FCC PART 15.249

TEST REPORT

For

Shantou Xintuo Intelligent Technology Co., Ltd.

Fengxiang Street, Donghu Qiaohong Road, Chenghai District, Shantou, China

FCC ID: 2BF7B-X30

Report Type:	**Product Name:**
Original	Quadcopters

Report Number:	2407U23892E-RF-01
Report Date:	2024-09-04
Reviewed By:	Stein Peng
Approved By:	Miles Chen
Prepared By:	Bay Area Compliance Laboratories Corp. (Xiamen) Unit 102, No. 902 Meifeng South Road, Binhai West Avenue, Science and Technology Innovation Park, Torch High tech Zone XiaMen Tel: +86-592-3200111 www.baclcorp.com.cn

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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	2407U23892E-RF-01	R1V1	2024-09-04	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	Shantou Xintuo Intelligent Technology Co., Ltd.
Tested Model:	X30
Series Models:	X33, X60, X50
Product Name:	Quadcopters
Power Supply:	DC 3.7V from battery or DC 5V from USB port
RF Function:	SRD
Operating Band/Frequency:	2410-2470MHz
Channel Number:	3
Modulation Type:	GFSK
Antenna Type:	Wire Antenna
★Maximum Antenna Gain:	0dBi

Note:
1. The maximum antenna gain is provided by the applicant.
2. All measurement and test data in this report was gathered from production sample serial number: 2NZD-1 (Assigned by the BACL (Xiamen). The EUT supplied by the applicant was received on 2024-06-09)

Objective

This test report is prepared for *Shantou Xintuo Intelligent Technology Co., Ltd.* in accordance with Part 2-Subpart J, and Part 15-Subparts A and C of the Federal Communication Commission rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209, 15.215 and 15.249 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

Measurement Uncertainty

Item		U_{lab}
Conducted Emissions	150kHz-30MHz(LISN)	2.33dB
Radiated Disturbance	9kHz~30MHz	2.59 dB
	30MHz~200MHz	4.38dB
	200MHz ~1GHz	4.50dB
	1GHz~6GHz	4.58dB
	6GHz~18GHz	5.43dB
	18GHz~26.5GHz	5.47dB
Occupied Bandwidth		0.10MHz
Temperature		1℃
Humidity		5%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Xiamen) to collect test data is located on the Unit 102, No. 902 Meifeng South Road, Binhai West Avenue, Science and Technology Innovation Park, Torch High tech Zone XiaMen.

Bay Area Compliance Laboratories Corp. (Xiamen) Lab is accredited to ISO/IEC 17025 by A2LA (Certificate Number: 7134.01) and the lab has been recognized as the FCC accredited lab under the KDB 974614 D01, FCC Registration No.: 485720, the FCC Designation No.: CN1384.

SYSTEM TEST CONFIGURATION

Test Mode and Voltage

The system was configured for testing in a typical mode (as normally used by a typical user).	
Test mode:	Test Model 1: Charging Test Model 2: Transmitting
Test voltage:	Test Mode 1: DC 5V from adapter(AC 120V/60Hz) Test Mode 2: DC 3.7V from battery
Remark:	During all emission tests, the EUT was configured to measure its highest possible emission level and the worst case's test data was presented in this test report.

Justification

The system was configured in testing mode which was provided by manufacturer.

Channel List:

Channel	Frequency (MHz)
1	2410
2	2440
3	2470

EUT Exercise Software

Engineering Mode was provided by manufacturer.

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

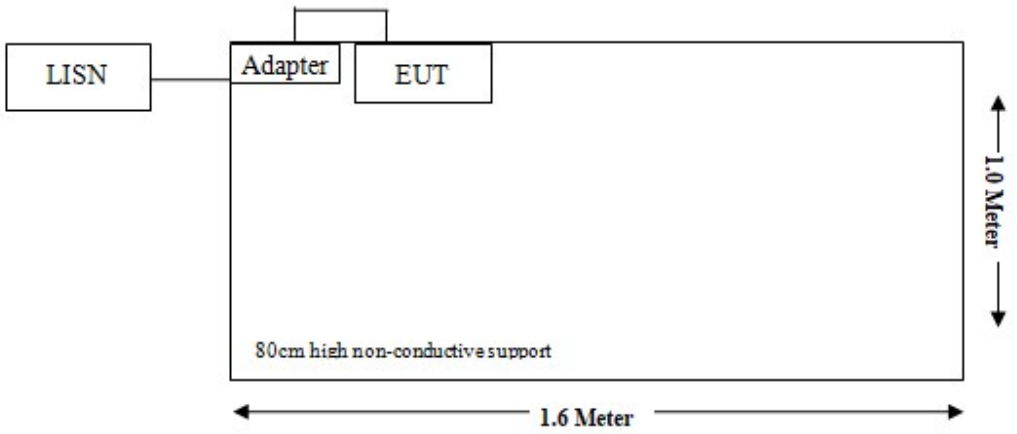
Manufacturer	Description	Model	Serial Number
CARREGADOR PORTATIL	Adapter	S64A38BL	222700047954T4

External I/O Cable

Cable Description	Length (m)	From Port	To Port
USB cable	1.0	EUT	Adapter

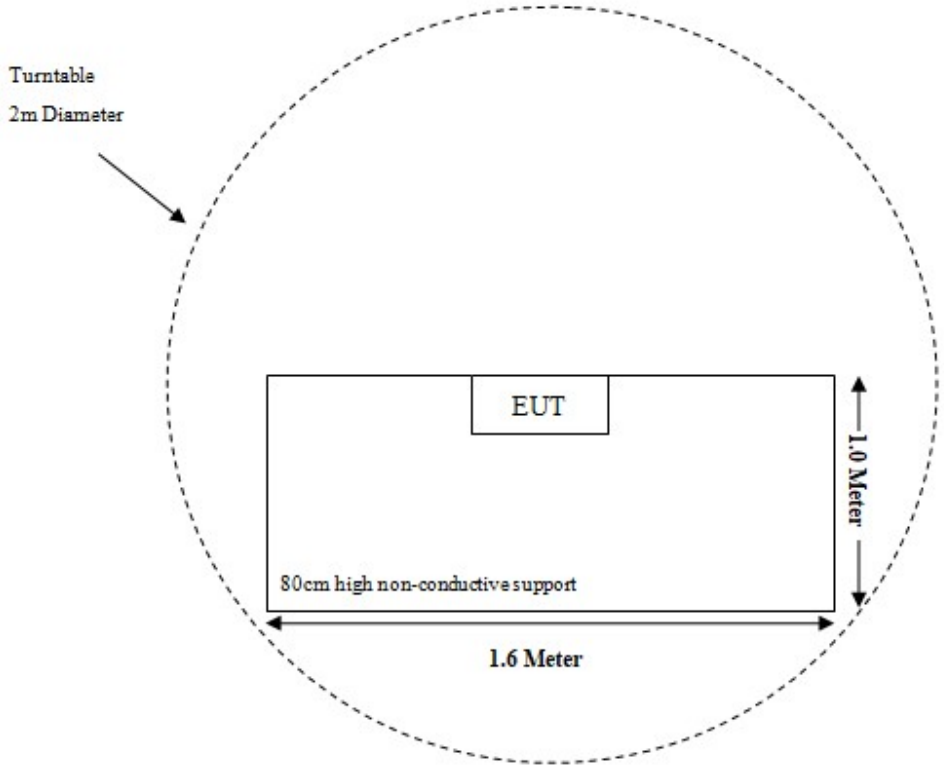
Block Diagram of Test Setup

For Conducted Emissions:

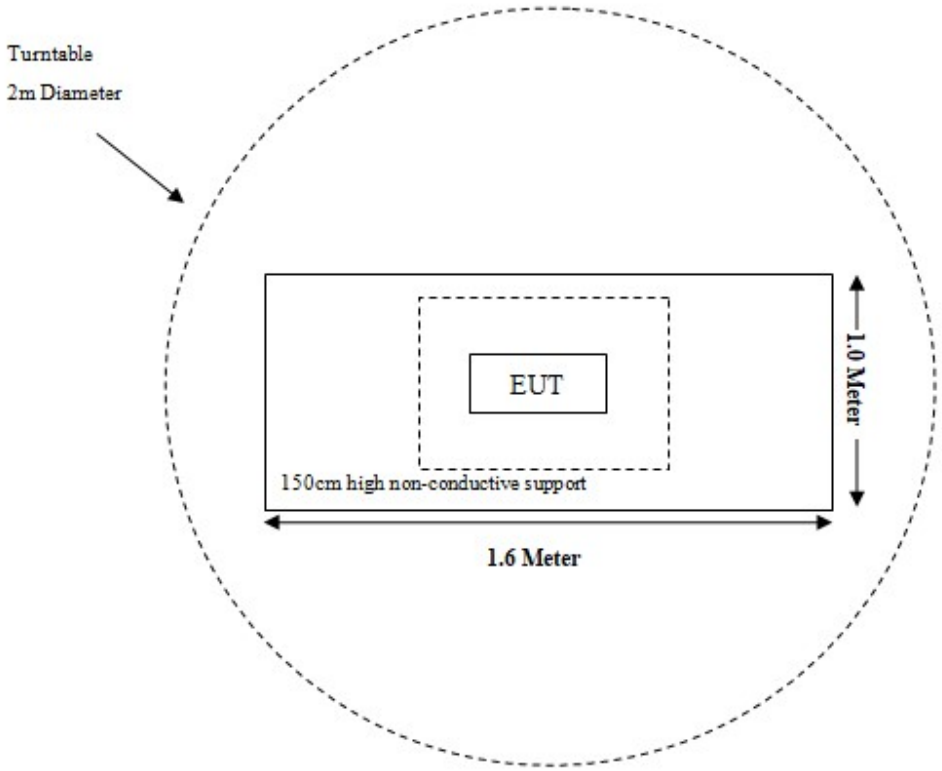


For Radiated Emissions:

Below 1GHz:



Above 1GHz


Turntable
2m Diameter
EUT
150cm high non-conductive support
1.0 Meter
1.6 Meter

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207(a)	Conducted Emissions	Compliant
§15.205, §15.209, §15.249	Radiated Emissions & Fundamental Test & Out-of-band Emissions Test	Compliant
§15.215 (c)	20 dB Bandwidth	Compliant

Note: The applicant declares that the remote control cannot transmit while charging.

TEST EQUIPMENT LIST

Test Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emissions Below 1 GHz					
EMI Test Receiver	Rohde & Schwarz	ESR	103103	2024/03/29	2025/03/28
Loop Antenna	Rohde & Schwarz	HFH2-Z2	830749/001	2023/07/27	2026/07/26
Antenna	Sunol Sciences	JB6	A122022-5	2023/07/27	2026/07/26
Amplifier	Sonoma	310B	120903	2024/03/29	2025/03/28
Coaxial Cable	XINHANGWEIBO	XH400T-N-4M	CC002	2024/03/29	2025/03/28
Coaxial Cable	XINHANGWEIBO	XH460B-N-2M	CC006	2024/03/29	2025/03/28
Coaxial Cable	XINHANGWEIBO	XH460B-N-12M	CC007	2024/03/29	2025/03/28
Test Software	Audix	E3	18621a	N/A	N/A
Radiated Emissions Above 1 GHz					
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102051	2024/03/29	2025/03/28
Double Ridge Guide Horn Antenna	A.H.Systems	SAS-571	1980	2023/07/28	2026/07/27
Preamplifier	A.H.Systems	PAM-0118P	489	2024/03/29	2025/03/28
Coaxial Cable	XINHANGWEIBO	XH800A-N-6M	CC003	2024/03/29	2025/03/28
Coaxial Cable	XINHANGWEIBO	XH800A-N-1M	CC005	2024/03/29	2025/03/28
Horn Antenna	EMCO	3116	9407-2232	2023/07/31	2026/07/30
Preamplifier	A.H.Systems	PAM-1840	200	2024/03/29	2025/03/28
Coaxial Cable	XINHANGWEIBO	XH360A-2.92-3M	CC008	2024/03/29	2025/03/28
Coaxial Cable	XINHANGWEIBO	XH360A-2.92-1M	CC009	2024/03/29	2025/03/28
Test Software	Audix	E3	18621a	N/A	N/A
Conducted Emissions					
EMI Test Receiver	Rohde & Schwarz	ESR	103105	2024/03/29	2025/03/28
LISN	Rohde & Schwarz	ENV216	100129	2024/03/29	2025/03/28
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	0357.8810.54	2024/03/29	2025/03/28
Coaxial Cable	XINHANGWEIBO	XH400T-N-4M	CC001	2024/03/29	2025/03/28
Test Software	Audix	E3	18621a	N/A	N/A
RF Conducted Test (20 dB Bandwidth)					
EMI Test Receiver	Rohde & Schwarz	ESR	103105	2024/03/29	2025/03/28

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Xiamen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC§15.203 - ANTENNA REQUIREMENT

Applicable Standard

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.

Antenna Connected Construction

The EUT has a Wire antenna which was permanently attached and the antenna gain is 0dBi; fulfill the requirement of this section. Please refer to EUT photos.

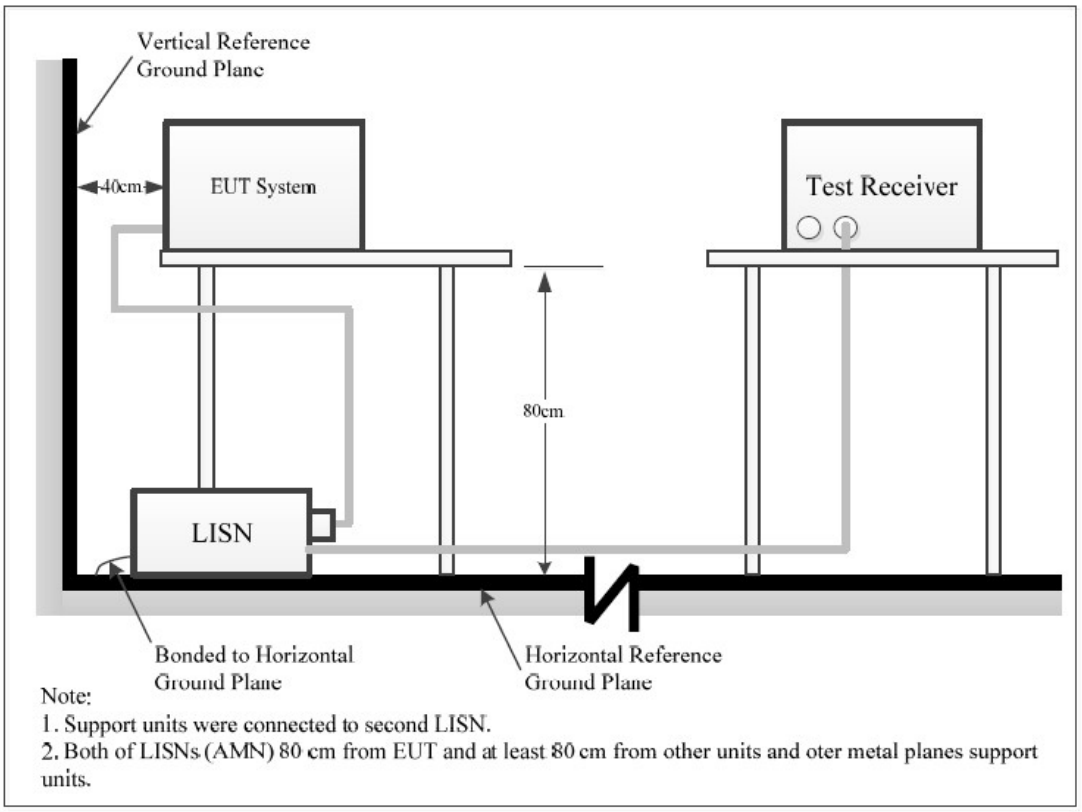
Result: Compliant.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

Test System Setup



The measurement procedure of EUT setup is according with ANSI C63.10-2013. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	VBW
150 kHz - 30 MHz	9 kHz	30 kHz

Test Procedure

ANSI C63.10-2013 clause 6.2

During the conducted emission test, the EUT was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

If the maximum peak value of the emissions is below the average limit, the QP value and average value measurement will not need to be performed and only record the maximum peak measured value to meet the requirements.

Level &Margin Calculation

The Level is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation from the Meter Reading. The basic equation is as follows:

Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
Level (dBµV) = Reading (dBµV) + Factor (dB)

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

Margin (dB) = Limit (dBµV) – Level (dBµV)

Test Results Summary

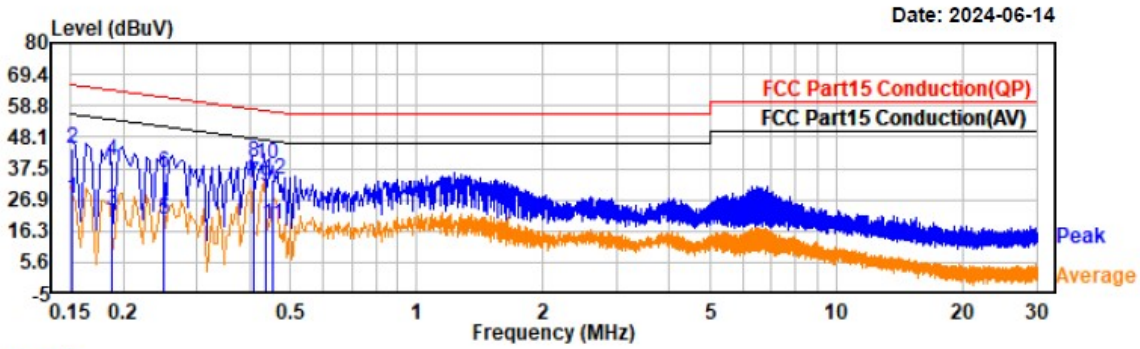
According to the recorded data in following table, the EUT complied with the FCC Title 47, FCC Part 15.207.

Test Data

Temperature:	23.6℃
Relative Humidity:	53 %
ATM Pressure:	99.6 kPa
Test Date:	2024-06-14
Test Engineer:	Toby Chen

Project No.: 2407U23892E-RF
Test Mode: CHARGING
EUT Model: X30

Temp/Humi/ATM: 22.4℃/61%/101.1kPa
Tested by: Toby Chen
Power Source: AC 120V/60Hz



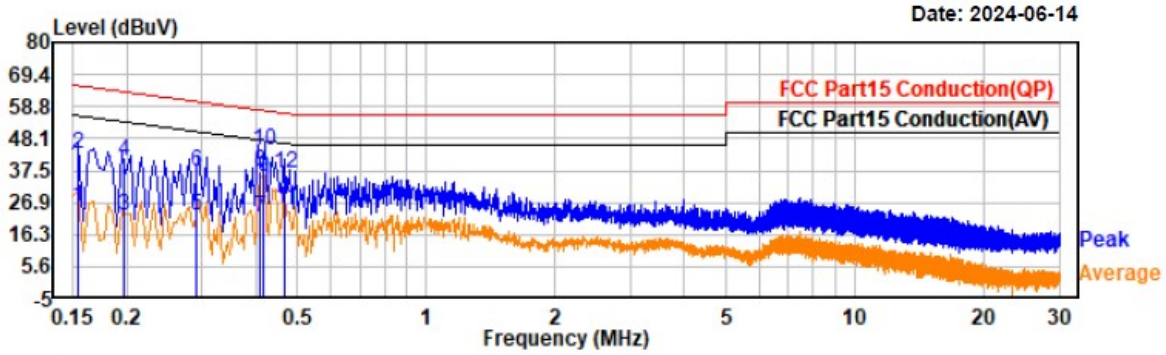
Trace: 1

Freq MHz	Reading dBuV	Factor dB	Result dBuV	Limit dBuV	Margin dB	Phase	Remark
0.15	7.72	19.49	27.21	55.93	28.72	Line	Average
0.15	24.46	19.49	43.95	65.93	21.98	Line	QP
0.19	3.89	19.50	23.39	54.13	30.74	Line	Average
0.19	20.91	19.50	40.41	64.13	23.72	Line	QP
0.25	0.87	19.54	20.41	51.78	31.37	Line	Average
0.25	16.54	19.54	36.08	61.78	25.70	Line	QP
0.41	12.78	19.59	32.37	47.69	15.32	Line	Average
0.41	20.06	19.59	39.65	57.69	18.04	Line	QP
0.44	11.50	19.60	31.10	47.11	16.01	Line	Average
0.44	19.43	19.60	39.03	57.11	18.08	Line	QP
0.45	-1.11	19.60	18.49	46.82	28.33	Line	Average
0.45	14.30	19.60	33.90	56.82	22.92	Line	QP

Remarks: Factor = Voltage division factor + Cable loss

Project No.: 2407U23892E-RF
Test Mode: CHARGING
EUT Model: X30

Temp/Humi/ATM: 22.4℃/61%/101.1kPa
Tested by: Toby Chen
Power Source: AC 120V/60Hz



Trace: 1

Freq MHz	Reading dBuV	Factor dB	Result dBuV	Limit dBuV	Margin dB	Phase	Remark
0.15	5.89	19.47	25.36	55.78	30.42	Neutral	Average
0.15	23.45	19.47	42.92	65.78	22.86	Neutral	QP
0.20	3.01	19.48	22.49	53.76	31.27	Neutral	Average
0.20	21.52	19.48	41.00	63.76	22.76	Neutral	QP
0.29	2.77	19.55	22.32	50.46	28.14	Neutral	Average
0.29	17.71	19.55	37.26	60.46	23.20	Neutral	QP
0.41	2.29	19.60	21.89	47.66	25.77	Neutral	Average
0.41	17.84	19.60	37.44	57.66	20.22	Neutral	QP
0.42	16.12	19.61	35.73	47.47	11.74	Neutral	Average
0.42	24.89	19.61	44.50	57.47	12.97	Neutral	QP
0.47	5.47	19.62	25.09	46.53	21.44	Neutral	Average
0.47	16.96	19.62	36.58	56.53	19.95	Neutral	QP

Remarks: Factor = Voltage division factor + Cable loss

FCC §15.205, §15.209, §15.249 - RADIATED EMISSIONS & OUT OF BAND EMISSION

Applicable Standard

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

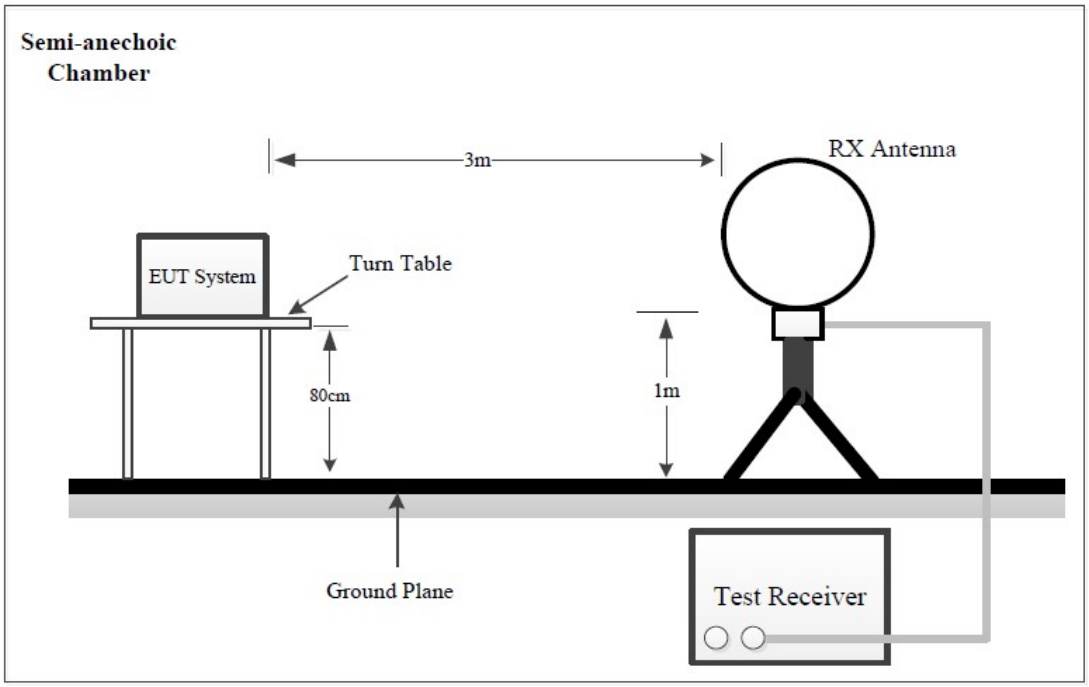
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

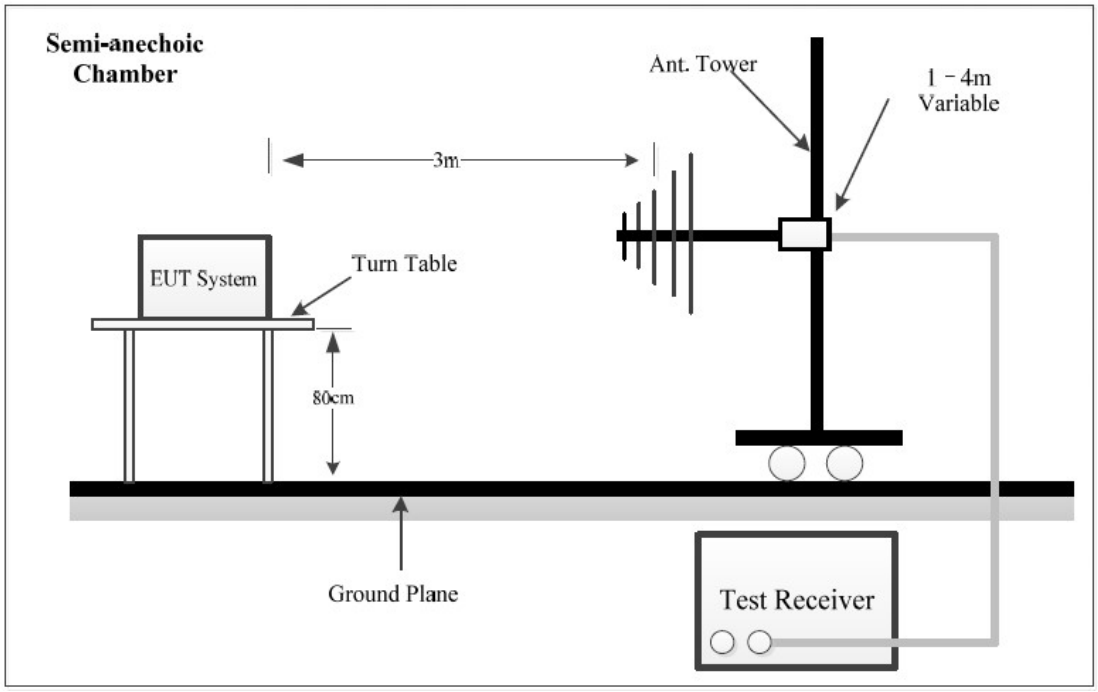
(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Test System Setup

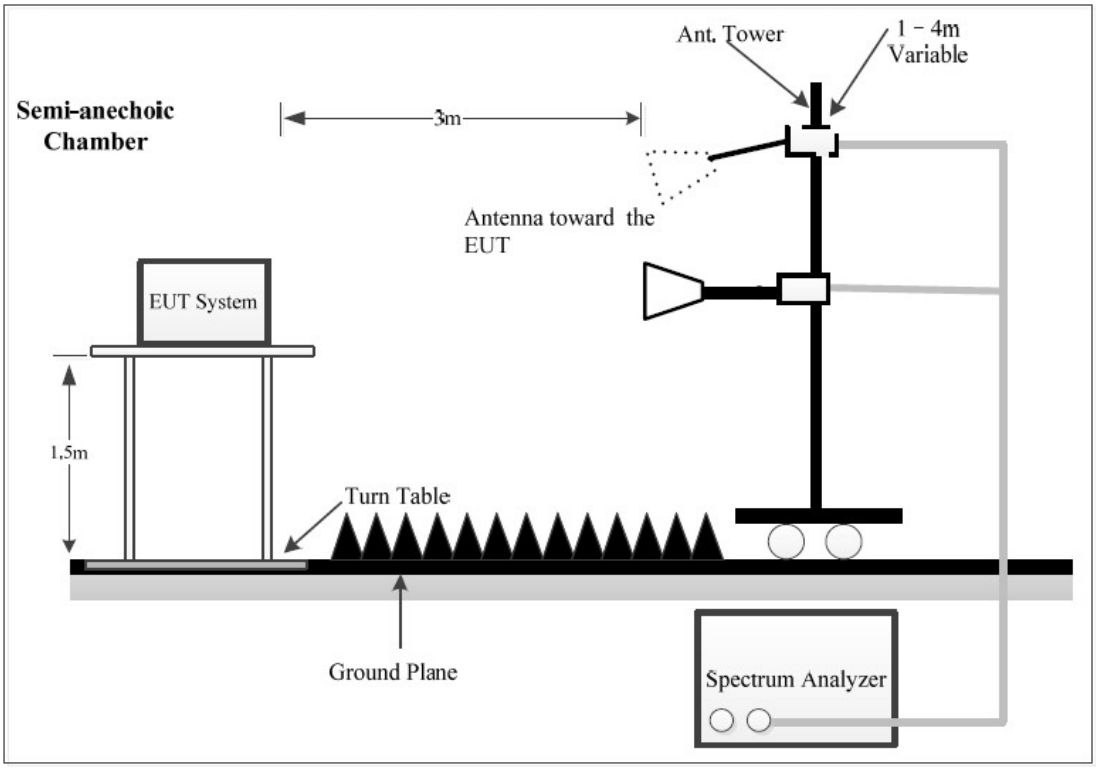
9 kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



The radiated emission and out of band emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209/15.205 and FCC 15.249 limits.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

EMI Test Receiver Setup

The system was investigated from 9 kHz to 25GHz.

During the radiated emission test, the EMI test Receiver was set with the following configurations:

Frequency Range	RBW	VBW	Measurement
9 kHz – 150 kHz	200Hz	1 kHz	PK
	200Hz	/	QP/AV
150 kHz – 30 MHz	10 kHz	30 kHz	PK
	9kHz	/	QP/AV
30 MHz – 1000 MHz	100 kHz	300 kHz	PK
	120kHz	/	QP
Above 1 GHz	1 MHz	3 MHz	PK
	1 MHz	10Hz	AV

Test Procedure

According to section 6.3, 6.4, 6.5, 6.6 of standard ANSI C63.10-2013.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

For each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable. The report shall list the six emissions with the smallest margin relative to the limit, for each of the three antenna orientations (parallel, perpendicular, and ground parallel) unless the margin is greater than 20 dB, then the following statement shall be made: “all emissions were greater than 20 dB below the limit.”

If the measured peak level of the emissions that the measuring receiver reading level plus corrected factor is at least 10 dB below the QP emission limit, there's no need to record the measured QP level of the emissions in the report.

If the measured peak level of the emissions that the measuring receiver reading level plus corrected factor is at below the AV emission limit, there's no need to record the measured AV level of the emissions in the report.

Level &Margin Calculation

The Level is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Factor (dB/m) =Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)
Level (dBμV/m) = Reading (dBμV) + Factor (dB/m)

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

Margin (dB) = Limit (dBμV/m) –Level (dBμV/m)

Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.209 &15.205 & 15.249.

Test Data

Frequency Range:	Below 1 GHz	Above 1 GHz	Fundamental Test & Out-of-band Emissions Test
Temperature:	23.5℃	23.5℃~23.6℃	23.5℃
Relative Humidity:	54 %	52 %~54%	54%
ATM Pressure:	101kPa	99.6 kPa~101.1 kPa	101.1kPa
Test Date:	2024-07-08	2024-06-21~2024-07-09	2024-09-04
Test Engineer:	Wlif Wu	Wlif Wu	Wlif Wu

Note: Pre-scan in the X, Y and Z axes of orientation, the worst case Z-axis of orientation was recorded.

1) 9 kHz~30MHz

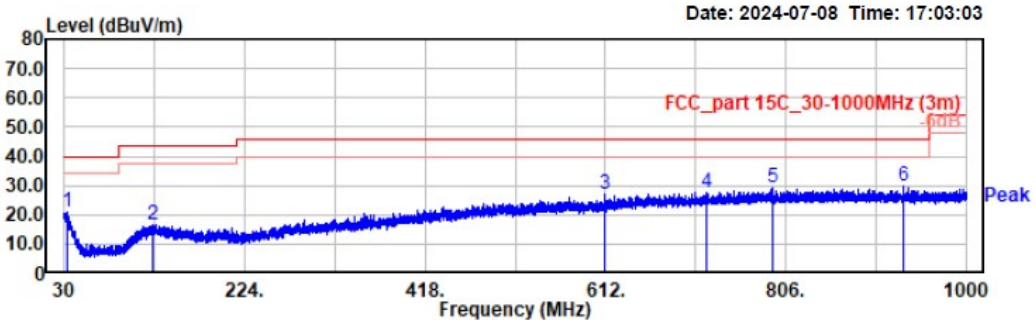
EUT Operation mode: Transmitting in middle channel (2440MHz)

Pre-scan in parallel, ground-parallel and perpendicular of orientation of loop antenna, the amplitude of spurious emissions attenuated is more than 20 dB below the permissible value, which is not required to be report.

2） 30MHz~ 1GHz

Project No.: 2407U23892E-RF
Test Mode: Tx 2410
EUT Model: X30
Test distance: 3m

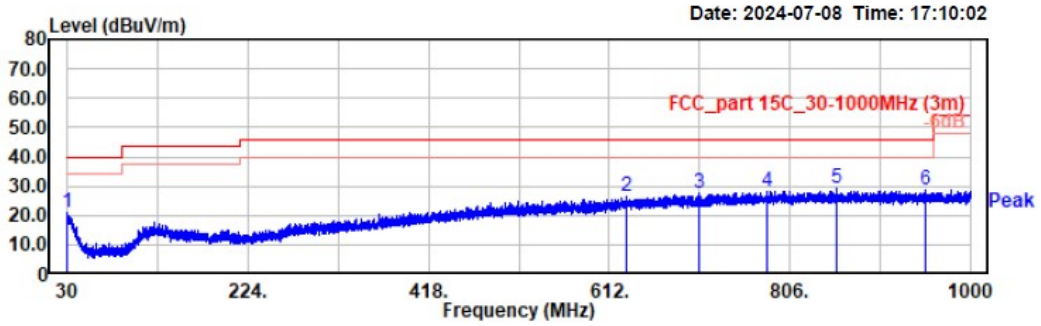
Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
32.43	27.36	-6.63	20.73	40.00	19.27	Horizontal	Peak
125.74	26.70	-9.94	16.76	43.50	26.74	Horizontal	Peak
610.74	29.29	-2.02	27.27	46.00	18.73	Horizontal	Peak
720.35	27.79	0.05	27.84	46.00	18.16	Horizontal	Peak
791.16	27.90	1.13	29.03	46.00	16.97	Horizontal	Peak
932.88	26.79	2.99	29.78	46.00	16.22	Horizontal	Peak

Project No.: 2407U23892E-RF
Test Mode: Tx 2410
EUT Model: X30
Test distance: 3m

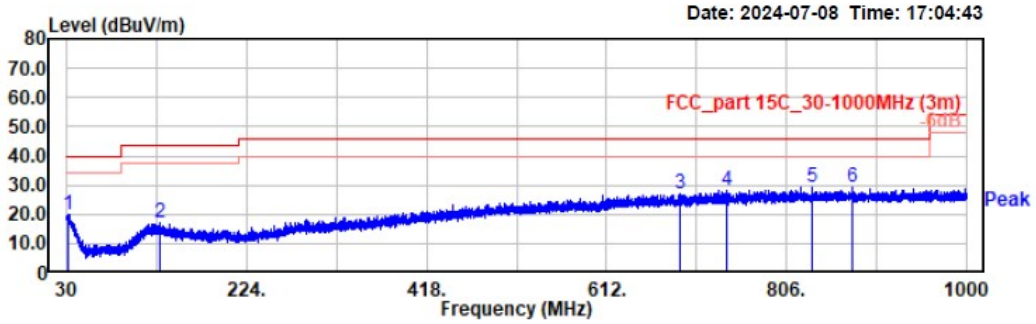
Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
30.19	26.56	-5.65	20.91	40.00	19.09	Vertical	Peak
629.85	27.65	-1.37	26.28	46.00	19.72	Vertical	Peak
708.13	27.71	-0.13	27.58	46.00	18.42	Vertical	Peak
781.36	27.29	1.08	28.37	46.00	17.63	Vertical	Peak
855.76	27.31	1.98	29.29	46.00	16.71	Vertical	Peak
952.47	25.44	3.20	28.64	46.00	17.36	Vertical	Peak

Project No.: 2407U23892E-RF
Test Mode: Tx 2440
EUT Model: X30
Test distance: 3m

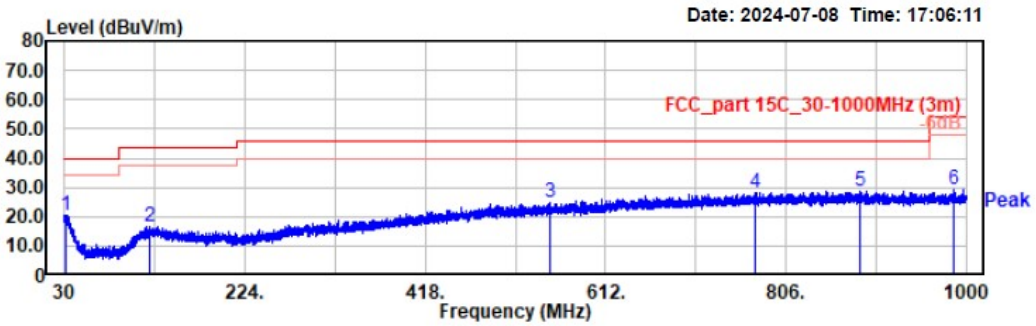
Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
31.94	26.37	-6.37	20.00	40.00	20.00	Horizontal	Peak
130.69	27.05	-10.17	16.88	43.50	26.62	Horizontal	Peak
691.54	27.47	-0.45	27.02	46.00	18.98	Horizontal	Peak
741.59	27.81	0.36	28.17	46.00	17.83	Horizontal	Peak
833.45	27.66	1.78	29.44	46.00	16.56	Horizontal	Peak
877.20	26.83	2.29	29.12	46.00	16.88	Horizontal	Peak

Project No.: 2407U23892E-RF
Test Mode: Tx 2440
EUT Model: X30
Test distance: 3m

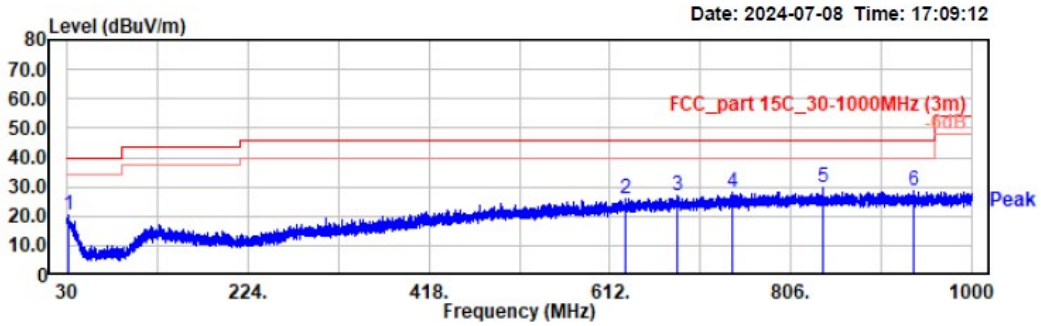
Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
31.07	26.35	-5.89	20.46	40.00	19.54	Vertical	Peak
121.67	26.99	-10.20	16.79	43.50	26.71	Vertical	Peak
552.73	27.67	-2.69	24.98	46.00	21.02	Vertical	Peak
773.60	27.18	0.91	28.09	46.00	17.91	Vertical	Peak
886.32	26.36	2.41	28.77	46.00	17.23	Vertical	Peak
986.61	25.54	3.81	29.35	54.00	24.65	Vertical	Peak

Project No.: 2407U23892E-RF
Test Mode: Tx 2470
EUT Model: X30
Test distance: 3m

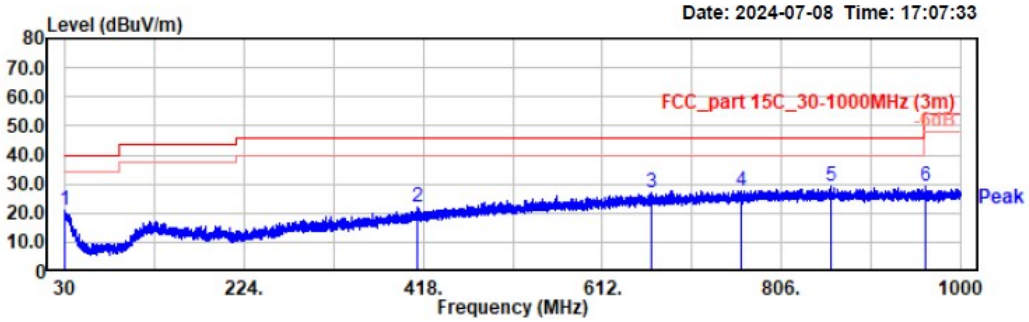
Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
30.87	26.48	-5.82	20.66	40.00	19.34	Horizontal	Peak
628.01	27.20	-1.38	25.82	46.00	20.18	Horizontal	Peak
684.85	27.49	-0.49	27.00	46.00	19.00	Horizontal	Peak
744.02	27.81	0.42	28.23	46.00	17.77	Horizontal	Peak
840.24	27.90	1.80	29.70	46.00	16.30	Horizontal	Peak
937.14	25.46	3.04	28.50	46.00	17.50	Horizontal	Peak

Project No.: 2407U23892E-RF
Test Mode: Tx 2470
EUT Model: X30
Test distance: 3m

Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC3.7V from battery

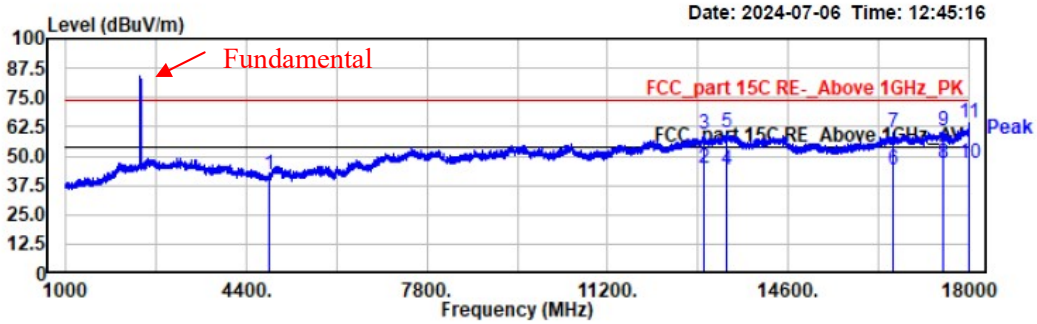


Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
30.39	26.62	-5.70	20.92	40.00	19.08	Vertical	Peak
412.47	27.75	-5.95	21.80	46.00	24.20	Vertical	Peak
664.96	27.75	-0.74	27.01	46.00	18.99	Vertical	Peak
762.74	27.20	0.66	27.86	46.00	18.14	Vertical	Peak
859.06	27.02	2.05	29.07	46.00	16.93	Vertical	Peak
962.85	25.84	3.45	29.29	54.00	24.71	Vertical	Peak

3) 1GHz~18 GHz

Project No.: 2407U23892E-RF
Test Mode: 2410MHz
EUT Model: X30
Test distance: 3m

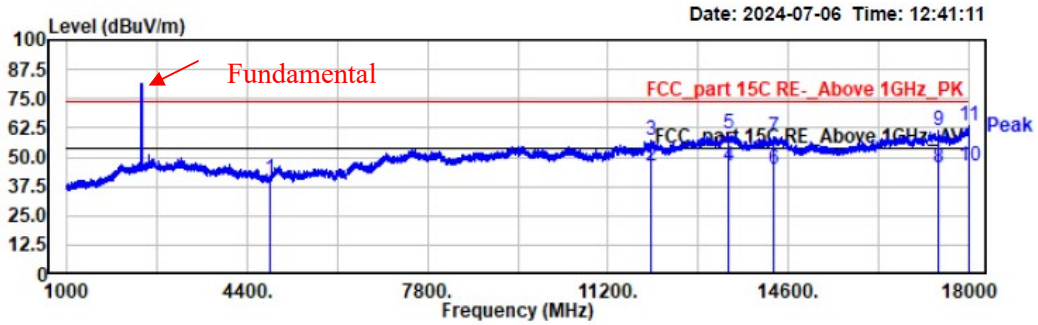
Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4819.90	40.09	2.09	42.18	74.00	31.82	horizontal	Peak
13027.50	26.55	17.96	44.51	54.00	9.49	horizontal	Average
13027.50	41.34	17.96	59.30	74.00	14.70	horizontal	Peak
13450.80	26.00	18.30	44.30	54.00	9.70	horizontal	Average
13450.80	41.50	18.30	59.80	74.00	14.20	horizontal	Peak
16566.90	28.67	15.62	44.29	54.00	9.71	horizontal	Average
16566.90	44.29	15.62	59.91	74.00	14.09	horizontal	Peak
17510.40	29.33	17.63	46.96	54.00	7.04	horizontal	Average
17510.40	42.73	17.63	60.36	74.00	13.64	horizontal	Peak
17996.60	26.64	19.97	46.61	54.00	7.39	horizontal	Average
17996.60	44.21	19.97	64.18	74.00	9.82	horizontal	Peak

Project No.: 2407U23892E-RF
Test Mode: 2410MHz
EUT Model: X30
Test distance: 3m

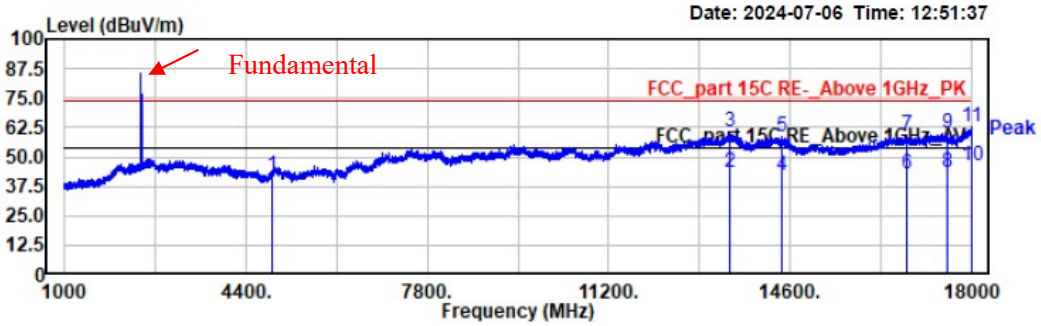
Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4819.90	38.76	2.09	40.85	74.00	33.15	vertical	Peak
12016.00	30.04	15.90	45.94	54.00	8.06	vertical	Average
12016.00	41.39	15.90	57.29	74.00	16.71	vertical	Peak
13471.20	27.99	18.32	46.31	54.00	7.69	vertical	Average
13471.20	41.44	18.32	59.76	74.00	14.24	vertical	Peak
14324.60	27.36	17.43	44.79	54.00	9.21	vertical	Average
14324.60	40.93	17.43	58.36	74.00	15.64	vertical	Peak
17437.30	27.66	17.80	45.46	54.00	8.54	vertical	Average
17437.30	43.50	17.80	61.30	74.00	12.70	vertical	Peak
18000.00	26.01	19.98	45.99	54.00	8.01	vertical	Average
18000.00	43.56	19.98	63.54	74.00	10.46	vertical	Peak

Project No.: 2407U23892E-RF
Test Mode: 2440MHz
EUT Model: X30
Test distance: 3m

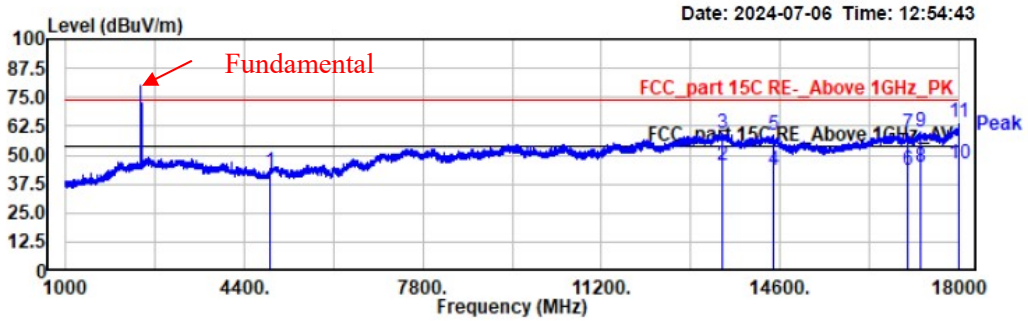
Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4879.40	38.80	2.97	41.77	74.00	32.23	horizontal	Peak
13461.00	25.34	18.31	43.65	54.00	10.35	horizontal	Average
13461.00	42.24	18.31	60.55	74.00	13.45	horizontal	Peak
14453.80	25.36	16.82	42.18	54.00	11.82	horizontal	Average
14453.80	41.85	16.82	58.67	74.00	15.33	horizontal	Peak
16786.20	25.37	17.56	42.93	54.00	11.07	horizontal	Average
16786.20	41.54	17.56	59.10	74.00	14.90	horizontal	Peak
17559.70	26.41	17.19	43.60	54.00	10.40	horizontal	Average
17559.70	42.68	17.19	59.87	74.00	14.13	horizontal	Peak
17998.30	26.12	19.97	46.09	54.00	7.91	horizontal	Average
17998.30	42.93	19.97	62.90	74.00	11.10	horizontal	Peak

Project No.: 2407U23892E-RF
Test Mode: 2440MHz
EUT Model: X30
Test distance: 3m

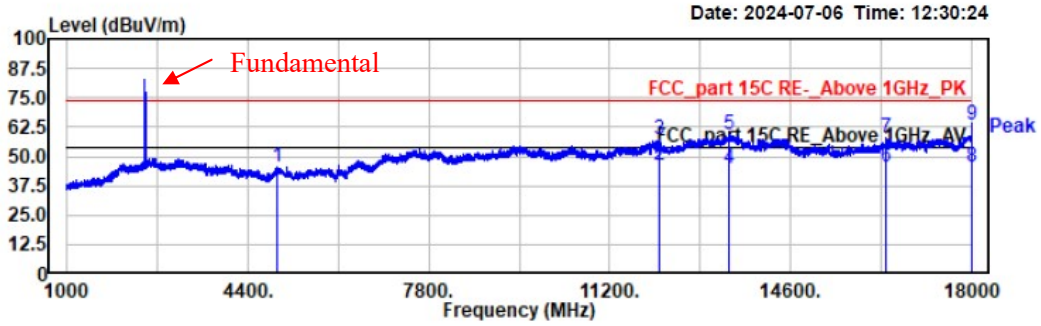
Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4879.40	39.79	2.97	42.76	74.00	31.24	vertical	Peak
13493.30	27.26	18.35	45.61	54.00	8.39	vertical	Average
13493.30	41.06	18.35	59.41	74.00	14.59	vertical	Peak
14474.20	26.56	16.78	43.34	54.00	10.66	vertical	Average
14474.20	41.71	16.78	58.49	74.00	15.51	vertical	Peak
17019.10	26.36	17.20	43.56	54.00	10.44	vertical	Average
17019.10	42.09	17.20	59.29	74.00	14.71	vertical	Peak
17274.10	26.77	17.80	44.57	54.00	9.43	vertical	Average
17274.10	41.86	17.80	59.66	74.00	14.34	vertical	Peak
18000.00	26.34	19.98	46.32	54.00	7.68	vertical	Average
18000.00	44.12	19.98	64.10	74.00	9.90	vertical	Peak

Project No.: 2407U23892E-RF
Test Mode: 2470MHz
EUT Model: X30
Test distance: 3m

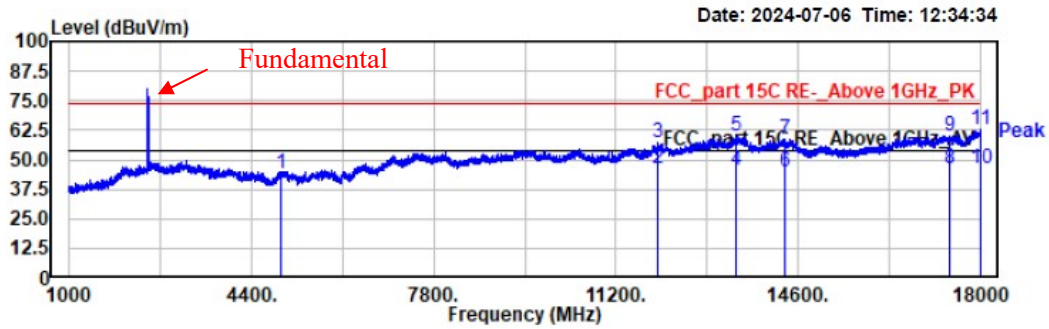
Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4938.90	41.72	3.72	45.44	74.00	28.56	horizontal	Peak
12119.70	30.16	15.77	45.93	54.00	8.07	horizontal	Average
12119.70	41.15	15.77	56.92	74.00	17.08	horizontal	Peak
13440.60	26.25	18.29	44.54	54.00	9.46	horizontal	Average
13440.60	41.34	18.29	59.63	74.00	14.37	horizontal	Peak
16407.10	30.03	15.66	45.69	54.00	8.31	horizontal	Average
16407.10	42.05	15.66	57.71	74.00	16.29	horizontal	Peak
17998.30	25.37	19.97	45.34	54.00	8.66	horizontal	Average
17998.30	43.82	19.97	63.79	74.00	10.21	horizontal	Peak

Project No.: 2407U23892E-RF
Test Mode: 2470MHz
EUT Model: X30
Test distance: 3m

Temp/Humi: 23.5℃/54%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery

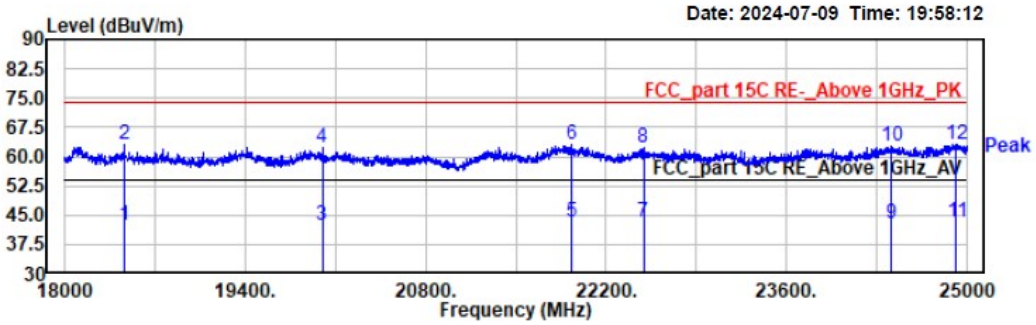


Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4940.60	40.69	3.72	44.41	74.00	29.59	vertical	Peak
11992.20	30.03	15.88	45.91	54.00	8.09	vertical	Average
11992.20	41.68	15.88	57.56	74.00	16.44	vertical	Peak
13455.90	27.36	18.31	45.67	54.00	8.33	vertical	Average
13455.90	41.39	18.31	59.70	74.00	14.30	vertical	Peak
14343.30	27.56	17.29	44.85	54.00	9.15	vertical	Average
14343.30	41.59	17.29	58.88	74.00	15.12	vertical	Peak
17427.10	28.35	17.82	46.17	54.00	7.83	vertical	Average
17427.10	42.52	17.82	60.34	74.00	13.66	vertical	Peak
17994.90	26.44	19.96	46.40	54.00	7.60	vertical	Average
17994.90	42.58	19.96	62.54	74.00	11.46	vertical	Peak

4) 18 GHz~25 GHz

Project No.: 2407U23892E-RF
Test Mode: Tx 2410MHz
EUT Model: X30
Test distance: 3m

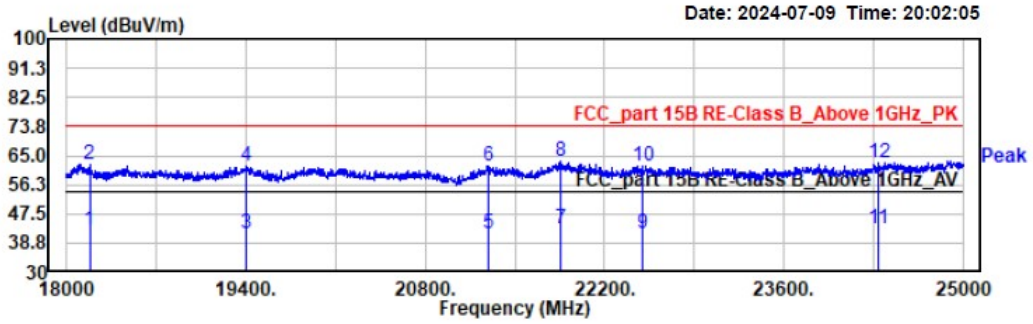
Temp/Humi: 23.6℃/52%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
18458.40	18.38	24.16	42.54	54.00	11.46	horizontal	Average
18458.40	38.88	24.16	63.04	74.00	10.96	horizontal	Peak
19996.80	18.16	24.36	42.52	54.00	11.48	horizontal	Average
19996.80	38.03	24.36	62.39	74.00	11.61	horizontal	Peak
21928.80	17.08	26.01	43.09	54.00	10.91	horizontal	Average
21928.80	37.08	26.01	63.09	74.00	10.91	horizontal	Peak
22490.40	17.36	26.00	43.36	54.00	10.64	horizontal	Average
22490.40	36.36	26.00	62.36	74.00	11.64	horizontal	Peak
24412.80	15.03	27.99	43.02	54.00	10.98	horizontal	Average
24412.80	34.50	27.99	62.49	74.00	11.51	horizontal	Peak
24916.80	15.37	27.96	43.33	54.00	10.67	horizontal	Average
24916.80	35.25	27.96	63.21	74.00	10.79	horizontal	Peak

Project No.: 2407U23892E-RF
Test Mode: Tx 2410MHz
EUT Model: X30
Test distance: 3m

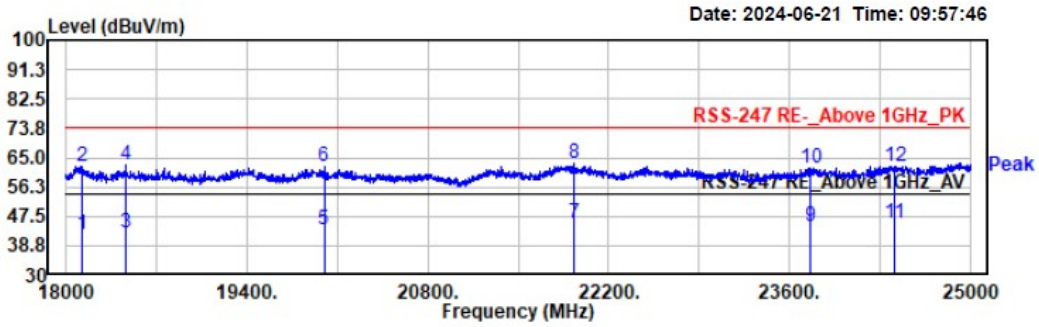
Temp/Humi: 23.6℃/52%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
18180.00	17.92	24.41	42.33	54.00	11.67	vertical	Average
18180.00	37.96	24.41	62.37	74.00	11.63	vertical	Peak
19404.00	17.26	24.22	41.48	54.00	12.52	vertical	Average
19404.00	37.75	24.22	61.97	74.00	12.03	vertical	Peak
21292.80	16.44	25.17	41.61	54.00	12.39	vertical	Average
21292.80	36.68	25.17	61.85	74.00	12.15	vertical	Peak
21859.20	17.36	25.89	43.25	54.00	10.75	vertical	Average
21859.20	37.21	25.89	63.10	74.00	10.90	vertical	Peak
22497.60	15.75	26.03	41.78	54.00	12.22	vertical	Average
22497.60	35.89	26.03	61.92	74.00	12.08	vertical	Peak
24333.60	15.04	27.79	42.83	54.00	11.17	vertical	Average
24333.60	34.99	27.79	62.78	74.00	11.22	vertical	Peak

Project No.: 2407U23892E-RF
Test Mode: Tx 2440MHz
EUT Model: X30
Test distance: 3m

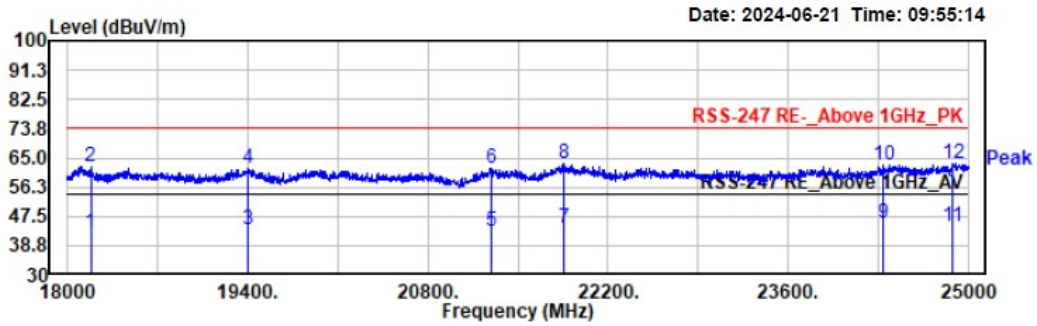
Temp/Humi: 23.6℃/52%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
18127.20	18.09	24.12	42.21	54.00	11.79	horizontal	Average
18127.20	38.26	24.12	62.38	74.00	11.62	horizontal	Peak
18458.40	18.45	24.34	42.79	54.00	11.21	horizontal	Average
18458.40	38.70	24.34	63.04	74.00	10.96	horizontal	Peak
19996.80	19.04	24.66	43.70	54.00	10.30	horizontal	Average
19996.80	37.73	24.66	62.39	74.00	11.61	horizontal	Peak
21928.80	19.26	26.07	45.33	54.00	8.67	horizontal	Average
21928.80	37.02	26.07	63.09	74.00	10.91	horizontal	Peak
23762.40	17.32	27.29	44.61	54.00	9.39	horizontal	Average
23762.40	34.70	27.29	61.99	74.00	12.01	horizontal	Peak
24412.80	17.05	28.41	45.46	54.00	8.54	horizontal	Average
24412.80	34.08	28.41	62.49	74.00	11.51	horizontal	Peak

Project No.: 2407U23892E-RF
Test Mode: Tx 2440MHz
EUT Model: X30
Test distance: 3m

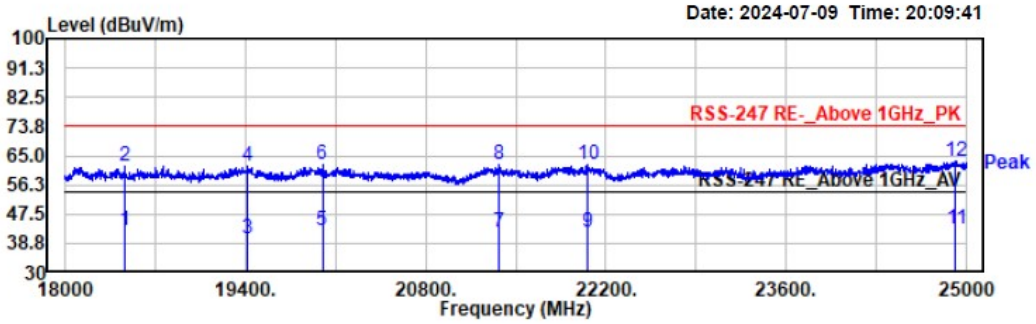
Temp/Humi: 23.6℃/52%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
18180.00	18.45	24.15	42.60	54.00	11.40	vertical	Average
18180.00	38.22	24.15	62.37	74.00	11.63	vertical	Peak
19404.00	19.05	24.59	43.64	54.00	10.36	vertical	Average
19404.00	37.38	24.59	61.97	74.00	12.03	vertical	Peak
21292.80	17.46	25.62	43.08	54.00	10.92	vertical	Average
21292.80	36.23	25.62	61.85	74.00	12.15	vertical	Peak
21859.20	17.77	25.99	43.76	54.00	10.24	vertical	Average
21859.20	37.11	25.99	63.10	74.00	10.90	vertical	Peak
24333.60	17.01	28.25	45.26	54.00	8.74	vertical	Average
24333.60	34.53	28.25	62.78	74.00	11.22	vertical	Peak
24878.40	15.89	28.42	44.31	54.00	9.69	vertical	Average
24878.40	34.92	28.42	63.34	74.00	10.66	vertical	Peak

Project No.: 2407U23892E-RF
Test Mode: Tx 2470MHz
EUT Model: X30
Test distance: 3m

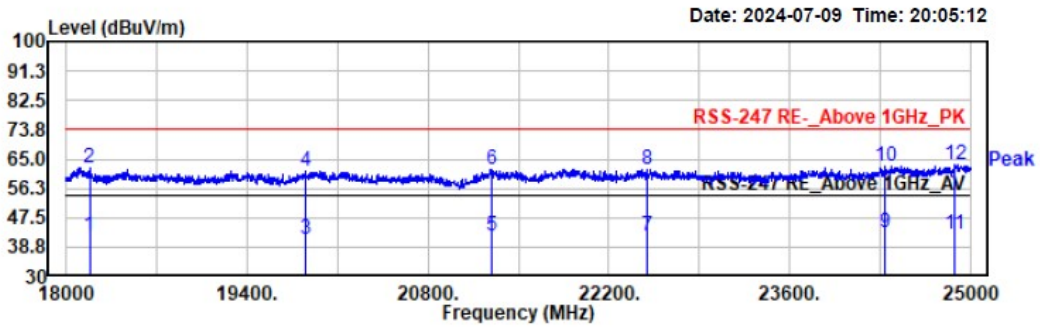
Temp/Humi: 23.6℃/52%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
18458.40	18.00	24.34	42.34	54.00	11.66	horizontal	Average
18458.40	37.70	24.34	62.04	74.00	11.96	horizontal	Peak
19418.40	15.68	24.60	40.28	54.00	13.72	horizontal	Average
19418.40	37.50	24.60	62.10	74.00	11.90	horizontal	Peak
19996.80	17.88	24.66	42.54	54.00	11.46	horizontal	Average
19996.80	37.73	24.66	62.39	74.00	11.61	horizontal	Peak
21367.20	16.70	25.61	42.31	54.00	11.69	horizontal	Average
21367.20	36.61	25.61	62.22	74.00	11.78	horizontal	Peak
22063.20	16.08	25.99	42.07	54.00	11.93	horizontal	Average
22063.20	36.24	25.99	62.23	74.00	11.77	horizontal	Peak
24916.80	14.76	28.41	43.17	54.00	10.83	horizontal	Average
24916.80	34.80	28.41	63.21	74.00	10.79	horizontal	Peak

Project No.: 2407U23892E-RF
Test Mode: Tx 2470MHz
EUT Model: X30
Test distance: 3m

Temp/Humi: 23.6℃/52%
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
18180.00	18.07	24.15	42.22	54.00	11.78	vertical	Average
18180.00	38.22	24.15	62.37	74.00	11.63	vertical	Peak
19850.40	16.58	24.64	41.22	54.00	12.78	vertical	Average
19850.40	36.86	24.64	61.50	74.00	12.50	vertical	Peak
21292.80	16.21	25.62	41.83	54.00	12.17	vertical	Average
21292.80	36.23	25.62	61.85	74.00	12.15	vertical	Peak
22497.60	15.61	26.23	41.84	54.00	12.16	vertical	Average
22497.60	35.69	26.23	61.92	74.00	12.08	vertical	Peak
24333.60	14.56	28.25	42.81	54.00	11.19	vertical	Average
24333.60	34.53	28.25	62.78	74.00	11.22	vertical	Peak
24878.40	14.29	28.42	42.71	54.00	11.29	vertical	Average
24878.40	34.92	28.42	63.34	74.00	10.66	vertical	Peak

Fundamental Test & Out-of-band Emissions Test:

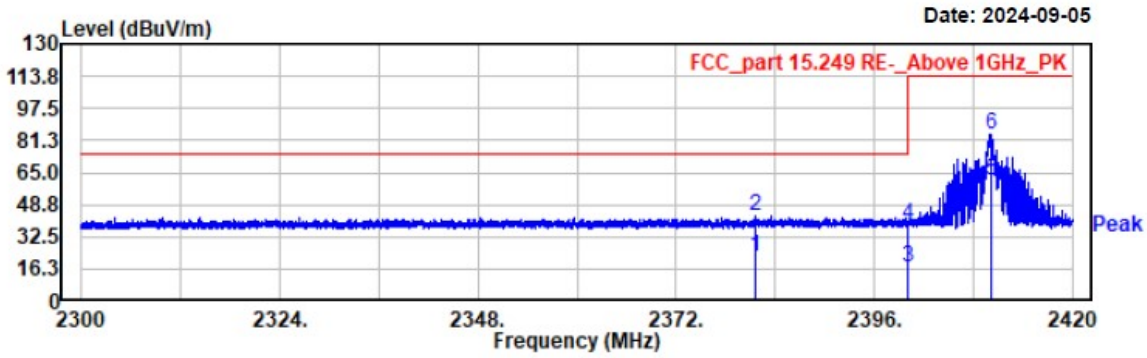
(Pre-scan in the X, Y and Z ax of orientation, the worst case Y-axis of orientation was recorded.)

Note:
Factor (dB/m) =Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)
Corrected Amplitude (dBμV/m) = Reading (dBμV) + Factor (dB/m)
Margin (dB) = Limit (dBμV/m) –Corrected Amplitude (dBμV/m)

Frequency	Receiver Reading	Rx Antenna Polar	Factor	Corrected Amplitude	Limit	Margin	Detector
MHz	dBμV	H/V	dB/m	dBμV/m	dBμV/m	dB	
Low Channel: 2410MHz							
2410.00	56.33	H	4.41	60.74	94.00	33.26	AV
2410.00	79.97	H	4.41	84.38	114.00	29.62	PK
2410.00	49.76	V	4.41	54.17	94.00	39.83	AV
2410.00	76.42	V	4.41	80.83	114.00	33.17	PK
2400.00	12.80	H	4.40	17.20	54.00	36.80	AV
2400.00	34.35	H	4.40	38.75	74.00	35.25	PK
2400.00	13.00	V	4.40	17.40	54.00	36.60	AV
2400.00	34.50	V	4.40	38.90	74.00	35.10	PK
2381.50	18.27	H	4.18	22.45	54.00	31.55	AV
2381.50	39.15	H	4.18	43.33	74.00	30.67	PK
2346.54	19.79	V	3.78	23.57	54.00	30.43	AV
2346.54	40.31	V	3.78	44.09	74.00	29.91	PK
Middle Channel: 2440MHz							
2440.00	59.14	H	4.42	63.56	94.00	30.44	AV
2440.00	80.46	H	4.42	84.88	114.00	29.12	PK
2440.00	54.45	V	4.42	58.87	94.00	35.13	AV
2440.00	74.43	V	4.42	78.85	114.00	35.15	PK
High Channel: 2470MHz							
2470.00	56.73	H	4.78	61.51	94.00	32.49	AV
2470.00	78.39	H	4.78	83.17	114.00	30.83	PK
2470.00	49.02	V	4.78	53.80	94.00	40.20	AV
2470.00	73.11	V	4.78	77.89	114.00	36.11	PK
2483.50	17.34	H	5.03	22.37	54.00	31.63	AV
2483.50	35.47	H	5.03	40.50	74.00	33.50	PK
2483.50	14.34	V	5.03	19.37	54.00	34.63	AV
2483.50	34.23	V	5.03	39.26	74.00	34.74	PK
2488.26	19.77	V	5.12	24.89	54.00	29.11	AV
2488.26	38.37	V	5.12	43.49	74.00	30.51	PK
2497.75	22.08	V	5.29	27.37	54.00	26.63	AV
2487.75	40.26	V	5.29	45.55	74.00	28.45	PK

Project No.: 2407U23892E-RF
Test Mode: 2410MHz
EUT Model: X30
Test distance: 3m

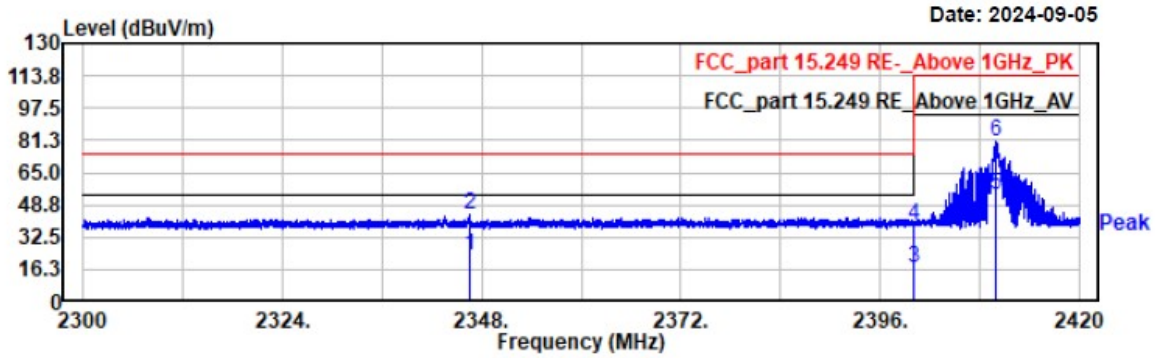
Temp/Humi/ATM: 23.6℃/55%/101.1kPa
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2381.50	18.27	4.18	22.45	54.00	31.55	horizontal	Average
2381.50	39.15	4.18	43.33	74.00	30.67	horizontal	Peak
2400.00	12.80	4.40	17.20	54.00	36.80	horizontal	Average
2400.00	34.35	4.40	38.75	74.00	35.25	horizontal	Peak
2410.09	56.33	4.41	60.74	94.00	33.26	horizontal	Average
2410.09	79.97	4.41	84.38	114.00	29.62	horizontal	Peak

Project No.: 2407U23892E-RF
Test Mode: 2410MHz
EUT Model: X30
Test distance: 3m

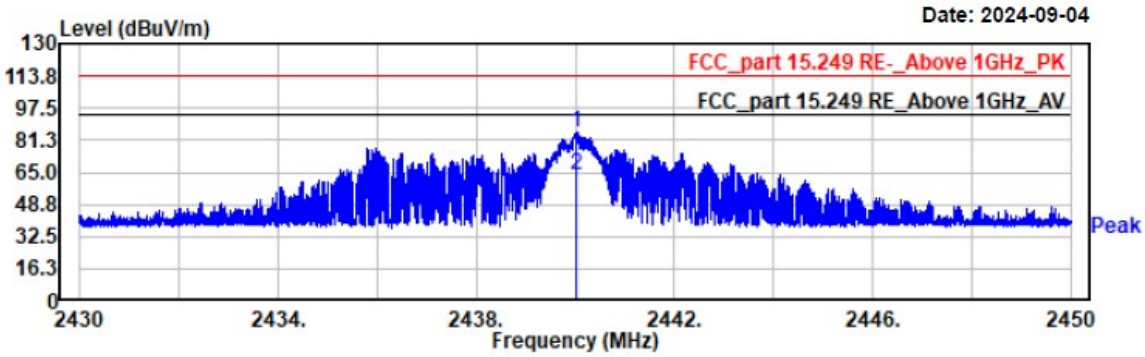
Temp/Humi/ATM: 23.6℃/55%/101.1kPa
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2346.54	19.79	3.78	23.57	54.00	30.43	vertical	Average
2346.54	40.31	3.78	44.09	74.00	29.91	vertical	Peak
2400.00	13.00	4.40	17.40	54.00	36.60	vertical	Average
2400.00	34.50	4.40	38.90	74.00	35.10	vertical	Peak
2410.03	49.76	4.41	54.17	94.00	39.83	vertical	Average
2410.03	76.42	4.41	80.83	114.00	33.17	vertical	Peak

Project No.: 2407U23892E-RF
Test Mode: 2440MHz
EUT Model: X30
Test distance: 3m

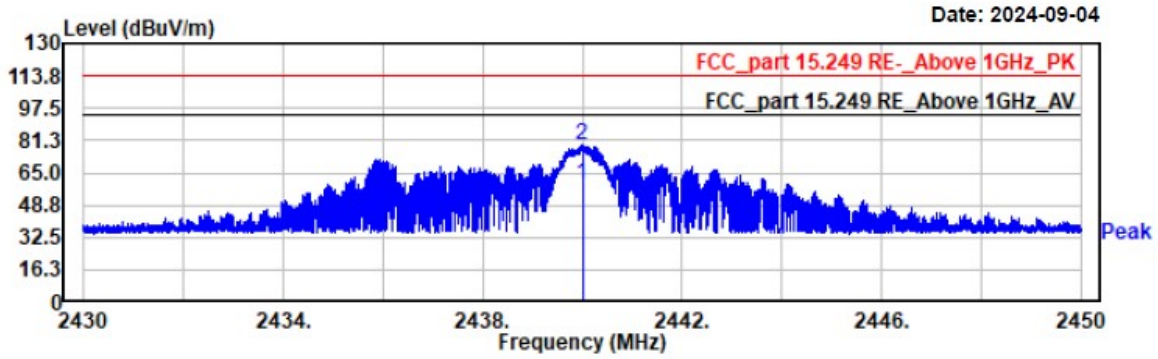
Temp/Humi/ATM: 23.6℃/55%/101.1kPa
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2440.02	80.46	4.42	84.88	114.00	29.12	horizontal	Peak
2440.03	59.14	4.42	63.56	94.00	30.44	horizontal	Average

Project No.: 2407U23892E-RF
Test Mode: 2440MHz
EUT Model: X30
Test distance: 3m

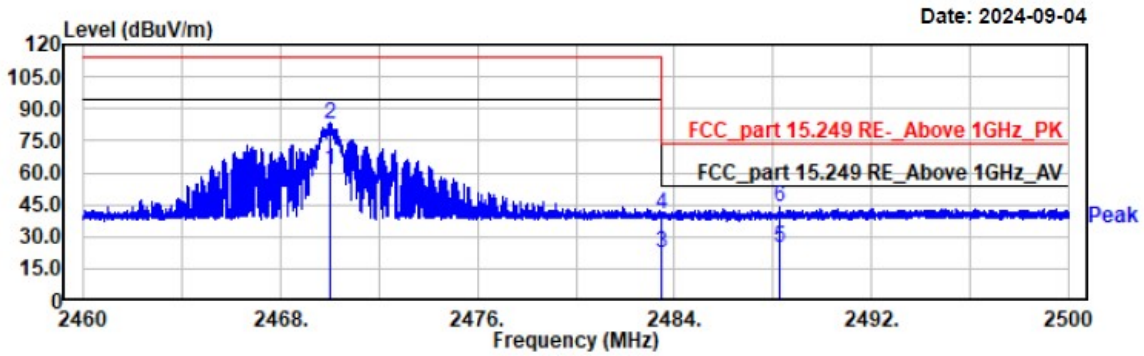
Temp/Humi/ATM: 23.6℃/55%/101.1kPa
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2440.00	54.45	4.42	58.87	94.00	35.13	vertical	Average
2440.00	74.43	4.42	78.85	114.00	35.15	vertical	Peak

Project No.: 2407U23892E-RF
Test Mode: 2470MHz
EUT Model: X30
Test distance: 3m

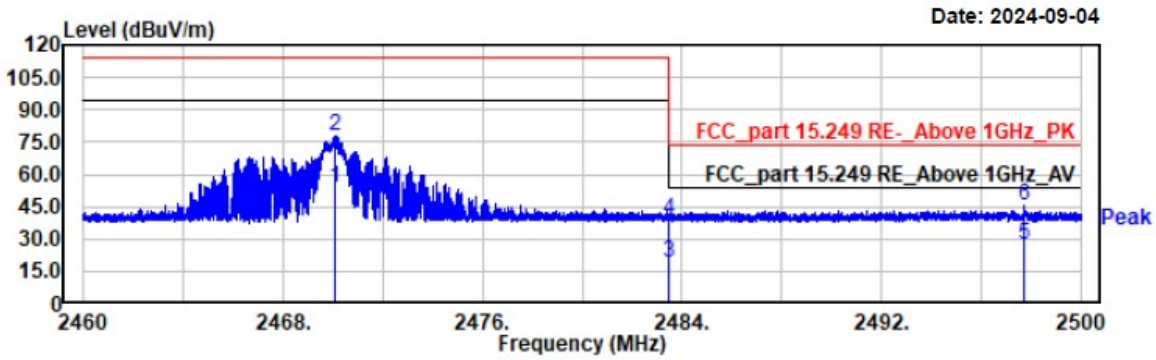
Temp/Humi/ATM: 23.6℃/55%/101.1kPa
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2470.02	56.73	4.78	61.51	94.00	32.49	horizontal	Average
2470.02	78.39	4.78	83.17	114.00	30.83	horizontal	Peak
2483.50	17.34	5.03	22.37	54.00	31.63	horizontal	Average
2483.50	35.47	5.03	40.50	74.00	33.50	horizontal	Peak
2488.26	19.77	5.12	24.89	54.00	29.11	horizontal	Average
2488.26	38.37	5.12	43.49	74.00	30.51	horizontal	Peak

Project No.: 2407U23892E-RF
Test Mode: 2470MHz
EUT Model: X30
Test distance: 3m

Temp/Humi/ATM: 23.6℃/55%/101.1kPa
Tested by: Wlif Wu
Power Source: DC 3.7V from battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2470.06	49.02	4.78	53.80	94.00	40.20	vertical	Average
2470.06	73.11	4.78	77.89	114.00	36.11	vertical	Peak
2483.50	14.34	5.03	19.37	54.00	34.63	vertical	Average
2483.50	34.23	5.03	39.26	74.00	34.74	vertical	Peak
2497.75	22.08	5.29	27.37	54.00	26.63	vertical	Average
2497.75	40.26	5.29	45.55	74.00	28.45	vertical	Peak

FCC §15.215(c) - 20dB EMISSION BANDWIDTH TESTING

Applicable Standard

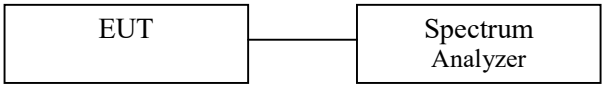
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test Procedure

According to section 6.9 of standard ANSI C63.10-2013.

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
3. Repeat above procedures until all frequencies measured were complete.

Test Setup



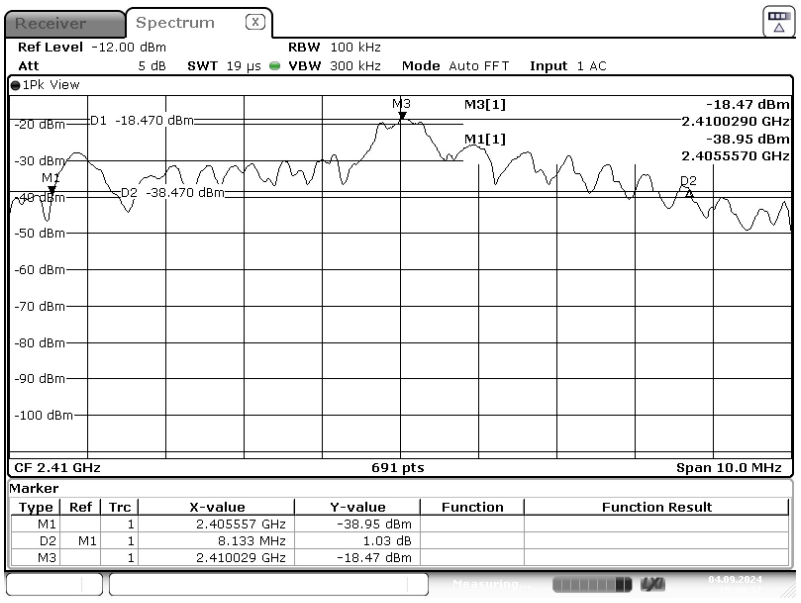
Test Data

Test Mode:	Transmitting	**Test Engineer:**	Ash Lin
Test Date:	2024-09-04	**Test Voltage:**	DC 3.7V from battery
Test Distance:	3M	**Test Frequency:**	2410MHz, 2440MHz, 2470MHz
Ant. Polarity:	N/A	**Environment:**	Temp.: 21.5℃ Humi.: 56% Atm:101.1kPa

Test Result: Compliant.

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
Low	2410	8.133
Middle	2440	8.524
High	2470	8.22

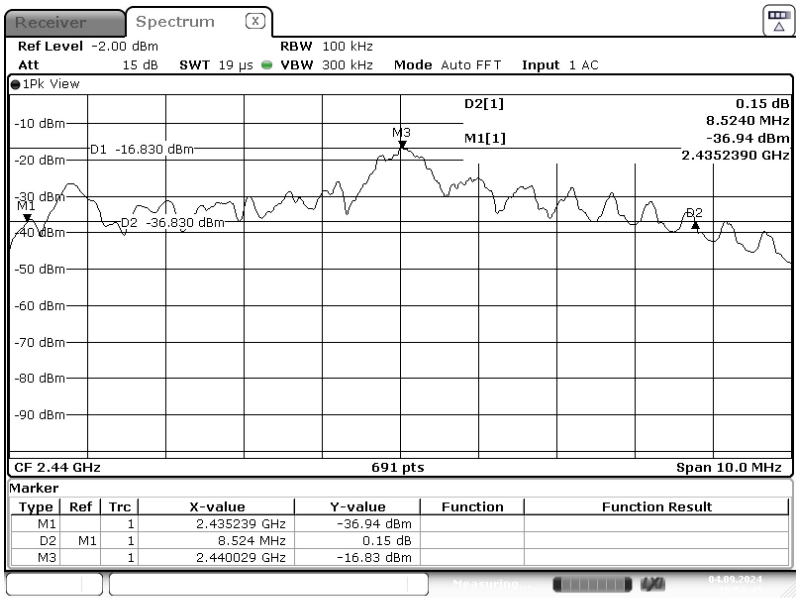
Low Channel



ProjectNo.:2407U23892E-RF Tester:Ash Lin

Date: 4.SEP.2024 15:40:33

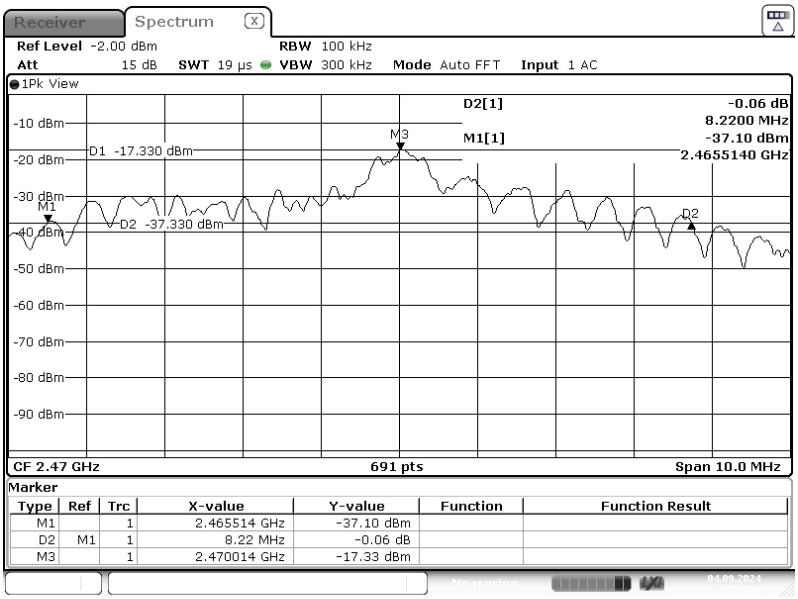
Middle Channel



ProjectNo.:2407U23892E-RF Tester:Ash Lin

Date: 4.SEP.2024 15:54:46

High Channel



ProjectNo.:2407U23892E-RF Tester:Ash Lin

Date: 4.SEP.2024 15:57:07

EUT PHOTOGRAPHS

Please refer to the attachment 2407U23892E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2407U23892E-RF-INP EUT INTERNAL PHOTOGRAPHS.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2407U23892E-RF-TSP TEST SETUP PHOTOGRAPHS.

Declarations

1. Bay Area Compliance Laboratories Corp. (Xiamen) is not responsible for authenticity of any information provided by the applicant. Information from the applicant that may affect test results are marked with an asterisk "★".

2. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.

3. Unless required by the rule provided by the applicant or product regulations, then decision rule in this report did not consider the uncertainty.

4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor k=2 with the 95.45% confidence interval.

5. This report cannot be reproduced except in full, without prior written approval of Bay Area Compliance Laboratories Corp. (Xiamen).

6. This report is valid only with a valid digital signature. The digital signature may be available only under the adobe software above version 7.0.

******* END OF REPORT *******