

7 / F, Xinwei Building, Gushu Village, Xixiang Town, Baoan District, Shenzhen, China Tel: +86)-0755-23284990 Email: att@att-lab.com Http://www.att-lab.cn

# FCC RADIO TEST REPORT FCC ID: 2AFHYCT868

**Product**: Smart Home(WiFi camera)

Trade Name: HUANSO

Model Name: CT868W-SH

CT568W, CT518W, SK001W, SS001W, SS002W, SS003W, SS004W, SS005W, CT518W, SH, CT568W, SH, CT

Serial Model: CT518W-SH, CT568W-SH, CT768W-SH,

CT878W-SH, CT888W-SH, CT868W, CT768W,

CT878W, CT888W, SK002W, SS006W,

SS007W, SS008W, SS009W

### **Prepared for**

ZHUHAI HUANSO INDUSTRIAL CO., LTD.

2F, No.8, Jingyuan Road, Jida Industrial Park, Jida, 519015, Xiangzhou, Zhuhai, Guangdong, China

### Prepared by

Shenzhen Asia Test Technology Co.,Ltd.

7 / F, Xinwei Building, Gushu Village, Xixiang Town, Baoan District, Shenzhen, China

Tel: +(86)-0755-23284990 Fax: +(86)-0755-23284990 Http: www.att-lab.cn



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### TEST RESULT CERTIFICATION

Manufacture's Name	ZHUHAI HUANSO IND	JSTRIAL CO., LTD.
Address	2F, No.8, Jingyuan Roa Zhuhai, Guangdong, Cl	d, Jida Industrial Park, Jida, 519015, Xiangzhou, iina
<b>Product description</b>		
Product name	. Smart Home(WiFi came	era)
Model and/or type reference		
Additional Model	SS005W, CT518W-S	(001W, SS001W, SS002W, SS003W, SS004W, H, CT568W-SH, CT768W-SH, CT878W-SH, V, CT768W, CT878W, CT888W, SK002W, 008W, SS009W
Standards	FCC Part15.247	
Test procedure	. ANSI C63.4-2003	
	mpliance with the FCC r	ATT, and the test results show that the equipment equirements. And it is applicable only to the tested
•		, without the written approval of ATT, this sonal only, and shall be noted in the revision of the
Date of Test		
Date (s) of performance	of tests Jun. 08 201	5 ~Jun. 24 2015
Date of Issue	Jun. 24 201	5
Test Result	Pass	
Testino	g Engineer :	Jack Yn
		( lack Yu)
		Jack Yn (Jack Yu) Jerry You
Techni	cal Manager :	Jony 1

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Authorized Signatory:

(Jerry You)



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### 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247)				
Standard Section	l lest item			
15.207	Conducted Emission	PASS		
15.247 (a)(2)	6dB Bandwidth	PASS		
15.247 (b)	Peak Output Power	PASS		
15.247 (c)	Radiated Spurious Emission	PASS		
15.247 (d)	Power Spectral Density	PASS		
15.205	Band Edge Emission	PASS		
15.203	Antenna Requirement	PASS		

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report



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#### 1.1 TEST FACILITY

Asia Institute Technology (DongGuan) Limited No. 22, JinQianLing Street 3, JiTiGang Village, Huang-Jiang Town, DongGuan, Guangdong, 523757 China

FCC Registration No.: 248337

#### 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $\mathbf{y} \pm \mathbf{U}$ , where expended uncertainty  $\mathbf{U}$  is based on a standard uncertainty multiplied by a coverage factor of  $\mathbf{k=2}$ , providing a level of confidence of approximately 95 %  $^{\circ}$ 

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%



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#### 2. GENERAL INFORMATION

#### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Home(WiFi camera)				
Model Name	CT868W-SH				
Serial number	S500023	S500023			
Serial Model	CT568W, CT518W, S	SK001W, SS001W, SS002W, SS003W,			
	SS004W, SS005W, C	CT518W-SH, CT568W-SH, CT768W-SH,			
	CT878W-SH, CT888\	W-SH, CT868W, CT768W, CT878W, CT888W,			
	SK002W, SS006W, S	SS007W, SS008W, SS009W			
Model Difference	All models are identic	al except model name.			
	The EUT is a Smart F	· Home(WiFi camera)			
	Operation	802.11b/g: 2412~2462MHz			
	Frequency:	CCK/OFDM/DBPSK/DAPSK			
	Modulation Type: Bit Rate of	802.11b:11/5.5/2/1 Mbps			
	Transmitter	802.11g:54/48/36/24/18/12/9/6Mbps			
	Number Of Channel	802.11b/g:11CH			
	Antenna	Please see Note 3.			
Product Description	Designation:	l louis see here e.			
1 Todact Description	Output	802.11b: 9.46 dBm (Max. AV)			
	Power(Conducted):	802.11g: 8.79 dBm (Max. AV)			
	Antenna Gain (dBi)	Odbi			
	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.				
Channel List	Please refer to the No	ote 2.			
Ratings	12.0Vdc				
Adapter	M/N:CS-1201000 Input:AC100-240V, 50/60 Hz, 0.5A Output:DC 12V, 1A				
Battery	N/A				
HW:	APZ_5350_AOP_201504				
SW:	CTHY_0500_V1.1				

#### Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



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2.

	Channel List for 802.11b/g							
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
İ	01	2412	04	2427	07	2442	10	2457
	02	2417	05	2432	08	2447	11	2462
	03	2422	06	2437	09	2452		

Table for Filed Antenna

Iabi	able for tilled Africania						
Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE	
Α	N/A	N/A	dipole antenna	ipex connector	0	Wifi Antenna	



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#### 2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	Link Mode

For Conducted Emission			
Final Test Mode Description			
Mode 3	Link Mode		

For Radiated Emission			
Final Test Mode Description			
Mode 1	802.11b CH1/ CH6/ CH11		
Mode 2	802.11g CH1/ CH6/ CH11		

#### Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported. The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.
- (3) measurements are performed according to the KDB 558074 D01 DTS Meas Guidance v03r03

Test Items	Mode	Data Rate	Channel
Maximum Peak Conducted Output Power Power Spectral Density 6dB Bandwidth	11b/DSSS	1 Mbps	1/6/11
Spurious RF conducted emission Radiated Emission 9kHz~1GHz& Radiated Emission 1GHz~10th Harmonic	11g/OFDM	6 Mbps	1/6/11
Dand Edge	11b/DSSS	1 Mbps	1/11
Band Edge	11g/OFDM	6 Mbps	1/11

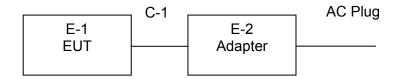


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NOTE: Typical working modes for each IEEE 802.11mode are selected to perform tests. The manufacturer provide special test software(LLKY\_5350\_TEST) to control TX duty cycle >98% for TX test.set the output power to 13dbm(PK) for test.

Test Mode	Test Modes Description
11b	IEEE 802.11b with data rate of 1 Mbps using SISO mode.
11g	IEEE 802.11g with data rate of 6 Mbps using SISO mode.

### 2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED





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### 2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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.

Item	Equipment	Brand	Model/Type No.	Series No.	Note
E-1	Smart Home(WiFi camera)	HUANSO	CT868W-SH	N/A	EUT
E-2	Adapter	N/A	CS-1201000	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.8m	

#### Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in <code>FLength</code> <code>\_</code> column.



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### 2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

For Conducted Test (In Shielded Room)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	EMI Receiver	R&S	ESCI	100124	2014.06.26	1Y
2	L.I.S.N.#1	Kyoritsu	KNW-242	8-837-4	2014.06.26	1Y
3	L.I.S.N.#2	Kyoritsu	KNW-407	8-1789-4	2014.06.26	1Y
4	Coaxial Switch	Anritsu	MP59B	6200264417	2014.06.26	6M
5	Cable 0.09-30MHz	N/A	AIT005	C001	2014.07.10	1 Y

For Radiation Test and other conducted test (bandwidth, output power, power spectral density)

roi Nadiation lest and other conducted test			(bandwidth,output power, power		spectral delisity)	
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	ADVANTEST	R3182	150900201	2014.06.26	1Y
2	EMI Measuring Receiver	R&S	ESR	101160	2014.06.26	1Y
3	Preamplifier	Tsj	MLA-10K01-B01-27	1205323	2014.06.26	1Y
4	Preamplifier	Tsj	MLA-0120-A02-34	2648A04738	2014.12.02	1Y
5	Bilog Antenna	SCHWARZBECK	VULB9160	3206	2014.12.03	1Y
6	Horn Antenna	SCHWARZBECK	BBHA 9120D	452	2014.12.03	1Y
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2015.05.29	1 Y
8	Loop Antenna	TESEQ	HLA6120	35779	2015.05.29	1 Y
9	Coaxial Switch	Anritsu	MP59B	6200264416	2015.03.25	6M
10	Power Mete	Anritsu	ML2487B	110553	2014.07.10	1Y
11	Power Sensor	Anritsu	MA2411B	100345	2014.07.10	1Y
12	Cable below 30MHz	N/A	AIT005	R005	2014.07.10	1Y
13	RF Cabl 30-1000MHz	N/A	AIT001	R001	2014.07.10	1Y
14	RF Cabl 1-25GHz	N/A	AIT001	R001	2014.07.10	1Y



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### 3. EMC EMISSION TEST

#### 3.1 CONDUCTED EMISSION MEASUREMENT

### 3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard	
	Quasi-peak	Average	Quasi-peak	Average	Stariuaru	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR	
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR	
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR	

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

#### Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting		
Attenuation	10 dB		
Start Frequency	0.15 MHz		
Stop Frequency	30 MHz		
IF Bandwidth	9 kHz		



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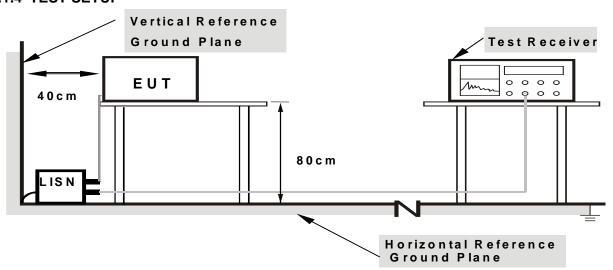
#### 3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.1.3 DEVIATION FROM TEST STANDARD

No deviation

#### 3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

### 3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



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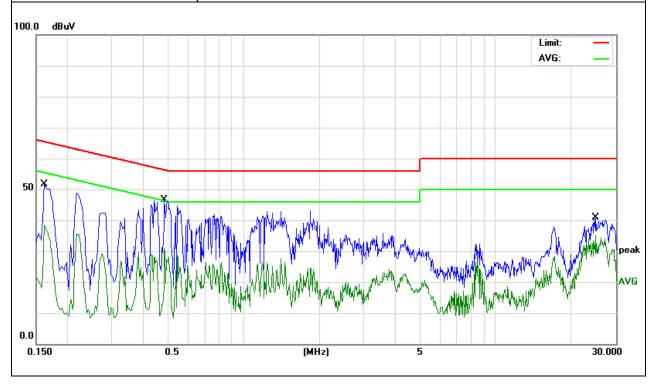
#### 3.1.6 TEST RESULTS

EUT:	Smart Home(WiFi camera)	Model Name. :	CT868W-SH
Temperature:	<b>26</b> ℃	Relative Humidity:	56%
Pressure:	1010hPa	Phase :	L
Test Voltage :	DC 12V from adapter AC 120V/60Hz	Test Mode :	Mode 3

Freq.	Reading	Factor	Measurement	Limit	Over	Detector
(MHz)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	Detector
0.162	41.12	10.45	51.57	65.36	-13.79	QP
0.162	28	10.45	38.45	55.36	-16.91	AVG
0.486	36.16	10.4	46.56	56.24	-9.68	QP
0.486	20.4	10.4	30.8	46.24	-15.44	AVG
24.986	30.02	10.73	40.75	60	-19.25	QP
24.986	24.27	10.73	35	50	-15	AVG

### Remark:

- 1. All readings are Quasi-Peak and Average values.
- 2. Factor = Insertion Loss + Cable Loss.
- 3. N/A means All Data have pass Limit





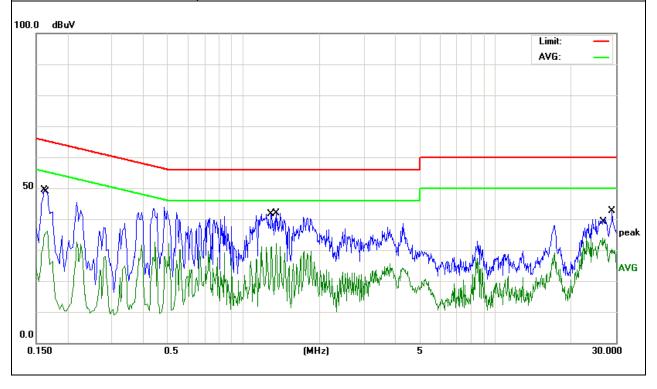
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EUT:	Smart Home(WiFi camera)	Model Name. :	CT868W-SH
Temperature :	<b>26</b> ℃	Relative Humidity:	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 12V from adapter AC 120V/60Hz	Test Mode :	Mode 3

Freq.	Reading	Factor	Measurement	Limit	Over	Detector
(MHz)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	Detector
0.162	38.94	10.33	49.27	65.36	-16.09	QP
0.166	25.68	10.34	36.02	55.15	-19.13	AVG
1.286	31.26	10.45	41.71	56	-14.29	QP
1.346	21.61	10.45	32.06	46	-13.94	AVG
26.61	23.18	10.74	33.92	50	-16.08	AVG
28.95	32.04	10.65	42.69	60	-17.31	QP

#### Remark:

- 1. All readings are Quasi-Peak and Average values.
- 2. Factor = Insertion Loss + Cable Loss.
- 3. N/A means All Data have pass Limit





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#### 3.2 RADIATED EMISSION MEASUREMENT

### 3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies	Field Strength	Measurement Distance
(MHz)	(micorvolts/meter)	(meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

#### Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted	1 MHz / 1 MHz for Peak, 1 MHz / <i>10Hz</i> for Average
band)	I MINZ / I MINZ IOI FEAK, I MINZ / TONZ IOI AVEIAGE
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

#### 3.2.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.



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- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Both horizontal and vertical antenna polarities were tested. The worst case emissions were reported

#### 3.2.3 DEVIATION FROM TEST STANDARD

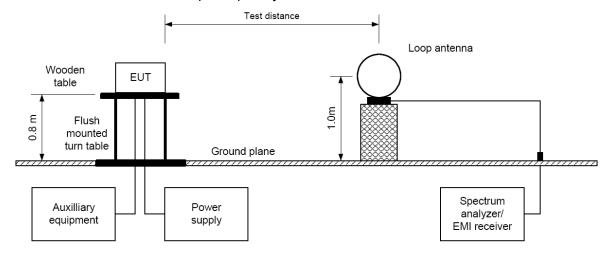
No deviation



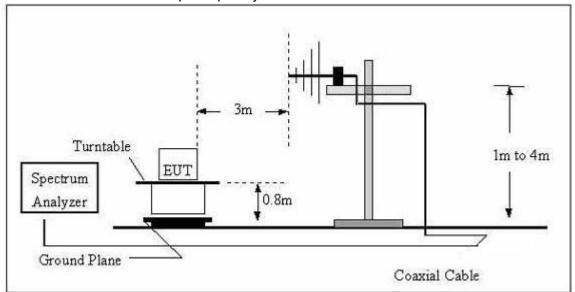
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#### 3.2.4 TEST SETUP

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



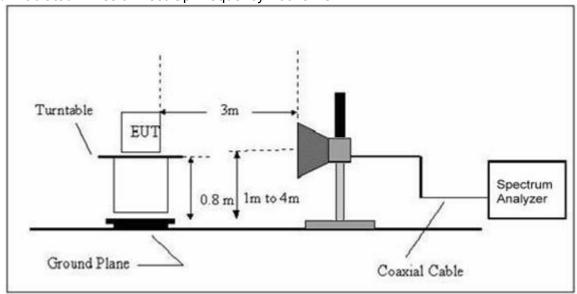
### (B) Radiated Emission Test-Up Frequency 30MHz~1GHz





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### (C) Radiated Emission Test-Up Frequency Above 1GHz



### 3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



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### 3.2.6 TEST RESULTS (BETWEEN 9KHZ - 30 MHZ)

EUT:	Smart Home(WiFi camera)	Model Name. :	CT868W-SH
Temperature:	20 ℃	Relative Humidtity:	48%
Pressure:	1010 hPa	LIAST VALISAD .	DC 12V from adapter AC 120V/60Hz
Test Mode:	TX	Polarization :	

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
				Р
				Р

### NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.



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### 3.2.7 TEST RESULTS (BETWEEN 30MHZ - 1GHZ)

EUT:	Smart Home(WiFi camera)	Model Name :	CT868W-SH
Temperature :	20 ℃	Relative Humidity:	48%
Pressure:	1010 hPa	LIEST VOITAGE .	DC 12V from adapter AC 120V/60Hz
Test Mode:	802.11B TX 2412		

Polarization	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect	Comment
	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Type	Comment
	Below 1G							
Horizontal	32.53	25.85	8.75	34.6	40	-5.4	QP	
Horizontal	96.37	24.85	12.68	37.53	43.5	-5.97	QP	
Horizontal	129.75	27.84	13.28	41.12	43.5	-2.38	QP	
Horizontal	189.57	23.74	14.49	38.23	43.5	-5.27	QP	
Horizontal	225.38	22.74	15.74	38.48	46	-7.52	QP	
Horizontal	361.74	25.85	17.33	43.18	46	-2.82	QP	
Vertical	67.38	23.37	12.64	36.01	40	-3.99	QP	
Vertical	122.64	21.74	12.74	34.48	43.5	-9.02	QP	
Vertical	218.95	25.85	13.74	39.59	46	-6.41	QP	
Vertical	332.47	23.34	14.26	37.6	46	-8.4	QP	
Vertical	389.75	25.74	16.29	42.03	46	-3.97	QP	
Vertical	445.83	25.17	17.36	42.53	46	-3.47	QP	

Note:test perform on 802.11b/g mode,"802.11b TX2412" mode is the worst mode and has been reported.



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### 3.2.8 TEST RESULTS (1000 MHz - 26.5GHz)

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect	Comment
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	or Type	Comment
		Low Ch	annel (2412 MHz)-	Above 1G			
4824.12	54.37	9.97	64.34	74	-9.66	Pk	Vertical
4824.12	41.46	9.97	51.43	54	-2.57	Av	Vertical
7236.35	49.75	12.35	62.1	74	-11.9	Pk	Vertical
7236.35	38.57	12.35	50.92	54	-3.08	Av	Vertical
4824.63	47.84	10.57	58.41	74	-15.59	Pk	Horizontal
4824.63	36.18	10.57	46.75	54	-7.25	Av	Horizontal
7236.16	44.74	12.35	57.09	74	-16.91	Pk	Horizontal
7236.16	36.74	12.35	49.09	54	-4.91	Av	Horizontal
	Mid Channel (2437 MHz)-Above 1G						
4874.25	48.75	10.4	59.15	74	-14.85	Pk	Vertical
4874.25	40.36	10.4	50.76	54	-3.24	Av	Vertical
7311.15	47.47	12.75	60.22	74	-13.78	Pk	Vertical
7311.15	38.45	12.75	51.2	54	-2.8	Av	Vertical
4874.21	46.37	10.4	56.77	74	-17.23	Pk	Horizontal
4874.21	35.12	10.4	45.52	54	-8.48	Av	Horizontal
7311.36	40.73	12.75	53.48	74	-20.52	Pk	Horizontal
7311.36	33.34	12.75	46.09	54	-7.91	Av	Horizontal
		High Ch	annel (2462 MHz)-	Above 1G			
4924.41	48.5	10.39	58.89	74	-15.11	Pk	Vertical
4924.41	39.72	10.39	50.11	54	-3.89	Av	Vertical
7386.26	46.29	12.68	58.97	74	-15.03	Pk	Vertical
7386.26	35.22	12.68	47.9	54	-6.1	Av	Vertical
4924.38	45.74	10.39	56.13	74	-17.87	Pk	Horizontal
4924.38	33.47	10.39	43.86	54	-10.14	Av	Horizontal
7386.55	39.38	12.68	52.06	74	-21.94	Pk	Horizontal
7386.55	29.75	12.68	42.43	54	-11.57	Av	Horizontal

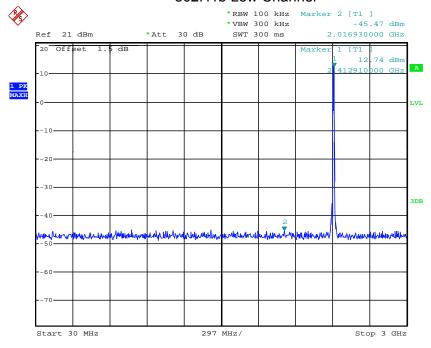
Note:test perform on 802.11b/g mode,"802.11b" mode is the worst mode and has been reported. spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported above 8G.

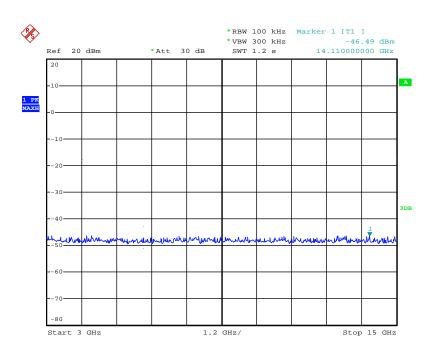


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### Conducted Spurious Emissions at Antenna Port:

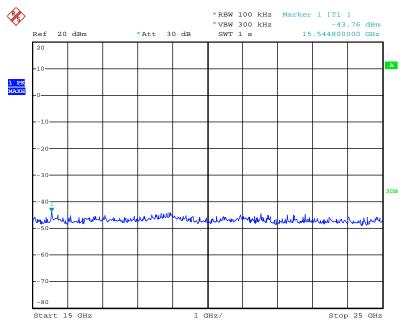
### 802.11b Low Channel



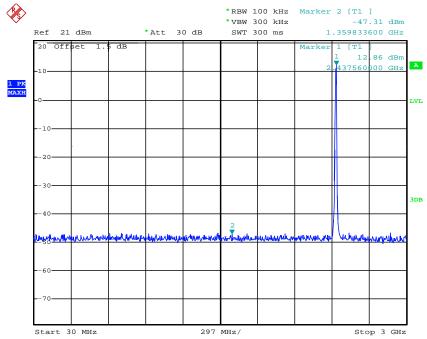




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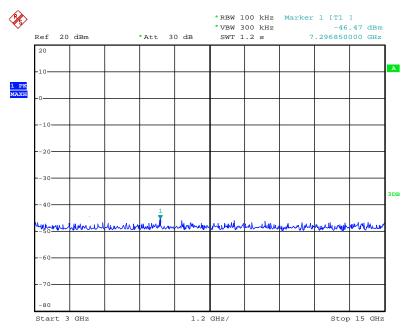


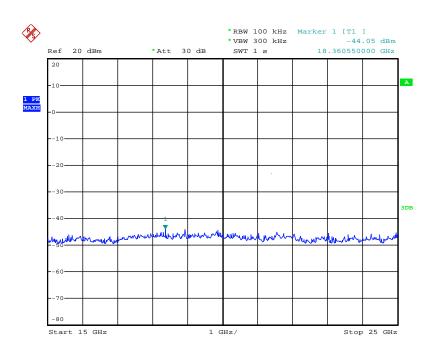
#### 802.11b Middle Channel





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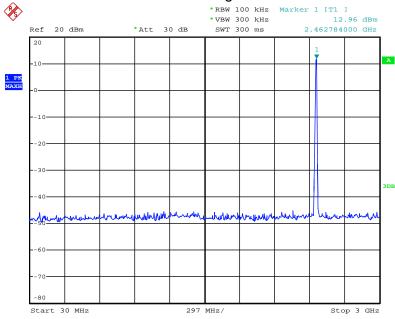


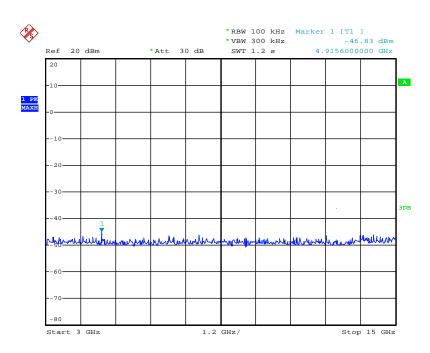




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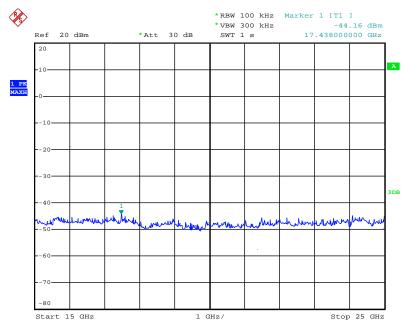
### 802.11b High Channel

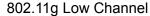


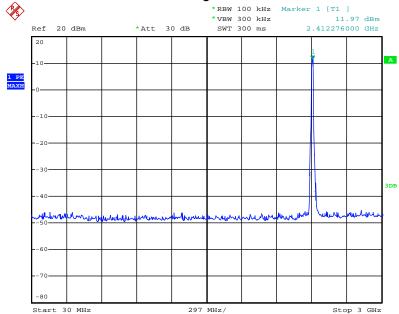




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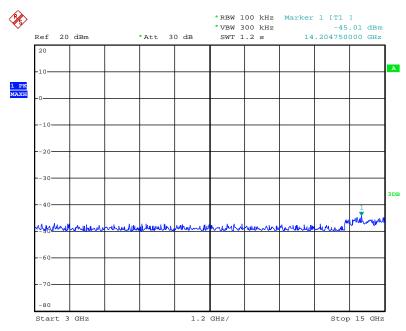


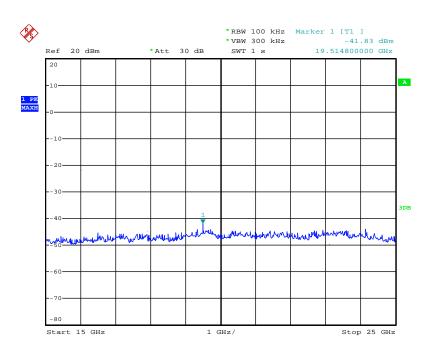






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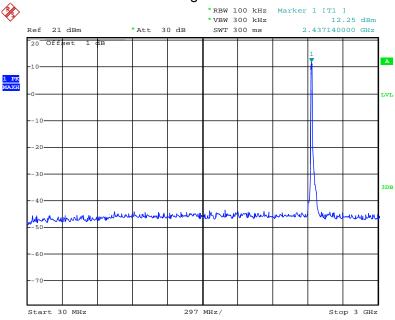


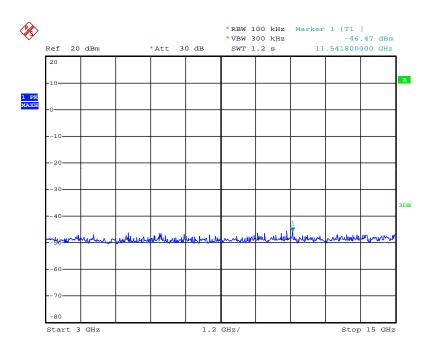




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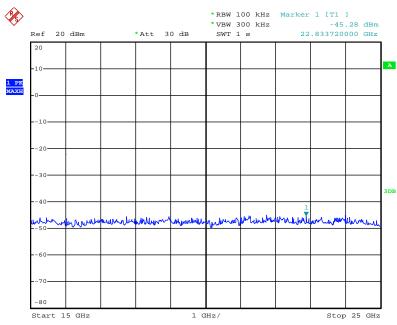
### 802.11g Middle Channel

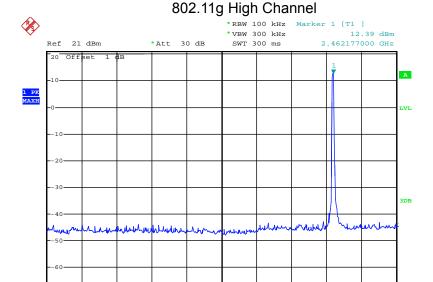






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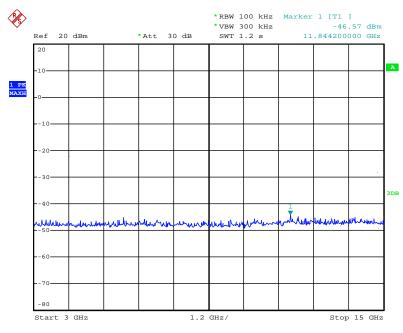


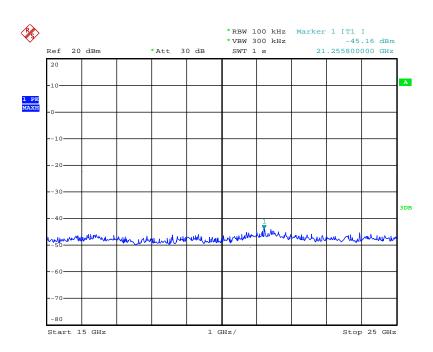


Start 30 MHz



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### 4. POWER SPECTRAL DENSITY TEST

#### 4.1 APPLIED PROCEDURES / LIMIT

	FCC Part15 (15.247) , Subpart C				
Section	Test Item	Frequency Range (MHz)	Result		
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS	

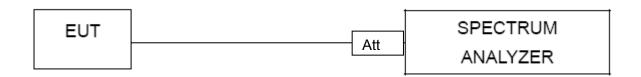
#### 4.1.1 TEST PROCEDURE

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. Set the span to 1.5 times the DTS channel bandwidth.
- 3. Set the RBW  $\geq$  3 kHz.
- 4. Set the VBW  $\geq$  3 x RBW.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

#### 4.1.2 DEVIATION FROM STANDARD

No deviation.

#### 4.1.3 TEST SETUP



#### 4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.



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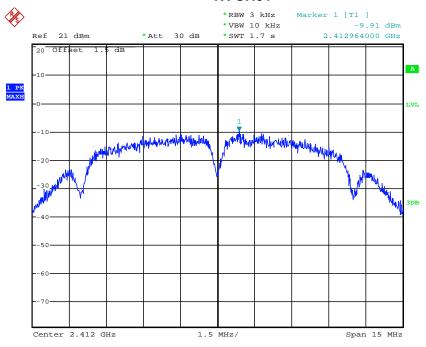
#### 4.1.5 TEST RESULTS

EUT:	Smart Home	Model Name :	CT868W-SH
Temperature :	<b>25</b> ℃	Relative Humidity:	56%
Pressure :	1015 hPa	TIEST VOHADE .	DC 12V from adapter AC 120V/60Hz
TX b Mode /CH01, CH06, CH11			

Note: The relevant measured result has the offset with cable loss already.

Frequency	Power Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412 MHz	-9.91	8	PASS
2437 MHz	-9.76	8	PASS
2462 MHz	-10.18	8	PASS

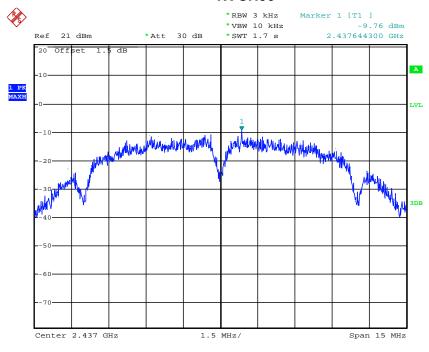
#### **TX CH01**



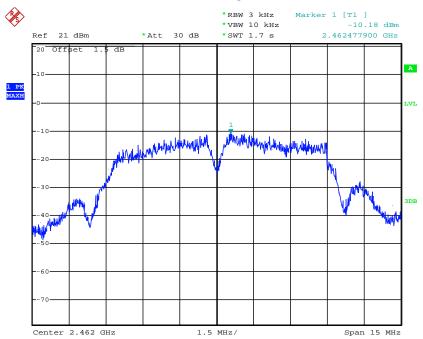


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#### TX CH06



### **TX CH11**





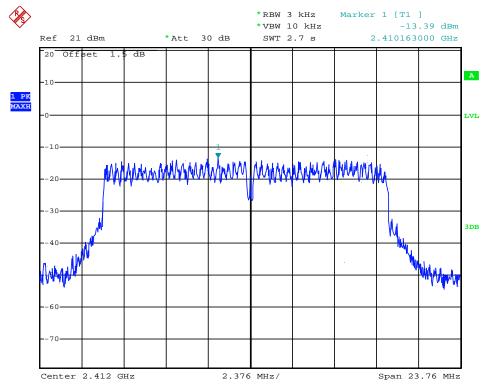
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EUT:	Smart Home	Model Name :	CT868W-SH
Temperature:	<b>25</b> ℃	Relative Humidity:	56%
Pressure :	1015 hPa	riesi vollage .	DC 12V from adapter AC 120V/60Hz
Test Mode :	TX g Mode /CH01, CH06, CH11		

Note: The relevant measured result has the offset with cable loss already.

Frequency	Power Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412 MHz	-13.39	8	PASS
2437 MHz	-12.35	8	PASS
2462 MHz	-13.42	8	PASS

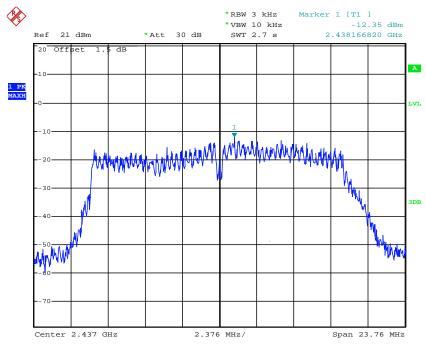
### **TX CH01**



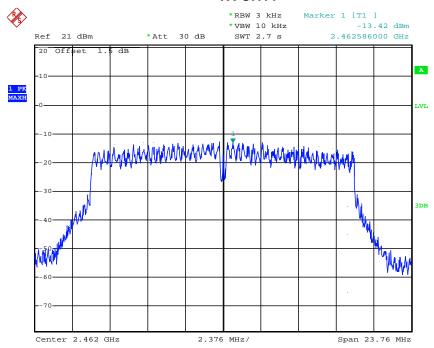


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#### TX CH06



#### TX CH11





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#### 5. BANDWIDTH TEST

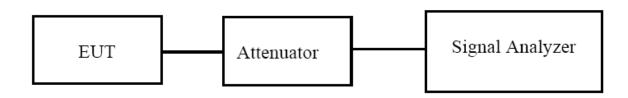
#### 5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C					
Section Test Item Limit Frequency Range (MHz) Resu					
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS	

#### **5.1.1 TEST PROCEDURE**

According to KDB 558074 D01 DTS Meas Guidance v03r03

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator
- 2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- 3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
- 4. Repeat above procedures until all frequencies measured were complete.



#### **5.1.2 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

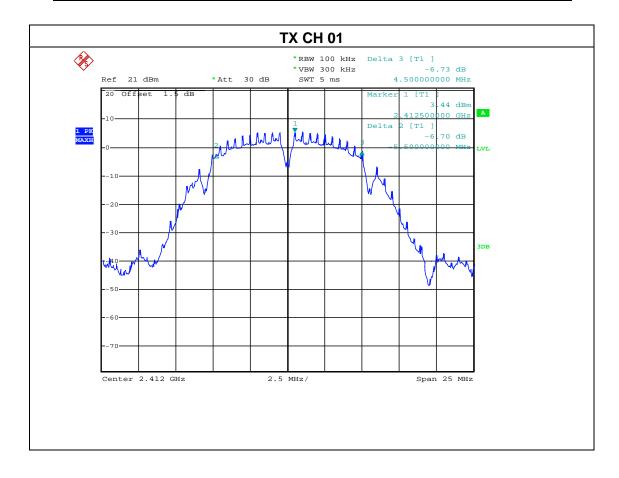


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#### **5.1.3 TEST RESULTS**

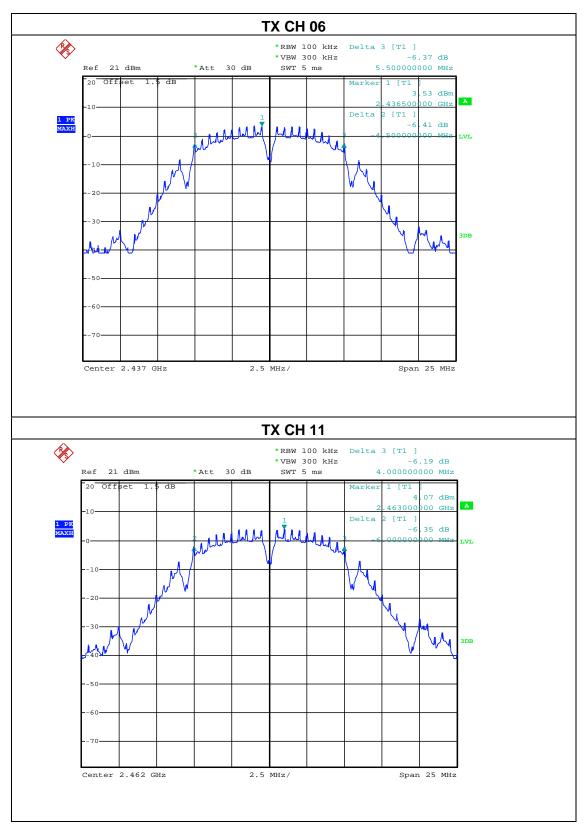
EUT:	Smart Home	Model Name :	CT868W-SH
Temperature :	<b>25</b> ℃	Relative Humidity:	56%
Pressure :	1012 hPa	TIEST VOHADE .	DC 12V from adapter AC 120V/60Hz
Test Mode :	TX b Mode /CH01, CH06, CH1	1	

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	10.000	500	Pass
Middle	2437	10.000	500	Pass
High	2462	10.000	500	Pass





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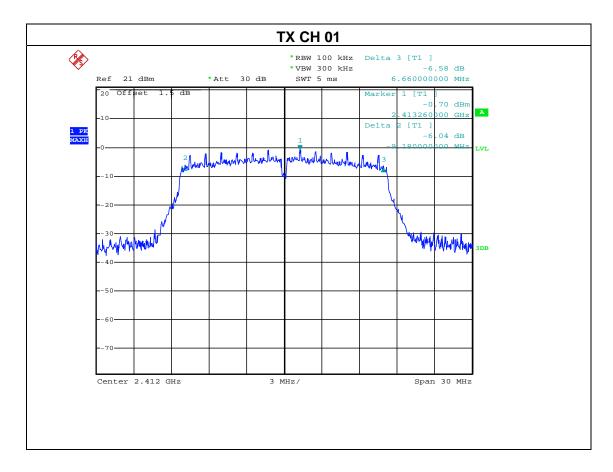




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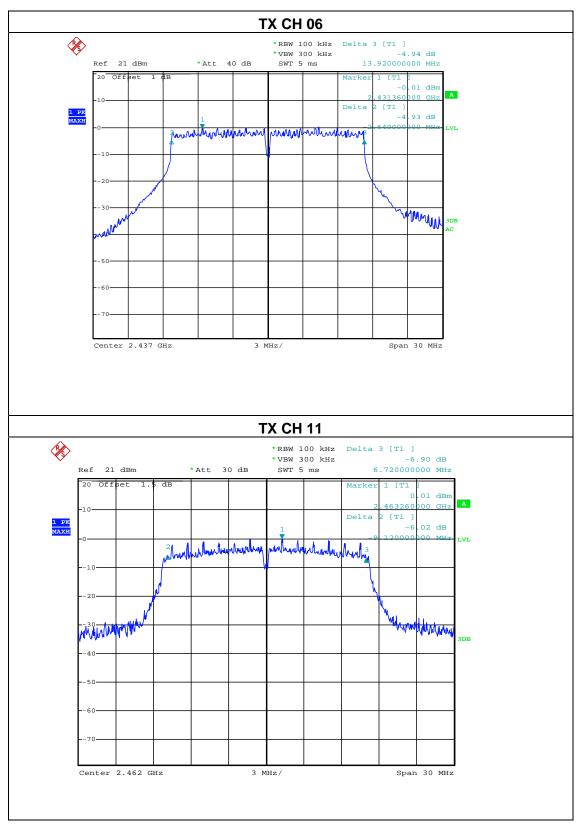
EUT:	Smart Home	Model Name :	CT868W-SH
Temperature :	<b>25</b> ℃	Relative Humidity:	60%
Pressure :	1012 hPa	Test Voltage :	DC 12V from adapter AC 120V/60Hz
Test Mode :	TX g Mode /CH01, CH06, CH1	1	

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	15.840	500	Pass
Middle	2437	16.560	500	Pass
High	2462	15.840	500	Pass





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#### 6. PEAK OUTPUT POWER TEST

#### **6.1 APPLIED PROCEDURES / LIMIT**

FCC Part15 (15.247) , Subpart C				
Section Test Item Limit Frequency Range (MHz)				Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

#### **6.1.1 TEST PROCEDURE**

a. The EUT was directly connected to the Power meter

#### 6.1.2 DEVIATION FROM STANDARD

No deviation.

#### 6.1.3 TEST SETUP

EUT		POWER	METER
-----	--	-------	-------

#### **6.1.4 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



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#### 6.1.5 TEST RESULTS

EUT:	Smart Home(WiFi camera)	Model Name :	CT868W-SH
Temperature :	<b>25</b> ℃	Relative Humidity:	60%
Pressure :	1012 hPa	Hest voltage .	DC 12V from adapter AC 120V/60Hz
Test Mode :	TX b/g Mode		

Test Channe	Frequency	Maximum Conducted Output Power(PK)	Maximum Conducted Output Power(AV)	LIMIT
	(MHz)	(dBm)	(dBm)	(dBm)
802.11b				
CH01	2412	13.37	9.46	30
CH06	2437	13.22	9.37	30
CH11	2462	13.18	13.18 9.25	
		802	.11g	
CH01	2412	12.25	8.79	30
CH06	2437	12.06	8.53	30
CH11	2462	12.24	8.77	30

Note: the highest AVG powers for:

802.11b: 1Mbps 802.11g: 6Mbps



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# 7. 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE APPLICABLE STANDARD

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

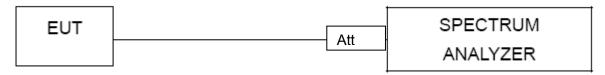
#### **TEST PROCEDURE**

- a) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b) Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- c) Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
- d) Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- e) Repeat above procedures until all measured frequencies were complete.

#### 7.1 DEVIATION FROM STANDARD

No deviation.

#### 7.2 TEST SETUP



#### 7.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



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#### 7.4 TEST RESULTS

EUT:	Smart Home(WiFi camera)	Model Name :	CT868W-SH
Temperature :	<b>25</b> ℃	Relative Humidity:	56%
Pressure :	1012 hPa	Hest vollage .	DC 12V from adapter AC 120V/60Hz

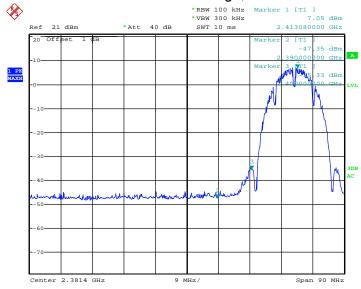
Frequency Band	Delta Peak to band emission (dBc)	>Limit (dBc)	Result		
	802.11b				
Left-band	54.40	20	Pass		
Right-band	nt-band 55.84		Pass		
	802.11g				
Left-band	d 52.69		Pass		
Right-band	47.93	20	Pass		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect	Commont
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	or Type	Comment
	802.11b						
2390	45.37	9.86	55.23	74	-18.77	Pk	Vertical
2390	40.41	9.86	50.27	54	-3.73	Av	Vertical
2483.5	44.28	10.14	54.42	74	-19.58	Pk	Vertical
2483.5	39.32	10.14	49.46	54	-4.54	Av	Vertical
			802.11g				
2390	43.18	9.86	53.04	74	-20.96	Pk	Vertical
2390	37.25	9.86	47.11	54	-6.89	Av	Vertical
2483.5	41.82	10.14	51.96	74	-22.04	Pk	Vertical
2483.5	33.26	10.14	43.4	54	-10.6	Av	Vertical

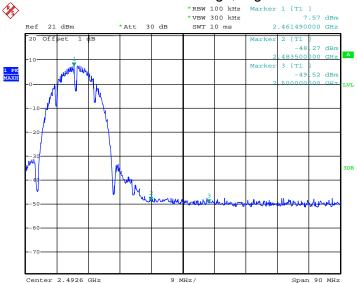


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#### 802.11b: Band Edge, Left Side



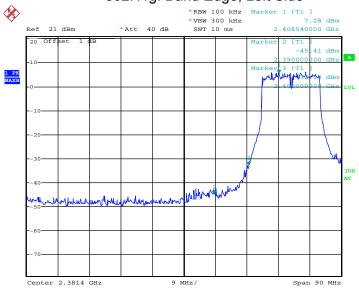
#### 802.11b: Band Edge, Right Side



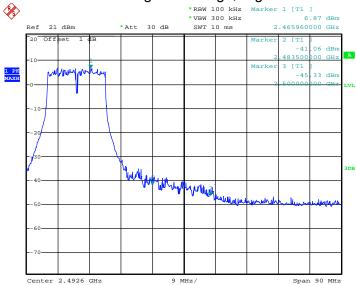


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#### 802.11g: Band Edge, Left Side



#### 802.11g: Band Edge, Right Side





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#### 8. ANTENNA REQUIREMENT

#### 8.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 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.

#### **8.2 EUT ANTENNA**

The EUT antenna is dipole antenna with ipex connector. It comply with the standard requirement.



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#### 9. EUT TEST PHOTO

#### **Radiated Measurement Photos**







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#### **Conducted Measurement Photos**

