

## 7.8. Radiated Spurious Emission Measurement

### 7.8.1. Test Limit

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( $\mu$ 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

**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.
- (3) Above 18GHz test distance is 1m, so the Peak Limit=74+20\*log(3/1)=83.54 (dB $\mu$ V/m).  
The Avg Limit=54+20\*log(3/1)=63.54 (dB $\mu$ V/m).

### 7.8.2. Test Setting

#### 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.
- Set the EUT transmit continuously with maximum output power.
- 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.

- Set the EUT transmit continuously with maximum output power.
- 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.
- Set the EUT transmit continuously with maximum output power.
- 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.
- Set the EUT transmit continuously with maximum output power.
- 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.

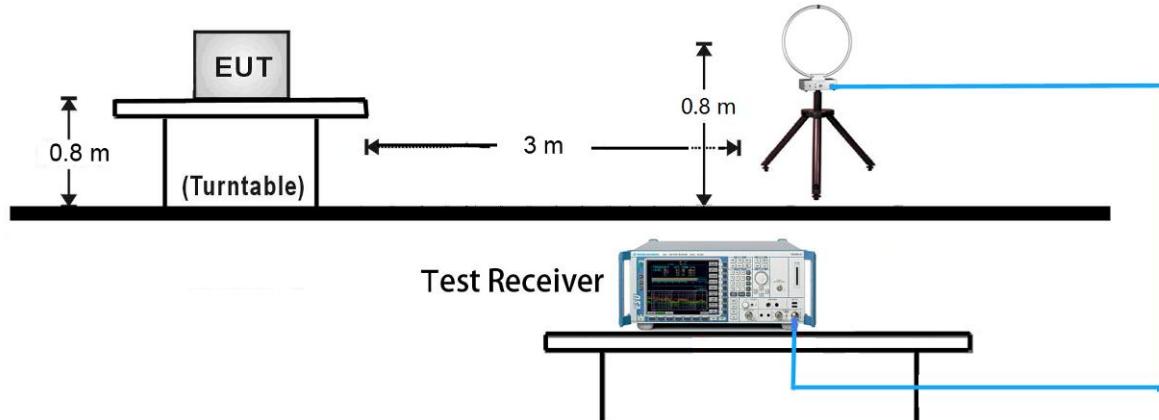
--- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

**NOTE:**

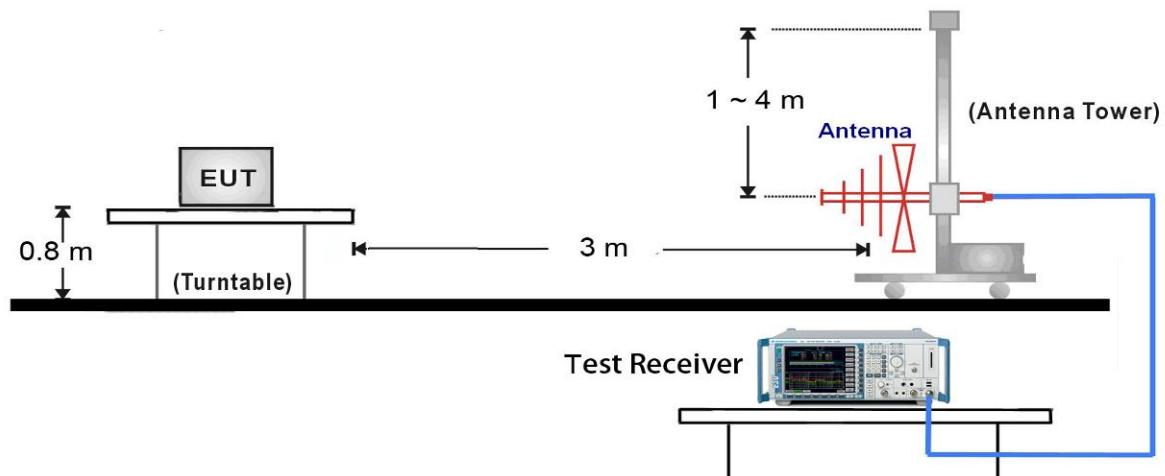
- (a).The frequency from 9kHz to 150kHz, Set RBW=300Hz(for Peak&AVG), RBW=300Hz(for Peak&AVG). the frequency from 150kHz to 30MHz, Set RBW=9kHz, RBW=9kHz, (for QP Detector).
- (b).The frequency from 30MHz to 1GHz, Set RBW=120kHz, RBW=300kHz, (for QP Detector).
- (c).The frequency above 1GHz, for Peak detector: Set RBW=1MHz, RBW=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 2.5.

### 7.8.3. Test Setup

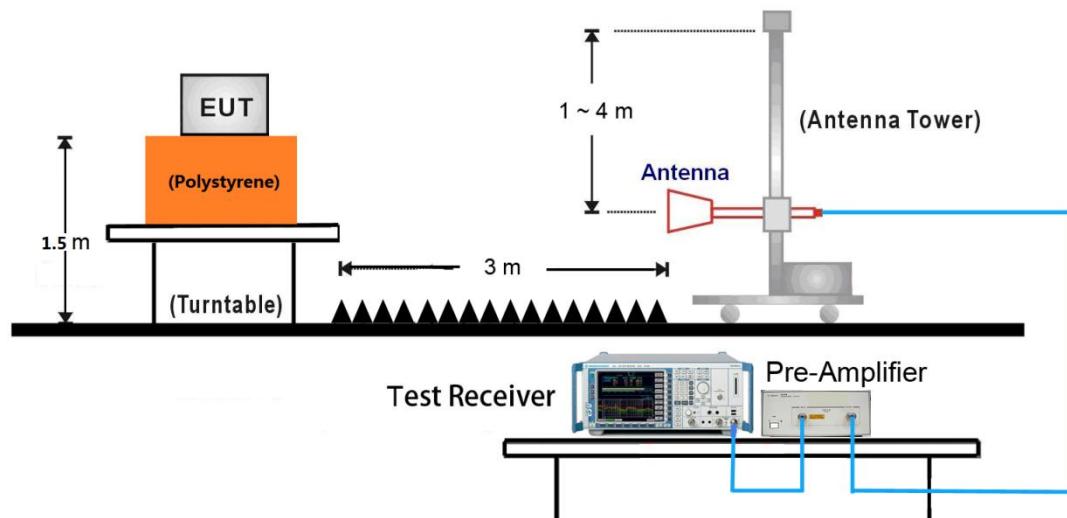
#### 9kHz ~ 30MHz Test Setup:

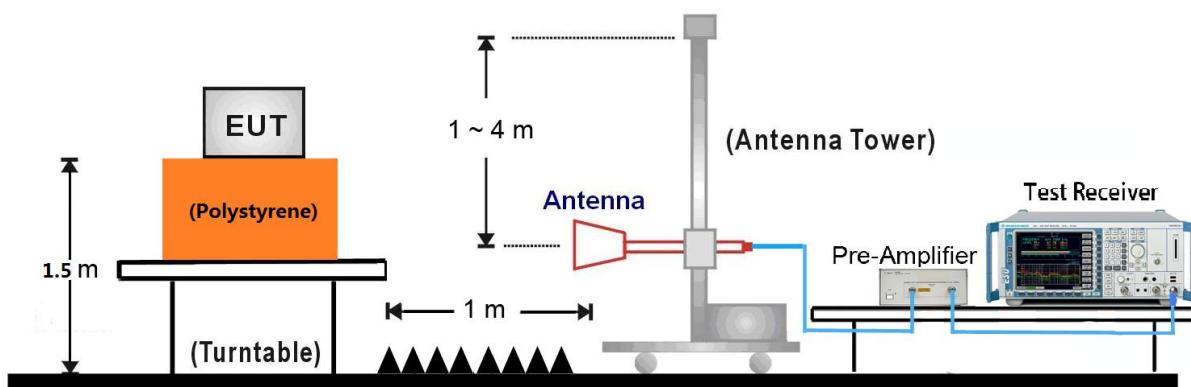


#### 30MHz ~ 1GHz Test Setup:



#### 1GHz ~18GHz Test Setup:



18GHz ~26.5GHz Test Setup:

#### 7.8.4. Data Sample

##### Below 1GHz

Suspected Data List										
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Trace	Height [cm]	Angle [°]	Polarity
xxxx	xxxx	66.85	31.09	-35.76	40.00	8.91	PK	200	351	Horizontal

Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	QP Limit [dB $\mu$ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
xxxx	xxxx	-31.57	71.28	39.71	46.00	6.29	100	196	Horizontal

Frequency (MHz)	= Emission frequency in MHz
Reading (dB $\mu$ V/m)	= Uncorrected Analyzer / Receiver reading
Factor (dB)	= Antenna factor + Cable loss – Amplifier gain
Level (dB $\mu$ V/m)	= Reading (dB $\mu$ V/m) + Factor (dB)
Limit (dB $\mu$ V/m)	= Limit stated in standard
Margin (dB)	= Limit (dB $\mu$ V/m) – Level (dB $\mu$ V/m)
Polarity	= Antenna polarization
Peak	= Peak Reading
QP	= Quasi-peak Reading

**1GHz-18GHz**

No.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Remark
xxx	xxxx	78.01	55.30	-22.71	74.00	18.70	100	50	Horizontal	Peak
xxx	xxxx	66.37	43.66	-22.71	54.00	10.34	100	50	Horizontal	AVG

**Above 18GHz**

Suspected Data List											
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level for 1m [dB $\mu$ V/m]	Level for 3m [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Remark
xxx	xxxx	53.84	59.73	50.19	5.89	74.00	23.81	100	48	Vertical	Peak
xxx	xxxx	44.22	46.83	37.29	2.61	54.00	16.71	100	279	Vertical	AVG

Frequency (MHz) = Emission frequency in MHz

Reading (dB $\mu$ V/m) = Uncorrected Analyzer / Receiver reading

Factor (dB) = Antenna factor + Cable loss – Amplifier gain

Level (dB $\mu$ V/m) = Reading (dB $\mu$ V/m) + Factor (dB)

Limit (dB $\mu$ V/m) = Limit stated in standard

Margin (dB) = Limit (dB $\mu$ V/m) – Level (dB $\mu$ V/m)

Polarity = Antenna polarization

Peak = Peak Reading

AVG = Average Reading

### 7.8.5. Test Result

#### Below 1GHz

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

The chart below shows the highest readings taken from the final data.

Mode: 3DH5

Lowest Frequency (2402MHz)

Date: 2025-04-26

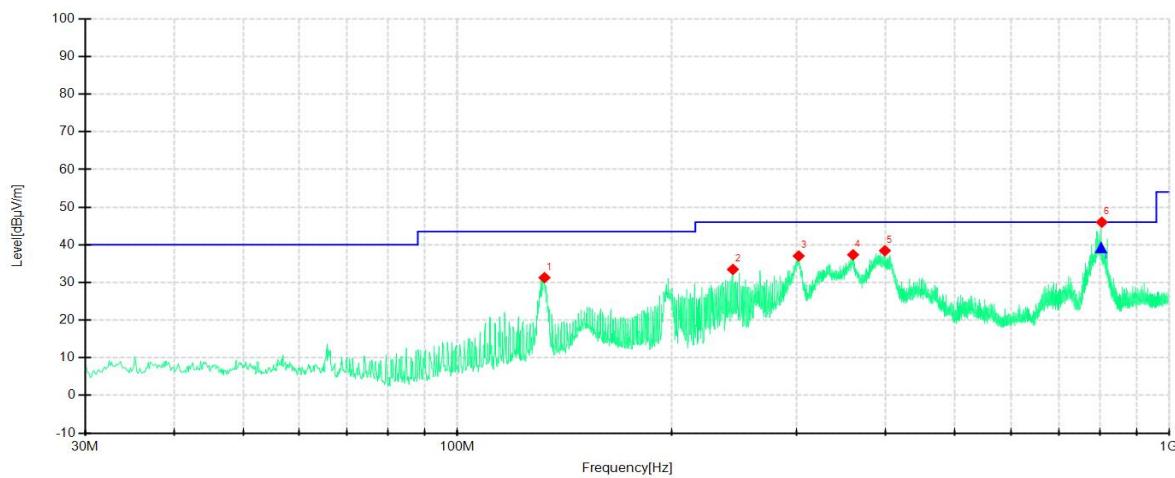
Environment: 22.2°C/31%RH/101.7kPa

Test Voltage: DC 12V

Test Engineer: Stone Zhang

Probe : Horizontal

#### Test Graph



Suspected Data List										
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Trace	Height [cm]	Angle [°]	Polarity
1	132.5903	60.30	31.28	-29.02	43.50	12.22	PK	200	100	Horizontal
2	243.9117	62.95	33.46	-29.49	46.00	12.54	PK	100	312	Horizontal
3	301.7552	64.58	37.03	-27.55	46.00	8.97	PK	100	168	Horizontal
4	359.8412	62.92	37.36	-25.56	46.00	8.64	PK	100	143	Horizontal
5	398.8886	62.59	38.44	-24.15	46.00	7.56	PK	100	24	Horizontal
6	804.6418	62.80	45.99	-16.81	46.00	0.01	PK	100	234	Horizontal

Final Data List										
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	QP Limit [dB $\mu$ V/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	802.6976	-16.81	56.04	39.23	46.00	6.77	100	285.9	Horizontal	PASS

Mode: 3DH5

Lowest Frequency (2402MHz)

Date: 2025-04-26

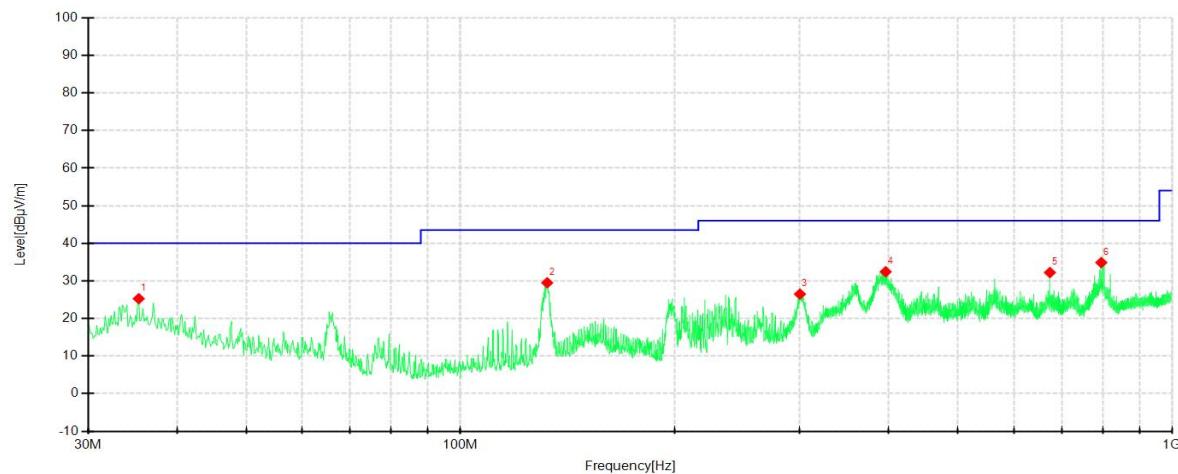
Environment: 22.2°C/31%RH/101.7kPa

Test Voltage: DC 12V

Test Engineer: Stone Zhang

Probe : Vertical

### Test Graph



**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Trace	Height [cm]	Angle [°]	Polarity
1	35.3357	54.59	25.27	-29.32	40.00	14.73	PK	100	190	Vertical
2	132.4691	58.53	29.50	-29.03	43.50	14.00	PK	100	139	Vertical
3	300.0575	54.09	26.49	-27.60	46.00	19.51	PK	200	24	Vertical
4	395.9782	56.70	32.44	-24.26	46.00	13.56	PK	100	203	Vertical
5	673.6755	50.59	32.22	-18.37	46.00	13.78	PK	100	34	Vertical
6	795.5469	51.79	34.87	-16.92	46.00	11.13	PK	200	338	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-Lowest Channel(3DH5))
- 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.

## 1GHz to 18GHz

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

Mode: DH5

Lowest Frequency (2402MHz)

Date: 2025-05-07

Environment: 26.1°C/42%RH/101.4kPa

Test Voltage: DC 12V

Test Engineer: Stone Zhang

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1906.4000	47.41	43.26	-4.15	74.00	30.74	200	117	Horizontal
2	3139.0000	57.90	44.45	-13.45	74.00	29.55	100	197	Horizontal
3	3995.0000	51.47	40.72	-10.75	74.00	33.28	200	188	Horizontal
4	6343.0000	46.05	42.94	-3.11	74.00	31.06	100	93	Horizontal
5	8708.0000	41.44	47.65	6.21	74.00	26.35	100	197	Horizontal
6	14719.0000	36.40	50.13	13.73	74.00	23.87	100	79	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	14719.1577	13.71	26.18	39.89	54.00	14.11	200	36	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1903.8000	47.44	42.83	-4.61	74.00	31.17	100	240	Vertical
2	2381.2000	50.49	47.54	-2.95	74.00	26.46	200	243	Vertical
3	3139.0000	60.80	47.86	-12.94	74.00	26.14	200	189	Vertical
4	4006.0000	53.98	43.90	-10.08	74.00	30.10	100	227	Vertical
5	8789.0000	42.65	48.59	5.94	74.00	25.41	100	118	Vertical
6	14813.0000	36.99	50.16	13.17	74.00	23.84	100	162	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	8756.8250	5.94	28.88	34.82	54.00	19.18	100	139.2	Vertical
2	14813.4837	13.18	26.37	39.55	54.00	14.45	200	354	Vertical

Mode: DH5

Middle Frequency (2441MHz)

Date: 2025-05-07

Environment: 26.1°C/42%RH/101.4kPa

Test Voltage: DC 12V

Test Engineer: Stone Zhang

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1116.4000	49.56	38.80	-10.76	74.00	35.20	100	248	Horizontal
2	1628.8000	49.56	42.15	-7.41	74.00	31.85	100	262	Horizontal
3	3139.0000	56.29	42.84	-13.45	74.00	31.16	100	190	Horizontal
4	3963.0000	52.66	41.75	-10.91	74.00	32.25	200	142	Horizontal
5	8056.0000	42.04	45.51	3.47	74.00	28.49	100	161	Horizontal
6	14719.0000	36.24	49.97	13.73	74.00	24.03	200	235	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	14719.2411	13.71	26.27	39.98	54.00	14.02	100	340	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1580.8000	52.15	43.82	-8.33	74.00	30.18	100	170	Vertical
2	2376.4000	50.90	47.87	-3.03	74.00	26.13	200	252	Vertical
3	3139.0000	60.69	47.75	-12.94	74.00	26.25	200	192	Vertical
4	3979.0000	54.12	43.91	-10.21	74.00	30.09	100	155	Vertical
5	8938.0000	40.44	46.30	5.86	74.00	27.70	100	326	Vertical
6	14994.0000	36.27	50.03	13.76	74.00	23.97	100	260	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	14994.9855	13.76	26.05	39.81	54.00	14.19	200	296	Vertical

Mode: DH5

Highest Frequency (2480MHz)

Date: 2025-05-07

Environment: 26.1°C/42%RH/101.4kPa

Test Voltage: DC 12V

Test Engineer: Stone Zhang

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1137.2000	51.43	40.72	-10.71	74.00	33.28	200	214	Horizontal
2	1390.0000	51.32	43.42	-7.90	74.00	30.58	100	210	Horizontal
3	3139.0000	58.34	44.89	-13.45	74.00	29.11	100	190	Horizontal
4	3959.0000	53.18	42.25	-10.93	74.00	31.75	200	147	Horizontal
5	7930.0000	42.15	45.35	3.20	74.00	28.65	100	71	Horizontal
6	13211.0000	35.92	49.99	14.07	74.00	24.01	200	324	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	13211.2375	14.07	24.77	38.84	54.00	15.16	200	263	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1285.2000	55.37	46.68	-8.69	74.00	27.32	100	225	Vertical
2	1776.2000	53.25	47.05	-6.20	74.00	26.95	200	238	Vertical
3	2383.0000	50.51	47.58	-2.93	74.00	26.42	200	266	Vertical
4	3139.0000	60.61	47.67	-12.94	74.00	26.33	200	188	Vertical
5	4008.0000	53.05	42.95	-10.10	74.00	31.05	100	162	Vertical
6	14720.0000	36.91	50.14	13.23	74.00	23.86	200	1	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	14721.1277	13.22	27.18	40.40	54.00	13.60	200	324	Vertical

Mode: 3DH5

Lowest Frequency (2402MHz)

Date: 2025-05-07

Environment: 26.1°C/42%RH/101.4kPa

Test Voltage: DC 12V

Test Engineer: Stone Zhang

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1127.0000	51.99	41.25	-10.74	74.00	32.75	100	132	Horizontal
2	2500.8000	47.10	46.89	-0.21	74.00	27.11	200	340	Horizontal
3	3139.0000	57.57	44.12	-13.45	74.00	29.88	100	198	Horizontal
4	4008.0000	53.61	42.88	-10.73	74.00	31.12	200	188	Horizontal
5	8817.0000	41.27	47.02	5.75	74.00	26.98	100	38	Horizontal
6	13255.0000	35.74	49.86	14.12	74.00	24.14	200	291	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	13255.3722	14.12	26.51	40.63	54.00	13.37	200	291	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1264.2000	49.83	41.21	-8.62	74.00	32.79	200	138	Vertical
2	2378.2000	51.48	48.47	-3.01	74.00	25.53	200	259	Vertical
3	3139.0000	60.61	47.67	-12.94	74.00	26.33	200	184	Vertical
4	3966.0000	53.29	42.96	-10.33	74.00	31.04	100	154	Vertical
5	7309.0000	43.67	45.08	1.41	74.00	28.92	100	125	Vertical
6	15062.0000	36.11	49.71	13.60	74.00	24.29	200	156	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2381.4700	-3.01	37.91	34.90	54.00	19.10	200	260.8	Vertical
2	15120.2000	13.60	24.06	37.66	54.00	16.34	128	178.5	Vertical

Mode: 3DH5

Middle Frequency (2441MHz)

Date: 2025-05-07

Environment: 26.1°C/42%RH/101.4kPa

Test Voltage: DC 12V

Test Engineer: Stone Zhang

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1130.8000	52.77	42.04	-10.73	74.00	31.96	200	219	Horizontal
2	2499.8000	46.78	46.61	-0.17	74.00	27.39	100	82	Horizontal
3	3139.0000	54.90	41.45	-13.45	74.00	32.55	100	300	Horizontal
4	3987.0000	52.26	41.47	-10.79	74.00	32.53	200	195	Horizontal
5	5147.0000	48.06	42.08	-5.98	74.00	31.92	200	314	Horizontal
6	13149.0000	35.35	49.67	14.32	74.00	24.33	100	36	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	13149.1548	14.31	24.93	39.24	54.00	14.76	200	314	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1248.8000	49.66	41.09	-8.57	74.00	32.91	100	146	Vertical
2	2497.2000	48.46	47.93	-0.53	74.00	26.07	200	86	Vertical
3	3139.0000	55.72	42.78	-12.94	74.00	31.22	200	213	Vertical
4	3962.0000	53.44	43.08	-10.36	74.00	30.92	100	160	Vertical
5	7342.0000	43.53	45.46	1.93	74.00	28.54	100	53	Vertical
6	15270.0000	36.36	50.08	13.72	74.00	23.92	100	324	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	15270.5210	13.72	24.13	37.85	54.00	16.15	100	160	Vertical

Mode: 3DH5

Highest Frequency (2480MHz)

Date: 2025-05-07

Environment: 26.1°C/42%RH/101.4kPa

Test Voltage: DC 12V

Test Engineer: Stone Zhang

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1134.2000	55.27	44.54	-10.73	74.00	29.46	100	229	Horizontal
2	1572.8000	50.01	42.33	-7.68	74.00	31.67	100	150	Horizontal
3	2992.2000	46.64	46.16	-0.48	74.00	27.84	100	204	Horizontal
4	4013.0000	51.74	41.00	-10.74	74.00	33.00	200	194	Horizontal
5	5985.0000	46.33	42.23	-4.10	74.00	31.77	100	344	Horizontal
6	13064.0000	35.92	49.98	14.06	74.00	24.02	200	269	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	13064.1453	14.07	24.95	39.02	54.00	14.98	200	123	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1570.4000	50.08	41.95	-8.13	74.00	32.05	100	191	Vertical
2	1920.6000	47.72	42.98	-4.74	74.00	31.02	100	4	Vertical
3	3139.0000	56.68	43.74	-12.94	74.00	30.26	200	226	Vertical
4	3958.0000	53.48	43.08	-10.40	74.00	30.92	100	138	Vertical
5	7941.0000	42.38	45.86	3.48	74.00	28.14	100	273	Vertical
6	13283.0000	36.72	50.12	13.40	74.00	23.88	100	50	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dB $\mu$ V/m]	AV Value [dB $\mu$ V/m]	AV Limit [dB $\mu$ V/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	13283.3117	13.40	24.68	38.08	54.00	15.92	100	20	Vertical

**Remark:**

- 1 Measuring frequencies from 1 GHz to 18GHz harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Spectrum setting:
  - a. Peak Setting 1GHz–26.5GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = auto.
  - b. AV Setting 1GHz–26.5GHz, 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 2.5.

## 18GHz to 26.5GHz

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 mode was recorded in this report(3DH5-2402MHz).

Mode: 3DH5

Lowest Frequency (2402MHz)

Date: 2025-05-09

Environment: 24.8°C/42%RH/101.7kPa

Test Voltage: DC 12V

Test Engineer: Stone Zhang

Suspected Data List										
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level for 1m [dB $\mu$ V/m]	Level for 3m [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18514.6750	48.32	51.03	41.49	2.71	74	32.51	100	20	Horizontal
2	19273.7250	48.38	51.51	41.97	3.13	74	32.03	100	293	Horizontal
3	21113.1250	47.11	51.17	41.63	4.06	74	32.37	100	41	Horizontal
4	22542.8250	45.23	48.94	39.40	3.71	74	34.60	200	336	Horizontal
5	23865.0000	43.73	48.44	38.90	4.71	74	35.10	100	20	Horizontal
6	25378.0000	42.69	47.97	38.43	5.28	74	35.57	100	336	Horizontal

Suspected Data List										
NO.	Freq. [MHz]	Reading [dB $\mu$ V/m]	Level for 1m [dB $\mu$ V/m]	Level for 3m [dB $\mu$ V/m]	Factor [dB]	Limit [dB $\mu$ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18739.0750	48.05	50.99	41.45	2.94	74	32.55	100	356	Vertical
2	19683.4250	48.14	51.98	42.44	3.84	74	31.56	200	251	Vertical
3	20199.8000	47.43	51.70	42.16	4.27	74	31.84	100	61	Vertical
4	21907.0250	46.69	50.76	41.22	4.07	74	32.78	100	189	Vertical
5	22464.6250	45.52	49.68	40.14	4.16	74	33.86	100	61	Vertical
6	26289.2000	43.37	49.33	39.79	5.96	74	34.21	100	83	Vertical

**Remark:**

- 1 Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2 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.
- 3 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.
- 4 Above 18G test distance is 1m, so the Level for 3m= Level for 1m + 20\*log(1/3)

## 7.9. Radiated Restricted Band Edge Measurement

### For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
1 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	8.25 - 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 - 156.525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 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	( <sup>2</sup> )
13.36 - 13.41	--	--	--

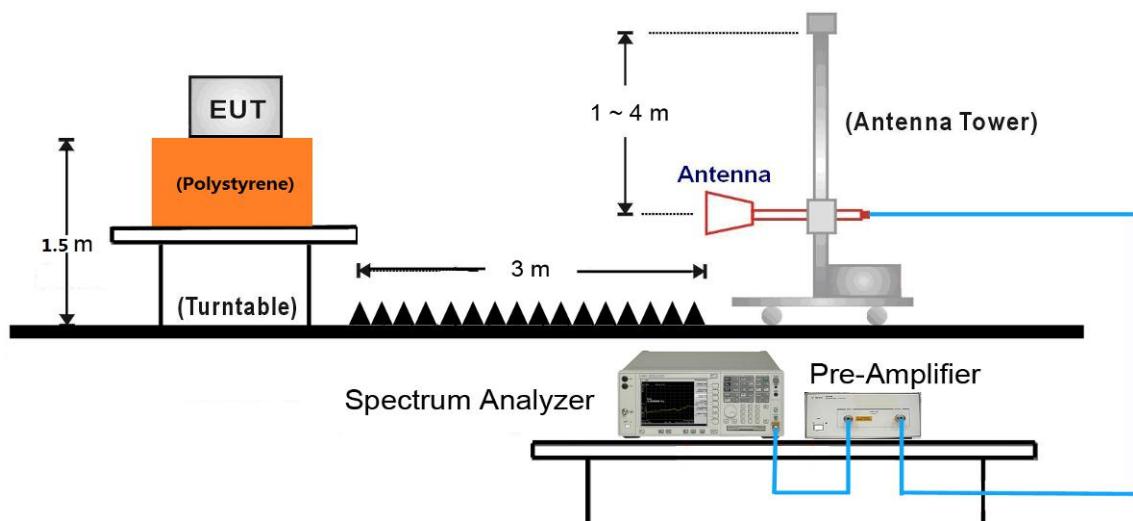
All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

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

### 7.9.1. Test Setting

- 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: RBW=1MHz / VBW=1/T / Sweep=AUTO. Where T is defined in section 2.5.Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

### 7.9.2. Test Setup



### 7.9.3. Test Result

Project Information			
EUT:	MONITOR WITH RECEIVER	Model:	KW-Z900W
Test Date:	2025-03-02	Voltage:	DC 12V
Environment:	Temp: 17.3°C; Humi:40%	Engineer:	Stone Zhang

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

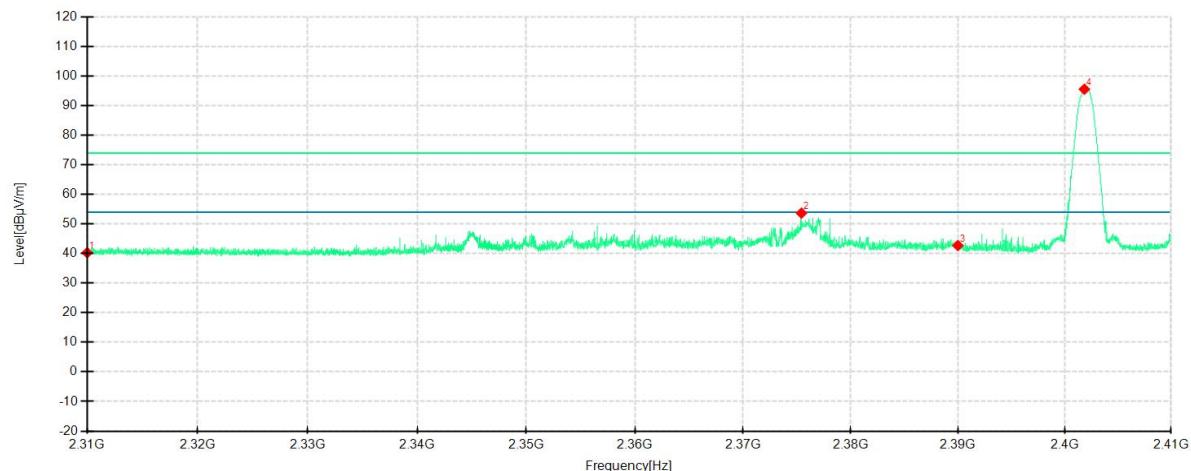
#### DH5

##### Lowest Channel

Frequency 2402MHz

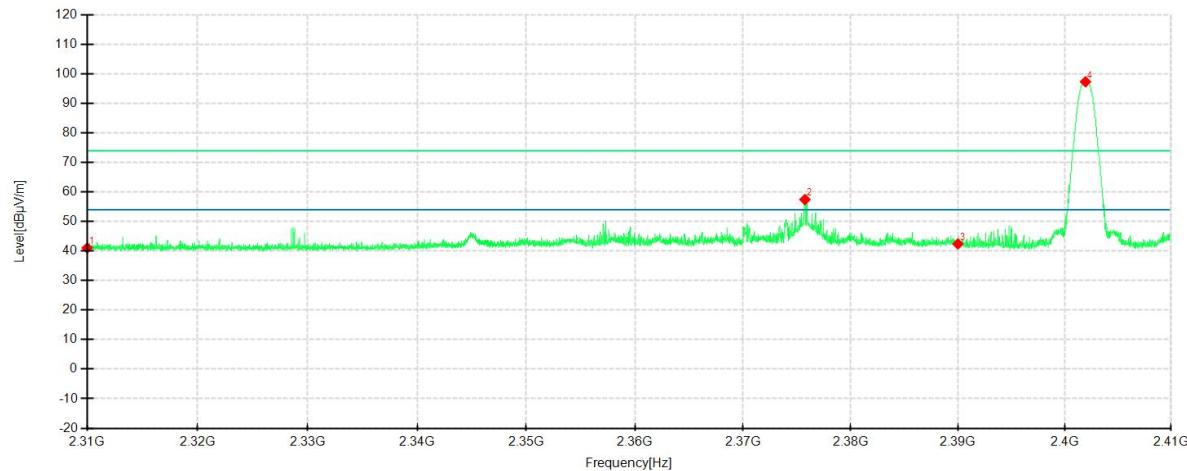
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



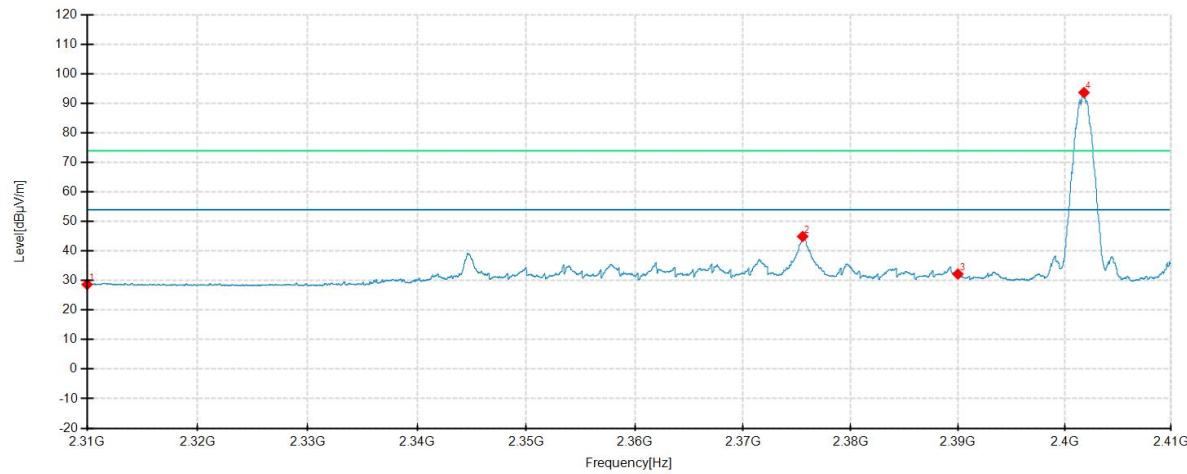
No.	Frequency MHz	Reading dB $\mu$ V/m	Level dB $\mu$ V/m	Factor dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	46.17	40.27	-5.90	74.00	33.73	100	283	Horizontal	/
2	2375.4250	59.63	53.67	-5.96	74.00	20.33	200	360	Horizontal	/
3	2390.0000	48.45	42.72	-5.73	74.00	31.28	200	270	Horizontal	/
4	2401.8500	101.07	95.55	-5.52	74.00	-21.55	100	231	Horizontal	No limit
1	2310.0000	46.32	41.02	-5.30	74.00	32.98	200	297	Vertical	/
2	2375.7500	62.86	57.44	-5.42	74.00	16.56	200	28	Vertical	/
3	2390.0000	47.85	42.40	-5.45	74.00	31.60	100	295	Vertical	/
4	2401.9500	102.79	97.33	-5.46	74.00	-23.33	200	322	Vertical	No limit

**Lowest Channel**

Frequency 2402MHz

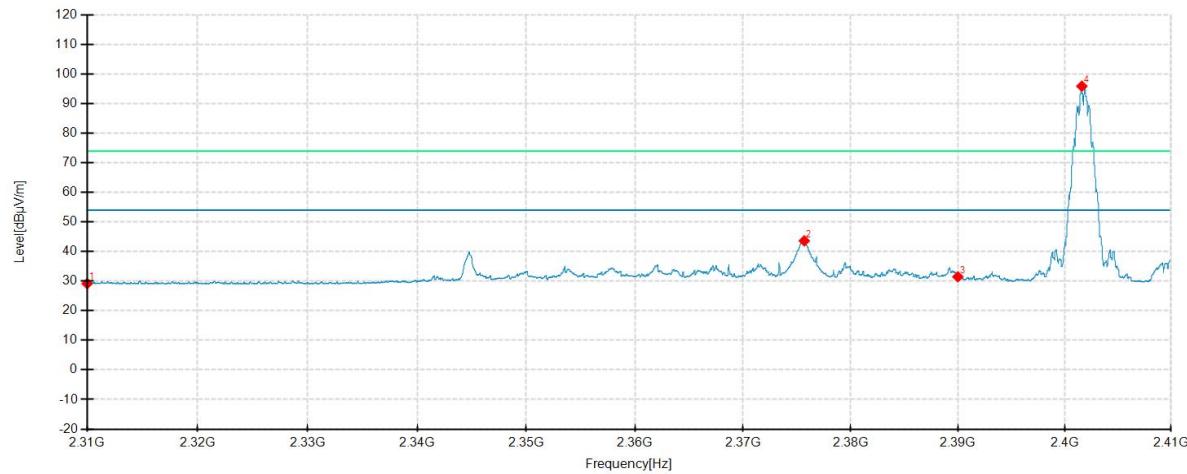
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



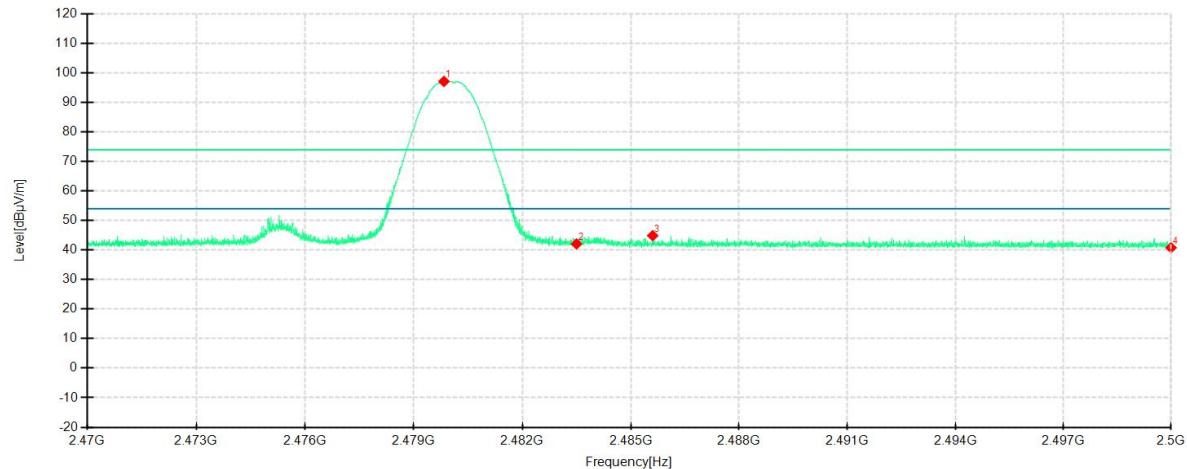
No.	Frequency MHz	Reading dB $\mu$ V/m	Level dB $\mu$ V/m	Factor dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	34.58	28.68	-5.90	54.00	25.32	200	251	Horizontal	/
2	2375.5375	50.91	44.95	-5.96	54.00	9.05	200	301	Horizontal	/
3	2390.0000	37.93	32.20	-5.73	54.00	21.80	200	265	Horizontal	/
4	2401.8125	99.19	93.67	-5.52	/	/	100	82	Horizontal	No limit
1	2310.0000	34.47	29.17	-5.30	54.00	24.83	200	334	Vertical	/
2	2375.6875	49.04	43.62	-5.42	54.00	10.38	200	184	Vertical	/
3	2390.0000	36.91	31.46	-5.45	54.00	22.54	100	39	Vertical	/
4	2401.6125	101.38	95.91	-5.47	/	/	200	321	Vertical	No limit

**Highest Channel**

Frequency 2480MHz

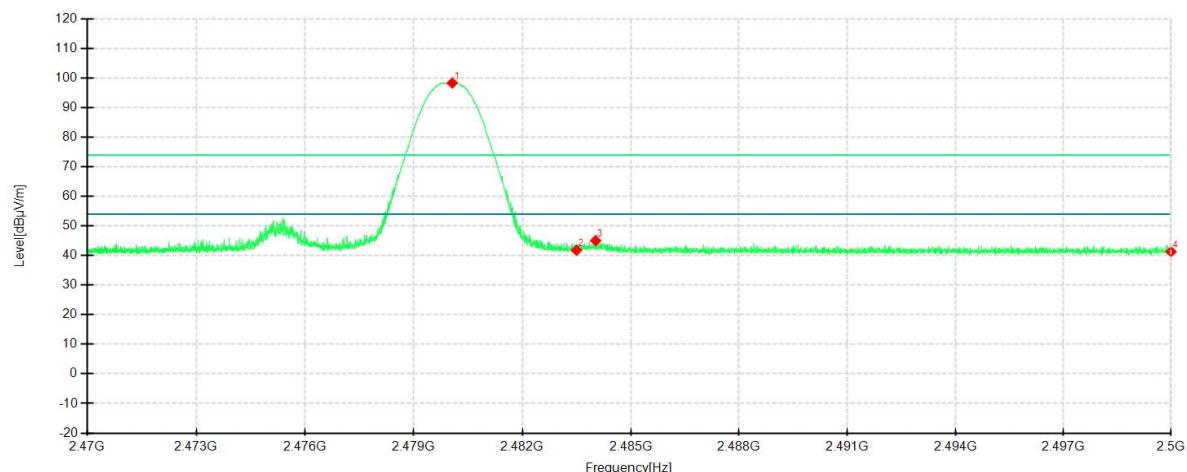
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



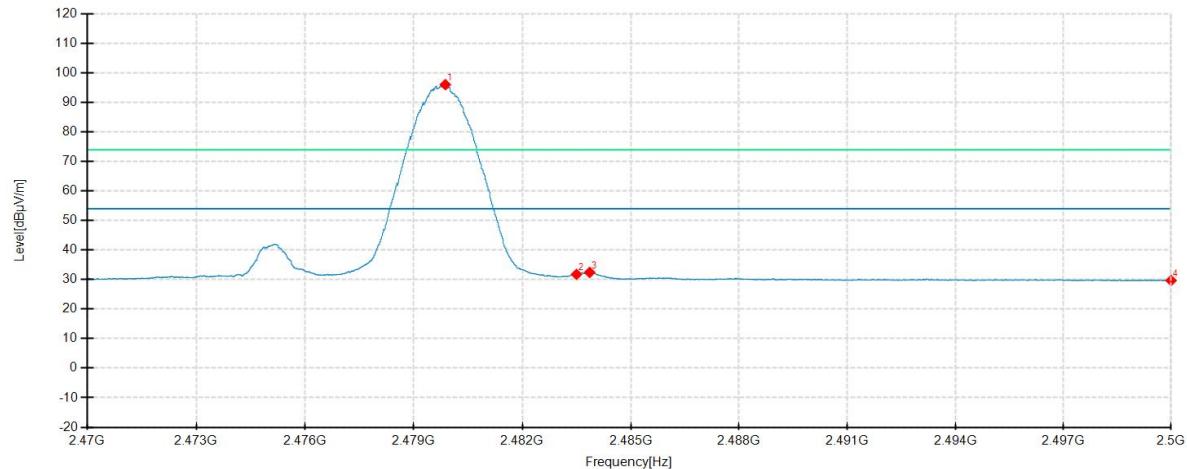
No.	Frequency MHz	Reading dB $\mu$ V/m	Level dB $\mu$ V/m	Factor dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.8363	101.77	97.12	-4.65	/	/	100	233	Horizontal	No limit
2	2483.5000	46.75	42.08	-4.67	74.00	31.92	100	309	Horizontal	/
3	2485.6075	49.56	44.88	-4.68	74.00	29.12	100	40	Horizontal	/
4	2500.0000	45.58	40.79	-4.79	74.00	33.21	100	79	Horizontal	/
1	2480.0650	103.48	98.33	-5.15	/	/	200	322	Vertical	No limit
2	2483.5000	46.93	41.80	-5.13	74.00	32.20	200	221	Vertical	/
3	2484.0288	50.17	45.04	-5.13	74.00	28.96	200	322	Vertical	/
4	2500.0000	46.40	41.31	-5.09	74.00	32.69	200	68	Vertical	/

**Highest Channel**

Frequency 2480MHz

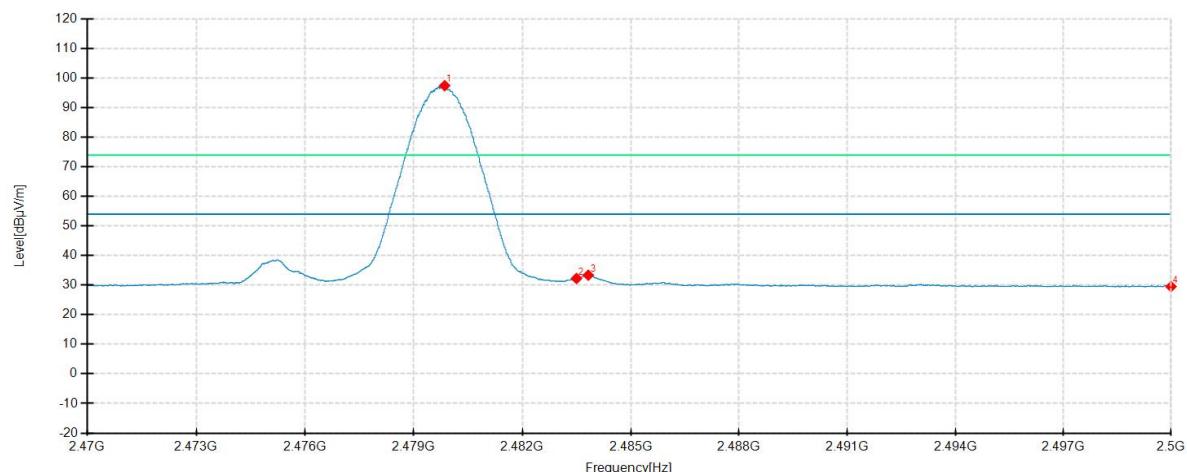
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



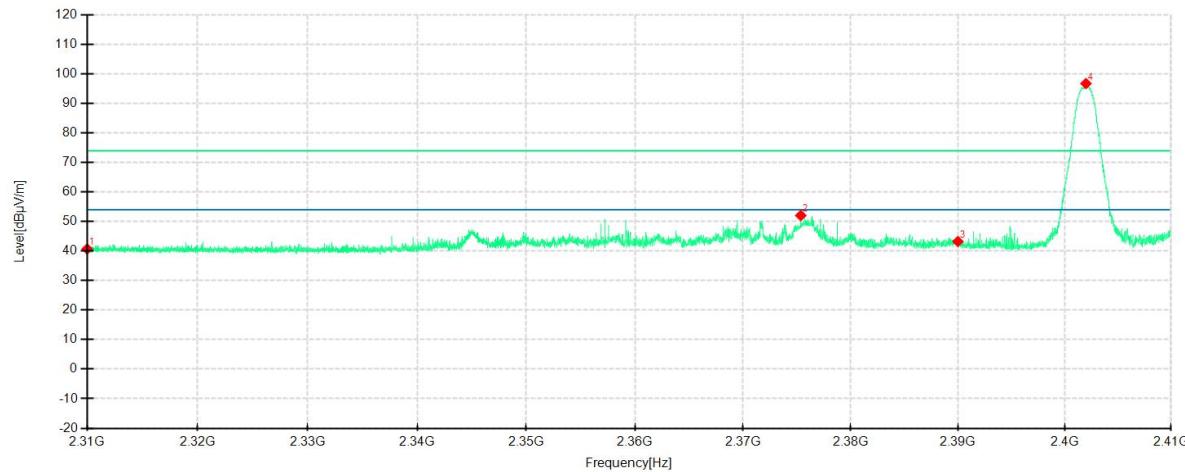
No.	Frequency MHz	Reading dB $\mu$ V/m	Level dB $\mu$ V/m	Factor dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.8738	100.66	96.01	-4.65	/	/	100	234	Horizontal	No limit
2	2483.5000	36.43	31.76	-4.67	54.00	22.24	100	332	Horizontal	/
3	2483.8638	37.09	32.42	-4.67	54.00	21.58	100	221	Horizontal	/
4	2500.0000	34.47	29.68	-4.79	54.00	24.32	200	252	Horizontal	/
1	2479.8550	102.58	97.43	-5.15	/	/	200	323	Vertical	No limit
2	2483.5000	37.39	32.26	-5.13	54.00	21.74	200	323	Vertical	/
3	2483.8263	38.49	33.36	-5.13	54.00	20.64	200	323	Vertical	/
4	2500.0000	34.61	29.52	-5.09	54.00	24.48	100	227	Vertical	/

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

Frequency 2402MHz

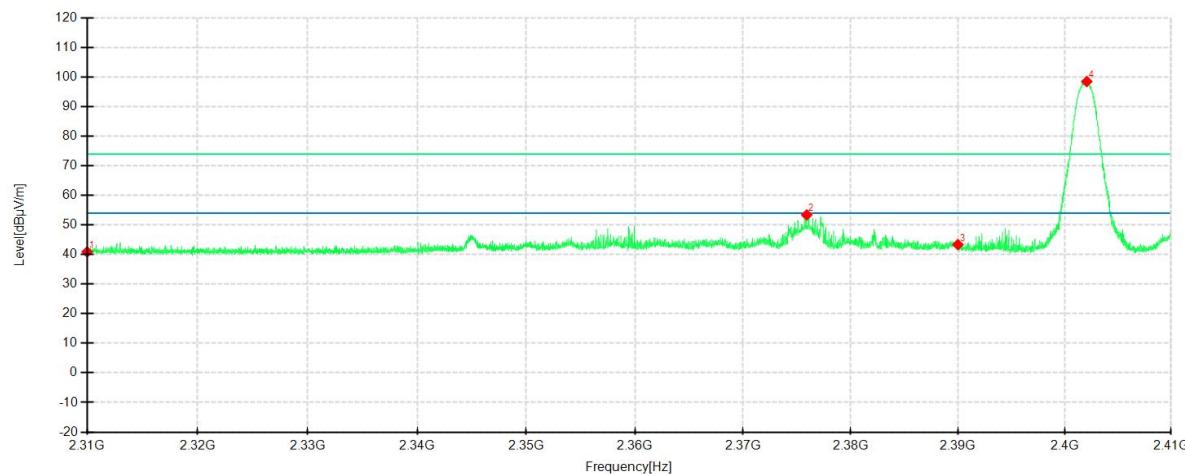
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



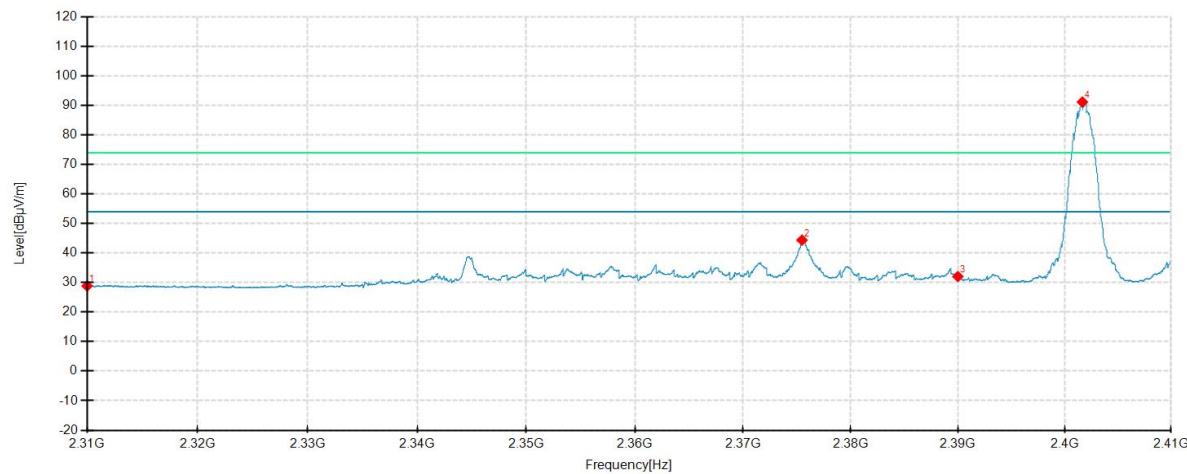
No.	Frequency MHz	Reading dB $\mu$ V/m	Level dB $\mu$ V/m	Factor dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	46.61	40.71	-5.90	74.00	33.29	100	309	Horizontal	/
2	2375.3625	58.01	52.05	-5.96	74.00	21.95	200	258	Horizontal	/
3	2390.0000	48.97	43.24	-5.73	74.00	30.76	200	295	Horizontal	/
4	2402.0000	102.24	96.72	-5.52	/	/	100	233	Horizontal	No limit
1	2310.0000	46.21	40.91	-5.30	74.00	33.09	200	28	Vertical	/
2	2375.9125	58.81	53.39	-5.42	74.00	20.61	100	28	Vertical	/
3	2390.0000	48.80	43.35	-5.45	74.00	30.65	100	51	Vertical	/
4	2402.0750	103.96	98.50	-5.46	/	/	200	322	Vertical	No limit

**Lowest Channel**

Frequency 2402MHz

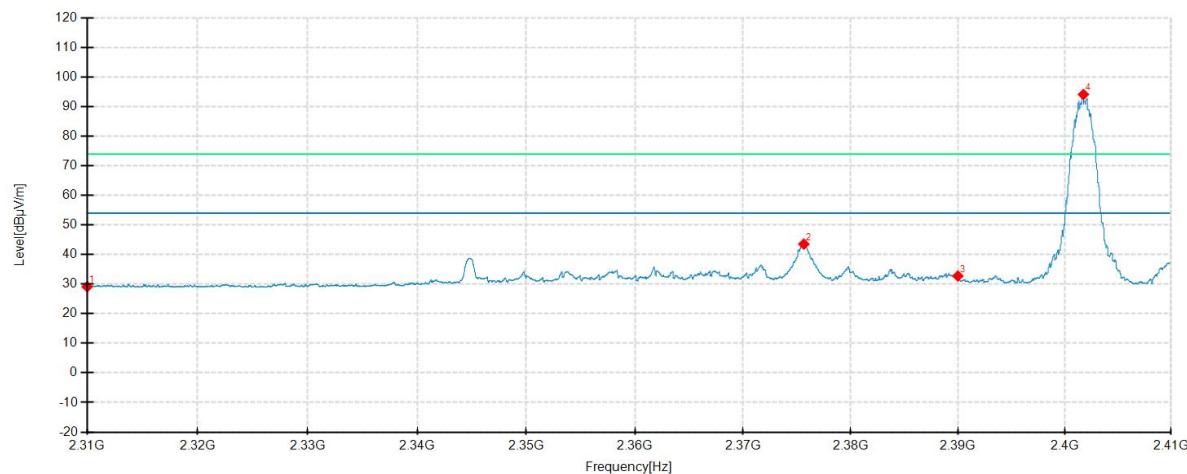
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



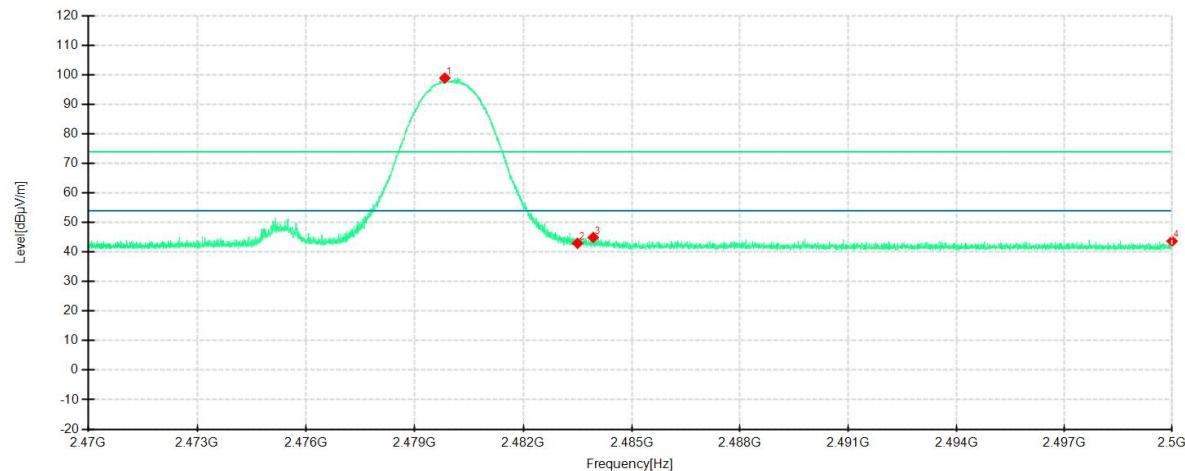
No.	Frequency MHz	Reading dB $\mu$ V/m	Level dB $\mu$ V/m	Factor dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	34.77	28.87	-5.90	54.00	25.13	200	253	Horizontal	/
2	2375.4750	50.35	44.39	-5.96	54.00	9.61	200	302	Horizontal	/
3	2390.0000	37.78	32.05	-5.73	54.00	21.95	200	263	Horizontal	/
4	2401.6625	96.69	91.15	-5.54	/	/	100	85	Horizontal	No limit
1	2310.0000	34.43	29.13	-5.30	54.00	24.87	100	25	Vertical	/
2	2375.6500	48.96	43.54	-5.42	54.00	10.46	200	336	Vertical	/
3	2390.0000	38.20	32.75	-5.45	54.00	21.25	100	38	Vertical	/
4	2401.7625	99.58	94.11	-5.47	/	/	200	322	Vertical	No limit

**Highest Channel**

Frequency 2480MHz

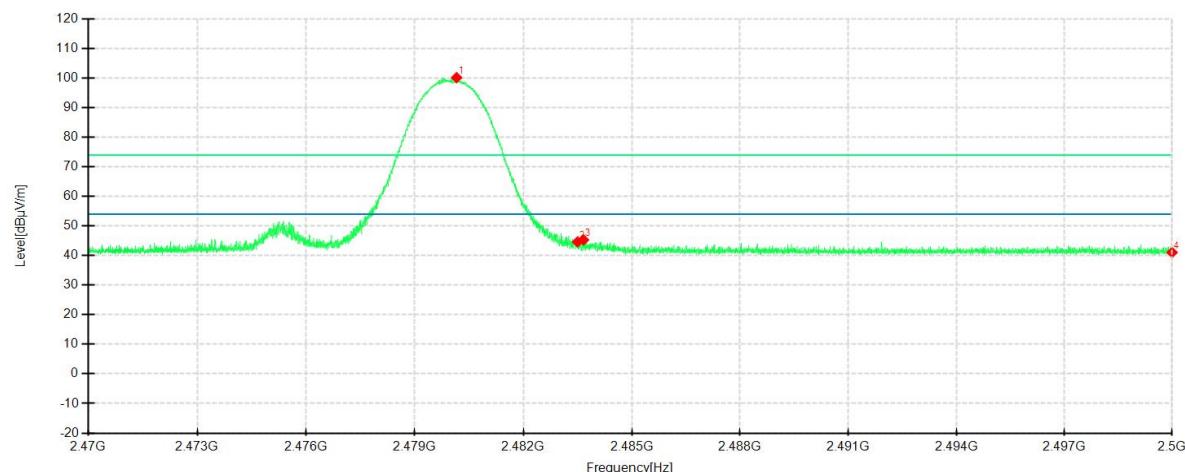
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



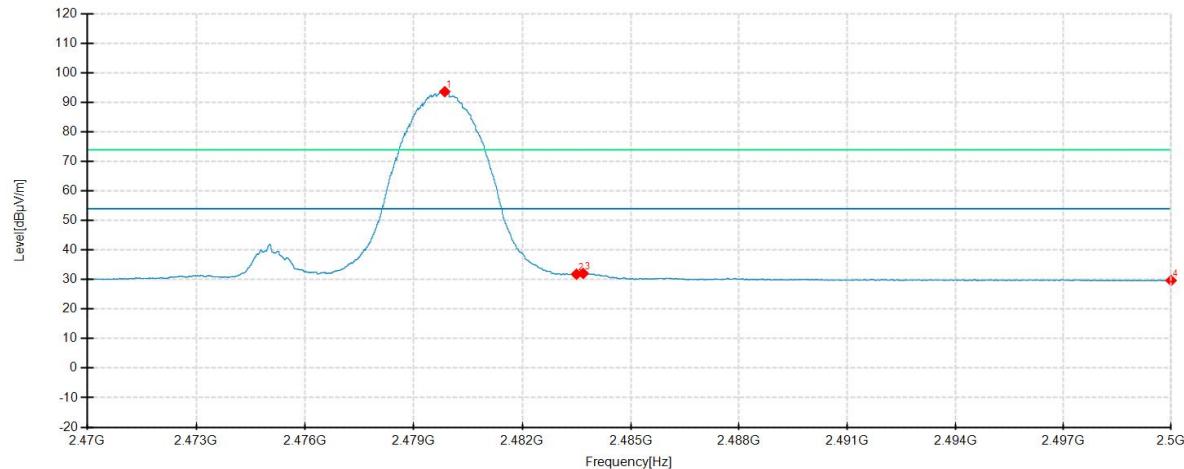
No.	Frequency MHz	Reading dB $\mu$ V/m	Level dB $\mu$ V/m	Factor dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.8325	103.57	98.92	-4.65	/	/	100	230	Horizontal	No limit
2	2483.5000	47.64	42.97	-4.67	74.00	31.03	100	141	Horizontal	/
3	2483.9350	49.61	44.94	-4.67	74.00	29.06	100	333	Horizontal	/
4	2500.0000	48.47	43.68	-4.79	74.00	30.32	100	23	Horizontal	/
1	2480.1588	105.29	100.14	-5.15	/	/	200	323	Vertical	No limit
2	2483.5000	49.76	44.63	-5.13	74.00	29.37	200	334	Vertical	/
3	2483.6650	50.43	45.30	-5.13	74.00	28.70	200	297	Vertical	/
4	2500.0000	46.13	41.04	-5.09	74.00	32.96	100	89	Vertical	/

**Highest Channel**

Frequency 2480MHz

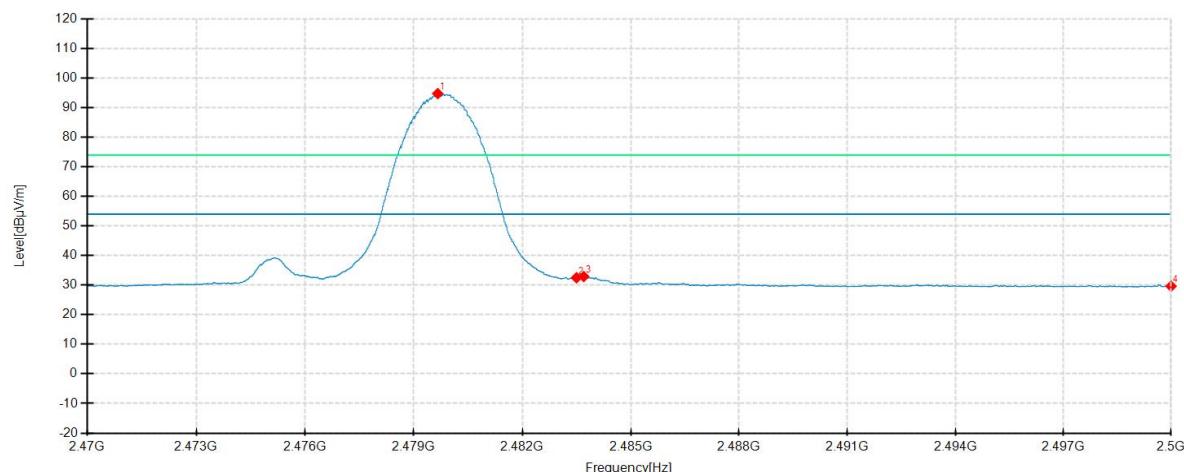
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dB $\mu$ V/m	Level dB $\mu$ V/m	Factor dB	Limit dB $\mu$ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.8588	98.27	93.62	-4.65	/	/	100	231	Horizontal	No limit
2	2483.5000	36.48	31.81	-4.67	54.00	22.19	100	231	Horizontal	/
3	2483.6838	36.74	32.07	-4.67	54.00	21.93	100	334	Horizontal	/
4	2500.0000	34.46	29.67	-4.79	54.00	24.33	200	50	Horizontal	/
1	2479.6638	99.90	94.75	-5.15	/	/	200	320	Vertical	No limit
2	2483.5000	37.63	32.50	-5.13	54.00	21.50	200	310	Vertical	/
3	2483.6988	38.05	32.92	-5.13	54.00	21.08	200	320	Vertical	/
4	2500.0000	34.73	29.64	-5.09	54.00	24.36	200	310	Vertical	/

Remark:

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

## 7.10.AC Conducted Emissions Measurement

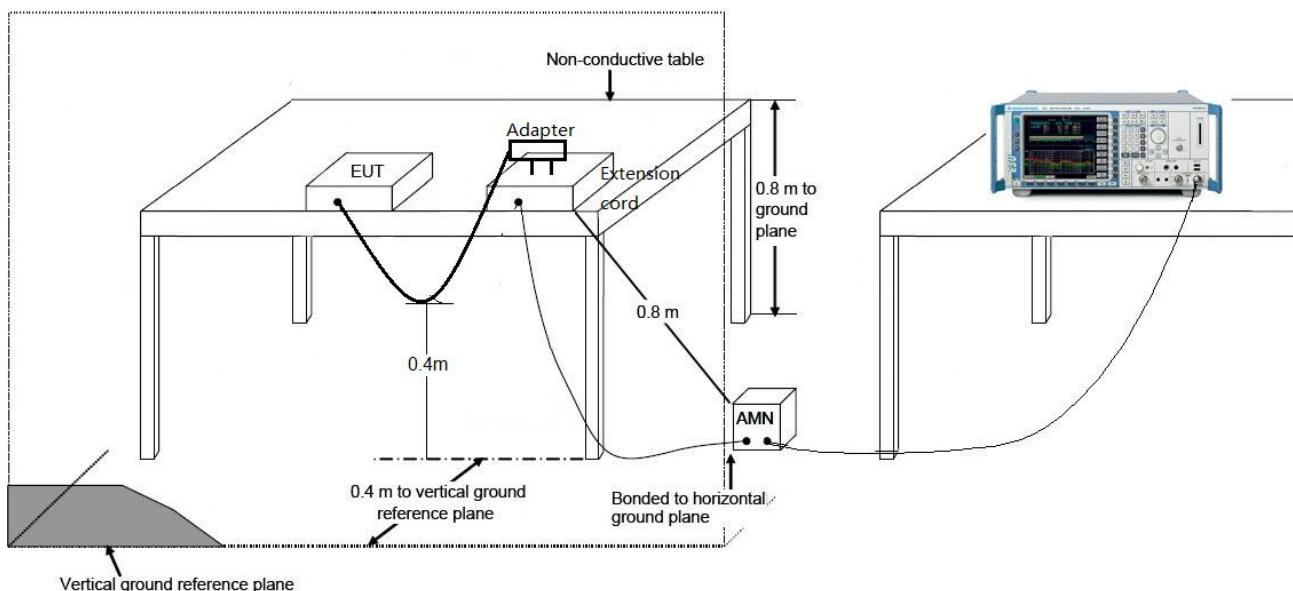
### 7.10.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dB $\mu$ V)	Average (dB $\mu$ V)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

### 7.10.2. Test Setup



### 7.10.3. Test Result

Note: Test is not applicable to this Equipment. This EUT is no AC mains power ports.

## 8. Conclusion

The data collected relate only the item(s) tested and show that the **MONITOR WITH RECEIVER** is in compliance with Part 15C of the FCC Rules.

## Statement

1. This report is invalid for the following states: without the special inspection and testing stamp or the official stamp of our institution; without the signature of the report authorized officer; if the report is altered.
2. It is forbidden to copy partial contents of the report except in full without the approval of our institution.
3. The client shall provide the test sample(s) and commission information and be responsible for their authenticity.
4. The report content is only applicable to the tested sample(s) this time.
5. If there are any objections to the report content, please submit them to our company in writing within 15 days from the date of receiving the report.
6. If the reports include both Chinese and English versions, when there are any inconsistencies caused by language, the Chinese version shall prevail.
7. This report is issued by the following laboratory premises:  
3/F., Comprehensive Laboratory Building, No.8, Ningyun Road, Xinwu District, Wuxi, Jiangsu, China (Ningyun Road Laboratory)

—This page is blank below this line —