

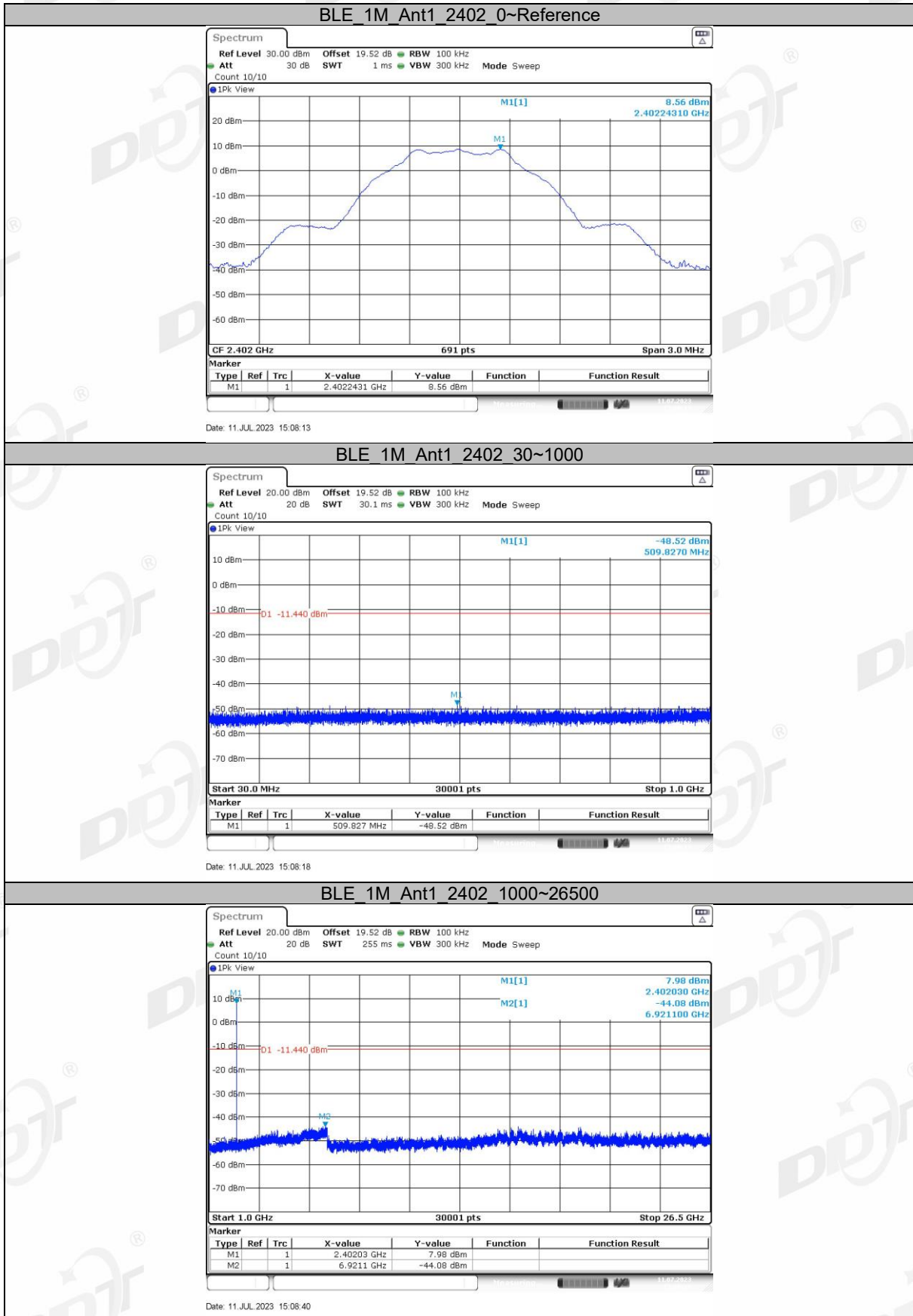
Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

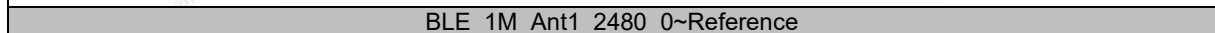
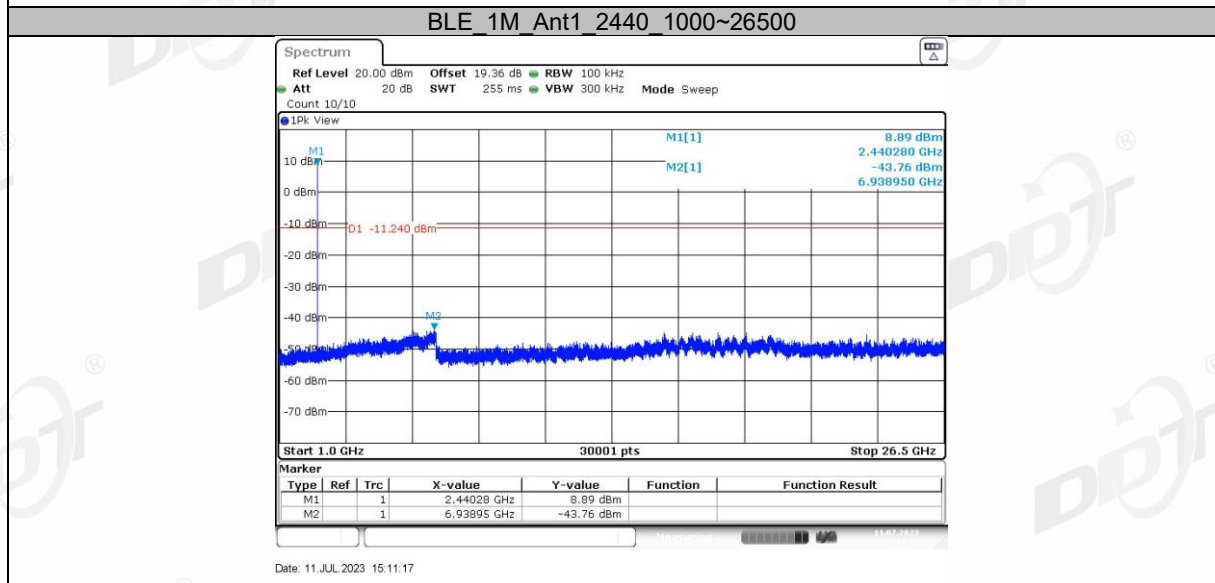
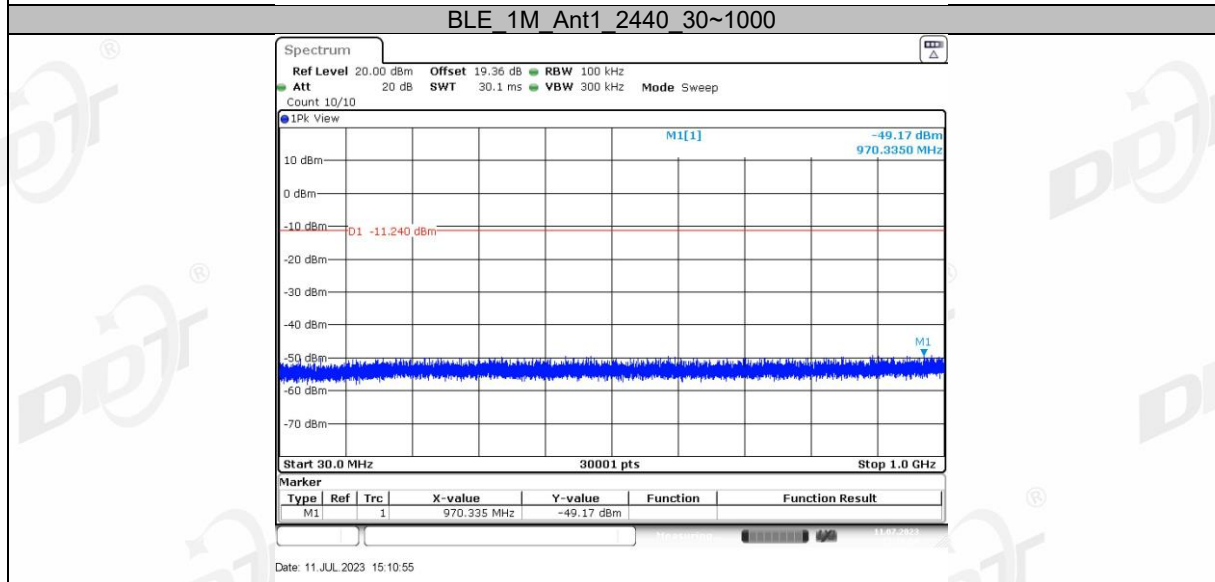
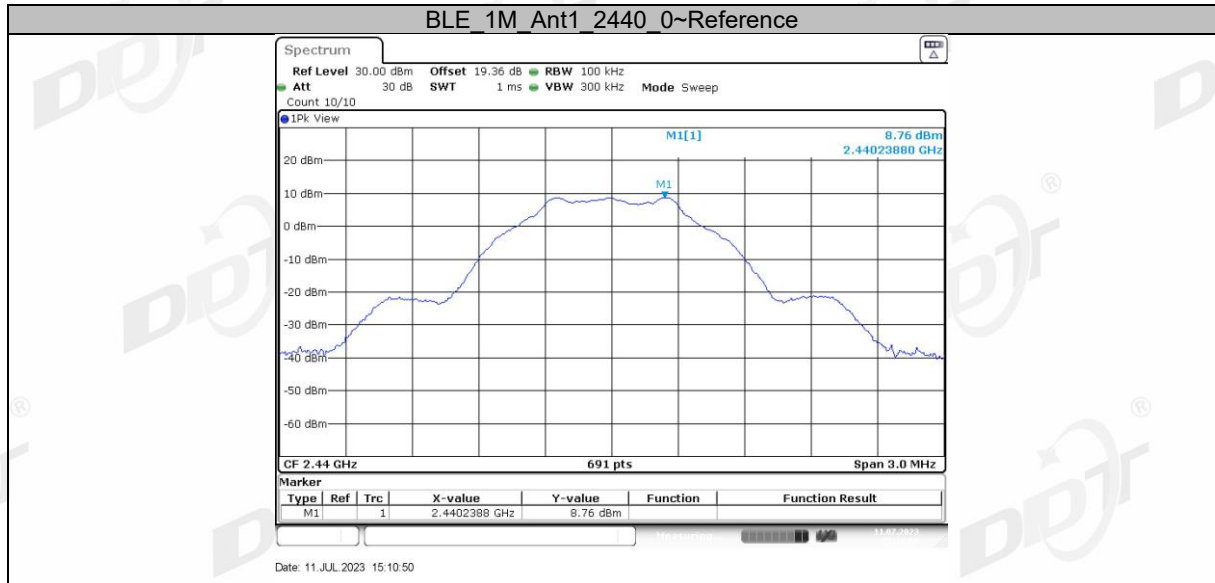
9.4. Test result

Mode	Freq. (MHz)	Verdict
GFSK 1M	2402	Pass
	2440	Pass
	2480	Pass
GFSK 2M	2402	Pass
	2440	Pass
	2480	Pass

9.5. Test graphs

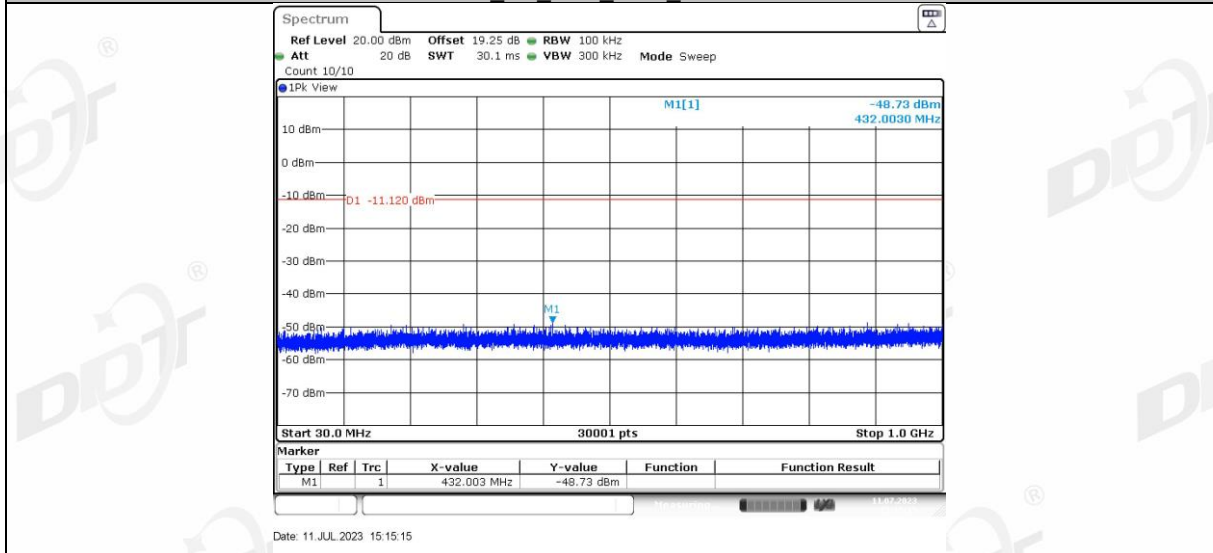
Left side:



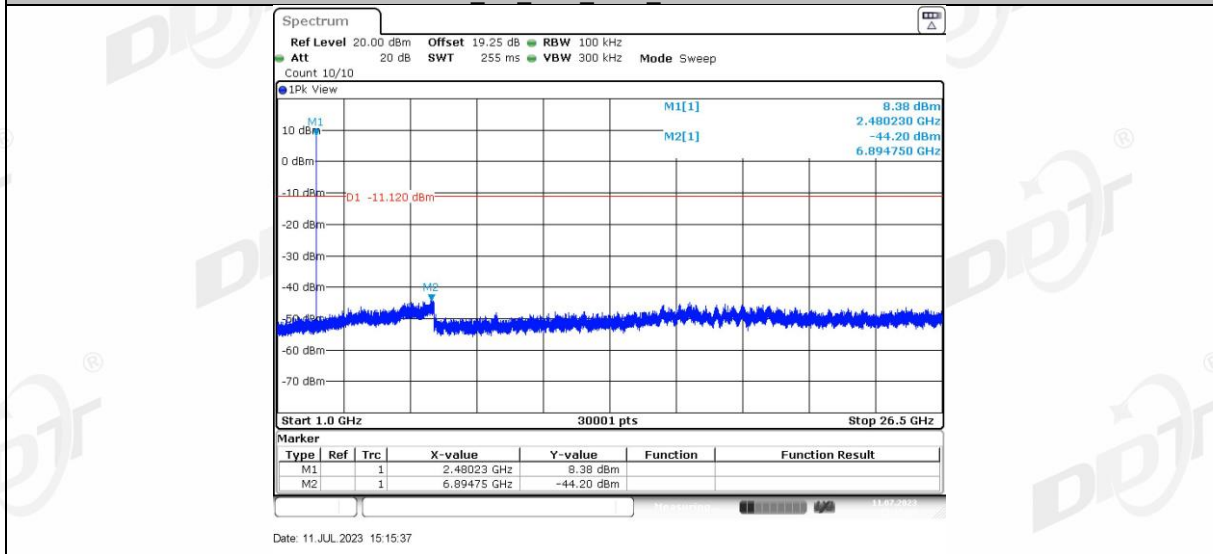




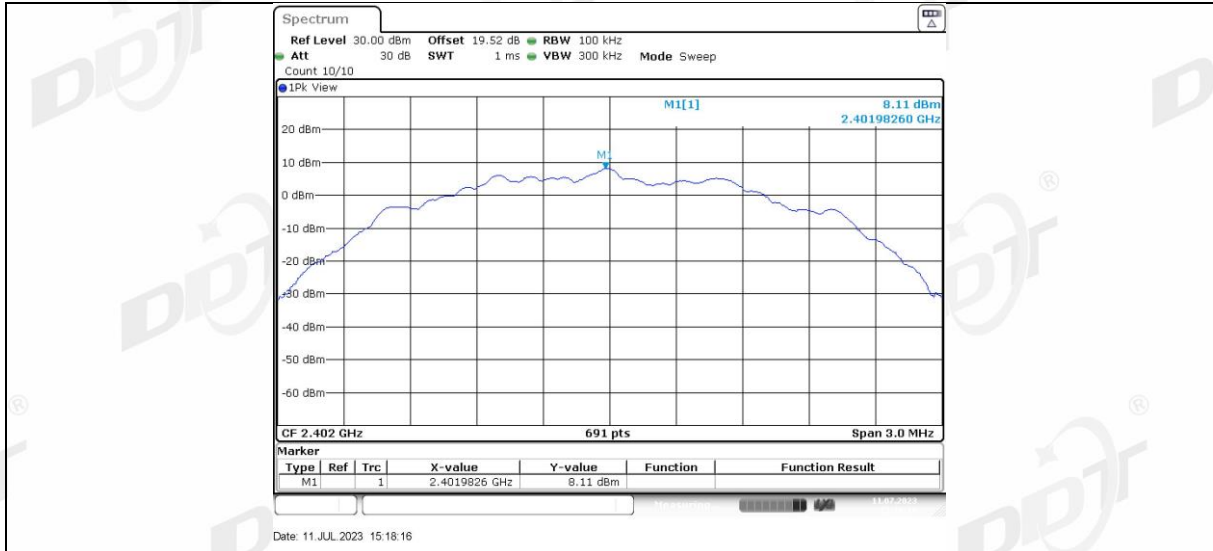
BLE 1M Ant1 2480 30~1000



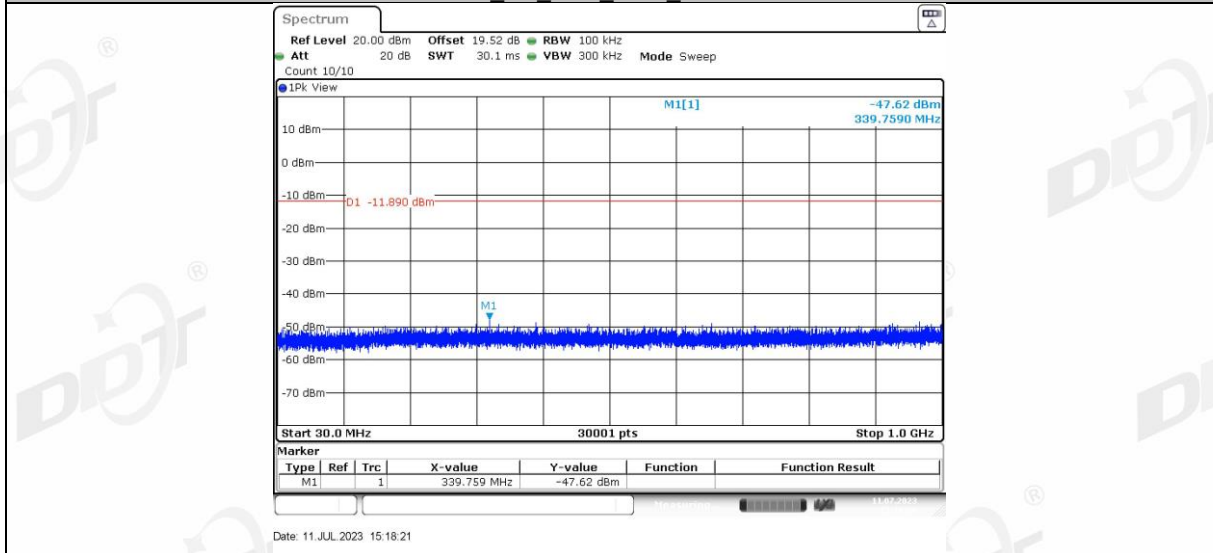
BLE 1M Ant1 2480 1000~26500



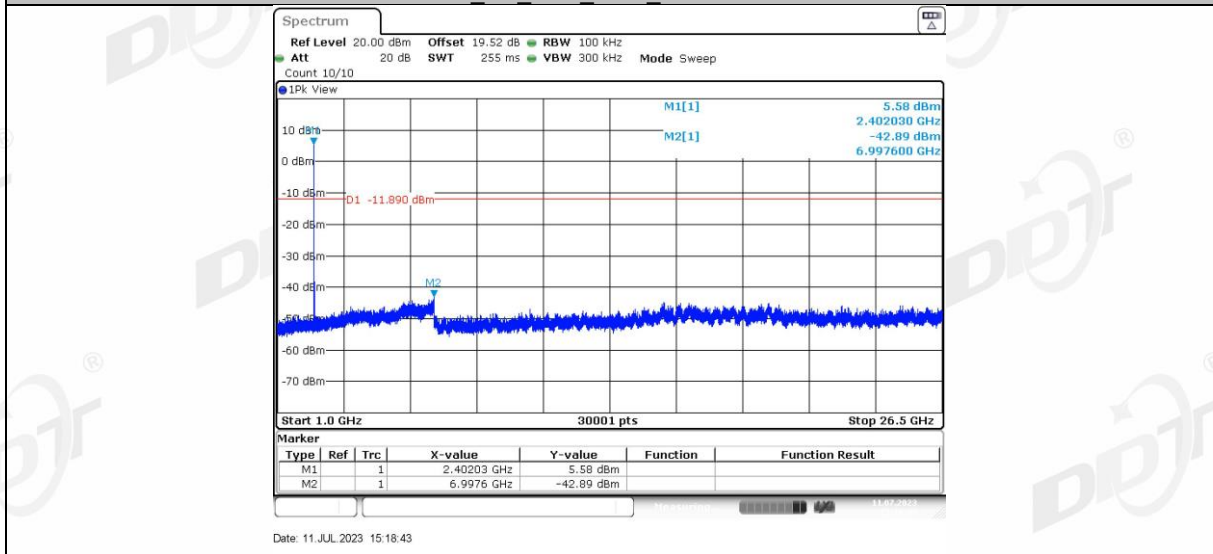
BLE 2M Ant1 2402 0~Reference



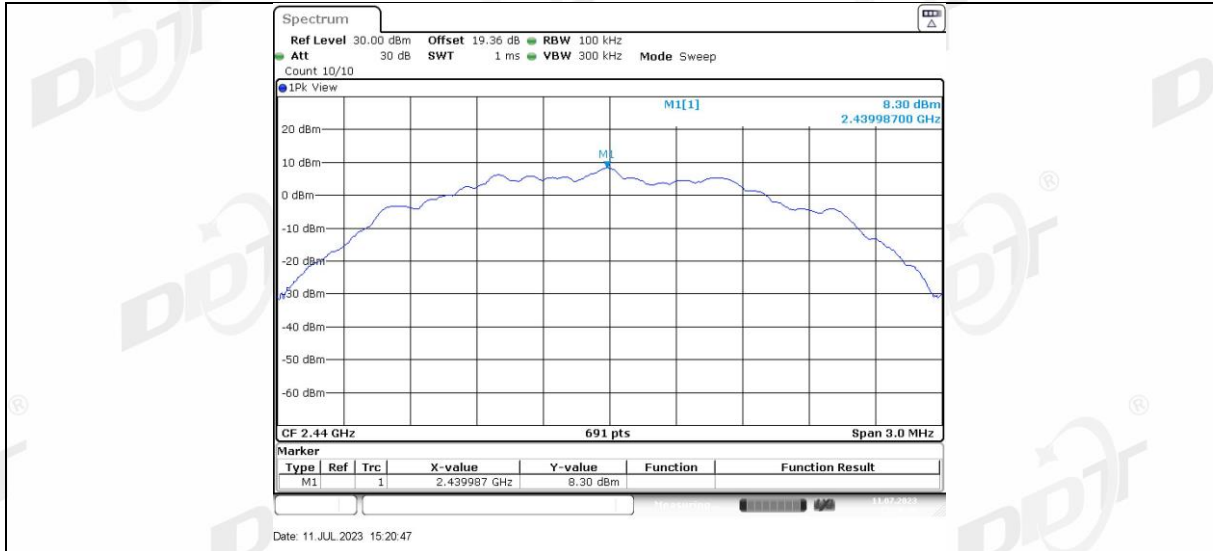
BLE 2M Ant1 2402 30~1000



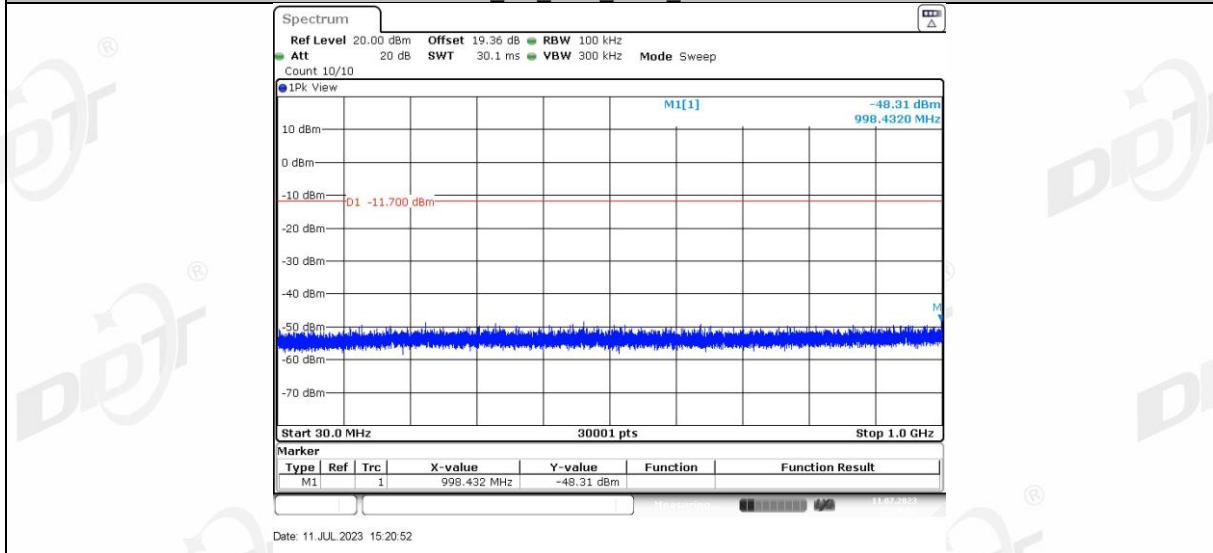
BLE 2M Ant1 2402 1000~26500



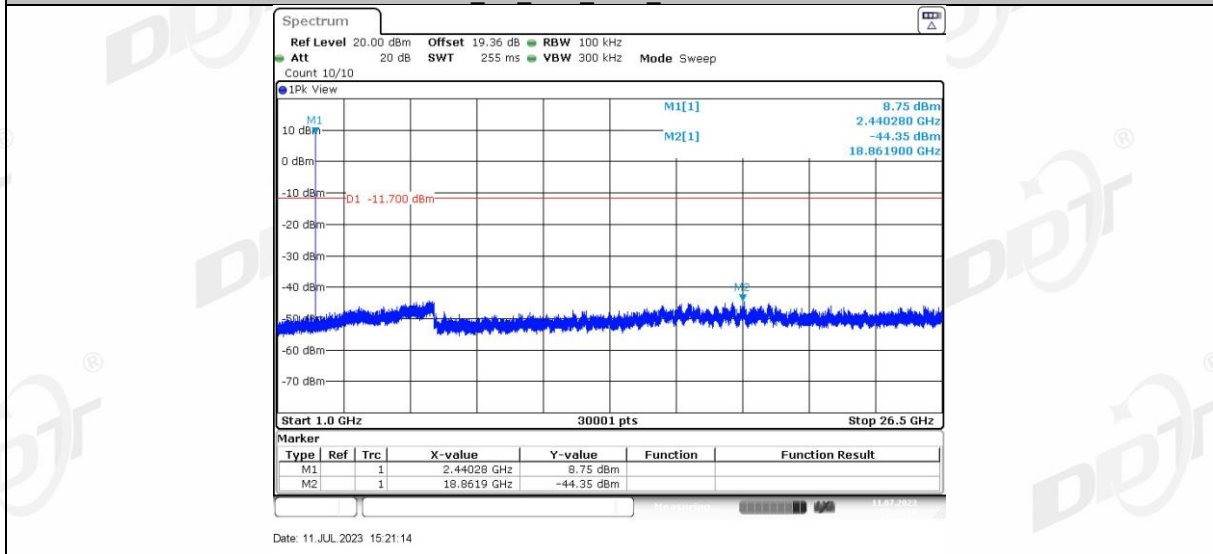
BLE 2M Ant1 2440 0~Reference



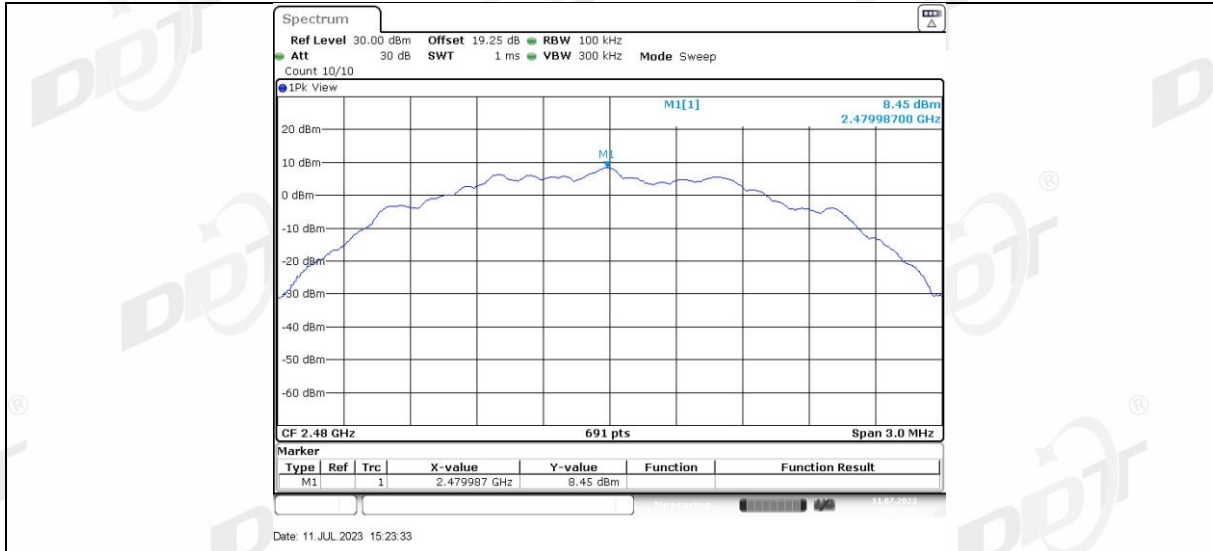
BLE 2M Ant1 2440 30~1000



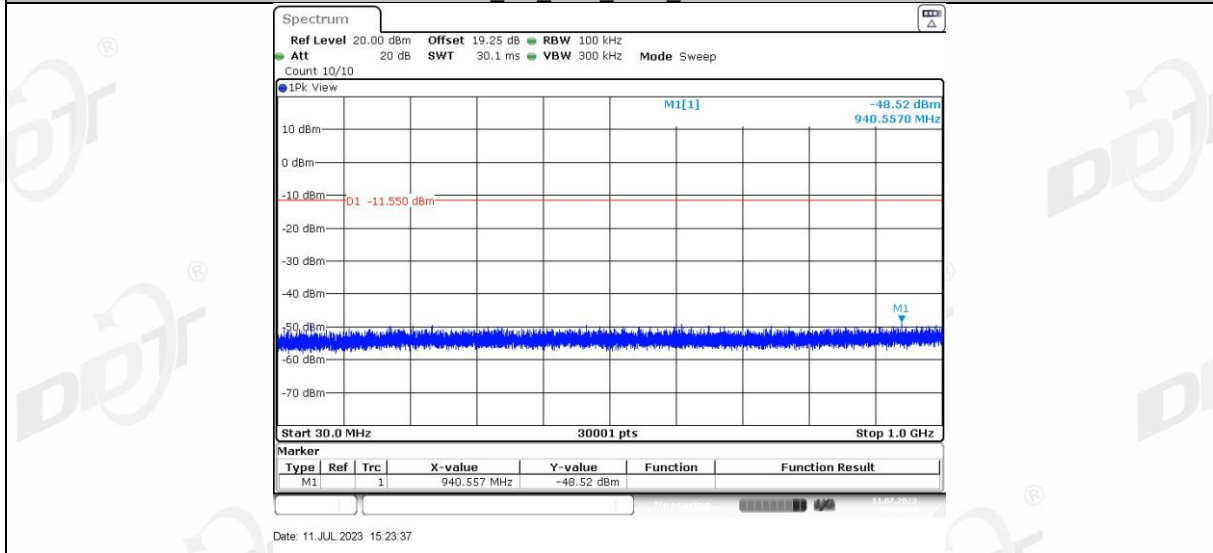
BLE 2M Ant1 2440 1000~26500



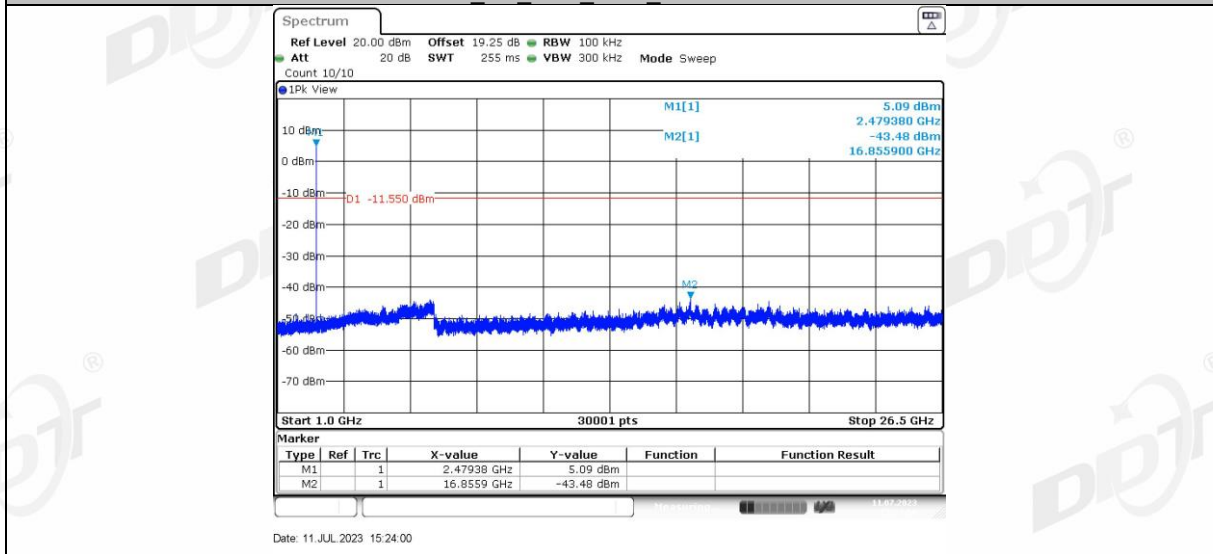
BLE 2M Ant1 2480 0~Reference



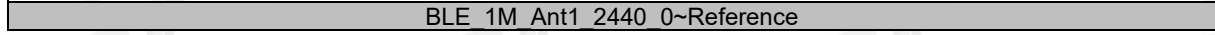
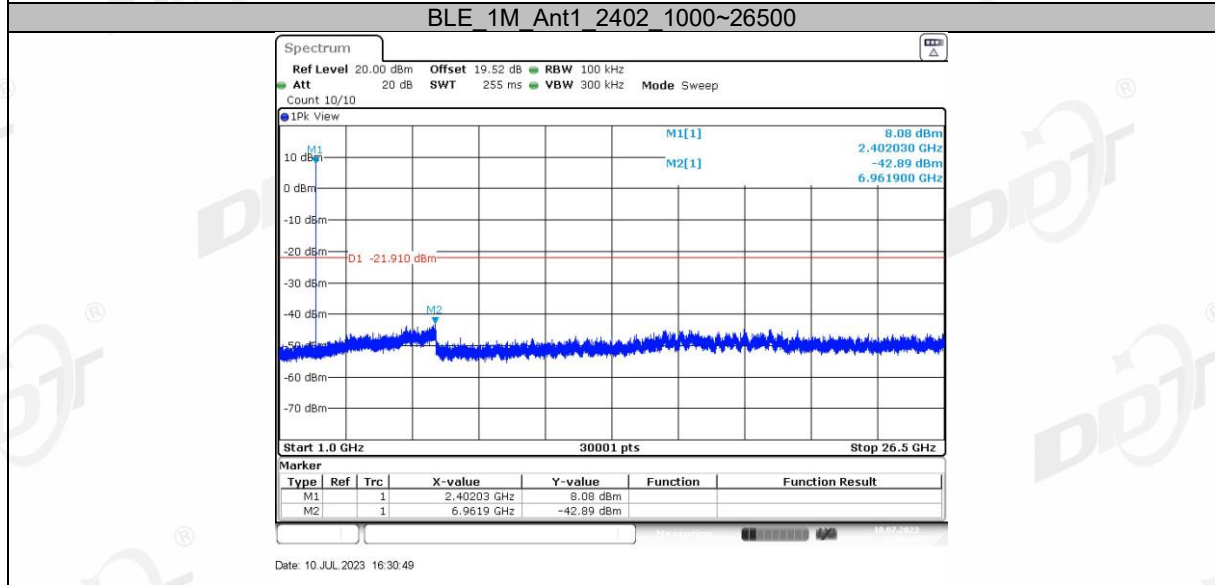
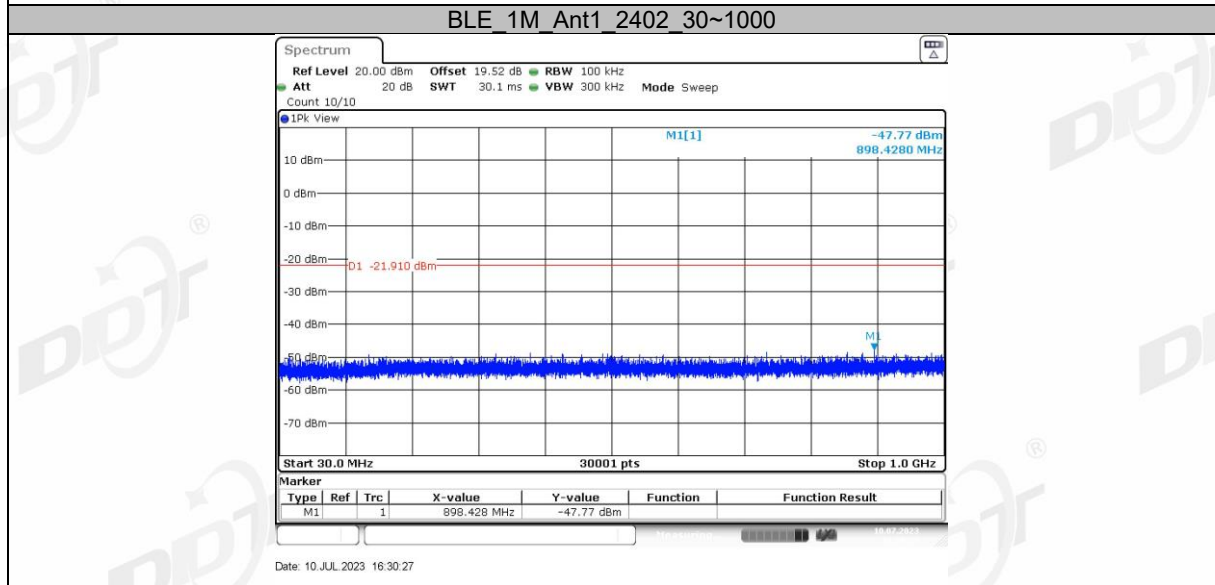
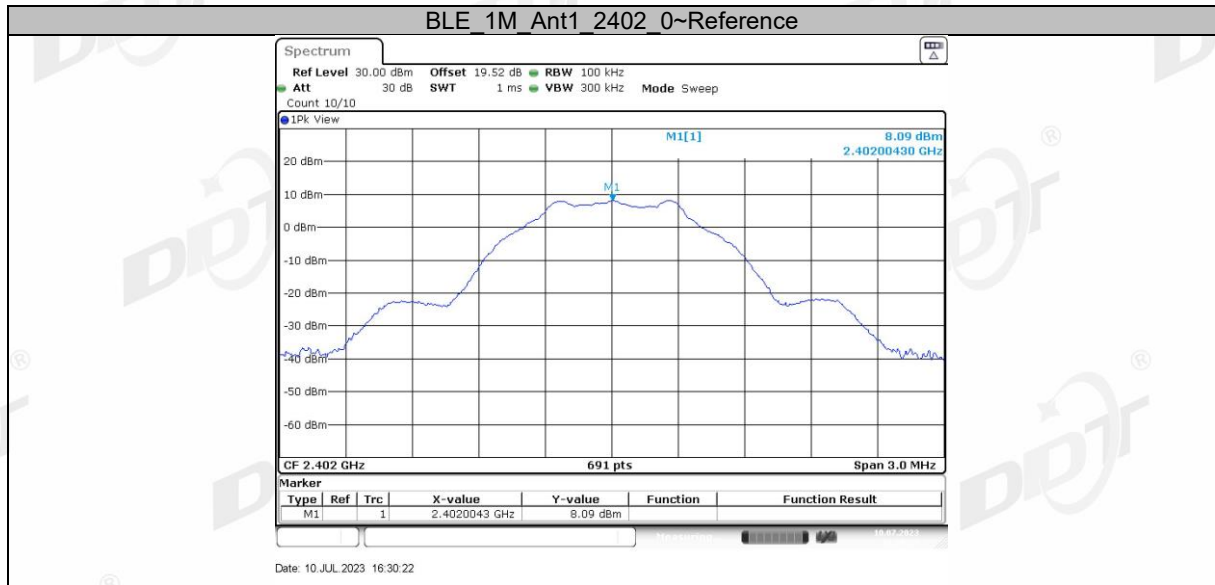
BLE 2M Ant1 2480 30~1000

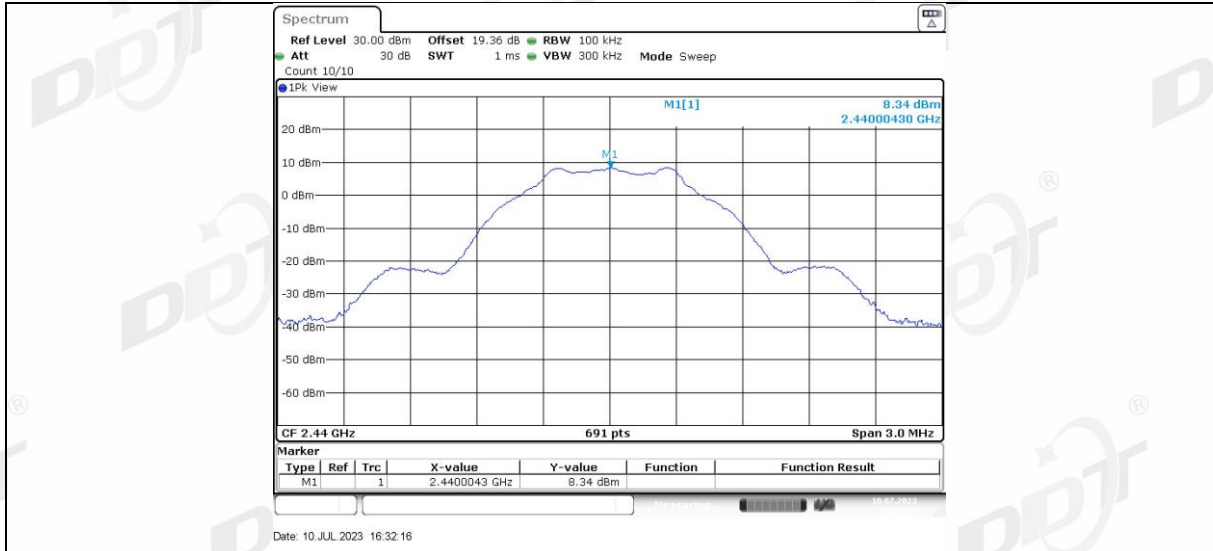


BLE 2M Ant1 2480 1000~26500

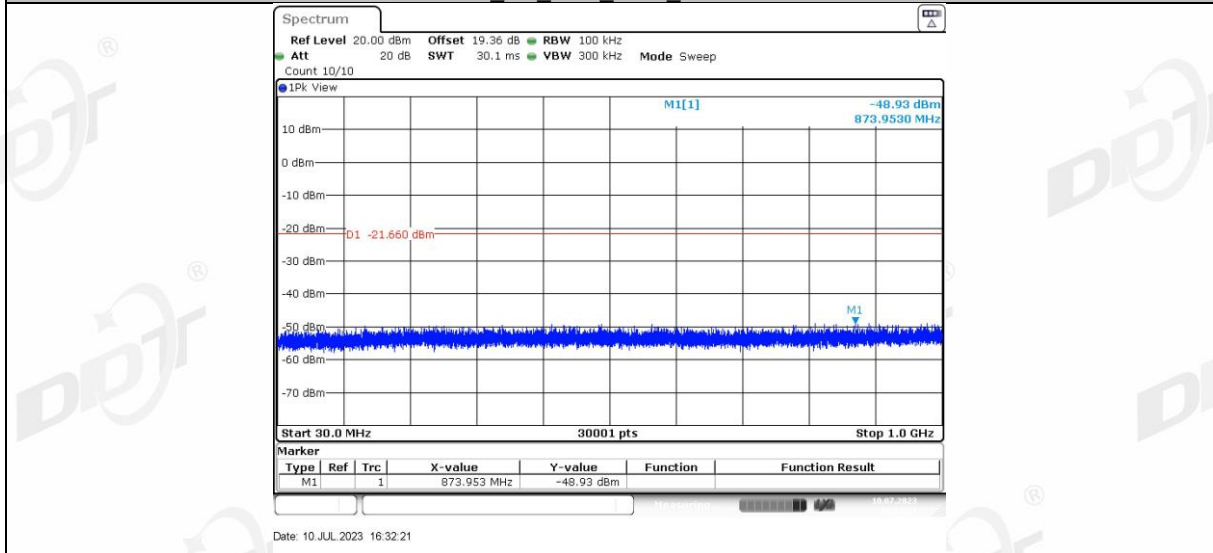


Right side:

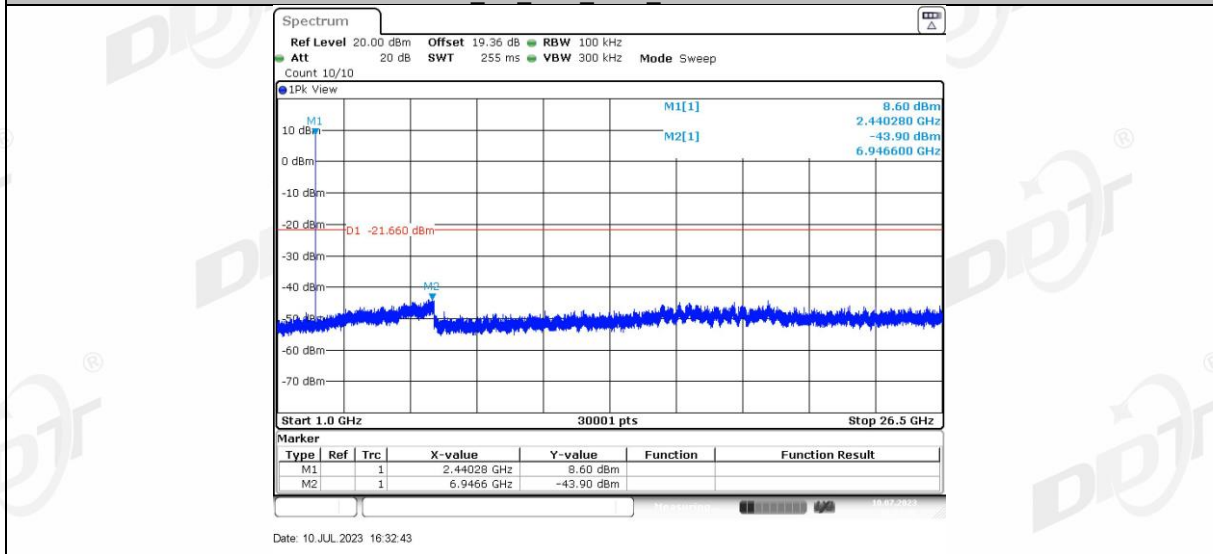




BLE 1M Ant1 2440 30~1000



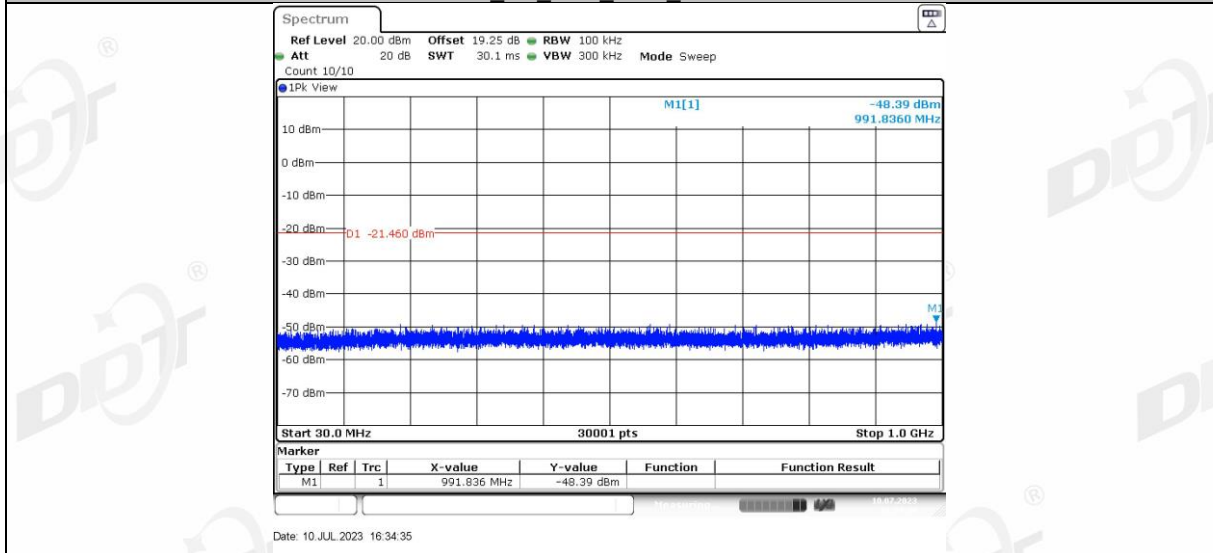
BLE 1M Ant1 2440 1000~26500



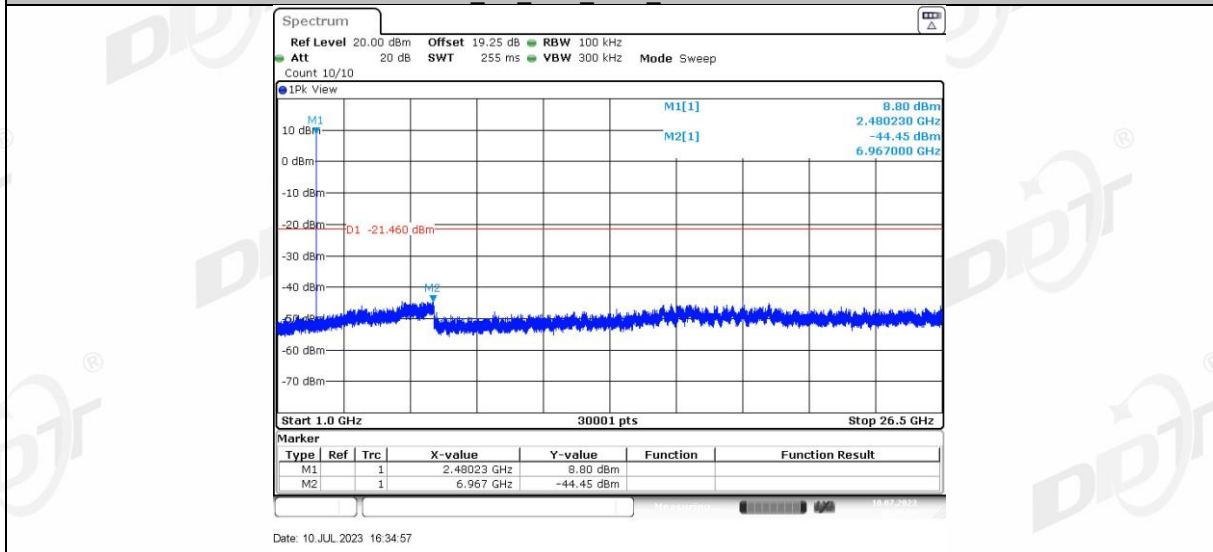
BLE 1M Ant1 2480 0~Reference



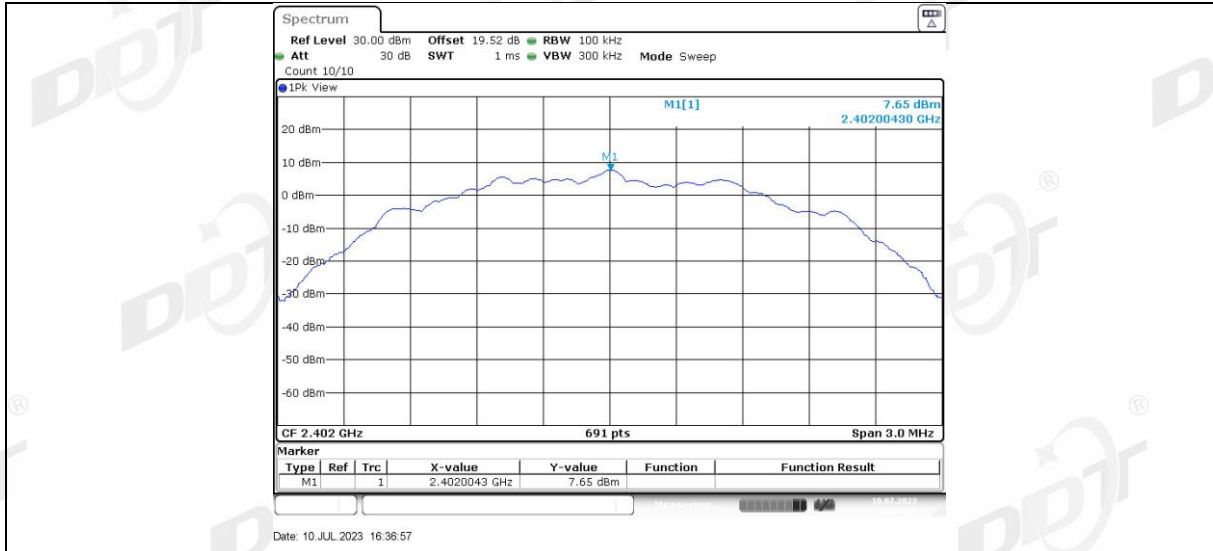
BLE 1M Ant1 2480 30~1000



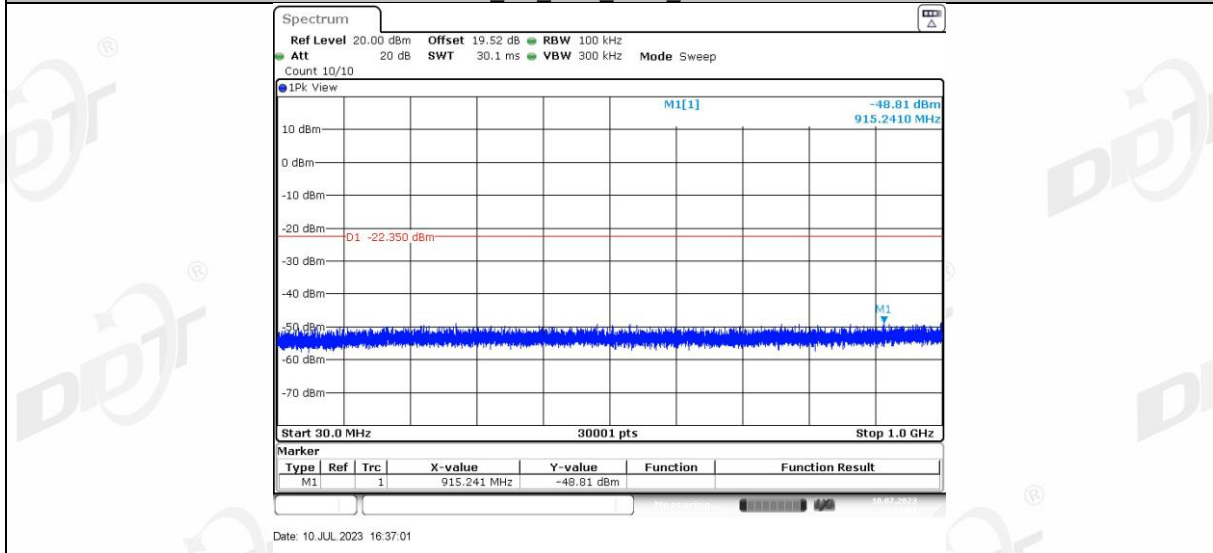
BLE 1M Ant1 2480 1000~26500



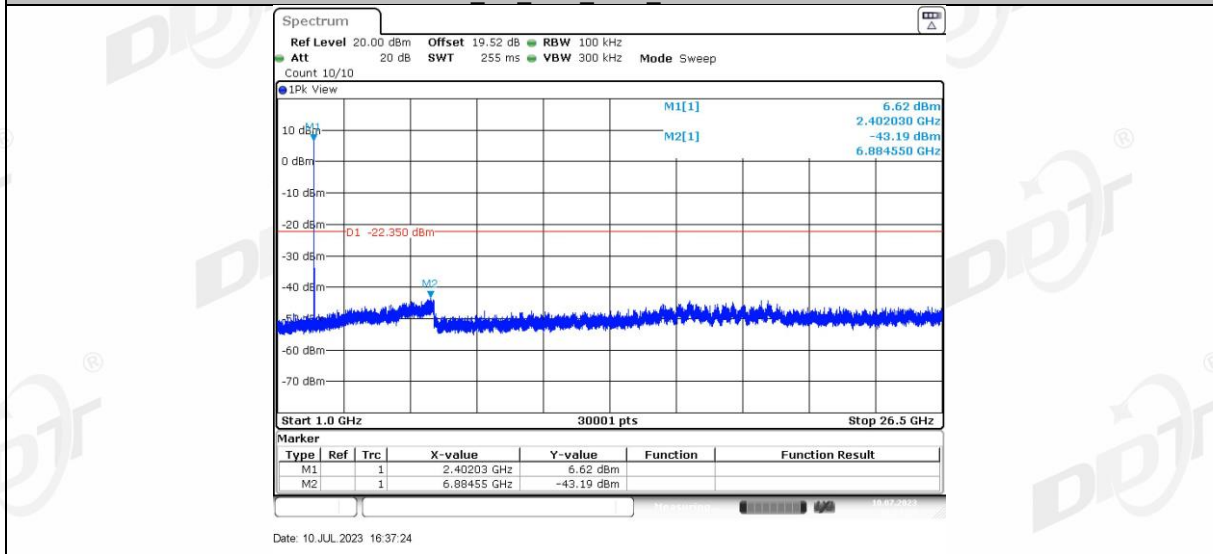
BLE 2M Ant1 2402 0~Reference



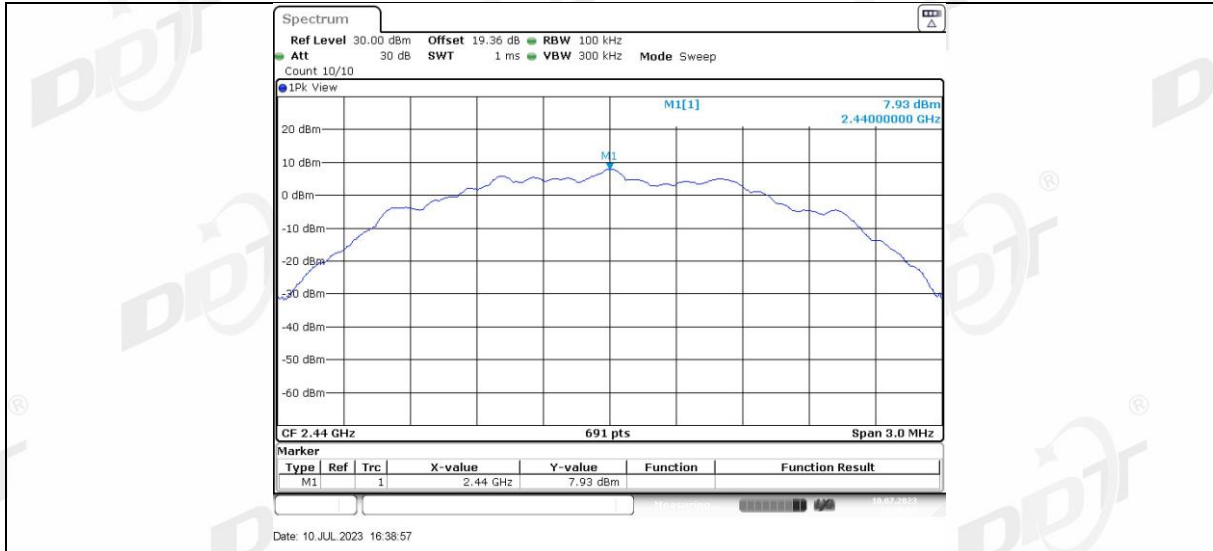
BLE 2M Ant1 2402 30~1000



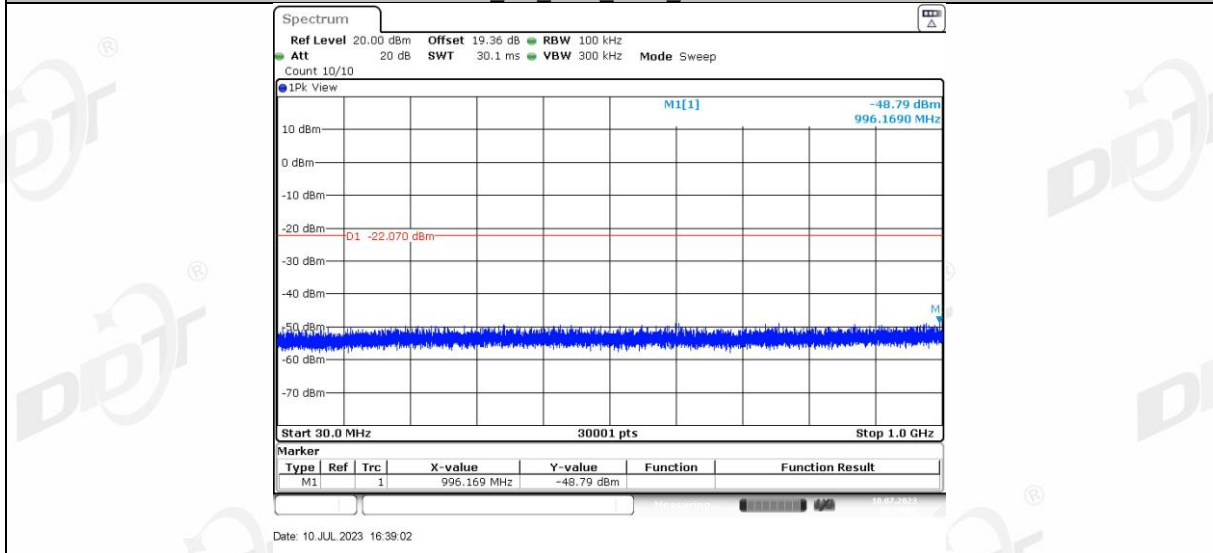
BLE 2M Ant1 2402 1000~26500



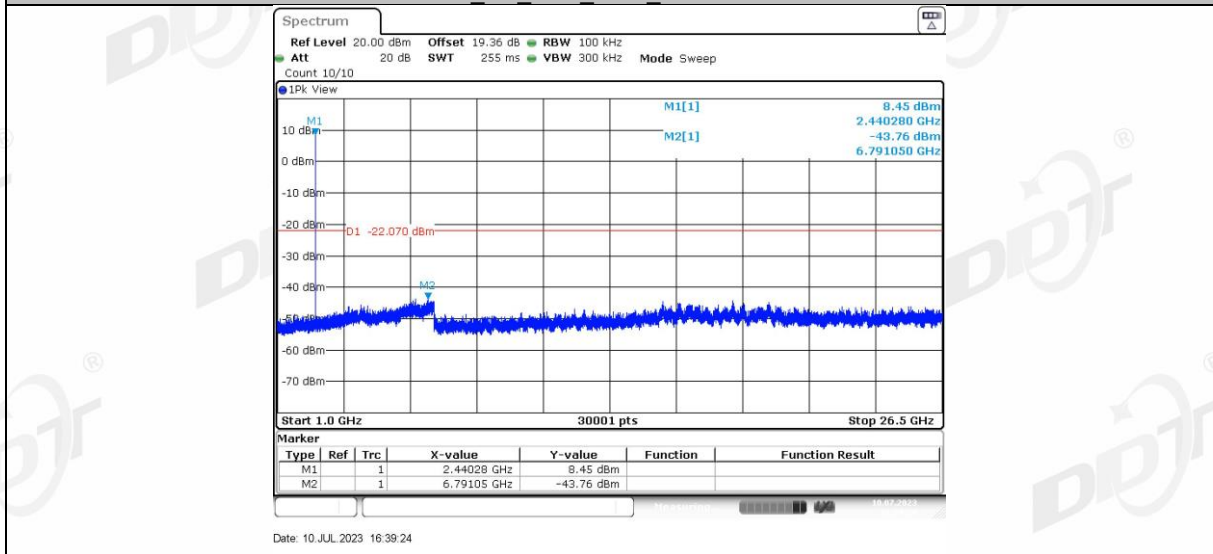
BLE 2M Ant1 2440 0~Reference



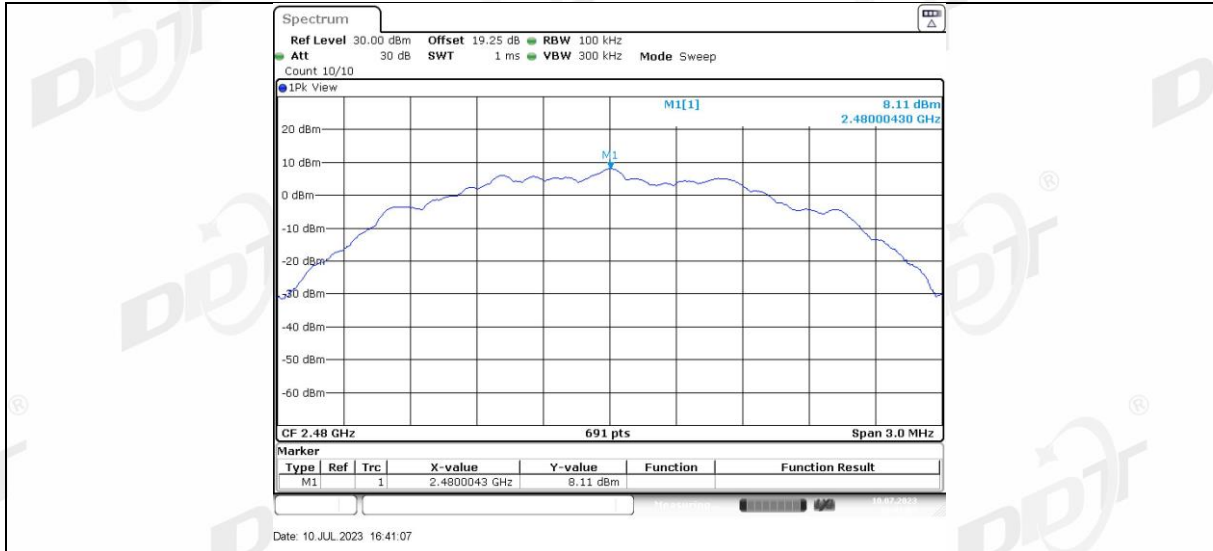
BLE 2M Ant1 2440 30~1000



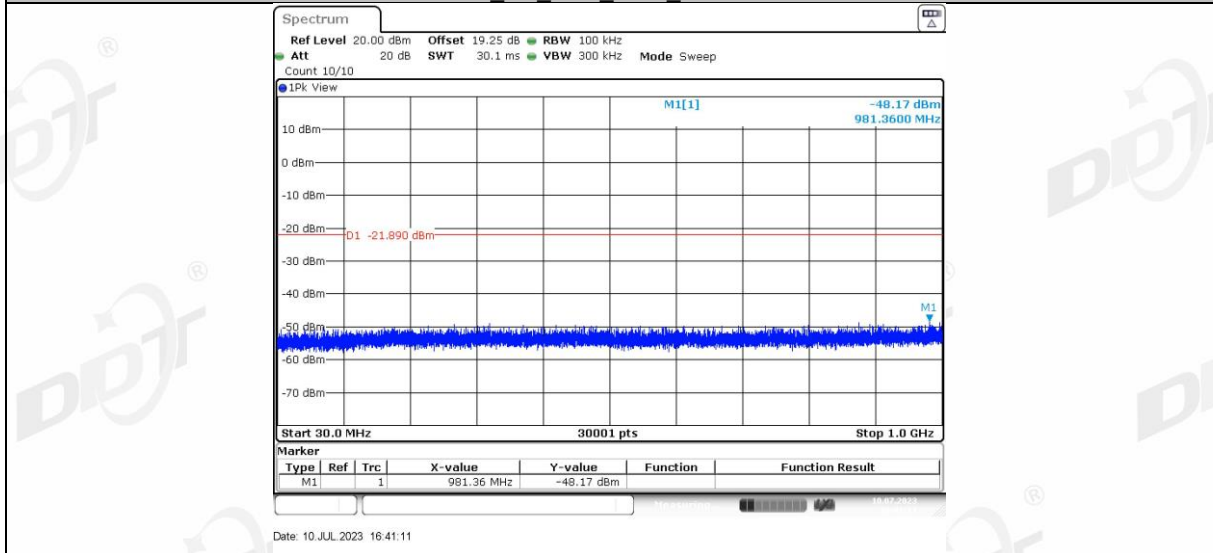
BLE 2M Ant1 2440 1000~26500



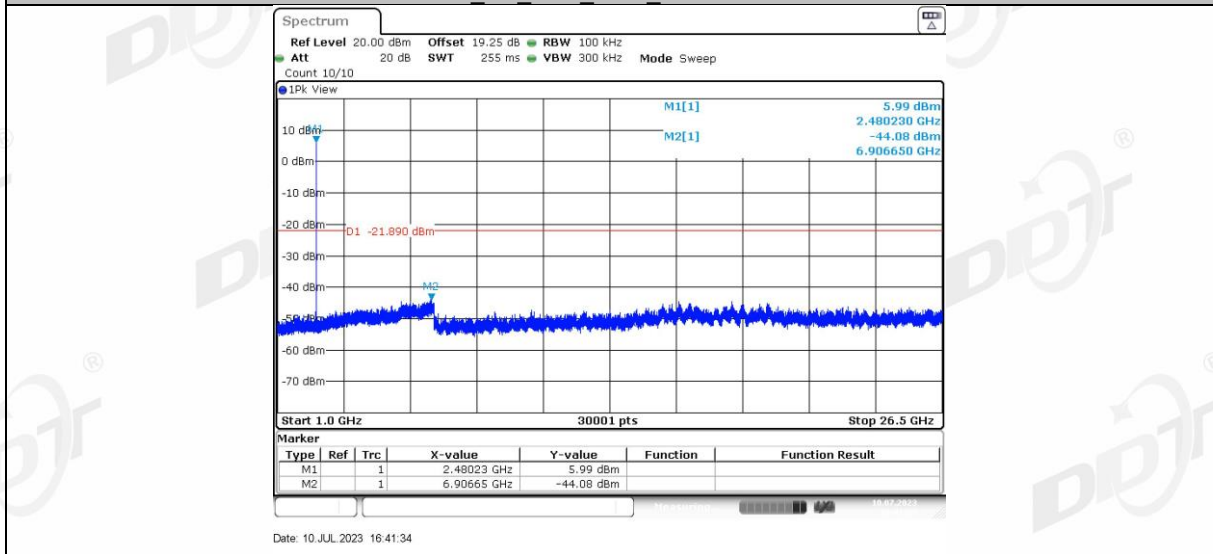
BLE 2M Ant1 2480 0~Reference



BLE 2M Ant1 2480 30~1000

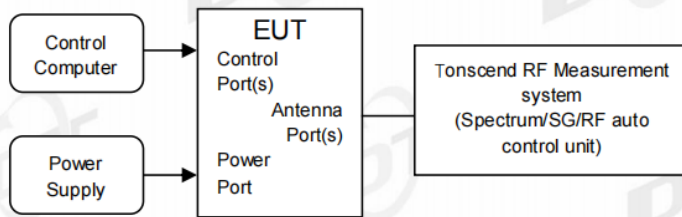


BLE 2M Ant1 2480 1000~26500



10. Duty Cycle

10.1. Block diagram of test setup



10.2. Limit

Just for Report.

10.3. Test procedure

- (1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset.

set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the middle hopping channel.

Resolution BW: 1 MHz.

Video BW: 1 MHz.

Span: Zero span.

Detector: Peak.

Trace Mode: Clear Write.

Sweep: Video Trigger

- (2) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 burst cycle.

- (3) Calculate dwell time follow below formula:

$$\text{Duty cycle} = \text{Pulse's on time} / \text{Burst cycle}$$

10.4. Test result

Left side:

Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	0.38	0.63	60.32	2.20
		2440	0.38	0.63	60.32	2.20
		2480	0.38	0.63	60.32	2.20
BLE_2M	Ant1	2402	0.20	0.63	31.75	4.98
		2440	0.20	0.63	31.75	4.98
		2480	0.20	0.63	31.75	4.98

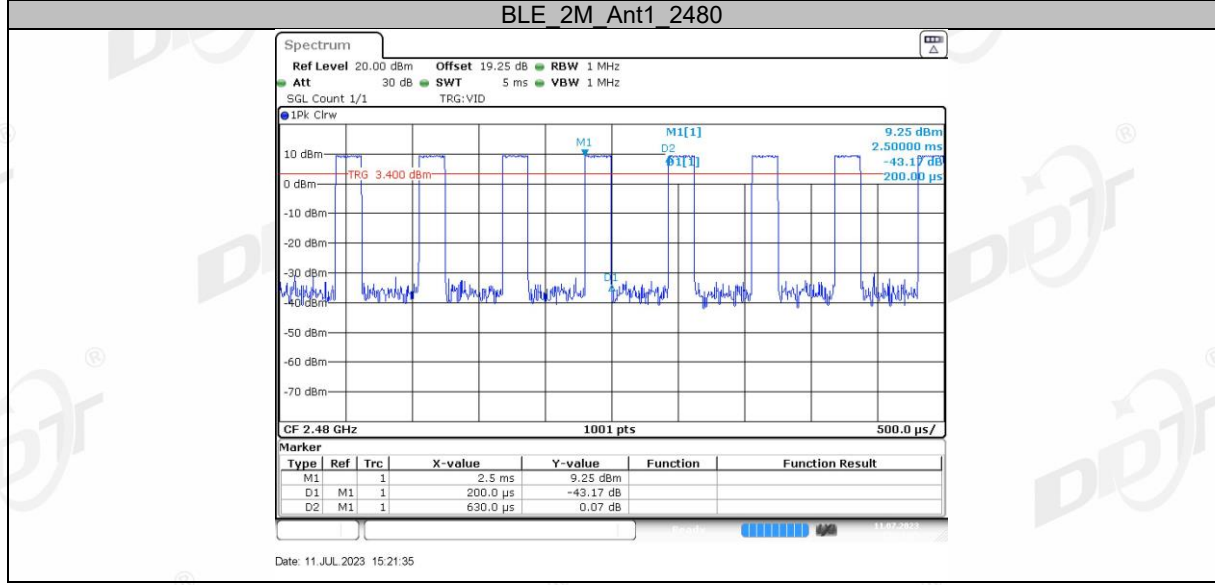
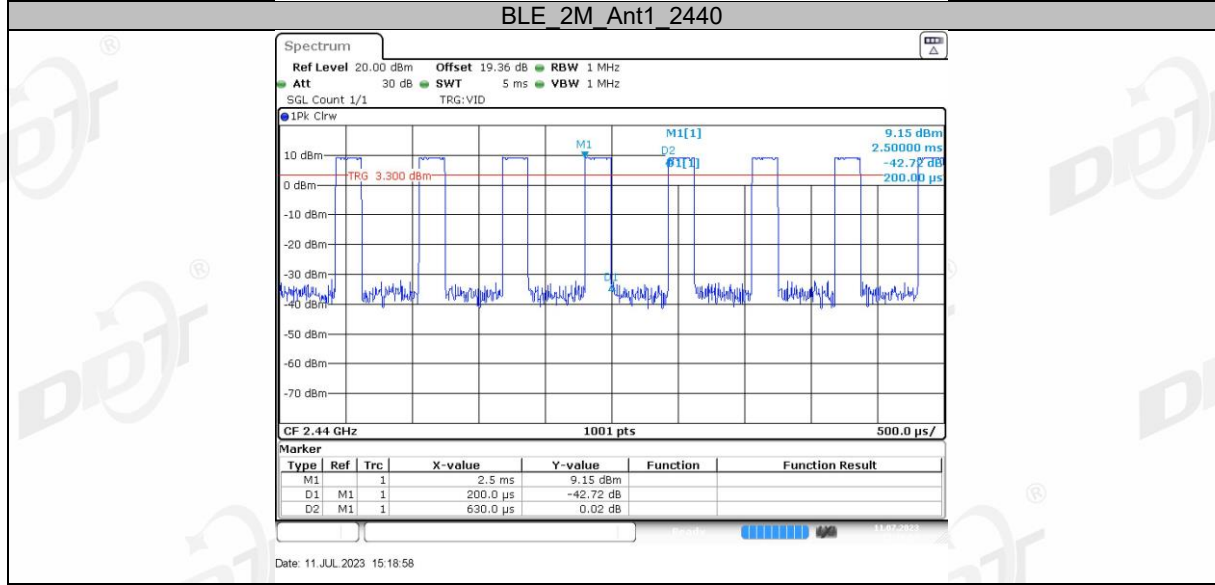
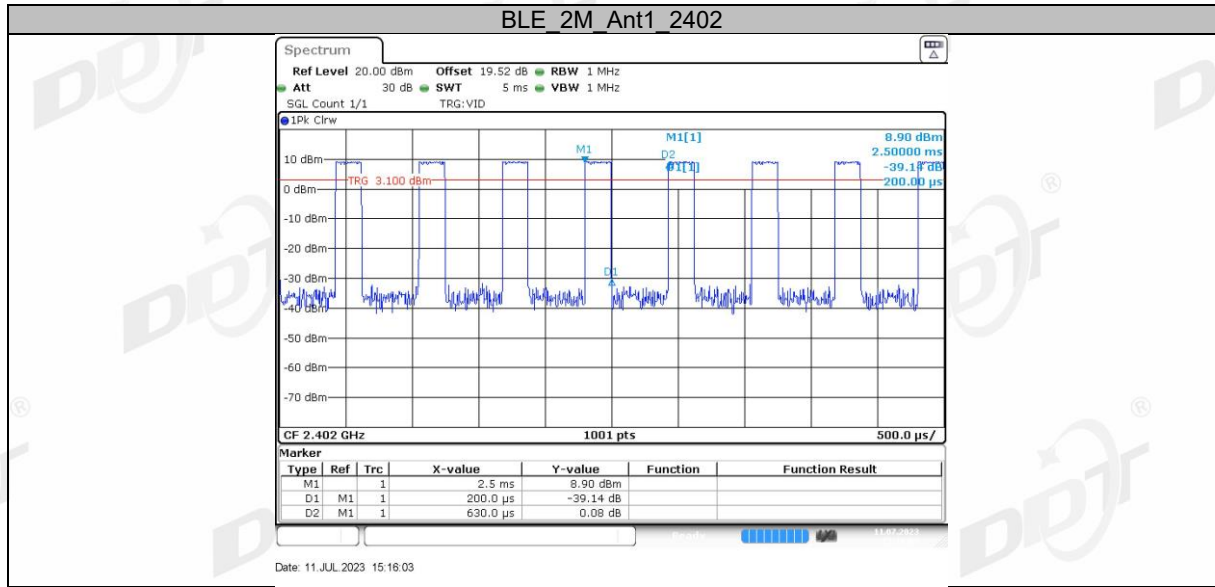
Right side:

Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2402	0.38	0.63	60.32	2.20
		2440	0.38	0.63	60.32	2.20
		2480	0.38	0.63	60.32	2.20
BLE_2M	Ant1	2402	0.20	0.63	31.75	4.98
		2440	0.20	0.63	31.75	4.98
		2480	0.20	0.63	31.75	4.98

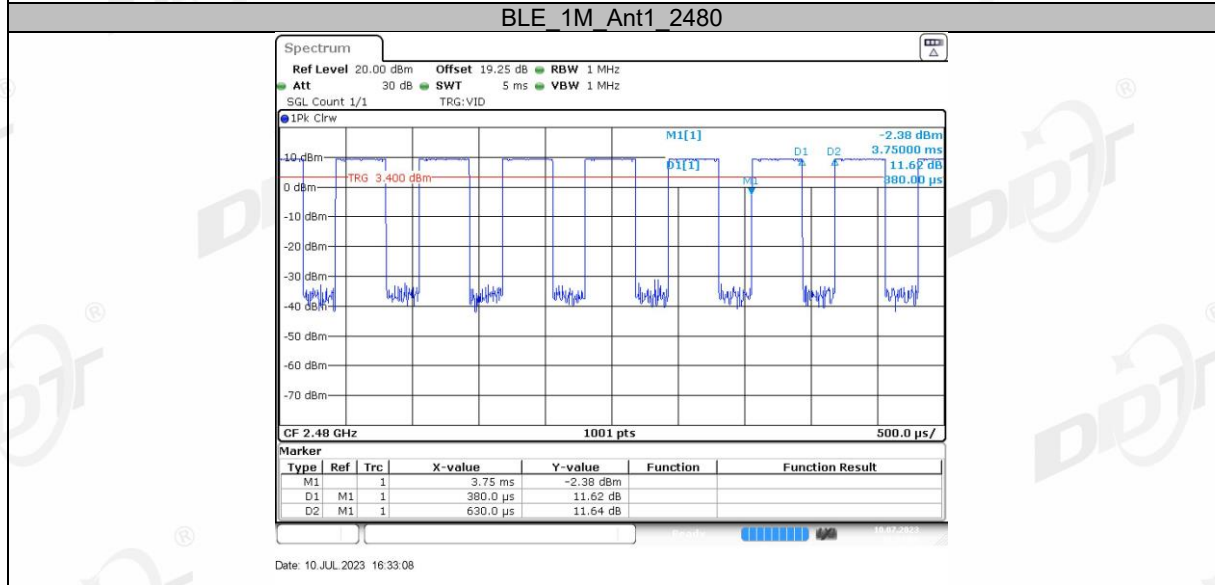
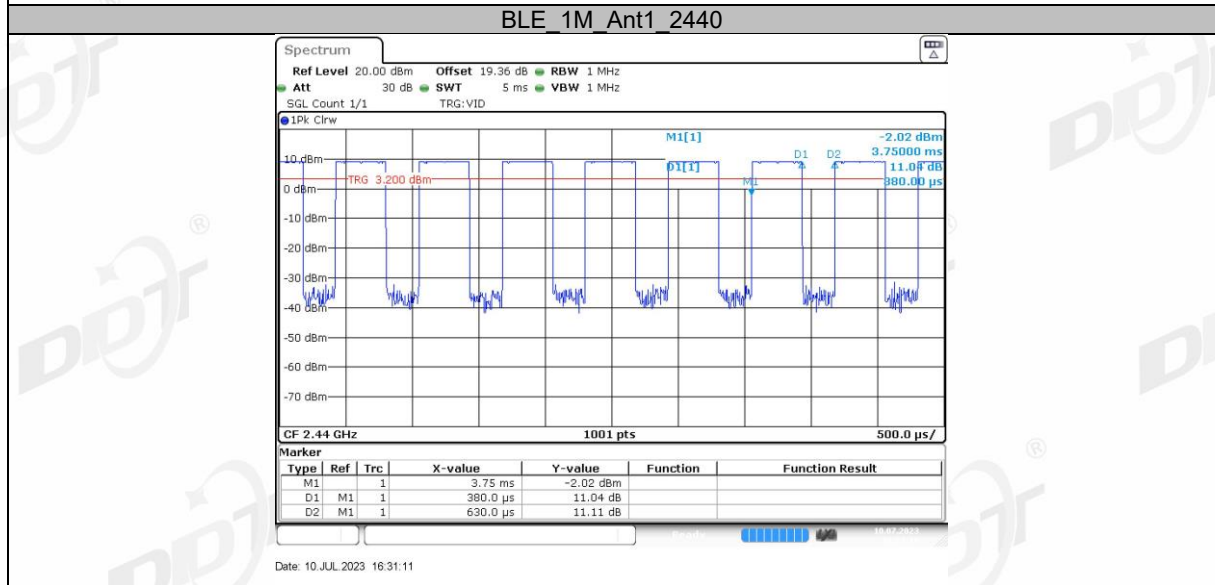
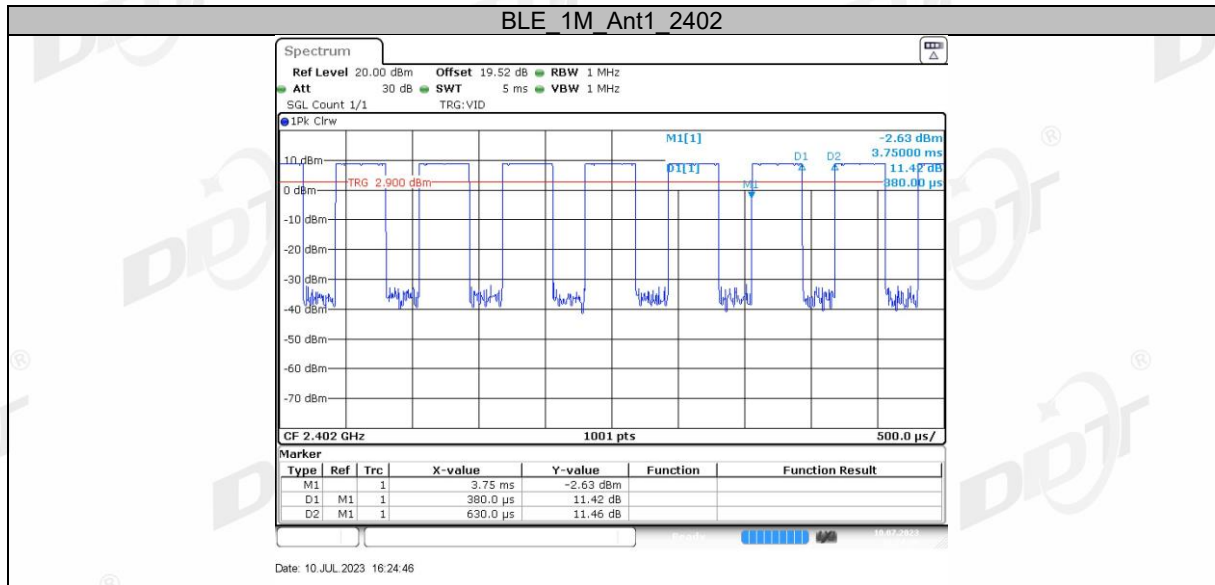
10.5. Test graphs

Left side:

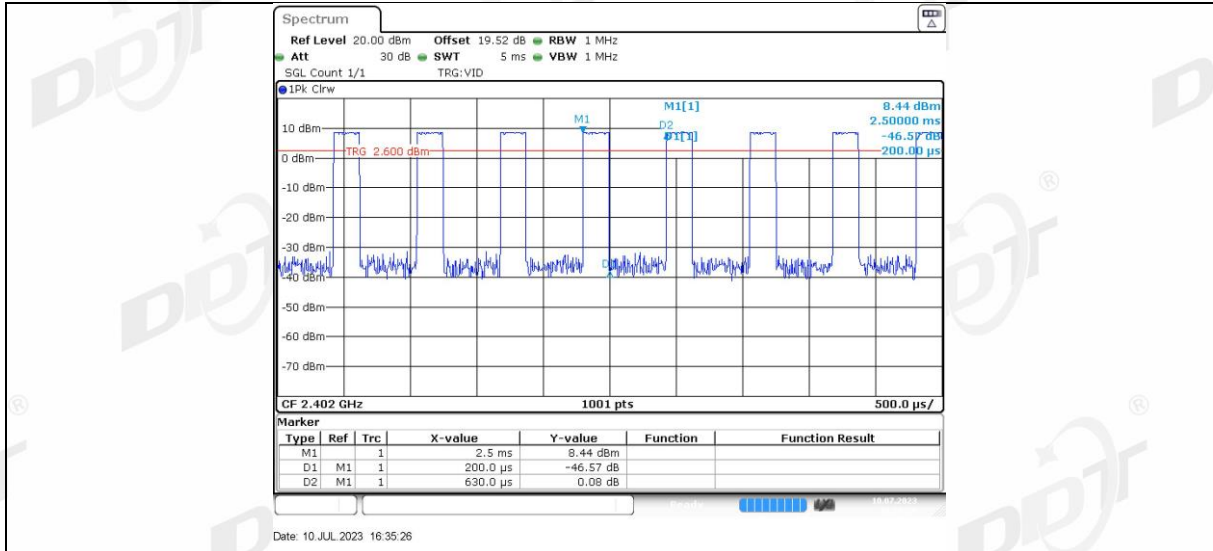




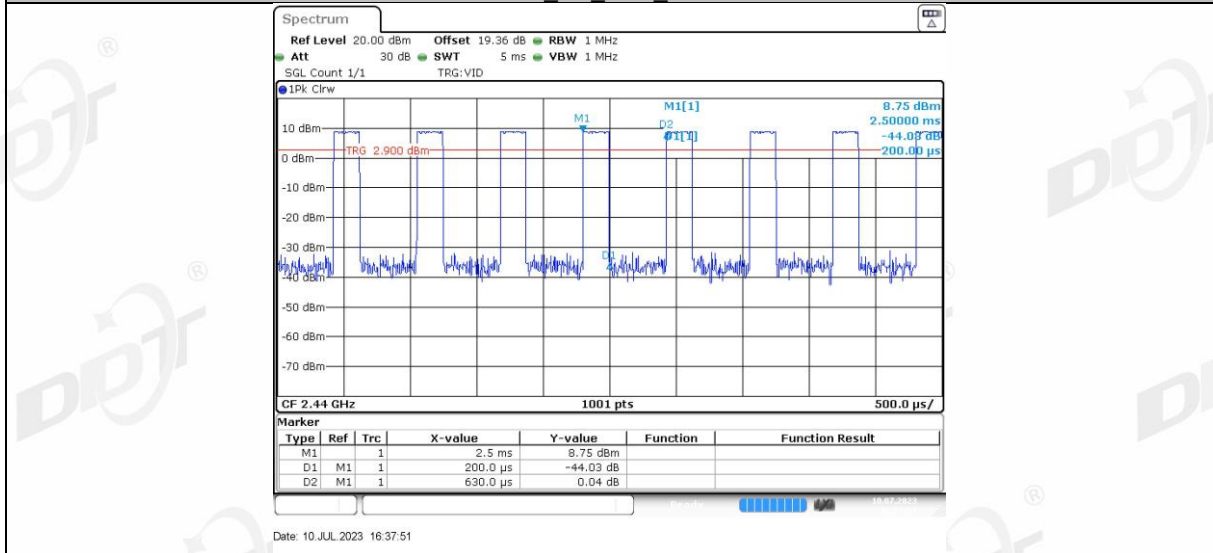
Right side:



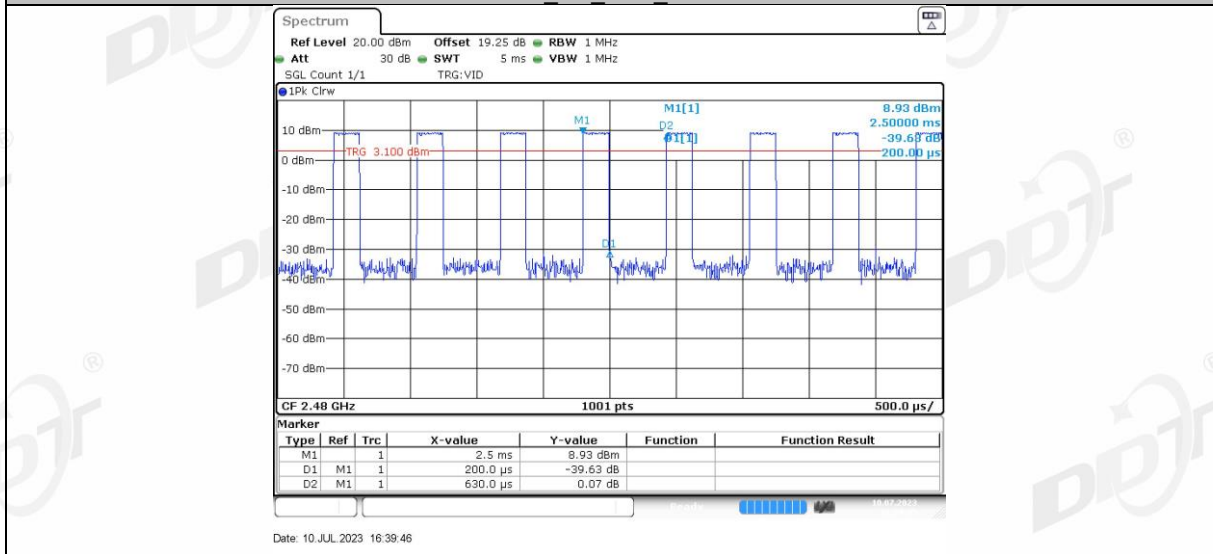
BLE 2M Ant1 2402



BLE 2M Ant1 2440



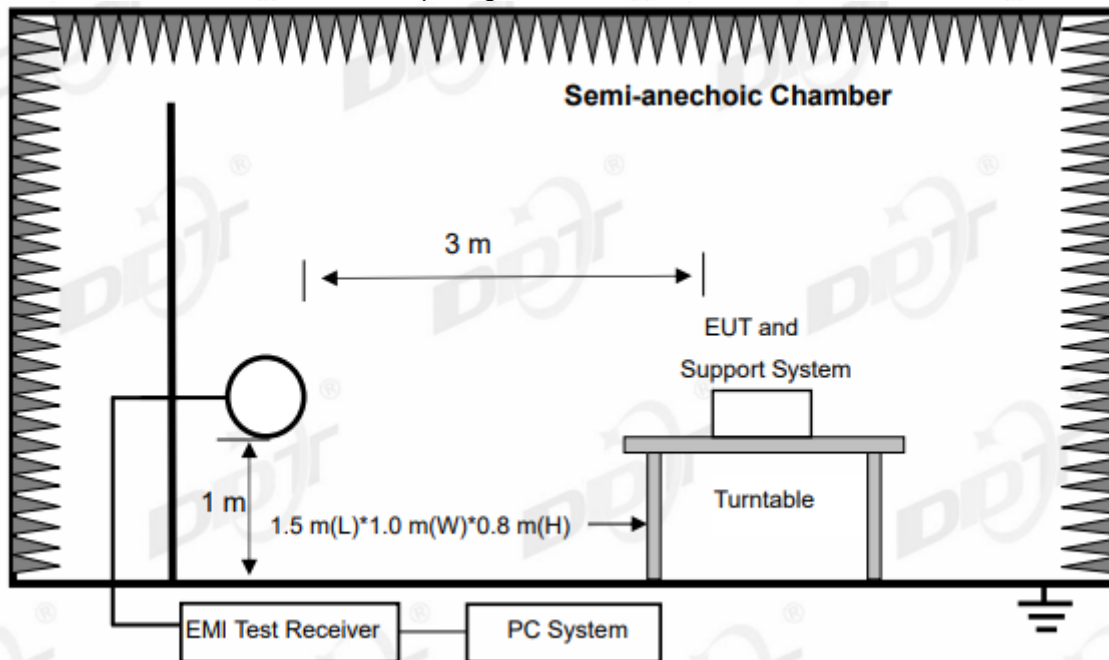
BLE 2M Ant1 2480



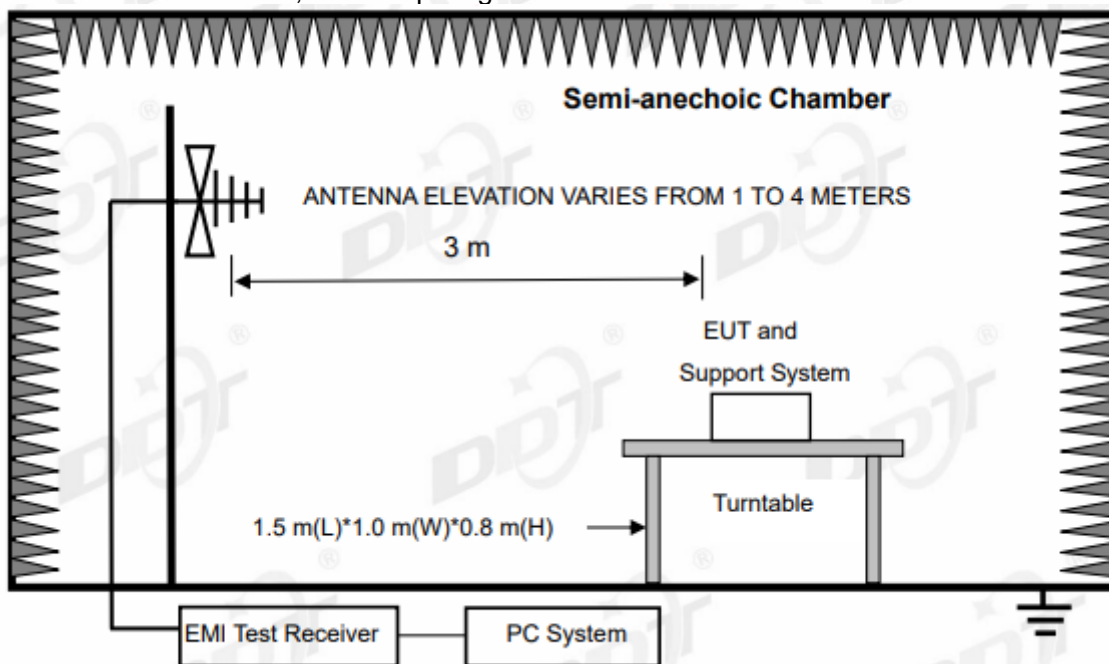
11. Radiated Emission

11.1. Block diagram of test setup

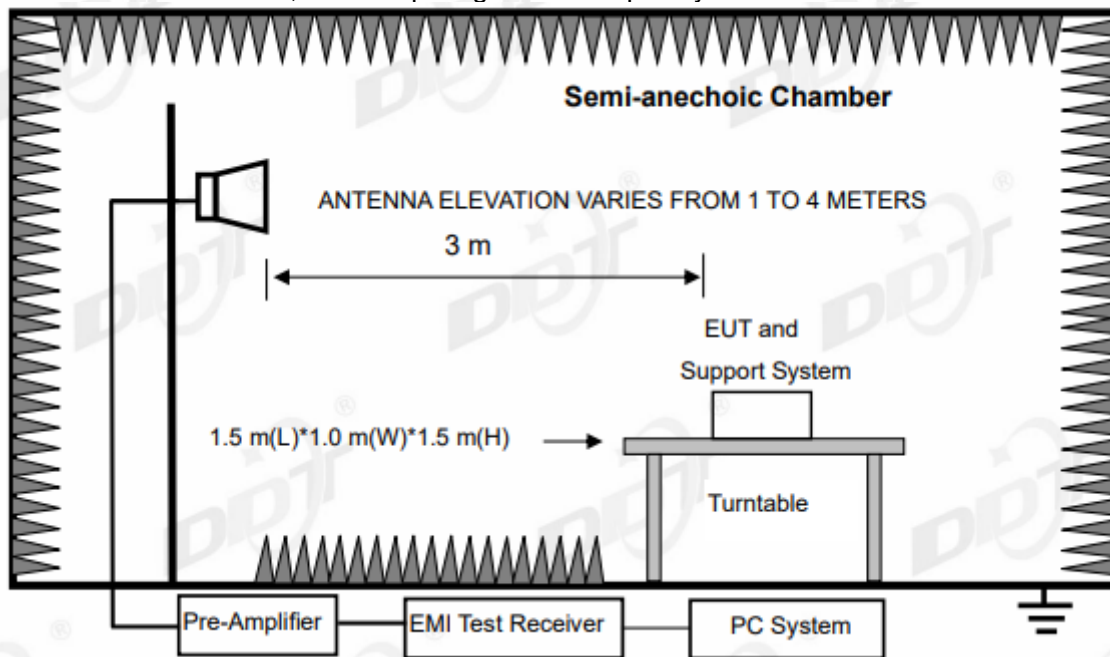
In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:



In 3 m Anechoic Chamber, test setup diagram for 30 MHz - 1 GHz:



In 3 m Anechoic Chamber, test setup diagram for frequency above 1 GHz:



Note: For harmonic emissions test an appropriate high pass filter was inserted in the input port of AMP.

11.2. Limit

(1) FCC 15.205 Restricted frequency band

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
4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&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	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	(²)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

²Above 38.6

RSS-Gen section 8.10 Restricted frequency bands*

MHz	MHz	MHz	GHz
0.090-0.110	12.51975-12.52025	240-285	3.5-4.4
0.495-0.505	12.57675-12.57725	322-335.4	4.5-5.15
2.1735-2.1905	13.36-13.41	399.9-410	5.35-5.46
3.020-3.026	16.42-16.423	608-614	7.25-7.75
4.125-4.128	16.69475-16.69525	960-1427	8.025-8.5
4.1772&4.17775	16.80425-16.80475	1435-1626.5	9.0-9.2
4.2072&4.20775	25.5-25.67	1645.5-1646.5	9.3-9.5
5.677-5.683	37.5-38.25	1660-1710	10.6-12.7
6.215-6.218	73-74.6	1718.8-1722.2	13.25-13.4
6.26775-6.26825	74.8-75.2	2200-2300	14.47-14.5
6.31175-6.31225	108-138	2310-2390	15.35-16.2
8.291-8.294	149.9-150.05	2483.5-2500	17.7-21.4
8.362-8.366	156.52475-156.52525	2655-2900	22.01-23.12
8.37625-8.38675	156.7-156.9	3260-3267	23.6-24.0
8.41425-8.41475	162.0125-167.17	3332-3339	31.2-31.8
12.29-12.293	167.72-173.2	3345.8-3358	36.43-36.5
			Above 38.6

* Certain frequency bands listed in table and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

(2) FCC 15.209 Limit & RSS-Gen section 8.9 Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Note: (1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30 MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit}_{3\text{m}}(\text{dB}\mu\text{V}/\text{m}) = \text{Limit}_{30\text{m}}(\text{dB}\mu\text{V}/\text{m}) + 40\text{Log}(30\text{m}/3\text{m})$$

(3) Limit for this EUT

The emissions appearing within 15.205 restricted frequency bands shall not exceed the limits

shown in 15.209, and the emissions appearing within RSS-Gen section 8.10 Restricted frequency bands shall not exceed the limits shown in RSS-Gen section 8.9, all the other emissions shall be at least 20 dB below the fundamental emissions or comply with 15.209 limits and RSS-Gen section 8.9 limits.

11.3. Test Procedure

- (1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber for below 1 G and 150 cm above the ground plane inside a semi-anechoic chamber for above 1 G.
- (2) Test antenna was located 3 m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test antenna distance
9 kHz - 30 MHz	Active Loop antenna	3 m
30 MHz - 1 GHz	Trilog Broadband Antenna	3 m
1 GHz - 18 GHz	Double Ridged Horn Antenna (1 GHz - 18 GHz)	3 m
18 GHz - 40 GHz	Horn Antenna (18 GHz - 40 GHz)	1 m

According ANSI C63.10:2013 clause 6.4.6 and 6.5.3, for measurements below 30 MHz, Antenna was located 3 m from EUT, the loop antenna was positioned in three antenna orientations (parallel, perpendicular, and round-parallel), for each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable, and the lowest height of the magnetic antenna shall be 1 m above the ground. For measurement above 30 MHz, the Trilog Broadband Antenna or Horn Antenna was located 3 m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

- (3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 25 GHz:

- (a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1 m above ground.)

- (b) Change work frequency or channel of device if practicable.

- (c) Change modulation type of device if practicable.

- (d) Change power supply range from 85% to 115% of the rated supply voltage

- (e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

Spectrum frequency from 9 kHz to 25 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so below final test was performed with frequency range from 30 MHz to 18 GHz.

- (4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.
- (5) The emissions from 9 kHz to 1 GHz were measured based on CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz, for emissions from 9 kHz - 90 kHz, 110 kHz - 490 kHz and above 1 GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.
- (6) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW

Frequency band	RBW
9 kHz - 150 kHz	200 Hz
150 kHz - 30 MHz	9 kHz
30 MHz - 1 GHz	120 kHz

- (7) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3 MHz for Peak measure; According ANSI C63.10:2013 clause 4.1.4.2.2 procedure for average measure.
- (8) For portable device, X axis, Y axis, Z axis are tested, and worse setup is reported.

11.4. Test result

Pass. (See below detailed test result)

All the emissions except fundamental emission from 9 kHz to 25 GHz were comply with 15.209 limits and RSS-Gen section 8.9 limits.

Note1: According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

Note2: 30 MHz ~ 25 GHz: (Scan with GFSK 1M, the worst case is reported)

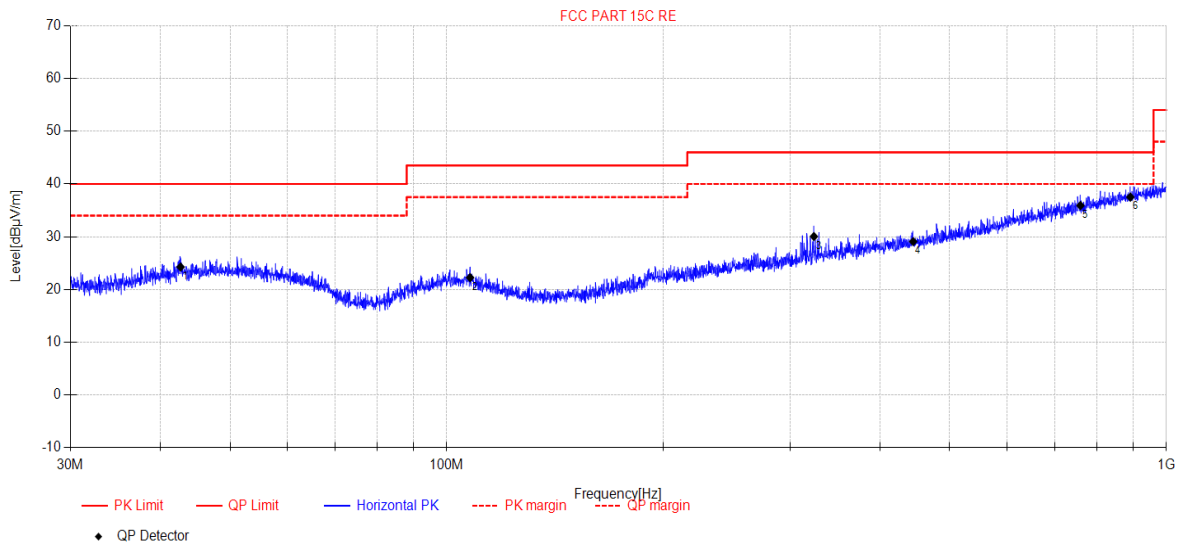
Note3: For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in GFSK 1M Tx 2480 MHz mode.

Note4: For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

Radiated Emission test (below 1 GHz)

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-13 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC BELOW 1G\20230713-005153_H
Memo: Left side



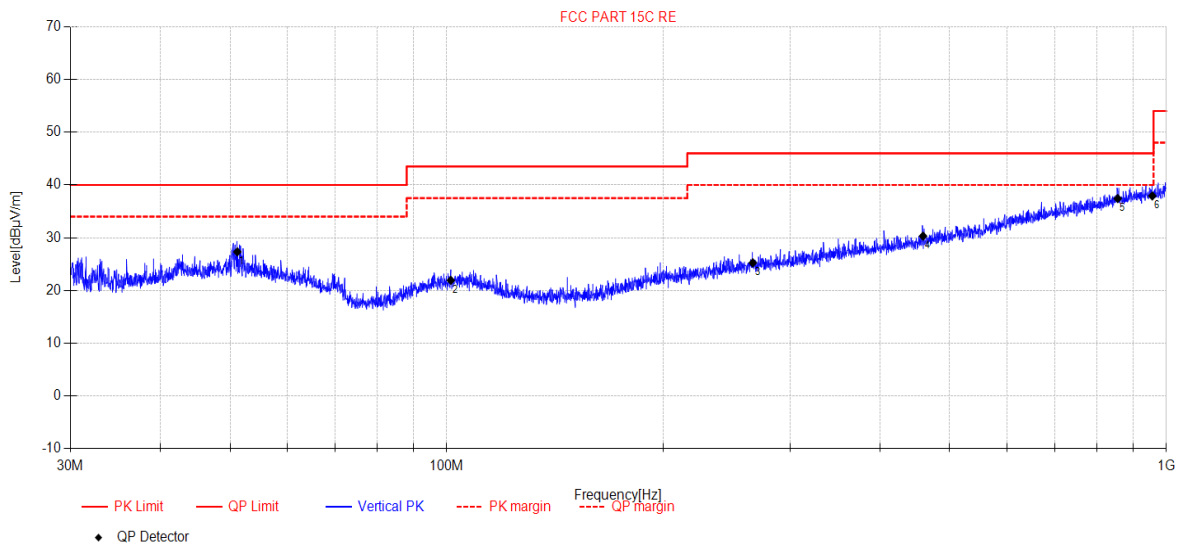
Final Data List										
NO.	Freq. [MHz]	Reading [dBµV/m]	Antenna Factor [dB]	Cable Loss [dB]	AMP [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	42.69	6.99	12.64	4.63	0.00	24.26	40.00	15.74	QP	Horizontal
2	107.78	6.42	10.72	5.11	0.00	22.25	43.50	21.25	QP	Horizontal
3	323.85	9.81	13.95	6.28	0.00	30.04	46.00	15.96	QP	Horizontal
4	444.92	6.28	16.00	6.80	0.00	29.08	46.00	16.92	QP	Horizontal
5	759.68	7.23	20.79	7.89	0.00	35.91	46.00	10.09	QP	Horizontal
6	891.37	6.8	22.40	8.31	0.00	37.51	46.00	8.49	QP	Horizontal

Note:

1. Result Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-13 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC BELOW 1G\20230713-005239_V
Memo: Left side



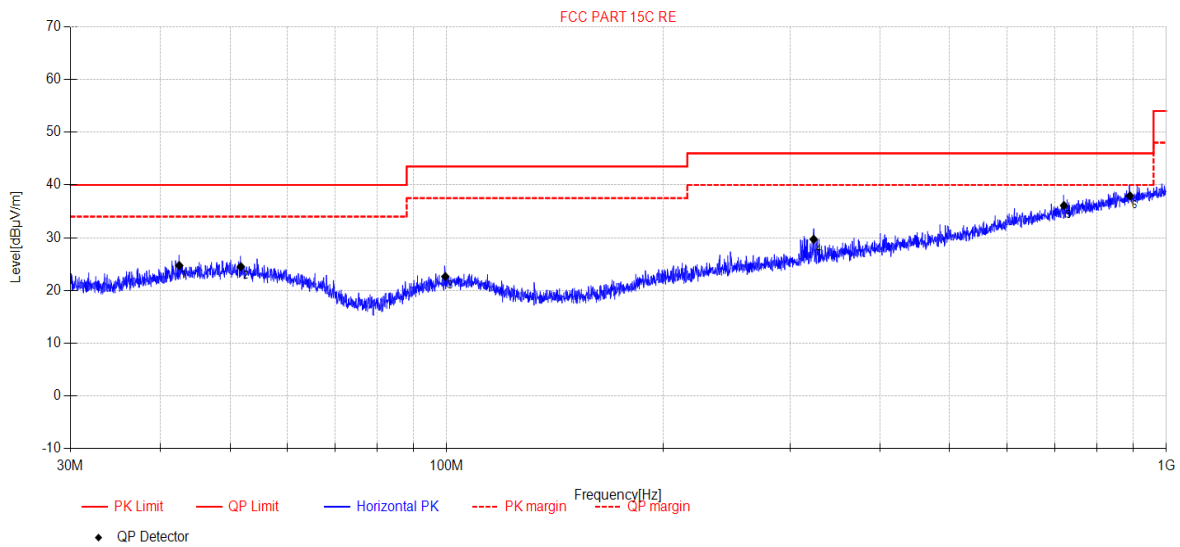
Final Data List										
NO.	Freq. [MHz]	Reading [dBµV/m]	Antenna Factor [dB]	Cable Loss [dB]	AMP [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	51.19	9.52	13.08	4.73	0.00	27.33	40.00	12.67	QP	Vertical
2	101.33	5.84	11.00	5.08	0.00	21.92	43.50	21.58	QP	Vertical
3	266.31	6.6	12.63	6.01	0.00	25.24	46.00	20.76	QP	Vertical
4	459.19	7.19	16.28	6.84	0.00	30.31	46.00	15.69	QP	Vertical
5	855.85	7.23	22.02	8.18	0.00	37.43	46.00	8.57	QP	Vertical
6	956.12	6.68	22.70	8.54	0.00	37.92	46.00	8.08	QP	Vertical

Note:

1. Result Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-13 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC BELOW 1G\20230713-004629_H
Memo: Right side



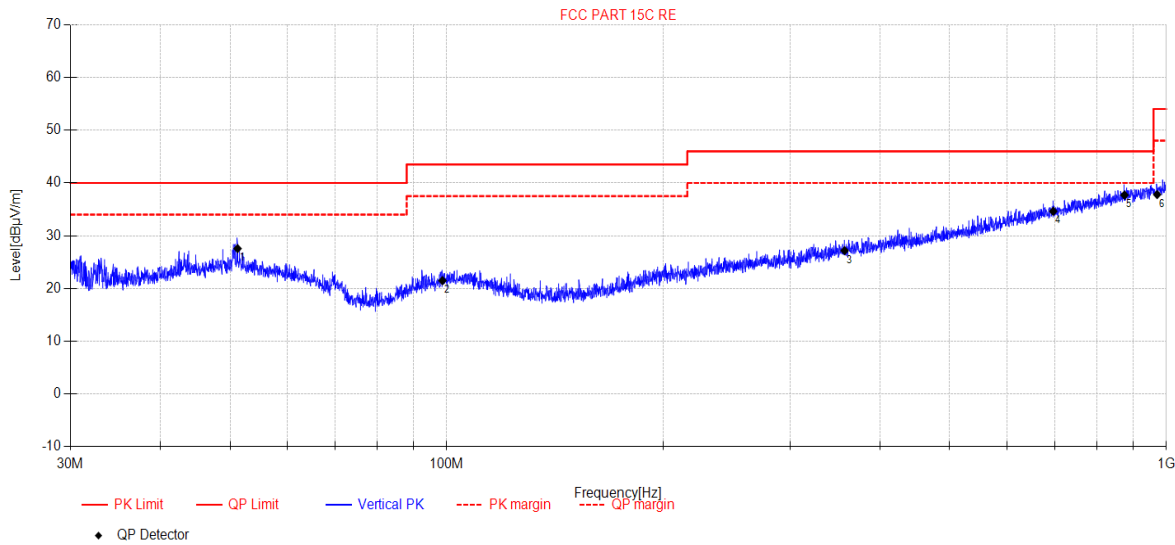
Final Data List										
NO.	Freq. [MHz]	Reading [dBµV/m]	Antenna Factor [dB]	Cable Loss [dB]	AMP [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	42.51	7.5	12.60	4.63	0.00	24.73	40.00	15.27	QP	Horizontal
2	51.76	6.76	13.02	4.74	0.00	24.52	40.00	15.48	QP	Horizontal
3	99.57	6.73	10.86	5.06	0.00	22.65	43.50	20.85	QP	Horizontal
4	323.62	9.48	13.94	6.28	0.00	29.70	46.00	16.30	QP	Horizontal
5	720.76	7.96	20.32	7.81	0.00	36.09	46.00	9.91	QP	Horizontal
6	890.12	7.23	22.40	8.30	0.00	37.93	46.00	8.07	QP	Horizontal

Note:

1. Result Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-13 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC BELOW 1G\20230713-004713_V
Memo: Right side



Final Data List										
NO.	Freq. [MHz]	Reading [dBµV/m]	Antenna Factor [dB]	Cable Loss [dB]	AMP [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	51.22	9.75	13.08	4.73	0.00	27.56	40.00	12.44	QP	Vertical
2	98.67	5.67	10.77	5.05	0.00	21.49	43.50	22.01	QP	Vertical
3	357.25	5.97	14.74	6.46	0.00	27.17	46.00	18.83	QP	Vertical
4	696.42	6.89	20.00	7.74	0.00	34.63	46.00	11.37	QP	Vertical
5	874.66	7.16	22.29	8.25	0.00	37.70	46.00	8.30	QP	Vertical
6	970.98	6.42	22.80	8.59	0.00	37.81	54.00	16.19	QP	Vertical

Note:

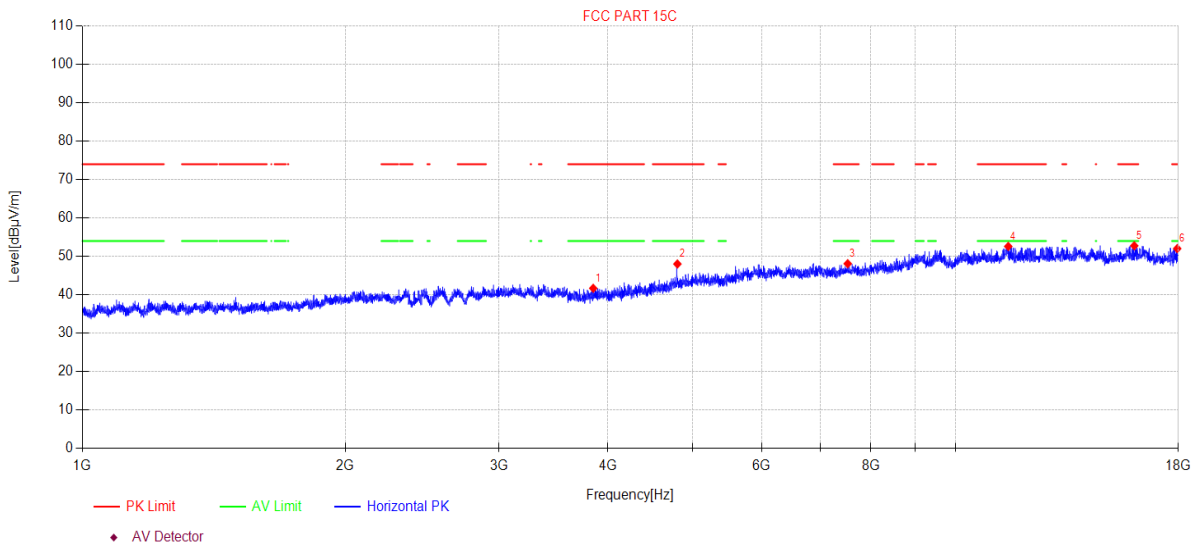
1. Result Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

Radiated Emission test (above 1 GHz)

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\124
Memo: BLE 1M 2402 Left side

Test Graph



Suspected Data List											
N O.	Freq. [MHz]	Reading [dBμV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity	
1	3847.24	46.80	5.82	30.39	-41.31	41.70	74.00	32.30	PK	Horizontal	
2	4803.36	49.41	7.47	32.31	-41.16	48.03	74.00	25.97	PK	Horizontal	
3	7526.53	45.04	7.65	36.40	-41.00	48.09	74.00	25.91	PK	Horizontal	
4	11494.07	43.21	10.09	39.01	-39.71	52.60	74.00	21.40	PK	Horizontal	
5	16025.65	39.51	15.78	37.87	-40.40	52.76	74.00	21.24	PK	Horizontal	
6	17948.05	38.15	13.07	41.49	-40.68	52.03	74.00	21.97	PK	Horizontal	

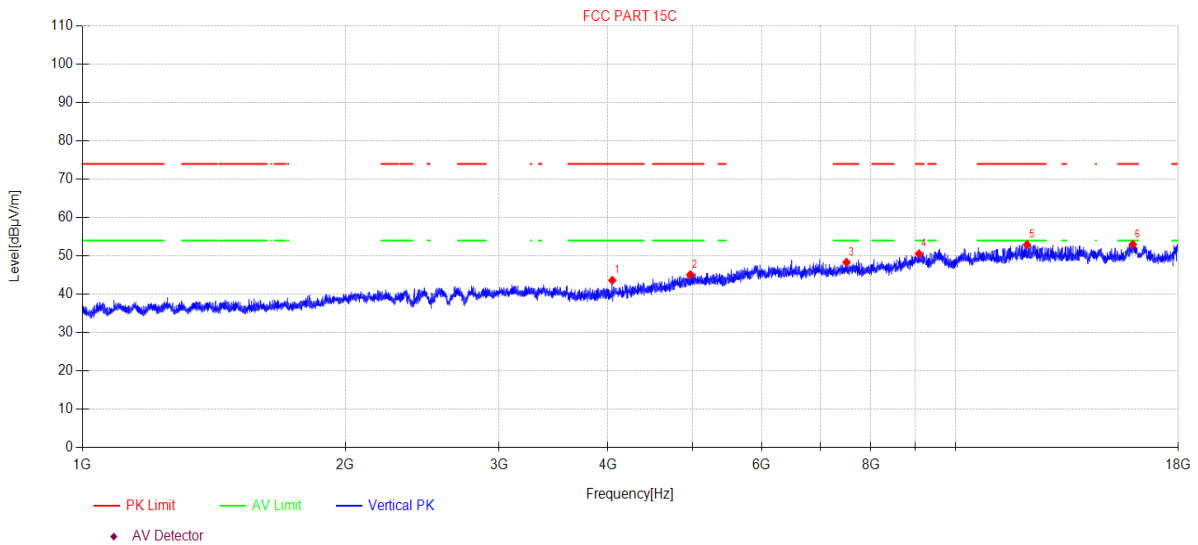
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\125
Memo: BLE 1M 2402 Left side

Test Graph



Suspected Data List										
N O.	Freq. [MHz]	Reading [dBµV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	4045.66	48.30	5.94	30.79	-41.39	43.64	74.00	30.36	PK	Vertical
2	4969.99	45.61	7.81	32.80	-41.11	45.11	74.00	28.89	PK	Vertical
3	7502.64	45.27	7.65	36.40	-41.00	48.32	74.00	25.68	PK	Vertical
4	9084.58	43.09	8.75	38.20	-39.50	50.54	74.00	23.46	PK	Vertical
5	12076.38	42.33	10.54	39.05	-38.98	52.94	74.00	21.06	PK	Vertical
6	15965.55	39.67	15.72	37.97	-40.38	52.98	74.00	21.02	PK	Vertical

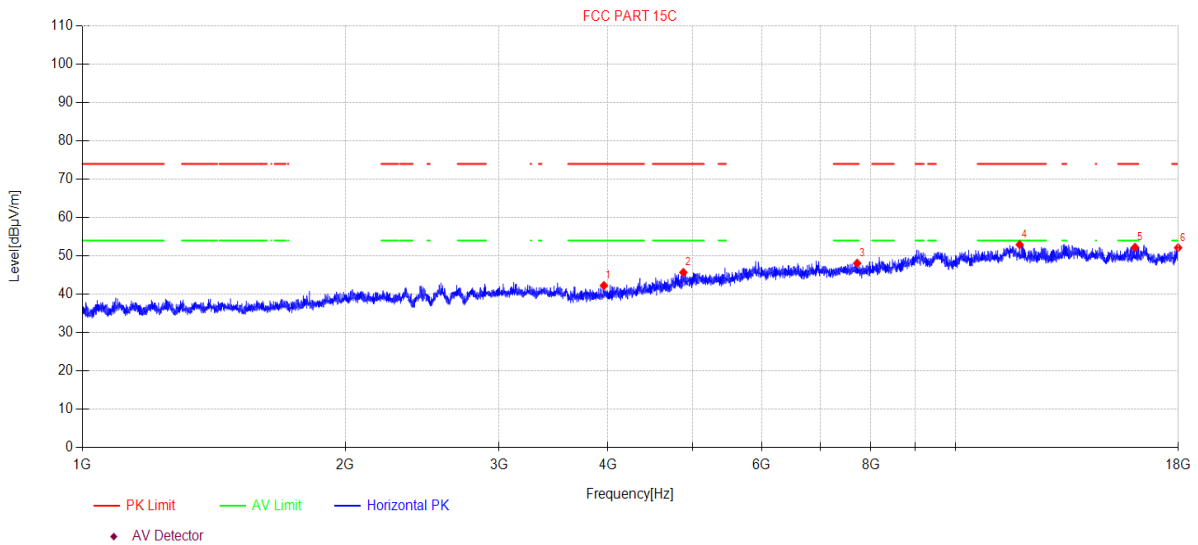
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\126
Memo: BLE 1M 2440 Left side

Test Graph



Suspected Data List										
N O.	Freq. [MHz]	Reading [dBµV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	3956.62	47.19	5.84	30.61	-41.37	42.27	74.00	31.73	PK	Horizontal
2	4878.91	46.65	7.63	32.56	-41.14	45.70	74.00	28.30	PK	Horizontal
3	7715.94	44.82	7.66	36.60	-41.00	48.08	74.00	25.92	PK	Horizontal
4	11844.79	42.89	10.40	38.80	-39.15	52.94	74.00	21.06	PK	Horizontal
5	16053.46	39.11	15.67	37.85	-40.39	52.24	74.00	21.76	PK	Horizontal
6	17989.60	37.97	13.12	41.74	-40.70	52.13	74.00	21.87	PK	Horizontal

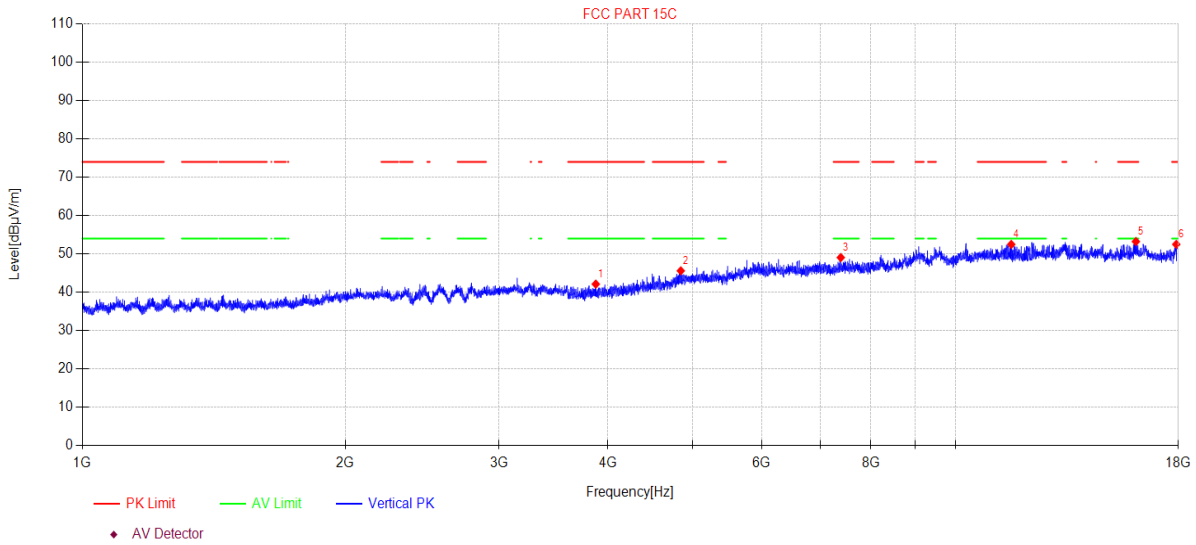
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\127
Memo: BLE 1M 2440 Left side

Test Graph



Suspected Data List										
N O.	Freq. [MHz]	Reading [dBµV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	3872.90	47.18	5.82	30.45	-41.32	42.13	74.00	31.87	PK	Vertical
2	4846.58	46.70	7.56	32.49	-41.15	45.60	74.00	28.40	PK	Vertical
3	7390.73	45.91	7.64	36.50	-41.00	49.05	74.00	24.95	PK	Vertical
4	11584.11	42.96	10.17	38.92	-39.57	52.48	74.00	21.52	PK	Vertical
5	16095.27	40.31	15.50	37.80	-40.39	53.22	74.00	20.78	PK	Vertical
6	17901.43	38.93	13.01	41.21	-40.66	52.49	74.00	21.51	PK	Vertical

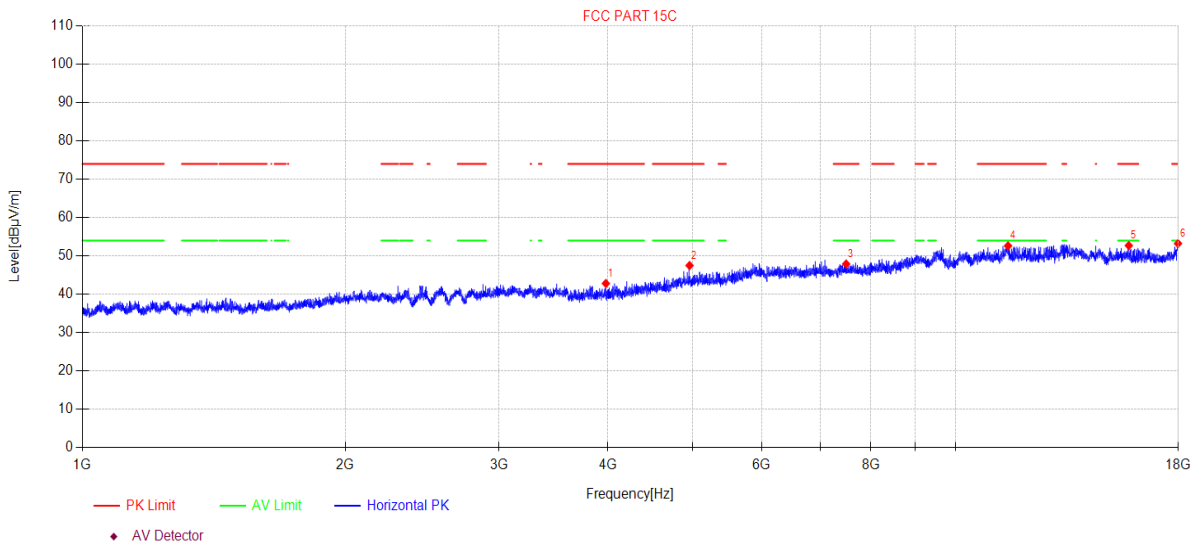
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\128
Memo: BLE 1M 2480 Left side

Test Graph



Suspected Data List										
N O.	Freq. [MHz]	Reading [dBµV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	3977.26	47.72	5.84	30.65	-41.39	42.82	74.00	31.18	PK	Horizontal
2	4959.95	48.02	7.79	32.80	-41.11	47.50	74.00	26.50	PK	Horizontal
3	7496.14	44.85	7.64	36.41	-41.00	47.90	74.00	26.10	PK	Horizontal
4	11487.42	43.26	10.08	39.01	-39.72	52.63	74.00	21.37	PK	Horizontal
5	15795.74	39.81	14.95	38.20	-40.26	52.70	74.00	21.30	PK	Horizontal
6	17984.40	39.10	13.11	41.71	-40.69	53.23	74.00	20.77	PK	Horizontal

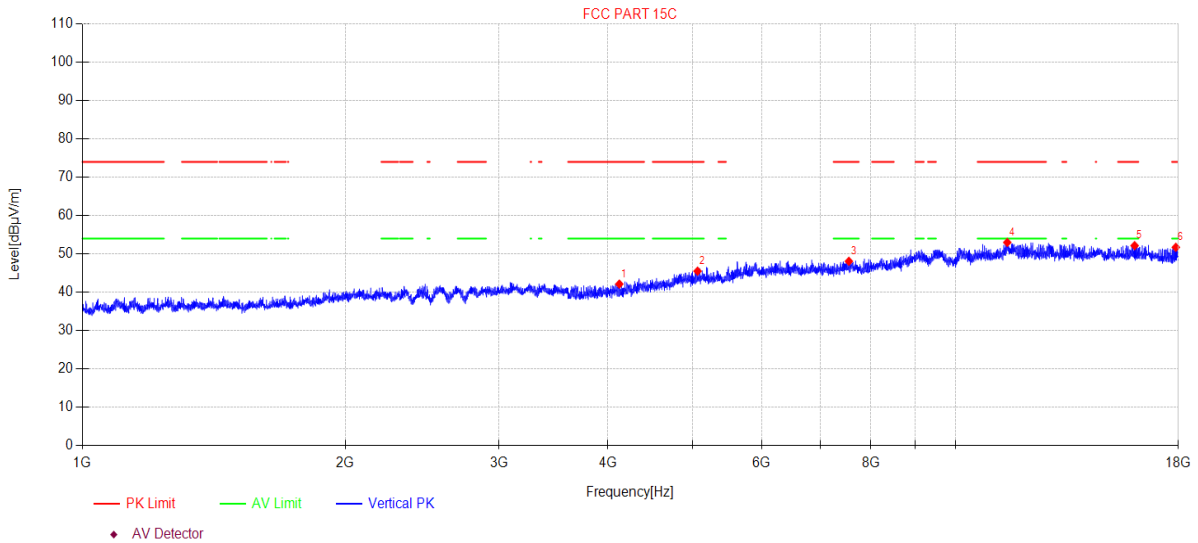
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\129
Memo: BLE 1M 2480 Left side

Test Graph



Suspected Data List										
N O.	Freq. [MHz]	Reading [dBµV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	4121.18	46.48	6.09	30.94	-41.36	42.15	74.00	31.85	PK	Vertical
2	5065.70	45.72	7.96	32.90	-41.07	45.51	74.00	28.49	PK	Vertical
3	7550.49	45.03	7.65	36.40	-41.00	48.08	74.00	25.92	PK	Vertical
4	11464.21	43.65	10.06	39.04	-39.76	52.99	74.00	21.01	PK	Vertical
5	16039.55	38.98	15.72	37.86	-40.40	52.16	74.00	21.84	PK	Vertical
6	17880.75	38.31	12.99	41.07	-40.65	51.72	74.00	22.28	PK	Vertical

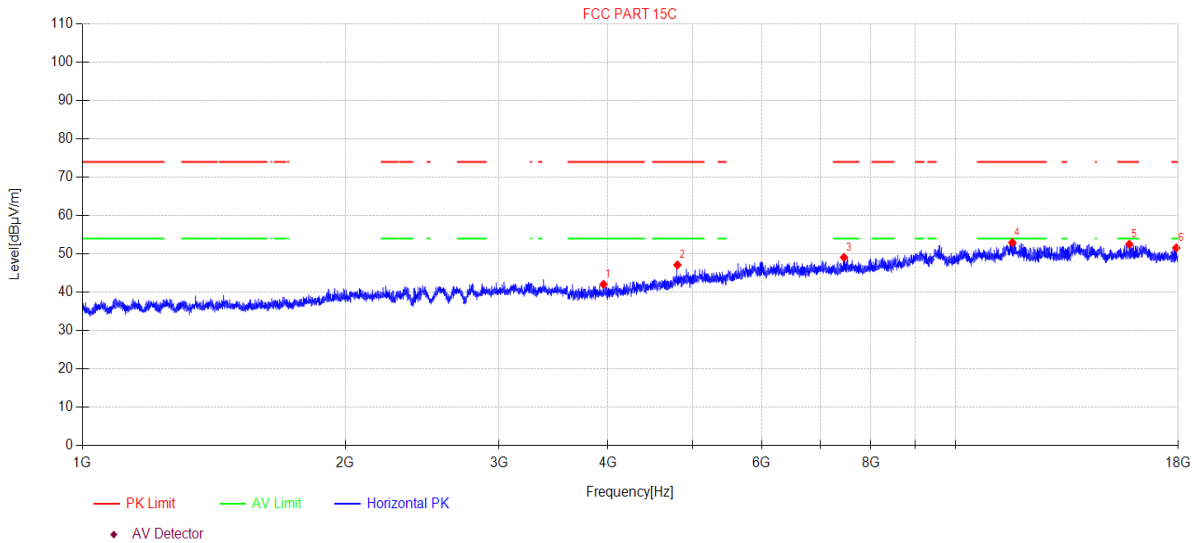
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\130
Memo: BLE 2M 2402 Left side

Test Graph



Suspected Data List										
N O.	Freq. [MHz]	Reading [dBµV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	3953.19	46.99	5.84	30.61	-41.37	42.07	74.00	31.93	PK	Horizontal
2	4803.36	48.51	7.47	32.31	-41.16	47.13	74.00	26.87	PK	Horizontal
3	7452.93	45.97	7.64	36.49	-41.00	49.10	74.00	24.90	PK	Horizontal
4	11617.64	43.39	10.20	38.88	-39.51	52.96	74.00	21.04	PK	Horizontal
5	15818.58	39.54	15.06	38.18	-40.27	52.51	74.00	21.49	PK	Horizontal
6	17901.43	38.00	13.01	41.21	-40.66	51.56	74.00	22.44	PK	Horizontal

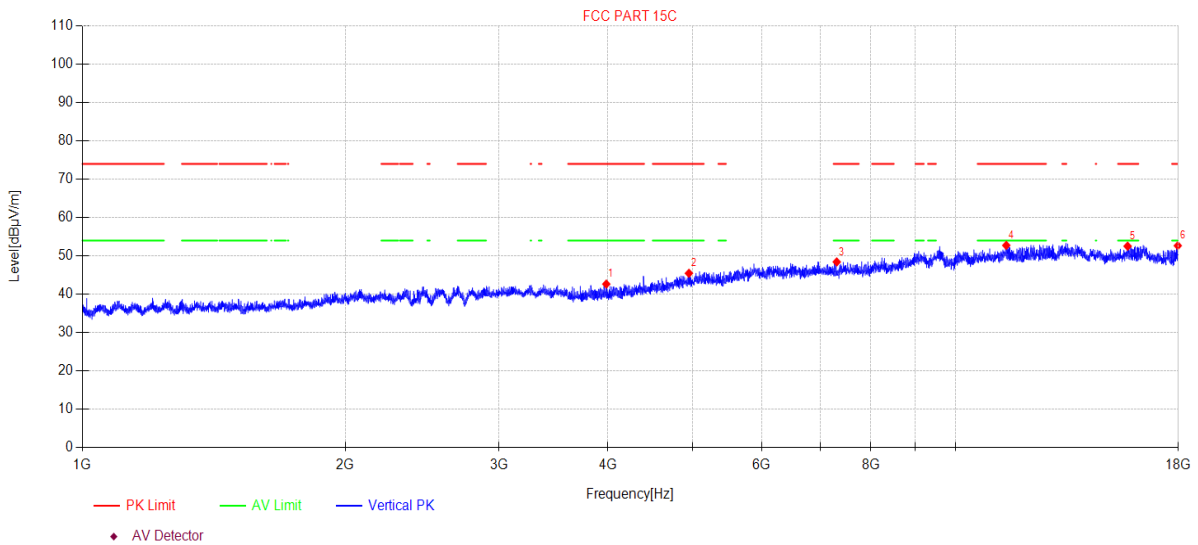
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\131
Memo: BLE 2M 2402 Left side

Test Graph



Suspected Data List										
N O.	Freq. [MHz]	Reading [dBµV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	3981.86	47.55	5.85	30.66	-41.39	42.67	74.00	31.33	PK	Vertical
2	4951.35	46.02	7.77	32.80	-41.11	45.48	74.00	28.52	PK	Vertical
3	7312.12	45.31	7.63	36.50	-41.00	48.44	74.00	25.56	PK	Vertical
4	11434.43	43.44	10.04	39.07	-39.80	52.75	74.00	21.25	PK	Vertical
5	15745.60	39.78	14.73	38.25	-40.22	52.54	74.00	21.46	PK	Vertical
6	17974.01	38.62	13.10	41.64	-40.69	52.67	74.00	21.33	PK	Vertical

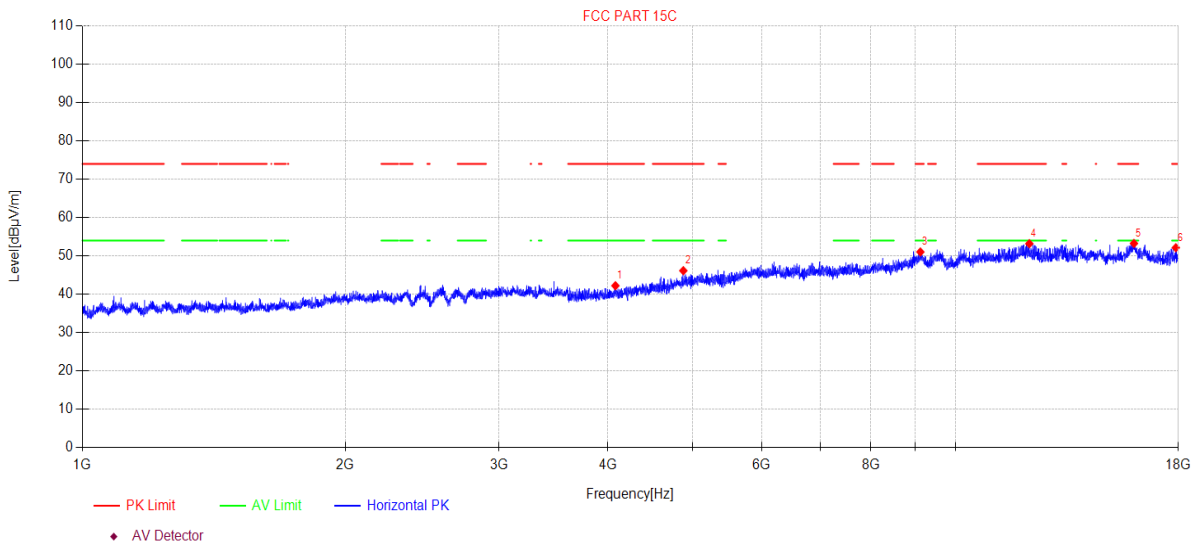
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\132
Memo: BLE 2M 2440 Left side

Test Graph



Suspected Data List										
N O.	Freq. [MHz]	Reading [dBµV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	4078.53	46.74	6.01	30.86	-41.38	42.23	74.00	31.77	PK	Horizontal
2	4878.91	47.10	7.63	32.56	-41.14	46.15	74.00	27.85	PK	Horizontal
3	9116.14	43.60	8.75	38.23	-39.54	51.04	74.00	22.96	PK	Horizontal
4	12149.89	42.60	10.54	39.10	-39.05	53.19	74.00	20.81	PK	Horizontal
5	16011.76	39.94	15.83	37.89	-40.40	53.26	74.00	20.74	PK	Horizontal
6	17880.75	38.73	12.99	41.07	-40.65	52.14	74.00	21.86	PK	Horizontal

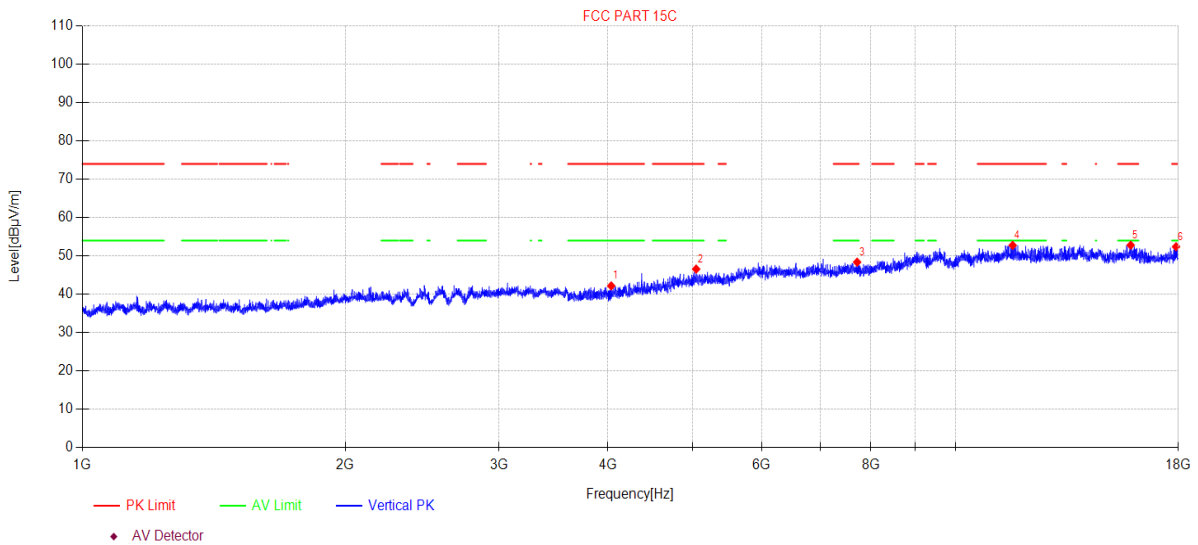
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\133
Memo: BLE 2M 2440 Left side

Test Graph



Suspected Data List										
N O.	Freq. [MHz]	Reading [dBµV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	4033.98	46.89	5.92	30.77	-41.39	42.19	74.00	31.81	PK	Vertical
2	5046.70	46.82	7.94	32.89	-41.08	46.57	74.00	27.43	PK	Vertical
3	7715.94	45.11	7.66	36.60	-41.00	48.37	74.00	25.63	PK	Vertical
4	11627.71	43.17	10.21	38.87	-39.50	52.75	74.00	21.25	PK	Vertical
5	15873.53	39.67	15.31	38.13	-40.31	52.80	74.00	21.20	PK	Vertical
6	17891.09	38.91	13.00	41.14	-40.66	52.39	74.00	21.61	PK	Vertical

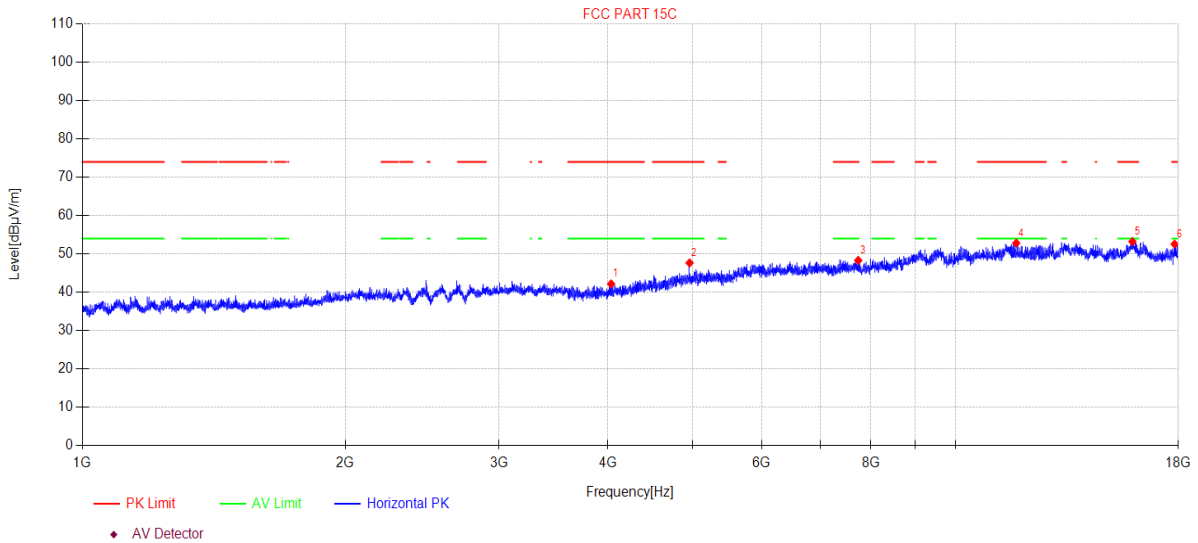
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\134
Memo: BLE 2M 2480 Left side

Test Graph



Suspected Data List										
N O.	Freq. [MHz]	Reading [dBµV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	4032.82	46.89	5.92	30.77	-41.39	42.19	74.00	31.81	PK	Horizontal
2	4959.95	48.17	7.79	32.80	-41.11	47.65	74.00	26.35	PK	Horizontal
3	7738.27	45.04	7.66	36.60	-41.00	48.30	74.00	25.70	PK	Horizontal
4	11739.14	43.04	10.31	38.80	-39.32	52.83	74.00	21.17	PK	Horizontal
5	15947.10	39.92	15.64	38.01	-40.36	53.21	74.00	20.79	PK	Horizontal
6	17823.99	39.59	12.92	40.67	-40.63	52.55	74.00	21.45	PK	Horizontal

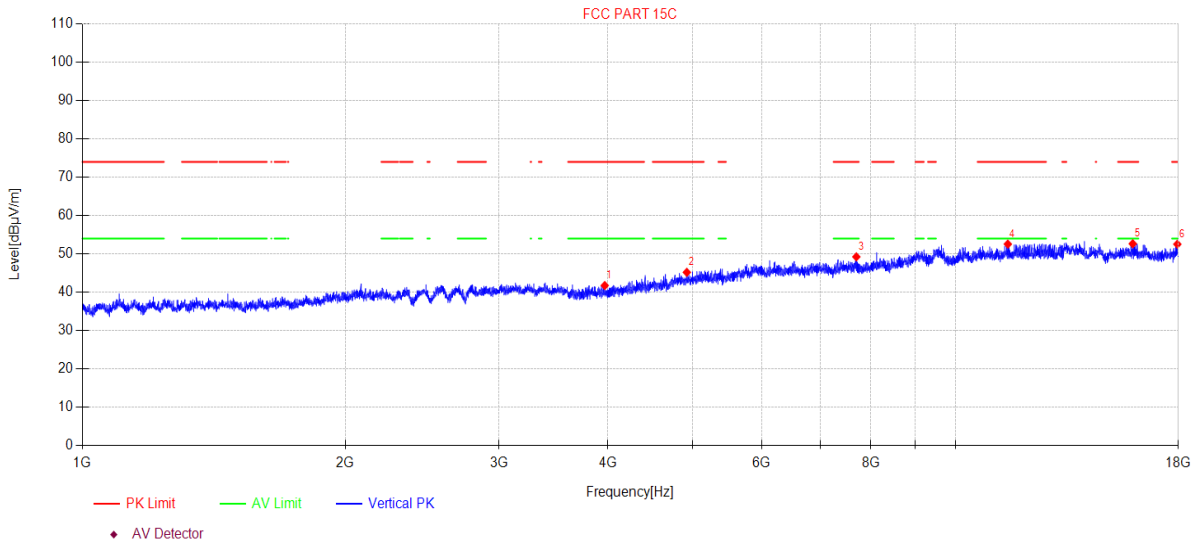
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date: 2023-07-12 **Tested By:** Bairong
EUT: WIRELESS HEADPHONES **Model Number:** HA-NP50T
Test Mode: Tx mode **Power Supply:** Battery
Condition: Temp:23°C;Humi:64.6% **Test Site:** DDT 3# Chamber
File Path: d:\ts\2023 report data\Q23021705-2E HA-NP50T\FCC ABOVE 1G\135
Memo: BLE 2M 2480 Left side

Test Graph



Suspected Data List										
N O.	Freq. [MHz]	Reading [dBµV/m]	Cable loss [dB]	Antenna Factor [dB]	AMP [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Detector	Polarity
1	3965.78	46.67	5.84	30.63	-41.38	41.76	74.00	32.24	PK	Vertical
2	4924.24	45.90	7.72	32.70	-41.12	45.20	74.00	28.80	PK	Vertical
3	7700.35	45.98	7.66	36.60	-41.00	49.24	74.00	24.76	PK	Vertical
4	11480.79	43.19	10.08	39.02	-39.73	52.56	74.00	21.44	PK	Vertical
5	15960.94	39.34	15.70	37.98	-40.37	52.65	74.00	21.35	PK	Vertical
6	17953.24	38.62	13.07	41.52	-40.68	52.53	74.00	21.47	PK	Vertical

Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.