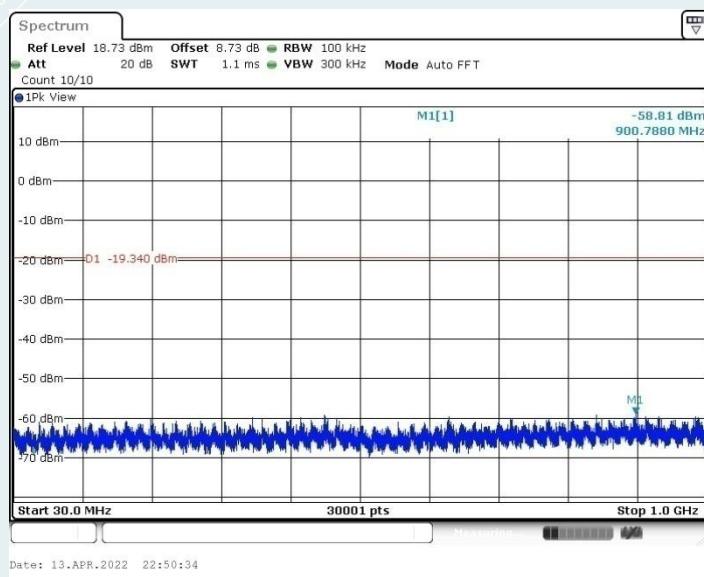
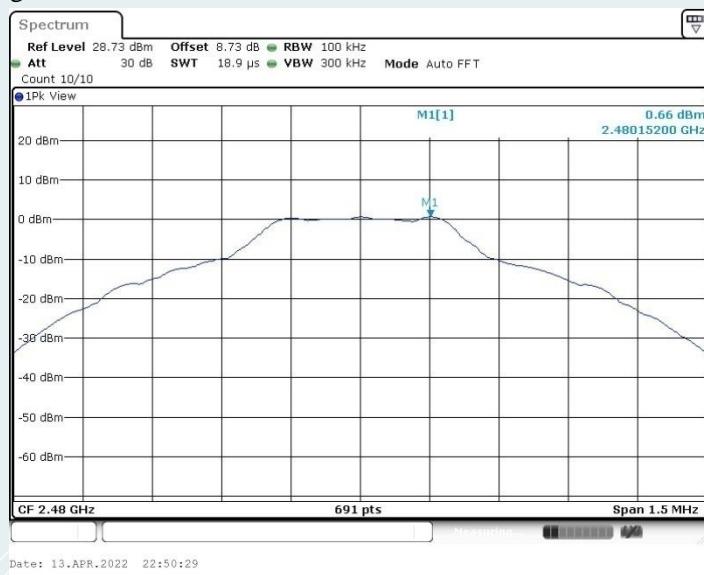
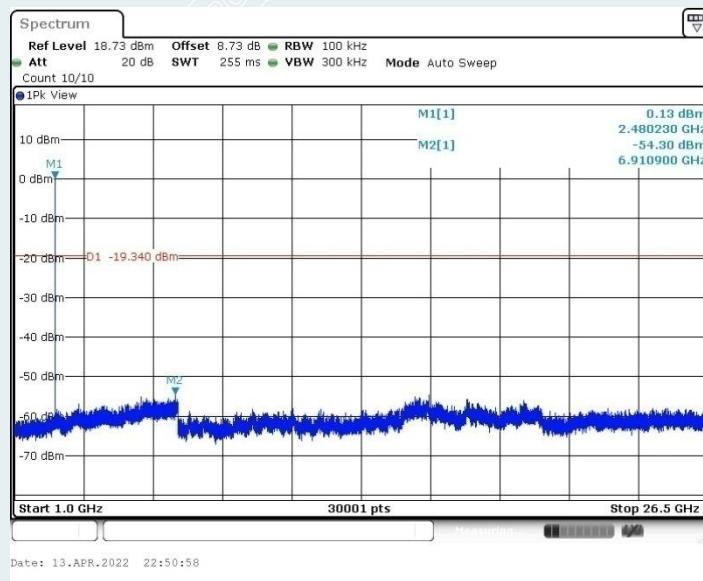
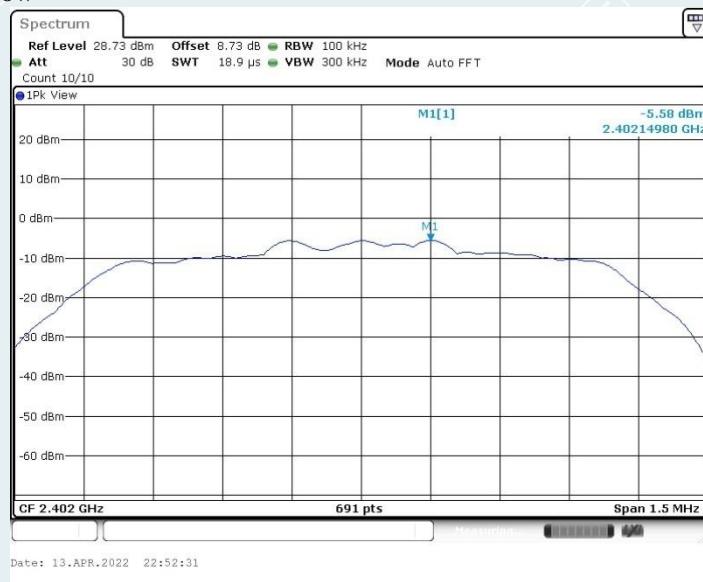


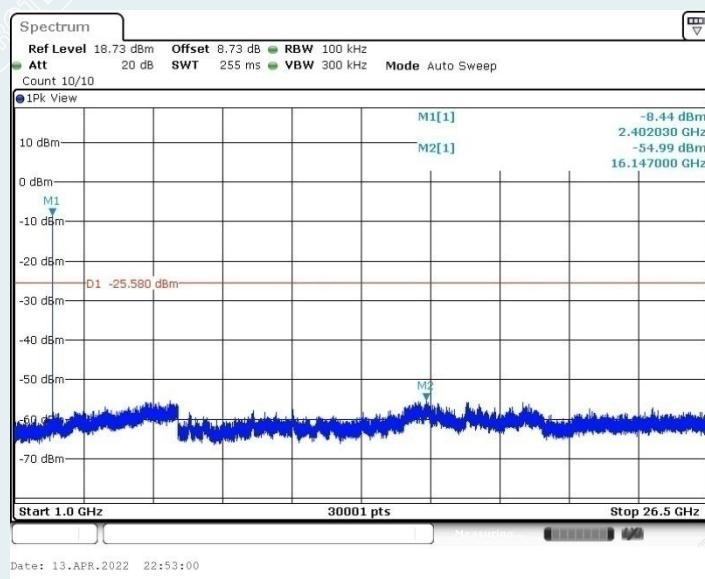
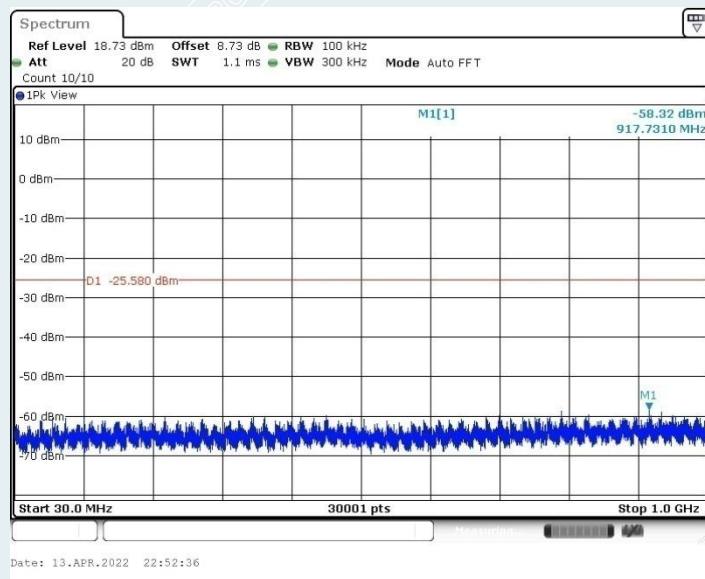
CH High



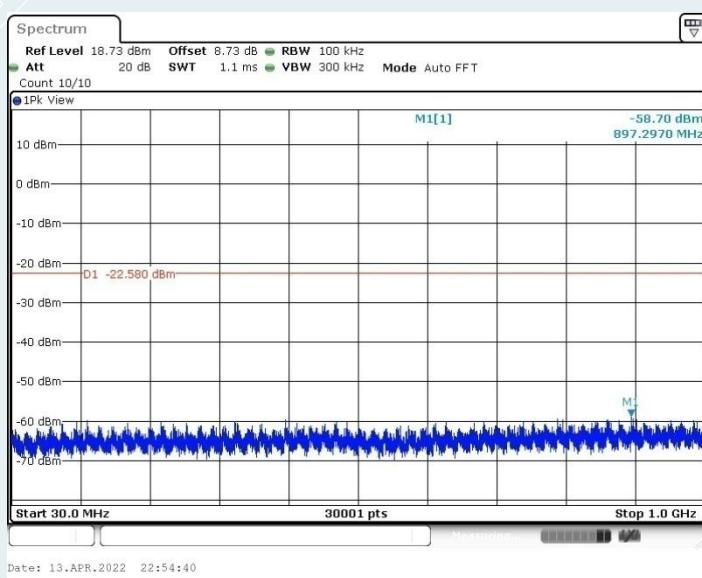


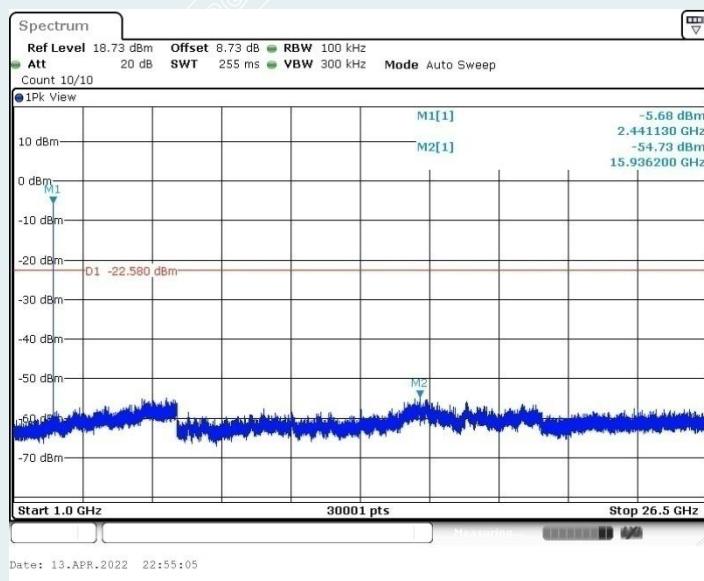
2DH5
CH Low



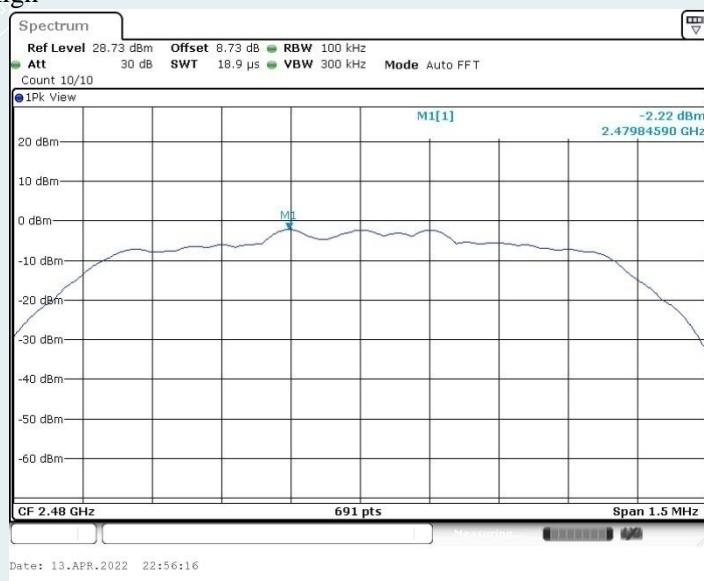


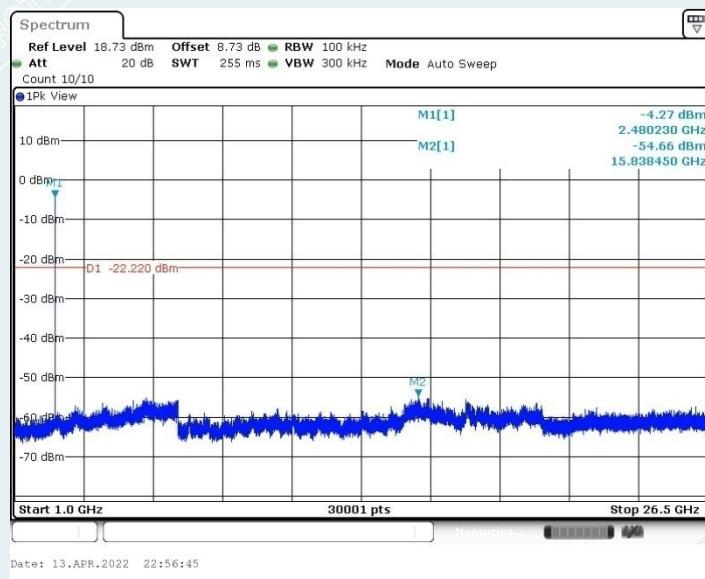
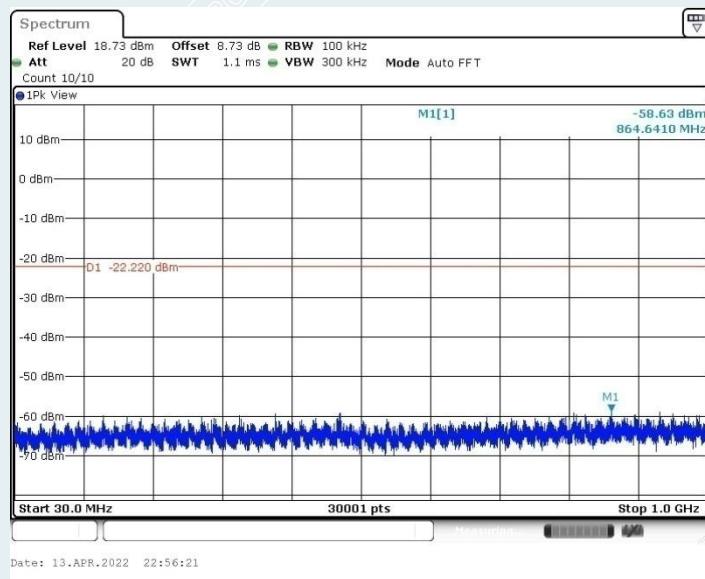
CH Mid

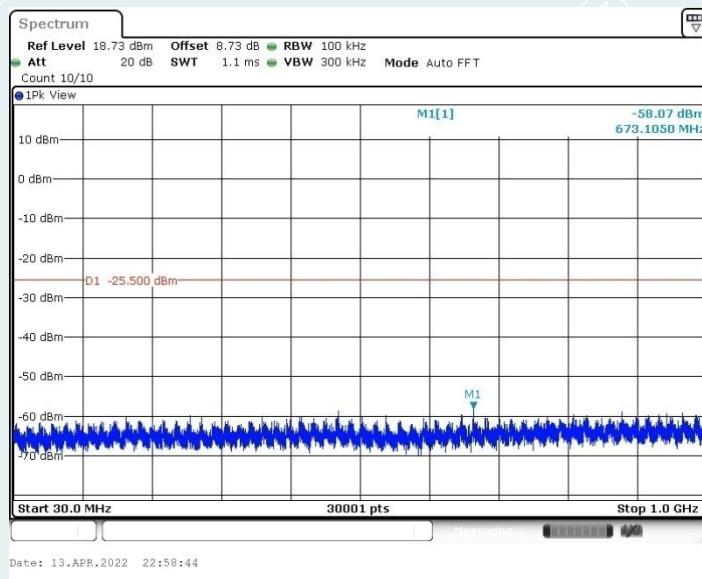


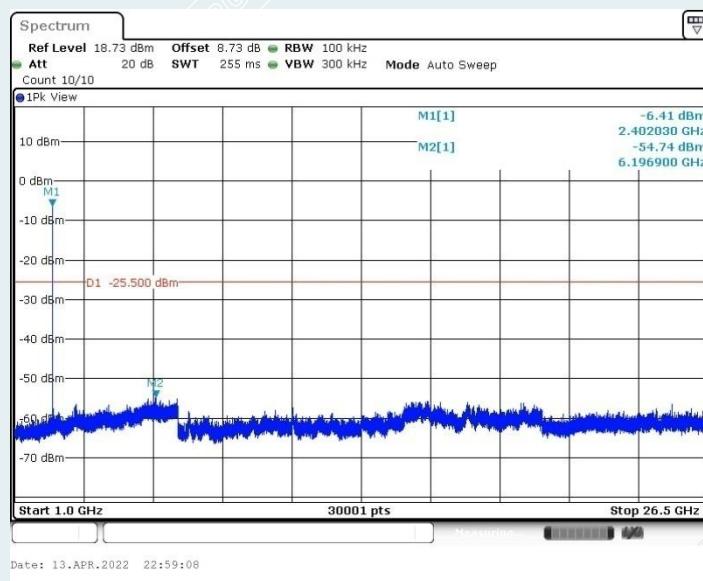


CH High

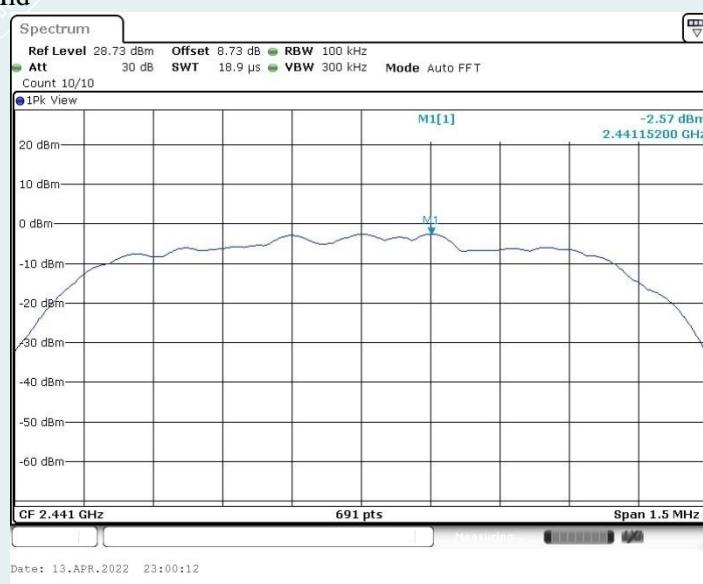


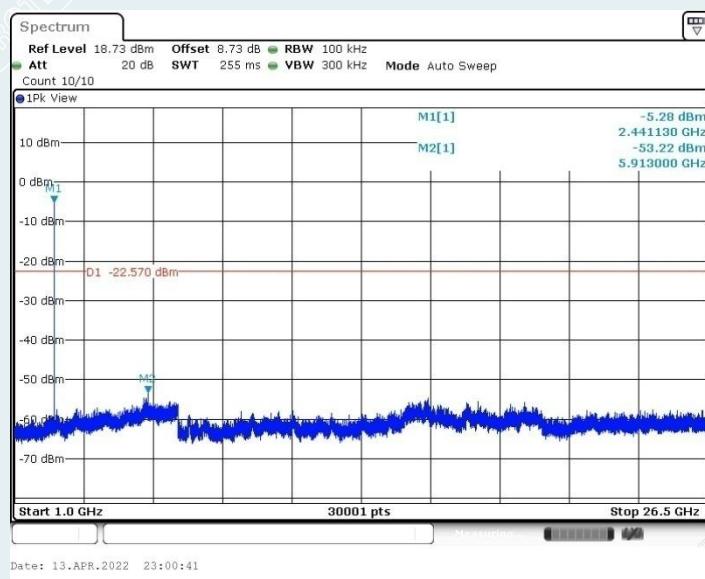
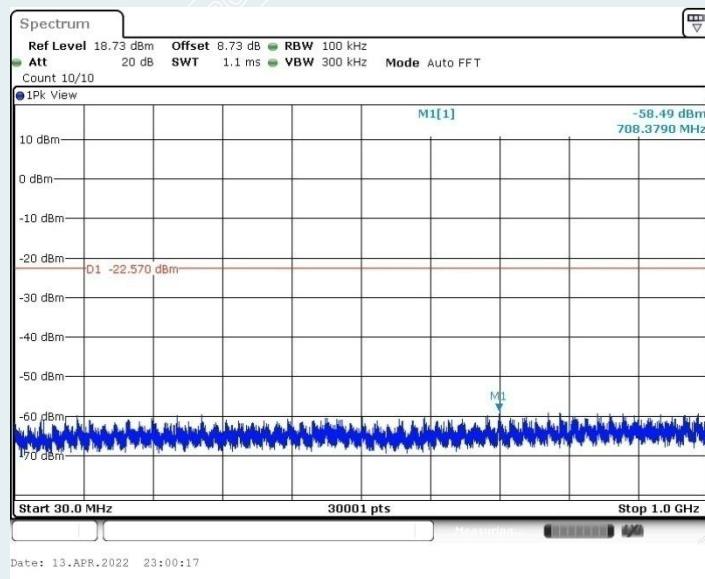


3DH5
CH Low

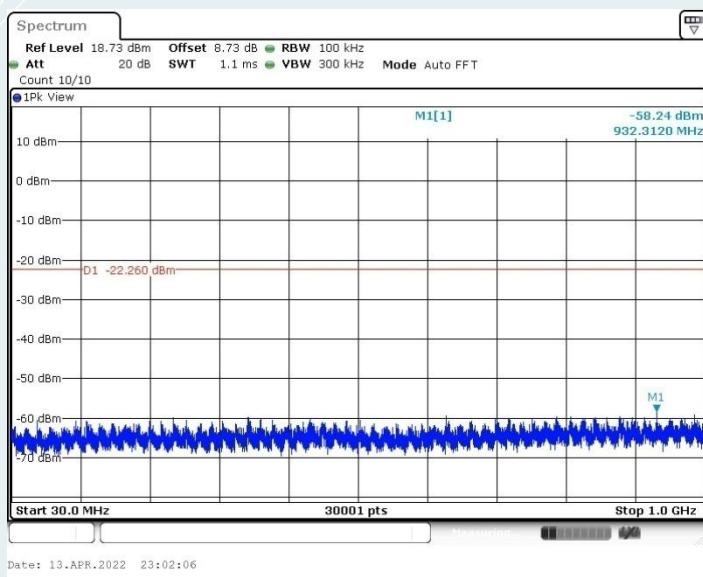


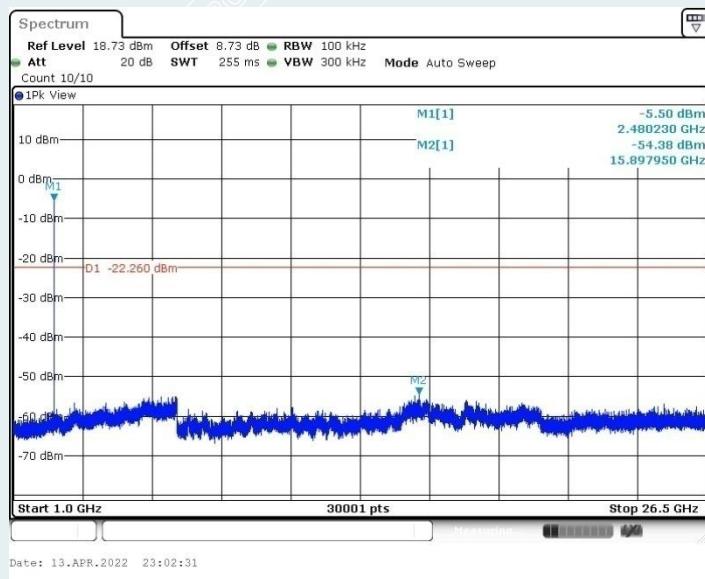
CH Mid





CH High





The unit does meet the FCC requirements.

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

12. RADIATED SPURIOUS EMISSIONS

12.1 LIMITS

In any 100 kHz 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 20 dB below that in the 100 kHz 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 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

Frequency (MHz)	Quasi-peak(μ V/m)	Measurement distance(m)	Quasi-peak(dB μ 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 9-90 kHz and 110-490 kHz 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)=83.5 (dB μ V/m).
The Avg Limit=54+20*log(3/1)=63.5 (dB μ V/m)

12.2 TEST PROCEDURES

1) Sequence of testing 9 kHz to 30 MHz

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 30 MHz to 1 GHz

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 maximizes 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 1 GHz to 18 GHz

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.

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

4) Sequence of testing above 18 GHz

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.

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

12.3 TEST SETUP

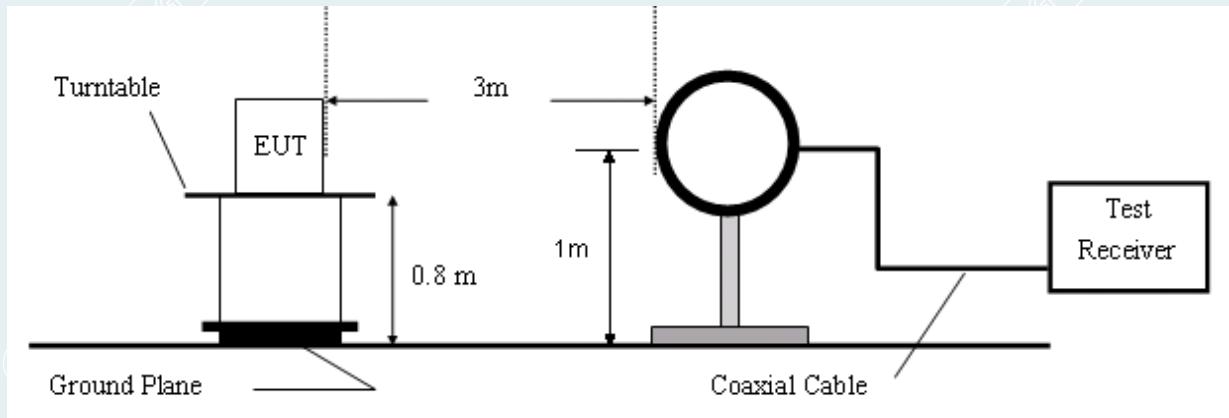


Figure 1. 9kHz to 30MHz radiated emissions test configuration

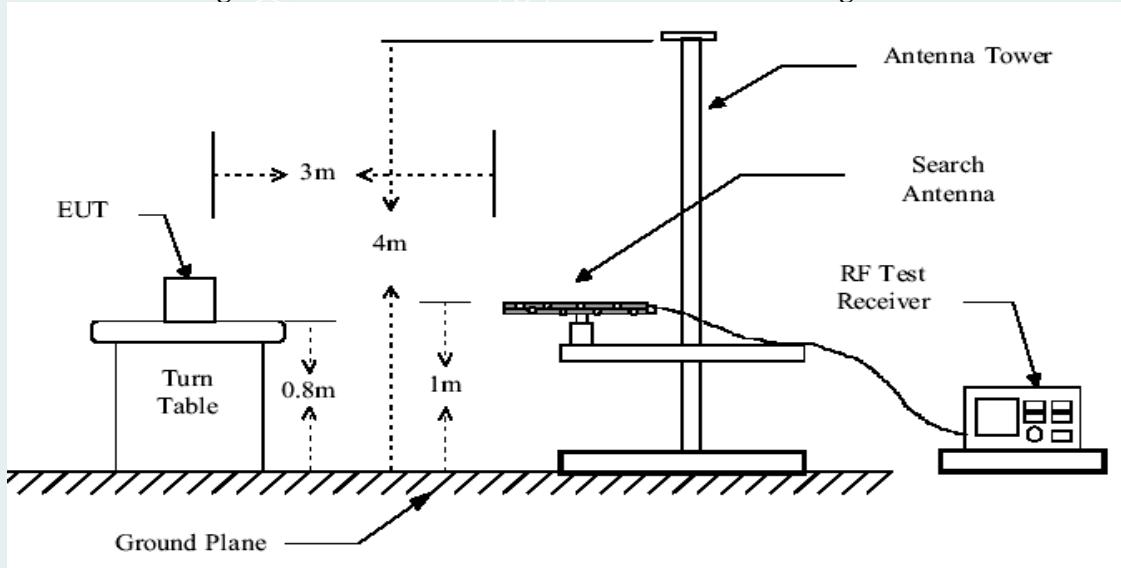


Figure 2. 30MHz to 1GHz radiated emissions test configuration

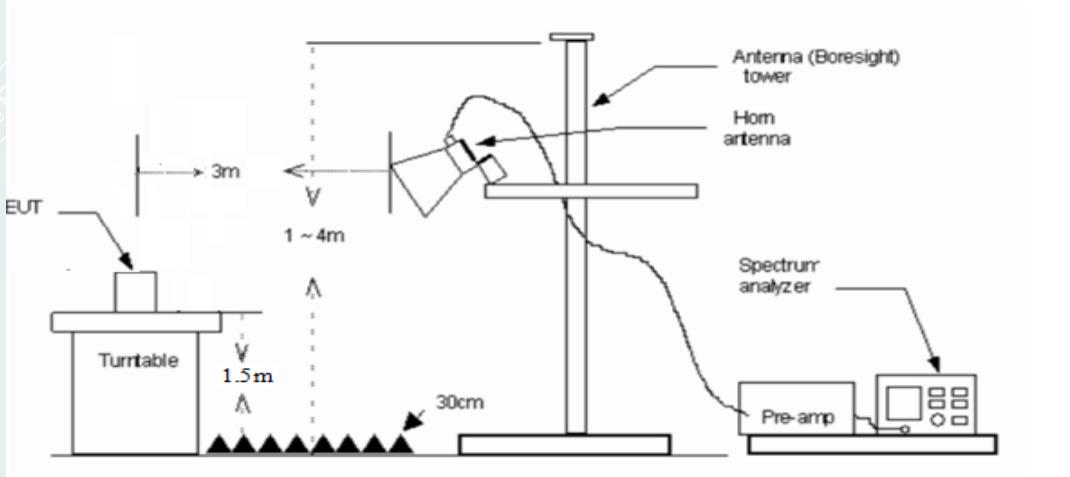


Figure 3. 1GHz to 18GHz radiated emissions test configuration

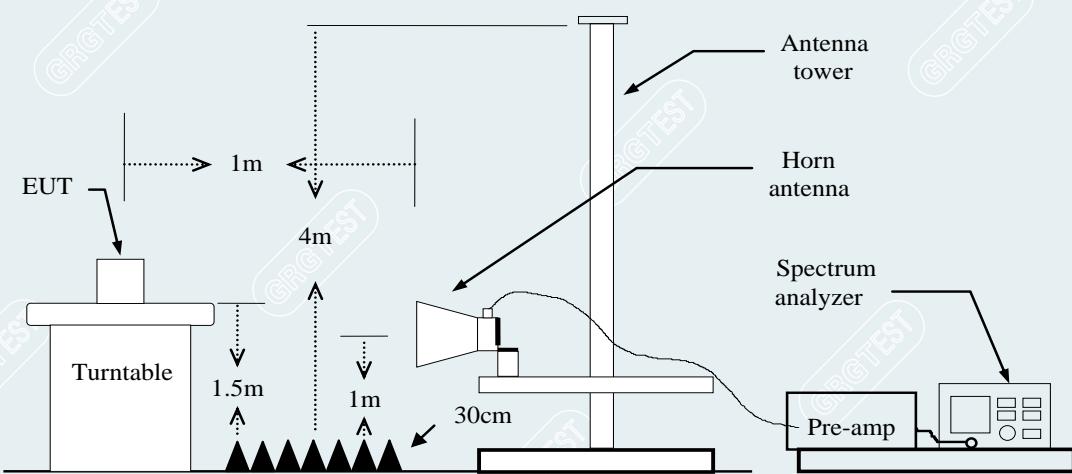


Figure 4. 18GHz to 26.5GHz radiated emissions test configuration

12.4 DATA SAMPLE

30MHz to 1GHz

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

1GHz to 18GHz

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark	Pole
	(MHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
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	Reading	Factor	Level	Limit	Margin	Remark	Pole
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)		
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

12.5 TEST RESULTS

Below 1GHz:

Mode: DH5

Low Frequency (2402MHz)

Test Engineer:

Test Voltage:

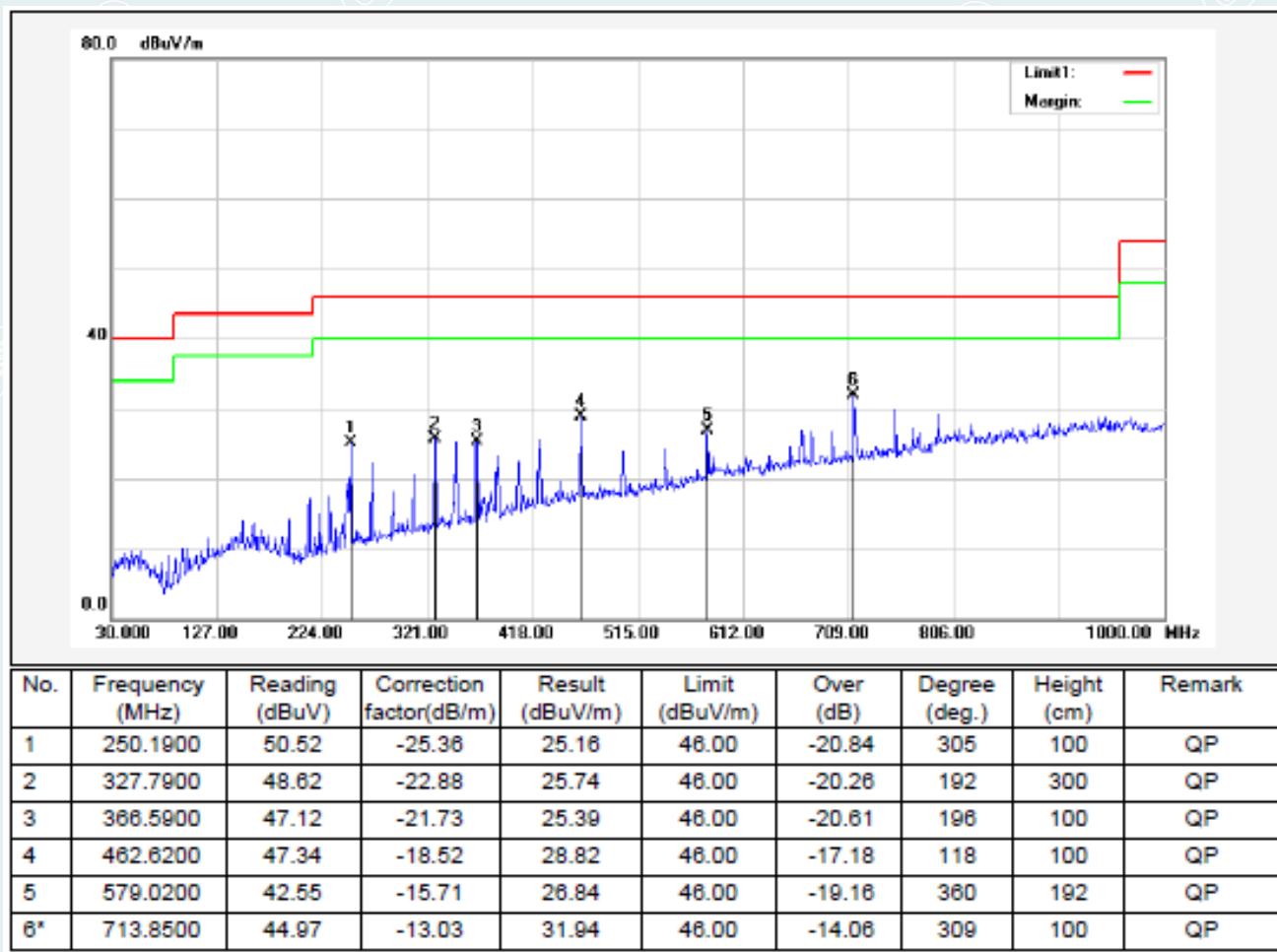
Polarity:

Date: 2022-04-04

Zeng Xianglong

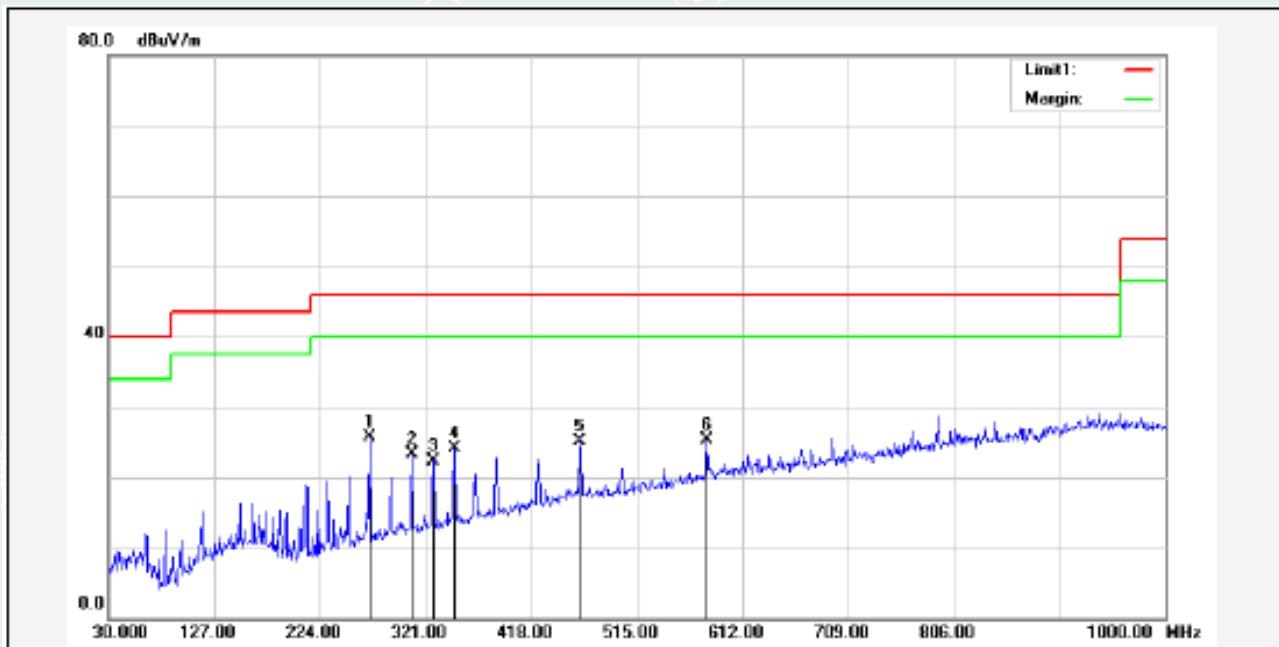
DC 12V

Horizontal



Mode: DH5
Low Frequency (2402MHz)
Test Engineer:
Test Voltage:
Polarity:

Date: 2022-04-04
Zeng Xianglong
DC 12V
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1*	269.5900	50.32	-24.65	25.67	46.00	-20.33	359	105	QP
2	308.3900	46.75	-23.36	23.39	46.00	-22.61	2	100	QP
3	327.7900	45.28	-22.88	22.40	46.00	-23.60	3	100	QP
4	347.1900	46.44	-22.41	24.03	46.00	-21.97	128	100	QP
5	462.6200	43.69	-18.52	25.17	46.00	-20.83	359	124	QP
6	579.0200	40.93	-15.71	25.22	46.00	-20.78	171	100	QP

Mode: DH5

Low Frequency (2441MHz)

Test Engineer:

Test Voltage:

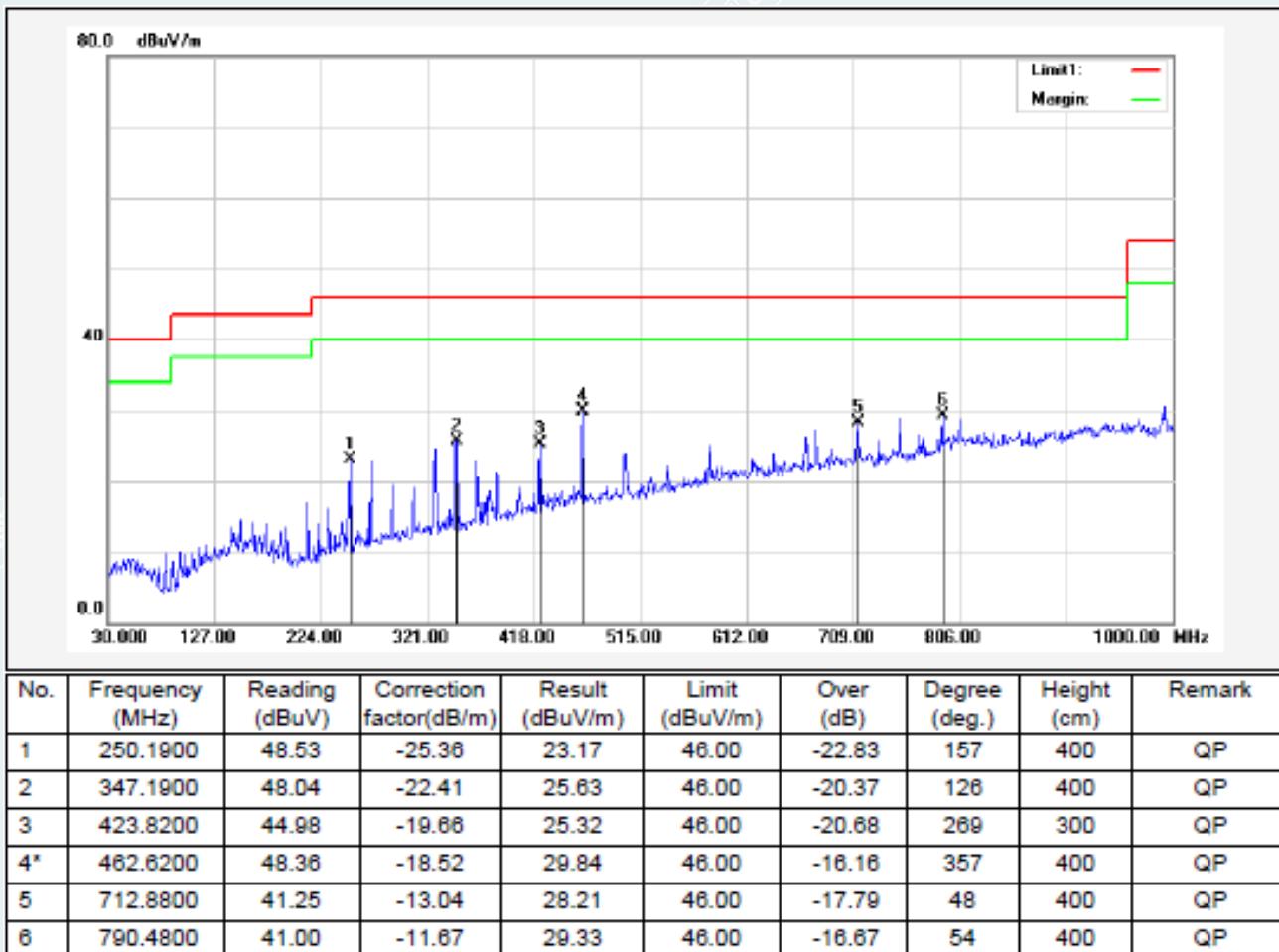
Polarity:

Date: 2022-04-04

Zeng Xianglong

DC 12V

Horizontal



Mode: DH5

Low Frequency (2441MHz)

Test Engineer:

Test Voltage:

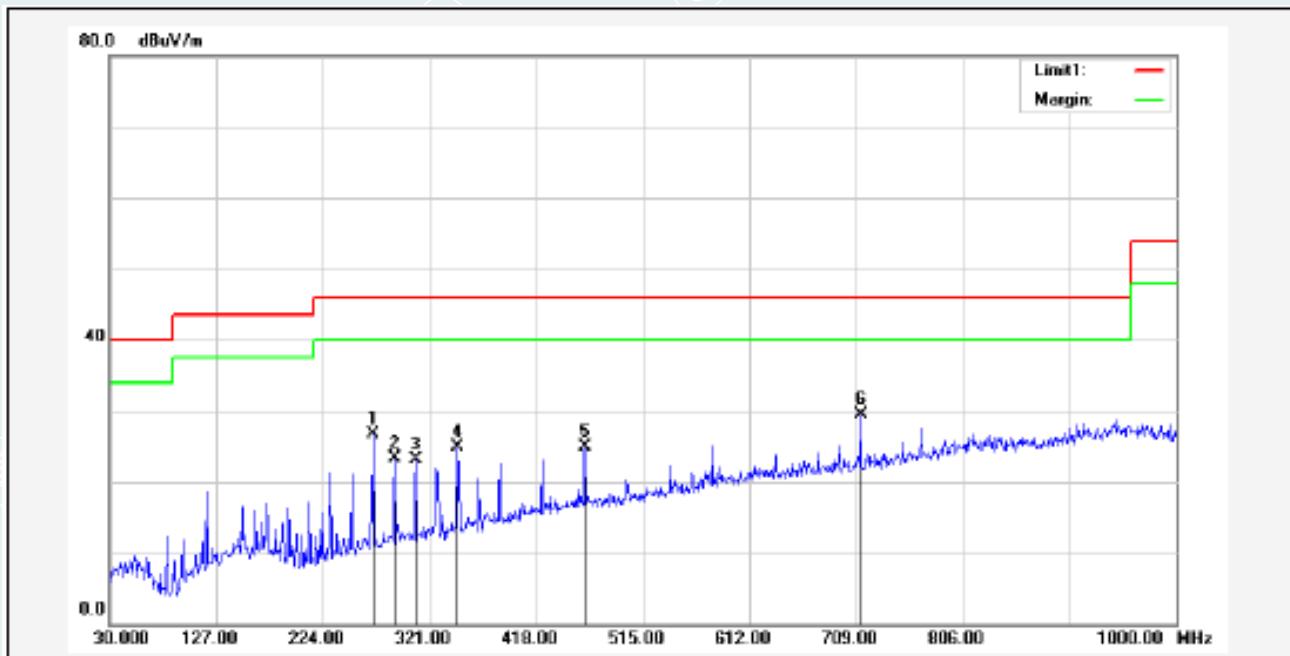
Polarity:

Date: 2022-04-04

Zeng Xianglong

DC 12V

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	269.5900	51.39	-24.65	26.74	46.00	-19.26	357	100	QP
2	288.9900	47.36	-23.96	23.40	46.00	-22.60	85	100	QP
3	308.3900	46.37	-23.36	23.01	46.00	-22.99	167	100	QP
4	346.2200	47.33	-22.44	24.89	46.00	-21.11	150	100	QP
5	462.6200	43.46	-18.52	24.94	46.00	-21.06	359	112	QP
6*	712.8800	42.61	-13.04	29.57	46.00	-16.43	206	100	QP

Mode: DH5

Low Frequency (2480MHz)

Test Engineer:

Test Voltage:

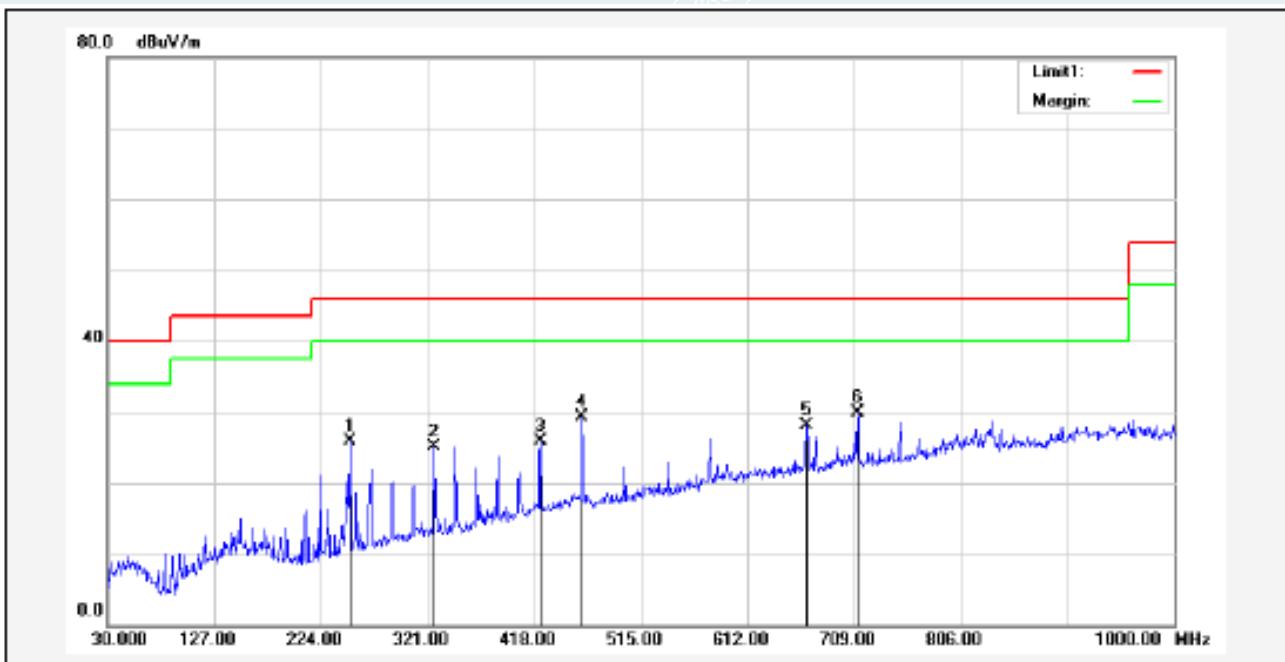
Polarity:

Date: 2022-04-04

Zeng Xianglong

DC 12V

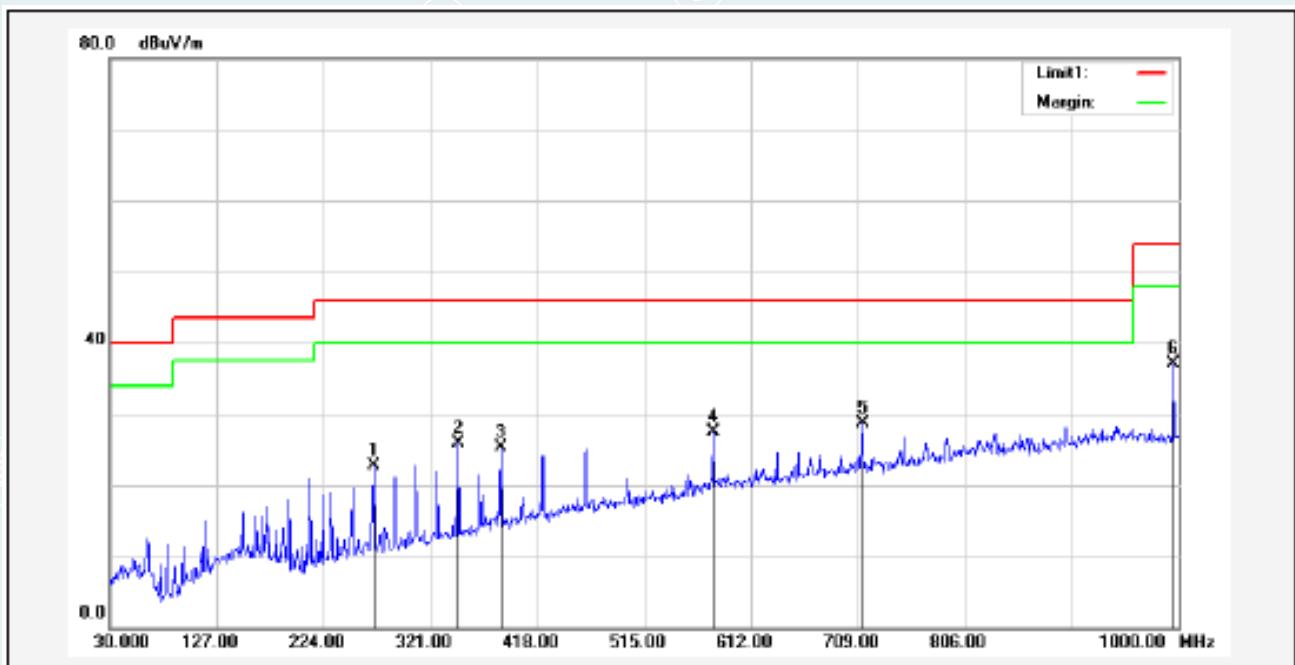
Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	250.1900	51.22	-25.36	25.86	46.00	-20.14	301	100	QP
2	326.8200	48.08	-22.91	25.17	46.00	-20.83	227	199	QP
3	423.8200	45.47	-19.66	25.81	46.00	-20.19	305	100	QP
4	461.6500	47.76	-18.55	29.21	46.00	-16.79	214	199	QP
5	665.3500	42.08	-13.99	28.09	46.00	-17.91	360	148	QP
6*	711.9100	42.95	-13.07	29.88	46.00	-16.12	275	100	QP

Mode: DH5
 Low Frequency (2480MHz)
 Test Engineer:
 Test Voltage:
 Polarity:

Date: 2022-04-04
 Zeng Xianglong
 DC 12V
 Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over (dB)	Degree (deg.)	Height (cm)	Remark
1	269.5900	47.43	-24.65	22.78	46.00	-23.22	357	200	QP
2	346.2200	48.44	-22.44	26.00	46.00	-20.00	131	100	QP
3	385.0200	46.40	-21.06	25.34	46.00	-20.66	356	100	QP
4	577.0800	43.37	-15.77	27.60	46.00	-18.40	257	100	QP
5	712.8800	41.71	-13.04	28.67	46.00	-17.33	148	100	QP
6*	995.1500	45.95	-8.87	37.08	54.00	-16.92	240	100	QP

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 (DH5)
- 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:

Mode: DH5

Lowest Frequency (2402MHz)

Test Engineer:

Test Voltage:

Date: 2022-04-06

Lu Qiang

DC 12V

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1245.2807	65.47	43.34	-22.13	74.00	30.66	100	33	Horizontal
2	1596.3245	65.28	42.95	-22.33	74.00	31.05	100	144	Horizontal
3	1999.6250	65.63	44.65	-20.98	74.00	29.35	100	288	Horizontal
4	2306.9134	65.99	46.70	-19.29	74.00	27.30	100	36	Horizontal
5	3195.0244	62.21	45.47	-16.74	74.00	28.53	100	338	Horizontal
6	5182.7728	50.79	40.89	-9.90	74.00	33.11	200	156	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1118.0148	69.33	46.95	-22.38	74.00	27.05	100	1	Vertical
2	1351.2939	67.80	46.23	-21.57	74.00	27.77	100	6	Vertical
3	2060.8826	66.37	46.34	-20.03	74.00	27.66	100	278	Vertical
4	3200.6501	65.83	48.34	-17.49	74.00	25.66	100	296	Vertical
5	4282.6603	63.82	49.69	-14.13	74.00	24.31	200	15	Vertical
6	6375.4219	61.03	51.02	-10.01	74.00	22.98	100	53	Vertical

Mode: DH5
 Middle Frequency (2441MHz)
 Test Engineer:
 Test Voltage:

Date: 2022-04-06
 Lu Qiang
 DC 12V

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1263.2829	63.13	41.09	-22.04	74.00	32.91	100	24	Horizontal
2	1991.1239	64.97	44.06	-20.91	74.00	29.94	100	352	Horizontal
3	2530.1913	64.32	47.98	-16.34	74.00	26.02	100	293	Horizontal
4	3196.8996	61.56	44.80	-16.76	74.00	29.20	100	204	Horizontal
5	3744.4681	58.17	42.41	-15.76	74.00	31.59	100	143	Horizontal
6	9893.3617	46.28	47.67	1.39	74.00	26.33	200	138	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1111.5139	68.49	46.35	-22.14	74.00	27.65	100	42	Vertical
2	1992.8741	70.13	49.69	-20.44	74.00	24.31	100	275	Vertical
3	2790.2238	66.36	48.41	-17.95	74.00	25.59	100	335	Vertical
4	3198.7748	67.68	50.19	-17.49	74.00	23.81	100	276	Vertical
5	3990.1238	64.27	48.66	-15.61	74.00	25.34	100	272	Vertical
6	6384.7981	57.67	47.82	-9.85	74.00	26.18	100	60	Vertical

Mode: DH5
 Highest Frequency (2480MHz)
 Test Engineer:
 Test Voltage:

Date: 2022-04-06
 Lu Qiang
 DC 12V

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1226.5283	64.27	41.55	-22.72	74.00	32.45	200	1	Horizontal
2	1666.8334	62.57	39.64	-22.93	74.00	34.36	100	241	Horizontal
3	1993.1241	64.21	43.28	-20.93	74.00	30.72	100	309	Horizontal
4	3198.7748	62.54	45.76	-16.78	74.00	28.24	100	80	Horizontal
5	4248.9061	56.24	41.86	-14.38	74.00	32.14	100	276	Horizontal
6	7140.5176	50.17	44.54	-5.63	74.00	29.46	100	273	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1114.0143	69.82	47.59	-22.23	74.00	26.41	100	1	Vertical
2	1998.1248	68.03	47.71	-20.32	74.00	26.29	100	325	Vertical
3	2311.6640	67.27	48.58	-18.69	74.00	25.42	200	96	Vertical
4	3193.1491	63.53	46.11	-17.42	74.00	27.89	100	258	Vertical
5	3982.6228	59.77	44.15	-15.62	74.00	29.85	100	333	Vertical
6	6401.6752	56.26	46.70	-9.56	74.00	27.30	100	66	Vertical

Mode: 3DH5
 Lowest Frequency (2402MHz)
 Test Engineer:
 Test Voltage:

Date: 2022-04-07
 Lu Qiang
 DC 12V

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1245.5307	64.88	42.76	-22.12	74.00	31.24	200	272	Horizontal
2	1598.5748	63.19	40.85	-22.34	74.00	33.15	100	145	Horizontal
3	1995.8745	64.61	43.66	-20.95	74.00	30.34	100	318	Horizontal
4	2312.1640	67.08	47.76	-19.32	74.00	26.24	200	179	Horizontal
5	2665.4582	64.10	45.24	-18.86	74.00	28.76	200	25	Horizontal
6	3196.8996	63.63	46.87	-16.76	74.00	27.13	100	122	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1998.6248	68.23	47.92	-20.31	74.00	26.08	100	290	Vertical
2	2310.9139	68.46	49.76	-18.70	74.00	24.24	100	106	Vertical
3	2642.2053	66.00	47.89	-18.11	74.00	26.11	100	286	Vertical
4	3196.8996	63.36	45.89	-17.47	74.00	28.11	100	39	Vertical
5	3988.2485	62.04	46.43	-15.61	74.00	27.57	100	120	Vertical
6	6399.8000	55.58	46.00	-9.58	74.00	28.00	100	62	Vertical

Mode: 3DH5
 Middle Frequency (2441MHz)
 Test Engineer:
 Test Voltage:

Date: 2022-04-07
 Lu Qiang
 DC 12V

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1241.5302	63.11	40.86	-22.25	74.00	33.14	100	282	Horizontal
2	1990.8739	65.94	45.03	-20.91	74.00	28.97	100	357	Horizontal
3	2310.1638	65.18	45.87	-19.31	74.00	28.13	100	270	Horizontal
4	3187.5234	65.08	48.44	-16.64	74.00	25.56	100	258	Horizontal
5	3995.7495	56.63	40.73	-15.90	74.00	33.27	100	321	Horizontal
6	6748.5936	50.55	42.17	-8.38	74.00	31.83	200	250	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1115.0144	68.13	45.86	-22.27	74.00	28.14	100	42	Vertical
2	1353.5442	65.67	44.11	-21.56	74.00	29.89	200	18	Vertical
3	1781.5977	65.00	42.91	-22.09	74.00	31.09	200	4	Vertical
4	2559.1949	65.53	46.74	-18.79	74.00	27.26	100	276	Vertical
5	3071.2589	60.33	43.85	-16.48	74.00	30.15	200	45	Vertical
6	7200.5251	47.76	44.42	-3.34	74.00	29.58	200	149	Vertical

Mode: 3DH5
 Highest Frequency (2480MHz)
 Test Engineer:
 Test Voltage:

Date: 2022-04-07
 Lu Qiang
 DC 12V

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1244.2805	65.31	43.15	-22.16	74.00	30.85	100	251	Horizontal
2	1593.8242	63.93	41.60	-22.33	74.00	32.40	100	144	Horizontal
3	1992.8741	64.22	43.29	-20.93	74.00	30.71	100	350	Horizontal
4	2303.6630	64.52	45.24	-19.28	74.00	28.76	100	314	Horizontal
5	3191.2739	62.88	46.19	-16.69	74.00	27.81	100	256	Horizontal
6	7200.5251	48.30	44.06	-4.24	74.00	29.94	100	28	Horizontal

Suspected Data List									
NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1114.2643	68.95	46.71	-22.24	74.00	27.29	100	1	Vertical
2	1785.3482	67.46	45.30	-22.16	74.00	28.70	100	274	Vertical
3	2048.6311	66.27	46.40	-19.87	74.00	27.60	100	272	Vertical
4	2799.4749	64.42	46.44	-17.98	74.00	27.56	100	27	Vertical
5	3984.4981	62.33	46.72	-15.61	74.00	27.28	100	71	Vertical
6	6367.9210	57.02	46.88	-10.14	74.00	27.12	100	53	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 Spectrum setting:
 - a. Peak Setting 1GHz – 26.5GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = auto.
 - b. AV Setting 1GH z- 26.5GHz, RBW = 1MHz, VBW = 10Hz (if the EUT duty cycle is <98% , set VBW \geq 1/T), Sweep time = auto.
- 5 As the Transmit Power of GFSK and 8DPSK is larger than $\pi/4$ -DQPSK, Therefore, radiated spurious emissions recorded the worst case results in this report.

Test result: The unit does meet the requirements.

18GHz-26.5GHz

Mode: DH5

Lowest Frequency (2402MHz)

Test Engineer:

Test Voltage:

Date: 2022-04-12

Lu Qiang

DC 12V

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18465.3750	57.18	44.84	-12.34	83.54	38.70	150	148	Horizontal
2	18953.2750	57.38	45.35	-12.03	83.54	38.19	150	122	Horizontal
3	20301.8000	55.61	44.86	-10.75	83.54	38.68	150	135	Horizontal
4	21716.2000	55.09	45.33	-9.76	83.54	38.21	150	168	Horizontal
5	22686.4750	54.64	45.54	-9.10	83.54	38.00	150	27	Horizontal
6	23850.5500	54.57	45.86	-8.71	83.54	37.68	150	206	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18353.1750	57.82	45.35	-12.47	83.54	38.19	150	236	Vertical
2	20021.7250	55.97	44.83	-11.14	83.54	38.71	150	282	Vertical
3	21267.8250	55.79	45.70	-10.09	83.54	37.84	150	269	Vertical
4	21810.1250	55.56	45.77	-9.79	83.54	37.77	150	211	Vertical
5	23805.0750	55.36	46.68	-8.68	83.54	36.86	150	353	Vertical
6	24749.0000	55.12	47.40	-7.72	83.54	36.14	150	211	Vertical

Mode: DH5
 Middle Frequency (2441MHz)
 Test Engineer:
 Test Voltage:

Date: 2022-04-12
 Lu Qiang
 DC 12V

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18544.8500	57.47	45.18	-12.29	83.54	38.36	150	263	Horizontal
2	19294.5500	56.72	45.05	-11.67	83.54	38.49	150	159	Horizontal
3	20479.4500	55.71	45.20	-10.51	83.54	38.34	150	56	Horizontal
4	21077.8500	55.63	45.41	-10.22	83.54	38.13	150	133	Horizontal
5	22329.9000	54.67	45.04	-9.63	83.54	38.50	150	218	Horizontal
6	23897.7250	54.33	45.67	-8.66	83.54	37.87	150	302	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18451.3500	57.05	44.68	-12.37	83.54	38.86	150	278	Vertical
2	19544.0250	56.44	44.97	-11.47	83.54	38.57	150	271	Vertical
3	21164.1250	54.75	44.58	-10.17	83.54	38.96	150	264	Vertical
4	22097.0000	54.94	45.17	-9.77	83.54	38.37	150	336	Vertical
5	23822.5000	54.47	45.80	-8.67	83.54	37.74	150	78	Vertical
6	24602.8000	54.56	46.62	-7.94	83.54	36.92	150	360	Vertical

Mode: DH5
 Highest Frequency (2480MHz)
 Test Engineer:
 Test Voltage:

Date: 2022-04-12
 Lu Qiang
 DC 12V

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18532.9500	57.18	44.88	-12.30	83.54	38.66	150	220	Horizontal
2	19963.9250	56.09	44.91	-11.18	83.54	38.63	150	97	Horizontal
3	21039.6000	55.12	44.91	-10.21	83.54	38.63	150	155	Horizontal
4	22411.5000	54.63	45.08	-9.55	83.54	38.46	150	303	Horizontal
5	23871.3750	54.10	45.41	-8.69	83.54	38.13	150	360	Horizontal
6	24278.9500	54.42	46.17	-8.25	83.54	37.37	150	65	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dB μ V/m]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18897.6000	57.03	44.97	-12.06	83.54	38.57	150	88	Vertical
2	20063.3750	56.01	44.91	-11.10	83.54	38.63	150	0	Vertical
3	21218.5250	55.15	45.01	-10.14	83.54	38.53	150	250	Vertical
4	22886.2250	53.75	44.86	-8.89	83.54	38.68	150	288	Vertical
5	23863.3000	54.70	46.05	-8.65	83.54	37.49	150	192	Vertical
6	24812.7500	54.01	46.32	-7.69	83.54	37.22	150	0	Vertical

Remark: Pre-scan all mode and recorded the worst case results in this report (DH5).

13. RESTRICTED BANDS OF OPERATION

13.1 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)).

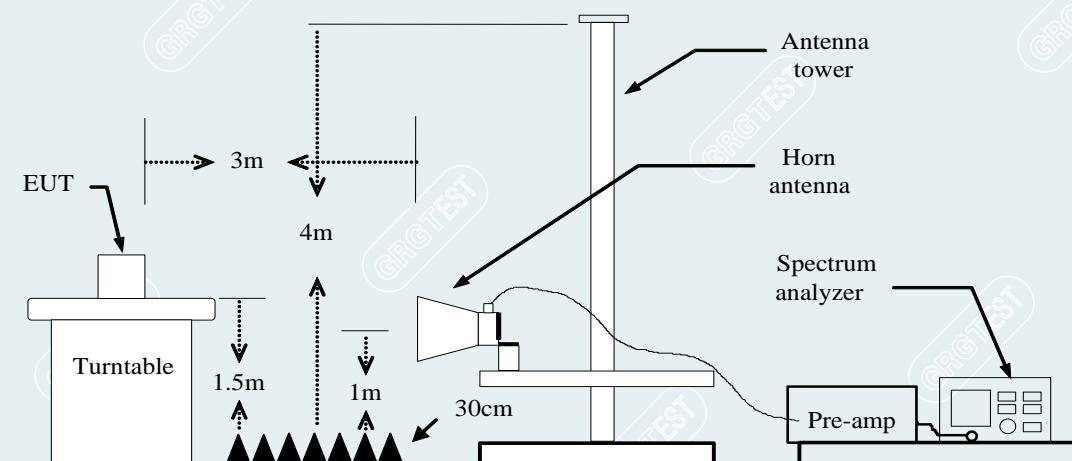
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 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(μ V/m)	Measurement distance(m)	Quasi-peak(dB μ 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

13.2 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: RBW=1MHz / VBW=1/T / Sweep=AUTO.
 If the EUT is configured to transmit with duty cycle $\geq 98\%$, set $\text{VBW} \leq \text{RBW}/100$ (i.e., 10kHz) but not less than 10 Hz. If the EUT duty cycle is $< 98\%$, set $\text{VBW} \geq 1/T$, Where T is defined in section 2.8.
- 5) Repeat the procedures until all the PEAK and AVERAGE versus polarization are measured.

13.3 TEST SETUP



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

13.4 TEST RESULTS

Equipment:	DiLink	Test Date	2022-04-06
Model No.:	DiLink 3.0F	Test Engineer:	Lu Qiang
Test Voltage:	DC 12V	/	/

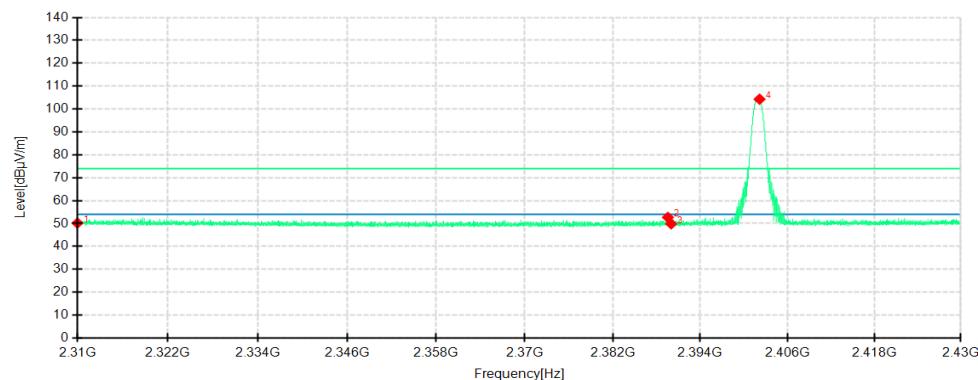
DHS

Lowest Channel

Frequency 2402MHz

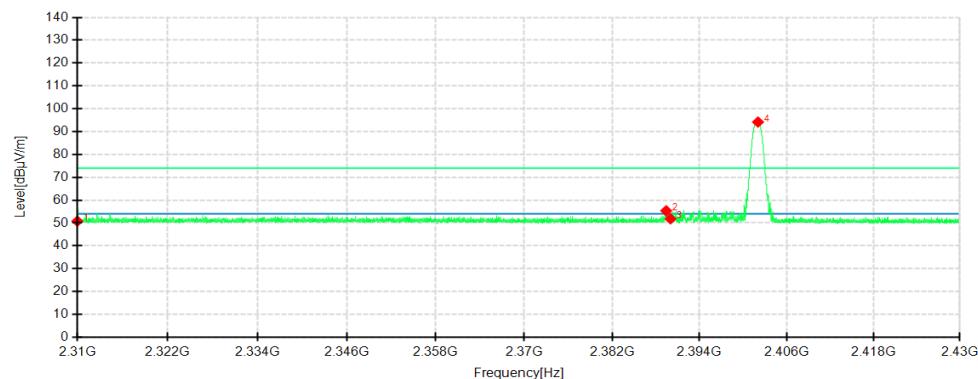
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



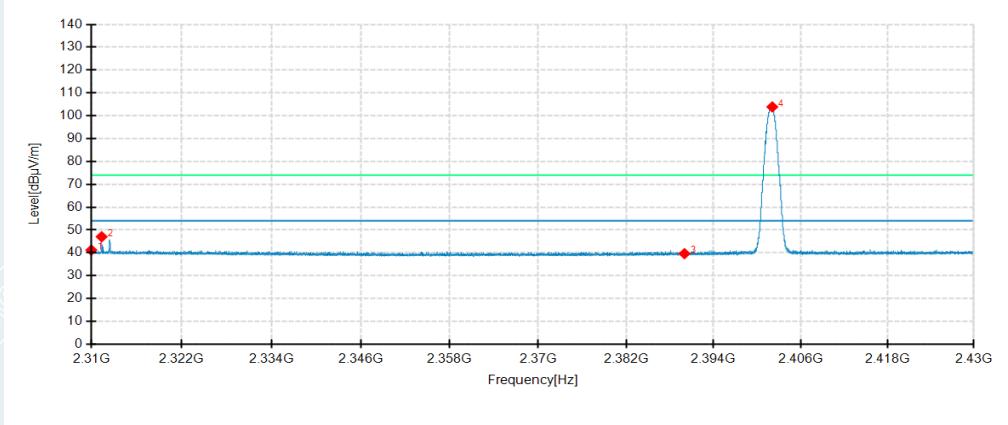
No.	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	46.25	50.18	3.93	74.00	23.82	200	255	Horizontal	/
2	2389.5480	49.58	52.71	3.13	74.00	21.29	100	280	Horizontal	/
3	2390.0000	46.72	49.85	3.13	74.00	24.15	200	265	Horizontal	/
4	2402.1480	101.09	104.29	3.20	74.00	-30.29	100	96	Horizontal	No limit
1	2310.0000	46.27	50.78	4.51	74.00	23.22	200	166	Vertical	/
2	2389.4160	51.07	55.35	4.28	74.00	18.65	100	265	Vertical	/
3	2390.0000	47.55	51.82	4.27	74.00	22.18	100	233	Vertical	/
4	2402.0400	90.03	94.19	4.16	74.00	-20.19	100	56	Vertical	No limit

Lowest Channel

Frequency 2402MHz

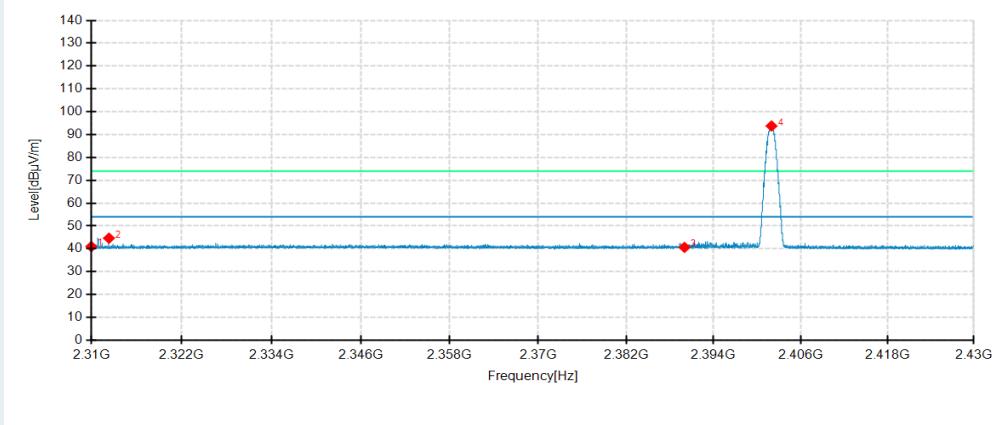
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



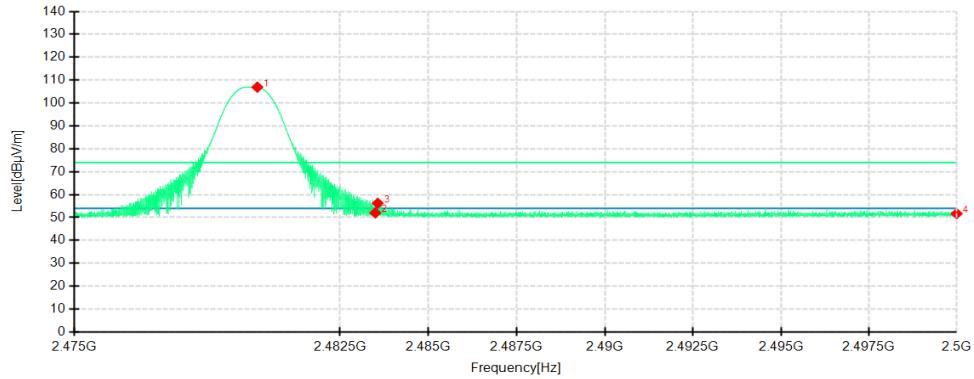
No.	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	37.24	41.17	3.93	54.00	12.83	100	319	Horizontal	/
2	2311.3680	43.14	47.04	3.90	54.00	6.96	100	312	Horizontal	/
3	2390.0000	36.51	39.64	3.13	54.00	14.36	100	321	Horizontal	/
4	2402.0760	100.68	103.88	3.20	54.00	-49.88	100	96	Horizontal	No limit
1	2310.0000	36.47	40.98	4.51	54.00	13.02	100	141	Vertical	/
2	2312.3400	40.13	44.65	4.52	54.00	9.35	100	264	Vertical	/
3	2390.0000	36.35	40.62	4.27	54.00	13.38	200	344	Vertical	/
4	2401.9680	89.60	93.76	4.16	54.00	-39.76	100	58	Vertical	No limit

Highest Channel

Frequency 2480MHz

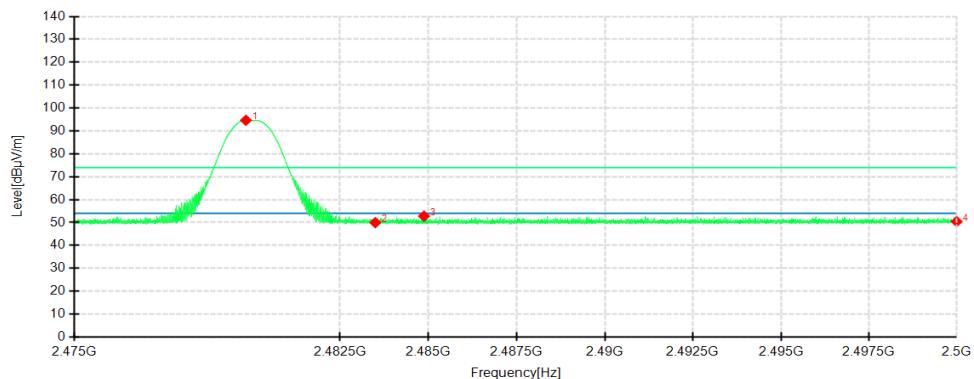
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

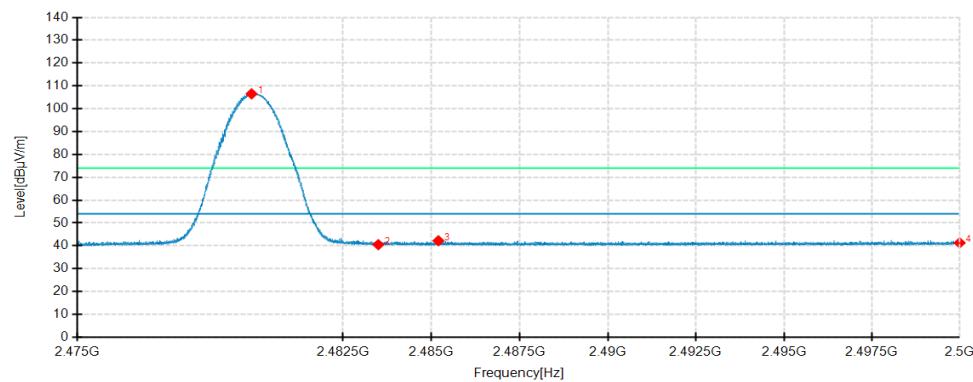
Polarity: Vertical



No.	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2480.1650	102.67	106.93	4.26	74.00	-32.93	100	96	Horizontal	No limit
2	2483.5000	47.68	52.01	4.33	74.00	21.99	100	96	Horizontal	/
3	2483.5675	51.88	56.21	4.33	74.00	17.79	100	96	Horizontal	/
4	2500.0000	47.04	51.69	4.65	74.00	22.31	100	96	Horizontal	/
1	2479.8425	90.96	94.64	3.68	74.00	-20.64	200	94	Vertical	No limit
2	2483.5000	46.25	49.94	3.69	74.00	24.06	200	194	Vertical	/
3	2484.8775	49.09	52.79	3.70	74.00	21.21	100	206	Vertical	/
4	2500.0000	46.66	50.41	3.75	74.00	23.59	200	208	Vertical	/

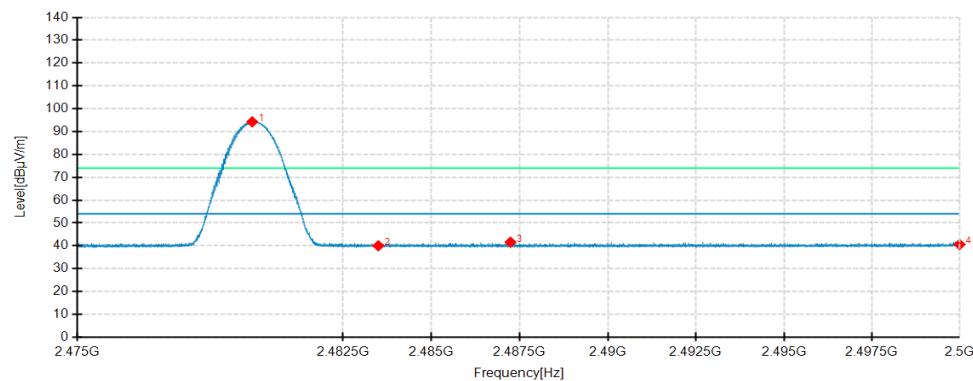
Highest ChannelFrequency 2480MHz
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



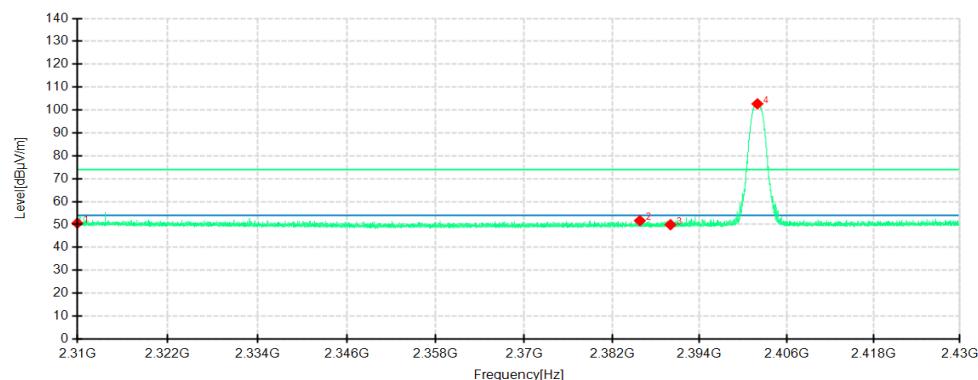
No.	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.9175	102.27	106.53	4.26	54.00	-52.53	100	96	Horizontal	No limit
2	2483.5000	36.18	40.51	4.33	54.00	13.49	100	122	Horizontal	/
3	2485.2000	37.86	42.22	4.36	54.00	11.78	200	226	Horizontal	/
4	2500.0000	36.65	41.30	4.65	54.00	12.70	200	52	Horizontal	/
1	2479.9350	90.58	94.26	3.68	54.00	-40.26	200	95	Vertical	No limit
2	2483.5000	36.31	40.00	3.69	54.00	14.00	200	111	Vertical	/
3	2487.2425	37.89	41.59	3.70	54.00	12.41	200	350	Vertical	/
4	2500.0000	36.83	40.58	3.75	54.00	13.42	200	95	Vertical	/

3DH5**Lowest Channel**

Frequency 2402MHz

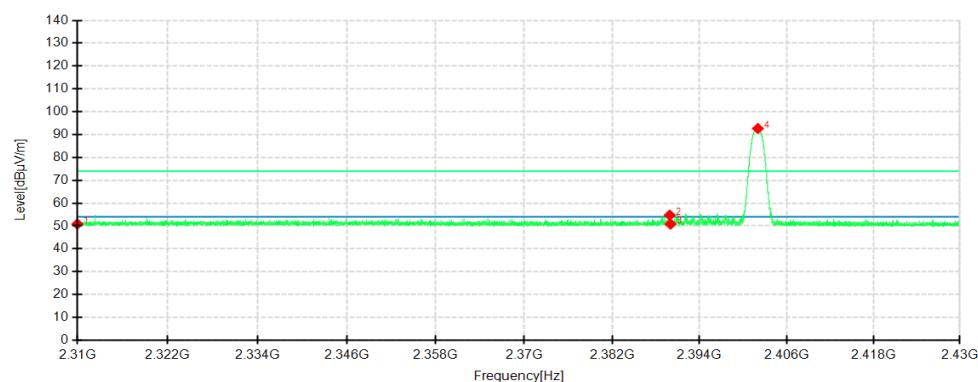
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

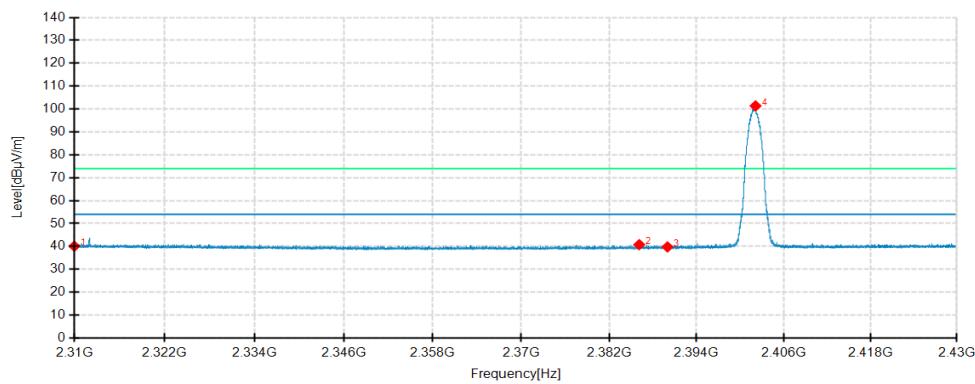
Polarity: Vertical



No.	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	46.64	50.57	3.93	74.00	23.43	100	95	Horizontal	/
2	2385.8040	48.56	51.67	3.11	74.00	22.33	100	234	Horizontal	/
3	2390.0000	46.77	49.90	3.13	74.00	24.10	100	279	Horizontal	/
4	2401.9560	99.50	102.70	3.20	74.00	-28.70	100	95	Horizontal	No limit
1	2310.0000	46.32	50.83	4.51	74.00	23.17	100	112	Vertical	/
2	2389.8960	50.47	54.74	4.27	74.00	19.26	100	264	Vertical	/
3	2390.0000	46.54	50.81	4.27	74.00	23.19	100	264	Vertical	/
4	2402.0160	88.50	92.66	4.16	74.00	-18.66	100	58	Vertical	No limit

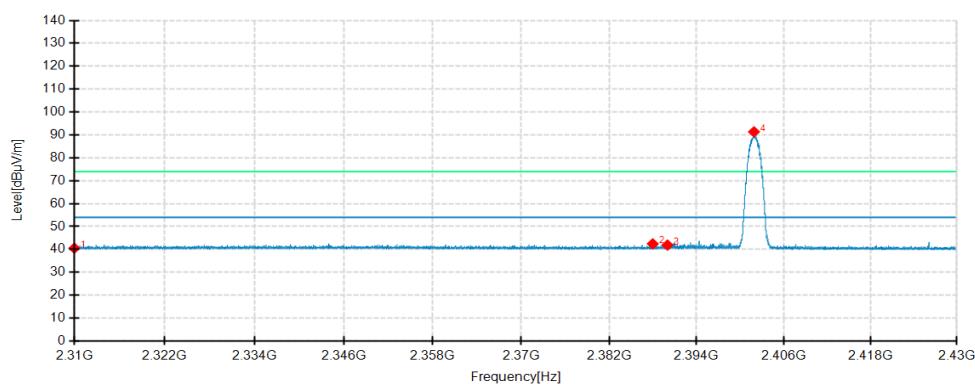
Lowest ChannelFrequency 2402MHz
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

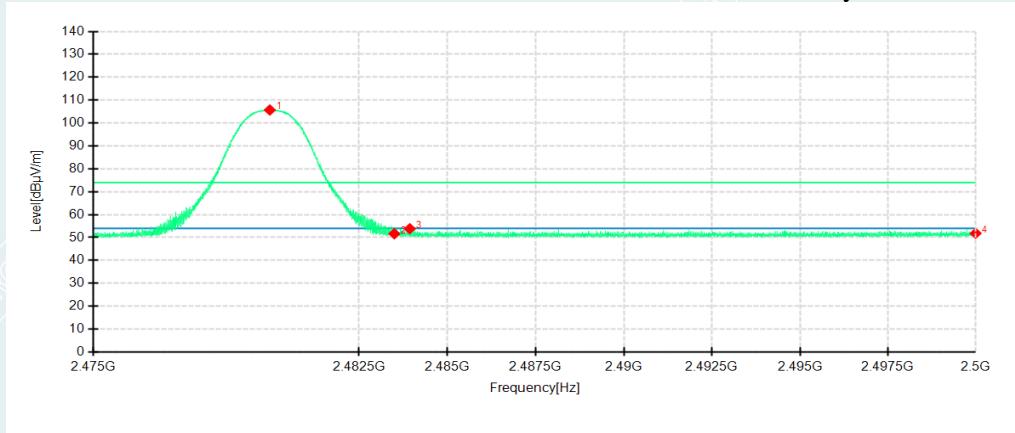
Polarity: Vertical



No.	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2310.0000	36.15	40.08	3.93	54.00	13.92	200	25	Horizontal	/
2	2386.1280	37.65	40.77	3.12	54.00	13.23	100	349	Horizontal	/
3	2390.0000	36.64	39.77	3.13	54.00	14.23	200	45	Horizontal	/
4	2402.1120	98.17	101.37	3.20	54.00	-47.37	100	95	Horizontal	No limit
1	2310.0000	36.02	40.53	4.51	54.00	13.47	200	208	Vertical	/
2	2387.9760	38.14	42.43	4.29	54.00	11.57	100	243	Vertical	/
3	2390.0000	37.63	41.90	4.27	54.00	12.10	100	265	Vertical	/
4	2401.8960	87.20	91.36	4.16	54.00	-37.36	100	59	Vertical	No limit

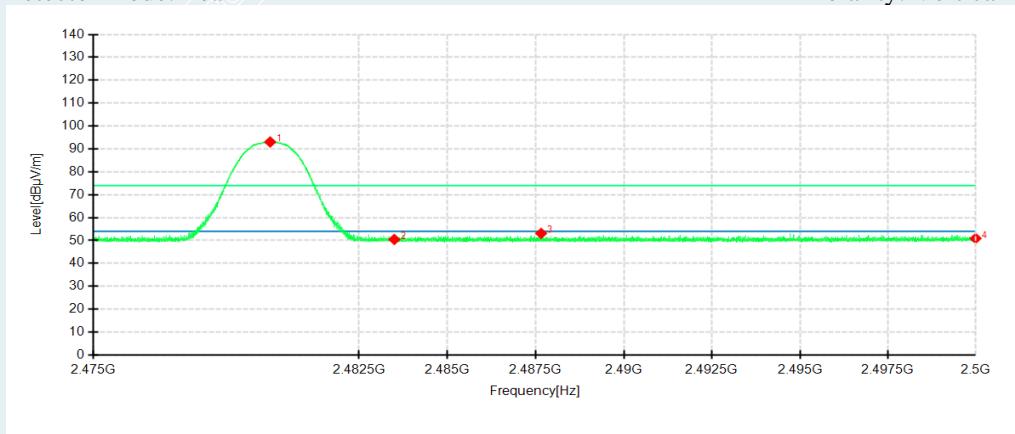
Highest ChannelFrequency 2480MHz
Detector mode: Peak

Polarity: Horizontal



Detector mode: Peak

Polarity: Vertical



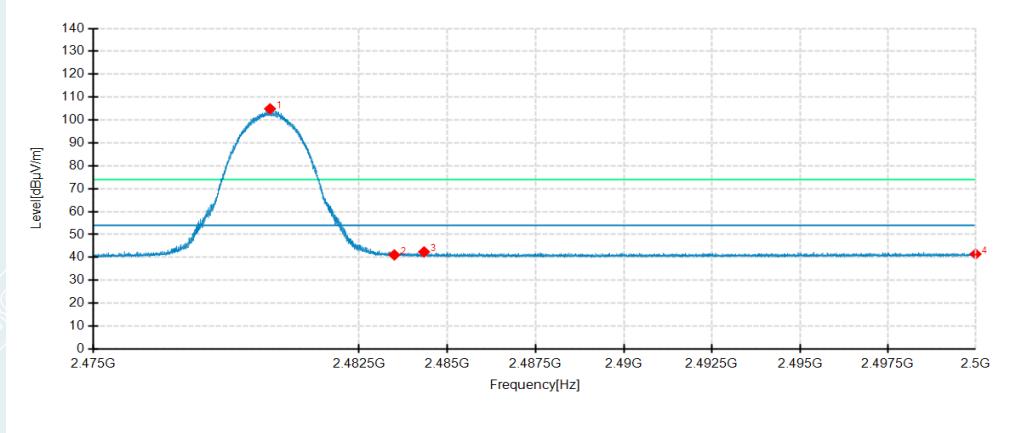
No.	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.9800	101.44	105.70	4.26	74.00	-31.70	100	95	Horizontal	No limit
2	2483.5000	47.30	51.63	4.33	74.00	22.37	100	302	Horizontal	/
3	2483.9375	49.50	53.84	4.34	74.00	20.16	100	95	Horizontal	EST
4	2500.0000	47.18	51.83	4.65	74.00	22.17	200	16	Horizontal	/
1	2479.9900	89.36	93.04	3.68	74.00	-19.04	100	51	Vertical	No limit
2	2483.5000	46.77	50.46	3.69	74.00	23.54	200	186	Vertical	/
3	2487.6575	49.40	53.11	3.71	74.00	20.89	200	124	Vertical	/
4	2500.0000	47.17	50.92	3.75	74.00	23.08	200	170	Vertical	/

Highest Channel

Frequency 2480MHz

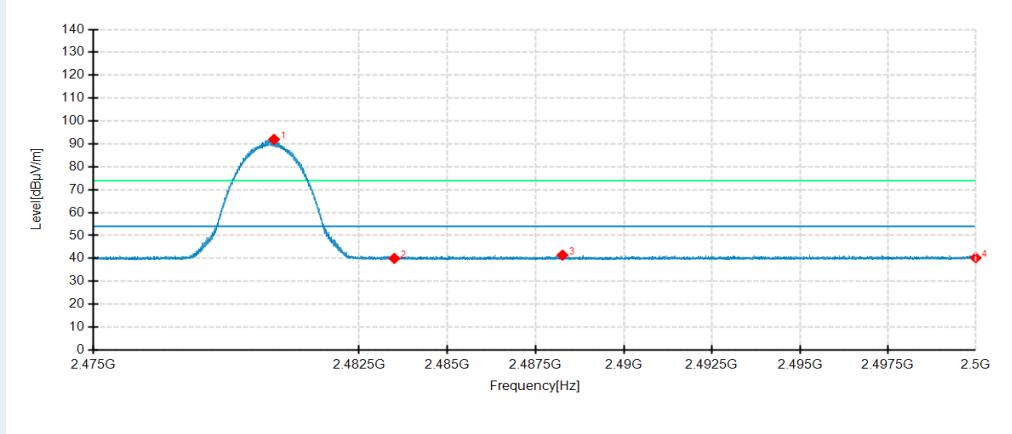
Detector mode: Average

Polarity: Horizontal



Detector mode: Average

Polarity: Vertical



No.	Frequency MHz	Reading dB μ V/m	Level dB μ V/m	Factor dB	Limit dB μ V/m	Margin dB	Height cm	Angle °	Pole	Remark
1	2479.9875	100.63	104.89	4.26	54.00	-50.89	100	95	Horizontal	No limit
2	2483.5000	36.75	41.08	4.33	54.00	12.92	200	87	Horizontal	/
3	2484.3425	38.06	42.40	4.34	54.00	11.60	100	278	Horizontal	/
4	2500.0000	36.80	41.45	4.65	54.00	12.55	100	95	Horizontal	/
1	2480.1000	88.29	91.97	3.68	54.00	-37.97	100	54	Vertical	No limit
2	2483.5000	36.29	39.98	3.69	54.00	14.02	200	131	Vertical	/
3	2488.2625	37.71	41.42	3.71	54.00	12.58	200	322	Vertical	/
4	2500.0000	36.49	40.24	3.75	54.00	13.76	200	141	Vertical	/

Remark:

- 1) Max field strength in 3m distance. No any other emission which falls in restricted bands can be detected and be reported.
- 2) As the Transmit Power of GFSK and 8DPSK is larger than $\pi/4$ -DQPSK, Therefore, restricted bands of operation recorded the worst case results in this report.

APPENDIX A. PHOTOGRAPH OF THE TEST CONNECTION DIAGRAM

Please refer to the attached document E20211217696105-10-Test photo.

APPENDIX B. PHOTOGRAPH OF THE EUT

Please refer to the attached document E20211217696105-11-EUT photo.

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