

TEST REPORT

Reference No...... : WTD25D11316003W002
FCC ID : 2BTG5-SYBRAN-01
Applicant..... : Shenzhen Sybran Technology Co.,Ltd.
Address..... : 804, Bldg 5A, Block C, Chuangzhiyuncheng Phase II, Xingke 1st Rd, Xili St Nanshan, Shenzhen, China
Manufacturer : Shenzhen Sybran Technology Co.,Ltd.
Address..... : 804, Bldg 5A, Block C, Chuangzhiyuncheng Phase II, Xingke 1st Rd, Xili St Nanshan, Shenzhen, China
Product..... : CODE27 Companion Hub
Model(s) : SyBran-01
Standards..... : FCC 47CFR Part 15.247
Date of Receipt sample : 2025-11-28
Date of Test : 2025-12-02 to 2026-03-18
Date of Issue..... : 2026-03-18
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

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3 Revision History

Test Report No.	Date of Receipt Sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTD25D11316003W002	2025-11-28	2025-12-02 to 2026-03-18	2026-03-18	Original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product:	CODE27 Companion Hub
Model(s):	SyBran-01
Model Description:	1. There are two hardware configurations for this model: configuration A and configuration B, the only difference being the cable specifications. Differential testing will be conducted between these two configurations, covering Radiated Emission below 1G (RE), Conducted Emission (CE). 2. All tests were performed on adapter 1 and configuration A. 3. For difference test items, all adapters were tested with both configuration A and configuration B EUTs. Only worst-case test results were recorded for All adapters.
Test Sample No.:	1-1/1
Bluetooth Version:	5.0
Hardware Version:	YT-921 V_1.2
Software Version:	rk3588s_yt921-userdebug 12 SQ3A.220705.003.A1 eng.dj 20260119.111702

4.2 Details of E.U.T.

Operation Frequency:	2402~2480MHz
Max. RF output power:	BLE 1M: 1.20dBm, BLE 2M: 1.27dBm
Type of Modulation:	GFSK
Antenna installation:	FPC Antenna
Antenna Gain:	2.56dBi

Note:

#: The antenna gain is provided by the applicant, and the applicant should be responsible for its authenticity, WALTEK lab has not verified the authenticity of its information.

Ratings:	DC 20V
AC Adapter:	Adapter 1: Model: TEKA-PD2A65WUSC INPUT: 100-240V~ 50/60Hz 1.5A Max OUTPUT: 5V==3A 15W; 9V==3A 27W; 12V==3A 36W; 15V==3A 45W; 20V==3.25A 65W Manufacturer: GUANGDONG TEKA TECHNOLOGY CO.,LTD. Adapter 2: Model: TEKA-PC1AWUS INPUT: 100-240V~ 50/60Hz 1.2A Max OUTPUT: 5V==3A 15W; 9V==3A 27W; 12V==3A 36W; 15V==3A 45W; 20V==2.25A 45W Manufacturer: GUANGDONG TEKA TECHNOLOGY CO.,LTD. Adapter 3: Model: A849-200225C-US1 INPUT: 100-240V~ 50/60Hz 1.5A OUTPUT: 5V==3A; 9V==3A; 12V== 3A; 15V== 3A; 20V== 2.25A ; 3.3-16V==3A, 45W Max; 3.3-21V== 2.25A, 45W Max Manufacturer: Dongguan Aohai Technology Co., Ltd.

4.3 Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	1	2404	2	2406	3	2408
4	2410	5	2412	6	2414	7	2416
8	2418	9	2420	10	2422	11	2424
12	2426	13	2428	14	2430	15	2432
16	2434	17	2436	18	2438	19	2440
20	2442	21	2444	22	2446	23	2448
24	2450	25	2452	26	2454	27	2456
28	2458	29	2460	30	2462	31	2464
32	2466	33	2468	34	2470	35	2472
36	2474	37	2476	38	2478	39	2480

4.4 Test Facility

The test facility has a test site registered with the following organizations:

ISED CAB identifier: CN0013. Test Firm Registration No.: 7760A.

Waltek Testing Group Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A, October 15, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

Waltek Testing Group Co., Ltd. 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 number 523476, September 10, 2019.

4.5 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test Lab: N/A

Lab address: N/A

Test items: N/A

4.6 Abnormalities from Standard Conditions

None.

4.7 Test Mode

Tests Carried Out Under FCC part 15.247

Test Items	Mode	Data Rate	Channel	TX/RX
Maximum Peak Output Power	BT BLE	1/2Mbps	0/19/39	TX
Power Spectral Density	BT BLE	1/2Mbps	0/19/39	TX
6dB Bandwidth	BT BLE	1/2Mbps	0/19/39	TX
Band Edge	BT BLE	1/2Mbps	0/19/39	TX
Transmitter Spurious Emissions	BT BLE	1/2Mbps	0/19/39	TX

Note: Parameters set by test software during channel & power tests, the software provided by the applicant was used to set the operating channels as well as the maximum output power level. The RF output power set is the power expected by the manufacturer and is going to be fixed on the firmware of the final product.

5 Test Summary

Test Items	Test Requirement	Result
Radiated Spurious Emissions	15.247(d) 15.205(a) 15.209(a)	PASS
Conducted Spurious Emissions	15.247(d)	PASS
Conducted Emissions	15.207(a)	PASS
6dB Bandwidth	15.247(a)(2)	PASS
Maximum Peak Output Power	15.247(b)(3),(4)	PASS
Power Spectral Density	15.247(e)	PASS
Band Edge	15.247(d)	PASS
Antenna Requirement	15.203	PASS
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	PASS

6 Equipment Used during Test

6.1 Equipments List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date	Calibration Due Date
Conducted Emissions 1#						
1	EMI Test Receiver	R&S	ESCI	100947	2025-07-04	2026-07-03
2	LISN	R&S	ENV216	100115	2025-06-03	2026-06-02
3	Cable	Top	TYPE16(3.5M)	-	2025-06-03	2026-06-02
3m Semi-anechoic Chamber for Radiation Emissions 1#						
1	Spectrum Analyzer	R&S	FSP30	100091	2025-04-19	2026-04-18
2	Amplifier	Agilent	8447D	2944A10178	2025-07-04	2026-07-03
3	Tri-log Broadband Antenna	SCHWARZBECK	VULB9163	336	2025-07-20	2026-07-19
4	Coaxial Cable	Top	TYPE16(13M)	-	2025-04-19	2026-04-18
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1314	2025-08-09	2026-08-08
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2025-07-04	2026-07-03
7	Broadband Preamplifier	COMPLIANCE	PAP-1G18	2004	2025-07-04	2026-07-03
8	Coaxial Cable	Top	ZT26-NJ-NJ-8M/FA	-	2025-04-19	2026-04-18
9	Microwave Amplifier	SCHWARZBECK	BBV 9721	100472	2025-07-04	2026-07-03
10	Coaxial Cable	Top	ZT40-2.92J-2.92J-2.0M	17100919	2025-04-19	2026-04-18
3m Semi-anechoic Chamber for Radiation Emissions 2#						
1	Test Receiver	R&S	ESCI	101296	2025-04-19	2026-04-18
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2025-07-05	2026-07-04
3	Active Loop Antenna	Com-Power	AL-130R	10160007	2025-04-21	2026-04-20
4	Amplifier	ANRITSU	MH648A	M43381	2025-04-19	2026-04-18
5	Cable	HUBER+SUHNER	CBL2	525178	2025-04-19	2026-04-18
RF Conducted Testing						
1	Spectrum Analyzer	R&S	FSP40	100501	2025-04-19	2026-04-18
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2025-07-05	2026-07-04

Test Software:

Test Item	Software name	Software version
Conduction disturbance Radiated Emission(3m)	EZ-EMC	EZ-EMC(RA-03A1-1)

6.2 Description of Support Units

Equipment	Manufacturer	Model No.	Series No.
/	/	/	/

6.3 Measurement Uncertainty

Parameter	Uncertainty
Conducted Emission	± 3.64 dB(AC mains 150KHz~30MHz)
Radiated Spurious Emissions	± 5.08 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)
Radio Frequency	± 1 x 10 ⁻⁷ Hz
RF Power	± 0.42 dB
RF Power Density	± 0.7dB
Conducted Spurious Emissions	± 2.76 dB (9kHz~26500MHz)
Confidence interval: 95%. Confidence factor:k=2	

6.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R. China.

7 Duty Cycle

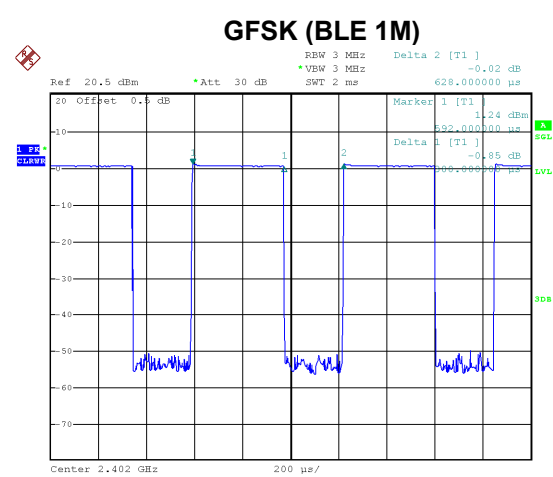
Type of Modulation	On time ms	Period ms	Duty Cycle linear	Duty Cycle %	Duty Cycle Factor(dB)	Average Factor(dB)
GFSK (BLE 1M)	0.380	0.628	0.61	60.51	2.18	-4.36
GFSK (BLE 2M)	0.196	0.628	0.31	31.21	5.06	-10.11

Remark:

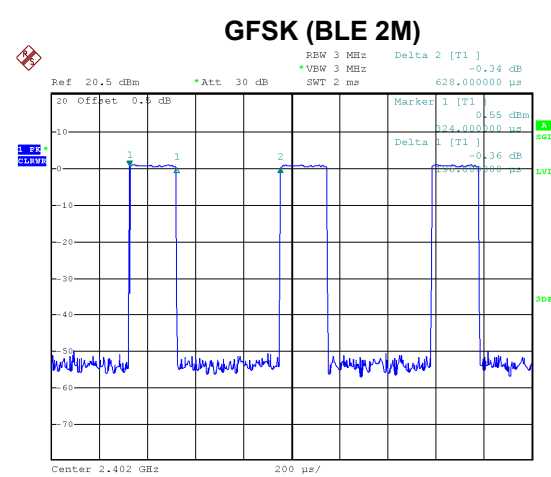
Duty cycle=On Time/period;

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

Average factor=20log₁₀Duty cycle



Date: 27.DEC.2025 10:08:40



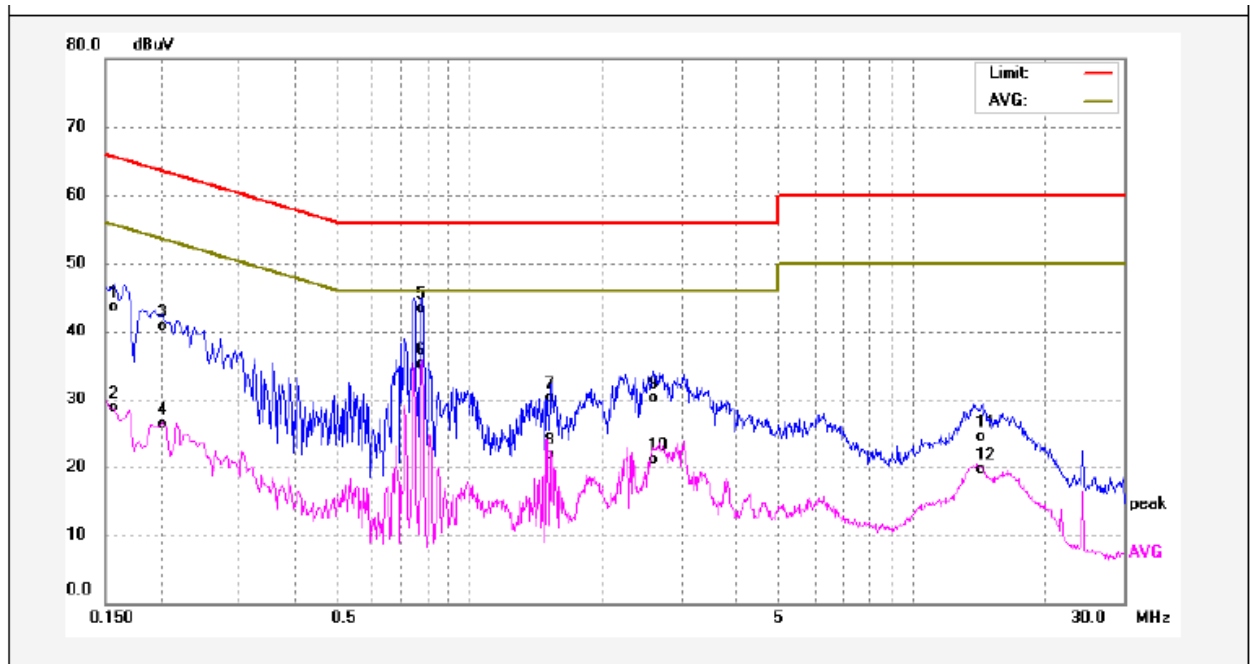
Date: 27.DEC.2025 10:10:24

8.4 Conducted Emission Test Result

Remark: only the worst case were reported

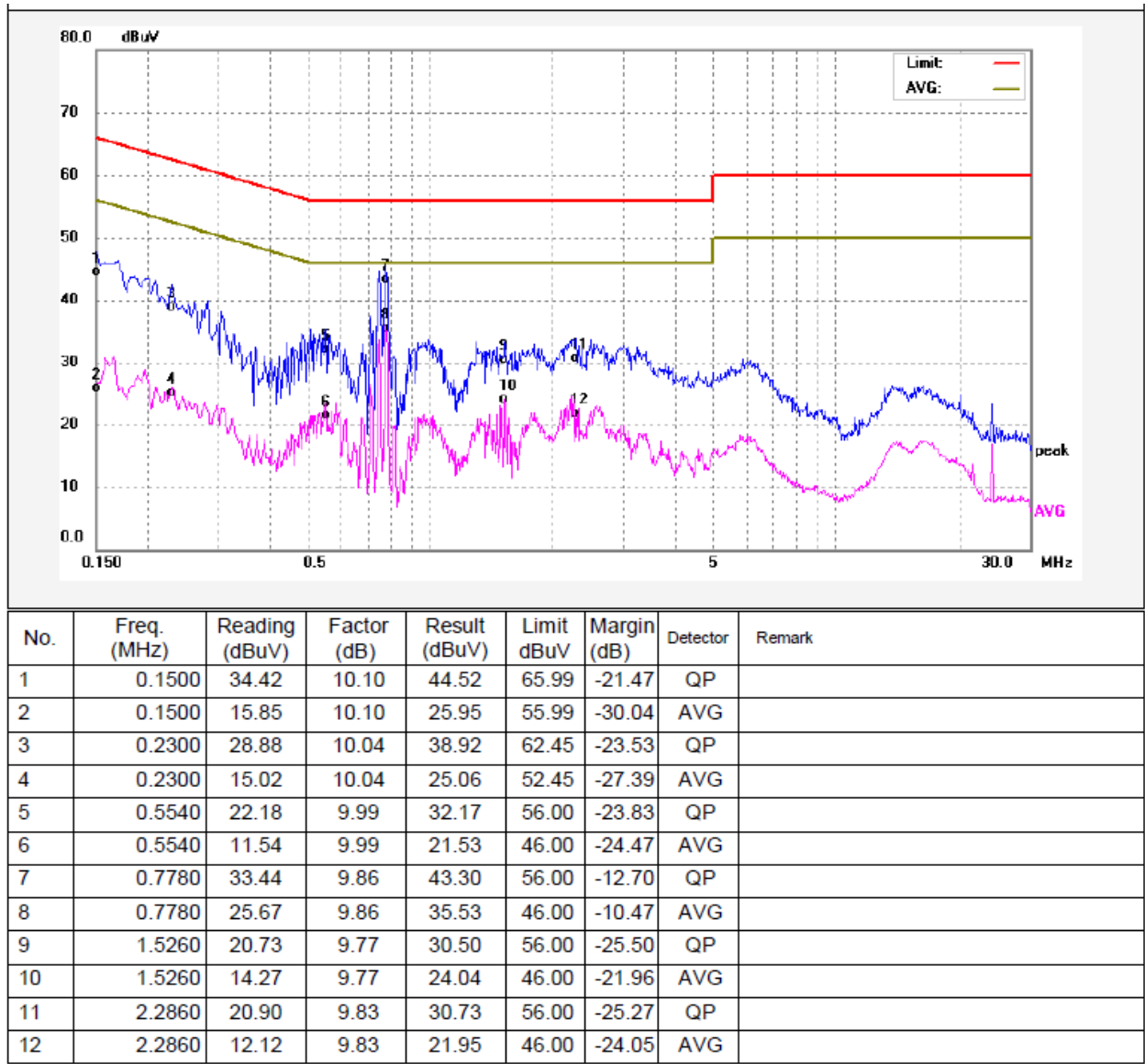
Mode: Adapter 1+configuration A_GFSK (BLE 1M) High channel

Live line:



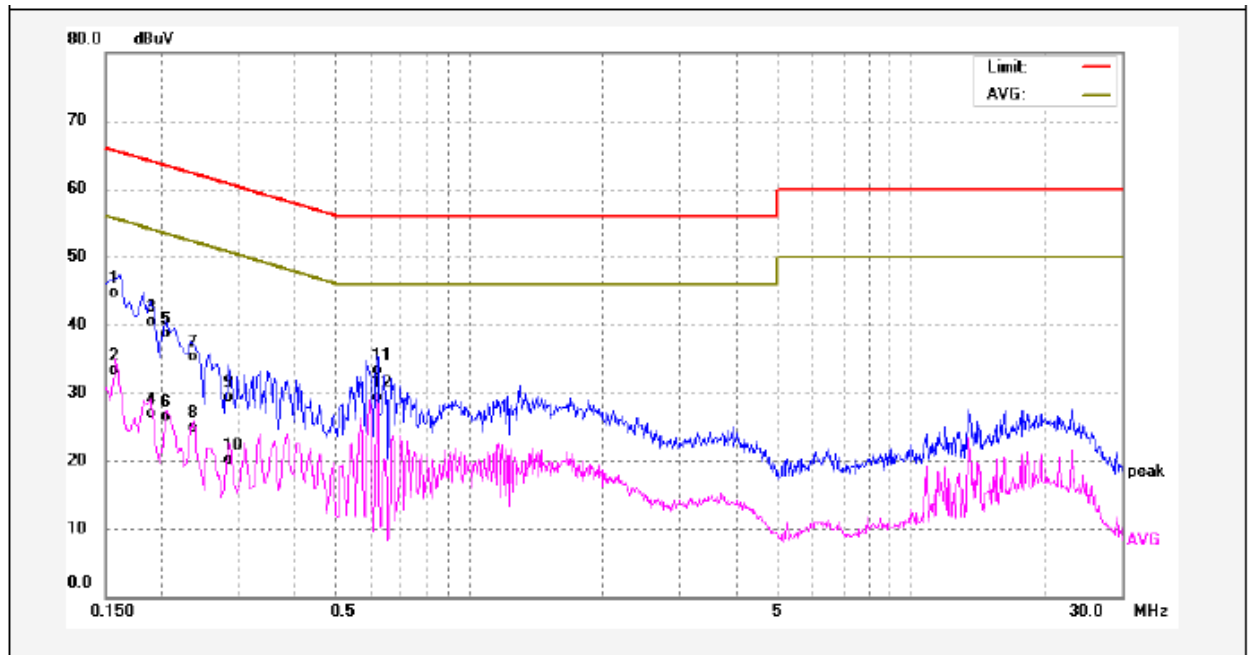
No.	Freq. (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit dBμV	Margin (dB)	Detector	Remark
1	0.1580	33.62	9.94	43.56	65.56	-22.00	QP	
2	0.1580	18.80	9.94	28.74	55.56	-26.82	AVG	
3	0.2020	30.90	9.89	40.79	63.52	-22.73	QP	
4	0.2020	16.46	9.89	26.35	53.52	-27.17	AVG	
5	0.7780	33.24	10.01	43.25	56.00	-12.75	QP	
6	0.7780	25.12	10.01	35.13	46.00	-10.87	AVG	
7	1.5300	20.32	9.80	30.12	56.00	-25.88	QP	
8	1.5300	12.03	9.80	21.83	46.00	-24.17	AVG	
9	2.6020	20.30	9.87	30.17	56.00	-25.83	QP	
10	2.6020	11.33	9.87	21.20	46.00	-24.80	AVG	
11	14.2900	14.46	10.12	24.58	60.00	-35.42	QP	
12	14.2900	9.64	10.12	19.76	50.00	-30.24	AVG	

Neutral line:



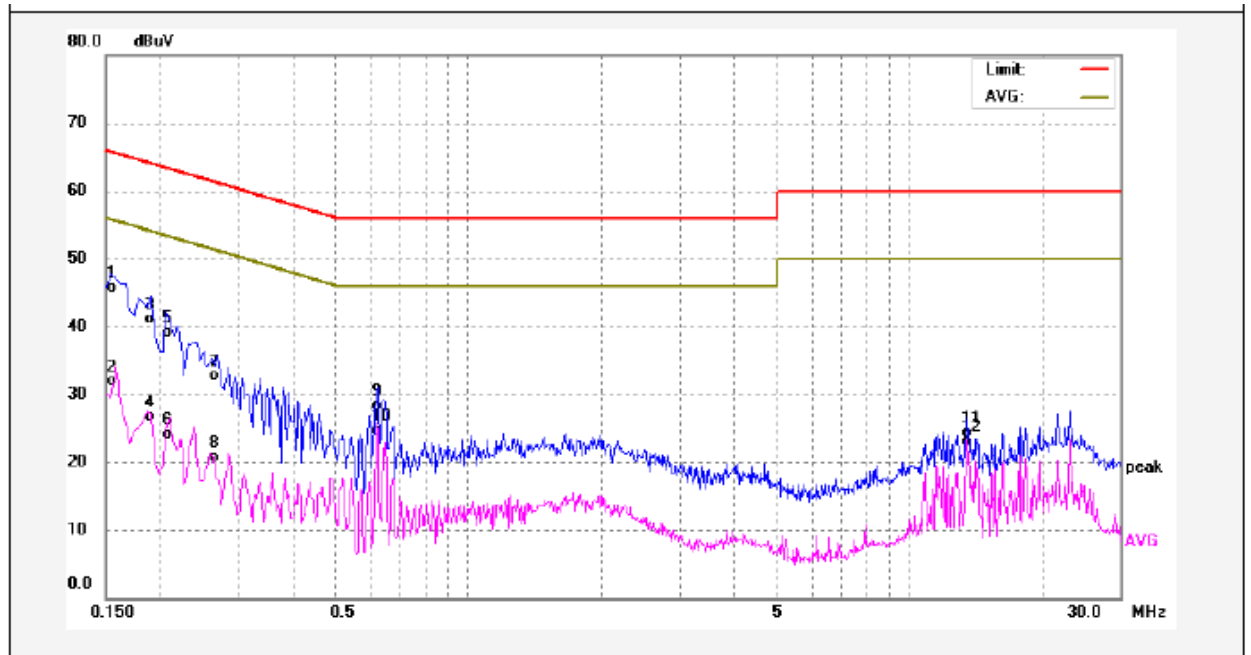
Mode: Adapter 2+configuration A_GFSK (BLE 1M) High channel

Live Line:



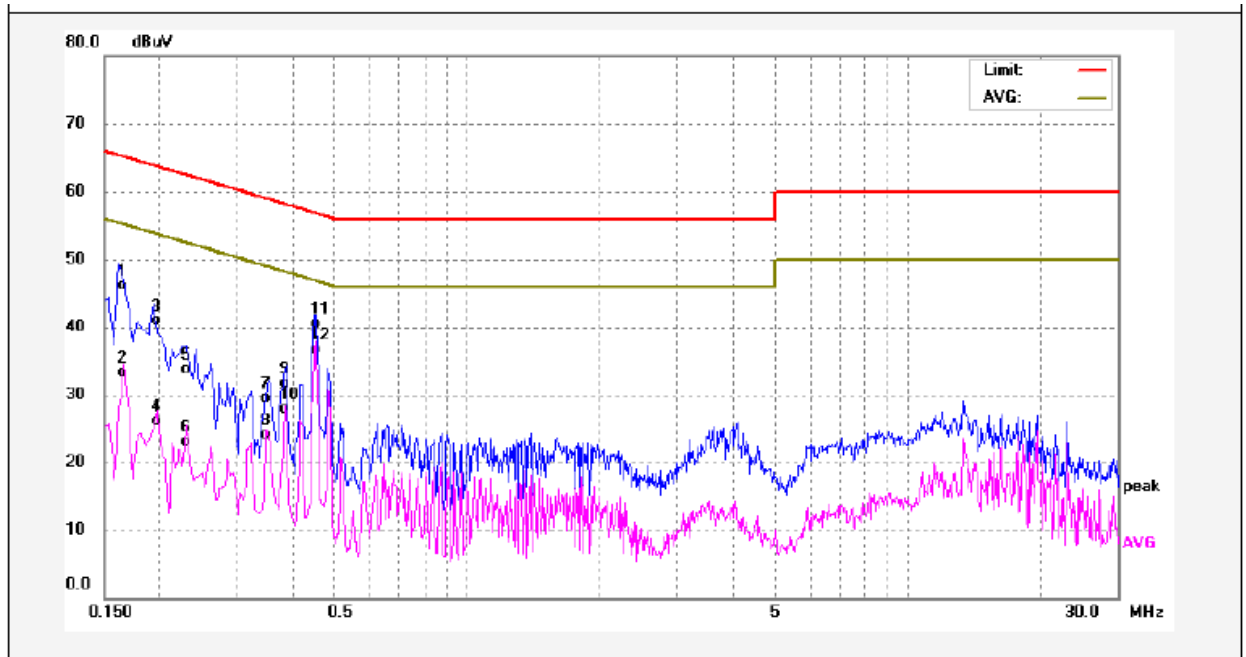
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1580	34.48	10.14	44.62	65.56	-20.94	QP	
2	0.1580	23.12	10.14	33.26	55.56	-22.30	AVG	
3	0.1900	30.36	10.15	40.51	64.03	-23.52	QP	
4	0.1900	16.83	10.15	26.98	54.03	-27.05	AVG	
5	0.2060	28.51	10.13	38.64	63.36	-24.72	QP	
6	0.2060	16.41	10.13	26.54	53.36	-26.82	AVG	
7	0.2380	25.18	10.03	35.21	62.16	-26.95	QP	
8	0.2380	14.95	10.03	24.98	52.16	-27.18	AVG	
9	0.2860	19.52	9.88	29.40	60.64	-31.24	QP	
10	0.2860	10.31	9.88	20.19	50.64	-30.45	AVG	
11	0.6180	23.48	9.83	33.31	56.00	-22.69	QP	
12	0.6180	19.55	9.83	29.38	46.00	-16.62	AVG	

Neutral Line:



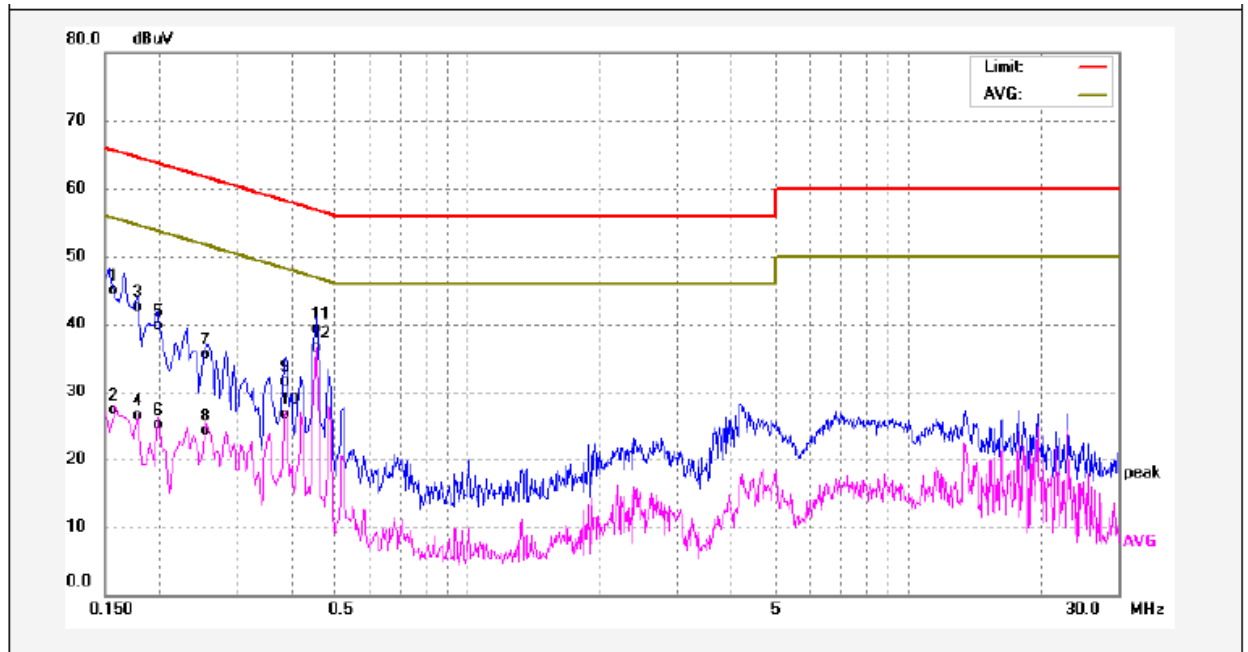
No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1539	35.64	10.14	45.78	65.78	-20.00	QP	
2	0.1539	21.72	10.14	31.86	55.78	-23.92	AVG	
3	0.1900	30.87	10.15	41.02	64.03	-23.01	QP	
4	0.1900	16.50	10.15	26.65	54.03	-27.38	AVG	
5	0.2060	29.05	10.13	39.18	63.36	-24.18	QP	
6	0.2060	14.06	10.13	24.19	53.36	-29.17	AVG	
7	0.2700	22.72	9.93	32.65	61.12	-28.47	QP	
8	0.2700	10.72	9.93	20.65	51.12	-30.47	AVG	
9	0.6220	18.55	9.84	28.39	56.00	-27.61	QP	
10	0.6220	14.81	9.84	24.65	46.00	-21.35	AVG	
11	13.4180	13.14	11.08	24.22	60.00	-35.78	QP	
12	13.4180	11.99	11.08	23.07	50.00	-26.93	AVG	

Mode: Adapter 3+configuration A_GFSK (BLE 1M) High channel
Live Line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1660	36.05	10.07	46.12	65.15	-19.03	QP	
2	0.1660	23.14	10.07	33.21	55.15	-21.94	AVG	
3	0.1980	30.89	9.98	40.87	63.69	-22.82	QP	
4	0.1980	16.14	9.98	26.12	53.69	-27.57	AVG	
5	0.2300	23.75	9.92	33.67	62.45	-28.78	QP	
6	0.2300	13.09	9.92	23.01	52.45	-29.44	AVG	
7	0.3500	19.74	9.85	29.59	58.96	-29.37	QP	
8	0.3500	14.18	9.85	24.03	48.96	-24.93	AVG	
9	0.3860	21.87	9.89	31.76	58.15	-26.39	QP	
10	0.3860	18.02	9.89	27.91	48.15	-20.24	AVG	
11	0.4540	30.59	9.97	40.56	56.80	-16.24	QP	
12	0.4540	26.67	9.97	36.64	46.80	-10.16	AVG	

Neutral Line:



No.	Freq. (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit dBμV	Margin (dB)	Detector	Remark
1	0.1580	34.84	10.14	44.98	65.56	-20.58	QP	
2	0.1580	17.21	10.14	27.35	55.56	-28.21	AVG	
3	0.1780	32.30	10.15	42.45	64.57	-22.12	QP	
4	0.1780	16.26	10.15	26.41	54.57	-28.16	AVG	
5	0.1980	29.46	10.15	39.61	63.69	-24.08	QP	
6	0.1980	15.05	10.15	25.20	53.69	-28.49	AVG	
7	0.2540	25.48	9.98	35.46	61.62	-26.16	QP	
8	0.2540	14.34	9.98	24.32	51.62	-27.30	AVG	
9	0.3860	21.58	9.92	31.50	58.15	-26.65	QP	
10	0.3860	16.87	9.92	26.79	48.15	-21.36	AVG	
11	0.4540	29.29	9.98	39.27	56.80	-17.53	QP	
12	0.4540	26.56	9.98	36.54	46.80	-10.26	AVG	

9 Radiated Emissions

Test Requirement: FCC 47CFR Part 15 Section 15.209 & 15.247

Test Method: ANSI C63.10-2020

Test Result: PASS

Measurement Distance: 3m

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))} + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

9.1 EUT Operation

Operating Environment:

Temperature: 22.4~25.1°C

Humidity: 38.8~46.7%RH

Atmospheric Pressure: 101.3~101.5kPa

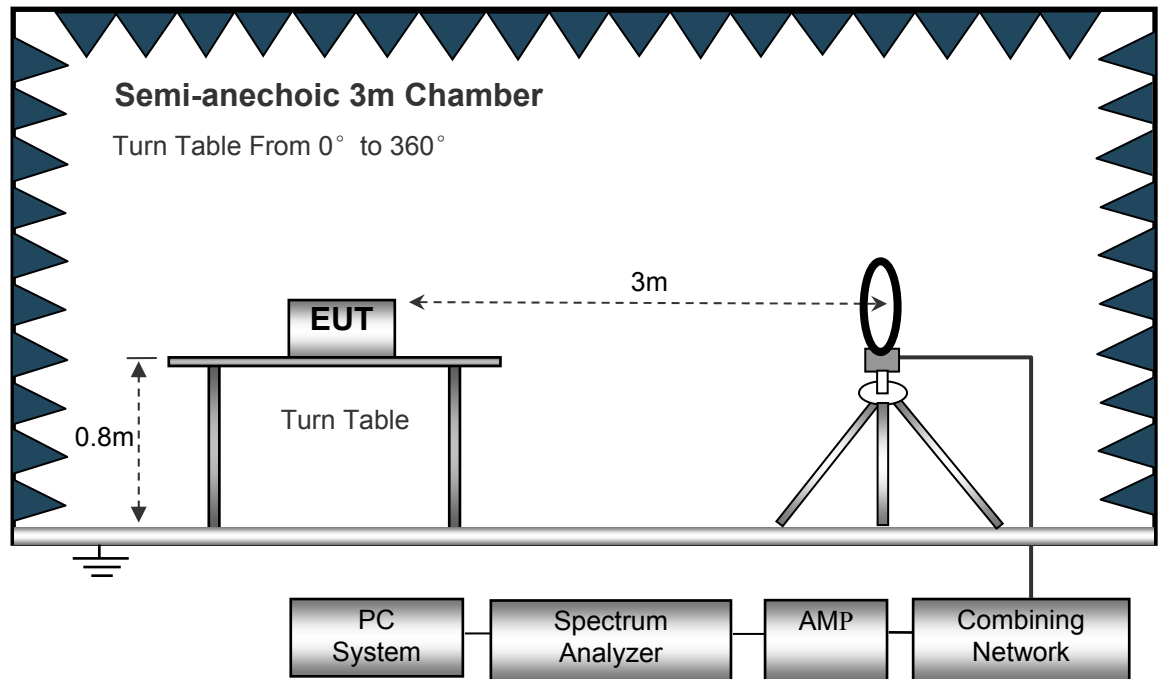
EUT Operation:

The test was performed in transmitting mode, the test data were shown in the report.

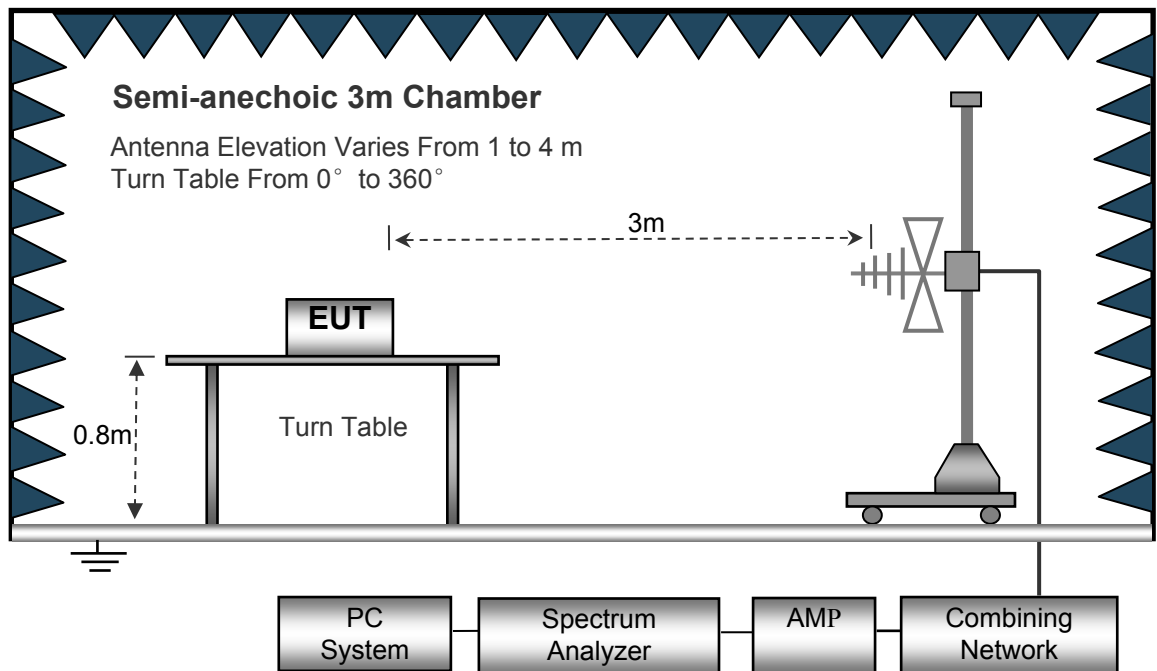
9.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10.

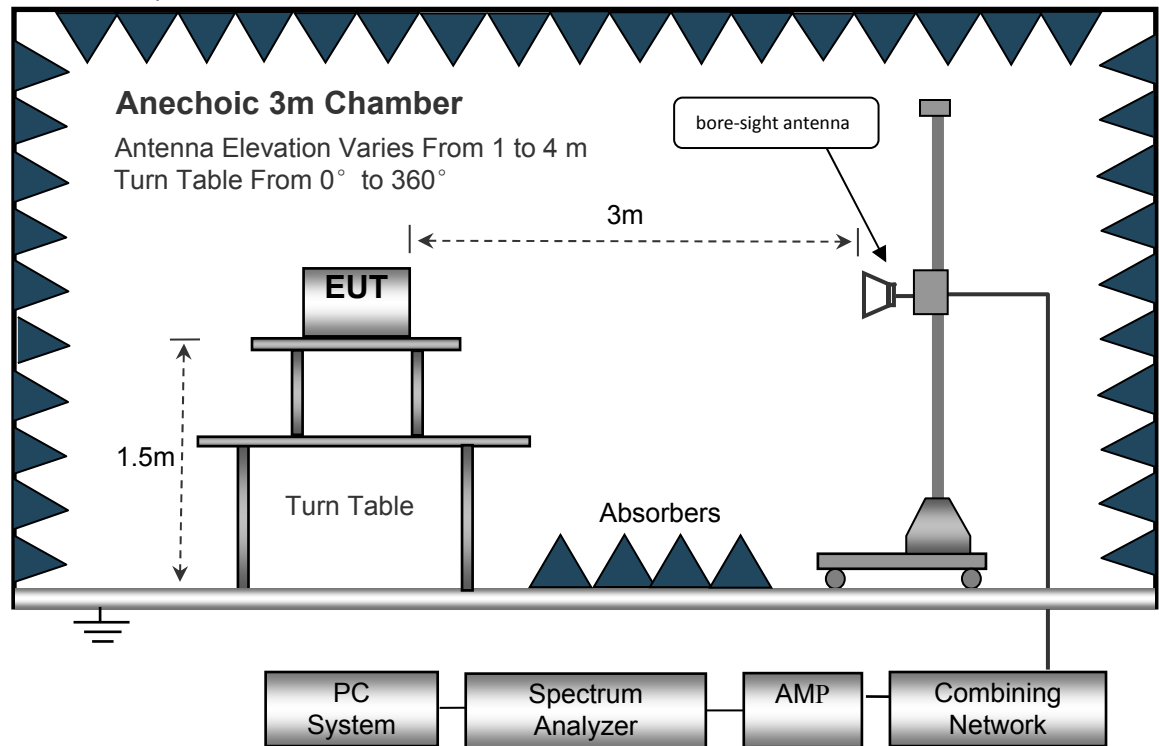
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



9.3 Spectrum Analyzer Setup

Below 30MHz

Sweep Speed Auto
IF Bandwidth..... 10kHz
Video Bandwidth..... 10kHz
Resolution Bandwidth..... 10kHz

30MHz ~ 1GHz

Sweep Speed Auto
Detector PK
Resolution Bandwidth..... 100kHz
Video Bandwidth..... 300kHz

Above 1GHz

Sweep Speed Auto
Detector PK
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 3MHz
Detector Ave.
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 10Hz

9.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m for above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in Z axis,so the worst data were shown as follow.
8. A 2.4GHz high –pass filter is used during radiated emissions above 1GHz measurement.

9.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

9.6 Summary of Test Results

Remark: only the worst data were reported

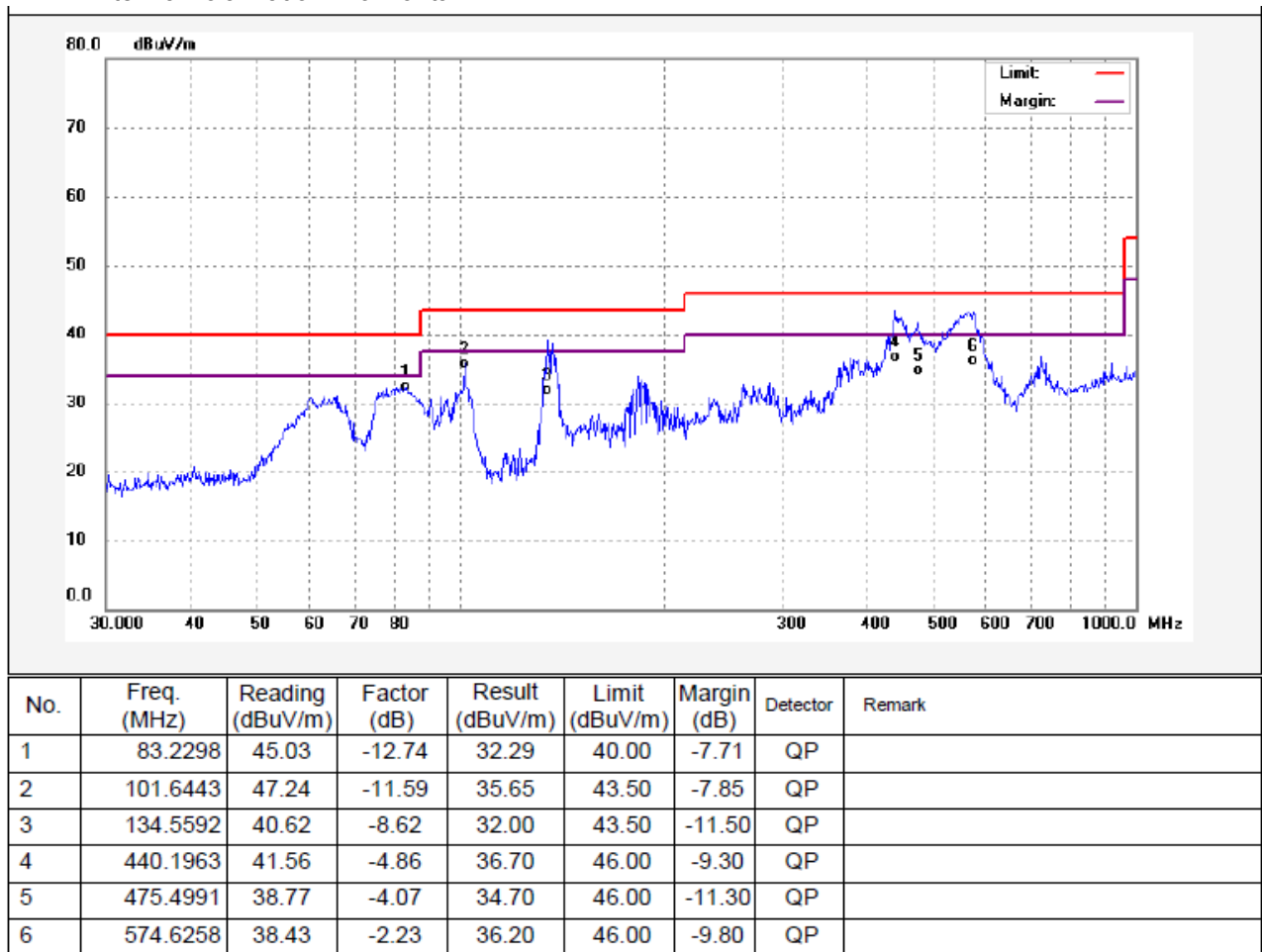
Test Frequency: 9kHz~30MHz

The measurements were more than 20 dB below the limit and not reported.

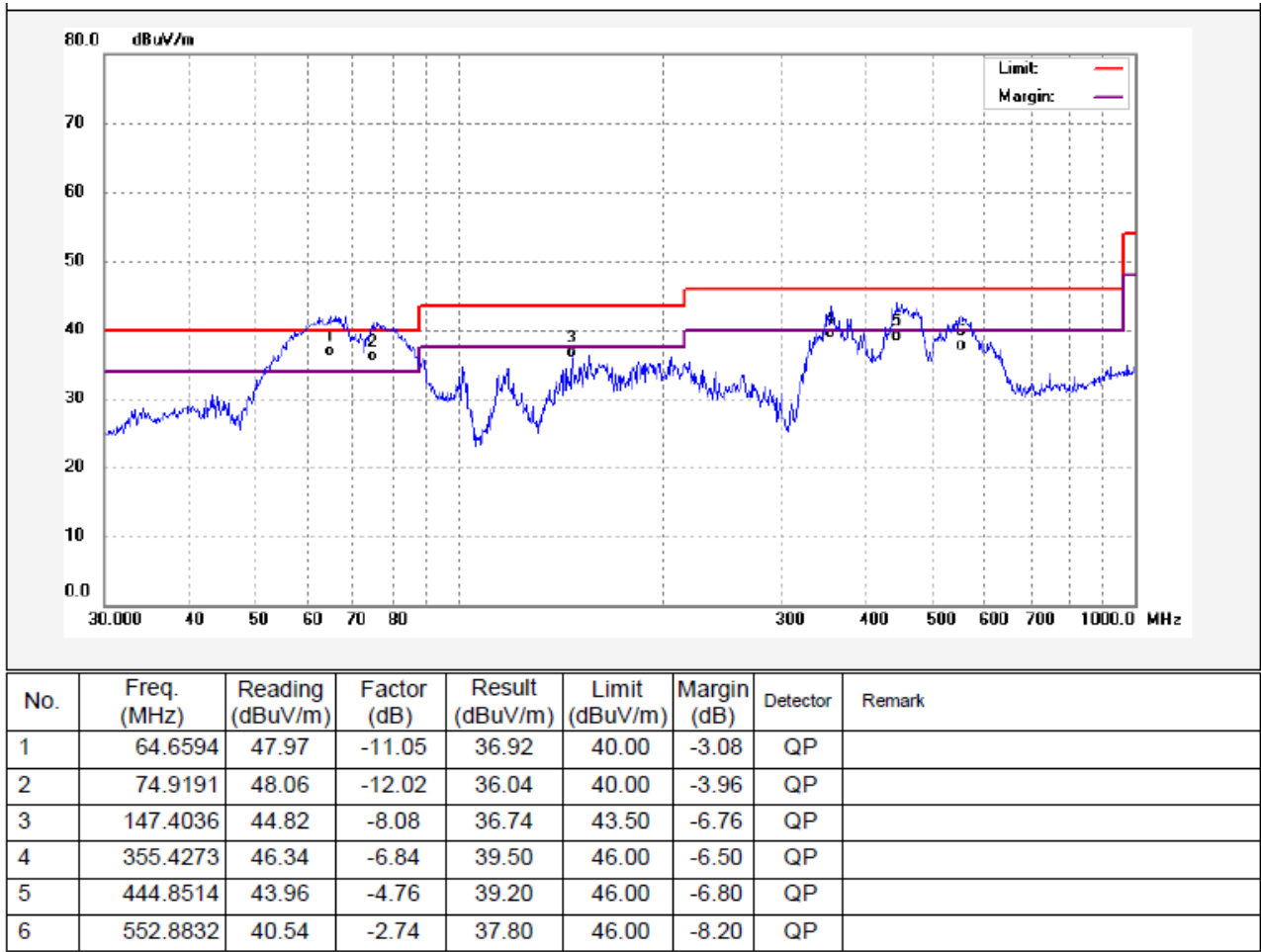
Test Frequency: 30MHz ~ 1GHz

Mode: Adapter 1+configuration A_GFSK (BLE 2M)_Low channel

Antenna Polarization: Horizontal

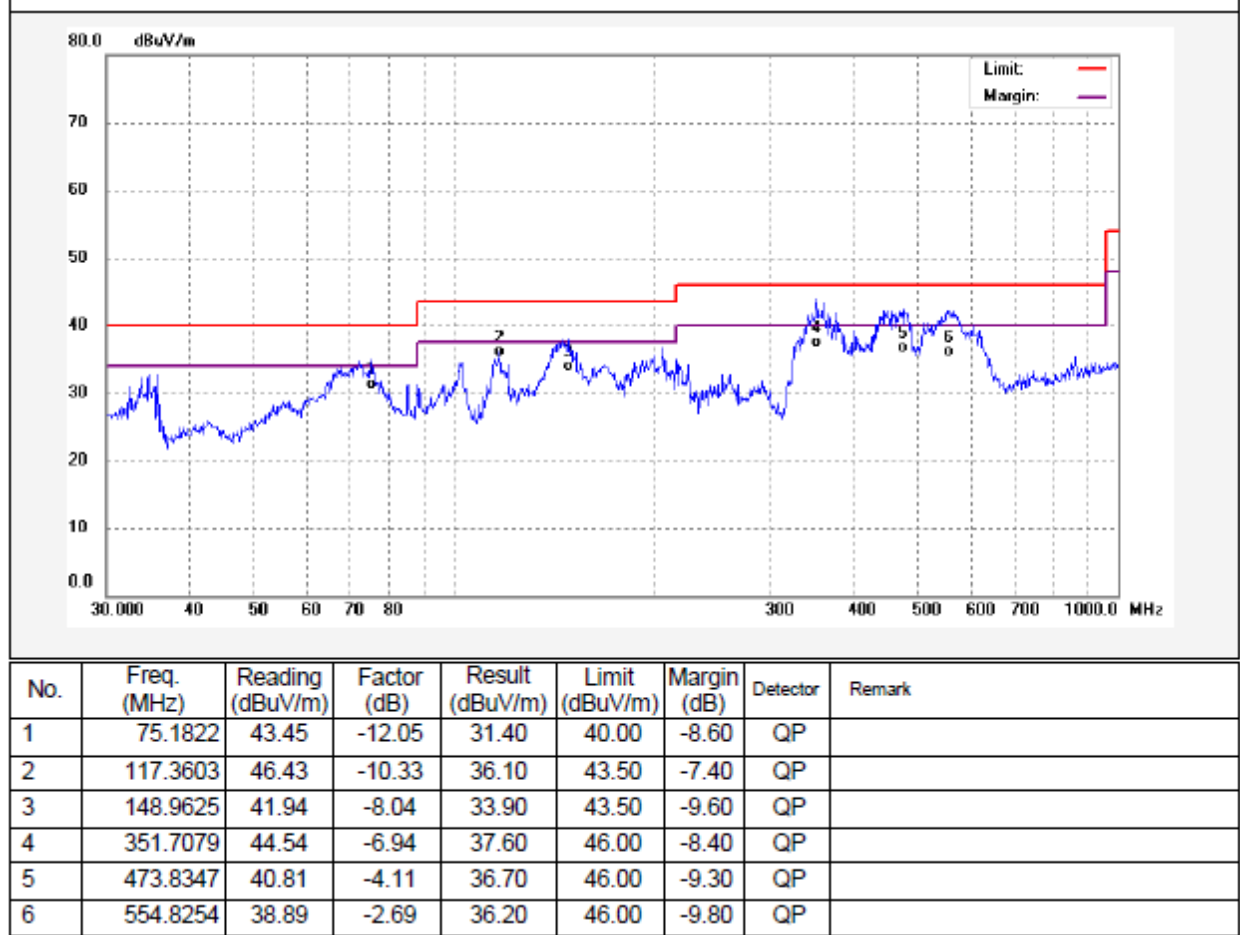


Antenna Polarization: Vertical

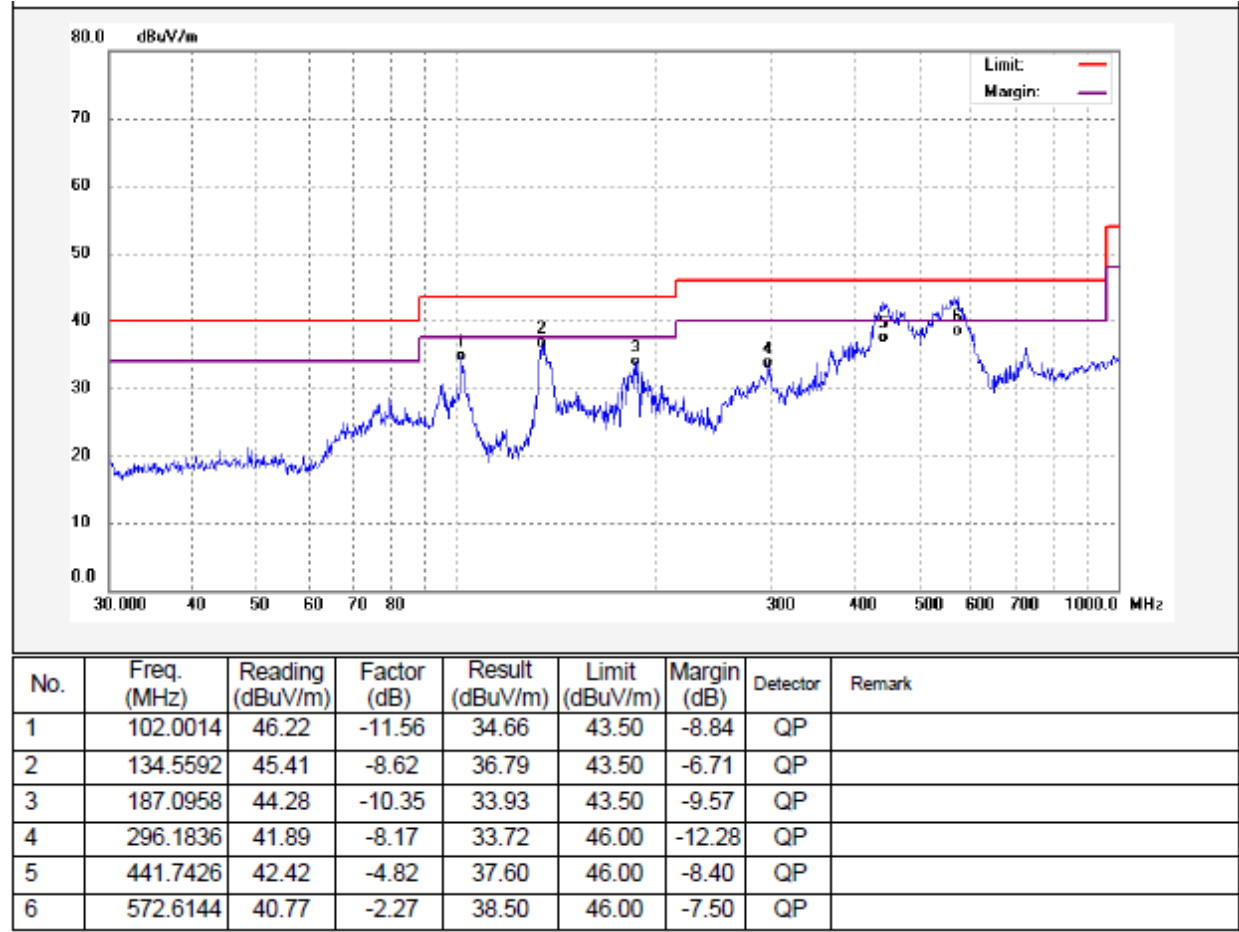


Mode: Adapter 2+configuration A_GFSK (BLE 2M)_Low channel

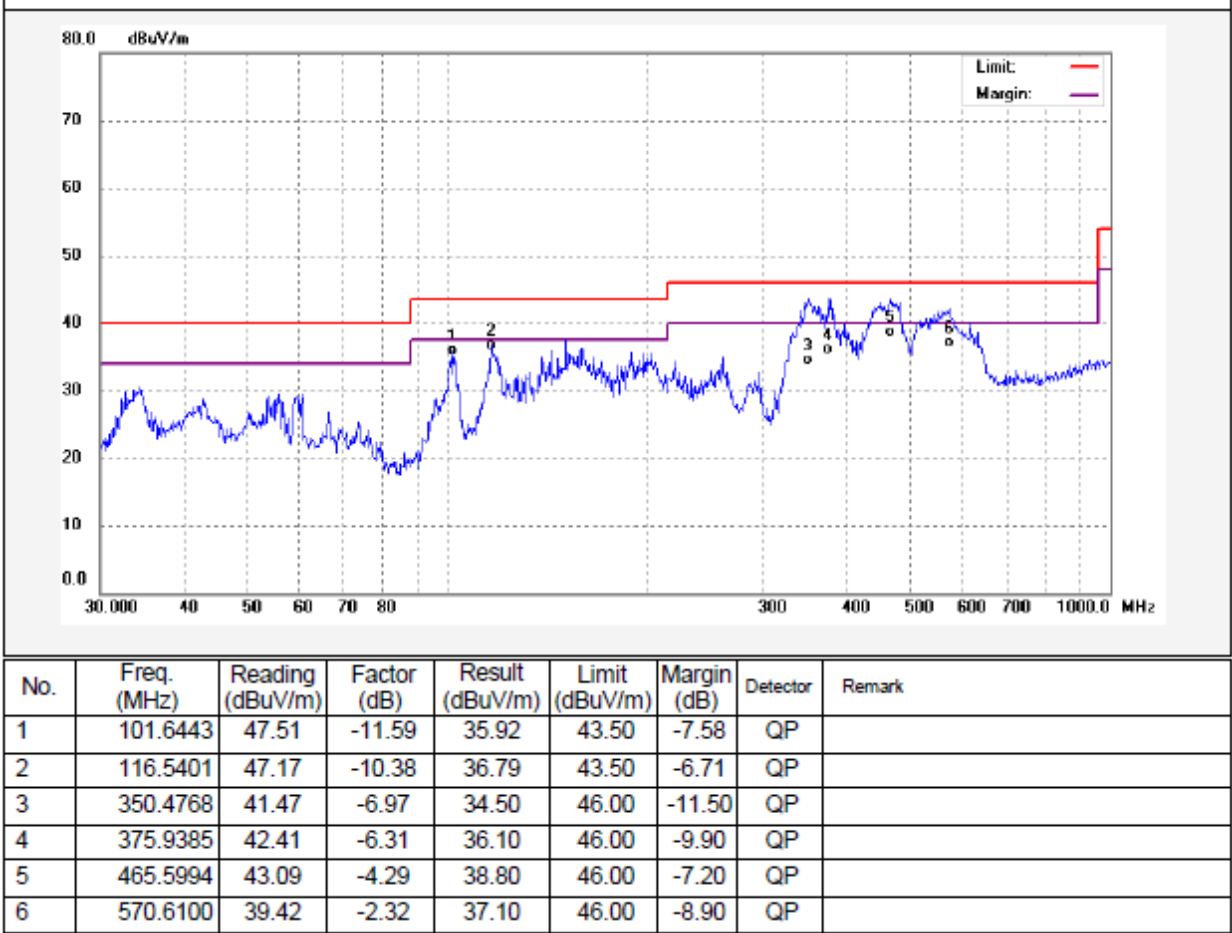
Antenna Polarization: Vertical



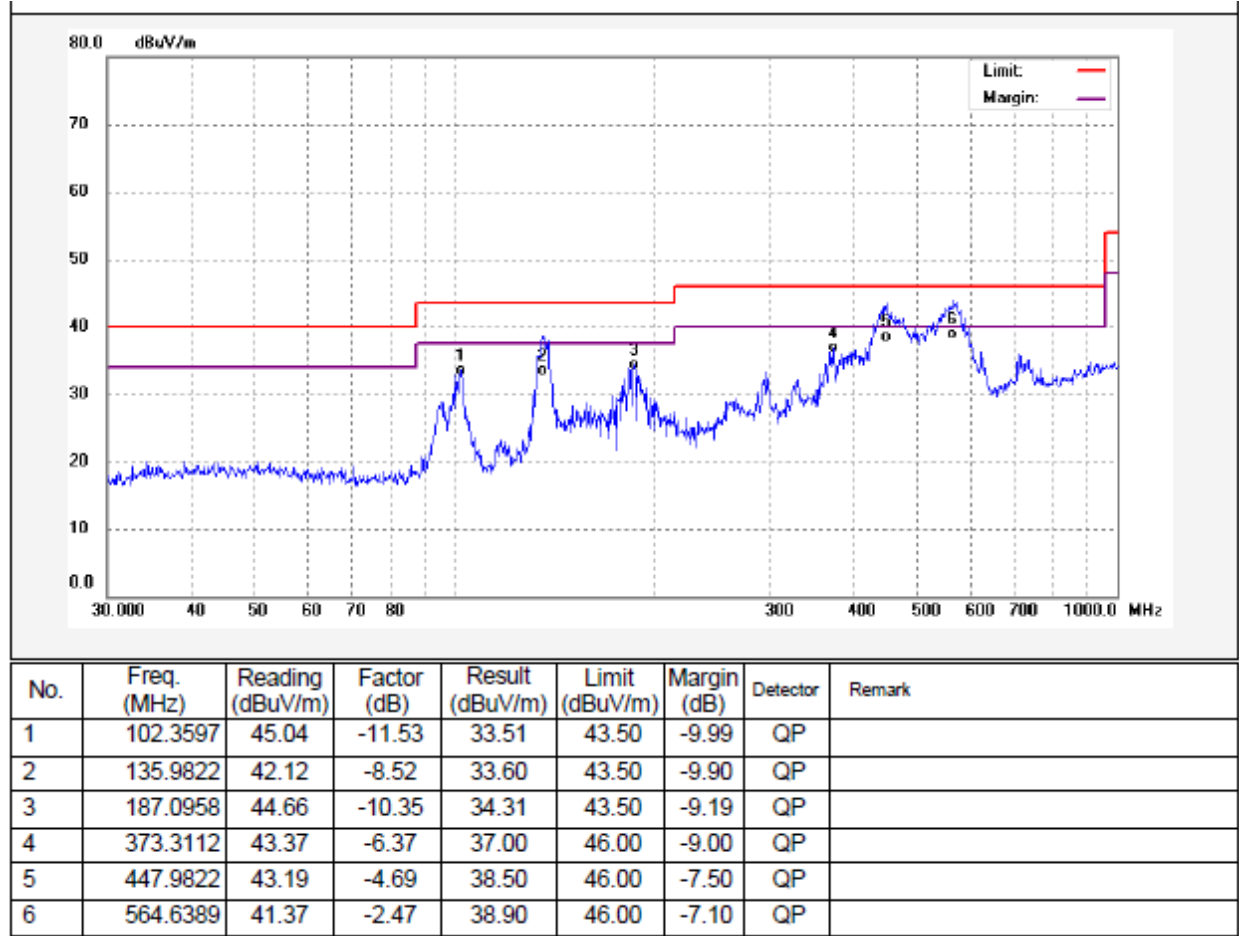
Antenna Polarization: Horizontal



Mode: Adapter 3+configuration A_GFSK (BLE 2M)_Low channel
Antenna Polarization: Vertical



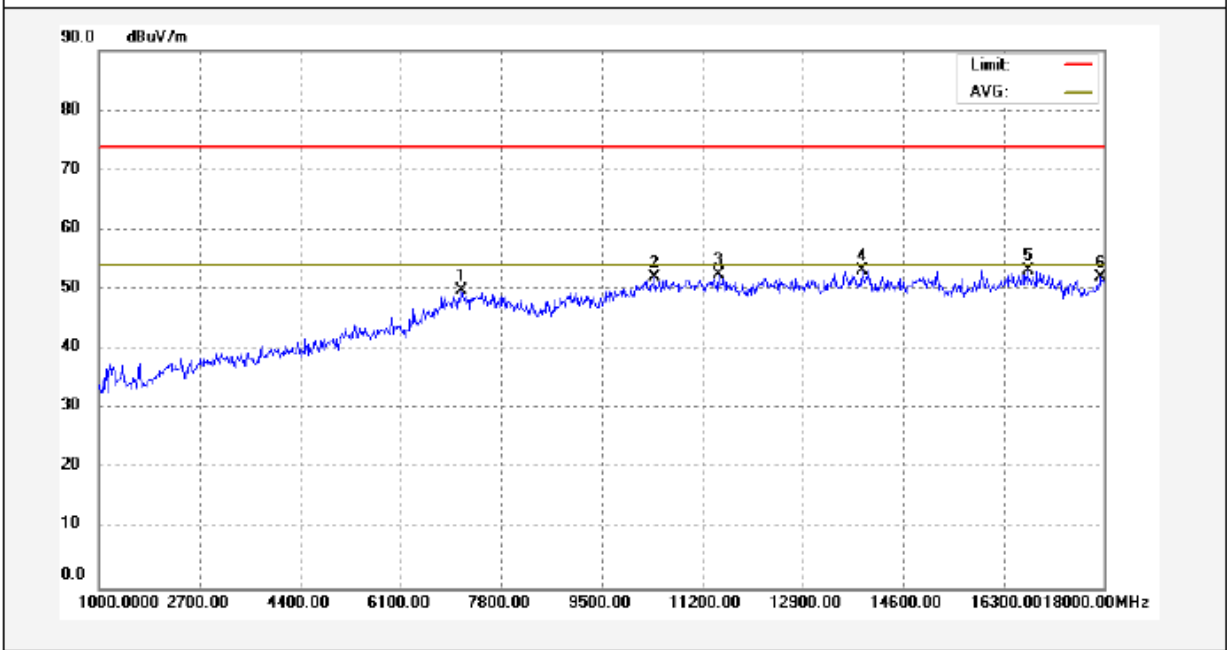
Antenna Polarization: Horizontal



Test Frequency: 1GHz ~ 18GHz

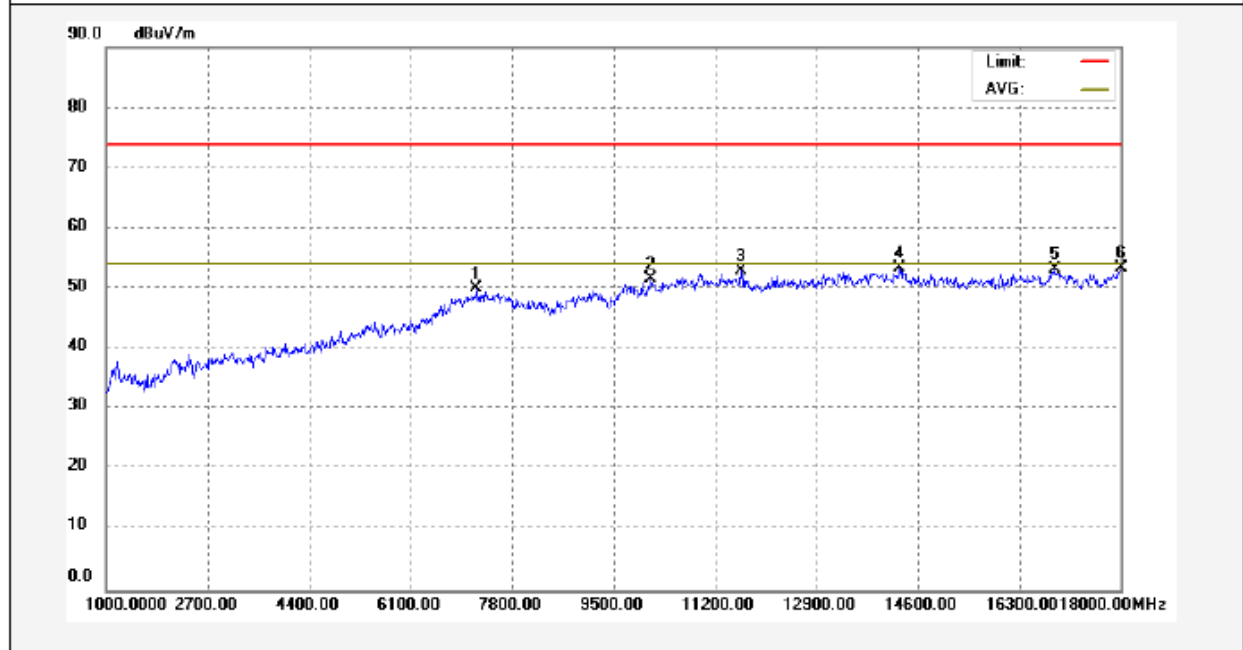
Mode: GFSK (BLE 2M)_Low channel

Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	7137.000	49.25	0.52	49.77	74.00	-24.23	peak	
2	10401.000	49.09	2.93	52.02	74.00	-21.98	peak	
3	11472.000	48.88	3.70	52.58	74.00	-21.42	peak	
4	13903.000	46.74	6.57	53.31	74.00	-20.69	peak	
5	16708.000	46.69	6.57	53.26	74.00	-20.74	peak	
6	17949.000	38.68	13.37	52.05	74.00	-21.95	peak	

Antenna Polarization: Horizontal

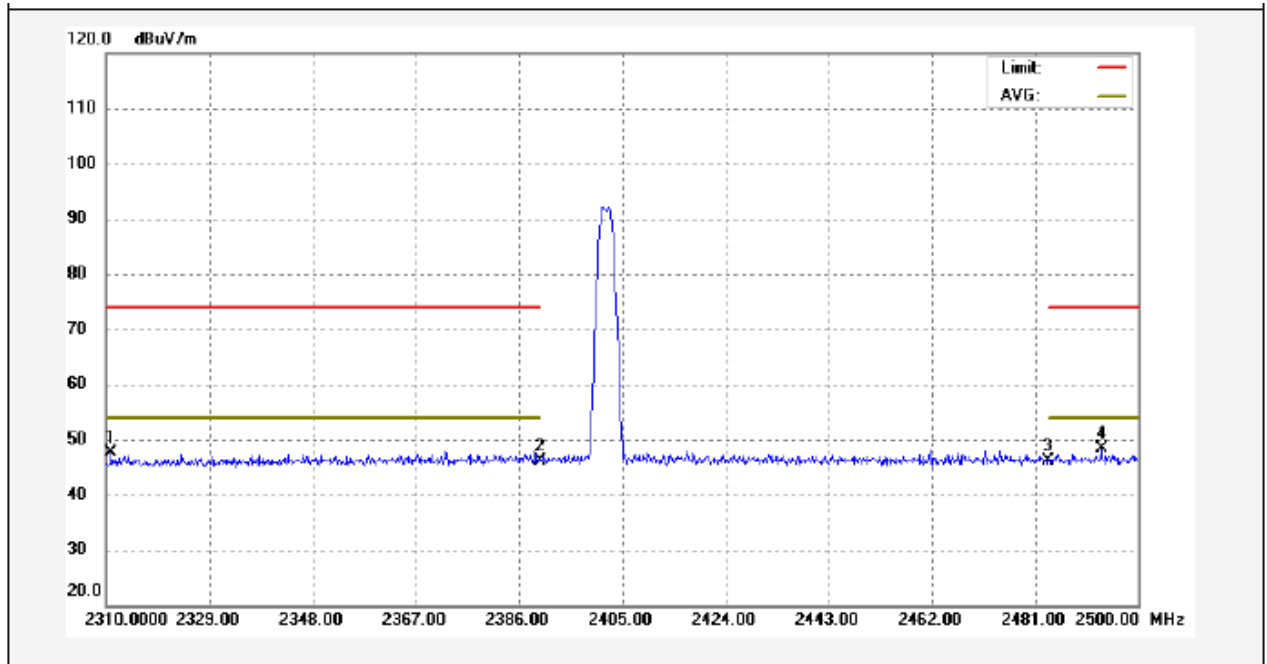


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	7205.000	49.41	0.61	50.02	74.00	-23.98	peak	
2	10129.000	49.16	2.37	51.53	74.00	-22.47	peak	
3	11642.000	49.60	3.33	52.93	74.00	-21.07	peak	
4	14294.000	46.03	7.34	53.37	74.00	-20.63	peak	
5	16895.000	45.49	7.64	53.13	74.00	-20.87	peak	
6	18000.000	39.24	14.19	53.43	74.00	-20.57	peak	

Radiated Restricted Band Emission

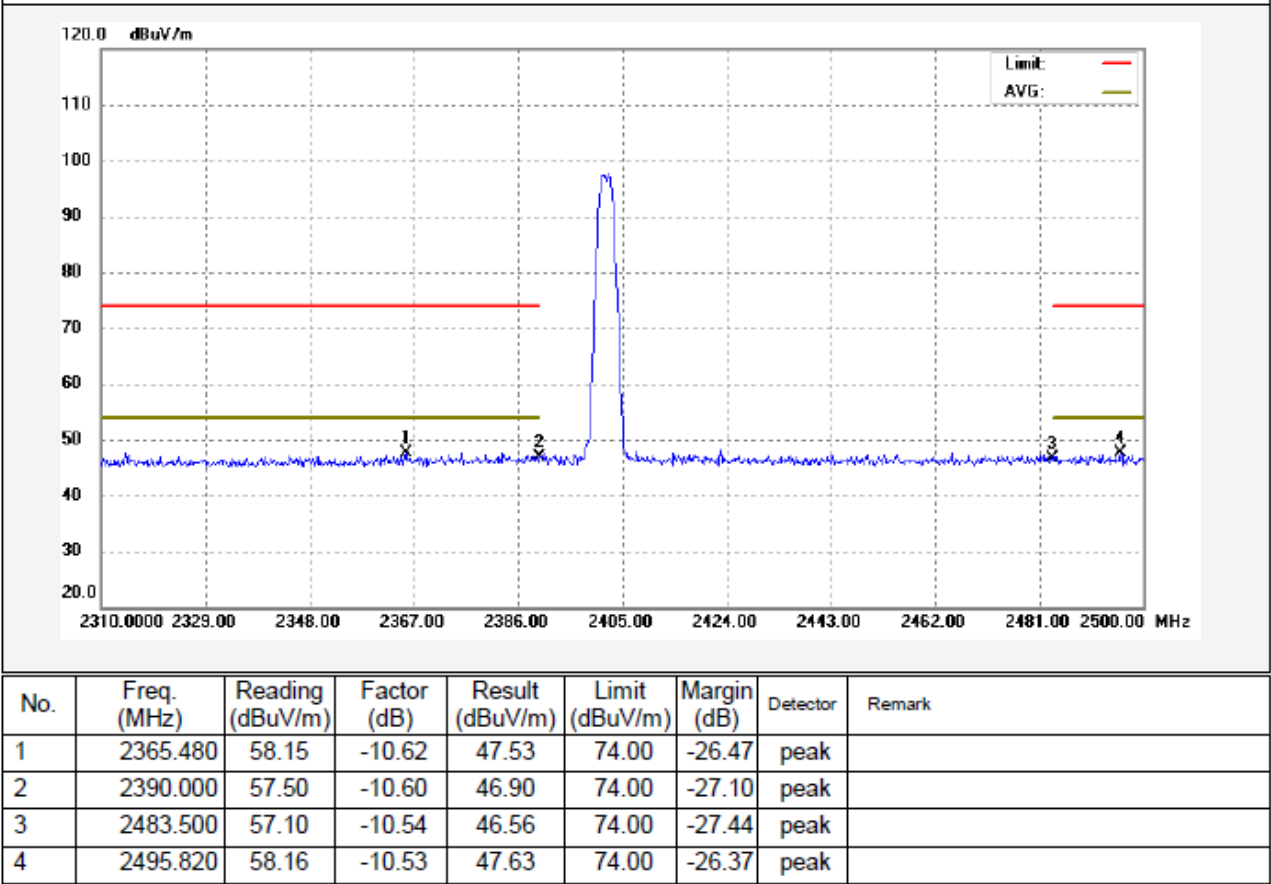
Mode: GFSK (BLE 2M)_Low channel:

Antenna Polarization: Horizontal

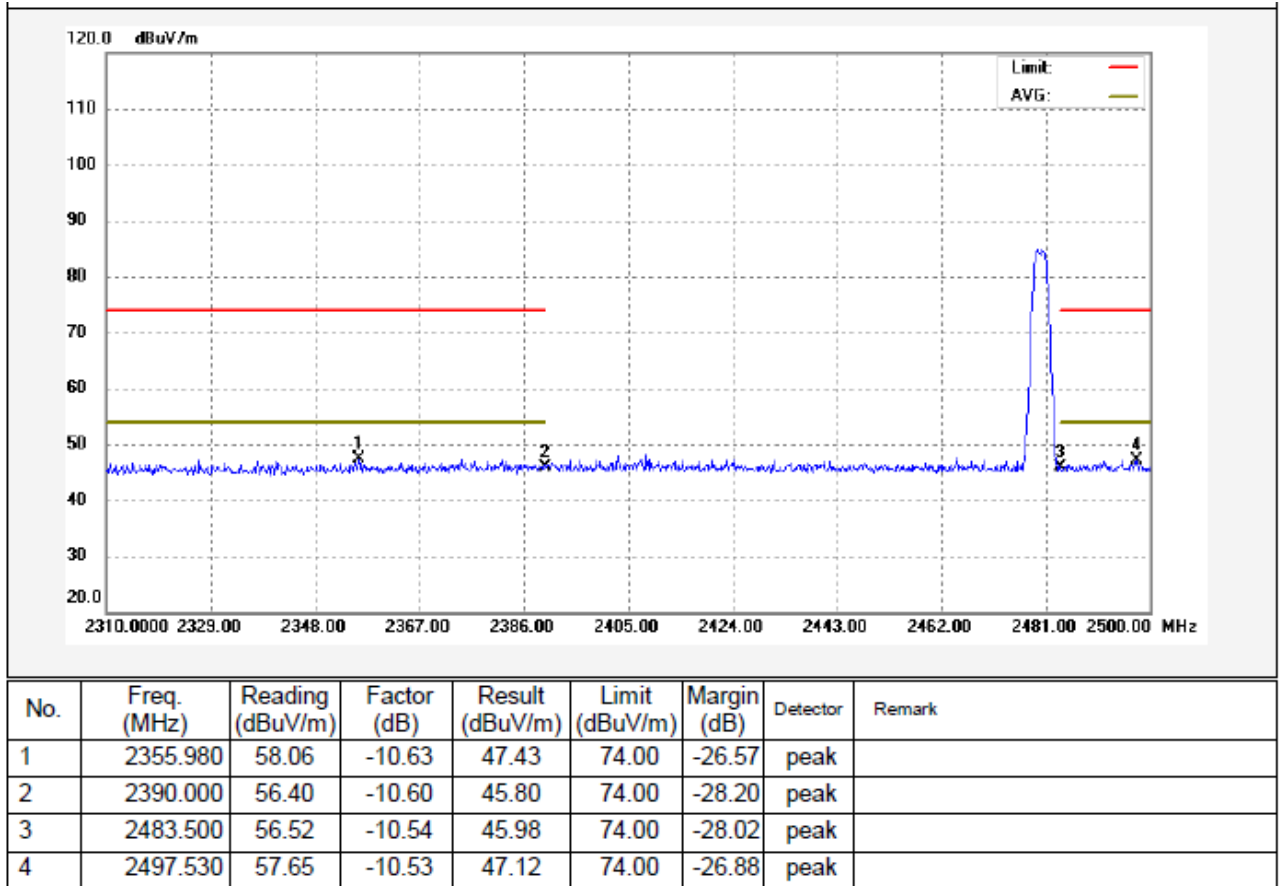


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2310.950	58.18	-10.66	47.52	74.00	-26.48	peak	
2	2390.000	56.83	-10.60	46.23	74.00	-27.77	peak	
3	2483.500	56.59	-10.54	46.05	74.00	-27.95	peak	
4	2493.160	58.79	-10.53	48.26	74.00	-25.74	peak	

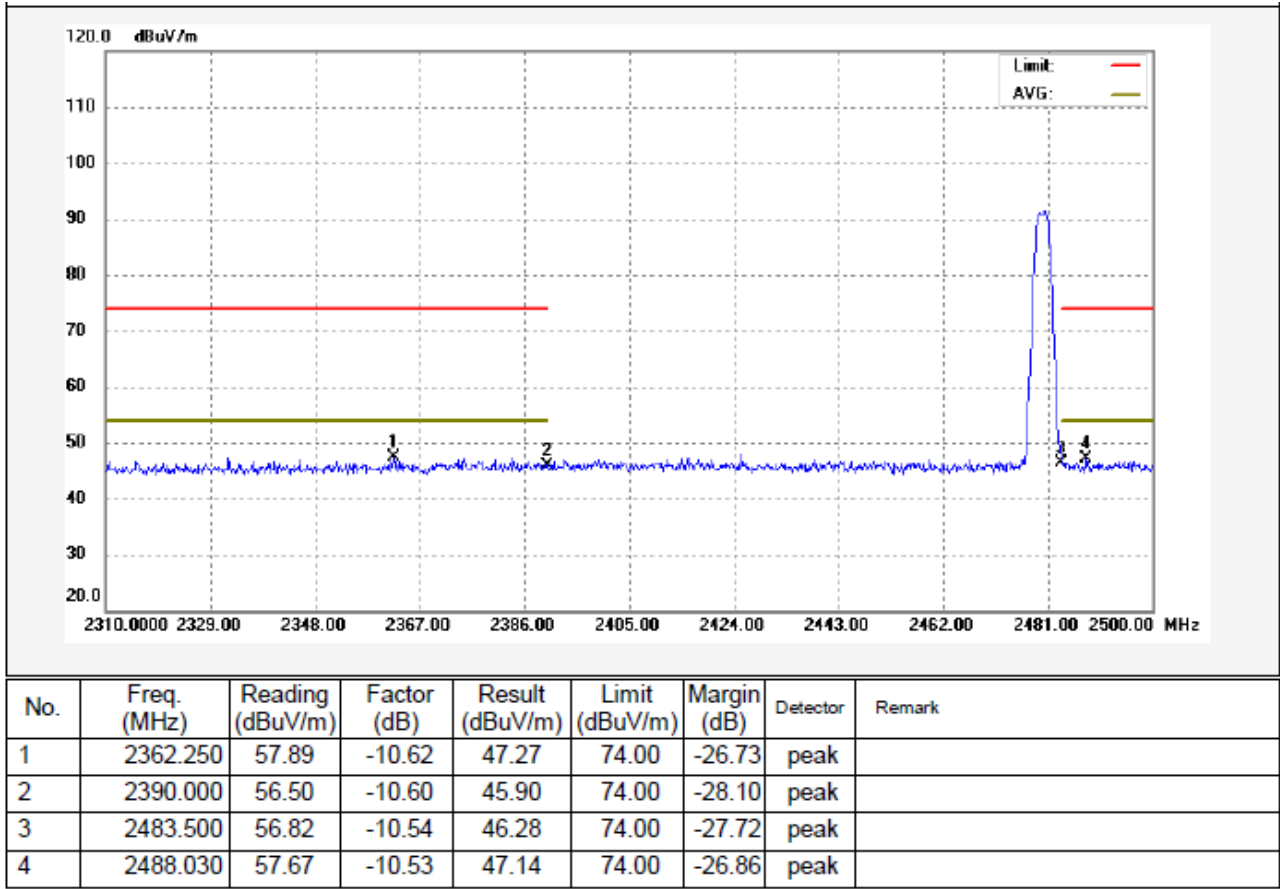
Antenna Polarization: Vertical



Mode: GFSK (BLE 2M)_High channel:
Antenna Polarization: Horizontal



Antenna Polarization: Vertical



Test Frequency: 18GHz~25GHz

The measurements were more than 20 dB below the limit and not reported.

10 Conducted Spurious Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 15.247 Meas Guidance v05r02 April 2, 2019;
ANSI C63.10-2020

Test Result: PASS

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, 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) (see Section 15.205(c)).

10.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

2. Set the spectrum analyzer:

Below 30MHz:

RBW = 100kHz, VBW = 300kHz, Sweep = auto

Detector function = peak, Trace = max hold

Above 30MHz:

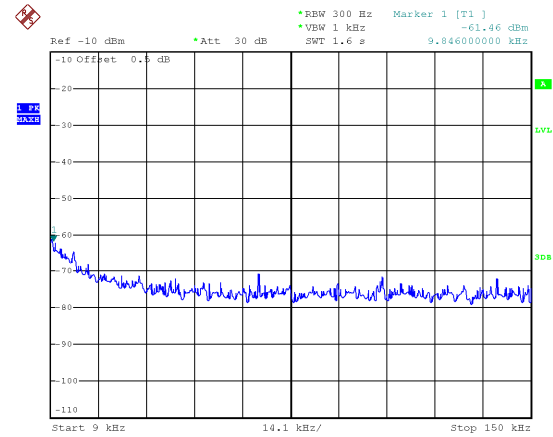
RBW = 100kHz, VBW = 300kHz, Sweep = auto

Detector function = peak, Trace = max hold

10.2 Test Result

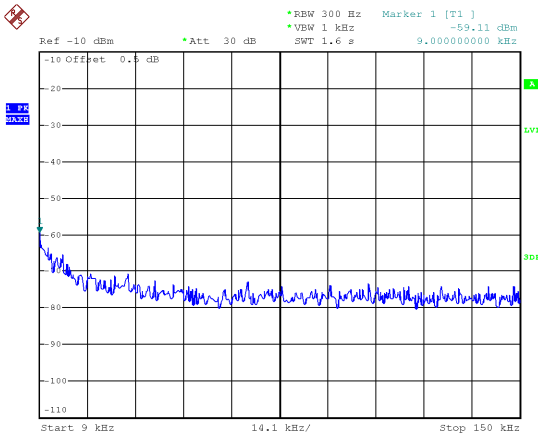
GFSK (BLE 1M):
9kHz – 150kHz

Mode: channel 0



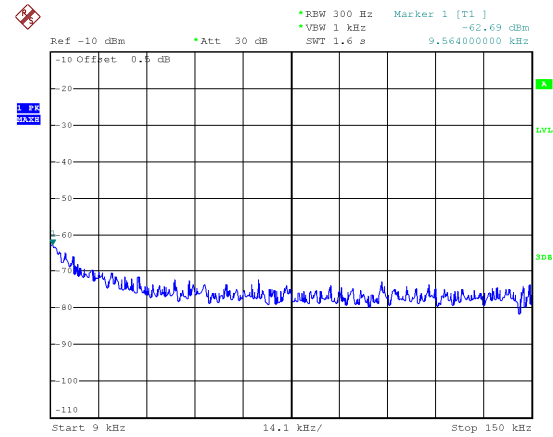
Date: 27.DEC.2025 11:57:46

Mode: channel 19



Date: 27.DEC.2025 11:58:09

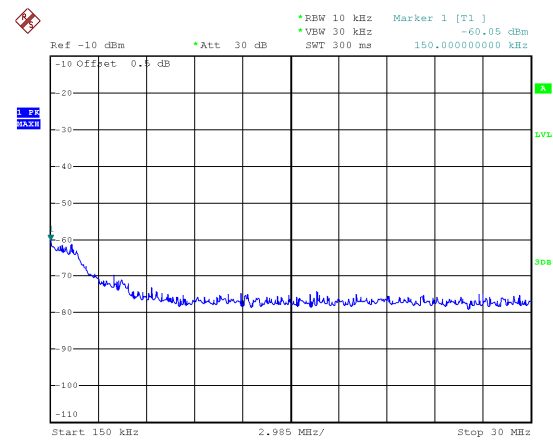
Mode: channel 39



Date: 27.DEC.2025 11:58:36

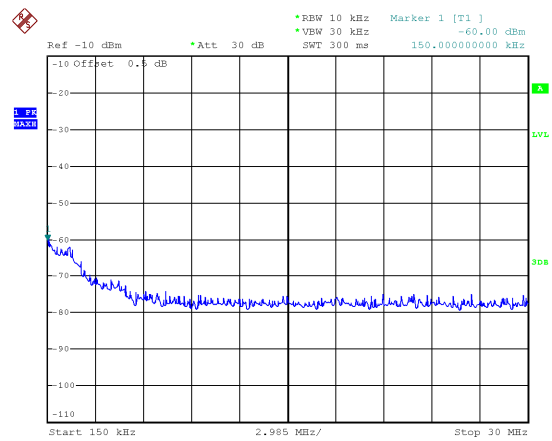
150kHz – 30MHz

Mode: channel 0



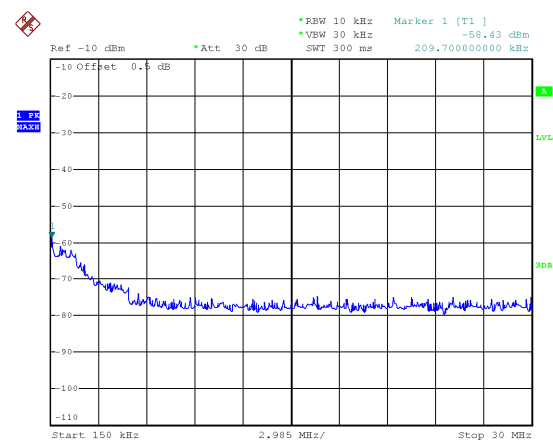
Date: 27.DEC.2025 12:01:09

Mode: channel 19



Date: 27.DEC.2025 12:01:25

Mode: channel 39

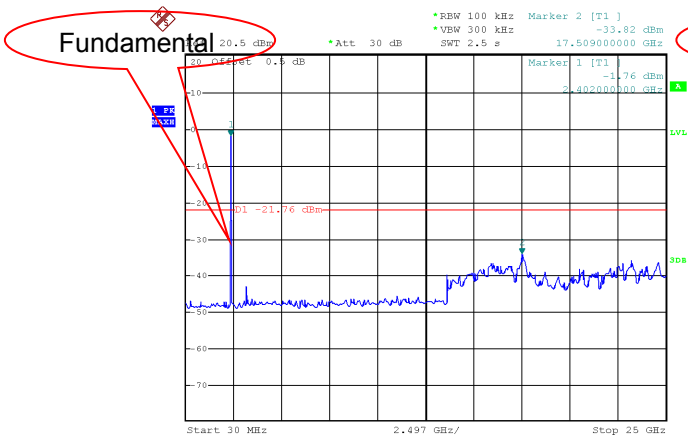


Date: 27.DEC.2025 12:01:45

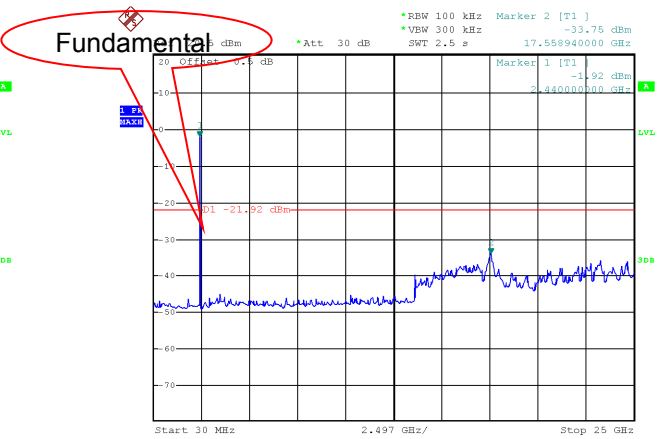
Above 30MHz

Mode: channel 0

Mode: channel 19

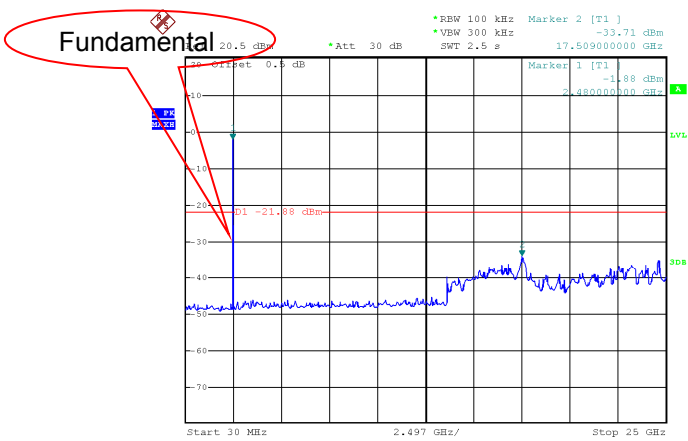


Date: 27.DEC.2025 10:18:35



Date: 27.DEC.2025 10:19:35

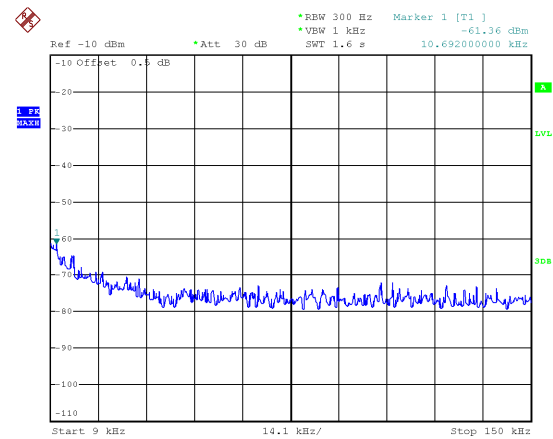
Mode: channel 39



Date: 27.DEC.2025 10:20:48

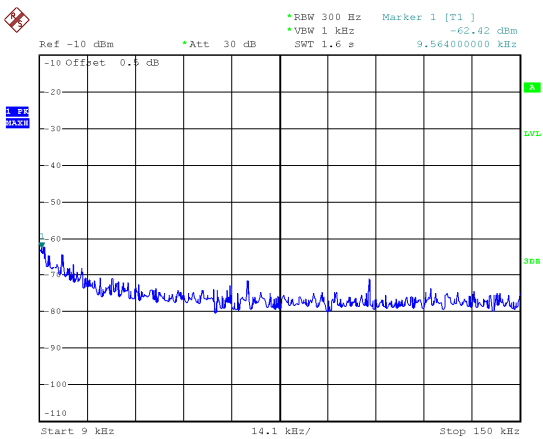
GFSK (BLE 2M):
9kHz – 150kHz

Mode: channel 0



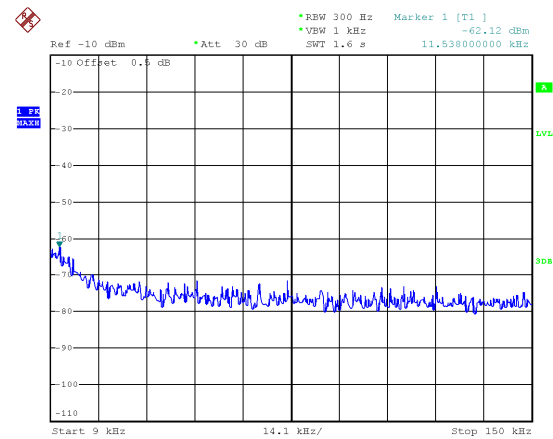
Date: 27.DEC.2025 11:59:06

Mode: channel 19



Date: 27.DEC.2025 11:59:30

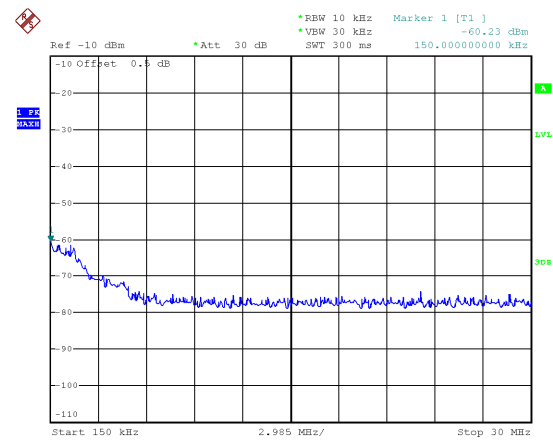
Mode: channel 39



Date: 27.DEC.2025 12:00:27

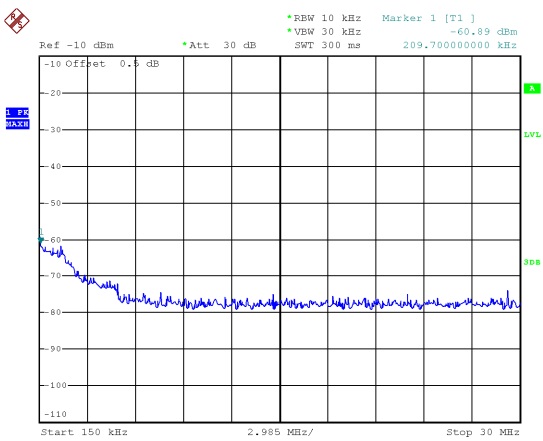
150kHz – 30MHz

Mode: channel 0



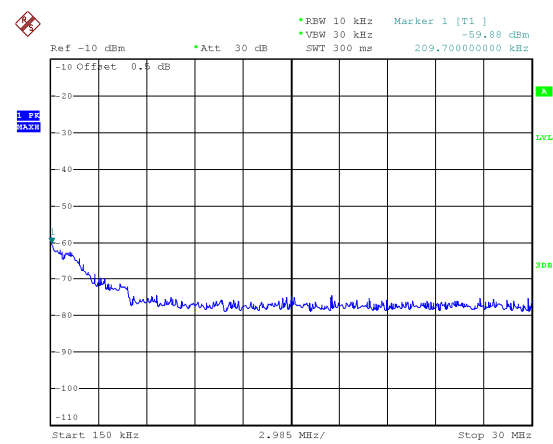
Date: 27.DEC.2025 12:02:04

Mode: channel 19



Date: 27.DEC.2025 12:02:19

Mode: channel 39

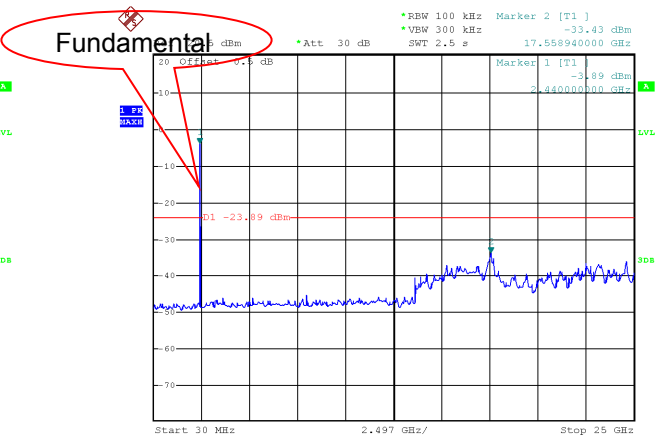
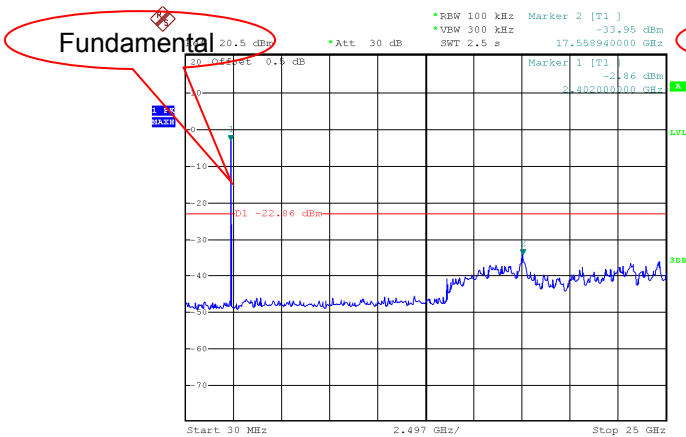


Date: 27.DEC.2025 12:02:43

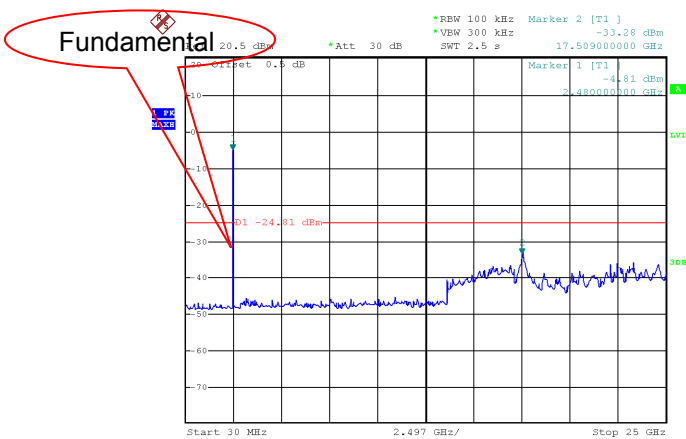
Above 30MHz

Mode: channel 0

Mode: channel 19



Mode: channel 39



11 Band Edge Measurement

Test Requirement: FCC 47CFR Part 15 Section 15.247

Test Method: KDB 558074 D01 15.247 Meas Guidance v05r02, April 2, 2019

Regulation 15.247 (d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Mode: Transmitting

11.1 Test Produce

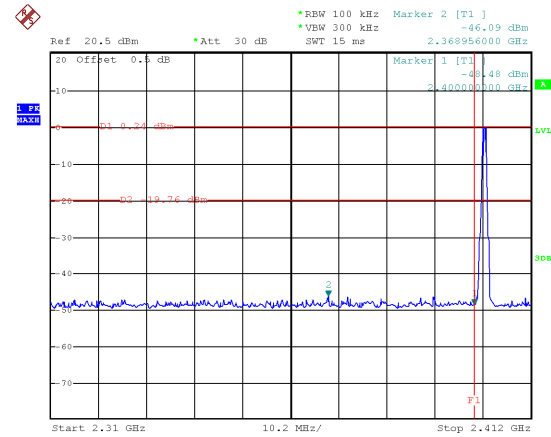
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

11.2 Test Result

Test result plots shown as follows:

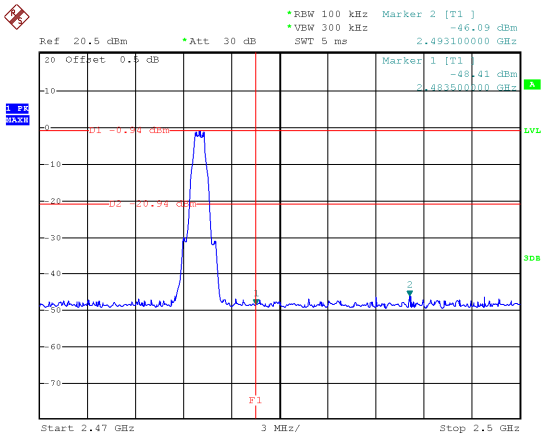
GFSK (BLE 1M):

BLE: Band edge-left side



Date: 27.DEC.2025 10:13:12

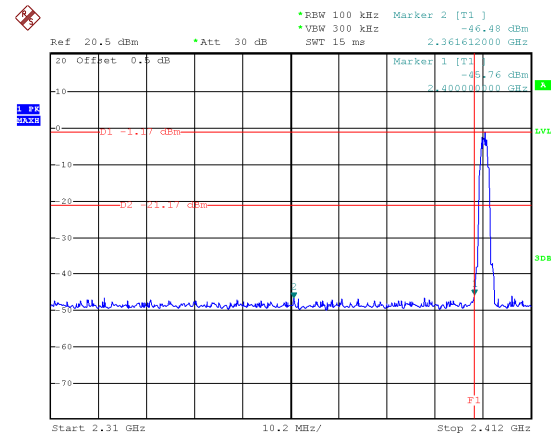
BLE: Band edge-right side



Date: 27.DEC.2025 10:15:56

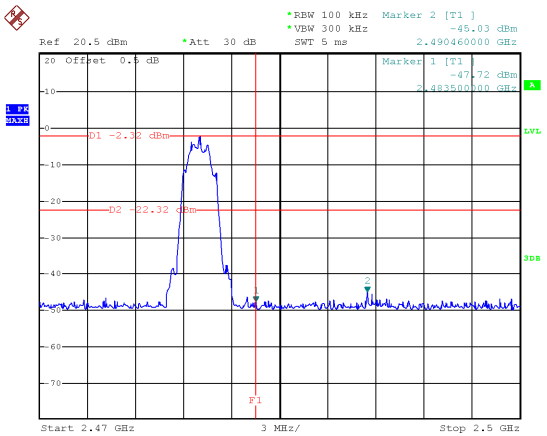
GFSK (BLE 2M):

BLE: Band edge-left side



Date: 27.DEC.2025 10:14:02

BLE: Band edge-right side



Date: 27.DEC.2025 10:16:59

12 6 dB Bandwidth Measurement

Test Requirement: FCC 47CFR Part 15 Section 15.247
 Test Method: ANSI C63.10-2020
 KDB 558074 D01 15.247 Meas Guidance v05r02, April 2, 2019
 Test Limit: §15.247(a)(2)
 Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
 Test Mode: Transmitting

12.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. 6dB Bandwidth Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

12.2 Test Result

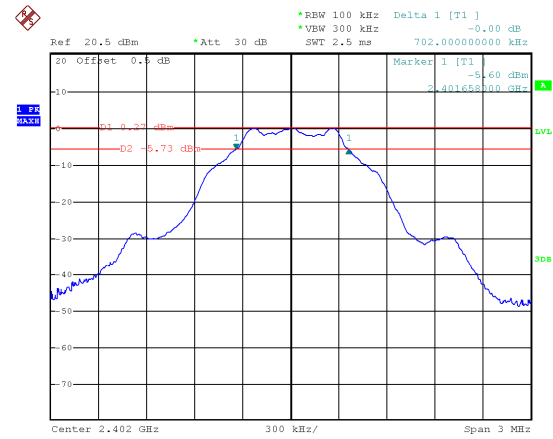
Operation mode	Test Channel	6dB Bandwidth (MHz)
GFSK (BLE 1M)	Channel 0	0.702
	Channel 19	0.708
	Channel 39	0.696
GFSK (BLE 2M)	Channel 0	1.368
	Channel 19	1.368
	Channel 39	1.368

Note: please refer to next page for test plot.

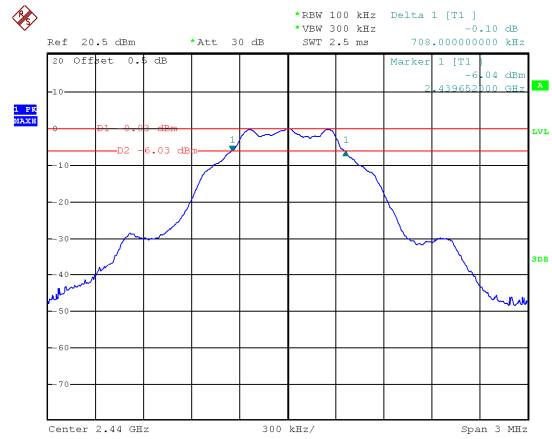
Test result plot:

GFSK (BLE 1M):

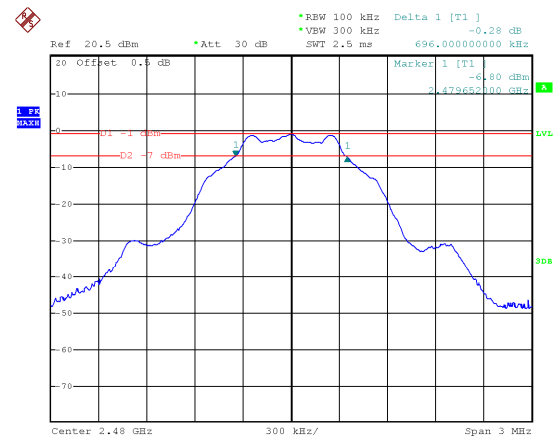
Mode: TX GFSK channel 0



Mode: TX GFSK channel 19

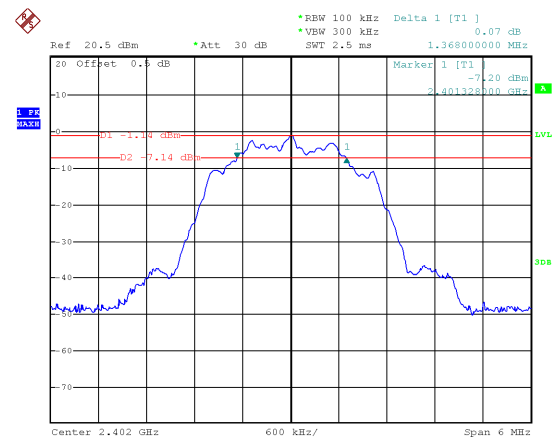


Mode: TX GFSK channel 39



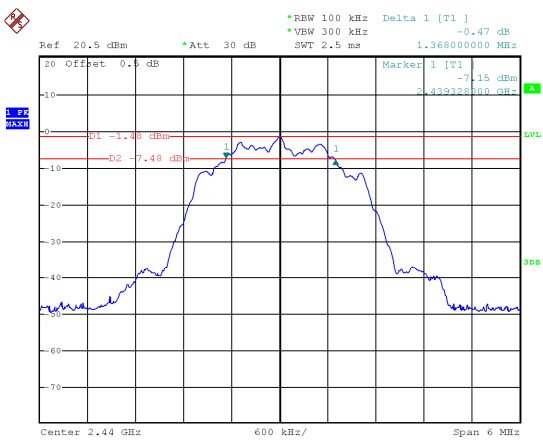
GFSK (BLE 2M):

Mode: TX GFSK channel 0



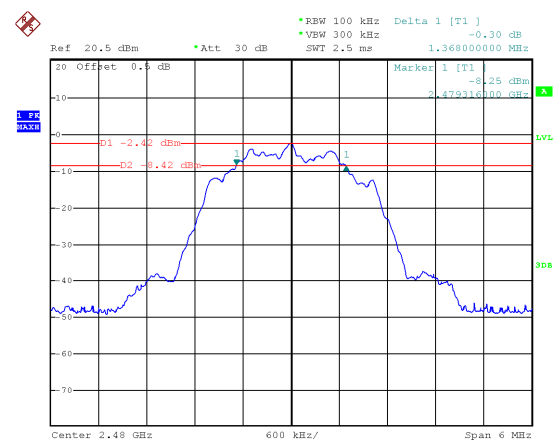
Date: 27.DEC.2025 09:57:30

Mode: TX GFSK channel 19



Date: 27.DEC.2025 09:58:51

Mode: TX GFSK channel 39



Date: 27.DEC.2025 10:00:47

13 Maximum Peak Output Power

Test Requirement:	FCC 47CFR Part 15 Section 15.247
Test Method:	ANSI C63.10-2020 KDB 558074 D01 15.247 Meas Guidance v05r02, April 2, 2019
Test Limit:	§15.247(b) The maximum peak conducted output power of the intentional radiator shall not exceed 1W.
Test Mode:	Transmitting

13.1 Test Procedure

According to KDB 558074 D01 15.247 Meas Guidance v05r02, April 2, 2019

Section 8.3.1.1 RBW $\geq$ DTS bandwidth

Subclause 11.9.1.1 of ANSI C63.10 is applicable.

Section 8.3.1.2 Integrated band power method

For measuring the output power of a device transmitting a wide-band noise-like signal where the peak power amplitude is a statistical parameter, the preferred methodology is to use an integrated average power measurement, as described in 8.3.2. The peak integrated band power method of 11.9.1 in ANSI C63.10 is not applicable.

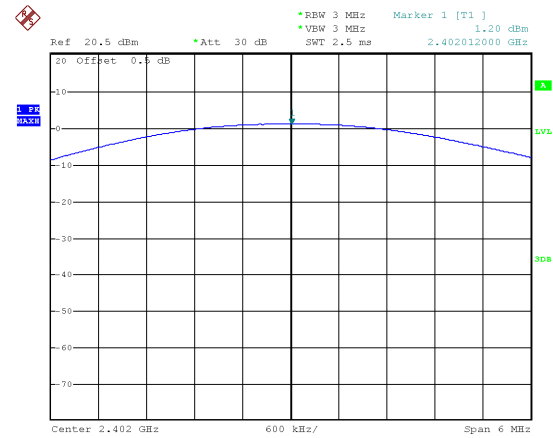
Subclause 11.9.2 of ANSI C63.10 is applicable.

13.2 Test Result

Operation mode	Channel Frequency (MHz)	Maximum Peak Output Power (dBm)	Limit
GFSK (BLE 1M)	Low-2402	1.20	1W/30dBm
	Middle-2440	0.90	1W/30dBm
	High-2480	-0.09	1W/30dBm
GFSK (BLE 2M)	Low-2402	1.27	1W/30dBm
	Middle-2440	0.93	1W/30dBm
	High-2480	-0.09	1W/30dBm

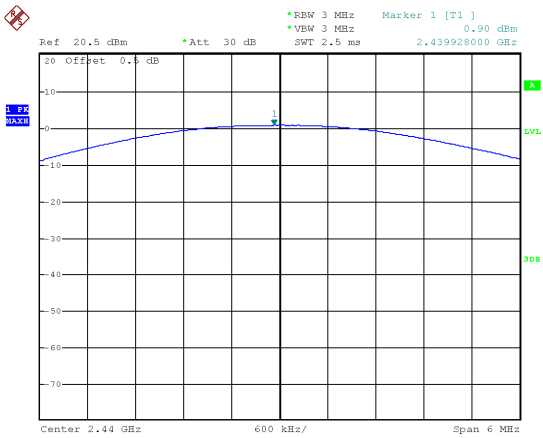
Test Plot
GFSK (BLE 1M):

Mode: TX GFSK channel 0



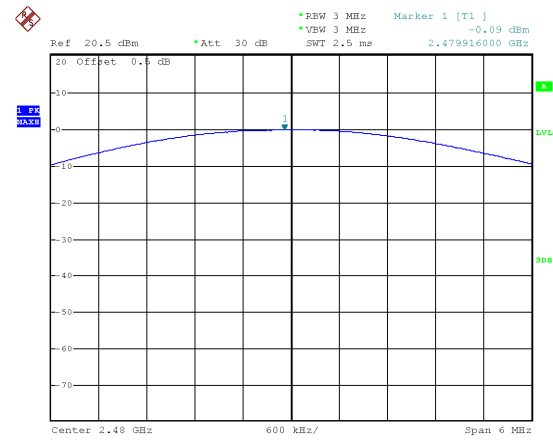
Date: 27.DEC.2025 09:43:12

Mode: TX GFSK channel 19



Date: 27.DEC.2025 09:43:42

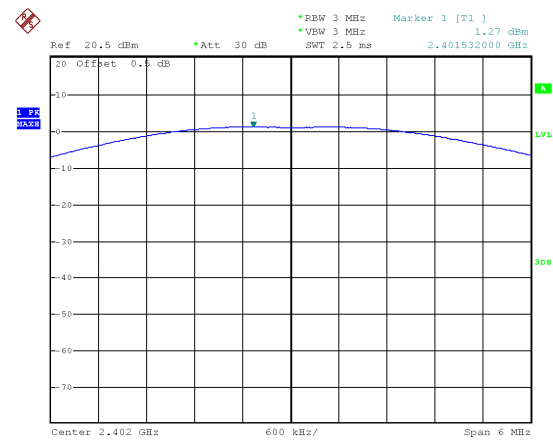
Mode: TX GFSK channel 39



Date: 27.DEC.2025 09:44:11

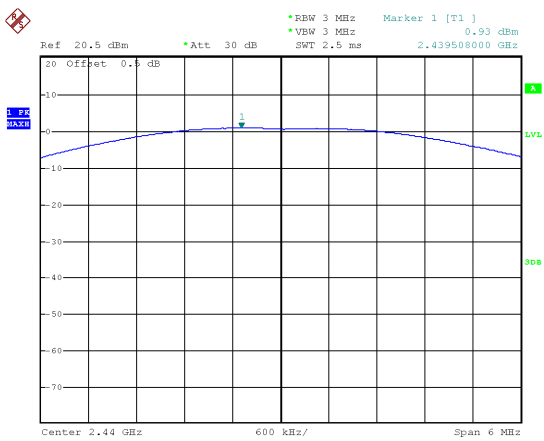
GFSK (BLE 2M):

Mode: TX GFSK channel 0



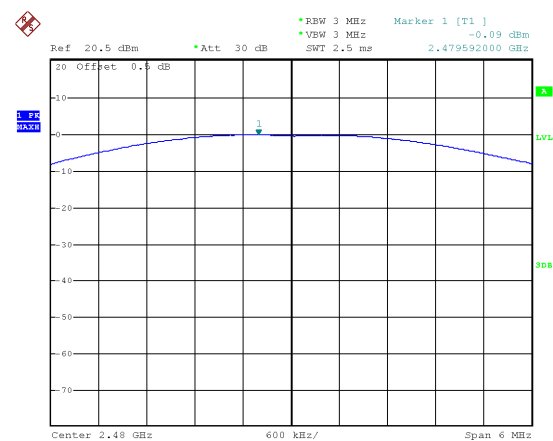
Date: 27.DEC.2025 09:45:03

Mode: TX GFSK channel 19



Date: 27.DEC.2025 09:45:40

Mode: TX GFSK channel 39



Date: 27.DEC.2025 09:46:08

14 Power Spectral Density

Test Requirement:	FCC 47CFR Part 15 Section 15.247
Test Method:	ANSI C63.10-2020 KDB 558074 D01 15.247 Meas Guidance v05r02, April 2, 2019
Test Limit:	§15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
Test Mode:	Transmitting

14.1 Test Procedure

According to KDB 558074 D01 15.247 Meas Guidance v05r02 April 2, 2019 section 8.4

Subclause 11.10 of ANSI C63.10 is applicable.

Choose the test procedure according to the product type

Peak PSD

Subclause 11.10.2 of ANSI C63.10 is applicable.

AVG PSD

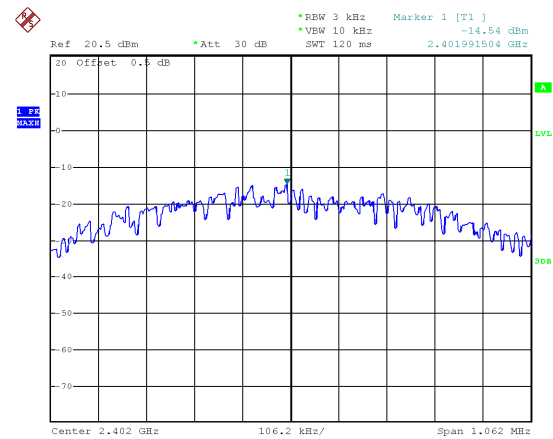
Subclause 11.10.3/4/5/6/7/8 of ANSI C63.10 is applicable.

14.2 Test Result

Operation mode	Channel Frequency (MHz)	Power Spectral (dBm per 3kHz)	Limit
GFSK (BLE 1M)	Low-2402	-14.54	8dBm per 3kHz
	Middle-2440	-14.83	8dBm per 3kHz
	High-2480	-15.77	8dBm per 3kHz
GFSK (BLE 2M)	Low-2402	-17.80	8dBm per 3kHz
	Middle-2440	-18.09	8dBm per 3kHz
	High-2480	-19.07	8dBm per 3kHz

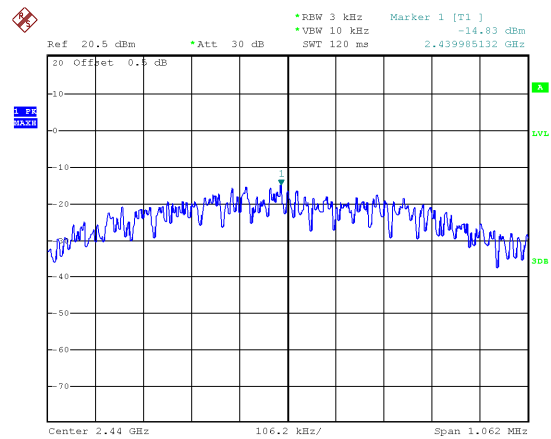
Test Plot
GFSK (BLE 1M):

Mode: TX GFSK channel 0



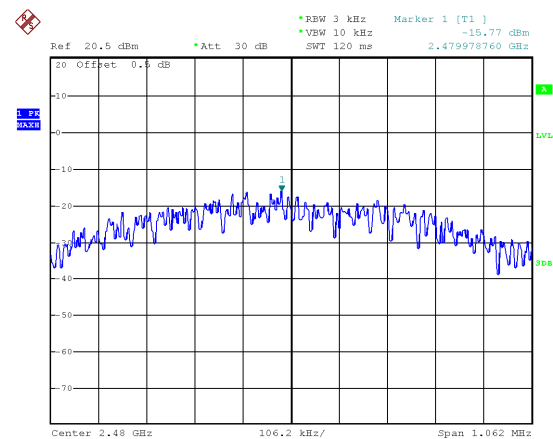
Date: 27.DEC.2025 10:02:47

Mode: TX GFSK channel 19



Date: 27.DEC.2025 10:03:17

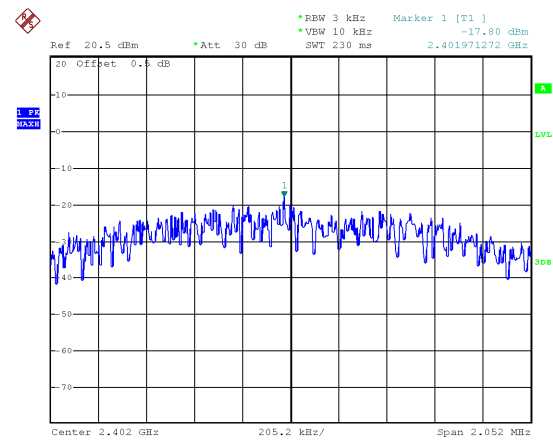
Mode: TX GFSK channel 39



Date: 27.DEC.2025 10:04:00

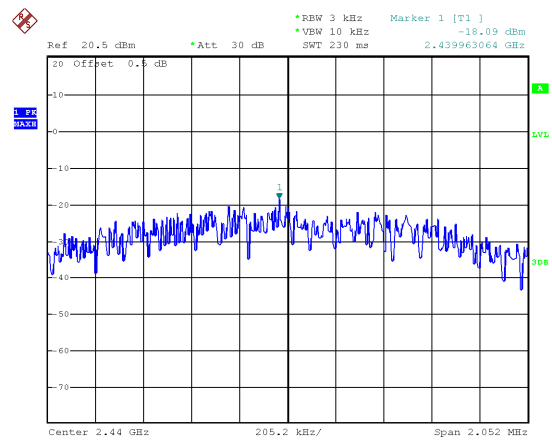
GFSK (BLE 2M):

Mode: TX GFSK channel 0



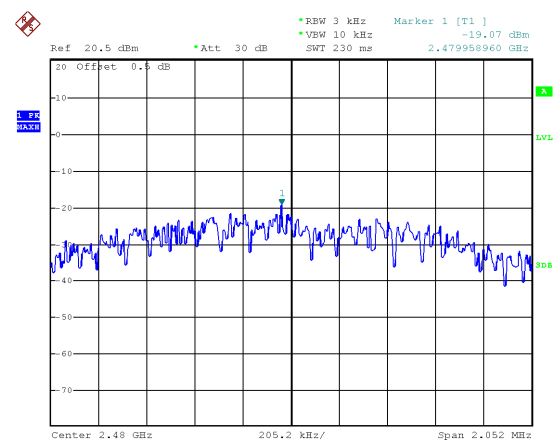
Date: 27.DEC.2025 10:04:47

Mode: TX GFSK channel 19



Date: 27.DEC.2025 10:07:06

Mode: TX GFSK channel 39



Date: 27.DEC.2025 10:07:27

15 Antenna Requirement

According to the FCC Part 15 Paragraph 15.203, 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. This product has a FPC Antenna fulfil the requirement of this section.

Note: Please refer to EUT photos for more details.

16 RF Exposure

Remark: Please refer to MPE test report: WTD25D11316003W007.

17 Photographs of test setup and EUT.

Note: Please refer to appendix: Appendix-SyBran-01-Photos.

=====End of Report=====