

Report No.: XEWA2309000067RG04

Rev.: 01

Page: 1 of 745

TEST REPORT

Application No.: XEWA2309000067RG
Applicant: Quectel Wireless Solutions Co., Ltd.
Address of Applicant: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Manufacturer: Quectel Wireless Solutions Co., Ltd.
Address of Manufacturer: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
EUT Description: Wi-Fi & Bluetooth Module
Model No.: FC65E
Trade Mark: Quectel
FCC ID: XMR2023FC65E
Standards: FCC 47 CFR Part 2, Subpart J
FCC 47 CFR Part 15, Subpart E
Date of Receipt: 2023/09/04
Date of Test: 2023/09/26 to 2023/10/30
Date of Issue: 2023/10/30

Test Result :	PASS *
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* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:



Peter Tan
Regulatory Technical Manager



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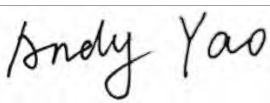
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1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2023/10/30		Original

Prepared By	 (Leah Chen) / Test Engineer
Checked By	 (Andy Yao) / Reviewer



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2 Test Summary

Test Item	Band ^[1]	FCC rules No.	Test Requirements	Test Result	Result
Antenna Requirement	--	15.203/15.407(a)	--	Clause 4.1	PASS
26dB Emission Bandwidth	Band I	15.407(a)(1)	No limit.	Clause 4.5	For Report Purpose
	Band II-A	15.407(a)(2)			
	Band II-C	15.407(a)(2)			
6dB Emission Bandwidth	Band III	15.407(e)	≥ 500 kHz.	Clause 4.6	PASS
99% Occupied Bandwidth	Band I	KDB 789033 D02§ D	No limit.	Clause 4.7	For Report Purpose
	Band II-A				
	Band II-C				
	Band III				
Duty Cycle	Band I Band II-A Band II-C Band III	--	No limit.	Clause 4.3	For Report Purpose
Maximum Conducted Output Power	Band I	15.407(a)(iv)	< 250mW	Clause 4.4	PASS
	Band II-A	15.407(a)(2)	<MIN{250mW, 11dBm+10*lg(EBW)}		
	Band II-C				
	Band III	15.407(a)(3)	< 1W		
Maximum Power Spectral Density	Band I	15.407(a)(iv)	<11dBm/MHz	Clause 4.8	PASS
	Band II-A	15.407(a)(2)	<11dBm/MHz		
	Band II-C				
	Band III	15.407(a)(3)	<30dBm/500KHz		
Radiated Spurious Emissions	Band I	15.407(b) 15.205/15.209	F<1GHz: §15.209 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.15-5.35 GHz). F≥1GHz & in-restricted: §15.209 limit (AV&PK).	Clause 4.9	PASS
	Band II-A	15.407(b) 15.205/15.209	F<1GHz: §15.209 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.25-		PASS



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			5.35 GHz). F≥1GHz & in-restricted: \$15.209 limit (AV&PK).		PASS
	Band II-C	15.407(b) 15.205/15.209	F<1GHz: \$15.209 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.47-5.725 GHz). F≥1GHz & in-restricted: \$15.209 limit (AV&PK).		
	Band III	15.407(b) 15.205/15.209	F<1GHz: \$15.209 limit (QP) F≥1GHz & out-restricted:(PK) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz 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 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 at the band edge. F≥1GHz & in-restricted: \$15.209 limit (AV&PK).		
Restricted bands around fundamental frequency	Band I Band II-A Band II-C Band III	15.407(b) 15.205/15.209	---	Clause 4.10	PASS
AC Power Line Conducted Emissions	Band I Band II-A Band II-C Band III	15.207	---	Clause 4.2	PASS
Dynamic Frequency Selection	Band II-A Band II-C	15.407	Channel Move Time:10 Seconds	Clause 4.11	PASS
Frequency Stability	Band I Band II-A Band II-C	15.407(g)	Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of	N/A	N/A



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	Band III		normal operation as specified in the users manual		
Note 1: Band I: 5150-5250MHz Band II-A: 5250-5350MHz Band II-C: 5470-5725MHz Band III: 5725-5850MHz					



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3 General Information

3.1 Details of Client

Applicant:	Quectel Wireless Solutions Co., Ltd.
Address of Applicant:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Manufacturer:	Quectel Wireless Solutions Co., Ltd.
Address of Manufacturer:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233

3.2 Test Location

Company:	SGS-CSTC Standards Technical Services (Xi'an) Co., Ltd.
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Post code:	710086
Test engineer:	Qiang Zhang, Jacky Xue

3.3 Test Facility

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

• **A2LA (Certificate No. 4854.01)**

SGS-CSTC Standards Technical Services (Xi'an) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4854.01.

• **Innovation, Science and Economic Development Canada**

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

CAB identifier: CN0095.

IC#: 25613.

• **FCC –Designation Number: CN1337**

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

Designation Number: CN1337.

Test Firm Registration Number: 917410



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3.4 General Description of EUT

EUT Description:	Wi-Fi & Bluetooth Module	
Model No.:	FC65E	
Trade Mark:	Quectel	
Hardware Version:	R1.0	
Software Version:	/	
Power Supply:	DC 2V	
SN:	E1N23B108000083	
WLAN Mode Supported:	802.11a:	20 MHz channel bandwidth
	802.11n:	20 MHz / 40 MHz channel bandwidth
	802.11ac:	20 MHz / 40 MHz / 80 MHz / 160 MHz channel bandwidth
	802.11ax:	20 MHz / 40 MHz / 80 MHz / 160 MHz channel bandwidth
Operation Frequency:	5150MHz to 5250MHz 5250MHz to 5350MHz 5470MHz to 5725MHz 5725MHz to 5850MHz	
Modulation Type:	802.11a:	OFDM (BPSK, QPSK, 16QAM, 64QAM)
	802.11n:	OFDM (BPSK, QPSK, 16QAM, 64QAM)
	802.11ac:	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
	802.11ax:	OFDM/OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
Channel Spacing:	20MHz:	802.11a/n(HT20)/ac(VHT20)/ax(HE20)
	40MHz:	802.11n(HT40)/ac(VHT40)/ax(HE40)
	80MHz:	802.11ac(VHT80)/ax(HE80)
	160MHz:	802.11ac(VHT160)/ax(HE160)
Antenna Type:	☒ External, ☐ Integrated	
Antenna Gain:	5150MHz to 5250MHz: 1.14dBi(Ant0); 1.14dBi(Ant1); 5250MHz to 5350MHz: 1dBi(Ant0); 1dBi(Ant1); 5470MHz to 5725MHz: 0.6dBi(Ant0); 0.6dBi(Ant1); 5725MHz to 5850MHz: 0.95dBi(Ant0); 0.95dBi(Ant1);	
	Note: The antenna gain are derived from the gain information report provided by the manufacturer.	
Smart System:	☐ SISO	802.11a/n/ac/ax
	☒ MIMO	802.11n/ac/ax: 2Tx & 2Rx



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	☒ Diversity	802.11a: 2Tx & 2Rx
TPC Function:	☒ Support, ☐ Not Support	
DFS Function:	☐ Master	
	☐ Slave with radar detection	☒ Slave without radar detection
RF Cable:	1.5dB	
Remark: As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.		

Remark: In FCC 15.31, for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table, and the selected channel to perform the test as below:		
Frequency range over which device operates	Number of Measurement Frequencies Required	Location of Measurement Frequency in Band of Operation
1 MHz or less	1	centre
1 MHz to 10 MHz	2	1 near high end, 1 near low end
Greater than 10 MHz	3	1 near high end, 1 near centre

For UNII Band I:		
Mode	Channel	Frequency(MHz)
IEEE 802.11a/n/ac/ax 20MHz	The Lowest channel	5180
	The Middle channel	5200
	The Highest channel	5240
IEEE 802.11n/ac/ax 40MHz	The Lowest channel	5190
	The Highest channel	5230
IEEE 802.11ac/ax 80MHz	The Middle channel	5210



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For UNII Band II-A:		
Mode	Channel	Frequency(MHz)
IEEE 802.11a/n/ac/ax 20MHz	The Lowest channel	5260
	The Middle channel	5280
	The Highest channel	5320
IEEE 802.11n/ac/ax 40MHz	The Lowest channel	5270
	The Highest channel	5310
IEEE 802.11ac/ax 80MHz	The Middle channel	5290
IEEE 802.11ax 160MHz	The Middle channel	5250

For UNII Band II-C:		
Mode	Channel	Frequency(MHz)
IEEE 802.11a/n/ac/ax 20MHz	The Lowest channel	5500
	The Middle channel	5580
	The Highest channel	5700
IEEE 802.11n/ac/ax 40MHz	The Lowest channel	5510
	The Middle channel	5550
	The Highest channel	5670
IEEE 802.11ac/ax 80MHz	The Middle channel	5530
IEEE 802.11ax 160MHz	The Middle channel	5570

For UNII Band III:		
Mode	Channel	Frequency(MHz)
IEEE 802.11a/n/ac/ax 20MHz	The Lowest channel	5745
	The Middle channel	5785
	The Highest channel	5825
IEEE 802.11n/ac/ax 40MHz	The Lowest channel	5755
	The Highest channel	5795
IEEE 802.11ac/ax 80MHz	The Middle channel	5775



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3.5 Test Environment and Mode

Environment Parameter	96~101 kPa Selected Values During Tests	
Relative Humidity	40-60 % RH Ambient	
Value	Temperature(°C)	Voltage(V)
NTNV	22~25	2
Remark: NV: Normal Voltage NT: Normal Temperature		

3.6 Description of Support Units

Description	Manufacturer	Model No.
Mother board*	QUECTEL	5G-EVB Q1-A7138
Adapter*	Shenzhen Keyu Power Supply Techology Co.,Ltd	KA1801A-0503000DE
Router	Netgear	R7800 (FCC ID: PY315100319)
*Remark: The information of table are provided by client.		



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3.7 Worst-case configuration and mode

Low data rate was used to test on antenna port conducted tests and radiated spurious emissions since it has the highest maximum power. Following are the worst-case data rates set for test:

Modulation Type	SISO - Data Rate	CDD/MIMO - Data Rate
802.11a	/	12 Mbps
802.11n (HT 20)	/	MCS0 (13 Mbps)
802.11n (HT 40)	/	MCS0 (27 Mbps)
802.11ac (VHT 20)	/	MCS0 (13 Mbps)
802.11ac (VHT 40)	/	MCS0 (27 Mbps)
802.11ac (VHT 80)	/	MCS0 (58.5 Mbps)
802.11ac (VHT 160)	/	MCS0 (117 Mbps)
802.11ax (HE 20)	/	MCS0 (16 Mbps)
802.11ax (HE 40)	/	MCS0 (32 Mbps)
802.11ax (HE 80)	/	MCS0 (68 Mbps)
802.11ax (HE 160)	/	MCS0 (136 Mbps)



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4 Test results and Measurement Data

4.1 Antenna Requirement

Standard requirement:	47 CFR Part 15 Section 15.203
The antenna is External Antenna and no consideration of replacement. The best case gain of the antenna is 5150MHz to 5250MHz: 1.14dBi(Ant0); 1.14dBi(Ant1);* 5250MHz to 5350MHz: 1dBi(Ant0); 1dBi(Ant1);* 5470MHz to 5725MHz: 0.6dBi(Ant0); 0.6dBi(Ant1);* 5725MHz to 5850MHz: 0.95dBi(Ant0); 0.95dBi(Ant1);* <i>*Note:</i> The antenna gain are derived from the gain information report provided by the manufacturer. <i>Remark:</i> As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.	



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Cyclic Delay Diversity (CDD) System:

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

If all antennas have the same gain, G_{ANT} , Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

$Array\ Gain = 10 \log(N_{ANT}/N_{SS} = 1) \text{ dB}$.

- For power measurements on IEEE 802.11 devices:

$Array\ Gain = 0 \text{ dB}$ (i.e., no array gain) for $N_{ANT} \leq 4$;

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

The Power and PSD limit should be modified if the directional gain of eut is over 6dbi.

The EUT supports CDD System.

All antennas have the same gain:

Operation Frequency	ANT Gain0 (dBi)	ANT Gain1 (dBi)	Directional gain For Power (dBi)	Directional gain For PSD (dBi)	Power Limit Reduction (dBm)	PSD Limit Reduction (dBm)
5150MHz to 5250MHz	1.14	1.14	1.14	4.15	0	0
5250MHz to 5350MHz	1	1	1	4.01	0	0
5470MHz to 5725MHz	0.6	0.6	0.6	3.61	0	0
5725MHz to 5850MHz	0.95	0.95	0.95	3.96	0	0

5150MHz to 5250MHz:

Power Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0

PSD Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0

5250MHz to 5350MHz:

Power Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0

PSD Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0

5470MHz to 5725MHz:

Power Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0

PSD Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0

5725MHz to 5850MHz:

Power Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0

PSD Limit Reduction = Directional gain – 6dBi, (Directional gain < 6dBi) =0



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4.2 AC Power Line Conducted Emissions

Test Requirement:	47 CFR Part 15 Section 15.207		
Test Method:	ANSI C63.10-2020 Section 6.2		
Test Frequency Range:	150kHz to 30MHz		
Receiver Setup:	RBW = 9kHz, VBW = 30kHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	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 50Ω/50μH + 5Ω 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 C63.10-2020 on conducted measurement.		



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Test Setup:	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates at lowest, middle and highest channel.
Final Test Mode:	Refer to section 3.7 for details. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 6 for details.
Test Results:	Pass

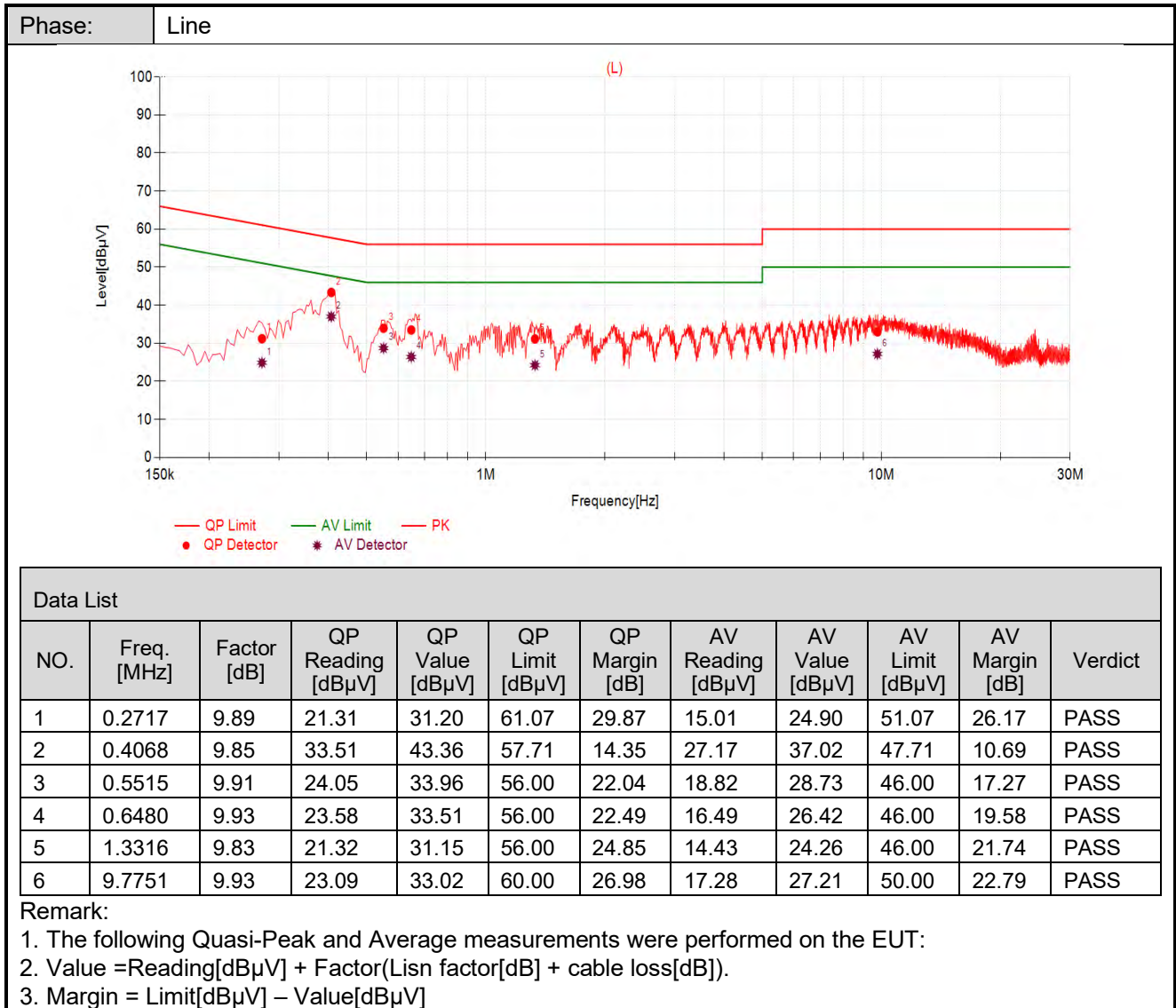
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Measurement Data

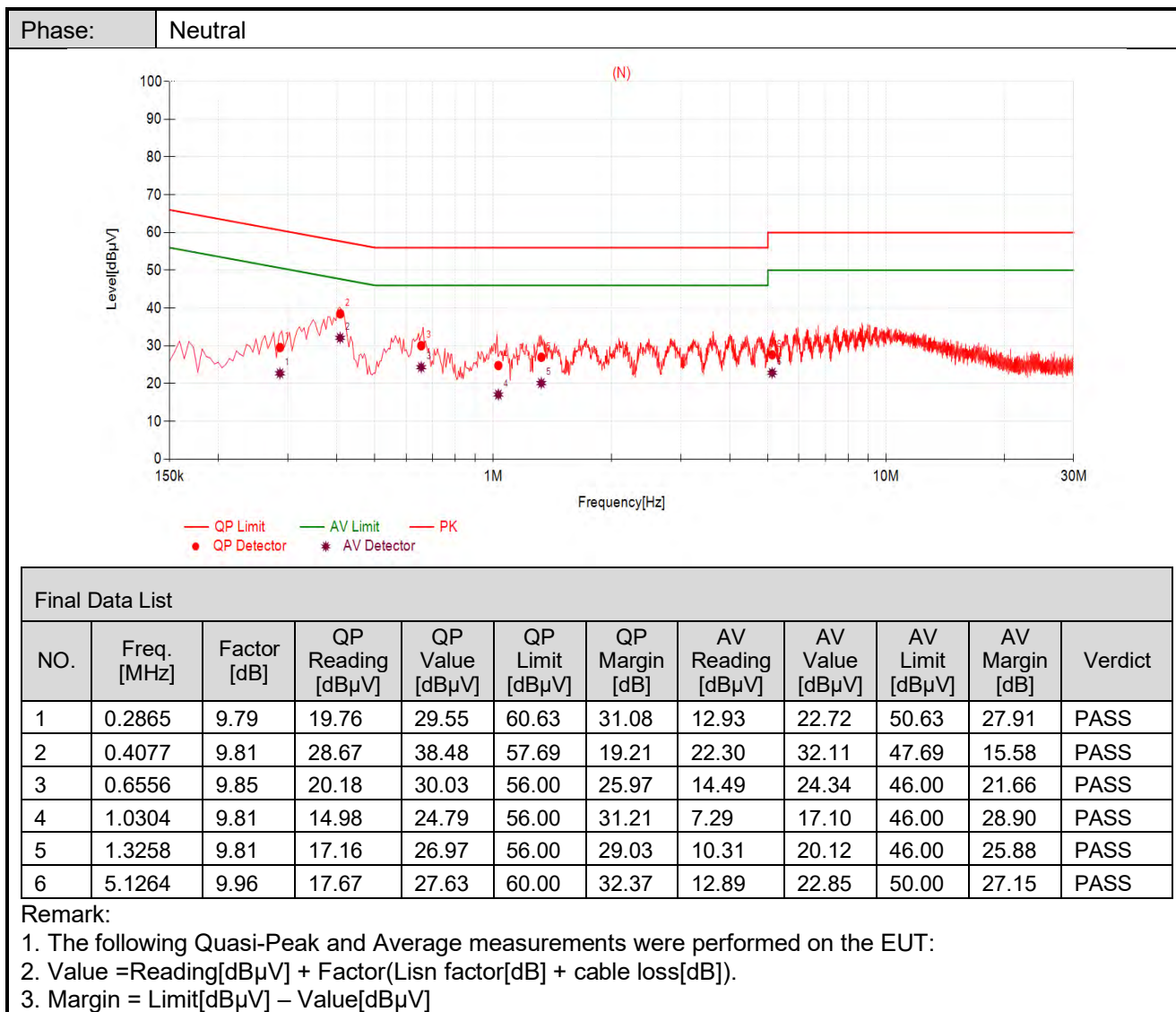
An initial pre-scan was performed on the live and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



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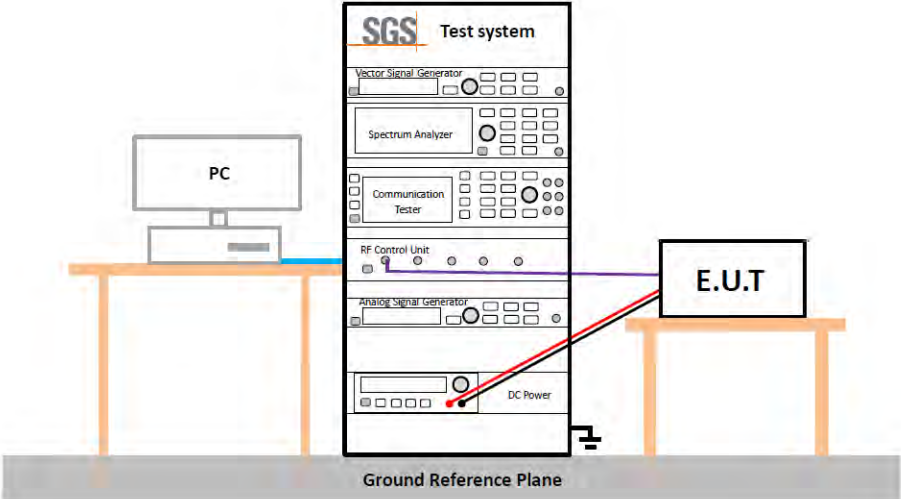
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4.3 Duty Cycle

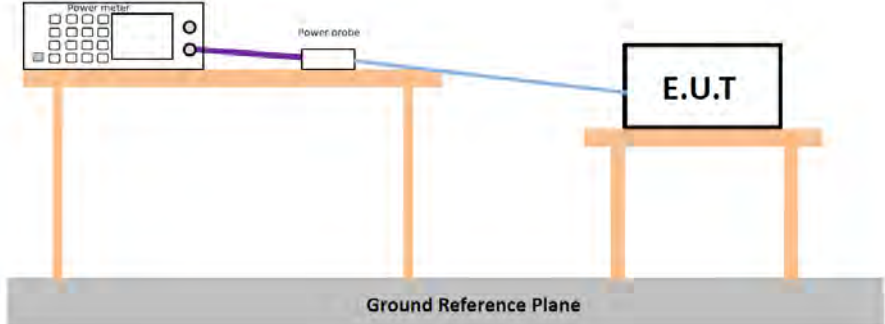
Test Requirement:	ANSI C63.10-2020 Section 12.2
Test Method:	ANSI C63.10-2020 Section 12.2
Test Setup:	
Instruments Used:	Refer to section 6 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Refer to section 3.7 for details.
Limit:	No restriction limits
Test Results:	For report purpose
The detailed test data see: Appendix	

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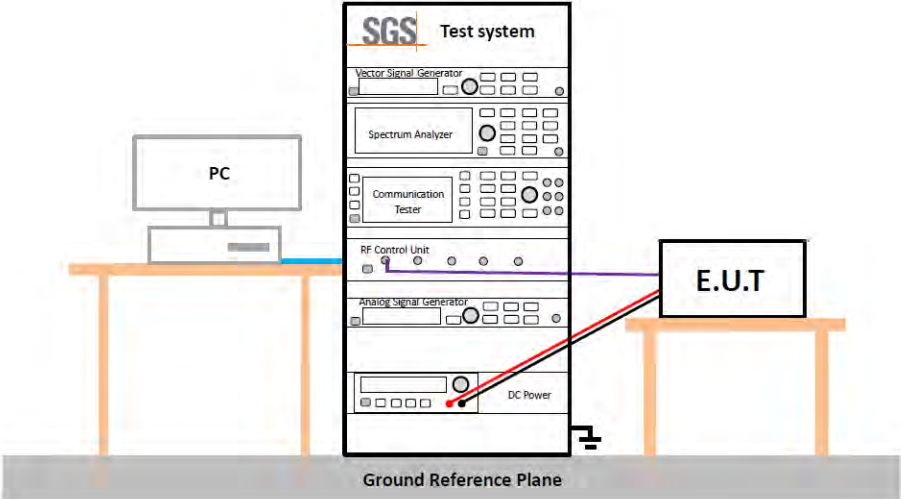
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4.4 Conducted Output Power

Test Requirement:	47 CFR Part 15 Section 15.407(a)	
Test Method:	ANSI C63.10-2020 Section 12.4.3.2	
Test Setup:	 * Test with power meter (Detector function: Average) Method PM-G is measurement using a gated RF average power meter. Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.	
Test Instruments:	Refer to section 6 for details.	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates	
Final Test Mode:	Refer to section 3.7 for details.	
Limit:	Frequency Band	Limit
	5150-5250MHz	Not exceed 250mW(23.98dBm)
	5250-5350MHz	The lesser of 250mW(23.98dBm) or 11+ 10logB
	5470-5725MHz	The lesser of 250mW(23.98dBm) or 11+ 10logB
	5725-5850MHz	Not exceed 1W(30dBm)
	*Where B is the 26dB emission bandwidth in MHz	
Test Results:	Pass	
The detailed test data see: Appendix		

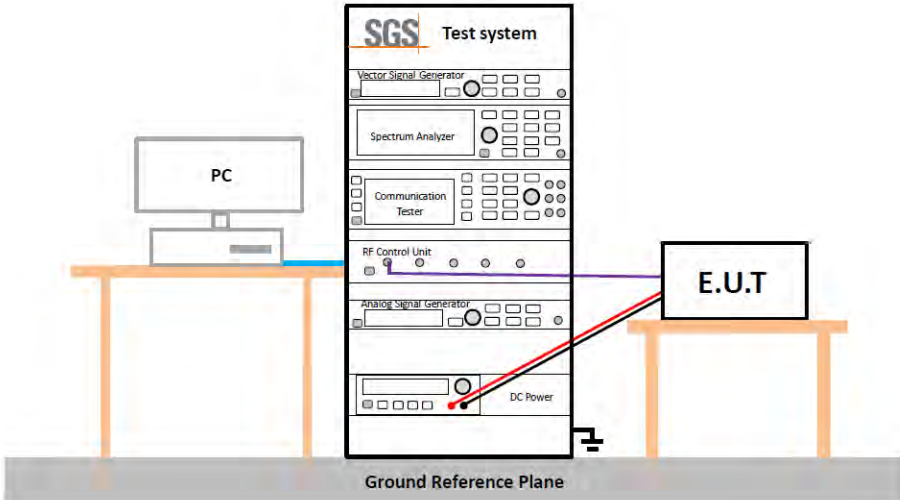
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4.5 26dB Emission Bandwidth

Test Requirement:	47 CFR Part 15 Section 15.407(a), KDB 789033 D02& C
Test Method:	ANSI C63.10-2020 Section 12.5.2
Test Setup:	
Instruments Used:	Refer to section 6 for details.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Refer to section 3.7 for details.
Limit:	No restriction limits
Test Results:	For Report Purpose
The detailed test data see: Appendix	

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4.6 6dB Emission Bandwidth

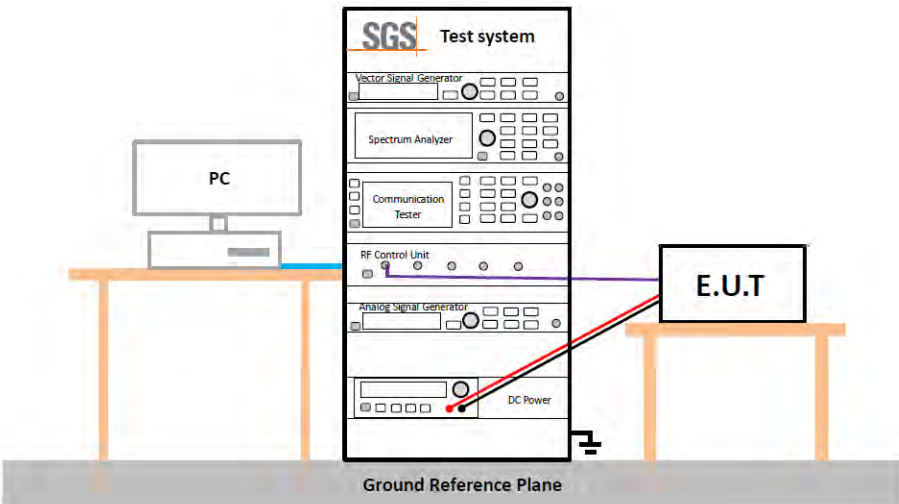
Test Requirement:	47 CFR Part 15 Section 15.407(e)		
Test Method:	ANSI C63.10-2020 Section 12.5.1		
Test Setup:			
Test Instruments:	Refer to section 6 for details.		
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates		
Final Test Mode:	Refer to section 3.7 for details.		
Limit:	Frequency Band	Limit	
	5725-5850MHz	At lease 500kHz	
Test Results:	Pass		
The detailed test data see: Appendix			

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4.7 99% Occupied Bandwidth

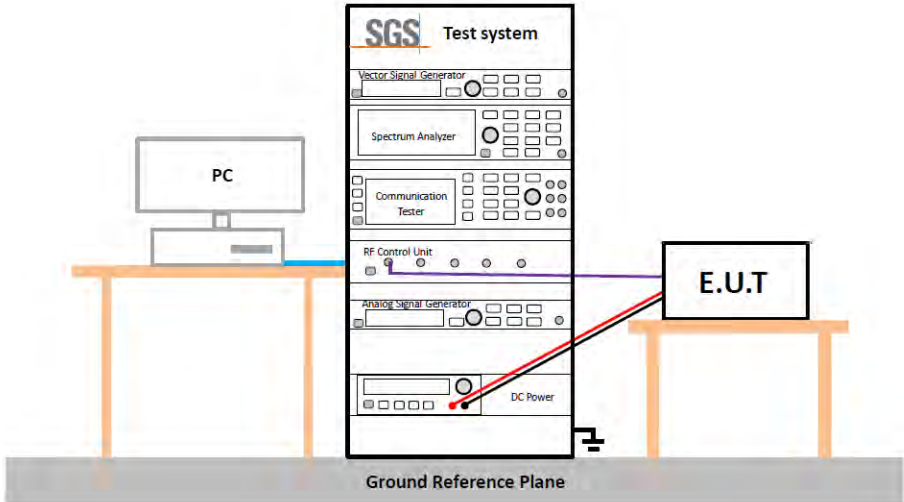
Test Requirement:	KDB 789033 D02§ D
Test Method:	ANSI C63.10-2020 Section 12.5.3
Test Setup:	
Instruments Used:	Refer to section 6 for details.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Refer to section 3.7 for details.
Limit:	No restriction limits
Test Results:	For Report Purpose
The detailed test data see: Appendix	

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4.8 Power Spectral Density

Test Requirement:	47 CFR Part 15 Section 15.407(a)	
Test Method:	ANSI C63.10-2020 Section 12.6 KDB 789033 D02 v02r01, Section F.	
Test Setup:		
Instruments Used:	Refer to section 6 for details.	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates	
Final Test Mode:	Refer to section 3.7 for details.	
Limit:	Frequency Band	Limit
	5150-5250MHz	The power spectral density less than 11dBm/1MHz
	5250-5350MHz	The power spectral density less than 11dBm/1MHz
	5470-5725MHz	The power spectral density less than 11dBm/1MHz
	5725-5850MHz	The power spectral density less than <30dBm/500KHz
Test Results:	Pass	
The detailed test data see: Appendix		

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4.9 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15 Section 15.205/15.209/15.407(b)
Test Method:	ANSI C63.10-2020 Section 6.4 / 6.5 / 6.6
Test Site:	Measurement Distance: 3m or 10m (Semi-Anechoic Chamber)
Test frequency:	9kHz ~ 40GHz(or 10 Harmonic)

Test Setup:

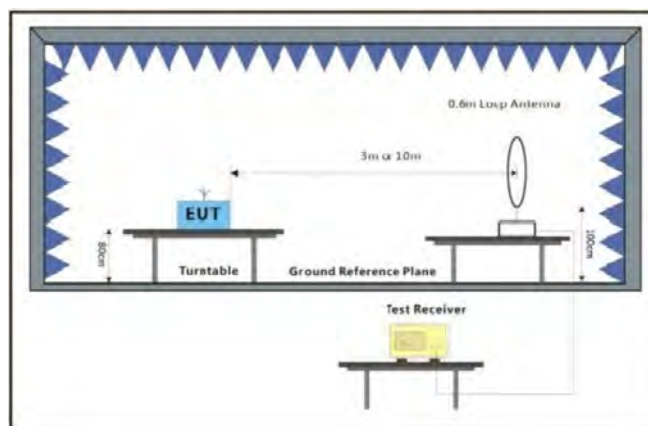


Figure 1. 9kHz to 30MHz

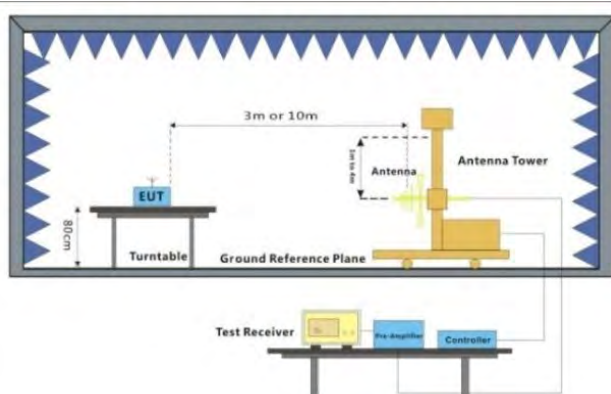


Figure 1. 30MHz to 1GHz

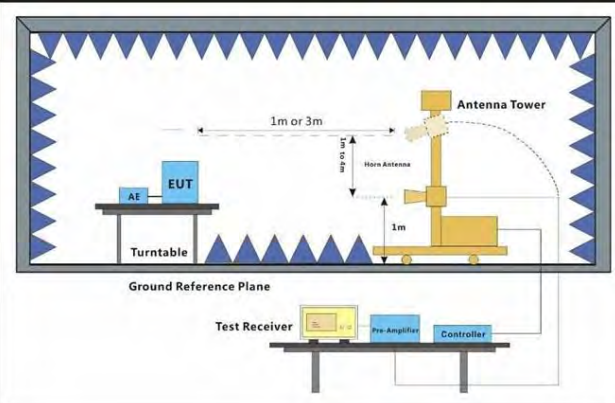


Figure 2. Above 1 GHz

Test Procedure:	a. For below 1GHz test, 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 camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. For above 1GHz test, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. (Distance from antenna to EUT is 1m for measurements >18GHz). 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.
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	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 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. Test the EUT in the outermost channels. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. i. Repeat above procedures until all frequencies measured was complete. j. The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported k. The disturbance above 18GHz was very low, and the harmonics were the highest point could be found when testing, so only the harmonics had been displayed. l. At a measurement distance of 1 meter the limit line was increased by $20 \cdot \text{LOG}(3/1) = 9.54 \text{ dB}$.
Test Configuration:	Measurements below 30MHz • RBW = 10 kHz • VBW = 30 kHz • Detector = Peak & Average & Quasi-peak • Trace mode = max hold Measurements Below 1000MHz • RBW = 120 kHz • VBW = 300 kHz • Detector = Quasi-peak • Trace mode = max hold Peak Measurements Above 1000 MHz • RBW = 1 MHz • VBW $\geq 3 \text{ MHz}$ • Detector = Peak • Sweep time = auto • Trace mode = max hold Average Measurements Above 1000MHz • RBW = 1 MHz • VBW = 10Hz, when duty cycle is no less than 98 percent. • VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.



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中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

t (86-29) 6282 7885 www.sgs.com.cn
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Final Test Mode:	Refer to section 3.7 for details. For below 1GHz part, through pre-scan all channels, but only the worst case is recorded in the report.
Instruments Used:	Refer to section 6 for details.
Test Results:	Pass
The detailed test data see: Appendix	



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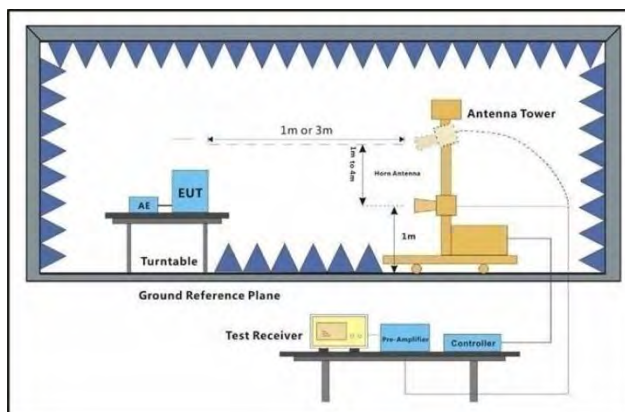
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4.10 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15 Section 15.205/15.209/15.407(b)		
Test Method:	ANSI C63.10-2020 Section 12.7		
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)		
Limit:	Frequency	Limit (dBuV/m)	Remark
	30MHz-88MHz	40.0	Quasi-peak
	88MHz-216MHz	43.5	Quasi-peak
	216MHz-960MHz	46.0	Quasi-peak
	960MHz-1GHz	54.0	Quasi-peak
	Above 1GHz	54.0	Average Value
		74.0	Peak Value

Test Setup:



Test Procedure:

- The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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 and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and

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	modulation for lowest and highest channel g. Test the EUT in the outermost channels. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case. i. Repeat above procedures until all frequencies measured was complete.
Test Configuration:	Measurements Below 1000MHz • RBW = 120 kHz • VBW = 300 kHz • Detector = Quasi-peak • Trace mode = max hold Peak Measurements Above 1000 MHz • RBW = 1 MHz • VBW $\geq$ 3 MHz • Detector = Peak • Sweep time = auto • Trace mode = max hold Average Measurements Above 1000MHz • RBW = 1 MHz • VBW = 10Hz, when duty cycle is no less than 98 percent. • VBW $\geq$ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.
Final Test Mode:	Refer to section 3.7 for details.
Instruments Used:	Refer to section 6 for details.
Test Results:	Pass
The detailed test data see: Appendix	



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中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

t (86-29) 6282 7885 www.sgs.com.cn
t (86-29) 6282 7885 sgs.china@sgs.com

4.11 Dynamic Frequency Selection

4.11.1 DFS Overview

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
<i>Non-Occupancy Period</i>	Yes	Not required	Yes
<i>DFS Detection Threshold</i>	Yes	Not required	Yes
<i>Channel Availability Check Time</i>	Yes	Not required	Not required
<i>U-NII Detection Bandwidth</i>	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client Without Radar Detection
<i>DFS Detection Threshold</i>	Yes	Not required
<i>Channel Closing Transmission Time</i>	Yes	Yes
<i>Channel Move Time</i>	Yes	Yes
<i>U-NII Detection Bandwidth</i>	Yes	Not required
Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
<i>U-NII Detection Bandwidth and Statistical Performance Check</i>	All BW modes must be tested	Not required
<i>Channel Move Time and Channel Closing Transmission Time</i>	Test using widest BW mode available	Test using the widest BW mode available for the link
<i>All other tests</i>	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

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4.11.2 DFS Detection Thresholds

**Table 3: DFS Detection Thresholds for Master Devices
and Client Devices with Radar Detection**

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP $\geq$ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	



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中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

t (86-29) 6282 7885 www.sgs.com.cn
t (86-29) 6282 7885 sgs.china@sgs.com

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4.11.3 RADAR TEST WAVEFORMS

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	Roundup $\left\{ \left(\frac{1}{360} \right) \cdot \left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \right\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.					



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Table 5a - Pulse Repetition Intervals Values for Test A

Pulse Repetition Frequency Number	Pulse Repetition Frequency (Pulses Per Second)	Pulse Repetition Interval (Microseconds)
1	1930.5	518
2	1858.7	538
3	1792.1	558
4	1730.1	578
5	1672.2	598
6	1618.1	618
7	1567.4	638
8	1519.8	658
9	1474.9	678
10	1432.7	698
11	1392.8	718
12	1355	738
13	1319.3	758
14	1285.3	778
15	1253.1	798
16	1222.5	818
17	1193.3	838
18	1165.6	858
19	1139	878
20	1113.6	898
21	1089.3	918
22	1066.1	938
23	326.2	3066

The aggregate is the average of the percentage of successful detections of Short Pulse Radar Types 1-4. For example, the following table indicates how to compute the aggregate of percentage of successful detections.

Radar Type	Number of Trials	Number of Successful Detections	Minimum Percentage of Successful Detection
1	35	29	82.9%
2	30	18	60%
3	30	27	90%
4	50	44	88%
Aggregate $(82.9\% + 60\% + 90\% + 88\%) / 4 = 80.2\%$			



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Table 6 – Long Pulse Radar Test Waveform

Radar Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Number of Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

Table 7 – Frequency Hopping Radar Test Waveform

Radar Type	Pulse Width (μsec)	PRI (μsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

4.11.4 Response Requirements

Table 4: DFS Response Requirement Values

Parameter	Value
<i>Non-occupancy period</i>	Minimum 30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds See Note 1.
<i>Channel Closing Transmission Time</i>	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.

Note 1: *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the *U-NII Detection Bandwidth* detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

The detailed test data see: **Appendix**


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5 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 7.25 \times 10^{-8}$ GHz
2	Duty cycle	$\pm 0.37\%$
3	Occupied Bandwidth	$\pm 0.2\%$
4	RF conducted power	± 0.21 dB
5	RF power density	± 2.84 dB
6	Conducted Spurious emissions	± 0.75 dB
7	Conduction Emission	± 3.0 dB (150kHz to 30MHz)
8	Radiated Emission	± 4.6 dB (9kHz to 30MHz)
		± 4.9 dB (30MHz to 1GHz)
		± 4.9 dB (1GHz to 6GHz)
		± 4.7 dB (6GHz to 18GHz)
		± 5.26 dB (Above 18GHz)

Remark:

The U_{lab} (lab Uncertainty) is less than $U_{CISPR/ETSI}$ (CISPR/ETSI Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.



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6 Equipment List

RF Test System					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)
MXA signal analyzer	Agilent	N9020A	XAW01-06-07	2023/02/16	2024/02/15
MXG vector signal Generator	Agilent	N5182B	XAW01-07-16	2023/02/16	2024/02/15
Measurement Software	Tonscend	JS1120-3 (3.2.18)	XAW02-14-01	NCR	NCR
RF control unit	Tonscend	JS0806-2	XAW03-37-01	NCR	NCR
Power Meter	Anritsu	ML2495A	XAW01-25-03	2023/08/30	2024/08/29
Power Supply	Agilent	66311B	XAW01-17-01	2023/02/16	2024/02/15
Temperature and humidity meter	MingGao	T809	XAW01-01-16	2023/09/04	2024/09/03

CE Test System					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)
Shielding Room	Brilliant-emc	N/A	XAW04-03-01	N/A	N/A
Test receiver	ROHDE&SCHWARZ	ESR	XAW01-08-01	2023/08/30	2024/08/29
Artificial network	ROHDE&SCHWARZ	ENV216	XAW01-04-01	2023/06/30	2024/06/29
Temperature and humidity meter	MingGao	TH101B	XAW01-01-02	2023/08/30	2024/08/29
Measurement Software	Tonscend	TS+ V4.0.0.0	XAW02-07-01	NCR	NCR
Radio communication analyzer	ROHDE&SCHWARZ	CMW 500	XAW01-03-02	2023/02/16	2024/02/15
Artificial network	ROHDE&SCHWARZ	ENV216	XAW01-04-02	2023/06/30	2024/06/29



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RSE Test System					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy/mm/dd)	Cal.Due date (yyyy/mm/dd)
Semi-Anechoic Chamber	Brilliant-emc	N/A	XAW03-35-01	2021/09/09	2024/09/08
MXA signal analyzer	Keysight	N9020A	XAW01-06-01	2023/02/16	2024/02/15
Spectrum Analyzer	ROHDE& SCHWARZ	FSV3044	XAW01-13-05	2023/05/15	2024/05/14
Test receiver	ROHDE& SCHWARZ	ESR	XAW01-08-01	2023/08/30	2024/08/29
Receiving antenna (30MHz~3GHz)	Schwarzbeck	VULB 9163	XAW01-09-01	2022/07/28	2024/07/27
Receiving antenna(1GHz~18GHz)	Schwarzbeck	BBHA 9120D	XAW01-09-02	2022/07/28	2024/07/27
Receiving antenna (15GHz~40GHz)	Schwarzbeck	BBHA 9170	XAW01-09-03	2022/07/23	2024/07/22
Directional antenna rack controller	Max-Full	MF-7802BS	XAW03-03-01	NCR	NCR
High-speed antenna rack controller	Max-Full	MF-7802	XAW03-04-01	NCR	NCR
Filter bank	Tonscend	JS0806-F	XAW03-05-01	NCR	NCR
Filter bank	Tonscend	JS0806s	XAW03-05-02	NCR	NCR
Amplifier	Tonscend	TAP9K3G32	XAW01-41-01	2023/05/15	2024/05/14
Amplifier	Tonscend	TAP01018048	XAW01-41-02	2023/08/30	2024/08/29
Amplifier	Tonscend	TAP18040048	XAW01-41-03	2023/08/30	2024/08/29
Amplifier	Shanghai Steed	YX28980930	XAW01-41-06	2023/08/30	2024/08/29
Temperature and humidity meter	MingGao	TH101B	XAW01-01-02	2023/09/04	2024/09/03
Measurement Software	Tonscend	TS+ V4.0.0.0	XAW02-05-01	NCR	NCR
Loop Antenna	Schwarzbeck	FMZB 1519B	XAW01-48-02	2022/05/26	2024/05/25



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Wireless Laboratory

V/F Unit D, Building 1, Kanghong Orange Science Park, No.137, Keyuan 3rd Road, Fengdong New Town, Xi'an, Shaanxi, China 710086
中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

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7 Photographs - Setup Photos

Refer to Appendix A.2 WLAN Setup Photos.



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V/F Unit D, Building 1, Kanghong Orange Science Park, No.137, Keyuan 3rd Road, Fengdong New Town, Xi'an, Shaanxi, China 710086
中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

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t (86-29) 6282 7885 sgs.china@sgs.com

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Appendix

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26dB Emission Bandwidth Test Result

TestMode	Antenna	Frequency[MHz]	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Verdict
11a-CDD	Ant0	5180	19.400	5170.240	5189.640	For Report Purpose
	Ant1	5180	19.720	5170.080	5189.800	
	Ant0	5200	20.400	5189.280	5209.680	
	Ant1	5200	20.320	5189.800	5210.120	
	Ant0	5240	20.240	5230.000	5250.240	
	Ant1	5240	23.760	5228.560	5252.320	
	Ant0	5260	19.760	5250.360	5270.120	
	Ant1	5260	20.280	5249.840	5270.120	
	Ant0	5280	19.600	5270.040	5289.640	
	Ant1	5280	20.440	5269.800	5290.240	
	Ant0	5320	19.720	5310.120	5329.840	
	Ant1	5320	22.520	5309.880	5332.400	
	Ant0	5500	20.440	5489.600	5510.040	
	Ant1	5500	20.400	5489.840	5510.240	
	Ant0	5580	20.280	5569.840	5590.120	
	Ant1	5580	20.560	5569.560	5590.120	
	Ant0	5700	20.040	5689.480	5709.520	
	Ant1	5700	20.680	5689.520	5710.200	
	Ant0	5745	19.960	5734.800	5754.760	
	Ant1	5745	21.000	5734.240	5755.240	
	Ant0	5785	20.000	5774.720	5794.720	
	Ant1	5785	20.200	5774.880	5795.080	
	Ant0	5825	20.360	5814.720	5835.080	
	Ant1	5825	20.640	5814.560	5835.200	
11n20MIMO	Ant0	5180	22.480	5168.600	5191.080	
	Ant1	5180	20.320	5169.800	5190.120	
	Ant0	5200	20.440	5189.720	5210.160	
	Ant1	5200	21.000	5189.720	5210.720	
	Ant0	5240	21.320	5229.480	5250.800	
	Ant1	5240	20.640	5229.560	5250.200	
	Ant0	5260	20.360	5249.960	5270.320	
	Ant1	5260	21.000	5249.680	5270.680	
	Ant0	5280	20.720	5269.600	5290.320	
	Ant1	5280	20.560	5269.840	5290.400	
	Ant0	5320	20.840	5309.640	5330.480	
	Ant1	5320	20.720	5309.440	5330.160	
	Ant0	5500	20.440	5489.680	5510.120	
	Ant1	5500	21.560	5489.320	5510.880	
	Ant0	5580	21.000	5569.480	5590.480	
	Ant1	5580	21.280	5569.440	5590.720	
	Ant0	5700	20.880	5689.480	5710.360	
	Ant1	5700	21.600	5688.880	5710.480	
	Ant0	5745	20.960	5734.440	5755.400	
	Ant1	5745	21.640	5734.400	5759.040	
	Ant0	5785	24.000	5774.720	5798.720	
	Ant1	5785	22.720	5774.720	5797.440	
	Ant0	5825	21.040	5814.800	5835.840	
	Ant1	5825	21.560	5814.200	5835.760	



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11n40MIMO	Ant0	5190	40.400	5170.000	5210.400
	Ant1	5190	39.680	5170.080	5209.760
	Ant0	5230	40.320	5210.160	5250.480
	Ant1	5230	39.680	5210.000	5249.680
	Ant0	5270	39.520	5250.240	5289.760
	Ant1	5270	38.800	5250.960	5289.760
	Ant0	5310	46.720	5283.680	5330.400
	Ant1	5310	40.000	5290.000	5330.000
	Ant0	5510	39.680	5490.000	5529.680
	Ant1	5510	40.000	5489.760	5529.760
	Ant0	5550	40.000	5530.800	5570.800
	Ant1	5550	40.240	5529.760	5570.000
	Ant0	5670	40.080	5649.680	5689.760
	Ant1	5670	41.120	5649.360	5690.480
	Ant0	5755	40.160	5734.840	5775.000
	Ant1	5755	40.240	5734.520	5774.440
	Ant0	5795	39.760	5774.920	5814.680
	Ant1	5795	40.000	5775.240	5815.240
11ac20MIMO	Ant0	5180	20.960	5169.520	5190.480
	Ant1	5180	20.440	5169.800	5190.240
	Ant0	5200	20.480	5189.920	5210.400
	Ant1	5200	20.440	5189.640	5210.080
	Ant0	5240	21.680	5229.280	5250.960
	Ant1	5240	20.240	5229.720	5249.960
	Ant0	5260	20.600	5249.880	5270.480
	Ant1	5260	20.960	5249.360	5270.320
	Ant0	5280	19.640	5270.200	5289.640
	Ant1	5280	20.720	5269.440	5290.160
	Ant0	5320	20.880	5309.520	5330.400
	Ant1	5320	21.800	5309.240	5331.040
	Ant0	5500	21.280	5489.080	5510.360
	Ant1	5500	21.040	5489.480	5510.520
	Ant0	5580	20.960	5569.480	5590.440
	Ant1	5580	21.520	5569.160	5590.680
	Ant0	5700	21.200	5689.160	5710.360
	Ant1	5700	21.880	5688.560	5710.440
	Ant0	5745	20.480	5734.520	5755.000
	Ant1	5745	20.880	5734.320	5755.200
	Ant0	5785	24.320	5774.680	5799.000
	Ant1	5785	20.880	5774.480	5795.360
	Ant0	5825	21.280	5814.560	5835.840
	Ant1	5825	35.240	5809.560	5844.800
11ac40MIMO	Ant0	5190	40.240	5170.240	5210.480
	Ant1	5190	39.520	5170.160	5209.680
	Ant0	5230	40.000	5210.400	5250.400
	Ant1	5230	39.760	5210.160	5249.920
	Ant0	5270	57.840	5247.120	5304.960
	Ant1	5270	39.840	5250.080	5289.920
	Ant0	5310	39.600	5290.400	5330.000
	Ant1	5310	45.360	5289.840	5335.200
	Ant0	5510	39.760	5489.840	5529.600
	Ant1	5510	39.760	5489.840	5529.600
	Ant0	5550	39.600	5530.720	5570.320
	Ant0	5550	39.600	5530.720	5570.320



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	Ant1	5550	40.000	5530.000	5570.000
	Ant0	5670	40.080	5649.520	5689.600
	Ant1	5670	41.120	5648.880	5690.000
	Ant0	5755	40.480	5734.840	5775.320
	Ant1	5755	40.240	5734.840	5775.080
	Ant0	5795	40.560	5774.360	5814.920
	Ant1	5795	40.960	5774.440	5815.400
11ac80MIMO	Ant0	5210	81.600	5169.680	5251.280
	Ant1	5210	80.960	5169.360	5250.320
	Ant0	5290	81.600	5249.680	5331.280
	Ant1	5290	81.920	5250.160	5332.080
	Ant0	5530	82.720	5488.560	5571.280
	Ant1	5530	81.920	5489.200	5571.120
	Ant0	5610	82.560	5568.400	5650.960
	Ant1	5610	85.280	5566.480	5651.760
	Ant0	5775	80.000	5735.320	5815.320
11ac160MIMO	Ant1	5775	82.720	5733.720	5816.440
	Ant0	5250	164.480	5167.440	5331.920
	Ant1	5250	164.800	5167.440	5332.240
	Ant0	5570	165.120	5486.480	5651.600
11ax20MIMO	Ant1	5570	164.830	5487.760	5817.420
	Ant0	5180	21.480	5169.240	5190.720
	Ant1	5180	20.840	5169.600	5190.440
	Ant0	5200	21.400	5189.320	5210.720
	Ant1	5200	20.960	5189.640	5210.600
	Ant0	5240	22.480	5229.320	5251.800
	Ant1	5240	21.480	5229.200	5250.680
	Ant0	5260	21.240	5249.280	5270.520
	Ant1	5260	21.000	5249.600	5270.600
	Ant0	5280	20.920	5269.520	5290.440
	Ant1	5280	21.160	5269.560	5290.720
	Ant0	5320	20.440	5309.720	5330.160
	Ant1	5320	21.640	5309.400	5331.040
	Ant0	5500	21.240	5489.200	5510.440
	Ant1	5500	21.360	5489.440	5510.800
	Ant0	5580	21.640	5569.160	5590.800
	Ant1	5580	22.080	5568.920	5591.000
	Ant0	5700	21.280	5689.200	5710.480
	Ant1	5700	22.840	5688.120	5710.960
	Ant0	5745	21.320	5734.200	5755.520
	Ant1	5745	22.520	5733.120	5755.640
	Ant0	5785	23.120	5774.320	5797.440
	Ant1	5785	23.640	5774.320	5797.960
	Ant0	5825	21.000	5814.600	5835.600
	Ant1	5825	21.120	5814.440	5835.560
11ax40MIMO	Ant0	5190	40.560	5169.760	5210.320
	Ant1	5190	40.400	5169.680	5210.080
	Ant0	5230	40.160	5210.080	5250.240
	Ant1	5230	40.080	5209.840	5249.920
	Ant0	5270	40.240	5249.760	5290.000
	Ant1	5270	40.480	5249.600	5290.080
	Ant0	5310	41.920	5288.080	5330.000
	Ant1	5310	40.400	5289.760	5330.160



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中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

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	Ant0	5510	40.240	5489.600	5529.840
	Ant1	5510	40.320	5489.680	5530.000
	Ant0	5550	40.240	5530.240	5570.480
	Ant1	5550	40.320	5529.760	5570.080
	Ant0	5670	40.160	5649.920	5690.080
	Ant1	5670	40.560	5649.680	5690.240
	Ant0	5755	40.800	5734.520	5775.320
	Ant1	5755	40.240	5734.840	5775.080
	Ant0	5795	40.080	5775.160	5815.140
	Ant1	5795	40.560	5774.600	5815.160
11ax80MIMO	Ant0	5210	81.920	5169.520	5251.440
	Ant1	5210	81.440	5169.360	5250.800
	Ant0	5290	81.920	5248.720	5330.640
	Ant1	5290	81.440	5249.200	5330.640
	Ant0	5530	83.040	5487.920	5570.960
	Ant1	5530	81.920	5489.200	5571.120
	Ant0	5610	81.600	5568.880	5650.480
	Ant1	5610	82.400	5569.040	5651.440
	Ant0	5775	81.120	5734.840	5815.960
	Ant1	5775	82.720	5733.880	5816.600
11ax160MIMO	Ant0	5250	164.800	5167.440	5332.240
	Ant1	5250	164.480	5168.080	5332.560
	Ant0	5570	164.480	5486.800	5651.280
	Ant1	5570	164.480	5487.120	5651.600



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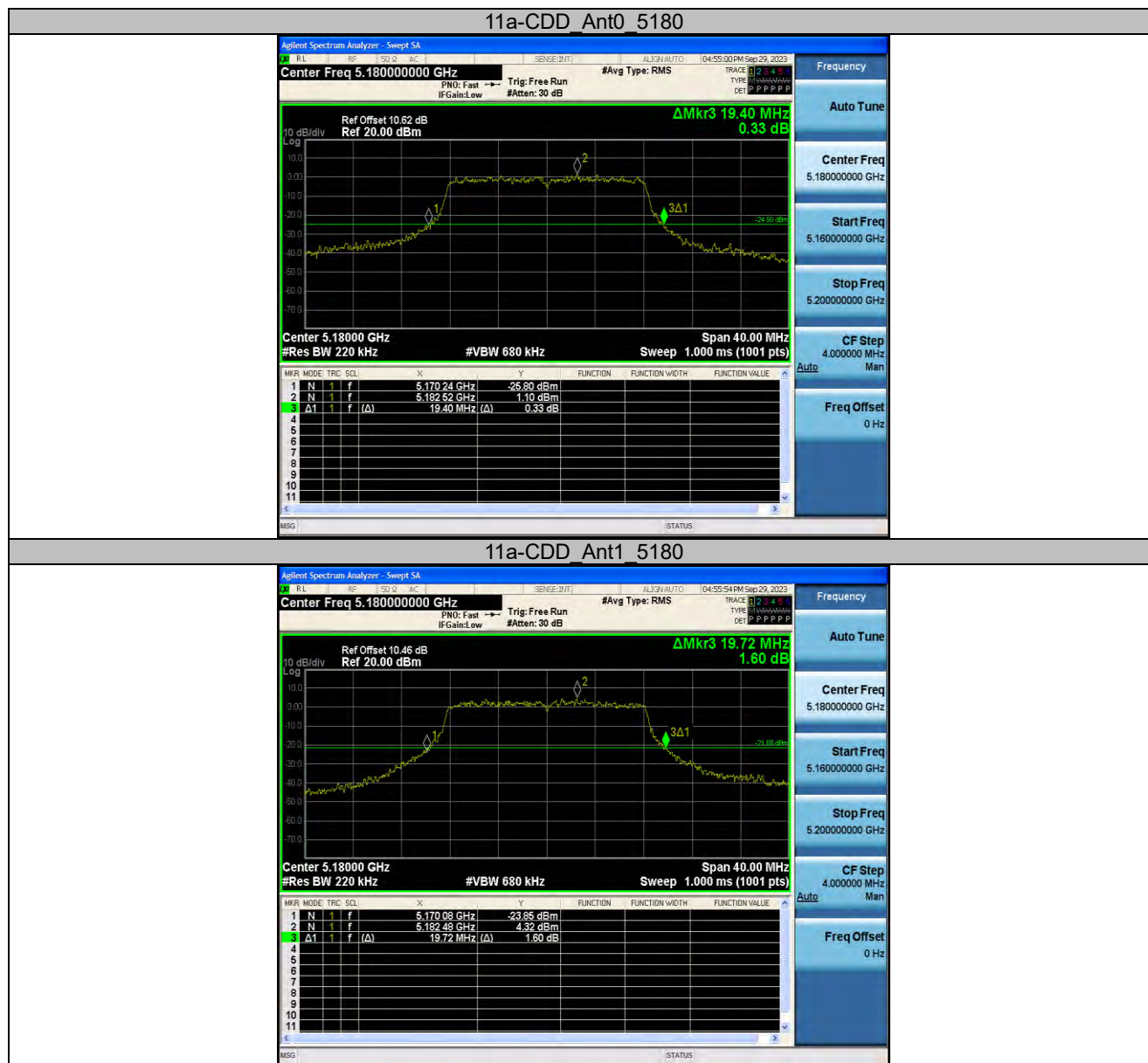
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中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

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Test Graphs



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中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

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中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

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中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

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中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

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SGS-CSTC Standards Technical Services (Xi'an) Co., Ltd.
Wireless Laboratory

1/F, Unit D, Building 1, Kanghong Orange Science Park, No.137, Keyuan 3rd Road, Fengdong New Town, Xi'an, Shaanxi, China 710086
中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

t (86-29) 6282 7885 www.sgsgroup.com.cn
t (86-29) 6282 7885 sgs.china@sgs.com

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中国·西安·沣东新城科源三路137号康鸿橙方科技园1号楼D单元1层 邮编: 710086

t (86-29) 6282 7885 www.sgsgroup.com.cn
t (86-29) 6282 7885 sgs.china@sgs.com