FCC TEST REPORT

(Part 15, Subpart C)

Applicant:	Hangzhou Yaguan Technology Co., LTD
Address:	33rd Floor, T4 US Center, European and American Financial City, Yuhang District, Hangzhou, Zhejiang

Manufacturer or Supplier:	Hangzhou Yaguan Technology Co., LTD
Address:	33rd Floor, T4 US Center, European and American Financial City, Yuhang District, Hangzhou, Zhejiang
Product:	Bluetooth Low Energy Module
Brand Name:	Argrace
Model Name:	YGB-T3LB
FCC ID:	2AYYQ-YGB-T3LB
Date of tests:	Jan. 25, 2022 ~ Feb. 15, 2022

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart C, Section 15.247**

☒ **ANSI C63.10-2013**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Simon Wang	Approved by Luke Lu
Engineer / Mobile Department	Manager / Mobile Department
Date: Feb. 15, 2022	Date: Feb. 15, 2022

This report is governed by, and incorporates by reference, CPS Conditions of Service as posted at the date of issuance of this report at http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute you unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

TABLE OF CONTENTS

RELEASE CONTROL RECORD 5
1 SUMMARY OF TEST RESULTS 6
1.1 MEASUREMENT UNCERTAINTY 6
2 GENERAL INFORMATION 7
2.1 GENERAL DESCRIPTION OF EUT 7
2.2 DESCRIPTION OF TEST MODES 9
2.2.1 CONFIGURATION OF SYSTEM UNDER TEST 10
2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL 10
2.3 DUTY CYCLE OF TEST SIGNAL 13
2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS 14
2.5 DESCRIPTION OF SUPPORT UNITS 14
3 TEST TYPES AND RESULTS 15
3.1 CONDUCTED EMISSION MEASUREMENT 15
3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT 15
3.1.2 TEST INSTRUMENTS 15
3.1.3 TEST PROCEDURES 16
3.1.4 DEVIATION FROM TEST STANDARD 16
3.1.5 TEST SETUP 17
3.1.6 EUT OPERATING CONDITIONS 17
3.1.7 TEST RESULTS 18
3.2 RADIATED EMISSION MEASUREMENT 20
3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT 20
3.2.2 TEST INSTRUMENTS 21
3.2.3 TEST PROCEDURES 22
3.2.4 DEVIATION FROM TEST STANDARD 22
3.2.5 TEST SETUP 23
3.2.6 EUT OPERATING CONDITIONS 24
3.2.7 TEST RESULTS 25
3.3 6 DB BANDWIDTH MEASUREMENT 39
3.3.1 LIMITS OF 6DB BANDWIDTH MEASUREMENT 39
3.3.2 TEST INSTRUMENTS 39
3.3.3 TEST PROCEDURE 39
3.3.4 DEVIATION FROM TEST STANDARD 40

3.3.5 TEST SETUP 40
3.3.6 EUT OPERATING CONDITIONS 40
3.3.7 TEST RESULTS 41
3.4 CONDUCTED OUTPUT POWER 42
3.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT 42
3.4.2 TEST SETUP 42
3.4.3 TEST INSTRUMENTS 42
3.4.4 TEST PROCEDURES 42
3.4.5 DEVIATION FROM TEST STANDARD 42
3.4.6 EUT OPERATING CONDITIONS 42
3.4.7 TEST RESULTS 43
3.4.7.1 MAXIMUM PEAK OUTPUT POWER 43
3.4.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE) 44
3.5 POWER SPECTRAL DENSITY MEASUREMENT 45
3.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT 45
3.5.2 TEST SETUP 45
3.5.3 TEST INSTRUMENTS 45
3.5.4 TEST PROCEDURE 45
3.5.5 DEVIATION FROM TEST STANDARD 45
3.5.6 EUT OPERATING CONDITION 45
3.5.7 TEST RESULTS 46
3.6 OUT OF BAND EMISSION MEASUREMENT 47
3.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT 47
3.6.2 TEST SETUP 47
3.6.3 TEST INSTRUMENTS 47
3.6.4 TEST PROCEDURE 47
3.6.5 DEVIATION FROM TEST STANDARD 48
3.6.6 EUT OPERATING CONDITION 48
3.6.7 TEST RESULTS 48
4 PHOTOGRAPHS OF THE TEST CONFIGURATION 49
5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB 50
6 APPENDIX 1: 51
DTS BANDWIDTH 51
TEST RESULT 51
TEST GRAPHS 52
OCCUPIED CHANNEL BANDWIDTH 58

TEST RESULT 58
TEST GRAPHS 59
MAXIMUM CONDUCTED OUTPUT POWER 65
TEST RESULT PEAK 65
TEST RESULT AVERAGE 65
MAXIMUM POWER SPECTRAL DENSITY 66
TEST RESULT 66
TEST GRAPHS 67
BAND EDGE MEASUREMENTS 73
TEST RESULT 73
TEST GRAPHS 74
CONDUCTED SPURIOUS EMISSION 78
TEST RESULT 78
TEST GRAPHS 80
DUTY CYCLE 98
TEST RESULT 98
TEST GRAPHS 99

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P22010037RF01	Original release	Feb. 15, 2022

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)		
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**
§15.207	AC Power Conducted Emission	Compliance
§15.205 §15.209	Radiated Emissions	Compliance
§15.247(d)	Out of band Emission Measurement	Compliance
§15.247(a)(2)	6dB bandwidth	Compliance
§15.247(b)	Conducted Output power	Compliance
§15.247(e)	Power Spectral Density	Compliance
§15.203	Antenna Requirement	Compliance

Note：Except RSE，other data please refer to Appendix 1 (for BLE)

1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	UNCERTAINTY
AC Power Conducted emissions	±2.70dB
Radiated emissions (30MHz~1GMHz)	±4.98dB
Radiated emissions (1GMHz ~6GMHz)	±4.70dB
Radiated emissions (6GMHz ~18GMHz)	±4.60dB
Radiated emissions (18GMHz ~40GMHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Power Spectral Density	±0.85 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Bluetooth Low Energy Module
BRAND NAME	Argrace
MODEL NAME	YGB-T3LB
NOMINAL VOLTAGE	3.3Vdc
MODULATION	GFSK
TRANSMISSION RATE	BLUETOOTH LE: 0.125 Mbps /0.5 Mbps /1 Mbps/2 Mbps
OPERATING FREQUENCY	2402-2480MHz for BLUETOOTH LE(GFSK)
MAX. OUTPUT POWER	BLUETOOTH LE: 3.05mW (Maximum)
ANTENNA TYPE	PCB Antenna with 1.5dBi gain
HW VERSION	V1
SW VERSION	V10.28
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/Ar

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. The EUT incorporates a SISO function. Physically, the EUT provides one transmitter and one receiver.

MODULATION MODE	TX/RX FUNCTION
BLUETOOTH LE(1M/2M/S2/S8)	1TX /1RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

2.2 DESCRIPTION OF TEST MODES

40 channels are provided for BLUETOOTH LE (GFSK):

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

2.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photographs of the test configuration for reference.

2.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.
The worst case was found when positioned on Y axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE MODE	APPLICABLE TO				MODE
	RE<1G	RE≥1G	PLC	APCM	
-	√	√	√	√	-

Where **RE<1G:** Radiated Emission below 1GHz **RE≥1G:** Radiated Emission above 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
BLUETOOTH LE	0 to 39	39	GFSK	2

RADIATED EMISSION TEST (ABOVE 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
BLUETOOTH LE	0 to 39	0,19, 39	GFSK	0.125&0.5&1&2

POWER LINE CONDUCTED EMISSION TEST

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
BLUETOOTH LE	0 to 39	39	GFSK	2

BANDEDGE MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
BLUETOOTH LE	0 to 39	0, 39	GFSK	0.125&0.5&1&2

ANTENNA PORT CONDUCTED MEASUREMENT:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
BLUETOOTH LE	0 to 39	0,19, 39	GFSK	0.125&0.5&1&2

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	23deg. C, 70%RH	DC 3.3V By Battery	Star Le
RE≥1G	23deg. C, 70%RH	DC 3.3V By Battery	Star Le
PLC	25deg. C, 52%RH	DC 3.3V By Battery	James Fu
APCM	25deg. C, 60%RH	DC 3.3V By Battery	James Fu

2.3 Duty Cycle of Test Signal

Please Refer to Appendix1 Of this test report.

WORST-CASE DATA:

Measured Duty Cycle		
Mode		Duty Cycle [%]
		ANT1
BLUETOOTH LE	1MHz	48.80
	2MHz	49.21
	S2	79.26
	S8	85.05

Note:
Duty cycle of test signal is < 98%, duty factor shall be considered.

2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C, Section 15.247

KDB 558074 D01 DTS Meas Guidance v05r02

ANSI C63.10-2013

Note：

1. All test items have been performed and recorded as per the above standards.
2. The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (Certification). The test report has been issued separately.

2.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Desktop	Lenovo	M73 SFF	PC04GRQV	N/A
2	Desktop	Lenovo	M73 SFF	PC06CS27	N/A
3	Laptop	Lenovo	Thnikpad T450	PC-049PT1	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.5m
2	AC Line: Unshielded, Detachable 1.5m
3	AC Line: Unshielded, Detachable 1.5m

3 TEST TYPES AND RESULTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

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.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	101900	Mar. 03,21	Mar. 02,22
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Feb. 25,21	Feb. 24,22

NOTE:

1. The test was performed in CE shielded room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

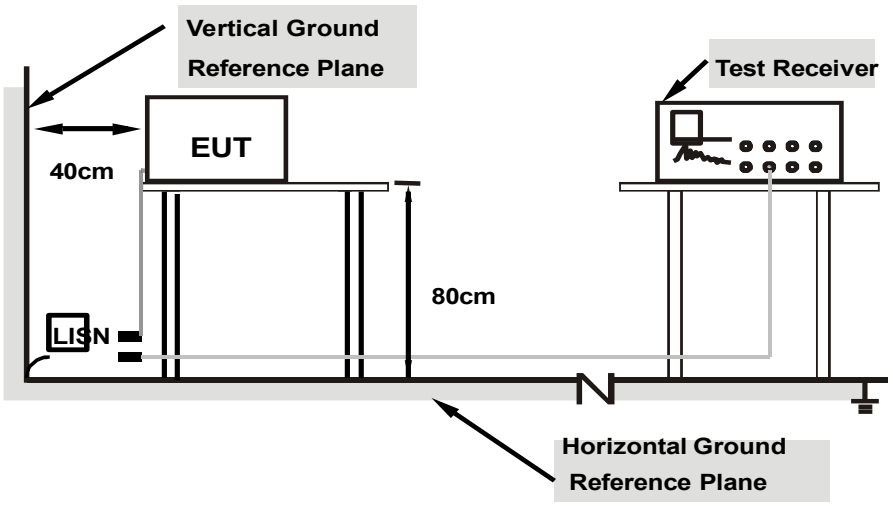
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation.

3.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.1.6 EUT OPERATING CONDITIONS

a. Turned on the power and connected of all equipment.
b. EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

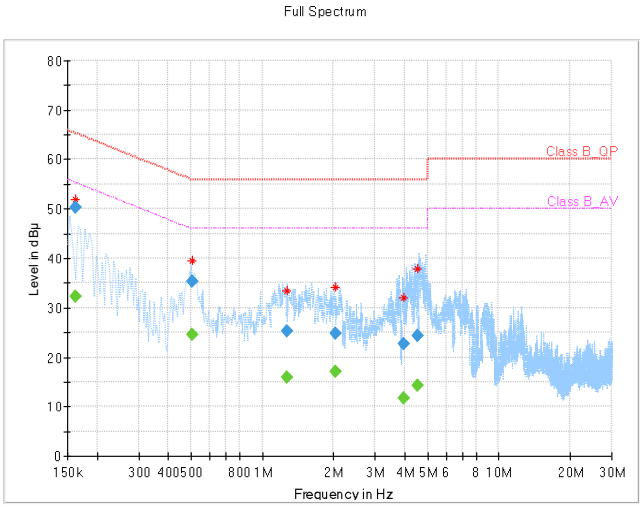
3.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA:

Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	26deg. C, 51%RH
Tested By	Carl xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.162000	---	32.33	55.36	23.03	L1	ON	9.7
0.162000	50.27	---	65.36	15.09	L1	ON	9.7
0.504000	---	24.58	46.00	21.42	L1	ON	9.7
0.504000	35.39	---	56.00	20.61	L1	ON	9.7
1.268000	---	16.02	46.00	29.98	L1	ON	9.7
1.268000	25.16	---	56.00	30.84	L1	ON	9.7
2.036000	---	16.98	46.00	29.02	L1	ON	9.7
2.036000	24.75	---	56.00	31.25	L1	ON	9.7
3.968000	---	11.59	46.00	34.41	L1	ON	9.7
3.968000	22.81	---	56.00	33.19	L1	ON	9.7
4.548000	---	14.25	46.00	31.75	L1	ON	9.7
4.548000	24.33	---	56.00	31.67	L1	ON	9.7

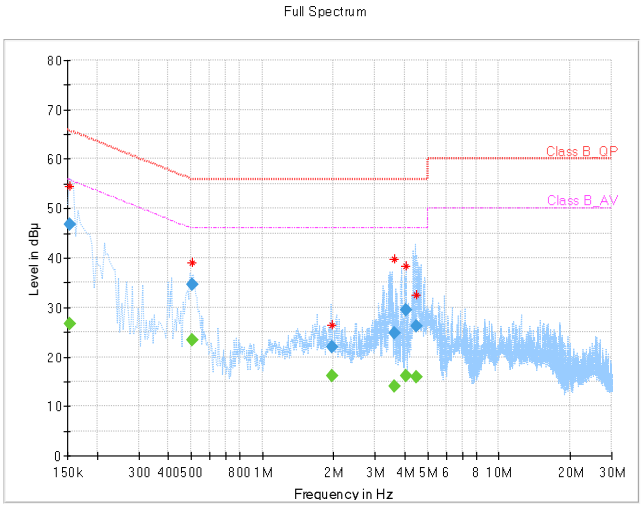
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Limit value - Emission level
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



Frequency Range	150KHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	Environmental Conditions	26deg. C, 51%RH
Tested By	Carl xie		

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154000	---	26.75	55.78	29.03	N	ON	9.7
0.154000	46.88	---	65.78	18.90	N	ON	9.7
0.504000	---	23.39	46.00	22.61	N	ON	9.7
0.504000	34.62	---	56.00	21.38	N	ON	9.7
1.968000	---	16.18	46.00	29.82	N	ON	9.8
1.968000	22.09	---	56.00	33.91	N	ON	9.8
3.602000	---	13.93	46.00	32.07	N	ON	9.8
3.602000	24.85	---	56.00	31.15	N	ON	9.8
4.044000	---	16.25	46.00	29.75	N	ON	9.8
4.044000	29.38	---	56.00	26.62	N	ON	9.8
4.464000	---	16.02	46.00	29.98	N	ON	9.8
4.464000	26.10	---	56.00	29.90	N	ON	9.8

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Limit value - Emission level
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,20	May. 18,23
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 05,21	Mar. 04,22
Horn Antenna	ETS-LINDGREN	3117	00168728	Apr. 02, 21	Apr. 01, 22
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 25, 21	Aug. 24, 22
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 03,21	Jun. 02,22
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Apr. 27,21	Apr. 26,22
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 02,21	Jun. 01,22
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 02,21	Jun. 01,22
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Apr. 30,21	Apr. 29,22
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 25,21	Aug. 24,22
Power Meter	Anritsu	ML2495A	1506002	Feb. 25,21	Feb. 24,22
Power Sensor	Anritsu	MA2411B	1339352	Feb. 25,21	Feb. 24,22
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-051	Feb 14,20	Feb. 13,23

NOTE: 1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Chamber.

3. The FCC Site Registration No. is 525120; The Designation No. is CN1171.

3.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

Note:

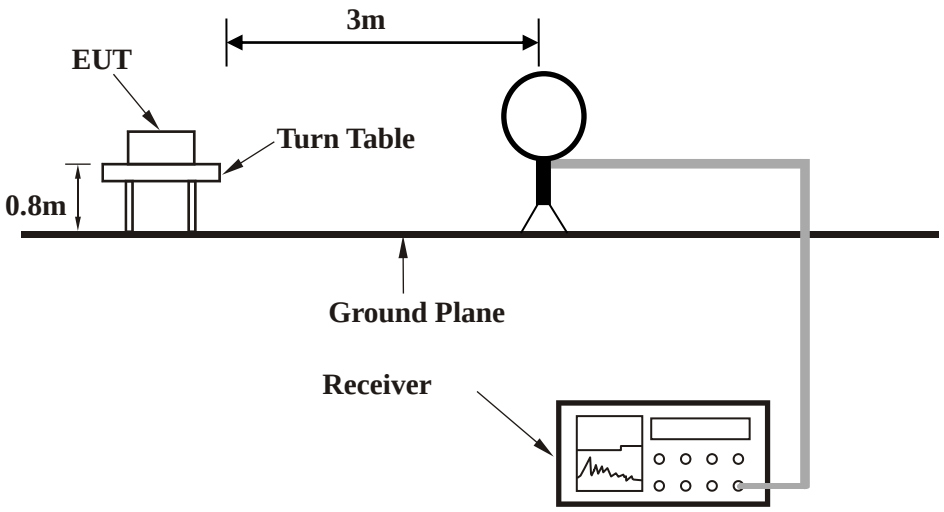
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

3.2.4 DEVIATION FROM TEST STANDARD

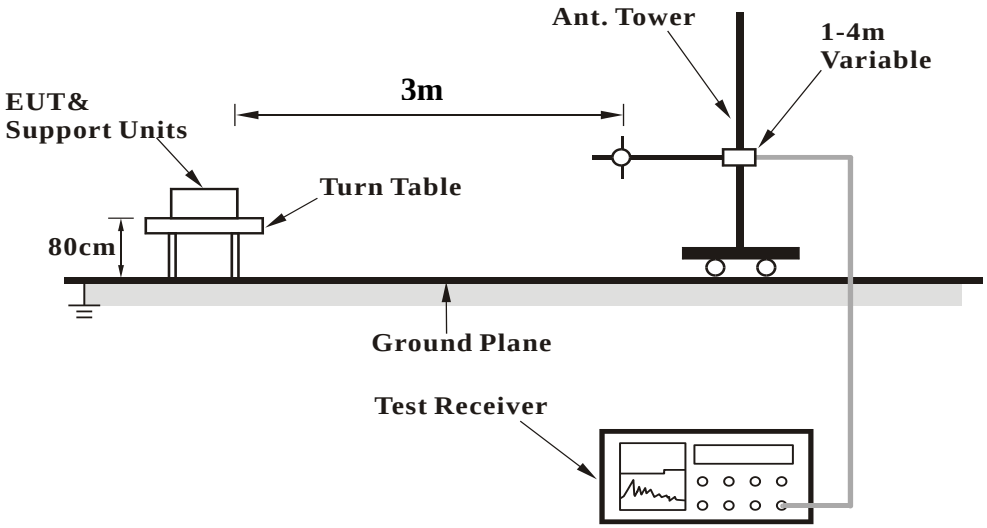
No deviation

3.2.5 TEST SETUP

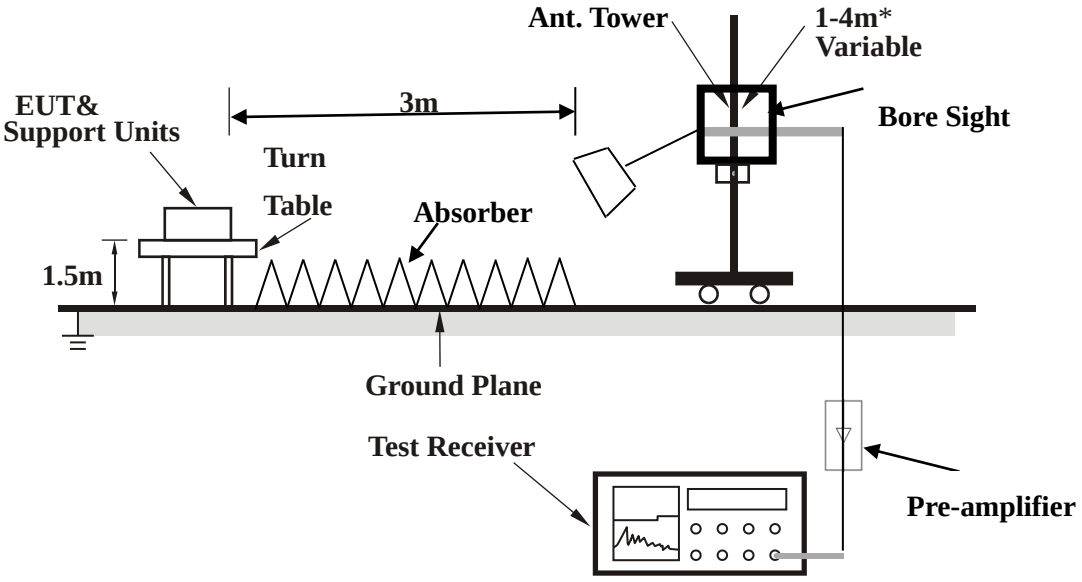
<Frequency Range 9KHz~30MHz >



< Frequency Range 30MHz~1GHz >



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.2.6 EUT OPERATING CONDITIONS

a. Set the EUT under full load condition and placed them on a testing table.

b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.

c. The necessary accessories enable the EUT in full functions.

3.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

Note: For frequency below 30MHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

30 MHz – 1GHz data:

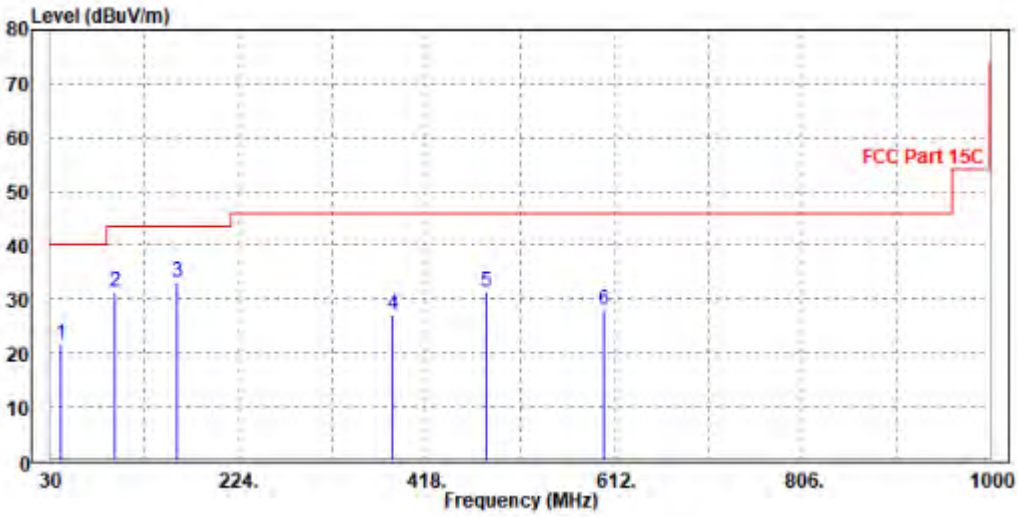
BLUETOOTH LE_2M

CHANNEL	TX Channel39	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
41.64	21.73	46.2	40	-18.27	12.64	0.37	37.48	200	184	QP
95.96	31.35	59.99	43.5	-12.15	8.04	0.52	37.2	200	312	QP
159.98	33.22	58.37	43.5	-10.28	10.9	0.68	36.73	200	28	QP
384.05	27.2	46.53	46	-18.8	16.44	1.05	36.82	200	59	QP
480.08	31.3	48.74	46	-14.7	18.34	1.19	36.97	200	20	QP
600.36	27.9	43.2	46	-18.1	20.71	1.36	37.37	200	183	QP

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

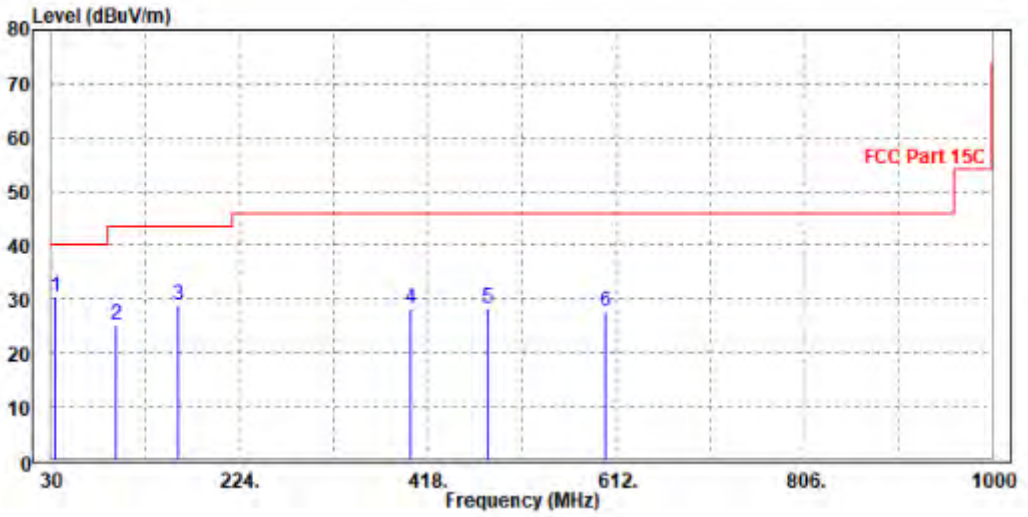


CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
33.88	30.55	49.26	40	-9.45	18.49	0.33	37.53	100	179	QP
95.96	25.27	53.51	43.5	-18.23	8.44	0.52	37.2	100	52	QP
159.98	28.79	53.34	43.5	-14.71	11.5	0.68	36.73	100	119	QP
399.57	28.38	46.95	46	-17.62	17.19	1.07	36.83	100	281	QP
480.08	28.42	45.48	46	-17.58	18.72	1.19	36.97	100	306	QP
600.36	27.55	42.65	46	-18.45	20.91	1.36	37.37	100	203	QP

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



ABOVE 1GHz TEST DATA

Note: For higher frequency, the emission is too low to be detected.

BLUETOOTH LE _1M

CHANNEL	TX Channel 0	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390	55.69	64.45	74	-18.31	31.75	5.86	46.37	180	150	Peak
2390	45.62	54.38	54	-8.38	31.75	5.86	46.37	180	150	Average
2402	105.66	114.36	/	/	31.79	5.88	46.37	180	150	Peak
2402	101.88	110.58	/	/	31.79	5.88	46.37	180	150	Average
2483.5	52.56	60.89	74	-21.44	32.05	5.99	46.37	180	150	Peak
2483.5	44.48	52.81	54	-9.52	32.05	5.99	46.37	180	150	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390	54.3	62.67	74	-19.7	32.14	5.86	46.37	100	230	Peak
2390	46.5	54.87	54	-7.5	32.14	5.86	46.37	100	230	Average
2402	103.97	112.3	/	/	32.16	5.88	46.37	100	230	Peak
2402	101.69	110.02	/	/	32.16	5.88	46.37	100	230	Average
2483.5	54.06	62.08	74	-19.94	32.36	5.99	46.37	100	230	Peak
2483.5	45.22	53.24	54	-8.78	32.36	5.99	46.37	100	230	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2402MHz: Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.75	61.51	74	-21.25	31.75	5.86	46.37	120	230	Peak
2390	43.88	52.64	54	-10.12	31.75	5.86	46.37	120	230	Average
2440	102.71	111.24	/	/	31.91	5.93	46.37	120	230	Peak
2440	102.49	111.02	/	/	31.91	5.93	46.37	120	230	Average
2483.5	52.19	60.52	74	-21.81	32.05	5.99	46.37	120	230	Peak
2483.5	44.67	53	54	-9.33	32.05	5.99	46.37	120	230	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.98	61.35	74	-21.02	32.14	5.86	46.37	100	165	Peak
2390	44.85	53.22	54	-9.15	32.14	5.86	46.37	100	165	Average
2440	100.46	108.64	/	/	32.26	5.93	46.37	100	165	Peak
2440	100.27	108.45	/	/	32.26	5.93	46.37	100	165	Average
2483.5	52	60.02	74	-22	32.36	5.99	46.37	100	165	Peak
2483.5	44.99	53.01	54	-9.01	32.36	5.99	46.37	100	165	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2440MHz: Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.56	60.32	74	-22.44	31.75	5.86	46.37	116	250	Peak
2390	43.83	52.59	54	-10.17	31.75	5.86	46.37	116	250	Average
2480	102.72	111.07	/	/	32.04	5.98	46.37	116	250	Peak
2480	101.49	109.84	/	/	32.04	5.98	46.37	116	250	Average
2483.5	58.51	66.84	74	-15.49	32.05	5.99	46.37	116	250	Peak
2483.5	50.57	58.9	54	-3.43	32.05	5.99	46.37	116	250	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.43	59.8	74	-22.57	32.14	5.86	46.37	100	280	Peak
2390	44.38	52.75	54	-9.62	32.14	5.86	46.37	100	280	Average
2480	103.59	111.63	/	/	32.35	5.98	46.37	100	280	Peak
2480	100.1	108.14	/	/	32.35	5.98	46.37	100	280	Average
2483.5	53.88	61.9	74	-20.12	32.36	5.99	46.37	100	280	Peak
2483.5	46.68	54.7	54	-7.32	32.36	5.99	46.37	100	280	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

BLUETOOTH LE _2M

CHANNEL	TX Channel 0	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390	55.58	64.34	74	-18.42	31.75	5.86	46.37	125	0	Peak
2390	45.28	54.04	54	-8.72	31.75	5.86	46.37	125	0	Average
2402	105.18	113.88	/	/	31.79	5.88	46.37	125	0	Peak
2402	101.61	110.31	/	/	31.79	5.88	46.37	125	0	Average
2483.5	53.63	61.96	74	-20.37	32.05	5.99	46.37	125	0	Peak
2483.5	44.8	53.13	54	-9.2	32.05	5.99	46.37	125	0	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390	53.97	62.34	74	-20.03	32.14	5.86	46.37	100	300	Peak
2390	45.16	53.53	54	-8.84	32.14	5.86	46.37	100	300	Average
2402	102.06	110.39	/	/	32.16	5.88	46.37	100	300	Peak
2402	98.41	106.74	/	/	32.16	5.88	46.37	100	300	Average
2483.5	53.07	61.09	74	-20.93	32.36	5.99	46.37	100	300	Peak
2483.5	44.86	52.88	54	-9.14	32.36	5.99	46.37	100	300	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2402MHz: Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.37	61.13	74	-21.63	31.75	5.86	46.37	105	270	Peak
2390	44.11	52.87	54	-9.89	31.75	5.86	46.37	105	270	Average
2440	102.33	110.86	/	/	31.91	5.93	46.37	105	270	Peak
2440	100.5	109.03	/	/	31.91	5.93	46.37	105	270	Average
2483.5	52.43	60.76	74	-21.57	32.05	5.99	46.37	105	270	Peak
2483.5	44.87	53.2	54	-9.13	32.05	5.99	46.37	105	270	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.93	60.3	74	-22.07	32.14	5.86	46.37	100	165	Peak
2390	44.57	52.94	54	-9.43	32.14	5.86	46.37	100	165	Average
2440	100.51	108.69	/	/	32.26	5.93	46.37	100	165	Peak
2440	98.73	106.91	/	/	32.26	5.93	46.37	100	165	Average
2483.5	52.8	60.82	74	-21.2	32.36	5.99	46.37	100	165	Peak
2483.5	44.71	52.73	54	-9.29	32.36	5.99	46.37	100	165	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2440MHz: Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.04	60.8	74	-21.96	31.75	5.86	46.37	117	255	Peak
2390	43.76	52.52	54	-10.24	31.75	5.86	46.37	117	255	Average
2480	102.63	110.98	/	/	32.04	5.98	46.37	117	255	Peak
2480	100.14	108.49	/	/	32.04	5.98	46.37	117	255	Average
2483.5	57.54	65.87	74	-16.46	32.05	5.99	46.37	117	255	Peak
2483.5	50.91	59.24	54	-3.09	32.05	5.99	46.37	117	255	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.1	60.47	74	-21.9	32.14	5.86	46.37	100	260	Peak
2390	44.72	53.09	54	-9.28	32.14	5.86	46.37	100	260	Average
2480	104	112.04	/	/	32.35	5.98	46.37	100	260	Peak
2480	101.12	109.16	/	/	32.35	5.98	46.37	100	260	Average
2483.5	54.11	62.13	74	-19.89	32.36	5.99	46.37	100	260	Peak
2483.5	47.72	55.74	54	-6.28	32.36	5.99	46.37	100	260	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

BLUETOOTH LE _S2

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.02	60.78	74	-21.98	31.75	5.86	46.37	125	0	Peak
2390	45.56	54.32	54	-8.44	31.75	5.86	46.37	125	0	Average
2402	105.16	113.86	/	/	31.79	5.88	46.37	125	0	Peak
2402	103.1	111.8	/	/	31.79	5.88	46.37	125	0	Average
2483.5	52.73	61.06	74	-21.27	32.05	5.99	46.37	125	0	Peak
2483.5	44.18	52.51	54	-9.82	32.05	5.99	46.37	125	0	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.95	60.32	74	-22.05	32.14	5.86	46.37	100	290	Peak
2390	45.73	54.1	54	-8.27	32.14	5.86	46.37	100	290	Average
2402	102.55	110.88	/	/	32.16	5.88	46.37	100	290	Peak
2402	99.29	107.62	/	/	32.16	5.88	46.37	100	290	Average
2483.5	52.89	60.91	74	-21.11	32.36	5.99	46.37	100	290	Peak
2483.5	45.01	53.03	54	-8.99	32.36	5.99	46.37	100	290	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2402MHz: Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.61	60.37	74	-22.39	31.75	5.86	46.37	125	0	Peak
2390	44.35	53.11	54	-9.65	31.75	5.86	46.37	125	0	Average
2440	102	110.53	/	/	31.91	5.93	46.37	125	0	Peak
2440	101.7	110.23	/	/	31.91	5.93	46.37	125	0	Average
2483.5	52.29	60.62	74	-21.71	32.05	5.99	46.37	125	0	Peak
2483.5	44.61	52.94	54	-9.39	32.05	5.99	46.37	125	0	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.79	60.16	74	-22.21	32.14	5.86	46.37	145	155	Peak
2390	44.26	52.63	54	-9.74	32.14	5.86	46.37	145	155	Average
2440	100.58	108.76	/	/	32.26	5.93	46.37	145	155	Peak
2440	100.11	108.29	/	/	32.26	5.93	46.37	145	155	Average
2483.5	52.63	60.65	74	-21.37	32.36	5.99	46.37	145	155	Peak
2483.5	45.32	53.34	54	-8.68	32.36	5.99	46.37	145	155	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2440MHz: Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.63	60.39	74	-22.37	31.75	5.86	46.37	115	258	Peak
2390	44.1	52.86	54	-9.9	31.75	5.86	46.37	115	258	Average
2480	103.43	111.78	/	/	32.04	5.98	46.37	115	258	Peak
2480	101.86	110.21	/	/	32.04	5.98	46.37	115	258	Average
2483.5	58.78	67.11	74	-15.22	32.05	5.99	46.37	115	258	Peak
2483.5	50.13	58.46	54	-3.87	32.05	5.99	46.37	115	258	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.38	59.75	74	-22.62	32.14	5.86	46.37	100	155	Peak
2390	44.1	52.47	54	-9.9	32.14	5.86	46.37	100	155	Average
2480	103.01	111.05	/	/	32.35	5.98	46.37	100	155	Peak
2480	99.33	107.37	/	/	32.35	5.98	46.37	100	155	Average
2483.5	55.52	63.54	74	-18.48	32.36	5.99	46.37	100	155	Peak
2483.5	47.92	55.94	54	-6.08	32.36	5.99	46.37	100	155	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

BLUETOOTH LE _S8

CHANNEL	TX Channel 0	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390	53.01	61.77	74	-20.99	31.75	5.86	46.37	110	0	Peak
2390	45.33	54.09	54	-8.67	31.75	5.86	46.37	110	0	Average
2402	104.14	112.84	/	/	31.79	5.88	46.37	110	0	Peak
2402	101.58	110.28	/	/	31.79	5.88	46.37	110	0	Average
2483.5	52.41	60.74	74	-21.59	32.05	5.99	46.37	110	0	Peak
2483.5	44.95	53.28	54	-9.05	32.05	5.99	46.37	110	0	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	**EMISSION LEVEL (dBuV/m)**	**READ LEVEL (dBuV)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA FACTOR (dB /m)**	**CABLE LOSS (dB)**	**PREAMP FACTOR (dB)**	**ANTENNA HEIGHT (cm)**	**TABLE ANGLE (Degree)**	**REMARK**
2390	51.53	59.9	74	-22.47	32.14	5.86	46.37	100	165	Peak
2390	44.94	53.31	54	-9.06	32.14	5.86	46.37	100	165	Average
2402	103.21	111.54	/	/	32.16	5.88	46.37	100	165	Peak
2402	99.89	108.22	/	/	32.16	5.88	46.37	100	165	Average
2483.5	52.94	60.96	74	-21.06	32.36	5.99	46.37	100	165	Peak
2483.5	45.01	53.03	54	-8.99	32.36	5.99	46.37	100	165	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2402MHz: Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52.07	60.83	74	-21.93	31.75	5.86	46.37	105	270	Peak
2390	44.01	52.77	54	-9.99	31.75	5.86	46.37	105	270	Average
2440	101.85	110.38	/	/	31.91	5.93	46.37	105	270	Peak
2440	101.58	110.11	/	/	31.91	5.93	46.37	105	270	Average
2483.5	51.96	60.29	74	-22.04	32.05	5.99	46.37	105	270	Peak
2483.5	44.41	52.74	54	-9.59	32.05	5.99	46.37	105	270	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.86	60.23	74	-22.14	32.14	5.86	46.37	100	165	Peak
2390	44.56	52.93	54	-9.44	32.14	5.86	46.37	100	165	Average
2440	100.12	108.3	/	/	32.26	5.93	46.37	100	165	Peak
2440	99.33	107.51	/	/	32.26	5.93	46.37	100	165	Average
2483.5	51.9	59.92	74	-22.1	32.36	5.99	46.37	100	165	Peak
2483.5	45.17	53.19	54	-8.83	32.36	5.99	46.37	100	165	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2440MHz: Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	52	60.76	74	-22	31.75	5.86	46.37	114	260	Peak
2390	44.01	52.77	54	-9.99	31.75	5.86	46.37	114	260	Average
2480	103.38	111.73	/	/	32.04	5.98	46.37	114	260	Peak
2480	101.98	110.33	/	/	32.04	5.98	46.37	114	260	Average
2483.5	57.39	65.72	74	-16.61	32.05	5.99	46.37	114	260	Peak
2483.5	50.68	59.01	54	-3.32	32.05	5.99	46.37	114	260	Average
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB /m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
2390	51.25	59.62	74	-22.75	32.14	5.86	46.37	100	155	Peak
2390	44.51	52.88	54	-9.49	32.14	5.86	46.37	100	155	Average
2480	102.96	111	/	/	32.35	5.98	46.37	100	155	Peak
2480	99.62	107.66	/	/	32.35	5.98	46.37	100	155	Average
2483.5	54.7	62.72	74	-19.3	32.36	5.99	46.37	100	155	Peak
2483.5	47.9	55.92	54	-6.1	32.36	5.99	46.37	100	155	Average

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Emission level – Limit value.
2. 2480MHz: Fundamental frequency.

3.3 6 dB BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

3.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Meter	ANRITSU	ML2495A	1506002	Feb. 25,21	Feb. 24,22
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 25,21	Feb. 24,22
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	Apr. 26,21	Apr. 25,22
Power Sensor	ANRITSU	MA2411B	1339352	Feb. 25,21	Feb. 24,22

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in RF Oven room.

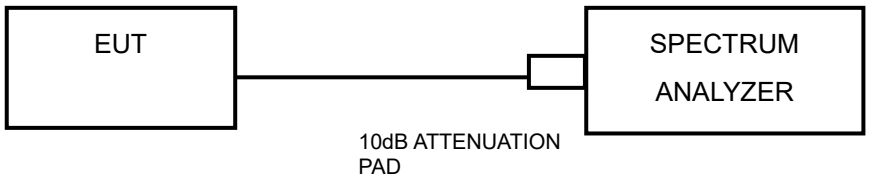
3.3.3 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.3.4 DEVIATION FROM TEST STANDARD

No deviation.

3.3.5 TEST SETUP



3.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.3.7 TEST RESULTS

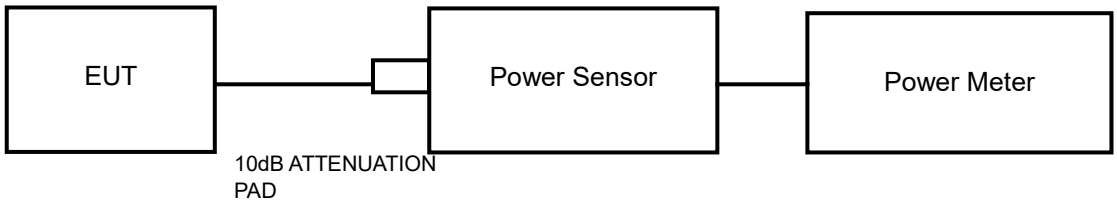
Please Refer to Appendix1 Of this test report.

3.4 CONDUCTED OUTPUT POWER

3.4.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

For systems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm)

3.4.2 TEST SETUP



3.4.3 TEST INSTRUMENTS

Refer to section 3.2.2 to get information of above instrument.

3.4.4 TEST PROCEDURES

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.4.7 TEST RESULTS

3.4.7.1 MAXIMUM PEAK OUTPUT POWER

Please Refer to Appendix1 Of this test report.

3.4.7.2 AVERAGE OUTPUT POWER (FOR REFERENCE)

The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

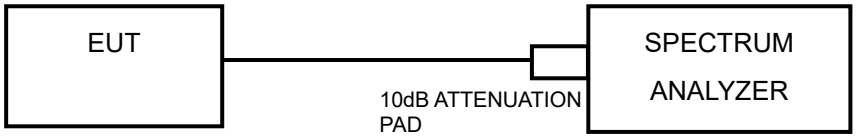
Please Refer to Appendix1 Of this test report.

3.5 POWER SPECTRAL DENSITY MEASUREMENT

3.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

3.5.2 TEST SETUP



3.5.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.5.4 TEST PROCEDURE

1. Set the span to 1.5 times the DTS bandwidth
2. Set the RBW = 3 kHz, VBW ≥ 3 x RBW, Detector = peak.
3. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

3.5.5 DEVIATION FROM TEST STANDARD

No deviation.

3.5.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.5.7 TEST RESULTS

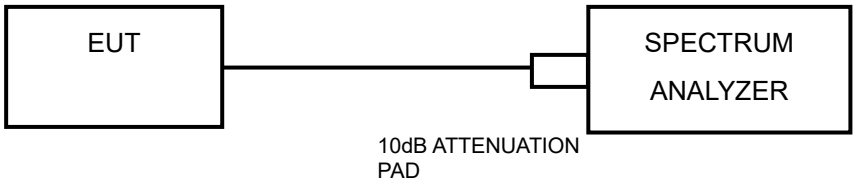
Please Refer to Appendix1 Of this test report.

3.6 OUT OF BAND EMISSION MEASUREMENT

3.6.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

3.6.2 TEST SETUP



3.6.3 TEST INSTRUMENTS

Refer to section 3.3.2 to get information of above instrument.

3.6.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

3.6.5 DEVIATION FROM TEST STANDARD

No deviation.

3.6.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.6.7 TEST RESULTS

The spectrum plots are attached on the following images. D1 line indicates the highest level. D2 line indicates the 20dB offset below D1. It shows compliance to the requirement.

Please Refer to Appendix 1 Of this test report.

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

6 Appendix 1:

DTS BANDWIDTH

TEST RESULT

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_125K	Ant1	2402	0.700	2401.768	2402.468	0.5	PASS
		2440	0.604	2439.808	2440.412	0.5	PASS
		2480	0.640	2479.788	2480.428	0.5	PASS
BLE_1M	Ant1	2402	0.684	2401.740	2402.424	0.5	PASS
		2440	0.788	2439.712	2440.500	0.5	PASS
		2480	0.728	2479.716	2480.444	0.5	PASS
BLE_2M	Ant1	2402	1.172	2401.480	2402.652	0.5	PASS
		2440	1.200	2439.468	2440.668	0.5	PASS
		2480	1.128	2479.544	2480.672	0.5	PASS
BLE_500K	Ant1	2402	0.656	2401.788	2402.444	0.5	PASS
		2440	0.740	2439.720	2440.460	0.5	PASS
		2480	0.688	2479.768	2480.456	0.5	PASS

TEST GRAPHS

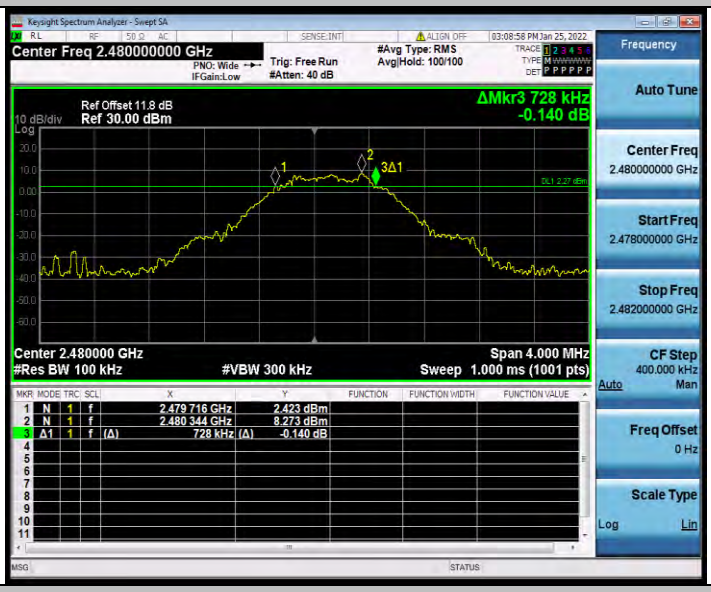
BLE_125K_Ant1_2402

BLE_125K_Ant1_2440

BLE_125K_Ant1_2480

BLE_1M_Ant1_2402

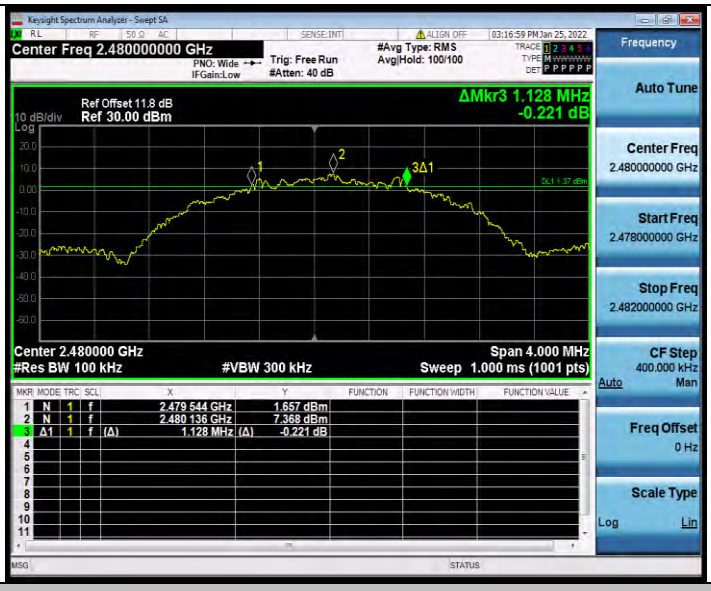
BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

BLE_2M_Ant1_2402

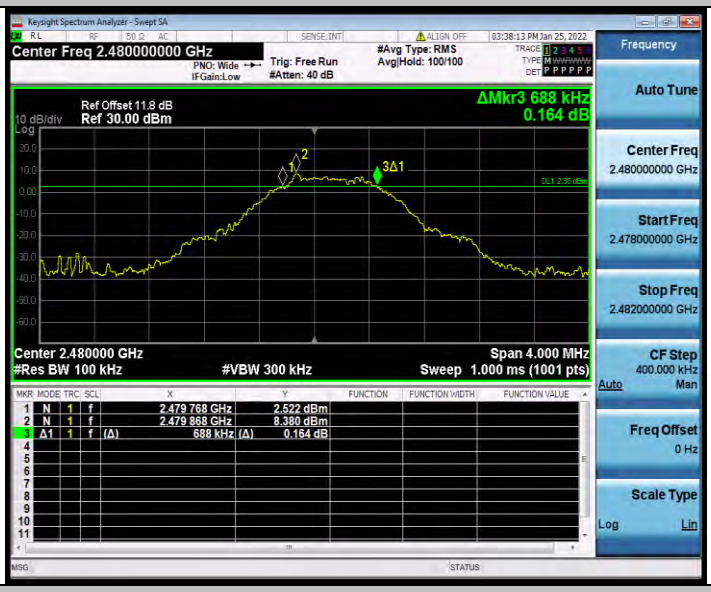
BLE_2M_Ant1_2440



BLE_2M_Ant1_2480

BLE_500K_Ant1_2402

BLE_500K_Ant1_2440



BLE_500K_Ant1_2480

OCCUPIED CHANNEL BANDWIDTH

TEST RESULT

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_125K	Ant1	2402	1.1258	2401.545	2402.671	---	PASS
		2440	1.1336	2439.545	2440.678	---	PASS
		2480	1.1327	2479.553	2480.686	---	PASS
BLE_1M	Ant1	2402	1.0845	2401.557	2402.642	---	PASS
		2440	1.1093	2439.548	2440.657	---	PASS
		2480	1.0975	2479.562	2480.660	---	PASS
BLE_2M	Ant1	2402	2.0388	2401.109	2403.147	---	PASS
		2440	2.0443	2439.086	2441.130	---	PASS
		2480	2.0378	2479.111	2481.149	---	PASS
BLE_500K	Ant1	2402	1.0723	2401.572	2402.644	---	PASS
		2440	1.0933	2439.562	2440.655	---	PASS
		2480	1.1026	2479.553	2480.656	---	PASS

TEST GRAPHS

BLE_125K_Ant1_2402

BLE_125K_Ant1_2440

BLE_125K_Ant1_2480

BLE_1M_Ant1_2402

BLE_1M_Ant1_2440

BLE_1M_Ant1_2480

BLE_2M_Ant1_2402

BLE_2M_Ant1_2440

BLE_2M_Ant1_2480

BLE_500K_Ant1_2402

BLE_500K_Ant1_2440

BLE_500K_Ant1_2480

MAXIMUM CONDUCTED OUTPUT POWER

TEST RESULT PEAK

TestMode	Antenna	Channel	Peak Powert[dBm]	Peak Powert[mw]	Conducted Limit[dBm]	Verdict	Power setting
1M	Ant1	2402	4.84	3.05	≤30	PASS	Defult
		2440	4.78	3.01	≤30	PASS	Defult
		2480	4.56	2.86	≤30	PASS	Defult
2M	Ant1	2402	4.82	3.03	≤30	PASS	Defult
		2440	4.79	3.01	≤30	PASS	Defult
		2480	4.50	2.82	≤30	PASS	Defult
S2	Ant1	2402	4.82	3.03	≤30	PASS	Defult
		2440	4.75	2.99	≤30	PASS	Defult
		2480	4.53	2.84	≤30	PASS	Defult
S8	Ant1	2402	4.83	3.04	≤30	PASS	Defult
		2440	4.76	2.99	≤30	PASS	Defult
		2480	4.48	2.81	≤30	PASS	Defult

TEST RESULT AVERAGE

TestMode	Antenna	Channel	Average Power	Conducted Limit[dBm]	Verdict	Power setting
1M	Ant1	2402	1.55	/	PASS	Defult
		2440	1.53	/	PASS	Defult
		2480	1.28	/	PASS	Defult
2M	Ant1	2402	1.62	/	PASS	Defult
		2440	1.59	/	PASS	Defult
		2480	1.34	/	PASS	Defult
S2	Ant1	2402	3.68	/	PASS	Defult
		2440	3.64	/	PASS	Defult
		2480	3.40	/	PASS	Defult
S8	Ant1	2402	3.86	/	PASS	Defult
		2440	3.82	/	PASS	Defult
		2480	3.59	/	PASS	Defult

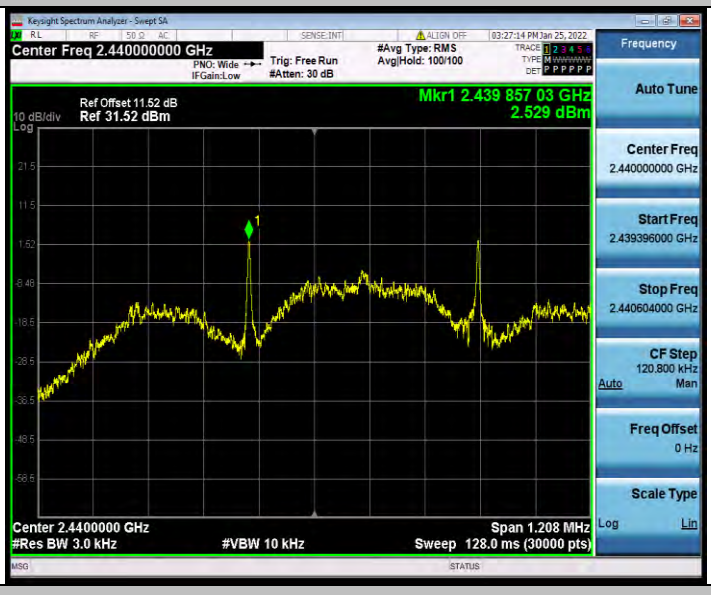
MAXIMUM POWER SPECTRAL DENSITY

TEST RESULT

TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_125K	Ant1	2402	3.38	≤8	PASS
		2440	2.53	≤8	PASS
		2480	2.95	≤8	PASS
BLE_1M	Ant1	2402	-6.74	≤8	PASS
		2440	-7.13	≤8	PASS
		2480	-7.17	≤8	PASS
BLE_2M	Ant1	2402	-9.59	≤8	PASS
		2440	-10.6	≤8	PASS
		2480	-10.17	≤8	PASS
BLE_500K	Ant1	2402	3.32	≤8	PASS
		2440	2.5	≤8	PASS
		2480	2.8	≤8	PASS

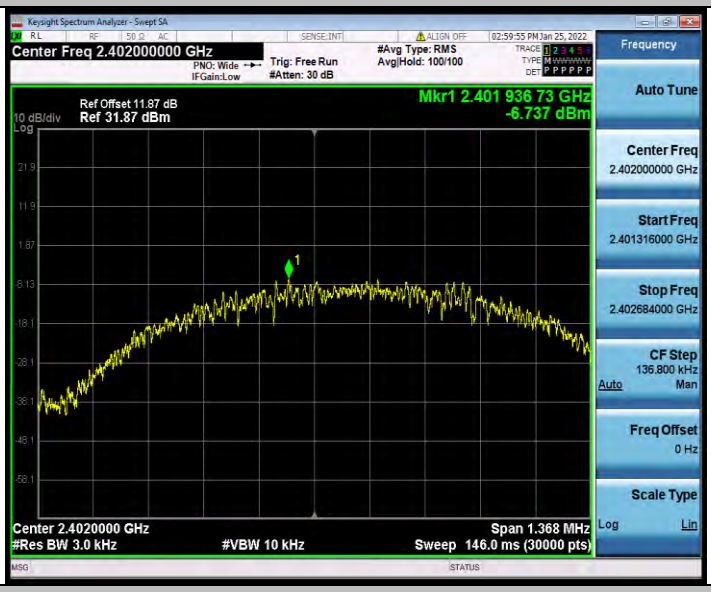
TEST GRAPHS

BLE_125K_Ant1_2402

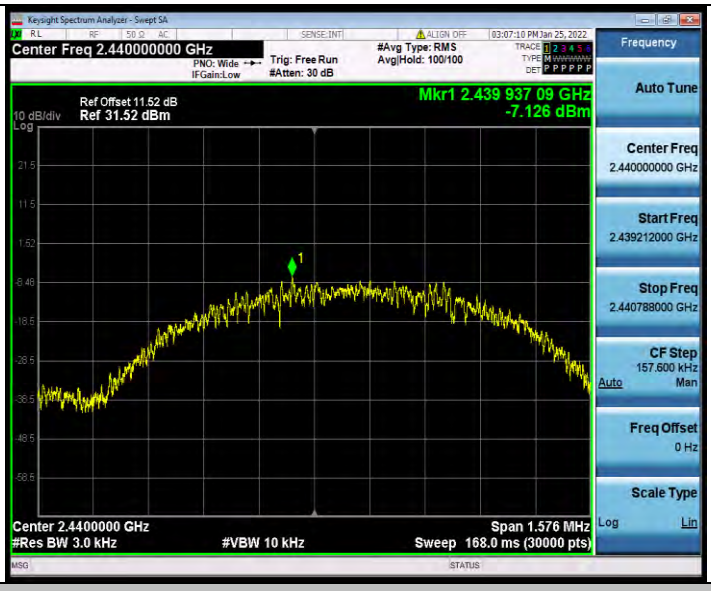


BLE_125K_Ant1_2440

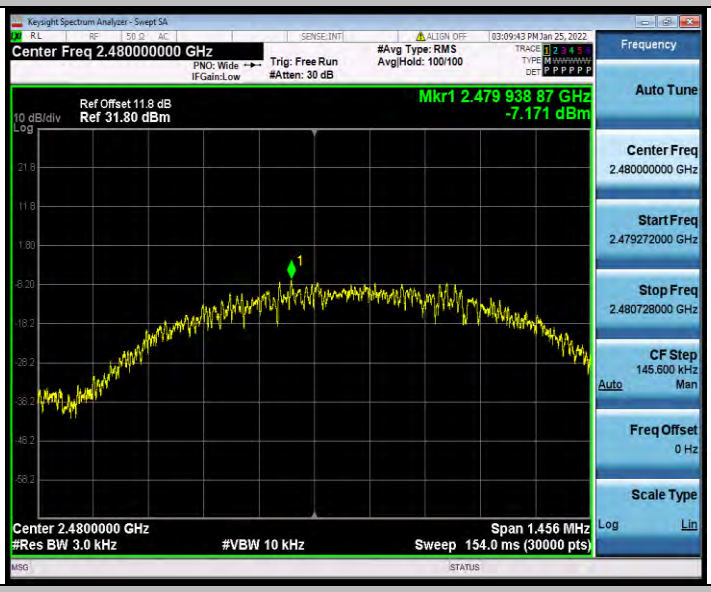
BLE_125K_Ant1_2480



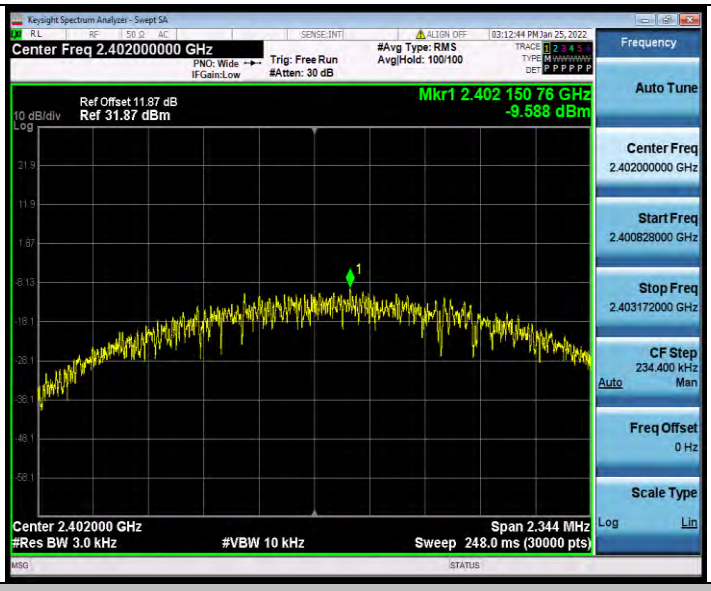
BLE_1M_Ant1_2402



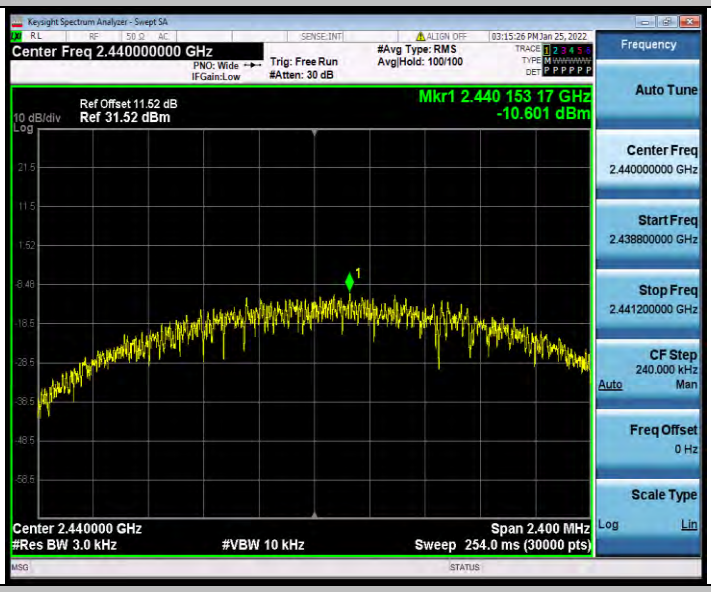
BLE_1M_Ant1_2440



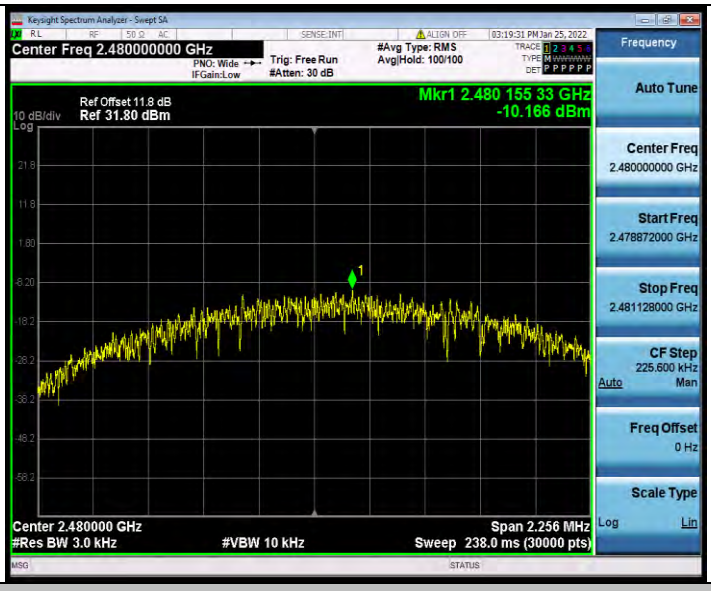
BLE_1M_Ant1_2480



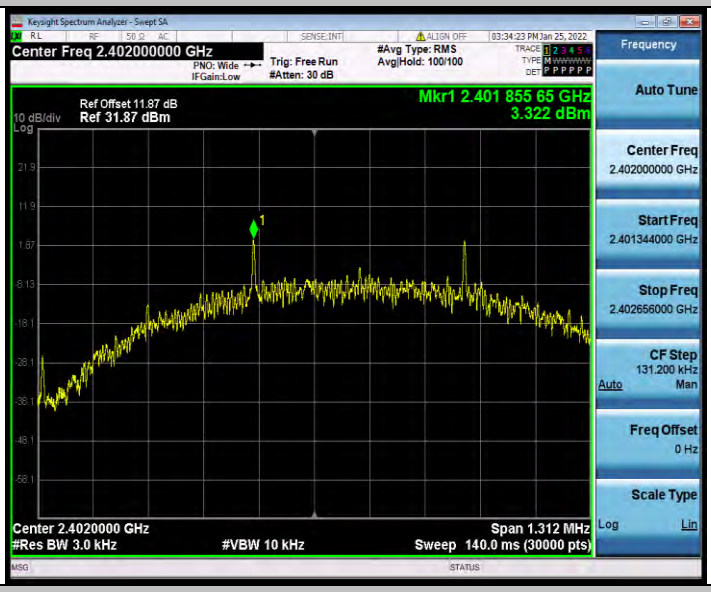
BLE_2M_Ant1_2402



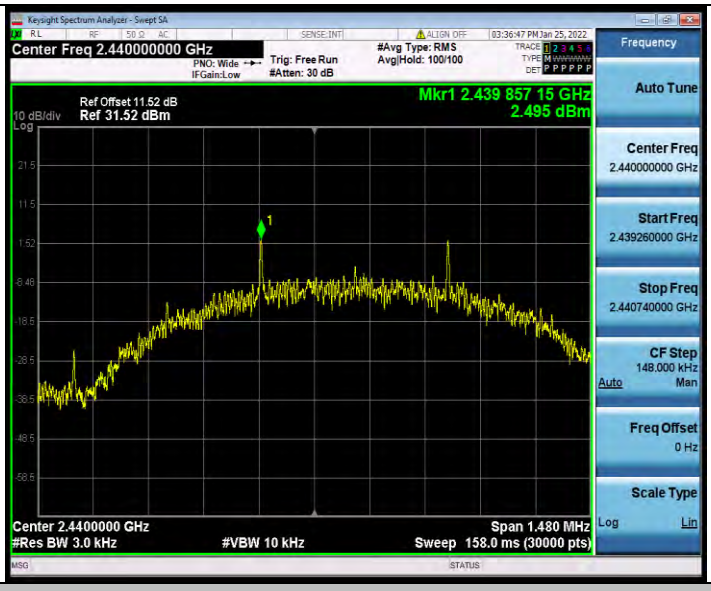
BLE_2M_Ant1_2440



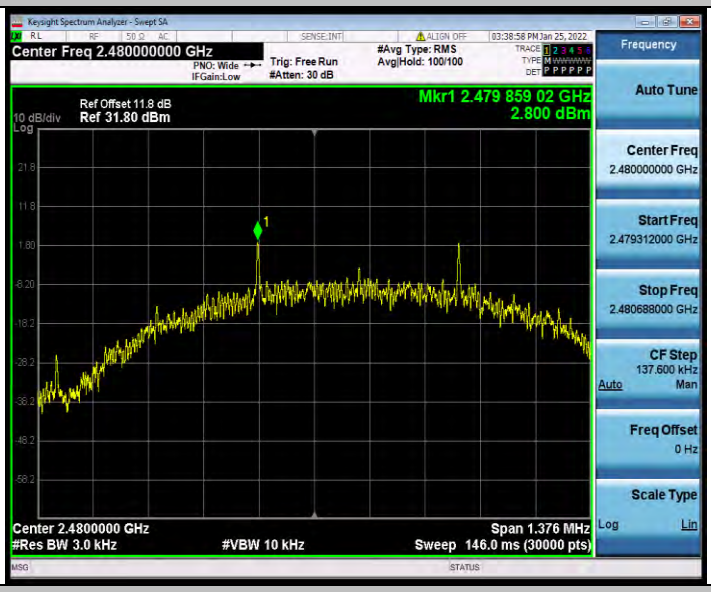
BLE_2M_Ant1_2480



BLE_500K_Ant1_2402



BLE_500K_Ant1_2440



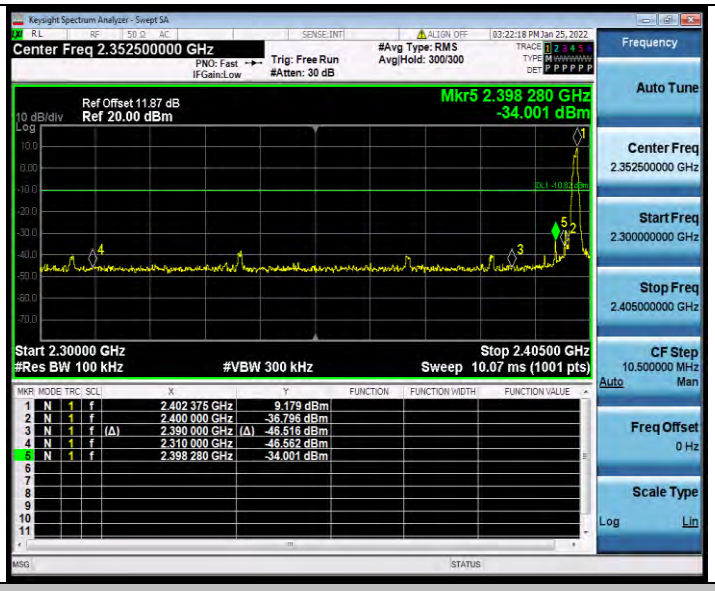
BLE_500K_Ant1_2480

BAND EDGE MEASUREMENTS

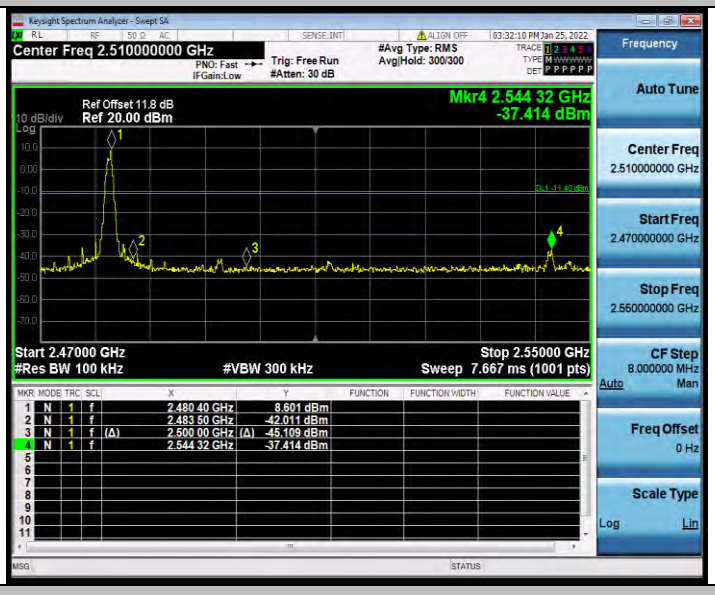
TEST RESULT

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_125K	Ant1	Low	2402	9.18	-34	≤-10.82	PASS
		High	2480	8.60	-37.41	≤-11.4	PASS
BLE_1M	Ant1	Low	2402	9.24	-34.11	≤-10.76	PASS
		High	2480	8.60	-36.18	≤-11.4	PASS
BLE_2M	Ant1	Low	2402	7.67	-28.22	≤-12.34	PASS
		High	2480	7.54	-37.63	≤-12.46	PASS
BLE_500K	Ant1	Low	2402	9.07	-34.35	≤-10.93	PASS
		High	2480	8.62	-36.1	≤-11.38	PASS

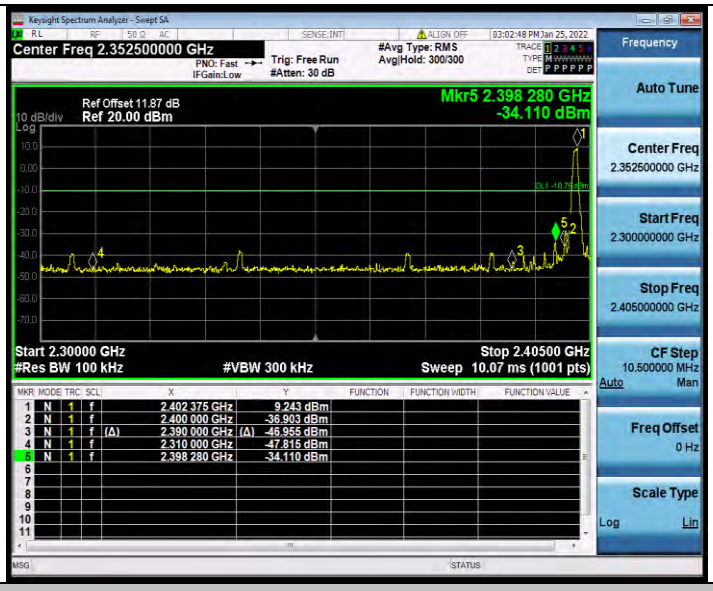
TEST GRAPHS



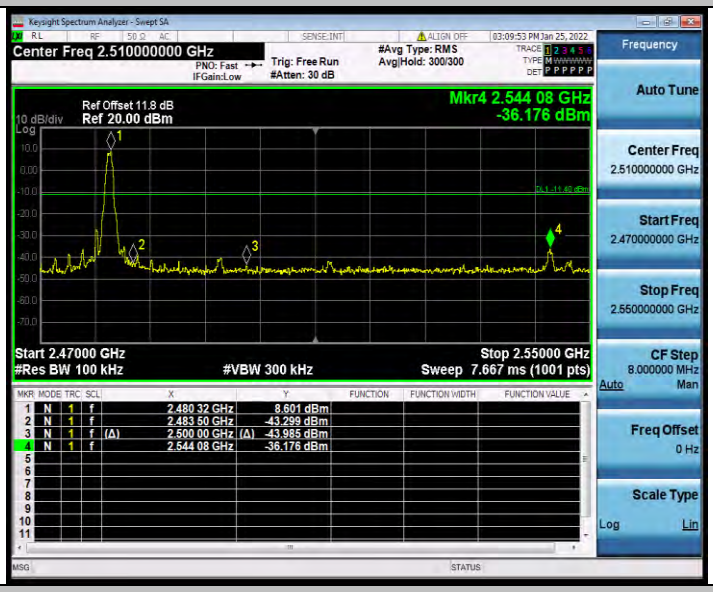
BLE_125K_Ant1_Low_2402



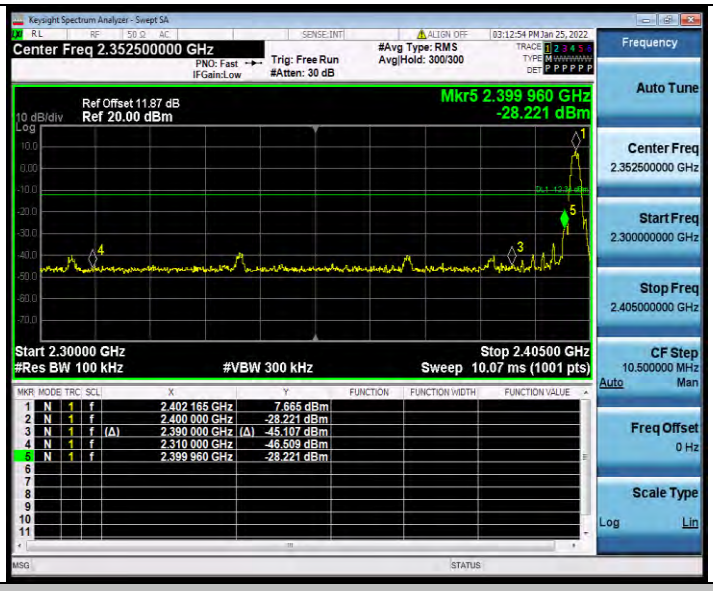
BLE_125K_Ant1_High_2480



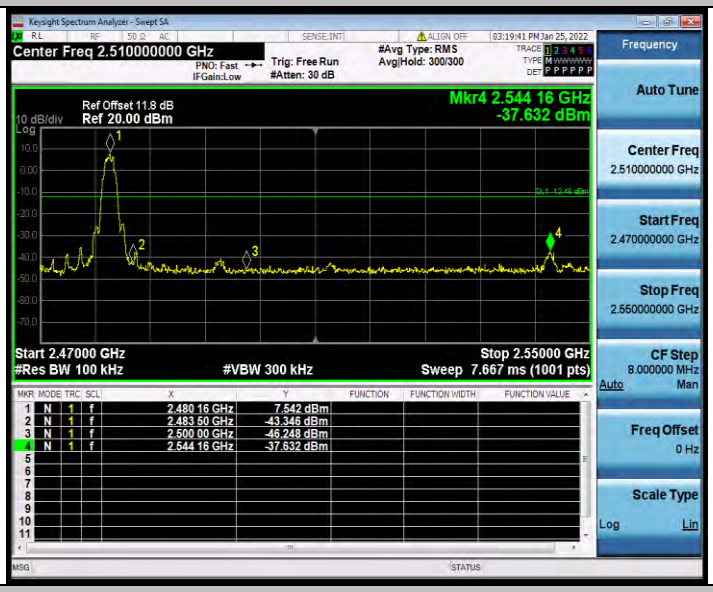
BLE_1M_Ant1_Low_2402



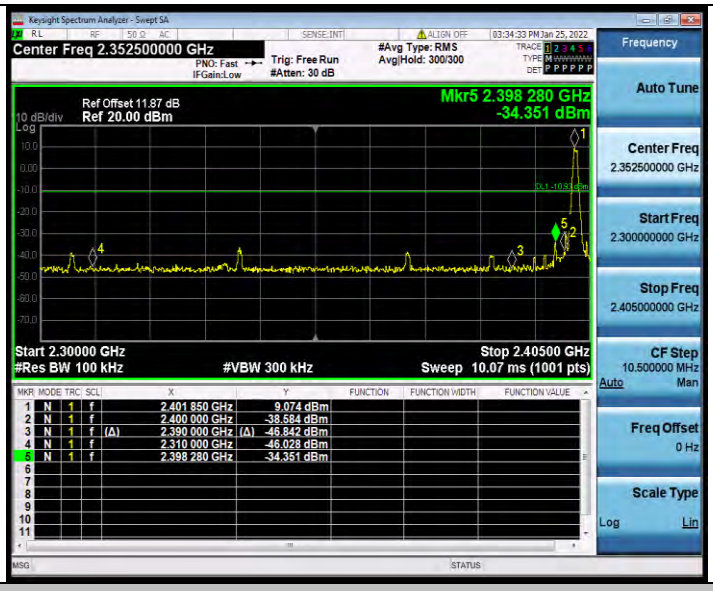
BLE_1M_Ant1_High_2480



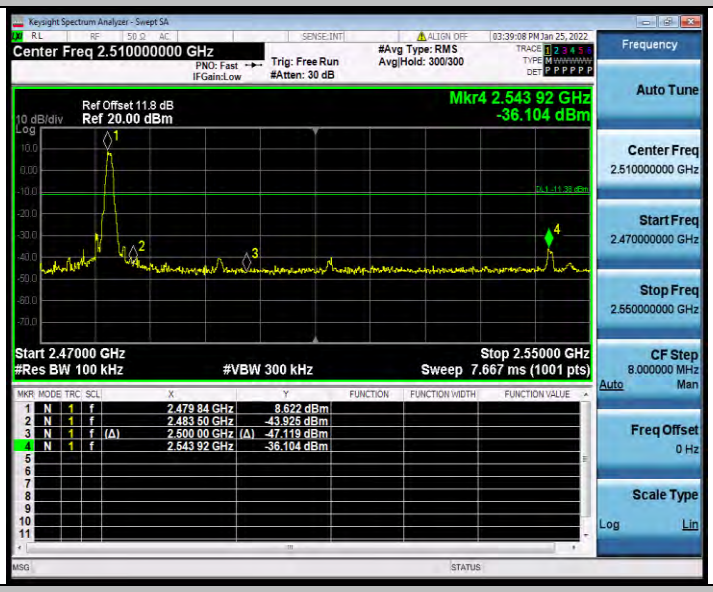
BLE_2M_Ant1_Low_2402



BLE_2M_Ant1_High_2480



BLE_500K_Ant1_Low_2402



BLE_500K_Ant1_High_2480

CONDUCTED SPURIOUS EMISSION

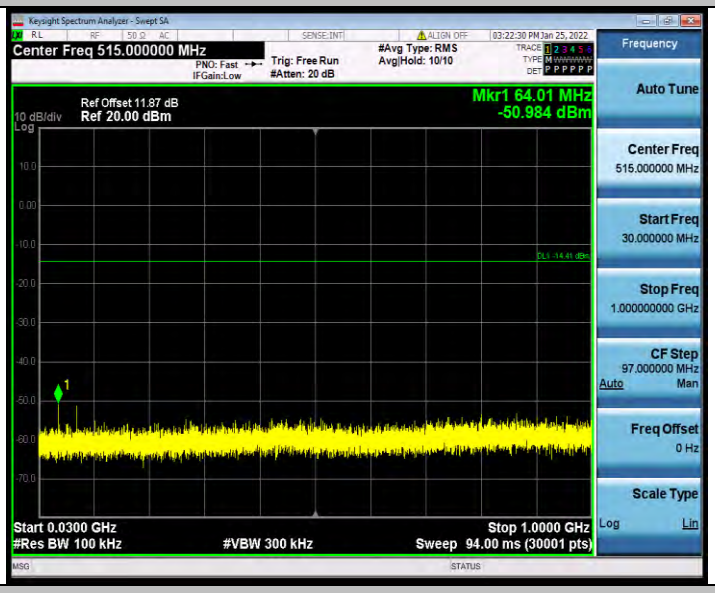
TEST RESULT

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_125K	Ant1	2402	Reference	5.59	5.59	---	PASS
			30~1000	5.59	-50.98	≤-14.41	PASS
			1000~26500	5.59	-36.28	≤-14.41	PASS
		2440	Reference	4.91	4.91	---	PASS
			30~1000	4.91	-50.64	≤-15.09	PASS
			1000~26500	4.91	-37.71	≤-15.09	PASS
		2480	Reference	5.00	5.00	---	PASS
			30~1000	5.00	-50.59	≤-15	PASS
			1000~26500	5.00	-38.19	≤-15	PASS
BLE_1M	Ant1	2402	Reference	8.48	8.48	---	PASS
			30~1000	8.48	-49.38	≤-11.52	PASS
			1000~26500	8.48	-36.6	≤-11.52	PASS
		2440	Reference	7.03	7.03	---	PASS
			30~1000	7.03	-50.02	≤-12.97	PASS
			1000~26500	7.03	-37.33	≤-12.97	PASS
		2480	Reference	7.89	7.89	---	PASS
			30~1000	7.89	-49.83	≤-12.12	PASS
			1000~26500	7.89	-37.69	≤-12.12	PASS
BLE_2M	Ant1	2402	Reference	7.76	7.76	---	PASS
			30~1000	7.76	-49.98	≤-12.25	PASS
			1000~26500	7.76	-37.26	≤-12.25	PASS
		2440	Reference	6.62	6.62	---	PASS
			30~1000	6.62	-50.11	≤-13.38	PASS
			1000~26500	6.62	-37.98	≤-13.38	PASS
		2480	Reference	7.50	7.50	---	PASS
			30~1000	7.50	-49.55	≤-12.5	PASS
			1000~26500	7.50	-37.77	≤-12.5	PASS
BLE_500K	Ant1	2402	Reference	8.33	8.33	---	PASS
			30~1000	8.33	-50	≤-11.67	PASS

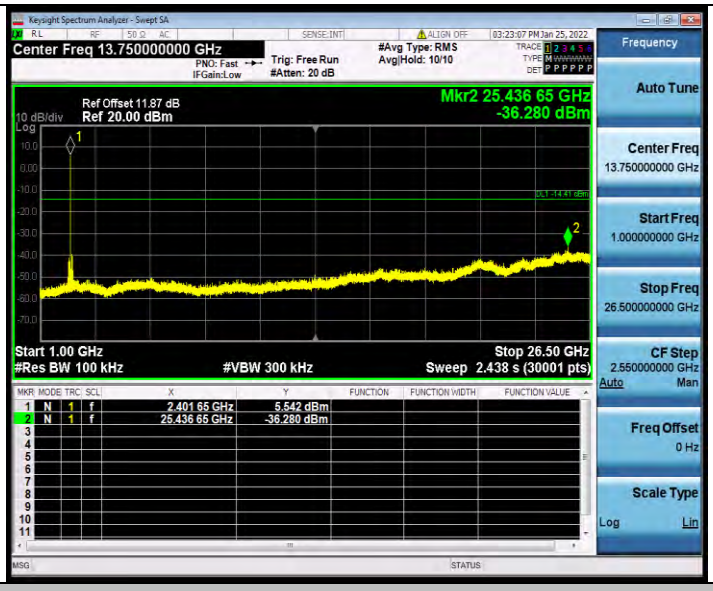
			1000~26500	8.33	-37.16	≤-11.67	PASS
		2440	Reference	7.74	7.74	---	PASS
			30~1000	7.74	-51.02	≤-12.26	PASS
			1000~26500	7.74	-38.16	≤-12.26	PASS
		2480	Reference	6.49	6.49	---	PASS
			30~1000	6.49	-50.36	≤-13.51	PASS
			1000~26500	6.49	-37.65	≤-13.51	PASS

TEST GRAPHS

BLE_125K_Ant1_2402_0~Reference

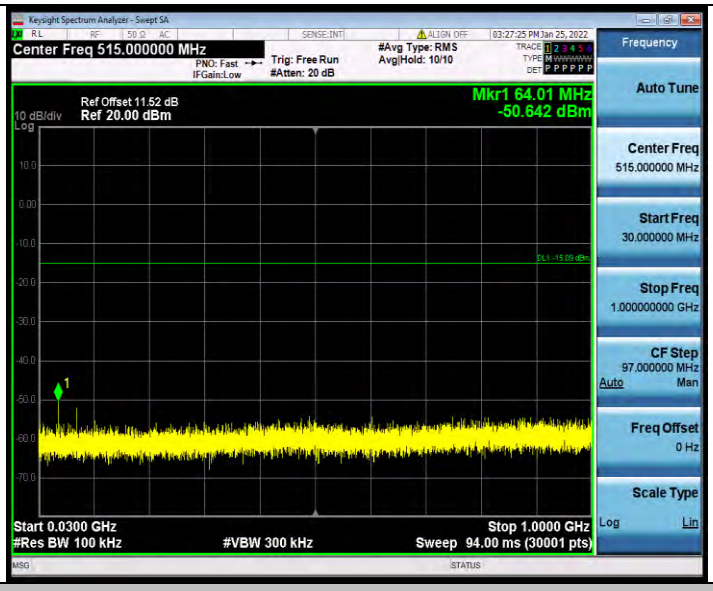


BLE_125K_Ant1_2402_30~1000

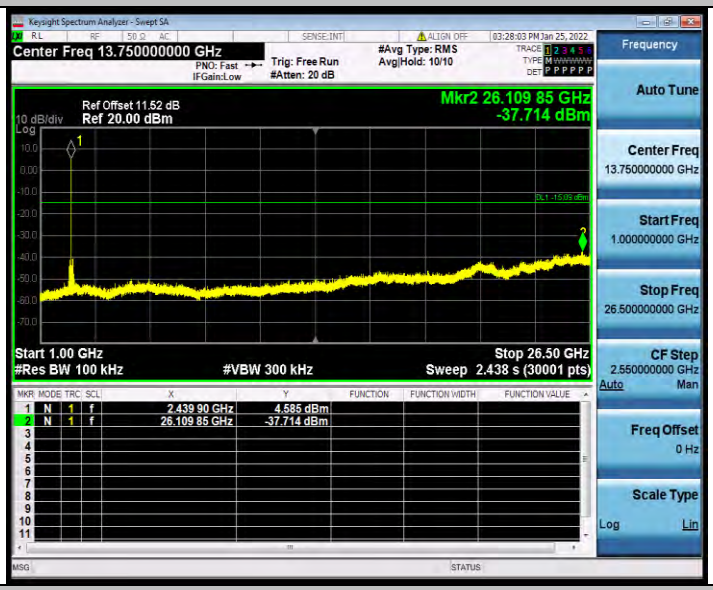


BLE_125K_Ant1_2402_1000~26500

BLE_125K_Ant1_2440_0~Reference

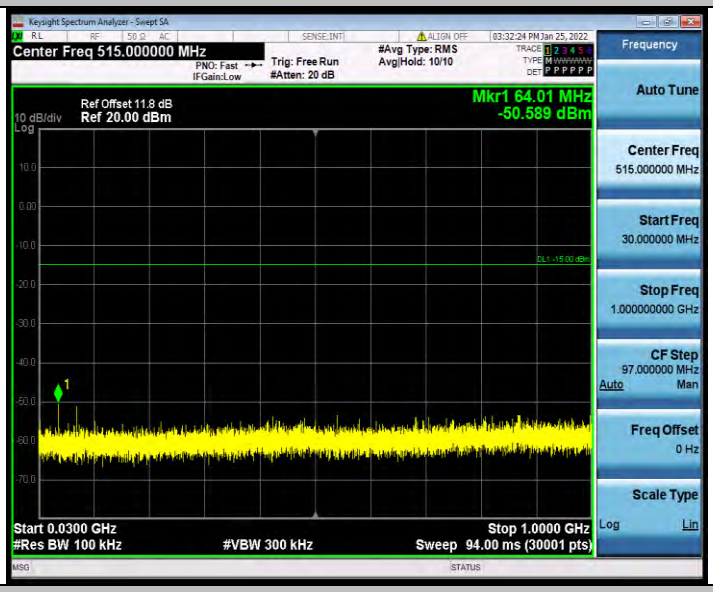


BLE_125K_Ant1_2440_30~1000

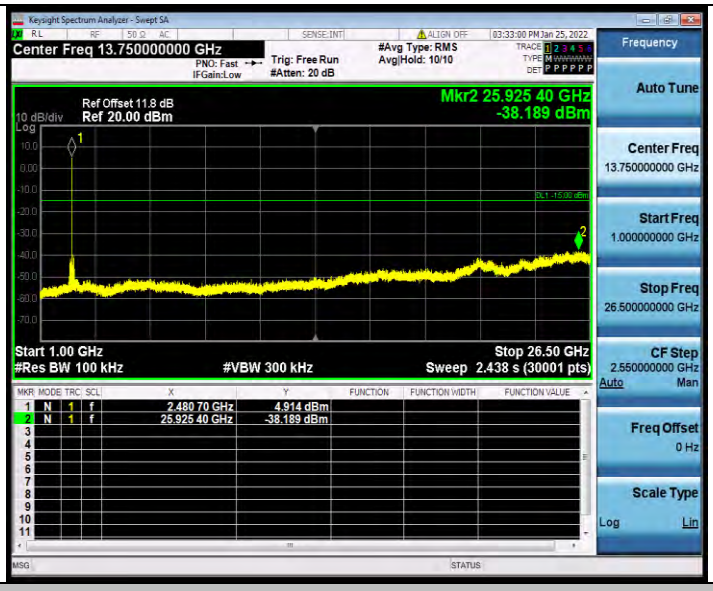


BLE_125K_Ant1_2440_1000~26500

BLE_125K_Ant1_2480_0~Reference

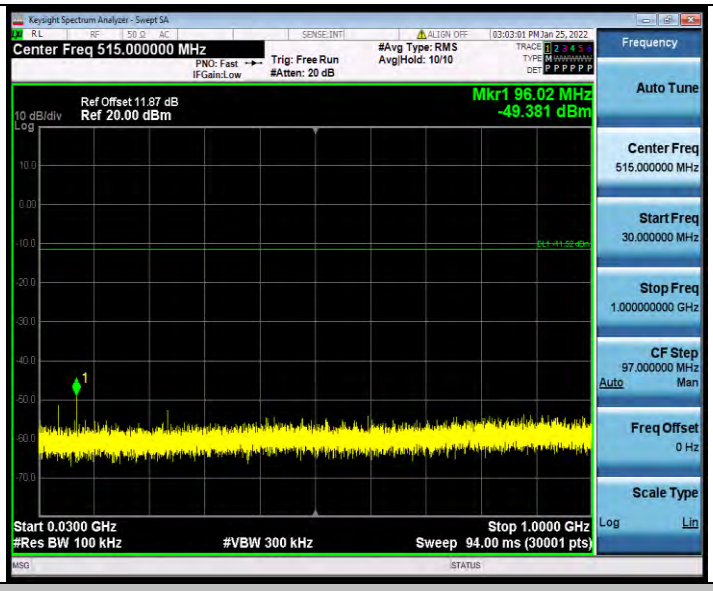


BLE_125K_Ant1_2480_30~1000

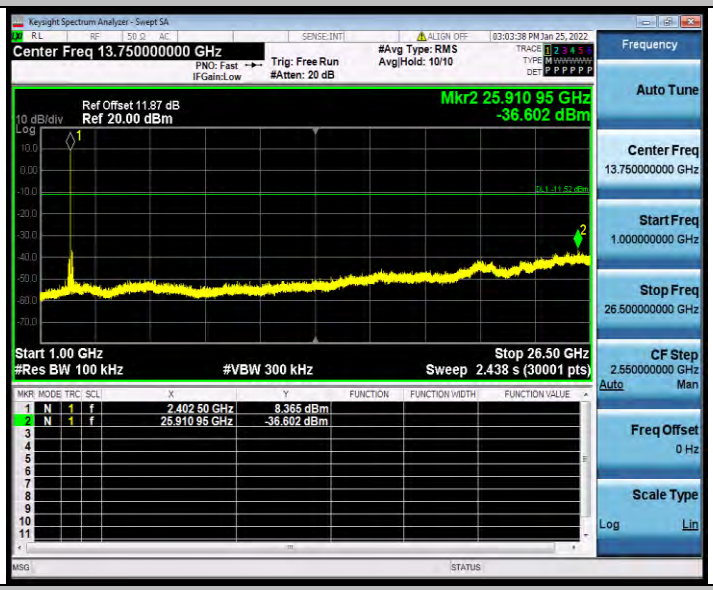


BLE_125K_Ant1_2480_1000~26500

BLE_1M_Ant1_2402_0~Reference

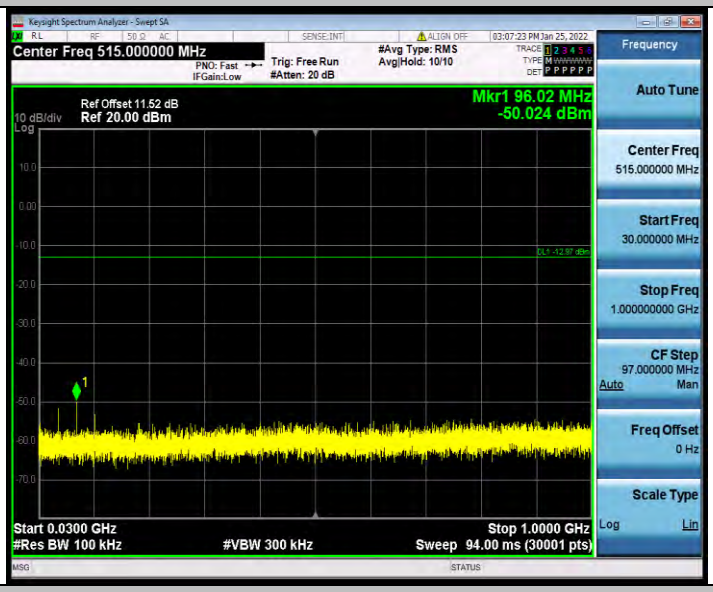


BLE_1M_Ant1_2402_30~1000

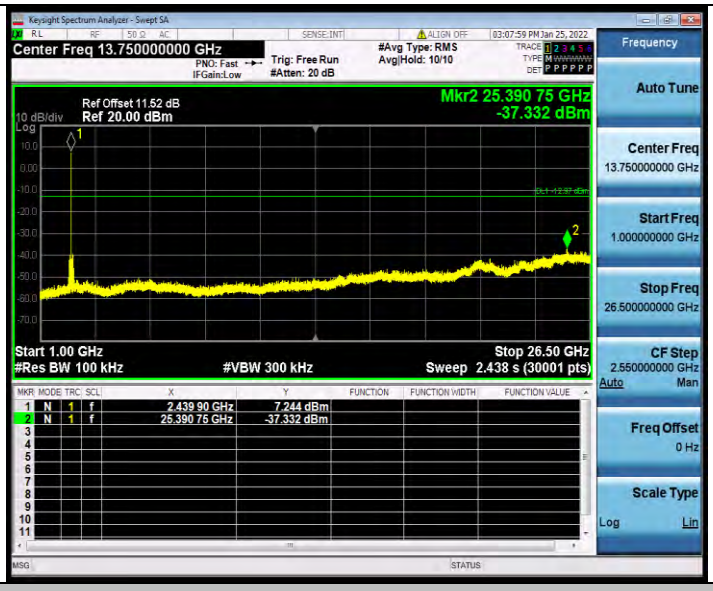


BLE_1M_Ant1_2402_1000~26500

BLE_1M_Ant1_2440_0~Reference

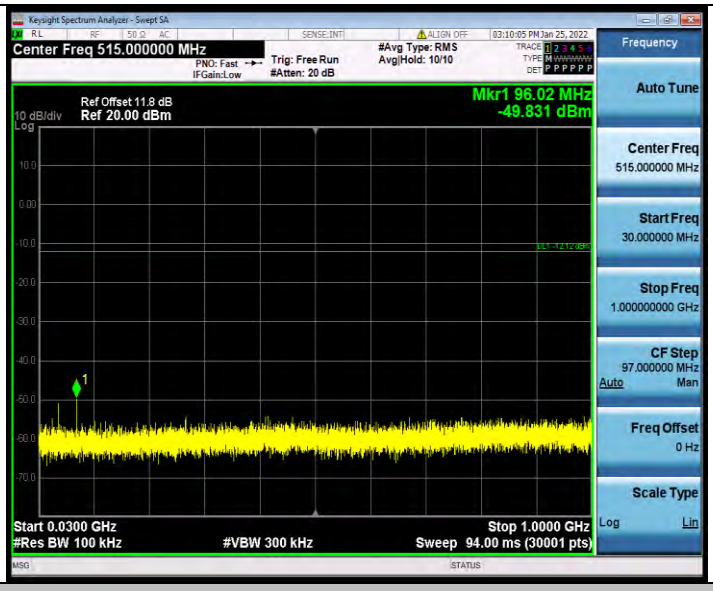


BLE_1M_Ant1_2440_30~1000

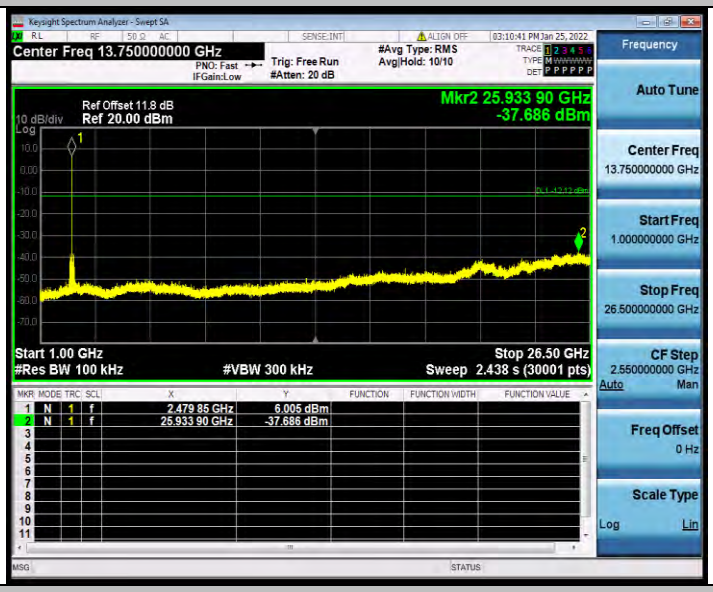


BLE_1M_Ant1_2440_1000~26500

BLE_1M_Ant1_2480_0~Reference

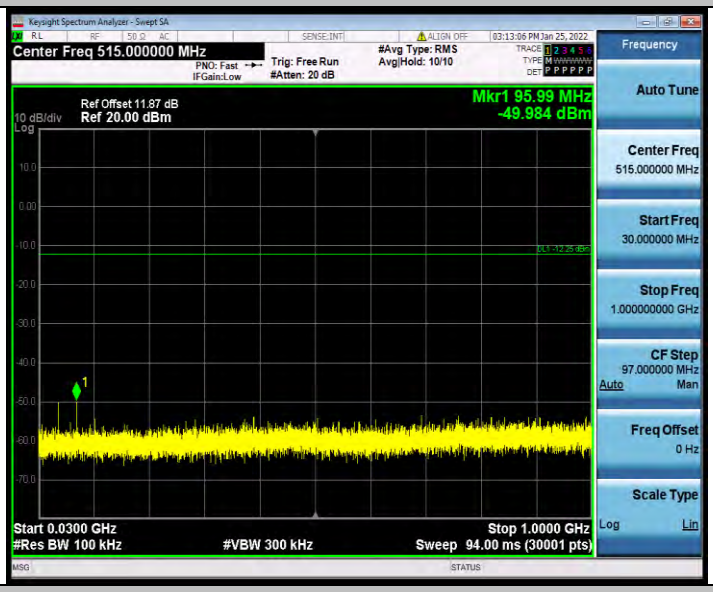


BLE_1M_Ant1_2480_30~1000

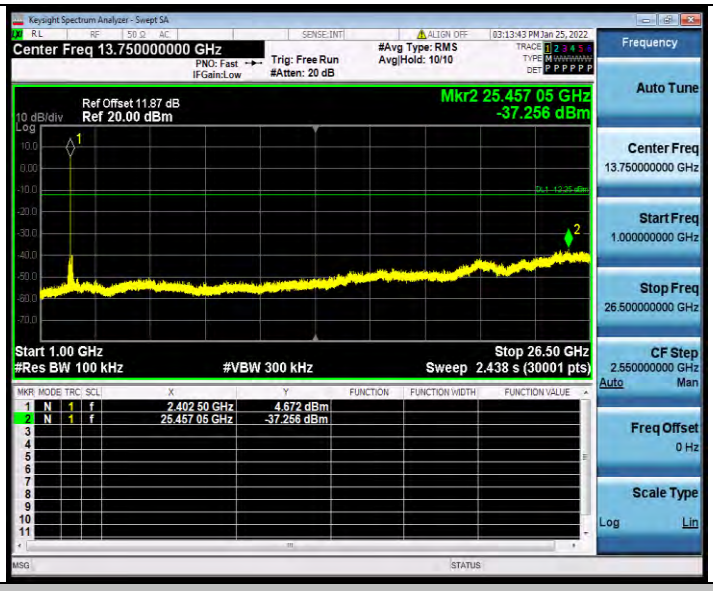


BLE_1M_Ant1_2480_1000~26500

BLE_2M_Ant1_2402_0~Reference

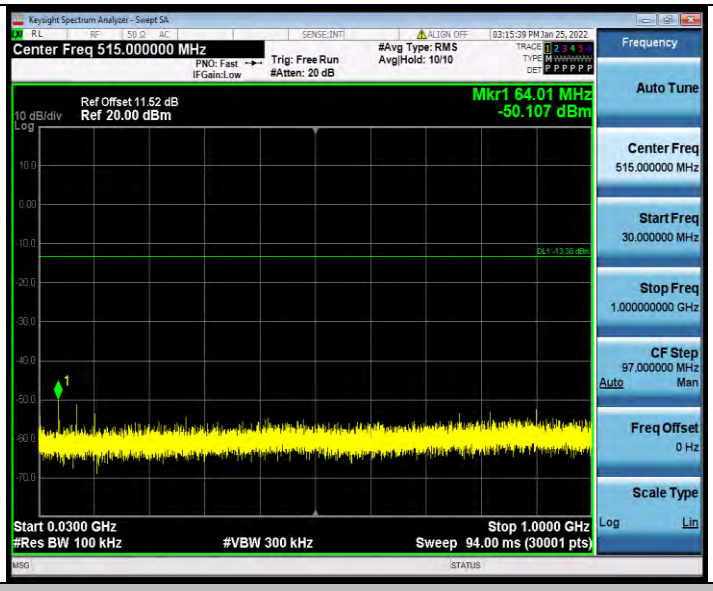


BLE_2M_Ant1_2402_30~1000

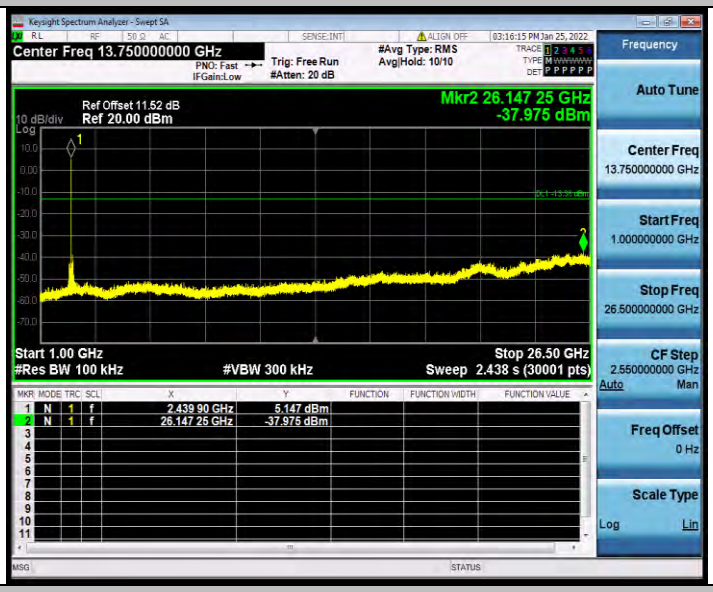


BLE_2M_Ant1_2402_1000~26500

BLE_2M_Ant1_2440_0~Reference

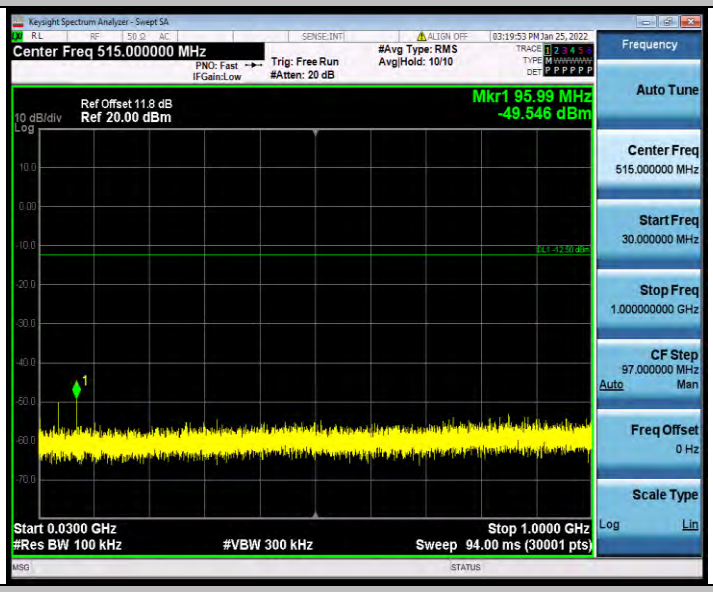


BLE_2M_Ant1_2440_30~1000

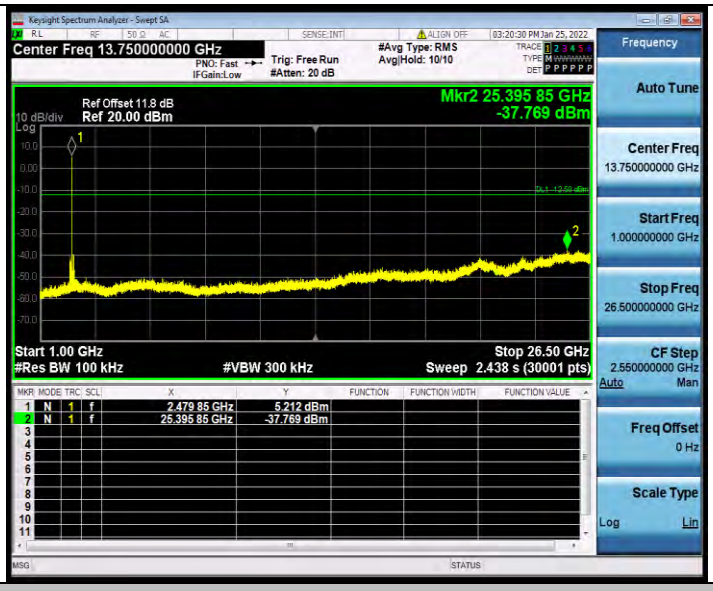


BLE_2M_Ant1_2440_1000~26500

BLE_2M_Ant1_2480_0~Reference

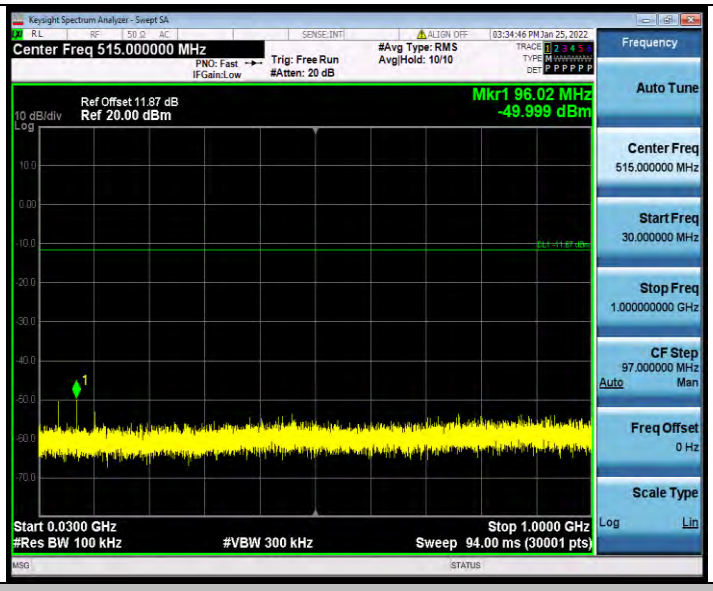


BLE_2M_Ant1_2480_30~1000

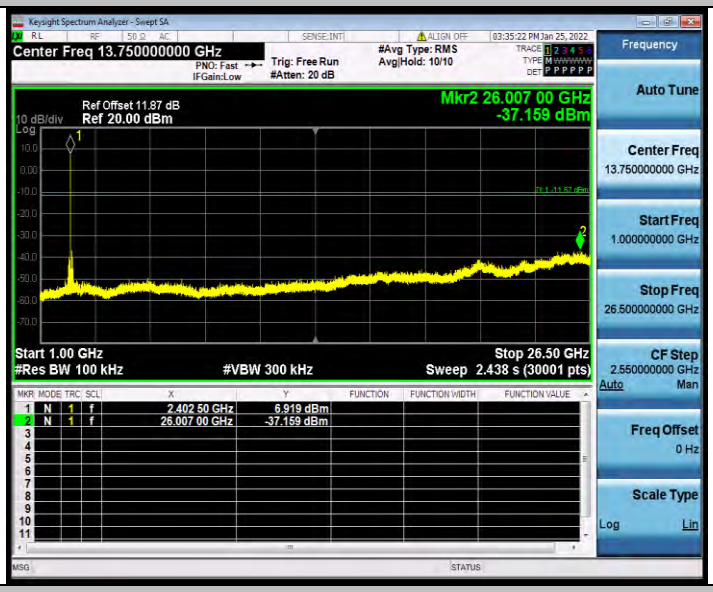


BLE_2M_Ant1_2480_1000~26500

BLE_500K_Ant1_2402_0~Reference

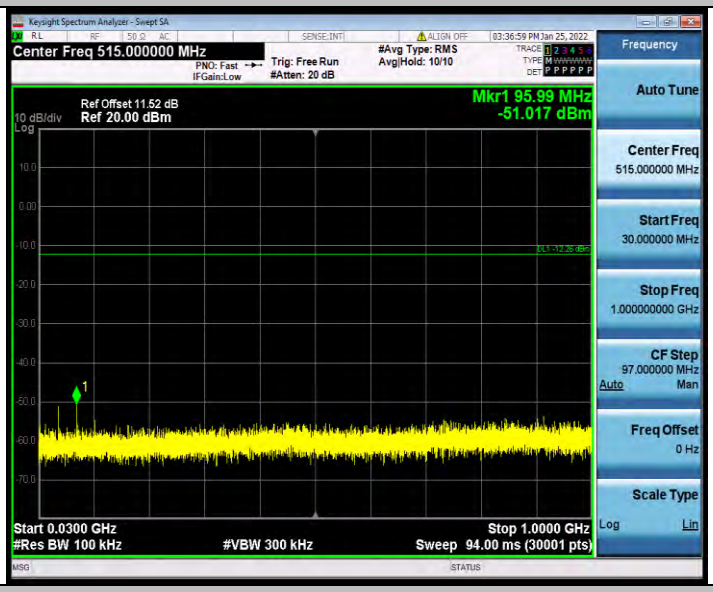


BLE_500K_Ant1_2402_30~1000

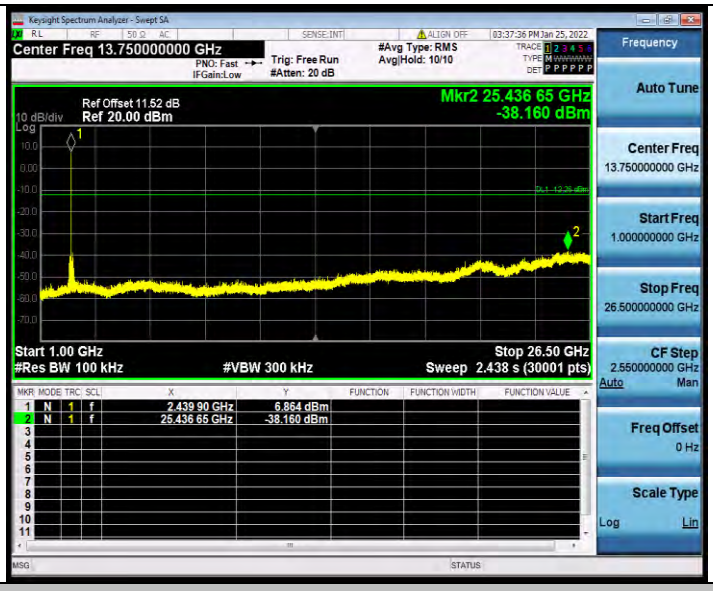


BLE_500K_Ant1_2402_1000~26500

BLE_500K_Ant1_2440_0~Reference

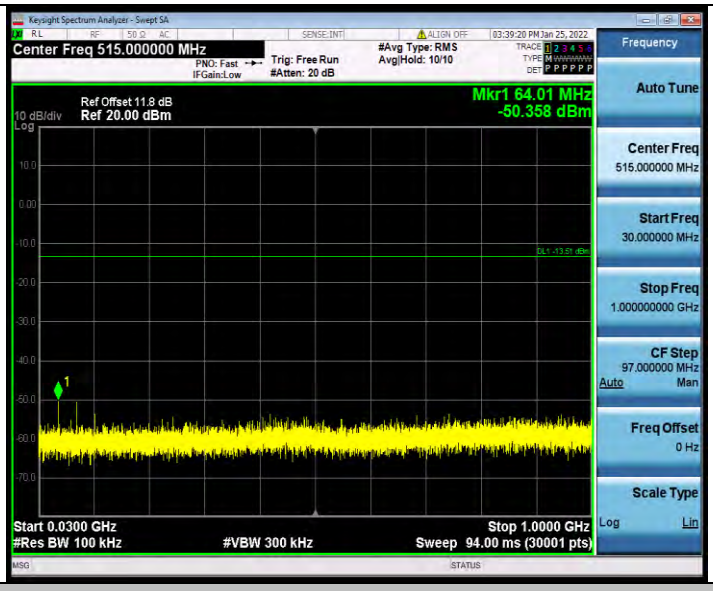


BLE_500K_Ant1_2440_30~1000

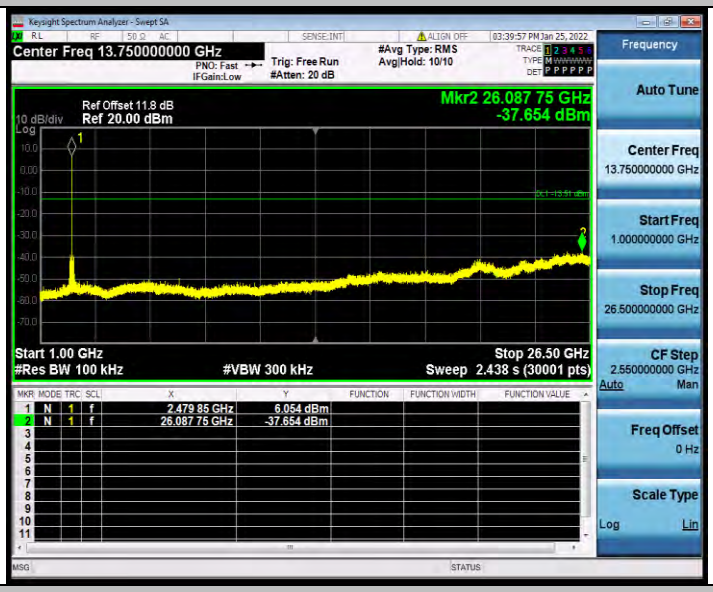


BLE_500K_Ant1_2440_1000~26500

BLE_500K_Ant1_2480_0~Reference



BLE_500K_Ant1_2480_30~1000



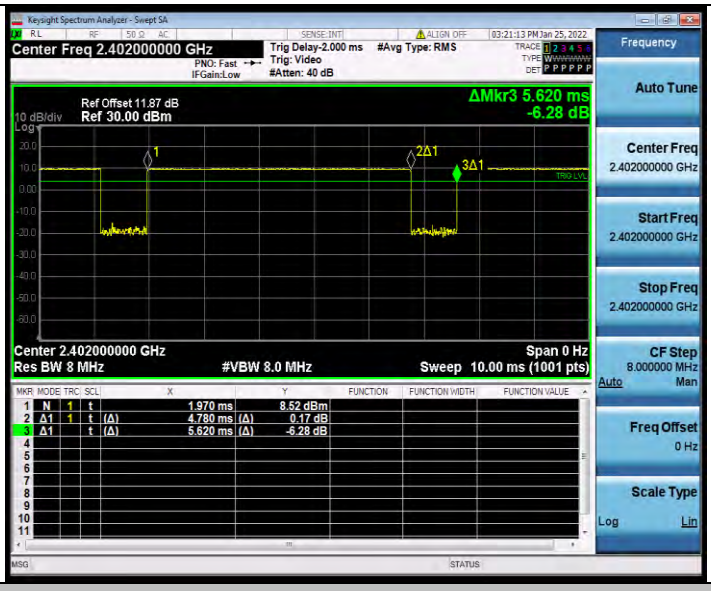
BLE_500K_Ant1_2480_1000~26500

DUTY CYCLE

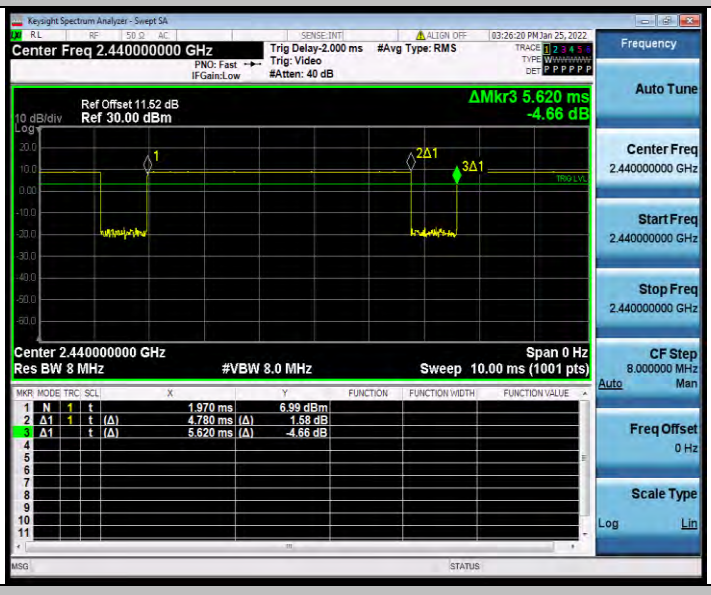
TEST RESULT

TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	Limit	Verdict
BLE_125K	Ant1	2402	4.78	5.62	0.8505	85.05	0.70	---	PASS
		2440	4.78	5.62	0.8505	85.05	0.70	---	PASS
		2480	4.78	5.63	0.8490	84.90	0.71	---	PASS
BLE_1M	Ant1	2402	0.61	1.25	0.4880	48.80	3.12	---	PASS
		2440	0.61	1.25	0.4880	48.80	3.12	---	PASS
		2480	0.61	1.27	0.4803	48.03	3.18	---	PASS
BLE_2M	Ant1	2402	0.30	0.63	0.4762	47.62	3.22	---	PASS
		2440	0.31	0.63	0.4921	49.21	3.08	---	PASS
		2480	0.31	0.63	0.4921	49.21	3.08	---	PASS
BLE_500K	Ant1	2402	1.48	1.87	0.7914	79.14	1.02	---	PASS
		2440	1.49	1.88	0.7926	79.26	1.01	---	PASS
		2480	1.49	1.88	0.7926	79.26	1.01	---	PASS

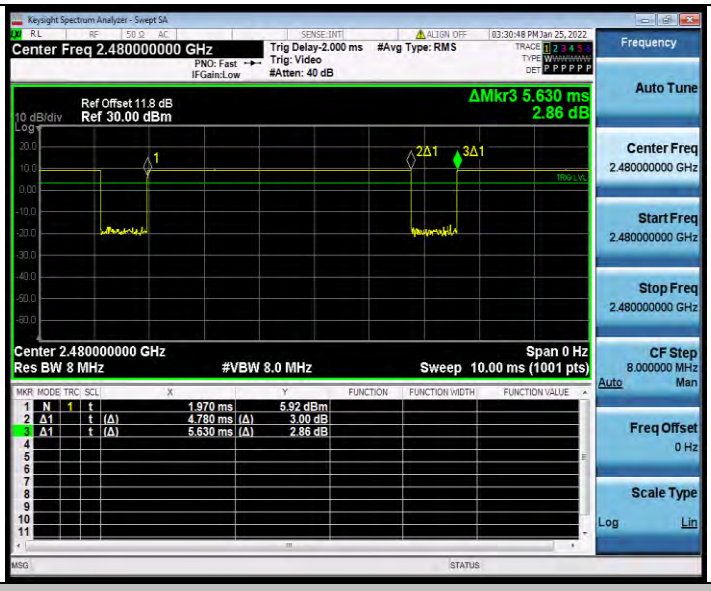
TEST GRAPHS



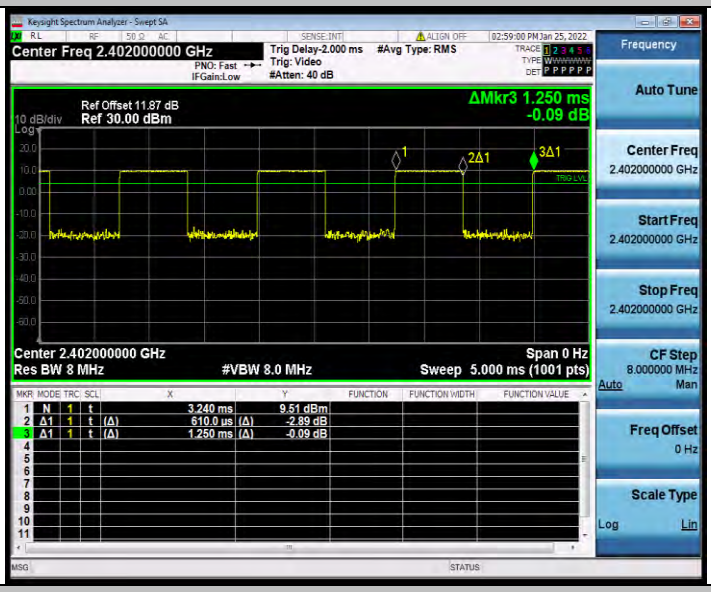
BLE_125K_Ant1_2402



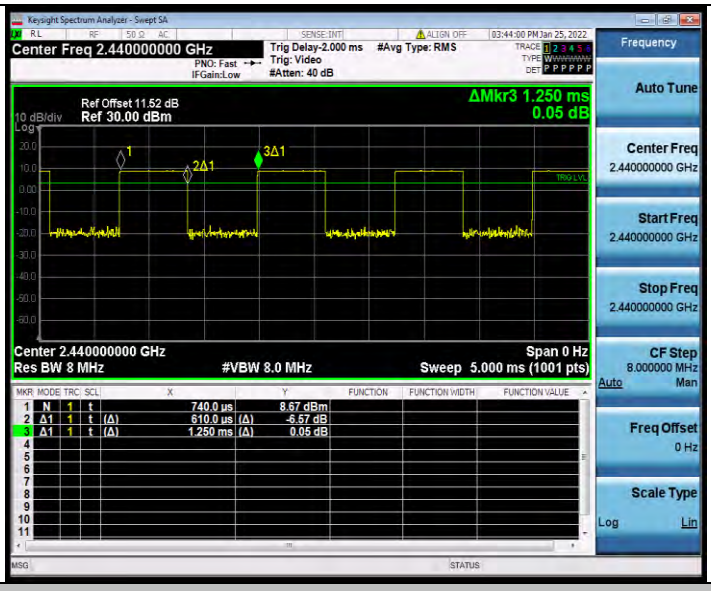
BLE_125K_Ant1_2440



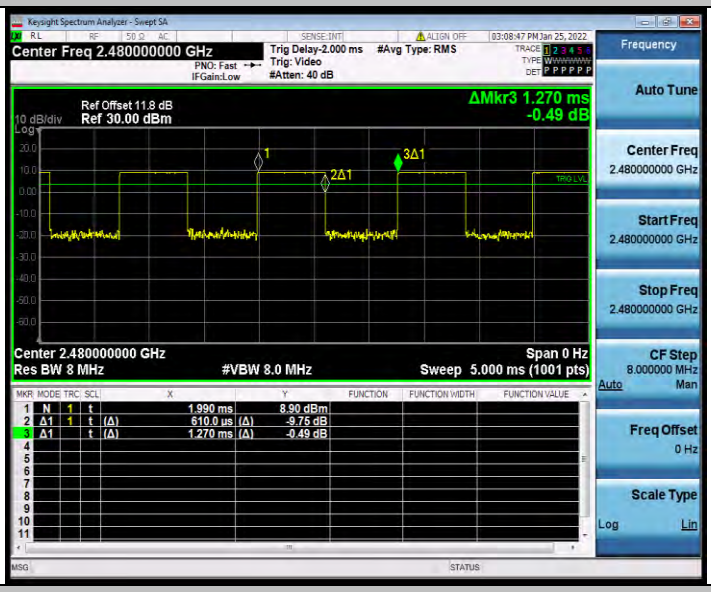
BLE_125K_Ant1_2480



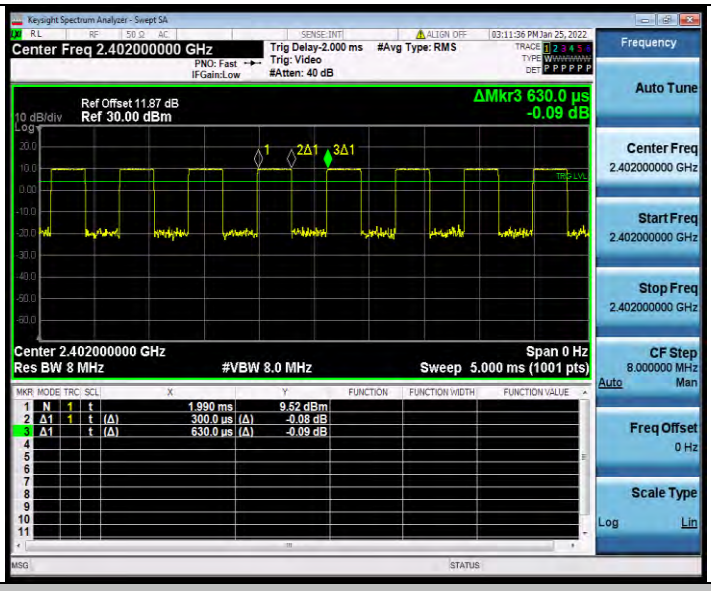
BLE_1M_Ant1_2402



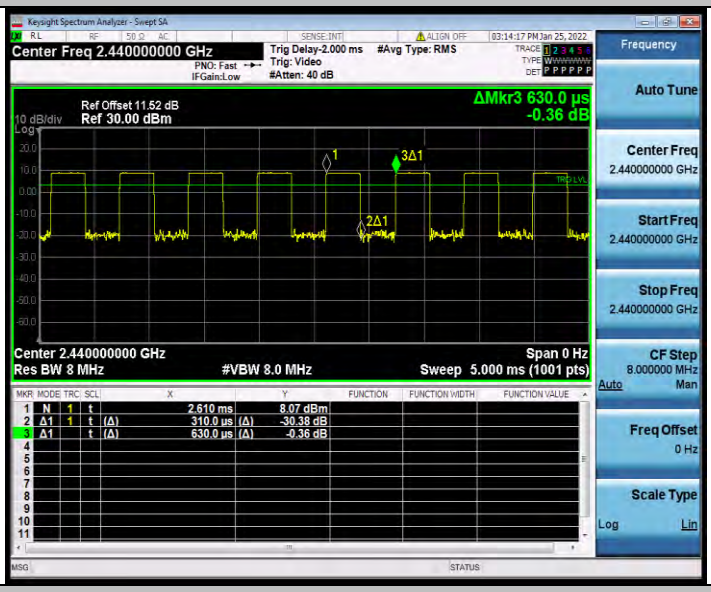
BLE_1M_Ant1_2440



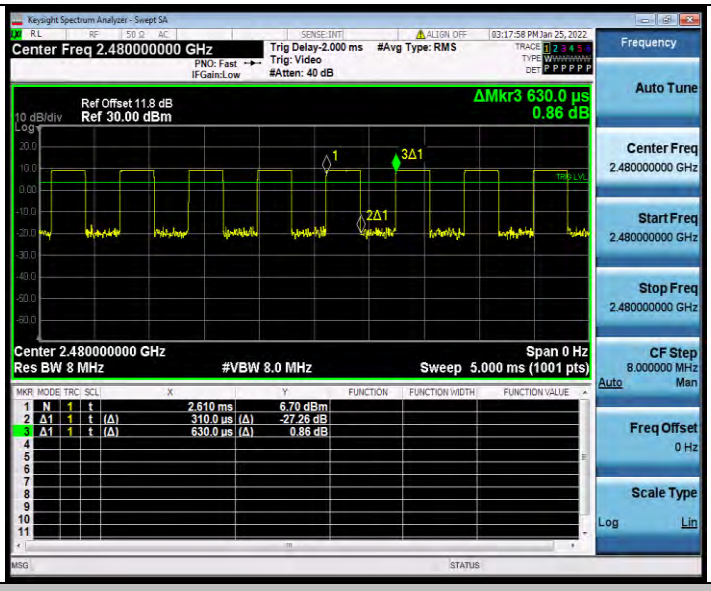
BLE_1M_Ant1_2480



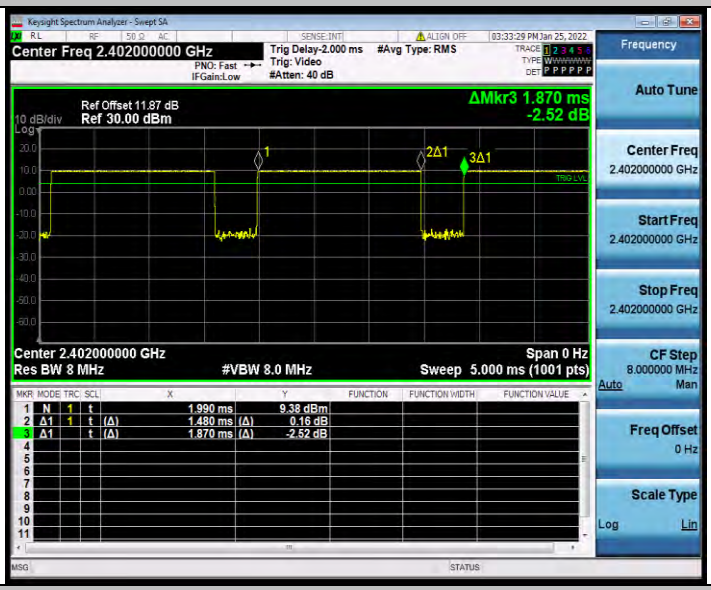
BLE_2M_Ant1_2402



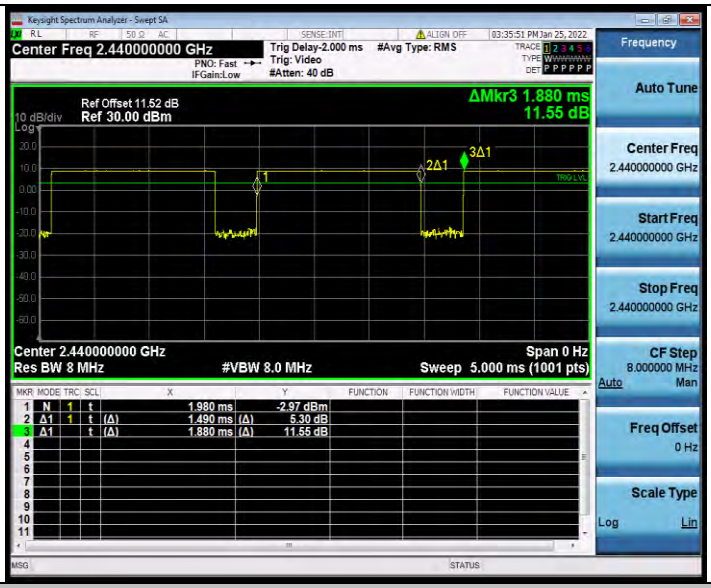
BLE_2M_Ant1_2440



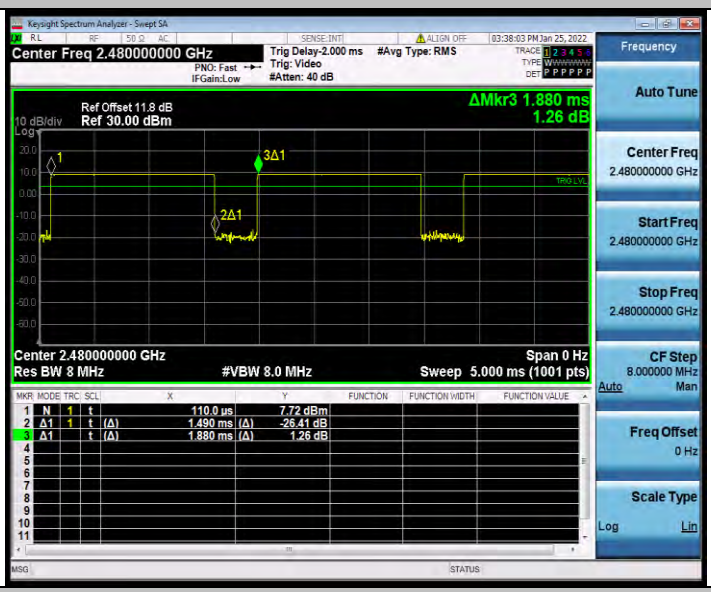
BLE_2M_Ant1_2480



BLE_500K_Ant1_2402



BLE_500K_Ant1_2440



BLE_500K_Ant1_2480