



FCC TEST REPORT

# Test report On Behalf of SHANTOU CITY CHENGHAI DISTRICT SUMING TOYS FACTORY For

# REMOTE CONTROL QUADCOPTER

Model No.: SM1703, SM1905, SM1903, SM1906, SM1916, SM1915, SM1917, SM1911, SM1912, SM1913, SM1907, SM1908, SM1909, S200, S300, S600, S700, S800, S900

FCC ID: 2AYUK-SM1703

Prepared for: SHANTOU CITY CHENGHAI DISTRICT SUMING TOYS FACTORY

UNIT D 16/F ONE CAPITAL PLACE 21, LUARD ROAD WAN CHAI, Hong Kong

Prepared By: Shenzhen HUAK Testing Technology Co., Ltd.

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Bao'an District, Shenzhen City, China

Date of Test: Jan. 19, 2021 ~ Jan. 26, 2021

Date of Report: Jan. 26, 2021
Report Number: HK2012024079-E



**TEST RESULT CERTIFICATION** 

Applicant's name:	SHANTO FACTOR		ENGHA	DISTRICT	SUMING T	TOYS
Address:	UNIT D 1 CHAI, Ho		APITAL	PLACE 21,	LUARD RO	DAD WAN
Manufacture's Name:	SHANTO FACTOR		ENGHA	I DISTRICT	SUMING T	TOYS
Address:	UNIT D 1 CHAI, Ho		APITAL	PLACE 21,	LUARD RO	DAD WAN
Product description						
Trade Mark:	N/A					
Product name:	REMOTE	CONTRO	L QUAD	COPTER		
Model and/or type reference :	SM1917, SM1909,	SM1911, S200, S30	SM1912 0, S600,	3, SM1906, 2, SM1913, S700, S800 Part 15 Subp	SM1907, 0, S900	SM1908,
Standards:	ANSI C63	es and Regi 3.10: 2013	JIALIONS F	ran 15 Subp	ari C Secil	UII 15.249
the Shenzhen HUAK Testing T source of the material. Shenzhe for and will not assume liability reproduced material due to its p Date of Test	en HUAK for dama lacement	Testing Ted ges resultin	chnology ng from t	Co., Ltd. ta	ikes no res	ponsibility
Date (s) of performance of tests	:	Jan. 19, 2	021 ~ Ja	n. 26, 2021		
Date of Issue	:	Jan. 26, 2	021			
Test Result	:	Pass				
Testing Enginee	er :	60	ns t	ti an L		
			(Gary Q	ian)		
Technical Mana	ger :	E	don	Hu		
	_		(Eden I	Hu)		
Authorized Signa	atory :	Ja	Son	2hou		
			(Jason Z	hou)		





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# \*\* Modifited History \*\*

Revison	Description	Issued Data	Remark	
Revsion 1.0	Initial Test Report Release	Jan. 26, 2021	Jason Zhou	





# 1. TEST SUMMARY

# 1.1 TEST PROCEDURES AND RESULTS

DESCRIPTION OF TEST		RESULT
CONDUCTED EMISSIONS TEST	§ 15.207	COMPLIANT
RADIATED EMISSION TEST	§ 15.249 (a) (d)/ §15.209	COMPLIANT
BAND EDGE	§ 15.249 (a) (d)/ §15.209	COMPLIANT
OCCUPIED BANDWIDTH MEASUREMENT	§ 15.215 (c)	COMPLIANT
ANTENNA REQUIREMENT	§ 15.203	COMPLIANT

# 1.2 TEST FACILITY

Test Firm : Shenzhen HUAK Testing Technology Co., Ltd.

Address : 1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai

Street, Bao'an District, Shenzhen City, China

# 1.3 MEASUREMENT UNCERTAINTY

Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2 Radiated emission expanded uncertainty(9kHz-30MHz) = 3.08dB, k=2 Radiated emission expanded uncertainty(30MHz-1000MHz) = 4.42dB, k=2 Radiated emission expanded uncertainty(Above 1GHz) = 4.06dB, k=2



# 2. GENERAL INFORMATION

# 2.1 GENERAL DESCRIPTION OF EUT

Equipment	REMOTE CONTROL QUADCOPTER						
Model Name	SM1703						
	SM1905, SM1903, SM1906, SM1916, SM1915, SM1917,						
Serial Model	SM1911, SM1912, SM1913, SM1907, SM1908, SM1909,						
	S200, S300, S600, S700, S800, S900						
Model Difference	All model's the function, software and electric circuit are th same, only with a product color and model named differen Test sample model: SM1703						
FCC ID	2AYUK-SM1703						
Antenna Type	Internal Antenna						
Antenna Gain	0dBi						
Equipment	REMOTE CONTROL QUADCOPTER						
BT Operation frequency	2402MHz, 2439MHz, 2474MHz						
Number of Channels	3CH						
Modulation Type	GFSK						
Power Source	DC 5V from micro USB or DC 3.7V from Battery						
Power Rating	DC 5V from micro USB or DC 3.7V from Battery						

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## 2.2 Carrier Frequency of Channels

Description of Channel:								
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)			
0	2402	1	2439	2	2474			

# 2.3 Operation of EUT during testing

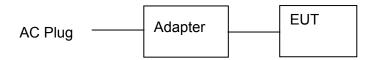
**Operating Mode** 

The mode is used: Transmitting mode

Low Channel: 2402MHz Middle Channel: 2439MHz High Channel: 2474MHz

## 2.4 DESCRIPTION OF TEST SETUP

Operation of EUT during conducted testing and below 1GHz Radiation testing:



Operation of EUT during Above1GHz and below 1GHz Radiation testing:



 Adapter information Model: HW-059200CHQ Input: 100-240V, 0.5A Output: 5VDC, 2A

The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. The worst case is X position



2.5 MEASUREMENT INSTRUMENTS LIST

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.
1.	L.I.S.N. Artificial Mains Network	R&S	ENV216	HKE-002	Jun. 18, 2020	1 Year
2.	Receiver	R&S	ESR-7	HKE-010	Jun. 18, 2020	1 Year
3.	RF automatic control unit	Tonscend	JS0806-2	HKE-060	Jun. 18, 2020	1 Year
4.	Spectrum analyzer	R&S	FSP40	HKE-025	Jun. 18, 2020	1 Year
5.	Spectrum analyzer	Agilent	N9020A	HKE-048	Jun. 18, 2020	1 Year
6.	Preamplifier	Schwarzbeck	BBV 9743	HKE-006	Jun. 18, 2020	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESCI 7	HKE-010	Jun. 18, 2020	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	HKE-012	Jun. 18, 2020	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Jun. 18, 2020	1 Year
10.	Horn Antenna	Schewarzbeck	9120D	HKE-013	Jun. 18, 2020	1 Year
11.	Pre-amplifier	EMCI	EMC051845 SE	HKE-015	Jun. 18, 2020	1 Year
12.	Pre-amplifier	Agilent	83051A	HKE-016	Jun. 18, 2020	1 Year
13.	EMI Test Software EZ-EMC	Tonscend	JY3120-B Version	HKE-083	Jun. 18, 2020	N/A
14.	Power Sensor	Agilent	E9300A	HKE-086	Jun. 18, 2020	1 Year
15.	Spectrum analyzer	Agilent	N9020A	HKE-048	Jun. 18, 2020	1 Year
16.	Signal generator	Agilent	N5182A	HKE-029	Jun. 18, 2020	1 Year
17.	Signal Generator	Agilent	83630A	HKE-028	Jun. 18, 2020	1 Year
18.	Shielded room	Shiel Hong	4*3*3	HKE-039	Jun. 18, 2020	1 Year
19.	Horn Antenna	Schewarzbeck	BBHA 9170	HKE-017	Jun. 18, 2020	1 Year



# 3. CONDUCTED EMISSIONS TEST

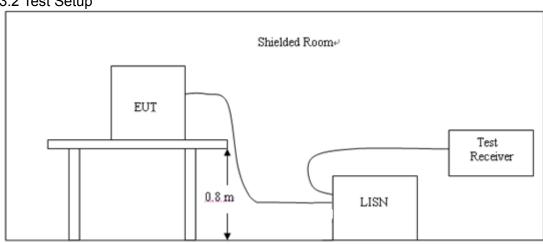
#### 3.1 Conducted Power Line Emission Limit

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

Eroguenev	Maximum RF Line Voltage (dBμV)						
Frequency (MHz)	CLAS	SS A	CLASS B				
(11112)	Q.P.	Ave.	Q.P.	Ave.			
0.15 - 0.50	79	66	66-56*	56-46*			
0.50 - 5.00	73	60	56	46			
5.00 - 30.0	73	60	60	50			

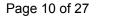
<sup>\*</sup> Decreasing linearly with the logarithm of the frequency
For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

# 3.2 Test Setup



## 3.3 Test Procedure

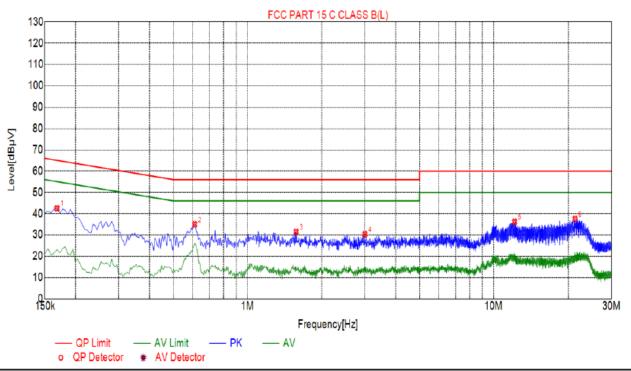
- 1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
- 2, Support equipment, if needed, was placed as per ANSI C63.10.
- 3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5, All support equipments received AC power from a second LISN, if any.
- 6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.





# 3.4 Test Result



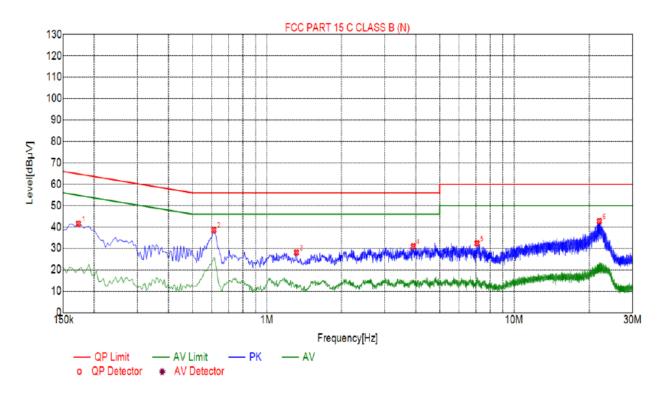


Sus	Suspected List										
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре			
1	0.1680	42.46	20.01	65.06	22.60	22.45	PK	L			
2	0.6090	34.93	20.05	56.00	21.07	14.88	PK	L			
3	1.5765	31.48	20.11	56.00	24.52	11.37	PK	L			
4	2.9985	30.31	20.22	56.00	25.69	10.09	PK	L			
5	12.1695	36.15	19.99	60.00	23.85	16.16	PK	L			
6	21.2865	37.53	20.14	60.00	22.47	17.39	PK	L			

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss Level=Test receiver reading + correction factor

Test Specification: Neutral



Sus	Suspected List										
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Reading [dBµV]	Detector	Туре			
1	0.1725	41.54	20.04	64.84	23.30	21.50	PK	N			
2	0.6090	38.58	20.05	56.00	17.42	18.53	PK	N			
3	1.3155	28.01	20.10	56.00	27.99	7.91	PK	N			
4	3.9075	30.88	20.25	56.00	25.12	10.63	PK	N			
5	7.0890	32.37	20.19	60.00	27.63	12.18	PK	N			
6	21.9750	42.70	20.16	60.00	17.30	22.54	PK	N			

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor



# **4 RADIATED EMISSION TEST**

# 4.1 Radiation Limit

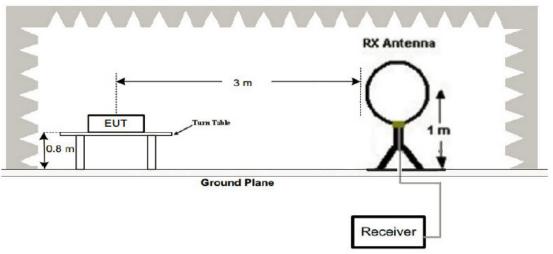
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency	Distance	Radiated	Radiated
(MHz)	(Meters)	(dBµV/m)	(μV/m)
30-88	3	40	100
88-216	3	43.5	150
216-960	3	46	200
Above 960	3	54	500

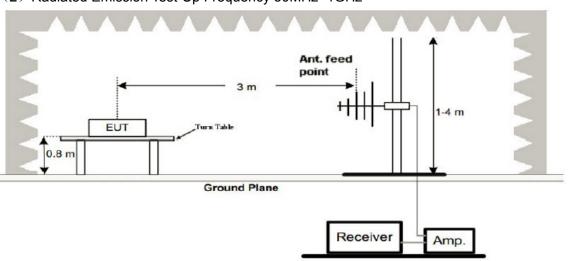
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

# 4.2 Test Setup

# (1) Radiated Emission Test-Up Frequency Below 30MHz

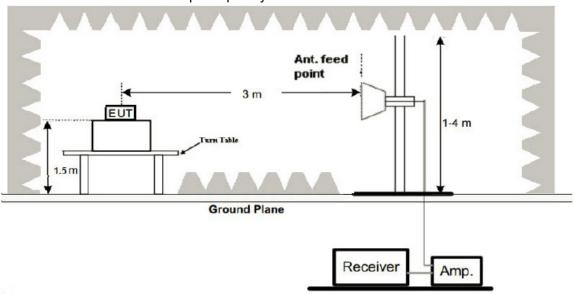


# (2) Radiated Emission Test-Up Frequency 30MHz~1GHz





(3) Radiated Emission Test-Up Frequency Above 1GHz



#### 4.3 Test Procedure

- 1. Below 1GHz measurement the EUT is placed on turntable which is 0.8m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m above ground plane.
- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until the measurements for all frequencies are complete.
- 7. The test frequency range from 9KHz to 25GHz per FCC PART 15.33(a).

#### Note:

For battery operated equipment, the equipment tests shall be performed using a new battery.

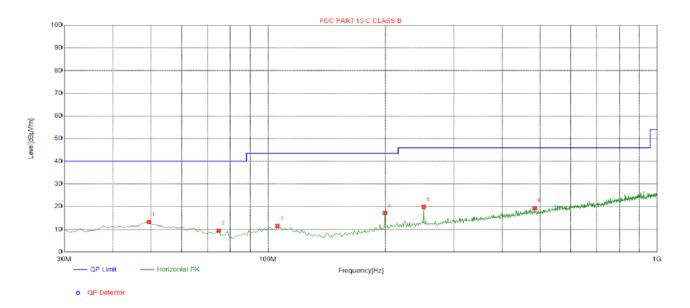
## 4.4 Test Result

**PASS** 



Below 1GHz Test Results:

# Antenna polarity: H

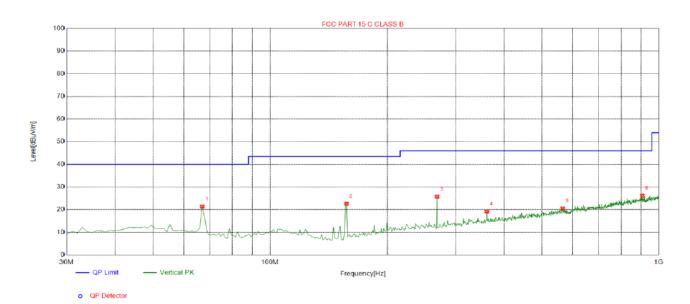


Suspe	Suspected List										
NO	Freq.	Factor	Reading	Level	Limit	Margin	Height	Angle	Delevity		
NO.	[MHz]	[dB]	[dBµV/m]	[dBµV/m]	[dBµV/m]	[dB]	[cm]	[°]	Polarity		
1	49.4194	-13.65	26.88	13.23	40.00	26.77	100	348	Horizontal		
2	74.6647	-18.51	27.93	9.42	40.00	30.58	100	252	Horizontal		
3	105.7357	-15.42	26.97	11.55	43.50	31.95	100	166	Horizontal		
4	199.9199	-15.07	32.21	17.14	43.50	26.36	100	320	Horizontal		
5	251.3814	-13.41	33.26	19.85	46.00	26.15	100	307	Horizontal		
6	484.4144	-8.49	27.80	19.31	46.00	26.69	100	25	Horizontal		

Remark: Factor = Cable loss + Antenna factor – Preamplifier; Level = Reading + Factor; Margin =Limit – Level



Antenna polarity: V



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBµV/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	66.8969	-16.89	38.25	21.36	40.00	18.64	100	344	Vertical
2	157.1972	-18.42	40.98	22.56	43.50	20.94	100	347	Vertical
3	268.8589	-13.64	39.36	25.72	46.00	20.28	100	304	Vertical
4	361.1011	-11.31	30.52	19.21	46.00	26.79	100	304	Vertical
5	565.9760	-6.51	27.05	20.54	46.00	25.46	100	179	Vertical
6	906.7868	-1.75	27.94	26.19	46.00	19.81	100	12	Vertical

Remark: Factor = Cable loss + Antenna factor – Preamplifier; Level = Reading + Factor; Margin =Limit – Level

## Remark:

- (1) Measuring frequencies from 9 KHz to the 1 GHz, Radiated emission test from 9KHz to 30MHz was verified, and no any emission was found except system noise floor.
- (2) \* denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (3) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.



Above 1 GHz Test Results: CH Low (2402MHz)

# Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Datastan
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2402	100.36	-5.84	94.52	114	-19.48	peak
2402	87.15	-5.84	81.31	94	-12.69	AVG
4804	58.24	-3.64	54.6	74	-19.4	peak
4804	43.67	-3.64	40.03	54	-13.97	AVG
7206	55.49	-0.95	54.54	74	-19.46	peak
7206	44.01	-0.95	43.06	54	-10.94	AVG
Remark: Facto	or = Antenna Fac	ctor + Cable Lo	oss – Pre-amplifier			

# Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2402	101.64	-5.84	95.8	114	-18.2	peak
2402	87.16	-5.84	81.32	94	-12.68	AVG
4804	58.14	-3.64	54.5	74	-19.5	peak
4804	43.02	-3.64	39.38	54	-14.62	AVG
7206	56.16	-0.95	55.21	74	-18.79	peak
7206	39.24	-0.95	38.29	54	-15.71	AVG



# CH Middle (2439MHz)

# Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type		
2439	100.47	-5.71	94.76	114	-19.24	peak		
2439	87.16	-5.71	81.45	94	-12.55	AVG		
4878	58.24	-3.51	54.73	74	-19.27	peak		
4878	44.35	-3.51	40.84	54	-13.16	AVG		
7317	55.28	-0.82	54.46	74	-19.54	peak		
7317	43.15	-0.82	42.33	54	-11.67	AVG		
Remark: Facto	Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

# Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	<b>D</b>
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2439	100.35	-5.71	94.64	114	-19.36	peak
2439	86.49	-5.71	80.78	94	-13.22	AVG
4878	57.14	-3.51	53.63	74	-20.37	peak
4878	70.39	-3.51	66.88	54	12.88	AVG
7317	55.29	-0.82	54.47	74	-19.53	peak
7317	40.25	-0.82	39.43	54	-14.57	AVG
Remark: Facto	or = Antenna Fac	ctor + Cable Lo	ss – Pre-amplifier			





CH High (2474MHz)

## Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Datastan
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2474	100.67	-5.65	95.02	114	-18.98	peak
2474	82.14	-5.65	76.49	94	-17.51	AVG
4948	58.36	-3.43	54.93	74	-19.07	peak
4948	43.25	-3.43	39.82	54	-14.18	AVG
7422	56.21	-0.75	55.46	74	-18.54	peak
7422	44.15	-0.75	43.4	54	-10.6	AVG
Remark: Facto	or = Antenna Fac	ctor + Cable Lo	oss – Pre-amplifier			

## Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2474	100.32	-5.65	94.67	114	-19.33	peak
2474	87.69	-5.65	82.04	94	-11.96	AVG
4948	59.48	-3.43	56.05	74	-17.95	peak
4948	44.16	-3.43	40.73	54	-13.27	AVG
7422	55.82	-0.75	55.07	74	-18.93	peak
7422	37.94	-0.75	37.19	54	-16.81	AVG

#### Remark

- (1) Measuring frequencies from 1 GHz to the 25 GHz  ${\scriptstyle \circ}$
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) \* denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not record in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak
- detection at frequency above 1GHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.
- (7)All modes of operation were investigated and the worst-case emissions are reported.





5.1 Limits

FCC PART 15.249(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.

# 5.2 Test Procedure

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW to 1MHz and VBM to 3MHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength. The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW to 1MHz and VBW to 3MHz, to measure the conducted peak band edge.



# 5.3 Test Result

# **PASS**

Radiated Band Edge Test:

Operation Mode: TX CH Low (2420MHz)

Horizontal (Worst case)

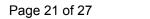
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
2310	57.14	-5.81	51.33	74	-22.67	peak
2310	1	-5.81	1	54	1	AVG
2390	54.69	-5.84	48.85	74	-25.15	peak
2390	1	-5.84	1	54	1	AVG
2400	52.28	-5.84	46.44	74	-27.56	peak
2400	1	-5.84	1	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

# Vertical:

Frequency	Meter	Factor	Emission Level	Limits	Margin	Detector
(MHz)	Reading (dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Type
2310	57.15	-5.81	51.34	74	-22.66	peak
2310	1	-5.81	1	54	1	AVG
2390	55.85	-5.84	50.01	74	-23.99	peak
2390	1	-5.84	1	54	1	AVG
2400	56.01	-5.84	50.17	74	-23.83	peak
2400	1	-5.84	1	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.





Operation Mode: TX CH High (2439MHz)

Horizontal (Worst case)

Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
56.38	-5.65	50.73	74	-23.27	peak
1	-5.65	1	54	1	AVG
54.19	-5.65	48.54	74	-25.46	peak
1	-5.65	1	54	1	AVG
	(dBµV) 56.38	(dBµV) (dB)  56.38 -5.65  / -5.65  54.19 -5.65	(dBμV)     (dB)     (dBμV/m)       56.38     -5.65     50.73       /     -5.65     /       54.19     -5.65     48.54	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)       56.38     -5.65     50.73     74       /     -5.65     /     54       54.19     -5.65     48.54     74	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)     (dBμV/m)       56.38     -5.65     50.73     74     -23.27       /     -5.65     /     54     /       54.19     -5.65     48.54     74     -25.46

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

# Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2483.50	56.97	-5.65	51.32	74	-22.68	peak
2483.50	1	-5.65	1	54	1	AVG
2500.00	54.31	-5.65	48.66	74	-25.34	peak
2500.00	1	-5.65	1	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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





## 6 OCCUPIED BANDWIDTH MEASUREMENT

# 6.1 Test Setup

Same as Radiated Emission Measurement

#### 6.2 Test Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Set EUT as normal operation.
- 3. Based on ANSI C63.10 section 6.9.2: RBW= 30KHz. VBW= 100 KHz, Span=4MHz.
- 4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

# 6.3 Measurement Equipment Used

Same as Radiated Emission Measurement

## 6.4 Test Result

## **PASS**

Frequency	20dB Bandwidth (MHz)	Result
2402 MHz	1.136	PASS
2439 MHz	1.136	PASS
2474 MHz	1.135	PASS

CH: 2402MHz





## CH: 2439MHz



## CH: 2474MHz





# 7 ANTENNA REQUIREMENT

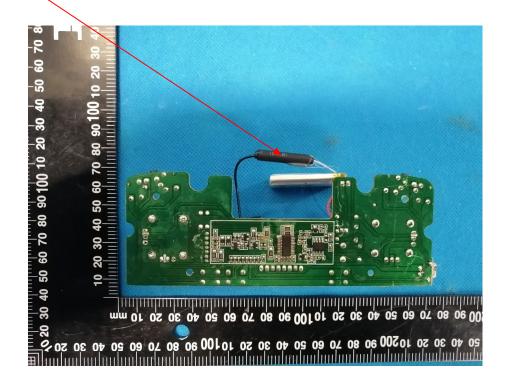
## Standard Applicable

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.

## **Antenna Connected Construction**

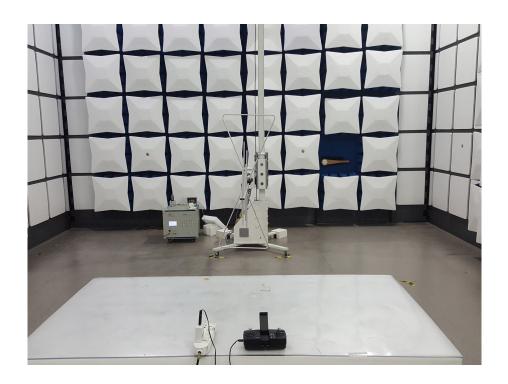
The antenna used in this product is a PCB Antenna which permanently attached. It conforms to the standard requirements, The directional gains of antenna used for transmitting is 1.5dBi.

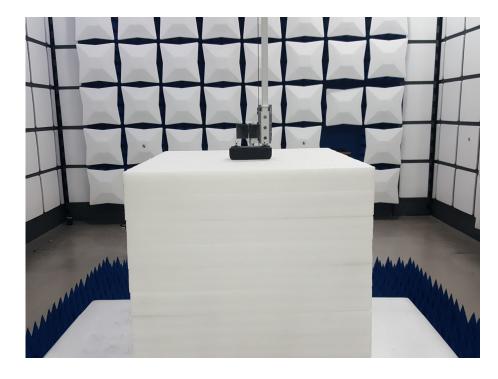
# **ANTENNA**





# 8.1 Radiated Emission







# 8.2 Conducted Emission





# 9 PHOTOS OF THE EUT

Reference to the reporter : ANNEX A of external photos and ANNEX B of internal photos

-----End of test report-----