

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT FCC PART 15 SUBPART C REQUIREMENT

OF

Flydigi Mobile Phone Cooling Fan B6

Model No.: B6

Trademark: N/A

FCC ID: 2AORE-B6

Report No.: E01A22120188F00101

Issue Date: December 21, 2022

Prepared for

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Prepared by

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Applicant:	Shanghai Flydigi Electronics Technology Co.,Ltd. Rm 1108,No.258 Guoxia Rd, Yangpu District, Shanghai, China.
Manufacturer:	SHENZHEN KING CHUANG TECH & ELECTRONIC CO.,LTD 58 Guangtian Road, Luotian Neighbour, Yanluo Street, Baoan District, Shenzhen, China (Postal Code 518127)
Product Description:	Flydigi Mobile Phone Cooling Fan B6
Trade Mark:	N/A
Model Number:	B6

VERIFICATION OF COMPLIANCE

We hereby certify that:

The above equipment was tested by Dong Guan Anci Electronic Technology Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10-2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.247(2022).

Date of Test :

December 12, 2022 to December 16, 2022



Tiger Xu / Supervisor

Prepared by :

Approved & Authorized Signer :

Modified Information

Version	Summary	Revision Date	Report No.
Ver.1.0	Original Report	/	E01A22120188F00101

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TRF N	o.: 01-R001-3A-LE	Global Testing , Great Quality.

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1. GENERAL INFORMATION

1.1 Product Description

Characteristics	Description
Product Name	Flydigi Mobile Phone Cooling Fan B6
Model number	B6
Input Rating	DC 5V2A, 9V2A
Power Supply	DC 5V, 9V from AC/DC ADAPTER
Kind of Device	Bluetooth Ver.4.0 BLE
Modulation	GFSK
Operating Frequency Range	2402-2480MHz
Number of Channels	40
Transmit Power Max(PK)	-0.93dBm(0.0008W)
Antenna Type	PCB antenna
Antenna Gain	2.08dBi
Date of Sample Received	December 12, 2022

1.2 Test Methodology

All the test program has follow FCC new test procedure KDB 558074 D01 DTS Meas Guidance v05 and in accordance with the procedures given in ANSI C63.10-2013.

2. Test Facility

Site Description		
Name of Firm	:	Dong Guan Anci Electronic Technology Co., Ltd.
Site Location	:	1-2 Floor, Building A, No.11, Headquarters 2 Road, Songshan, Lake Hi-tech Industrial Development Zone, Dongguan City, Guangdong Pr., China.

3. Description of test modes

The EUT has been tested under its typical operating condition and fully-charged battery for EUT tested alone. Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting. Only the worst case data were reported.

For Radiated: The EUT's antenna was pre-tested under the following modes:

Test Mode	Description
Mode A	X-Y axis
Mode B	Y-Z axis
Mode C	X-Z axis

From the above modes, the worst case was found in Mode C. Therefore only the test data of the mode was recorded in this report.

The EUT has been associated with peripherals pursuant to ANSI C63.10-2013 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation (9 KHz to the 10th harmonics of the highest fundamental frequency or to 40 GHz, whichever is lower).

Configuration of Tested System



Equipment Used in Tested System

Item	Equipment	Trademark	Manufacturer	Model No.	FCC ID	Note
1.	Flydigi Mobile Phone Cooling Fan B6	N/A	SHENZHEN KING CHUANG TECH & ELECTRONIC CO.,LTD	B6	2AORE-B6	EUT
2.	AC/DC ADAPTER	N/A	Shenzhen Keyu Power Supply Technology Co.,LTD	KA06E-0902000US KA06E-0502000US	N/A	Support EUT

Channel	Frequency	Channel	Frequency	Channel	Frequency
	(MHz)		(MHz)		(MHz)
00	2402	14	2430	28	2458
01	2404	15	2432	29	2460
02	2406	16	2434	30	2462
03	2408	17	2436	31	2464
04	2410	18	2438	32	2466
05	2412	19	2440	33	2468
06	2414	20	2442	34	2470
07	2416	21	2444	35	2472
08	2418	22	2446	36	2474
09	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	39	2480
12	2426	26	2454		
13	2428	27	2456		

The EUT has been tested under TX operating condition. Channel List:

Note:

1. Test of channel was included the lowest 2402MHz, middle 2440MHz and highest frequency 2480MHz in highest data rate and to perform the test, then record on this report.

4. Summary of Test Results

FCC Rules	Description Of Test	Result		
§15.207	AC Power Conducted Emission	Compliant		
§15.247(d),§15.209	Radiated Emission	Compliant		
§15.247(a)(2)	6dB Bandwidth Measurement	Compliant		
§15.247(b)	MAXIMUM PEAK OUTPUT POWER TEST	Compliant		
§15.247(e)	Power Spectral Density Measurement	Compliant		
§15.247(d)	Band EDGE test	Compliant		
§15.203	Antenna Requirement	Compliant		
Remark: According to FCC OET KDB 558074, the report use radiated measurements in the restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.				

5. TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Radio Frequency	±1x10^-5
Maximum Peak Output Power Test	±1.0dB
Conducted Emissions Test	±2.0dB
Radiated Emission Test	±2.0dB
Power Density	±2.0dB
Occupied Bandwidth Test	±1.0dB
Band Edge Test	±3dB
All emission, radiated	±3dB
Antenna Port Emission	±3dB
Temperature	±0.5℃
Humidity	±3%

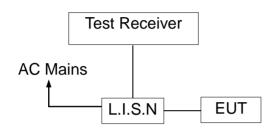
Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95%

6. Conducted Emissions Test

6.1 Measurement Procedure:

- 1. The EUT was placed on a table, which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all frequency measured was complete.

6.2 Test SET-UP (Block Diagram of Configuration)



6.3 Measurement Equipment Used:

С	Instr.Code	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	AN-E010	L.I.S.N	SCHWARZBECK	NSLK 8127	8127-669	2023-05-12
2	AN-E078	TRANSIENT LIMITER	CYBERTEK	EM5010A	E1950100113	2023-05-12
3	AN-E022	RF Cable	N/A	ZT06S-BNCJ-NJ-7.5M	19044020	2023-05-12
4	AN-E020	EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101358	2023-05-12
5	AN-E058	1# Shielded Room	chengyu	8m*4m*3.3m	N/A	2024-11-12
6	AN-E046	Test Software	Farad	EZ-EMC (Ver.ANCI-3A1)	N/A	N/A

6.4 Conducted Emission Limit

Quasi-peak	Average
66-56	56-46
56	46
60	50
	56

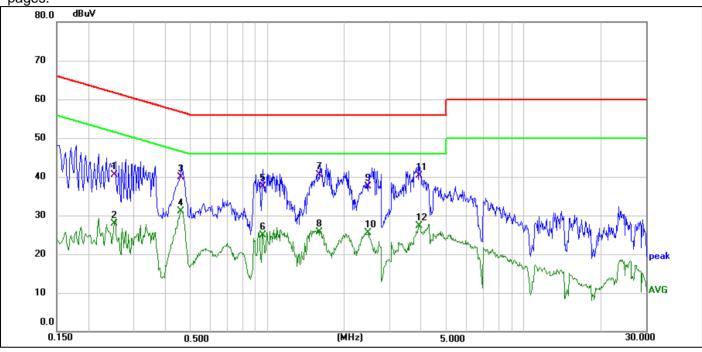
Note:

1. The lower limit shall apply at the transition frequencies

2.The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

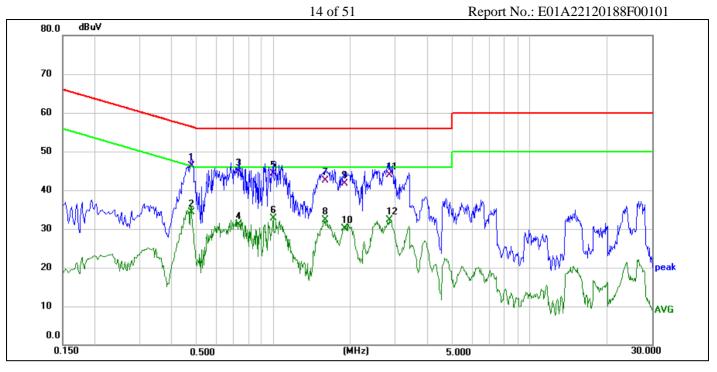
6.5 Measurement Result:

All the modulation modes were tested the data of the worst mode (BLE Mode) are recorded in the following pages and the others modulation methods do not exceed the limits. Please refer to following pages.



Site:	843	Phase:L	Temperature(C):23.5(C)
Limit:	FCC PART 15C Conduction(QP)		Humidity(%):52.6%
EUT:	Flydigi Mobile Phone Cooling Fan B6	Test Time:	2022-12-16 20:59:23
M/N.:	B6	Power Rating:	AC 120V/60Hz
Mode:	BLE mode	Test Engineer:	Rock
Note:		-	

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure- ment(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	0.2521	30.23	10.31	40.54	61.69	-21.15	QP	
2	0.2521	17.57	10.31	27.88	51.69	-23.81	AVG	
3	0.4580	29.22	10.65	39.87	56.73	-16.86	QP	
4	0.4580	20.51	10.65	31.16	46.73	-15.57	AVG	
5	0.9620	27.46	10.02	37.48	56.00	-18.52	QP	
6	0.9620	14.94	10.02	24.96	46.00	-21.04	AVG	
7 *	1.6019	30.49	10.04	40.53	56.00	-15.47	QP	
8	1.6019	15.74	10.04	25.78	46.00	-20.22	AVG	
9	2.4739	27.38	10.05	37.43	56.00	-18.57	QP	
10	2.4739	15.36	10.05	25.41	46.00	-20.59	AVG	
11	3.9220	30.28	9.98	40.26	56.00	-15.74	QP	
12	3.9220	17.27	9.98	27.25	46.00	-18.75	AVG	



Site:	843	Phase:N	Temperature(C):23.5(C)
Limit:	FCC PART 15C Conduction(QP)		Humidity(%):52.6%
EUT:	Flydigi Mobile Phone Cooling Fan B6	Test Time:	
M/N.:	B6	Power Rating:	AC 120V/60Hz
Mode:	BLE mode	Test Engineer:	Rock
Note:		_	

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure- ment(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1 *	0.4780	35.71	10.67	46.38	56.37	-9.99	QP	
2	0.4780	23.72	10.67	34.39	46.37	-11.98	AVG	
3	0.7340	35.32	9.61	44.93	56.00	-11.07	QP	
4	0.7340	21.40	9.61	31.01	46.00	-14.99	AVG	
5	0.9980	34.36	10.03	44.39	56.00	-11.61	QP	
6	0.9980	22.70	10.03	32.73	46.00	-13.27	AVG	
7	1.6019	32.38	10.04	42.42	56.00	-13.58	QP	
8	1.6019	22.36	10.04	32.40	46.00	-13.60	AVG	
9	1.9060	31.73	10.04	41.77	56.00	-14.23	QP	
10	1.9060	20.11	10.04	30.15	46.00	-15.85	AVG	
11	2.8260	33.90	10.09	43.99	56.00	-12.01	QP	
12	2.8260	22.27	10.09	32.36	46.00	-13.64	AVG	



6.5 Conducted Measurement Photos:

7. Radiated Emission Test

7.1 Measurement Procedure

- 1. The testing follows the guidelines in ANSI C63.10-2013.
- 2. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane. And above 1000MHz, The EUT was placed on a styrofoam table which is 1.5m above ground plane.
- 3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 4. The EUT was arranged to its worst case and then tune the Antenna tower (From 1m to 4m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
- 5. For measurement below 1GHz, if the emission level of the EUT measured by the peak detector is 3dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
- 6. Final measurement (Above 1GHz): The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The EMI Receiver set to peak and average mode and a resolution bandwidth of 1MHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 degree to 360 degree in order to have the antenna inside the cone of radiation.
- 7. Test Procedure of measurement (For Above 1GHz):
 - 1) Monitor the frequency range at horizontal polarization and move the antenna over all sides of the EUT(if necessary move the EUT to another orthogonal axis).
 - 2) Change the antenna polarization and repeat 1) with vertical polarization.
 - 3) Make a hardcopy of the spectrum.
 - 4) Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
 - 5) Change the analyser mode to Clear/Write and found the cone of emission.
 - 6) Rotate and move the EUT, so that the measuring distance can be enlarged to 3m and the antenna will be still inside the cone of emission.
 - 7) Measure the level of the detected frequency with the correct resolution bandwidth, with the antenna polarization and azimuth and the peak and average detector, which causes the maximum emission.
 - 8) Repeat steps 1) to 7) for the next antenna spot if the EUT is larger than the antenna beamwidth.

Use the following spectrum analyzer settings:

When spectrum scanned from 30MHz to 1GHz setting resolution bandwidth 120KHz and video bandwidth 300KHz:

EMI Test Receiver	Setting
Attenuation	Auto
RB	120KHz
VB	300KHz
Detector	QP
Trace	Max hold

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 3MHz:

EMI Test Receiver	Setting
Attenuation	Auto
RB	1MHz
VB	3MHz
Detector	Peak
Trace	Max hold

When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 10Hz:

EMI Test Receiver	Setting
Attenuation	Auto
RB	1MHz
VB	10Hz
Detector	Average
Trace	Max hold

For Average Measurement:

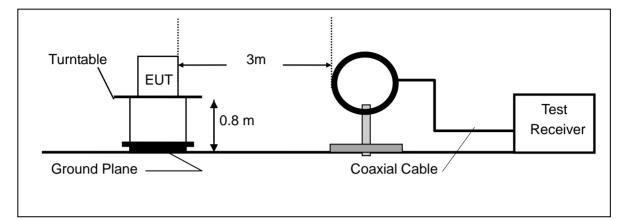
VBW=10Hz, when duty cycle is no less than 98 percent.

VBW ≥1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

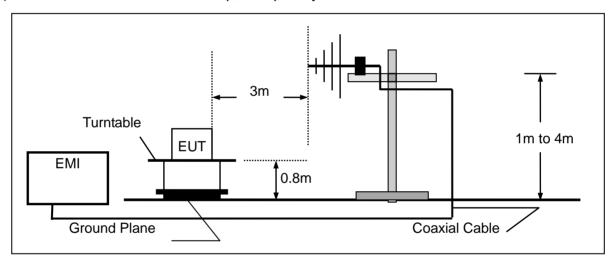
Band	Duty Cycle(%)	Τ(μ s)	1/T(KHz)	Average Correction Factor	VBW Setting
2402-2480	100	-	-	0	10Hz

7.2 Test SET-UP (Block Diagram of Configuration)

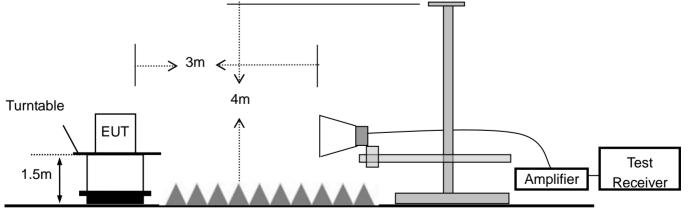
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



7.3 Measurement Equipment Used:

3m Radiated Emission Measurement 30M-1G

Item	Instr.Code	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	AN-E060	EMI Test Receiver	Rohde & Schwarz	ESCI	100302	2023-05-12
2	AN-E061	Pre-Amplifier	Anritsu	MH648A	M57886	2023-05-12
3	AN-E076	Bilog Antenna	Schwarzbeck	VULB9163	VULB9163-1290	2022-11-11
4	AN-E063	RF Cable	N/A	ZT06S-NJ-NJ-11M	19060398	2023-05-12
5	AN-E064	RF Cable	N/A	ZT06S-NJ-NJ-0.5M	19060400	2023-05-12
6	AN-E065	RF Cable	N/A	ZT06S-NJ-NJ-2.5M	19060404	2023-05-12
7	AN-E056	3m Semi-anechoic Chamber	chengyu	9m*6m*6m	N/A	2024-11-11
8	AN-E069	Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE)	N/A	N/A

3m Radiated Emission Measurement 1G-18G

Item	Instr.Code	Kind of Equipment	Manufacturer	Туре No.	Serial No.	Calibrated until
1	AN-E037	Spectrum Analyzer	Rohde & Schwarz	FSV40	102257	2022-11-11
2	AN-E015	Low noise Amplifiers	A-INFO	LA1018N4009	J1013130524001	2023-05-12
3	AN-E014	Horn antenna	A-INFO	LB-10180-SF	J2031090612123	2023-05-14
4	AN-E065	RF Cable	N/A	ZT26-NJ-NJ-11M	19060401	2023-05-12
5	AN-E067	RF Cable	N/A	ZT26-NJ-NJ-2.5M	19060402	2023-05-12
6	AN-E068	RF Cable	N/A	ZT26-NJ-NJ-0.5M	19060403	2023-05-12
7	AN-E056	3m Semi-anechoic Chamber	chengyu	9m*6m*6m	N/A	2024-11-12
8	AN-E069	Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE)	N/A	N/A

7.4 Radiated emission limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

Frequencies	Field Strength	Measurement Distance
(MHz)	(micorvolts/meter)	(meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

15.205 Restricted bands of operation

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	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)

Remark 1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of ξ 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

:

7.5 Measurement Result

Below 30MHz:

Operation Mode:	ТХ	Test Date :	2022-12-16
Frequency Range:	9KHz~30MHz	Temperature :	25 ℃
Test Result:	PASS	Humidity :	58 %
Measured Distance:	3m	Test By:	Best

Freq.	Ant.Pol.	Emission	Limit 3m	Over
		Level		
(MHz)	H/V	(dBuV/m)	(dBuV/m)	(dB)

Note: The low frequency, which started from 9KHz-30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

Below 1000MHz:

Pass.

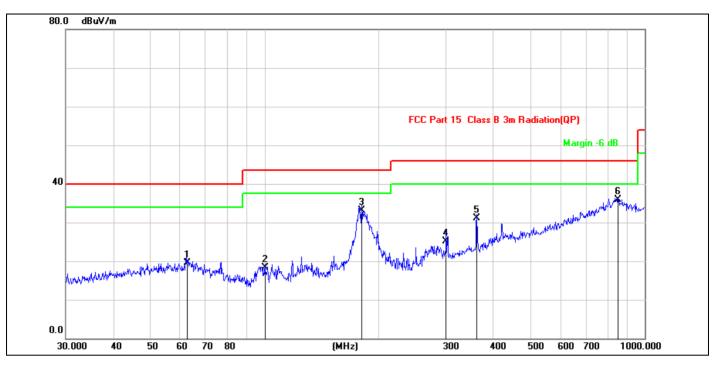
The data of the mode (GFSK 2402MHz) are recorded in the following pages.



Site:	843.3	Antenna:: Vertical	Temperature(C):26C)
Limit:	FCC Part 15 C Conduction(QP)		Humidity(%):54%
EUT:	Flydigi Mobile Phone Cooling Fan B6	Test Time:	2022/12/16 20:25:19
M/N.:	B6	Power Rating:	AC 120V/50Hz
Mode: Note:	TX2402	Test Engineer:	Rock

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure- ment(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1 *	30.5306	42.51	-11.99	30.52	40.00	-9.48	QP	
2	58.6126	37.10	-9.09	28.01	40.00	-11.99	QP	
3	118.1862	42.85	-11.83	31.02	43.50	-12.48	QP	
4	177.5092	45.29	-11.72	33.57	43.50	-9.93	QP	
5	361.7139	39.22	-4.70	34.52	46.00	-11.48	QP	
6	420.5803	38.20	-2.53	35.67	46.00	-10.33	QP	





Site:	843.3	Antenna:: Horizontal	Temperature(C):26C)
Limit:	FCC Part 15 C Conduction(QP)		Humidity(%):54%
EUT:	Flydigi Mobile Phone Cooling Fan B6	Test Time:	2022/12/16 20:26:20
M/N.:	B6	Power Rating:	AC 120V/60Hz
Mode:	TX2402	Test Engineer:	Rock
Note:			

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measure- ment(dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	62.6507	28.49	-8.94	19.55	40.00	-20.45	QP	
2	100.2286	30.23	-11.92	18.31	43.50	-25.19	QP	
3	180.0165	44.72	-11.70	33.02	43.50	-10.48	QP	
4	300.3672	31.87	-6.79	25.08	46.00	-20.92	QP	
5	361.7139	35.75	-4.70	31.05	46.00	-14.95	QP	
6 *	851.0353	28.70	7.16	35.86	46.00	-10.14	QP	

Above 1000MHz~10th Harmonics:

Operation Mode:	TX Mode (CH00: 2402MHz)	Test Date :	2022-12-16
Frequency Range:	1-25GHz	Temperature :	25 ℃
Test Result:	PASS	Humidity :	58 %
Measured Distance:	3m	Test By:	Best

Freq.	Ant. Pol.	Rea Level(d	0	Correct Factor	Emis Level(d			mit BuV/m)	Ove	r(dB)
(MHz)	H/V	PK	AV	dB	PK	AV	PK	AV	PK	AV
4804	V	94.37	73.54	-32.3	62.07	41.24	74	54	-11.93	-12.76
7206	V	96.96	75.36	-37.2	59.76	38.16	74	54	-14.24	-15.84
9608	V	97.31	77.61	-39.8	57.51	37.81	74	54	-16.49	-16.19
12010	V	96.24	77.14	-40.5	55.74	36.64	74	54	-18.26	-17.36
14412	V	97.53	75.31	-41.7	55.83	33.61	74	54	-18.17	-20.39
16814	V	96.31	76.03	-40	56.31	36.03	74	54	-17.69	-17.97
4804	Н	93.53	75.27	-31.6	61.93	43.67	74	54	-12.07	-10.33
7206	Н	95.31	74.31	-35.5	59.81	38.81	74	54	-14.19	-15.19
9608	Н	94.96	75.61	-38.3	56.66	37.31	74	54	-17.34	-16.69
12010	Н	95.14	75.31	-39	56.14	36.31	74	54	-17.86	-17.69
14412	Н	96.58	73.54	-42	54.58	31.54	74	54	-19.42	-22.46
16814	Н	94.25	74.21	-39.3	54.95	34.91	74	54	-19.05	-19.09

Other harmonics emissions are lower than 20dB below the allowable limit.

- **Note:** (1) All Readings are Peak Value and AV.
 - (2) Emission Level= Reading Level+ Probe Factor +Cable Loss.
 - (3) The average measurement was not performed when the peak measured data under the limit of average detection.
 - (4) Measuring frequencies from 1GHz to 25GHz.

Operation Mode:	TX Mode (CH19: 2440MHz)	Test Date :	2022-12-16
Frequency Range:	1-25GHz	Temperature :	25 ℃
Test Result:	PASS	Humidity :	58 %
Measured Distance:	3m	Test By:	Best

Freq.	Ant. Pol.		ding BuV/m)	Correct Factor	Emis Level(d			mit BuV/m)	Marg	in(dB)
(MHz)	H/V	PK	AV	dB	PK	AV	PK	AV	PK	AV
4880	V	96.24	76.02	-32.3	63.94	43.72	74	54	-10.06	-10.28
7320	V	96.57	77.54	-37.2	59.37	40.34	74	54	-14.63	-13.66
9760	V	97.21	78.31	-39.8	57.41	38.51	74	54	-16.59	-15.49
12200	V	96.47	78.11	-40.5	55.97	37.61	74	54	-18.03	-16.39
14640	V	97.09	78.31	-41	56.09	37.31	74	54	-17.91	-16.69
17080	V	96.48	76.58	-41.1	55.38	35.48	74	54	-18.62	-18.52
4880	Н	95.69	75.31	-31.6	64.09	43.71	74	54	-9.91	-10.29
7320	Н	95.02	75.24	-35.5	59.52	39.74	74	54	-14.48	-14.26
9760	Н	95.55	76.57	-38.3	57.25	38.27	74	54	-16.75	-15.73
12200	Н	95.25	76.58	-39	59.37	40.34	74	54	-17.75	-16.42
14640	Н	96.86	77.17	-42	54.86	35.17	74	54	-19.14	-18.83
17080	Н	96.61	77.91	-41.5	55.11	36.41	74	54	-18.89	-17.59

Other harmonics emissions are lower than 20dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.

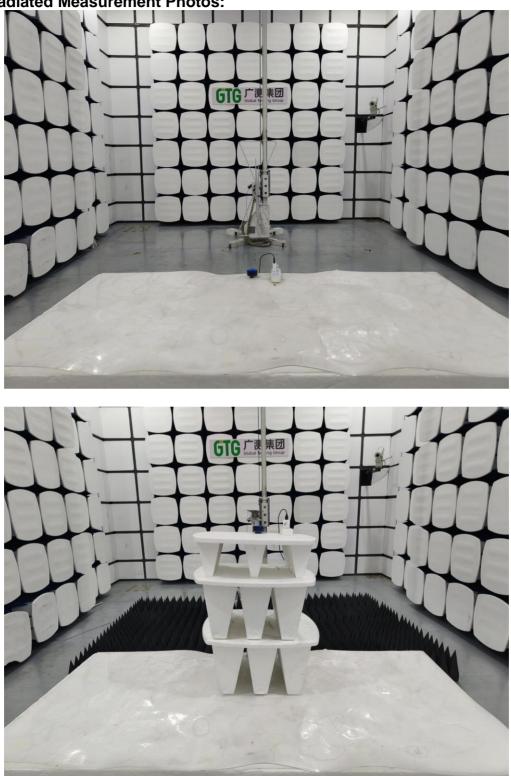
- (2) Emission Level= Reading Level+ Probe Factor +Cable Loss.
- (3) The average measurement was not performed when the peak measured data under the limit of average detection.
- (4) Measuring frequencies from 1GHz to 25GHz.

Operation Mode:	TX Mode (CH39: 2480MHz)	Test Date :	2022-12-16
Frequency Range:	1-25GHz	Temperature :	25 ℃
Test Result:	PASS	Humidity :	58 %
Measured Distance:	3m	Test By:	Best

Freq.	Ant. Pol.	Reading Level(dBuV/m)		Correct Factor	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Margin(dB)	
(MHz)	H/V	PK	AV	dB	PK	AV	PK	AV	PK	AV
4960	V	96.14	76.64	-32.3	63.84	44.34	74	54	-10.16	-9.66
7440	V	96.36	76.21	-37.2	59.16	39.01	74	54	-14.84	-14.99
9920	V	97.32	77.26	-39.8	57.52	37.46	74	54	-16.48	-16.54
12400	V	96.31	76.21	-40.5	55.81	35.71	74	54	-18.19	-18.29
14880	V	96.14	78.28	-41	55.14	37.28	74	54	-18.86	-16.72
17360	V	95.21	76.14	-41.1	54.11	35.04	74	54	-19.89	-18.96
4960	Н	95.37	74.36	-31.6	63.77	42.76	74	54	-10.23	-11.24
7440	Н	94.86	74.31	-35.5	59.36	38.81	74	54	-14.64	-15.19
9920	Н	94.21	75.28	-38.3	55.91	36.98	74	54	-18.09	-17.02
12400	Н	94.68	75.05	-39	55.68	36.05	74	54	-18.32	-17.95
14880	Η	94.87	75.1	-42	52.87	33.1	74	54	-21.13	-20.9
17360	Н	94.56	76.25	-41.5	53.06	34.75	74	54	-20.94	-19.25

Other harmonics emissions are lower than 20dB below the allowable limit.

- **Note:** (1) All Readings are Peak Value and AV.
 - (2) Emission Level= Reading Level+ Probe Factor +Cable Loss.
 - (3) The average measurement was not performed when the peak measured data under the limit of average detection.
 - (4) Measuring frequencies from 1GHz to 25GHz.



7.6 Radiated Measurement Photos:

8. 6dB Bandwidth Measurement

8.1 Measurement Procedure

The EUT was operating in Bluetooth mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

8.2 Test SET-UP (Block Diagram of Configuration)



8.3 Measurement Equipment Used:

Item	Instr.Code	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	AN-E037	Spectrum Analyzer	KEYSIGHT	N9020A	MY61250185	2023-10-07
2	AN-E040	WIDEBAND RADIO COMMUNICATION	Rohde & Schwarz	CMW500	157423	2023-10-07
3	AN-E039	MXG Vector Signal Generator	KEYSIGHT	N5182B	MY61250185	2023-10-07
4	AN-E038	EXG Analog Signal Generator	KEYSIGHT	N5173B	My61252603	2023-10-07
5	AN-E041	USB RF Power sensor	RadiPower	RPR3006W	17100015SNO88	2023-10-07
6	AN-E042	USB RF Power sensor	RadiPower	RPR3006W	17100015SNO89	2023-10-07
7	/	RF Test Software	MWRF-test	MTS 8310	N/A	N/A
8	AN-E092	Radio Frequency control box	MWRF-test	MW200-RFCB	MW220111ANCI	2023-05-12
9	AN-E093	Radio Frequency control box	MWRF-test	MW200-RFCB 2#	/	2023-05-12

Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

8.4 Limit

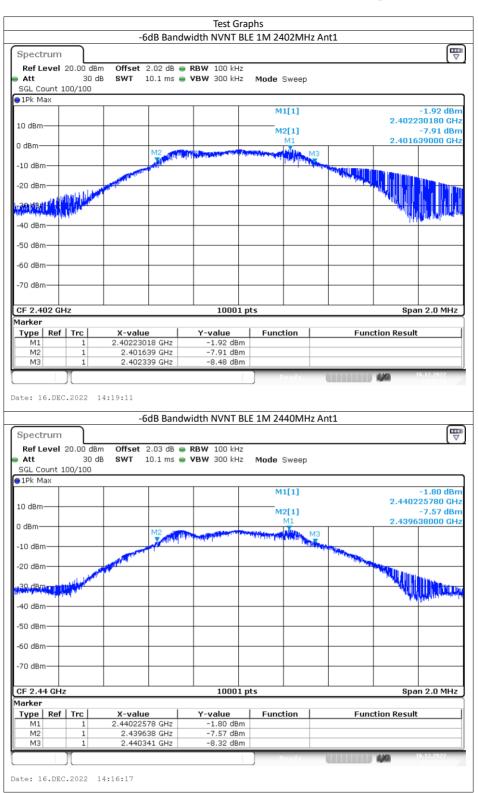
The minimum 6dB bandwidth shall be at least 500kHz.

8.5 Measurement Results:

Refer to attached data chart.

Spectrum Detector:	PK	Test Date :	2022-12-16
Test By:	Best	Temperature :	24 ℃
Test Result:	PASS	Humidity :	53 %

Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
BLE 1M	2402	Ant1	0.7	0.5	Pass
BLE 1M	2440	Ant1	0.703	0.5	Pass
BLE 1M	2480	Ant1	0.702	0.5	Pass



	_	-6	dB Bandv	vidth NVNT BI	E 1M 2480MH	z Ant1		
Spectrum								[₩
Ref Level 2	20.00 dB	m Offset :	2.05 dB 👄	RBW 100 kHz				
Att	30 c	ib SWT 1	.0.1 ms 😑	VBW 300 kHz	Mode Sweep			
SGL Count 10	00/100							
1Pk Max								
					M1[1]			-1.88 dBn
10 dBm							2.4802	29180 GH
					M2[1] M1		0.4706	-8.13 dBn 39000 GH:
0 dBm							2.4790	139000 GH.
			M2	A CONTRACTOR OF A CONT	New Street of Street, St	M3		
-10 dBm			A BUILDING			and the second		
-20 dBm						A STATE OF THE OWNER		
-20 uBm		M M M					The little to	
								and the state of the second
ALL HALL HALL								
-40 dBm								P
-50 dBm							-	
-60 dBm								
-60 UBIII								
.70 dBm								
CF 2.48 GHz				10001	pts		Spa	n 2.0 MHz
1arker								
Type Ref	Trc	X-value		Y-value	Function	Fun	ction Result	
M1	1	2.480229		-1.88 dBm				
M2	1	2.4796		-8.13 dBm				
M3	1	2.4803	41 GHZ	-7.96 dBm				
					Ready		444	16.12.2022
ate: 16.DEC.	2022	14:13:29						

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1 Measurement Procedure

a. The Transmitter output (antenna port) was connected to the spectrum Analyzer.

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- b. Turn on the EUT and then record the peak power value.
- c. Repeat above procedures on all channels needed to be tested.

9.2 Test SET-UP (Block Diagram of Configuration)



Spectrum Analyzer

9.3 Measurement Equipment Used:

Item	Instr.Code	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	AN-E037	Spectrum Analyzer	KEYSIGHT	N9020A	MY61250185	2023-10-07
2	AN-E040	WIDEBAND RADIO COMMUNICATION	Rohde & Schwarz	CMW500	157423	2023-10-07
3	AN-E039	MXG Vector Signal Generator	KEYSIGHT	N5182B	MY61250185	2023-10-07
4	AN-E038	EXG Analog Signal Generator	KEYSIGHT	N5173B	My61252603	2023-10-07
5	AN-E041	USB RF Power sensor	RadiPower	RPR3006W	17100015SNO88	2023-10-07
6	AN-E042	USB RF Power sensor	RadiPower	RPR3006W	17100015SNO89	2023-10-07
7	/	RF Test Software	MWRF-test	MTS 8310	N/A	N/A
8	AN-E092	Radio Frequency control box	MWRF-test	MW200-RFCB	MW220111ANCI	2023-05-12
9	AN-E093	Radio Frequency control box	MWRF-test	MW200-RFCB 2#	/	2023-05-12

Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

9.4 Peak Power output limit

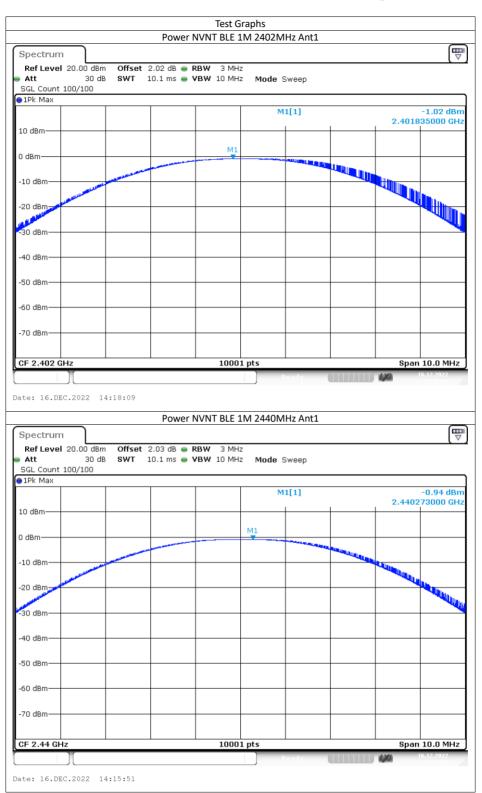
The maximum peak power shall be less 1Watt.

9.5 Measurement Results:

Refer to attached data chart.

Spectrum Detector:	PK	Test Date :	2022-12-16
Test By:	Best	Temperature :	24 °C
Test Result:	PASS	Humidity :	53 %

Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
BLE 1M	2402	Ant1	-1.02	0	-1.02	30	Pass
BLE 1M	2440	Ant1	-0.94	0	-0.94	30	Pass
BLE 1M	2480	Ant1	-0.93	0	-0.93	30	Pass



Ref Level 20.00 dBm Offset 2.05 dB RBW 3 MHz Att 30 dB SWT 10.1 ms VBW 10 MHz Mode Sweep SGL Count 100/100		Power NV	NT BLE 1M 2480MHz Ant	:1	
Att 30 dB SWT 10.1 ms VBW 10 MHz Mode Sweep SGL Count 100/100 III -0.93 dB 2.480430000 GF 10 dBm M1 0 0.1 ms M1 0 0 dBm M1 M1 0 0.93 dB 2.480430000 GF -10 dBm M1 M1 0 0 0 0 -20 dBm M1 M1 0 0 0 0 0 -30 dBm M1 M1 0 0 0 0 0 0 -20 dBm M1 M1 0 0 0 0 0 0 -20 dBm M1 M1 0 0 0 0 0 0 -20 dBm M1 0 0 0 0 0 0 0 0 0 -20 dBm 0	Spectrum				[₩
SGL Count 100/100 1Pk Max 0 dBm 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm -50 dBm -70 dBm	Ref Level 20.00 dBm	Offset 2.05 dB 👄 RBW	VI 3 MHz		
IPLK Max -0.93 dB 2.480430000 GF 10 dBm M1 -0.93 dB 0 dBm M1 -0.93 dB 10 dBm M1 -0.93 dB 20 dBm M1 -0.93 dB -20 dBm -0.93 dB -0.93 dB -20 dBm -0.93 dB -0.93 dB -20 dBm -0.93 dB -0.93 dB -30 dBm -0.93 dB -0.93 dB -10 dBm -0.93 dB -0.93 dB -20 dBm -0.93 dB -0.93 dB -30 dBm -0.93 dB -0.93 dB -50 dBm -0.93 dB -0.93 dB -60 dBm -0.93 dB -0.93 dB -70 dBm -0.93 dB -0.93 dB -70 dBm -0.93 dB -0.93 dB		SWT 10.1 ms 🖷 VBV	V 10 MHz Mode Sweep		
10 dBm M1[1] -0.93 dB 10 dBm M1 2.480430000 GF 10 dBm M1 M1 10 dBm M1 M1 20 dBm M1 M1 30 dBm M1 M1 30 dBm M1 M1 30 dBm M1 M1 40 dBm M1 M1 50 dBm M1 M1 50 dBm M1 50 dBm					
10 dBm M1 2.480430000 GH 0 dBm M1 M1 10 dBm M1 M1 10 dBm M1 M1 10 dBm M1 M1 20 dBm M1 M1 30 dBm M1 M1 40 dBm M1 M1 50 dBm M1 M1 70 dBm M1 M1	1Pk Max				
D dBm M1 M1 -10 dBm -10 dBm -10 dBm -20 dBm -10 dBm -10 dBm -20 dBm -10 dBm -10 dBm -20 dBm -10 dBm -10 dBm -10 dBm -10 dBm -10 dBm -10 dBm -10 dBm -20 dBm -10 dBm -10 dBm <t< td=""><td></td><td></td><td>M1[1]</td><td>2.4</td><td>-0.93 dBn 80430000 GH</td></t<>			M1[1]	2.4	-0.93 dBn 80430000 GH
0 dBm	10 dBm				_
-10 dBm			M1		
40 dBm					
-40 dBm					
-40 dBm	10 dBm				
-40 dBm	and the second second				Lun, .
-40 dBm	20 dBm				- Contraction
-40 dBm					
-50 dBm	30 dBm				
-50 dBm					
-50 dBm	40 dBm				
-60 dBm					
-60 dBm	50 dBm				
-70 dBm	-JU UBIII				
-70 dBm					
	-60 dBm				
CF 2.48 GHz 10001 pts Span 10.0 MH:	-70 dBm				
CF 2.48 GHz 10001 pts Span 10.0 MH Ready 15.12.2022					
Ready 15.12.2022	CE 2.48 GHz		10001 nts		nan 10.0 MHz
Ready			20001 pts		16.12.2022
,,,,,			Ready	6/6	

10. Power Spectral Density Measurement

10.1Measurement Procedure

The EUT was operating in Bluetooth mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

10.2 Test SET-UP (Block Diagram of Configuration)

EUT

Spectrum Analyzer

10.3 Measurement Equipment Used:

Item	Instr.Code	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	AN-E037	Spectrum Analyzer	KEYSIGHT	N9020A	MY61250185	2023-10-07
2	AN-E040	WIDEBAND RADIO COMMUNICATION	Rohde & Schwarz	CMW500	157423	2023-10-07
3	AN-E039	MXG Vector Signal Generator	KEYSIGHT	N5182B	MY61250185	2023-10-07
4	AN-E038	EXG Analog Signal Generator	KEYSIGHT	N5173B	My61252603	2023-10-07
5	AN-E041	USB RF Power sensor	RadiPower	RPR3006W	17100015SNO88	2023-10-07
6	AN-E042	USB RF Power sensor	RadiPower	RPR3006W	17100015SNO89	2023-10-07
7	/	RF Test Software	MWRF-test	MTS 8310	N/A	N/A
8	AN-E092	Radio Frequency control box	MWRF-test	MW200-RFCB	MW220111ANCI	2023-05-12
9	AN-E093	Radio Frequency control box	MWRF-test	MW200-RFCB 2#	/	2023-05-12

Remark: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

10.4 Measurement Procedure

10.4.1 The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

10.4.2. Set to the maximum power setting and enable the EUT transmit continuously.

10.4.3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)

10.4.4. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.

10.4.5. Measure and record the results in the test report.

10.4.6. The Measured power density (dBm)/ 100KHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

10.5 Measurement Results:

Spectrum analyzer	Setting
Attenuation	Auto
Span Frequency	Set the span to 1.5 times the DTS bandwidth.
RB	3KHz
VB	10KHz
Detector	Peak
Trace	Max hold
Sweep Time	Automatic

The following table is the setting of spectrum analyzer.

Refer to attached data chart.

Spectrum Detector:	PK	Test Date :	2022-12-16
Test By:	Best	Temperature :	24 °C
Test Result:	PASS	Humidity :	53 %

Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
BLE 1M	2402	Ant1	-14.09	0	-14.09	8	Pass
BLE 1M	2440	Ant1	-13.98	0	-13.98	8	Pass
BLE 1M	2480	Ant1	-15.02	0	-15.02	8	Pass

Note:

1. Measured power density(dBm) has offset with cable loss.

2. The measured power density(dBm)/100KHz is reference level and used as 20dBc down for Conducted Band Edges and Conducted Spurious Emission limit line.

			Test G VNT BLE 1N		lz Ant1			
Spectrum		1 30 11		12402111				₽
Ref Level 20.00 df		2.02 dB 👄 F	RBW 3 kHz					(*)
Att 30 SGL Count 100/100	dB SWT :	11.7 ms 👄 \	/BW 10 kHz	Mode S	weep			
1Pk Max								
				м	1[1]			14.09 dBm 00630 GHz
10 dBm								
0 dBm								
-10 dBm			h	11 X				
-20 dBm	AM AN	m washing	pyress	MANA	Amora M	Win	ma	
-39, det - 44		1				.1	Muru	Murry
-40 dBm								· V
-50 dBm								
-60 dBm								
-70 dBm								
CF 2.402 GHz			1001	pts			Span	1.05 MHz
Date: 16.DEC.2022	14:19:33							
		PSD N	VNT BLE 1M	И 2440MF	lz Ant1			
Spectrum		PSD N	VNT BLE 1M	И 2440MH	lz Ant1			
Ref Level 20.00 di		2.03 dB 👄 🖡	RBW 3 kHz					
Ref Level 20.00 df Att 30 SGL Count 100/100			RBW 3 kHz					
RefLevel 20.00 da Att 30		2.03 dB 👄 🖡	RBW 3 kHz	Mode S	weep			
Ref Level 20.00 di Att 300 SGL Count 100/100 91Pk Max		2.03 dB 👄 🖡	RBW 3 kHz	Mode S				13.98 dBm 00735 GHz
Ref Level 20.00 df Att 30 SGL Count 100/100		2.03 dB 👄 🖡	RBW 3 kHz	Mode S	weep			13.98 dBm
Ref Level 20.00 di Att 300 SGL Count 100/100 91Pk Max		2.03 dB 👄 🖡	RBW 3 kHz	Mode S	weep			13.98 dBm
Ref Level 20.00 df Att 30 SGL Count 100/100 10 dBm 10		2.03 dB 👄 🖡	RBW 3 kHz	Mode S	weep			13.98 dBm
Ref Level 20.00 di Att 30 SGL Count 100/100 ● 1Pk Max 10 dBm 0 0 dBm -10 dBm -10 dBm	dB SWT :	2.03 dB 👄 🖡	RBW 3 kHz	Mode S	weep			13.98 dBm
Ref Level 20.00 di Att 30 SGL count 100/100 ● 1Pk Max 10 dBm 10 dBm 0 dBm -10 dBm -20 dBm -20 dBm	dB SWT :	2.03 dB 👄 🖡	RBW 3 kHz	Mode S	weep	Mar Wy Low	2.440	13.98 dBm 00735 GHz
Ref Level 20.00 df Att 30 SGL 0 dl 100/100 IPk Max 10 dBm 0 dBm -10 dBm -10 dBm -20 dBm -30 dBm -30 dBm	dB SWT :	2.03 dB 👄 🖡	RBW 3 kHz	Mode S	weep	Marmyryr	2.440	13.98 dBm
Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 10 dBm 0 -10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -40 dBm	dB SWT :	2.03 dB 👄 🖡	RBW 3 kHz	Mode S	weep	Manna	2.440	13.98 dBm 00735 GHz
Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 10 dBm 0 -10 dBm - -20 dBm - -30 dBm - -40 dBm - -50 dBm -	dB SWT :	2.03 dB 👄 🖡	RBW 3 kHz	Mode S	weep	Marmby	2.440	13.98 dBm 00735 GHz
Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 10 dBm 0 -10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -40 dBm	dB SWT :	2.03 dB 👄 🖡	RBW 3 kHz	Mode S	weep	Mar Morrier	2.440	13.98 dBm 00735 GHz
Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 10 dBm 0 -10 dBm - -20 dBm - -30 dBm - -40 dBm - -50 dBm -	dB SWT :	2.03 dB 👄 🖡	RBW 3 kHz	Mode S	weep	Mar Morrison	2.440	13.98 dBm 00735 GHz
Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 10 dBm 0 -10 dBm - -20 dBm - -30 dBm - -40 dBm - -50 dBm - -60 dBm -	dB SWT :	2.03 dB 👄 🖡	RBW 3 kHz	Mode S		Mar Morrier	2.440	13.98 dBm 00735 GHz

		PSD N	VNT BLE 1	/I 2480MH	lz Ant1			
Spectrum								Ē
Ref Level 20.00	dBm Offset	2.05 dB 😑 I	RBW 3 kHz					
Att 30	db SWT	11.7 ms 👄 '	VBW 10 kHz	Mode S	weep			
SGL Count 100/100)							
●1Pk Max								
				M	1[1]			-15.02 dBm)00630 GH;
10 dBm						l	2.400	
0 dBm								
-10 dBm				41				
				X				
-20 dBm	- mft - an	Mr. Mr.	how	4 may and f	Mary	A AA A		
MAY	Mar a Mara	1V. 41			l A.	Mary	Mr. shr.	
-20 dBm							~ ՄԻ ՎԱլ	Marcha .
640								1 ° V/
-40 dBm								
-50 dBm								
-60 dBm								
-70 dBm								
CF 2.48 GHz			1001	nts			Snan	1.053 MHz
			1001	pro			awa	16.12.2022
					ceauy-		agent .	
ate: 16.DEC.2022	14:13:52							

11.1 Measurement Procedure

For Conducted Test

- 1. The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100KHz. The video bandwidth is set to 300KHz.
- 2. The spectrum from 30MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

EMI Test Receiver	Setting
Attenuation	Auto
RBW	100KHz
VBW	300KHz
Detector	Peak
Trace	Max hold

For Radiated emission Test

The EUT was placed on a styrofoam table which is 1.5m above ground plane.

The measurement procedure at the ban edges was simplified by performing the measurement in just one plot. Both, the in-band-emission and the unwanted emission were be encompassed by the span. After trace stabilization, the maximum peak was be determined by a peak detector and the value was marked by an appropriate limit line. The second limit line, which is 20dB below the first, marks the limit for the emissions in the unrestricted band. A maximum-peak-detector marks the highest emission in the unrestricted band next to the band edge.

The measurements were performed at the lower end of the 2.4GHz band. Use the following spectrum analyzer settings:

For Restricted Band, When spectrum scanned above 1GHz setting resolution bandwidth 1MHz, video bandwidth 3MHz:

Setting
Auto
1MHz
3MHz
Peak
Max hold

For Non-Restricted Band, When spectrum scanned above 1GHz setting resolution bandwidth 100KHz, video bandwidth 300KHz:

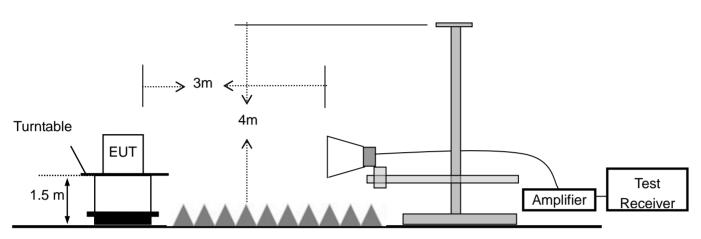
EMI Test Receiver	Setting
Attenuation	Auto
RBW	100KHz
VBW	300KHz
Detector	Peak
Trace	Max hold

11.2 Test SET-UP (Block Diagram of Configuration)

For Conducted Test



For Radiated emission Test



11.3 Measurement Equipment Used:

For Conducted Test

Remark: The temporary antenna connector is soldered on the PCB board in order to perform

Item	Instr.Code	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	AN-E037	Spectrum Analyzer	KEYSIGHT	N9020A	MY61250185	2023-10-07
2	AN-E040	WIDEBAND RADIO COMMUNICATION	Rohde & Schwarz	CMW500	157423	2023-10-07
3	AN-E039	MXG Vector Signal Generator	KEYSIGHT	N5182B	MY61250185	2023-10-07
4	AN-E038	EXG Analog Signal Generator	KEYSIGHT	N5173B	My61252603	2023-10-07
5	AN-E041	USB RF Power sensor	RadiPower	RPR3006W	17100015SNO88	2023-10-07
6	AN-E042	USB RF Power sensor	RadiPower	RPR3006W	17100015SNO89	2023-10-07
7	/	RF Test Software	MWRF-test	MTS 8310	N/A	N/A
8	AN-E092	Radio Frequency control box	MWRF-test	MW200-RFCB	MW220111ANCI	2023-05-12
9	AN-E093	Radio Frequency control box	MWRF-test	MW200-RFCB 2#	/	2023-05-12

conducted tests and this temporary antenna connector is listed in the equipment list.

11.4 Measurement Results:

Refer to attached data chart.

Spectrum Detector:	PK	Test Date :	2022-12-16
Test By:	Best	Temperature :	24 °C
Test Result:	PASS	Humidity :	53 %

1. Conducted Test

Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
BLE 1M	2402	Ant1	-49.99	-20	Pass
BLE 1M	2480	Ant1	-51.98	-20	Pass

	Band	Test Gra Edge NVNT BLE 1N	-	Ref		
Spectrum	balla					₽
Ref Level 20.00 dt	m Offset 2.02 d	100 kHz				(v
Att 30	dB SWT 1 m	is 👄 VBW 300 kHz	Mode Sweep			
SGL Count 100/100 1Pk Max						
			M1[1]			2 dBm
10 dBm			1		2.4022238	0 GHz
10 00.00						
0 dBm	_		M1			
		Man	N			
-10 dBm			han.			
-20 dBm						
			YU MAA			
-30 dBm		Jun All				
	100 .	Jon III	r inn	M		
-40 dBm		N	()"	1		
-50 dBm			V 1			
	WILL N				Mound	,
ree district for the	4 · · ·				we where we	punt
-70 dBm						
-/U UBM						
CF 2.402 GHz		1001 p	+c		Span 8.0	MU>
GF 2.402 GH2		1001 p	<u> </u>		apan 0.0	
			Ready			
			Ready		4/4	
ate: 16.DEC.2022	14:19:39		Ready		644	
ate: 16.DEC.2022		ge NVNT BLE 1M 2	402MHz Ant1 Emi	ission	14.10	39 /
ate: 16.DEC.2022		ge NVNT BLE 1M 2	402MHz Ant1 Emi	ission		Ē
Spectrum Ref Level 20.00 df	Band Edg 3m Offset 2.02 d	18 🖷 RBW 100 kHz		ission		□
Spectrum Ref Level 20.00 df Att 30	Band Edg 3m Offset 2.02 d		402MHz Ant1 Emi Mode Sweep	ission		
Spectrum Ref Level 20.00 dt Att 30 SGL Count 100/100	Band Edg 3m Offset 2.02 d	18 🖷 RBW 100 kHz		ission		
Ref Level 20.00 d8 Att 30 SGL Count 100/100 1Pk Max	Band Edg 3m Offset 2.02 d	18 🖷 RBW 100 kHz		ission		(⊽) dBn
Spectrum Ref Level 20.00 db Att 30 SGL Count 100/100 IPk Max	Band Edg 3m Offset 2.02 d	18 🖷 RBW 100 kHz	Mode Sweep	ission	2.4020500 -52.02	UdBn 0 GH: 2 dBn
Spectrum Ref Level 20.00 df Att 30 SGL Count 100/100 1Pk Max 10 dBm	Band Edg 3m Offset 2.02 d	18 🖷 RBW 100 kHz	Mode Sweep M1[1]	ission	2.4020500	UdBn 0 GH: 2 dBn
Spectrum Ref Level 20.00 dß Att 30 SGL Count 100/100 9 IPk Max 10 dBm	Band Edg 3m Offset 2.02 d	18 🖷 RBW 100 kHz	Mode Sweep M1[1]	ission	2.4020500 -52.02	UdBn 0 GH: 2 dBn
Spectrum Ref Level 20.00 di Att 30 SGL Count 100/100 IPk Max 10 dBm -10 dBm	Band Edg Bm Offset 2.02 d dB SWT 1 m	18 🖷 RBW 100 kHz	Mode Sweep M1[1]	ission	2.4020500 -52.02	UdBn 0 GH: 2 dBn
Spectrum Ref Level 20.00 dB Att 30 SGL Count 100/100 IPk Max 10 dBm -10 dBm -20 dBm D1 -22.00	Band Edg Bm Offset 2.02 d dB SWT 1 m	18 🖷 RBW 100 kHz	Mode Sweep M1[1]		2.4020500 -52.02	UdBn 0 GH: 2 dBn
Spectrum Ref Level 20.00 di Att 30 SGL Count 100/100 IPk Max 10 dBm -10 dBm	Band Edg Bm Offset 2.02 d dB SWT 1 m	18 🖷 RBW 100 kHz	Mode Sweep M1[1]		2.4020500 -52.02	UdBm 0 GHz 2 dBm
Spectrum Ref Level 20.00 dß Att 30 SGL Count 100/100 IPk Max 10 dBm -10 dBm -20 dBm D1 -22.00	Band Edg Bm Offset 2.02 d dB SWT 1 m	18 🖷 RBW 100 kHz	Mode Sweep M1[1]		2.4020500 -52.02	UdBm 0 GHz 2 dBm
Spectrum Ref Level 20.00 da Att 30 SGL Count 100/100 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	Band Edg Bm Offset 2.02 d dB SWT 1 m	18 🖷 RBW 100 kHz	Mode Sweep M1[1]		2.4020500 -52.02	0 dBm 0 GH; 2 dBm
Spectrum Ref Level 20.00 dß Att 30 SGL Count 100/100 ID/100 IPk Max 10 dBm 0 dBm 0 dBm -10 dBm 01 -22.00 -30 dBm -10 -22.00 -50 dBm -20.00	Band Edg	B • RBW 100 kHz	Mode Sweep		2.4020500 -52.0/ 2.4000000	0 dBn 0 GH: 2 dBn
Spectrum Ref Level 20.00 di Att 30 SGL Count 100/100 IPk Max 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm	Band Edg	B • RBW 100 kHz s • VBW 300 kHz	Mode Sweep 		2.4020500 -52.02 2.4000000	0 dBn 0 GH: 2 dBn
Spectrum Ref Level 20.00 di Att 30 SGL Count 100/100 IPk Max 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm	Band Edg	B • RBW 100 kHz	Mode Sweep		2.4020500 -52.02 2.4000000	0 dBn 0 GH: 2 dBn
Spectrum Ref Level 20.00 d8 Att 30 SGL Count 100/100 IPk Max 30 10 dBm 0 -10 dBm 01 -20 dBm 01 -30 dBm -01 -50 dBm -01 -70 dBm -70 dBm	Band Edg	B RBW 100 kHz s VBW 300 kHz	Mode Sweep		2.4020500 -52.02 2.4000000	0 dBn 0 GH: 2 dBn MAH:
Spectrum Ref Level 20.00 dB Att 30 SGL Count 100/100 IPk Max 10 10 dBm 0 -10 dBm 01 -20 dBm 01 -20 dBm 01 -20 dBm 01 -20 dBm 01 -70 dBm 01 -70 dBm 01 -70 dBm 01 -70 dBm 01	Band Edg	B RBW 100 kHz b VBW 300 kHz VBW 300 kHz 0 0 0 0 0 0 0 0 0 0 0 0 0	Mode Sweep		2.4020500 -52.02 2.4000000 -52.02 2.4000000 	0 dBn 0 GH: 2 dBn MAH:
Spectrum Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 I0 dBm 0 -10 dBm 0 -20 dBm 01 -20 dBm 01 -20 dBm 01 -20 dBm 01 -70 dBm 01 -70 dBm 01 Start 2.306 GHz Marker Type Ref Trc	Band Edg m Offset 2.02 d dB SWT 1 m 21 dBm 21 dBm 21 dBm X-value	B • RBW 100 kHz • VBW 300 kHz • • • • • • • • • • • • • • • • • • •	Mode Sweep 		2.4020500 -52.02 2.4000000	0 dBm 0 GHz 2 dBm
Spectrum Ref Level 20.00 dß Att 30 SGL Count 100/100 ID dBm ID dBm 0 -10 dBm 0 -20 dBm D1 -22.02 -30 dBm -0 -40 dBm -0 -70 dBm -0 -70 dBm -0 -70 dBm -70 Marker -70 M1 1 M1 1	Band Edg m Offset 2.02 d dB SWT 1 m 21 dBm 21 dBm 21 dBm 2.1 dBm 2.40205 GH 2.4 GH	B RBW 100 kHz S VBW 300 kHz S	Mode Sweep M1[1] M2[1] M2[1] Image: Sweep Image: Sweep Image: Sweep Image		2.4020500 -52.02 2.4000000 -52.02 2.4000000 	0 dBm 0 GHz 2 dBm
Spectrum Ref Level 20.00 d8 Att 30 SGL Count 100/100 IPk Max 10 10 dBm 0 -10 dBm 01 -20 dBm 01 -20 dBm 01 -20 dBm 01 -20 dBm 01 -30 dBm 01 -40 dBm 01 -50 dBm 01 -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm -70 dBm	Band Edg m Offset 2.02 d dB SWT 1 m 21 dBm 21 dBm	B RBW 100 kHz S VBW 300 kHz VBW 300 kHz	Mode Sweep M1[1] M2[1] M2[1] Image: Sweep M2[1] Image: Sweep M2[1] Image: Sweep Image: Sweep Image: Sweep Image: Sweep		2.4020500 -52.02 2.4000000 -52.02 2.4000000 	2 dBm

Dependent City		Band Ed	lge NVNT BLE 1M	2480MHz Ant1 Re	er
Att 30 dB SWT 1 ms VBW 300 kHz Mode Sweep 50L Count 100/000 Image: SWT -2.00 dB -2.	Spectrum				
SGL Count 100/100 Pik Max .2.00 dBn 10 dBm .2.48022380 CF 10 dBm .1.1 .20 dBm .1.2			-		· · · · · · · · · · · · · · · · · · ·
10 dbm M1[1] 2.00 dbm 0 dbm 2.48022380 GF 0 dbm M1 2.4802380 GF -0 dbm M1		ab Swi Ims	SUU KHZ	Mode Sweep	
10 dbm 2.48022380 GH 10 dbm M1 10 dbm M1 20 dbm M1 -20 dbm M1 -30 dbm M1 -40 dbm M1 -50 dbm M1 -70 dbm M1 -71 dbm M2 -71 dbm M2 -71 dbm M2 -71 dbm M2 -70 dbm M2	●1Pk Max				
10 dBm 0 dBm 10 dBm 10 dBm 10 dBm 20 dBm 40 dBm 41 dBm				M1[1]	-2.00 dBm 2.48022380 GH
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 dBm				
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			м	1	
20 dBm 40 dBm	0 dBm		morni		
20 dBm 40 dBm	-10 dBm		/ ** V	4	
-30 dBm -40 dBm					
40 dBm	-20 dBm		- W		
40 dBm			. 68 ľ	٦,	
-50 dBm -70 dBm	-30 dBm	pri	r h	11.1.1	
-50 dBm -70 dBm	-40 dBm		v		
CF 2.48 CHz 1001 pts Span 8.0 MHz -70 dBm India India India CF 2.48 CHz 1001 pts Span 8.0 MHz ate: 16.DEC.2022 19:19:10 India India Ref Level 20.00 dBm Offset 2.05 dB @ RBW 100 kHz Mode Sweep SGL Count 100/100 SWT 1 ms @ VBW 300 kHz Mode Sweep SGL Count 100/100 India M1[1] -1.70 dBn 10 dBm M1[1] 2.48035000 GH -58.65 dBn -20 dBm 01 -22.003 dBm M1[1] 2.48035000 GH -20 dBm 01 -22.003 dBm India M1[1] 2.48035000 GH -30 dBm India M1[1] 2.48035000 GH -50 dBm India M2[1] 2.48035000 GH -10 dBm India M1[1] 2.48035000 GH -20 dBm India India India -10 dBm India <td></td> <td>.nA Da</td> <td></td> <td></td> <td>M I</td>		.nA Da			M I
TO dBm CF 2.48 GHz Span 8.0 MHz CF 2.48 GHz 1001 pts Span 8.0 MHz Att: 16.080.2022 14:14:10 Mail 2000 Spectrum Spectrum Spectrum Spectrum Ref Level 20.00 dBm Offset 2.05 dB RBW 100 kHz Att 30 dB SWT 1 ms VBW 300 kHz Mail 1 2.48005000 GH	-50 dBm				
TO dBm CF 2.48 GHz Span 8.0 MHz CF 2.48 GHz 1001 pts Span 8.0 MHz Att: 16.080.2022 14:14:10 Mail 2000 Spectrum Spectrum Spectrum Spectrum Ref Level 20.00 dBm Offset 2.05 dB RBW 100 kHz Att 30 dB SWT 1 ms VBW 300 kHz Mail 1 2.48005000 GH	M. A. Marak	AN AN AN			1 V. W. Mary Mary Mary Mary Mark
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CF 2.48 GHz 1001 pts Span 8.0 MHz ate: 16.DEC.2022 14:14:10 15:25022 Band Edge NVNT BLE 1M 2480MHz Ant1 Emission 15:25022 Spectrum CF Ref Level 20.00 dBm Offset 2.05 dB RBW 100 kHz Att 30 dB SWT 1 ms VBW 300 kHz Mode Sweep SGL Count 100/100 10 dBm M1[1] -1.70 dBm -1.70 dBm 10 dBm	-70 dBm				
Note: Mode:					
Note: Mode:	CF 2.48 GHz		1001 pt		Span 8.0 MHz
Band Edge NVNT BLE 1M 2480MHz Ant1 Emission Ref Level 20.00 dBm Offset 2.05 dB • RBW 100 kHz Att 30 dB SWT 1 ms • VBW 300 kHz Mode Sweep SGL Count 100/100 IPK Max M1[1] -1.70 dBn 0 dBm 0 dBm 0 dBm M1[1] -1.70 dBn 0 dBm 0 dBm 10 dBm 0 dBm -2.48035000 GH -2.48035000 GH -2.003 dBm -2.003 dBm <t< td=""><td></td><td></td><td></td><td>Ready</td><td>16.12.2022</td></t<>				Ready	16.12.2022
Band Edge NVNT BLE 1M 2480MHz Ant1 Emission Ref Level 20.00 dBm Offset 2.05 dB • RBW 100 kHz Att 30 dB SWT 1 ms • VBW 300 kHz Mode Sweep SGL Count 100/100 IPK Max M1[1] -1.70 dBn 0 dBm 0 dBm 0 dBm M1[1] -1.70 dBn 0 dBm 0 dBm 10 dBm 0 dBm -2.48035000 GH -2.48035000 GH -2.003 dBm -2.003 dBm <t< th=""><th></th><th></th><th></th><th>,</th><th></th></t<>				,	
Spectrum Ref Level 20.00 dBm Offset 2.05 dB RBW 100 kHz Att 30 dB SWT 1 ms VBW 300 kHz Mode Sweep SGL Count 100/100 1Pk Max 111 -1.70 dBn 2.48005000 GH 10 dBm 10 dBm M1[1] -1.70 dBn -58.65 dBn 0 dBm 10 dBm 2.48350000 GH -58.65 dBn -10 dBm 10 -22.003 dBm 10 -22.003 dBm -10 dBm -20 dBm 01 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -30 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -30 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -30 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -30 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -70 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -70 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -70 dBm -10 -22.003 dBm -10 -22.003 dBm -20 -22.003 dBm -70 dBm	ate: 16.DEC.2022	14:14:10			
Spectrum Ref Level 20.00 dBm Offset 2.05 dB RBW 100 kHz Att 30 dB SWT 1 ms VBW 300 kHz Mode Sweep SGL Count 100/100 1Pk Max 111 -1.70 dBn 2.48005000 GH 10 dBm 10 dBm M1[1] -1.70 dBn -58.65 dBn 0 dBm 10 dBm 2.48350000 GH -58.65 dBn -10 dBm 10 -22.003 dBm 10 -22.003 dBm -10 dBm -20 dBm 01 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -30 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -30 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -30 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -30 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -70 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -70 dBm -10 -22.003 dBm -10 -22.003 dBm -10 -22.003 dBm -70 dBm -10 -22.003 dBm -10 -22.003 dBm -20 -22.003 dBm -70 dBm					
Ref Level 20.00 dBm Offset 2.05 dB RBW 100 kHz Att 30 dB SWT 1 ms VBW 300 kHz Mode Sweep SGL Count 100/100 IPK Max M1[1] -1.70 dBm -1.70 dBm 10 dBm M2[1] -58.65 dBm -58.65 dBm -58.65 dBm 0 dBm M2[1] -58.65 dBm -58.65 dBm -20 dBm -24.4835000 GH -10 dBm -0 -0 -0 -20 dBm -0 -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -20 dBm -0 -0 -20 dBm -20 dBm -0 -20 dBm -20 dBm -0 -0 -0 -20 dBm -0 -0 -20 dBm -0 -0 -0 -20 dBm -0 -0 -0 -20 dBm -0 <		Band Edge	NVNT BLE 1M 24	80MHz Ant1 Emis	sion
SGL Count 100/100 10 dBm 10 dBm -10 dBm -20 cBm -20 c	Spectrum	Band Edge	NVNT BLE 1M 24	80MHz Ant1 Emis	sion
IPk Max M1[1] -1.70 dB 10 dBm 2.48005000 GH 0 dBm M2[1] -58.65 dB 0 dBm 2.48350000 GH -10 dBm 2.48350000 GH -20 dBm 01 -22.003 dBm -30 dBm -10 dBm -30 dBm -10 dBm -30 dBm -10 dBm -40 dBm -10 dBm -50 dBm -10 dBm -70 dBm -10 dBm M1 1 2.4805 GHz -1.70 dBm M2 1 2.4835 GHz -58.65 dBm M3 1 2.5 GHz -60.71 dBm M4 1 2.4863 GHz -53.99 dBm	· _			80MHz Ant1 Emis	
10 dBm 2.48005000 GH 0 dBm 2.48005000 GH 0 dBm 2.48005000 GH -10 dBm 2.48050000 GH -20 dBm 01 -22.003 dBm -30 dBm	Ref Level 20.00 dE	Bm Offset 2.05 dB	🖷 RBW 100 kHz		
10 0 dbm M2[1] -58.65 dbm 0 dbm 2.48350000 GH 2.48350000 GH -10 dbm -10 dbm -10 dbm -20 dbm D1 -22.003 dbm -10 dbm -30 dbm -10 dbm -10 dbm -40 dbm -10 dbm -10 dbm -50 dbm -10 dbm -10 dbm -30 dbm -10 dbm -10 dbm -40 dbm -10 dbm -10 dbm -50 dbm -10 dbm -10 dbm -60 dbm -10 dbm -10 dbm -60 dbm -10 dbm -10 dbm -70 dbm -10 dbm -10 dbm M1 1 2.4835 GHz -58.65 dbm -58.65 dbm M3 1 2.5 GHz -60.71 dbm -58.99 dbm M4 1 2.4863 GHz -53.99 dbm -58.42	Ref Level 20.00 dE Att 30 SGL Count 100/100	Bm Offset 2.05 dB	🖷 RBW 100 kHz		
0 dam 2.48350000 GH -10 dBm -20 cBm -20 cBm 01 -22.003 dBm -30 dBm -20 cBm -30 dBm -20 cBm -40 dBm -20 cBm -50 dBm -20 cBm -60 dBm -20 cBm -70 dBm -100 cBm M1 1 2.4805 cHz -1.70 dBm -1.70 dBm M2 1 2.4805 cHz -53.99 dBm -53.99 dBm M4 1 2.4863 cHz -53.99 dBm -50.71 dBm M4 1 2.4863 cHz </td <td>Ref Level 20.00 dE Att 30 SGL Count 100/100</td> <td>Bm Offset 2.05 dB</td> <td>🖷 RBW 100 kHz</td> <td>Mode Sweep</td> <td>-1.70 dBn</td>	Ref Level 20.00 dE Att 30 SGL Count 100/100	Bm Offset 2.05 dB	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn
10 dBm 0 <td>Ref Level 20.00 dE Att 30 SGL Count 100/100 1Pk Max</td> <td>Bm Offset 2.05 dB</td> <td>🖷 RBW 100 kHz</td> <td>Mode Sweep</td> <td>-1.70 dBn 2.48005000 GH;</td>	Ref Level 20.00 dE Att 30 SGL Count 100/100 1Pk Max	Bm Offset 2.05 dB	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn 2.48005000 GH;
-20 dBm D1 -22.003 dBm	Ref Level 20.00 dB Att 30 SGL Count 100/100 IPk Max 10 dBm	Bm Offset 2.05 dB	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn
-30 dBm	Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 dBm 0 dBm 0 dBm	Bm Offset 2.05 dB	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn 2.48005000 GH; -58.65 dBn
40 d8m	Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 dBm 0 dBm 0 dBm	Bm Offset 2.05 dB	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn 2.48005000 GH; -58.65 dBn
Studem H4 M3 -60 dBm -61 dBm -60 dBm	Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 dBm 0 dBm	Sm Offset 2.05 dB dB SWT 1 ms	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn 2.48005000 GH; -58.65 dBn
Start 2.476 GHz 1001 pts Stop 2.576 GHz Arker 1001 pts Stop 2.576 GHz Marker 1 2.4835 GHz -58.65 dBm M1 1 2.4835 GHz -58.65 dBm M2 1 2.4835 GHz -53.99 dBm	Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 dBm 0 dBm -10 dBm -20 dBm D1 -22.00	Sm Offset 2.05 dB dB SWT 1 ms	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn 2.48005000 GH; -58.65 dBn
H2 Y	Ref Level 20.00 df Att 30 SGL Count 100/100 1Pk Max 30 10 dBm 0 -10 dBm	Sm Offset 2.05 dB dB SWT 1 ms	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn 2.48005000 GH; -58.65 dBn
-60 dBm 344 rol h the set of the	Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 30 0 dBm	Sm Offset 2.05 dB dB SWT 1 ms	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn 2.48005000 GH; -58.65 dBn
Start 2.476 GHz 1001 pts Stop 2.576 GHz Ararker Y-value Function Function Result M1 1 2.48005 GHz -1.70 dBm - M2 1 2.4835 GHz -58.65 dBm - M3 1 2.5 GHz -60.71 dBm - M4 1 2.4863 GHz -53.99 dBm -	Ref Level 20.00 df Att 30 SGL Count 100/100 1Pk Max 30 10 dBm 0 -10 dBm 0 -20 dBm 01 -20 dBm -20.00 -30 dBm -40 dBm	Sm Offset 2.05 dB dB SWT 1 ms	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn 2.48005000 GH; -58.65 dBn
Start 2.476 GHz 1001 pts Stop 2.576 GHz Ararker Y-value Function Function Result M1 1 2.48005 GHz -1.70 dBm - M2 1 2.4835 GHz -58.65 dBm - M3 1 2.5 GHz -60.71 dBm - M4 1 2.4863 GHz -53.99 dBm -	Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 10 dBm 0 -10 dBm -10 -20 dBm D1 -20 dBm -22.00 -30 dBm -40 dBm	Sm Offset 2.05 dB dB SWT 1 ms	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn 2.48005000 GH; -58.65 dBn
Marker Type Ref Trc X-value Y-value Function Function Result M1 1 2.48005 GHz -1.70 dBm Function Result	Att 30 SGL Count 100/100 IPk Max 10 dBm 0 dBm -10 dBm -20 dBm -40 dBm -40 dBm -50 dBm -60 dBm	Sm Offset 2.05 dB dB SWT 1 ms	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn 2.48005000 GH; -58.65 dBn
Type Ref Trc X-value Y-value Function Function Result M1 1 2.48005 GHz -1.70 dBm	Ref Level 20.00 df Att 30 SGL Count 100/100 1Pk Max 30 10 dBm	Sm Offset 2.05 dB dB SWT 1 ms	🖷 RBW 100 kHz	Mode Sweep	-1.70 dBn 2.48005000 GH; -58.65 dBn
M1 1 2.48005 GHz -1.70 dBm M2 1 2.4835 GHz -58.65 dBm M3 1 2.5 GHz -60.71 dBm M4 1 2.4863 GHz -53.99 dBm	Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 30 IPk Max 10 dBm 0 dBm -0 -10 dBm -0 -20 dBm D1 -22.00 -30 dBm -0 -40 dBm -0 -50 dBm -0 -70 dBm -0 -70 dBm -0 -70 dBm -0 -70 dBm -0	Sm Offset 2.05 dB dB SWT 1 ms	RBW 100 kHz VBW 300 kHz	Mode Sweep M1[1] M2[1] 	-1.70 dBn 2.48005000 GH; -58.65 dBn
M3 1 2.5 GHz -60.71 dBm M4 1 2.4863 GHz -53.99 dBm Pready	Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 10 dBm 10 -10 dBm 10 -20 dBm 11 -20 dBm 11 -30 dBm 11 -40 dBm 11 -70 dBm 14 -70 dBm 14	Sm Offset 2.05 dB dB SWT 1 ms	RBW 100 kHz VBW 300 kHz	Mode Sweep	-1.70 dBn 2.4805000 GH2 -58.65 dBn 2.48350000 GH2
M4 1 2.4863 GHz -53.99 dBm Peady 16.12.2022	Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 30 IO dBm	Sm Offset 2.05 dB dB SWT 1 ms	RBW 100 kHz VBW 300 kHz	Mode Sweep	-1.70 dBn 2.4805000 GH2 -58.65 dBn 2.48350000 GH2
Peady 16.12.2022	Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 ID dBm	Sim Offset 2.05 dB dB SWT 1 ms	RBW 100 kHz VBW 300 kHz VBW 300 kHz VBW 100 kHz 10 kHz 1	Mode Sweep	-1.70 dBn 2.4805000 GH2 -58.65 dBn 2.48350000 GH2
	Ref Level 20.00 df Att 30 SGL Count 100/100 1Pk Max 10 10 dBm	Sm Offset 2.05 dB dB SWT 1 ms 3 dBm	RBW 100 kHz VBW 300 kHz VBW 300 kHz VBW 100 kHz VBW VBW	Mode Sweep	-1.70 dBn 2.4805000 GH2 -58.65 dBn 2.48350000 GH2
ate: 16.DEC.2022 14:14:13	Ref Level 20.00 df Att 30 SGL Count 100/100 IPk Max 10 IPk Max 10 10 dBm	Sm Offset 2.05 dB dB SWT 1 ms 3 dBm	RBW 100 kHz VBW 300 kHz VBW 300 kHz VBW 100 kHz VBW VBW	Mode Sweep	-1.70 dBn 2.4805000 GH2 -58.65 dBn 2.48350000 GH2

2.	Radiated emission Test			
	Spectrum Detector:	PK/AV	Test Date :	2022-12-16
	Test By:	Sunshine	Temperature :	28 °C
	Humidity :	65 %		

BLE 1M 2402MHz										
Freq.	Ant. Pol.	Rea Level(d	•	Correct Factor	Emission Level(dBuV/m)) 3m(dBuV/i		n Margin(dB)	
(MHz)	H/V	PK	AV	dB	PK	AV	PK	AV	PK	AV
<2400	Н	84.62	65.55	-26.3	58.32	39.25	74	54	-15.68	-14.75
<2400	V	84.12	65.06	-26.1	58.02	38.96	74	54	-15.98	-15.04
>2483.5	Н	85.91	66.55	-26.3	59.61	40.25	74	54	-14.39	-13.75
>2483.5	V	85.24	65.68	-26.1	59.14	39.58	74	54	-14.86	-14.42

BLE 1M 2480MHz										
Freq.	Ant. Pol.	Rea Level(d	ding BuV/m)	Correct Factor	Emission Level(dBuV/m)				n Margin(dB)	
(MHz)	H/V	PK	AV	dB	PK	AV	PK	AV	PK	AV
<2400	Н	86.62	66.55	-26.3	60.32	40.25	74	54	-13.68	-13.75
<2400	V	85.73	65.95	-26.1	59.63	39.85	74	54	-14.37	-14.15
>2483.5	Н	86.44	65.82	-26.3	60.14	39.52	74	54	-13.86	-14.48
>2483.5	V	86.42	66.57	-26.1	60.32	40.47	74	54	-13.68	-13.53

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12 Antenna Application

12.1 Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C section 15.203 and 15.247.

FCC part 15C section 15.247 requirements:

Systems operating in the 2402-2480MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

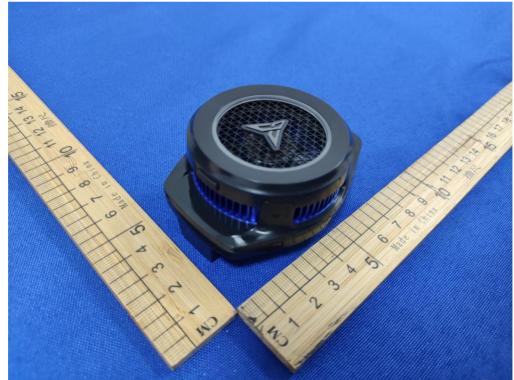
12.2 Result

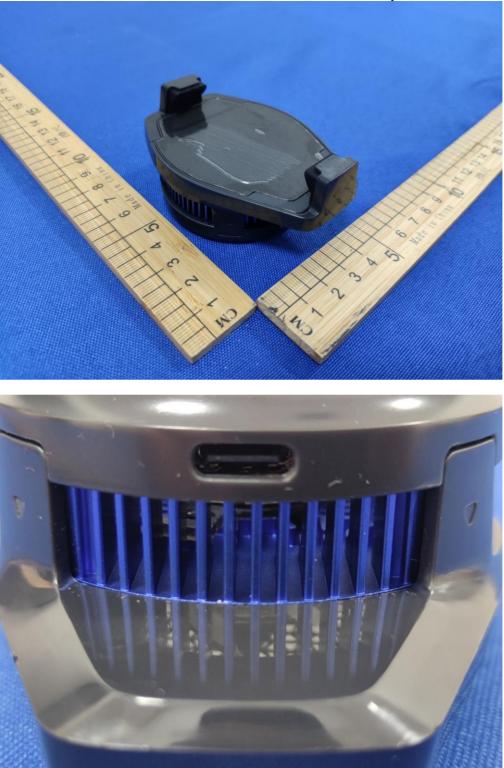
The EUT's antenna, permanent attached antenna, used a ceramic antenna and integrated on PCB, The antenna's gain is 2.08dBi and meets the requirement.

APPENDIX I (Photos of EUT)

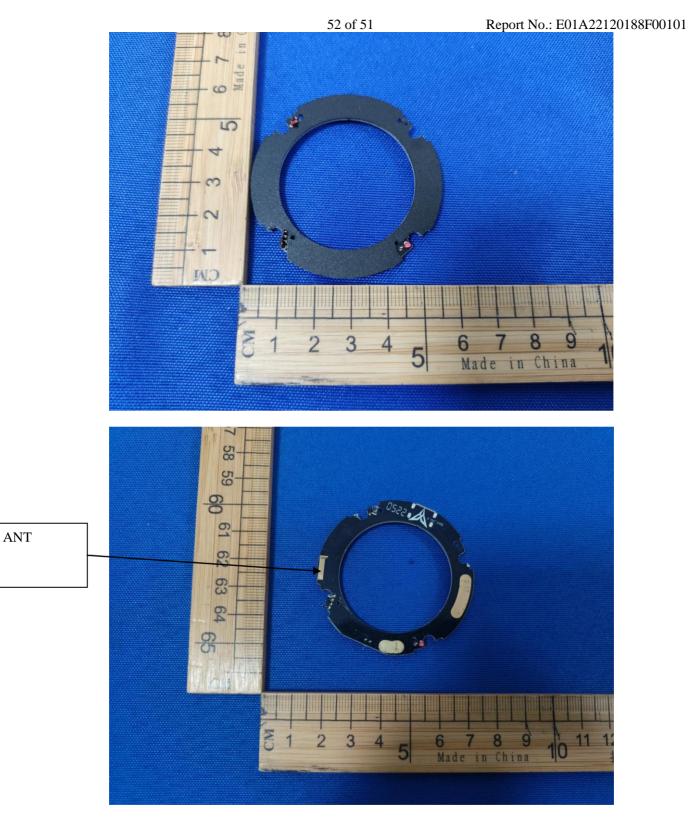
TRF No.: 01-R001-3A-LE











--- End of Report ---