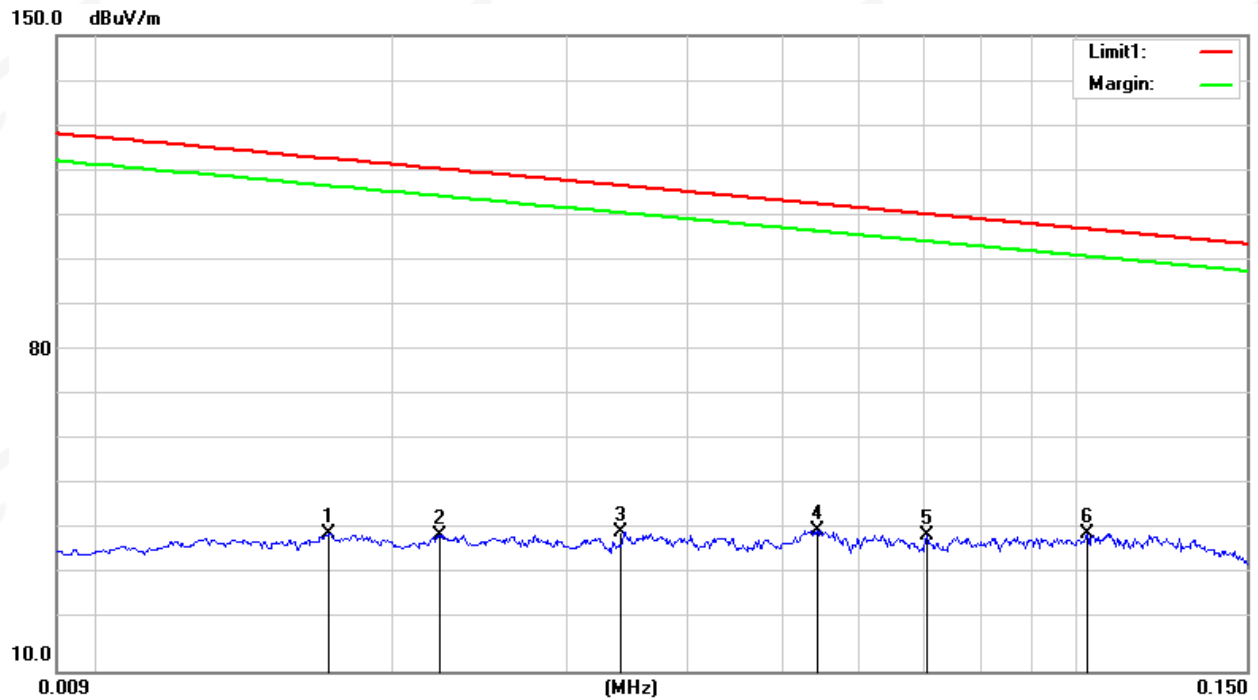
RSE-150KHz-30MHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.4213	7.91	20.17	28.08	95.11	-67.03	peak
2	1.3141	7.38	20.26	27.64	65.23	-37.59	peak
3	2.0007	11.47	20.40	31.87	69.50	-37.63	peak
4	3.6126	9.47	20.28	29.75	69.50	-39.75	peak
5	6.2991	9.16	20.42	29.58	69.50	-39.92	peak
6	16.1794	6.54	21.58	28.12	69.50	-41.38	peak



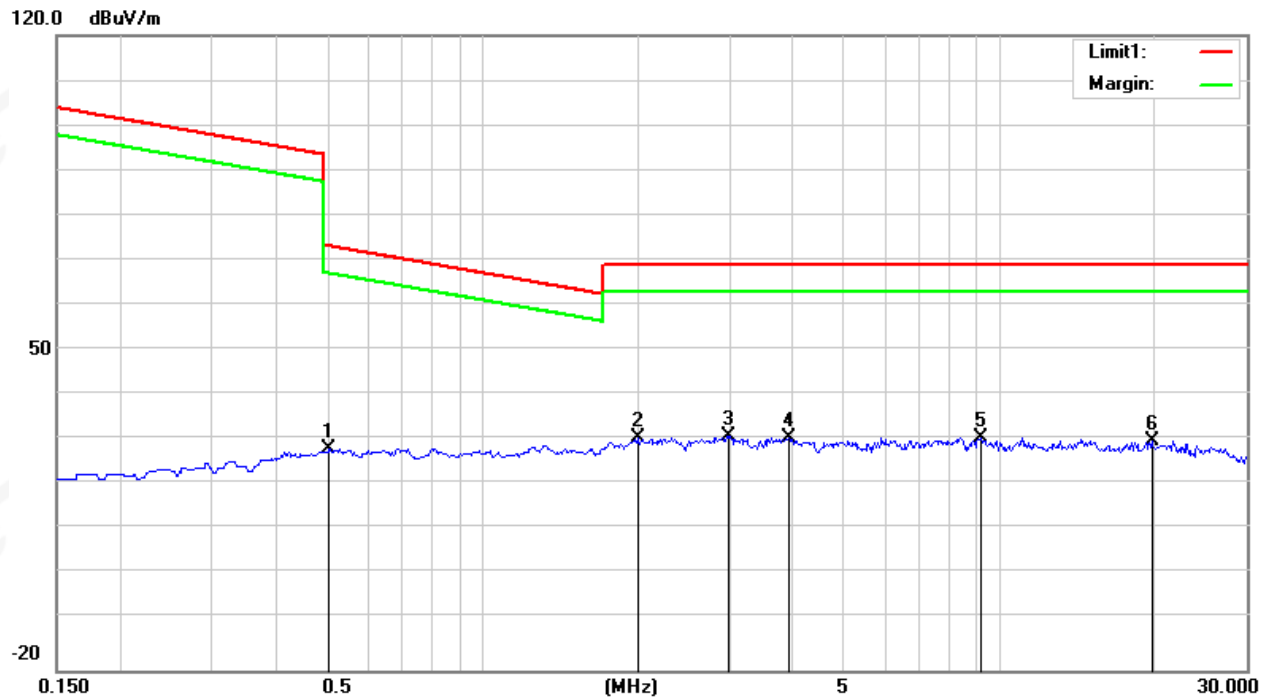
Coplanar
RSE-9KHz-150KHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.0171	20.51	19.89	40.40	122.94	-82.54	peak
2	0.0223	19.98	20.05	40.03	120.64	-80.61	peak
3	0.0342	20.96	19.82	40.78	116.92	-76.14	peak
4	0.0543	21.54	19.38	40.92	112.91	-71.99	peak
5	0.0704	20.98	18.93	39.91	110.65	-70.74	peak
6	0.1030	22.77	17.59	40.36	107.35	-66.99	peak



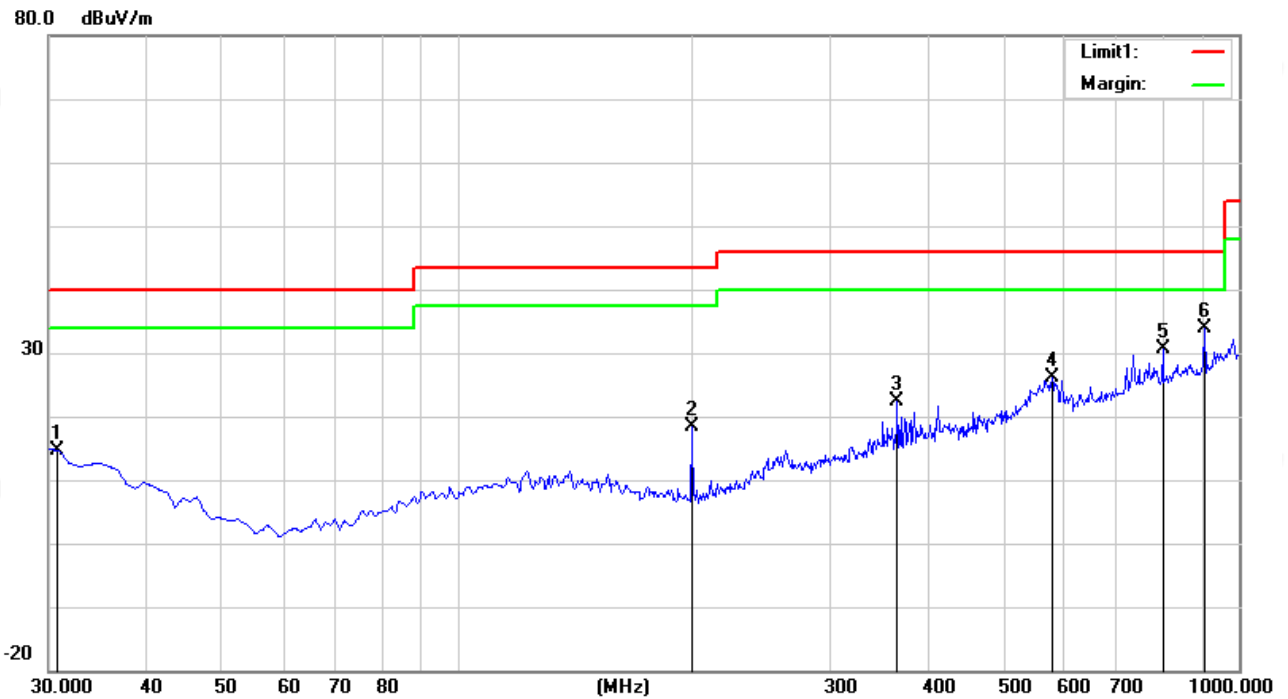
RSE-150KHz-30MHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.5047	8.76	20.20	28.96	73.54	-44.58	peak
2	2.0007	10.97	20.40	31.37	69.50	-38.13	peak
3	2.9857	11.46	20.10	31.56	69.50	-37.94	peak
4	3.9110	10.90	20.37	31.27	69.50	-38.23	peak
5	9.2240	10.97	20.25	31.22	69.50	-38.28	peak
6	19.6420	8.24	22.41	30.65	69.50	-38.85	peak



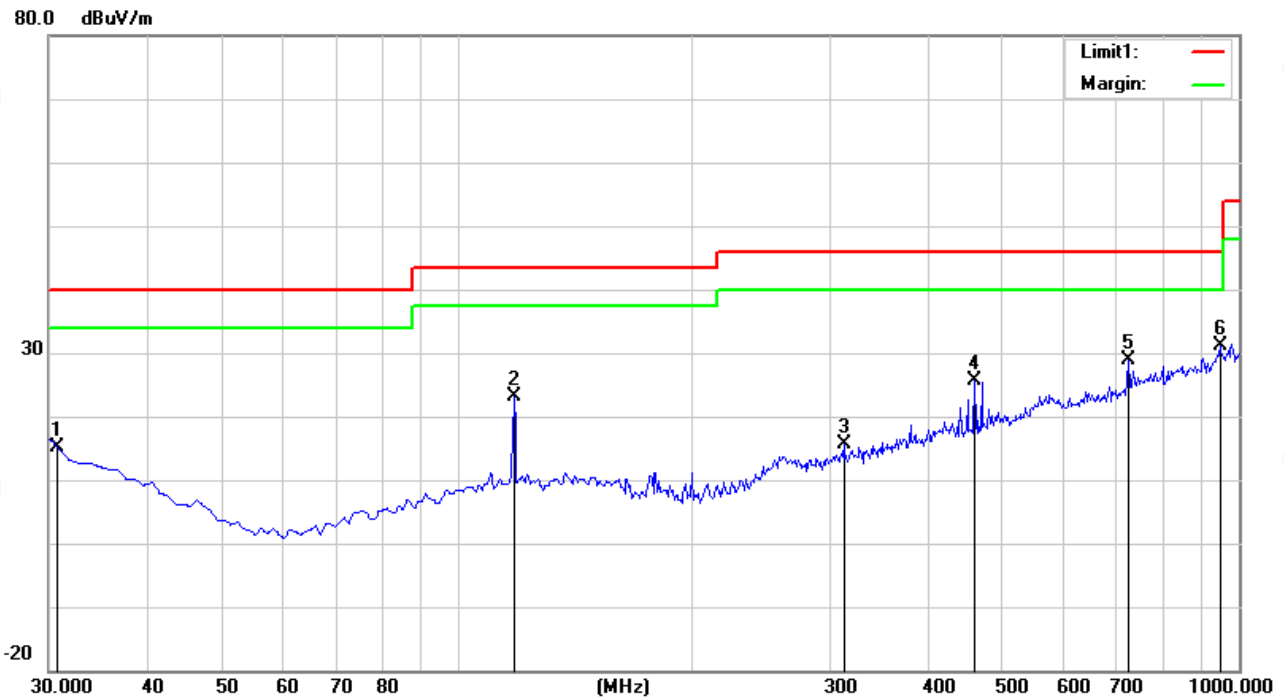
RSE-30MHz-1000MHz -H



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	30.7455	27.88	-13.24	14.64	40.00	-25.36	peak
2	199.7500	39.42	-21.11	18.31	43.50	-25.19	peak
3	366.5900	34.97	-12.62	22.35	46.00	-23.65	peak
4	578.0500	31.85	-5.73	26.12	46.00	-19.88	peak
5	800.1800	32.67	-2.05	30.62	46.00	-15.38	peak
6	903.9700	34.29	-0.34	33.95	46.00	-12.05	peak



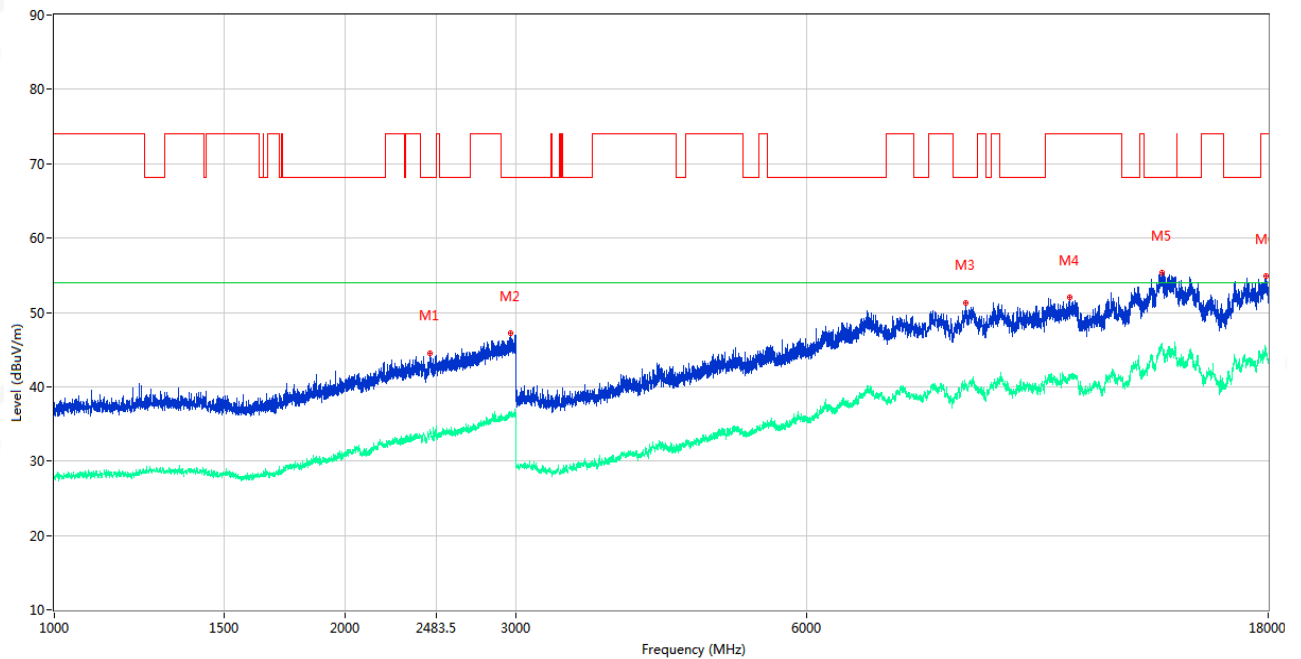
RSE-30MHz-1000MHz -V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	30.7455	28.44	-13.24	15.20	40.00	-24.80	peak
2	118.2700	41.67	-18.43	23.24	43.50	-20.26	peak
3	313.2400	29.87	-14.31	15.56	46.00	-30.44	peak
4	460.6800	35.05	-9.43	25.62	46.00	-20.38	peak
5	723.5500	31.77	-2.97	28.80	46.00	-17.20	peak
6	948.5900	29.64	1.56	31.20	46.00	-14.80	peak

RSE-1GHz - 18GHz
Horizontal

RE_FCC Test Case_FCC 15C 1GHz-18GHz - 5G

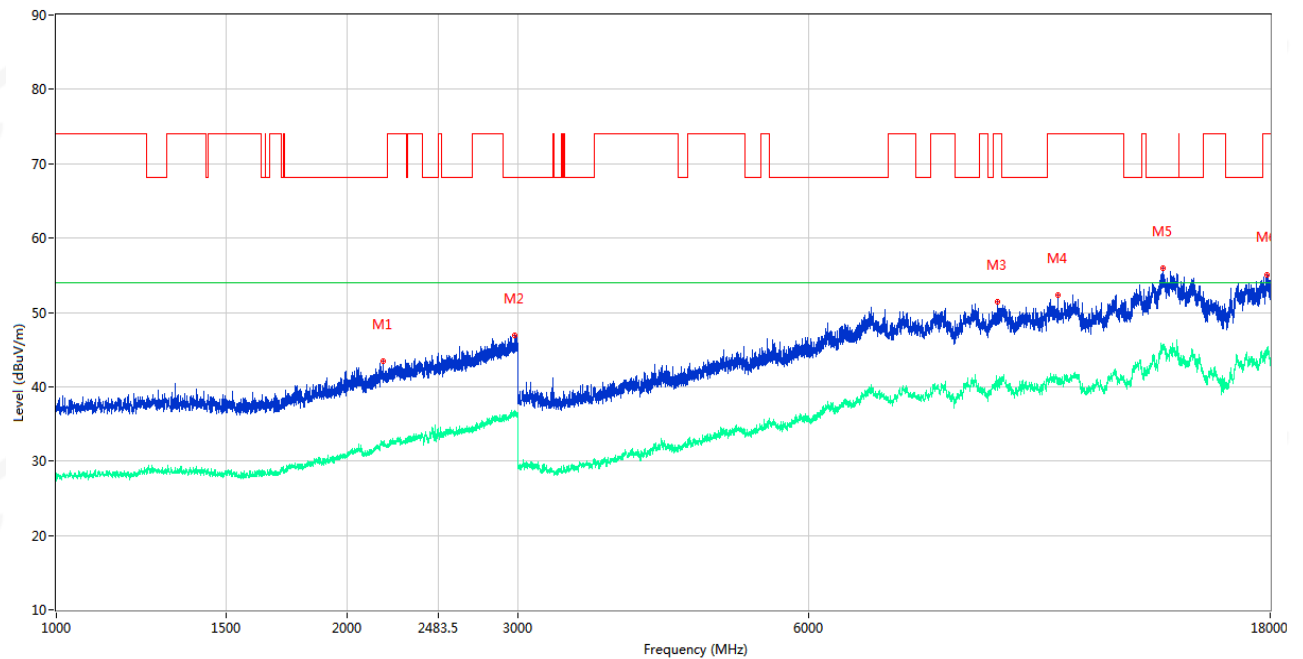


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Antenna	Verdict
1	2444.000	44.57	3.22	68.2	23.63	Peak	1.40	Horizontal	Pass
1**	2444.000	33.60	3.22	54.0	20.40	AV	1.40	Horizontal	Pass
2	2965.000	47.20	5.29	68.2	21.00	Peak	157.90	Horizontal	Pass
2**	2965.000	36.45	5.29	54.0	17.55	AV	157.90	Horizontal	Pass
3	8751.750	51.34	0.20	68.2	16.86	Peak	86.50	Horizontal	Pass
3**	8751.750	40.32	0.20	54.0	13.68	AV	86.50	Horizontal	Pass
4	11218.500	52.06	2.56	74.0	21.94	Peak	355.50	Horizontal	Pass
4**	11218.500	40.95	2.56	54.0	13.05	AV	355.50	Horizontal	Pass
5	13976.750	55.37	8.16	68.2	12.83	Peak	200.70	Horizontal	Pass
5**	13976.750	45.81	8.16	54.0	8.19	AV	200.70	Horizontal	Pass
6	17903.749	54.87	7.21	74.0	19.13	Peak	8.10	Horizontal	Pass
6**	17903.749	44.94	7.21	54.0	9.06	AV	8.10	Horizontal	Pass

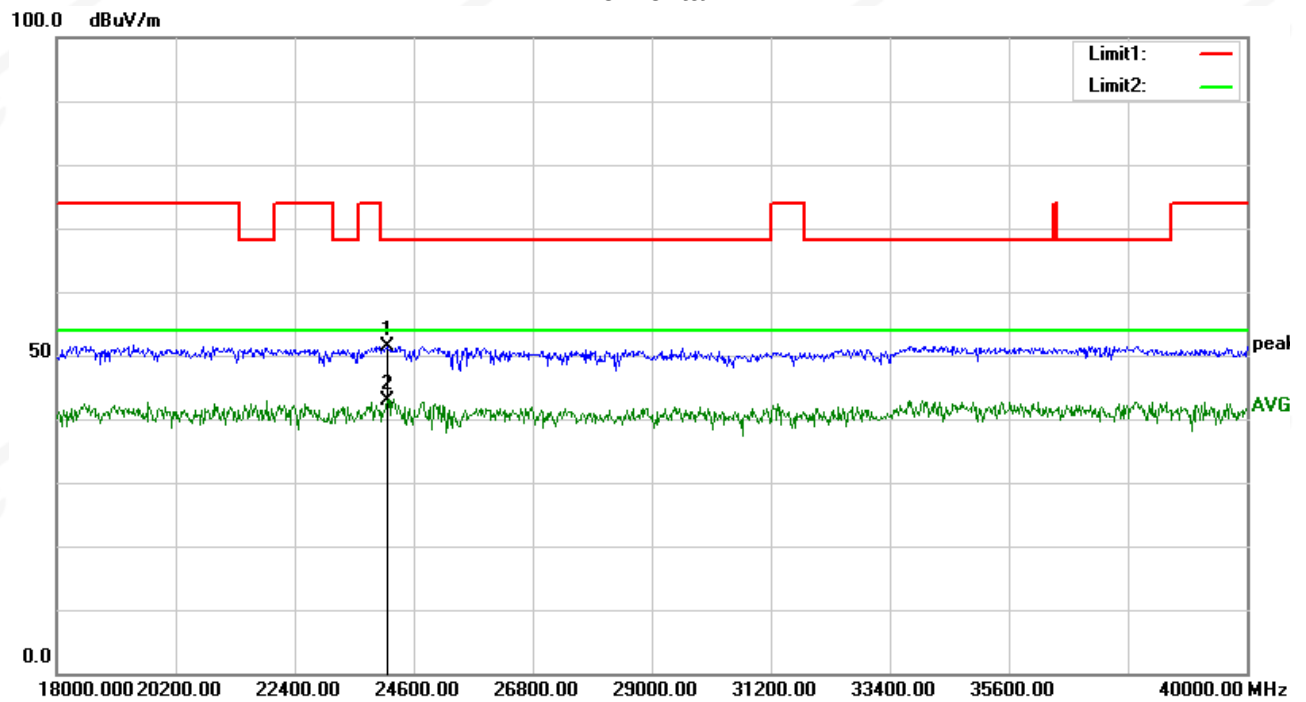


Vertical

RE_FCC Test Case_FCC 15C 1GHz-18GHz - 5G



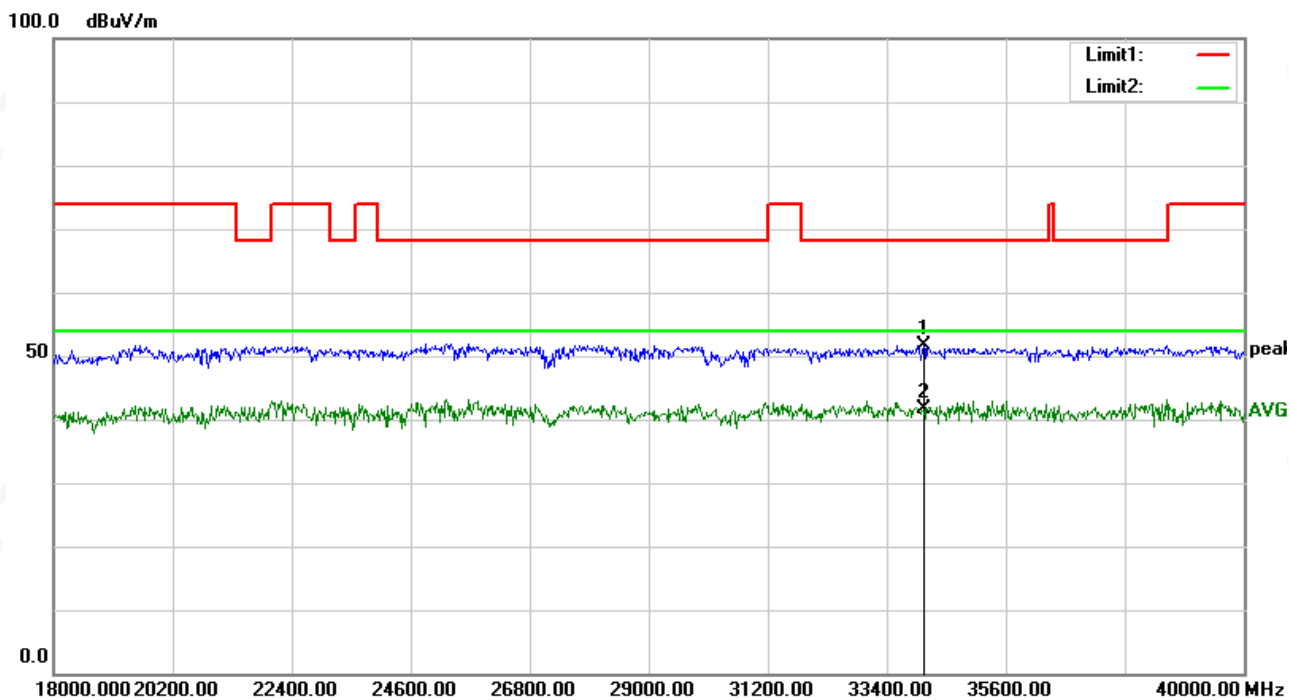
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Antenna	Verdict
1	2177.500	43.41	1.66	68.2	24.79	Peak	231.10	Vertical	Pass
1**	2177.500	32.01	1.66	54.0	21.99	AV	231.10	Vertical	Pass
2	2982.000	46.95	5.37	68.2	21.25	Peak	292.80	Vertical	Pass
2**	2982.000	36.07	5.37	54.0	17.93	AV	292.80	Vertical	Pass
3	9400.750	51.36	0.94	74.0	22.64	Peak	61.10	Vertical	Pass
3**	9400.750	40.11	0.94	54.0	13.89	AV	61.10	Vertical	Pass
4	10866.500	52.26	1.85	74.0	21.74	Peak	219.50	Vertical	Pass
4**	10866.500	41.14	1.85	54.0	12.86	AV	219.50	Vertical	Pass
5	13930.000	55.98	7.58	68.2	12.22	Peak	191.30	Vertical	Pass
5**	13930.000	45.64	7.58	54.0	8.36	AV	191.30	Vertical	Pass
6	17862.500	55.12	6.92	74.0	18.88	Peak	73.70	Vertical	Pass
6**	17862.500	44.94	6.92	54.0	9.06	AV	73.70	Vertical	Pass

RSE-18GHz -40GHz
Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	24116.000	46.81	4.65	51.46	68.20	-16.74	peak
2	24116.000	38.18	4.65	42.83	54.00	-11.17	AVG



Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	34082.000	42.29	9.42	51.71	68.20	-16.49	peak
2	34082.000	32.11	9.42	41.53	54.00	-12.47	AVG



Above 40GHz

Frequency	Result	Limit	Margin	Remark	Pol.
(GHz)	(dBuV/m)	(dBuV/m)	(dB)		
57.1600	50.48	74.00	-23.52	peak	H
57.1600	40.48	54.00	-13.52	AVG	H
57.0140	50.36	74.00	-23.64	peak	V
57.0140	40.89	54.00	-13.11	AVG	V
72.9975	52.98	74.00	-21.02	peak	H
72.9975	42.23	54.00	-11.77	AVG	H
72.9630	52.56	74.00	-21.44	peak	V
72.9630	41.88	54.00	-12.12	AVG	V
77.0510	52.74	74.00	-21.26	peak	H
77.0510	42.44	54.00	-11.56	AVG	H
77.1420	53.42	74.00	-20.58	peak	V
77.1420	42.01	54.00	-11.99	AVG	V
117.0440	52.97	74.00	-21.03	peak	H
117.0440	42.23	54.00	-11.77	AVG	H
116.9840	52.12	74.00	-21.88	peak	V
116.9840	42.46	54.00	-11.54	AVG	V
189.1910	52.31	74.00	-21.69	peak	H
189.1910	41.90	54.00	-12.10	AVG	H
188.5970	52.28	74.00	-21.73	peak	V
188.5970	41.37	54.00	-12.63	AVG	V

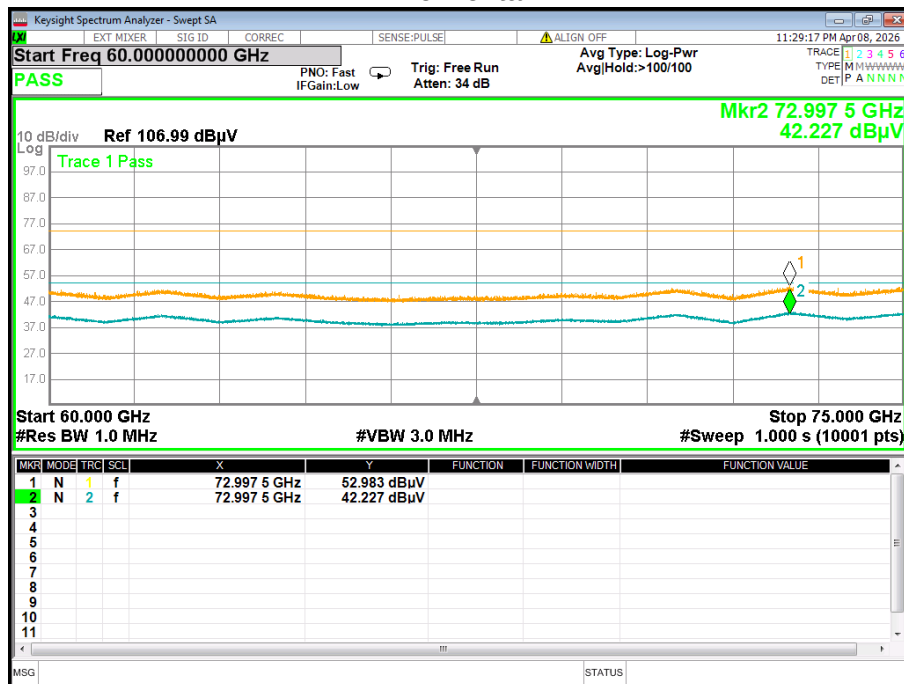
Note:

1. $Mes@3m = Mes@1.5m + 20 \cdot \log(1.5m/3m)$
2. $Power\ Density = (10^8/377) \cdot \{10^{[(Meas.\ @3m - 120)/20]}\}^2$

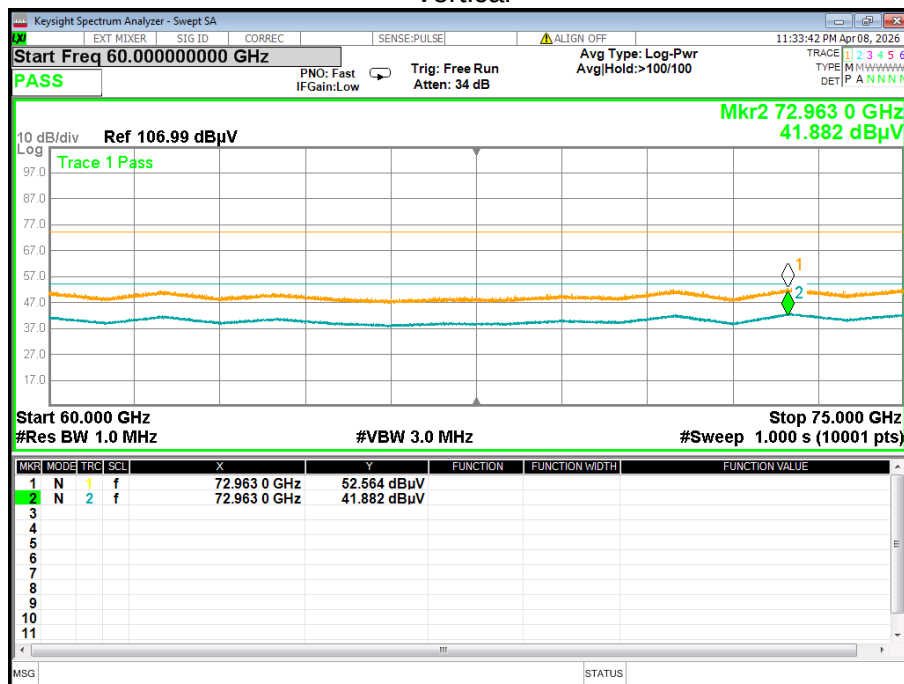
40 GHz- 57 GHz
Horizontal

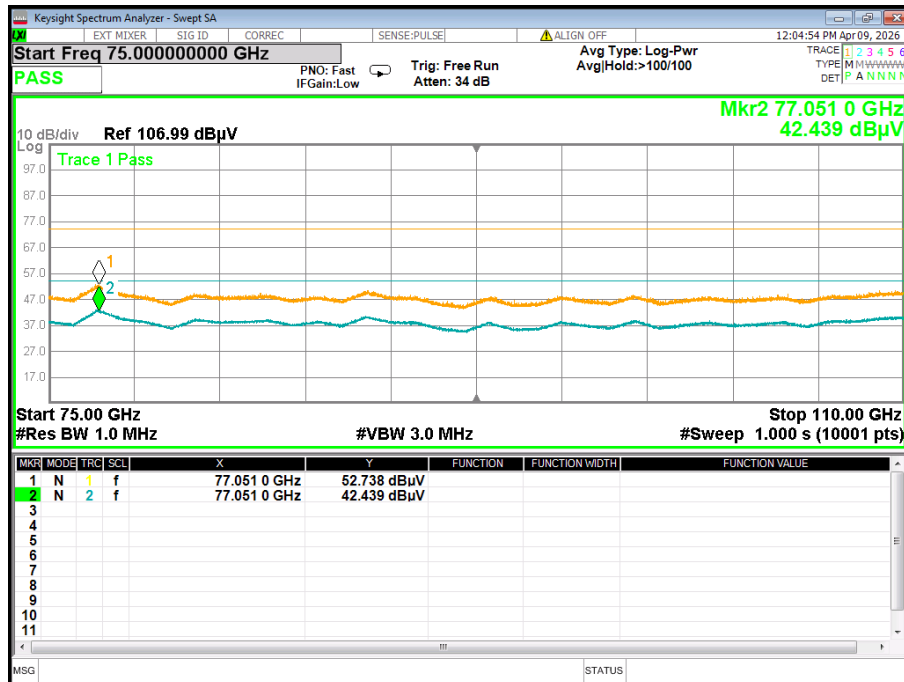
Vertical



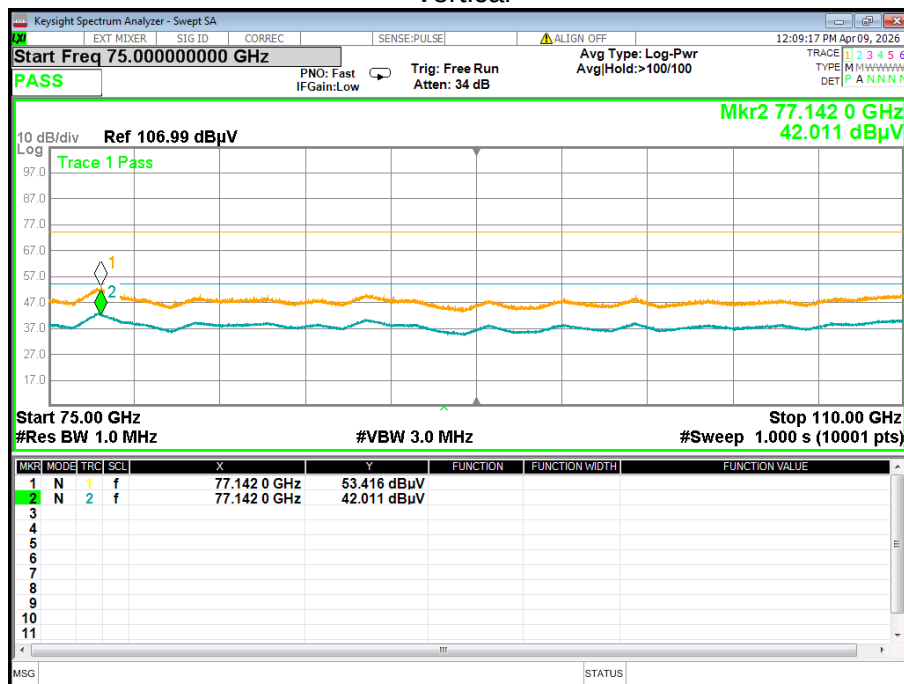
64 GHz -75 GHz
Horizontal

Vertical



75 GHz -110 GHz
Horizontal

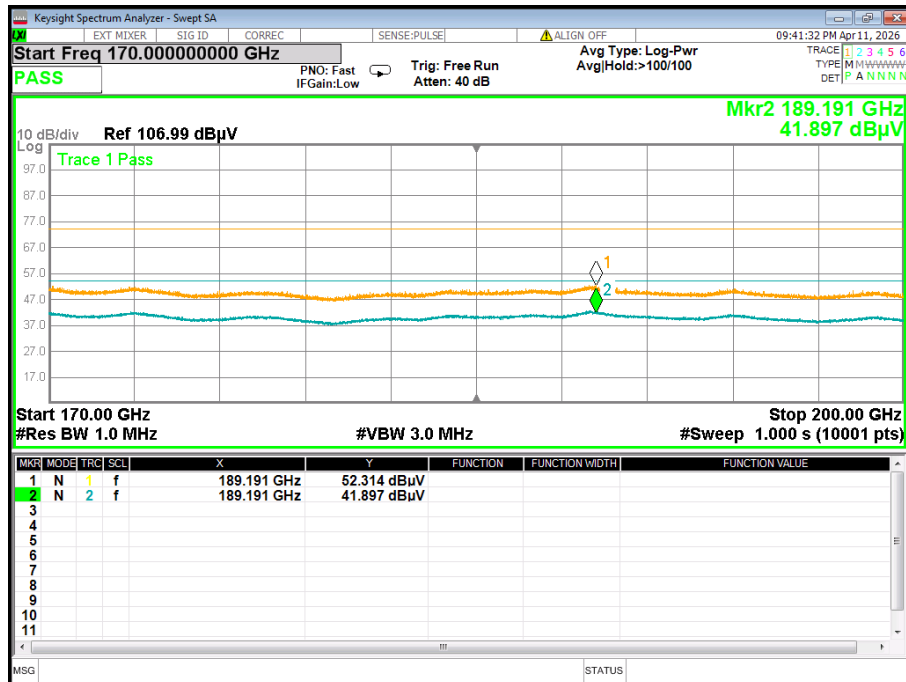
Vertical



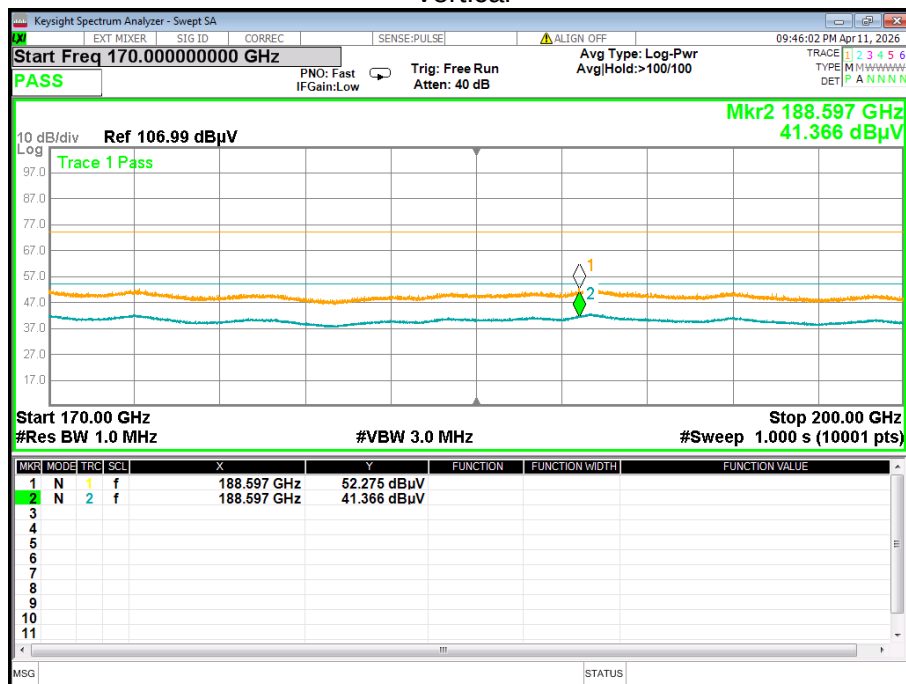
110 GHz -170 GHz
Horizontal

Vertical



170 GHz -200 GHz
Horizontal

Vertical



5. RADIATED POWER (E.I.R.P.) AND TRANSMITTER OFF-TIMES

5.1 LIMIT

FCC Part 15.255(c)(2)(iii) 57.0-64.0 GHz

(A) Click to open paragraph tools

The peak EIRP shall not exceed 14 dBm, and the sum of continuous transmitter off-times of at least two milliseconds shall equal at least 25.5 milliseconds within any contiguous interval of 33 milliseconds, except as specific in paragraph (c)(2)(iii)(B) of this section

5.2 TEST PROCEDURE

Please refer to ANSA C63.10-2020

Maximum peak power(EIRP) – Peak detector

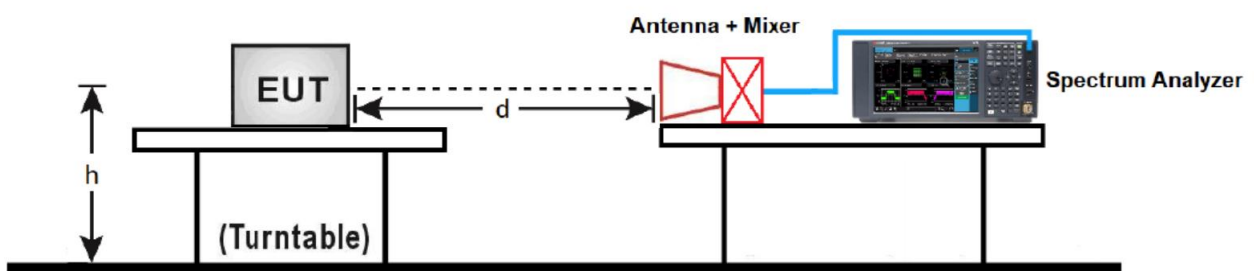
1. Set RBW = 1 MHz
2. Set VBW ≥ 3 X RBW
3. span to 2 x to 3 x the OBW
4. Detector = Peak
5. Set number of points in sweep ≥ 2 x span / RBW
6. Sweep time = auto-couple
7. Trace = max-hold

Note1. Sample Calculation $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured level}(\text{dB}\mu\text{V}) + 107 + \text{AFCL}(\text{dB}/\text{m})$ Where, E=field strength / AFCL= Antenna Factor(dB/m) + Cable Loss(dB/m) The mixer loss was applied to the measured level by SA correction factor. $\text{EIRP}(\text{dB m}) = E(\text{dB}\mu\text{V}/\text{m}) + 20\log(D) - 104.8$; where, D is measurement distance(in the far field region) in m.

Note2. P.C.F Calculation (P.C.F=Peak amplitude correction factor of the FMCW signal)
 $\text{F.C.F} = 20 \cdot \log_{10}(1/\alpha)$

$$\alpha = \frac{1}{\sqrt[4]{1 + \left(\frac{2 \ln(2)}{\pi}\right)^2 \left(\frac{FS}{TSB^2}\right)^2}}$$

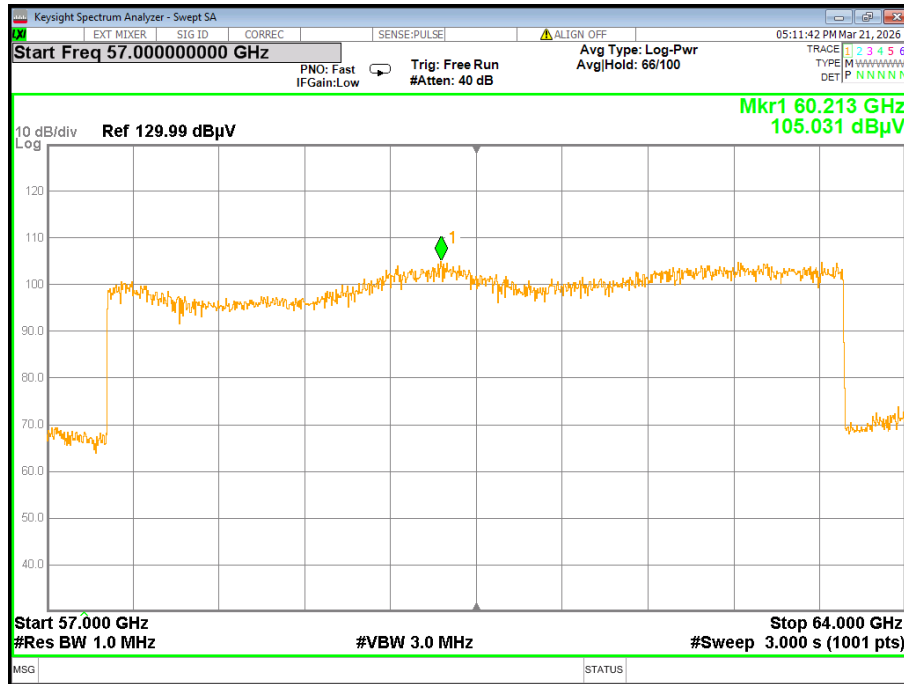
5.3 TEST SETUP





5.4 TEST RESULT

Frequency (GHz)	Distance (m)	dBuV/m	EIRP Power (dBm)	Desensitization Factor(dB)	Final EIRP Power (dBm)	EIRP Power Limit (dBm)	Result
57-64	1.5	105.031	3.75	10.08	13.83	14	PASS



The FMCW Desensitization Factor

FMCW Width(MHz)	Tchirp(us)	RBW(MHz)	Desensitization Factor(lin)	Desensitization Factor(dB)
5965.5	260	1	0.3134	10.08

$$\alpha = \frac{1}{\sqrt{1 + \left(\frac{2 \ln(2)}{\pi} \right)^2 \left(\frac{BW_{\text{Chirp}}}{T_{\text{Chirp}} B^2} \right)^2}}$$

where

α is the reduction in amplitude
 BW_{Chirp} is the FMCW Chirp Bandwidth
 T_{Chirp} is the FMCW Chirp Time
 B is the 3 dB IF Bandwidth = RBW

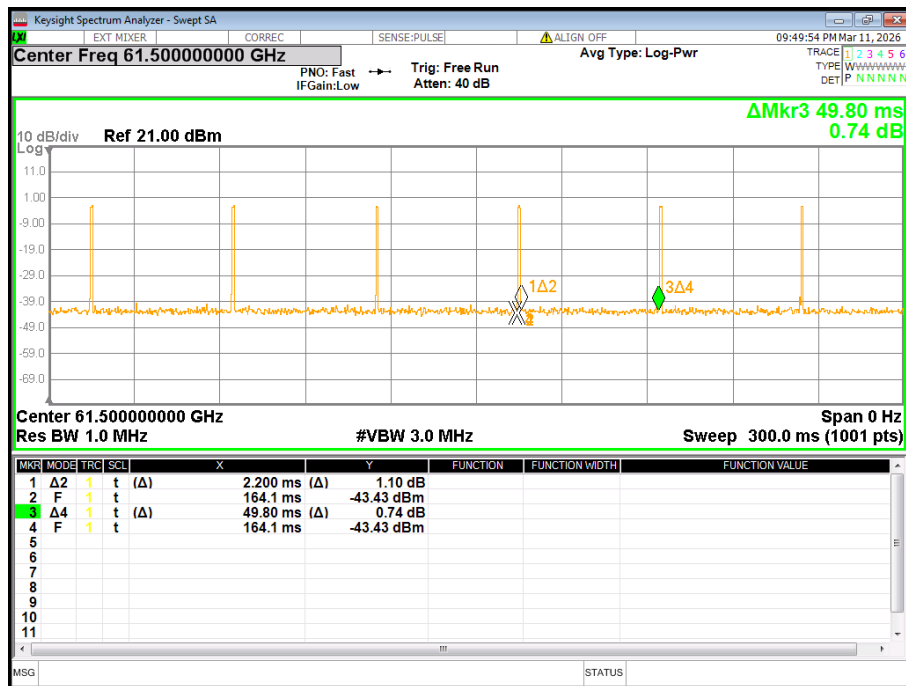
Note: The chirp time is provided by the manufacturer.



Transmitter Off-times

Transmitter On (ms)	Observation Time (ms)	Sum of continuous Transmitter off-times (ms)	Limit (ms)
2.2	33	30.8	≥25.5

Duty



6. OCCUPIED BANDWIDTH

6.1 LIMIT

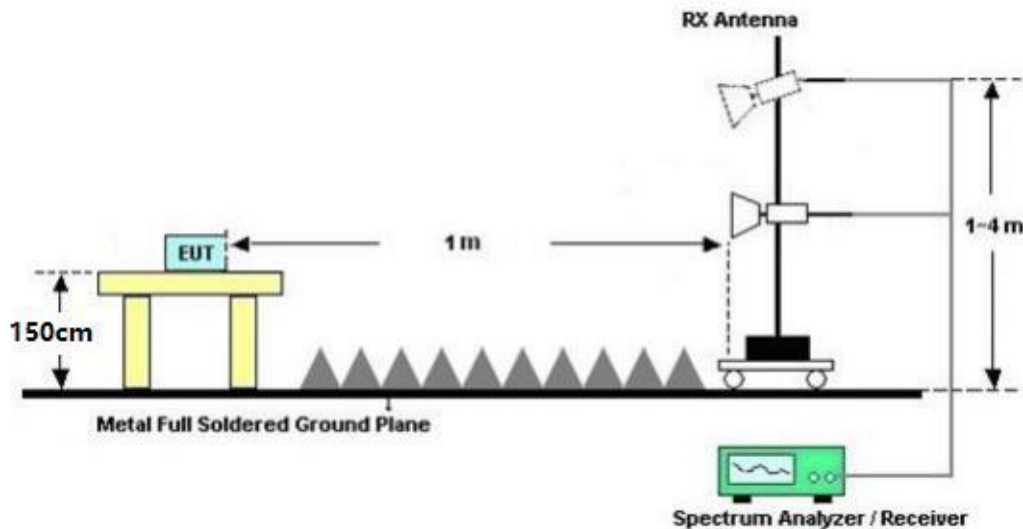
The occupied bandwidth is defined as the 99% bandwidth.

According to § 2.1049: The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained.

6.2 TEST PROCEDURE

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer
- If the EUT is a tabletop system, 1.5 m height is used.
- If the EUT is a floor standing device, it is placed directly on the turntable.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C63.10.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 1m (see ANSI C63.10) – see test details.
- EUT is set into operation.
- The turntable rotates from 0 degree to 360 degree.
- The antenna with external mixer is polarized vertical and horizontal.
- The antenna height changes from 1m to 4m.
- Set the resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

6.3 TEST SETUP

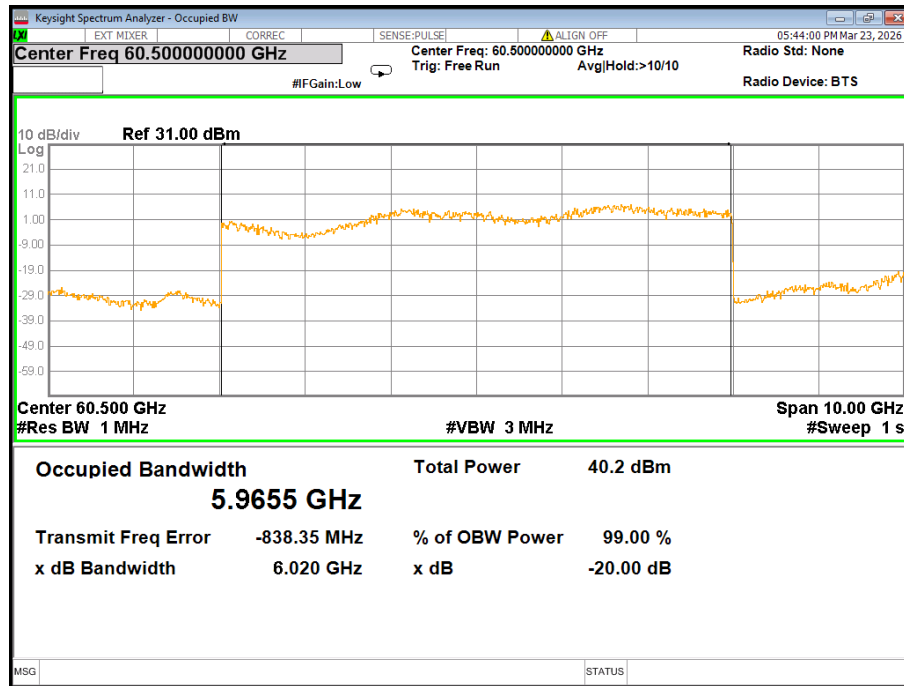




6.4 TEST RESULT

Mode	99% Bandwidth(GHz)	Limit (GHz)	Result
Radar	5.9655	57-64	Pass

99% Bandwidth



7. Frequency stability

7.1 LIMIT

Fundamental emissions must be contained within the frequency bands specified in this section during all conditions of operation. Equipment is presumed to operate over the temperature range -20 to +50 degrees Celsius with an input voltage variation of 85% to 115% of rated input voltage, unless justification is presented to demonstrate otherwise

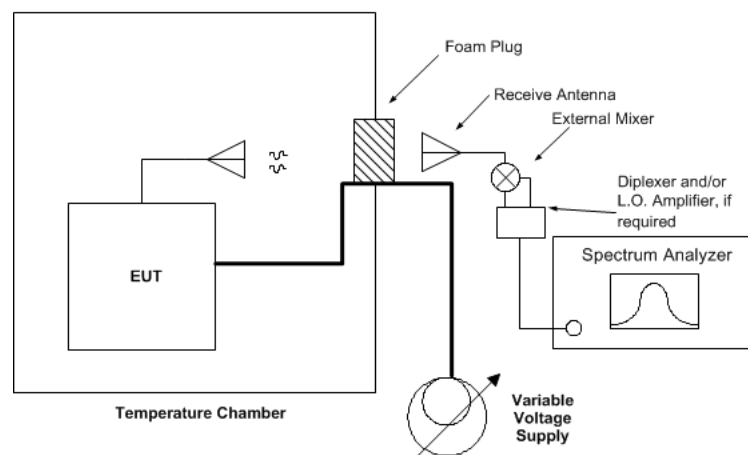
7.2 TEST PROCEDURES

1. Please refer to ANSI C63.10-2020

- a) Arrange EUT and test equipment as shown in Figure 21. Some temperature chambers have a window or other opening that permits locating the receive antenna outside the chamber.
- b) With the EUT at ambient temperature (approximately 25 °C) and voltage source set to the EUT nominal operating voltage (100%), record the spectrum mask of the EUT emission on the spectrum analyzer.
- c) Vary EUT power supply between 85% and 115% of nominal, and record the frequency excursion of the EUT emission mask.
- d) Set the power supply to 100% nominal setting, and raise EUT operating temperature to 50 °C. Record the frequency excursion of the EUT emission mask.
- e) Repeat step d) at each 10 °C increment down to -20 °C.

7.3 TEST SETUP

EUT uses a horn antenna connected to a spectrum analyzer for measurement. The EUT was placed in an environmental chamber using foam plugs to maintain temperature conditions inside. The horn antenna measures the frequency of the fundamental signal.





7.4 TEST RESULT

Voltage	Power	Temp	FL	FH	Limit	Result
(%)	(VDC)	(°C)	(GHz)	(GHz)	(GHz)	
100%	5	-20	57.557	63.482	57-64GHz	Pass
		-10	57.557	63.486	57-64GHz	Pass
		0	57.560	63.486	57-64GHz	Pass
		10	57.563	63.482	57-64GHz	Pass
		20	57.504	63.489	57-64GHz	Pass
		30	57.565	63.479	57-64GHz	Pass
		40	57.560	63.485	57-64GHz	Pass
		50	57.557	63.482	57-64GHz	Pass
115%	5.75	20	57.558	63.483	57-64GHz	Pass
85%	4.25	20	57.557	63.481	57-64GHz	Pass



8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2 EUT ANTENNA

The EUT antenna is Internal antenna. It comply with the standard requirement.



9. PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

*****END OF THE REPORT*****