



т	EST REPORT						
Report Reference No:	TRE1711015801 R/C: 86384						
FCC ID:	2AJ55HOLYSTONESJ						
Applicant's name:	Xiamen Huoshiquan Import & Export CO., LTD						
Address:	Room 703, No. 813-2 Xiahe Road, Siming District, Xiamen, China						
Manufacturer	Xiamen Huoshiquan Import & Export CO., LTD						
Address:	Room 703, No. 813-2 Xiahe Road, Siming District, Xiamen, China						
Test item description:	RC quadcopter						
Trade Mark:	Holy Stone						
Model/Type reference:	HS100						
Listed Model(s):	See Appendix on Page 3						
Standard:	FCC CFR Title 47 Part 15 Subpart C Section 15.249						
Date of receipt of test sample	: Nov. 23, 2017						
Date of testing	Nov. 24, 2017 - Dec. 06, 2017						
Date of issue	Dec. 07, 2017						
Result:	PASS						
Compiled by (position+printedname+signature):	File administrators Becky Liang						
Supervised by (position+printedname+signature) :	Project Engineer Jeff Sun Hours rue						
Approved by (position+printedname+signature) :	RF Manager Hans Hu						
Testing Laboratory Name::	Shenzhen Huatongwei International Inspection Co., Ltd.						
Address:	1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China						
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The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. TEST STANDARDS AND REPORT VERSION

1.1. Test Standards

The tests were performed according to following standards:

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

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Version No.	Date of issue	Description
00	Dec. 07, 2017	Original

Appendix:

HS100G,HS100PRO,HS100U,HS100S,HS100C,HS100W,HS100B,HS100D,HS100M

HS161,HS161G,HS162,HS162G,HS163,HS163G,HS164,HS164G,HS165,HS165G,HS166,HS166G,HS167, HS167G,HS168,HS168G,HS169, HS169G

HS150G,HS150S,HS150M,HS150PRO,HS150P

HS230,HS230G,HS230C,HS230W,HS230B,HS230S,HS230U,HS230PRO,HS230P

HS700,HS700G,HS700W,HS700PRO,HS700U,HS700C,HS700B,HS700S

HS710,HS710G,HS710W,HS710PRO,HS710U,HS710C,HS710B,HS710S

HS720,HS720G,HS730,HS730G,HS740,HS740G,HS750,HS750G,HS760,HS760G,HS770,HS770G,HS780, HS780G,HS790,HS790G

HS500, HS500G, HS510, HS510G, HS520, HS520G, HS530, HS530G, HS540, HS540G,

HS600,HS600G,HS610,HS610G,HS620,HS620G,HS630,HG630G,HS640,HS640G,

HS120D,HS130D,HS120G,HS130G,HS120RPO,HS130PRO

2. TEST DESCRIPTION

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emissions	15.207	Pass
20dB Occupied Bandwidth	15.215/15.249	Pass
Field strength of the Fundamental signal	15.249(a)	Pass
Spurious Emissions	15.209/15.249(a)	Pass
Band edge Emissions	15.205/15.249(d)	Pass

Remark: The measurement uncertainty is not included in the test result.

3. SUMMARY

3.1. Client Information

Applicant:	Xiamen Huoshiquan Import & Export CO., LTD	
Address: Room 703, No. 813-2 Xiahe Road, Siming District, Xiamen, China		
Manufacturer: Xiamen Huoshiquan Import & Export CO., LTD		
Address:	Room 703, No. 813-2 Xiahe Road, Siming District, Xiamen, China	

3.2. Product Description

Name of EUT:	RC quadcopter	
Trade Mark: Holy Stone		
Model No.:	HS100	
Listed Model(s):	See Appendix on Page 3	
Power supply:	DC 3.7V	
Adapter information:	-	
2.4G ISM		
Operation frequency:	2402MHz~2478MHz	
Channel number:	16	
Modulation Type:	GFSK	
Antenna type:	Integral antenna	
Antenna gain:	0 dBi	

3.3. EUT operation mode

For RF test items
The engineering test program was provided and enabled to make EUT continuous transmit.
For AC power line conducted emissions:
The EUT was set to connect with large package sizes transmission.

3.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- supplied by the lab

Manufacturer :	/
Model No. :	/
Manufacturer :	/
Model No. :	/

3.5. Modifications

No modifications were implemented to meet testing criteria.

4. TEST ENVIRONMENT

4.1. Address of the test laboratory

Laboratory:Shenzhen Huatongwei International Inspection Co., Ltd. Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China Phone: 86-755-26748019 Fax: 86-755-26748089

4.2. Test Facility

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

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No. 3902.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 762235

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 762235.

IC-Registration No.: 5377B-1

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377B-1.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

4.3. Environmental conditions

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

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

4.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors in calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics;Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement characteristics;Part 2" and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system according to ISO/IEC 17025. Further more, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Here after the best measurement capability for Shenzhen Huatongwei is reported:

Test Items	Measurement Uncertainty	Notes
Conducted spurious emissions 9KHz-30MHz	3.39 dB	(1)
Radiated Emissions 30~1000MHz	4.24 dB	(1)
Radiated Emissions 1~18GHz	5.16 dB	(1)
Radiated Emissions 18-40GHz	5.54 dB	(1)
Occupied Bandwidth		(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

4.5. Equipments Used during the Test

Condu	Conducted Emissions					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)
1	EMI Test Receiver	R&S	ESCI	101247	11/11/2017	11/10/2018
2	Artificial Mains	SCHWARZBECK	NNLK 8121	573	11/11/2017	11/10/2018
3	Pulse Limiter	R&S	ESH3-Z2	101488	11/11/2017	11/10/2018
4	Test Software	R&S	ES-K1	N/A	N/A	N/A
5	RF Connection Cable	HUBER+SUHNER	EF400	N/A	11/21/2017	11/20/2018

Radia	ted Emissions					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)
1	Active Rod Antenna	BEIJING Radio	ZN30800	N/A	N/A	N/A
2	Loop Antenna	R&S	HFH2-Z2	100020	11/20/2017	11/19/2020
3	Ultra-Broadband Antenna	SCHWARZBECK	VULB9163	538	4/5/2017	4/4/2020
4	Horn Antenna	SCHWARZBECK	9120D	1011	3/27/2017	3/26/2020
5	Preamplifier	SCHWARZBECK	BBV 9743	9743-0022	10/18/2017	10/17/2018
6	Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-248	10/18/2017	10/17/2018
7	EMI Test Receiver	R&S	ESCI	100900	11/11/2017	11/10/2018
8	Spectrum Analyzer	R&S	FSP40	100597	11/11/2017	11/10/2018
9	Turntable	Maturo Germany	TT2.0-1T	N/A	N/A	N/A
10	Antenna Mast	Maturo Germany	CAM-4.0-P-12	N/A	N/A	N/A
11	Test Software	R&S	ES-K1	N/A	N/A	N/A
12	Test Software	R&S	E3	N/A	N/A	N/A
13	RF Connection Cable	HUBER+SUHNER	RE-7-FL	N/A	11/21/2017	11/20/2018
14	RF Connection Cable	HUBER+SUHNER	RE-7-FH	N/A	11/21/2017	11/20/2018

RF Co	RF Conducted Method										
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)					
1	EXA Signal Analyzer	Agilent	N9020A	184247	9/22/2017	9/21/2018					
2	Power Meter	Agilent	U2021XA	178231	9/22/2017	9/21/2018					

The Cal.Interval was one year.

5. TEST CONDITIONS AND RESULTS

5.1. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:

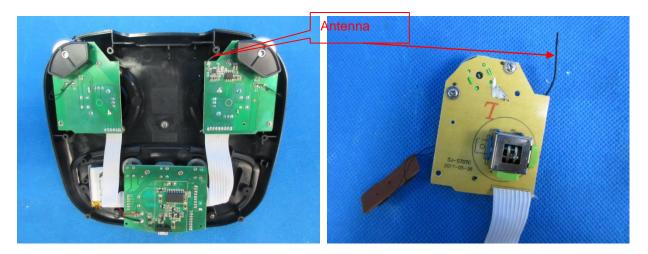
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of anantenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Test Result:

The directional gain of the antenna less than 6 dBi, please refer to the below antenna photo.



5.2. AC Power Conducted Emissions

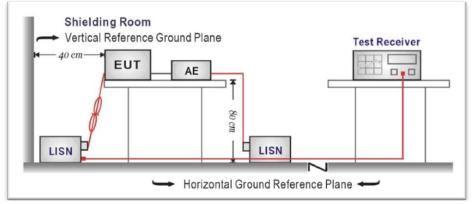
<u>LIMIT</u>

FCC CFR Title 47 Part 15 Subpart C Section 15.207:

	Limit (dBuV)				
Frequency range (MHz)	Quasi-peak	Average			
0.15-0.5	66 to 56*	56 to 46*			
0.5-5	56	46			
5-30	60	50			

* Decreases with the logarithm of the frequency.

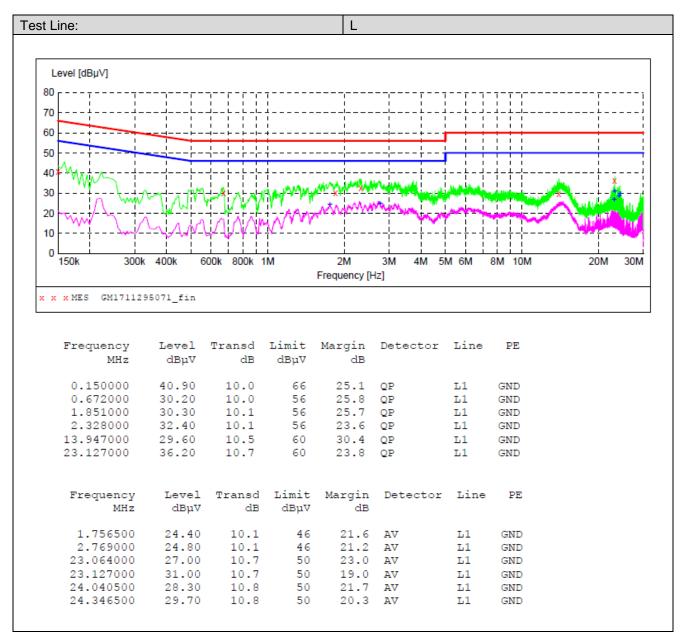
TEST CONFIGURATION

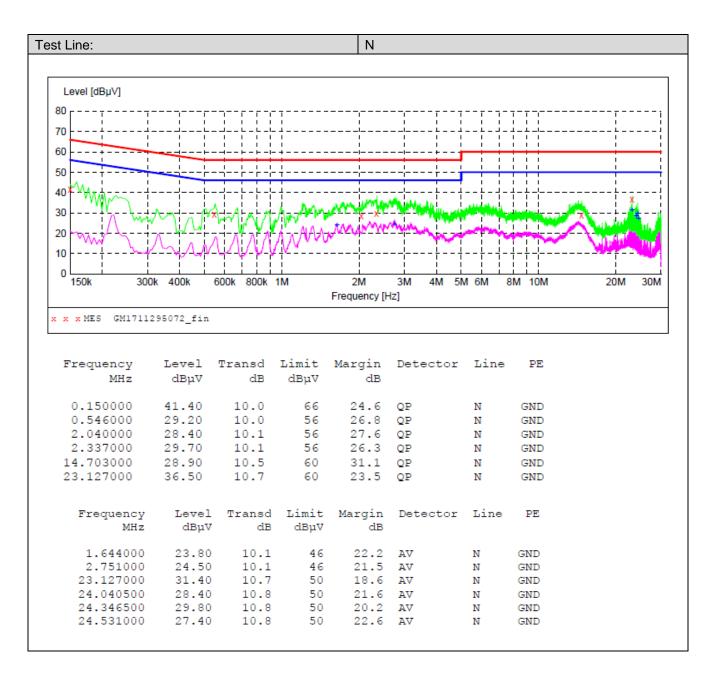


TEST PROCEDURE

- 1. The EUT was setup according to ANSI C63.10:2013 for compliance to FCC 47CFR 15.247 requirements.
- The EUT was placed on a plat form of nominal size, 1 m by 1.5 m, raised 10 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 10 cm from any other grounded conducting surface.
- 3. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50ohm / 50uH coupling impedance for the measuring equipment.
- 4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
- 5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
- 6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
- 7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
- 8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS



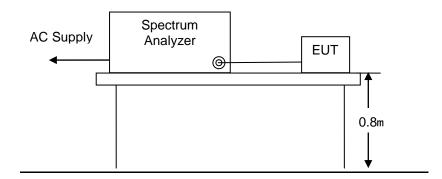


5.3. 20 dB Occupied Bandwidth

<u>Limit</u>

Operation frequency range 2400MHz~2483.5MHz.

TEST CONFIGURATION



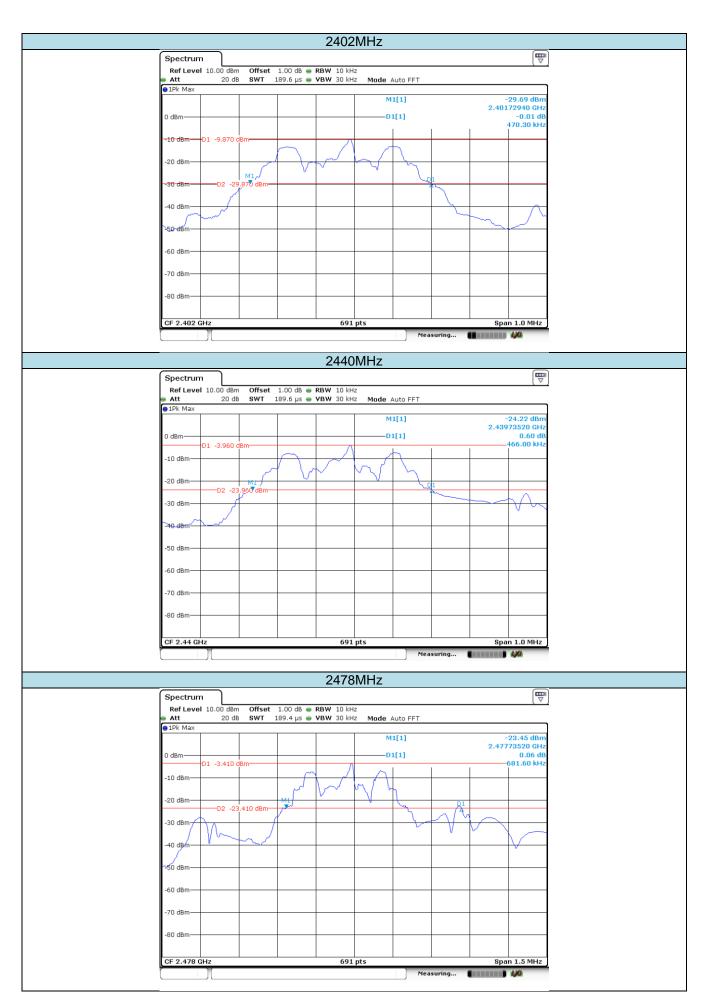
TEST PROCEDURE

1.As required by 47 CFR 15.215 and 47 CFR 15.249

2. The EUT connected to the spectrum analyzer was operated in linear scale and 2.0MHz span mode after tuning to the transmitter frequency.

TEST RESULTS

Channel Frequency(MHz)	20dB Bandwidth(MHz)	Result
2402	0.4703	PASS
2440	0.4660	PASS
2478	0.6816	PASS



5.4. Radiated Emissions

<u>LIMIT</u>

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

Frequency (MHz)	Distance(Meters)	Radiated(dBµV/m)	Radiated(µV/m)
0.009 - 0.490	300	20*log(2400/F(kHz))	2400/F(kHz)
0.490 - 1.705	30	20*log(24000/F(kHz))	24000/F(kHz)
1.705 - 30.0	30	29.54	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

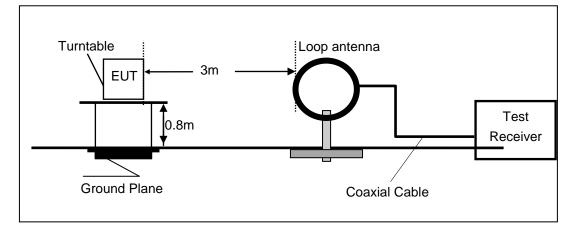
Remark:At frequencies below 30MHz, Limit 3m(dBuV)=Limit xm(dBuV)+20log(xm/3m); At frequencies below 30MHz, Limit 3m(dBuV)=Limit xm(dBuV)+40log(xm/3m),x replace the number 10.30.300.

In addition to the provisions of §15.249, the field strength of emissions from intentional radiators operated under this section shall not exceed thefollowing:

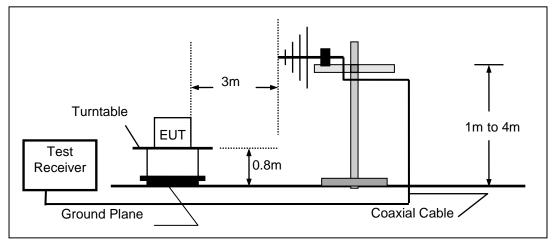
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

TEST CONFIGURATION

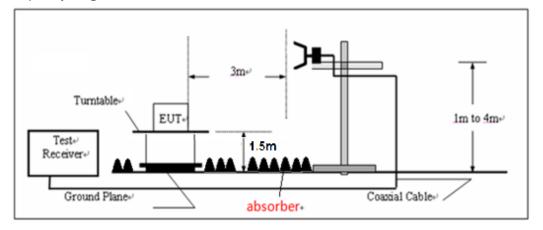
Radiated Emission Test Set-Up Frequency range 9KHz–30MHz



Frequency range30MHz – 1000MHz



Frequency range above 1GHz-25GHz



TEST PROCEDURE

- 1. The EUT was tested according to ANSI C63.10:2013 for compliance to FCC 47CFR 15.247 requirements.
- 2. The EUT is placed on a turn table which is 0.8/1.5 meter above ground plane. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 3. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters.
- 4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. Thisis repeated for both horizontal and vertical polarization of the antenna.
- 5. Use the following spectrum analyzer settings
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Below 1GHz, RBW=120KHz, VBW=300KHz, Sweep=auto, Detector function=QP, Trace=max hold; If the emission level of the EUT measured by the peak detectoris 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
 - (3) Above 1GHz, RBW=1MHz, VBW=3MHz Peak detetor for Peak value

RBW=1MHz, VBW=3MHz RMS detetor for Average value.

Remark: "floor-standing equipment" Where possible, the antenna(s) of the EUT shall be located at a height of 1.5 m above the floor, and the intentional radiator circuitry shall be located within the system at a height of at least 0.8 m above the floor.

TEST RESULTS

■ 9kHz ~ 30MHz

The EUT was pre-scanned the frequency band (9KHz~30MHz), found the radiated level lower than the limit, so don't show on the report.

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	Radiated emissions of fundamental emissions											
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m) @3m	FCC Limit (dBµV/m) @3m	Over Limit (dB)	Detector	Polarization			
2402.00	94.83	27.60	6.77	37.90	91.30	94.00	-2.70	Peak	Horizontal			
2402.00	92.83	27.60	6.77	37.90	89.30	94.00	-4.70	Peak	Vertical			
2440.00	90.51	27.45	6.80	37.89	86.87	94.00	-7.13	Peak	Horizontal			
2440.00	84.85	27.45	6.80	37.89	81.21	94.00	-12.79	Peak	Vertical			
2478.00	89.34	27.30	6.82	37.88	85.58	94.00	-8.42	Peak	Horizontal			
2478.00	84.44	27.30	6.82	37.88	80.68	94.00	-13.32	Peak	Vertical			

	Spurious radiated emissions											
	2402MHz											
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m) @3m	FCC Limit (dBµV/m) @3m	Over Limit (dB)	Detector	Polarization			
1442.76	35.32	25.86	5.12	36.52	29.78	74.00	-44.22	Peak				
3104.22	33.82	28.80	7.61	38.21	32.02	74.00	-41.98	Peak				
4809.50	46.36	31.58	9.55	36.93	50.56	54.00	-3.44	Average	Horizontal			
4809.50	58.10	31.58	9.55	36.93	62.30	74.00	-11.70	Peak	HUHZUHIAI			
7209.02	43.57	36.21	11.87	35.07	56.58	74.00	-17.42	Peak				
7209.02	28.74	36.21	11.87	35.07	41.75	54.00	-12.25	Average				
1303.09	36.61	26.19	4.84	36.51	31.13	74.00	-42.87	Peak				
3241.50	34.70	28.55	7.77	38.27	32.75	74.00	-41.25	Peak				
4809.50	31.67	31.58	9.55	36.93	35.87	54.00	-18.13	Average	Vertical			
4809.50	56.65	31.58	9.55	36.93	60.85	74.00	-13.15	Peak	vertical			
7209.02	38.61	36.21	11.87	35.07	51.62	74.00	-22.38	Peak				
7209.02	21.86	36.21	11.87	35.07	34.87	54.00	-19.13	Average				

	2440MHz											
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m) @3m	FCC Limit (dBµV/m) @3m	Over Limit (dB)	Detector	Polarization			
1514.25	35.96	25.67	5.33	36.61	30.35	74.00	-43.65	Peak				
3607.26	34.98	29.30	8.28	38.27	34.29	74.00	-39.71	Peak				
4883.52	37.80	31.43	9.59	36.73	42.09	54.00	-11.91	Average	Horizontal			
4883.52	58.00	31.43	9.59	36.73	62.29	74.00	-11.71	Peak	ΠΟΠΖΟΠΙΔΙ			
7319.96	25.45	36.30	11.99	34.92	38.82	54.00	-15.18	Average				
7319.96	46.05	36.30	11.99	34.92	59.42	74.00	-14.58	Peak				
1518.11	35.42	25.63	5.34	36.61	29.78	74.00	-44.22	Peak				
3747.66	34.19	29.44	8.44	38.24	33.83	74.00	-40.17	Peak				
4883.52	32.56	31.43	9.59	36.73	36.85	54.00	-17.15	Average	Vertical			
4883.52	52.66	31.43	9.59	36.73	56.95	74.00	-17.05	Peak				
7319.96	35.61	36.30	11.99	34.92	48.98	74.00	-25.02	Peak				

	2478MHz											
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m) @3m	FCC Limit (dBµV/m) @3m	Over Limit (dB)	Detector	Polarization			
1750.70	51.37	25.30	5.86	37.04	45.49	74.00	-28.51	Peak				
4045.06	34.37	29.79	8.82	38.01	34.97	74.00	-39.03	Peak	Horizontal			
4958.68	43.95	31.46	9.64	36.52	48.53	74.00	-25.47	Peak	HUHZUHIAI			
7432.62	33.26	36.23	12.18	34.85	46.82	74.00	-27.18	Peak				
1487.51	35.33	25.81	5.25	36.57	29.82	74.00	-44.18	Peak				
3057.17	35.01	28.72	7.55	38.22	33.06	74.00	-40.94	Peak	Vertical			
4958.68	40.97	31.46	9.64	36.52	45.55	74.00	-28.45	Peak	ventical			
7432.62	36.62	36.23	12.18	34.85	50.18	74.00	-23.82	Peak				

	Band edge emissions											
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit(dB)	Polarization	Detector			
2400.00	59.77	27.65	6.75	37.87	56.30	74.00	-17.70	Horizontal				
2400.00	51.38	27.65	6.75	37.87	47.91	74.00	-26.09	Vertical	Peak			
2483.50	67.95	27.26	6.83	37.87	64.17	74.00	-9.83	Horizontal	reak			
2483.50	59.13	27.26	6.83	37.87	55.35	74.00	-18.65	Vertical				
2400.00	38.31	27.65	6.75	37.87	34.84	54.00	-19.16	Horizontal				
2400.00	37.03	27.65	6.75	37.87	33.56	54.00	-20.44	Vertical	A\/			
2483.50	53.76	27.26	6.83	37.87	49.02	54.00	-4.98	Horizontal	AV			
2483.50	41.91	27.27	6.83	37.87	38.14	54.00	-15.86	Vertical				

6. Test Setup Photos of the EUT

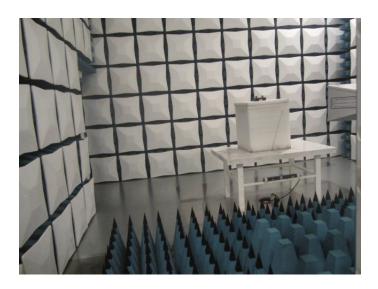
Conducted Emissions (AC Mains)



Radiated Emissions







7. External and Internal Photos of the EUT

External Photos of the EUT







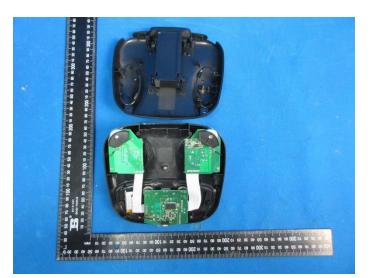




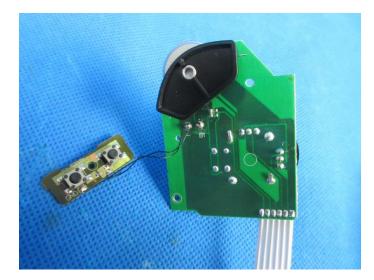


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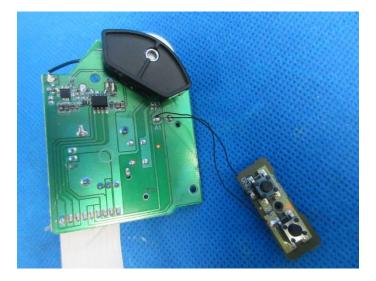
Internal Photos of the EUT





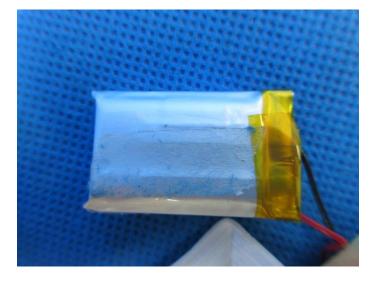








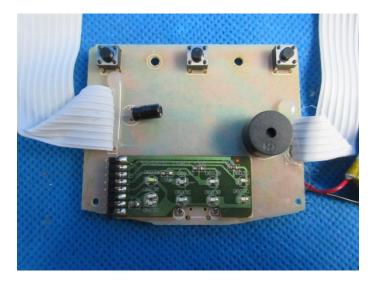
Report Template Version: H01 (2017-03)

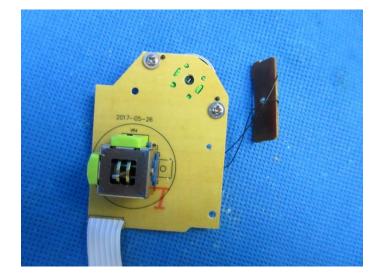






Report Template Version: H01 (2017-03)





.....End of Report.....