



FCC REPORT

Applicant	:	Zhongshan City EOS Secure Technology Co., Ltd
Address of Applicant	:	No.29 Ronghua South Road, Xiaolan Town, Zhongshan City 528415, Guangdong, China
Manufacturer	:	Zhongshan City EOS Secure Technology Co., Ltd
Address of Manufacturer	:	No.29 Ronghua South Road, Xiaolan Town, Zhongshan City 528415, Guangdong, China
Equipment under Test	:	Smart Lock
Model No.	:	D2
FCC ID	:	2BL7O-D2
Test Standard(s)	:	FCC Rules and Regulations Part 15 Subpart C Section 15.247, ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024
Report No.	:	A2512096-C02-R01
Issue Date	:	2025/12/30
Issued By	:	Shenzhen Alpha Product Testing Co., Ltd. Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen City, Guangdong Province, P.R. China.

Table of Contents

1.	Summary of Test Results	7
2.	General Test Information.....	8
2.1.	Description of EUT.....	8
2.2.	Accessories of EUT	9
2.3.	Block diagram of EUT configuration for test.....	9
2.4.	Test mode description	9
2.5.	Deviations of test standard	9
2.6.	Test environment conditions.....	9
2.7.	Test laboratory	10
2.8.	Measurement uncertainty	10
3.	Spurious Emission	11
3.1.	Test equipment	11
3.2.	Block diagram of test setup	11
3.3.	Limits.....	12
3.4.	Assistant equipment used for test	13
3.5.	Test procedure	13
3.6.	Test result	14
3.7.	Test data	15
4.	RF Conducted Spurious Emissions.....	18
4.1.	Test equipment	18
4.2.	Block diagram of test setup	18
4.3.	Limits.....	18
4.4.	Assistant equipment used for test	19
4.5.	Test procedure	19
4.6.	Test result	19
5.	Power Line Conducted Emissions.....	20
5.1.	Test equipment	20
5.2.	Block diagram of test setup	20
5.3.	Limits.....	20
5.4.	Assistant equipment used for test	20
5.5.	Test procedure	20
5.6.	Test result	21
6.	Maximum Conducted Output Power	22
6.1.	Test equipment	22
6.2.	Block diagram of test setup	22
6.3.	Limits.....	22

6.4.	Assistant equipment used for test	22
6.5.	Test procedure	22
6.6.	Test result	22
7.	Maximum Power Spectral Density Level	24
7.1.	Test equipment	24
7.2.	Block diagram of test setup	24
7.3.	Limits	24
7.4.	Assistant equipment used for test	24
7.5.	Test procedure	24
7.6.	Test result	25
8.	-6 dB Bandwidth and 99% Bandwidth	26
8.1.	Test equipment	26
8.2.	Block diagram of test setup	26
8.3.	Limits	26
8.4.	Assistant equipment used for test	26
8.5.	Test procedure	26
8.6.	Test result	27
9.	Band Edge(Conducted)	28
9.1.	Test equipment	28
9.2.	Block diagram of test setup	28
9.3.	Limits	28
9.4.	Assistant equipment used for test	28
9.5.	Test procedure	28
9.6.	Test result	28
10.	Band Edge(Radiated)	30
10.1.	Test equipment	30
10.2.	Block diagram of test setup	30
10.3.	Limits	30
10.4.	Assistant equipment used for test	30
10.5.	Test procedure	31
10.6.	Test result	31
10.7.	Test data	31
11.	Antenna Requirement	32
11.1.	Test equipment	32
11.2.	Block diagram of test setup	32
11.3.	Limits	32
11.4.	Assistant equipment used for test	32
11.5.	Test procedure	32

11.6. Test result 32

12. Test Setup Photograph..... 34

13. Photos of the EUT 35

14. Annex..... 39

Test Report Declare

Applicant	:	Zhongshan City EOS Secure Technology Co., Ltd
Address of Applicant	:	No.29 Ronghua South Road, Xiaolan Town, Zhongshan City 528415, Guangdong, China
Manufacturer	:	Zhongshan City EOS Secure Technology Co., Ltd
Address of Manufacturer	:	No.29 Ronghua South Road, Xiaolan Town, Zhongshan City 528415, Guangdong, China
Equipment under Test	:	Smart Lock
Model No.	:	D2
Trademark	:	/

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247, ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024

We Declare:

The equipment described above is tested by Shenzhen Alpha Product Testing Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

Report No.:	A2512096-C02-R01		
Date of Receipt:	2025/10/16	Date of Test:	2025/10/16 - 2025/12/26

Prepared By:

Approved By:

Yannis Wen

Yannis Wen/Engineer

«issueByNameEn»/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
V0	Initial issue	2025/12/30	Yannis Wen

1. Summary of Test Results

No.	Test Parameter	Clause No.	Result
1	Spurious Emission	FCC Part 15: 15.209, FCC Part 15: 15.247(d), ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024	Pass
2	RF Conducted Spurious Emissions	FCC Part 15: 15.247(d), ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024	Pass
3	Power Line Conducted Emissions	FCC Part 15: 15.207, ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024	Pass
4	Maximum Conducted Output Power	FCC Part 15: 15.247(b)(3), ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024	Pass
5	Maximum Power Spectral Density Level	FCC PART 15:15.247(e), ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024	Pass
6	-6 dB Bandwidth and 99% Bandwidth	FCC PART 15:15.247(a)(2), ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024	Pass
7	Band Edge(Conducted)	FCC Part 15: 15.247(d), ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024	Pass
8	Band Edge(Radiated)	FCC Part 15: 15.247(d), ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024	Pass
9	Antenna Requirement	FCC Part 15: 15.203	Pass

Note: 1.N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device or no need to test according to standard.

2. Decision rules for the conclusion of this test report: decision by actual test data without considering measurement uncertainty.

2. General Test Information

2.1. Description of EUT

EUT Name	: Smart Lock
Model Number	: D2
Difference of model number	: /
Power Supply	: DC 9V from battery
Hardware Version	: /
Software Version	: /

Radio Specification	: Bluetooth LE
Operation Frequency	: 2402 MHz to 2480 MHz
Modulation	: GFSK
Data Rate	: 1Mbps
Antenna Type	: PCB Antenna
Max Antenna Gain(dBi)	: 1.78dBi(Antenna information is provided by applicant.)

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

Note: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

“☒” means to be chosen or applicable; “☐” means don't to be chosen or not applicable; This note applies to entire report.

2.2. Accessories of EUT

Accessories	Manufacturer	Model number	Description
/	/	/	/

2.3. Block diagram of EUT configuration for test

Conducted Test Setup



Radiated Test Setup



2.4. Test mode description

The test software “sscom4.2” was used to control EUT work in Continuous Bluetooth TX mode, and select test channel, default power level, wireless mode.

Mode	Channel	Frequency (MHz)
GFSK(1Mbps) Mode	Low : CH0	2402
	Middle: CH19	2440
	High: CH39	2480

2.5. Deviations of test standard

No deviation.

2.6. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Items	Required
Temperature range:	15-35°C
Humidity range:	25-75%
Pressure range:	86-106kPa

Note: The specific temperature and humidity information of each test item refers to the temperature

and humidity record in the corresponding test data.

2.7. Test laboratory

Shenzhen Alpha Product Testing Co., Ltd.

Add.: Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen City, Guangdong Province, P.R. China.

Tel.: 4008-3008-95, Website: <http://www.a-lab.cn>, Email: service@a-lab.cn

2.8. Measurement uncertainty

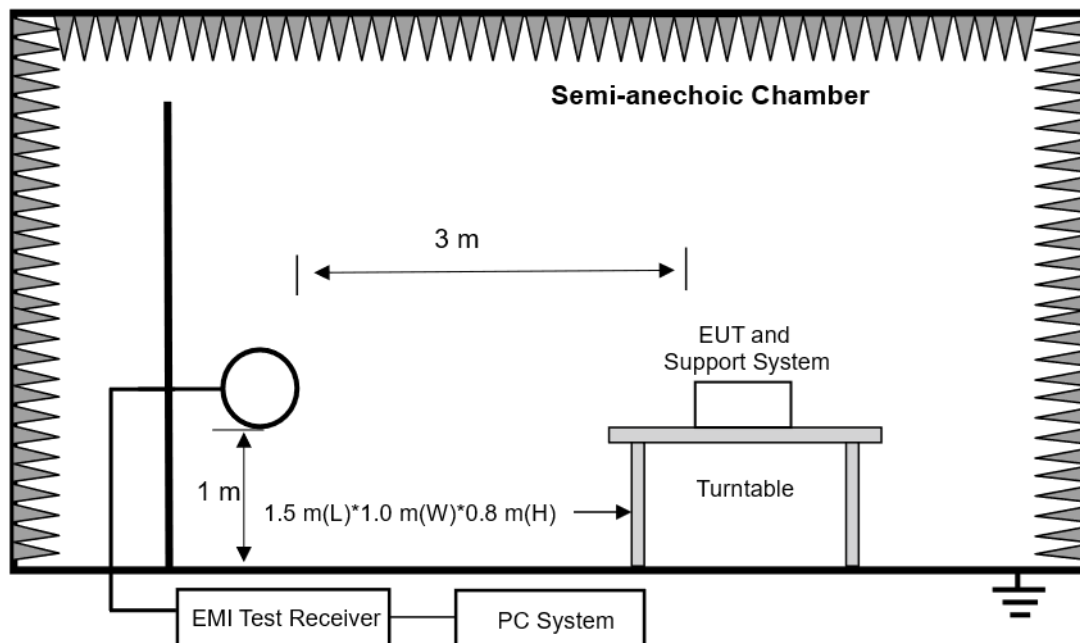
Item	Uncertainty
Uncertainty for Power point Conducted Emissions Test	1.63dB
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	3.5dB
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.74dB(Polarize: V)
	3.76dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	3.77dB(Polarize: V)
	3.80dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (18GHz to 40GHz)	4.31 dB(Polarize: V)
	4.30 dB(Polarize: H)
Uncertainty for radio frequency	5.06×10^{-8} GHz
Uncertainty for conducted RF Power	0.40dB
Uncertainty for temperature	0.2°C
Uncertainty for humidity	1%
Uncertainty for DC and low frequency voltages	0.06%

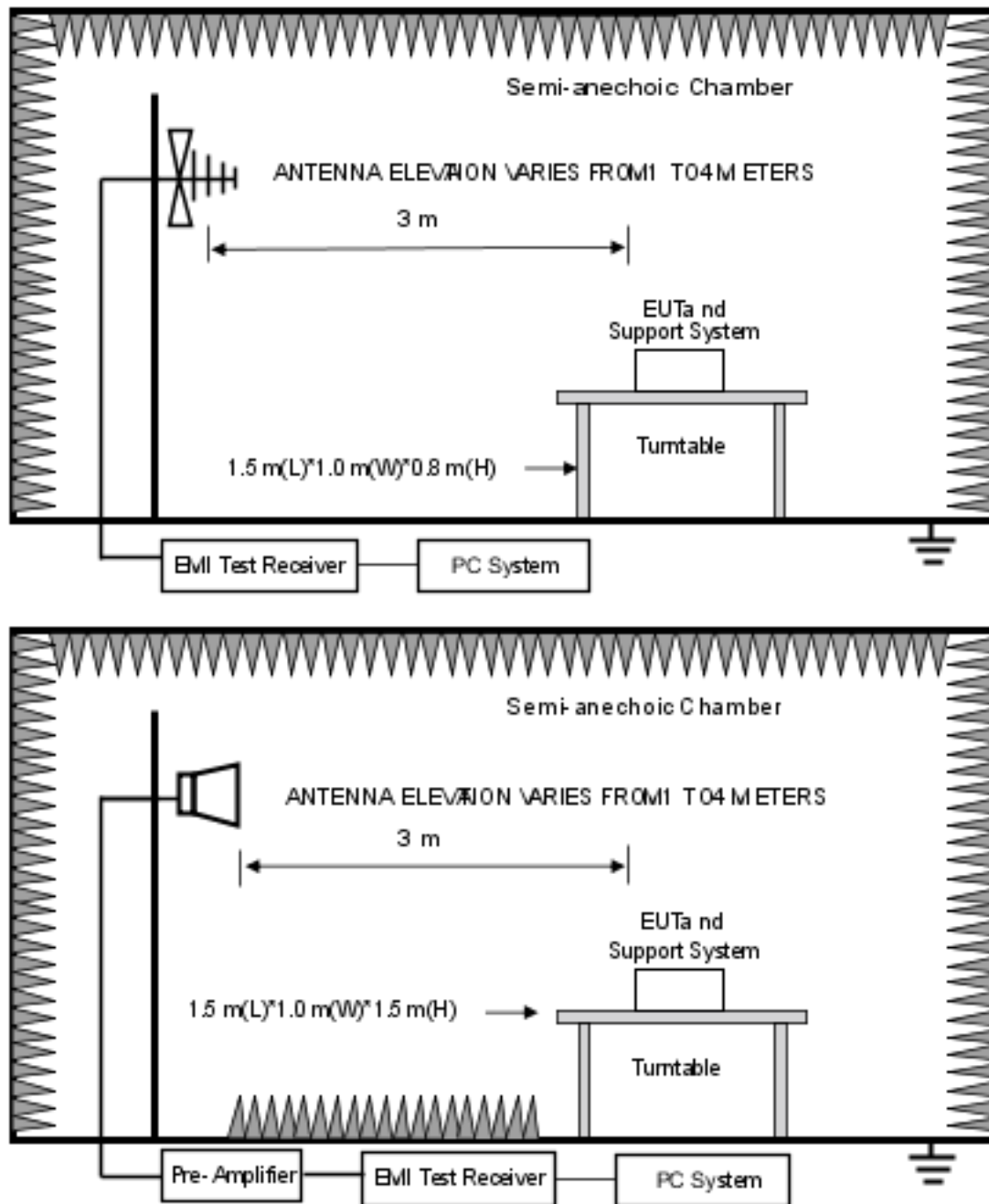
3. Spurious Emission

3.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
Spectrum analyzer	ROHDE&SCHWARZ	FSU	Aa-EE075	2025/08/04	2026/08/03
Horn Antenna	SCHWARZBECK	BBHA 9120 D	Aa-EE076	2025/08/11	2027/08/10
Test Receiver	ROHDE&SCHWARZ	ESR	Aa-EE048	2025/08/04	2026/08/03
Bilog Antenna	SCHWARZBECK	VULB 9168	Aa-EE001	2025/08/11	2027/08/10
Amplifier	SKET	LNPA_0118G-45	Aa-EE087	2025/08/04	2026/08/03
Horn Antenna	SCHWARZBECK	BBHA 9170	Aa-EE077	2025/08/11	2027/08/10
Loop Antenna	SCHWARZBECK	FMZB 1519B	Aa-EE074	2025/08/11	2027/08/10

3.2. Block diagram of test setup





3.3. Limits

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

(1) FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5

4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

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

²Above 38.6

(2) FCC 15.209 Limit

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

Note: Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

3.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

3.5. Test procedure

The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz, The EUT was placed on a rotating 0.8 m high above ground for below 1GHz and 1.5m high for above 1GHz testing, The table was rotated 360 degrees to determine the position of the highest radiation

The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set of make measurement.

The initial step in collecting conducted emission data is a spectrum analyzer Peak detector mode pre-scanning the measurement frequency range. Significant Peaks are then marked. and then Qusia Peak Detector mode premeasured

If Peak value comply with QP limit Below 1GHz.The EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.

For the actual test configuration, please see the test setup photo.

3.6. Test result

Test Site: Chamber 1#(RSE)	Test Date: 2025/12/16--2025/12/16
Condition: 24°C,55%RH,101kPa	Test Engineer: Yannis Wen
Memo: Only show the test data of the worst case.	

EUT Name: Smart Lock	EUT Model: D2
Sample No.: A2512096-S0001	Test Mode: GFSK(1Mbps) Mode
Power supply: DC 9V from battery	Memo: /

Test Condition

Continual Transmitting in maximum power.

9KHz~150KHz	RBW200Hz	VBW1KHz
150KHz~30MHz	RBW9KHz	VBW 30KHz
30MHz~1GHz	RBW120KHz	VBW 300KHz
Above1GHz	RBW1MHz	VBW 3MHz

We have scanned the 10th harmonic from 9 kHz to the EUT.

Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: PASS

Note: 1.The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

2. Only show the test data of the worst Channel in this report.

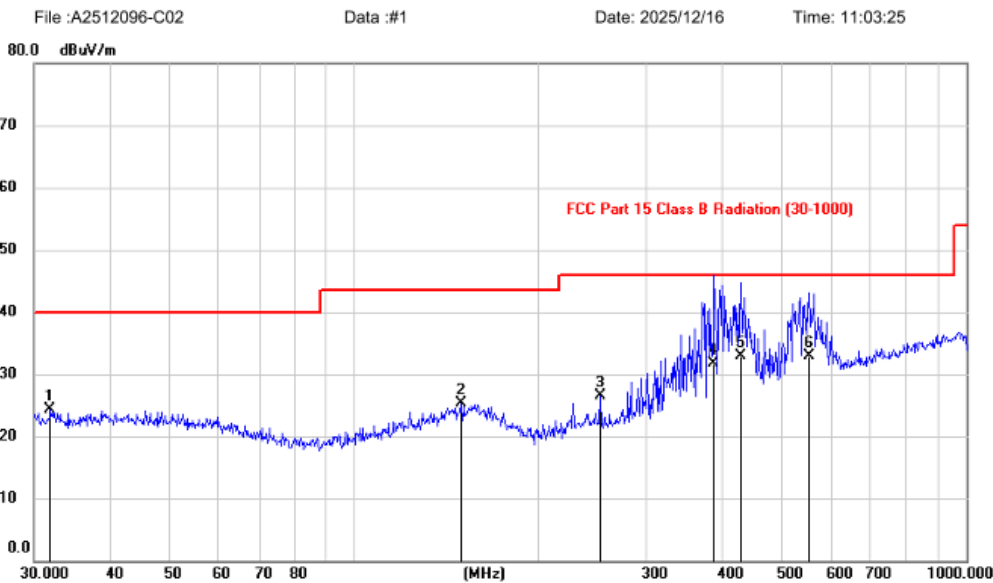
3.7. Test data



深圳阿尔法商品检验有限公司 深圳阿尔法商品检验有限公司
SHENZHEN ALPHA PRODUCT TESTING CO.,LTD. Shenzhen Alpha Product Testing Co.,Ltd.
地址: ALPHA 广东省深圳市宝安区福永街道立新路 2 号 i 栋
TEL: 4008-3008-95

Site LAB 966 Chamber 1 Polarization: Vertical Temperature: 24.0
Limit: FCC Part 15 Class B Radiation (30-1000) Power: DC 9V From Battery Humidity: 55 %
EUT/Task No : A2512096-C02 Distance: 3m
M/N/Sample No: A2512096-S0001
Mode : Mode 1
Note:
Engineer Signature: *Yanmi3 wen*

Radiated Emission Measurement



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table	
		MHz	dBuV	Factor	ment			Height	Degree	
				dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		31.8464	10.61	13.60	24.21	40.00	-15.79	peak		
2		149.9232	10.18	15.06	25.24	43.50	-18.26	peak		
3		252.2986	13.71	12.82	26.53	46.00	-19.47	peak		
4		388.9435	15.74	16.06	31.80	46.00	-14.20	QP		
5	*	429.3722	15.86	17.05	32.91	46.00	-13.09	QP		
6		554.2421	13.57	19.27	32.84	46.00	-13.16	QP		

Note: 1. *:Maximum data; x:Over limit; !:over margin.
2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

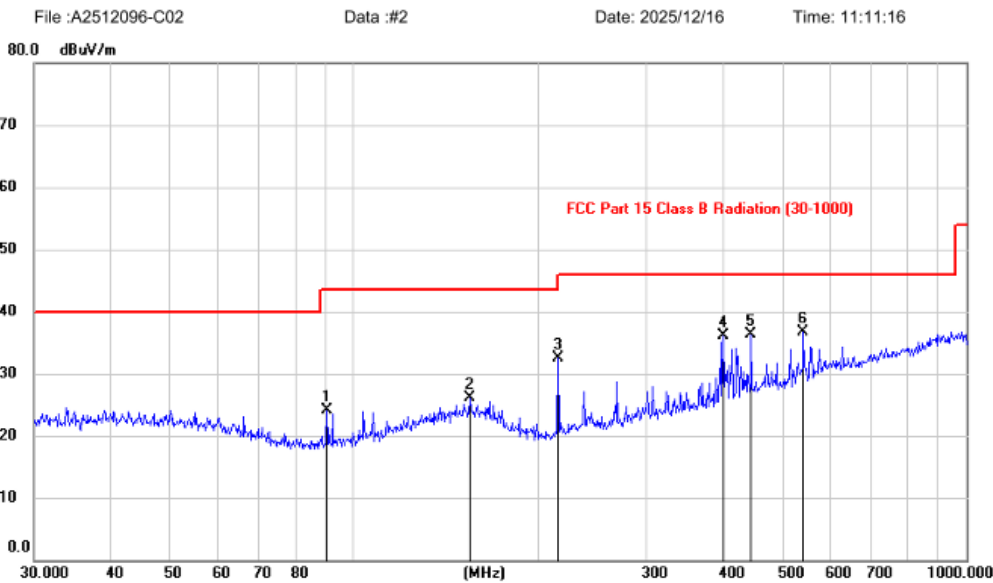


深圳阿尔法商品检验有限公司 深圳阿尔法商品检验有限公司
SHENZHEN ALPHA PRODUCT TESTING CO.,LTD. Shenzhen Alpha Product Testing Co.,Ltd.

地址: ALPHA 广东省深圳市宝安区福永街道立新路 2 号 i 栋
TEL: 4008-3008-95

Site LAB 966 Chamber 1	Polarization: Horizontal	Temperature: 24.0
Limit: FCC Part 15 Class B Radiation (30-1000)	Power: DC 9V From Battery	Humidity: 55 %
EUT/Task No : A2512096-C02	Distance: 3m	
M/N/Sample No: A2512096-S0001		
Mode : Mode 1		
Note:		
Engineer Signature: <i>Yanni's wen</i>		

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		90.3894	13.93	10.09	24.02	43.50	-19.48	peak		
2		154.5854	10.98	15.05	26.03	43.50	-17.47	peak		
3		215.9735	20.96	11.47	32.43	43.50	-11.07	peak		
4		400.9939	19.90	16.26	36.16	46.00	-9.84	peak		
5		445.1635	18.90	17.45	36.35	46.00	-9.65	peak		
6	*	541.4991	17.57	19.05	36.62	46.00	-9.38	peak		

Note: 1. *:Maximum data; x:Over limit; !:over margin.
2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

From 1G-25GHz

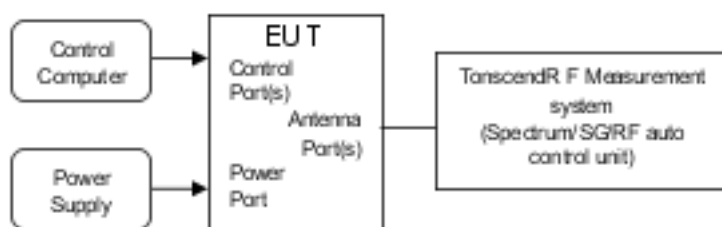
Test Mode: GFSK 1Mbps TX Low									
Freq (MHz)	Read Level (dBuV/m)	Polar (H/V)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804	42.15	V	33.95	10.18	34.26	52.02	74	-21.98	PK
4804	35.46	V	33.95	10.18	34.26	45.33	54	-8.67	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
4804	43.24	H	33.95	10.18	34.26	53.11	74	-20.89	PK
4804	35.64	H	33.95	10.18	34.26	45.51	54	-8.49	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
Test Mode: GFSK 1Mbps TX Mid									
4880	43.40	V	33.93	10.2	34.29	53.24	74	-20.76	PK
4880	36.51	V	33.93	10.2	34.29	46.35	54	-7.65	AV
7320	/	/	/	/	/	/	/	/	/
9760	/	/	/	/	/	/	/	/	/
4880	43.87	H	33.93	10.2	34.29	53.71	74	-20.29	PK
4880	34.89	H	33.93	10.2	34.29	44.73	54	-9.27	AV
7320	/	/	/	/	/	/	/	/	/
9760	/	/	/	/	/	/	/	/	/
Test Mode: GFSK 1Mbps TX High									
4960	46.66	V	33.98	10.22	34.25	56.61	74	-17.39	PK
4960	36.02	V	33.98	10.22	34.25	45.97	54	-8.03	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
4960	45.13	H	33.98	10.22	34.25	55.08	74	-18.92	PK
4960	37.06	H	33.98	10.22	34.25	47.01	54	-6.99	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
Note:									
1, Result = Read level + Antenna factor + cable loss-Amp factor									
2, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

4. RF Conducted Spurious Emissions

4.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCH WARZ	CMW500	Aa-EE073	2025/08/04	2026/08/03
Spectrum analyzer	ROHDE&SCH WARZ	FSV40-N	Aa-EE081	2025/08/04	2026/08/03
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE071	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE070	2025/08/04	2026/08/03
Power meter	Agilent	E4419B	Aa-EE045	2025/08/04	2026/08/03

4.2. Block diagram of test setup



4.3. Limits

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 20dB.

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)).

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

(1) FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5

4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

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

²Above 38.6

4.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

4.5. Test procedure

The test receiver set RBW = 100kHz, VBW≥3*RBW =300kHz, sweep time set auto, detail see the test plot

4.6. Test result

Test Site: RF Laboratory	Test Date: 2025/12/23--2025/12/26
Condition: 24.2°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Smart Lock	EUT Model: D2
Sample No.: A2512096-S0001	Test Mode: GFSK(1Mbps) Mode
Power supply: DC 9V from battery	Memo: Please refer to the Conducted RF Spurious Emission of Annex

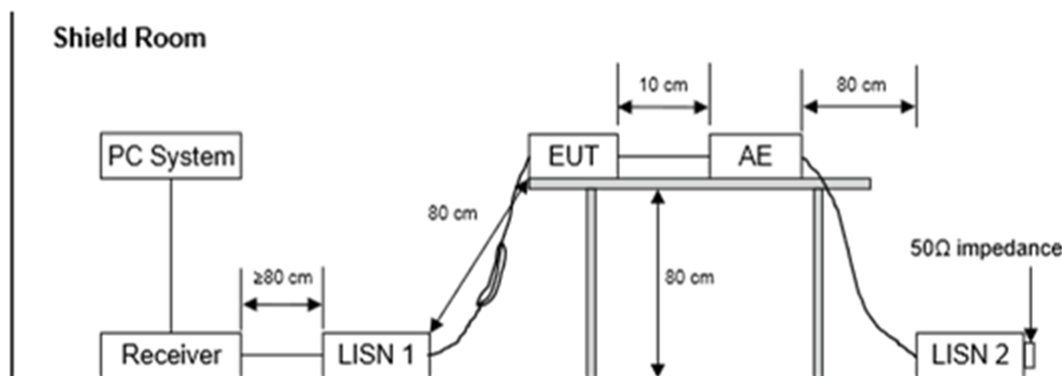
/

5. Power Line Conducted Emissions

5.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
Test Receiver	ROHDE&SCHWARZ	ESCI	Aa-EE005	2025/08/04	2026/08/03
Pulse Limiter	SCHWARZBEC K	9516F	Aa-EE004	2025/08/04	2026/08/03
L.I.S.N.	SCHWARZBEC K	NSLK8126	Aa-EE003	2025/08/04	2026/08/03

5.2. Block diagram of test setup



5.3. Limits

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150 kHz~500 kHz	66 ~ 56*	56 ~ 46*
500 kHz~5 MHz	56	46
5 MHz~30 MHz	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3. The limit decreases in line with the logarithm of the frequency in rang of 0.15 to 0.50 MH

5.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

5.5. Test procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 + Errata to C63.10a-2024 on Conducted Emission Measurement.

The bandwidth of test receiver is set at 9 kHz.

5.6. Test result

Test Site: Shield Room CE 1#	Test Date: 2025/12/16--2025/12/16
Condition: 24.3°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Smart Lock	EUT Model: D2
Sample No.: A2512096-S0001	Test Mode: /
Power supply: /	Memo: EUT power supply by battery, so the test not applicable.

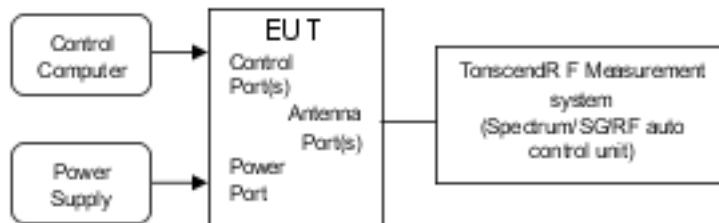
/

6. Maximum Conducted Output Power

6.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCH WARZ	CMW500	Aa-EE073	2025/08/04	2026/08/03
Spectrum analyzer	ROHDE&SCH WARZ	FSV40-N	Aa-EE081	2025/08/04	2026/08/03
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE071	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE070	2025/08/04	2026/08/03
Power meter	Agilent	E4419B	Aa-EE045	2025/08/04	2026/08/03

6.2. Block diagram of test setup



6.3. Limits

Please refer section 15.247.

6.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

6.5. Test procedure

Details see the KDB 558074 D01 15.247 Meas Guidance v05r02

5.2.1 Place the EUT on the table and set it in transmitting mode.

5.2.2 Measure out each mode and each bands peak output power of EUT.

Note: The cable loss and attenuator loss were offset into measure device as amplitude offset.

6.6. Test result

Test Site: RF Laboratory	Test Date: 2025/12/23--2025/12/26
Condition: 24.2°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Smart Lock	EUT Model: D2
----------------------	---------------

Sample No.: A2512096-S0001	Test Mode: GFSK(1Mbps) Mode
Power supply: DC 9V from battery	Memo: Please refer to Maximum Conducted Output Power&Duty Cycle of Annex.

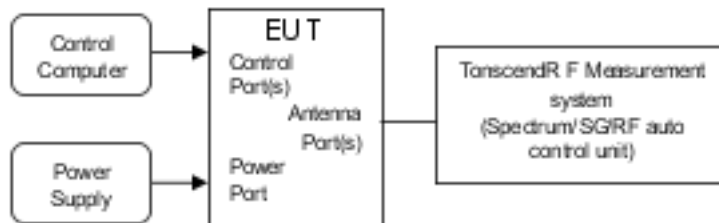
/

7. Maximum Power Spectral Density Level

7.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCH WARZ	CMW500	Aa-EE073	2025/08/04	2026/08/03
Spectrum analyzer	ROHDE&SCH WARZ	FSV40-N	Aa-EE081	2025/08/04	2026/08/03
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE071	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE070	2025/08/04	2026/08/03
Power meter	Agilent	E4419B	Aa-EE045	2025/08/04	2026/08/03

7.2. Block diagram of test setup



7.3. Limits

Please refer section 15.247.

For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

7.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

7.5. Test procedure

Details see the KDB 558074 D01 15.247 Meas Guidance v05r02

Place the EUT on the table and set it in transmitting mode.

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

Set the spectrum analyzer as RBW = 3kHz(Set the RBW to: 3 kHz≤RBW≤100 kHz.), VBW = 10kHz(Set the VBW≥3×RBW), span=1.5×DTS bandwidth., detail see the test plot.

Record the max reading.

Repeat the above procedure until the measurements for all frequencies are completed.

7.6. Test result

Test Site: RF Laboratory	Test Date: 2025/12/23--2025/12/26
Condition: 24.2°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Smart Lock	EUT Model: D2
Sample No.: A2512096-S0001	Test Mode: GFSK(1Mbps) Mode
Power supply: DC 9V from battery	Memo: Please refer to Maximum Power Spectral Density Level of Annex.

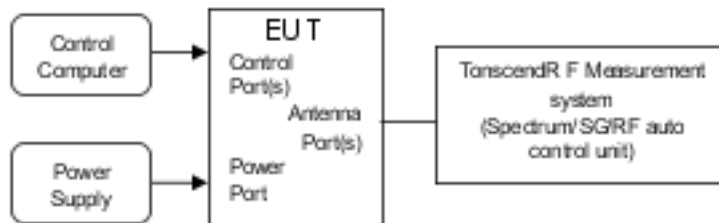
/

8. -6 dB Bandwidth and 99% Bandwidth

8.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCH WARZ	CMW500	Aa-EE073	2025/08/04	2026/08/03
Spectrum analyzer	ROHDE&SCH WARZ	FSV40-N	Aa-EE081	2025/08/04	2026/08/03
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE071	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE070	2025/08/04	2026/08/03
Power meter	Agilent	E4419B	Aa-EE045	2025/08/04	2026/08/03

8.2. Block diagram of test setup



8.3. Limits

Please refer section 15.247

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500 kHz.

8.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

8.5. Test procedure

Details see the KDB 558074 D01 15.247 Meas Guidance v05r02

- The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.
- The test receiver set RBW = 100kHz, VBW $\geq$ 3*RBW =300kHz, sweep time set auto, detail see the test plot.

8.6. Test result

Test Site: RF Laboratory	Test Date: 2025/12/23--2025/12/26
Condition: 24.2°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Smart Lock	EUT Model: D2
Sample No.: A2512096-S0001	Test Mode: GFSK(1Mbps) TX Mode
Power supply: DC 9V from battery	Memo: Please refer to -6dB Bandwidth&Occupied Channel Bandwidth of Annex.

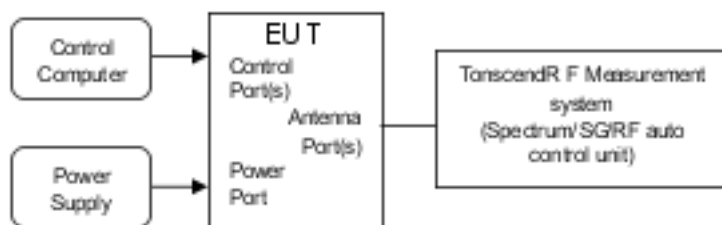
/

9. Band Edge(Conducted)

9.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCH WARZ	CMW500	Aa-EE073	2025/08/04	2026/08/03
Spectrum analyzer	ROHDE&SCH WARZ	FSV40-N	Aa-EE081	2025/08/04	2026/08/03
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE071	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE070	2025/08/04	2026/08/03
Power meter	Agilent	E4419B	Aa-EE045	2025/08/04	2026/08/03

9.2. Block diagram of test setup



9.3. Limits

Please refer section 15.247.

9.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

9.5. Test procedure

Details see the KDB 558074 D01 15.247 Meas Guidance v05r02

- Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission
- Check the spurious emissions out of band.
- RBW 1MHz, VBW 3MHz, peak detector for peak value, RBW 1MHz, VBW 3MHz, RMS detector for AV value.

9.6. Test result

Test Site: RF Laboratory	Test Date: 2025/12/23--2025/12/26
Condition: 24.2°C,56%RH,101kPa	Test Engineer: Yannis Wen

Memo: /

EUT Name: Smart Lock	EUT Model: D2
Sample No.: A2512096-S0001	Test Mode: GFSK(1Mbps) Mode-L/H
Power supply: DC 9V from battery	Memo: Please refer to Band Edge of Annex.

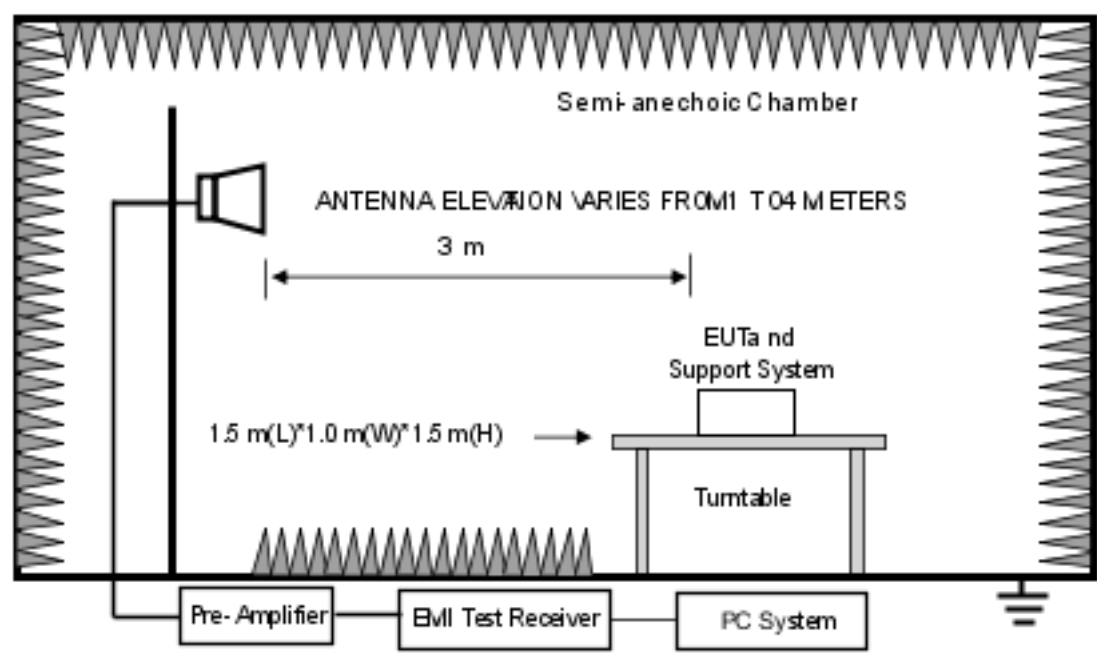
/

10.Band Edge(Radiated)

10.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
Spectrum analyzer	ROHDE&SCHWARZ	FSU	Aa-EE075	2025/08/04	2026/08/03
Horn Antenna	SCHWARZBECK	BBHA 9120 D	Aa-EE076	2025/08/11	2027/08/10
Test Receiver	ROHDE&SCHWARZ	ESR	Aa-EE048	2025/08/04	2026/08/03
Bilog Antenna	SCHWARZBECK	VULB 9168	Aa-EE001	2025/08/11	2027/08/10
Amplifier	SKET	LNPA_0118G-45	Aa-EE087	2025/08/04	2026/08/03
Horn Antenna	SCHWARZBECK	BBHA 9170	Aa-EE077	2025/08/11	2027/08/10
Loop Antenna	SCHWARZBECK	FMZB 1519B	Aa-EE074	2025/08/11	2027/08/10

10.2. Block diagram of test setup



10.3. Limits

Please refer section 15.247.

10.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

10.5. Test procedure

Details see the KDB 558074 D01 15.247 Meas Guidance v05r02

- Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission
- Check the spurious emissions out of band.
- RBW 1MHz, VBW 3MHz, peak detector for peak value, RBW 1MHz, VBW 3MHz, RMS detector for AV value.

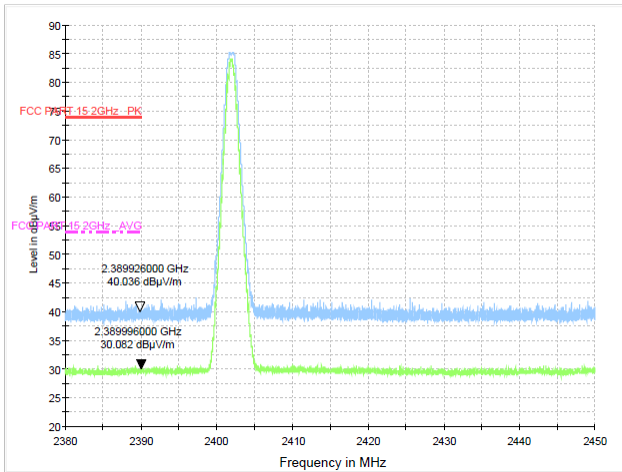
10.6. Test result

Test Site: Chamber 1#(RSE)	Test Date: 2025/12/22--2025/12/22
Condition: 24.1°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

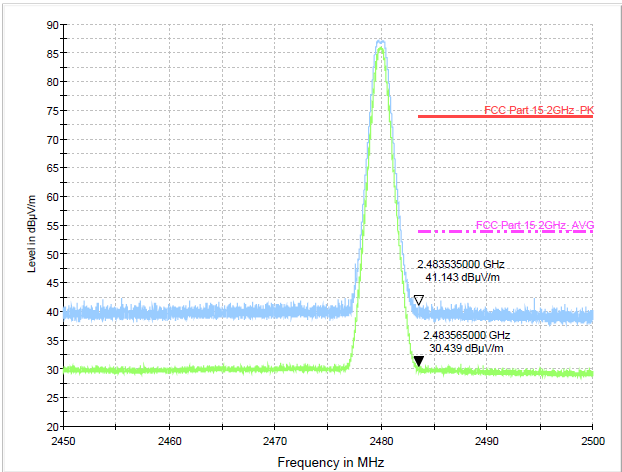
EUT Name: Smart Lock	EUT Model: D2
Sample No.: A2512096-S0001	Test Mode: GFSK(1Mbps) Mode-L/H
Power supply: DC 9V from battery	Memo: /

10.7. Test data

Test Mode: GFSK(1Mbps)-Low



Test Mode: GFSK(1Mbps)-High

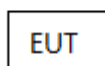


11. Antenna Requirement

11.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCH WARZ	CMW500	Aa-EE073	2025/08/04	2026/08/03
Spectrum analyzer	ROHDE&SCH WARZ	FSV40-N	Aa-EE081	2025/08/04	2026/08/03
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE071	2025/08/04	2026/08/03
Power Sensor	DARE	RPR3006W	Aa-EE070	2025/08/04	2026/08/03
Power meter	Agilent	E4419B	Aa-EE045	2025/08/04	2026/08/03

11.2. Block diagram of test setup



11.3. Limits

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 shall be considered sufficient to comply with the provisions of this Section. 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.

11.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
/	/	/	/	/

11.5. Test procedure

The antenna is internal antenna and no consideration of replacement. Please see EUT photo for details.

11.6. Test result

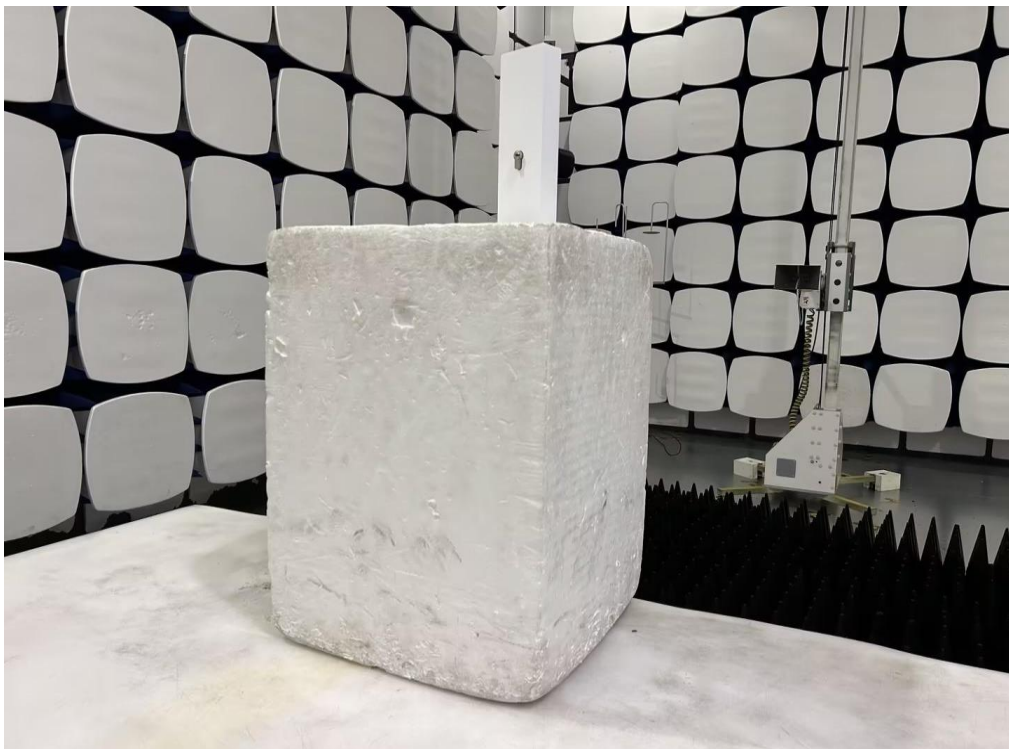
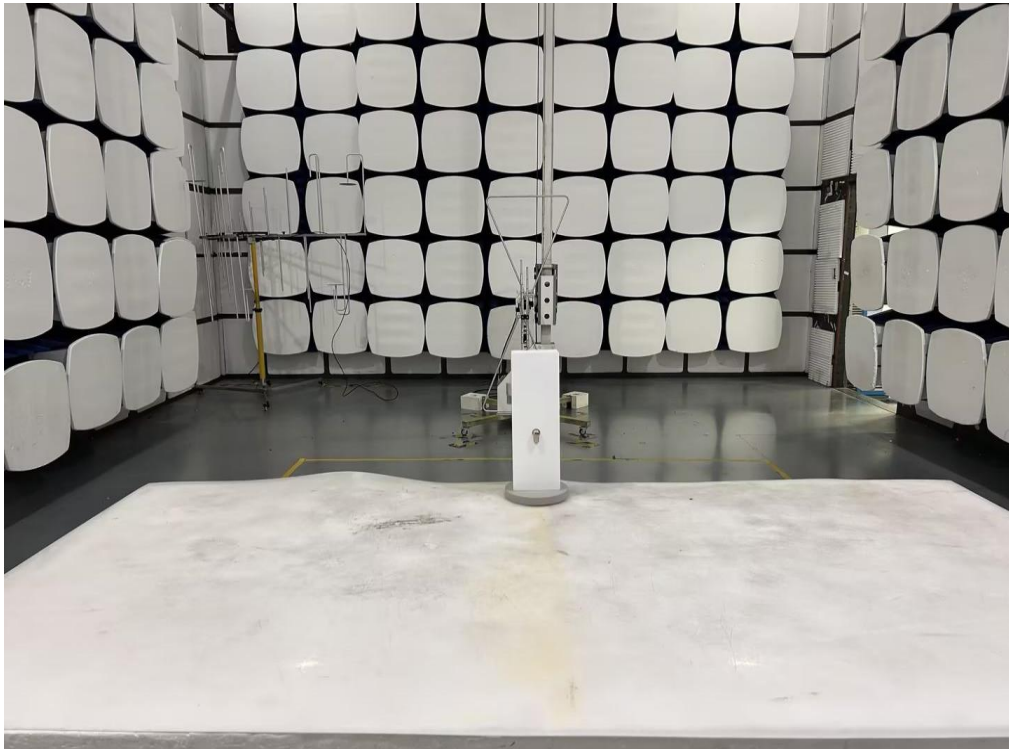
Test Site: RF Laboratory	Test Date: 2025/12/23--2025/12/23
Condition: 24.2°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Smart Lock	EUT Model: D2
Sample No.: A2512096-S0001	Test Mode: /

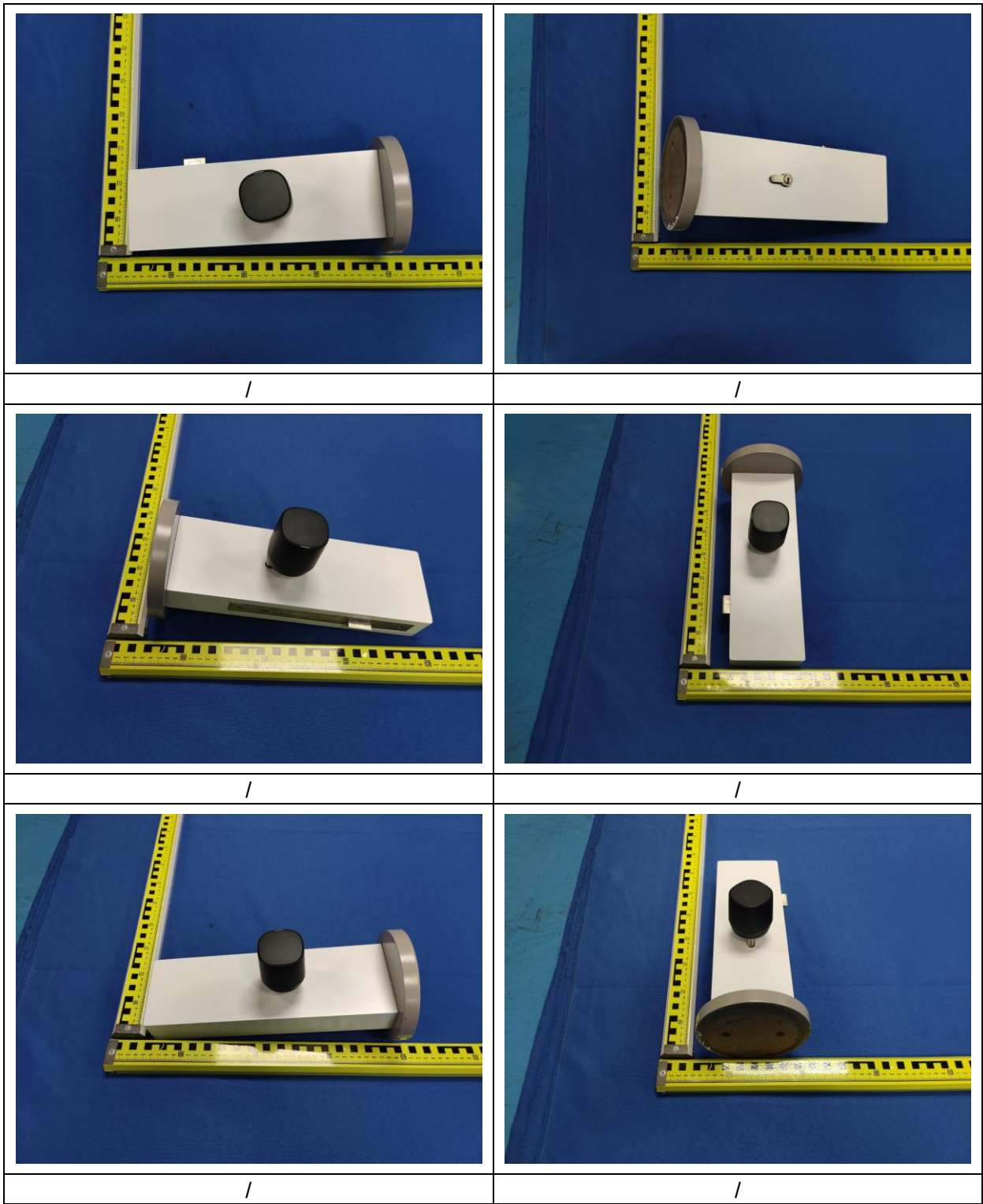
Power supply: /	Memo: The EUT antenna is PCB Antenna. It complies with the standard requirement.
-----------------	--

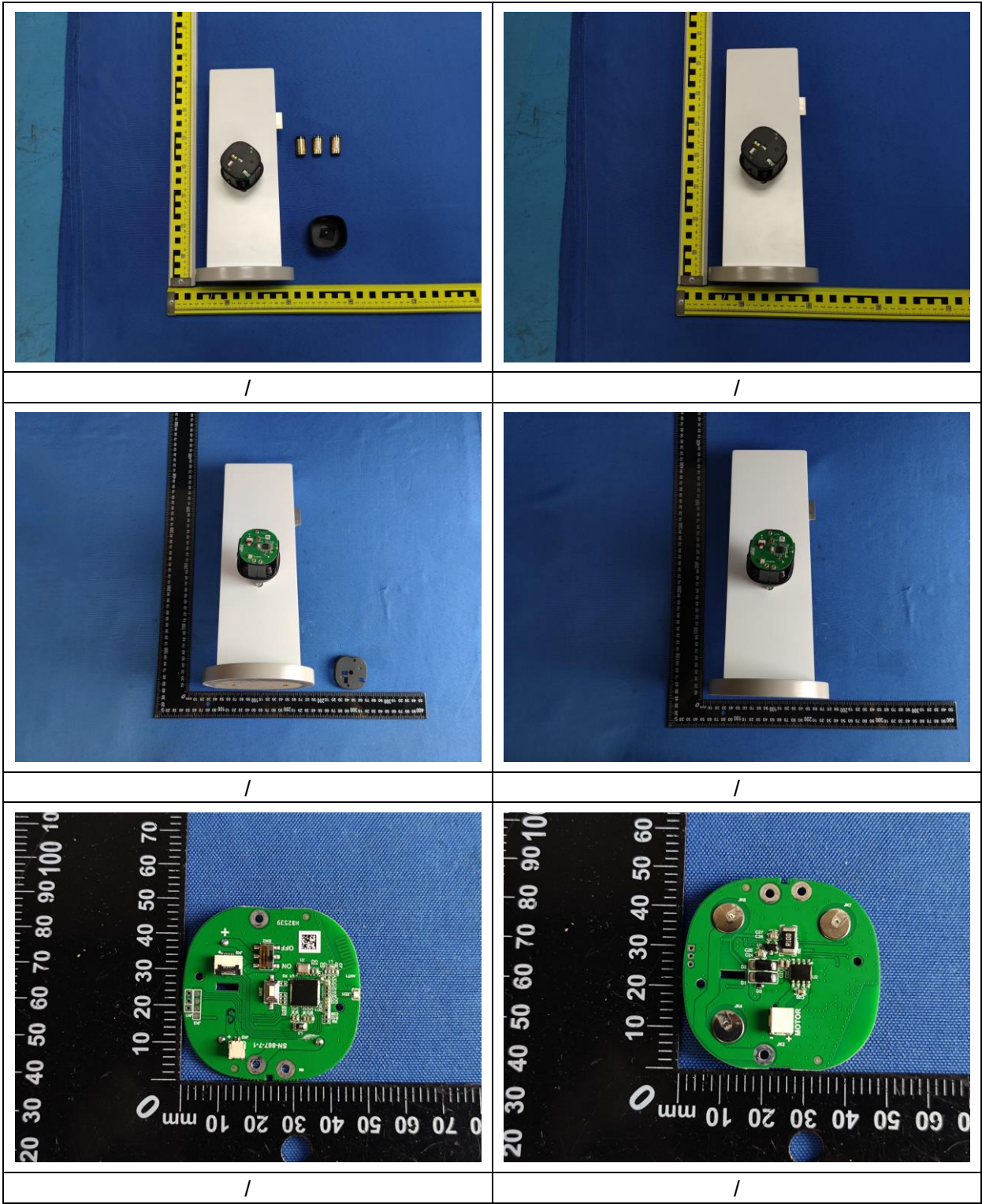
/

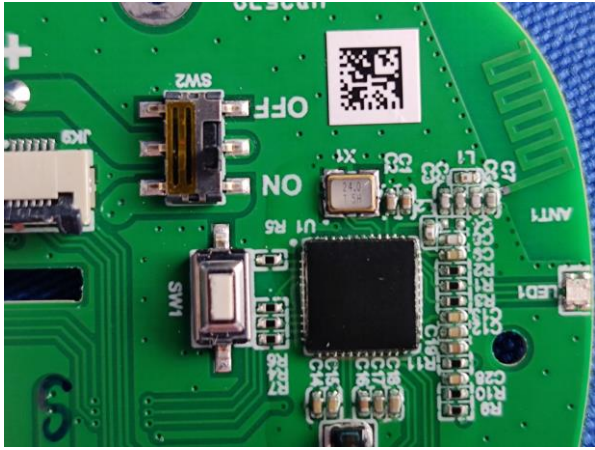
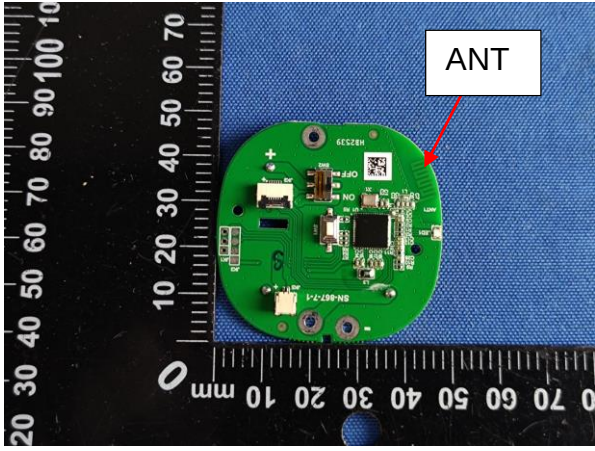
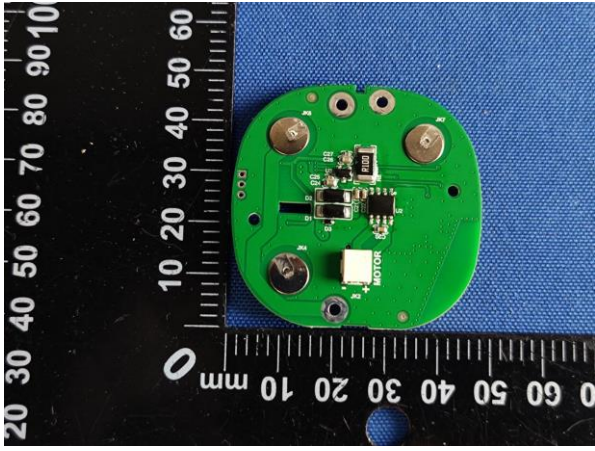
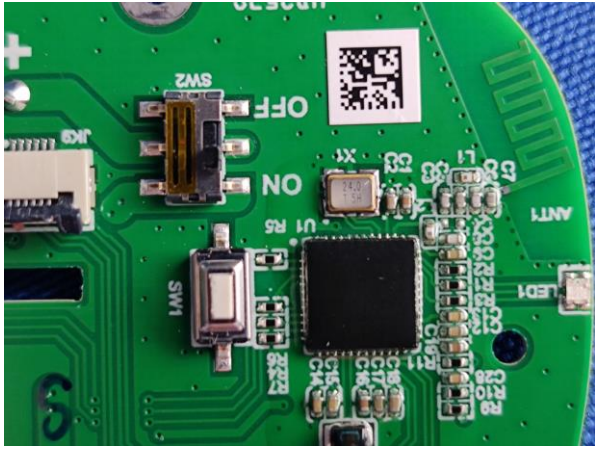
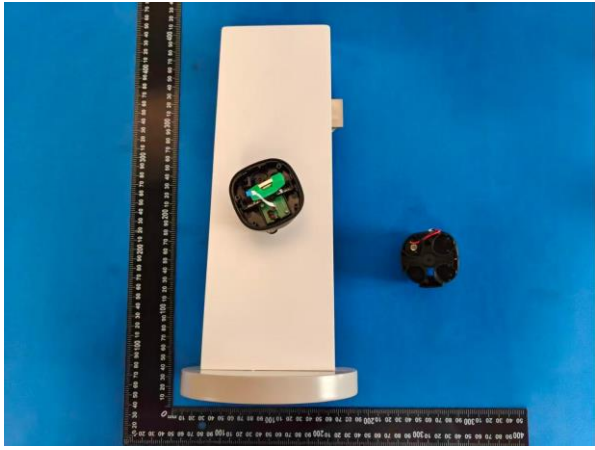
12. Test Setup Photograph

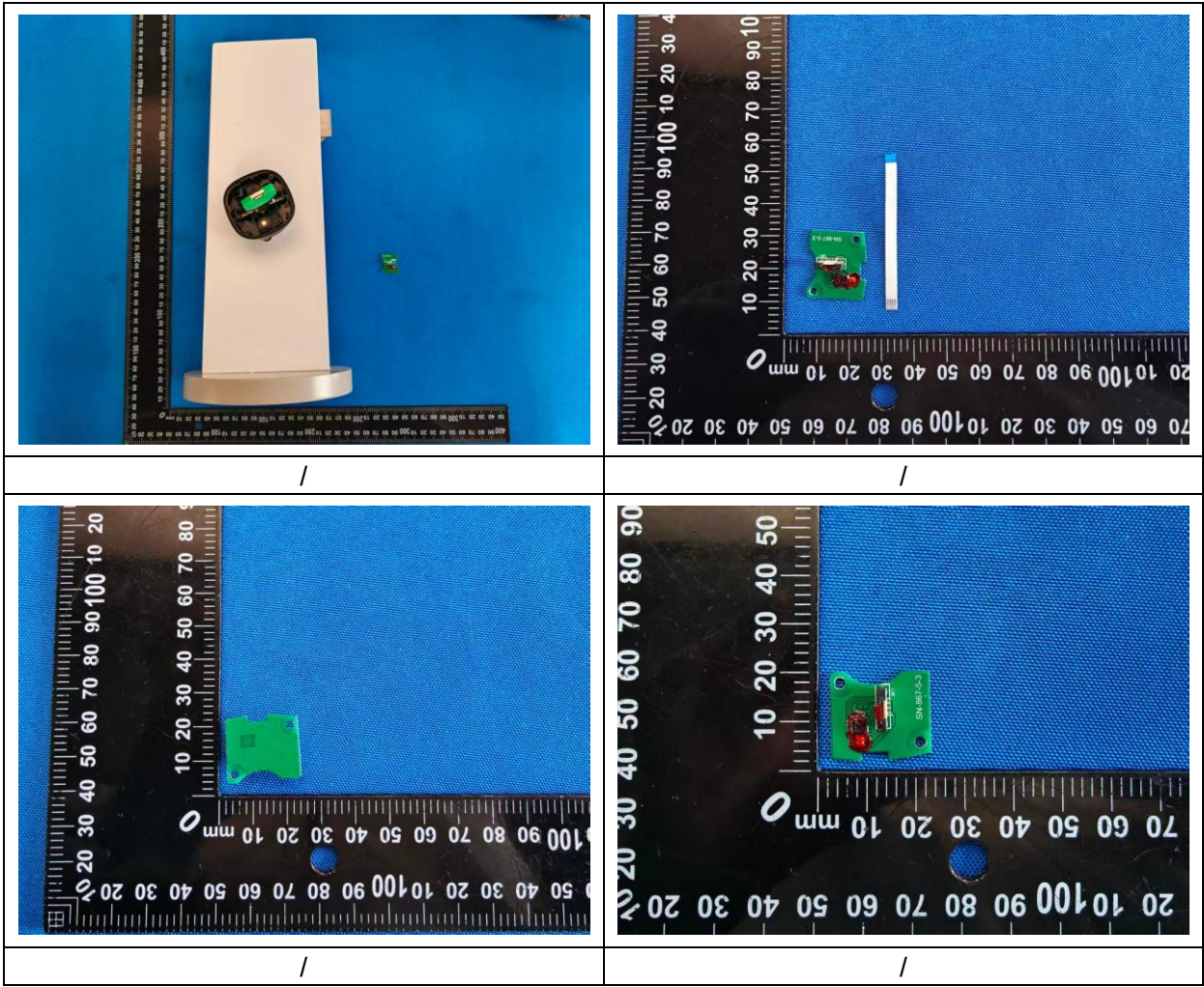


13. Photos of the EUT





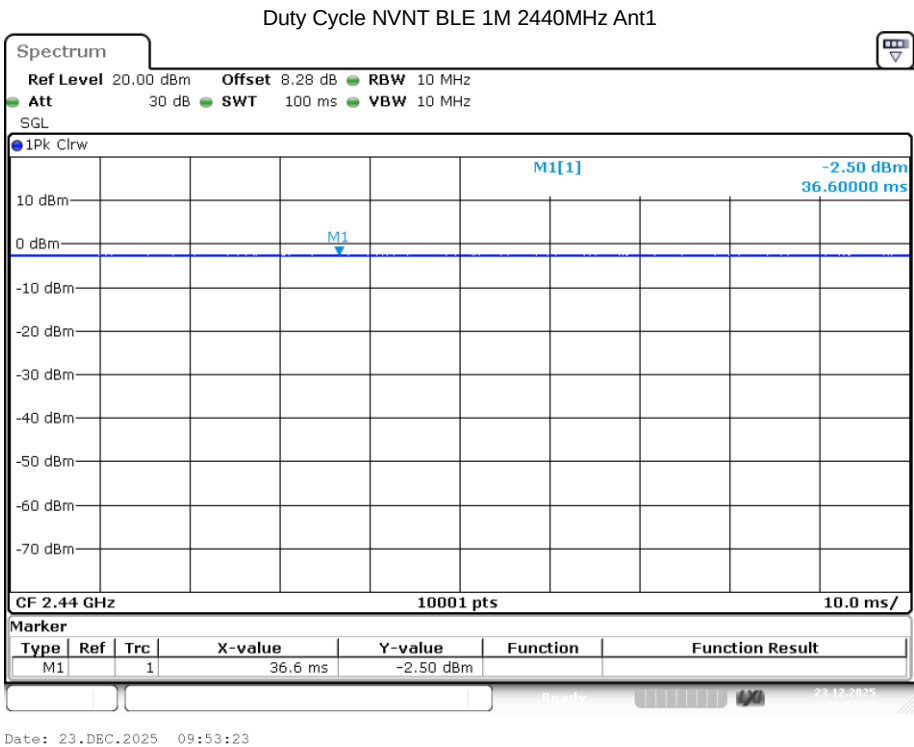
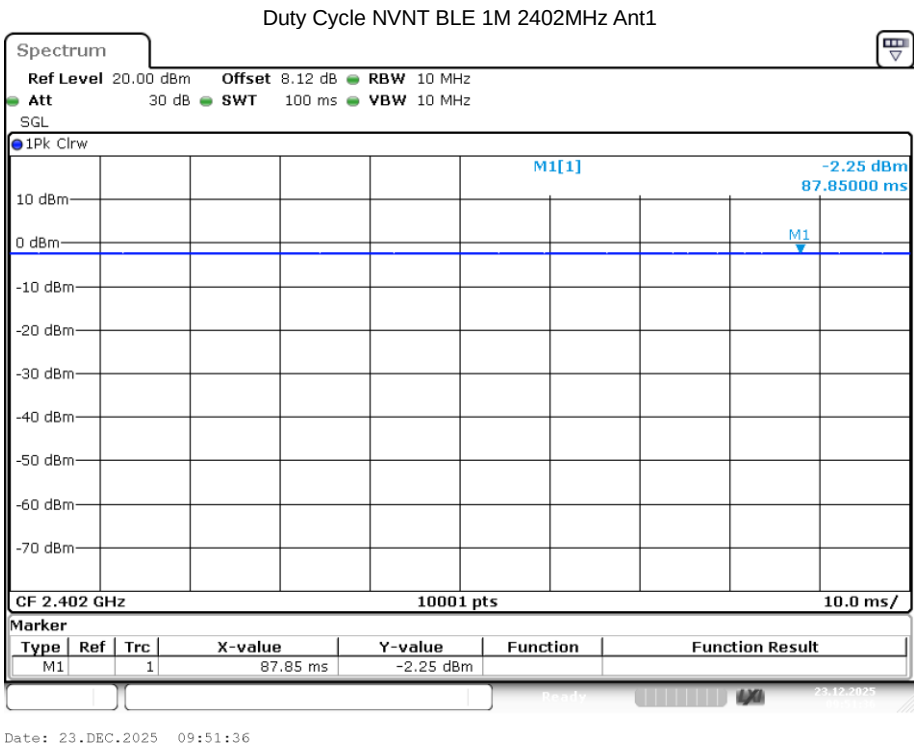
	
/	/
	
/	/
	
/	/



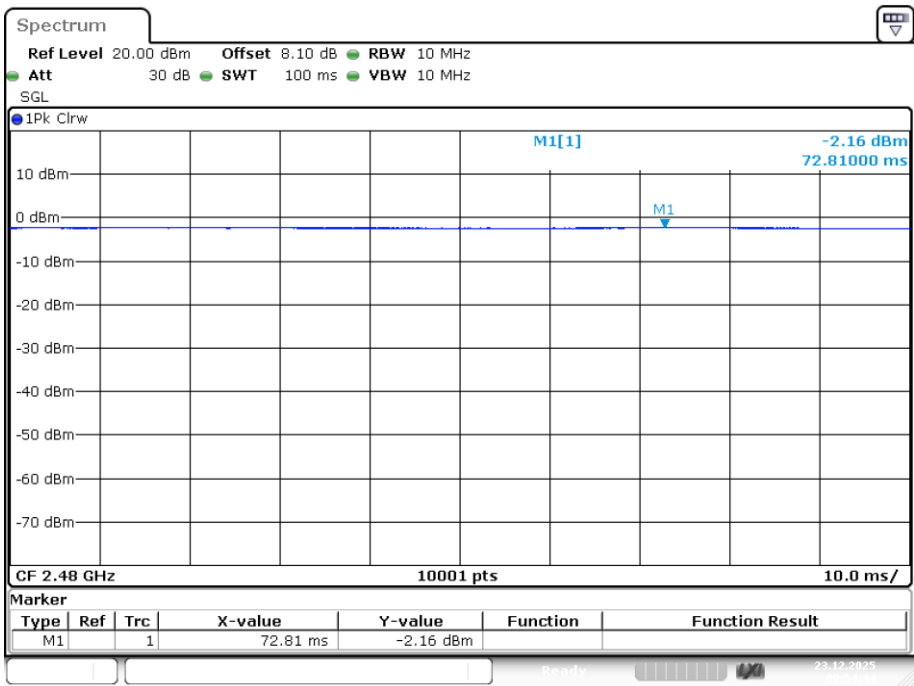
14. Annex

Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)
NVNT	BLE 1M	2402	Ant1	100	0
NVNT	BLE 1M	2440	Ant1	100	0
NVNT	BLE 1M	2480	Ant1	100	0



Duty Cycle NVNT BLE 1M 2480MHz Ant1

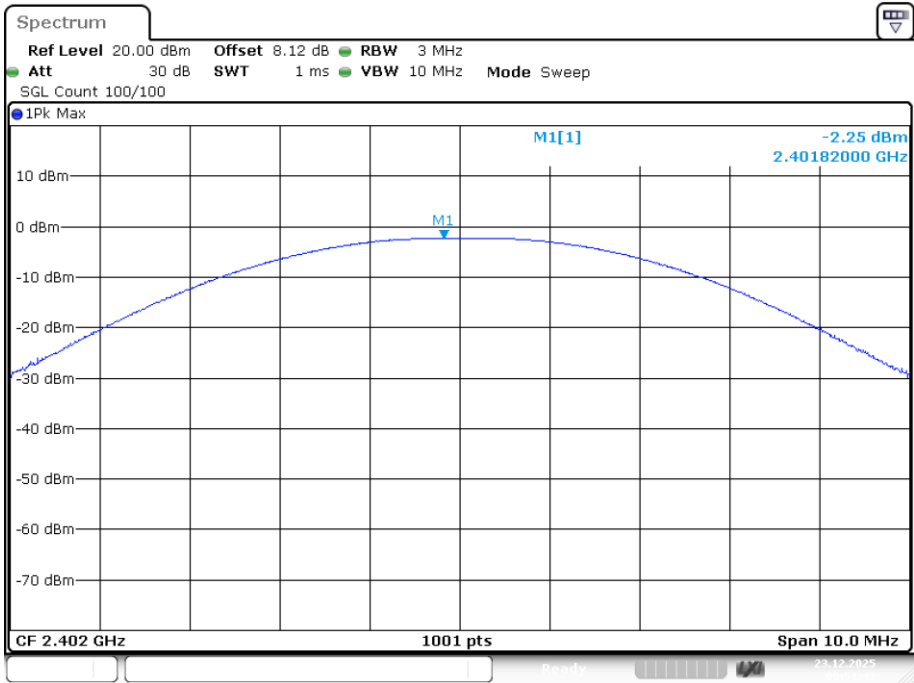


Date: 23.DEC.2025 09:54:44

Maximum Conducted Output Power

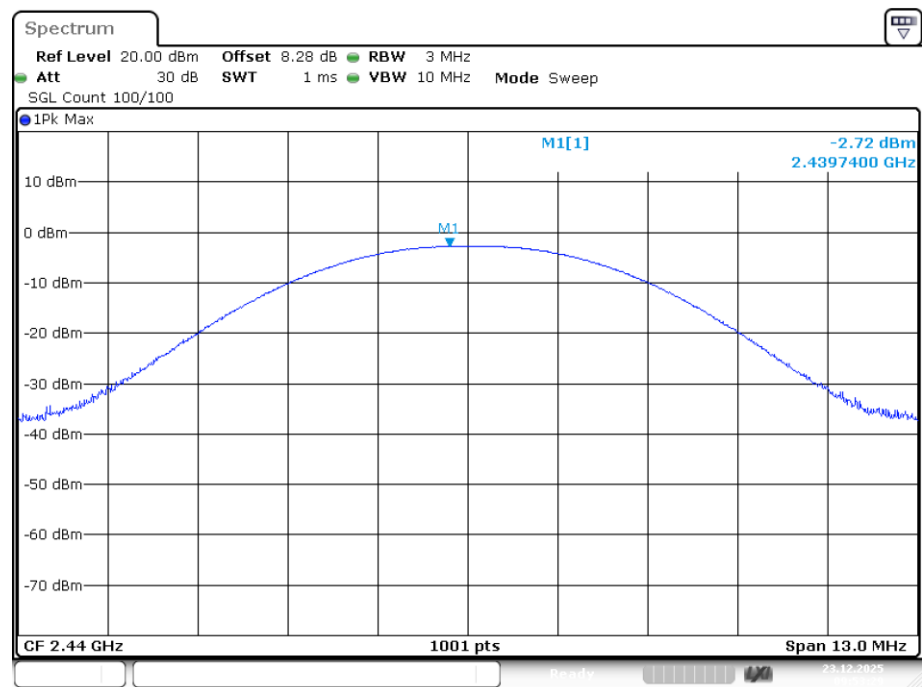
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	-2.254	0	-2.254	30	Pass
NVNT	BLE 1M	2440	Ant1	-2.719	0	-2.719	30	Pass
NVNT	BLE 1M	2480	Ant1	-2.679	0	-2.679	30	Pass

Power NVNT BLE 1M 2402MHz Ant1



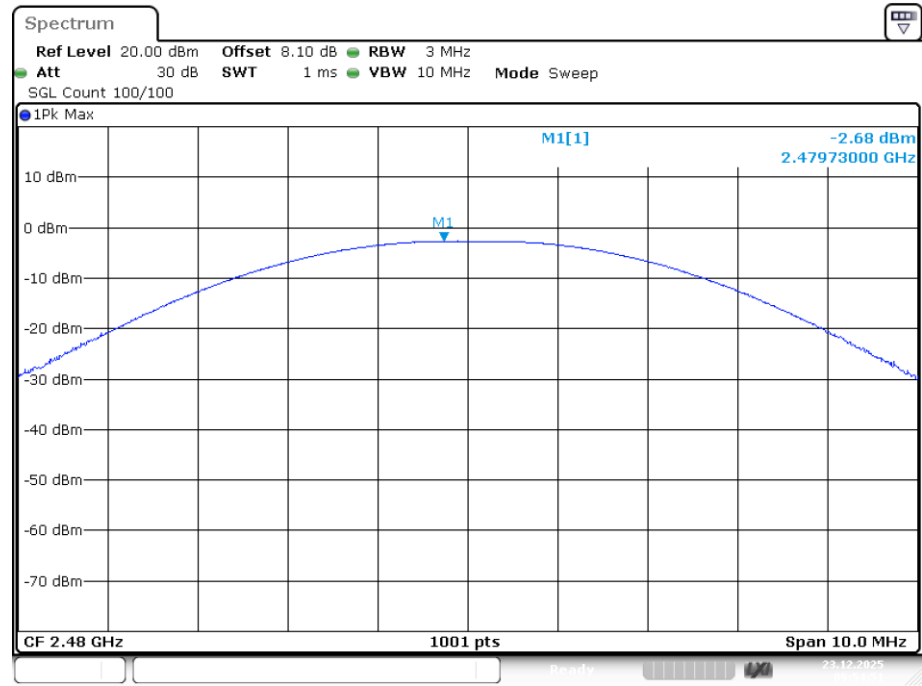
Date: 23.DEC.2025 09:51:43

Power NVNT BLE 1M 2440MHz Ant1



Date: 23.DEC.2025 09:53:29

Power NVNT BLE 1M 2480MHz Ant1

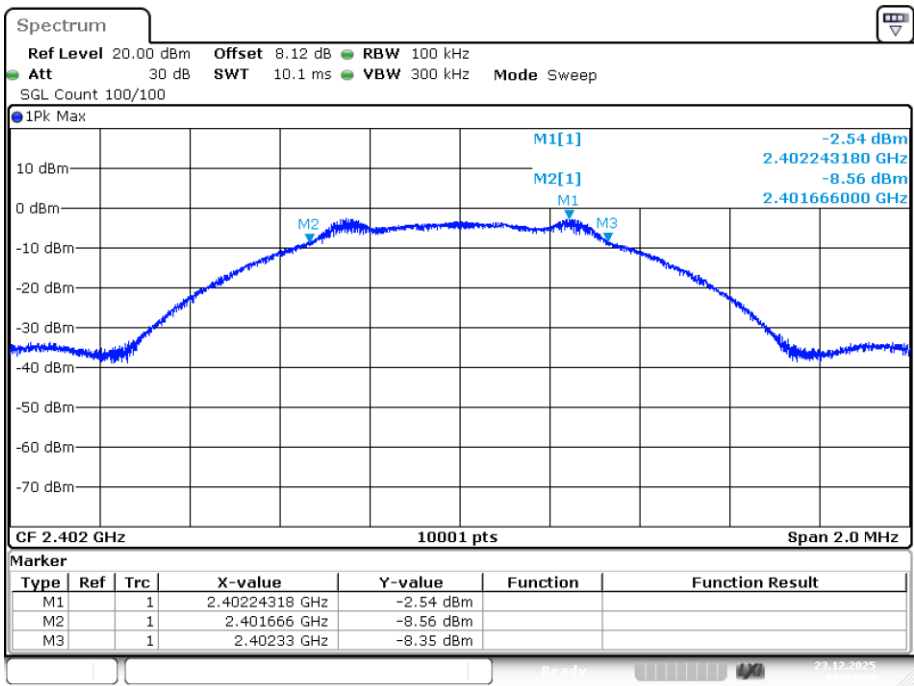


Date: 23.DEC.2025 09:54:51

-6dB Bandwidth

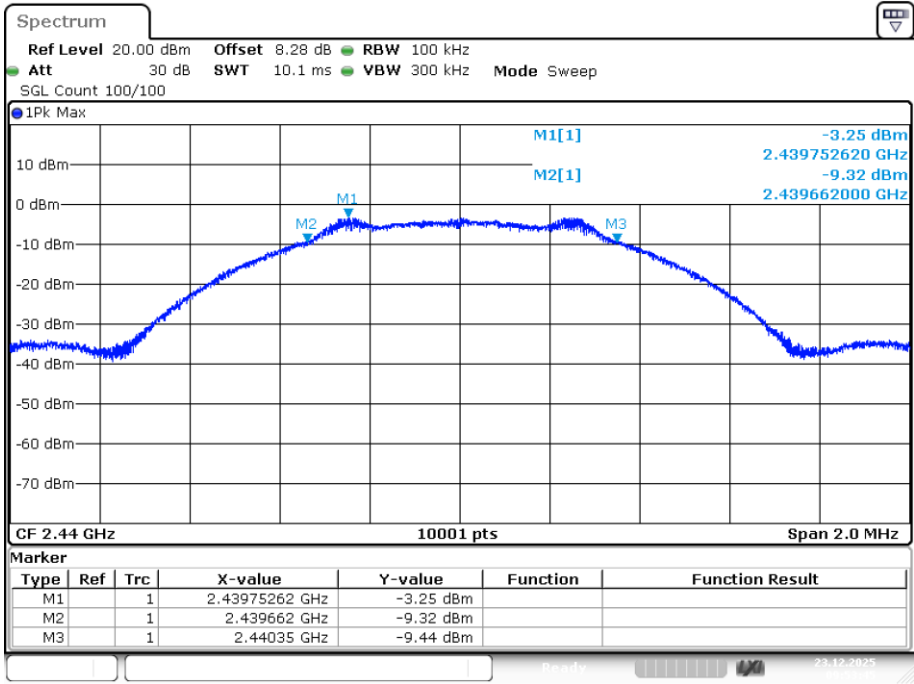
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.665	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.687	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.668	0.5	Pass

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1



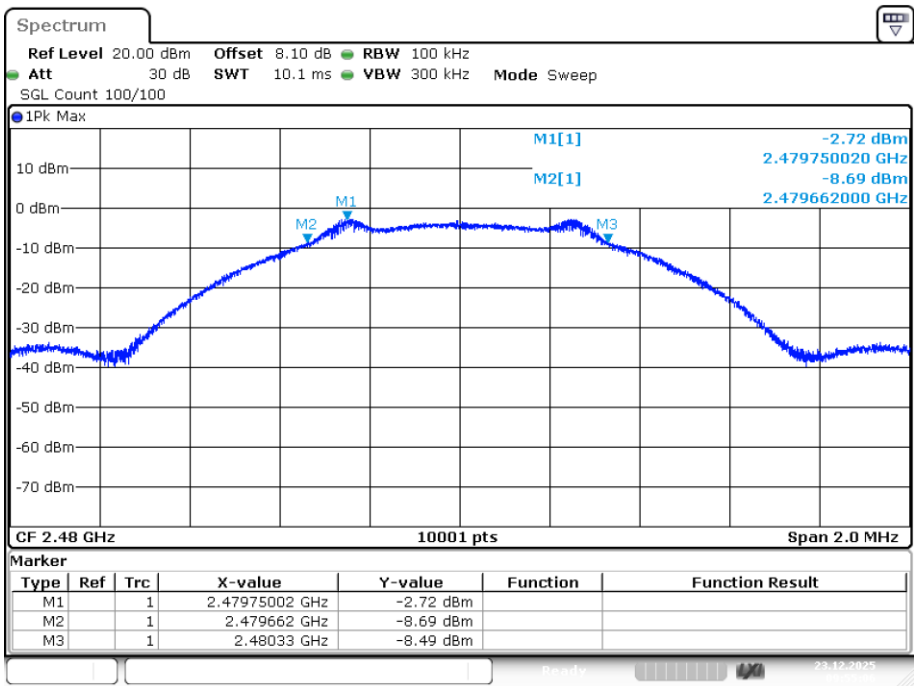
Date: 23.DEC.2025 09:51:58

-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1



Date: 23.DEC.2025 09:53:45

-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1

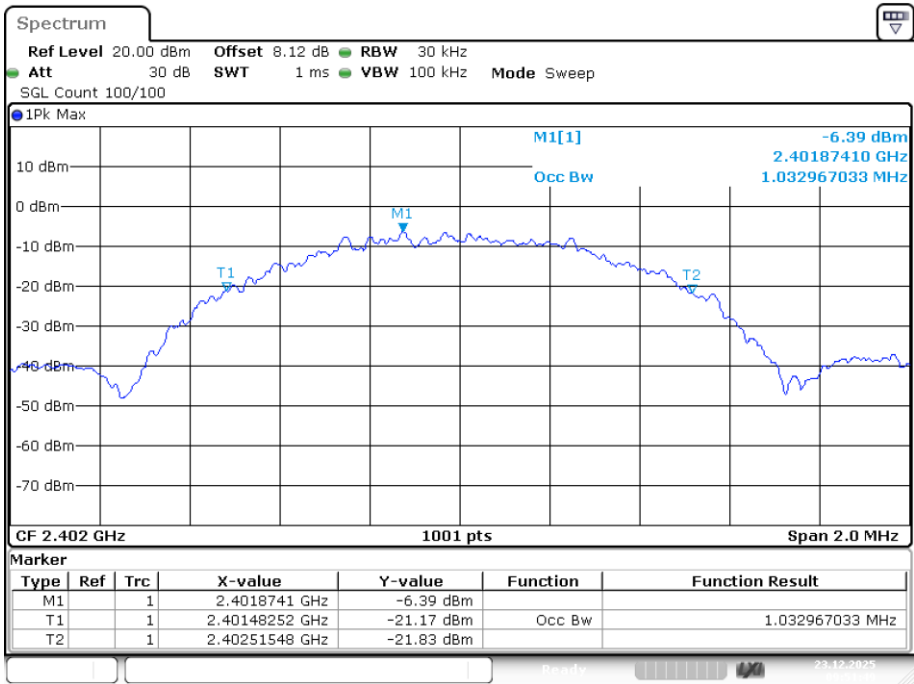


Date: 23.DEC.2025 09:55:06

Occupied Channel Bandwidth

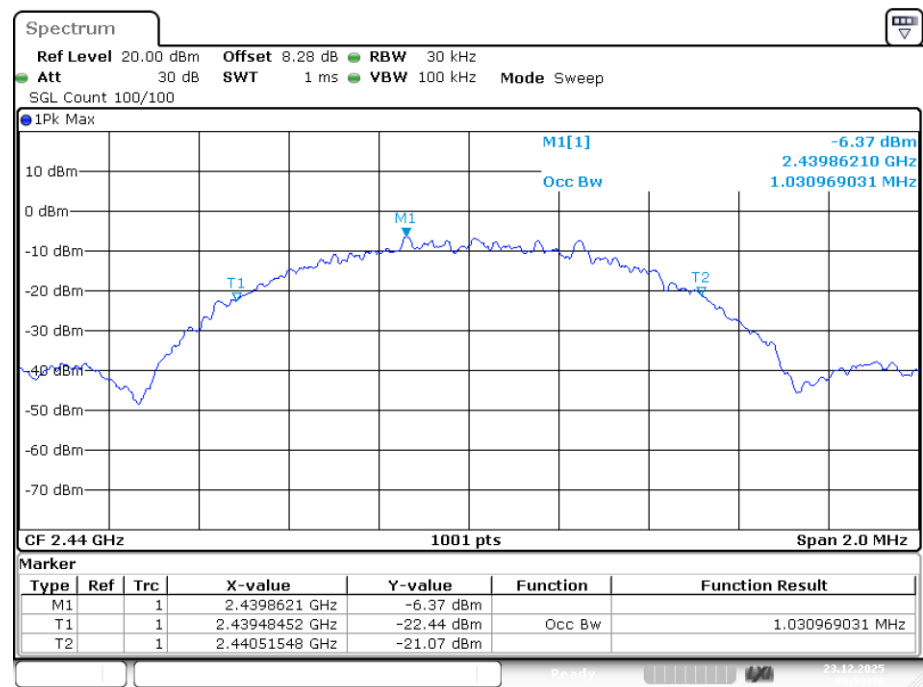
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 1M	2402	Ant1	1.033
NVNT	BLE 1M	2440	Ant1	1.031
NVNT	BLE 1M	2480	Ant1	1.023

OBW NVNT BLE 1M 2402MHz Ant1



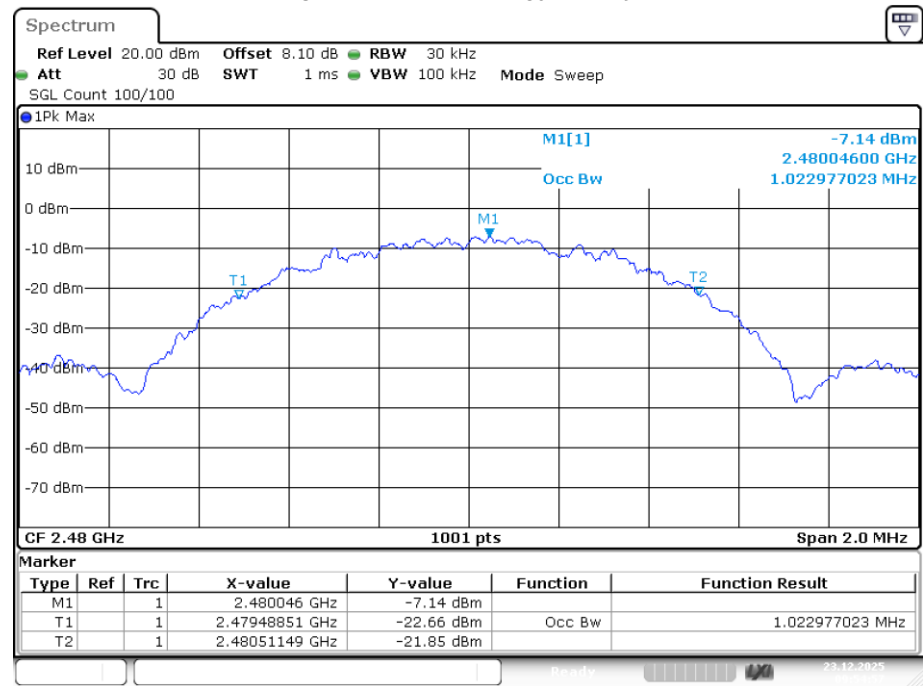
Date: 23.DEC.2025 09:51:49

OBW NVNT BLE 1M 2440MHz Ant1



Date: 23.DEC.2025 09:53:35

OBW NVNT BLE 1M 2480MHz Ant1

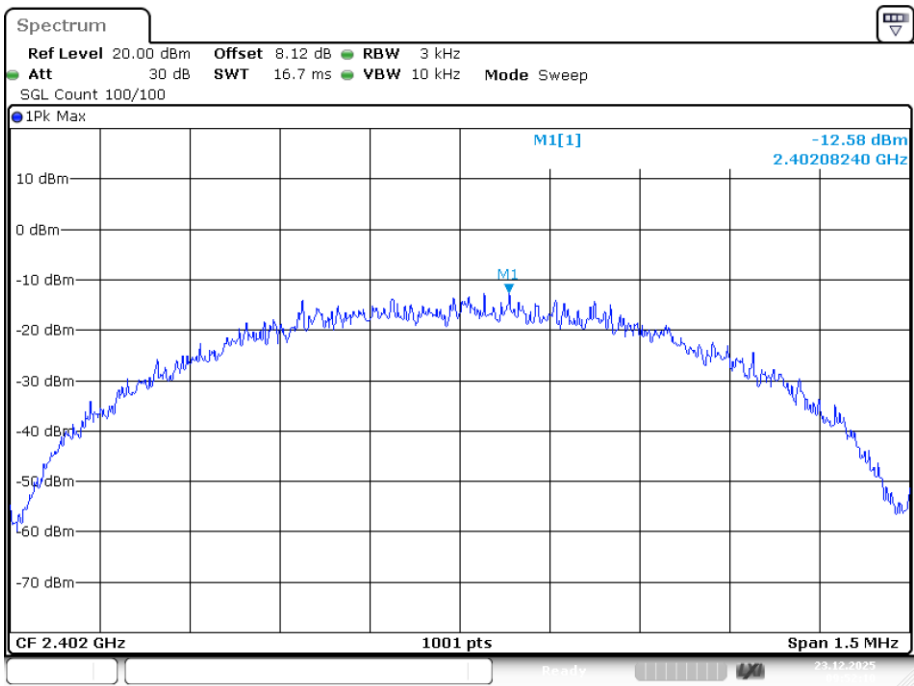


Date: 23.DEC.2025 09:54:57

Maximum Power Spectral Density Level

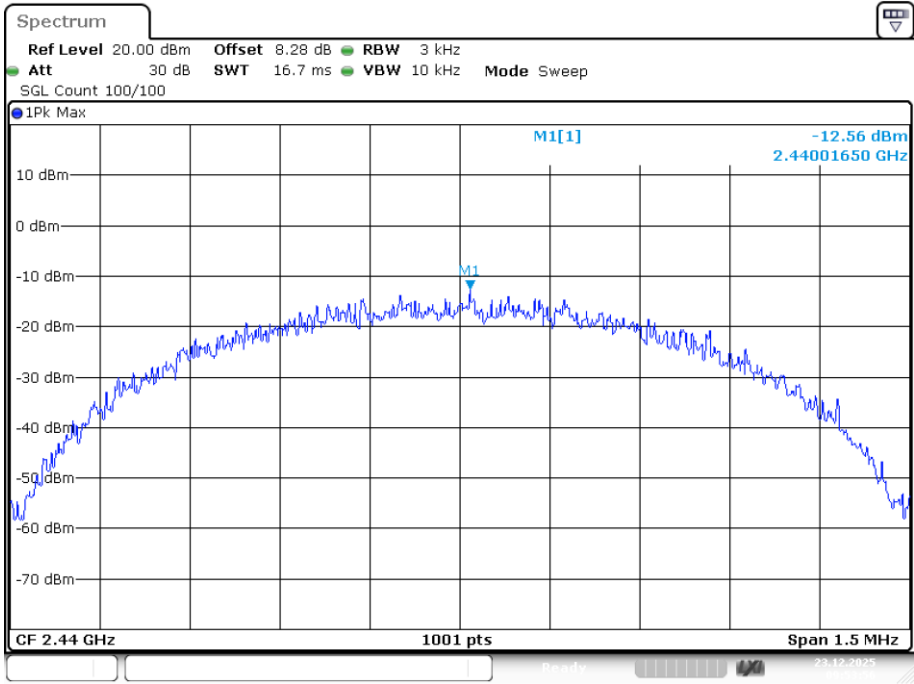
Condition	Mode	Frequency (MHz)	Antenna	Conduct PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	-12.578	0	-12.578	8	Pass
NVNT	BLE 1M	2440	Ant1	-12.561	0	-12.561	8	Pass
NVNT	BLE 1M	2480	Ant1	-12.505	0	-12.505	8	Pass

PSD NVNT BLE 1M 2402MHz Ant1



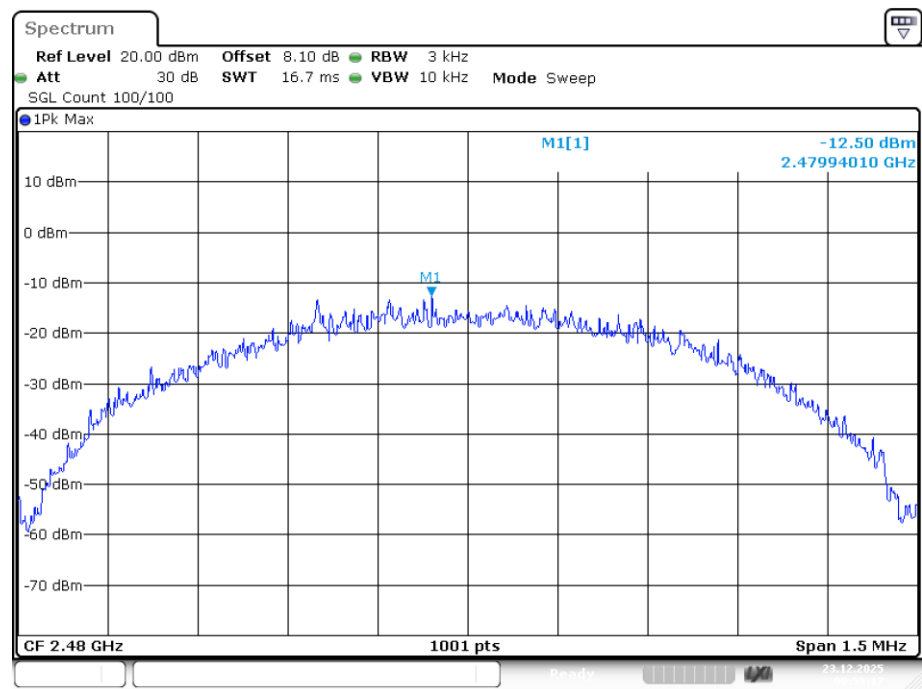
Date: 23.DEC.2025 09:52:10

PSD NVNT BLE 1M 2440MHz Ant1



Date: 23.DEC.2025 09:53:56

PSD NVNT BLE 1M 2480MHz Ant1

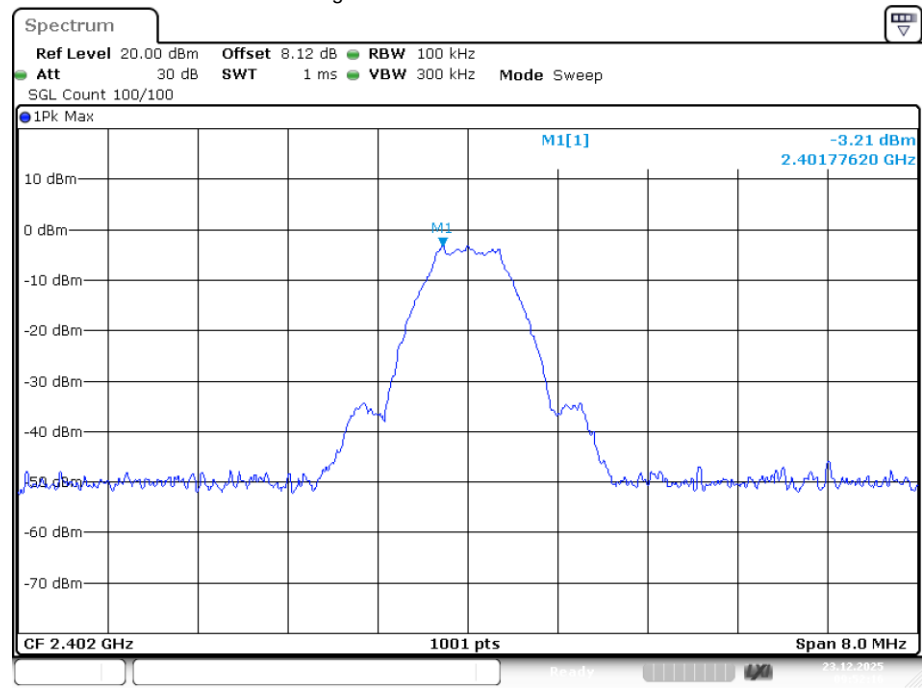


Date: 23.DEC.2025 09:55:18

Band Edge

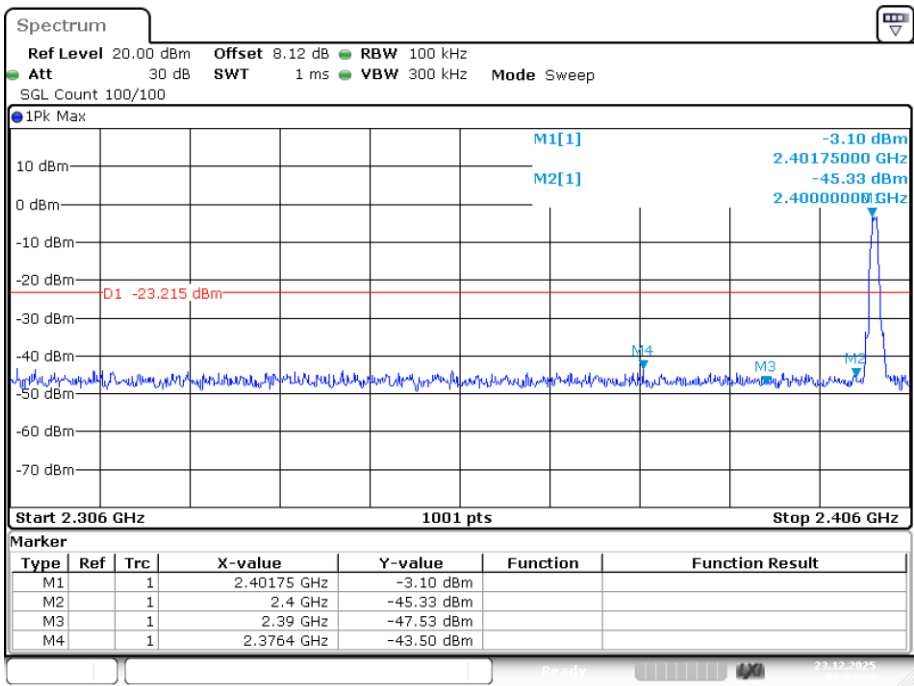
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-40.28	-20	Pass
NVNT	BLE 1M	2480	Ant1	-40.07	-20	Pass

Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



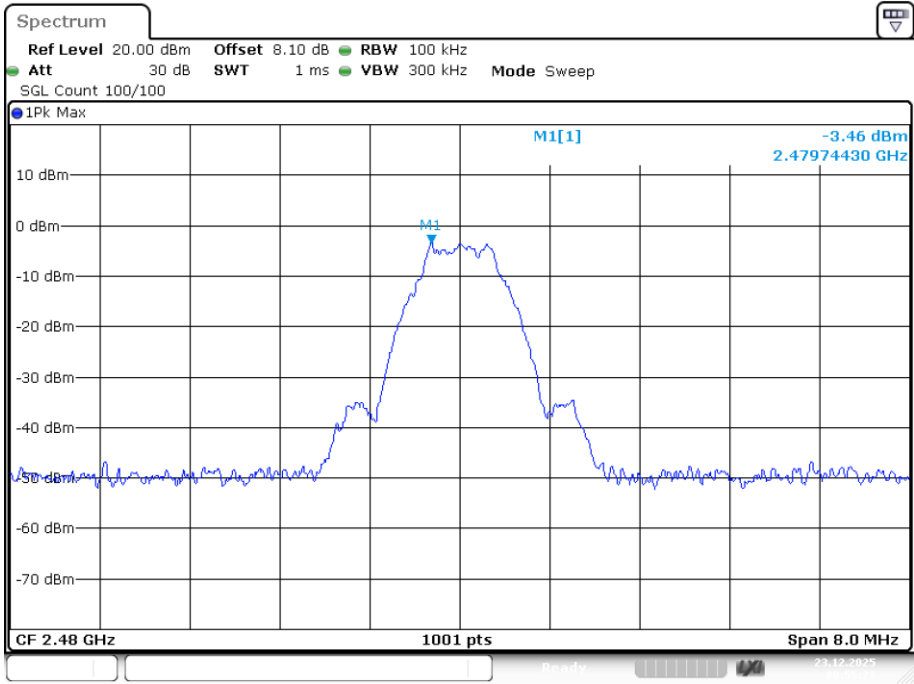
Date: 23.DEC.2025 09:52:16

Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



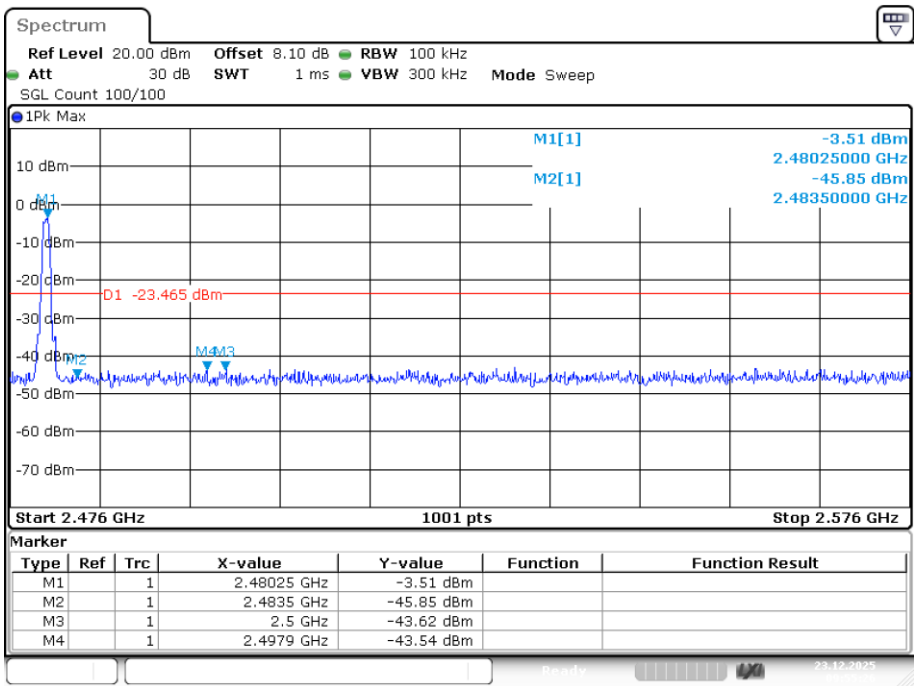
Date: 23.DEC.2025 09:52:20

Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



Date: 23.DEC.2025 09:55:23

Band Edge NVNT BLE 1M 2480MHz Ant1 Emission

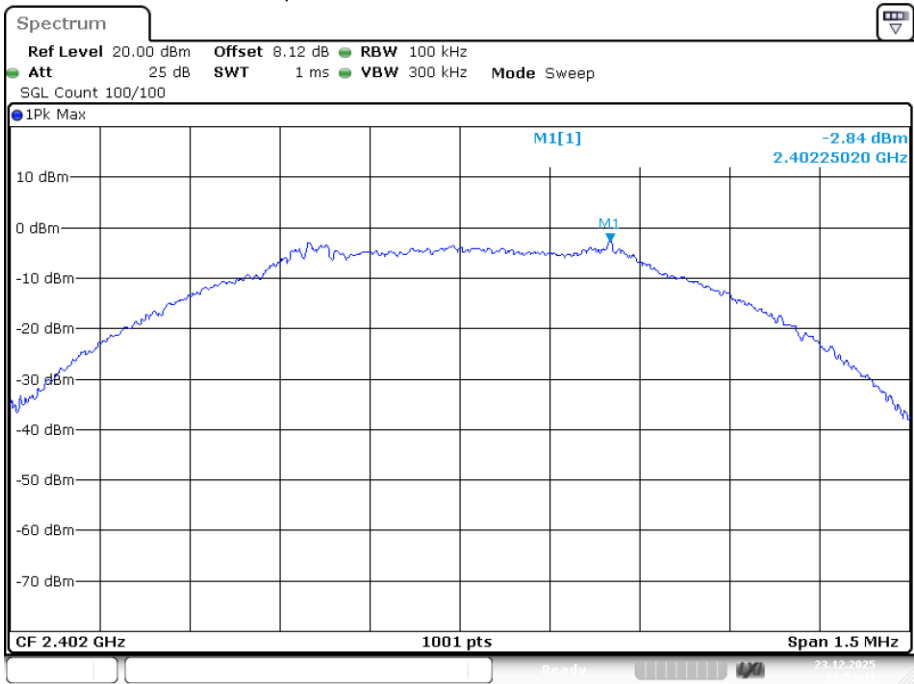


Date: 23.DEC.2025 09:55:27

Conducted RF Spurious Emission

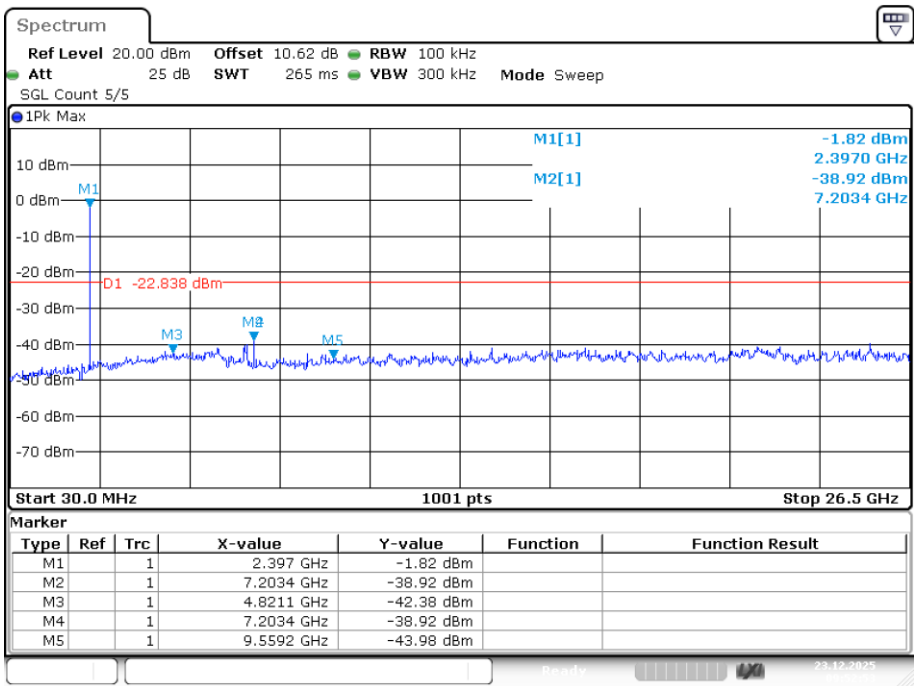
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-36.07	-20	Pass
NVNT	BLE 1M	2440	Ant1	-36.46	-20	Pass
NVNT	BLE 1M	2480	Ant1	-36.63	-20	Pass

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref

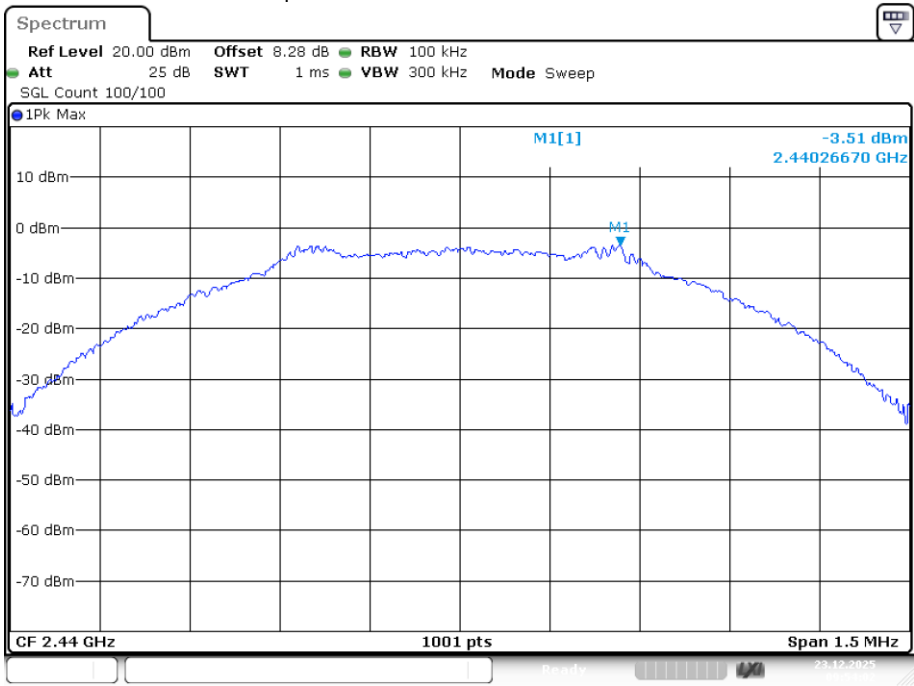


Date: 23.DEC.2025 09:52:42

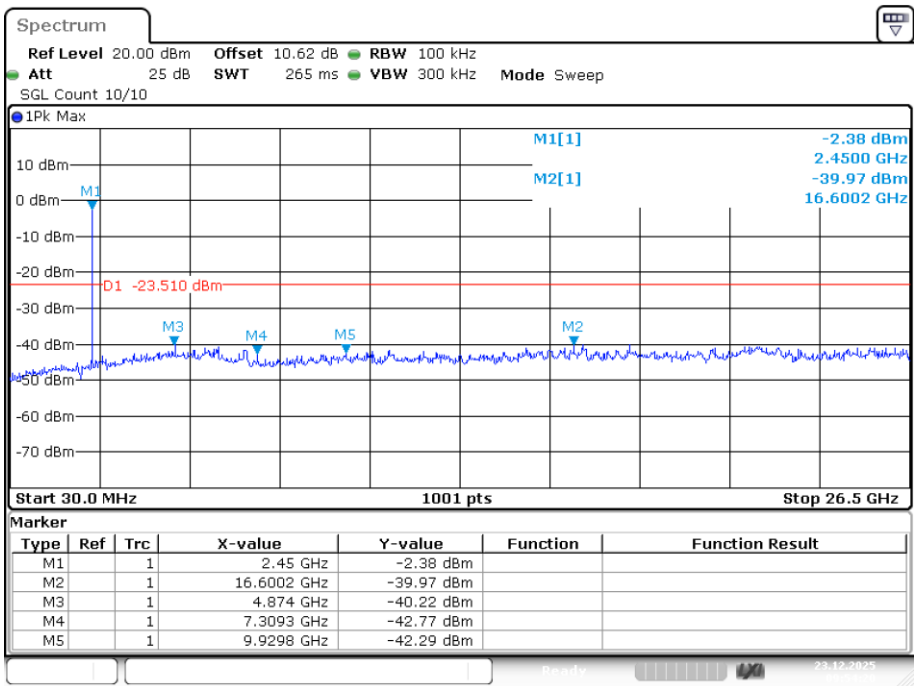
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref

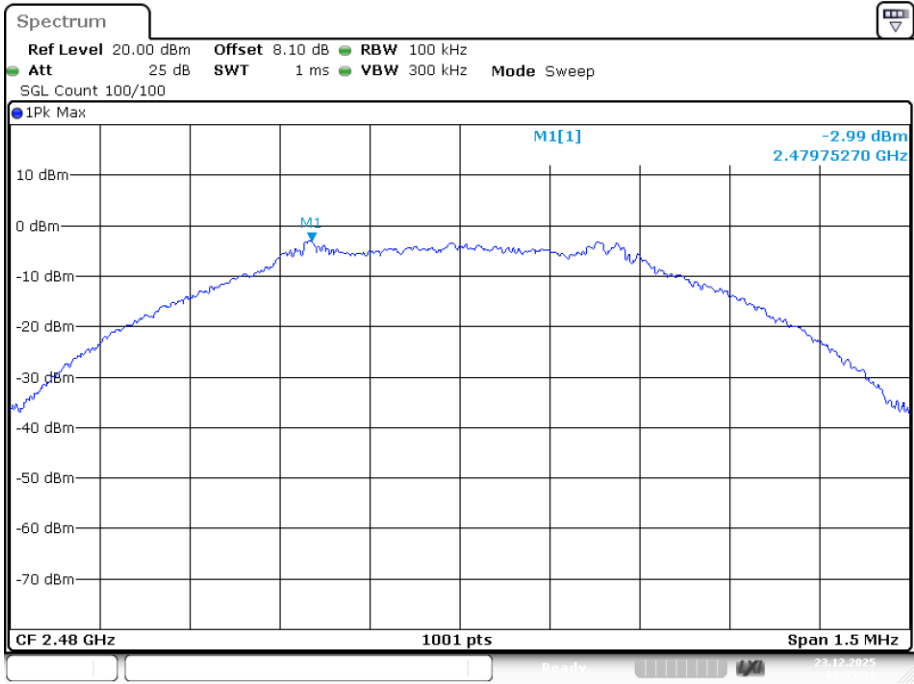


Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



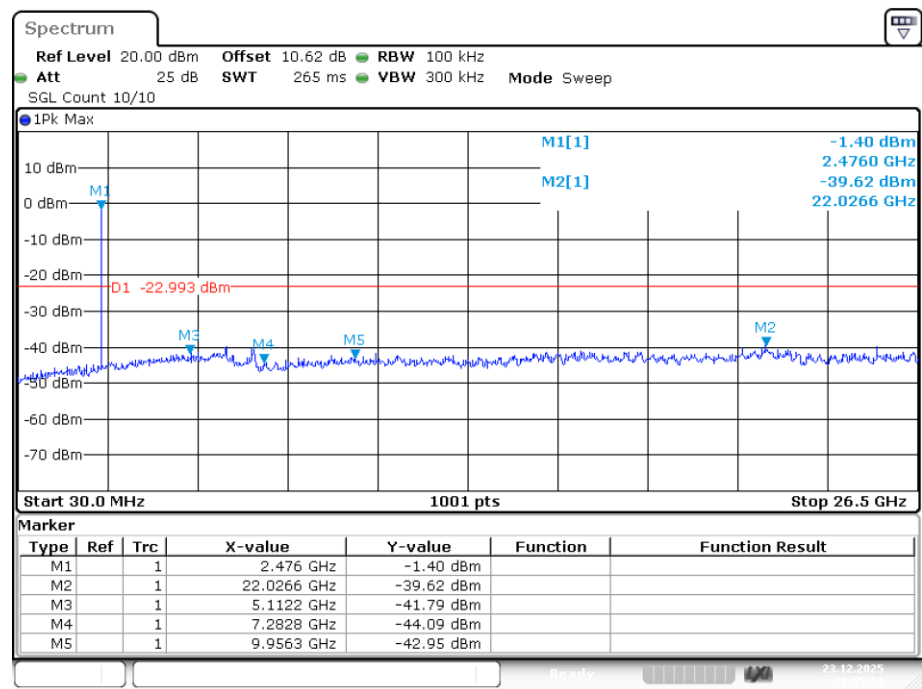
Date: 23.DEC.2025 09:54:19

Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



Date: 23.DEC.2025 09:55:32

Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



Date: 23.DEC.2025 09:55:51

-----End Report-----