

Report No.: SHEM210700742202

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## TEST REPORT

 Application No.:
 SHEM2107007422CR

 FCC ID:
 2AVYF-IPC-BX6L

 IC:
 25954-IPCBX6L

Applicant: Hangzhou Huacheng Network Technology Co.,Ltd.

Address of Applicant: No.2930, Nanhuan Road, Binjiang District, Hangzhou, China

Manufacturer: Hangzhou Huacheng Network Technology Co.,Ltd.

Address of Manufacturer: No.2930, Nanhuan Road, Binjiang District, Hangzhou, China

**Equipment Under Test (EUT):** 

**EUT Name:** CONSUMER CAMERA

Model No.: IPC-B46LN,IPC-B46LP,IPC-B46LN-CAN,IPC-B46LP-White,IPC-B46LN-

White,IPC-B46LN-imou,IPC-B46LP-imou,IPC-B46LN-White-CAN,IPC-B46LP-White-imou,IPC-B46LN-White-imou,IPC-B46LN-White-imou-CAN

Please refer to section 2 of this report which indicates which model was

actually tested and which were electrically identical.

Standard(s): 47 CFR Part 15, Subpart E 15.407

RSS-247 Issue 2, February 2017

RSS-Gen Issue 5, February 2021 Amendment 2

**Date of Receipt:** 2021-07-08

**Date of Test:** 2021-10-18 to 2021-11-08

**Date of Issue:** 2021-11-08

Test Result: Pass\*

parlan shaw

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.

检验检测专用章 Services Security Co., Little Co.

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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.



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For IC Model No.: IPC-B46LN-CAN, IPC-B46LN-imou-CAN, IPC-B46LN-White-CAN,

IPC-B46LN-White-imou-CAN, IPC-B46LN-White



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	Revision Record						
Version Description Date Remark							
00	Original	2021-11-08	/				

Authorized for issue by:		
	hichael Mil	
	Micheal Niu / Project Engineer	
	Parlam Zhan	
	Parlam Zhan / Reviewer	



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## 2 Test Summary

Radio Spectrum Technical Requirement							
Item FCC Requirement IC Requirement Method Resu							
Antenna Requirement	47 CFR Part 15, Subpart C 15.203	RSS-Gen Clause 6.8	N/A	Pass			
Transmission in the Absence of Data	47 CFR Part 15, Subpart E 15.407 (c)	RSS-247 Section 6.4(a)	N/A	Pass			

N/A: Not applicable

Radio Spectrum Matter Part								
Item	FCC Requirement	IC Requirement	Method	Result				
Conducted Emissions at AC Power Line (150kHz-30MHz)	at AC Power Line Subpart C 15.207 &		ANSI C63.10 (2013) Section 6.2	Pass				
99% Bandwidth	N/A	RSS-Gen Section 6.7	KDB 789033 II D	Pass				
26dB Emission bandwidth	47 CFR Part 15, Subpart E 15.407 (a)	RSS-247 Section 6.2.1(1)	KDB 789033 D02 II C 1	Pass				
Minimum 6 dB bandwidth (5.725- 5.85 GHz band)	47 CFR Part 15, Subpart E 15.407 (e)	RSS-247 Section 6.2.4	KDB 789033 D02 II C 2	Pass				
Maximum Conducted output power	47 CFR Part 15, Subpart E 15.407 (a)	RSS-247 Section 6.2.1&6.2.2&6.2.3&6.2. 4	KDB 789033 D02 II E	Pass				
Peak Power spectrum density	47 CFR Part 15, Subpart E 15.407 (a)	RSS-247 Section 6.2.1&6.2.2&6.2.3& 6.2.4	KDB 789033 D02 II F	Pass				
Radiated Emissions	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	RSS-247 Section 3.3 & RSS-Gen Section 8.9	KDB 789033 D02 II G	Pass				
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	RSS-247 Section 3.3 & RSS-Gen Section 8.9	KDB 789033 D02 II G	Pass				
Frequency Stability	-	RSS-Gen Section 8.11	RSS-Gen Section 6.11	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 IPC-B46LN was tested since their differences were the model number, trade name, Color and appearance.



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### 4 General Information

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

Power supply: DC 3.6V by Rechargeable Lithium-Ion Battery charged by DC 5V

Adapter

Battery Model: FRB20 Nominal Voltage: 3.6V

Rated Capacity: 6000mAh/21.6Wh Limited Charging Voltage: 4.2V

Test voltage: AC 120V/60Hz

Serial Number: 7D0C50DAAZ62FA8

Firmware Version: V2.800.000000.3.R.210516

Operation Frequency:	Band	Mode	Frequency Range (MHz)	Number of channels
	UNII Band I	802.11a/n(HT20)	5180-5240	4
	UNII Band II-A	802.11a/n(HT20)	5260-5320	4
	UNII Band II-C	802.11a/n(HT20)	5500-5700	11
	UNII Band III	802.11a/n(HT20)	5745-5825	5
Modulation Type:	802.11a: OFDM	(64QAM, 16QAM, QPSK,	BPSK)	
	802.11n: OFDM	(BPSK, QPSK, 16QAM, 6	4QAM)	
Channel Spacing:	802.11a/n(HT20)	): 20MHz		
Data Rate:	802.11a: 6/9/12/	18/24/36/48/54Mbps		
	802.11n: MCS0-	7		
Antenna Gain:	Ant 1:3.58dBi(Provided by manufacturer)			
	Ant 2:3.58dBi(Provided by manufacturer)			
Antenna Type:	Antenna 1: PCB Antenna			
	Antenna 2: PCB	Antenna		



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### 4.2 Power level setting using in test

		.11a	802.11r	n(HT20)
Channel	Ant 1	Ant 2	Ant 1	Ant 2
36	10	11	10	11
40	10	11	10	10
48	10	11	10	10
52	11	12	11	11
60	11	12	11	12
64	11	12	11	12
100	12	13	12	13
116	12	13	12	12
140	12	13	12	13
149	12	13	12	13
157	12	13	12	12
165	12	13	12	12

### 4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	Sichuan Jiuzhou Electronic Technology Co., Ltd	DYS05100CP-U	/
Note Book	LENOVO	Y510P	SZSMT55INP141501639



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### 4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4 x 10 <sup>-8</sup>
2	Timeout	2s
3	Duty Cycle	0.37%
4	Occupied Bandwidth	3%
5	RF Conducted Power	0.6dB
6	RF Power Density	2.9dB
7	Conducted Spurious Emissions	0.75dB
0	DE Dadiated Dawer	5.2dB (Below 1GHz)
8	RF Radiated Power	5.9dB (Above 1GHz)
		4.2dB (Below 30MHz)
0	Dedicted Couriese Fraissics Test	4.5dB (30MHz-1GHz)
9	Radiated Spurious Emission Test	5.1dB (1GHz-18GHz)
		5.4dB (Above 18GHz)
10	Temperature Test	1°C
11	Humidity Test	3%
12	Supply Voltages	1.5%
13	Time	3%

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

None

### 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
	ducted Emission at Mains Terminals (150		iniouoi.	ooriai itamboi	oui buto	Guii Buo Buto
1	EMI Test Receive	R&S	ESCI	100781	02/01/2021	01/31/2022
	EWN TOST TOSONO	1100	2001	100701	10/19/2020	10/18/2021
2	LISN	R&S	ENV216	101604	10/12/2021	10/11/2022
					10/19/2020	10/18/2021
3	LISN	Schwarzbeck	NNLK 8129	8129-143	10/12/2021	10/11/2022
4	Pulse Limiter	R&S	ESH3-Z2	100609	02/01/2021	01/31/2022
		1300			10/17/2020	10/16/2021
5	CE test Cable	Thermax	/	14	10/16/2021	10/15/2022
6	Test Software	Farad	EZ-EMC	CCS-03A1	N.C.R	N.C.R
RF (	Conducted Test			- L		
1	Spectrum Analyzer	Agilent	E4446A	MY44020154	04/16/2021	04/15/2022
					12/02/2020	12/01/2021
2	Spectrum Analyzer	Keysight	N9020A	MY55370209	10/11/2021	10/10/2022
3	Spectrum Analyzer	Keysight	N9010A	MY56480443	02/01/2021	01/31/2022
4	Signal Generator	Agilent	N5182A	MY50142015	08/27/2021	08/26/2022
5	Radio Communication Test Station	Anritsu	MT8000A	6262012849	N/A	N/A
6	Radio Communication Analyzer	Anritsu	MT8821C	6201692222	N/A	N/A
	,				10/19/2020	10/18/2021
7	Universal Radio Communication Tester	R&S	CMW500	159275	10/12/2021	10/11/2022
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
	_			KUS2001M001	10/19/2020	10/18/2021
10	Switcher	CCSRF	FY562	-3	10/12/2021	10/11/2022
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
					10/16/2020	10/15/2021
19	Thermometer	Anymetre	TH603	CCS007	10/14/2021	10/13/2022
RF R	adiated Test					
1					10/19/2020	10/18/2021
	Spectrum Analyzer	R&S	FSV40	101493	10/11/2021	10/10/2022
2	0				10/19/2020	10/18/2021
	Signal Generator	Agilent	E8257C	MY43321570	10/18/2021	10/17/2022
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



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9	Pre-Amplifier(30MHz~18GHz)	LNA	/	/	04/15/2021	04/14/2022
10	Amplifica(4.9, 40CLL=)	COM-POWER	PAM-840A	461332	10/23/2020	10/22/2021
	Amplifier(18~40GHz)	COIVI-POVVER	PAIVI-64UA	401332	10/18/2021	10/17/2022
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~5930 MHz)	MICRO-TRONICS	BRC50705-01	4	N.C.R	N.C.R
15	Filter (5150 MHz~5350 MHz)	MICRO-TRONICS	BRC50703-01	2	N.C.R	N.C.R
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~1910 MHz)	MICRO-TRONICS	BRM14700	1	N.C.R	N.C.R
19	Filter (1922 MHz~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

### 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 antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

### **EUT Antenna:**

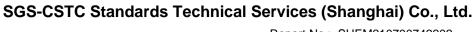
The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna 1 antenna 2 is 3.58dBi.

Antenna location: Refer to Appendix (Internal Photos)



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### 6.2 Transmitter Power Control

### 6.2.1 Test Requirement:

47 CFR Part 15, Subpart C 15.407 (h)(1)

### 6.2.2 Conclusion

### Standard Requirement:

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

Applicants shall include in their application for equipment authorization a description of how this requirement is met.

### **EUT Details:**

RF module (AP6303) support automatically discontinue transmission in case of either absence of information to transmit or operational failure, if the chip detect absence of information to transmit or operational failure, it will be automatically shut off.



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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 & 15.407 b(6)

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

Fraguency of Emission (MUL)	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.							



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### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Pretest these modes to find the worst case:

b: Charging+TX mode\_ (Band 1)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

c: Charging+TX mode (Band 2A)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

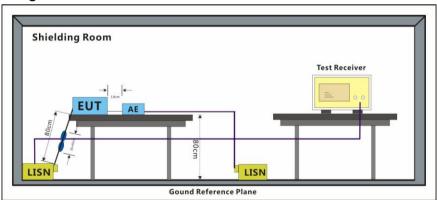
d: Charging+TX mode\_ (Band 2C)\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

e: Charging+TX mode\_ (Band 3)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

The worst case for final test:

b: Charging+TX mode\_ (Band 1)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 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  $50 \text{ohm}/50 \mu\text{H} + 5 \text{ohm}$  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



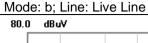
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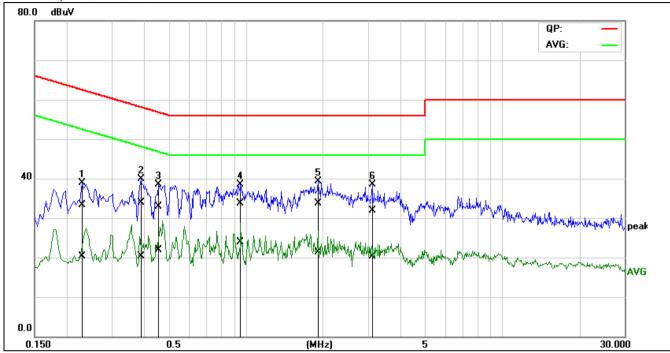
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No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.2290	13.94	0.93	19.44	33.38	20.37	62.48	52.49	-29.10	-32.12	Pass
2	0.3891	14.45	0.83	19.48	33.93	20.31	58.08	48.08	-24.15	-27.77	Pass
3	0.4561	13.39	2.43	19.50	32.89	21.93	56.76	46.76	-23.87	-24.83	Pass
4*	0.9530	14.13	4.31	19.53	33.66	23.84	56.00	46.00	-22.34	-22.16	Pass
5	1.9080	14.06	1.75	19.57	33.63	21.32	56.00	46.00	-22.37	-24.68	Pass
6	3.1065	12.20	0.68	19.63	31.83	20.31	56.00	46.00	-24.17	-25.69	Pass



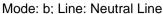
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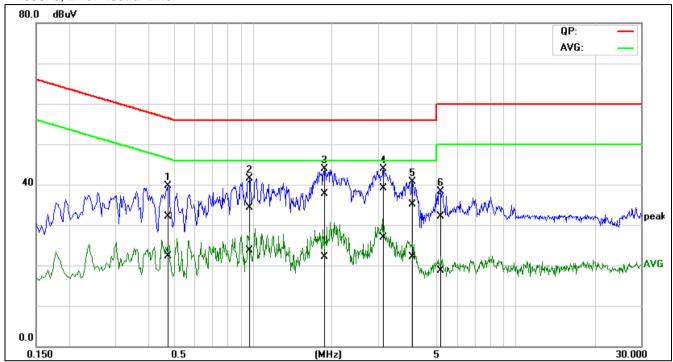
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No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.4761	12.60	2.81	19.50	32.10	22.31	56.41	46.41	-24.31	-24.10	Pass
2	0.9735	14.68	4.10	19.53	34.21	23.63	56.00	46.00	-21.79	-22.37	Pass
3	1.8777	18.06	2.62	19.57	37.63	22.19	56.00	46.00	-18.37	-23.81	Pass
4*	3.1396	19.40	7.22	19.63	39.03	26.85	56.00	46.00	-16.97	-19.15	Pass
5	4.0486	15.44	2.33	19.68	35.12	22.01	56.00	46.00	-20.88	-23.99	Pass
6	5.1935	12.28	-1.12	19.75	32.03	18.63	60.00	50.00	-27.97	-31.37	Pass



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### 7.2 Duty Cycle

Test Requirement KDB 789033 D02 II B 1
Test Method: KDB 789033 II B 1

### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode: b: Charging+TX mode\_ (Band 1)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @

MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is

recorded in the report.

c: Charging+TX mode (Band 2A)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

d: Charging+TX mode\_ (Band 2C)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

e: Charging+TX mode\_ (Band 3)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

### 7.2.2 Test Setup Diagram

# Spectrum Analyzer E.U.T Non-Conducted Table

### Ground Reference Plane



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### 7.2.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210700742202



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### 7.3 99% Bandwidth

Test Requirement N/A

Test Method: KDB 789033 II D

### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode: b: Charging+TX mode\_ (Band 1)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @

recorded in the report.

c: Charging+TX mode (Band 2A)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is

d: Charging+TX mode\_ (Band 2C)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

e: Charging+TX mode\_ (Band 3)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

### 7.3.2 Test Setup Diagram

# Spectrum Analyzer E.U.T Non-Conducted Table

### Ground Reference Plane



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### 7.3.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210700742202



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### 7.4 26dB Emission bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.407 (a)

Test Method: KDB 789033 D02 II C 1

### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode: b: Charging+TX mode\_ (Band 1)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @

MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

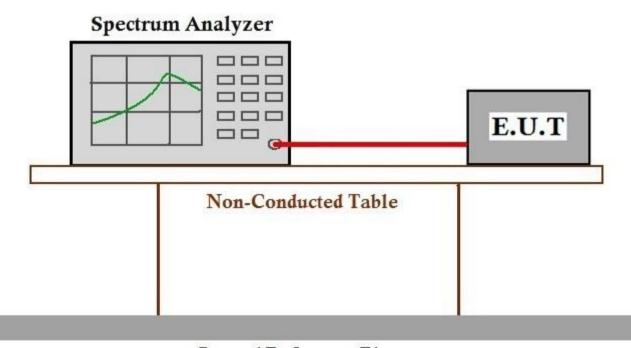
c: Charging+TX mode (Band 2A)\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst

case is recorded in the report.

d: Charging+TX mode\_ (Band 2C)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 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 B for SHEM210700742202



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### 7.5 Minimum 6 dB bandwidth (5.725-5.85 GHz band)

Test Requirement 47 CFR Part 15, Subpart C 15.407 (e)

Test Method: KDB 789033 D02 II C 2

Limit: ≥500 kHz

### 7.5.1 E.U.T. Operation

Operating Environment:

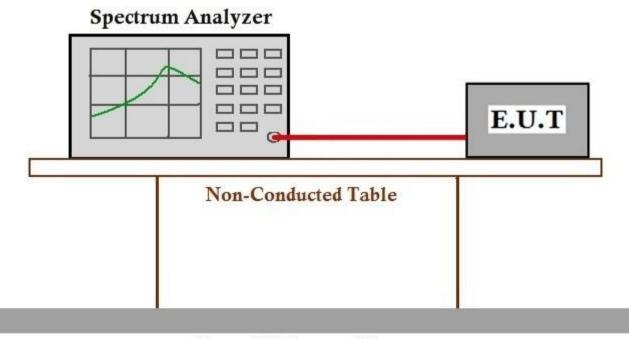
Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode: e: Charging+TX mode\_ (Band 3)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 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 B for SHEM210700742202



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### 7.6 Maximum Conducted output power

**Test Requirement** 47 CFR Part 15, Subpart C 15.407 (a)

Test Method: KDB 789033 D02 II E

Limit:

Frequency	y Band (MHz)	Limit					
5150-5	250	Maximum e.i.r.p. ≤ 200 mW (23.01dBm) or 10 + 10 log10 B					
5250-5	350	Maximum conducted output power ≤ 250 mW (23.98dBm) or 11 + 10					
5.470.5	705	log10 B, whichever power is less;					
5470-5	0/25	Maximum e.i.r.p. ≤1.0 W (30dBm) or 17 + 10 log10 B					
5725-5	850	Maximum conducted output power ≤1.0 W (30dBm)					
Remark:	* Where B is th	ne 99% emission bandwidth in MHz.					
	The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivaler voltage.						

### 7.6.1 E.U.T. Operation

**Operating Environment:** 

Temperature: Atmospheric Pressure: 1010 mbar Humidity: 50 % RH

Test mode: b: Charging+TX mode (Band 1) 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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

c: Charging+TX mode (Band 2A) 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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

- d: Charging+TX mode\_ (Band 2C)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.
- e: Charging+TX mode (Band 3) 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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.



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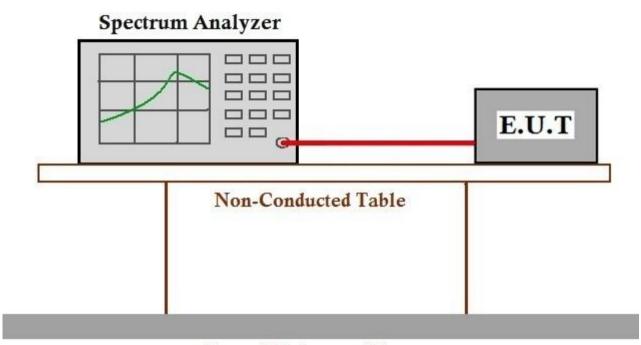
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### 7.6.2 Test Setup Diagram



### Ground Reference Plane

### 7.6.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210700742202



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Atmospheric Pressure: 1010 mbar

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### 7.7 Peak Power spectrum density

Test Requirement 47 CFR Part 15, Subpart C 15.407 (a)

Test Method: KDB 789033 D02 II F

Limit:

Frequenc	y band(MHz)	Limit				
E1E0 E	250	≤17dBm in 1MHz for master device				
5150-5	250	≤11dBm in 1MHz for client device				
5250-5	350	≤11dBm in 1MHz for client device				
5470-5	725	≤11dBm in 1MHz for client device				
5725-5	850	≤30dBm in 500 kHz				
Remark:	Remark: The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.					

For the band 5.15-5.25 GHz, the e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Humidity: 50 % RH

### 7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 24

The worst case for final test:

- b: Charging+TX mode\_ (Band 1)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.
- c: Charging+TX mode (Band 2A)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.
- d: Charging+TX mode\_ (Band 2C)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.
- e: Charging+TX mode\_ (Band 3)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.



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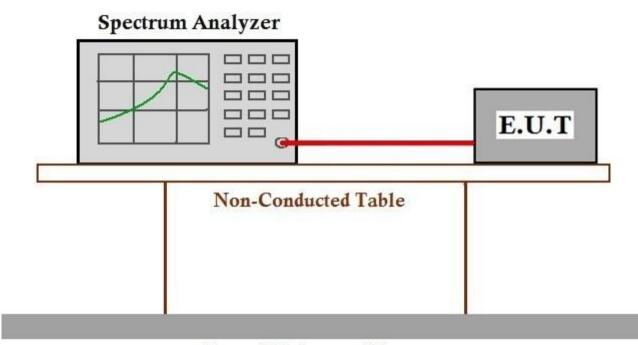
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### 7.7.2 Test Setup Diagram



### Ground Reference Plane

### 7.7.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210700742202



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### 7.8 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.407(b)

Test Method: KDB 789033 D02 II G

Limit:

### Limit:

For transmitters operating in the 5.15-5.25 GHz band:

For transmitters operating in the 5.25-5.35 GHz band:

For transmitters operating in the 5.47-5.725 GHz band:

For transmitters operating in the 5.725-5.85 GHz band:

All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz (68.2dBuV/m).

All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz (68.2dBuV/m).

All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz (68.2dBuV/m).

(i) All emissions shall be limited to a level of −27 dBm/MHz (68.2dBuV/m) at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz (105.2dBuV/m) at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz (110.8dBuV/m) at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz (122.2dBuV/m) at the band edge.

### 7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C

Test mode:

Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

b: Charging+TX mode\_ (Band 1)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

- c: Charging+TX mode (Band 2A)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.
- d: Charging+TX mode\_ (Band 2C)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.
- e: Charging+TX mode\_ (Band 3)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.



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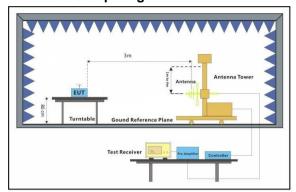
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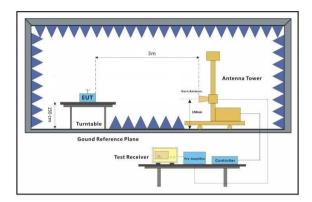


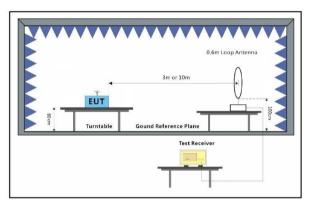


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### 7.8.2 Test Setup Diagram









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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. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
- 2. For emission below 1GHz, through the pre-scan found the worst case is the lowest channel of 802.11a. Only the worst case is recorded in the report.
- 3. Scan from 9kHz to 40GHz, 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. As shown in this section, 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: This test item was investigated while operating in TX Ant 1 and TX Ant 2 mode, however, it was determined that Ant 1 operation for a/n modulation produced the worst emissions. So the emissions produced from other operation are not recorded in report.



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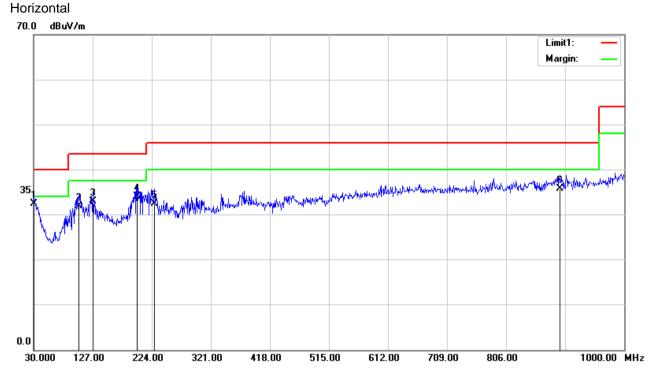
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30MHz-1GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	30.9700	7.03	25.38	32.41	40.00	-7.59	100	69	QP
2	103.7200	13.24	18.63	31.87	43.50	-11.63	100	254	QP
3	127.0000	13.67	19.39	33.06	43.50	-10.44	150	24	QP
4	199.7500	17.69	16.27	33.96	43.50	-9.54	110	197	QP
5	227.8800	14.58	17.96	32.54	46.00	-13.46	150	45	QP
6	894.2700	7.25	28.60	35.85	46.00	-10.15	100	125	QP



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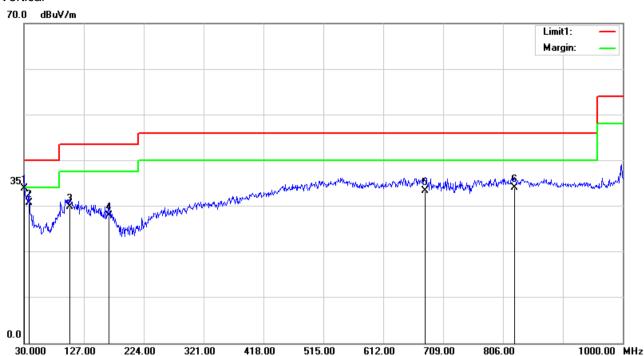
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### Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	30.0000	7.89	25.93	33.82	40.00	-6.18	100	307	QP
2	38.7300	9.68	20.95	30.63	40.00	-9.37	150	164	QP
3	103.7200	11.20	18.63	29.83	43.50	-13.67	100	25	QP
4	167.7400	9.19	18.76	27.95	43.50	-15.55	100	254	QP
5	679.9000	5.94	27.34	33.28	46.00	-12.72	150	54	QP
6	824.4300	6.12	27.95	34.07	46.00	-11.93	120	182	QP



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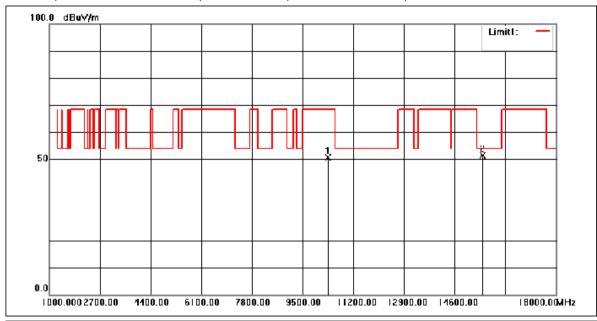




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### Above 1GHz

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



	No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
	1	10360.000	50.59	0.16	50.75	68.30	-17.55	peak
Ī	2	15540.000	45.59	5.73	51.32	54.00	-2.68	peak



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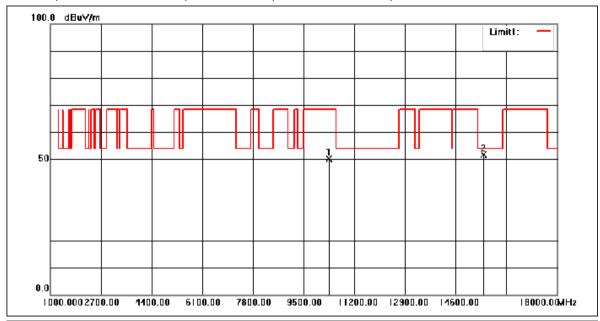
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Mode: b; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: Low



1	No.	Frequency		Correction	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1	10360.000	50.09	0.16	50.25	68.30	-18.05	peak
2	2	15540.000	45.95	5.73	51.68	54.00	-2.32	peak



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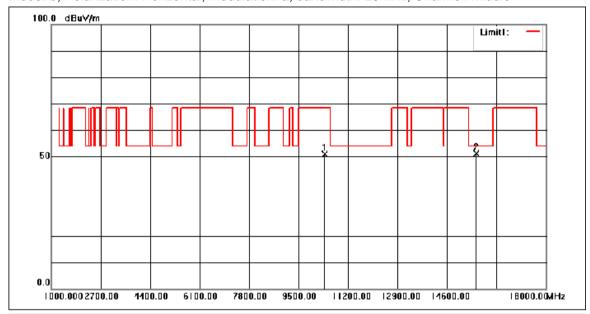
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Mode: b; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: middle



No.	Frequency (MHz)		Correction factor(dB/m)		Limit (dBuV/m)	Margin (dB)	Remark
1	10400.000	50.69	0.24	50.93	68.30	-17.37	peak
2	15600.000	45.17	5.85	51.02	54.00	-2.98	peak



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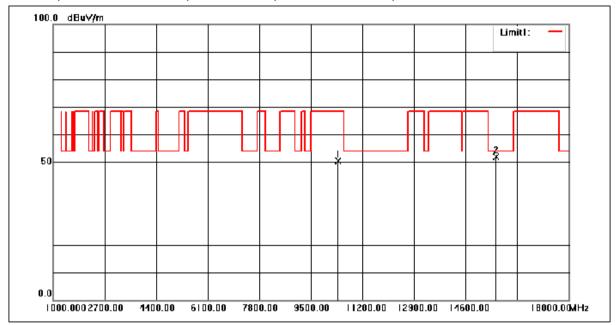
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Mode: b; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10400.000	50.11	0.24	50.35	68.30	-17.95	peak
2	15600.000	46.05	5.85	51.90	54.00	-2.10	peak



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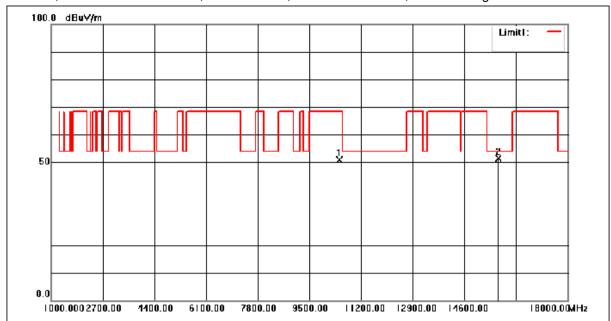
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Mode: b; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: High



1	No.	Frequency (MHz)	9	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
	1	10480.000	50.46	0.40	50.86	68.30	-17.44	peak
2	2	15720.000	45.32	6.10	51.42	54.00	-2.58	peak



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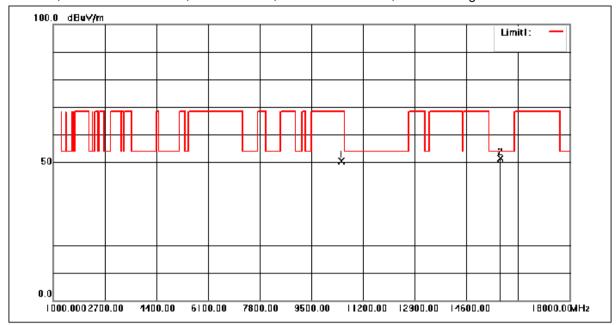
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Mode: b; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: High



	No.	Frequency (MHz)	9	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
ľ	1	10480.000	49.99	0.40	50.39	68.30	-17.91	peak
Ī	2	15720.000	45.16	6.10	51.26	54.00	-2.74	peak



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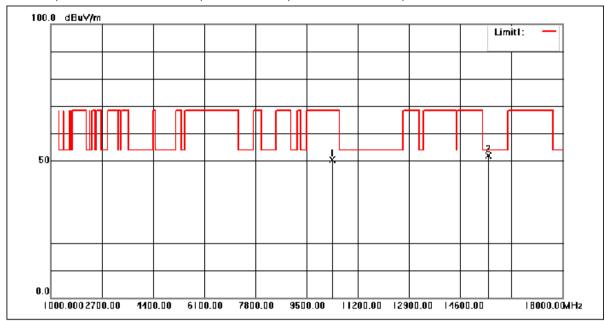
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Mode: b; Polarization: Horizontal; Modulation: n; bandwidth:20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10360.000	50.28	0.16	50.44	68.30	-17.86	peak
2	15540.000	46.08	5.73	51.81	54.00	-2.19	peak



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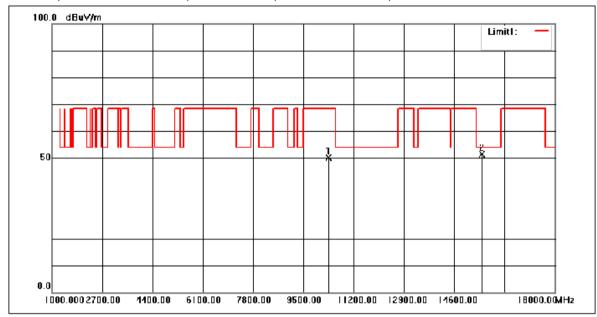
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Mode: b; Polarization: Vertical; Modulation: n; bandwidth:20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10360.000	50.05	0.16	50.21	68.30	-18.09	peak
2	15540.000	45.72	5.73	51.45	54.00	-2.55	peak



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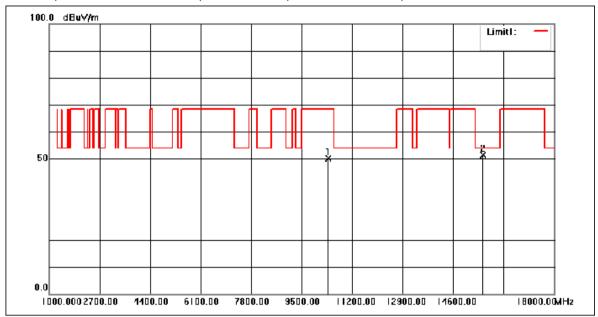
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Mode: b; Polarization: Horizontal; Modulation: n; bandwidth:20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10400.000	49.98	0.24	50.22	68.30	-18.08	peak
2	15600.000	45.53	5.85	51.38	54.00	-2.62	peak



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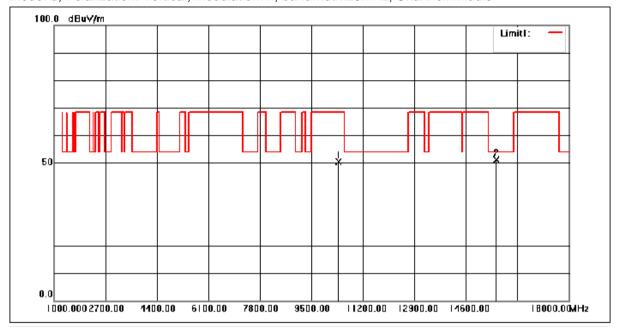
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Mode: b; Polarization: Vertical; Modulation: n; bandwidth:20MHz; Channel: middle



No	. Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10400.000	50.22	0.24	50.46	68.30	-17.84	peak
2	15600.000	45.26	5.85	51.11	54.00	-2.89	peak



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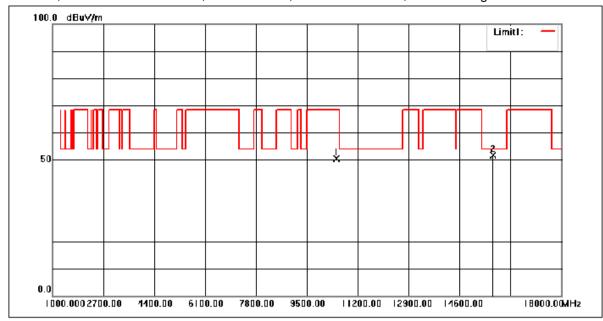
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Mode: b; Polarization: Horizontal; Modulation: n; bandwidth:20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10480.000	50.01	0.40	50.41	68.30	-17.89	peak
2	15720.000	45.63	6.10	51.73	54.00	-2.27	peak



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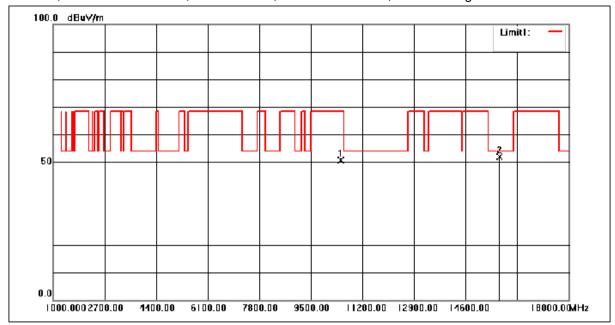
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Mode: b; Polarization: Vertical; Modulation: n; bandwidth:20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10480.000	50.28	0.40	50.68	68.30	-17.62	peak
2	15720.000	45.66	6.10	51.76	54.00	-2.24	peak



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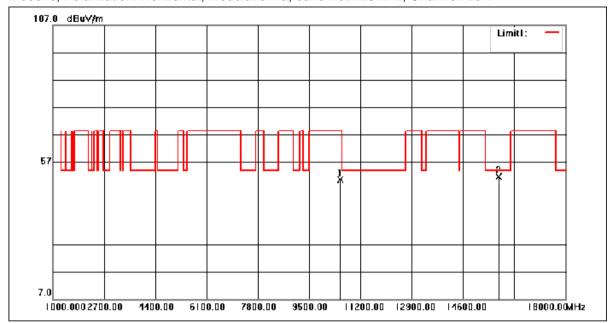
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Mode: c; Polarization: Horizontal; Modulation: a; bandwidth:20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10520.000	50.30	0.44	50.74	68.30	-17.56	peak
2	15780.000	45.29	6.23	51.52	54.00	-2.48	peak



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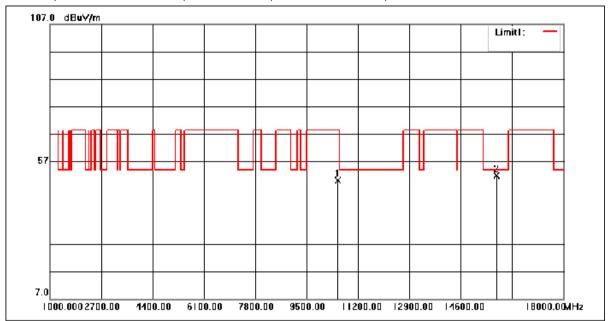
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Mode: c; Polarization: Vertical; Modulation: a; bandwidth:20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10520.000	49.79	0.44	50.23	68.30	-18.07	peak
2	15780.000	45.64	6.23	51.87	54.00	-2.13	peak



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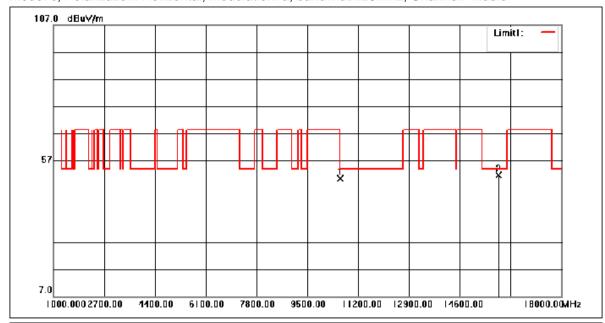
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Mode: c; Polarization: Horizontal; Modulation: a; bandwidth:20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10600.000	49.88	0.46	50.34	54.00	-3.66	peak
2	15900.000	45.18	6.48	51.66	54.00	-2.34	peak



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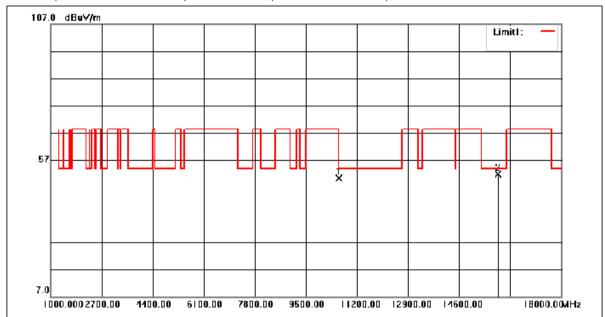
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Mode: c; Polarization: Vertical; Modulation: a; bandwidth:20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10600.000	49.96	0.46	50.42	54.00	-3.58	peak
2	15900.000	45.31	6.48	51.79	54.00	-2.21	peak



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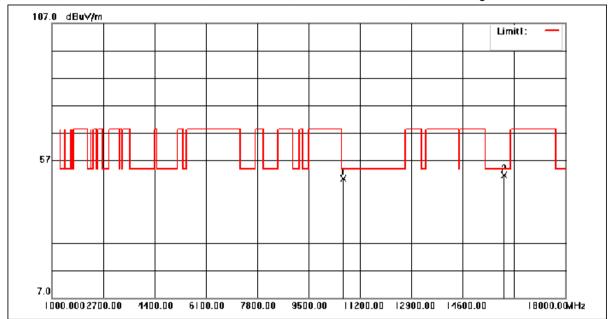
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Mode: c; Polarization: Horizontal; Modulation: a; bandwidth:20MHz; Channel: High



No	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10640.000	49.94	0.46	50.40	54.00	-3.60	peak
2	15960.000	44.91	6.60	51.51	54.00	-2.49	peak



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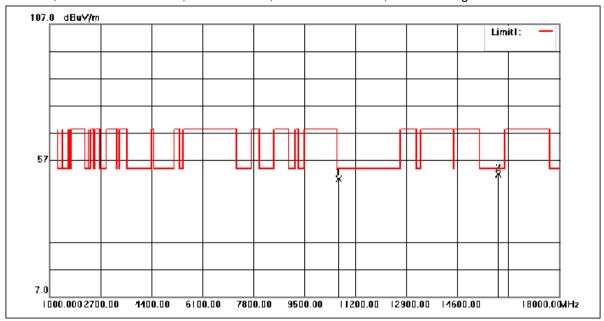
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Mode: c; Polarization: Vertical; Modulation: a; bandwidth:20MHz; Channel: High



1	Vo.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1	10640.000	49.66	0.46	50.12	54.00	-3.88	peak
2	2	15960.000	45.32	6.60	51.92	54.00	-2.08	peak



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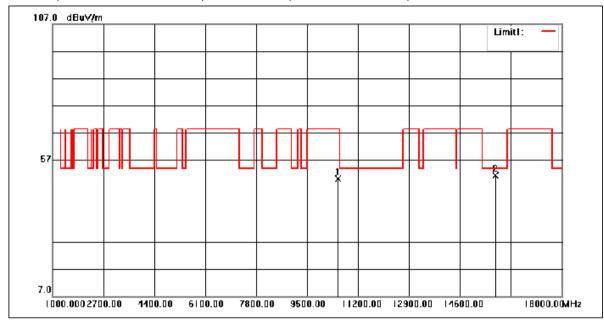
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Mode: c; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: Low



1	Vo.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	ı	10520.000	49.65	0.44	50.09	68.30	-18.21	peak
2	2	15780.000	45.20	6.23	51.43	54.00	-2.57	peak



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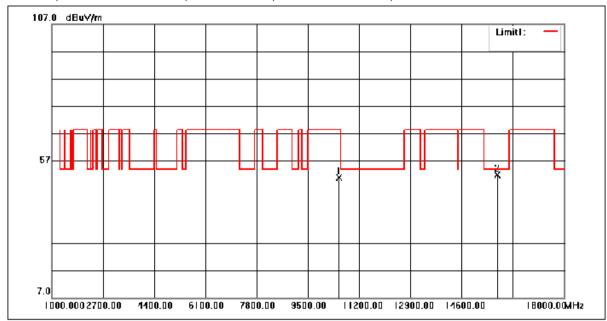
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Mode: c; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10520.000	50.35	0.44	50.79	68.30	-17.51	peak
2	15780.000	45.55	6.23	51.78	54.00	-2.22	peak



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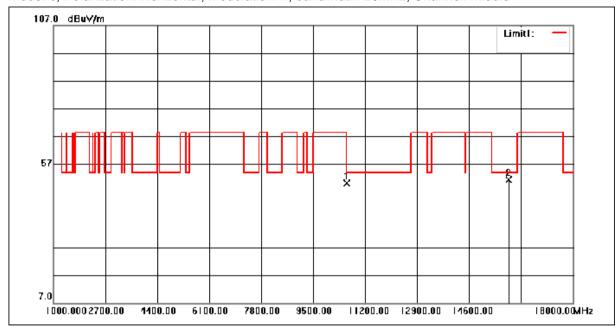
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Mode: c; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10600.000	49.72	0.46	50.18	54.00	-3.82	peak
2	15900.000	45.01	6.48	51.49	54.00	-2.51	peak



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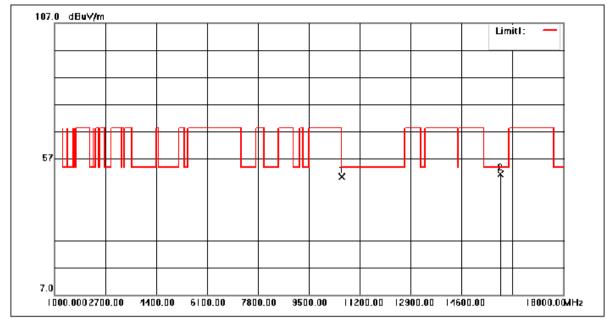
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Mode: c; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10600.000	49.80	0.46	50.26	54.00	-3.74	peak
2	15900.000	44.85	6.48	51.33	54.00	-2.67	peak



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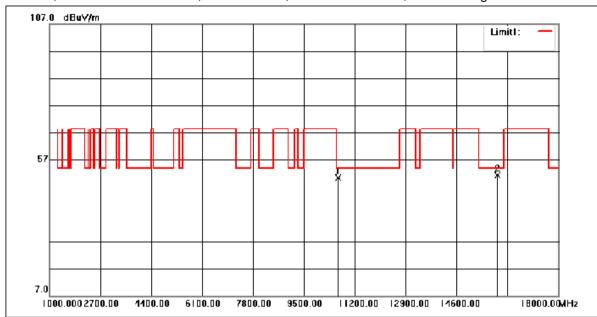
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Mode: c; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10640.000	49.81	0.46	50.27	54.00	-3.73	peak
2	15960.000	44.88	6.60	51.48	54.00	-2.52	peak



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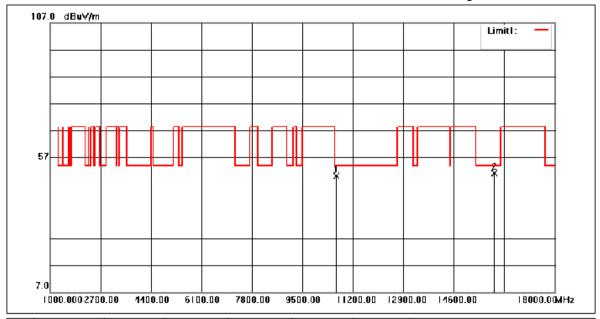
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Mode: c; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: High



N	lo.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1		10640.000	49.63	0.46	50.09	54.00	-3.91	peak
2		15960.000	44.54	6.60	51.14	54.00	-2.86	peak



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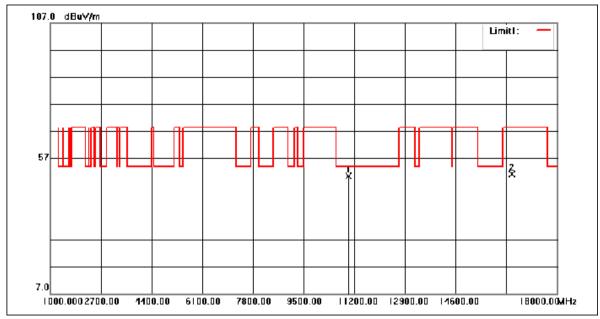
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Mode: d; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: Low



N	lo.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1		11000.000	49.85	0.54	50.39	54.00	-3.61	peak
2		16500.000	42.72	8.43	51.15	68.30	-17.15	peak



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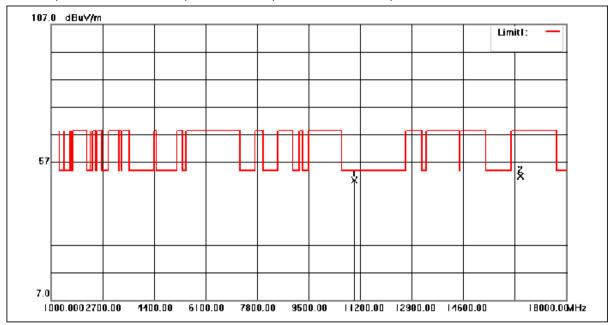
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Mode: d; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11000.000	49.87	0.54	50.41	54.00	-3.59	peak
2	16500.000	43.37	8.43	51.80	68.30	-16.50	peak



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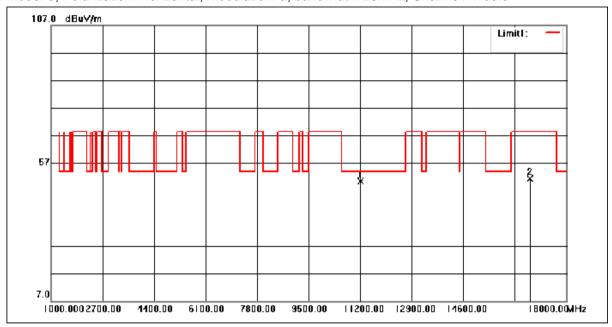
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Mode: d; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11200.000	49.56	0.71	50.27	54.00	-3.73	peak
2	16800.000	42.45	8.89	51.34	68.30	-16.96	peak



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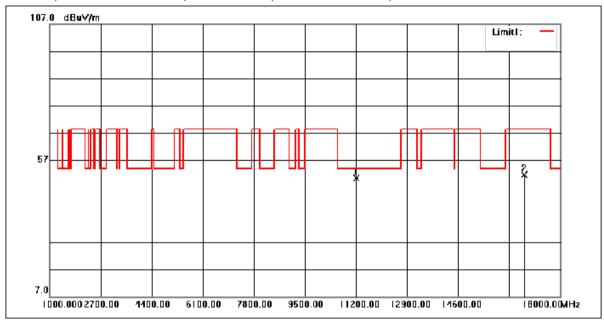
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Mode: d; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11200.000	49.77	0.71	50.48	54.00	-3.52	peak
2	16800.000	42.67	8.89	51.56	68.30	-16.74	peak



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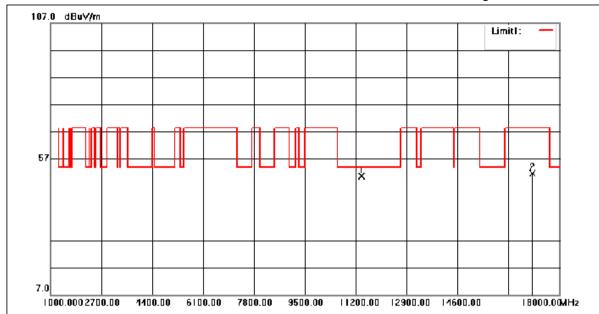
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Mode: d; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11400.000	49.81	0.87	50.68	54.00	-3.32	peak
2	17100.000	42.58	9.13	51.71	68.30	-16.59	peak



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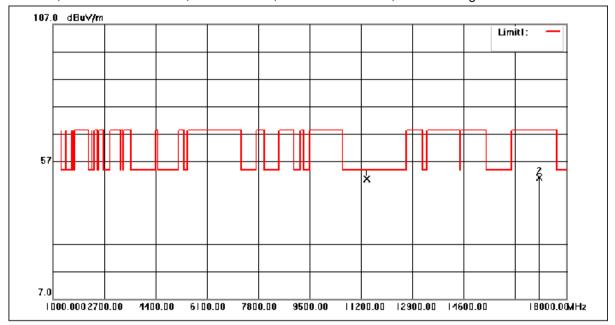
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Mode: d; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11400.000	49.69	0.87	50.56	54.00	-3.44	peak
2	17100.000	42.12	9.13	51.25	68.30	-17.05	peak



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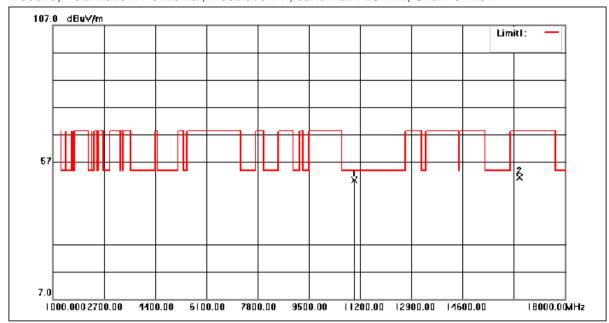
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Mode: d; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11000.000	49.82	0.54	50.36	54.00	-3.64	peak
2	16500.000	42.85	8.43	51.28	68.30	-17.02	peak



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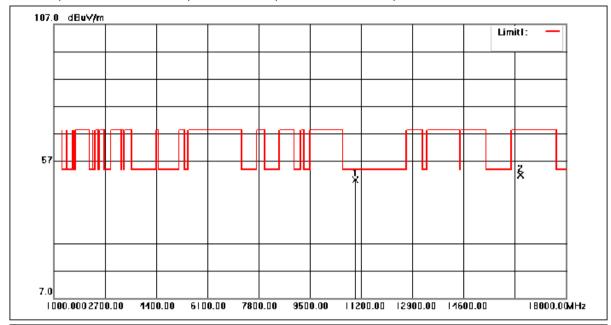
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Mode: d; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11000.000	49.67	0.54	50.21	54.00	-3.79	peak
2	16500.000	43.50	8.43	51.93	68.30	-16.37	peak



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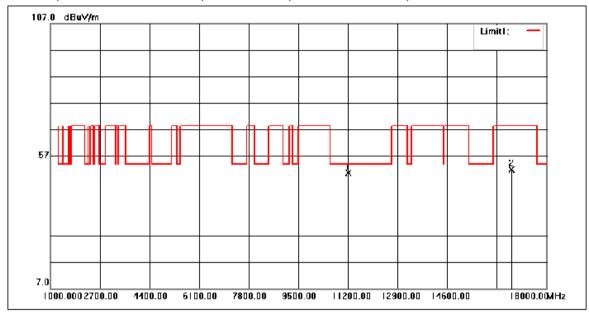
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Mode: d; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11200.000	49.92	0.71	50.63	54.00	-3.37	peak
2	16800.000	43.06	8.89	51.95	68.30	-16.35	peak



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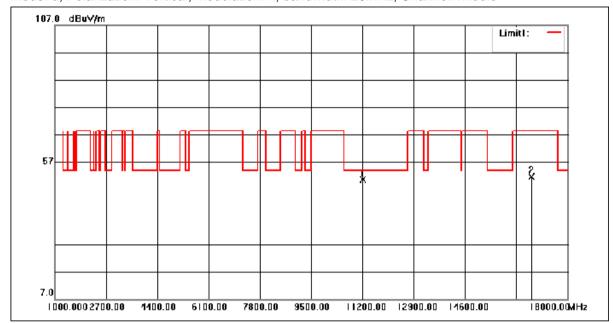
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Mode: d; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: middle



- 1	No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
	1	11200.000	49.93	0.71	50.64	54.00	-3.36	peak
2	2	16800.000	42.86	8.89	51.75	68.30	-16.55	peak



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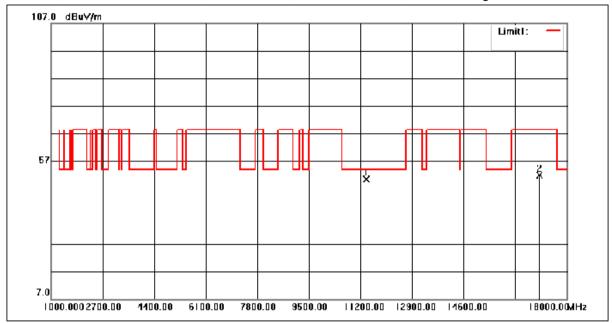
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Mode: d; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11400.000	49.49	0.87	50.36	54.00	-3.64	peak
2	17100.000	42.72	9.13	51.85	68.30	-16.45	peak



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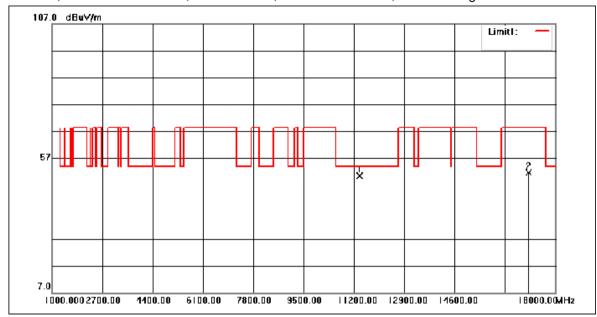
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Mode: d; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11400.000	49.42	0.87	50.29	54.00	-3.71	peak
2	17100.000	42.45	9.13	51.58	68.30	-16.72	peak



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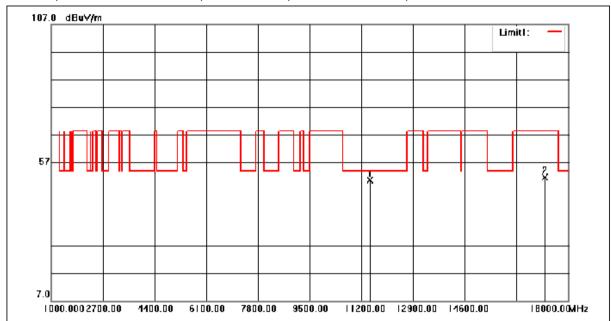
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Mode: e; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: Low



I	No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
,	1	11490.000	49.67	0.94	50.61	54.00	-3.39	peak
1	2	17235.000	42.50	9.05	51.55	68.30	-16.75	peak



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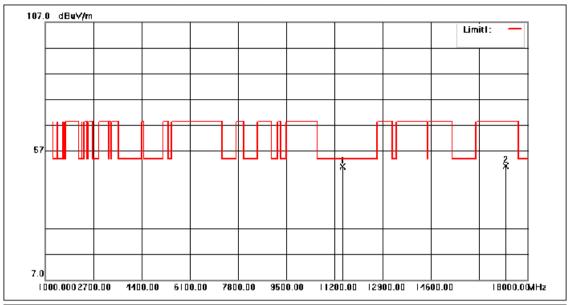
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Mode: e; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11490.000	49.99	0.94	50.93	54.00	-3.07	peak
2	17235.000	42.12	9.05	51.17	68.30	-17.13	peak



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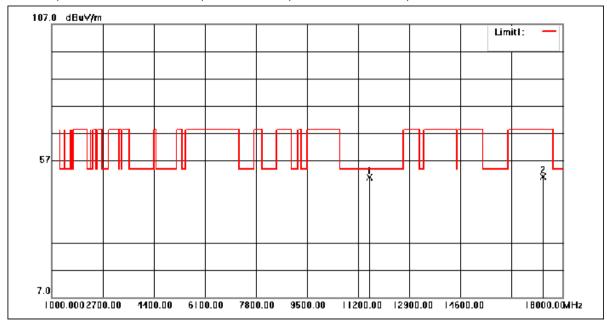
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Mode: e; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: middle



	No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
ſ	1	11570.000	49.58	1.18	50.76	54.00	-3.24	peak
	2	17355.000	42.12	8.98	51.10	68.30	-17.20	peak



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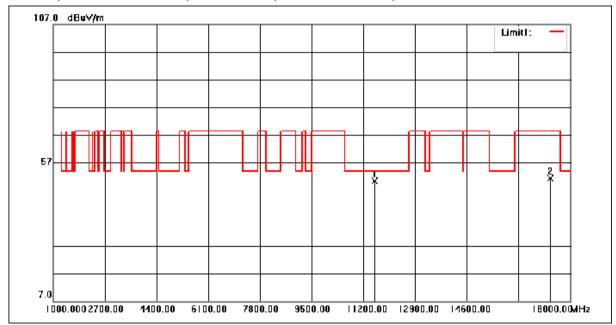
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Mode: e; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11570.000	49.26	1.18	50.44	54.00	-3.56	peak
2	17355.000	42.31	8.98	51.29	68.30	-17.01	peak



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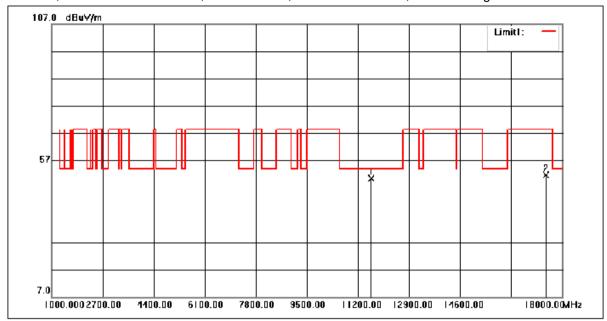
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Mode: e; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11650.000	49.01	1.45	50.46	54.00	-3.54	peak
2	17475.000	42.75	8.90	51.65	68.30	-16.65	peak



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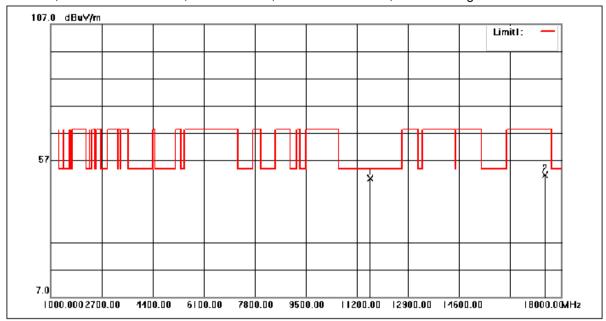
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Mode: e; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: High



N	lo.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1		11650.000	48.93	1.45	50.38	54.00	-3.62	peak
2		17475.000	42.66	8.90	51.56	68.30	-16.74	peak



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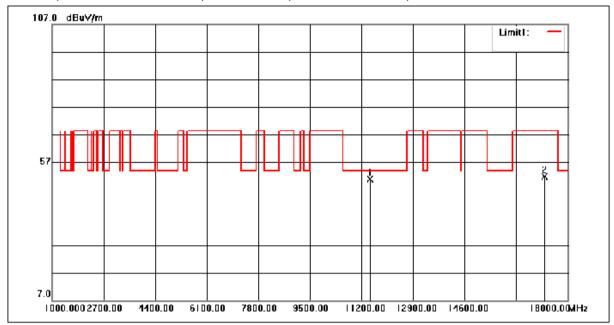
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Mode: e; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency (MHz)		Correction factor(dB/m)		Limit (dBuV/m)	Margin (dB)	Remark
1	11490.000	50.02	0.94	50.96	54.00	-3.04	peak
2	17235.000	42.79	9.05	51.84	68.30	-16.46	peak



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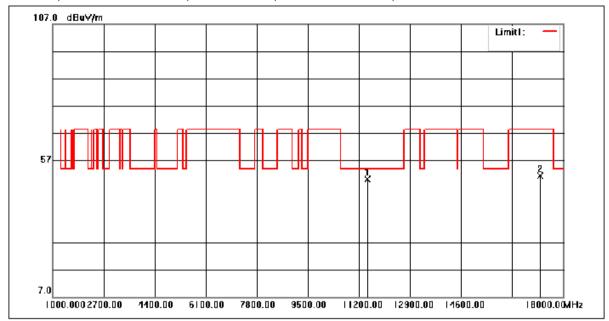
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Mode: e; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: Low



1	Vo.	Frequency		Correction	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
•	1	11490.000	49.10	0.94	50.04	54.00	-3.96	peak
2	2	17235.000	42.42	9.05	51.47	68.30	-16.83	peak



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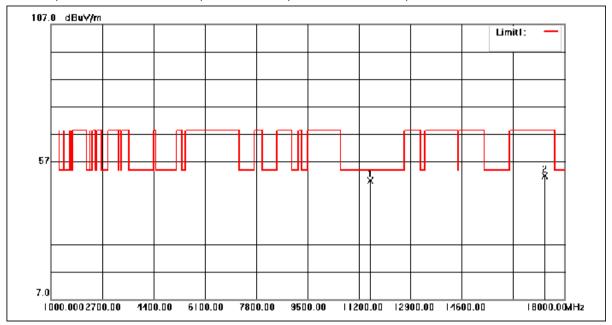
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Mode: e; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11570.000	48.97	1.18	50.15	54.00	-3.85	peak
2	17355.000	43.01	8.98	51.99	68.30	-16.31	peak



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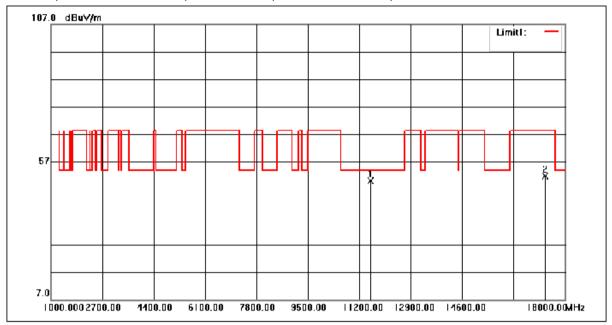
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Mode: e; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: middle



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11570.000	49.06	1.18	50.24	54.00	-3.76	peak
2	17355.000	42.80	8.98	51.78	68.30	-16.52	peak



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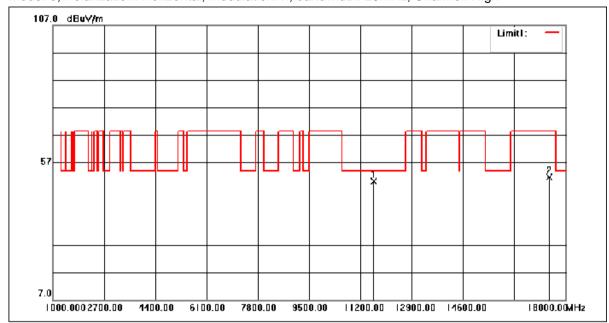
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Mode: e; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11650.000	48.62	1.45	50.07	54.00	-3.93	peak
2	17475.000	42.82	8.90	51.72	68.30	-16.58	peak



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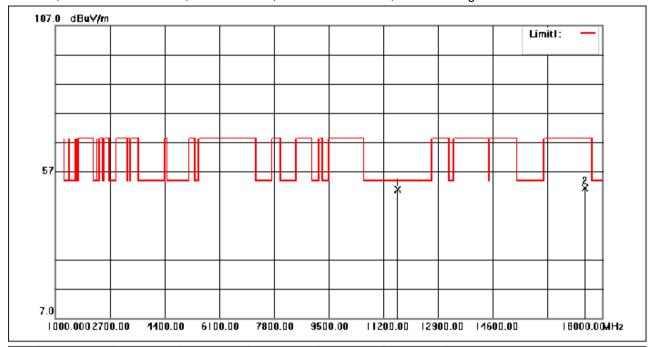
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Mode: e; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11650.000	49.41	1.45	50.86	54.00	-3.14	peak
2	17475.000	42.45	8.90	51.35	68.30	-16.95	peak



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

Report No.: SHEM210700742202

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### 7.9 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.407(b)

Test Method: KDB 789033 D02 II G

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.

### 7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode:

- b: Charging+TX mode\_ (Band 1)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.
- c: Charging+TX mode (Band 2A)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.
- d: Charging+TX mode\_ (Band 2C)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.
- e: Charging+TX mode\_ (Band 3)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.



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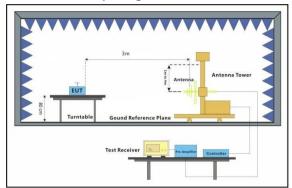
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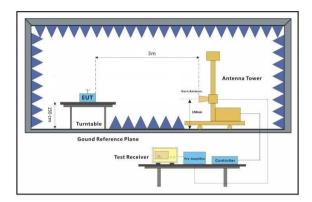


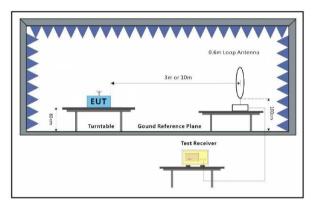


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### 7.9.2 Test Setup Diagram









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#### 7.9.3 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: This test item was investigated while operating in TX Ant 1 and TX Ant 2 mode, however, it was determined that Ant 1 operation for a/n modulation produced the worst emissions. So the emissions produced from other operation are not recorded in report.



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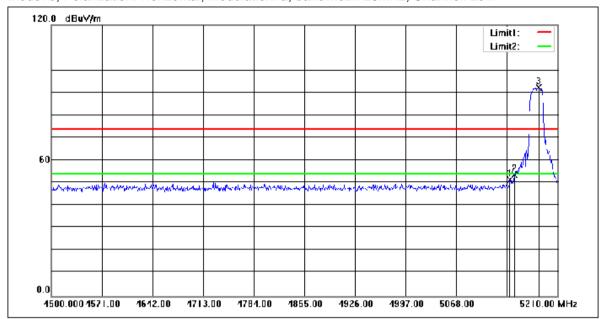
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Mode: b; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5143.260	59.26	-7.86	51.40	74.00	-22.60	peak
2	5150.000	61.39	-7.84	53.55	74.00	-20.45	peak
3	5183.730	99.90	-7.76	92.14	74.00	18.14	peak



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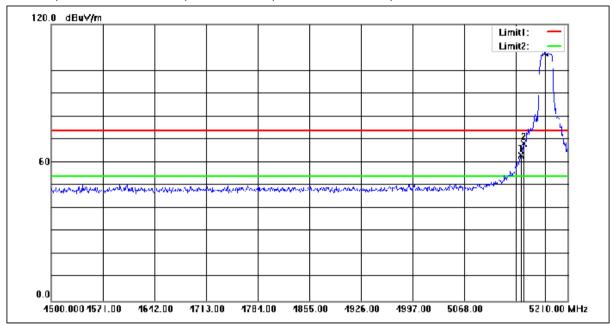
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Mode: b; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5146.100	71.03	-7.85	63.18	74.00	-10.82	peak
2	5150.000	76.12	-7.84	68.28	74.00	-5.72	peak
3	5178.760	115.43	-7.78	107.65	74.00	33.65	peak



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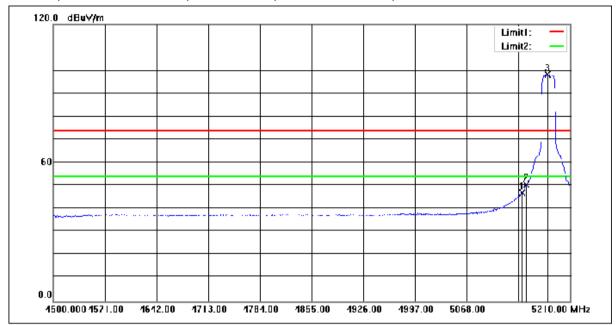
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Mode: b; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5143.970	54.86	-7.86	47.00	54.00	-7.00	AVG
2	5150.000	58.38	-7.84	50.54	54.00	-3.46	AVG
3	5178.760	106.01	-7.78	98.23	54.00	44.23	AVG



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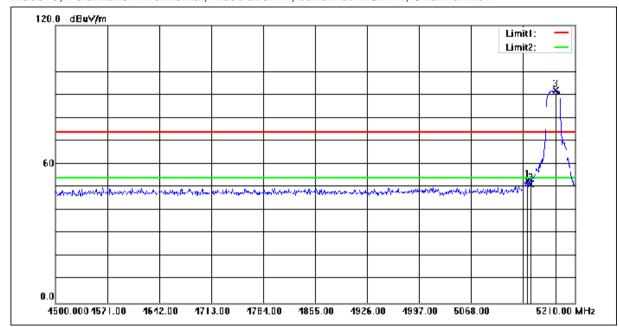
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Mode: b; Polarization: Horizontal; Modulation: n; bandwidth:20MHz; Channel: Low



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5144.680	60.76	-7.85	52.91	74.00	-21.09	peak
2	5150.000	59.43	-7.84	51.59	74.00	-22.41	peak
3	5183.730	99.68	-7.76	91.92	74.00	17.92	peak



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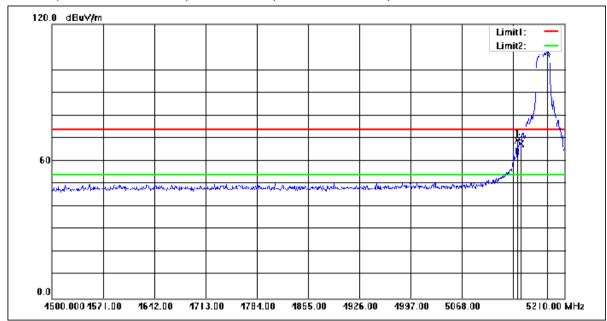
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Mode: b; Polarization: Vertical; Modulation: n; bandwidth:20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5144.680	76.89	-7.85	69.04	74.00	-4.96	peak
2	5150.000	75.48	-7.84	67.64	74.00	-6.36	peak
3	5186.570	115.59	-7.76	107.83	74.00	33.83	peak



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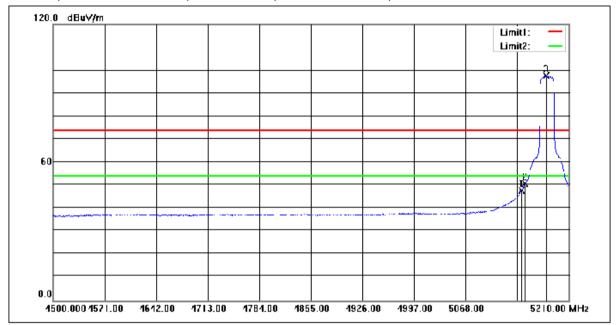
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Mode: b; Polarization: Vertical; Modulation: n; bandwidth:20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5145.390	55.75	-7.85	47.90	54.00	-6.10	AVG
2	5150.000	58.71	-7.84	50.87	54.00	-3.13	AVG
3	5178.760	105.33	-7.78	97.55	54.00	43.55	AVG



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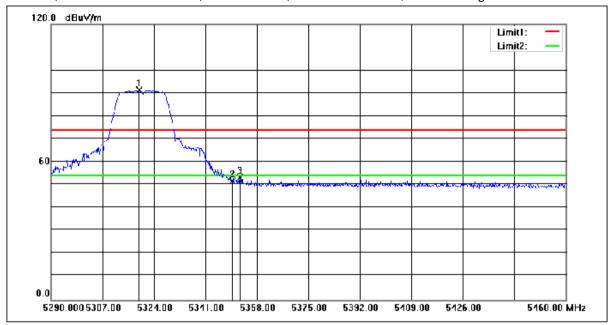
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Mode: c; Polarization: Horizontal; Modulation: a; bandwidth:20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5319.070	98.51	-7.27	91.24	74.00	17.24	peak
2	5350.000	58.96	-7.15	51.81	74.00	-22.19	peak
3	5352.390	60.36	-7.14	53.22	74.00	-20.78	peak



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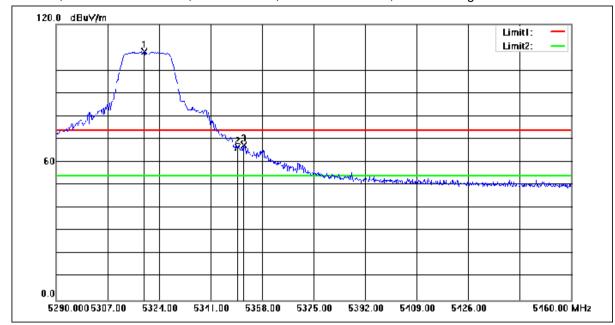
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Mode: c; Polarization: Vertical; Modulation: a; bandwidth:20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5319.070	115.32	-7.27	108.05	74.00	34.05	peak
2	5350.000	73.61	-7.15	66.46	74.00	-7.54	peak
3	5352.050	74.54	-7.14	67.40	74.00	-6.60	peak



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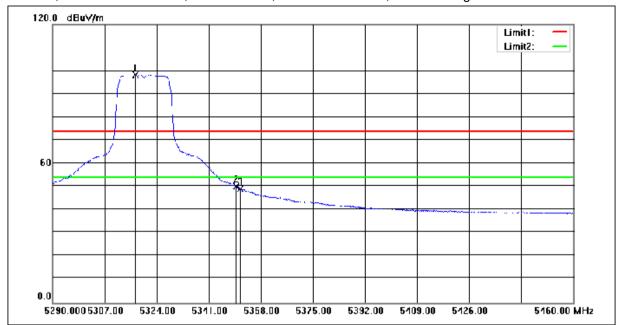
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Mode: c; Polarization: Vertical; Modulation: a; bandwidth:20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5317.030	105.46	-7.27	98.19	54.00	44.19	AVG
2	5350.000	57.26	-7.15	50.11	54.00	-3.89	AVG
3	5351.370	56.29	-7.14	49.15	54.00	-4.85	AVG



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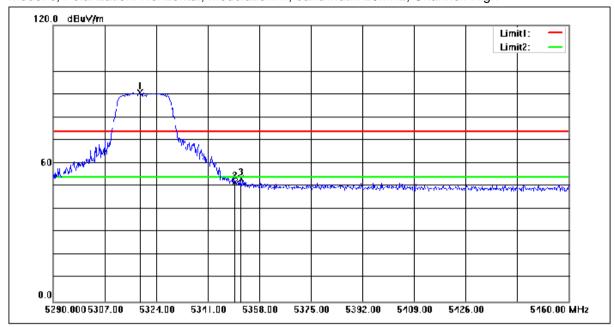
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Mode: c; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5318.560	98.06	-7.27	90.79	74.00	16.79	peak
2	5350.000	58.90	-7.15	51.75	74.00	-22.25	peak
3	5351.880	60.40	-7.14	53.26	74.00	-20.74	peak



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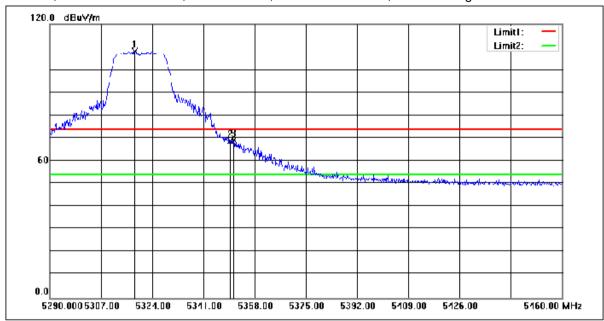
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Mode: c; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5318.220	115.34	-7.27	108.07	74.00	34.07	peak
2	5350.000	76.04	-7.15	68.89	74.00	-5.11	peak
3	5351.030	76.26	-7.14	69.12	74.00	-4.88	peak



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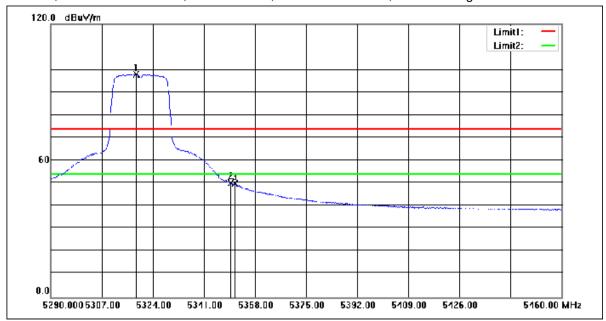
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Mode: c; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5318.390	105.16	-7.27	97.89	54.00	43.89	AVG
2	5350.000	57.43	-7.15	50.28	54.00	-3.72	AVG
3	5351.200	56.97	-7.14	49.83	54.00	-4.17	AVG



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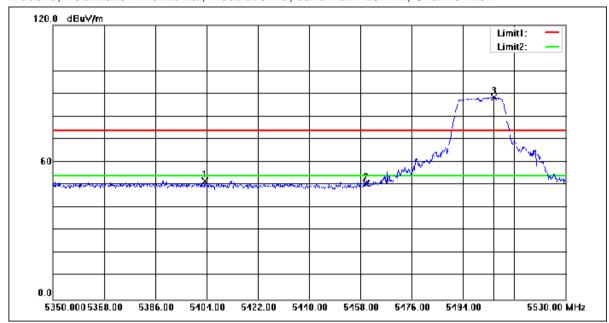
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Mode: d; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5403.280	58.77	-6.95	51.82	74.00	-22.18	peak
2	5460.000	57.50	-6.95	50.55	74.00	-23.45	peak
3	5504.980	95.31	-6.96	88.35	74.00	14.35	peak



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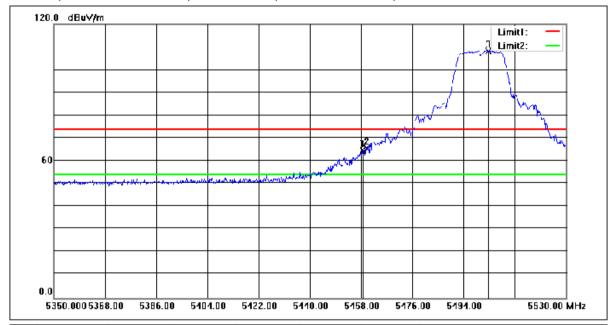
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Mode: d; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5458.540	71.67	-6.96	64.71	74.00	-9.29	peak
2	5460.000	72.59	-6.95	65.64	74.00	-8.36	peak
3	5502.820	115.08	-6.96	108.12	74.00	34.12	peak



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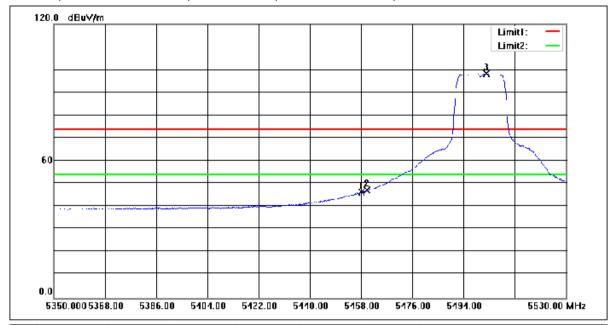
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Mode: d; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5458.000	53.44	-6.96	46.48	54.00	-7.52	AVG
2	5460.000	54.13	-6.95	47.18	54.00	-6.82	AVG
3	5501.920	105.27	-6.96	98.31	54.00	44.31	AVG



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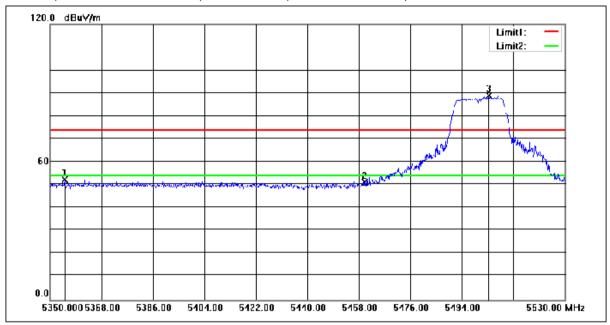
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Mode: d; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5355.040	59.40	-7.12	52.28	74.00	-21.72	peak
2	5460.000	58.14	-6.95	51.19	74.00	-22.81	peak
3	5503.360	95.88	-6.96	88.92	74.00	14.92	peak



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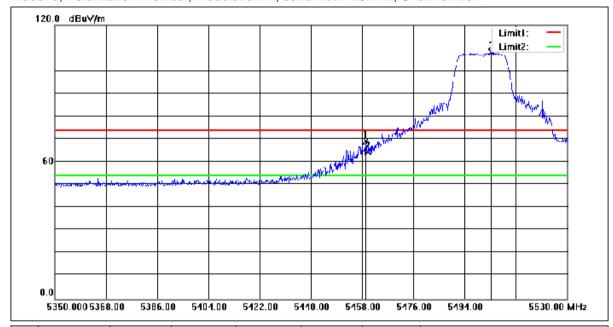
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Mode: d; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5459.260	76.17	-6.96	69.21	74.00	-4.79	peak
2	5460.000	71.27	-6.95	64.32	74.00	-9.68	peak
3	5503.540	115.07	-6.96	108.11	74.00	34.11	peak



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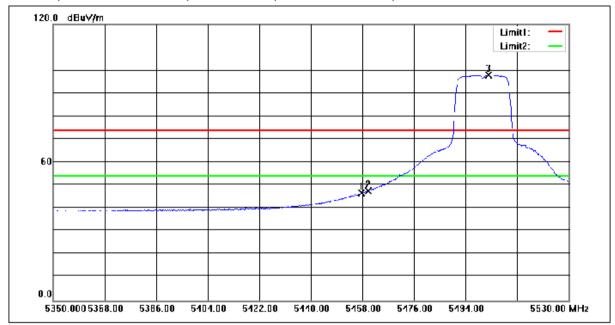
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Mode: d; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5457.640	53.50	-6.96	46.54	54.00	-7.46	AVG
2	5460.000	54.52	-6.95	47.57	54.00	-6.43	AVG
3	5502.100	105.01	-6.96	98.05	54.00	44.05	AVG



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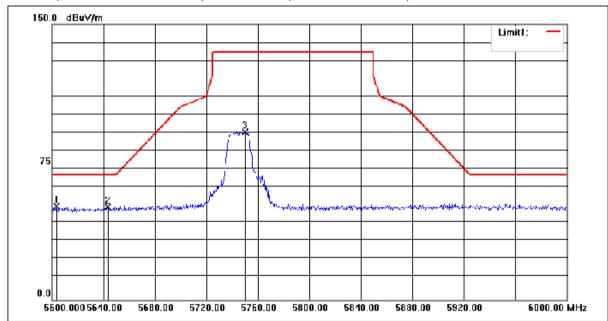
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Mode: e; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5603.200	57.83	-6.97	50.86	68.20	-17.34	peak
2	5643.200	57.15	-6.86	50.29	68.20	-17.91	peak
3	5750.000	98.03	-6.59	91.44	135.00	-43.56	peak



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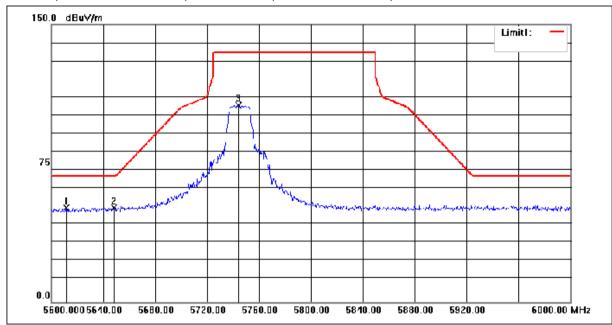
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Mode: e; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5611.200	57.86	-6.94	50.92	68.20	-17.28	peak
2	5648.000	57.76	-6.85	50.91	68.20	-17.29	peak
3	5744.400	113.04	-6.60	106.44	135.00	-28.56	peak



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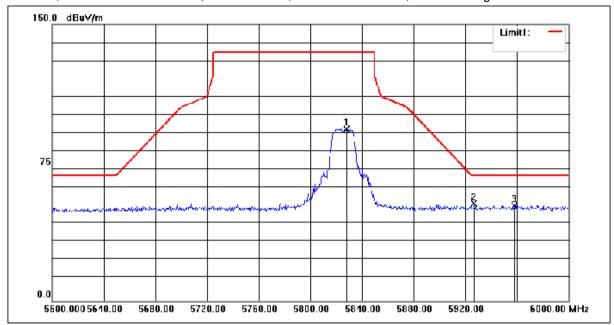
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Mode: e; Polarization: Horizontal; Modulation: a; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5828.000	99.63	-6.30	93.33	135.00	-41.67	peak
2	5926.800	58.33	-5.76	52.57	68.20	-15.63	peak
3	5958.000	57.25	-5.59	51.66	68.20	-16.54	peak



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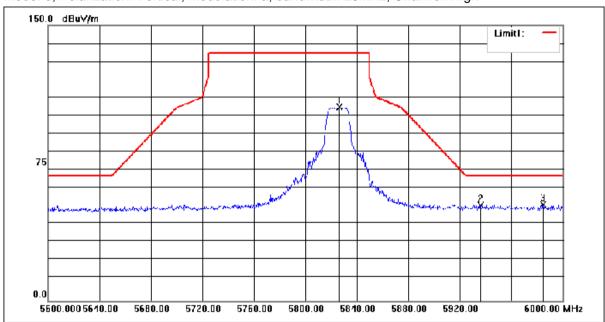
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Mode: e; Polarization: Vertical; Modulation: a; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5826.400	111.77	-6.32	105.45	135.00	-29.55	peak
2	5936.000	57.78	-5.71	52.07	68.20	-16.13	peak
3	5984.800	57.82	-5.44	52.38	68.20	-15.82	peak



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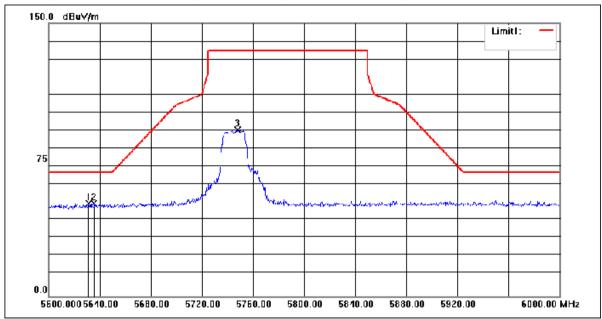
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Mode: e; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5631.200	57.61	-6.89	50.72	68.20	-17.48	peak
2	5635.600	57.88	-6.88	51.00	68.20	-17.20	peak
3	5748.000	97.74	-6.59	91.15	135.00	-43.85	peak



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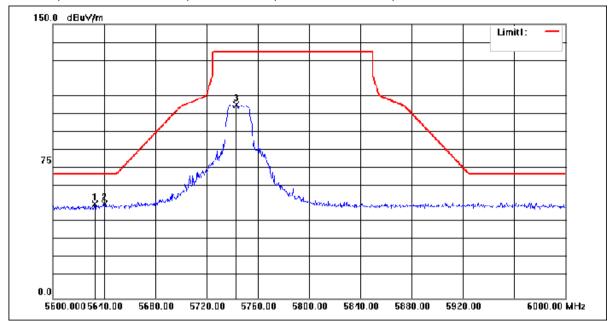
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Mode: e; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: Low



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5632.800	58.48	-6.89	51.59	68.20	-16.61	peak
2	5640.400	58.36	-6.87	51.49	68.20	-16.71	peak
3	5743.200	112.42	-6.61	105.81	135.00	-29.19	peak



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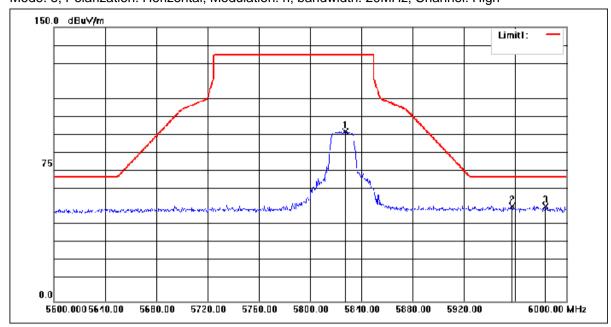
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Mode: e; Polarization: Horizontal; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5827.600	99.20	-6.31	92.89	135.00	-42.11	peak
2	5957.600	57.69	-5.59	52.10	68.20	-16.10	peak
3	5983.600	57.51	-5.45	52.06	68.20	-16.14	peak



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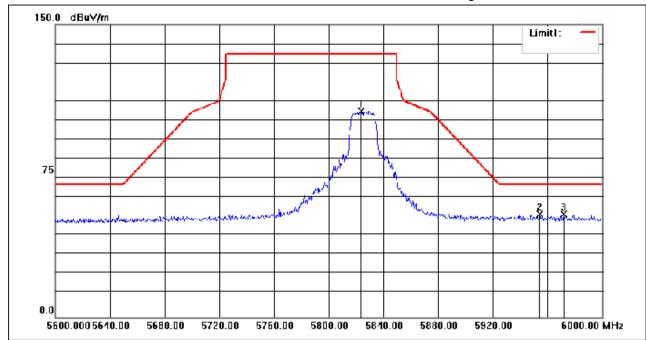
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Mode: e; Polarization: Vertical; Modulation: n; bandwidth: 20MHz; Channel: High



No.	Frequency	Reading	Correction	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5823.600	112.03	-6.33	105.70	135.00	-29.30	peak
2	5954.400	58.39	-5.62	52.77	68.20	-15.43	peak
3	5972.000	58.12	-5.52	52.60	68.20	-15.60	peak



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

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# 7.10 Frequency Stability

Test Requirement 47 CFR Part 15, Subpart C 15.407 (g)
Test Method: ANSI C63.10 (2013) Section 6.8

Limit: The frequency tolerance shall be maintained within the band of operation

frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

### 7.10.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode: b: Charging+TX mode\_ (Band 1)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is

recorded in the report.

c: Charging+TX mode (Band 2A)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

d: Charging+TX mode\_ (Band 2C)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.

e: Charging+TX mode\_ (Band 3)\_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.



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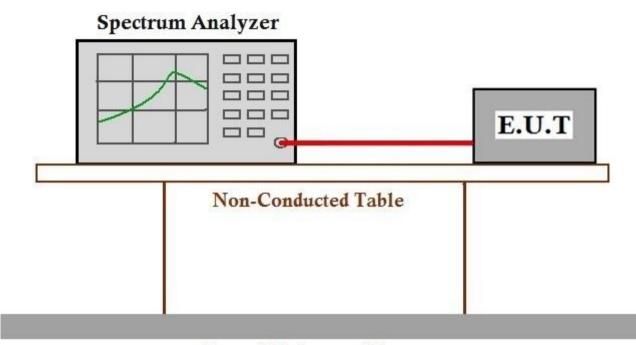
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### 7.10.2 Test Setup Diagram



# Ground Reference Plane

#### 7.10.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210700742202



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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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