TCT 通测检测 TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID: 2AEXY501ARX

Product: HUBSAN X4 CAM BRUSHLESS WITH APP

Model No.: H501A

Additional Model: N/A

Trade Mark: Hubsan

Report No.: TCT160620E028

Issued Date: July 18, 2016

Issued for:

SHENZHEN HUBSAN INTELLIGENT COMPANY LIMITED
13th Floor, Bldg 1C, Shenzhen Software Industry Base, Xuefu Road, Nanshan District, Shenzhen, China

Issued By:

Shenzhen Tongce Testing Lab.
1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China
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Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

1. Test Certification

Product:	HUBSAN X4 CAM BRUSHLESS WITH APP
Model No.:	H501A
Additional Model:	N/A
Applicant:	SHENZHEN HUBSAN INTELLIGENT COMPANY LIMITED
Address:	13th Floor, Bldg 1C, Shenzhen Software Industry Base, Xuefu Road, Nanshan District, Shenzhen, China
Manufacturer:	DONGGUAN TENGSHENG INDUSTRIAL CO., LTD
Address:	A22# Luyi Street, Tianxin Village, Tangxia Town, Dongguan, China.
Date of Test:	Jun. 20 – July 15, 2016
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.249

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:	Garen	***Date:***	***July 15, 2016***
Reviewed By:	Joe Zhou	***Date:***	***July 18, 2016***
Approved By:	Tomsin	***Date:***	***July 18, 2016***

2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna Requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	N/A
Field Strength of Fundamental	§15.249 (a)	PASS
Spurious Emissions	§2.1053 §15.249 (a) (d)/ §15.209	PASS
Band Edge	§2.1053 §15.249 (d)/ §15.205	PASS
20dB Occupied Bandwidth	§2.1049 §15.215 (c)	PASS

Note:

1. Pass: Test item meets the requirement.

2. Fail: Test item does not meet the requirement.

3. N/A: Test case does not apply to the test object.

4. The test result judgment is decided by the limit of test standard.

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3. EUT Description

Product Name:	HUBSAN X4 CAM BRUSHLESS WITH APP
Model :	H501A
Additional Model:	N/A
Trade Mark:	**Hubsan**
Operation Frequency:	2410-2465MHz
Number of Channel:	12
Modulation Technology:	GFSK
Antenna Type:	Integral Antenna
Antenna Gain:	2dBi
Power Supply:	Rechargeable Li-ion Battery DC7.4V

Operation Frequency Each of Channel

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2410 MHz	5	2430MHz	9	2450MHz
2	2415 MHz	6	2435MHz	10	2455MHz
3	2420 MHz	7	2440MHz	11	2460MHz
4	2425 MHz	8	2445MHz	12	2465MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2410MHz
The middle channel	2435MHz
The Highest channel	2465MHz

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4. Genera Information

4.1. Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel
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.	

4.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

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5. Facilities and Accreditations

5.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 572331

  Shenzhen Tongce Testing Lab

  The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

  The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

- CNAS - Registration No.: CNAS L6165

  Shenzhen TCT Testing Technology Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6165.

5.2. Location

Shenzhen Tongce Testing Lab
Address: 1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China
Tel: 86-755-36638142

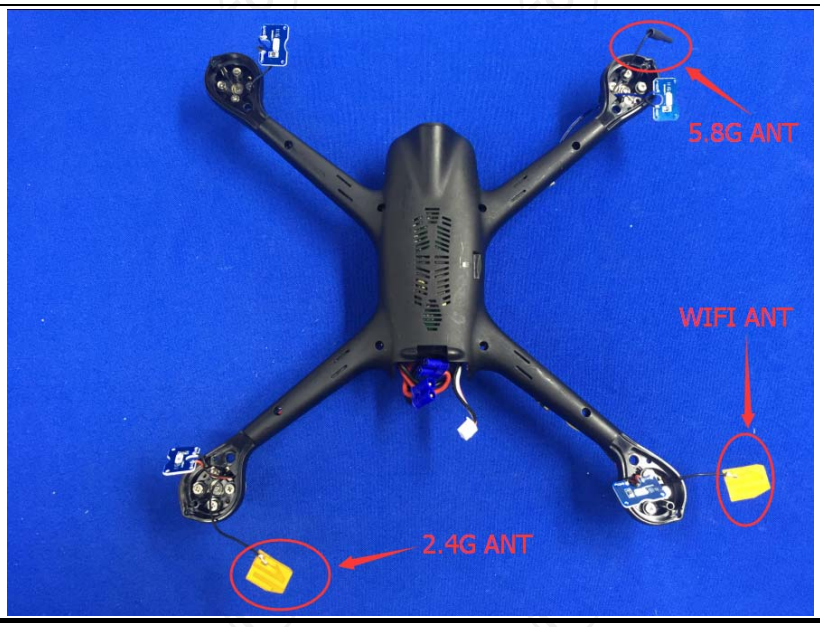
5.3. Measurement Uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	±2.56dB
2	RF power, conducted	±0.12dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1GHz)	±3.92dB
5	All emissions, radiated(>1GHz)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%

6. Test Results and Measurement Data

6.1. Antenna Requirement

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
E.U.T Antenna:	
The EUT antenna is an integral antenna which permanently attached, and the best case gain of the antenna is 2dBi.	
	

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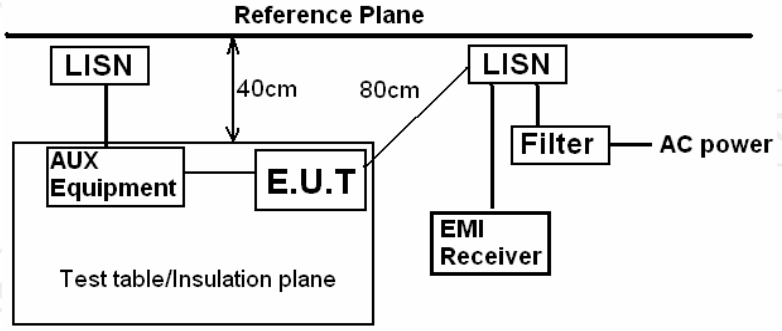
6.2.Conducted Emission

6.2.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Frequency Range:</td><td>150 kHz to 30 MHz</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9 kHz, VBW=30 kHz, Sweep time=auto</td></tr>
<tr><td>Limits:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
</td></tr>
<tr><td>Test Setup:</td><td> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test Mode:</td><td>Transmitting mode with modulation</td></tr>
<tr><td>Test Procedure:</td><td>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.</td></tr>
<tr><td>Test Result:</td><td>PASS</td></tr>
</table>

6.2.2. Test Instruments

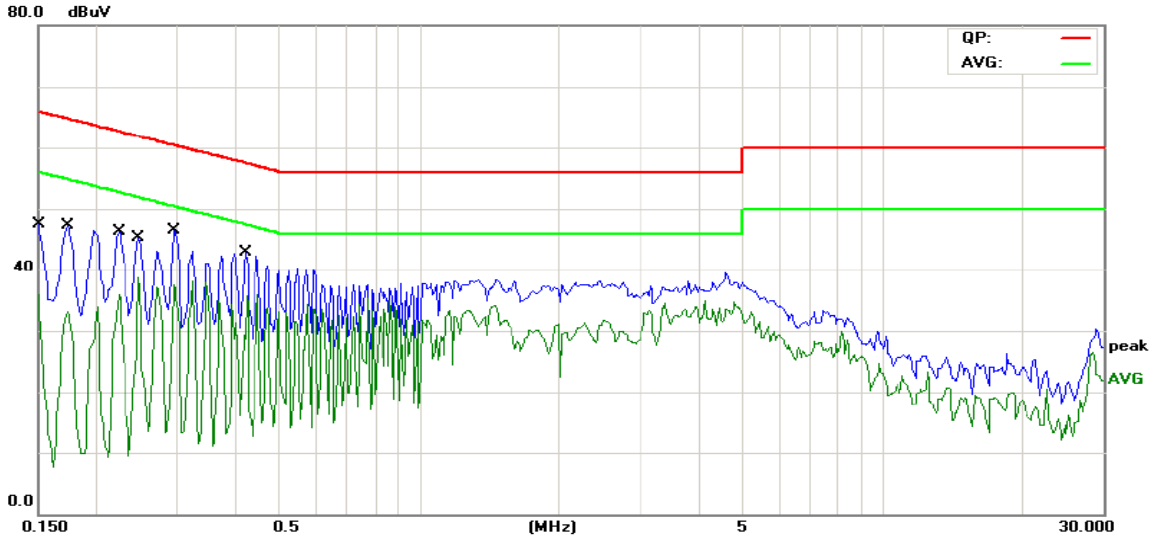
Conducted Emission Shielding Room Test Site (843)				
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCS30	100139	Sep. 11, 2016
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 16, 2016
Coax cable	TCT	CE-05	N/A	Sep. 11, 2016
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

6.2.3. Test data

Please refer to following diagram for individual

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Site Chamber #2 Phase: *L1* Temperature: 25 (C)

Limit: FCC Part 15B Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 54 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	35.06	11.52	46.58	65.99	-19.41	QP	
2		0.1500	22.13	11.52	33.65	55.99	-22.34	AVG	
3		0.1734	34.32	11.50	45.82	64.79	-18.97	QP	
4		0.1734	24.07	11.50	35.57	54.79	-19.22	AVG	
5		0.2242	33.58	11.47	45.05	62.66	-17.61	QP	
6	*	0.2242	24.92	11.47	36.39	52.66	-16.27	AVG	
7		0.2477	32.40	11.46	43.86	61.83	-17.97	QP	
8		0.2477	21.33	11.46	32.79	51.83	-19.04	AVG	
9		0.2945	29.87	11.43	41.30	60.39	-19.09	QP	
10		0.2945	19.81	11.43	31.24	50.39	-19.15	AVG	
11		0.4195	26.86	11.35	38.21	57.46	-19.25	QP	
12		0.4195	15.41	11.35	26.76	47.46	-20.70	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level (dBµV) = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss

Measurement (dBµV) = Reading level (dBµV) + Corr. Factor (dB)

Limit (dBµV) = Limit stated in standard

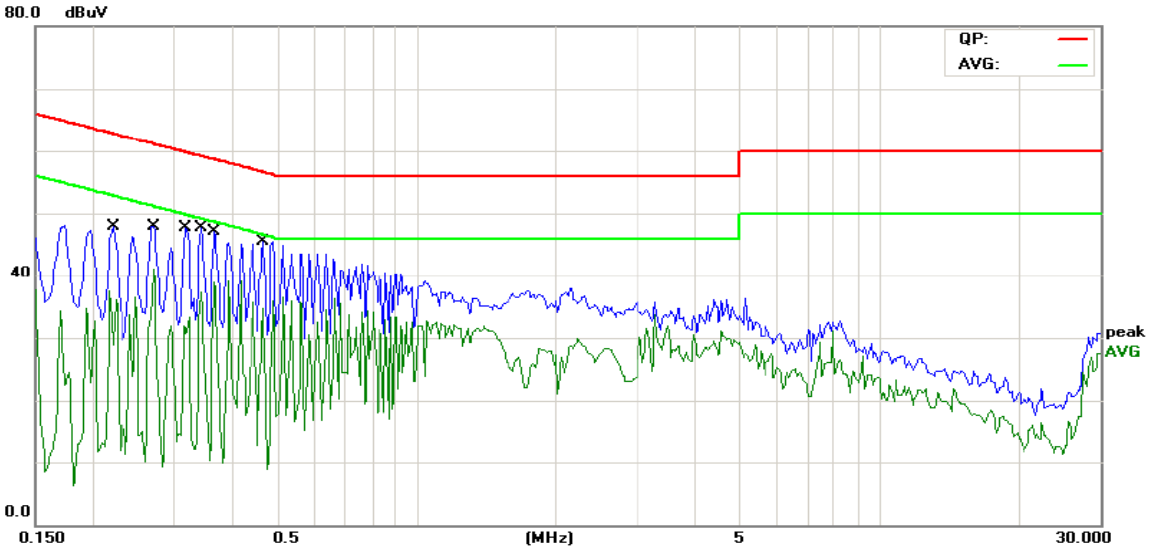
Margin (dB) = Measurement (dBµV) – Limits (dBµV)

Q.P. =Quasi-Peak

AVG =average

** is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz*

Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Site Chamber #2 Phase: *N* Temperature: 25 (C)

Limit: FCC Part 15B Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 54 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2203	35.03	11.47	46.50	62.80	-16.30	QP	
2		0.2203	23.47	11.47	34.94	52.80	-17.86	AVG	
3		0.2711	35.82	11.44	47.26	61.08	-13.82	QP	
4	*	0.2711	26.46	11.44	37.90	51.08	-13.18	AVG	
5		0.3180	34.29	11.42	45.71	59.76	-14.05	QP	
6		0.3180	23.39	11.42	34.81	49.76	-14.95	AVG	
7		0.3414	32.61	11.41	44.02	59.17	-15.15	QP	
8		0.3414	22.01	11.41	33.42	49.17	-15.75	AVG	
9		0.3648	29.06	11.39	40.45	58.62	-18.17	QP	
10		0.3648	16.08	11.39	27.47	48.62	-21.15	AVG	
11		0.4664	32.05	11.33	43.38	56.58	-13.20	QP	
12		0.4664	21.87	11.33	33.20	46.58	-13.38	AVG	

Note1:

Freq. = Emission frequency in MHz

Reading level (dBμV) = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss

Measurement (dBμV) = Reading level (dBμV) + Corr. Factor (dB)

Limit (dBμV) = Limit stated in standard

Margin (dB) = Measurement (dBμV) – Limits (dBμV)

Q.P. =Quasi-Peak AVG =average

** is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.*

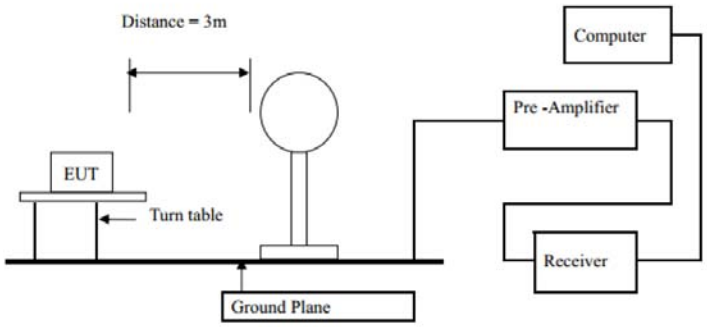
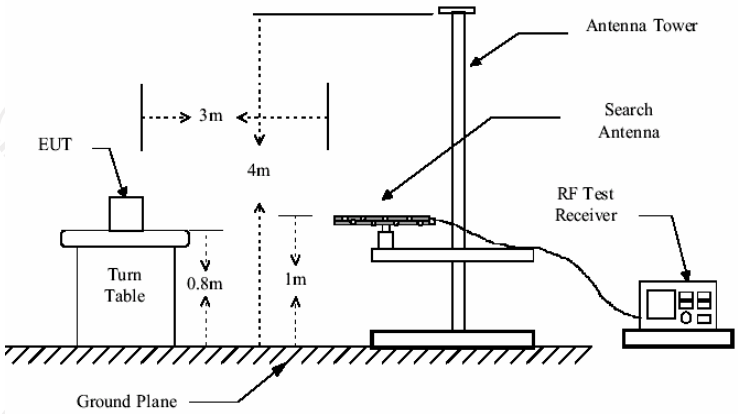
Note2:

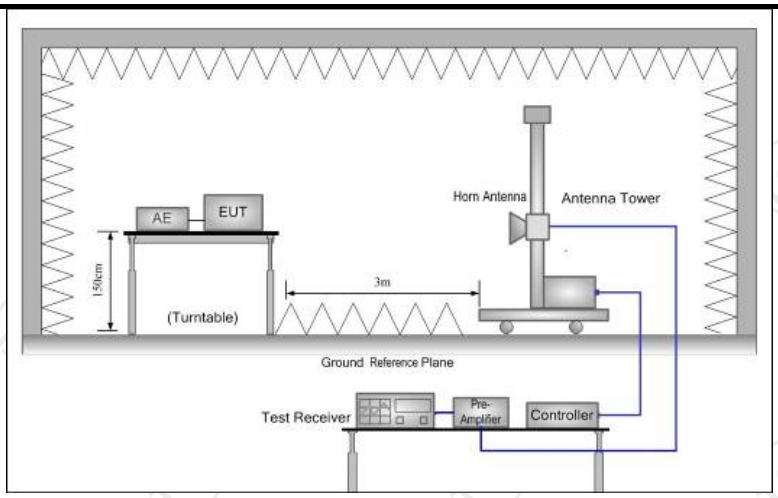
Measurements were conducted in all three channels (high, middle, low) and three modulation (GFSK, Pi/4 DQPSK), and the worst case Mode (Highest channel and GFSK) was submitted only.

6.3. Radiated Emission Measurement

6.3.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209/ Part 2 J Section 2.1053</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4: 2014 and ANSI C63.10:2013</td></tr>
<tr><td>Frequency Range:</td><td>9 kHz to 25 GHz</td></tr>
<tr><td>Measurement Distance:</td><td>3 m</td></tr>
<tr><td>Antenna Polarization:</td><td>Horizontal & Vertical</td></tr>
<tr><td>Receiver Setup:</td><td>
<table>
<tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>9kHz- 150kHz</td><td>Quasi-peak</td><td>200Hz</td><td>1kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>150kHz-30MHz</td><td>Quasi-peak</td><td>9kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit(Field strength of the fundamental signal):</td><td>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td rowspan="2">2400MHz-2483.5MHz</td><td>94.00</td><td>Average Value</td></tr>
<tr><td>114.00</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Limit(Spurious Emissions):</td><td>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td>0.009-0.490</td><td>2400/F(KHz)</td><td>Quasi-peak Value</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(KHz)</td><td>Quasi-peak Value</td></tr>
<tr><td>1.705-30</td><td>30</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr>
<tr><td>74.0</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Limit (band edge) :</td><td>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 Section 15.209, whichever is the lesser attenuation.</td></tr>
<tr><td>Test Procedure:</td><td>1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber in below 1GHz, 1.5m above the ground in above 1GHz. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make</td></tr>
</table>

	the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test setup:	For radiated emissions below 30MHz  30MHz to 1GHz  Above 1GHz

	
Test results:	PASS

6.3.2. Test Instruments

ESPI Test Receiver	ROHDE&SCHWARZ	ESVD	100008	Sep. 11, 2016
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	Sep. 11, 2016
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 12, 2016
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 11, 2016
Pre-amplifier	HP	8447D	2727A05017	Sep. 11, 2016
Loop antenna	ZHINAN	ZN30900A	12024	Sep. 13, 2016
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 13, 2016
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 13, 2016
Horn Antenna	Schwarzbeck	BBHA 9170	373	Sep. 13, 2016
Coax cable	TCT	RE-low-01	N/A	Sep. 11, 2016
Coax cable	TCT	RE-high-02	N/A	Sep. 11, 2016
Coax cable	TCT	RE-low-03	N/A	Sep. 11, 2016
Coax cable	TCT	RE-high-04	N/A	Sep. 11, 2016
Antenna Mast	CCS	CC-A-4M	N/A	N/A
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

6.3.3. Test Data

Field Strength of Fundamental

Frequency (MHz)	Emission PK/AV (dBuV/m)	Horizontal /Vertical	Limits PK/AV (dBuV/m)	Margin (dB)
2410	94.05(PK)	H	114/94	-19.95
2410	93.45(AV)	H	114/94	-0.55
2435	93.59(PK)	H	114/94	-20.41
2435	92.84(AV)	H	114/94	-1.16
2465	92.08(PK)	H	114/94	-21.92
2465	91.55(AV)	H	114/94	-2.45
2410	89.35(PK)	V	114/94	-24.65
2410	88.64(AV)	V	114/94	-5.36
2435	88.95(PK)	V	114/94	-25.05
2435	88.23(AV)	V	114/94	-5.77
2465	87.83(PK)	V	114/94	-26.17
2465	87.08(AV)	V	114/94	-6.92

Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

Note: *1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor*

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

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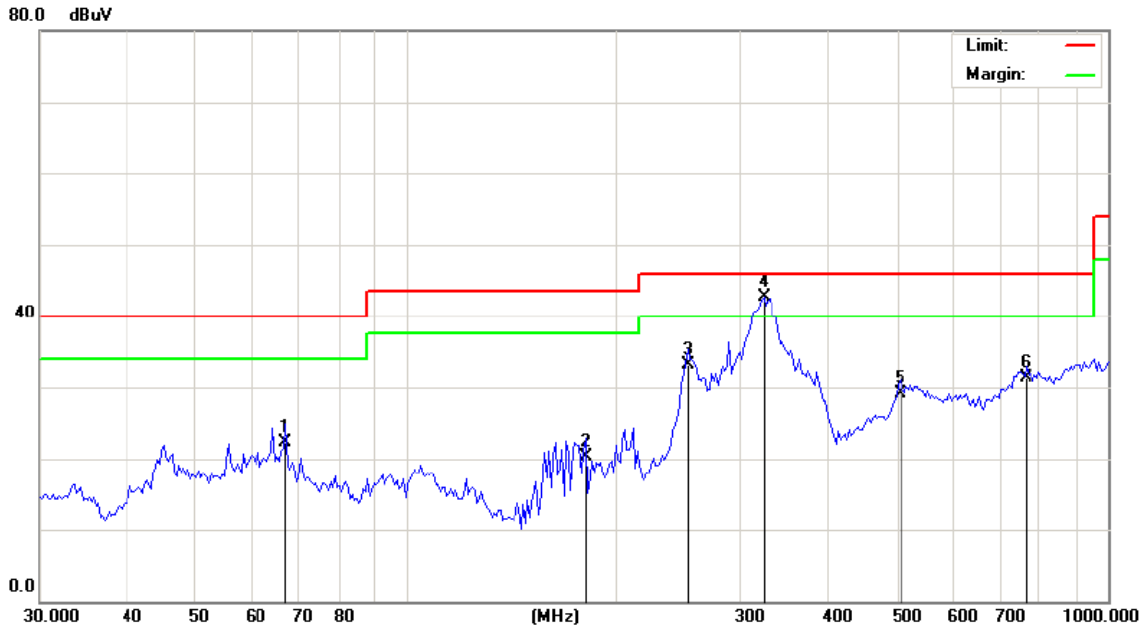
Frequency Range (30MHz-1GHz)

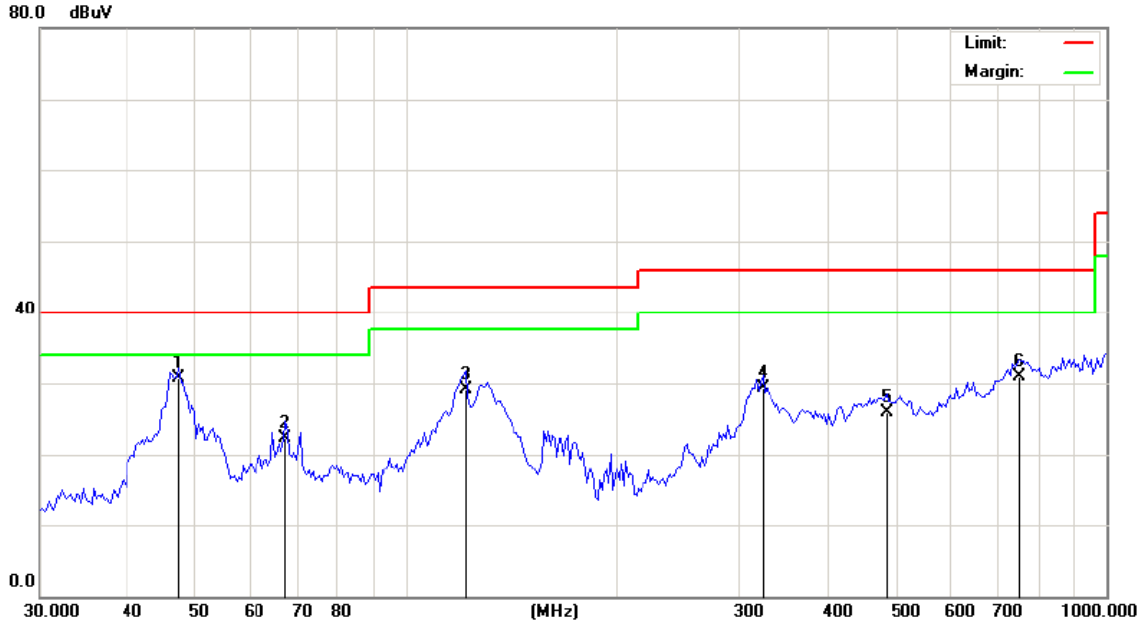
Horizontal:



Site	Polarization: *Horizontal*	Temperature: 25
Limit: FCC Part 15B Class B RE_3 m	Power: AC 120V/60Hz	Humidity: 54 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1		67.3110	36.27	-13.95	22.32	40.00	-17.68	QP		0	
2		180.0302	34.23	-13.85	20.38	43.50	-23.12	QP		0	
3		252.2521	43.10	-10.00	33.10	46.00	-12.90	QP		0	
4	*	322.5896	50.30	-7.64	42.66	46.00	-3.34	QP		0	
5		505.7891	31.78	-2.69	29.09	46.00	-16.91	QP		0	
6		765.6480	26.83	4.41	31.24	46.00	-14.76	QP		0	

Vertical:



Site	Polarization: ***Vertical***	Temperature: 25
Limit: FCC Part 15B Class B RE_3 m	Power: AC 120V/60Hz	Humidity: 54 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	cm	degree	Comment
1	*	47.3688	41.54	-10.93	30.61	40.00	-9.39	QP		0	
2		67.3110	36.17	-13.95	22.22	40.00	-17.78	QP		0	
3		121.4621	43.25	-14.10	29.15	43.50	-14.35	QP		0	
4		322.5896	37.02	-7.64	29.38	46.00	-16.62	QP		0	
5		484.9067	29.48	-3.56	25.92	46.00	-20.08	QP		0	
6		749.6761	26.18	4.78	30.96	46.00	-15.04	QP		0	

Note: *Measurements were conducted in all channels (high, middle, low), and the worst case (low channel) was submitted only.*

Above 1GHz

Low channel: 2410MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
2390.00	H	53.67	---	-4.20	49.47	---	74.00	54.00	-4.53
2390.00	H	---	48.16	-4.20	---	43.96	74.00	54.00	-8.97
4820.00	H	52.48	---	-3.94	48.54	---	74.00	54.00	-5.46
7230.00	H	47.65	---	0.52	48.17	---	74.00	54.00	-5.83
---	---	---	---	---	---	---	---	---	---
2390.00	V	51.36	---	-4.20	47.16	---	74.00	54.00	-6.84
2390.00	V	---	49.43	-4.20	---	45.23	74.00	54.00	-8.77
4820.00	V	48.62	---	-3.94	44.68	---	74.00	54.00	-9.32
7230.00	V	45.29	---	0.52	45.81	---	74.00	54.00	-8.19
---	---	---	---	---	---	---	---	---	---

Middle channel: 2435MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
4870.00	H	55.27	---	-3.98	51.29	---	74.00	54.00	-2.71
7305.00	H	49.82	---	0.57	50.39	---	74.00	54.00	-3.61
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
4870.00	V	52.09	---	-3.98	48.11	---	74.00	54.00	-5.89
7305.00	V	50.35	---	0.57	50.92	---	74.00	54.00	-3.08
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	----	---	---	---

High channel: 2465MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
2486.58	H	52.06	---	-2.38	49.68	---	74.00	54.00	-4.32
2486.58	H	---	42.34	-2.38	---	39.96	74.00	54.00	-14.04
4930.00	H	53.62	---	-3.98	49.64	---	74.00	54.00	-4.36
7395.00	H	49.57	---	0.57	50.14	---	74.00	54.00	-3.86
---	---	---	---	---	---	---	---	---	---
2483.51	V	50.61	---	-2.38	48.23	---	74.00	54.00	-5.77
2483.51	V	---	43.25	-2.38	---	40.87	74.00	54.00	-13.13
4930.00	V	52.83	---	-3.98	48.85	---	74.00	54.00	-5.15
7395.00	V	49.24	---	0.57	49.81	---	74.00	54.00	-4.19
---	---	---	---	---	---	---	---	---	---

Note:

1. *Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier*
2. *Margin (dB) = Emission Level (Peak) (dBμV/m)-Average limit (dBμV/m)*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
4. *Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.*
5. *Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.*

Band Edge Requirement

Low channel: 2410 MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
2400	H	51.23	---	-4.2	47.03	---	74.00	---	-26.97
2400	H	---	41.37	-4.2	---	37.17	---	54.00	-16.83
---	---	---	---	---	---	---	---	---	---
2400	V	49.55	---	-4.2	45.35	---	74.00	---	-28.65
2400	V	---	40.62	-4.2	---	36.42	---	54.00	-17.58
---	---	---	---	---	---	---	---	---	---

High channel: 2465MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
2483.5	H	52.46	---	-4.2	48.26	---	74.00	---	-25.74
2483.5	H	---	42.08	-4.2	---	37.88	---	54.00	-16.12
---	---	---	---	---	---	---	---	---	

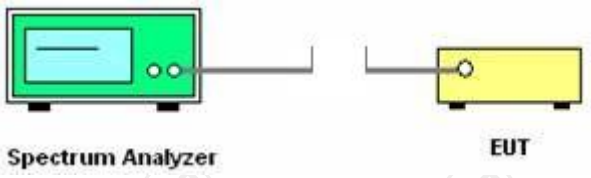
2483.5	V	50.72	---	-4.2	46.52	---	74.00	---	-27.48
2483.5	V	---	41.53	-4.2	---	37.33	---	54.00	-16.67
---	---	---	---	---	---	---	---	---	---

Note:

1. *Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier*
2. *Margin (dB) = Emission Level (Peak/Average)(dBμV/m)-(Peak/Average) limit (dBμV/m)*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
4. *Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.*
5. *Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.*

6.4.20dB Occupied Bandwidth

6.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.215(c)/ Part 2 J Section 2.1049
Test Method:	ANSI C63.10: 2013
Limit:	N/A
	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW≥1% of the 20 dB bandwidth; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold. 4. Measure and record the results in the test report.
Test setup:	
Test Mode:	Transmitting mode with modulation
Test results:	PASS

6.4.2. Test Instruments

RF Test Room				
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 12, 2016

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

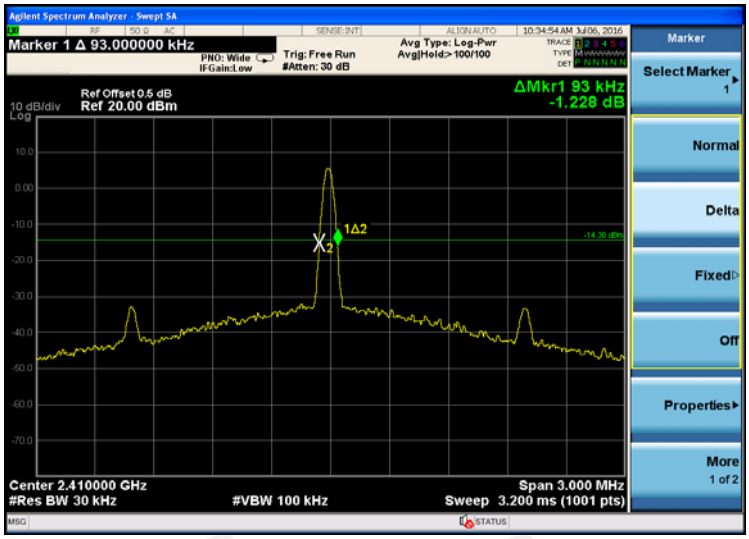
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

6.4.3. Test data

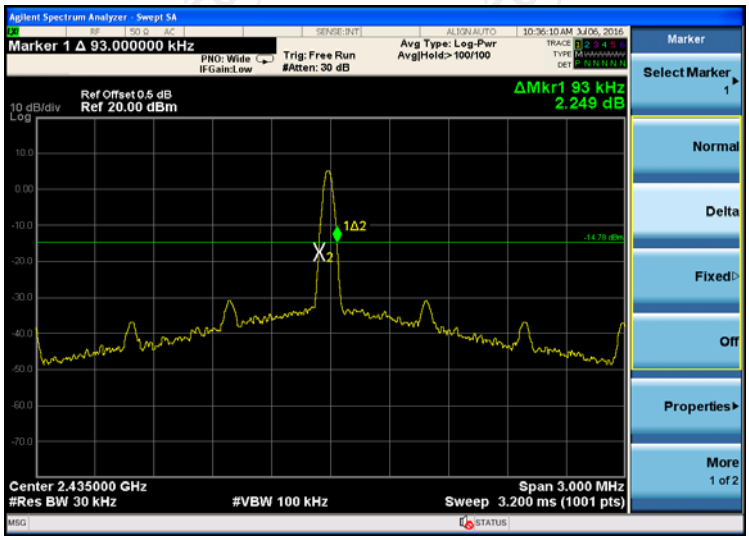
Test Channel	20dB Occupy Bandwidth (kHz)	Limit	Conclusion
Lowest	93	---	PASS
Middle	93	---	PASS
Highest	93	---	PASS

Test plots as follows:

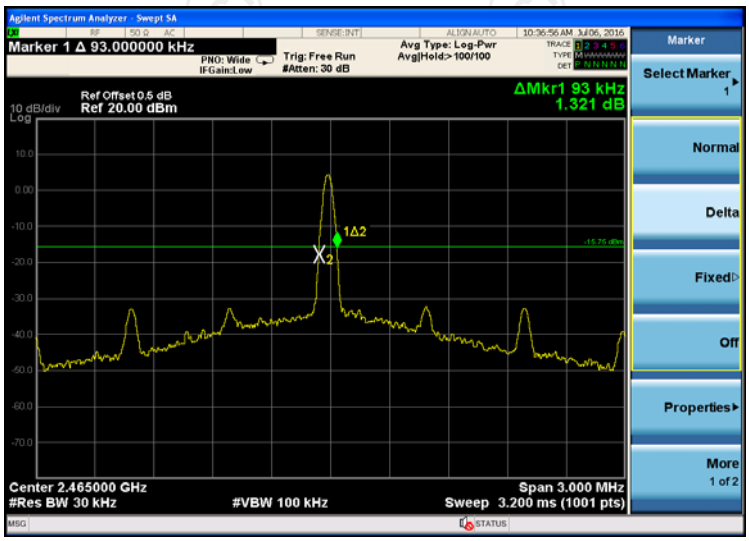
Lowest channel



Middle channel



Highest channel



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

Appendix A: Photographs of Test Setup

Refer to test report TCT160620E010

Appendix B: Photographs of EUT

Refer to test report TCT160620E010