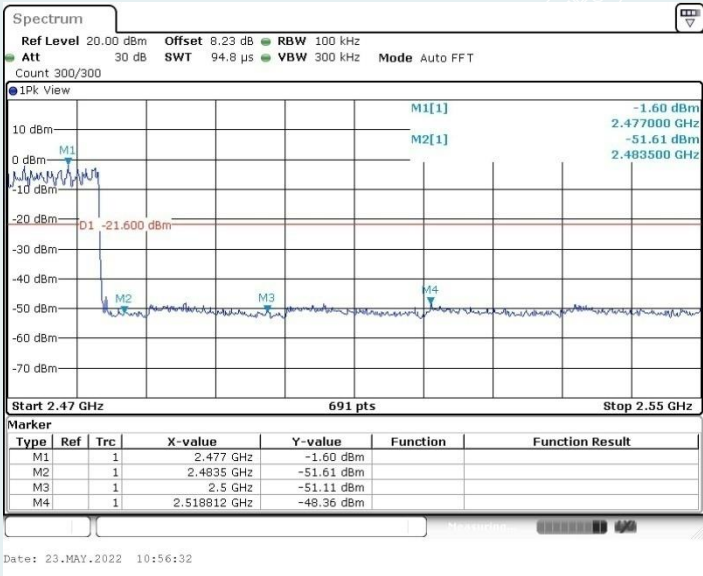
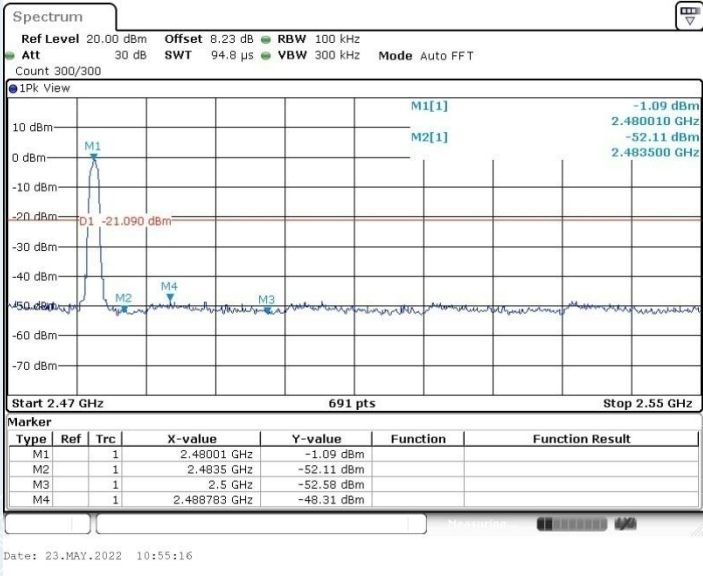
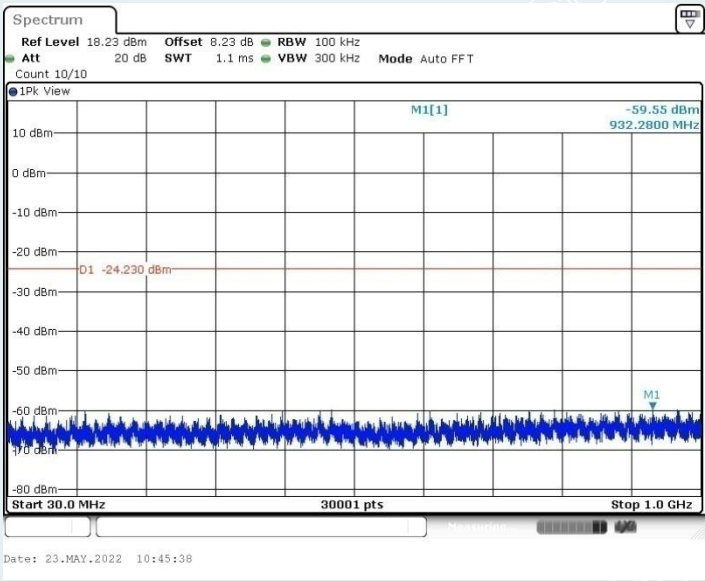
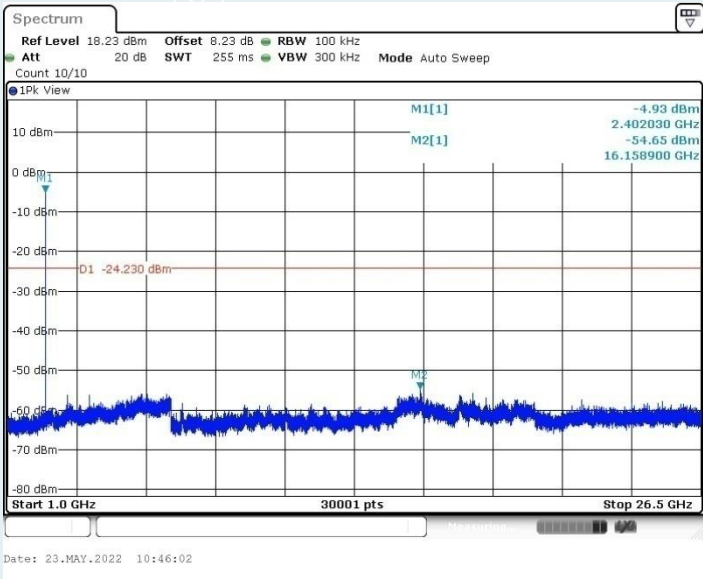


CH High (2.47GHz ~ 2.55GHz)



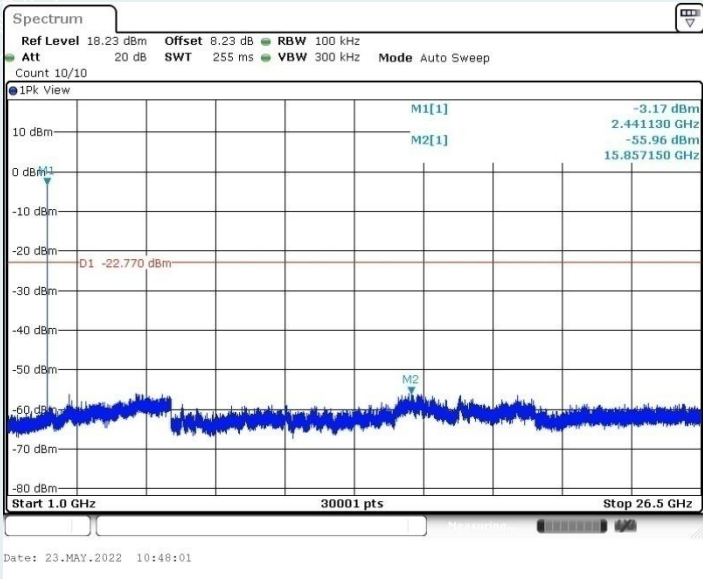
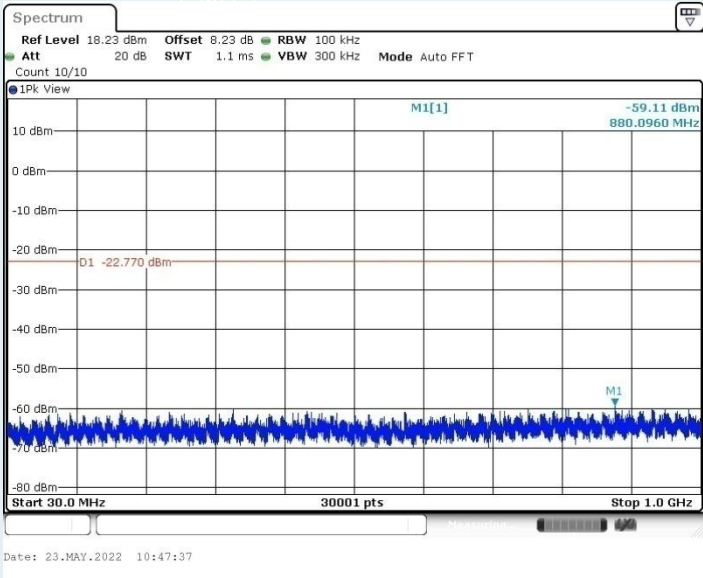
Spurious Emissions  
DH5  
CH Low



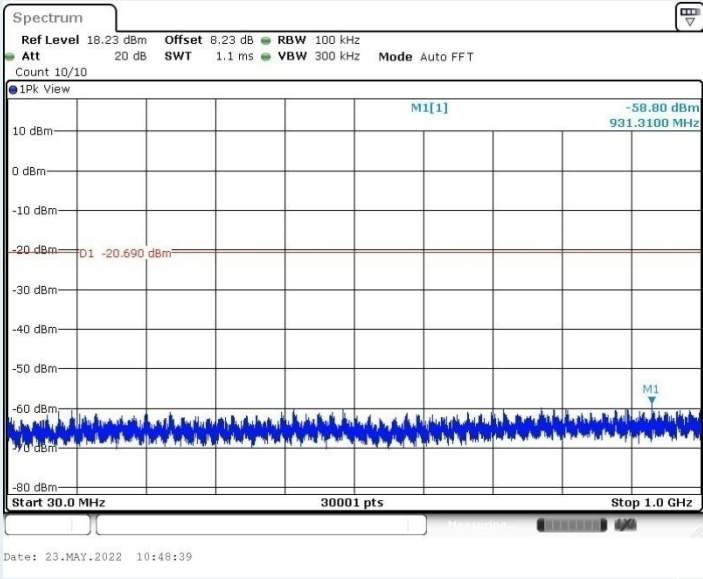
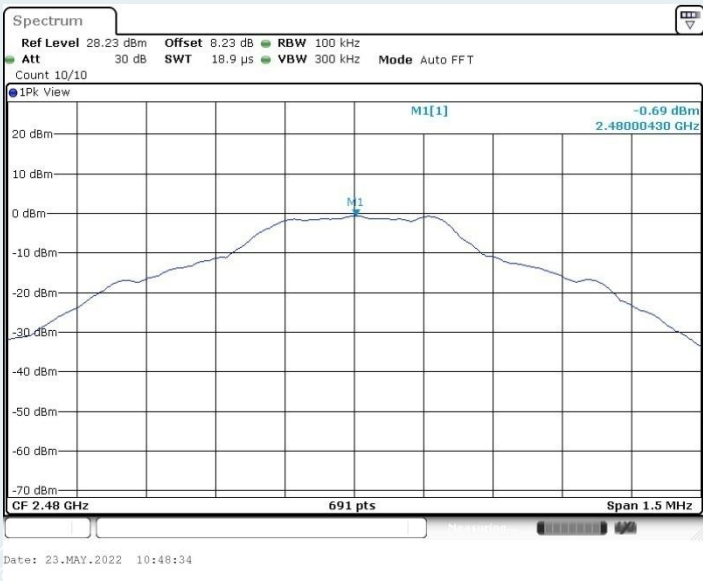


CH Mid

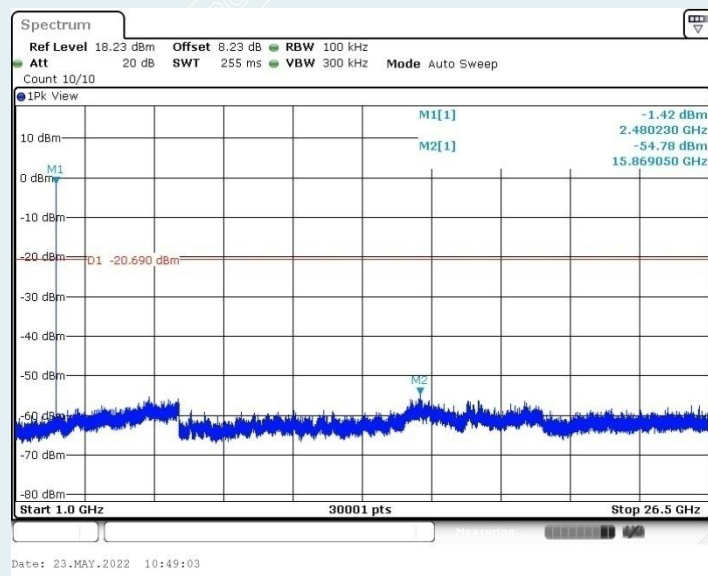




CH High

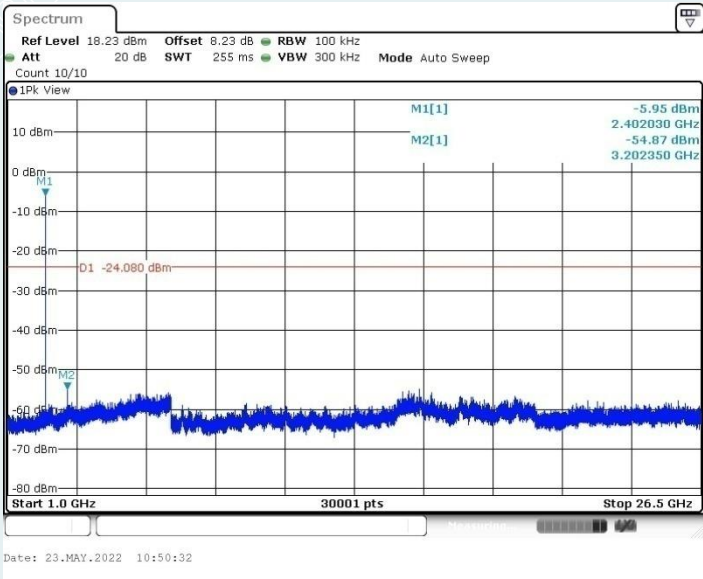
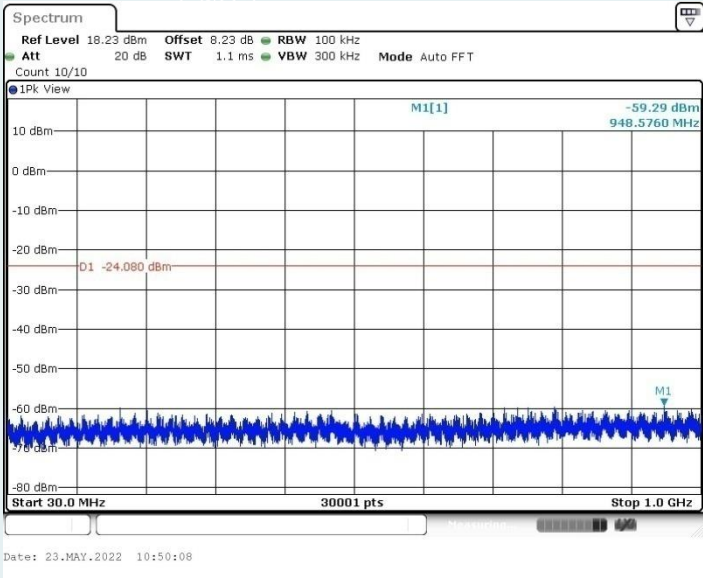




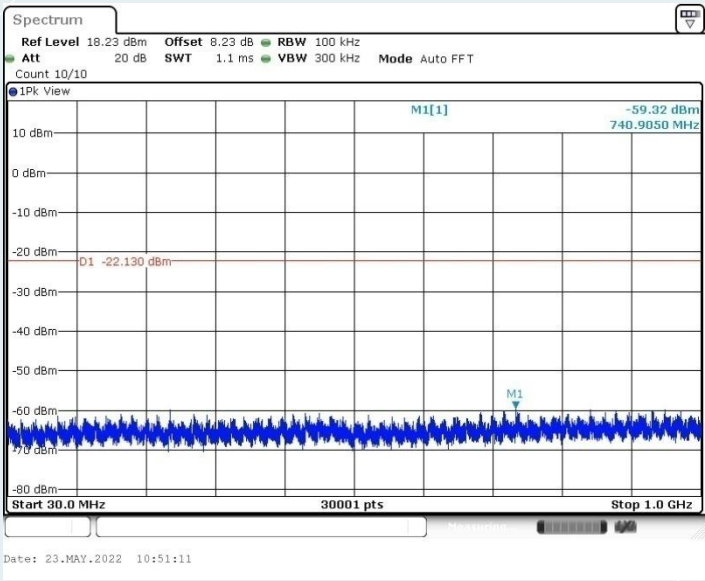
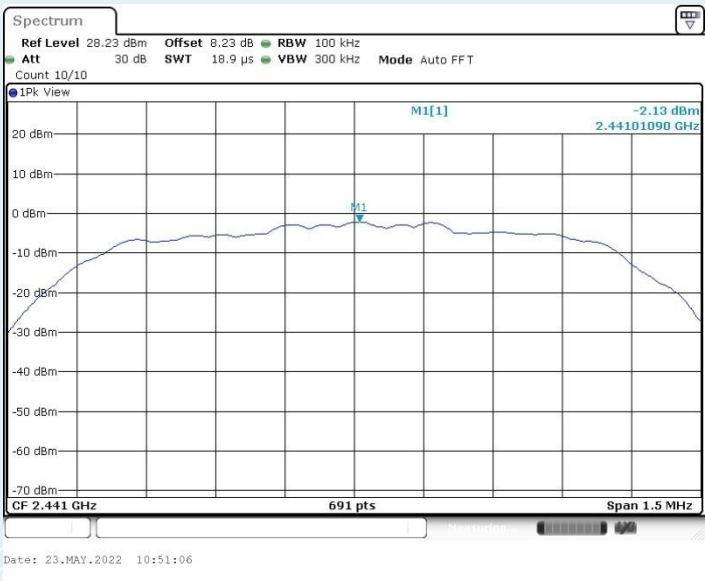


2DH5  
CH Low

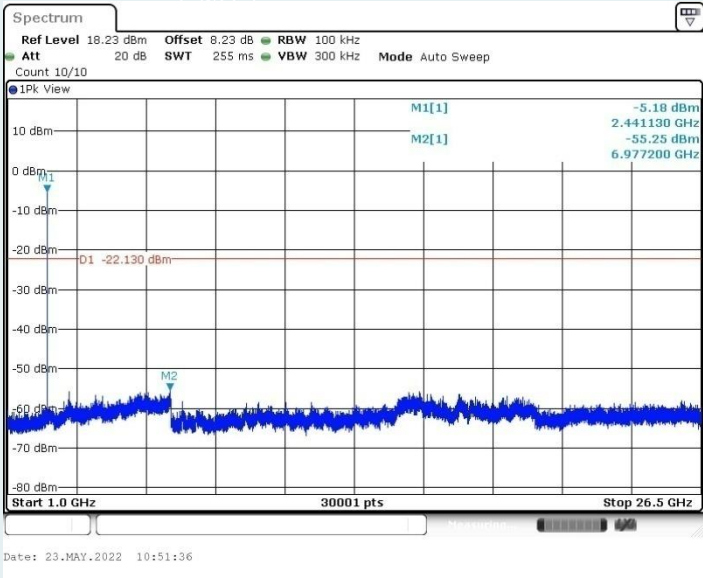




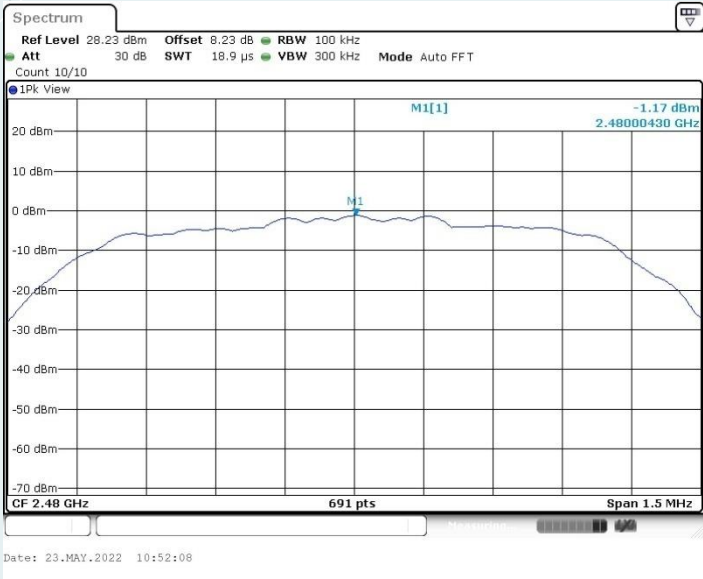
CH Mid

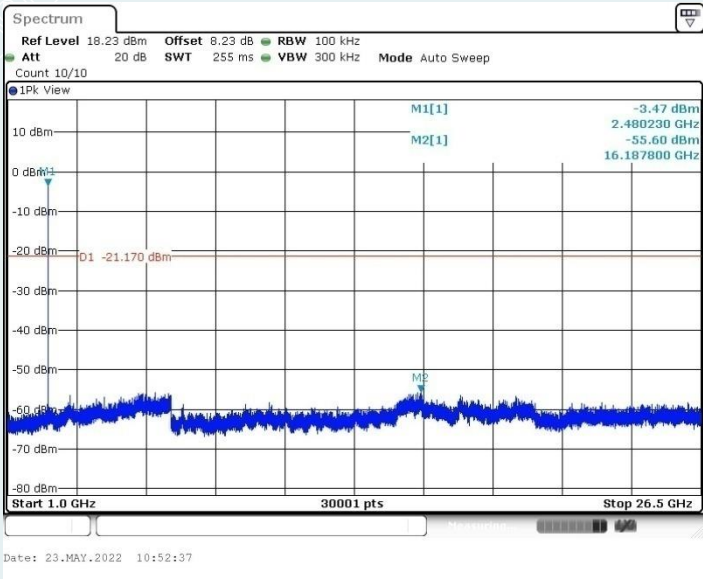
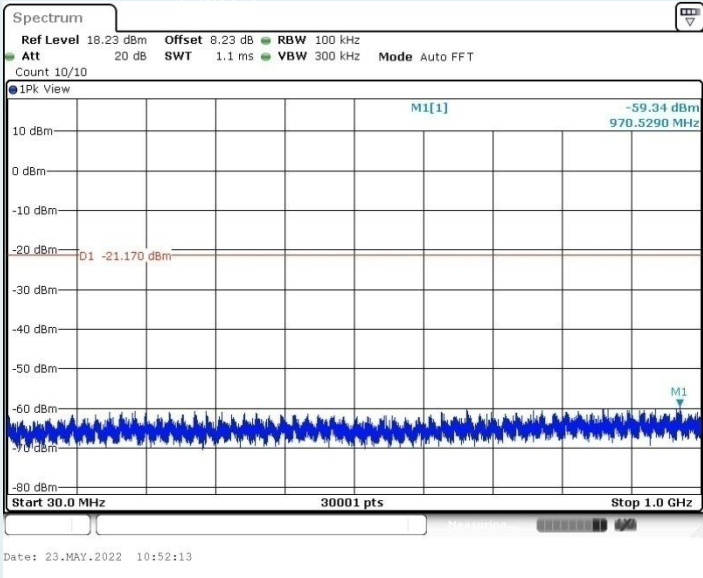




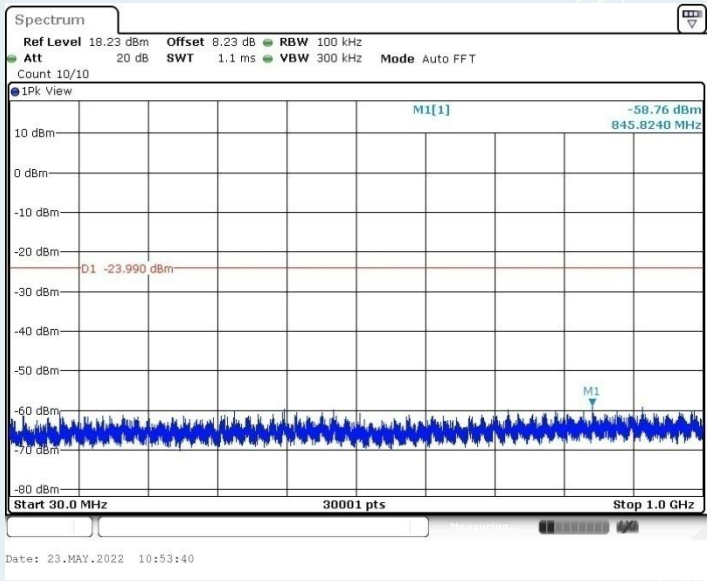
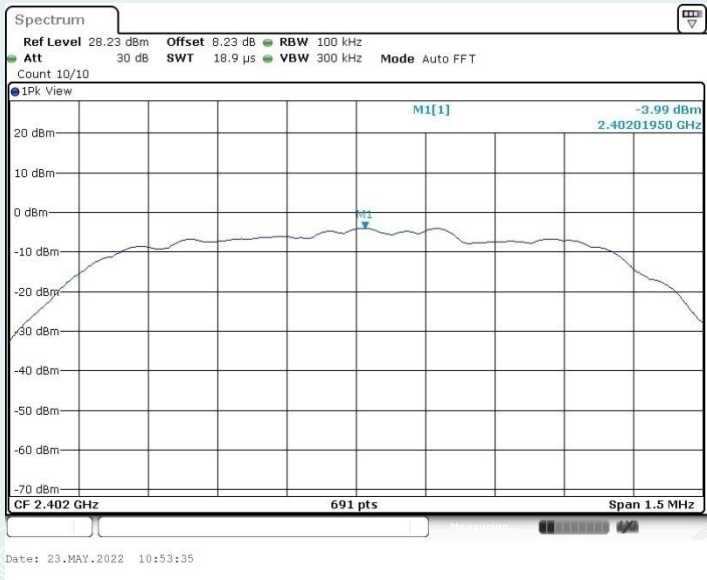


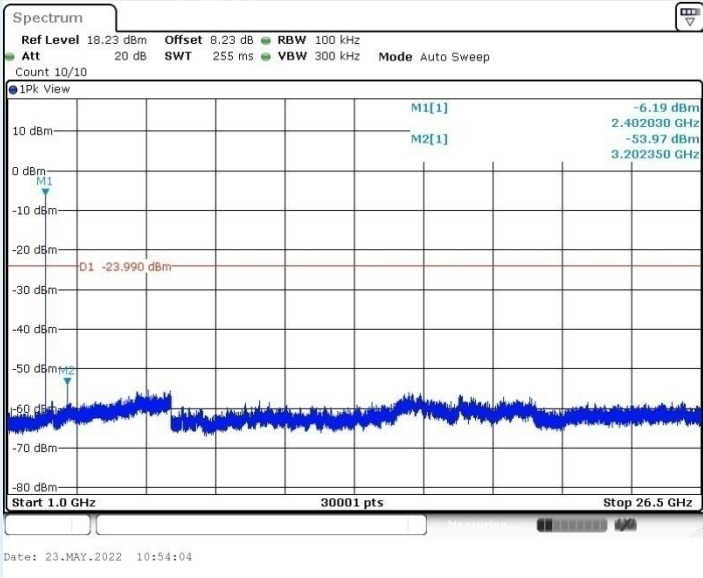
CH High



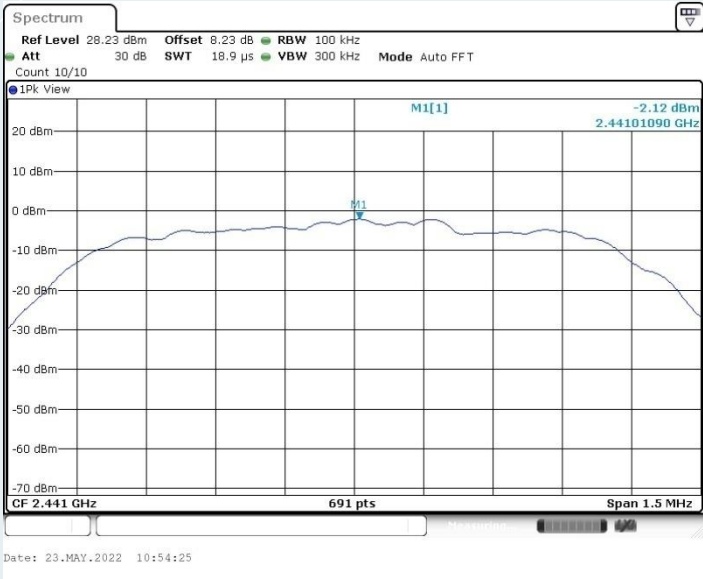


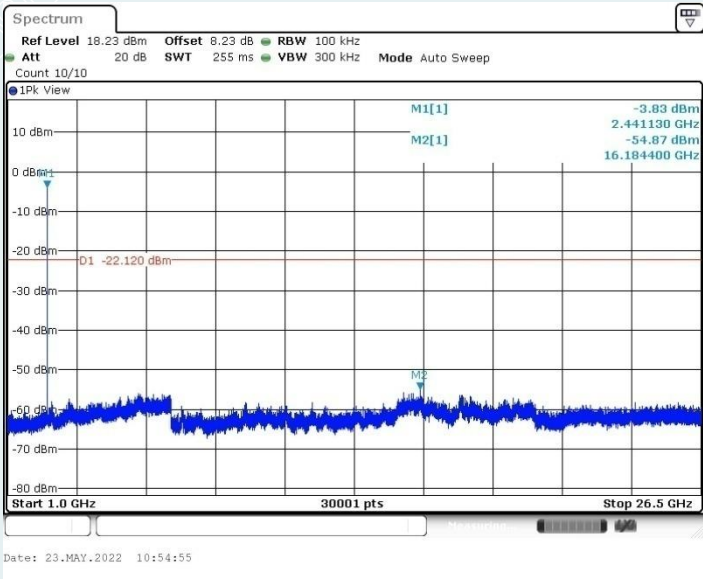
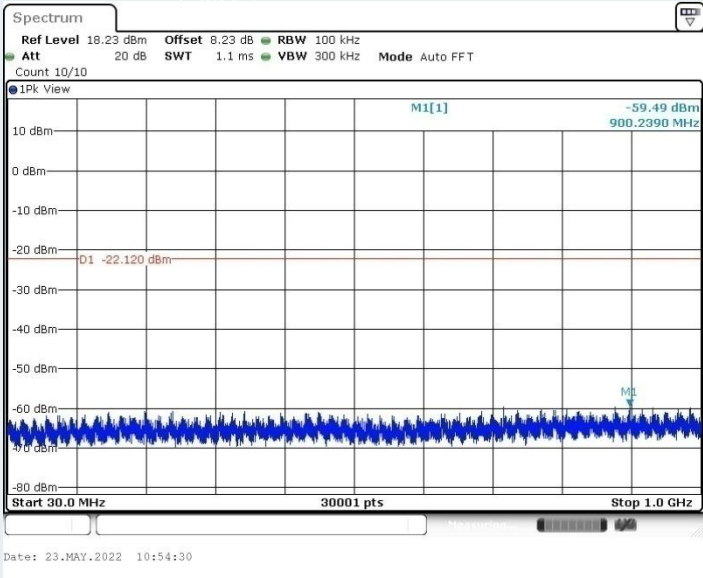
3DH5  
CH Low





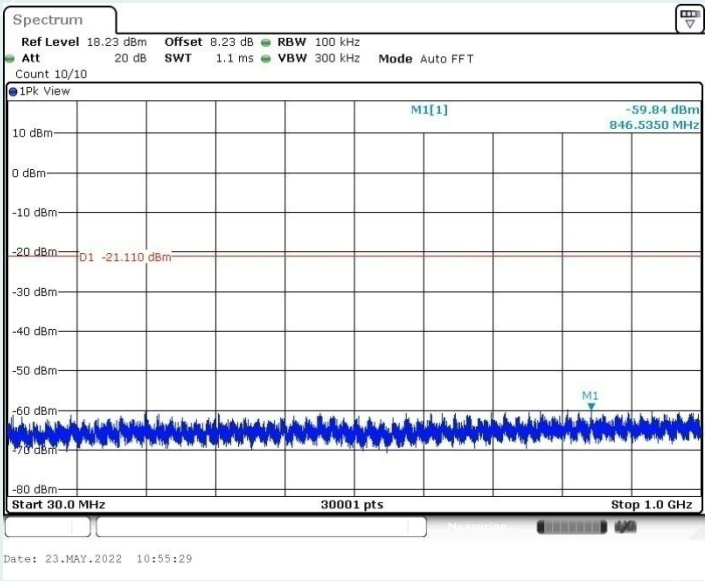
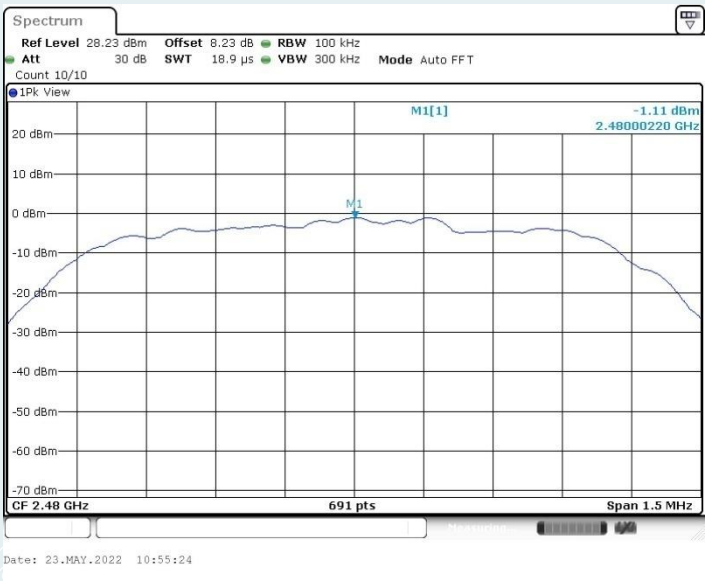
CH Mid

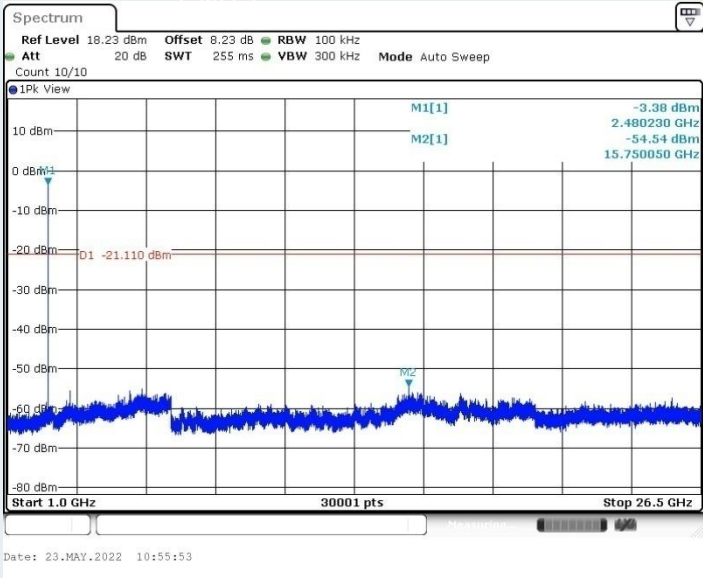






CH High





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### 13. RADIATED SPURIOUS EMISSIONS

#### 13.1 LIMITS

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30dB instead of 20dB. Attenuation below the general limits specified in §15.209(a) is not required.

Frequency (MHz)	Quasi-peak( $\mu\text{V/m}$ )	Measurement distance(m)	Quasi-peak(dB $\mu\text{V/m}$ )@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

**NOTE:**

- (1) The emission limits for the ranges 9-90kHz and 110-490kHz are based on measurements employing a linear average detector.
- (2) The lower limit shall apply at the transition frequencies.

#### 13.2 TEST PROCEDURES

##### 1) Sequence of testing 9kHz to 30MHz

**Setup:**

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.
- If the EUT is a floor standing device, it is placed on the ground.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

**Pre measurement:**

- The turntable rotates from 0 ° to 360 °.
- The antenna height is 1.0 meter.
- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

**Final measurement:**

- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0 ° to 360 °) and by rotating the elevation axes (0 ° to 360 °).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QP detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

## **2) Sequence of testing 30MHz to 1GHz**

### **Setup:**

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

### **Pre measurement:**

--- The turntable rotates from 0 ° to 360 °.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 4 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

### **Final measurement:**

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable rotates from 0 ° to 360 ° and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

## **3) Sequence of testing 1GHz to 18GHz**

### **Setup:**

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.



--- The EUT was set into operation.

**Pre measurement:**

--- The turntable rotates from 0 ° to 360 °.

--- The antenna is polarized vertical and horizontal.

--- The antenna height scan range is 1 meter to 4 meter.

--- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

**Final measurement:**

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable rotates from 0 ° to 360 ° and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.

--- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

**4) Sequence of testing above 18GHz**

**Setup:**

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 1 meter.

--- The EUT was set into operation.

**Pre measurement:**

--- The antenna is moved spherical over the EUT in different polarisations of the antenna.

**Final measurement:**

--- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.

--- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

**NOTE:**

(a). The frequency from 9kHz to 150kHz, Set RBW=300Hz (for Peak&AVG), VBW=300Hz (for Peak&AVG). the frequency from 150kHz to 30MHz, Set RBW=9kHz, VBW=9kHz, (for QP Detector).

(b). The frequency from 30MHz to 1GHz, Set RBW=120kHz, VBW=300kHz, (for QP Detector).

(c). The frequency above 1GHz, for Peak detector: Set RBW=1MHz, VBW=3MHz.

(d). The frequency above 1GHz, for Avg detector: Set RBW=1MHz, if the EUT is configured to transmit with duty cycle  $\geq 98\%$ , set  $VBW \leq RBW/100$  (i.e., 10kHz) but not less than 10 Hz. if the EUT duty cycle is  $< 98\%$ , set  $VBW \geq 1/T$ , Where T is defined in section 2.8.



### 13.3 TEST SETUP

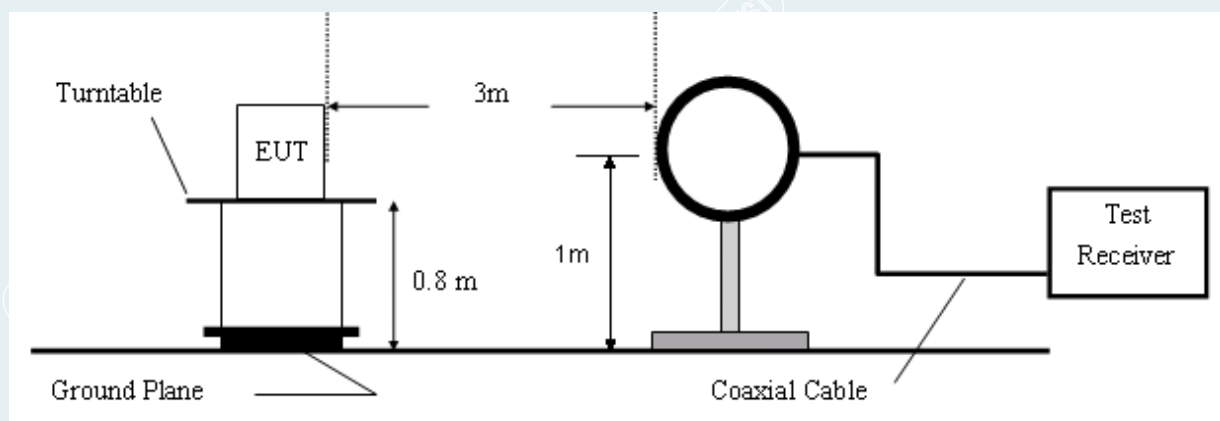


Figure 1. 9kHz to 30MHz radiated emissions test configuration

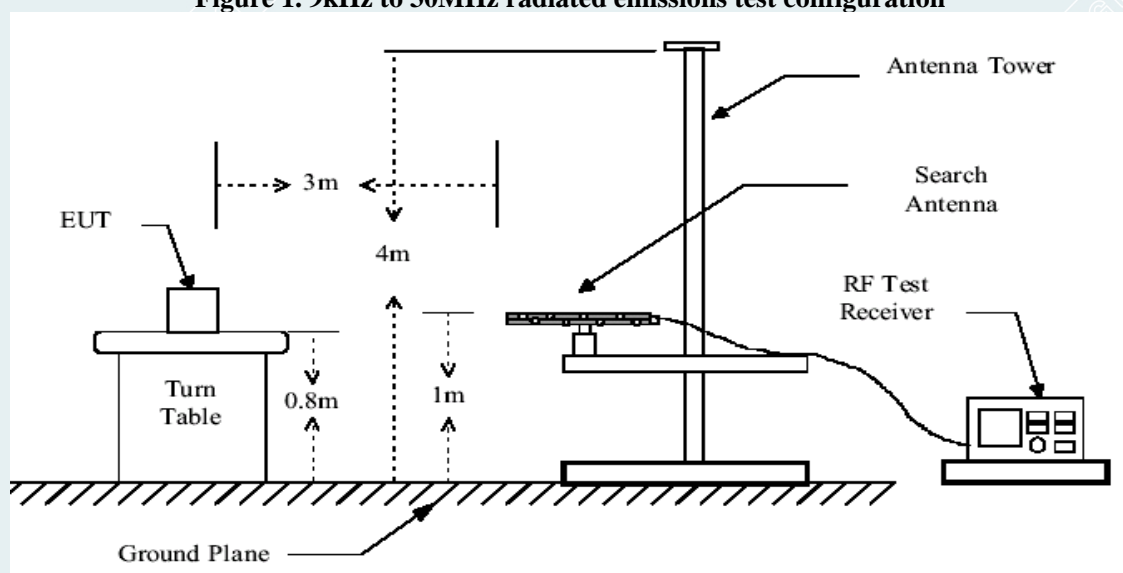


Figure 2. 30MHz to 1GHz radiated emissions test configuration

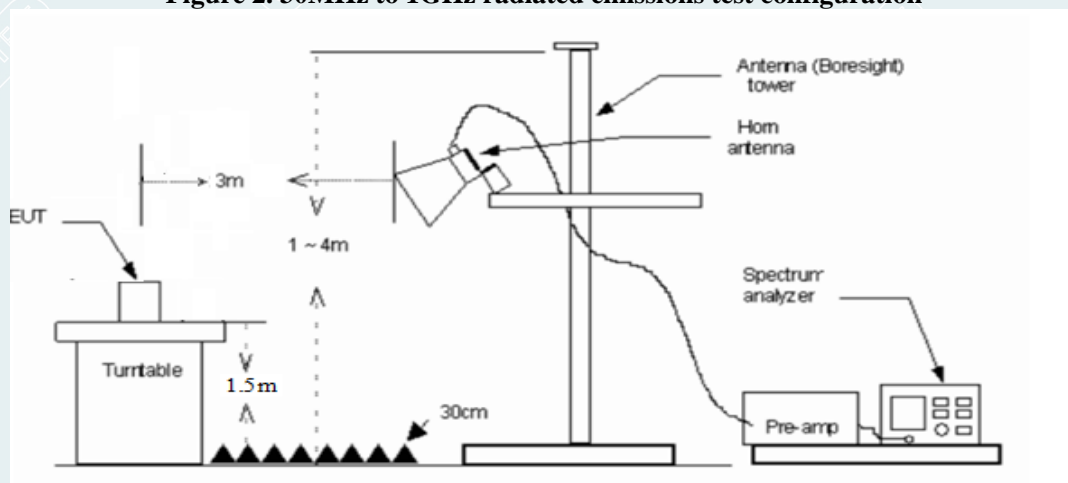
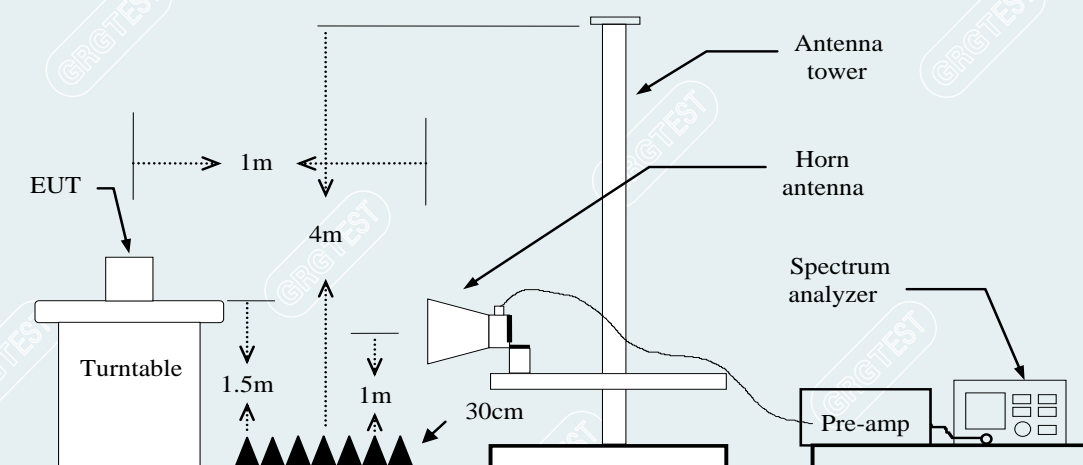


Figure 3. 1GHz to 18GHz radiated emissions test configuration



**Figure 4. 18GHz to 26.5GHz radiated emissions test configuration**

**13.4 DATA SAMPLE****30MHz to 1GHz**

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	37.06	-15.48	21.58	40.00	-18.42	QP	Vertical

**1GHz to 18GHz**

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	65.45	-11.12	54.33	74.00	-19.67	peak	Vertical
xxx	xxx	63.00	-11.12	51.88	54.00	-2.12	AVG	Vertical

**Above 18GHz**

No.	Frequency (MHz)	Reading (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	68.86	57.66	-11.20	83.54	25.88	peak	Vertical
xxx	xxx	68.89	-11.20	57.69	63.54	5.85	AVG	Vertical

Frequency (MHz)

= Emission frequency in MHz

Ant.Pol. (H/V)

= Antenna polarization

Reading (dBuV)

= Uncorrected Analyzer / Receiver reading

Correction Factor (dB/m)

= Antenna factor + Cable loss – Amplifier gain

Result (dBuV/m)

= Reading (dBuV) + Correction Factor (dB/m)

Limit (dBuV/m)

= Limit stated in standard

Margin (dB)

= Remark Result (dBuV/m) – Limit (dBuV/m)

Peak

= Peak Reading

QP

= Quasi-peak Reading

AVG

= Average Reading

### 13.5 TEST RESULTS

#### Below 1GHz:

All models were pretested and only the worst modes and channels were recorded in this report (3DH5-2402MHz).

Pre-scanned in three orthogonal panels,X,Y,Z.The worst cases mode (Z plane) were recorded in this report.

Mode: 3DH5

LowFrequency (2402MHz)

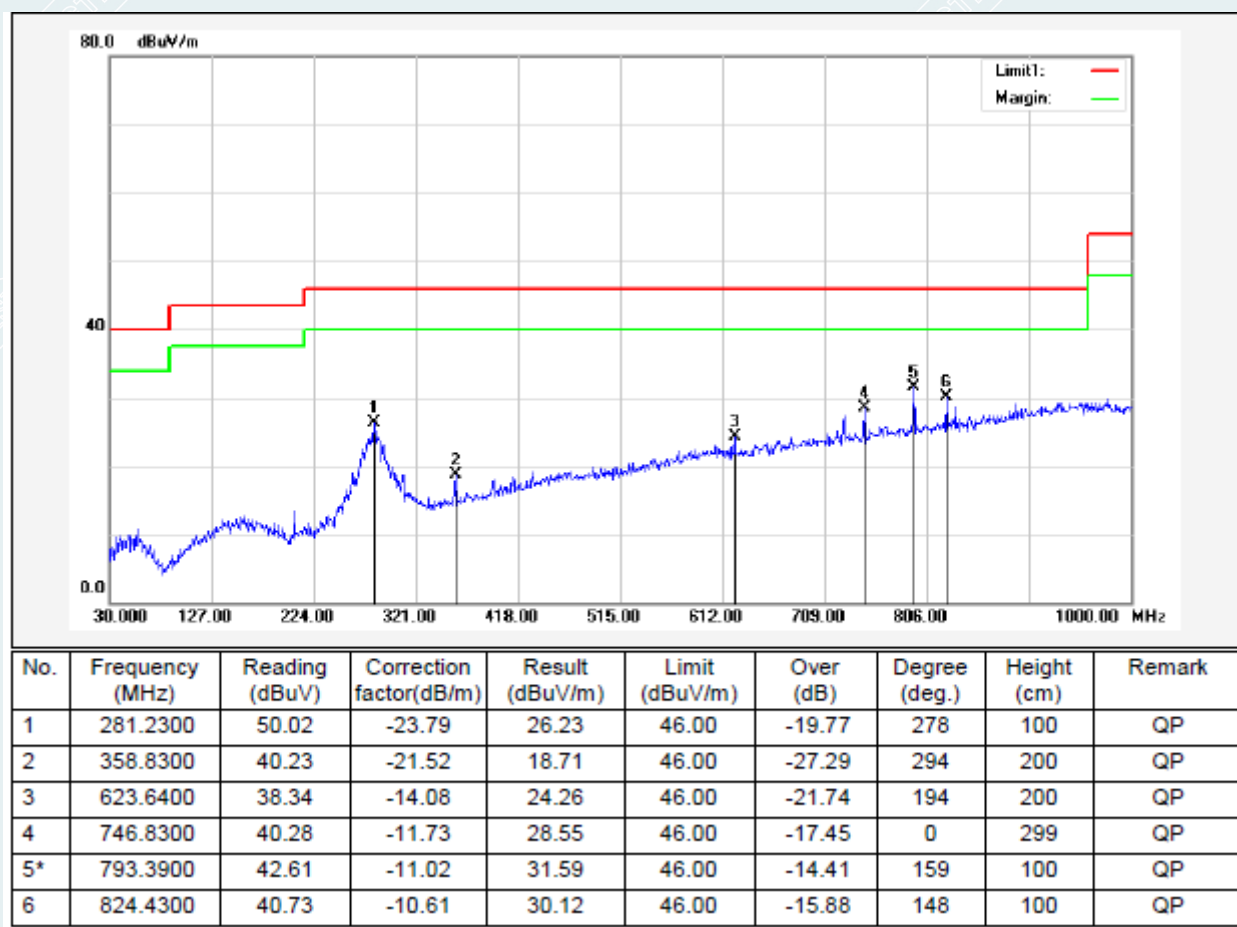
Environment:23.8℃/50%RH

Test Engineer: Zeng Xianglong

Date: 2022-03-03

Test Voltage:AC 120V/60Hz

Polarity:Horizontal



Mode: 3DH5

Low Frequency (2402MHz)

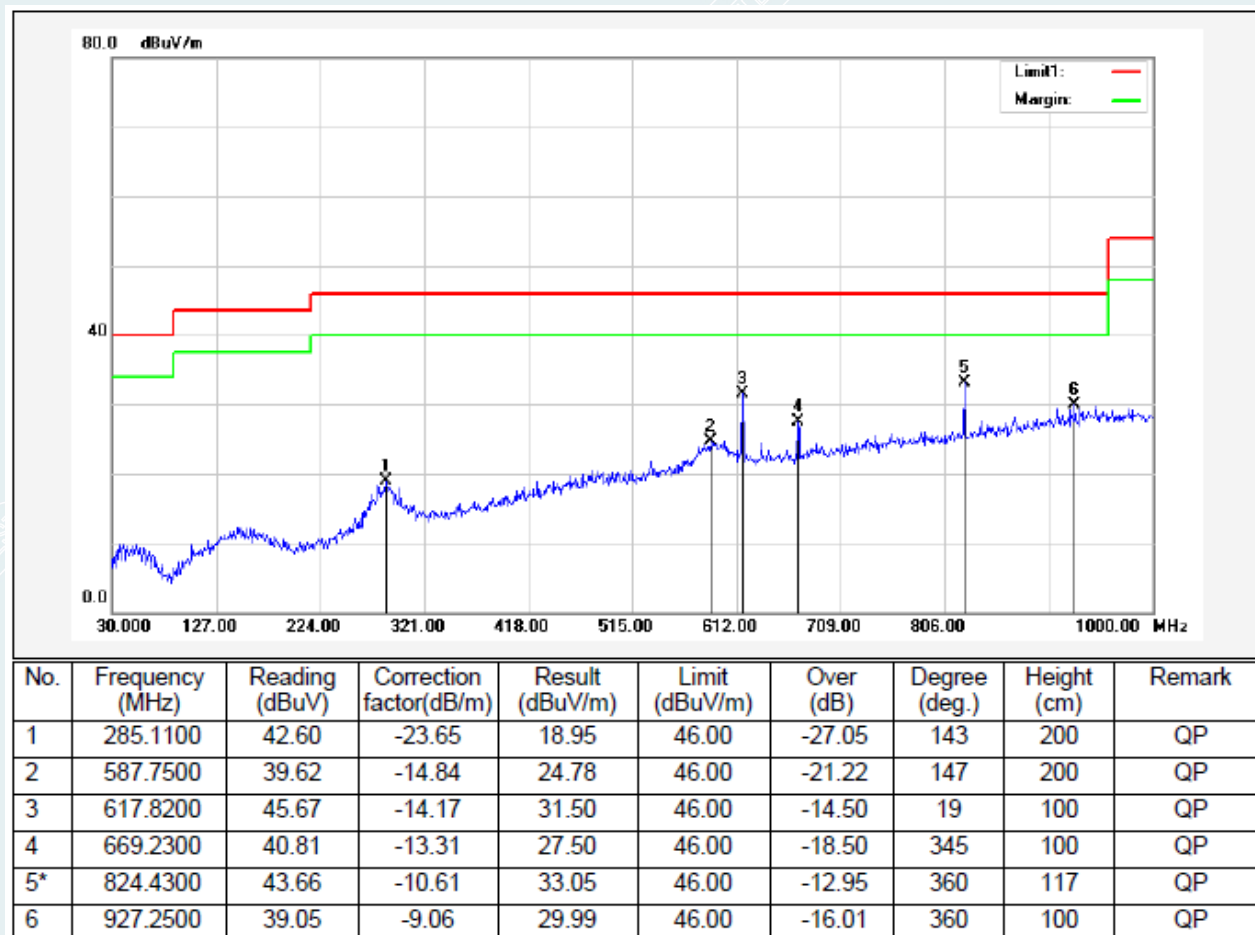
Environment: 23.8°C/50%RH

Test Engineer: Zeng Xianglong

Date: 2022-03-03

Test Voltage: AC 120V/60Hz

Polarity: Vertical

**Remark:**

- 1 No emission found between lowest internal used/generated frequency to 30MHz.
- 2 Pre-scan all mode and recorded the worst case results in this report (TX-Low Channel(3Mbps))
- 3 Measuring frequencies from 9kHz to the 1GHz.
- 4 Radiated emissions measured in frequency range from 30MHz to 1GHz were made with an instrument using Peak/Quasi-peak detector mode.
- 5 Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 6 The IF bandwidth of SPA between 30MHz to 1GHz was 120kHz.



**Above 1GHz:**

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

All models were pretested and only the worst modes were recorded in this report.

Pre-scanned in three orthogonal panels,X,Y,Z.The worst cases mode (Z plane) were recorded in this report.

Mode: DH5

Lowest Frequency (2402MHz)

Environment:25°C/60%RH

Test Engineer: Lu Qiang

Date: 2021-12-27

Test Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1006.7508	57.37	32.22	-25.15	74.00	41.78	200	37	Horizontal
2	1763.5954	59.91	37.57	-22.34	74.00	36.43	200	21	Horizontal
3	3202.5253	55.96	40.09	-15.87	74.00	33.91	200	200	Horizontal
4	4003.2504	57.14	42.38	-14.76	74.00	31.62	100	176	Horizontal
5	5754.7193	51.26	42.79	-8.47	74.00	31.21	200	233	Horizontal
6	7193.0241	48.58	45.44	-3.14	74.00	28.56	100	13	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1048.2560	58.05	32.98	-25.07	74.00	41.02	100	352	Vertical
2	1246.0308	57.65	33.46	-24.19	74.00	40.54	100	224	Vertical
3	1746.3433	57.96	35.53	-22.43	74.00	38.47	200	341	Vertical
4	4003.2504	56.58	41.82	-14.76	74.00	32.18	200	359	Vertical
5	5910.3638	51.21	43.50	-7.71	74.00	30.50	100	322	Vertical
6	7751.8440	47.96	46.01	-1.95	74.00	27.99	100	352	Vertical

----- The following blanks -----

Mode: DH5  
 Middle Frequency (2441MHz)  
 Environment: 25°C/60%RH  
 Test Engineer: Lu Qiang

Date: 2021-12-27  
 Test Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1002.0003	57.58	32.42	-25.16	74.00	41.58	200	30	Horizontal
2	1393.5492	56.23	32.71	-23.52	74.00	41.29	200	233	Horizontal
3	1846.6058	56.30	34.42	-21.88	74.00	39.58	100	359	Horizontal
4	4068.8836	54.10	39.85	-14.25	74.00	34.15	100	184	Horizontal
5	6347.2934	51.12	44.42	-6.70	74.00	29.58	100	119	Horizontal
6	8001.2502	48.60	47.16	-1.44	74.00	26.84	200	1	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1016.7521	58.17	33.04	-25.13	74.00	40.96	100	112	Vertical
2	1522.5653	56.25	33.38	-22.87	74.00	40.62	100	242	Vertical
3	1992.3740	55.95	34.34	-21.61	74.00	39.66	200	234	Vertical
4	3601.9502	52.91	38.62	-14.29	74.00	35.38	100	44	Vertical
5	5325.2907	50.71	41.18	-9.53	74.00	32.82	100	53	Vertical
6	7196.7746	49.37	46.24	-3.13	74.00	27.76	200	29	Vertical

----- The following blanks -----

Mode: DH5

Highest Frequency (2480MHz)

Environment:25°C/60%RH

Test Engineer: Lu Qiang

Date: 2021-12-27

Test Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1001.0001	57.52	32.36	-25.16	74.00	41.64	100	45	Horizontal
2	1474.8094	56.67	33.64	-23.03	74.00	40.36	100	289	Horizontal
3	1728.3410	55.95	33.54	-22.41	74.00	40.46	100	216	Horizontal
4	2892.9866	57.09	39.36	-17.73	74.00	34.64	100	200	Horizontal
5	4691.4614	50.38	40.64	-9.74	74.00	33.36	100	217	Horizontal
6	7211.7765	49.31	46.06	-3.25	74.00	27.94	200	175	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1144.2680	57.64	33.02	-24.62	74.00	40.98	200	360	Vertical
2	1814.1018	55.44	33.43	-22.01	74.00	40.57	200	120	Vertical
3	2066.6333	57.24	35.78	-21.46	74.00	38.22	200	120	Vertical
4	3607.5759	52.92	38.58	-14.34	74.00	35.42	200	273	Vertical
5	5514.6893	50.32	41.14	-9.18	74.00	32.86	100	61	Vertical
6	7226.7783	49.33	45.90	-3.43	74.00	28.10	200	70	Vertical

----- The following blanks -----

Mode: 3DH5  
Lowest Frequency (2402MHz)  
Environment:25°C/60%RH  
Test Engineer: Lu Qiang

Date: 2021-12-27  
Test Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1007.0009	57.53	32.38	-25.15	74.00	41.62	100	360	Horizontal
2	1484.3105	56.54	33.57	-22.97	74.00	40.43	100	38	Horizontal
3	3202.5253	56.97	41.10	-15.87	74.00	32.90	200	208	Horizontal
4	4003.2504	56.14	41.38	-14.76	74.00	32.62	200	175	Horizontal
5	4698.9624	50.98	41.35	-9.63	74.00	32.65	100	224	Horizontal
6	7204.2755	48.90	45.73	-3.17	74.00	28.27	200	66	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1000.2500	59.05	33.89	-25.16	74.00	40.11	200	112	Vertical
2	1335.7920	56.87	33.07	-23.80	74.00	40.93	100	96	Vertical
3	1898.1123	58.00	36.12	-21.88	74.00	37.88	200	233	Vertical
4	3202.5253	54.77	38.90	-15.87	74.00	35.10	100	192	Vertical
5	4003.2504	55.43	40.67	-14.76	74.00	33.33	100	249	Vertical
6	7221.1526	50.06	46.70	-3.36	74.00	27.30	100	314	Vertical

----- The following blanks -----

Mode: 3DH5  
 Middle Frequency (2441MHz)  
 Environment: 25°C/60%RH  
 Test Engineer: Lu Qiang

Date: 2021-12-27  
 Test Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1012.0015	57.28	32.14	-25.14	74.00	41.86	100	282	Horizontal
2	1372.5466	56.95	33.32	-23.63	74.00	40.68	100	4	Horizontal
3	2034.1293	57.17	35.67	-21.50	74.00	38.33	200	127	Horizontal
4	3455.6820	54.08	38.57	-15.51	74.00	35.43	200	9	Horizontal
5	4682.0853	51.09	41.22	-9.87	74.00	32.78	100	233	Horizontal
6	7181.7727	49.30	46.14	-3.16	74.00	27.86	200	282	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1000.2500	58.37	33.21	-25.16	74.00	40.79	100	79	Vertical
2	1378.0473	57.35	33.75	-23.60	74.00	40.25	200	128	Vertical
3	1957.8697	56.62	34.74	-21.88	74.00	39.26	200	79	Vertical
4	3781.9727	53.24	38.86	-14.38	74.00	35.14	200	177	Vertical
5	4068.8836	54.46	40.21	-14.25	74.00	33.79	200	352	Vertical
6	7935.6170	49.59	47.30	-2.29	74.00	26.70	200	120	Vertical

----- The following blanks -----



Mode: 3DH5  
 Highest Frequency (2480MHz)  
 Environment:25°C/60%RH  
 Test Engineer: Lu Qiang

Date: 2021-12-27  
 Test Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1047.7560	57.90	32.83	-25.07	74.00	41.17	200	163	Horizontal
2	1577.0721	57.36	34.47	-22.89	74.00	39.53	100	233	Horizontal
3	2066.6333	59.51	38.05	-21.46	74.00	35.95	200	138	Horizontal
4	2893.2367	57.86	40.13	-17.73	74.00	33.87	100	217	Horizontal
5	4698.9624	49.96	40.33	-9.63	74.00	33.67	200	322	Horizontal
6	7691.8365	49.09	46.28	-2.81	74.00	27.72	100	278	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1000.0000	58.90	33.74	-25.16	74.00	40.26	200	38	Vertical
2	1456.8071	56.79	33.67	-23.12	74.00	40.33	200	226	Vertical
3	2066.6333	58.80	37.34	-21.46	74.00	36.66	200	111	Vertical
4	3305.6632	54.63	38.75	-15.88	74.00	35.25	100	199	Vertical
5	4640.8301	50.46	40.01	-10.45	74.00	33.99	100	359	Vertical
6	7929.9912	49.08	46.63	-2.45	74.00	27.37	100	352	Vertical

#### Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- Spectrum setting:
  - Peak Setting 1GHz–26.5GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = auto.
  - AV Setting 1GHz–26.5GHz, Set RBW=1MHz, if the EUT is configured to transmit with duty cycle ≥98%,set VBW≤RBW/100 (i.e.,10kHz) but not less than 10 Hz. if the EUT duty cycle is <98%,set VBW≥1/T, Where T is defined in section 2.8.

**Above 18GHz:**

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

All models were pretested and only the worst modes were recorded in this report(3DH5).

Pre-scanned in three orthogonal panels,X,Y,Z.The worst cases mode (Z plane) were recorded in this report.

Mode: 3DH5

Lowest Frequency (2402MHz)

Environment:25°C/60%RH

Test Engineer: Lu Qiang

Date: 2022-03-26

Test Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18278.8000	56.88	45.31	-11.57	83.54	38.23	150	114	Horizontal
2	19401.2250	55.96	44.99	-10.97	83.54	38.55	150	160	Horizontal
3	21592.5250	54.99	45.06	-9.93	83.54	38.48	150	6	Horizontal
4	23527.9750	54.24	45.54	-8.70	83.54	38.00	150	147	Horizontal
5	24757.9250	53.69	45.60	-8.09	83.54	37.94	150	268	Horizontal
6	26194.8500	54.49	46.56	-7.93	83.54	36.98	150	354	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18821.9500	56.65	45.38	-11.27	83.54	38.16	150	140	Vertical
2	20915.0750	54.25	43.94	-10.31	83.54	39.60	150	243	Vertical
3	21632.4750	54.56	44.64	-9.92	83.54	38.90	150	115	Vertical
4	22941.0500	54.43	45.46	-8.97	83.54	38.08	150	186	Vertical
5	25250.5000	53.10	45.44	-7.66	83.54	38.10	150	256	Vertical
6	26364.0000	53.28	45.73	-7.55	83.54	37.81	150	224	Vertical

----- The following blanks -----

Mode: 3DH5  
Lowest Frequency (2441MHz)  
Environment:25°C/60%RH  
Test Engineer: Lu Qiang

Date: 2022-03-26  
Test Voltage: AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18218.0250	56.54	44.95	-11.59	83.54	38.59	150	12	Horizontal
2	19352.7750	56.21	45.21	-11.00	83.54	38.33	150	71	Horizontal
3	21110.1500	55.92	45.63	-10.29	83.54	37.91	150	140	Horizontal
4	22840.3250	54.45	45.41	-9.04	83.54	38.13	150	172	Horizontal
5	24835.7000	53.51	45.46	-8.05	83.54	38.08	150	102	Horizontal
6	26119.2000	54.15	46.05	-8.10	83.54	37.49	150	128	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18292.4000	56.50	44.94	-11.56	83.54	38.60	150	36	Vertical
2	19269.4750	57.20	46.16	-11.04	83.54	37.38	150	341	Vertical
3	21099.5250	54.55	44.26	-10.29	83.54	39.28	150	219	Vertical
4	22934.6750	54.11	45.13	-8.98	83.54	38.41	150	36	Vertical
5	24396.2500	54.17	46.01	-8.16	83.54	37.53	150	212	Vertical
6	26217.8000	53.95	46.07	-7.88	83.54	37.47	150	192	Vertical

----- The following blanks -----

Mode: 3DH5  
Lowest Frequency (2480MHz)  
Environment:25°C/60%RH  
Test Engineer: Lu Qiang

Date: 2022-03-26  
Test Voltage:AC 120V/60Hz

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18269.8750	56.99	45.42	-11.57	83.54	38.12	150	173	Horizontal
2	19699.5750	55.06	44.19	-10.87	83.54	39.35	150	211	Horizontal
3	21098.2500	54.47	44.18	-10.29	83.54	39.36	150	192	Horizontal
4	22237.6750	54.81	45.13	-9.68	83.54	38.41	150	50	Horizontal
5	23424.7000	54.05	45.31	-8.74	83.54	38.23	150	96	Horizontal
6	26105.6000	53.68	45.55	-8.13	83.54	37.99	150	128	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18357.4250	56.74	45.20	-11.54	83.54	38.34	150	315	Vertical
2	19428.0000	55.47	44.51	-10.96	83.54	39.03	150	12	Vertical
3	21417.4250	54.16	44.08	-10.08	83.54	39.46	150	276	Vertical
4	22915.5500	53.59	44.60	-8.99	83.54	38.94	150	104	Vertical
5	24103.8500	53.91	45.68	-8.23	83.54	37.86	150	309	Vertical
6	26116.6500	53.78	45.67	-8.11	83.54	37.87	150	322	Vertical

----- The following blanks -----

## 14. RESTRICTED BANDS OF OPERATION

### 14.1 LIMITS

Section 15.247(d) In addition, Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

Frequency (MHz)	Quasi-peak( $\mu$ V/m)	Measurement distance(m)	Quasi-peak(dB $\mu$ V/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54



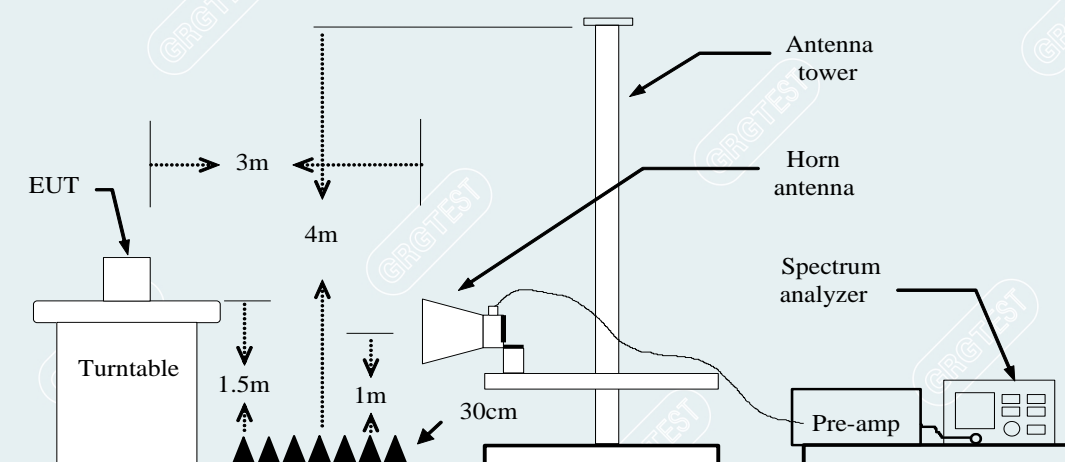
## 14.2 TEST PROCEDURES

- 1) The EUT is placed on a turntable, which is 1.5m above the ground plane.
- 2) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 4) Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
  - a) PEAK: RBW=1MHz / VBW=1MHz / Sweep=AUTO.
  - b) AVERAGE: Set RBW=1MHz / VBW=1/T / Sweep=AUTO.

If the EUT is configured to transmit with duty cycle  $\geq 98\%$ , set  $VBW \leq RBW/100$  (i.e., 10kHz) but not less than 10 Hz. if the EUT duty cycle is  $< 98\%$ , set  $VBW \geq 1/T$ , Where T is defined in section 2.8.

- 5) Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

## 14.3 TEST SETUP



----- The following blanks -----

## 14.4 TEST RESULTS

All models were pretested and only the worst modes were recorded in this report.

Pre-scanned in three orthogonal panels,X,Y,Z.The worst cases mode (Z plane) were recorded in this report.

### DH5

#### Lowest Channel

Frequency 2402MHz

Environment: 25°C/60% RH

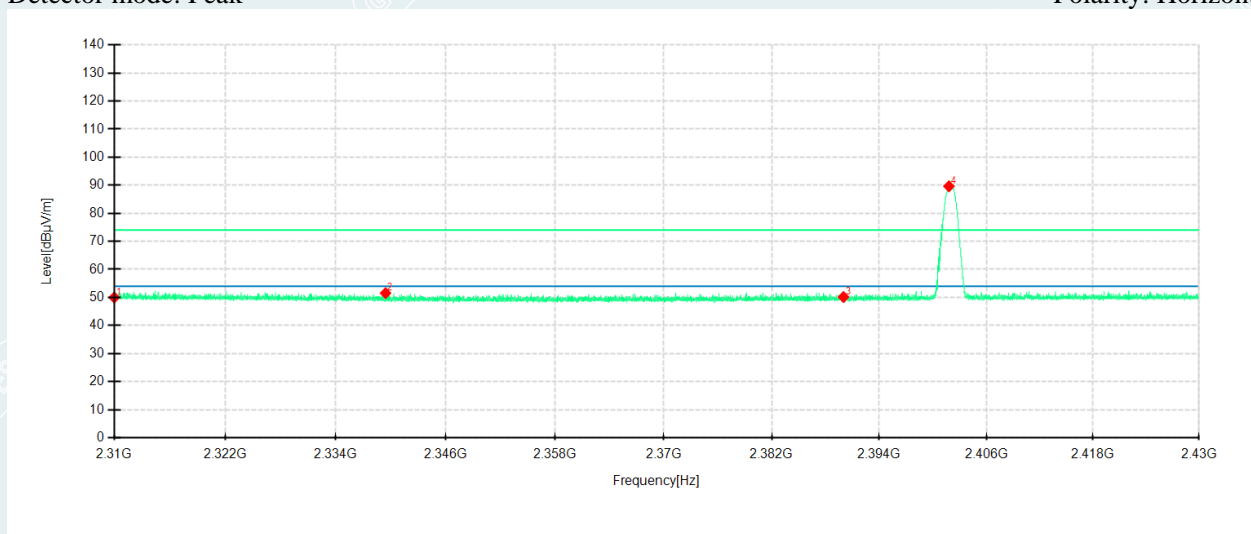
Tested By: Chen Xiacong

Detector mode: Peak

Voltage: AC 120V/60Hz

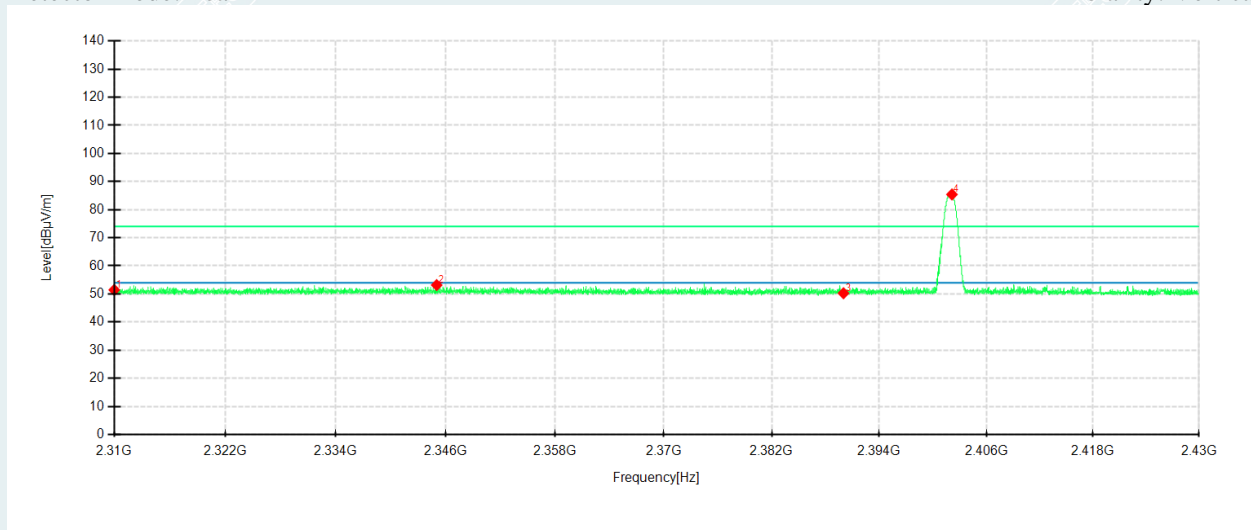
Date: 2022-05-24

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310	46.04	49.97	3.93	74.00	24.03	100	58	Horizontal	/
2	2339.448	48.32	51.53	3.21	74.00	22.47	200	102	Horizontal	/
3	2390	47.02	50.15	3.13	74.00	23.85	100	94	Horizontal	/
4	2401.8	86.42	89.62	3.20	74.00	-15.62	100	18	Horizontal	No limit
1	2310	46.93	51.44	4.51	74.00	22.56	100	148	Vertical	/

2	2345.04	48.53	53.16	4.63	74.00	20.84	200	240	Vertical	/
3	2390	45.99	50.26	4.27	74.00	23.74	100	306	Vertical	/
4	2402.136	81.26	85.41	4.15	74.00	-11.41	100	124	Vertical	No limit

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**Lowest Channel**

Frequency 2402MHz

Environment: 25°C/60%RH

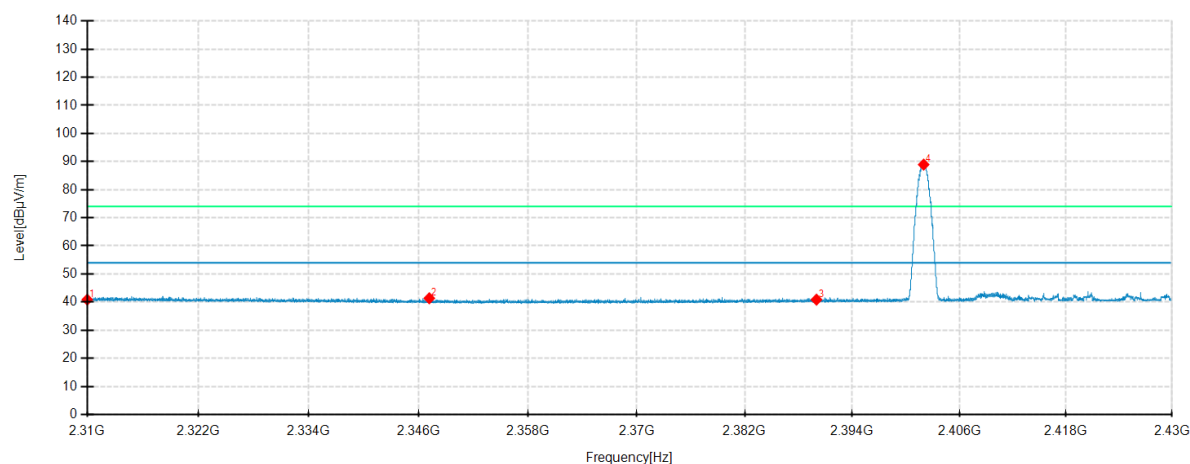
Tested By: Chen Xiacong

Detector mode: Average

Voltage: AC 120V/60Hz

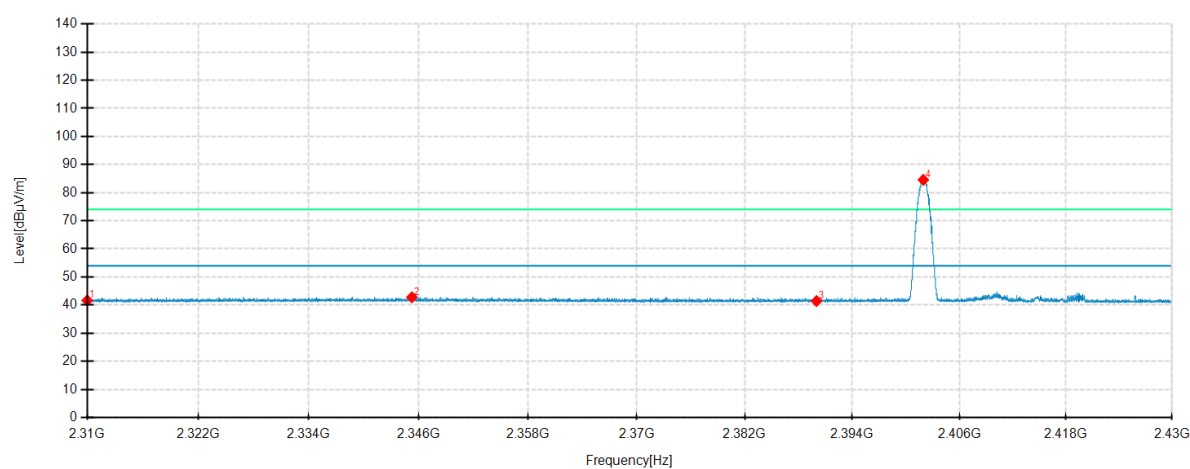
Date: 2022-05-24

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310	36.94	40.87	3.93	54.00	13.13	100	174	Horizontal	/
2	2347.188	38.33	41.35	3.02	54.00	12.65	200	352	Horizontal	/
3	2390	37.73	40.86	3.13	54.00	13.14	100	156	Horizontal	/
4	2401.992	85.72	88.92	3.20	54.00	-34.92	100	17	Horizontal	No limit
1	2310	37.13	41.64	4.51	54.00	12.36	100	141	Vertical	/
2	2345.28	38.14	42.77	4.63	54.00	11.23	100	201	Vertical	/
3	2390	37.15	41.42	4.27	54.00	12.58	200	259	Vertical	/
4	2401.956	80.40	84.56	4.16	54.00	-30.56	100	121	Vertical	No limit

**Highest Channel**

Frequency 2480MHz

Environment: 25°C/60%RH

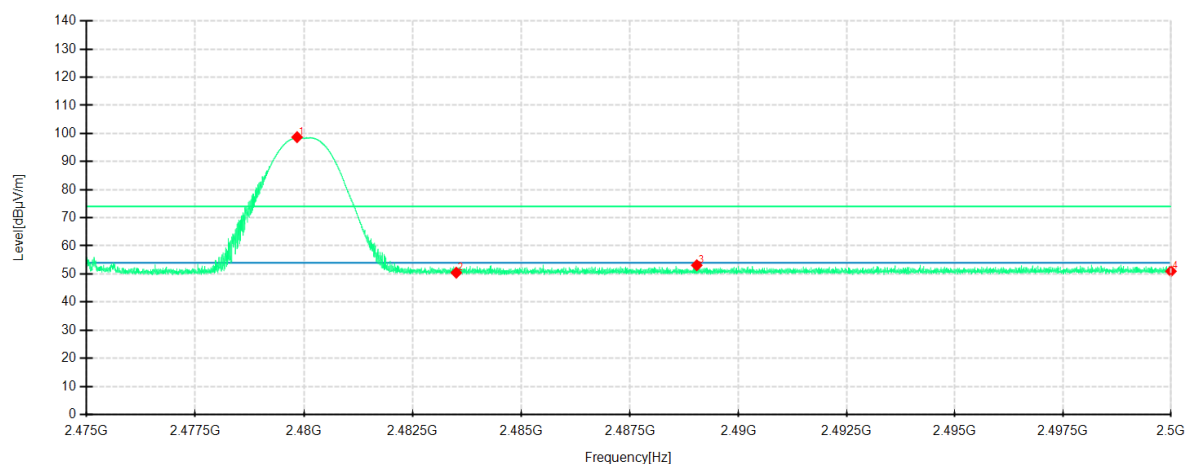
Tested By: Chen Xiacong

Detector mode: Peak

Voltage: AC 120V/60Hz

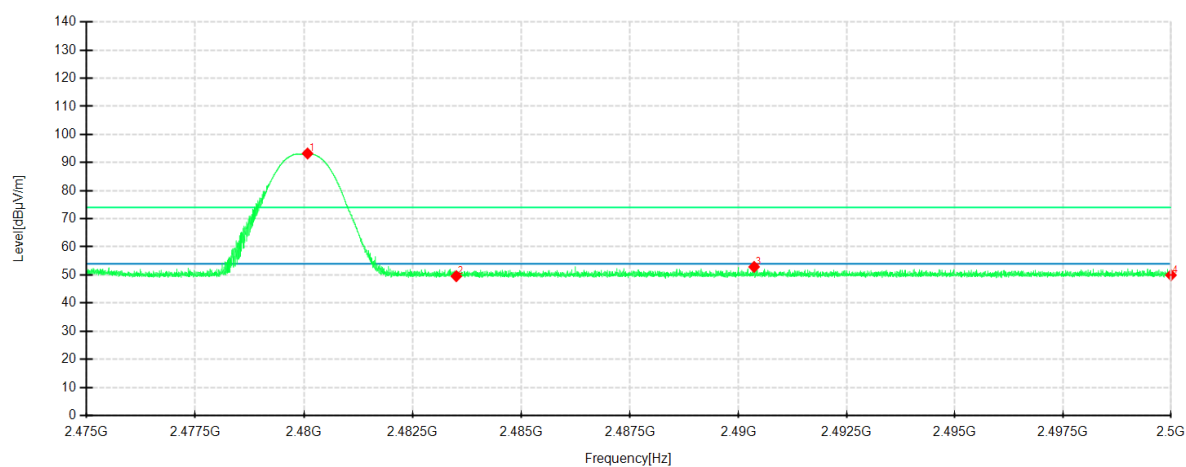
Date: 2022-05-24

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.84	94.44	98.69	4.25	74.00	-24.69	100	10	Horizontal	No limit
2	2483.5	46.12	50.45	4.33	74.00	23.55	100	232	Horizontal	/
3	2489.04	48.65	53.09	4.44	74.00	20.91	200	101	Horizontal	/
4	2500	46.32	50.97	4.65	74.00	23.03	100	259	Horizontal	/
1	2480.08	89.54	93.22	3.68	74.00	-19.22	100	118	Vertical	No limit
2	2483.5	45.88	49.57	3.69	74.00	24.43	200	174	Vertical	/
3	2490.3625	49.15	52.87	3.72	74.00	21.13	100	237	Vertical	/
4	2500	46.19	49.94	3.75	74.00	24.06	200	59	Vertical	



**Highest Channel**

Frequency 2480MHz

Environment: 25°C/60%RH

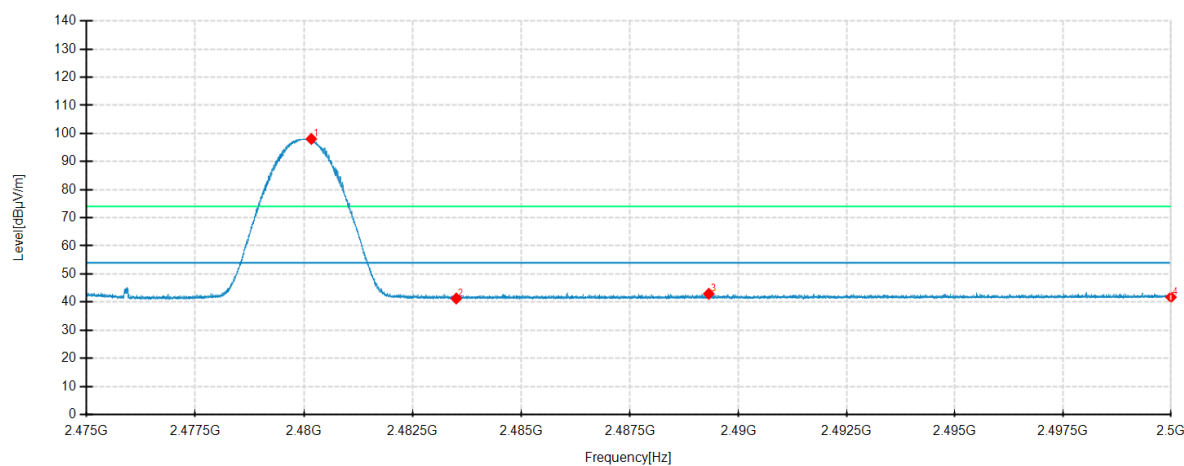
Tested By: Chen Xiacong

Detector mode: Average

Voltage: AC 120V/60Hz

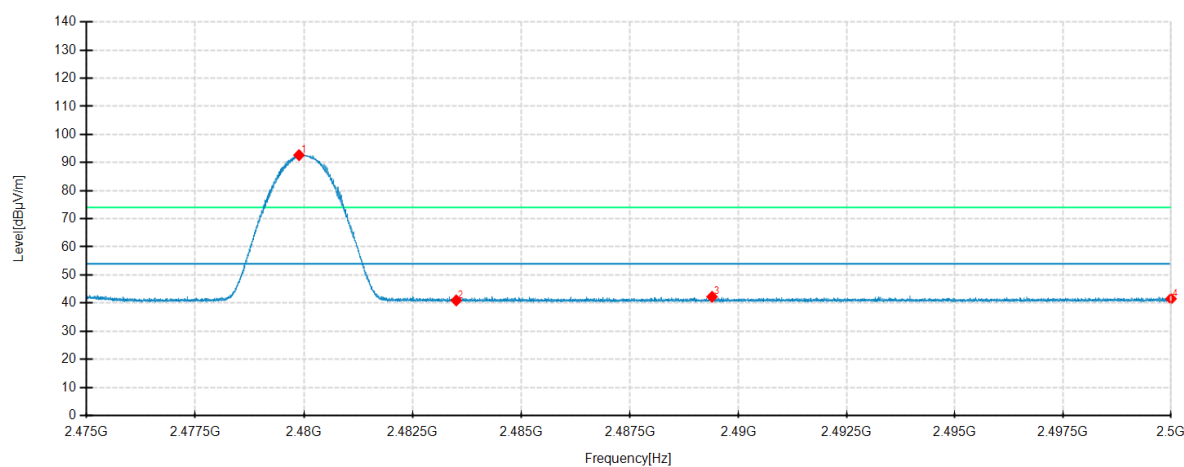
Date: 2022-05-24

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.1675	93.78	98.04	4.26	54.00	-44.04	100	11	Horizontal	No limit
2	2483.5	36.94	41.27	4.33	54.00	12.73	200	102	Horizontal	/
3	2489.3175	38.49	42.93	4.44	54.00	11.07	100	260	Horizontal	/
4	2500	37.09	41.74	4.65	54.00	12.26	100	117	Horizontal	/
1	2479.885	88.96	92.64	3.68	54.00	-38.64	100	117	Vertical	No limit
2	2483.5	37.26	40.95	3.69	54.00	13.05	100	256	Vertical	/
3	2489.3925	38.53	42.24	3.71	54.00	11.76	100	100	Vertical	/
4	2500	37.78	41.53	3.75	54.00	12.47	100	107	Vertical	/

**3DH5****Lowest Channel**

Frequency 2402MHz

Environment: 25°C/60%RH

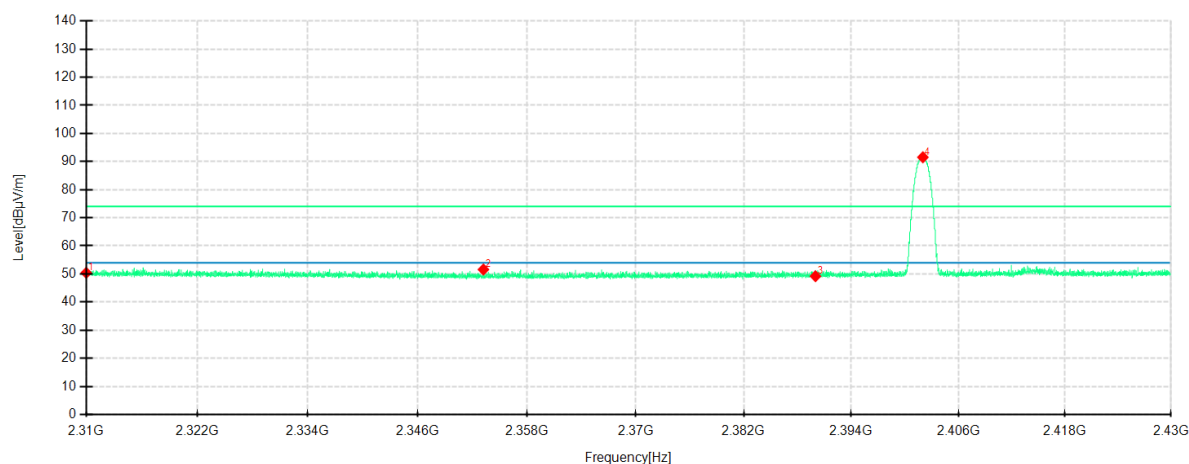
Tested By: Chen Xiacong

Detector mode: Peak

Voltage: AC 120V/60Hz

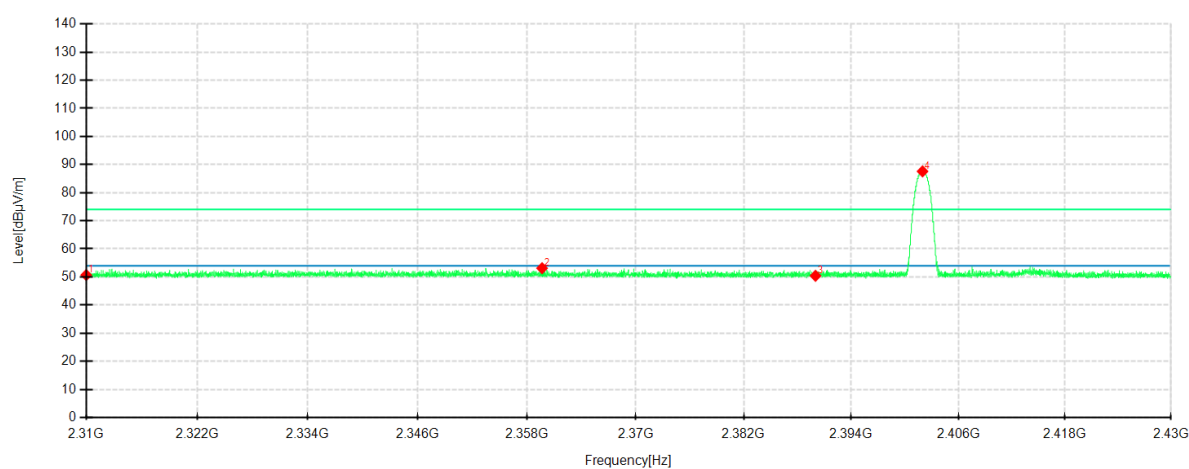
Date: 2022-05-24

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310	46.48	50.41	3.93	74.00	23.59	100	0	Horizontal	/
2	2353.236	48.63	51.59	2.96	74.00	22.41	100	74	Horizontal	/
3	2390	46.07	49.20	3.13	74.00	24.80	200	135	Horizontal	/
4	2402.016	88.32	91.52	3.20	74.00	-17.52	100	15	Horizontal	No limit
1	2310	46.18	50.69	4.51	74.00	23.31	200	169	Vertical	/
2	2359.692	48.56	53.12	4.56	74.00	20.88	100	358	Vertical	/
3	2390	46.13	50.40	4.27	74.00	23.60	200	1	Vertical	/
4	2401.98	83.42	87.58	4.16	74.00	-13.58	100	120	Vertical	No limit

**Lowest Channel**

Frequency 2402MHz

Environment: 25°C/60%RH

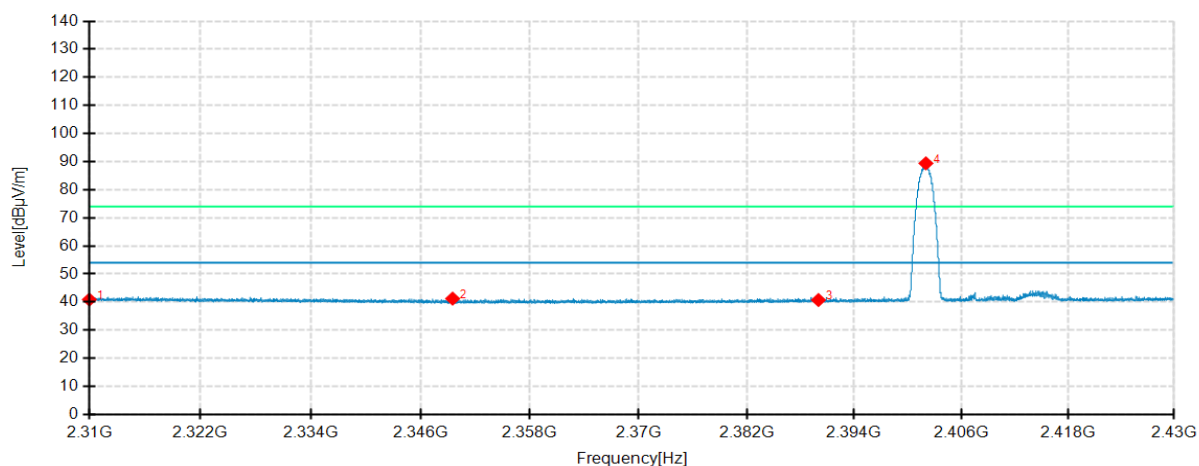
Tested By: Chen Xiacong

Detector mode: Average

Voltage: AC 120V/60Hz

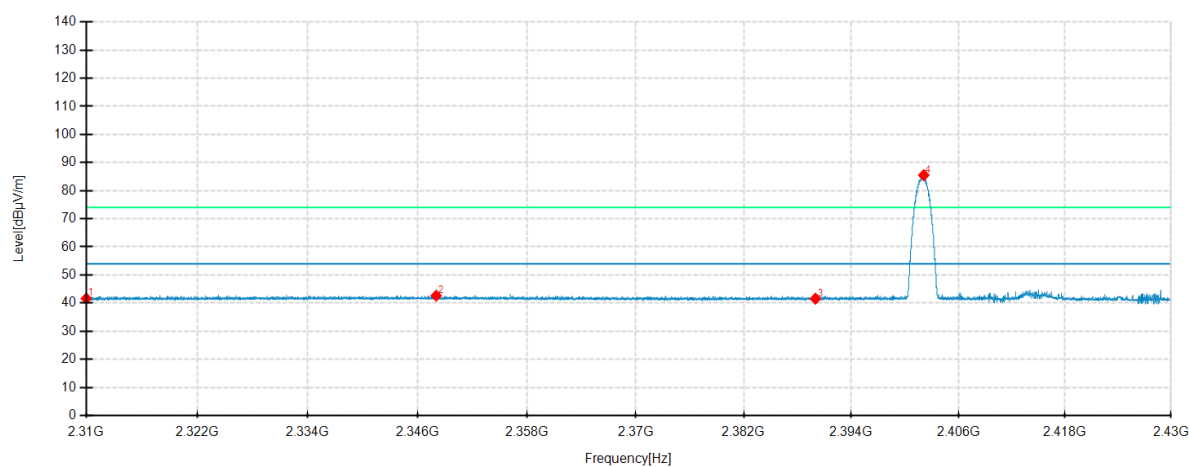
Date: 2022-05-24

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310	36.96	40.89	3.93	54.00	13.11	100	229	Horizontal	/
2	2349.516	38.28	41.24	2.96	54.00	12.76	200	329	Horizontal	/
3	2390	37.60	40.73	3.13	54.00	13.27	200	203	Horizontal	/
4	2402.0280	86.18	89.38	3.20	54.00	-35.38	100	13	Horizontal	No limit
1	2310	37.10	41.61	4.51	54.00	12.39	100	279	Vertical	/
2	2348.052	37.99	42.63	4.64	54.00	11.37	200	201	Vertical	/
3	2390	37.29	41.56	4.27	54.00	12.44	100	102	Vertical	/
4	2402.112	81.38	85.53	4.15	54.00	-31.53	100	121	Vertical	No limit

**Highest Channel**

Frequency 2480MHz

Environment: 25°C/60%RH

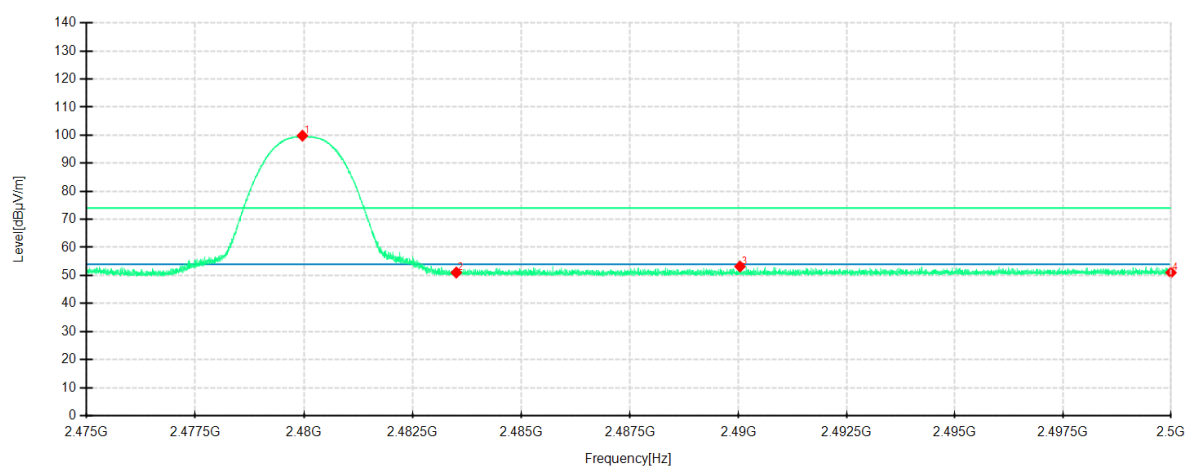
Tested By: Chen Xiacong

Detector mode: Peak

Voltage: AC 120V/60Hz

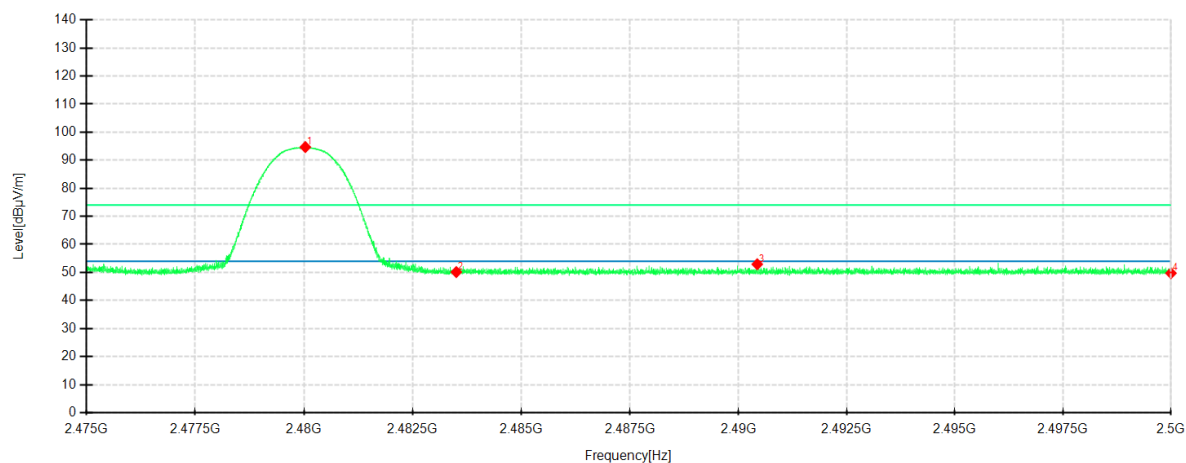
Date: 2022-05-24

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.9625	95.55	99.81	4.26	74.00	-25.81	100	10	Horizontal	No limit
2	2483.5	46.70	51.03	4.33	74.00	22.97	100	39	Horizontal	/
3	2490.0375	48.74	53.19	4.45	74.00	20.81	200	134	Horizontal	
4	2500	46.36	51.01	4.65	74.00	22.99	200	102	Horizontal	/
1	2480.03	91.01	94.69	3.68	74.00	-20.69	100	118	Vertical	No limit
2	2483.5	46.43	50.12	3.69	74.00	23.88	100	111	Vertical	/
3	2490.435	49.19	52.91	3.72	74.00	21.09	200	54	Vertical	/
4	2500	45.98	49.73	3.75	74.00	24.27	200	260	Vertical	/

**Highest Channel**

Frequency 2480MHz

Environment: 25°C/60%RH

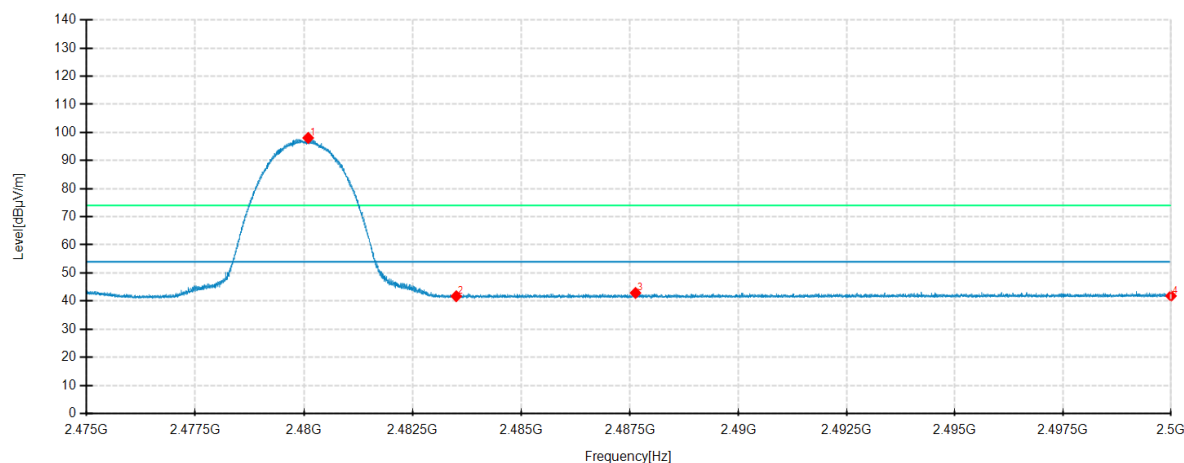
Tested By: Chen Xiacong

Detector mode: Average

Voltage: AC 120V/60Hz

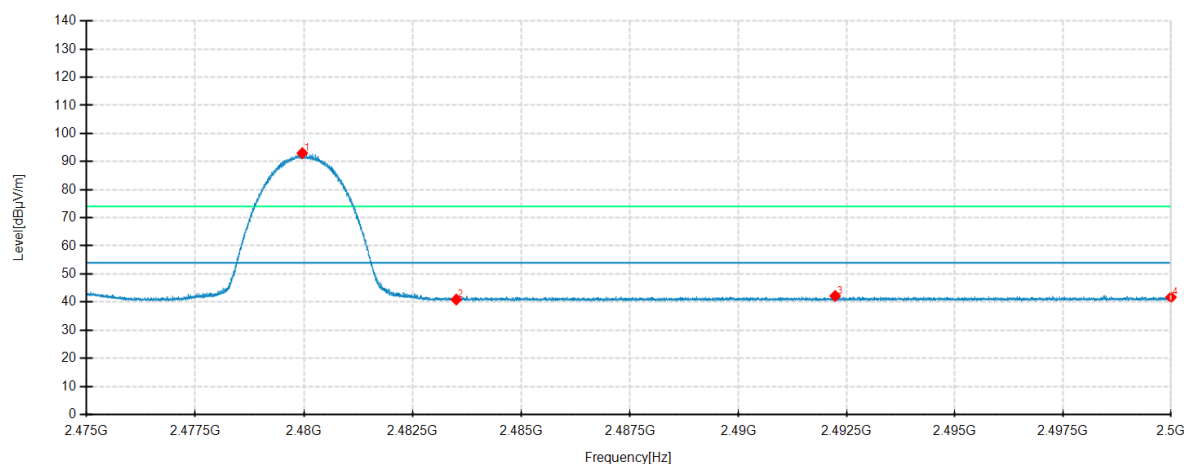
Date: 2022-05-24

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dBμV/m	Level dBμV/m	Factor dB	Limit dBμV/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.095	93.80	98.06	4.26	54.00	-44.06	100	10	Horizontal	No limit
2	2483.5	37.39	41.72	4.33	54.00	12.28	100	179	Horizontal	/
3	2487.6275	38.48	42.89	4.41	54.00	11.11	200	306	Horizontal	/
4	2500	37.17	41.82	4.65	54.00	12.18	100	259	Horizontal	/
1	2479.96	89.32	93.00	3.68	54.00	-39.00	100	117	Vertical	No limit
2	2483.5	37.21	40.90	3.69	54.00	13.10	200	258	Vertical	/
3	2492.2325	38.45	42.17	3.72	54.00	11.83	100	359	Vertical	/
4	2500	37.96	41.71	3.75	54.00	12.29	100	101	Vertical	/

Remark: 1.Max field strength in 3m distance. No any other emission which falls in restricted bands can be detected and be reported.



#### **APPENDIX A. PHOTOGRAPH OF THE TEST CONNECTION DIAGRAM**

Please refer to the attached document E202111246805-20-Test photo.

#### **APPENDIX B. PHOTOGRAPH OF THE EUT**

Please refer to the attached document E202111246805-21-EUT photo.

----- End of Report -----