Shenzhen Huaxia Testing Technology Co., Ltd.

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Report Template Version: V05
Report Template Revision Date: 2021-11-03

Test Report

Report No.:	CQASZ20250300543E-02
Applicant:	Changsha Angsi E-commerce Co., Ltd.
Address of Applicant:	Room 139, Bldg A1, No. 1839 Fenglin 3rd Rd, Leifeng St, Xiangjiang New Dist, Changsha, Hunan 410200 China
Equipment Under Test (EUT):	
Product:	Diagnostic Tools
Model No.:	DeepScan, DeepScan Lite, DeepScan Pro, DeepScan Master, DeepScan Max
Test Model No.:	DeepScan
Brand Name:	N/A
FCC ID:	2BNZ7-DSCAN
Standards:	47 CFR Part 15, Subpart C KDB558074 D01 15.247 Meas Guidance v05r02 ANSI C63.10:2013
Date of Receipt:	2025-03-14
Date of Test:	2025-03-14 to 2025-03-26
Date of Issue:	2025-4-15
Test Result:	**PASS***

***In the configuration tested, the EUT complied with the standards specified above.**

Tested By: Lewis Zhou
(Lewis Zhou)

Reviewed By: Timo Lei
(Timo Lei)

Approved By: Jack Ai
(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO., LTD
CQA 华夏准测
APPROVED

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20250300543E-02	Rev.01	Initial report	2025-4-15

2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203/15.247 (c)	ANSI C63.10 2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2013	N/A
Conducted Peak Output Power	47 CFR Part 15, Subpart C Section 15.247 (b)(3)	ANSI C63.10 2013	PASS
6dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.247 (a)(2)	ANSI C63.10 2013	PASS
Power Spectral Density	47 CFR Part 15, Subpart C Section 15.247 (e)	ANSI C63.10 2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 2013	PASS
Radiated Spurious Emissions	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2013	PASS

3 Contents

4 General Information

4.1 Client Information

Applicant:	Changsha Angsi E-commerce Co., Ltd.
Address of Applicant:	Room 139, Bldg A1, No. 1839 Fenglin 3rd Rd, Leifeng St, Xiangjiang New Dist, Changsha, Hunan 410200 China
Manufacturer:	Changsha Angsi E-commerce Co., Ltd.
Address of Manufacturer:	Room 139, Bldg A1, No. 1839 Fenglin 3rd Rd, Leifeng St, Xiangjiang New Dist, Changsha, Hunan 410200 China
Factory:	Changsha Angsi E-commerce Co., Ltd.
Address of Factory:	Room 139, Bldg A1, No. 1839 Fenglin 3rd Rd, Leifeng St, Xiangjiang New Dist, Changsha, Hunan 410200 China

4.2 General Description of EUT

Product Name:	Diagnostic Tools
Model No.:	DeepScan, DeepScan Lite, DeepScan Pro, DeepScan Master, DeepScan Max
Test Model No.:	DeepScan
Trade Mark:	N/A
Software Version:	DeepScan 1.0
Hardware Version:	TP015_BT_V0_2
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Type:	GFSK
Transfer Rate:	1Mbps, 2Mbps
Number of Channel:	40
Product Type:	☒ Mobile ☐ Portable
Test Software of EUT:	FCC_assist_1.0.4
Antenna Type:	PCB antenna
Antenna Gain:	0.06dBi
EUT Power Supply:	Power supply DC12V
Simultaneous Transmission	☐ Simultaneous TX is supported and evaluated in this report. ☒ Simultaneous TX is not supported.

ModelNo.:DeepScan, DeepScan Lite, DeepScan Pro, DeepScan Master, DeepScan Max

Their electrical circuit design, layout, components used and internal wiring are identical, Different models position different car models for vehicle fault diagnosis, and their respective APP software is different.Our five products—DeepScan, DeepScan Lite, DeepScan Pro, DeepScan Master, and DeepScan Max—utilize the same application for vehicle fault diagnostics. The primary differences among them involve optimizations tailored to various vehicle types to meet diverse user needs. Specifically, DeepScan Lite is designed for entry-level models, DeepScan Pro is optimized for high-end vehicles, while DeepScan Master and DeepScan Max are customized for specific brands and advanced functionalities. Hardware configurations and feature sets remain consistent across all models. These distinctions do not affect the overall consistency and compatibility of the products.

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

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel (CH0)	2402MHz
The middle channel (CH19)	2440MHz
The highest channel (CH39)	2480MHz

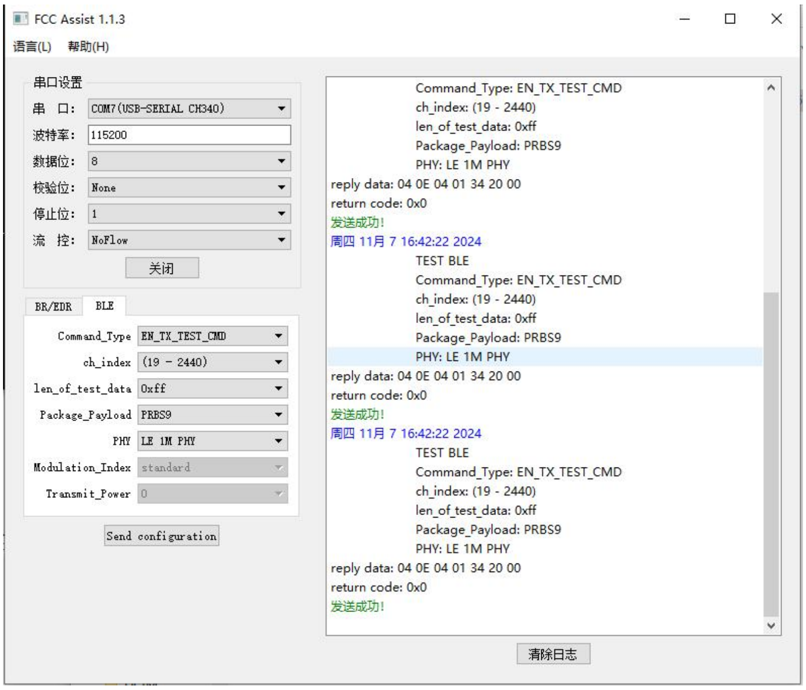
4.3 Additional Instructions

EUT Test Software Settings:	
Mode:	☒ Special software is used. ☐ Through engineering command into the engineering mode. engineering command: *#*#3646633#*#*
EUT Power level:	Class0

Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

Mode	Channel	Frequency(MHz)
GFSK	CH0	2402
	CH19	2440
	CH39	2480

Run Software:



4.4 Test Environment

Operating Environment:	
Temperature:	24.5°C
Humidity:	59% RH
Atmospheric Pressure:	1009mbar
Test Mode:	Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

4.5 Description of Support Units

The EUT has been tested with associated equipment below.

1）Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
/	/	/	/	/

2) Cable

Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
/	/	/	/	/

4.6 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

No.	Item	Uncertainty
1	Radiated Emission (Below 1GHz)	5.12dB
2	Radiated Emission (Above 1GHz)	4.60dB
3	Conducted Disturbance (0.15~30MHz)	3.34dB
4	Radio Frequency	3×10^{-8}
5	Duty cycle	0.6 %
6	Occupied Bandwidth	1.1%
7	RF conducted power	0.86dB
8	RF power density	0.74
9	Conducted Spurious emissions	0.86dB
10	Temperature test	0.8℃
11	Humidity test	2.0%
12	Supply voltages	0.5 %
13	Frequency Error	5.5 Hz

4.7 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

4.8 Test Facility

- **A2LA (Certificate No. 4742.01)**
  Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.
- **FCC Registration No.: 522263**
  Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

4.9 Deviation from Standards

None.

4.10 Other Information Requested by the Customer

None.

4.11 Equipment List

Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU26	CQA-038	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU40	CQA-075	2024/9/2	2025/9/1
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2024/9/2	2025/9/1
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2024/9/2	2025/9/1
Preamplifier	EMCI	EMC184055SE	CQA-089	2024/9/2	2025/9/1
Loop antenna	Schwarzbeck	FMZB1516	CQA-060	2023/9/8	2026/9/7
Bilog Antenna	R&S	HL562	CQA-011	2023/11/01	2026/10/31
Horn Antenna	R&S	HF906	CQA-012	2023/11/01	2026/10/31
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2023/9/7	2026/9/6
Coaxial Cable (Above 1GHz)	CQA	N/A	C007	2024/9/2	2025/9/1
Coaxial Cable (Below 1GHz)	CQA	N/A	C013	2024/9/2	2025/9/1
Antenna Connector	CQA	RFC-01	CQA-080	2024/9/2	2025/9/1
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2024/9/2	2025/9/1
Power meter	R&S	NRVD	CQA-029	2024/9/2	2025/9/1
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2024/9/2	2025/9/1
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
LISN	R&S	ENV216	CQA-003	2024/9/2	2025/9/1
Coaxial cable	CQA	N/A	CQA-C009	2024/9/2	2025/9/1
DC power	KEYSIGHT	E3631A	CQA-028	2024/9/2	2025/9/1

Test software:

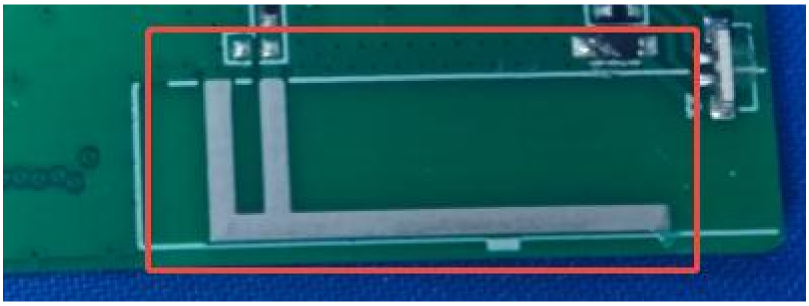
	Manufacturer	Software brand	Software version
Radiated Emissions test software	Tonscend	JS1120-3	Version:8
Conducted Emissions test software	Audix	e3	Version:9
RF Conducted test software	Audix	e3	V3.5.39

Note:

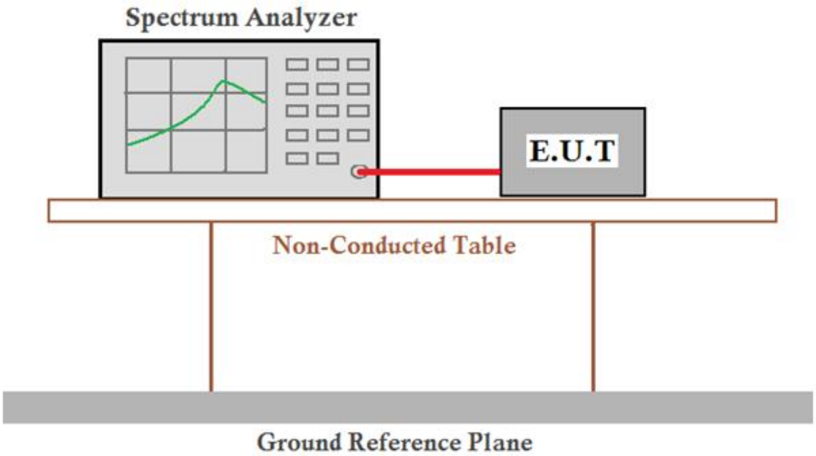
The temporary antenna connector is soldered on the pcb board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

5 Test results and Measurement Data

5.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203 /247(c)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
EUT Antenna:	
The antenna is PCB antenna. The connection/connection type between the antenna to the EUT's antenna port is: permanently attachment. This is either permanently attachment or a unique coupling that satisfies the requirement.	

5.2 Conducted Peak Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	30dBm
Test Mode:	Transmitting with GFSK modulation.
Test Results:	Pass

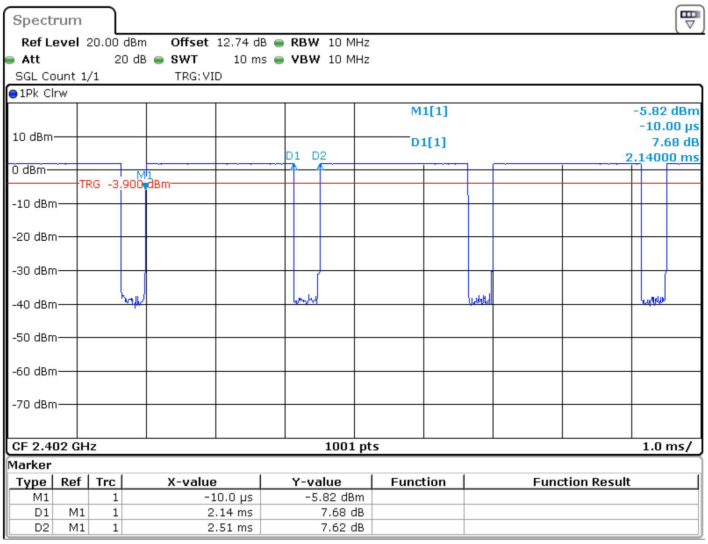
Operated Mode for Worst Duty Cycle:		
Test Mode	Duty Cycle(%)	Average correction factor(dB)
GFSK 1Mbps	85.26	0.69
GFSK 2Mbps	86.40	0.63

Remark:

1) Duty cycle= On Time/ Period;

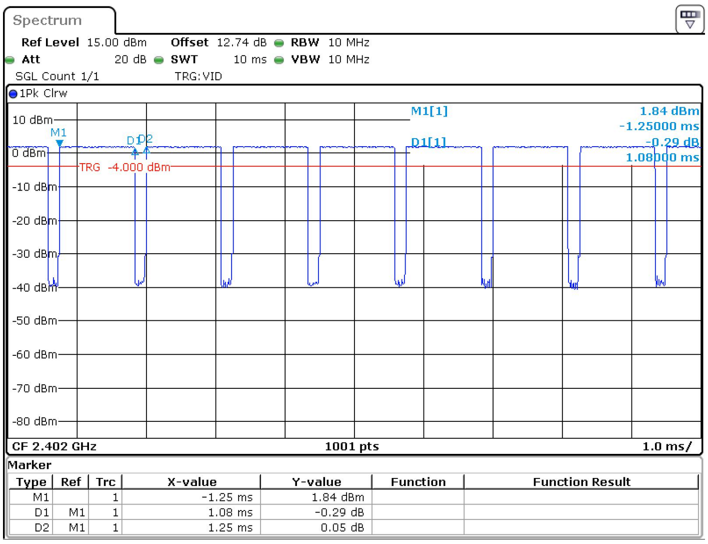
2) Duty Cycle factor = 10 * log(1/ Duty cycle);

Test Graph_GFSK 1Mbps Duty Cycle:



Date: 22.MAR.2025 20:41:40

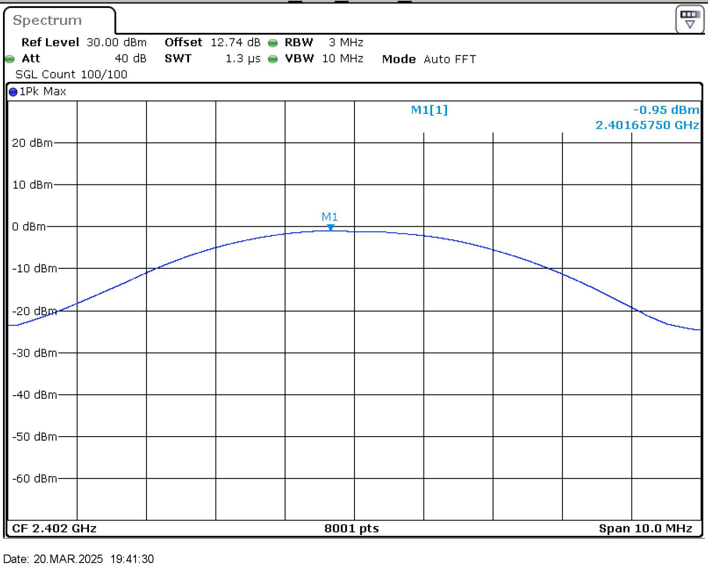
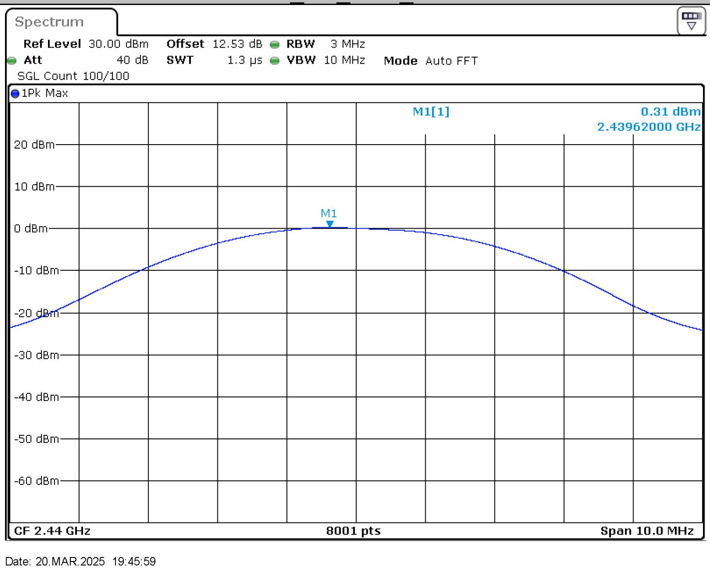
Test Graph_GFSK 2Mbps Duty Cycle:

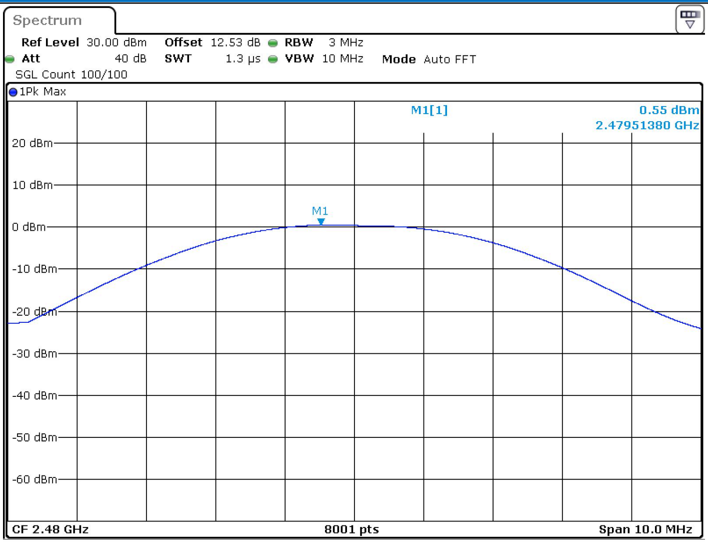


Date: 22.MAR.2025 20:43:02

Measurement Data

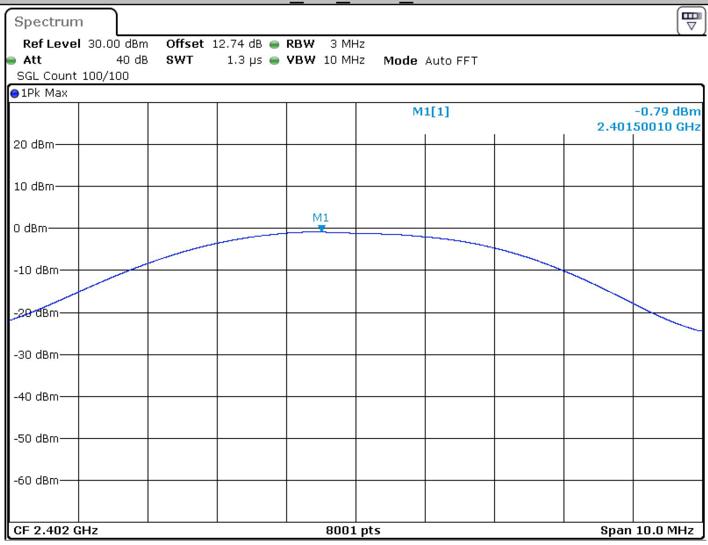
GFSK mode (1Mbps)			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-0.95	30.00	Pass
Middle	0.31	30.00	Pass
Highest	0.55	30.00	Pass
GFSK mode (2Mbps)			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-0.79	30.00	Pass
Middle	0.43	30.00	Pass
Highest	0.70	30.00	Pass

BLE_1M_Ant1_2402

BLE_1M_Ant1_2440

BLE_1M_Ant1_2480



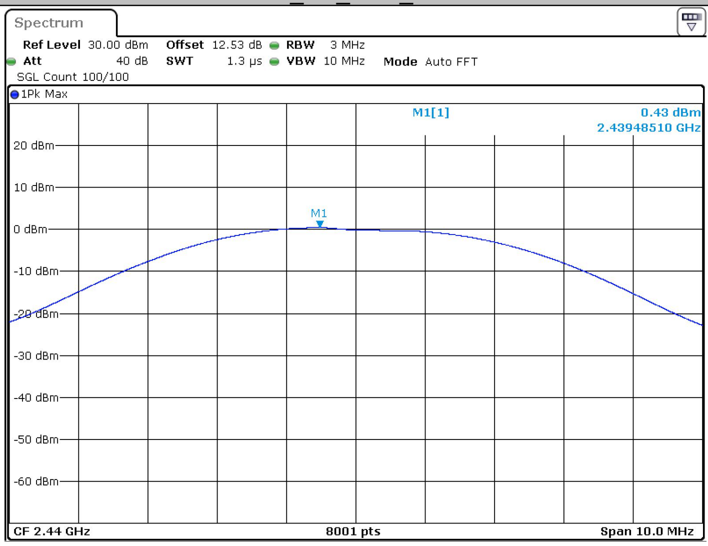
Date: 20.MAR.2025 19:48:36

BLE_2M_Ant1_2402

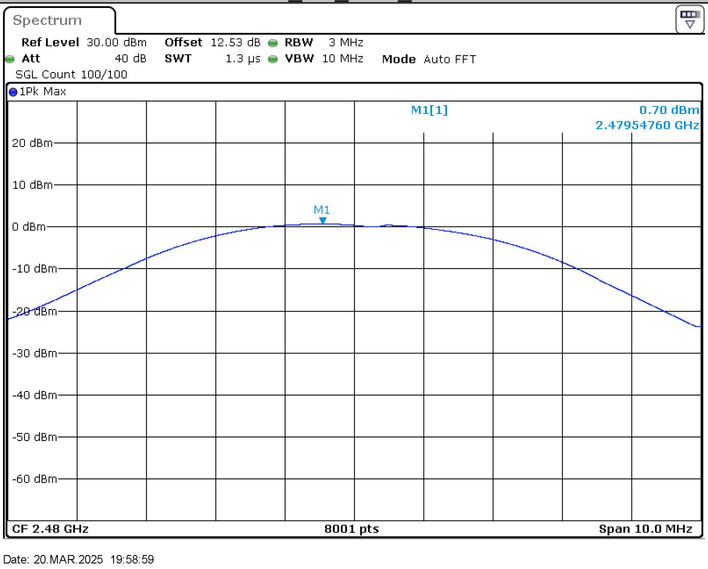


Date: 20.MAR.2025 19:52:48

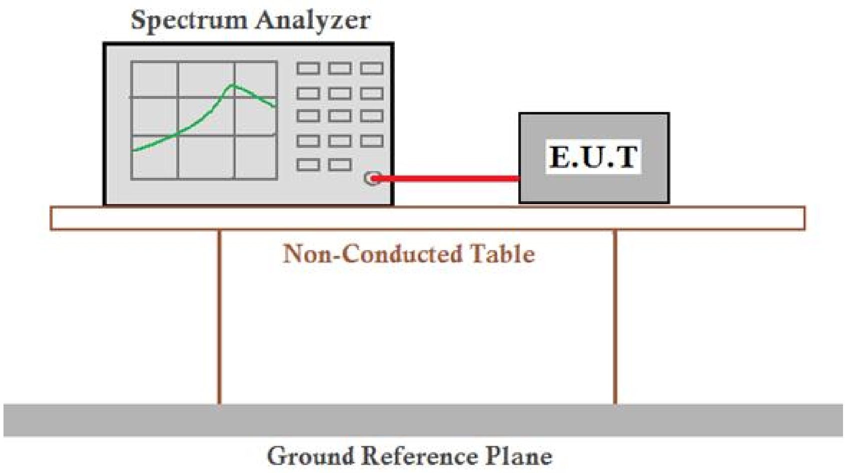
BLE_2M_Ant1_2440



Date: 20.MAR.2025 19:57:00

BLE_2M_Ant1_2480


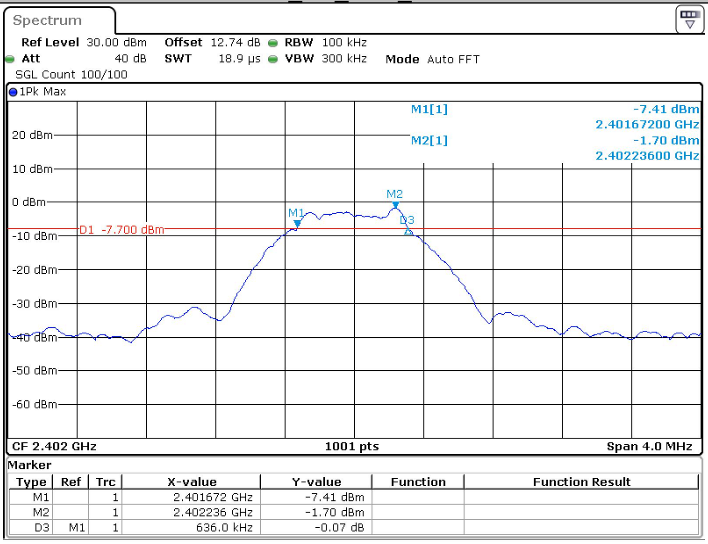
5.3 6dB Occupy Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	≥ 500 kHz
Instruments Used:	Refer to section 4.11 for details.
Test Results:	Pass

Measurement Data

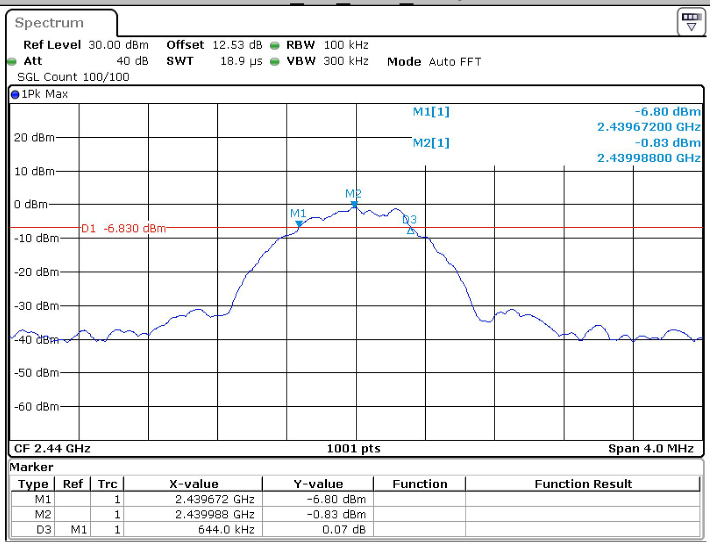
GFSK mode (1Mbps)			
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
Lowest	0.64	≥500	Pass
Middle	0.64	≥500	Pass
Highest	0.73	≥500	Pass
GFSK mode (2Mbps)			
Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
Lowest	1.12	≥500	Pass
Middle	1.15	≥500	Pass
Highest	0.98	≥500	Pass

BLE_1M_Ant1_2402



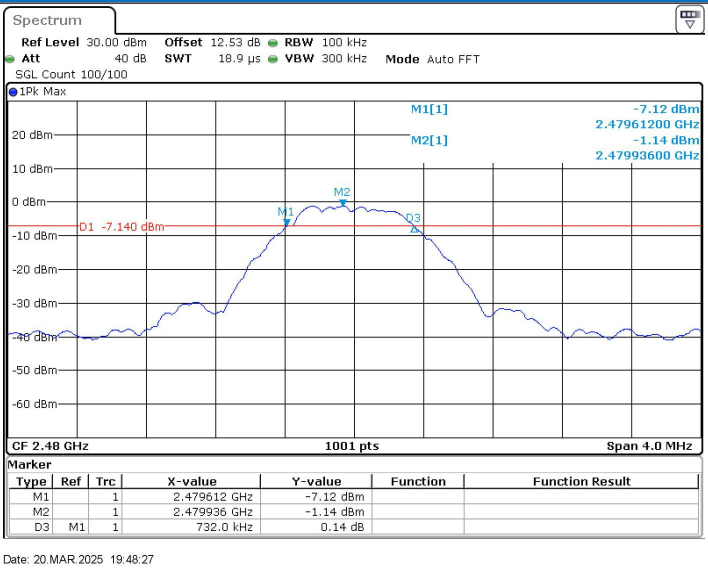
Date: 20.MAR.2025 19:41:21

BLE_1M_Ant1_2440

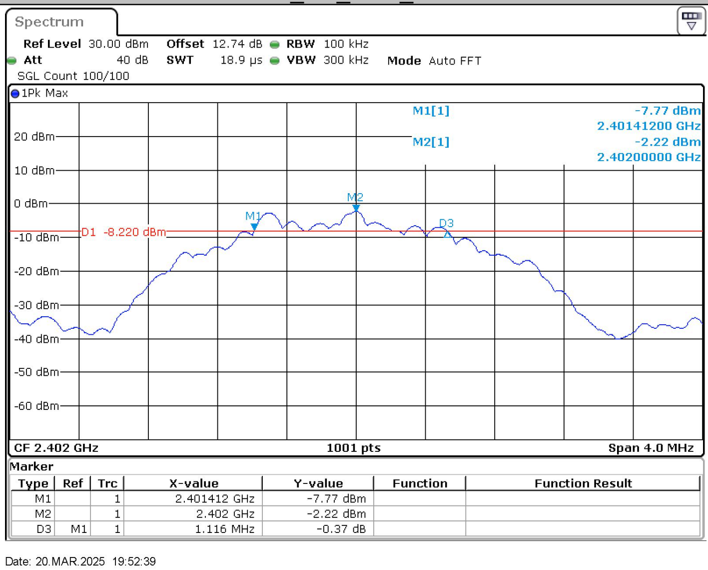


Date: 20.MAR.2025 19:45:51

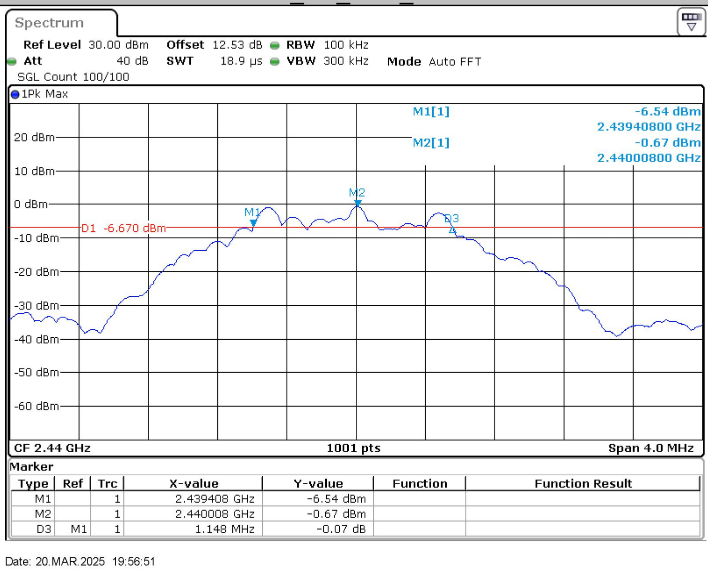
BLE_1M_Ant1_2480

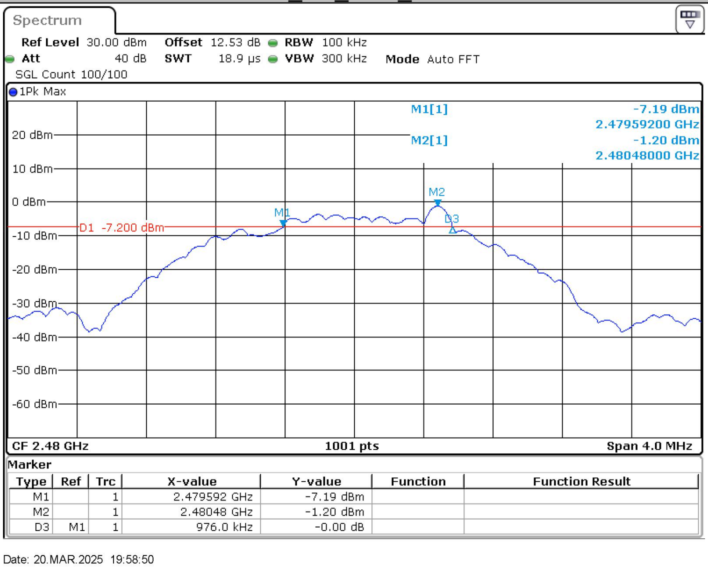


BLE_2M_Ant1_2402

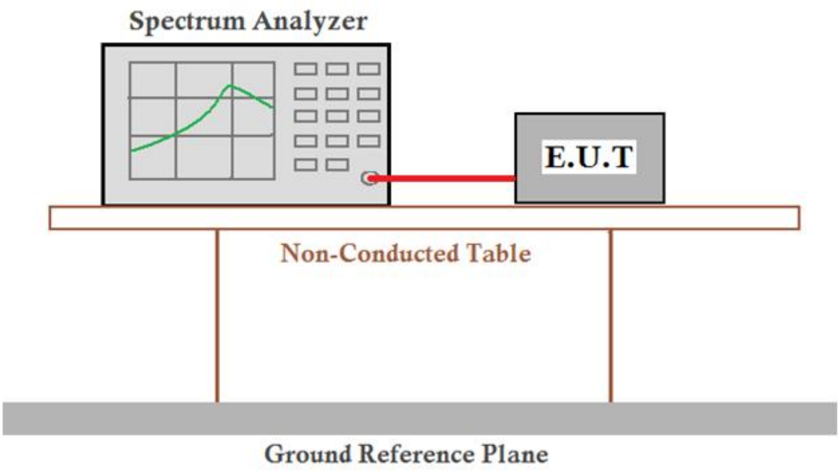


BLE_2M_Ant1_2440



BLE_2M_Ant1_2480


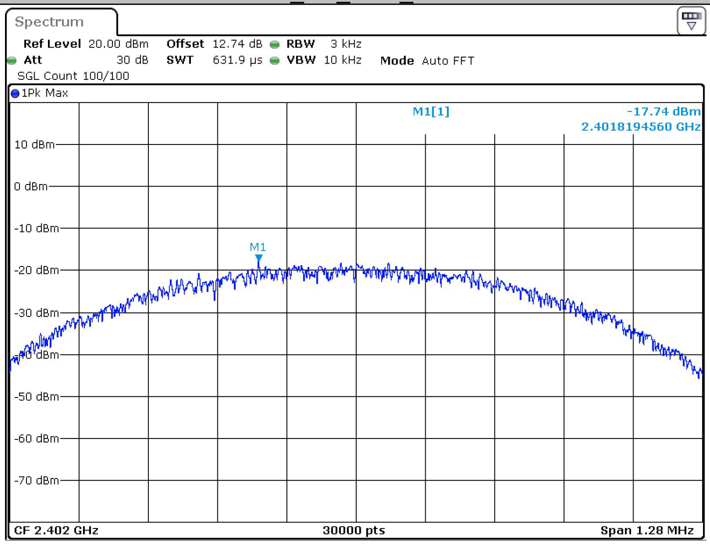
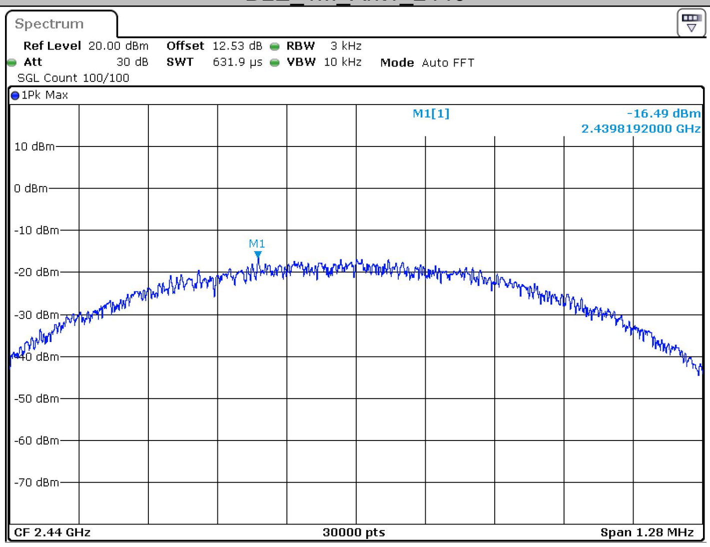
5.4 Power Spectral Density

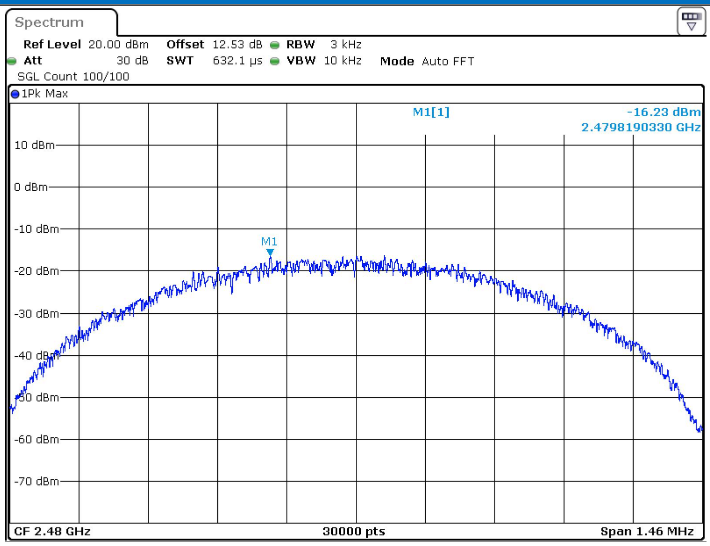
Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	≤8.00dBm/3kHz
Test Mode:	Transmitting with GFSK modulation.
Test Results:	Pass

Measurement Data

GFSK mode (1Mbps)			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-17.74	≤8.00	Pass
Middle	-16.49	≤8.00	Pass
Highest	-16.23	≤8.00	Pass
GFSK mode (2Mbps)			
Test channel	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	-20.14	≤8.00	Pass
Middle	-18.85	≤8.00	Pass
Highest	-18.36	≤8.00	Pass

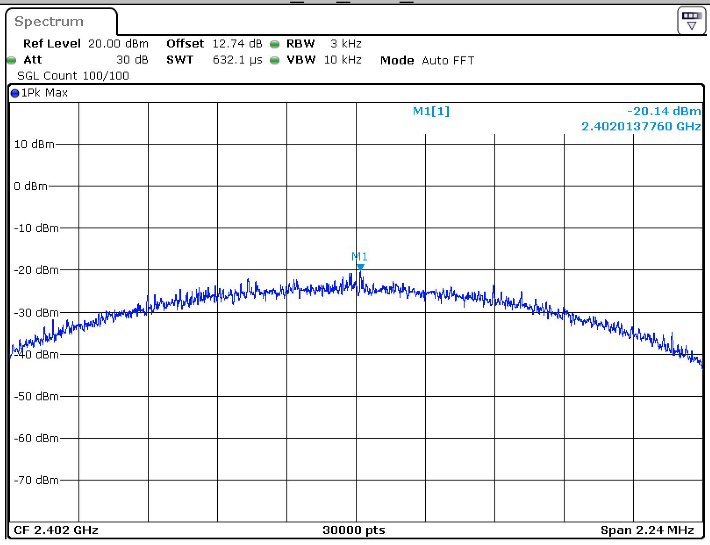
Test plot as follows:

BLE_1M_Ant1_2402
 Date: 20.MAR.2025 19:41:35
BLE_1M_Ant1_2440
 Date: 20.MAR.2025 19:46:05
BLE_1M_Ant1_2480



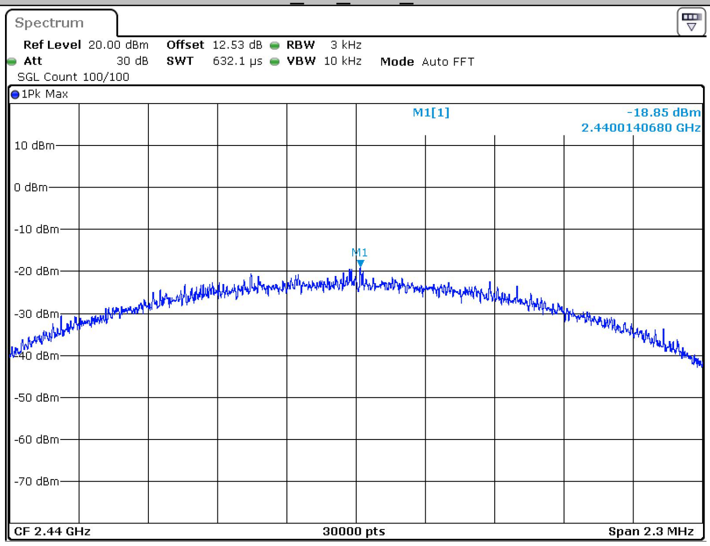
Date: 20.MAR.2025 19:48:42

BLE_2M_Ant1_2402

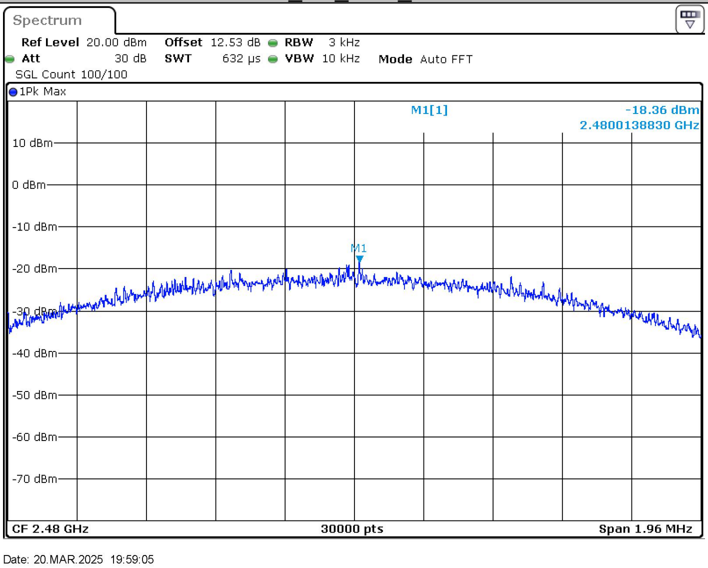


Date: 20.MAR.2025 19:52:54

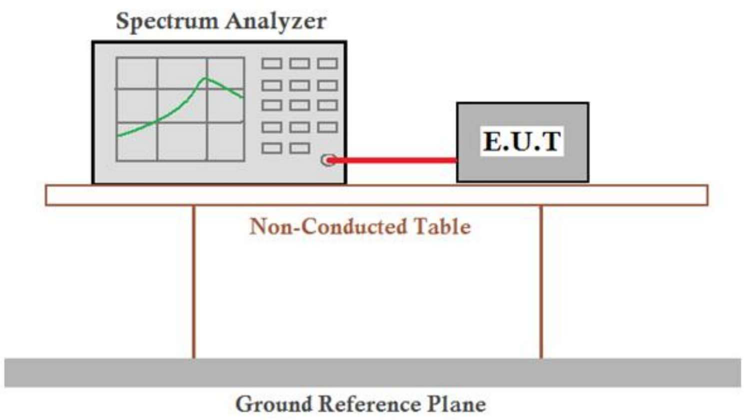
BLE_2M_Ant1_2440



Date: 20.MAR.2025 19:57:05

BLE_2M_Ant1_2480


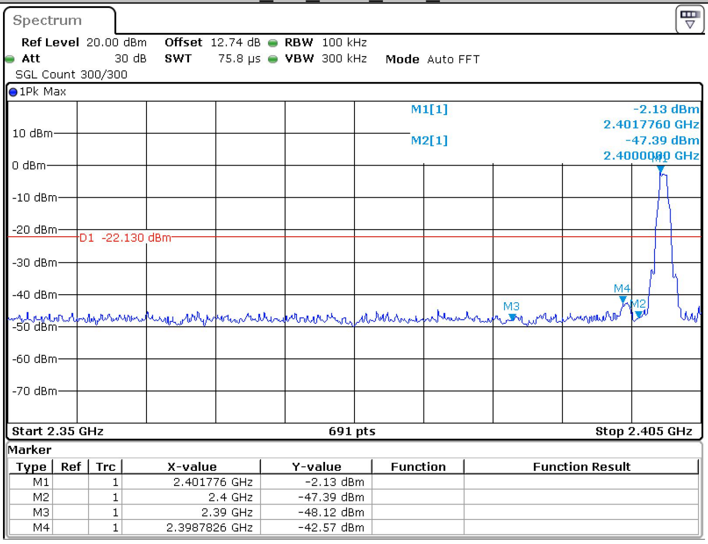
5.5 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test Mode:	Transmitting with GFSK modulation.
Test Results:	Pass

TestMode	ChName	Freq(MHz)	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Low	2402	-2.13	-42.57	≤-22.13	PASS
	High	2480	0.06	-43.6	≤-19.94	PASS
BLE_2M	Low	2402	-2.02	-35.13	≤-22.02	PASS
	High	2480	-2.44	-43.61	≤-22.44	PASS

Test plot as follows:

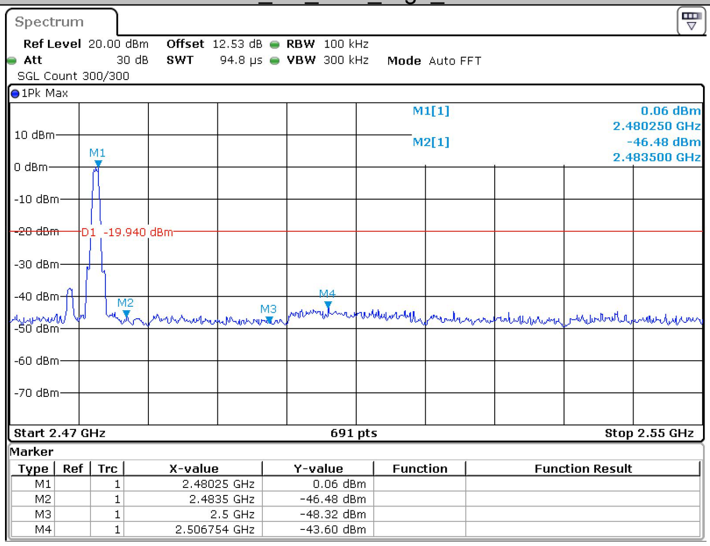
BLE_1M_Ant1_Low_2402



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401776 GHz	-2.13 dBm		
M2		1	2.4 GHz	-47.39 dBm		
M3		1	2.39 GHz	-48.12 dBm		
M4		1	2.3987826 GHz	-42.57 dBm		

Date: 20.MAR.2025 19:41:41

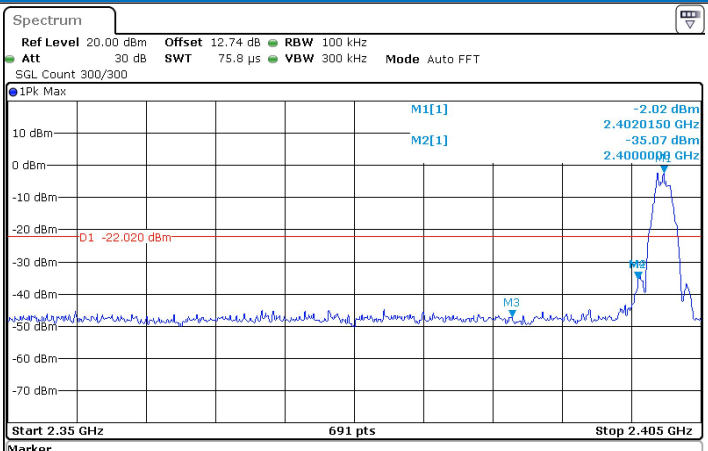
BLE_1M_Ant1_High_2480



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48025 GHz	0.06 dBm		
M2		1	2.4835 GHz	-46.48 dBm		
M3		1	2.5 GHz	-48.32 dBm		
M4		1	2.506754 GHz	-43.60 dBm		

Date: 20.MAR.2025 19:48:48

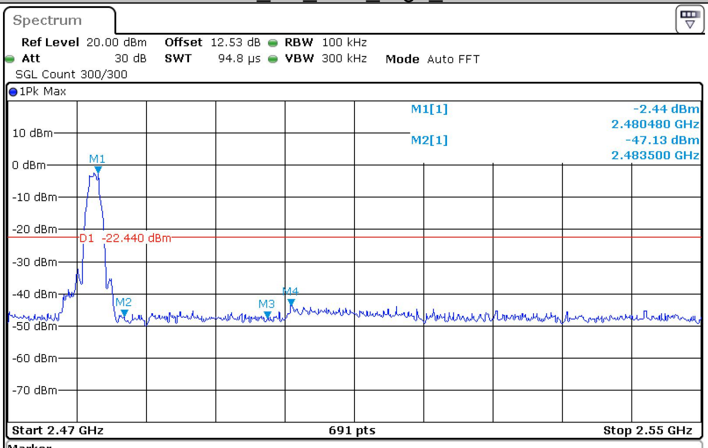
BLE_2M_Ant1_Low_2402



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.402015 GHz	-2.02 dBm		
M2		1	2.4 GHz	-35.07 dBm		
M3		1	2.39 GHz	-46.98 dBm		
M4		1	2.3999783 GHz	-35.13 dBm		

Date: 20.MAR.2025 19:53:00

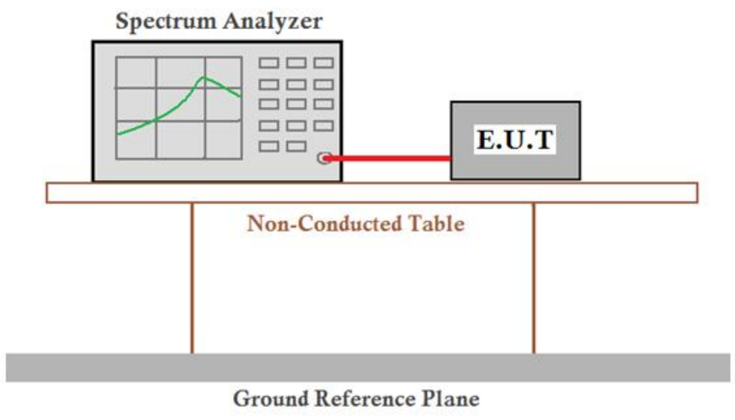
BLE_2M_Ant1_High_2480



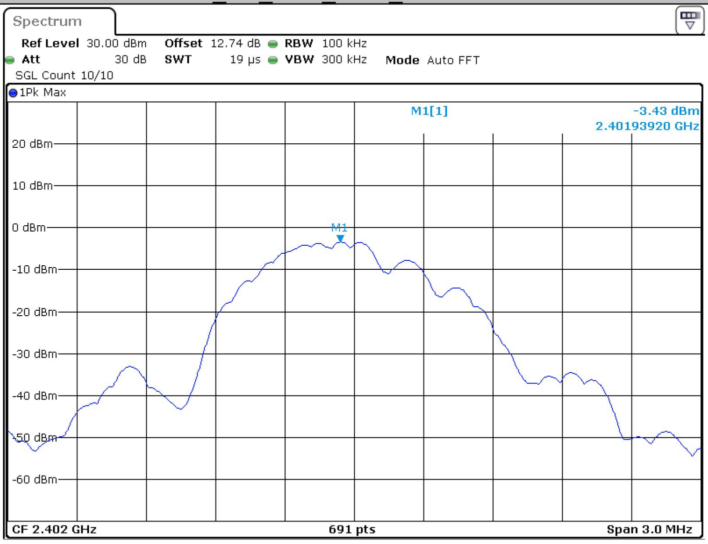
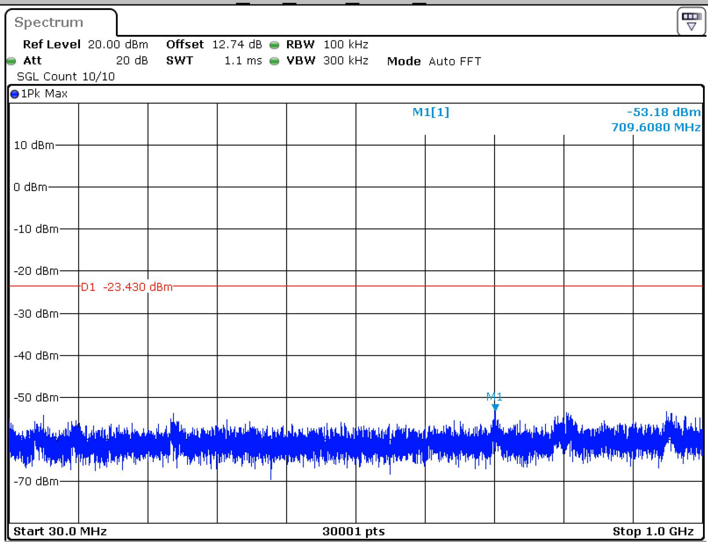
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48048 GHz	-2.44 dBm		
M2		1	2.4835 GHz	-47.13 dBm		
M3		1	2.5 GHz	-47.64 dBm		
M4		1	2.502696 GHz	-43.61 dBm		

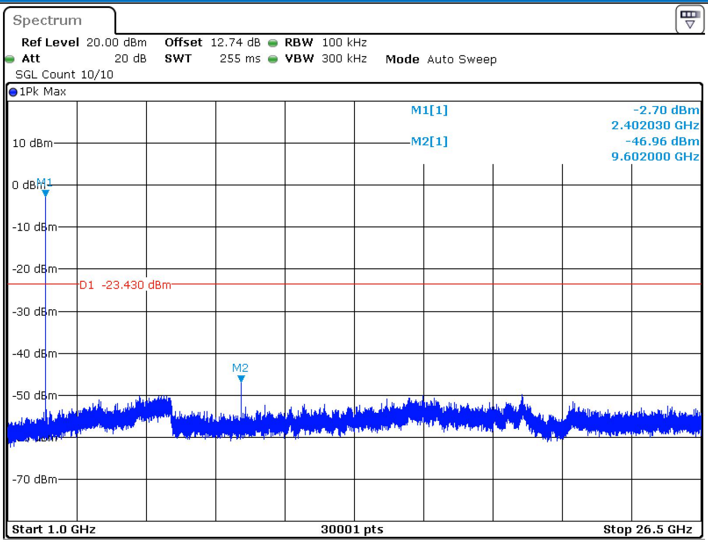
Date: 20.MAR.2025 19:59:11

5.6 Spurious RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10 2013
Test Setup:	 *Remark: Offset=Cable loss+ attenuation factor.*
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test Mode:	Transmitting with GFSK modulation.
Test Results:	Pass

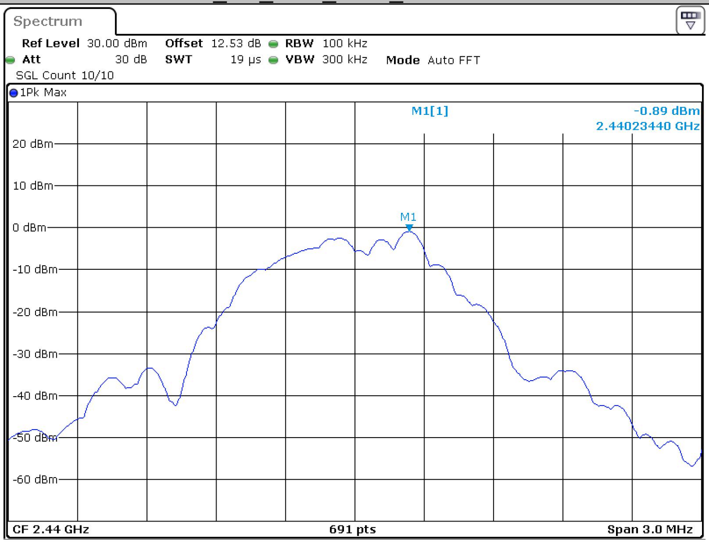
Test plot as follows:

BLE_1M_Ant1_2402_0~Reference
 Date: 20.MAR.2025 19:43:57
BLE_1M_Ant1_2402_30~1000
 Date: 20.MAR.2025 19:44:01
BLE_1M_Ant1_2402_1000~26500



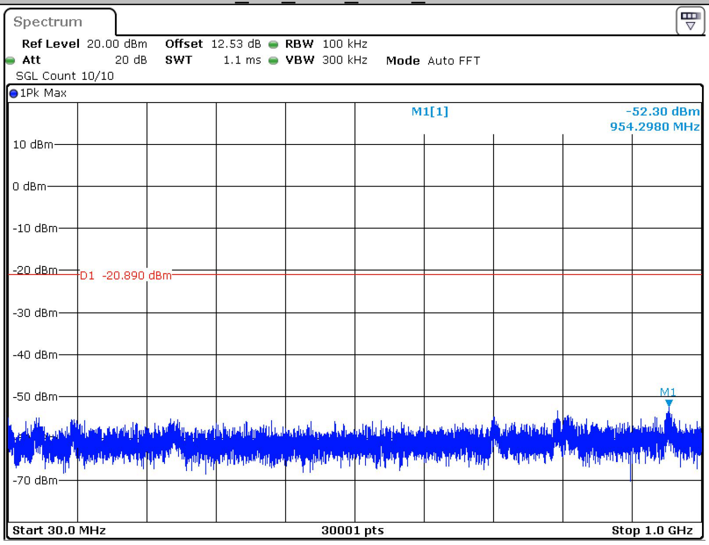
Date: 20.MAR.2025 19:44:13

BLE_1M_Ant1_2440_0~Reference



Date: 20.MAR.2025 19:46:08

BLE_1M_Ant1_2440_30~1000



Date: 20.MAR.2025 19:46:13