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TEST REPORT

Application No.:	SHEM1911018696CR		
FCC ID:	2APV2-C3XYZ		
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, Thejiang		
Equipment Under Test (EU	Г):		
EUT Name:	Internet Bullet Camera		
Model No.:	CS-C3N, CS-C3W, CS-C3Wi, CS-C3WN, CS-C3C, CS-C3HC, CS-C3HN, CS-C3HW, CS-C3HWi \boxtimes		
¤	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		
Date of Receipt:	2019-11-07		
Date of Test:	2019-11-13 to 2019-11-21		
Date of Issue:	2019-12-09		
Test Result:	Pass*		

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

parlan share

Parlam Zhan E&E Section 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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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443,

Co.Ltd NO.588 West Jindu Road, Songjiang District, Shanghai, China 201612 中国・上海・松江区金都西路588号 邮编: 201612 t(86-21) 61915666 f(86-21) 61915678 www.sgsgroup.com.cn t(86-21) 61915666 f(86-21) 61915678 e sgs.china@sgs.com



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Revision Record					
Version Description Date Remark					
00	Original	2019-12-09	/		

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					
Item Standard Method Requirement Result					
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Customer Declaration	

Radio Spectrum Matter Part					
ltem	Standard	Method	Requirement	Result	
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247			Pass	
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass	
Conducted Average Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.2	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass	
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	7 CFR Part 15, ANSI C63.10 (2013) 47 CFR		Pass	
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.13.3.2	ISI C63.10 (2013) 47 CFR Part 15, Subpart C		
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass	
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass	
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass	

Declaration of EUT Family Grouping:

Note: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model CS-C3N was tested since their differences were the model number and appearance.



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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 12V 0.5A by adapter
	Adapter:
	Model:DSA-12PFG-12 FUS
	INPUT: 100~240V~50/60Hz
	OUTPUT:DC12V/1A
Test voltage:	AC 120V/60Hz
Cable:	DC Cable 1.3m
Antenna Gain	Antenna 1: 2.31dBi
	Antenna 2:2.31dBi
	MIMO: 5.32dBi
Antenna Type	Antenna 1: Dipole Antenna
	Antenna 2: Dipole 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
	802.11n(HT40):7
Operation Frequency	802.11b/g/n(HT20): 2412MHz to 2462MHz
	802.11n(HT40): 2422MHz to 2452MHz

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	ThinkPad X100e	/
SecureCRT	VanDyke	V 6.2.0	/
Serial port adapter plate	/	Test Plate 3	/

4.3 Power level setting using in test:

	<u> </u>		
Channel	802.11b	802.11g	802.11n(HT20)
1	37	38	39
6	37	38	39
11	37	38	39
Channel	802.11n(HT40)		
3	39		
6	39		
9	39		



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No.	Item Measurement Uncertainty	
1	Radio Frequency	±8.4 x 10 ⁻⁸
2	Timeout	±2s
3	Duty cycle	±0.37%
4	Occupied Bandwidth	±3%
5	RF conducted power	±0.6dB
6	RF power density	±2.84dB
7	Conducted Spurious emissions	±0.75dB
8	PE Padiated power	±4.6dB (Below 1GHz)
0	RF Radiated power	±4.1dB (Above 1GHz)
		±4.2dB (Below 30MHz)
9	Padiated Spurious omission test	±4.4dB (30MHz-1GHz)
9	Radiated Spurious emission test	±4.8dB (1GHz-18GHz)
		±5.2dB (Above 18GHz)
10	Temperature test	±1°C
11	Humidity test	±3%
12	Supply voltages	±1.5%
13	Time	±3%

4.4 Measurement Uncertainty

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: SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch 588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China Tel: +86 21 6191 5666 Fax: +86 21 6191 5678 No tests were sub-contracted.

4.6 Test Facility

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

CNAS (No. CNAS L0599)

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 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.

• NVLAP (Certificate No. 201034-0)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• FCC – Designation Number: CN5033

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

IC Registration No.: 8617A-1. CAB identifier: CN0020.

• VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.7 Deviation from Standards

4.8 Abnormalities from Standard Conditions

None



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5 Equipment List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Conducted Emission at Ma	ins Terminals (150kHz-30MHz)			
EMI test receiver	R&S	ESR7	SHEM162-1	2018-12-20	2019-12-19
LISN	Schwarzbeck	NSLK8127	SHEM061-1	2018-12-20	2019-12-19
LISN	EMCO	3816/2	SHEM019-1	2018-12-20	2019-12-19
Pulse limiter	R&S	ESH3-Z2	SHEM029-1	2018-12-20	2019-12-19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2017-12-20	2020-12-19
CE test Cable	/	CE01	/	2018-12-26	2019-12-25
RF Conducted Test					
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2018-12-20	2019-12-19
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2019-08-13	2020-08-12
Signal Generator	R&S	SMR20	SHEM006-1	2019-08-13	2020-08-12
Signal Generator	Agilent	N5182A	SHEM182-1	2019-08-13	2020-08-12
Communication Tester	R&S	CMW270	SHEM183-1	2019-08-13	2020-08-12
Switcher	Tonscend	JS0806	SHEM184-1	2019-08-13	2020-08-12
Power Sensor	Keysight	U2021XA * 4	SHEM184-1	2019-08-13	2020-08-12
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2017-09-25	2020-09-24
AC Power Stabilizer	WOCEN	6100	SHEM045-1	2018-12-26	2019-12-25
DC Power Supply	MCN	MCH-303A	SHEM210-1	2018-12-26	2019-12-25
Conducted test Cable	/	RF01~RF04	/	2018-12-26	2019-12-25
RF Radiated Test					
EMI test Receiver	R&S	ESU40	SHEM051-1	2018-12-20	2019-12-19
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2018-12-20	2019-12-19
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2017-04-10	2020-04-09
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2017-02-28	2020-02-27
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM202-1	2019-04-30	2022-04-29
Horn Antenna (1-18GHz)	Schwarzbeck	HF906	SHEM009-1	2017-10-24	2020-10-23
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2017-01-14	2020-01-13
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2017-12-03	2020-12-02
Pre-amplifier (9KHz-2GHz)	CLAVIIO	BDLNA-0001	SHEM164-1	2019-08-13	2020-08-12
Pre-amplifier (1-18GHz)	CLAVIIO	BDLNA-0118	SHEM050-2	2019-08-13	2020-08-12
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2018-12-20	2019-12-19
Signal Generator	R&S	SMR40	SHEM058-1	2019-08-13	2020-08-12
Band Filter	LORCH	9BRX-875/X150	SHEM156-1	/	/
Band Filter	LORCH	13BRX-1950/X500	SHEM083-2	/	/
Band Filter	LORCH	5BRX-2400/X200	SHEM155-1	/	/
Band Filter	LORCH	5BRX-5500/X1000	SHEM157-2	/	/
High pass Filter	Wainwright	WHK3.0/18G	SHEM157-1	/	/
High pass Filter	Wainwright	WHKS1700	SHEM157-3	/	/
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
RE test Cable	/	RE01, RE02, RE06	/	2018-12-26	2019-12-25



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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(c)

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 6 dBi.

EUT Antenna:

The antenna 1 and antenna 2 are dipole antenna and no consideration of replacement. The best case gain of the Antenna 1: 2.31dBi; Antenna 2:2.31dBi.





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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:	

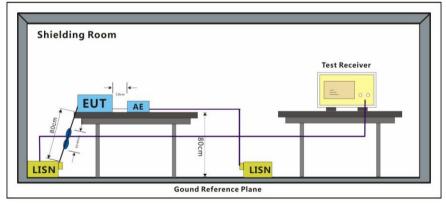
	Conducted limit(dBµV)				
Frequency of emission(MHz)	Quasi-peak	Average			
0.15-0.5	66 to 56*	56 to 46*			
0.5-5	56	46			
5-30	60	50			
*Decreases with the logarithm of the frequency.					

7.1.1 E.U.T. Operation

Operating Environment:

Temperature:22 °CHumidity:50 % RHAtmospheric Pressure:1020 mbarTest modea: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 the
worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE
802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).
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 μ H + 50hm 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.

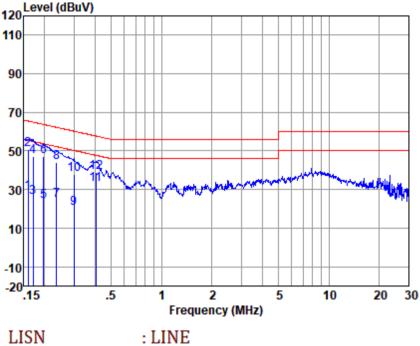
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

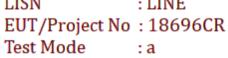
Remark: LISN=Read Level+ Cable Loss+ LISN Factor



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Mode:a; Line:Live Line





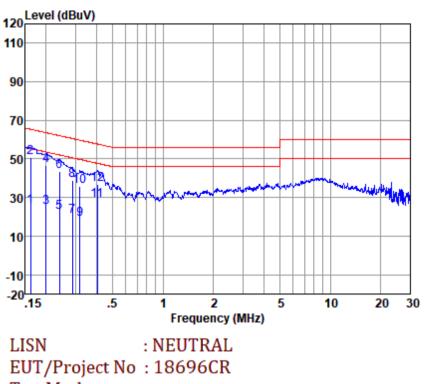
	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.16	18.66	0.08	10.00	28.74	55.52	-26.78	Average
2	0.16	40.56	0.08	10.00	50.64	65.52	-14.88	QP
3	0.17	15.91	0.08	10.00	25.99	54.94	-28.95	Average
4	0.17	36.87	0.08	10.00	46.95	64.94	-17.99	QP -
5	0.20	13.72	0.07	10.00	23.79	53.71	-29.92	Average
6	0.20	37.31	0.07	10.00	47.38	63.71	-16.33	QP
7	0.24	14.47	0.07	10.00	24.54	52.26	-27.72	Average
8	0.24	33.80	0.07	10.00	43.87	62.26	-18.39	QP
9	0.30	10.45	0.07	10.00	20.52	50.28	-29.76	Average
10	0.30	27.94	0.07	10.00	38.01	60.28	-22.27	QP
11	0.40	22.67	0.08	10.00	32.75	47.77	-15.02	Average
12	0.40	28.59	0.08	10.00	38.67	57.77	-19.10	QP
No	+ 5mi	ccion Lo		and Love				

Notes: Emission Level = Read Level +LISN Factor + Cable loss



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Mode:a; Line:Neutral Line



Test Mode : a

	Freq	Read	LISN	Cable	Emission		Over	
		level	Factor	Loss	Level	Limit	Limit	Remark
	(MHz)	(dBuV)	(dB)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.16	15.27	0.07	10.00	25.34	55.38	-30.04	Average
2	0.16	40.66	0.07	10.00	50.73	65.38	-14.65	QP
3	0.20	14.85	0.06	10.00	24.91	53.62	-28.71	Average
4	0.20	36.69	0.06	10.00	46.75	63.62	-16.87	QP
5	0.24	12.18	0.06	10.00	22.24	52.08	-29.84	Average
6	0.24	33.30	0.06	10.00	43.36	62.08	-18.72	QP
7	0.29	10.04	0.06	10.00	20.10	50.59	-30.49	Average
8	0.29	28.63	0.06	10.00	38.69	60.59	-21.90	QP
9	0.32	8.90	0.06	10.00	18.96	49.75	-30.79	Average
10	0.32	25.71	0.06	10.00	35.77	59.75	-23.98	QP
11	0.40	18.39	0.06	10.00	28.45	47.77	-19.32	Average
12	0.40	26.67	0.06	10.00	36.73	57.77	-21.04	QP

Notes: Emission Level = Read Level +LISN Factor + Cable loss



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7.2 Minimum 6dB Bandwidth

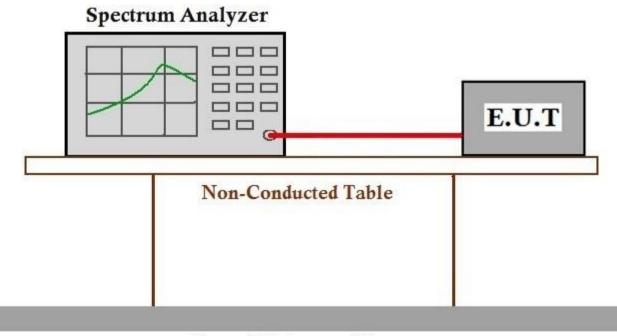
Test Requirement	47 CFR Part 15, Subpart C 15.247a(2)
Test Method:	ANSI C63.10 (2013) Section 11.8.1
Limit:	≥500 kHz

7.2.1 E.U.T. Operation

Operating Environment:

Temperature:20 °CHumidity:50 % RHAtmospheric Pressure:1010 mbarTest modea: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 the
worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE
802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).
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 SHEM191101869601



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7.3 Conducted Average Output Power

Test Requirement	47 CFR Part 15, Subpart C 15.247(b)(3)
Test Method:	ANSI C63.10 (2013) Section 11.9.2
Limit:	

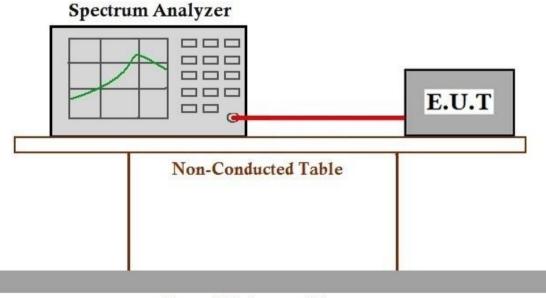
Frequency range(MHz)	Output power of the intentional radiator(watt)		
	1 for ≥50 hopping channels		
902-928	0.25 for 25≤ hopping channels <50		
	1 for digital modulation		
	1 for ≥75 non-overlapping hopping channels		
2400-2483.5	0.125 for all other frequency hopping systems		
	1 for digital modulation		
5725-5850	1 for frequency hopping systems and digital modulation		

7.3.1 E.U.T. Operation

Operating Environment:

Temperature:20 °CHumidity:50 % RHAtmospheric Pressure:1010 mbarTest modea: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 the
worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE
802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).
Only the data of worst case is recorded in the report.

7.3.2 Test Setup Diagram



Ground Reference Plane

7.3.3 Measurement Procedure and Data

The detailed test data see: Appendix A for SHEM191101869601

NO.588 West	Jir	du Road, Songjiang District, Sh	anghai,China	201612
中国・上海	•	松江区金都西路588号	邮编:	201612

t(86-21) 61915666 f(86-21)61915678 www.sgsgroup.com.cn t(86-21) 61915666 f(86-21)61915678 e sgs.china@sgs.com



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7.4 Power Spectrum Density

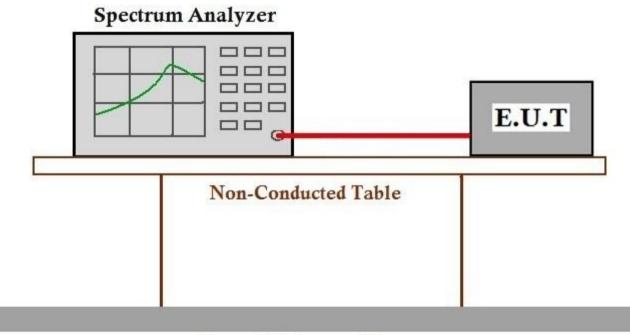
Test Requirement	47 CFR Part 15, Subpart C 15.247(e)
Test Method:	ANSI C63.10 (2013) Section 11.10.3
Limit:	\leq 8dBm in any 3 kHz band during any time interval of continuous transmission

7.4.1 E.U.T. Operation

Operating Environment:

Temperature:	20 °C	Humidity:	50	% RH	Atmospheric Pressure:	1010	mbar
Test mode	types. All data data rate @ 11 worst case of I	rates for eac Mbps is the w EEE 802.11g); data rate @	h mo orst c g; data 0 13.5	dulation typ case of IEE a rate @ 6 5Mbps is th	ransmitting mode with all to be have been tested and for E 802.11b; data rate @ 61 .5Mbps is the worst case of he worst case of IEEE 802 the report.	ound th Mbps is of IEEE	e the

7.4.2 Test Setup Diagram



Ground Reference Plane

7.4.3 Measurement Procedure and Data

The detailed test data see: Appendix A for SHEM191101869601



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7.5 Conducted Band Edges Measurement

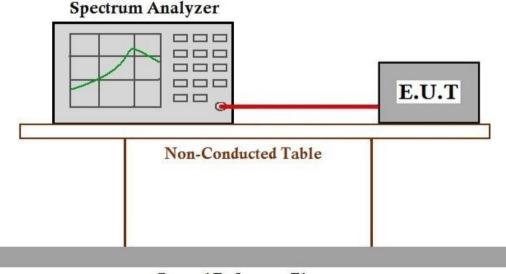
Test Requirement	47 CFR Part 15, Subpart C 15.247(d)
Test Method:	ANSI C63.10 (2013) Section 11.13.3.2
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional 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 §15.209(a) (see §15.205(c)

7.5.1 E.U.T. Operation

Operating Environment:

Temperature:20 °CHumidity:50 % RHAtmospheric Pressure:1010mbarTest modea: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 the
worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE
802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).
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 SHEM191101869601

NO.588 West	Jiı	ndu Road, Songjiang District, S	hanghai,China	201612
中国・上海	•	松江区金都西路588号	邮编:	201612



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7.6 Conducted Spurious Emissions

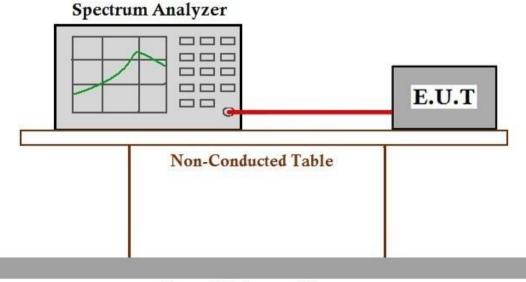
Test Requirement	47 CFR Part 15, Subpart C 15.247(d)
Test Method:	ANSI C63.10 (2013) Section 11.11
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional 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)

7.6.1 E.U.T. Operation

Operating Environment:

Temperature:20 °CHumidity:50 % RHAtmospheric Pressure:1010mbarTest modea: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 the
worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE
802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).
Only the data of worst case 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 SHEM191101869601

NO.588 West Jir	ndu Road, Songjiang District, Sh	anghai,China	201612
中国・上海・	松江区金都西路588号	邮编:	201612

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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:	

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.



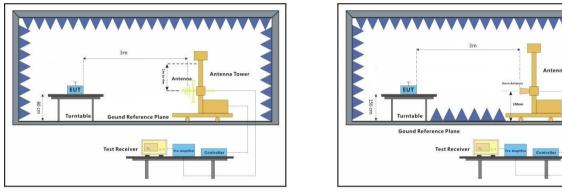
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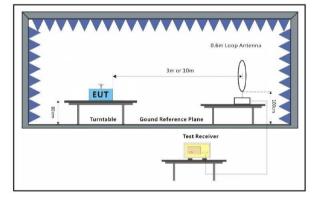
7.7.1 E.U.T. Operation

Operating Environment:

Temperature:22 °CHumidity:50 % RHAtmospheric Pressure:1002 mbarTest modea: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 the
worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE
802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).
Only the data of worst case is recorded in the report.

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.

Remark3: 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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	Frequency	Reading	Correction	Result	Limit	Margin		Rem	ark
+	(MHz) 2319.240	(dBuV) 66.40	factor(dB/m) -16.44	(dBuV/m) 49.96	(dBuV/m) 74.00	(dB) -24.04		pea	ık
┥	2390.000	65.31	-16.42	48.89	74.00	-25.11		pea	
+	2413.600	121.70	-16.41	105.29	74.00	31.29		pea	

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



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	2310.000232	4.00 2338	.00 2352.00	2356.00 2	380.00 239	1.00 2108	.00 2122.00	2150.00 MHz
Ι	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)		Remark
t	2311.820	66.49	-16.44	50.05	74.00	-23.95		peak
T	2390.000	65.08	-16.42	48.66	74.00	-25.34		peak
	2413.460	115.99	-16.41	99.58	74.00	25.58		peak

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



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_	2150.000 216	Reading	Correction	Result	Limit	Margin	.00 2570.0	Remark	
_	2150.000 216					-	.00 2570.0		
_	2150.000 2159 Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	.00 2570.0	Remark	
2	2150.000 215 Frequency (MHz) 2463.500	Reading (dBuV) 122.56	Correction factor(dB/m) -16.40	Result (dBuV/m) 106.16	Limit (dBuV/m) 74.00	Margin (dB) 32.16	.00 2570.0	Remark peak	

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



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	2450.000 2465	5.00 2480.	00 2495.00	2510.00 2	525.00 254	0.00 2555.	00 2570.00	2500.00 MHz
D.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Re	emark
	2463.500	117.34	-16.40	100.94	74.00	26.94	р	eak
	2483.500	66.20	-16.39	49.81	74.00	-24.19		eak
	0400.050	67.30	-16.39	50.91	74.00	-23.09	p	eak
	2488.250 2500.000	64.57	-16.39	48.18	74.00	-25.82		

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



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21	0.0	entre transformation	yk Minne		workerpool	<b>~~</b>		wq	*~	1944 ( million )		<u>کر</u>	<u>, , , , , , , , , , , , , , , , , , , </u>					°vr•	Warra	
21	0.0	10.000 232		2338		235;		2356			0.00	239	<b>1.00 21</b>	08.00	242	2.00			50.00	
	0.0 231	10.000 232	1.00	2338 ading	.00	235	2.00 :tion	2356 R(	j.00 esult	238	lo.00	239	Margin		212		Rem	21		
	0.0 231	10.000 232	1.00 Re (dl	2338	.00 C fac	235	2.00 tion IB/m)	2356 R( (dB	j. 00	238	0.00	239-			242			21 nark		
21	0.0 231 Fre	10.000232 equency (MHz)	1.00 Re (dl	2338 ading BuV)	.00 C fac	235; orrec :tor(d	2.0 <b>0</b> :tion IB/m) 42	2356 R( (dB 5'	i.00 esult	238	l0.00 Limit (dBuV/	239/ m)	Margin (dB)		242		Rem	21 nark		

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



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1	20.0 dBu∀/m							
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2	0.0							
	2310.0002324	1.00 2338.0	10 2352.00	2356.00 23	380.00 239	1.00 2408	.00 2422.00	0 2150.00 MHz
	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)		Remark
	2329.040	66.83	-16.43	50.40	74.00	-23.60		peak
	2390.000	68.97	-16.42	52.55	74.00	-21.45		peak
Τ	2415.140	116.93	-16.41	100.52	74.00	26.52		peak

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



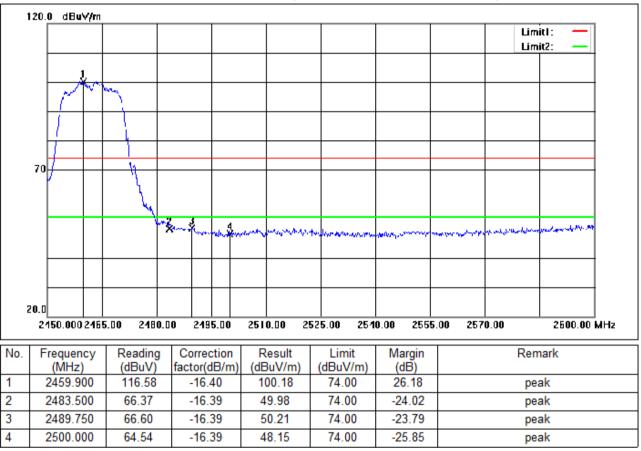
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1	20.0 dBu¥/m							mit1: — mit2: —
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2	0.0	.00 2180.0	0 2195.00	2510.00 2	525.00 254	0.00 2555.	00 2570.00	2500.00 MHz
lo.	Frequency	Reading	Correction	Result	Limit	Margin		emark
	(MHz) 2463.650	(dBuV) 119.44	factor(dB/m) -16.40	(dBuV/m) 103.04	(dBuV/m) 74.00	(dB) 29.04	p	eak
	2483.500	67.49	-16.39	51.10	74.00	-22.90	p	eak
	2485.850	68.10	-16.39	51.71	74.00	-22.29		eak
	2500.000	65.82	-16.39	49.43	74.00	-24.57	p	eak

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



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



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1	20.0 d⊟u∀/m							
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2	0.0							
	2310.000232	4.00 2338.1	10 2352.00	2356.00 2	380.00 239	1.00 2108.	00 2422.00	2150.00 MHz
	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)		Remark
	2368.800	66.40	-16.42	49.98	74.00	-24.02		peak
$\downarrow$	2390.000	68.21	-16.42	51.79	74.00	-22.21		peak
	2410.940	118.95	-16.41	102.54	74.00	28.54		peak

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



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1	20.0 dBu∀/m							
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2	۰. D							
	2310.000232	4.00 2338.1	00 2352.00	2356.00 2	380.00 239	1.00 2108	.00 2122.00	2150.00 MHz
-	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)		Remark
	2345.700	65.35	-16.43	48.92	74.00	-25.08		peak
	2390.000	64.91	-16.42	48.49	74.00	-25.51		peak
	2411.640	116.33	-16.41	99.92	74.00	25.92		peak

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



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	20.0 d <b>Bu∀/m</b>							nit1:
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2	0.0	.00 2180.0	0 2495.00	2510.00 2	525.00 254	0.00 2555.	00 2570.00	2500.00 MHz
No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Rer	mark
1	2461.100	118.60	-16.40	102.20	74.00	28.20	pe	eak
2	2483.500	67.73	-16.39	51.34	74.00	-22.66	pe	eak
3	2484.050	68.41	-16.39	52.02	74.00	-21.98	pe	eak
1	2500.000	63.80	-16.39	47.41	74.00	-26.59	pe	eak

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



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	20.0 dBu¥/m							mit1: mit2:
2	0.0	.00 2180.0	0 2195.00	2510.00 2	525.00 251	0.00 2555	.00 2570.00	2500.00 MHz
D.	Frequency	Reading	Correction	Result	Limit	Margin	· · · · · · · · · · · · · · · · · · ·	mark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
	2466.650	115.07	-16.40	98.67	74.00	24.67		eak
$\square$	2483.500	67.29	-16.39	50.90	74.00	-23.10		eak
	2487.650	67.37	-16.39	50.98	74.00	-23.02	p	eak
	2500.000	66.04	-16.39	49.65	74.00	-24.35	n	eak

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



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2	0.0							
	2310.0002324	1.00 2338.0	10 2352.00	2356.00 2	380.00 239	1.00 2108.	.00 2422.00	2150.00 MHz
).	Frequency	Reading	Correction	Result	Limit	Margin	Re	mark
	(MHz) 2342.900	(dBuV) 67.60	factor(dB/m) -16.43	(dBuV/m) 51.17	(dBuV/m) 74.00	(dB) -22.83	D	eak
	2390.000	68.37	-16.42	51.95	74.00	-22.05		eak
+	2426.340	119.51	-16.41	103.10	74.00	29.10		eak

#### Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low



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1	20.0 dBu∀/m							
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2	0.0							
	2310.000232	4.00 2338.0	10 2352.00	2356.00 2	380.00 239	1.00 2108	.00 2422.00	2150.00 MHz
-	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	F	Remark
	2354.660	65.00	-16.43	48.57	74.00	-25.43		peak
	2390.000	65.55	-16.42	49.13	74.00	-24.87		peak
	2425.220	114.23	-16.41	97.82	74.00	23.82		peak

Mode:a; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low



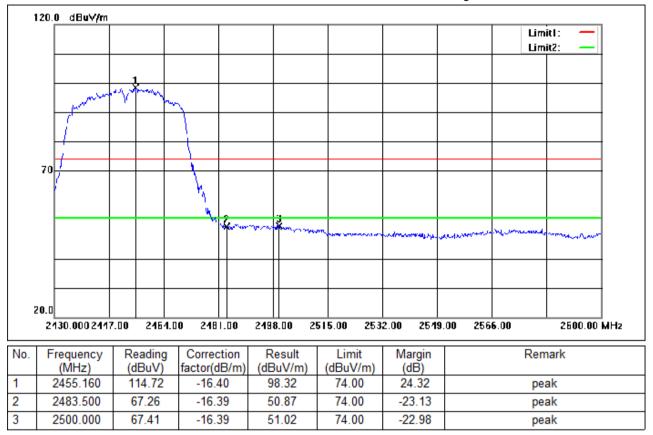
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1	20.0 d⊟u∀/m							imitl: — imit2: —
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z	0.0							
	2130.0002117	.00 246	1.00 2181.00	2 198 .00 2	2515.00 253	2.00 25/19	.00 2566.00	2600.00 MHz
) .	Frequency (MHz)	Reading (dBuV)			Limit (dBuV/m)	Margin (dB)	R	emark
	2454.990	119.76	-16.40	103.36	74.00	29.36		peak
	2483.500	65.97	-16.39	49.58	74.00	-24.42		peak
	2492.560	66.87	-16.39	50.48	74.00	-23.52		peak
	2500.000	64.91	-16.39	48.52	74.00	-25.48		peak

Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:High



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Mode:a; Polarization:Vertical; Modulation:n; bandwidth:40MHz; 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:	

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.



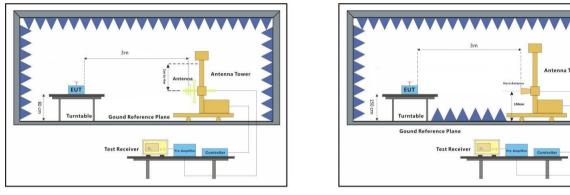
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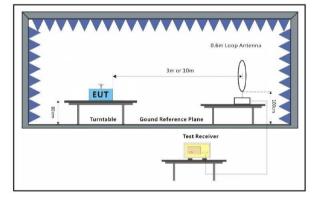
7.8.1 E.U.T. Operation

Operating Environment:

Temperature:22 °CHumidity:50 % RHAtmospheric Pressure:1002 mbarTest modea: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 the
worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE
802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).
Only the data of worst case 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.

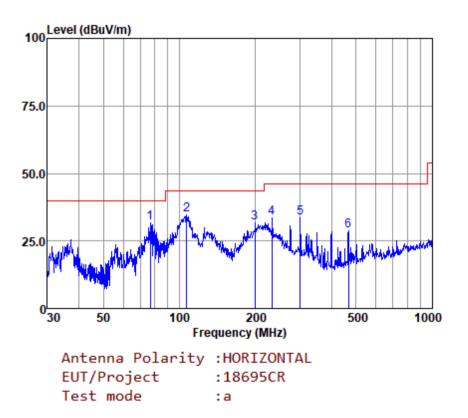
4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower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

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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Below 1GHz: Mode:a; Polarization:Horizontal



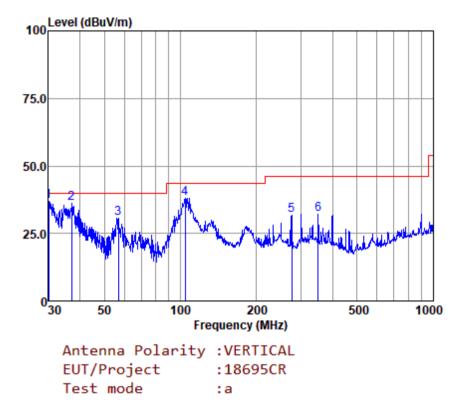
	Freq		Antenna Factor						Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	76.512	64.06	9.17	0.70	42.27	31.66	40.00	-8.34	QP
2	106.759	66.09	9.57	1.18	42.31	34.53	43.50	-8.97	QP
3	199.286	62.67	9.48	1.75	42.18	31.72	43.50	-11.78	QP
4	232.532	62.74	10.82	2.08	42.13	33.51	46.00	-12.49	QP
5	300.367	60.14	13.20	2.49	42.12	33.71	46.00	-12.29	QP
6	467.235	50.71	16.56	3.31	41.73	28.85	46.00	-17.15	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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Mode:a; Polarization:Vertical



		Read	Antenna	Cable	Preamp	Emission	n Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	30.105	63.35	15.32	0.44	42.38	36.73	40.00	-3.27	QP
2	37.155	61.92	16.04	0.42	42.34	36.04	40.00	-3.96	QP
3	56.792	60.53	12.00	0.56	42.33	30.76	40.00	-9.24	QP
4	104.536	69.78	9.55	1.15	42.31	38.17	43.50	-5.33	QP
5	276.124	59.17	12.42	2.21	42.11	31.69	46.00	-14.31	QP
6	350.477	56.82	14.24	2.91	41.94	32.03	46.00	-13.97	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



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Above 1GHz	2:					
Mode:a; Po	larization:	Horizontal;				Channel:Low
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4824	41.67	6.40	48.07	54	-5.93	peak
7236	41.16	10.76	51.92	54	-2.08	peak
9648	33.69	14.37	48.06	54	-5.94	peak
Mode:a: Po	larization:\	/ertical [.] M	odulation.p.	bandwidt	n:20MHz; C	hannel·l ow
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	20100101
4824	41.28	6.40	47.68	54	-6.32	peak
7236	40.39	10.76	51.15	54	-2.85	peak
9648	40.39 34.96	14.37	49.33	54	-4.67	•
9040	34.90	14.57	49.33	54	-4.07	peak
Mode:a; Po	larization:	-lorizontal;	Modulation	:b; bandwi	idth:20MHz;	Channel:middle
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4874	43.45	6.92	50.37	54	-3.63	peak
7311	39.30	11.08	50.38	54	-3.62	peak
9748	35.79	14.36	50.15	54	-3.85	peak
0.10				•	0.00	Poon
Mode:a; Po	larization:	Vertical; M	odulation:b;	bandwidtl	h:20MHz; C	hannel:middle
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4874	41.31	6.92	48.23	54	-5.77	peak
7311	38.60	11.08	49.68	54	-4.32	peak
9748	33.56	14.36	47.92	54	-6.08	peak
						.
						Channel:High
Frequency	RX_R	Factor	Emission	Limit	Over Limit	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4924	39.91	7.31	47.22	54	-6.78	peak
7386	35.20	11.41	46.61	54	-7.39	peak
9848	31.64	14.38	46.02	54	-7.98	peak
Mode:a; Po	larization.	√ertical: M	odulation:b:	bandwidt	n:20MHz: C	hannel:High
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4924	41.34	7.31	48.65	54	-5.35	peak
7386	36.48	11.41	47.89	54	-6.11	peak
						•
9848	35.48	14.38	49.86	54	-4.14	peak
Mode:a; Po	larization:	Horizontal;	Modulation	:g; bandwi	idth:20MHz;	Channel:Low
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4824	42.07	6.40	48.47	54	-5.53	peak
7236	36.28	10.76	47.04	54	-6.96	peak
9648	36.13	14.37	50.50	54	-3.50	peak
						r



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Mode:a; Pol	arization:\	/ertical; M	odulation:g;	bandwidth	:20MHz; C	hannel:Low
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4824	41.42	6.40	47.82	54	-6.18	peak
7236	39.48	10.76	50.24	54	-3.76	peak
9648	35.65	14.37	50.02	54	-3.98	peak
0010	00.00	1 1101	00102	01	0.00	pour
Mode:a; Pol	arization:H	lorizontal;	Modulation	:g; bandwid	dth:20MHz;	Channel:middle
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4874	41.55	6.92	48.47	54	-5.53	peak
7311	37.92	11.08	49.00	54	-5.00	peak
9748	31.64	14.36	46.00	54	-8.00	peak
						•
Mode:a; Pol	arization:	/ertical; M	odulation:g;	bandwidth	:20MHz; C	hannel:middle
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4874	38.48	6.92	45.40	54	-8.60	peak
7311	35.79	11.08	46.87	54	-7.13	peak
9748	36.19	14.36	50.55	54	-3.45	peak
01.10	00.10	11.00	00.00	01	0.10	pour
Modera: Pol	arization·F	-lorizontal:	Modulation	.a. bandwid	th.20MHz.	Channel:High
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Deletion
4924	39.37	7.31	46.68	54	-7.32	peak
7386	36.13	11.41	40.00 47.54		-6.46	•
				54		peak
9848	36.04	14.38	50.42	54	-3.58	peak
Mode:a; Pol	arization.	/ortical: M	odulation:a:	bandwidth	·20MHz· C	bannel High
Frequency	RX R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Delector
			47.13			naali
4924	39.82	7.31	-	54	-6.87	peak
7386	39.20	11.41	50.61	54	-3.39	peak
9848	32.64	14.38	47.02	54	-6.98	peak
Madatas Dal		le d'a coste le	Madulation			Oh ann a bh ann
						Channel:Low
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
4824	40.73	6.40	47.13	54	-6.87	peak
7236	37.85	10.76	48.61	54	-5.39	peak
9648	36.33	14.37	50.70	54	-3.30	peak
Mode:a; Pol	arization:	/ortical: M	odulation:n:	bandwidth	·20MH C	bannal:Low
Frequency		Factor	Emission	Limit		
MHz	RX_R	dB			Margin dB	Detector
	dBuV		dBuV/m	dBuV/m		naali
4824	41.35	6.40	47.75	54	-6.25	peak
7236	35.17	10.76	45.93	54	-8.07	peak
9648	31.98	14.37	46.35	54	-7.65	peak



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Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:middle											
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector					
MHz	dBuV	dB	dBuV/m	dBuV/m	dB						
4874	38.38	6.92	45.30	54	-8.70	peak					
7311	39.50	11.08	50.58	54	-3.42	peak					
9748	35.05	14.36	49.41	54	-4.59	peak					
01.10	00.00	11.00	10.11	01	1.00	pour					
Mode:a; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:middle											
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector					
MHz	dBuV	dB	dBuV/m	dBuV/m	dB						
4874	39.52	6.92	46.44	54	-7.56	peak					
7311	38.74	11.08	49.82	54	-4.18	peak					
9748	33.64	14.36	48.00	54	-6.00	peak					
Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High											
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector					
MHz	dBuV	dB	dBuV/m	dBuV/m	dB						
4924	38.41	7.31	45.72	54	-8.28	peak					
7386	39.91	11.41	51.32	54	-2.68	, peak					
9848	32.96	14.38	47.34	54	-6.66	peak					
	000			•	0.00	Poon					
Mode:a; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High											
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector					
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Dottottol					
4924	40.81	7.31	48.12	54	-5.88	peak					
7386	34.69	11.41	46.10	54	-7.90	peak					
9848	34.09 31.49	14.38	40.10	54 54	-8.13	peak					
9040	51.49	14.50	45.67	54	-0.15	peak					
Mode:a; Pol	arization:	Horizontal;	Modulation	n; bandwic	th:40MHz;	Channel:Low					
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector					
MHz	dBuV	dB	dBuV/m	dBuV/m	dB						
4844	43.88	6.60	50.48	54	-3.52	peak					
7266	39.41	10.89	50.30	54	-3.70	peak					
9688	31.02	14.35	45.37	54	-8.63	peak					
0000	01102	1 1100	10101	01	0.00	pour					
Mode:a; Pol	arization:	/ertical; M	odulation:n;	bandwidth	:40MHz; C	hannel:Low					
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector					
MHz	dBuV	dB	dBuV/m	dBuV/m	dB						
4844	43.75	6.60	50.35	54	-3.65	peak					
7266	35.64	10.89	46.53	54	-7.47	peak					
9688	33.02	14.35	47.37	54	-6.63	peak					
Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:middle											
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector					
MHz	dBuV	dB	dBuV/m	dBuV/m	dB						
4874	39.96	6.92	46.88	54	-7.12	peak					
7311	36.43	11.08	47.51	54	-6.49	peak					
9748	32.54	14.36	46.90	54	-7.10	peak					



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Mode:a; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:middle										
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector				
MHz	dBuV	dB	dBuV/m	dBuV/m	dB					
4874	43.87	6.92	50.79	54	-3.21	peak				
7311	36.03	11.08	47.11	54	-6.89	peak				
9748	34.32	14.36	48.68	54	-5.32	peak				
Mode:a; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:High										
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector				
MHz	dBuV	dB	dBuV/m	dBuV/m	dB					
4904	40.52	7.22	47.74	54	-6.26	peak				
7356	39.84	11.28	51.12	54	-2.88	peak				
9808	35.66	14.37	50.03	54	-3.97	peak				
Mode:a; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:High										
Frequency	RX_R	Factor	Emission	Limit	Margin	Detector				
MHz	dBuV	dB	dBuV/m	dBuV/m	dB					
4904	41.52	7.22	48.74	54	-5.26	peak				
7356	37.72	11.28	49.00	54	-5.00	peak				
9808	36.55	14.37	50.92	54	-3.08	peak				



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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 -