

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

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# **TEST REPORT**

Application No.:	SHEM2107007938CR
FCC ID:	2APV2-CSC8PF6E
IC:	23928-CSC8PF6E
Applicant:	Hangzhou Ezviz Software Co., Ltd.
Address of Applicant:	Room 302, Unit B, Building 2,399 Danfeng Road, Binjiang District, Hangzhou, Zhejiang
Manufacturer:	Hangzhou Ezviz Software Co., Ltd.
Address of Manufacturer:	Room 302, Unit B, Building 2,399 Danfeng Road, Binjiang District, Hangzhou, Zhejiang
Equipment Under Test (EU	T):
EUT Name:	Smart Home Camera
Model No.:	CS-C8PF, CS-C8PF (2MP,W1), CS-C8PF-A0-6E22WFR¤
For IC Model No.:	CS-C8PF
¤	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade mark:	EZVIZ
Standard(s) :	47 CFR Part 15, Subpart C 15.247
	RSS-247 Issue 2, February 2017
	RSS-Gen Issue 5 Amendment 2 (February 2021)
Date of Receipt:	2021-07-21
Date of Test:	2021-07-21 to 2021-09-24
Date of Issue:	2021-09-24
Test Result:	Pass*

\* In the configuration tested, the EUT complied with the standards specified above.

parlan share

Parlam Zhan Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



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Revision Record						
Version Description Date Remark						
00	Original	2021-09-24	/			

Authorized for issue by:		
	pichal Nil	
	Micheal Niu / Project Engineer	
	parlam zhan	
	Parlam Zhan / Reviewer	



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# 2 Test Summary

Radio Spectrum Technical Requirement					
ltem	FCC Requirement	IC Requirement	Method	Result	
Antenna Requirement	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	RSS-Gen Clause 6.8	N/A	Customer Declaration	
N/A: Not applicable					
Radio Spectrum Matt	er Part				
ltem	FCC Requirement	IC Requirement	Method	Result	
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.207	RSS-Gen Clause 8.8	ANSI C63.10 (2013) Section 6	.2 Pass	
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247a(2)	RSS-247 Clause 5.2(a)	ANSI C63.10 (2013) Section 11.8.1	Pass	
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247(b)(3)	RSS-247 Clause 5.4(d)	ANSI C63.10 (2013) Section 11.9.1	Pass	
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247(e)	RSS-247 Clause 5.2(b)	ANSI C63.10 (2013) Section 11.10.2	Pass	
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247(d)	RSS-247 Clause 5.5	ANSI C63.10 (2013) Section 11.13.3.2	Pass	
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247(d)	RSS-247 Clause 5.5	ANSI C63.10 (2013) Section 11.11	Pass	
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Section 3.3 & RSS- Gen Section 8.9	ANSI C63.10 (2013) Section 6.10.5	Pass	
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Section 3.3 & RSS- Gen Section 8.9	ANSI C63.10 (2013) Section 6.4,6.5,6.6	Pass	
99% Bandwidth	-	RSS-Gen Section 6.6	ANSI C63.10 Section 6.9.3	Pass	

#### **Declaration of EUT Family Grouping:**

There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model CS-C8PF was tested since their differences were the model number, trade name, Color and appearance.



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#### **General Information** 4

#### 4.1 Details of E.U.T.

Power supply:	DC 12V by Adapter
Test voltage:	AC 120V/60Hz
Serial Number:	G20507980
Firmware Version:	6E22WFR
Antenna Gain:	Ant 1: 3.4dBi (Provided by the manufacturer)
	Ant 2: 3.3dBi (Provided by the manufacturer)
	Directional gain:6.36dBi
Antenna Type:	Antenna 1: PCB Antenna
	Antenna 2: PCB Antenna
Channel Spacing:	5MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK)
	802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz

# 4.2 Power level setting using in test

Channel	802	.11b	802.11g		802.11n(HT20)	
Channel	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2
1	21	22	22	23	20	21
6	21	22	22	23	20	21
11	21	22	22	23	20	21

# 4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	ΗΟΝΟΤΟ	ADS-12AM-12 12 12012EPCU	/
Note Book	LENOVO	ThinkPad E550	N/A
Note Book	LENOVO	Y510P	SZSMT55INP141501639



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# 4.4 Measurement Uncertainty

ltem	Measurement Uncertainty
Radio Frequency	8.4 x 10 <sup>-8</sup>
Timeout	2s
Duty Cycle	0.37%
Occupied Bandwidth	3%
RF Conducted Power	0.6dB
RF Power Density	2.9dB
Conducted Spurious Emissions	0.75dB
DE Dedicted Dewer	5.2dB (Below 1GHz)
RF Radiated Power	5.9dB (Above 1GHz)
	4.2dB (Below 30MHz)
Radiated Spurious Emission Test	4.5dB (30MHz-1GHz)
	5.1dB (1GHz-18GHz)
	5.4dB (Above 18GHz)
Temperature Test	1°C
Humidity Test	3%
Supply Voltages	1.5%
Time	3%
	Radio Frequency         Timeout         Duty Cycle         Occupied Bandwidth         RF Conducted Power         RF Power Density         Conducted Spurious Emissions         RF Radiated Power         RF Radiated Power         Temperature Test         Humidity Test         Supply Voltages

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



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# 4.5 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China. Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

## 4.6 Test Facility

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

## • CNAS (No. CNAS L4354)

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• A2LA (Certificate No. 2541.01)

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

## • FCC (Designation Number: CN1172)

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

### • ISED (CAB identifier: CN0072)

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 2324E

#### • VCCI (Member No.: 1938)

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600,C-11707, T-11499, G-10216 respectively.

# 4.7 Deviation from Standards

# 4.8 Abnormalities from Standard Conditions

None



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# 5 Equipment List

Item	Equipment	Manufacturer	Model	Serial Number	Cal Date	Cal. Due Date
Con	ducted Emission at Mains Terminals (150	kHz-30MHz)		•		
1	EMI Test Receive	R&S	ESCI	100781	02/01/2021	01/31/2022
2	LISN	R&S	ENV216	101604	10/19/2020	10/18/2021
3	LISN	Schwarzbeck	NNLK 8129	8129-143	10/19/2020	10/18/2021
4	Pulse Limiter	R&S	ESH3-Z2	100609	02/01/2021	01/31/2022
5	CE test Cable	Thermax	/	14	10/17/2020	10/16/2021
6	Test Software	Farad	EZ-EMC	CCS-03A1	N.C.R	N.C.R
RF (	Conducted Test					
1	Spectrum Analyzer	Agilent	E4446A	MY44020154	04/16/2021	04/15/2022
2	Spectrum Analyzer	Keysight	N9020A	MY55370209	12/02/2020	12/01/2021
3	Spectrum Analyzer	Keysight	N9010A	MY56480443	02/01/2021	01/31/2022
4	Signal Generator	Agilent	N5182A	MY50142015	09/25/2020	09/24/2021
5	Radio Communication Test Station	Anritsu	MT8000A	6262012849	N/A	N/A
6	Radio Communication Analyzer	Anritsu	MT8821C	6201692222	N/A	N/A
7	Universal Radio Communication Tester	R&S	CMW500	159275	10/19/2020	10/18/2021
8	Universal Radio Communication Tester	R&S	CMW500	167239	04/16/2021	04/15/2022
9	Power Meter	Anritsu	ML2495A	1445010	04/15/2021	04/14/2022
10	Switcher	CCSRF	FY562	KUS2001M001 -3	10/19/2020	10/18/2021
11	AC Power Source	EXTECH	6605	1570106	N.C.R	N.C.R
12	DC Power Supply	Aglient	E3632A	MY50340053	N.C.R	N.C.R
13	6dB Attenuator	Mini-Circuits	NAT-6-2W	15542-1	N.C.R	N.C.R
14	Power Divider	AISI	IOWOPE2068	PE2068	N.C.R	N.C.R
15	Filter	MICRO-TRONICS	BRM50701	5	N.C.R	N.C.R
16	Conducted test cable	/	RF01-RF04	/	04/15/2021	04/14/2022
17	Software	BST	TST-PASS	N/A	N/A	N/A
18	Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	04/15/2021	04/14/2022
19	Thermometer	Anymetre	TH603	CCS007	10/16/2020	10/15/2021
RF R	adiated Test			r		
1	Spectrum Analyzer	R&S	FSV40	101493	10/19/2020	10/18/2021
2	Signal Generator	Agilent	E8257C	MY43321570	10/19/2020	10/18/2021
3	Loop Antenna	Schwarzbeck	HXYZ9170	9170-108	02/22/2021	02/21/2022
4	Bilog Antenna	TESEQ	CBL 6112D	35403	06/21/2021	06/20/2023
5	Bilog Antenna	SCHWARZBECK	VULB9160	9160-3342	04/13/2021	04/12/2023
6	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	267	10/26/2020	10/25/2022
7	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	00143290	02/22/2021	02/21/2023
8	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	BBHA9170171	02/22/2021	02/21/2022
9	Pre-Amplifier(30MHz~18GHz)	LNA	/	/	04/15/2021	04/14/2022
10	Amplifier(18~40GHz)	COM-POWER	PAM-840A	461332	10/23/2020	10/22/2021
11	Low Pass Filter	MICRO-TRONICS	VLFX-950	RV142900829	N.C.R	N.C.R
12	High Pass Filter	Mini-Circuits	VHF-1200	15542	N.C.R	N.C.R
13	Filter (5450MHz~5770 MHz)	MICRO-TRONICS	BRC50704-01	2	N.C.R	N.C.R
14	Filter (5690 MHz $\sim$ 5930 MHz $)$	MICRO-TRONICS	BRC50705-01	4	N.C.R	N.C.R
15	Filter (5150 MHz $\sim$ 5350 MHz $)$	MICRO-TRONICS	BRC50703-01	2	N.C.R	N.C.R



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16	Filter (885 MHz~915 MHz)	MICRO-TRONICS	BRM14698	1	N.C.R	N.C.R
17	Filter (815 MHz~860 MHz)	MICRO-TRONICS	BRM14697	1	N.C.R	N.C.R
18	Filter (1745 MHz $\sim$ 1910 MHz)	MICRO-TRONICS	BRM14700	1	N.C.R	N.C.R
19	Filter (1922 MHz $\sim$ 1977 MHz)	MICRO-TRONICS	BRM50715	1	N.C.R	N.C.R
20	Filter (2550 MHz)	MICRO-TRONICS	HPM13362	5	N.C.R	N.C.R
21	Filter (1532 MHz $\sim$ 1845 MHz)	MICRO-TRONICS	BRM50713	1	N.C.R	N.C.R
22	Filter (2.4GHz)	MICRO-TRONICS	BRM50701	5	N.C.R	N.C.R
23	RE test cable	/	RE01-RE04	/	04/15/2021	04/14/2022
24	Software	Faratronic	EZ_EMC-v 3A1	N/A	N/A	N/A



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# 6 Radio Spectrum Technical Requirement

# 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

#### 6.1.2 Conclusion

Standard 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.

#### 15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6dBi.

#### EUT Antenna:

The antenna 1 and antenna 2 is PCB Antenna, and no consideration of replacement. The best case gain of the antenna 1 is 3.4dBi and antenna 2 is 3.3dBi.

Antenna location: Refer to Appendix (Internal Photos)



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# 7 Radio Spectrum Matter Test Results

# 7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement	47 CFR Part 15, Subpart C 15.207
Test Method:	ANSI C63.10 (2013) Section 6.2
Limit:	

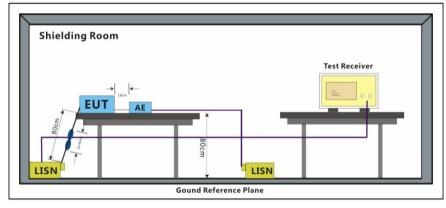
	Conducted limit(dBµV)		
Frequency of emission(MHz)	Quasi-peak	Average	
0.15-0.5	66 to 56*	56 to 46*	
0.5-5	56	46	
5-30	60	50	
*Decreases with the logarithm of the	e frequency.		

#### 7.1.1 E.U.T. Operation

**Operating Environment:** 

Temperature:24 °CHumidity:48 % RHAtmospheric Pressure:1010 mbarTest modea:TX mode\_Keep the EUT in continuously transmitting mode with all modulation<br/>types. All data rates for each modulation type have been tested and found the<br/>data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the<br/>worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE<br/>802.11n(HT20);.Only the data of worst case is recorded in the report.

#### 7.1.2 Test Setup Diagram





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#### 7.1.3 Measurement Procedure and Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50 $\mu$ H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) 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 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor



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Mode:a; Line:Live Line 80.0 dBuV QP: AVG: 8 5 X ŝ 40 Muchannerten Malar WMM YANA MA peak Жи AVG 0.0 0.150 0.5 (MHz) 5 30.000

No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1629	25.02	12.09	19.46	44.48	31.55	65.31	55.31	-20.83	-23.76	Pass
2	0.1751	25.11	12.62	19.46	44.57	32.08	64.71	54.71	-20.14	-22.63	Pass
3	0.2059	21.69	9.76	19.46	41.15	29.22	63.37	53.37	-22.22	-24.15	Pass
4*	0.4818	19.25	10.57	19.52	38.77	30.09	56.31	46.31	-17.54	-16.22	Pass
5	3.6745	12.83	5.52	19.68	32.51	25.20	56.00	46.00	-23.49	-20.80	Pass
6	5.5152	7.76	0.95	19.78	27.54	20.73	60.00	50.00	-32.46	-29.27	Pass



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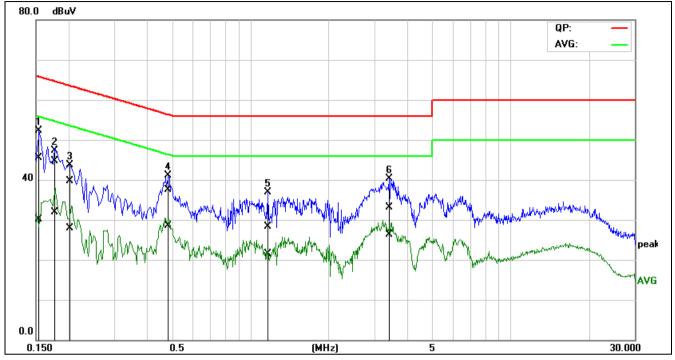
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Mode:a; Line:Neutral Line



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1545	26.08	10.64	19.42	45.50	30.06	65.75	55.75	-20.25	-25.69	Pass
2	0.1748	25.22	12.52	19.42	44.64	31.94	64.72	54.73	-20.08	-22.79	Pass
3	0.2011	20.30	8.50	19.43	39.73	27.93	63.56	53.57	-23.83	-25.64	Pass
4*	0.4839	18.01	8.96	19.51	37.52	28.47	56.27	46.27	-18.75	-17.80	Pass
5	1.1557	8.82	1.99	19.54	28.36	21.53	56.00	46.00	-27.64	-24.47	Pass
6	3.4323	13.54	6.58	19.65	33.19	26.23	56.00	46.00	-22.81	-19.77	Pass



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# 7.2 Minimum 6dB Bandwidth

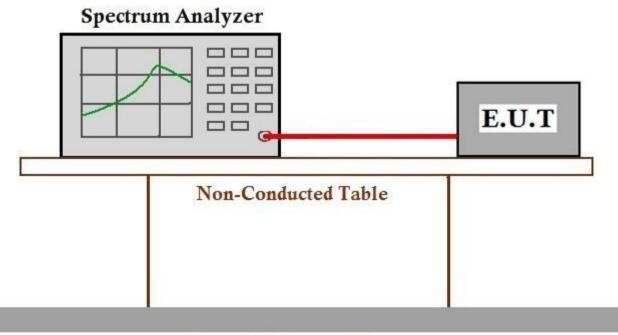
Test Requirement	47 CFR Part 15, Subpart C 15.247a(2)
Test Method:	ANSI C63.10 (2013) Section 11.8.1
Limit:	≥500 kHz

#### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature:24 °CHumidity:50 % RHAtmospheric Pressure:1010 mbarTest modea:TX mode\_Keep the EUT in continuously transmitting mode with all modulation<br/>types. All data rates for each modulation type have been tested and found the<br/>data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the<br/>worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE<br/>802.11n(HT20);.Only the data of worst case is recorded in the report.

#### 7.2.2 Test Setup Diagram



# **Ground Reference Plane**

#### 7.2.3 Measurement Procedure and Data

The detailed test data see: Appendix A for SHEM210700793801



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## 7.3 Conducted Peak Output Power

Test Requirement	47 CFR Part 15, Subpart C 15.247(b)(3)
Test Method:	ANSI C63.10 (2013) Section 11.9.1
Limit:	

Frequency	range(MHz)	Output power of the intentional radiator(watt)		
		1 for ≥50 hopping channels		
902	2-928	0.25 for 25≤ hopping channels <50		
		1 for digital modulation		
		1 for ≥75 non-overlapping hopping channels		
2400-	-2483.5	0.125 for all other frequency hopping systems		
		1 for digital modulation		
5725	5-5850	1 for frequency hopping systems and digital modulation		
	The EUT 802.11n mode supports 2 * 2 MIMO transmission. The Gain of each antenna is Ant1: 3.40dBi; Ant2: 3.30dBi, and the directional antenna gain is 6.36dBi. Therefore, the power limit should be reduced from the part exceeding 6, 2400-2483.5: 29.64dBm			



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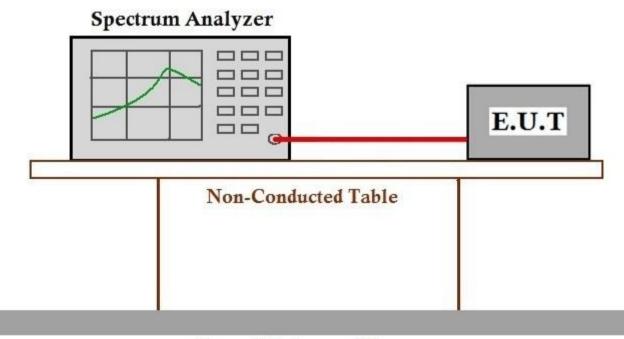


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#### 7.3.1 E.U.T. Operation

Operating Enviro	nment:	
Temperature:	24 °C Humidity: 50 % RH Atmospheric Pressure: 1010	mbar
Test mode	a:TX mode_Keep the EUT in continuously transmitting mode with all modulat types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20);.Only the data of worst case is recorded in the report.	e

#### 7.3.2 Test Setup Diagram



# **Ground Reference Plane**

#### 7.3.3 Measurement Procedure and Data

The detailed test data see: Appendix A for SHEM210700793801



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# 7.4 Power Spectrum Density

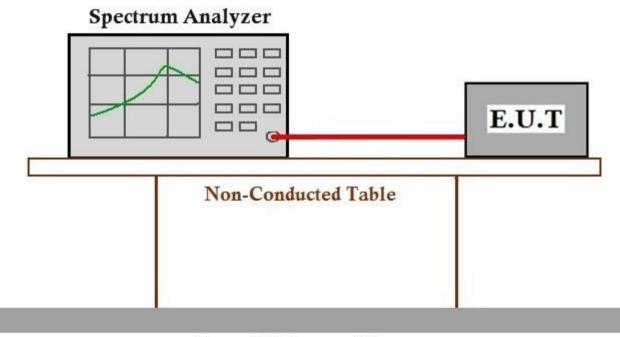
Test Requirement Test Method:	47 CFR Part 15, Subpart C 15.247(e) ANSI C63.10 (2013) Section 11.10.2
Limit:	≤8dBm in any 3 kHz band during any time interval of continuous transmission
Remark:	The EUT 802.11n mode supports 2 * 2 MIMO transmission. The Gain of each antenna is Ant1: 3.40dBi; Ant2: 3.30dBi, and the directional antenna gain is 6.36dBi. Therefore, the power limit should be reduced from the part exceeding 6, 2400-2483.5: 7.64dBm/3kHz

#### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature:24 °CHumidity:50 % RHAtmospheric Pressure:1010 mbarTest modea:TX mode\_Keep the EUT in continuously transmitting mode with all modulation<br/>types. All data rates for each modulation type have been tested and found the<br/>data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the<br/>worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE<br/>802.11n(HT20);.Only the data of worst case is recorded in the report.

#### 7.4.2 Test Setup Diagram



# Ground Reference Plane

#### 7.4.3 Measurement Procedure and Data

The detailed test data see: Appendix A for SHEM210700793801



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# 7.5 Conducted Band Edges Measurement

47 CFR Part 15, Subpart C 15.247(d) **Test Requirement** Test Method: ANSI C63.10 (2013) Section 11.13.3.2 Limit: 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)



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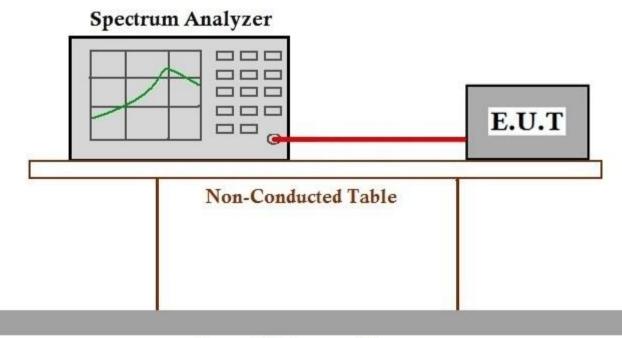


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### 7.5.1 E.U.T. Operation

Operating Enviro	nment:	
Temperature:	24 °C Humidity: 50 % RH Atmospheric Pressure: 1010	mbar
Test mode	a:TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is to worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20);.Only the data of worst case is recorded in the report.	•

#### 7.5.2 Test Setup Diagram



# **Ground Reference Plane**

#### 7.5.3 Measurement Procedure and Data

The detailed test data see: Appendix A for SHEM210700793801



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# 7.6 Conducted Spurious Emissions

Test Requirement	47 CFR Part 15, Subpart C 15.247(d)
Test Method:	ANSI C63.10 (2013) Section 11.11
Limit:	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)



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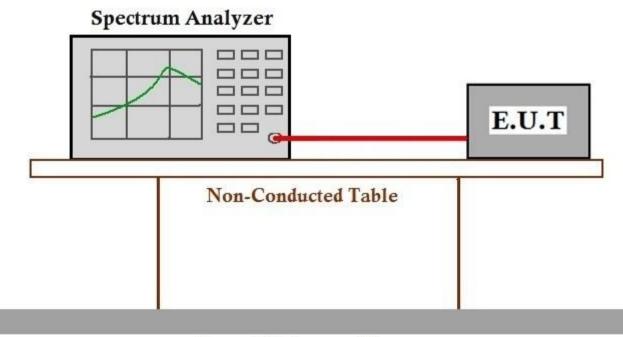


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#### 7.6.1 E.U.T. Operation

Operating Enviro	onment:			
Temperature:	24 °C	Humidity:	50 % RH	Atmospheric Pressure: 1010 mbar
Test mode	types. All data data rate @ 1 worst case of	a rates for each Mbps is the wo IEEE 802.11g	n modulation ty orst case of IE ; data rate @ 6	transmitting mode with all modulation ype have been tested and found the EE 802.11b; data rate @ 6Mbps is the 6.5Mbps is the worst case of IEEE se is recorded in the report.

#### 7.6.2 Test Setup Diagram



# **Ground Reference Plane**

#### 7.6.3 Measurement Procedure and Data

The detailed test data see: Appendix A for SHEM210700793801



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# 7.7 Radiated Emissions which fall in the restricted bands

 Test Requirement
 47 CFR Part 15, Subpart C 15.209 & 15.247(d)

 Test Method:
 ANSI C63.10 (2013) Section 6.10.5

 Limit:
 Ansi C63.10 (2013) Section 6.10.5

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.



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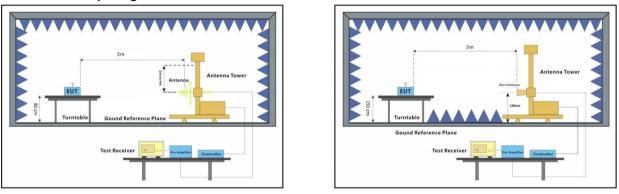


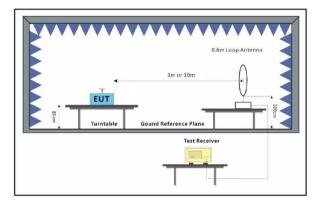
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## 7.7.1 E.U.T. Operation

Operating Enviro	onment:				
Temperature:	24 °C ł	Humidity: 50	% RH	Atmospheric Pressure:	1010 mbar
Test mode	types. All data ra data rate @ 1Mb worst case of IEE	ites for each mo ops is the worst EE 802.11g; da	odulation ty case of IEE ta rate @ 6	transmitting mode with all up have been tested and for E 802.11b; data rate @ 60.5Mbps is the worst case of a s recorded in the report.	ound the Mbps is the of IEEE

#### 7.7.2 Test Setup Diagram







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#### 7.7.3 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. 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 the measurement.

e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. 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.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

Remark 3: This test item was investigated while operating in SISO and MIMO mode, however, it was determined that SISO antenna 1 operation for b/g modulation and MIMO antenna operation for n modulation produced the worst emissions. So the emissions produced from other operation are not recorded in report.



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3	2494.700	62.00	-13.67	48.33	74.00	-25.67	peak				
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Mode:a; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:High



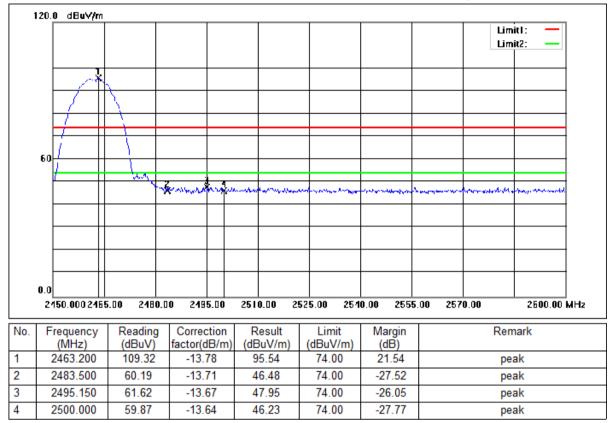
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 SHEM210700793801

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	1	2389.380	71.72		-14.			7.71		74.00		-16	.29				pe	ak	
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	1	2413.460	117.57	'	-13.	94	1	03.63		74.00		29	.63				pe	ak	

Mode:a; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:Low



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}	1	2410.660	108.26		-13.94	4	9	4.32		54.0	)	40	).32	T			AV	'G		

Mode:a; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:Low



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Mode:a; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:Low



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Mode:a; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:Low

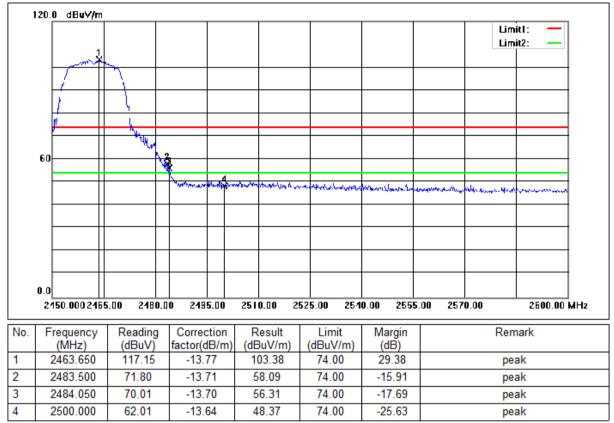


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1	2462.900	107.12	-13.78	93.34	54.00	39.34		AVG
2	2483.500	54.62	-13.71	40.91	54.00	-13.09		AVG
3	2484.500	53.63	-13.70	39.93	54.00	-14.07		AVG
4	2500.000	51.52	-13.64	37.88	54.00	-16.12		AVG

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No.	F	requency	Reading				esult		imit	Margin		R	emark	
1		(MHz) 2463.800	(dBuV) 113.01	factor(d			BuV/m) 9.24		uV/m) 1.00	(dB) 25.24			peak	
2		2483.500	63.98	-13.		_	0.27		1.00	-23.73		peak		
3		2484.500	64.45	-13.1		L	0.75	L	1.00	-23.25		peak		
4		2500.000	60.90	-13.0			7.26		1.00	-26.74	+	peak		

Mode:a; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:High

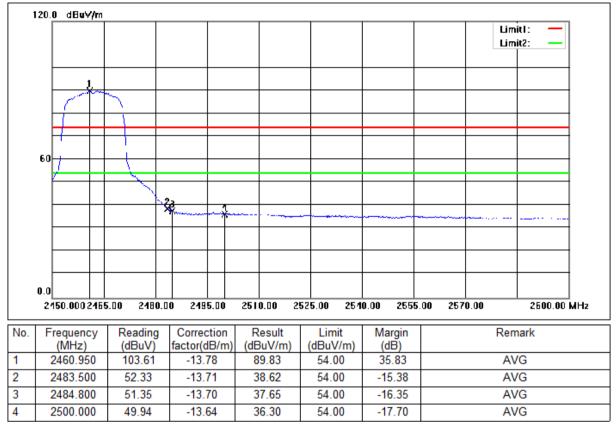


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	2.	310.000232*	1.00 2330		2.00	230	0.00	230	0.00	203	1.00	2100	0.00	212	2.00		2150.001	мпг
0.	F	requency (MHz)	Reading (dBuV)	Corre factor(			esult BuV/m)	(	Limit dBuV/			irgin IB)				Rem	lark	
		2389.240	73.68	-14.	01		9.67		74.00			4.33			peak			
	1	2390.000	75.15	-14.	01	6	1.14		74.00	)	-12	2.86		peak				
	1	2410.940	117.02	-13.	94	1	03.08		74.00	)	29	80.(				pea	ak	

Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low



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No.	F	requency (MHz)	Reading (dBuV)	) Corre factor(			lesult BuV/m)	6	Limit dBuV/		Mar (dł	rgin 3)		Ren	nark	
1		2389.240	57.86	-14			3.85	Ľ	54.00		-10	-		A۱	/G	
2	:	2390.000	58.55	-14	.01	4	4.54		54.00	)	-9.	46		AVG		
3		2411.360	107.77	-13	.94	9	3.83		54.00	)	39.	.83		A۱	/G	

Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low



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D.	23 Fi	requency (MHz)	Reading (dBuV)	g (	Correc actor(d	tion B/m) )1	R (dE 5	esult 8uV/m)	Τ	Limit dBuV/	: 'm) )	Ma (c	argin IB)	8.00	212	2.00	pe	nark	50.00	MHz

Mode:a; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low



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D.	Fr	equency (MHz)	Reading (dBuV)		Correc factor(d			lesult BuV/m)		Lin (dBu\		Ma (d	rgin B)			Rer	mark	
	2	389.100	53.91		-14.0			9.90		54.0	00	-14	1.10			A	VG	
	2	390.000	54.41		-14.(	)1	4	0.40		54.0	00	-13	8.60			A	VG	
	2	414.720	106.58		-13.9	93	9	2.65		54.0	00	38	.65			A	VG	

Mode:a; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low

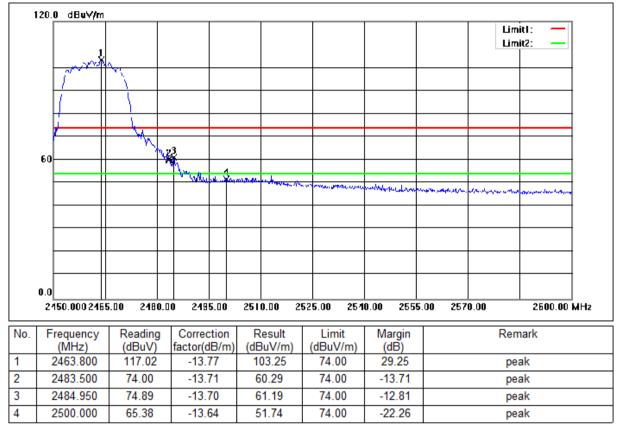


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Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High



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120.0 dBuY/m										
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	L	50.000 2465	5.00 2480.	00 2495.00	2510.00 2	525.00 254	0.00 2555	.00 2570.00	2500.00 MHz	
No.		equency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)		Remark	
1		461.400	107.39	-13.78	93.61	54.00	39.61		AVG	
2	2	483.500	57.45	-13.71	43.74	54.00	-10.26		AVG	
3	2	484.500	55.97	-13.70	42.27	54.00	-11.73	AVG		
4	2	500.000	53.46	-13.64	39.82	54.00	-14.18	AVG		

Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High

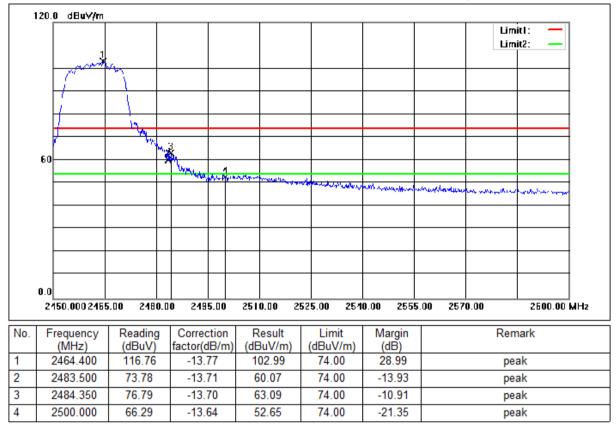


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Mode:a; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High



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	60		<u> </u>			* ****	******	
	0.0	i5.00 2180.	0 2195.00	2510.00 2	525.00 251	0.00 2555.	00 2570.00	2500.00 MHz
lo.	Frequency	Reading	Correction	Result	Limit	Margin	Rei	mark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
	2464.400	106.89	-13.77	93.12	54.00	39.12		VG
	2483.500	56.61	-13.71	42.90	54.00	-11.10		VG
	2484.350	56.51	-13.70	42.81	54.00	-11.19	A	VG
L	2500.000	54.79	-13.64	41.15	54.00	-12.85	A	VG

Mode:a; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High



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# 7.8 Radiated Spurious Emissions

 Test Requirement
 47 CFR Part 15, Subpart C 15.209 & 15.247(d)

 Test Method:
 ANSI C63.10 (2013) Section 6.4,6.5,6.6

 Limit:
 Ansi C63.10 (2013) Section 6.4,6.5,6.6

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.



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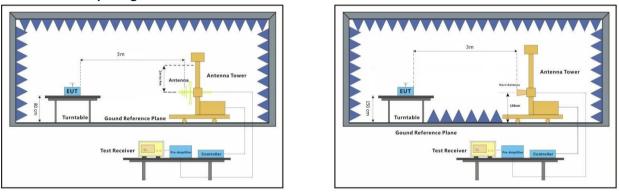


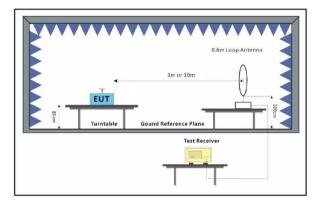
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# 7.8.1 E.U.T. Operation

Operating Environment:								
Temperature:	24 °C	Humidity:	50 % RH	Atmospheric Pressure: 1010 mbar				
Test mode	types. All dat data rate @ worst case o	a rates for each 1Mbps is the wo f IEEE 802.11g	h modulation orst case of IE ;; data rate @	y transmitting mode with all modulation type have been tested and found the EEE 802.11b; data rate @ 6Mbps is the 6.5Mbps is the worst case of IEEE ase is recorded in the report.				

## 7.8.2 Test Setup Diagram







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#### 7.8.3 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. 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 the measurement.

e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. 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.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark:

1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

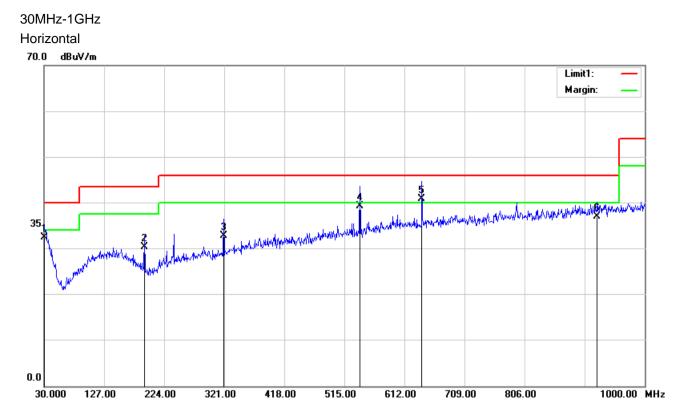
4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

5): This test item was investigated while operating in SISO and MIMO mode, however, it was determined that SISO antenna 1 operation for b/g modulation and MIMO antenna operation for n modulation produced the worst emissions. So the emissions produced from other operation are not recorded in report.



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No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	30.0000	6.48	25.93	32.41	40.00	-7.59	100	42	QP
2	191.9900	13.49	16.87	30.36	43.50	-13.14	100	267	QP
3	320.0300	11.46	21.33	32.79	46.00	-13.21	100	262	QP
4	540.2200	13.54	25.71	39.25	46.00	-6.75	149	360	QP
5	640.1300	13.83	26.99	40.82	46.00	-5.18	114	358	QP
6	923.3700	7.97	28.96	36.93	46.00	-9.07	100	359	QP



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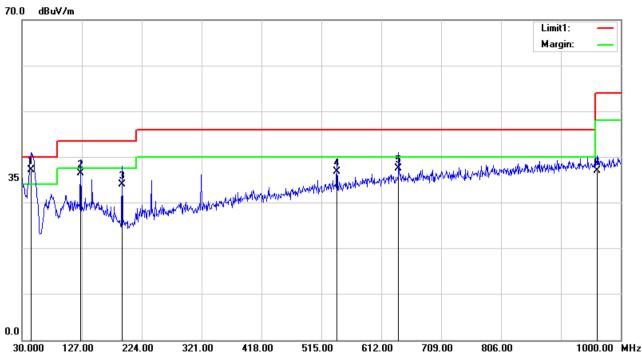
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Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	44.5500	19.42	17.70	37.12	40.00	-2.88	100	127	QP
2	125.0600	17.18	19.33	36.51	43.50	-6.99	100	237	QP
3	191.9900	17.25	16.87	34.12	43.50	-9.38	100	70	QP
4	540.2200	11.11	25.71	36.82	46.00	-9.18	100	207	QP
5	640.1300	10.46	26.99	37.45	46.00	-8.55	100	257	QP
6	962.1700	7.82	29.28	37.10	54.00	-16.90	100	11	QP

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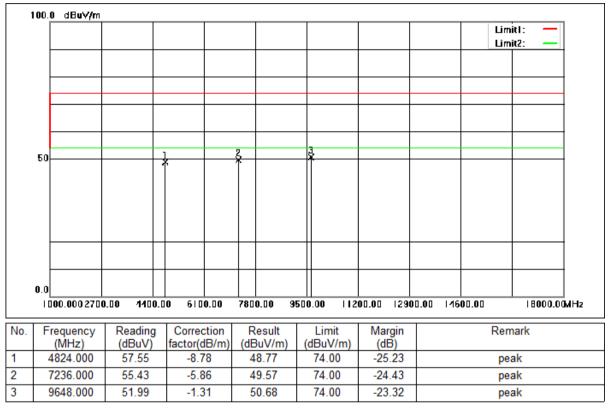
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## Above 1GHz

Mode:a; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:Low





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No.	F	requency (MHz)	Reading (dBuV)	Corre factor	ection (dB/m)		Result BuV/m)	((	Limit dBuV/m)		rgin B)			Ren	nark	
1	4	4824.000	57.13	-8	78	4	8.35		74.00	-25	5.65			pe	ak	
2	1	7236.000	55.58	-5	86	- 4	9.72		74.00	-24	.28			pe	ak	
3	9	9648.000	51.48	-1	.31	5	50.17		74.00	-23	3.83			pe	ak	

Mode:a; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:Low



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0.	F	requency (MHz)	Reading (dBuV)		Correct factor(c			lesult BuV/m)			Limit BuV/m)		Marg (dB)					Ren	nark		
	4	4874.000	56.95	_	-8.6			8.34	+		74.00	+	-25.6					ре	ak		
$\neg$		7311.000	55.05		-5.7	′ <del>8</del>	4	9.27	+		74.00	$\uparrow$	-24.7	'3	1			pe	ak		
	9	9748.000	52.07		-1.4	3	5	0.64	$\top$		74.00	$\top$	-23.3	36	1			pe	ak		

Mode:a; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:middle

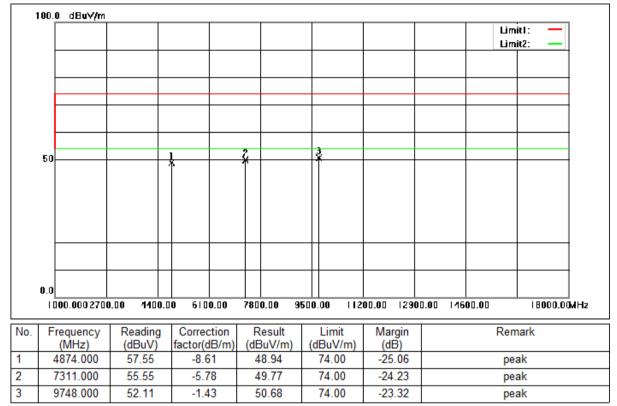


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Mode:a; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:middle



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1		4924.000	57.36		-8.4			8.92	+		74.00		5.08				pea	ak		
2		7386.000	55.13		-5.6	9	4	9.44		7	74.00	-24	4.56				pea	ak		
3		9848.000	51.90		-1.2	7	5	0.63		7	74.00	-23	3.37				pea	ak		

Mode:a; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:High



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2		7386.000	55.22		-5.6			9.53	+		74.00		.47			pea		
3	9	9848.000	51.72		-1.2	7	Ę	50.45		7	74.00	-23	3.55			pea	k	

Mode:a; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:High



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		4824.000		.34	_	8.78		8.56			.00		5.44				pea			
		7236.000	55	.77	-	5.86	4	9.91		74	.00	-24	1.09				pea	ak		
	(	9648.000	52	.05	-	1.31	5	50.74	T	74	.00	-23	3.26				pea	ak		

Mode:a; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:Low



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No.	F	requency (MHz)	Reading (dBuV)		Correct factor(c			Result BuV/m)			Limit BuV/m)		Març (dB	gin 3)				Rer	mar	k		
1		4824.000	57.53		-8.7			8.75			74.00	1	-25.					pe	eak			
2		7236.000	54.98		-5.8	6	4	9.12		7	74.00	1	-24.	88				pe	eak			
3	1	9648.000	51.57		-1.3	1	5	50.26	Τ	7	74.00	╡	-23.	74				pe	eak			

Mode:a; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:Low



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	4	1874.000	57.39	-8.6			8.78	$\top$	74.00			.22			F	beak		
	1	7311.000	55.06	-5.7	8	4	9.28		74.00		-24	.72			F	beak		
	9	9748.000	51.89	-1.4	3	5	0.46		74.00		-23	.54			F	beak		

Mode:a; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:middle



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1		4874.000	56.96		-8.6	i1	4	8.35			74.0	0	-25	5.65				ре	ak		
2		7311.000	54.87		-5.7			9.09			74.0			4.91				ре	ak		
3		9748.000	52.13		-1.4	3	5	0.70			74.0	0	-23	3.30				pe	ak		

Mode:a; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:middle



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lo.	F	requency (MHz)	Readin (dBuV)		Correct factor(c			Result BuV/m)			Limit BuV/m)	Ma (d	rgin B)				Ren	nark		
	4	4924.000	56.77		-8.4			8.33		7	74.00		5.67				pe	ak		
	1	7386.000	55.14		-5.6	i9	4	9.45		7	74.00	-24	1.55				pe	ak		
	9848.000 51.40			-1.27		50.13			7	74.00	-23	3.87				pe	ak			

Mode:a; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:High



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	4	4924.000	56.9		-8.4			8.52			74.00		5.48	+			pe	ak		
2	1	7386.000	55.0	7	-5.6	59	4	9.38		7	74.00	-24	.62				pe			
3	9	9848.000	51.9	8	-1.2	27	5	50.71		7	74.00	-23	.29				pe	ak		

Mode:a; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:High



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NIa			-					_										
No.		requency (MHz)	Reading (dBuV)	Correct factor(c			lesult BuV/m)	(	Limit dBuV/		Maı (di	gin B)			к	lema	ark	
1		4824.000	57.67	-8.7	78	4	8.89		74.00	)	-25	.11				pea	k	
2		7236.000	54.94	-5.8	36	4	9.08		74.00	)	-24	.92				pea	k	
3	1	9648.000	52.10	-1.3	31	5	0.79		74.00	)	-23	.21				pea	k	

Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low



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1		4824.000	56.98		-8.7			8.20	+		.00		5.80				pe			
2		7236.000	54.97		-5.8			9.11	+		.00		4.89				pe			
3		9648.000	51.50		-1.3	1	5	50.19		/4	.00	-2	3.81				pea	ак		

Mode:a; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low



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		4874.000	56.83		-8.6	1	4	8.22			74.00		-25	.78				pe	ak			
		7311.000	55.29		-5.7	8	4	9.51			74.00		-24	.49				pe	eak			
		9748.000	51.66		-1.4	3	5	0.23			74.00		-23	.77				pe	ak			

Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:middle



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2		7311.000	55.14		-5.78		49.36			74.00			1.64		peak						
3	9	9748.000	52.13		-1.43		50.70			1	74.00		-23	.30				pe	ak		

Mode:a; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:middle



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	ī	7386.000	55.08		-5.6	i9	4	9.39		7	74.00	-24	.61				pe	ak	
	9	9848.000	51.70		-1.2	27	5	0.43		7	74.00	-23.57			peak				

Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High



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$ \rightarrow$		4924.000 57.10 -8.44				8.66		74.00	-25.3				beak			
		6.000	55.29		-5.6			9.60		74.00	-24.4				beak	
	984	8.000	51.88		-1.2	7	5	0.61		74.00	-23.3	9		F	beak	

Mode:a; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High



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# 7.9 99% Bandwidth

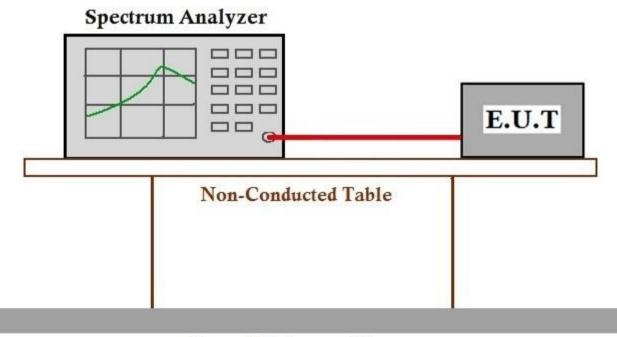
Test Requirement	RSS-Gen Section 6.7
Test Method:	ANSI C63.10 Section 6.9.3

#### 7.9.1 E.U.T. Operation

**Operating Environment:** 

Temperature:24 °CHumidity:50 % RHAtmospheric Pressure:1010 mbarTest modea:TX mode\_Keep the EUT in continuously transmitting mode with all modulation<br/>types. All data rates for each modulation type have been tested and found the<br/>data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the<br/>worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE<br/>802.11n(HT20);.Only the data of worst case is recorded in the report.

#### 7.9.2 Test Setup Diagram



# **Ground Reference Plane**

## 7.9.3 Measurement Procedure and Data

The detailed test data see: Appendix A for SHEM210700793801



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# 8 Test Setup Photographs

Refer to the < Test Setup photos-FCC>.

# 9 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

- End of the Report -



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