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FCC PART 15 SUBPART C FCC PART 15.249 TEST REPORT

FCC ID:QV7-GC88752-124**Report No:** CTSL2620630206E**Product Name:** 2.4GHz Remote Control Aircraft**Main Test Model:** P01**Series Models:** -**Applicant:** GUANGDONG SYMA MODEL AIRCRAFT INDUSTRIAL CO., LTD

EXECUTIVE SUMMARY

A sample of this product was tested and found to be in compliance with
FCC PART 15C, FCC PART 15 SUBPART C (15.249).

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CTSL Testing (Dongguan) Co., Ltd.

Main company address: Building 1, Houjie Road, Houjie Town, Guangdong Province
Dongguan City, China

Test Report

FCC ID:QV7-GC88752-124

Applicant Name	GUANGDONG SYMA MODEL AIRCRAFT INDUSTRIAL CO., LTD				
Applicant Address	NO.2 WEST XINGYE ROAD LAIMEI INDUSTRIAL AREA CHENG HAI Shantou China				
Manufacturer Name	GUANGDONG SYMA MODEL AIRCRAFT INDUSTRIAL CO., LTD				
Manufacturer Address	NO.2 WEST XINGYE ROAD LAIMEI INDUSTRIAL AREA CHENG HAI Shantou China				
Trade Mark	SYMA				
Product name	2.4GHz Remote Control Aircraft				
Main Test Model	P01				
Series Models	-				
Standard	FCC Part 15 Subpart C (15.249) ANSI C63.10:2020				
Test Location	ISO/IEC 17025 by ILAC-MRA is A2LA 7556.01 CTSL Testing (Dongguan) Co., Ltd. Room 112, Building 1, No. 15, Jiaoyuansongshan, Hetian Village, Houjie Town, Dongguan, Guangdong China				
Receipt Date	2026.06.18	Test period	2026.06.22-2026.06.30	Issue Date	2026.07.01
Conclusion	The equipment under test was found to be compliance with the requirements of the standards applied.				
Performs Testing:	Ethan Zhao	Ethan Zhao			
Test Report Reviewer:	Steve Qin	Steve Qin			
Test Report Authorizer:	Alan Li	Alan Li			

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1. GENERAL INFORMATION

1.1. General Description of EUT (Equipment Under Test)

Product Information	
Product Name	: 2.4GHz Remote Control Aircraft
Main Test Model	: P01
Series Models	: --
Power supply (TX)	: DC 6V from 1.5V AAA Battery*4
Power supply (RX)	: DC 3.7V from Rechargeable Battery Charging Input: DC 5V(After removing the battery pack)
Software Version	: JC SM226-TX (Y1) V1.0
Hardware Version	: JC SM226-TX (Y1) V1.0
Equipment Under Test	
Testing sample ID	: CTSL2620630206-S1 (Engineer sample) CTSL2620630206-S2 (Normal sample)
Test supplied	: ☐ supplied by the manufacturer ☐ supplied by the lab (Auxiliary test equipment supplied by test Lab, Details reference Section 2.6.)
Power supply information	: -
Wireless Specification	
Supported Type	: 2.4G Wireless SRD
Modulation Type	: GFSK
Operation frequency	: 2410-2470MHz
Number of channels	: 61 Channels
Channel separation	: 2MHz
Max Field Strength@3m (Fundamental)	: 86.55dBμV/m (Peak)
Antenna Gain& type	: Refer to Section 1.2 of the report.
Sample Type	: Prototype production
Type of Device	: ☒ Portable Device; ☐ Mobile Device; ☐ Modular Device

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

1.2. Antenna Information

Ant No.	Band	Model Name	Antenna Type	Connector	Gain (dBi)
1	2410MHz ~ 2470MHz	Wireless 2.4GTX ANT	Wire Antenna	/	0
Note: 1. The antenna gain is declared by the customer and the laboratory is not responsible for the accuracy of the antenna gain. 2. The test results of this report only apply to the sample as received.					

1.3. Information of RF Cable

Cable Loss(dB)	Provided by
1.0	GUANGDONG SYMA MODEL AIRCRAFT INDUSTRIAL CO., LTD
Note: 1. The customer declared the loss value of the RF Cable. and the test results of this report only apply to the sample as received. 2. The laboratory is not responsible for the accuracy of the cable loss.	

2. SUMMARY OF TEST

2.1. Test Standards

FCC Rules Part 15.249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz.

ANSI C63.10:2020: American National Standard for Testing Unlicensed Wireless Devices

2.2. Summary of test result

No.	Description of Test Item	FCC Standard Section	Results
1	Field Strength of Fundamental	§15.249(a)	PASS
2	Radiated Spurious Emissions and Band Edge	§15.205 §15.209 §15.249(a)(c)(d)(e) §15.35(b)	PASS
3	20dB Bandwidth	§15.215(c)	PASS
4	AC Power Line Conducted Emissions	§15.207	N/A (Note 1)
5	Antenna Requirement	§15.203	PASS

Note: "N/A" denotes test is not applicable in this test report.

Note 1: The EUT(TX) is powered by AAA batteries power supply and cannot be directly connected to the public AC power network. This test is not applicable.

The EUT (RX) uses rechargeable batteries. but, during the charging mode, the independent battery pack must be removed in order to perform the charging process. It is impossible to carry out the charging function while the Aircraft is in operation. and cannot be directly connected to the public AC power network. This test is not applicable.

2.3. Test Facilities

EMC Lab :

A2LA Certificate Number: 7556.01;
CTSL Testing (Dongguan) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.
The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

FCC Designation Number: CN1425;
Test Firm Registration Number:750639;
CTSL Testing (Dongguan) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

Industry Canada Registration Number. Is: 34801;
CAB identifier: CN0192;
CTSL Testing (Dongguan) Co., Ltd. The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

Name of Firm : CTSL Testing (Dongguan) Co.,Ltd.

EMC test location/satellite location:

Room 112, Building 1, No. 15, Jiaoyuansongshan Hetian Village, Houjie Town Dongguan City, Guangdong, People's Republic of China City, Guangdong, China

2.4. Measurement uncertainty

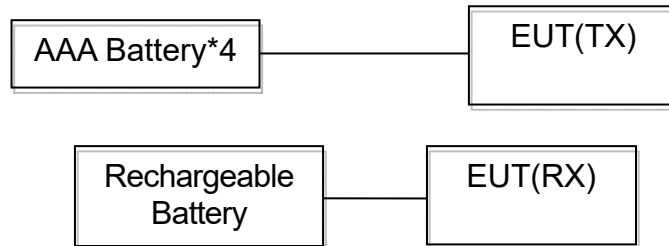
Test Item	Uncertainty
Uncertainty for Conduction emission test	$\pm 3.48\text{dB}$
Uncertainty for spurious emissions test (Below 30MHz)	$\pm 1.62\text{ dB}$
Uncertainty for spurious emissions test (30MHz-1GHz)	$\pm 4.60\text{ dB(Polarize: H)}$
	$\pm 4.68\text{ dB(Polarize: V)}$
Uncertainty for spurious emissions test (1GHz to 25GHz)	$\pm 4.96\text{dB}$
Uncertainty for radio frequency	7×10^{-8}

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

2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 (or 1.5) meter high above ground. EUT was beset into Bluetooth test mode by software before test.

Connect EUT Antenna Terminal, Radiated Spurious Emissions& Band Edge Test



(EUT: 2.4GHz Remote Control Aircraft)

2.6. Assistant equipment used for test

Item	Equipment	Brand	Model Name/Type No.	FCC ID	Series No.
1	-	-	-	-	-
2	-	-	-	-	-

Supported cables				
Item	Shielded Type	Ferrite Core	Length	Note
1	-	-	-	-
2	-	-	-	-

2.7. Test mode

Combining all the rates, modulations, and packet types, the Pre-scans had been carried out. The worst-case test mode was selected for the final test as listed below.

Test Item	Modulation Type	Operating Mode	Test Channel
Fundamental	GFSK	Continuous TX	Low / Mid / High
Radiated Spurious Emissions	GFSK	Continuous TX	Low / Mid / High
Band Edge	GFSK	Continuous TX	Low / High
20dB Bandwidth	GFSK	Continuous TX	Low / Mid / High

Note: In radiated measurement, the EUT had been pre-scan on the positioned of each 3 axis (X, Y, Z), the worst case was found when positioned on **X-plane**.

2.8. Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
01	2410	02	2411	03	2412	04	2413
05	2414	06	2415	07	2416	08	2417
09	2418	10	2419	11	2420	12	2421
13	2422	14	2423	15	2424	16	2425
17	2426	18	2427	19	2428	20	2429
21	2430	22	2431	23	2432	24	2433
25	2434	26	2435	27	2436	28	2437
29	2438	30	2439	31	2440	32	2441
33	2442	34	2443	35	2444	36	2445
37	2446	38	2447	39	2448	40	2449
41	2450	42	2451	43	2452	44	2453
45	2454	46	2455	47	2456	48	2457
49	2458	50	2459	51	2460	52	2461
53	2462	54	2463	55	2464	56	2465
57	2466	58	2467	59	2468	60	2469
61	2470						

2.9. Power Setting of Test Software

Software Name	- Short press the Power switch to turn on. - Short press the Flip button to cycle the carrier frequency (2410 → 2440 → 2470 MHz). - Short press the One touch take off/landing button to cycle the modulation level.		
Frequency (MHz)	2410	2440	2470
GFSK Setting	Default	Default	Default

Note: This information is provided by the applicant.

2.10. Test Equipment

For Conducted Emission Test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESCI 3	AT005	GUANGZHOU NEM	May 28,26	May 27,27
LISN	Rohde & Schwarz	ENV216	AT006	GUANGZHOU NEM	May 28,26	May 27,27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	AT007	GUANGZHOU NEM	May 28,26	May 27,27
CE Cable	Times Microwave	LMR195UF-N MNM-1.50M	AT041	GUANGZHOU NEM	May 28,26	May 27,27
Test Software	FARAD	EZ-EMC Ver.3A1.1+	N/A	N/A	N/A	N/A

For Radiated Emission Test (9kHz-30MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI TestReceiver	Rohde& Schwarz	ESCI 7	AT001	GUANGZHOU NEM	May 28,26	May 27,27
Active Loop Antenna	HCT	6505	AT064	GRG METROLOGY	Mar 22,26	Mar 21,27
Test Software	FARAD	EZ-EMC Ver.3A1.1+	N/A	N/A	N/A	N/A
9kHz-30MHz Cable	Times Microwave	LMR195UF-N MNM-9M	AT045	GUANGZHOU NEM	May 28,26	May 27,27

For Radiated Emissions Test (30MHz-1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde& Schwarz	ESCI 7	AT001	GUANGZHOU NEM	May 28,26	May 27,27
Trilog-Broadband Antenna (including 6dB attenuator)	SCHWARZBECK	VULB 9168	AT002	LISAI	May 30,26	May 29,27
Test Software	FARAD	EZ-EMC Ver.3A1.1+	N/A	N/A	N/A	N/A
30-1000MHz Cable	Times Microwave Systems	LMR195UF-N MRNMR-3.00M+ LMR400UF-N MNM-3.00M+ LMR400UF-N MNM-3.00M	AT042+AT043+AT044	GUANGZHOU NEM	May 28,26	May 27,27

For Radiated Emission test (Above 1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Horn Antenna 1-18G	SCHWARZBEC K	BBHA 9120 D	AT003	LISAI	May 30,26	May 29,27
Horn Antenna 18-40GHz	XIBAO	XB-WDB18-40K	AT064	LISAI	May 30,26	May 29,27
Broadband Preamplifier	SCHWARZBEC K	BBV 9718 D	AT004	GUANGZHOU NEM	May 28,26	May 27,27
Low Noise Amplifier	MWRFTest	DLA8-18-40G-2078	AT065	GUANGZHOU NEM	May 28,26	May 27,27
Spectrum Analyzer 40G	Keysight	N9020B	AT066	GUANGZHOU NEM	May 28,26	May 27,27
Spectrum Analyzer 26.5G	Keysight	N9020A	AT050	GUANGZHOU NEM	May 28,26	May 27,27
Radio switching unit	TiGroup	SU319	AT055	N/A	N/A	N/A
Filtering unit	TiGroup	SU319F	AT056	N/A	N/A	N/A
Test Software	BL	BL410-E V25.5 en	N/A	N/A	N/A	N/A
Above 1GHz Cable	Times Microwave Systems	SFT205-NMN M-7.0M+ SFT205-NMN M-2.0M	AT057+ AT058	N/A	N/A	N/A

For Connect EUT Antenna Terminal Test (RF Test system)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Spectrum analyzer	Keysight	N9020A	AT050	GUANGZHOU NEM	May 28,26	May 27,27
Power probe unit	Ti Group	SU319P	AT053	GUANGZHOU NEM	May 28,26	May 27,27
Switch unit	Ti Group	SU319S	AT054	N/A	N/A	N/A
Test Software	BL	BL410R 3.5.2.621	N/A	N/A	N/A	N/A

3. FIELD STRENGTH OF FUNDAMENTAL

3.1. Limit

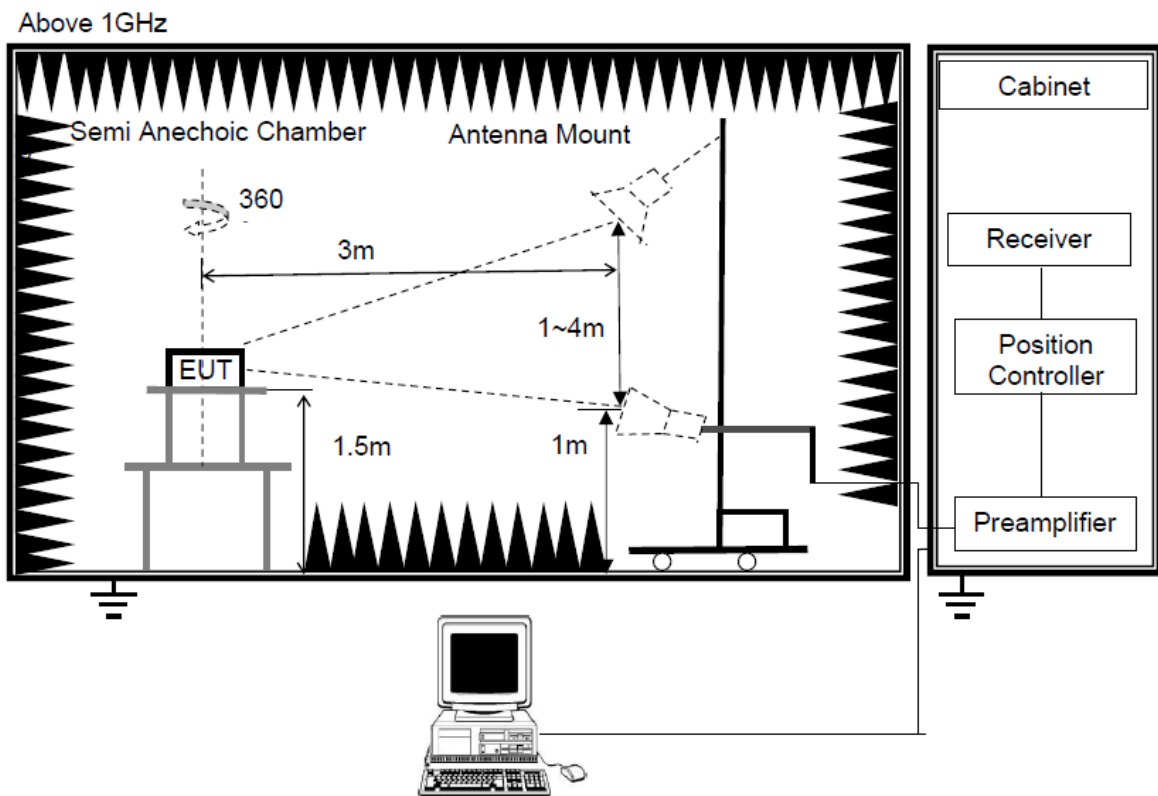
§ 15.249(a) Fundamental Field Strength Limits (at 3 m)			
Frequency band (MHz)	Fundamental limit (mV/m)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)
2400-2483.5MHz	50	94	114

Note:

1. Average Limit (dBμV/m)=20×log[1000×Field Strength (mV/m)].
2. Peak Limit (dBμV/m) = Average Limit (dBμV/m) +20dB, per §15.35(b).

3.2. Test Setup

(A) Radiated Emission Test Set-Up, Frequency above 1GHz



3.3. Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	$\geq$ OBW (Suggested 1MHz)
VBW	3×RBW (Suggested 3MHz)
Start frequency	2400MHz
Stop frequency	2483.5MHz
Sweep Time	Auto
Detector	Peak / Average
Trace Mode	Max Hold

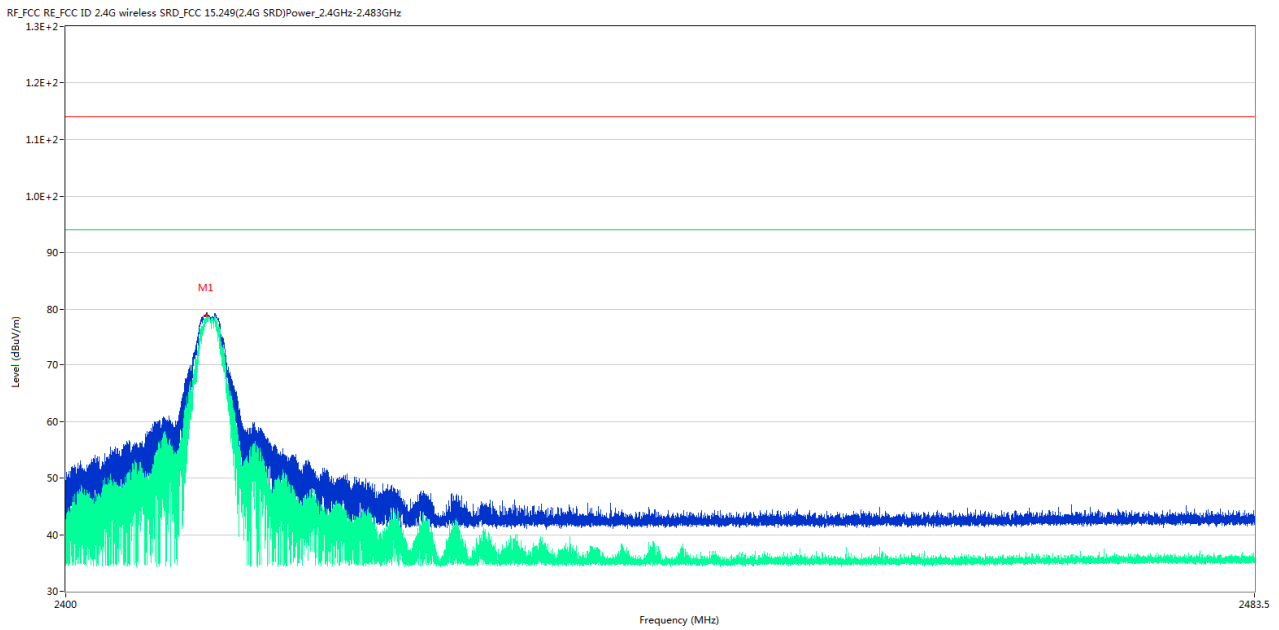
3.4. Test Procedure

- EUT was placed on a turn table, which is 1.5 meter high above the ground.
- EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower.
- Spectrum analyzer setting parameters in accordance with section 3.3.
- Set the EUT transmit continuously with maximum output power.
- The turn table can rotate 360 degrees to determine the position of the maximum emission level.
- The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test, record the average and peak value.
- Repeat above procedures until all channels were measured.
- Record the results in the test report.
- recorded in this report.

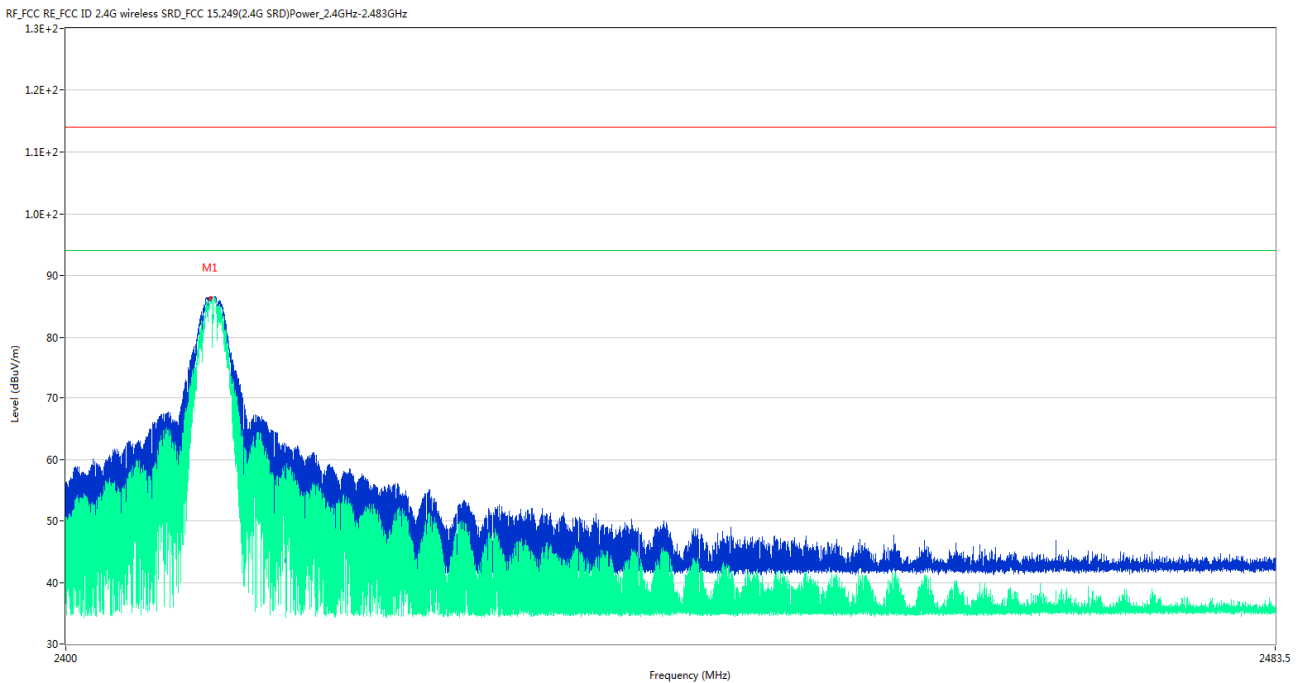
3.5. Test Result

Field Strength of Fundamental@3m						
Frequency MHz	Field strength of fundamental level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization	Result
2410	79.41	114.00	34.59	Peak	Vertical	Pass
	78.44	94.00	15.56	Average		
	86.54	114.00	27.46	Peak	Horizontal	Pass
	86.18	94.00	7.82	Average		
2440	77.92	114.00	36.08	Peak	Vertical	Pass
	77.83	94.00	16.17	Average		
	86.55	114.00	27.45	Peak	Horizontal	Pass
	85.59	94.00	8.41	Average		
2470	77.94	114.00	36.06	Peak	Vertical	Pass
	77.22	94.00	16.78	Average		
	84.47	114.00	29.53	Peak	Horizontal	Pass
	83.83	94.00	10.17	Average		

3.6.Original Test record

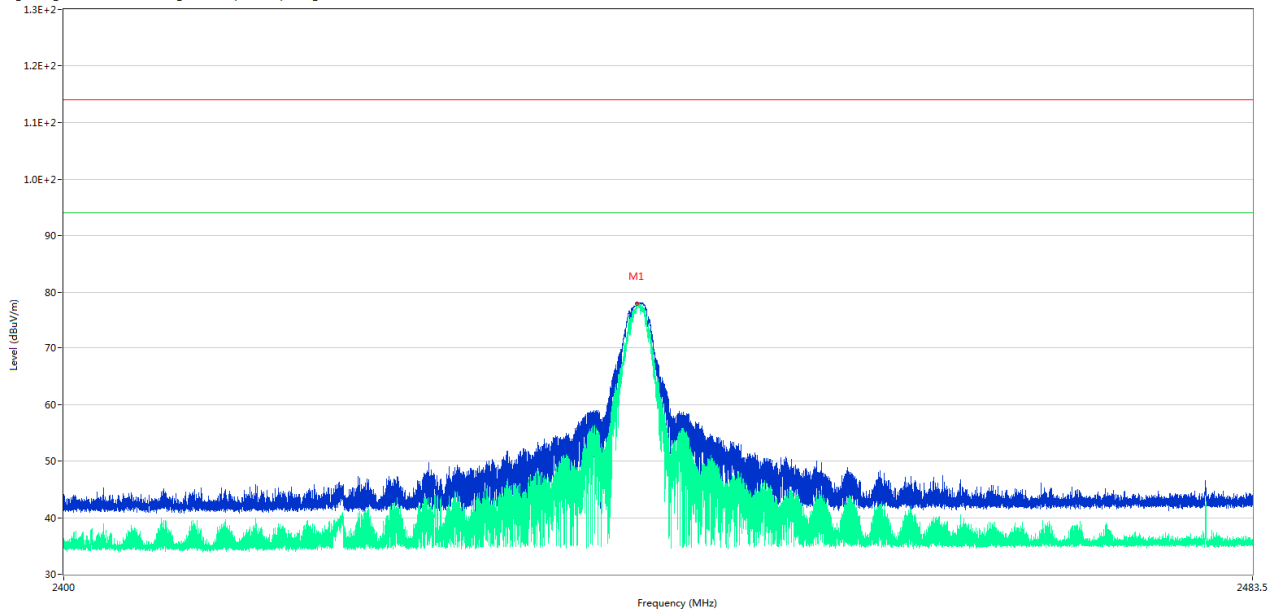


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2409.748	79.41	-19.77	114.0	34.59	Peak	19.30	150	Vertical	Pass



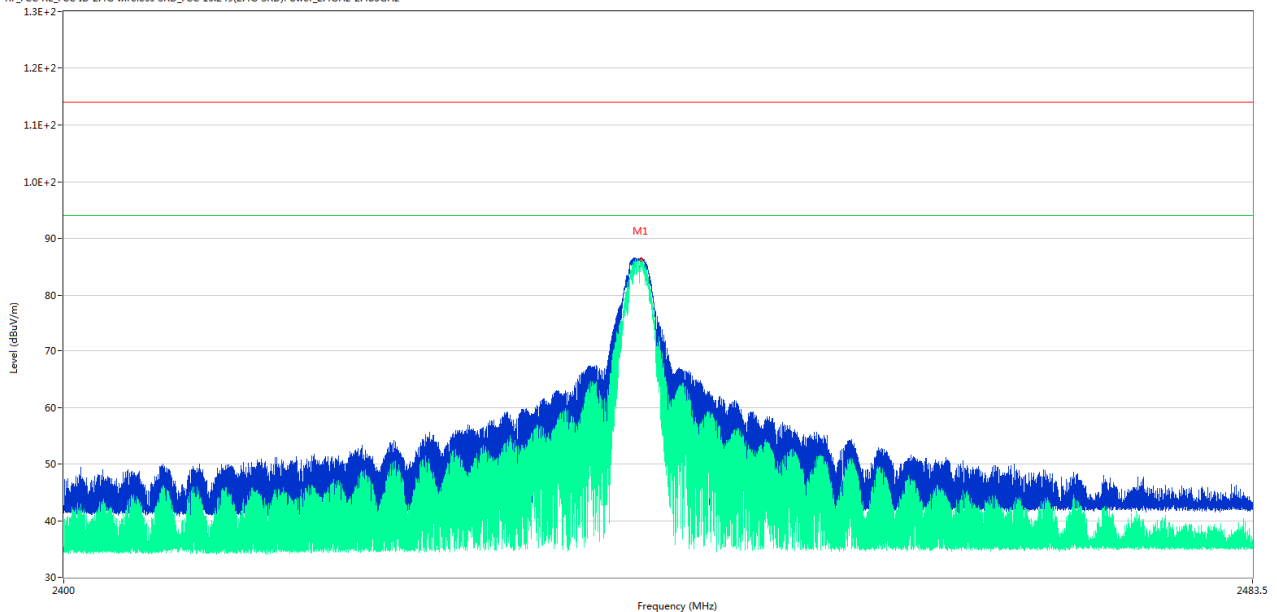
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2409.832	86.54	-19.77	114.0	27.46	Peak	269.40	150	Horizontal	Pass

RF_FCC RE_FCC ID 2.4G wireless SRD_FCC 15.249(2.4G SRD)Power_2.4GHz-2.483GHz



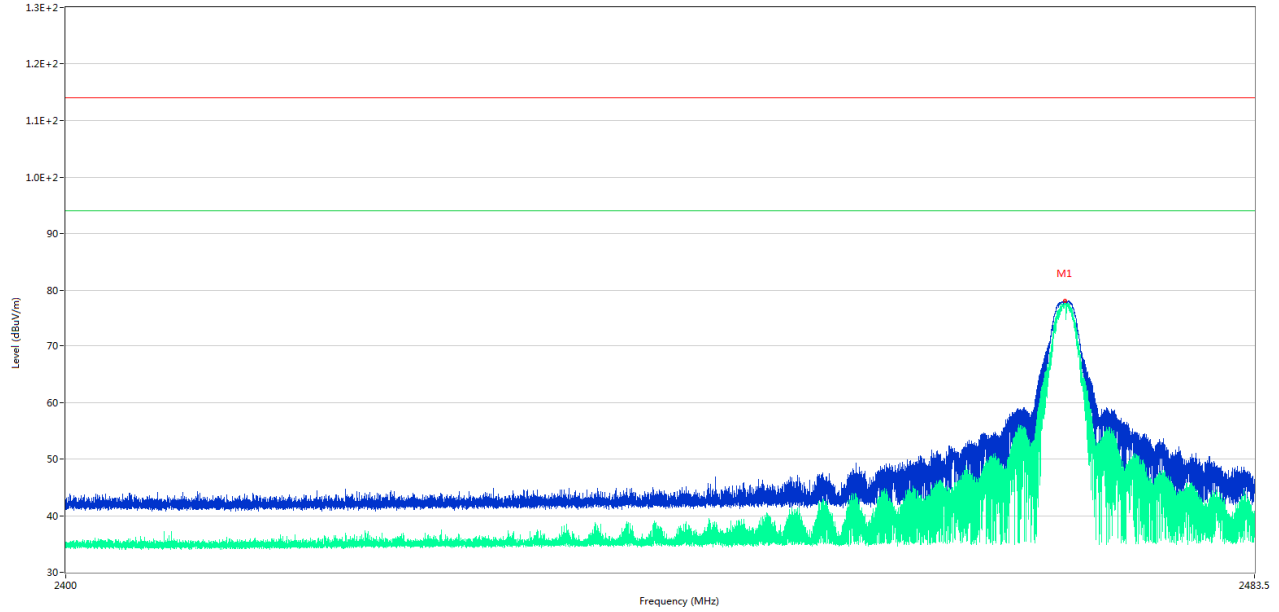
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2439.926	77.92	-19.50	114.0	36.08	Peak	94.60	150	Vertical	Pass

RF_FCC RE_FCC ID 2.4G wireless SRD_FCC 15.249(2.4G SRD)Power_2.4GHz-2.483GHz



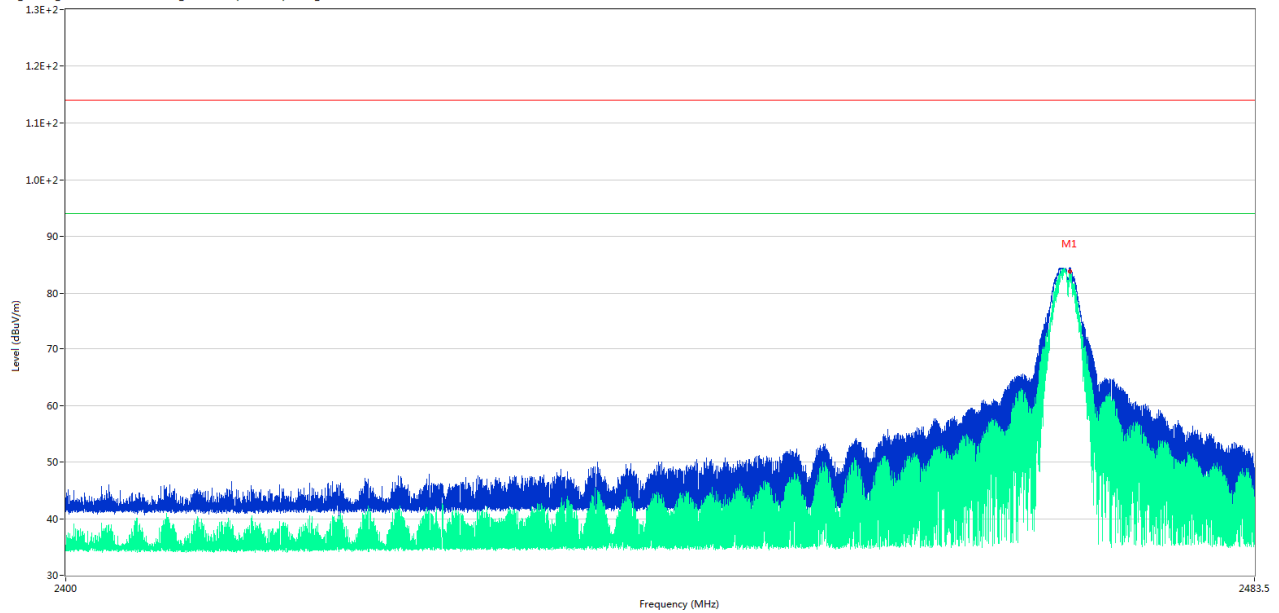
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2440.251	86.55	-19.50	114.0	27.45	Peak	262.50	150	Horizontal	Pass

RF_FCC RE_FCC ID 2.4G wireless SRD_FCC 15.249(2.4G SRD)Power_2.4GHz-2.483GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2469.973	77.94	-19.49	114.0	36.06	Peak	209.80	150	Vertical	Pass

RF_FCC RE_FCC ID 2.4G wireless SRD_FCC 15.249(2.4G SRD)Power_2.4GHz-2.483GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2470.324	84.47	-19.49	114.0	29.53	Peak	258.40	150	Horizontal	Pass

4. RADIATED SPURIOUS EMISSIONS AND BAND EDGE

4.1. Limit

15.205 Restricted frequency band			
MHZ	MHz	MHZ	GHZ
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
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
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	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)

For harmonics and other spurious emissions:

Harmonics: 500 $\mu\text{V/m}$ = 54 $\text{dB}\mu\text{V/m}$ (at 3 m)

Other spurious emissions outside the band: comply with general limits in §15.209 (see table below)

§ 15.209 Radiated emission general limits			
Frequency (MHz)	Field Strength($\mu\text{V/m}$)	Field Strength ($\text{dB}\mu\text{V/m}$)	Distance(m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705-30	30	29.5	30
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

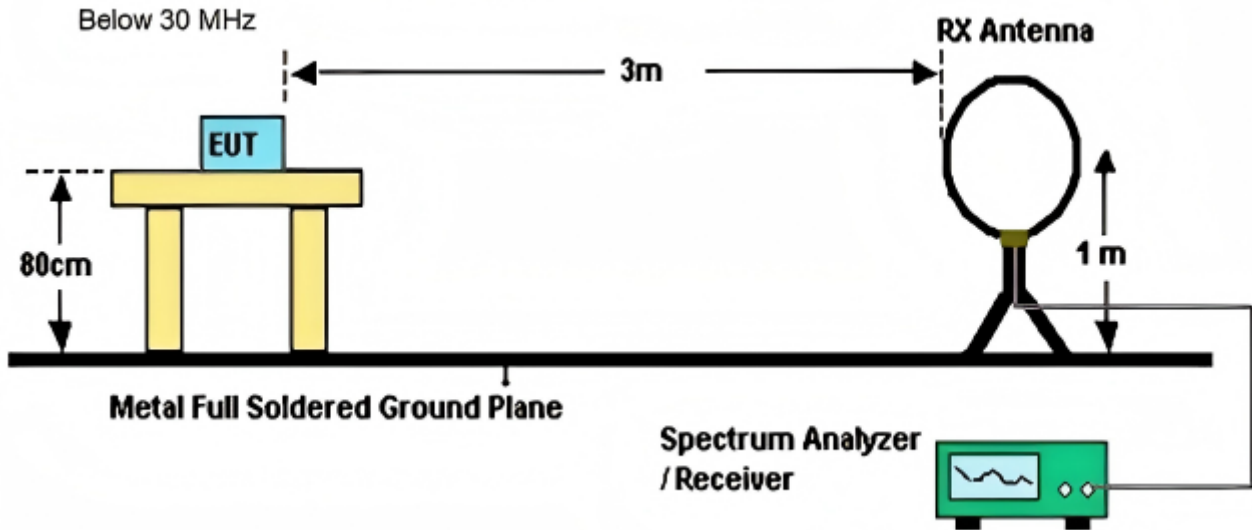
Note: Peak measurement may exceed average limit by up to 20 dB per §15.35(b). Restricted bands per §15.205 apply; emissions falling within these bands must meet the §15.209 limits.

Note:

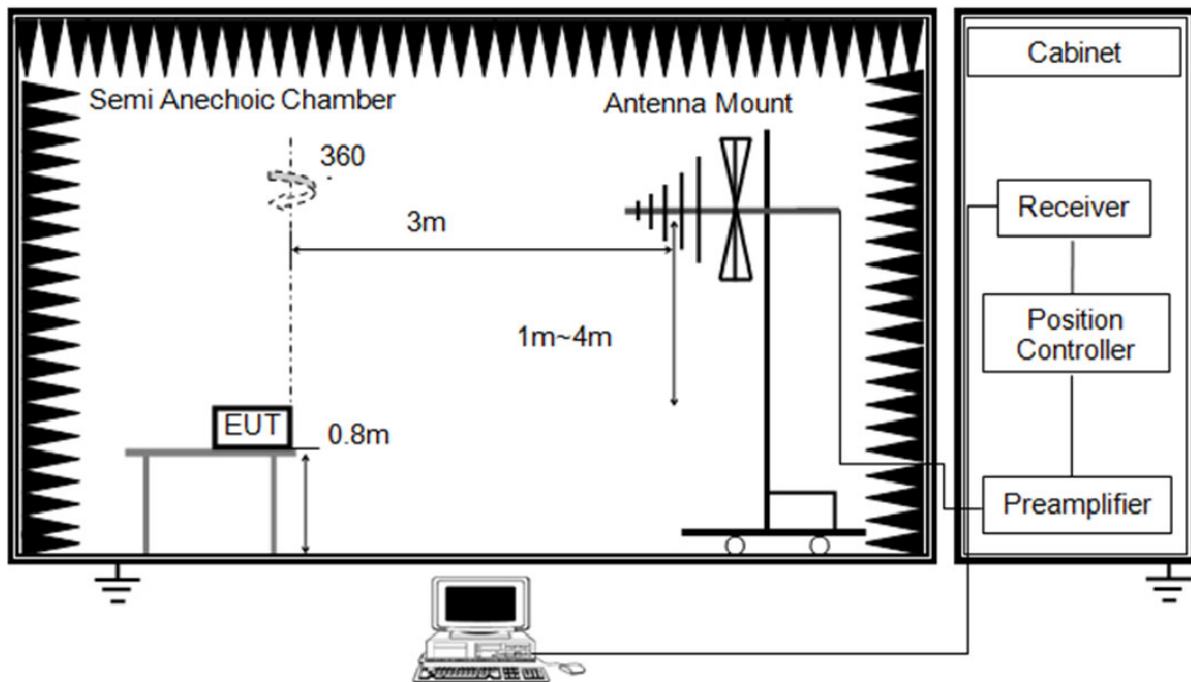
- (1) Emission level $\text{dB}\mu\text{V}$ = 20 log Emission level $\mu\text{V/m}$.
- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.2. Test Setup

(B) Radiated Emission Test Set-Up, Frequency Below 30MHz

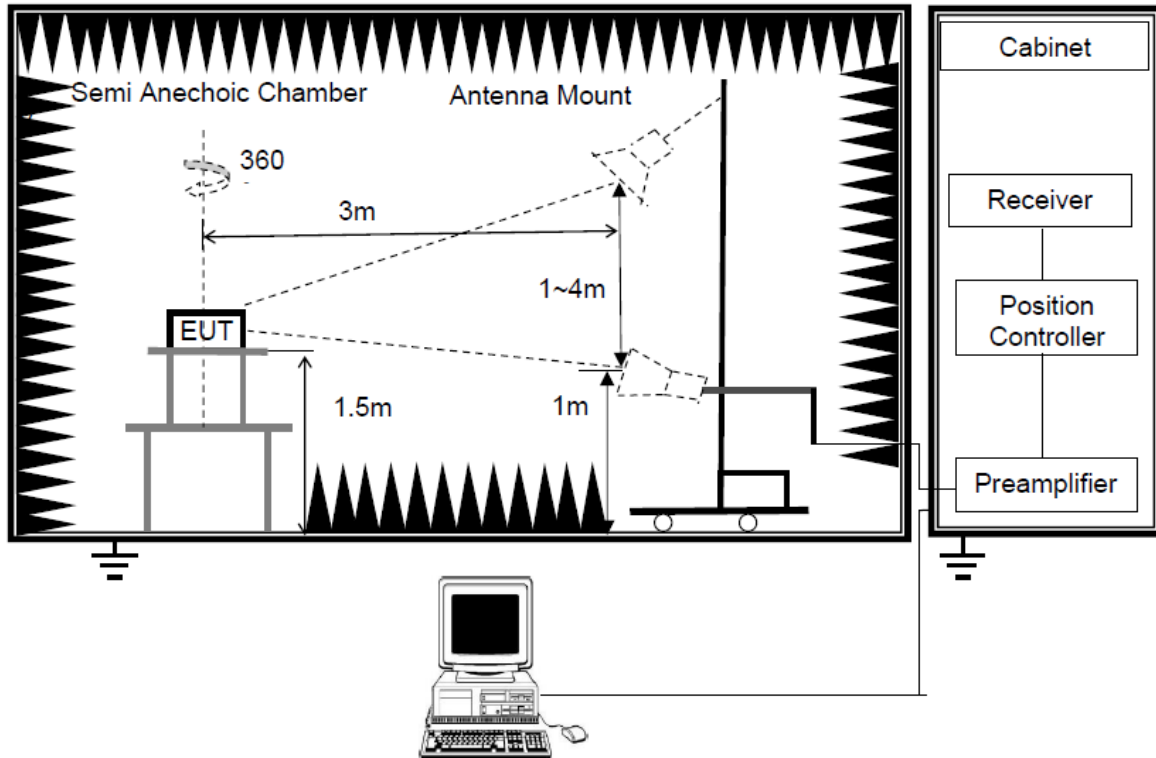


(C) Radiated Emission Test Set-Up, Frequency below 1000MHz Below 1 GHz and above 30 MHz



(D) Radiated Emission Test Set-Up, Frequency above 1GHz

Above 1GHz



4.3. Spectrum Analyzer Setting

For 9KHz-150KHz	
Spectrum Parameters	Setting
RBW	300Hz (for Peak&AVG)/CISPR 200Hz (for QP)
VBW	300Hz (for Peak&AVG)/CISPR 200Hz (for QP)
Start frequency	9KHz
Stop frequency	150KHz
Sweep Time	Auto
Detector	PEAK/QP/AVG
Trace Mode	Max Hold

Note: For 9KHz-90KHz&110KHz-150KHz,the detector is average,other frequency is CISPR QP detector.

For 150KHz-30MHz	
Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP
Trace Mode	Max Hold

Note : For 150KHz-490KHz,the detector is average,other frequency is CISPR QP detector.

For 30MHz-1GHz	
Spectrum Parameters	Setting
RBW	120KHz
VBW	300KHz
Start frequency	30MHz
Stop frequency	1GHz
Sweep Time	Auto
Detector	QP
Trace Mode	Max Hold

For Above 1GHz		
Spectrum Parameters	Setting	
RBW	1MHz	
VBW	Peak Measurement: 3MHz	Average Measurement: 10Hz (using Peak detector)
Start frequency	1GHz	
Stop frequency	40GHz	
Sweep Time	Auto	
Detector	Peak	Peak with 10Hz VBW (for Average measurement)
Trace Mode	Max Hold	

4.4. Test Procedure

- a. Reference: ANSI C63.10:2020, Sections 6.3, 6.6
- b. Place the EUT on a non-metallic turntable at 0.8 m (below 1 GHz) or 1.5 m (above 1 GHz) height.
- c. Set the EUT to transmit continuously at maximum power.
- d. Rotate the turntable 360° and vary antenna height 1–4 m (below 1 GHz) to maximise emissions.
- e. For above 1 GHz, antenna height is typically 1.5 m, but can be varied if required.
- f. Measure emissions from 9 kHz up to the 10th harmonic of the fundamental (up to 25 GHz).
- g. Use Peak and Average detectors (or QP for below 1 GHz) as per section 4.3
- h. For band edge measurements, focus on 2310–2390 MHz (low) and 2483.5–2500 MHz (high).
- i. Record the highest emissions for each frequency range.

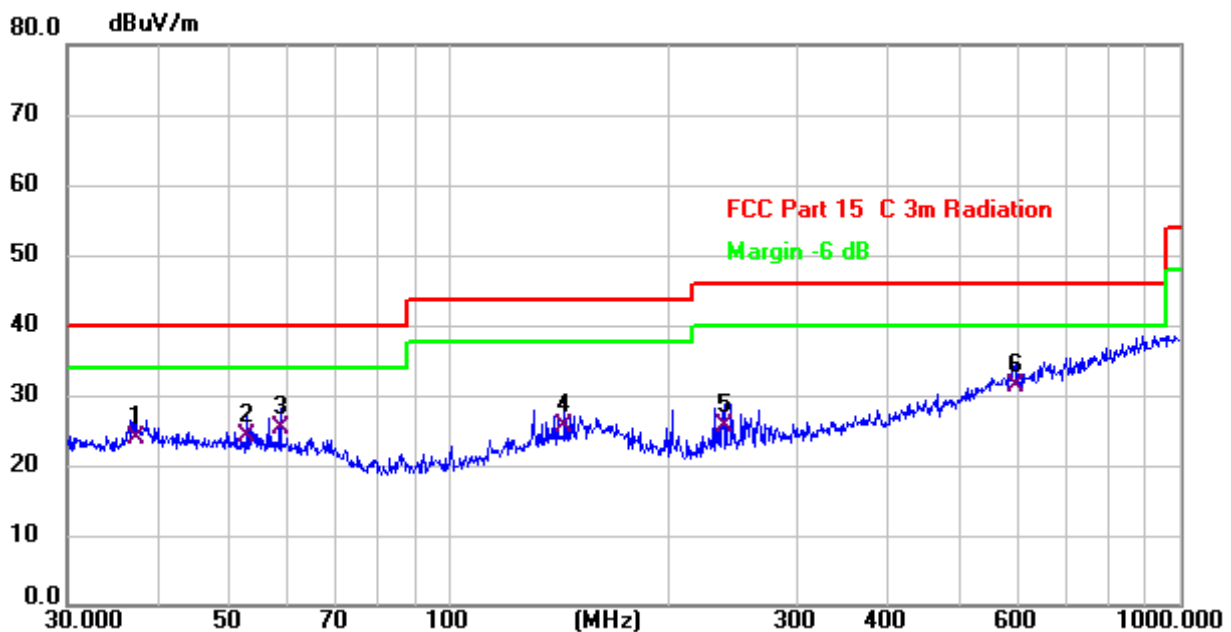
Note:

1. For emissions above 1GHz, if peak level complies with average limit, then the average level is deemed to comply with average limit.
2. The frequency 2410MHz ,2440MHz and 2470MHz is fundamental frequency which no limit, the limit on plots is automatically generated by the software, it's not fundamental limit, we can't remove it.
3. For 30-1000MHz Radiation emissions, GFSK mode all have been tested, only worse case: GFSK mode with CH61 2470MHz is reported.
4. Radiated emission test from 9KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9KHz to 30MHz and not recorded in this report.
5. The amplitude of 18GHz to 25GHz spurious emissions that are attenuated by more than 20dB below the permissible limit have no need to be reported.
6. Radiated emission test from 25GHz to 40GHz of fundamental was verified, and no emission found except system noise floor in 25GHz to 40GHz and not recorded in this report.

4.5. Test Result

Radiated Emissions 30-1000MHz

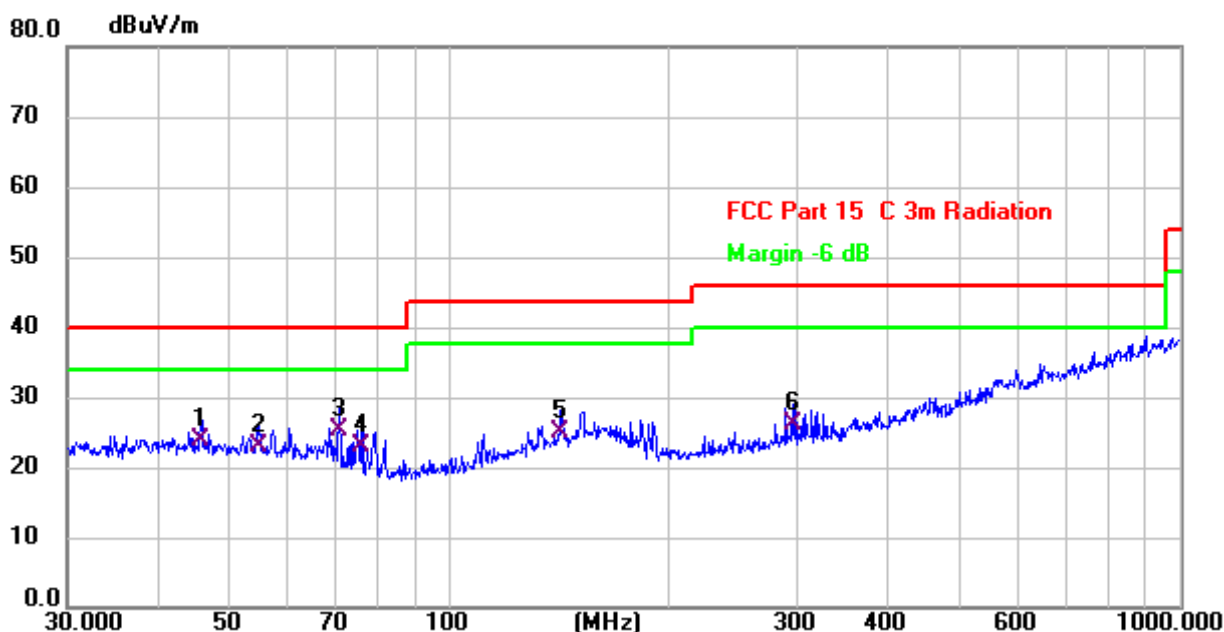
EUT: 2.4GHz Remote Control Aircraft
M/N: P01
Test Voltage: EUT TX: DC 6V from 1.5V AAA Battery*4
EUT RX: DC 3.7V from Rechargeable Battery
Ant. Pol.: Vertical
Test Mode: TX Mode& RX Mode
Note: only worse case: GFSK mode with CH61 2470MHz is reported
Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	37.285	4.42	19.39	23.81	40.00	-16.19	QP			P	
2	52.945	4.91	19.25	24.16	40.00	-15.84	QP			P	
3	58.819	6.59	18.66	25.25	40.00	-14.75	QP			P	
4	143.829	4.96	20.47	25.43	43.50	-18.07	QP			P	
5	239.147	7.41	18.30	25.71	46.00	-20.29	QP			P	
6 *	595.133	4.62	26.80	31.42	46.00	-14.58	QP			P	

Remarks: 1). Level (dBuV/m) = Reading (dBuV/m) + Factor (dB/m)
2). Factor(dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-amplifier Gain (dB) (if applicable)
3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)
4). No pre-amplifier was used for the 30 MHz – 1 GHz measurement.

EUT: 2.4GHz Remote Control Aircraft
M/N: P01
Test Voltage: EUT TX: DC 6V from 1.5V AAA Battery*4
EUT RX: DC 3.7V from Rechargeable Battery
Ant. Pol.: Horizontal
Test Mode: TX Mode& RX Mode
Note: only worse case: GFSK mode with CH61 2470MHz is reported
Detailed results are shown below



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	45.695	4.49	19.38	23.87	40.00	-16.13	QP			P	
2	55.027	4.11	18.87	22.98	40.00	-17.02	QP			P	
3 *	70.584	8.64	16.65	25.29	40.00	-14.71	QP			P	
4	75.977	7.00	16.11	23.11	40.00	-16.89	QP			P	
5	142.324	5.05	20.07	25.12	43.50	-18.38	QP			P	
6	295.147	6.07	20.02	26.09	46.00	-19.91	QP			P	

Remarks: 1). Level (dBuV/m) = Reading (dBuV/m) + Factor (dB/m)
2). Factor(dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-amplifier Gain (dB) (if applicable)
3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)
4). No pre-amplifier was used for the 30 MHz – 1 GHz measurement.

Radiated Emissions Above 1GHz -GFSK

GFSK-CH01 2410MHz										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2390.595	44.56	-19.28	74.0	29.44	Peak	36.00	150	Vertical	Pass
1**	2390.595	37.16	-19.28	54.0	16.84	AV	36.00	150	Vertical	Pass
2	4337.000	49.93	-12.09	74.0	24.07	Peak	72.00	150	Vertical	Pass
2**	4337.000	40.93	-12.09	54.0	13.07	AV	72.00	150	Vertical	Pass
3	4820.000	46.91	-10.84	74.0	27.09	Peak	144.00	150	Vertical	Pass
3**	4820.000	41.44	-10.84	54.0	12.56	AV	144.00	150	Vertical	Pass
4	7229.750	49.84	-6.76	74.0	24.16	Peak	36.00	150	Vertical	Pass
4**	7229.750	44.79	-6.76	54.0	9.21	AV	36.00	150	Vertical	Pass
5	7772.000	54.04	-6.32	74.0	19.96	Peak	72.00	150	Vertical	Pass
5**	7772.000	44.90	-6.32	54.0	9.10	AV	72.00	150	Vertical	Pass
6	17930.000	53.29	1.65	74.0	20.71	Peak	324.00	150	Vertical	Pass
6**	17930.000	46.29	1.65	54.0	7.71	AV	324.00	150	Vertical	Pass

GFSK-CH01 2410MHz										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2388.894	43.56	-19.28	74.0	30.44	Peak	180.00	150	Horizontal	Pass
1**	2388.894	34.64	-19.28	54.0	19.36	AV	180.00	150	Horizontal	Pass
2	4783.000	49.68	-10.50	74.0	24.32	Peak	216.00	150	Horizontal	Pass
2**	4783.000	41.12	-10.50	54.0	12.88	AV	216.00	150	Horizontal	Pass
3	4820.000	46.94	-10.84	74.0	27.06	Peak	360.00	150	Horizontal	Pass
3**	4820.000	40.57	-10.84	54.0	13.43	AV	360.00	150	Horizontal	Pass
4	7229.750	49.89	-6.76	74.0	24.11	Peak	108.00	150	Horizontal	Pass
4**	7229.750	42.85	-6.76	54.0	11.15	AV	108.00	150	Horizontal	Pass
5	7843.500	54.25	-6.26	74.0	19.75	Peak	324.00	150	Horizontal	Pass
5**	7843.500	44.11	-6.26	54.0	9.89	AV	324.00	150	Horizontal	Pass
6	17944.001	54.04	1.36	74.0	19.96	Peak	324.00	150	Horizontal	Pass
6**	17944.001	45.01	1.36	54.0	8.99	AV	324.00	150	Horizontal	Pass

GFSK-CH31 2440MHz										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2302.351	41.49	-19.52	74.0	32.51	Peak	180.00	150	Horizontal	Pass
1**	2302.351	31.70	-19.52	54.0	22.30	AV	180.00	150	Horizontal	Pass
2	4772.500	49.78	-10.53	74.0	24.22	Peak	144.00	150	Horizontal	Pass
2**	4772.500	40.68	-10.53	54.0	13.32	AV	144.00	150	Horizontal	Pass
3	4879.750	49.08	-10.57	74.0	24.92	Peak	324.00	150	Horizontal	Pass
3**	4879.750	41.95	-10.57	54.0	12.05	AV	324.00	150	Horizontal	Pass
4	7319.750	50.53	-6.79	74.0	23.47	Peak	36.00	150	Horizontal	Pass
4**	7319.750	44.03	-6.79	54.0	9.97	AV	36.00	150	Horizontal	Pass
5	7905.750	53.61	-6.30	74.0	20.39	Peak	180.00	150	Horizontal	Pass
5**	7905.750	43.44	-6.30	54.0	10.56	AV	180.00	150	Horizontal	Pass
6	17935.000	53.66	1.60	74.0	20.34	Peak	180.00	150	Horizontal	Pass
6**	17935.000	44.65	1.60	54.0	9.35	AV	180.00	150	Horizontal	Pass

GFSK-CH31 2440MHz										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2376.888	41.77	-19.36	74.0	32.23	Peak	216.00	150	Vertical	Pass
1**	2376.888	31.96	-19.36	54.0	22.04	AV	216.00	150	Vertical	Pass
2	4784.500	49.57	-10.51	74.0	24.43	Peak	72.00	150	Vertical	Pass
2**	4784.500	41.24	-10.51	54.0	12.76	AV	72.00	150	Vertical	Pass
3	4879.750	46.14	-10.57	74.0	27.86	Peak	252.00	150	Vertical	Pass
3**	4879.750	40.64	-10.57	54.0	13.36	AV	252.00	150	Vertical	Pass
4	7319.750	50.32	-6.79	74.0	23.68	Peak	360.00	150	Vertical	Pass
4**	7319.750	42.97	-6.79	54.0	11.03	AV	360.00	150	Vertical	Pass
5	7952.250	53.95	-6.30	74.0	20.05	Peak	360.00	150	Vertical	Pass
5**	7952.250	44.34	-6.30	54.0	9.66	AV	360.00	150	Vertical	Pass
6	17935.499	54.11	1.59	74.0	19.89	Peak	144.00	150	Vertical	Pass
6**	17935.499	45.30	1.59	54.0	8.70	AV	144.00	150	Vertical	Pass

GFSK-CH61 2470MHz										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2335.367	41.96	-19.70	74.0	32.04	Peak	288.00	150	Vertical	Pass
1**	2335.367	31.48	-19.70	54.0	22.52	AV	288.00	150	Vertical	Pass
2	4766.000	49.73	-10.55	74.0	24.27	Peak	216.00	150	Vertical	Pass
2**	4766.000	41.22	-10.55	54.0	12.78	AV	216.00	150	Vertical	Pass
3	4939.750	49.15	-11.12	74.0	24.85	Peak	252.00	150	Vertical	Pass
3**	4939.750	43.96	-11.12	54.0	10.04	AV	252.00	150	Vertical	Pass
4	7410.000	50.87	-6.90	74.0	23.13	Peak	108.00	150	Vertical	Pass
4**	7410.000	42.89	-6.90	54.0	11.11	AV	108.00	150	Vertical	Pass
5	7834.750	54.08	-6.14	74.0	19.92	Peak	360.00	150	Vertical	Pass
5**	7834.750	43.77	-6.14	54.0	10.23	AV	360.00	150	Vertical	Pass
6	17942.000	54.33	1.44	74.0	19.67	Peak	180.00	150	Vertical	Pass
6**	17942.000	44.73	1.44	54.0	9.27	AV	180.00	150	Vertical	Pass

GFSK-CH61 2470MHz										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2325.963	41.34	-19.66	74.0	32.66	Peak	144.00	150	Horizontal	Pass
1**	2325.963	31.86	-19.66	54.0	22.14	AV	144.00	150	Horizontal	Pass
2	4940.000	50.20	-11.13	74.0	23.80	Peak	360.00	150	Horizontal	Pass
2**	4940.000	44.20	-11.13	54.0	9.80	AV	360.00	150	Horizontal	Pass
3	7022.500	54.21	-5.53	74.0	19.79	Peak	360.00	150	Horizontal	Pass
3**	7022.500	45.64	-5.53	54.0	8.36	AV	360.00	150	Horizontal	Pass
4	7410.000	49.89	-6.90	74.0	24.11	Peak	288.00	150	Horizontal	Pass
4**	7410.000	43.06	-6.90	54.0	10.94	AV	288.00	150	Horizontal	Pass
5	7828.750	54.16	-6.14	74.0	19.84	Peak	216.00	150	Horizontal	Pass
5**	7828.750	44.35	-6.14	54.0	9.65	AV	216.00	150	Horizontal	Pass
6	17923.500	53.80	1.14	74.0	20.20	Peak	144.00	150	Horizontal	Pass
6**	17923.500	44.49	1.14	54.0	9.51	AV	144.00	150	Horizontal	Pass

Note:

1. Results (dBuV/m) = Raw Value (dBuV) + Factor (dB/m)
2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Pre-amplifier
3. Margin value = Limit - Results.

Radiated Band Edge - GFSK

GFSK-CH01 2410MHz-Low Band Edge										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2388.155	46.82	-19.55	74.0	27.18	Peak	6.00	150	Vertical	Pass
1**	2388.155	32.26	-19.55	54.0	21.74	AV	6.00	150	Vertical	Pass
2	2389.970	46.39	-19.56	74.0	27.61	Peak	359.20	150	Vertical	Pass
2**	2389.970	32.09	-19.56	54.0	21.91	AV	359.20	150	Vertical	Pass
3	2399.980	50.99	-19.64	74.0	23.01	Peak	16.50	150	Vertical	Pass
3**	2399.980	35.42	-19.64	54.0	18.58	AV	16.50	150	Vertical	Pass

GFSK-CH01 2410MHz-Low Band Edge										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2388.265	51.04	-19.55	74.0	22.96	Peak	256.40	150	Horizontal	Pass
1**	2388.265	36.29	-19.55	54.0	17.71	AV	256.40	150	Horizontal	Pass
2	2389.970	48.21	-19.56	74.0	25.79	Peak	303.00	150	Horizontal	Pass
2**	2389.970	34.76	-19.56	54.0	19.24	AV	303.00	150	Horizontal	Pass
3	2399.980	56.54	-19.64	74.0	17.46	Peak	274.80	150	Horizontal	Pass
3**	2399.980	41.03	-19.64	54.0	12.97	AV	274.80	150	Horizontal	Pass

GFSK-CH61 2470MHz-High Band Edge										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.497	49.14	-19.50	74.0	24.86	Peak	278.10	150	Horizontal	Pass
1**	2483.497	36.08	-19.50	54.0	17.92	AV	278.10	150	Horizontal	Pass
2	2484.548	51.96	-19.50	74.0	22.04	Peak	267.80	150	Horizontal	Pass
2**	2484.548	37.39	-19.50	54.0	16.61	AV	267.80	150	Horizontal	Pass
3	2490.025	49.60	-19.51	74.0	24.40	Peak	263.40	150	Horizontal	Pass
3**	2490.025	33.72	-19.51	54.0	20.28	AV	263.40	150	Horizontal	Pass

GFSK-CH61 2470MHz-High Band Edge										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.497	44.77	-19.50	74.0	29.23	Peak	89.80	150	Vertical	Pass
1**	2483.497	32.96	-19.50	54.0	21.04	AV	89.80	150	Vertical	Pass
2	2484.740	47.64	-19.50	74.0	26.36	Peak	240.30	150	Vertical	Pass
2**	2484.740	34.38	-19.50	54.0	19.62	AV	240.30	150	Vertical	Pass
3	2494.032	45.49	-19.49	74.0	28.51	Peak	255.10	150	Vertical	Pass
3**	2494.032	31.88	-19.49	54.0	22.12	AV	255.10	150	Vertical	Pass

Note:

- Results (dBuV/m) = Raw Value (dBuV) + Factor (dB/m)
- Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Pre-amplifier
- Margin value = Limit - Results.

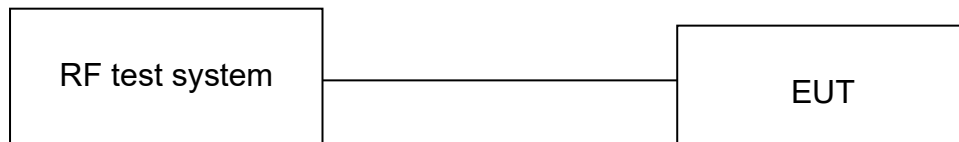
5. 20DB BANDWIDTH

5.1. Limit

According to FCC §15.215(c), for devices operating under the provisions of this section, the 20 dB bandwidth of the emission shall be contained within the frequency band designated in the rule section under which the equipment is operated. No specific minimum bandwidth is required.

If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band (i.e., 2400-2483.5 MHz) in order to minimize the possibility of out-of-band operation.

5.2. Test Setup



5.3. Spectrum Analyzer Setting

20dB Bandwidth	
Spectrum Parameters	Setting
RBW	100KHz
VBW	300KHz
Span	3MHz (or sufficient to display the emission)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

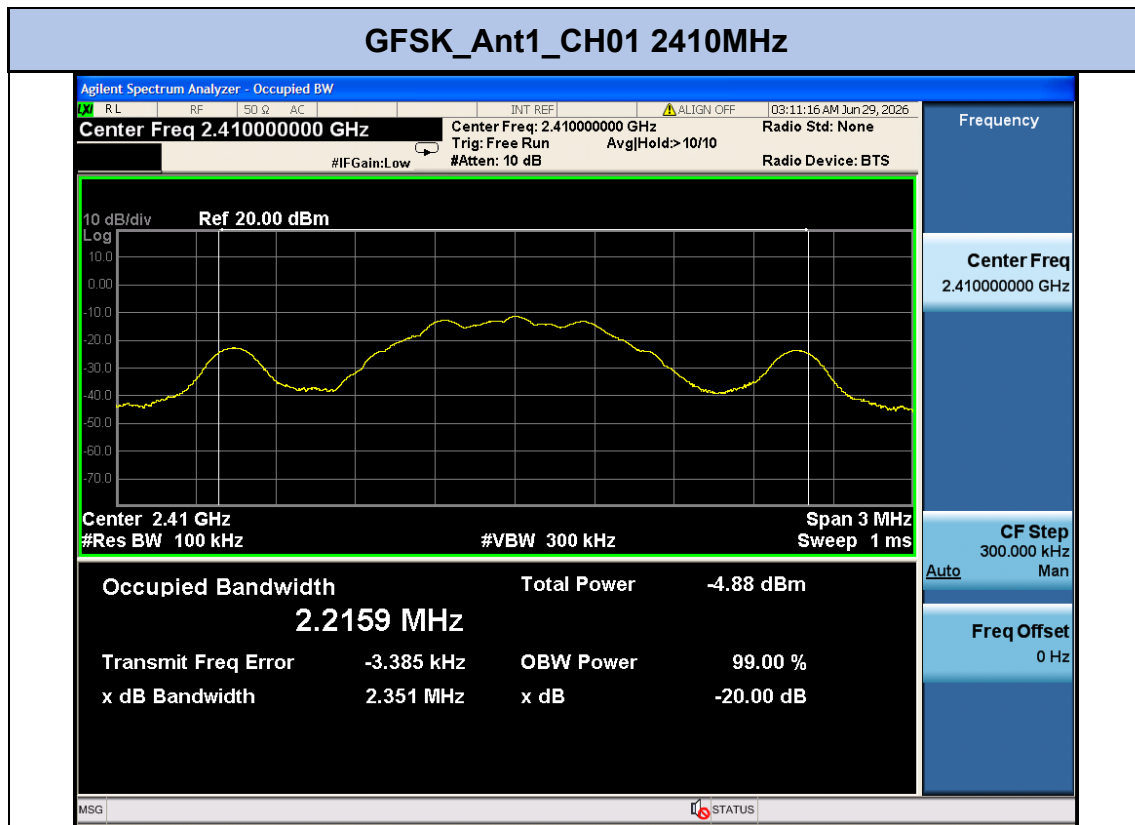
5.4. Test Procedure

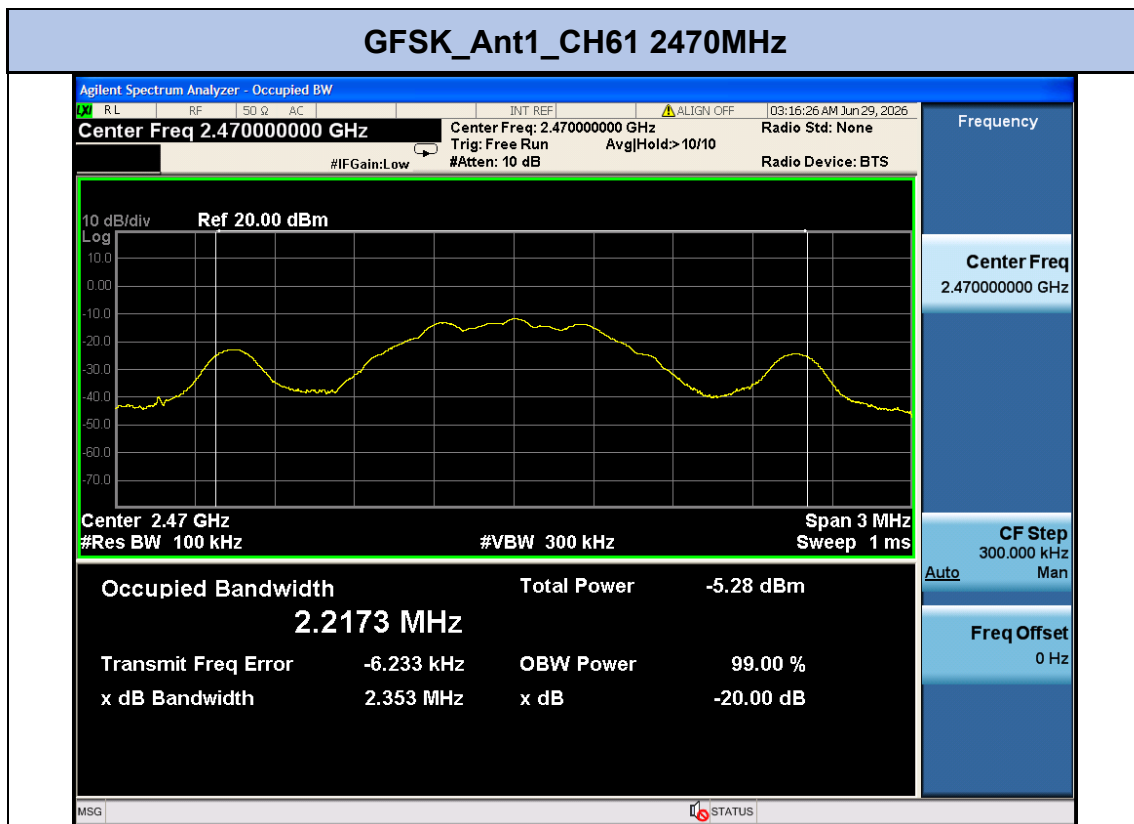
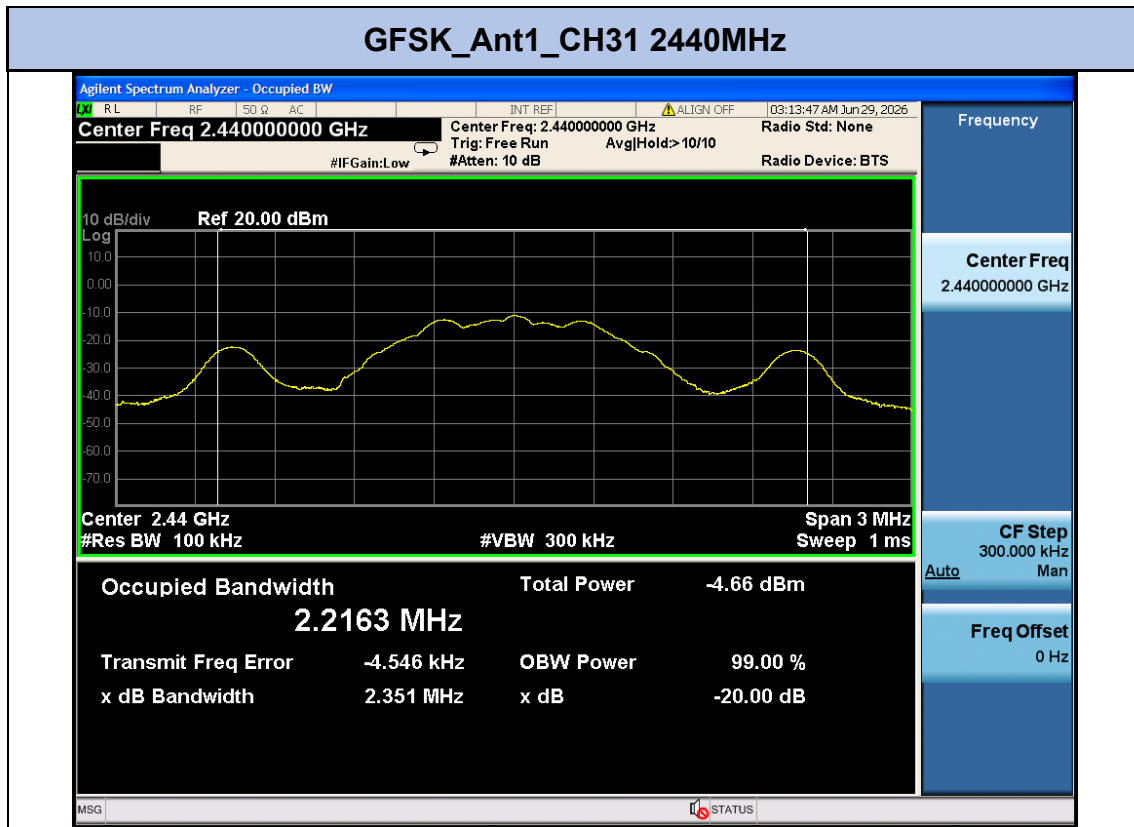
- The test according to ANSI C63.10 clause Section 6.9.
- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 5.3.
- Set the EUT to transmit continuously at maximum power on the selected channel.
- Allow the trace to stabilize, use the “ndB down” function (set to 20 dB) to measure the 20 dB bandwidth.
- Repeat above procedures until all channels and test modes were measured.
- Record the results in the test report.

5.5. Test Result

Test Mode	Antenna	Channel& Frequency	20dB Bandwidth	Result
		MHz	MHz	
GFSK	Ant1	CH01 2410	2.351	PASS
		CH31 2440	2.351	
		CH61 2470	2.353	
Note: The measured bandwidth is fully contained within the 2400-2483.5 MHz band.				

5.6.Original Test record





6. AC POWER LINE CONDUCTED EMISSIONS

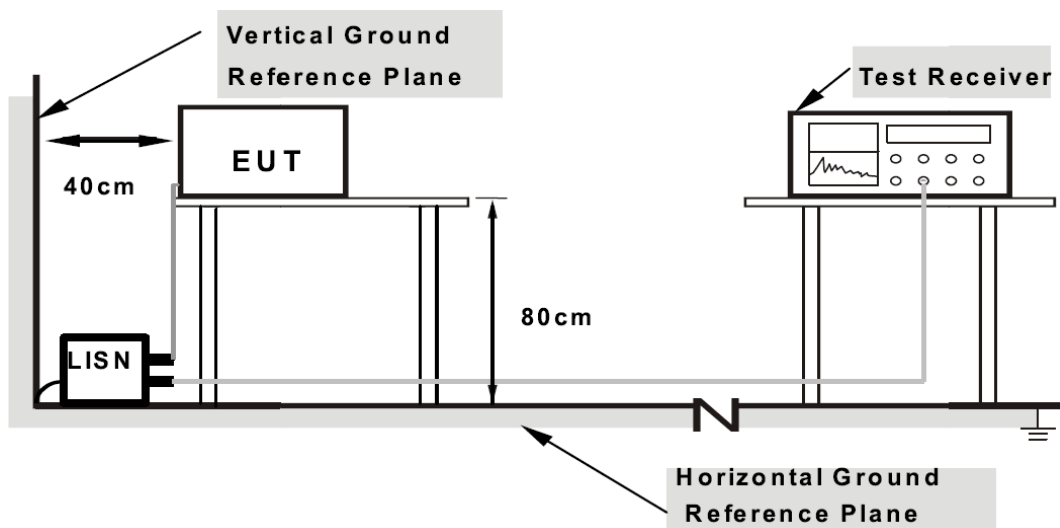
6.1. Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Note:

1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

6.2. Test Setup



6.3. Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP/AVG
Trace Mode	Max Hold

6.4. Test Procedure

- a. Reference: ANSI C63.10:2020, Section 6.2.
- b. The EUT was placed on a non-metallic table, 80cm above the ground plane.
- c. The EUT Power connected to the power mains through a line impedance stabilization network.
- d. Provides a 50ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs).
- e. Set the EUT transmit continuously with maximum output power.
- f. Spectrum analyzer setting parameters in accordance with section 6.3.
- g. The AC line is checked to find out the maximum conducted emission. To find the maximum emission levels, the relative positions of equipment and all the interface cables shall be changed according to ANSI C63.10:2020 on Conducted Emission Test.

6.5. Test Result

N/A.

(Note 1: The EUT(TX) is powered by AAA batteries power supply and cannot be directly connected to the public AC power network. This test is not applicable. The EUT (RX) uses rechargeable batteries. but, during the charging mode, the independent battery pack must be removed in order to perform the charging process. It is impossible to carry out the charging function while the Aircraft is in operation. and cannot be directly connected to the public AC power network. This test is not applicable.

The EUT (RX) is charged via a Type-C port. However, charging is only possible when the battery pack is removed, and the aircraft cannot operate during charging. The Type-C port is for charging purpose only and does not constitute a functional AC power connection for the radio transmitter. Therefore, AC Line Conducted Emissions test is not applicable.)



7. ANTENNA REQUIREMENTS

7.1. Limit

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.

7.2. Test Result

The antennas used for this product is Wire Antenna (Internal antenna), so compliance with antenna requirements. (Please refer to the **Annex B. EUT Internal Photos** for details)



8.APPENDIX

"EUT of External Photos, EUT Internal Photos & Test Setup Photos" Please refer to the Annex A, Annex B& Annex C document.

CTSL2620630206E Annex A. EUT External Photos

CTSL2620630206E Annex B. EUT Internal Photos

CTSL2620630206E Annex C. Test Setup Photos

-----*End of Test Report*-----

