FCC REPORT

Applicant	:	Shanghai EFIX Geomatics Co.,Ltd.
Address of Applicant	:	Room 1137, Area D, 11th Floor, Building 1, No. 158, Shuanglian Road, Qingpu District, Shanghai
Manufacturer	:	Shanghai EFIX Geomatics Co.,Ltd.
Address of Manufacturer	:	Room 1137, Area D, 11th Floor, Building 1, No. 158, Shuanglian Road, Qingpu District, Shanghai
Equipment under Test	:	Geodetic GNSS Receiver
Model No.	:	F6
FCC ID	:	2A3MU-F61W
Test Standard(s)	:	FCC Rules and Regulations Part 15 Subpart C Section 15.247, ANSI C63.10:2013
Report No.	:	A2503163-C07-R01
Issue Date	:	2025/06/09
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

Test Report Declare

Applicant	:	Shanghai EFIX Geomatics Co.,Ltd.
Address of Applicant	:	Room 1137, Area D, 11th Floor, Building 1, No. 158, Shuanglian Road, Qingpu District, Shanghai
Manufacturer	:	Shanghai EFIX Geomatics Co.,Ltd.
Address of Manufacturer	:	Room 1137, Area D, 11th Floor, Building 1, No. 158, Shuanglian Road, Qingpu District, Shanghai
Equipment under Test	:	Geodetic GNSS Receiver
Model No.	:	F6
Trademark	:	EFIX

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247, ANSI C63.10:2013

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.:	A2503163-C07-R01		
Date of Receipt:	2025/04/27	**Date of Test:**	2025/04/27 - 2025/05/12

Prepared By:

Yannis Wen

Yannis Wen/Engineer

Approved By:

Jack Xu/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	2025/06/09	Yannis Wen

1. Summary of Test Results

No.	Test Parameter	Clause No.	Result
1	Maximum Peak Output Power	FCC Part 15: 15.247(b)(1), ANSI C63.10 :2013	Pass
2	99% Bandwidth&20 dB Bandwidth	FCC Part 15: 15.215, ANSI C63.10 :2013	Pass
3	Carrier Frequency Separation	FCC Part 15: 15.247(a)(1), ANSI C63.10 :2013	Pass
4	Number of Hopping Channel	FCC Part 15: 15.247(a)(1), ANSI C63.10 :2013	Pass
5	Dwell Time	FCC Part 15: 15.247(a)(1), ANSI C63.10 :2013	Pass
6	RF Conducted Spurious Emissions	FCC Part 15: 15.247(d), ANSI C63.10 :2013	Pass
7	Radiated Emission	FCC Part 15: 15.209, FCC Part 15: 15.247(d), ANSI C63.10 :2013	Pass
8	Band Edge(Conducted)	FCC Part 15: 15.247(d), ANSI C63.10 :2013	Pass
9	Band Edge(Radiated)	FCC Part 15: 15.247(d), ANSI C63.10 :2013	Pass
10	Power Line Conducted Emissions	FCC Part 15: 15.207, ANSI C63.10 :2013	Pass
11	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.

Software Information			
Test Item	Software Name	Manufacturer	Version
RE	EZ-EMC	Farad	Alpha-3A1
RF-CE	MTS 8310	MWRFtest	V2.0.0.0

2. General Test Information

2.1. Description of EUT

EUT Name	:	Geodetic GNSS Receiver
Model Number	:	F6
Difference of model number	:	/
Power Supply	:	DC 7.2V from battery, DC 5V from adapter
Hardware Version	:	V1.3.0
Software Version	:	V1.0

Radio Specification	:	Bluetooth BR/EDR
Operation Frequency	:	2402 MHz to 2480 MHz
Modulation	:	GFSK, π/4-DQPSK, 8DPSK
Antenna Type	:	PCB Antenna
Max Antenna Gain(dBi)	:	0dBi(Antenna information is provided by applicant.)

Channel information					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	27	2429	54	2456
1	2403	28	2430	55	2457
2	2404	29	2431	56	2458
3	2405	30	2432	57	2459
4	2406	31	2433	58	2460
5	2407	32	2434	59	2461
6	2408	33	2435	60	2462
7	2409	34	2436	61	2463
8	2410	35	2437	62	2464
9	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477

22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

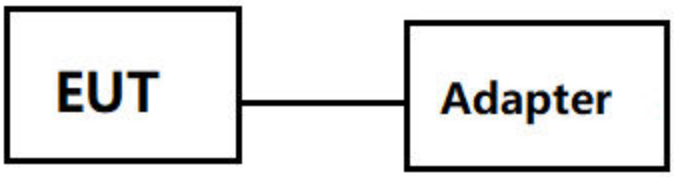
Note: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's 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
AC Adapter	EDACPOWER ELEC.	EA1012AVRU-050	AC Input: 100-240Vac~50/60Hz 1.0A; DC Output: 5.0V⎓2.4A 12.0W

2.3. Block diagram of EUT configuration for test



2.4. Test mode description

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

Mode No.	Mode	Data rate(Mbps)	Channel	Frequency (MHz)
Mode 1	GFSK hopping off mode	1	Low :CH0	2402
Mode 2		1	Middle: CH39	2441
Mode 3		1	High: CH78	2480
Mode 4	π/4 DQPSK hopping off mode	2	Low :CH0	2402
Mode 5		2	Middle: CH39	2441
Mode 6		2	High: CH78	2480
Mode 7	8-DPSK hopping off mode	3	Low :CH0	2402
Mode 8		3	Middle: CH39	2441
Mode 9		3	High: CH78	2480
Mode 10	GFSK hopping on mode	/	CH0 to CH78	2402-2480
Mode 11	π/4-DQPSK hopping on mode	/	CH0 to CH78	2402-2480
Mode 12	8-DPSK hopping on mode	/	CH0 to CH78	2402-2480

2.5. Deviations of test standard

No deviation.

2.6. Test environment conditions

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

	Required
Temperature range:	15-35℃
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

CNAS Accreditation No. L7472; A2LA Accreditation Number: 4762.01
FCC Designation Number: CN1182, Test Firm Registration Number: 203110
Innovation, Science and Economic Development Canada Site Registration Number: 12135A

2.8. Measurement uncertainty

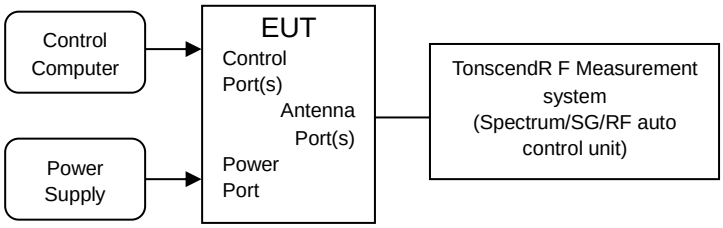
Item	Uncertainty
Uncertainty for Power point Conducted Emissions Test	1.63dB
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	3.5dB
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.74dB(Polarize: V)
	3.76dB(Polarize: H)
Uncertainty for Radiation Emission test 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℃
Uncertainty for humidity	1%
Uncertainty for DC and low frequency voltages	0.06%

3. Maximum Peak Output Power

3.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCHWARZ	CMW500	Aa-EE073	2024/08/08	2025/08/07
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	Aa-EE081	2024/08/08	2025/08/07
Signal Analyzer	Agilent	N9020A	Aa-EE039	2024/08/08	2025/08/07
Power Sensor	Agilent	E9300A	Aa-EE046	2024/08/08	2025/08/07
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE071	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE070	2024/08/08	2025/08/07

3.2. Block diagram of test setup



3.3. Limits

Please refer section 15.247
For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts, the e.i.r.p shall not exceed 4W

3.4. Assistant equipment used for test

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

3.5. Test procedure

The transmitter output is connected to the RF Power Meter. The RF Power Meter is set to the peak power detection.

3.6. Test result

Test Site: RF Laboratory	Test Date: 2025/05/06--2025/05/07
Condition: 24°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: hopping off Tx mode
Power supply: DC 7.2V from battery	Memo: The test data can be referred to the Annex Maximum Conducted Output Power

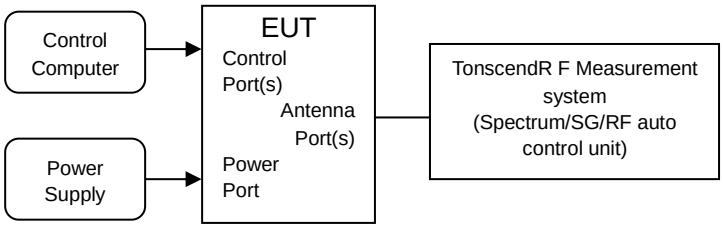
/

4. 99% Bandwidth&20 dB Bandwidth

4.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCHWARZ	CMW500	Aa-EE073	2024/08/08	2025/08/07
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	Aa-EE081	2024/08/08	2025/08/07
Signal Analyzer	Agilent	N9020A	Aa-EE039	2024/08/08	2025/08/07
Power Sensor	Agilent	E9300A	Aa-EE046	2024/08/08	2025/08/07
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE071	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE070	2024/08/08	2025/08/07

4.2. Block diagram of test setup



4.3. Limits

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in FCC Section 15.247(a)(1), must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.4. Assistant equipment used for test

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

4.5. Test procedure

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

4.6. Test result

Test Site: RF Laboratory	Test Date: 2025/05/06--2025/05/07
Condition: 24°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: hopping off Tx mode
Power supply: DC 7.2V from battery	Memo: The test data can be referred to the Annex -20dB Bandwidth&Occupied Channel Bandwidth

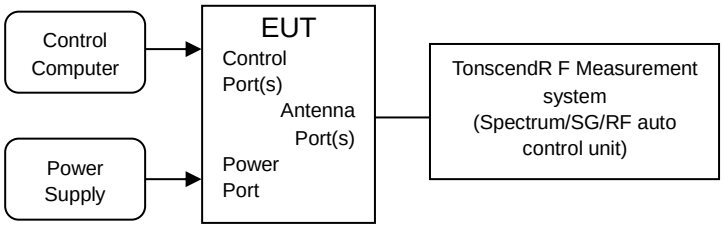
/

5. Carrier Frequency Separation

5.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCHWARZ	CMW500	Aa-EE073	2024/08/08	2025/08/07
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	Aa-EE081	2024/08/08	2025/08/07
Signal Analyzer	Agilent	N9020A	Aa-EE039	2024/08/08	2025/08/07
Power Sensor	Agilent	E9300A	Aa-EE046	2024/08/08	2025/08/07
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE071	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE070	2024/08/08	2025/08/07

5.2. Block diagram of test setup



5.3. Limits

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

5.4. Assistant equipment used for test

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

5.5. Test procedure

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The carrier frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

5.6. Test result

Test Site: RF Laboratory	Test Date: 2025/05/06--2025/05/07
Condition: 24°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: hopping on Tx mode
Power supply: DC 7.2V from battery	Memo: The test data can be referred to the Annex Carrier Frequencies Separation

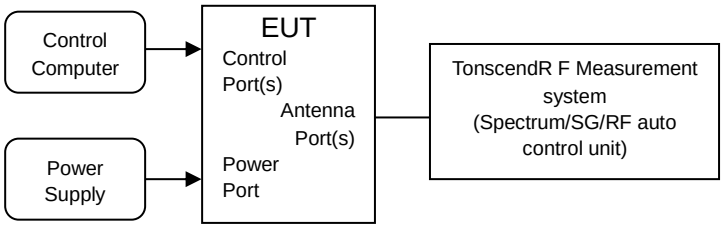
/

6. Number of Hopping Channel

6.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCHWARZ	CMW500	Aa-EE073	2024/08/08	2025/08/07
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	Aa-EE081	2024/08/08	2025/08/07
Signal Analyzer	Agilent	N9020A	Aa-EE039	2024/08/08	2025/08/07
Power Sensor	Agilent	E9300A	Aa-EE046	2024/08/08	2025/08/07
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE071	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE070	2024/08/08	2025/08/07

6.2. Block diagram of test setup



6.3. Limits

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

6.4. Assistant equipment used for test

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

6.5. Test procedure

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The number of hopping channel was measured by spectrum analyzer with 100kHz RBW and 300KHz VBW.

6.6. Test result

Test Site: RF Laboratory	Test Date: 2025/05/06--2025/05/07
Condition: 24°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: hopping on Tx mode

Power supply: DC 7.2V from battery	Memo: The test data can be referred to the Annex Number of Hopping Channel

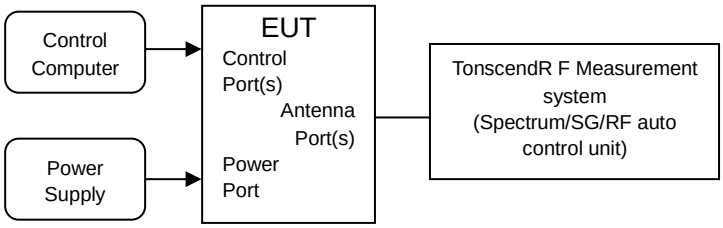
/

7. Dwell Time

7.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCHWARZ	CMW500	Aa-EE073	2024/08/08	2025/08/07
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	Aa-EE081	2024/08/08	2025/08/07
Signal Analyzer	Agilent	N9020A	Aa-EE039	2024/08/08	2025/08/07
Power Sensor	Agilent	E9300A	Aa-EE046	2024/08/08	2025/08/07
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE071	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE070	2024/08/08	2025/08/07

7.2. Block diagram of test setup



7.3. Limits

Please refer section15.247
According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz. The average time of occupancy on any frequency shall not greater than 0.4 s within period of 0.4 seconds multiplied by the number of hopping channel employed.

7.4. Assistant equipment used for test

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

7.5. Test procedure

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 center frequency of spectrum analyzer = operating frequency.

Set the spectrum analyzer as RBW=1MHz, VBW=1MHz, Span = 0Hz, Sweep = auto.

Repeat above procedures until all frequency measured were complete.

7.6. Test result

Test Site: RF Laboratory	Test Date: 2025/05/06--2025/05/07
Condition: 24°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: hopping on Tx mode
Power supply: DC 7.2V from battery	Memo: The test data can be referred to the Annex Dwell Time

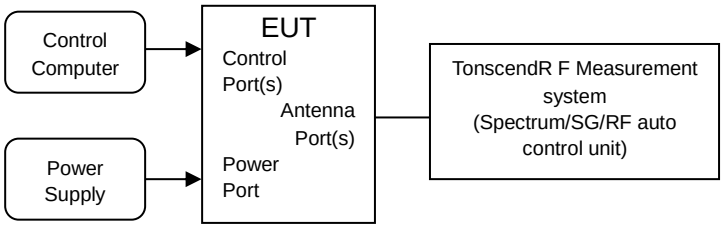
/

8. RF Conducted Spurious Emissions

8.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCHWARZ	CMW500	Aa-EE073	2024/08/08	2025/08/07
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	Aa-EE081	2024/08/08	2025/08/07
Signal Analyzer	Agilent	N9020A	Aa-EE039	2024/08/08	2025/08/07
Power Sensor	Agilent	E9300A	Aa-EE046	2024/08/08	2025/08/07
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE071	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE070	2024/08/08	2025/08/07

8.2. Block diagram of test setup



8.3. 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)).

8.4. Assistant equipment used for test

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

8.5. Test procedure

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 frequency of spectrum analyzer = 30MHz-26.5GHz.

Set the spectrum analyzer as RBW=100kHz, VBW≥3*RBW =300kHz, Sweep = auto.
The spectrum analyzer is set to the peak detection

8.6. Test result

Test Site: RF Laboratory	Test Date: 2025/05/06--2025/05/07
Condition: 24°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: hopping off Tx mode
Power supply: DC 7.2V from battery	Memo: The test data can be referred to the Annex Conducted RF Spurious Emission

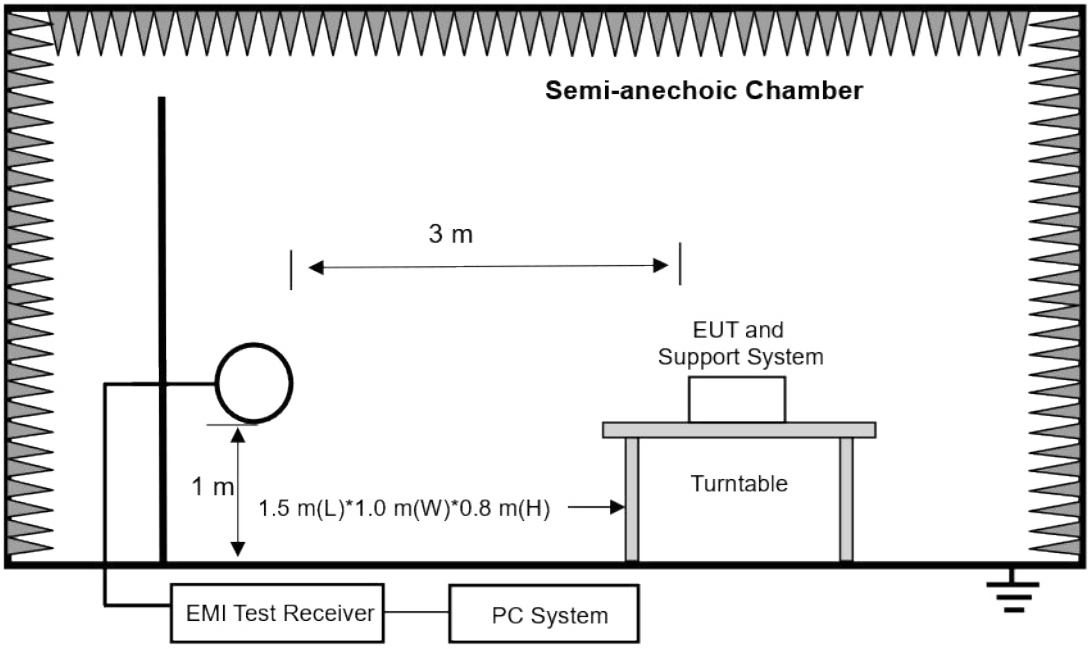
/

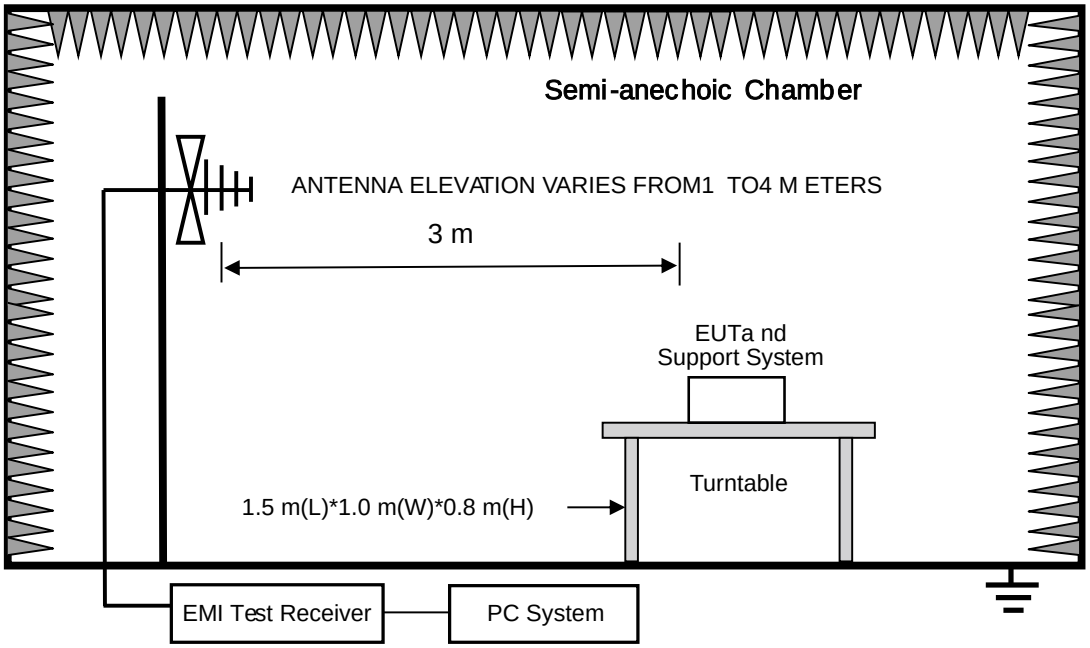
9. Radiated Emission

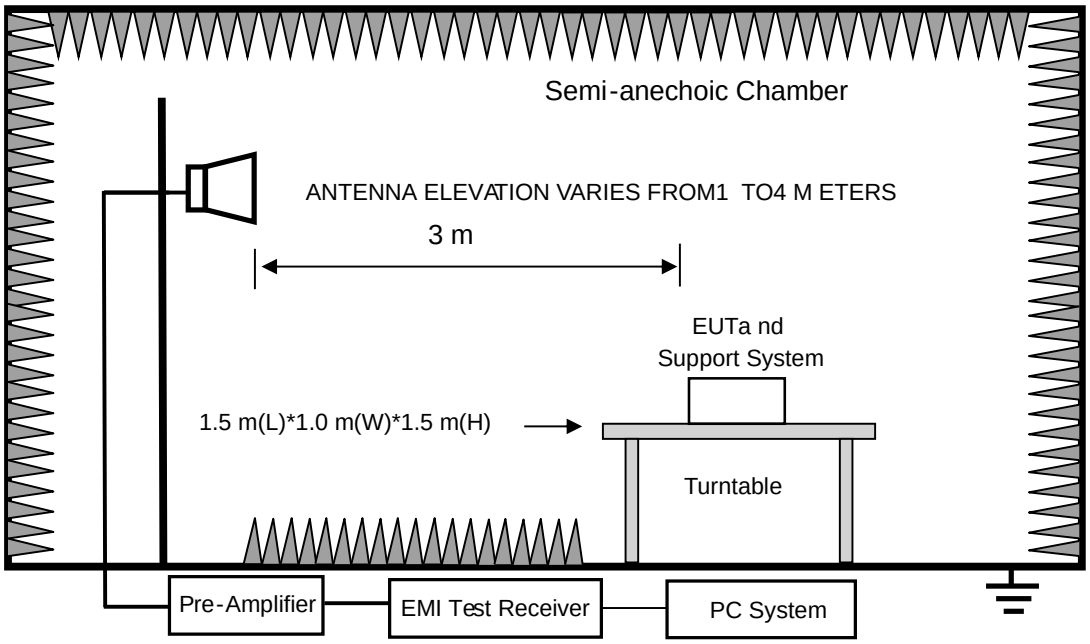
9.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
Spectrum analyzer	ROHDE&SCHWARZ	FSU	Aa-EE075	2024/08/08	2025/08/07
Horn Antenna	SCHWARZBECK	BBHA 9120 D	Aa-EE076	2023/08/19	2025/08/18
Test Receiver	ROHDE&SCHWARZ	ESR	Aa-EE048	2024/08/08	2025/08/07
Bilog Antenna	SCHWARZBECK	VULB 9168	Aa-EE001	2023/08/28	2025/08/27
Amplifier	SKET	LNPA_0118G-45	Aa-EE087	2024/08/08	2025/08/07
Horn Antenna	SCHWARZBECK	BBHA 9170	Aa-EE077	2023/08/19	2025/08/18
Loop Antenna	SCHWARZBECK	FMZB 1519B	Aa-EE074	2023/08/19	2025/08/18

9.2. Block diagram of test setup







9.3. 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.

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

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 section15.209(a) limit in the table below has to be followed.

9.4. Assistant equipment used for test

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

9.5. Test procedure

The measuring distance of 3m shall be used for measurements at frequency up to 1GH and above 1GHz, The EUT was placed on a rotating 0.8 m high above ground for below 1GHz and 1.5m high for above1GHz 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.

9.6. Test result

Test Site: Chamber 1#(RSE)	Test Date: 2025/04/27--2025/04/27
Condition: 22.8°C,54%RH,101kPa	Test Engineer: Yannis Wen
Memo: .	

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: All modes
Power supply: DC 7.2V 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.

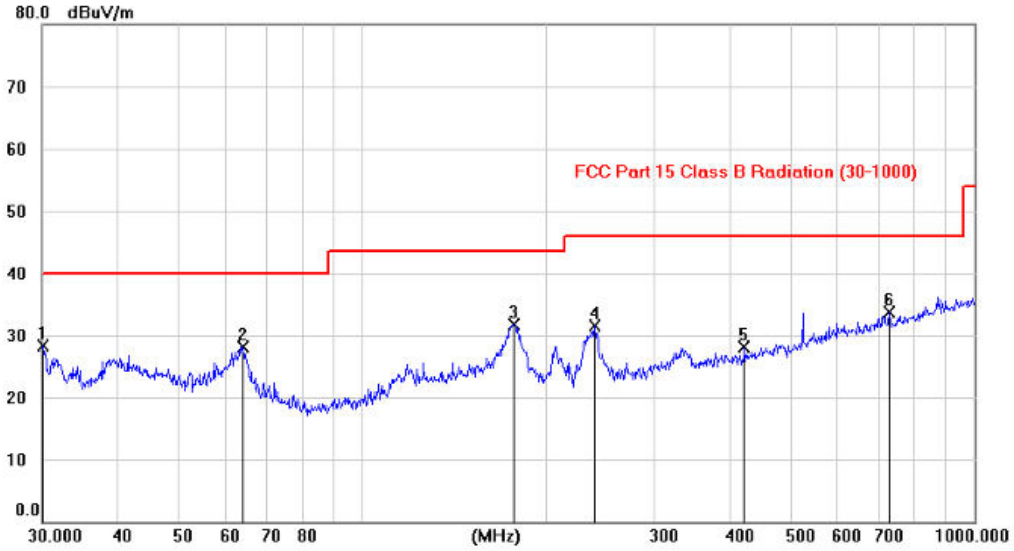
9.7. Test data

深圳阿尔法商品检验有限公司 SHENZHEN ALPHA PRODUCT TESTING CO.,LTD.
深圳阿尔法商品检验有限公司
Shenzhen Alpha Product Testing Co., Ltd
地址: ALPHA 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: 22.8
Limit: FCC Part 15 Class B Radiation (30-1000)	Power: DC 7.2V From Battery	Humidity: 54 %
EUT/Task No : A2503163-C07	Distance: 3m	
M/N/Sample No: A2503163-S0001		
Mode : GFSK hopping off TX mode-L		
Note:		
Engineer Signature: Yanni3 wen		

Radiated Emission Measurement

File :A2503163-C07 Data :#1 Date: 2025/4/27 Time: 15:04:37



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		30.1617	14.72	13.53	28.25	40.00	-11.75	peak			
2		63.8035	15.58	12.52	28.10	40.00	-11.90	peak			
3	*	177.5092	18.77	13.03	31.80	43.50	-11.70	peak			
4		240.0154	19.04	12.55	31.59	46.00	-14.41	peak			
5		420.8262	11.41	16.76	28.17	46.00	-17.83	peak			
6		725.2777	11.62	22.08	33.70	46.00	-12.30	peak			

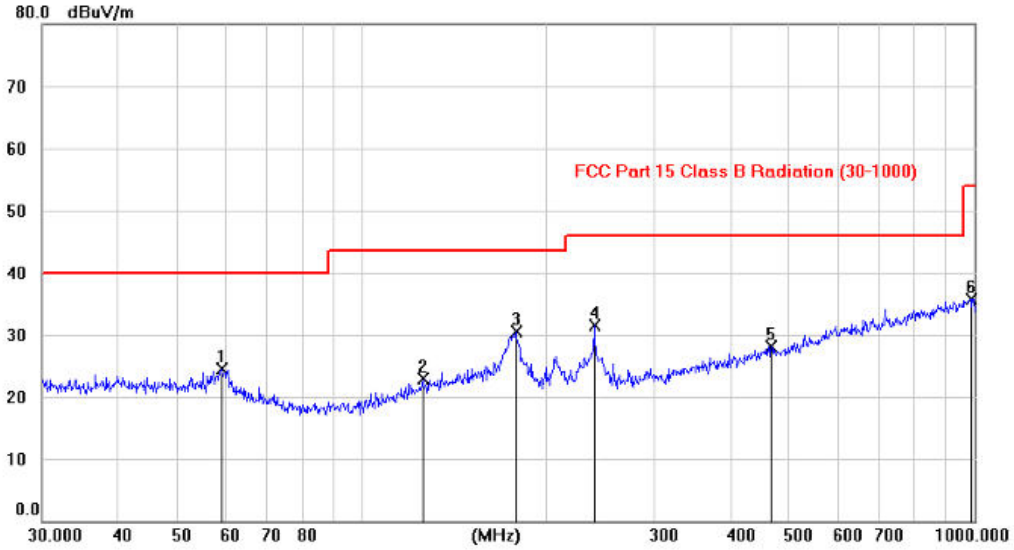
Note:1. *:Maximum data; x:Over limit; !:over margin.
2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

深圳阿尔法商品检验有限公司 SHENZHEN ALPHA PRODUCT TESTING CO.,LTD.
深圳阿尔法商品检验有限公司
Shenzhen Alpha Product Testing Co., Ltd
地址: ALPHA 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: 22.8
Limit: FCC Part 15 Class B Radiation (30-1000)	Power: DC 7.2V From Battery	Humidity: 54 %
EUT/Task No : A2503163-C07	Distance: 3m	
M/N/Sample No: A2503163-S0001		
Mode : GFSK hopping off TX mode-L		
Note:		
Engineer Signature: Yanni3 wen		

Radiated Emission Measurement

File :A2503163-C07 Data :#2 Date: 2025/4/27 Time: 15:06:20



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		59.2048	11.32	13.25	24.57	40.00	-15.43	peak			
2		125.7540	9.63	13.36	22.99	43.50	-20.51	peak			
3	*	178.6331	17.65	12.87	30.52	43.50	-12.98	peak			
4		239.9873	18.96	12.55	31.51	46.00	-14.49	peak			
5		466.8528	10.39	17.72	28.11	46.00	-17.89	peak			
6		984.6896	11.01	24.71	35.72	54.00	-18.28	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 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	46.60	V	33.95	10.18	34.26	56.47	74	-17.53	PK
4804	34.50	V	33.95	10.18	34.26	44.37	54	-9.63	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
4804	44.60	H	33.95	10.18	34.26	54.47	74	-19.53	PK
4804	35.77	H	33.95	10.18	34.26	45.64	54	-8.36	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
Test Mode: GFSK TX Mid									
4882	47.33	V	33.93	10.2	34.29	57.17	74	-16.83	PK
4882	37.34	V	33.93	10.2	34.29	47.18	54	-6.82	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
4882	42.53	H	33.93	10.2	34.29	52.37	74	-21.63	PK
4882	33.88	H	33.93	10.2	34.29	43.72	54	-10.28	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
Test Mode: GFSK TX High									
4960	46.05	V	33.93	10.2	34.29	55.89	74	-18.11	PK
4960	34.16	V	33.93	10.2	34.29	44.00	54	-10.00	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
4960	46.17	H	33.93	10.2	34.29	56.01	74	-17.99	PK
4960	37.39	H	33.93	10.2	34.29	47.23	54	-6.77	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.

Test Mode: π/4 DQPSK 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	47.64	V	33.95	10.18	34.26	57.51	74	-16.49	PK
4804	34.47	V	33.95	10.18	34.26	44.34	54	-9.66	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
4804	46.39	H	33.95	10.18	34.26	56.26	74	-17.74	PK
4804	34.81	H	33.95	10.18	34.26	44.68	54	-9.32	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
Test Mode: π/4 DQPSK TX Mid									
4882	43.52	V	33.93	10.2	34.29	53.36	74	-20.64	PK
4882	35.43	V	33.93	10.2	34.29	45.27	54	-8.73	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
4882	42.25	H	33.93	10.2	34.29	52.09	74	-21.91	PK
4882	33.89	H	33.93	10.2	34.29	43.73	54	-10.27	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
Test Mode: π/4 DQPSK TX High									
4960	46.51	V	33.93	10.2	34.29	56.35	74	-17.65	PK
4960	33.86	V	33.93	10.2	34.29	43.70	54	-10.30	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
4960	46.43	H	33.93	10.2	34.29	56.27	74	-17.73	PK
4960	35.74	H	33.93	10.2	34.29	45.58	54	-8.42	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.

Test Mode: 8DPSK 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	46.51	V	33.95	10.18	34.26	56.38	74	-17.62	PK
4804	35.61	V	33.95	10.18	34.26	45.48	54	-8.52	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
4804	45.26	H	33.95	10.18	34.26	55.13	74	-18.87	PK
4804	35.99	H	33.95	10.18	34.26	45.86	54	-8.14	AV
7206	/	/	/	/	/	/	/	/	/
9608	/	/	/	/	/	/	/	/	/
Test Mode: 8DPSK TX Mid									
4882	47.36	V	33.93	10.2	34.29	57.20	74	-16.80	PK
4882	37.14	V	33.93	10.2	34.29	46.98	54	-7.02	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
4882	42.40	H	33.93	10.2	34.29	52.24	74	-21.76	PK
4882	34.46	H	33.93	10.2	34.29	44.30	54	-9.70	AV
7323	/	/	/	/	/	/	/	/	/
9764	/	/	/	/	/	/	/	/	/
Test Mode: 8DPSK TX High									
4960	45.44	V	33.93	10.2	34.29	55.28	74	-18.72	PK
4960	34.54	V	33.93	10.2	34.29	44.38	54	-9.62	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/
4960	46.08	H	33.93	10.2	34.29	55.92	74	-18.08	PK
4960	33.90	H	33.93	10.2	34.29	43.74	54	-10.26	AV
7440	/	/	/	/	/	/	/	/	/
9920	/	/	/	/	/	/	/	/	/

Note:

1, Result = Read level + Antenna factor + cable loss-Amp factor

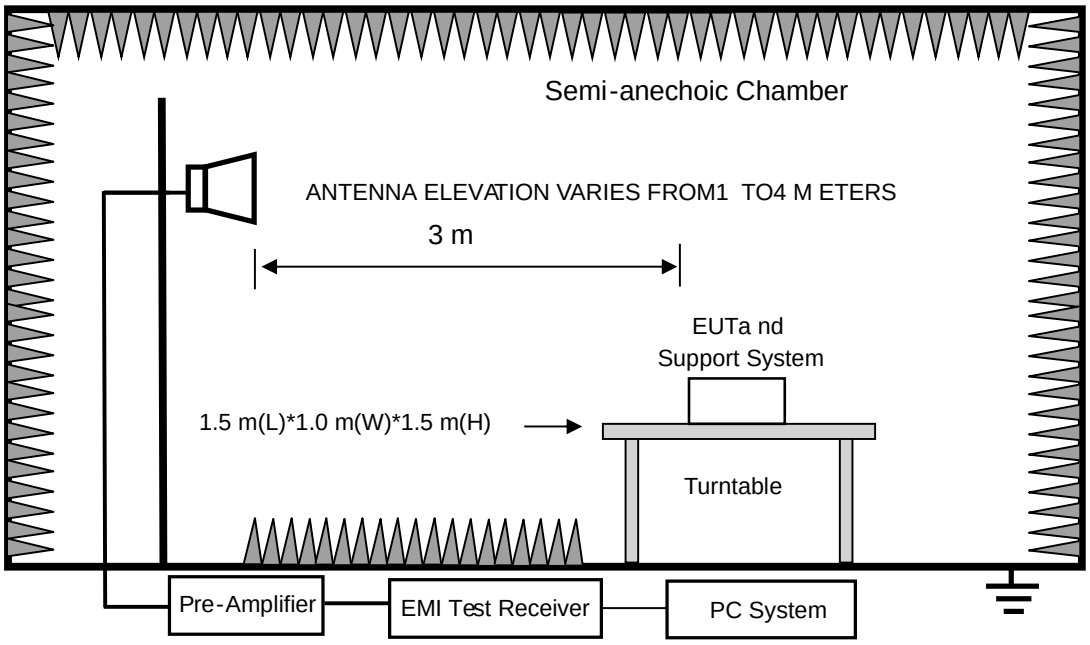
2, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

10.Band Edge(Conducted)

10.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCHWARZ	CMW500	Aa-EE073	2024/08/08	2025/08/07
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	Aa-EE081	2024/08/08	2025/08/07
Signal Analyzer	Agilent	N9020A	Aa-EE039	2024/08/08	2025/08/07
Power Sensor	Agilent	E9300A	Aa-EE046	2024/08/08	2025/08/07
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE071	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE070	2024/08/08	2025/08/07

10.2. Block diagram of test setup



10.3. 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 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)).

10.4. Assistant equipment used for test

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

10.5. Test procedure

1) Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products that fall outside of the authorized band of operation.
2) Reference level: As required to keep the signal from exceeding the maximum instrument input mixer level for linear operation.
3) Attenuation: Auto (at least 10 dB preferred).
4) Sweep time: Coupled.
5) Resolution bandwidth: 100 kHz.
6) Video bandwidth: 300 kHz.
7) Detector: Peak.
8) Trace: Max hold.
All restriction band and non- restriction band have been tested, only worse case is reported.

10.6. Test result

Test Site: RF Laboratory	Test Date: 2025/05/06--2025/05/07
Condition: 24°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: hopping off Tx mode
Power supply: DC 7.2V from battery	Memo: The test data can be referred to the Annex Band Edge

/

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: hopping on Tx mode-L/H
Power supply: DC 7.2V from battery	Memo: The test data can be referred to the Annex Band Edge(Hopping)

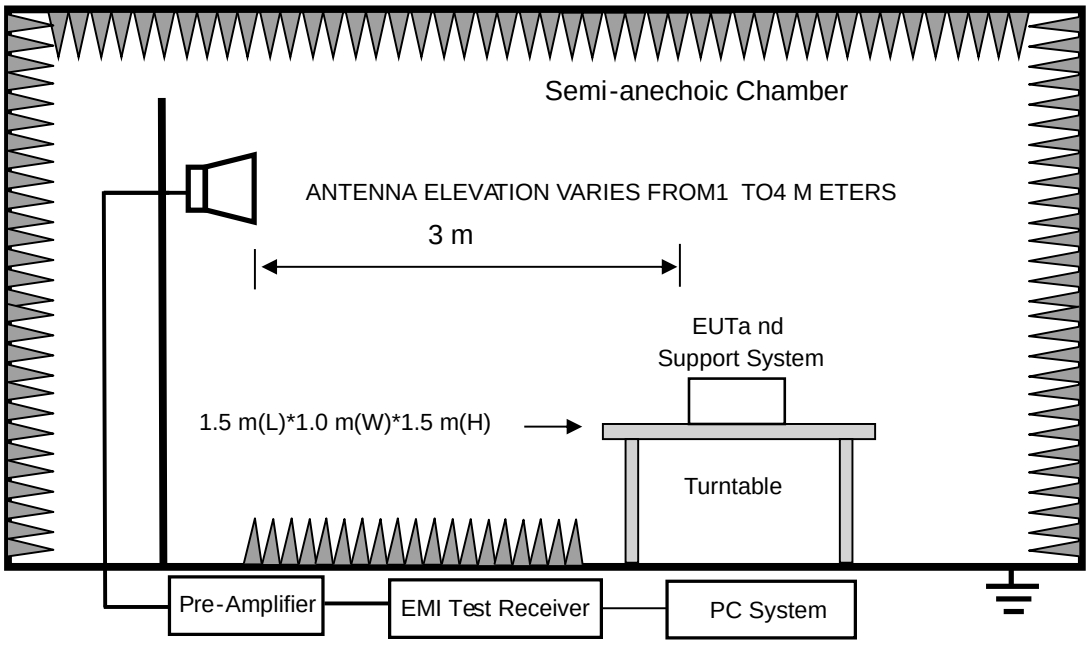
/

11.Band Edge(Radiated)

11.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
Spectrum analyzer	ROHDE&SCHWARZ	FSU	Aa-EE075	2024/08/08	2025/08/07
Horn Antenna	SCHWARZBECK	BBHA 9120 D	Aa-EE076	2023/08/19	2025/08/18
Test Receiver	ROHDE&SCHWARZ	ESR	Aa-EE048	2024/08/08	2025/08/07
Bilog Antenna	SCHWARZBECK	VULB 9168	Aa-EE001	2023/08/28	2025/08/27
Amplifier	SKET	LNPA_0118G-45	Aa-EE087	2024/08/08	2025/08/07
Horn Antenna	SCHWARZBECK	BBHA 9170	Aa-EE077	2023/08/19	2025/08/18
Loop Antenna	SCHWARZBECK	FMZB 1519B	Aa-EE074	2023/08/19	2025/08/18

11.2. Block diagram of test setup



11.3. 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 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)).

11.4. Assistant equipment used for test

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

11.5. 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.

All restriction band and non- restriction band have been tested, only worse case is reported.

11.6. Test result

Test Site: Chamber 1#(RSE)	Test Date: 2025/04/27--2025/04/27
Condition: 22.8°C,54%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: hopping off Tx mode-L/H
Power supply: DC 7.2V from battery	Memo: /

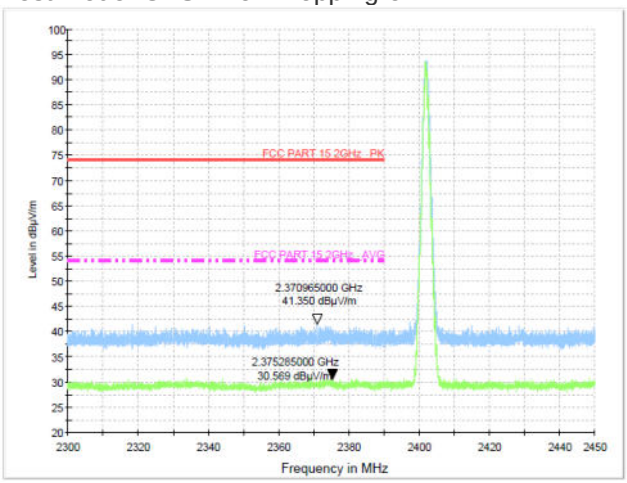
/

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: hopping on Tx mode
Power supply: DC 7.2V from battery	Memo: /

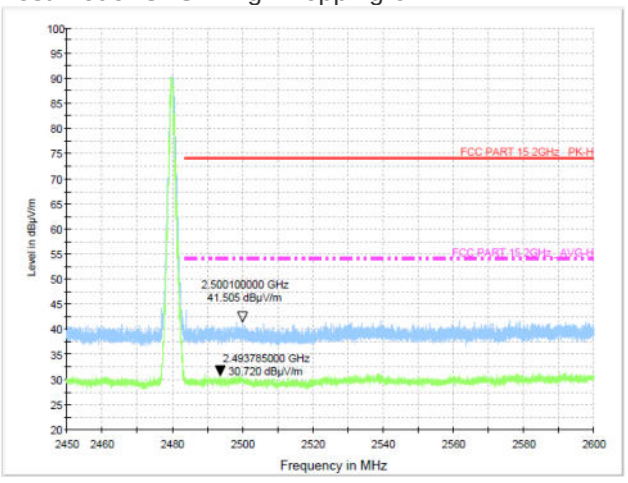
/

11.7. Test data

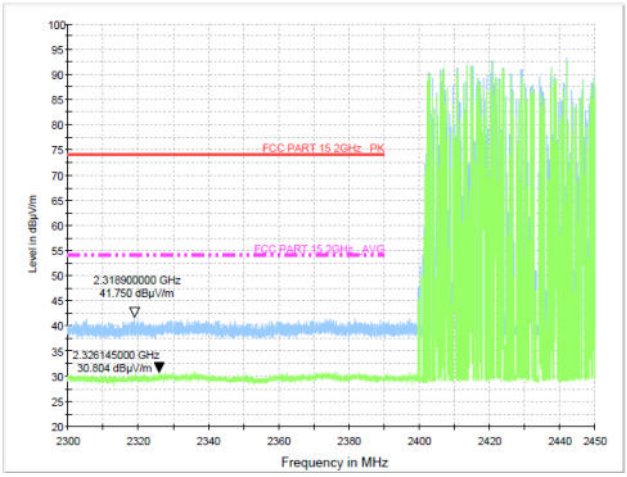
Test Mode: GFSK-Low Hopping-off



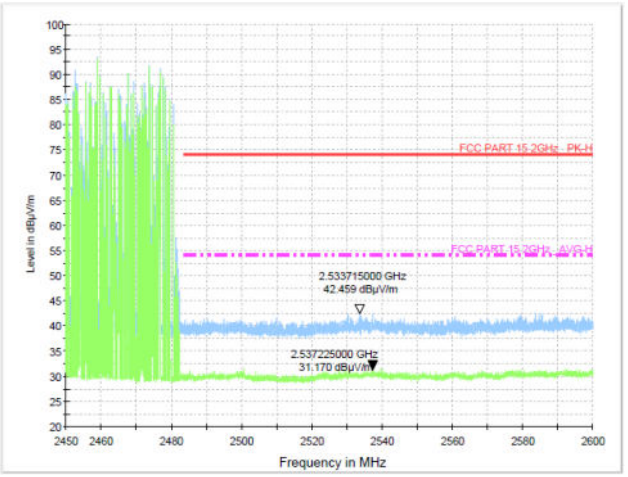
Test Mode: GFSK-High Hopping-off



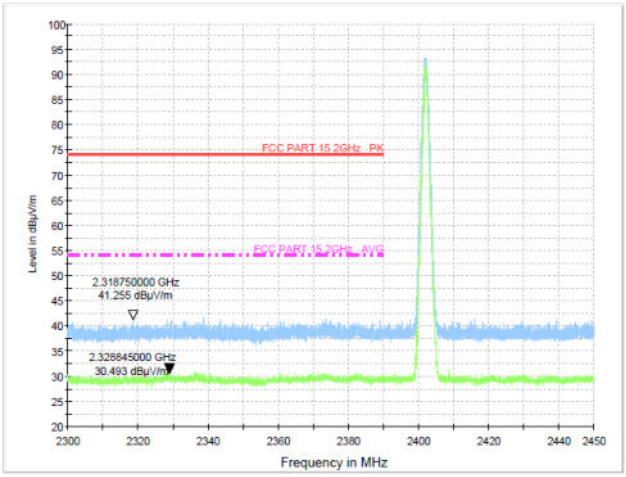
Test Mode: GFSK-Low Hopping-on



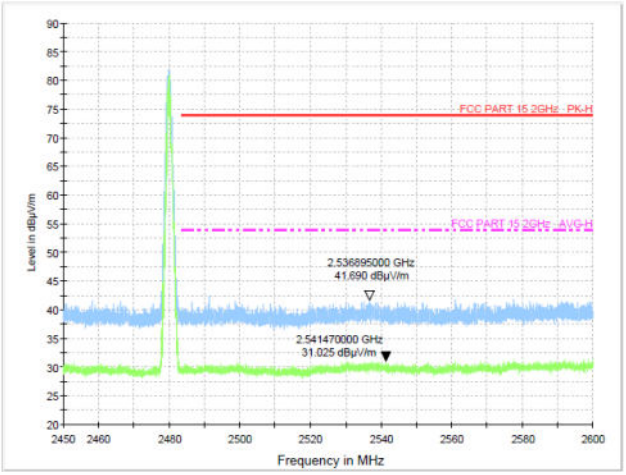
Test Mode: GFSK-High Hopping-on



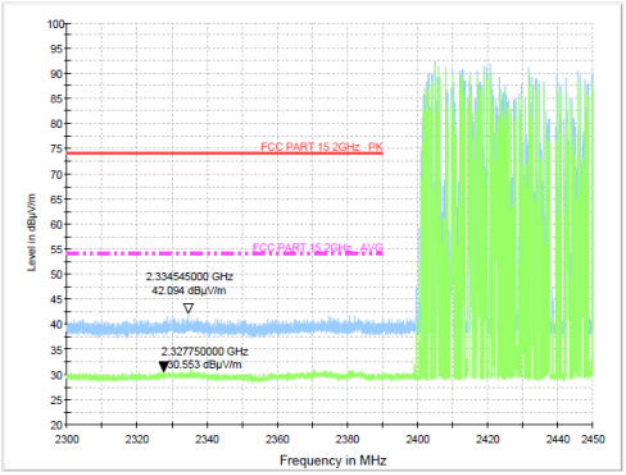
Test Mode: π/4 DQPSK-Low Hopping-off



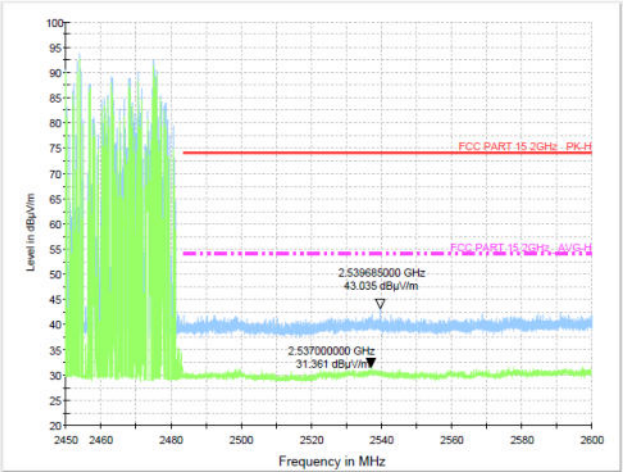
Test Mode: π/4 DQPSK-High Hopping-off



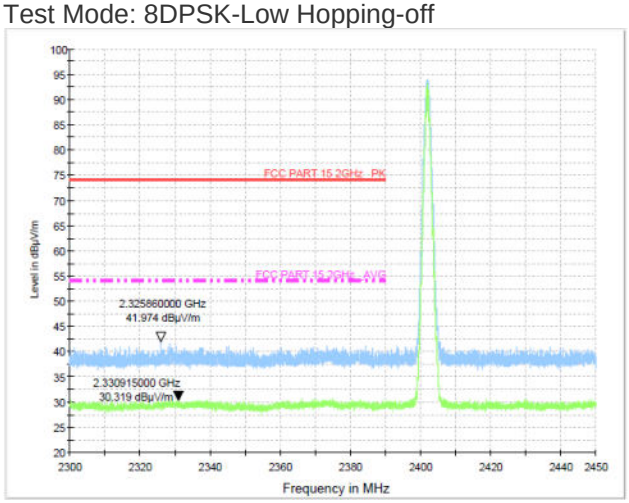
Test Mode: π/4 DQPSK-Low Hopping-on



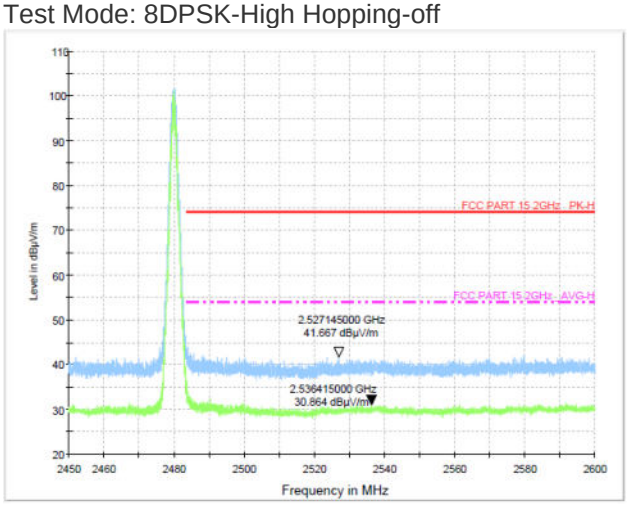
Test Mode: π/4 DQPSK-High Hopping-on



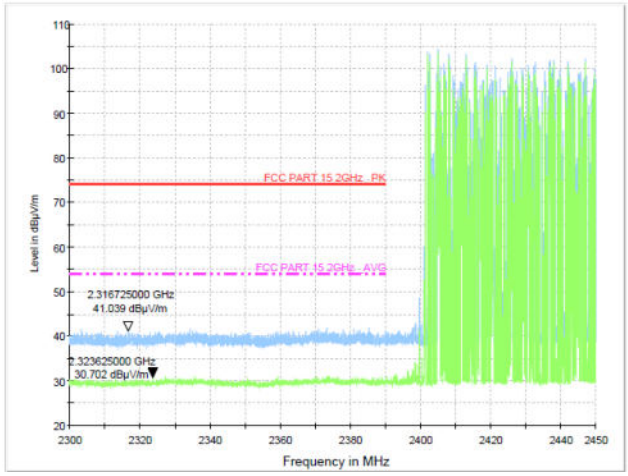
Test Mode: 8DPSK-Low Hopping-off



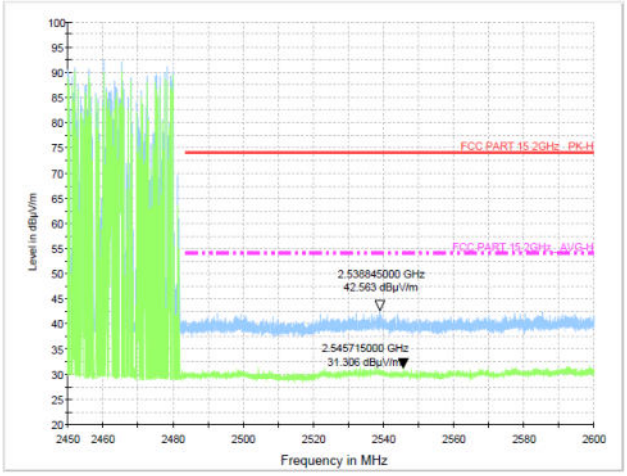
Test Mode: 8DPSK-High Hopping-off



Test Mode: 8DPSK-Low Hopping-on



Test Mode: 8DPSK-High Hopping-on

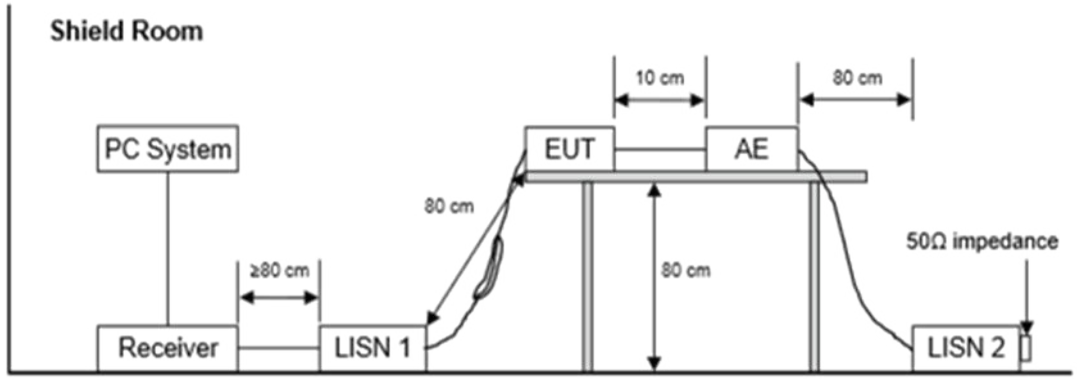


12.Power Line Conducted Emissions

12.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
Test Receiver	ROHDE&SCHWARZ	ESCI	Aa-EE005	2024/08/08	2025/08/07
Pulse Limiter	SCHWARZBECK	9516F	Aa-EE004	2024/08/08	2025/08/07
L.I.S.N.	SCHWARZBECK	NSLK8126	Aa-EE003	2024/08/08	2025/08/07

12.2. Block diagram of test setup



12.3. Limits

Frequency	Quasi-Peak Level dB(uV)	Average Level dB(uV)
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

12.4. Assistant equipment used for test

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

12.5. 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 C63.10:2013 on Conducted Emission Measurement. The bandwidth of test receiver is set at 9 kHz.

12.6. Test result

Test Site: Shield Room CE 1#	Test Date: 2025/04/28--2025/04/28
Condition: 23.2°C,54%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: All modes
Power supply: DC 5V from adapter	Memo: /

PASS. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.
Note2: “-----” means Peak detection; “-----” means Average detection.
Note3: Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/50Hz, recorded the worst case.

12.7. Test data

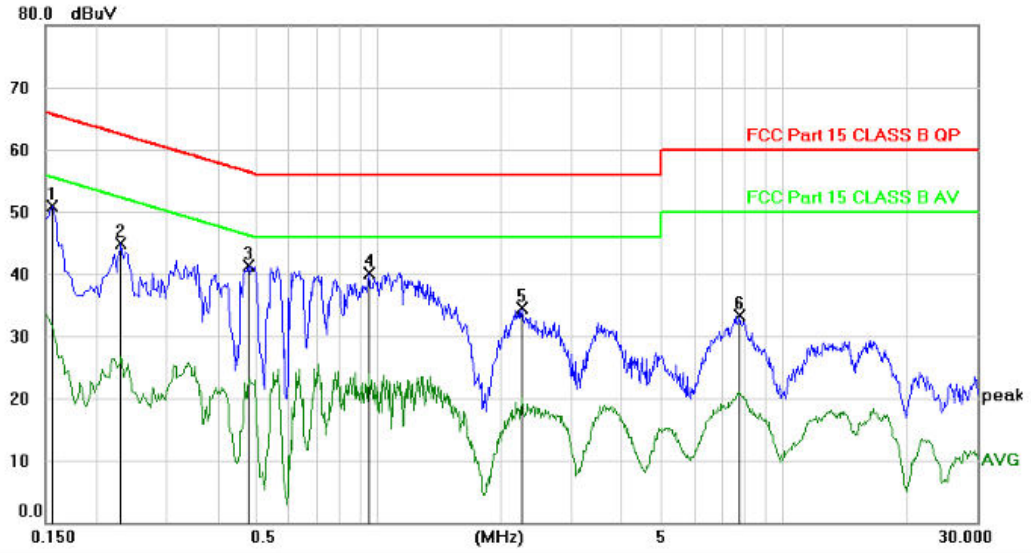
深圳阿尔法商品检验有限公司
SHENZHEN ALPHA PRODUCT TESTING CO.,LTD.

Shenzhen Alpha Product Testing Co., Ltd.
Building i, No.2, Lixin Road, Fuyong Street,
Bao'an District, 518103, Shenzhen, Guangdong, China

Site LAB	Phase:	L1	Temperature: 23.2
Limit: FCC Part 15 CLASS B QP	Power:	DC 5V From Adapter	Humidity: 54 %
EUT: A2503163-C07			
M/N: A2503163-S0001			
Mode: GFSK hoppoing off TX mode-L			
Note: Yanni3 wen			

Conducted Emission Measurement

File :A2503163-C07 Data :#1 Date: 2025/4/28 Time: 9:24:36



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1560	41.69	9.14	50.83	65.67	-14.84	peak	
2		0.2310	35.68	9.15	44.83	62.41	-17.58	peak	
3		0.4770	32.08	9.16	41.24	56.39	-15.15	peak	
4		0.9480	31.03	9.15	40.18	56.00	-15.82	peak	
5		2.2559	25.30	9.19	34.49	56.00	-21.51	peak	
6		7.7760	23.87	9.34	33.21	60.00	-26.79	peak	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

F:\每日测试数据\打印资料\案件\A2503163-C Page: 1 Engineer Signature:

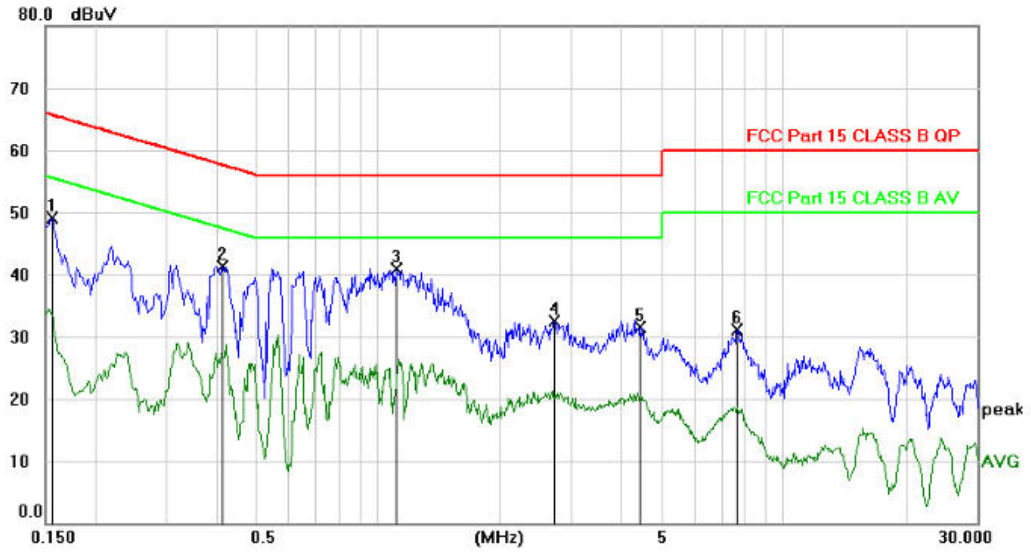
深圳阿尔法商品检验有限公司
SHENZHEN ALPHA PRODUCT TESTING CO.,LTD.

Shenzhen Alpha Product Testing Co., Ltd.
Building i, No.2, Lixin Road, Fuyong Street,
Bao'an District, 518103, Shenzhen, Guangdong, China

Site LAB	Phase: N	Temperature:	23.2
Limit: FCC Part 15 CLASS B QP	Power: DC 5V From Adapter	Humidity:	54 %
EUT: A2503163-C07			
M/N: A2503163-S0001			
Mode: GFSK hoppoing off TX mode-L			
Note: Yanni3 Wen			

Conducted Emission Measurement

File :A2503163-C07 Data :#2 Date: 2025/4/28 Time: 9:26:44



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1560	39.94	9.14	49.08	65.67	-16.59	peak	
2		0.4110	32.17	9.14	41.31	57.63	-16.32	peak	
3	*	1.1010	31.73	9.11	40.84	56.00	-15.16	peak	
4		2.7090	23.31	9.20	32.51	56.00	-23.49	peak	
5		4.4250	22.23	9.22	31.45	56.00	-24.55	peak	
6		7.6770	21.70	9.34	31.04	60.00	-28.96	peak	

*:Maximum data x:Over limit !:over margin 〈Reference Only

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

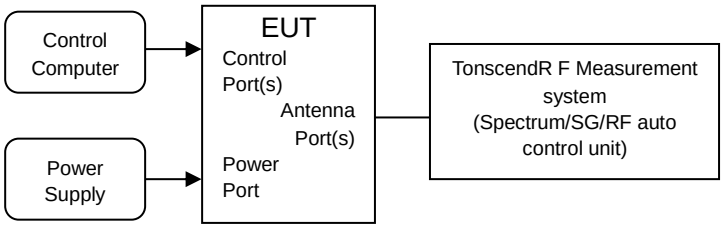
F:\每日测试数据\打印资料\案件\A2503163-C Page: 1 Engineer Signature:

13.Antenna Requirement

13.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal Due To
CMW500	ROHDE&SCHWARZ	CMW500	Aa-EE073	2024/08/08	2025/08/07
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	Aa-EE081	2024/08/08	2025/08/07
Signal Analyzer	Agilent	N9020A	Aa-EE039	2024/08/08	2025/08/07
Power Sensor	Agilent	E9300A	Aa-EE046	2024/08/08	2025/08/07
Vector Signal Generator	Agilent	N5182A	Aa-EE040	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE071	2024/08/08	2025/08/07
Power Sensor	DARE	RPR3006W	Aa-EE070	2024/08/08	2025/08/07

13.2. Block diagram of test setup



13.3. 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.

For intentional device, according to FCC 47 CFR Section 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

13.4. Assistant equipment used for test

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

13.5. Test procedure

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

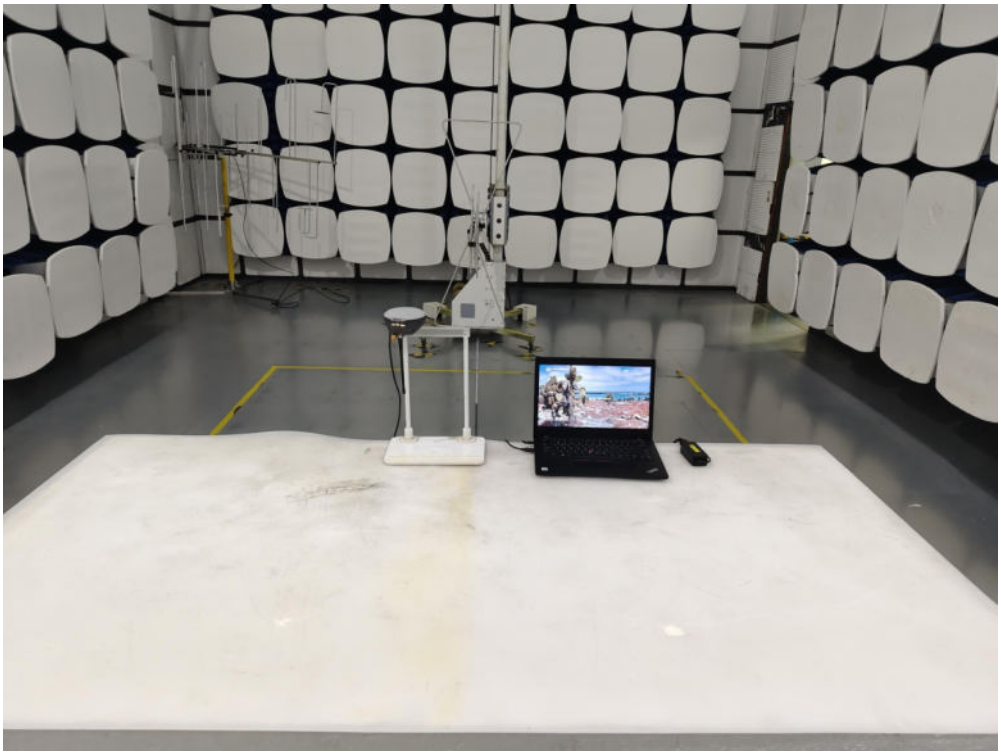
13.6. Test result

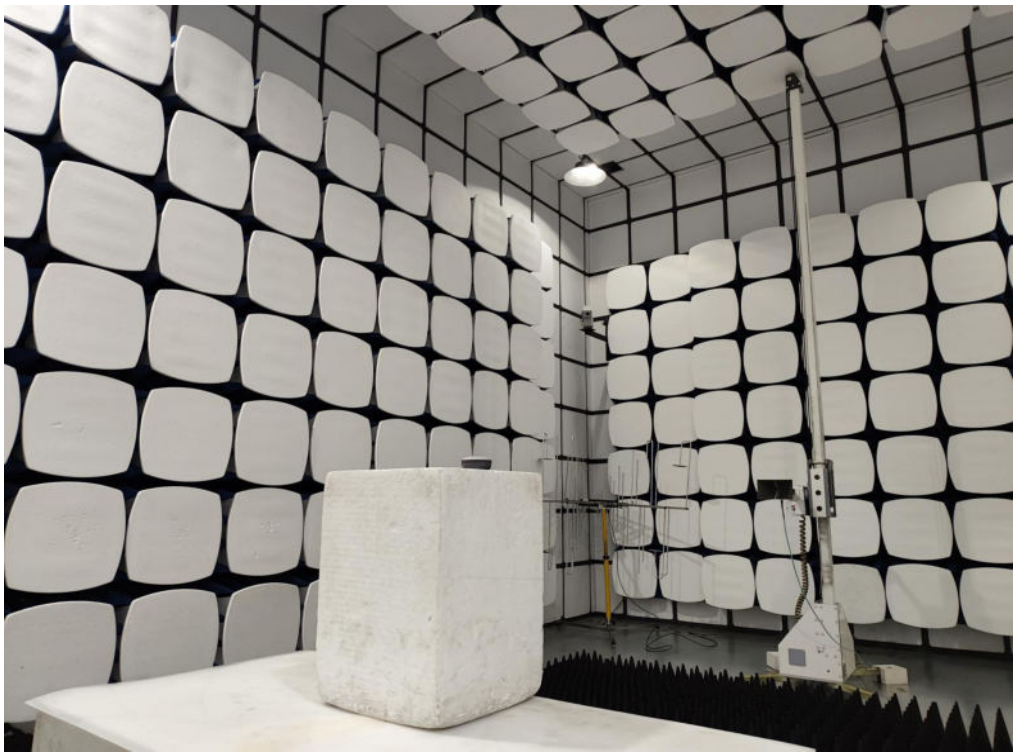
Test Site: RF Laboratory	Test Date: 2025/05/12--2025/05/12
Condition: 24°C,56%RH,101kPa	Test Engineer: Yannis Wen
Memo: /	

EUT Name: Geodetic GNSS Receiver	EUT Model: F6
Sample No.: A2503163-S0001	Test Mode: /
Power supply: /	Memo: The EUT antenna is Internal Antenna. It complies with the standard requirement.

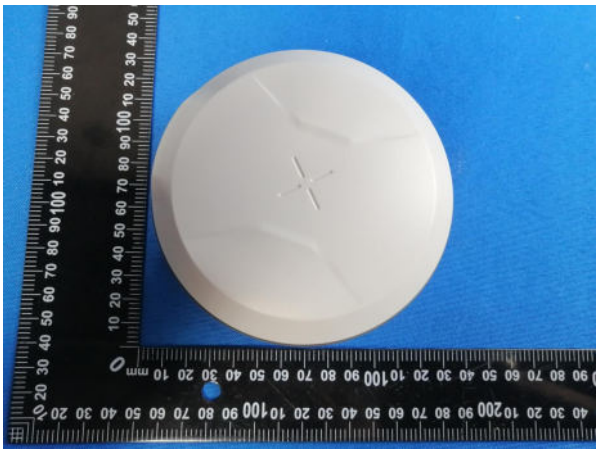
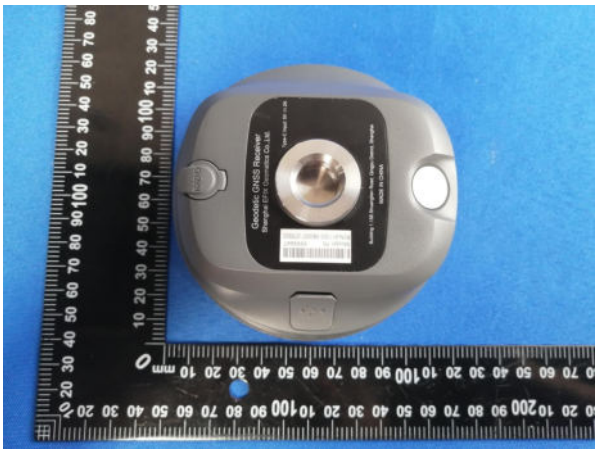
/

14. Test Setup Photograph

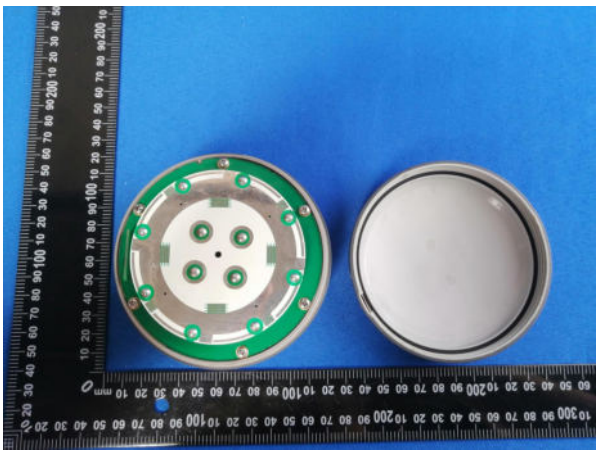
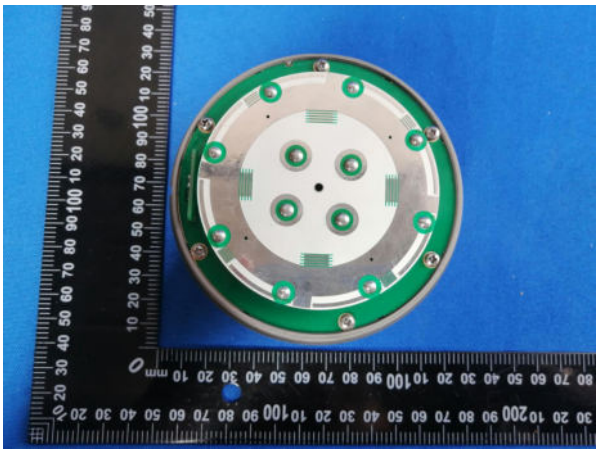
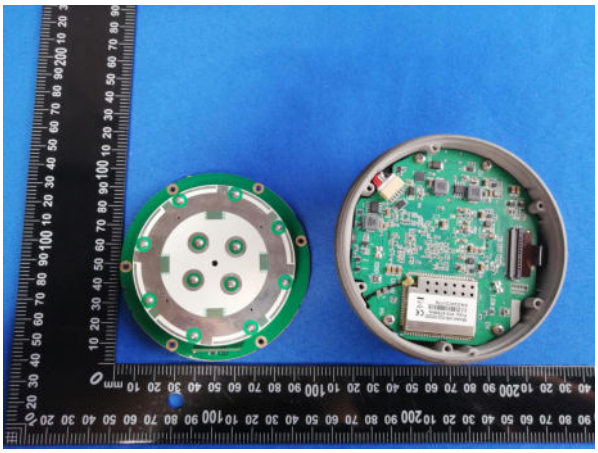
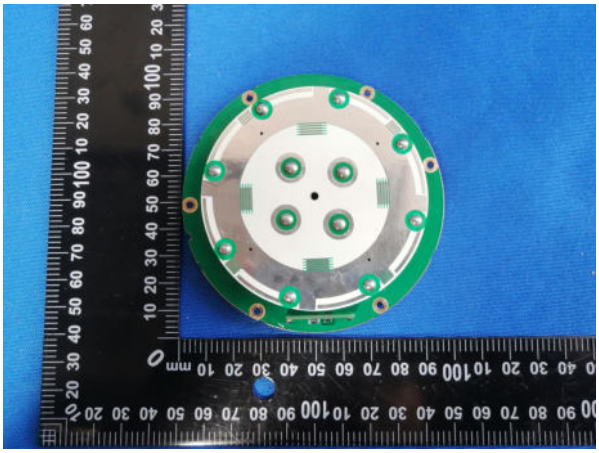
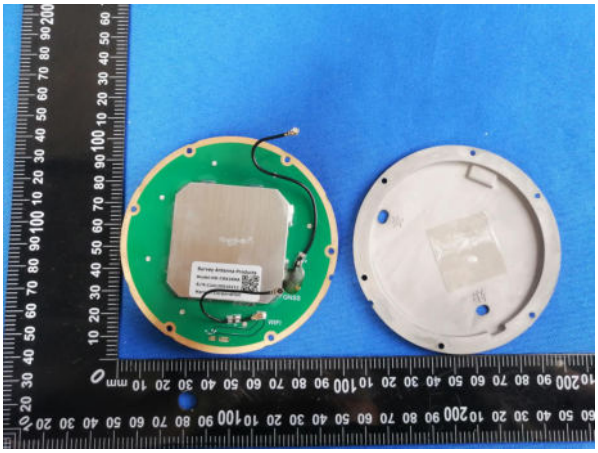


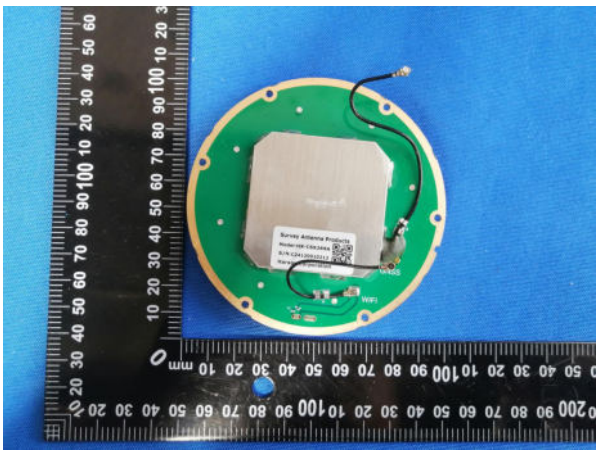
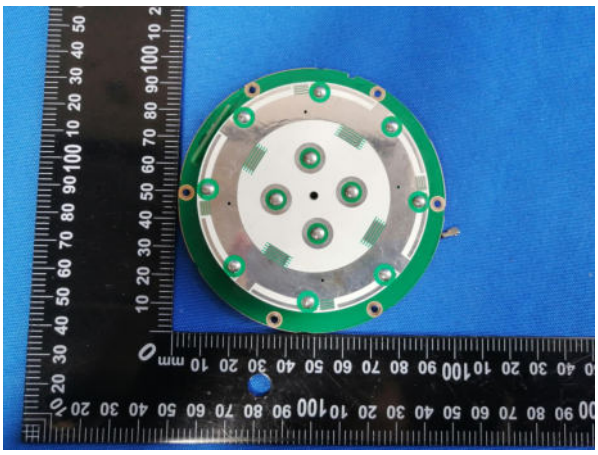
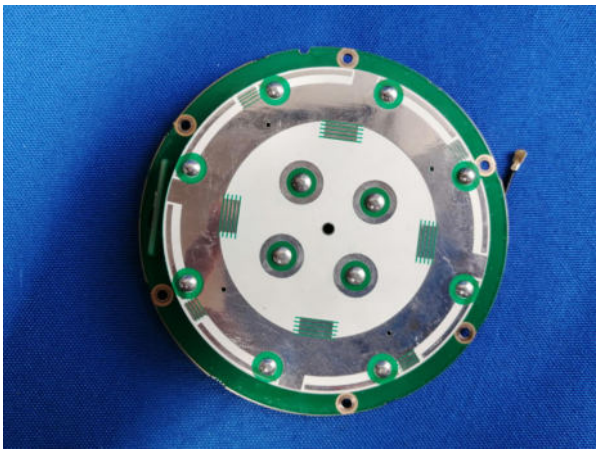
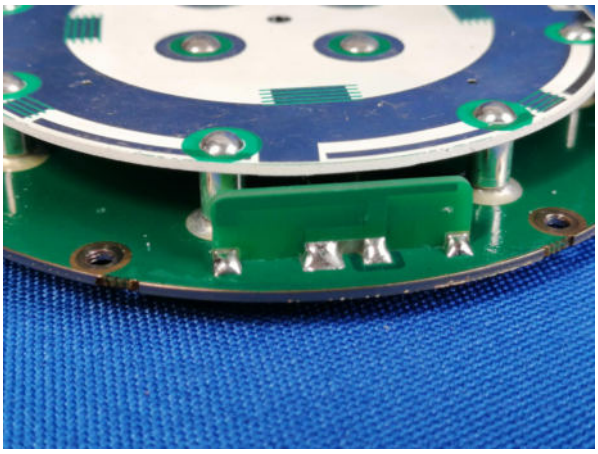
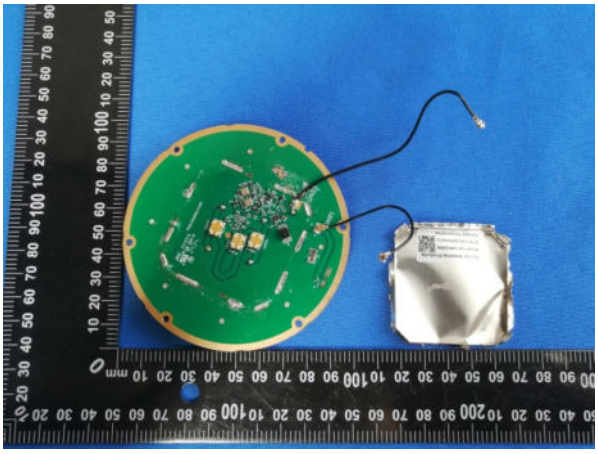


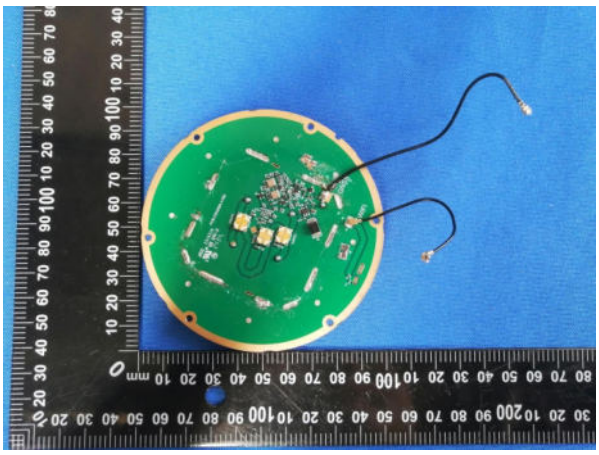
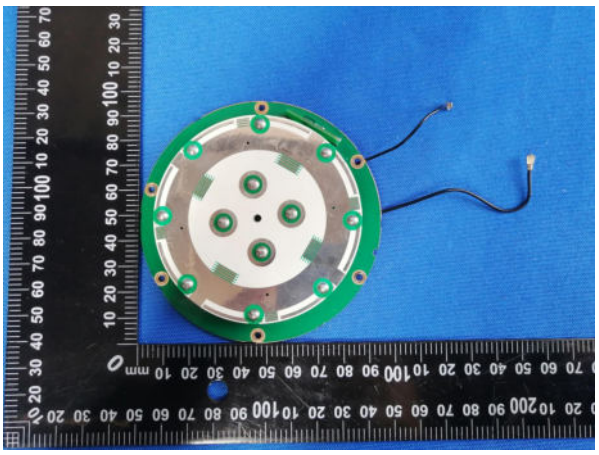
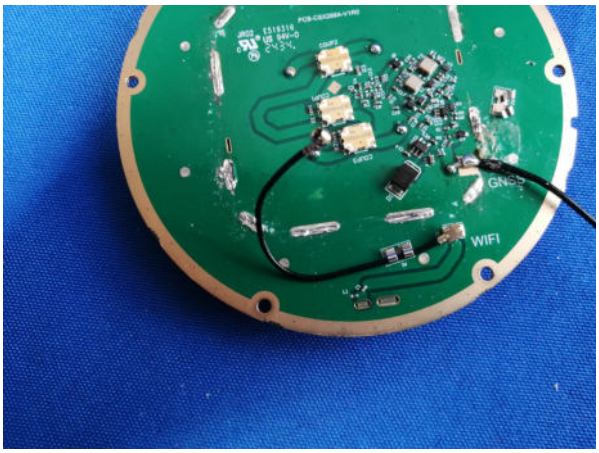
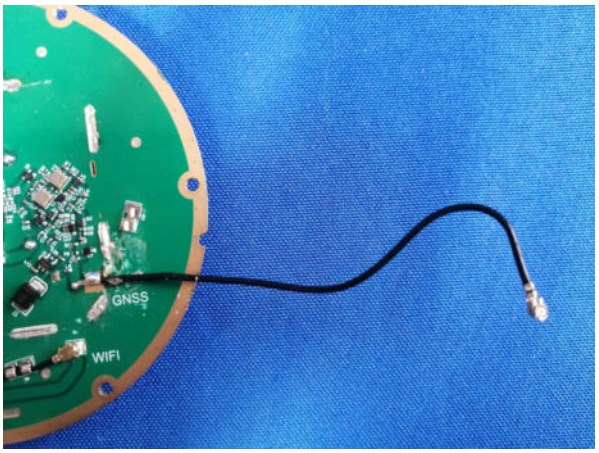
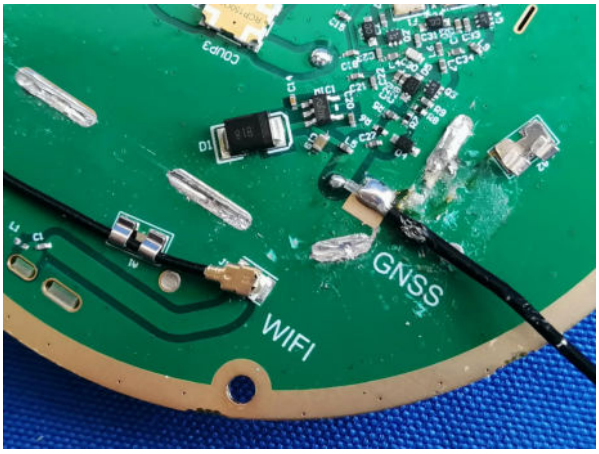
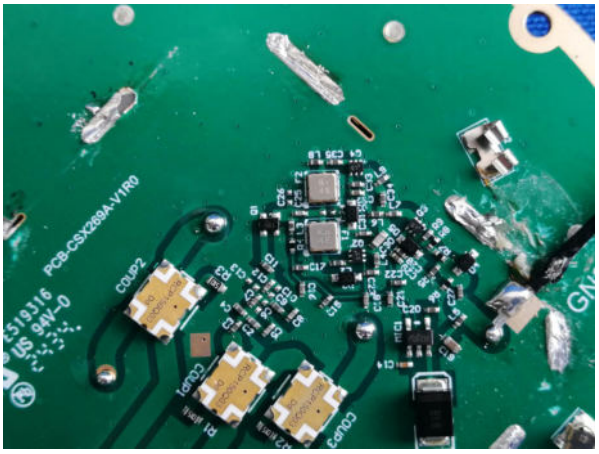
15. Photos of the EUT

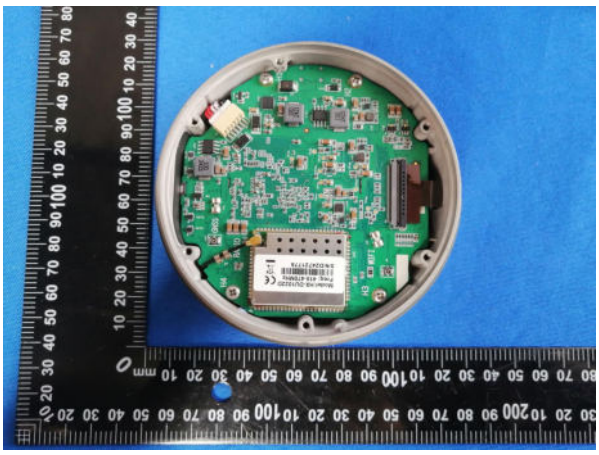
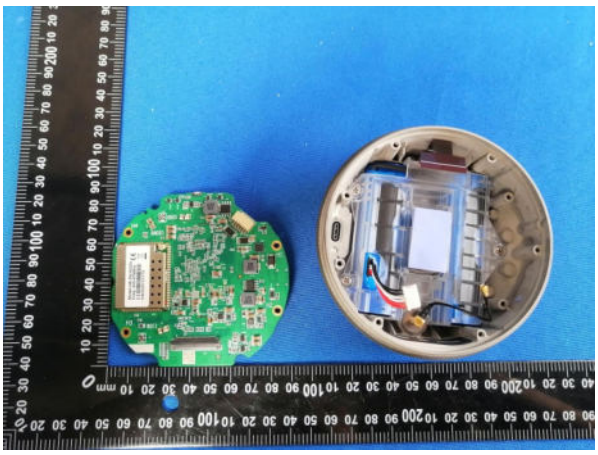
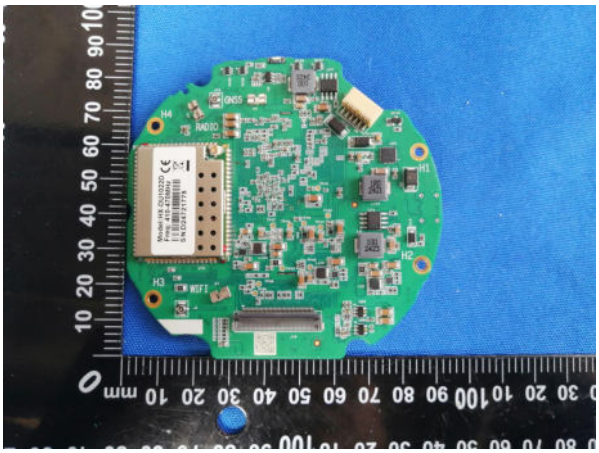
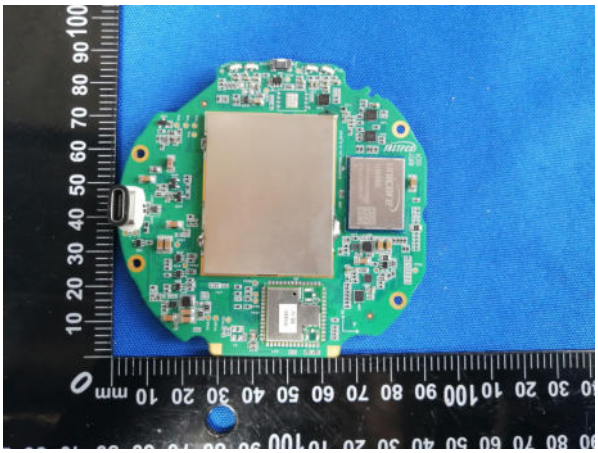
	
/	/
	
/	/
	
/	/

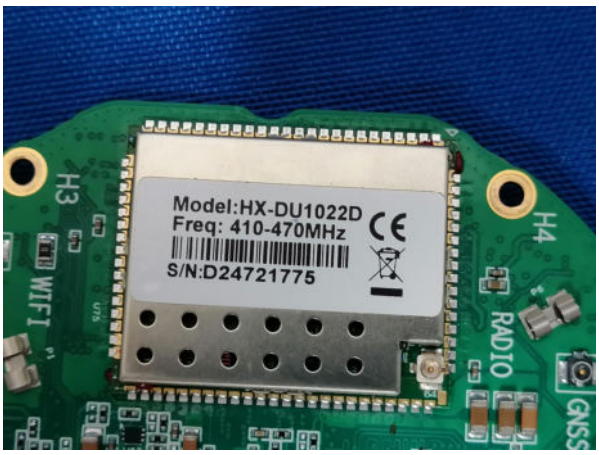
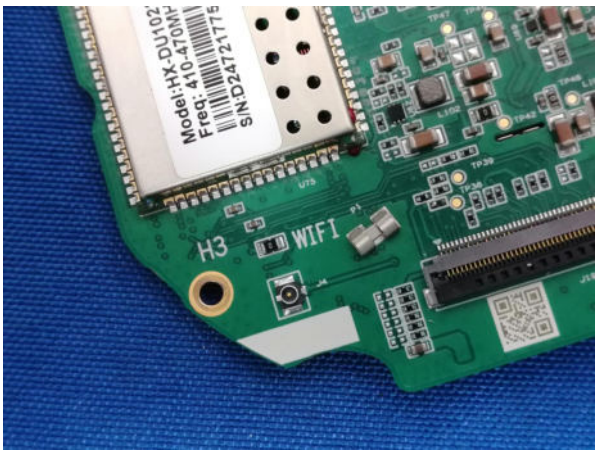
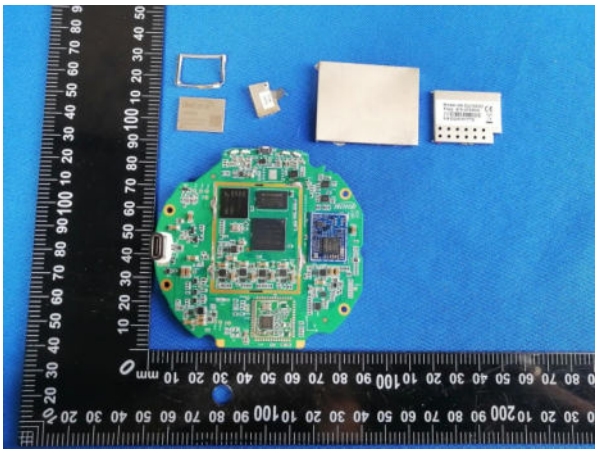
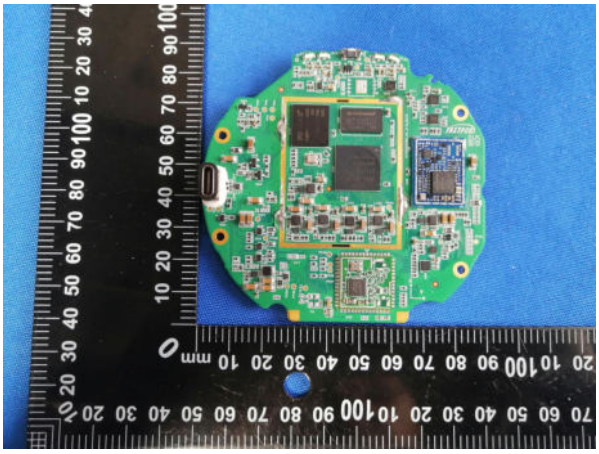
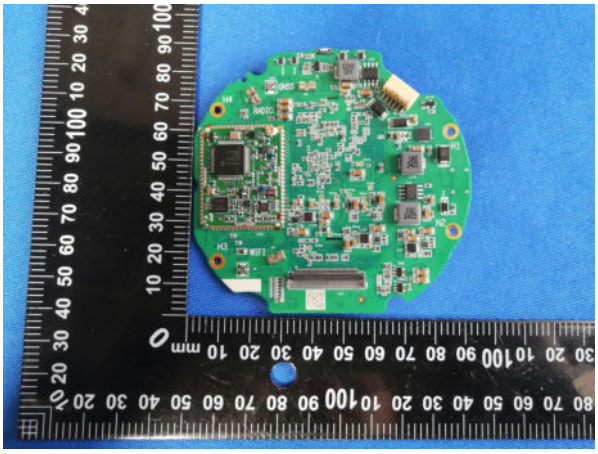
	
/	/
 Geodetic GNSS Receiver Shanghai EFIX Geomatics Co.,Ltd. Type-C Input: 5V ⎓ 2A Model: F6 9999647 P/N:A11350.980007-070503 Building 1,158 Shuanglian Road, Qingpu District, Shanghai MADE IN CHINA	
/	/
	 EFIX
/	/

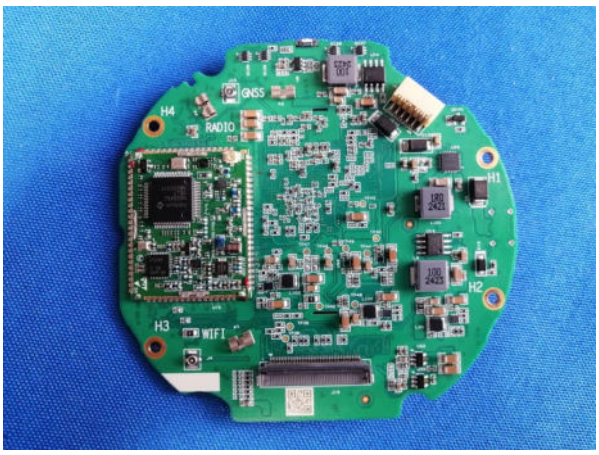
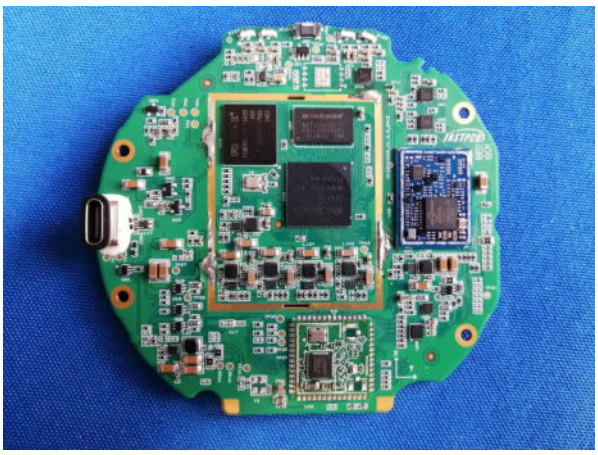
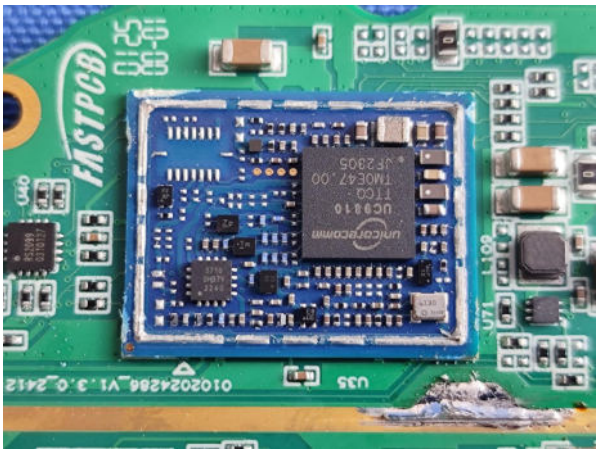
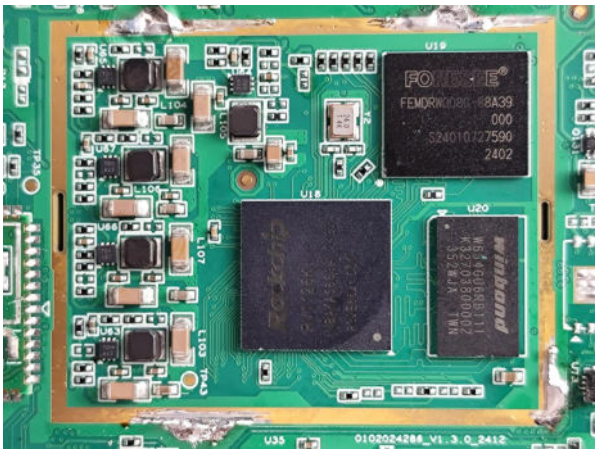
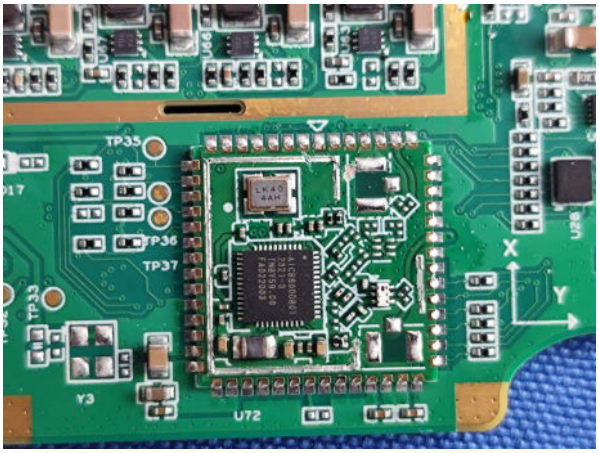
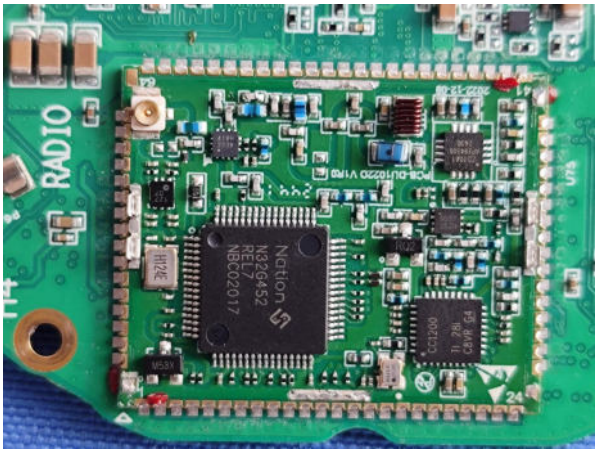
	
/	/
	
/	/
	
/	/

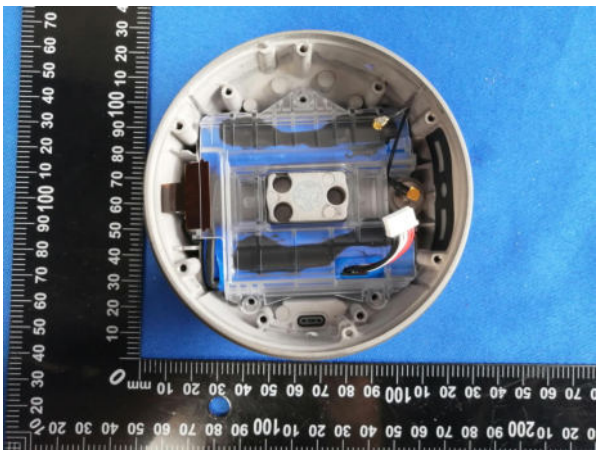
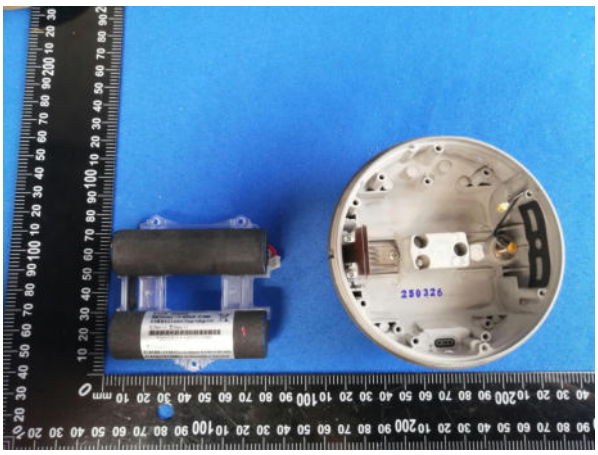
	
/	/
	
/	/
 Survey Antenna Products Model:HX-CSX269A S/N:C24120010212 Harxon Corporation	
/	/

	
/	/
	
/	/
	
/	/

	
/	/
	
/	/
 FASTPCB unicore UM980 P/N:2310415000001 S/N:A6242301730	 AN440- SE-IV
/	/

 Model:HX-DU1022D Freq: 410-470MHz S/N:D24721775 H3 H4 WIFI RADIO	 Model:HX-DU102 Freq: 410-470M S/N:D24721775 H3 WIFI
/	/
 GNSS H4 RADIO	
/	/
	
/	/

	
/	/
	
/	/
	
/	/

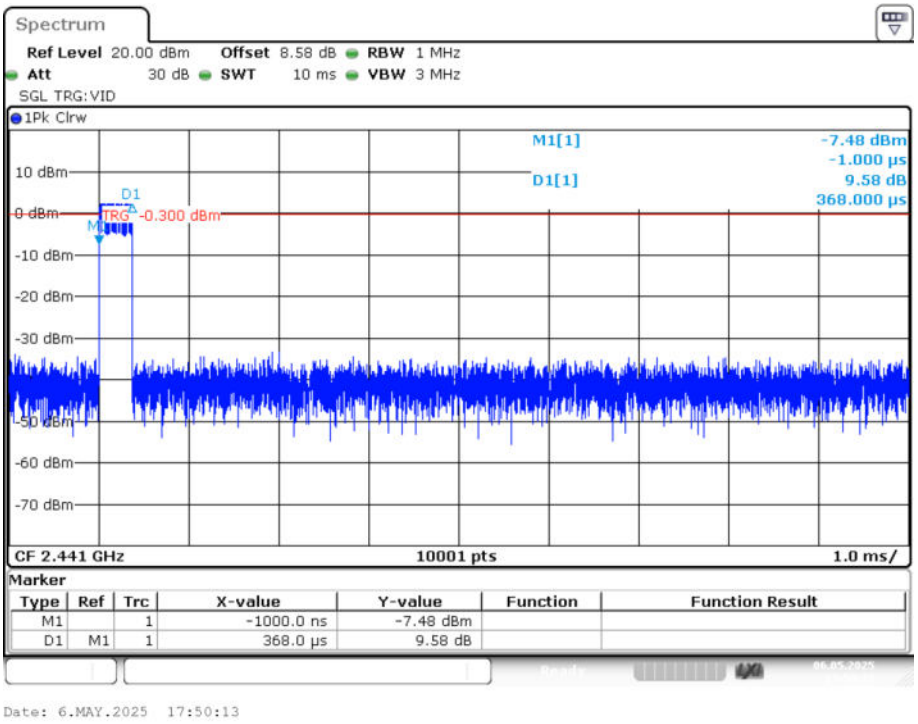
	
/	/
	/
/	/

16. Annex

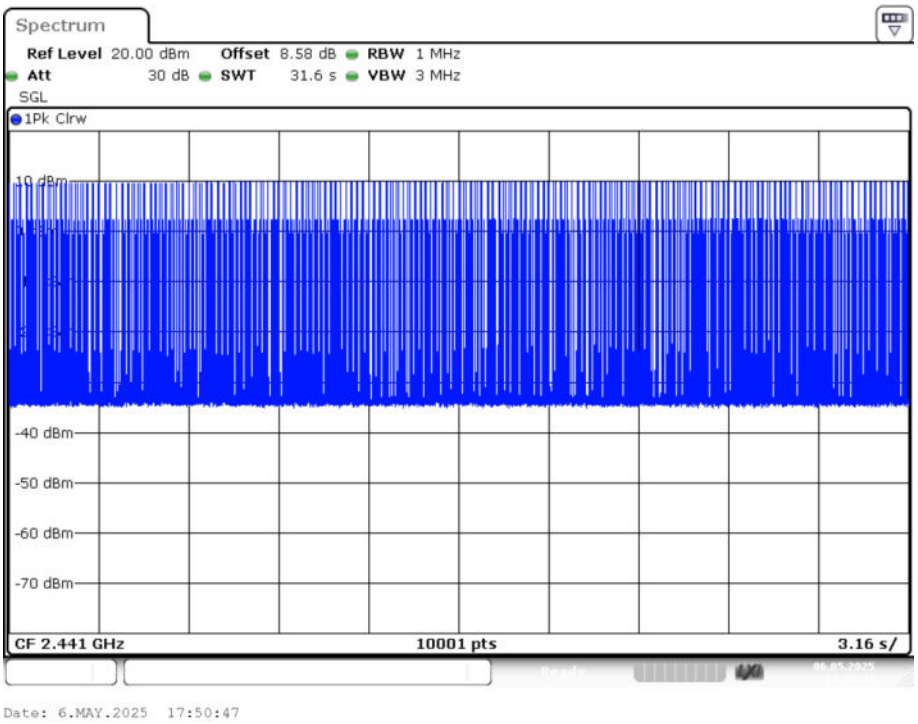
Dwell Time

Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.368	117.392	319	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.624	258.216	159	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.871	292.842	102	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.375	119.25	318	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.626	261.786	161	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.873	275.808	96	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.377	120.263	319	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.628	263.736	162	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.88	285.12	99	31600	400	Pass

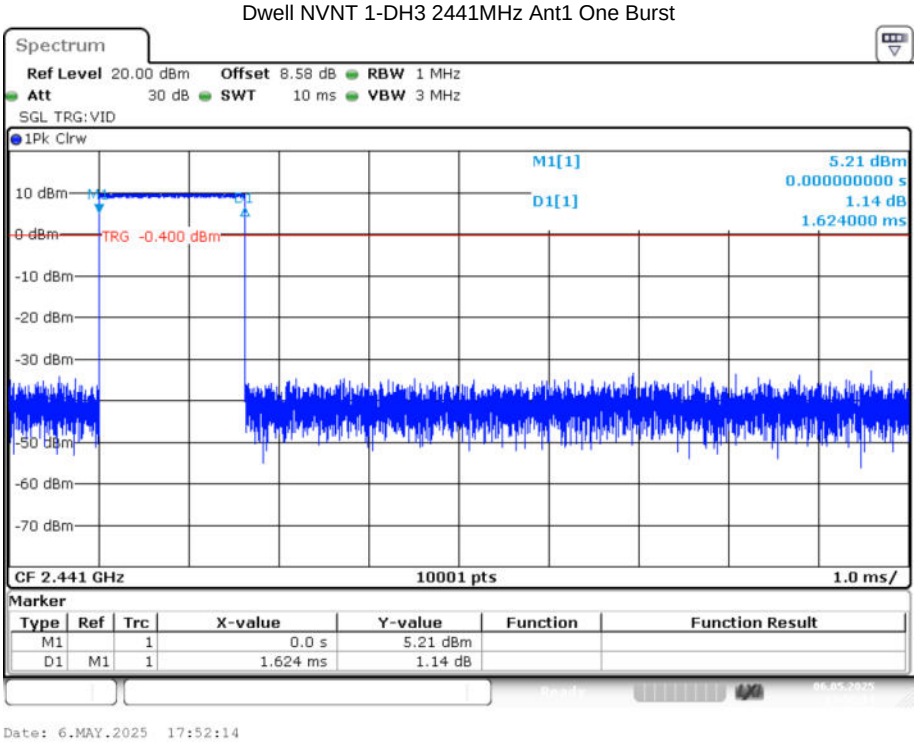
Dwell NVNT 1-DH1 2441MHz Ant1 One Burst



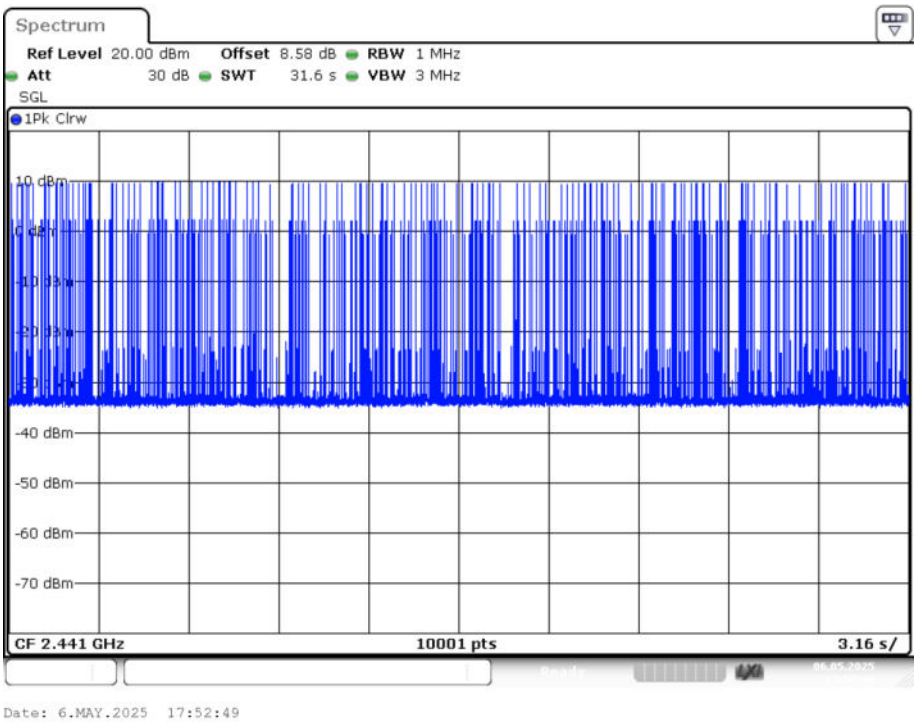
Dwell NVNT 1-DH1 2441MHz Ant1 Accumulated



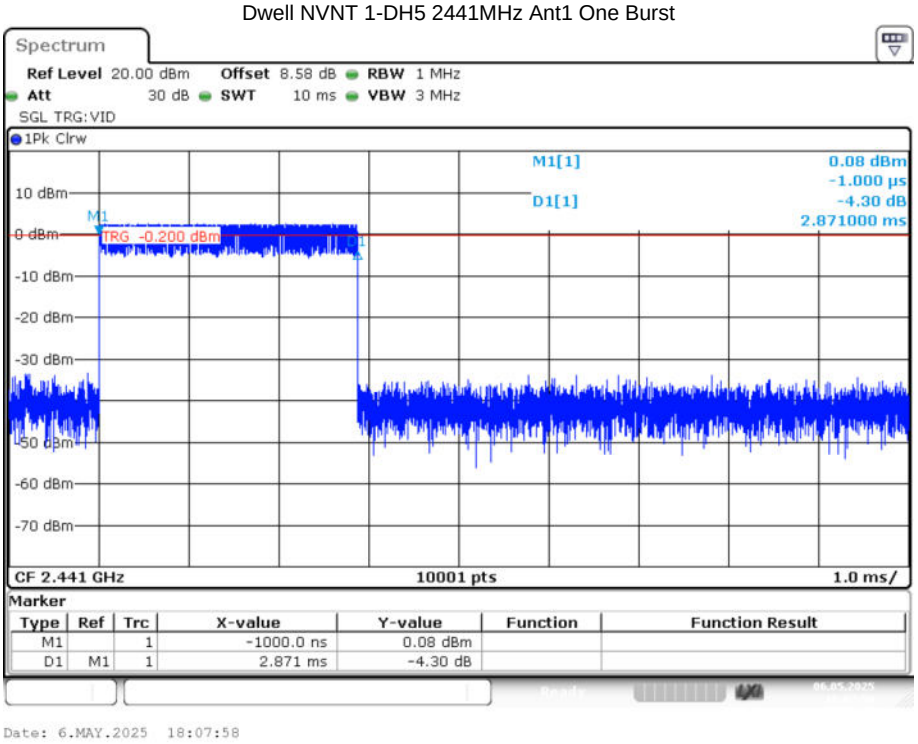
Dwell NVNT 1-DH3 2441MHz Ant1 One Burst



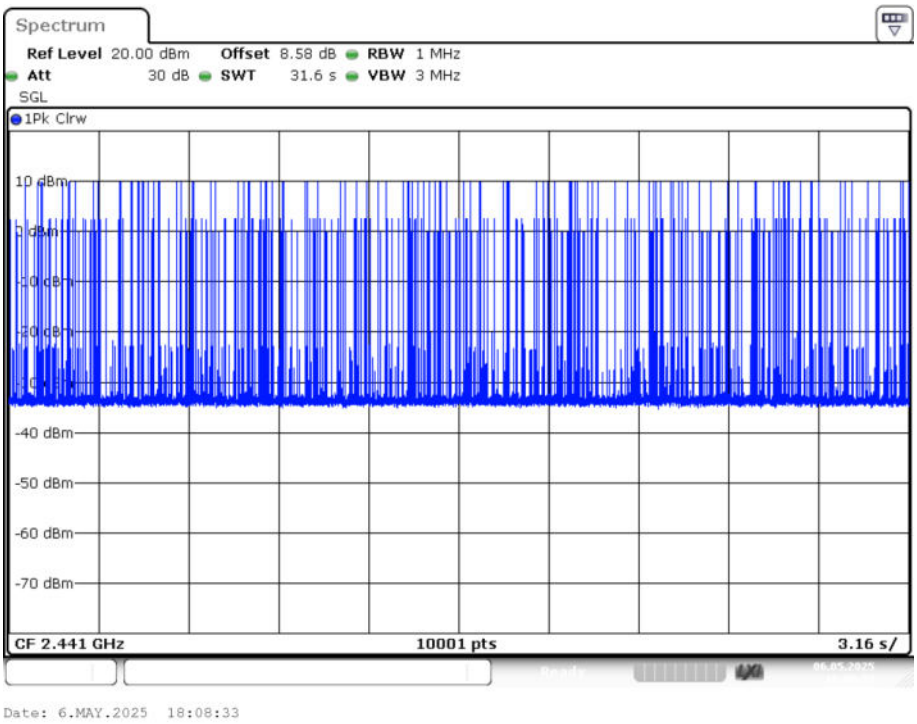
Dwell NVNT 1-DH3 2441MHz Ant1 Accumulated



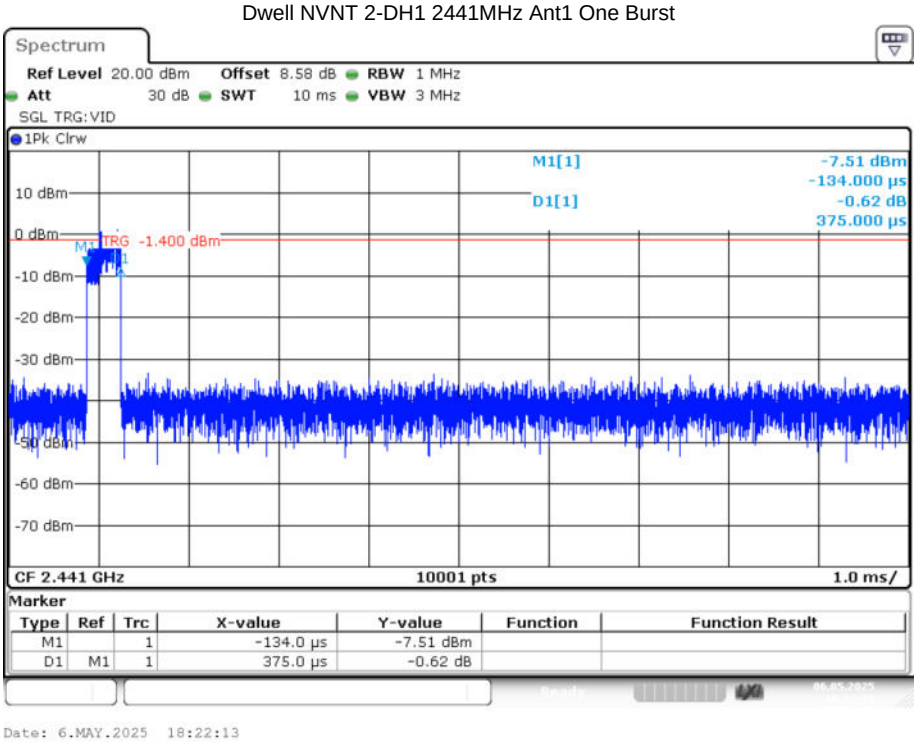
Dwell NVNT 1-DH5 2441MHz Ant1 One Burst



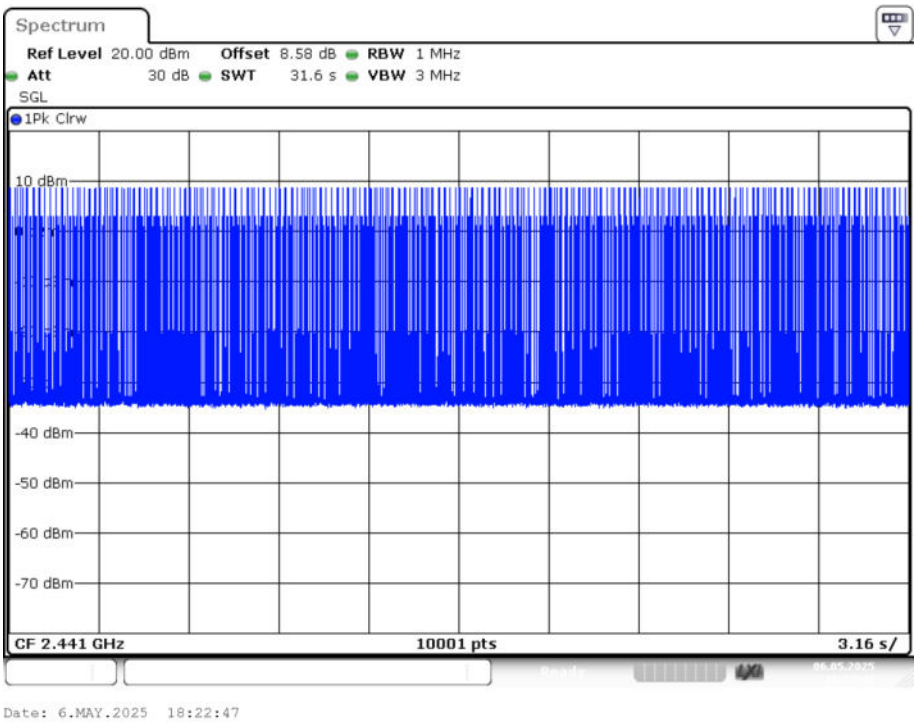
Dwell NVNT 1-DH5 2441MHz Ant1 Accumulated



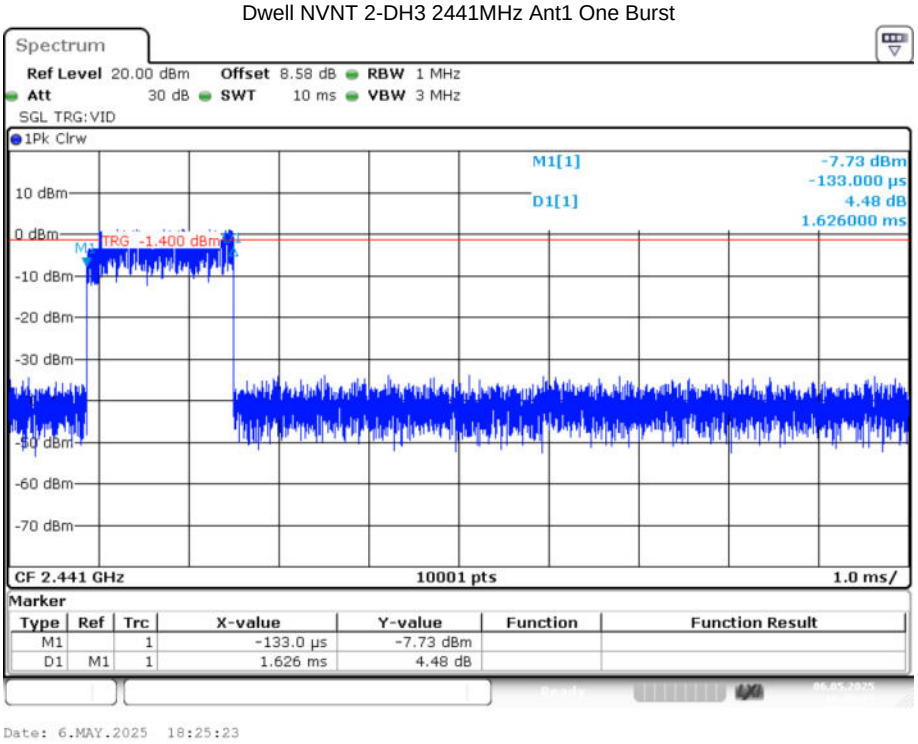
Dwell NVNT 2-DH1 2441MHz Ant1 One Burst



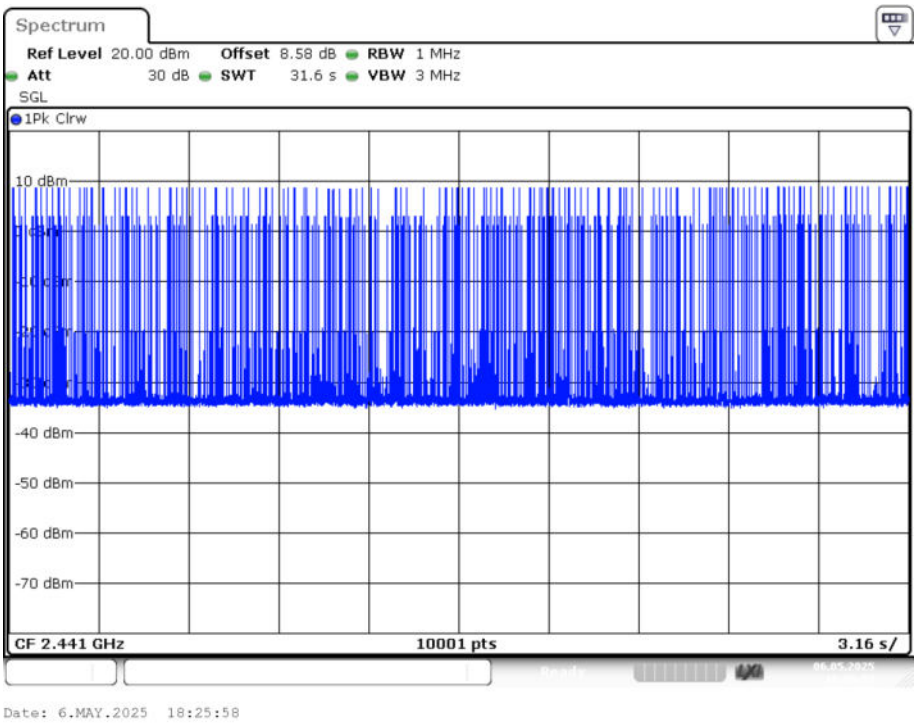
Dwell NVNT 2-DH1 2441MHz Ant1 Accumulated



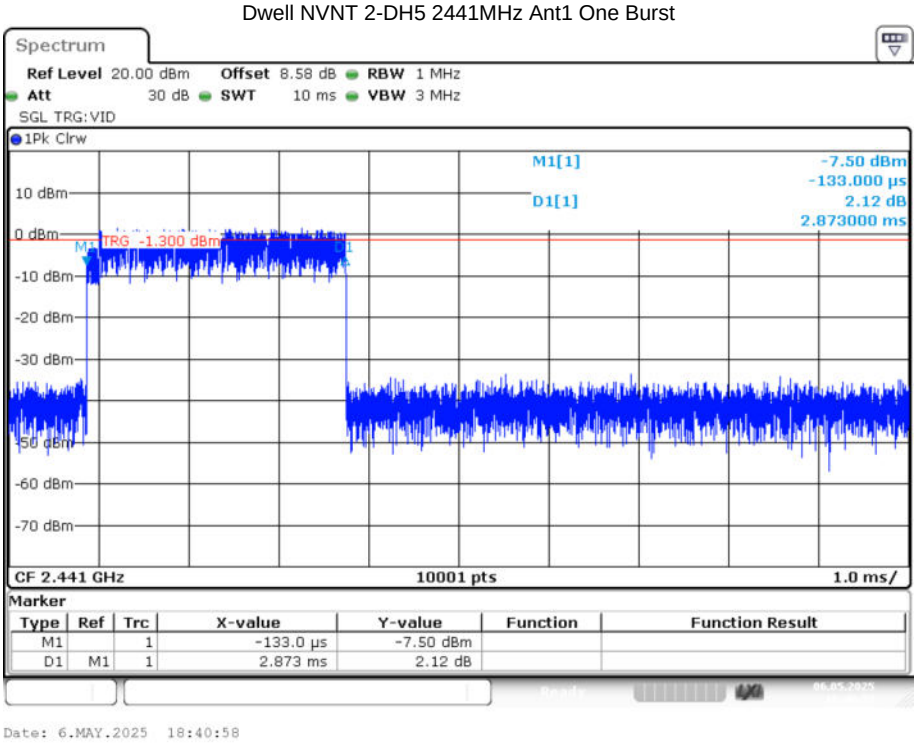
Dwell NVNT 2-DH3 2441MHz Ant1 One Burst



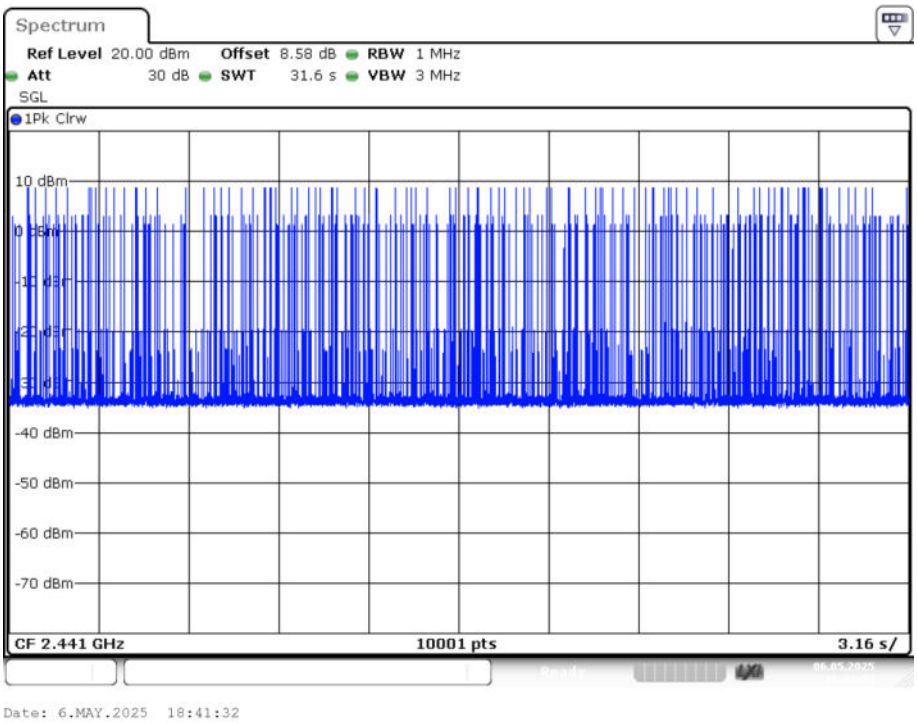
Dwell NVNT 2-DH3 2441MHz Ant1 Accumulated



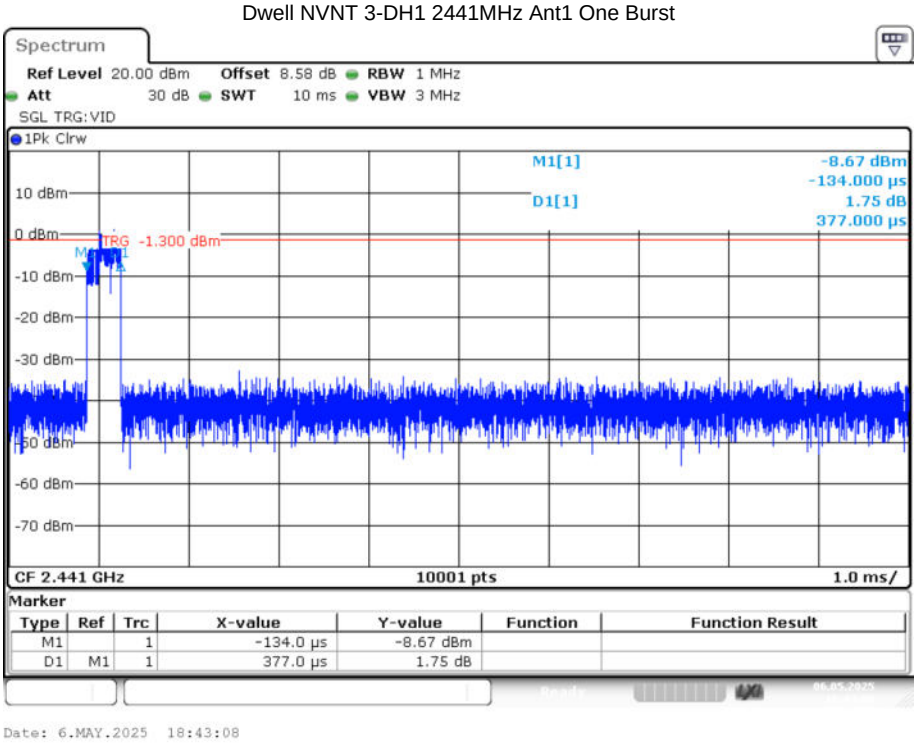
Dwell NVNT 2-DH5 2441MHz Ant1 One Burst



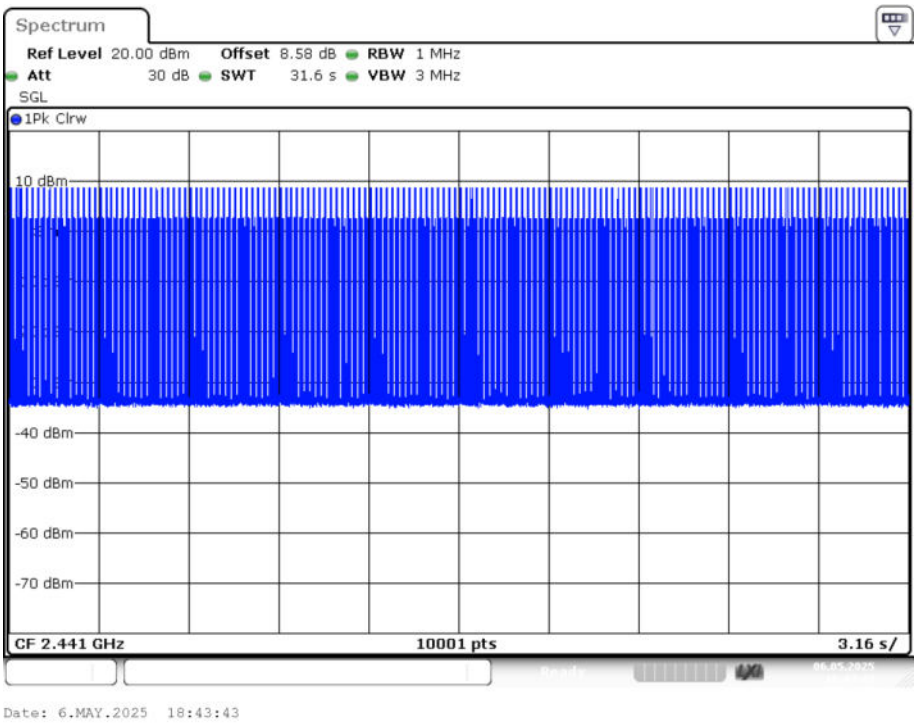
Dwell NVNT 2-DH5 2441MHz Ant1 Accumulated



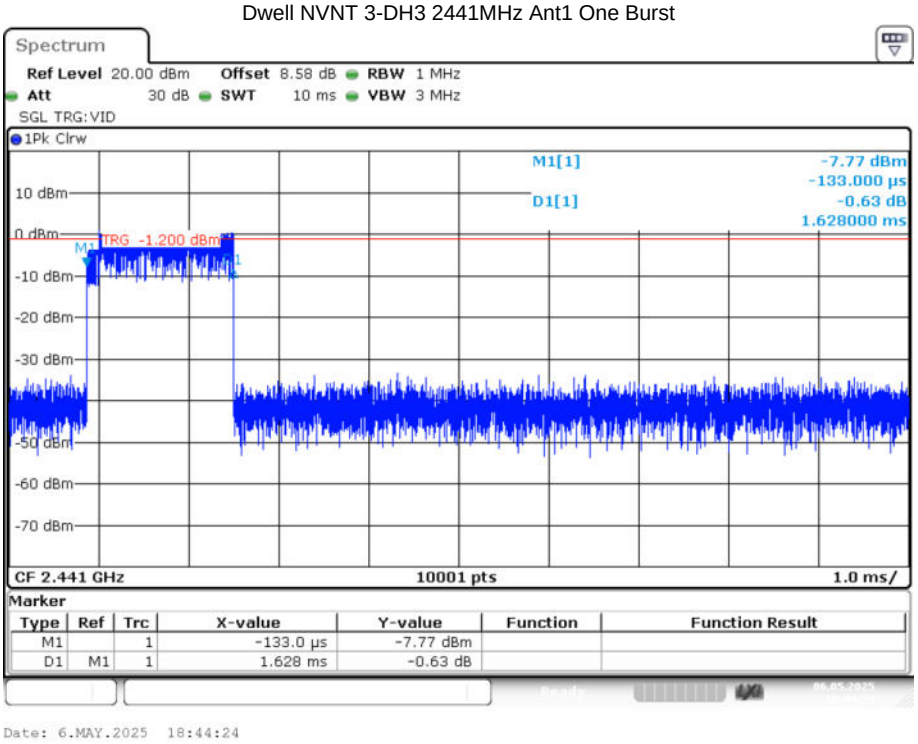
Dwell NVNT 3-DH1 2441MHz Ant1 One Burst



Dwell NVNT 3-DH1 2441MHz Ant1 Accumulated



Dwell NVNT 3-DH3 2441MHz Ant1 One Burst



Dwell NVNT 3-DH3 2441MHz Ant1 Accumulated