

Report No.: XEWM2309000451RG06
 Rev.: 01
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TEST REPORT

Application No.: XEWM2309000451RG
Applicant: Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address of Applicant: NO.18 Haibin Road, Wusha Village, Chang'an Town, Dongguan City, Guangdong, China
Manufacturer: Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address of Manufacturer: NO.18 Haibin Road, Wusha Village, Chang'an Town, Dongguan City, Guangdong, China
EUT Description: Mobile Phone
Model No.: CPH2599
Trade Mark: OPPO
FCC ID: R9C-CPH2599
Standards: FCC 47 CFR Part 2, Subpart J
 FCC 47 CFR Part 15, Subpart E
Date of Receipt: 2023/09/08
Date of Test: 2023/09/11 to 2023/10/23
Date of Issue: 2023/10/23

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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1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2023/10/23		Original

Prepared By	 <hr/> (Leah Chen) / Test Engineer
Checked By	 <hr/> (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	--	No limit.	Clause 4.3	For Report Purpose
	Band II-A				
	Band II-C				
	Band III				
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



			5.35 GHz). F≥1GHz & in-restricted: §15.209 limit (AV&PK).		
	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).		PASS
	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).		PASS
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		
<p>Note 1: Band I: 5150-5250MHz Band II-A: 5250-5350MHz Band II-C: 5470-5725MHz Band III: 5725-5850MHz</p>					



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3 General Information

3.1 Details of Client

Applicant:	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address of Applicant:	NO.18 Haibin Road, Wusha Village, Chang'an Town, Dongguan City, Guangdong, China
Manufacturer:	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address of Manufacturer:	NO.18 Haibin Road, Wusha Village, Chang'an Town, Dongguan City, Guangdong, China

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:

<p>•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.</p> <p>• 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.</p> <p>• 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</p>



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3.4 General Description of EUT

EUT Description:	Mobile Phone	
Model No.:	CPH2599	
Trade Mark:	OPPO	
Hardware Version:	11	
Software Version:	ColosOS 14.0	
Power Supply:	Li-ion polymer Battery(3.89V)	
IMEI:	RF Conducted	865055060031471
	RSE & AC power line	865055060029756
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 channel bandwidth
	802.11ax:	20 MHz / 40 MHz / 80 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)
Antenna Type:	Fixed Internal Antenna	
Antenna Gain:	5150MHz to 5250MHz: 1dBi(Ant2); 0.5dBi(Ant9); 5250MHz to 5350MHz: 1dBi(Ant2); 0.5dBi(Ant9); 5470MHz to 5725MHz: 1.5dBi(Ant2); 3dBi(Ant9); 5725MHz to 5850MHz: -1dBi(Ant2); 1.5dBi(Ant9);	
	Note: The antenna gain are derived from the gain information report provided by the manufacturer.	
Smart System:	<input checked="" type="checkbox"/> SISO	802.11a/n/ac/ax
	<input checked="" type="checkbox"/> MIMO	802.11n/ac/ax: 2Tx & 2Rx



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	<input checked="" type="checkbox"/> Diversity	802.11a: 2Tx & 2Rx
TPC Function:	<input type="checkbox"/> Support, <input checked="" type="checkbox"/> Not Support	
DFS Function:	<input type="checkbox"/> Master	
	<input type="checkbox"/> Slave with radar detection	<input checked="" type="checkbox"/> 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

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

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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Frequency Band	Channel	Freq.(MHz)	Channel	Freq.(MHz)
TDWR Channel	120 ^[1]	5600	124 ^[1]	5620
	128 ^[1]	5640	118 ^[2]	5590
	126 ^[2]	5630	122 ^[3]	5610

Note:

1. The above Frequency and Channel were 802.11a, 802.11n HT20, 802.11ac VHT20 and 802.11ax HE20.
2. The above Frequency and Channel were 802.11n HT40, 802.11ac VHT40 and 802.11ax HE40.
3. The above Frequency and Channel were 802.11ac VHT80 and 802.11ax HE80.



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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	3.89
Remark: NV: Normal Voltage NT: Normal Temperature		

3.6 Description of Support Units

Description	Manufacturer	Model No.
Router	Netgear	R7800 (FCC ID:PY315100319)

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	6 Mbps	12 Mbps
802.11n (HT 20)	MCS0 (6.5 Mbps)	MCS0 (13 Mbps)
802.11n (HT 40)	MCS0 (13.5 Mbps)	MCS0 (27 Mbps)
802.11ac (VHT 20)	MCS0 (6.5 Mbps)	MCS0 (13 Mbps)
802.11ac (VHT 40)	MCS0 (13.5 Mbps)	MCS0 (27 Mbps)
802.11ac (VHT 80)	MCS0 (29.3 Mbps)	MCS0 (58.5 Mbps)
802.11ax (HE 20)	MCS0 (8 Mbps)	MCS0 (16 Mbps)
802.11ax (HE 40)	MCS0 (16 Mbps)	MCS0 (32 Mbps)
802.11ax (HE 80)	MCS0 (34 Mbps)	MCS0 (68 Mbps)



4 Test results and Measurement Data

4.1 Antenna Requirement

Standard requirement:	47 CFR Part 15 Section 15.203
<p>The antenna is Fixed Internal Antenna and no consideration of replacement. The best case gain of the antenna is</p> <p>5150MHz to 5250MHz: 1dBi(Ant2); 0.5dBi(Ant9);*</p> <p>5250MHz to 5350MHz: 1dBi(Ant2); 0.5dBi(Ant9);*</p> <p>5470MHz to 5725MHz: 1.5dBi(Ant2); 3dBi(Ant9);*</p> <p>5725MHz to 5850MHz: -1dBi(Ant2); 1.5dBi(Ant9);*</p> <p><i>*Note:</i> <i>The antenna gain are derived from the gain information report provided by the manufacturer.</i></p> <p><i>Remark:</i> <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.</i></p>	



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 $N_{ANT} \leq 4$;

For power, the 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.

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

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 Unequal antenna gain:

Operation Frequency	ANT Gain2 (dBi)	ANT Gain9 (dBi)	Directional gain For Power (dBi)	Directional gain For PSD (dBi)	Power Limit Reduction (dBm)	PSD Limit Reduction (dBm)
5150MHz to 5250MHz	1	0.5	1	3.76	0	0
5250MHz to 5350MHz	1	0.5	1	3.76	0	0
5470MHz to 5725MHz	1.5	3	3	5.29	0	0
5725MHz to 5850MHz	-1	1.5	1.5	3.35	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:	<ol style="list-style-type: none"> 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. 		



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



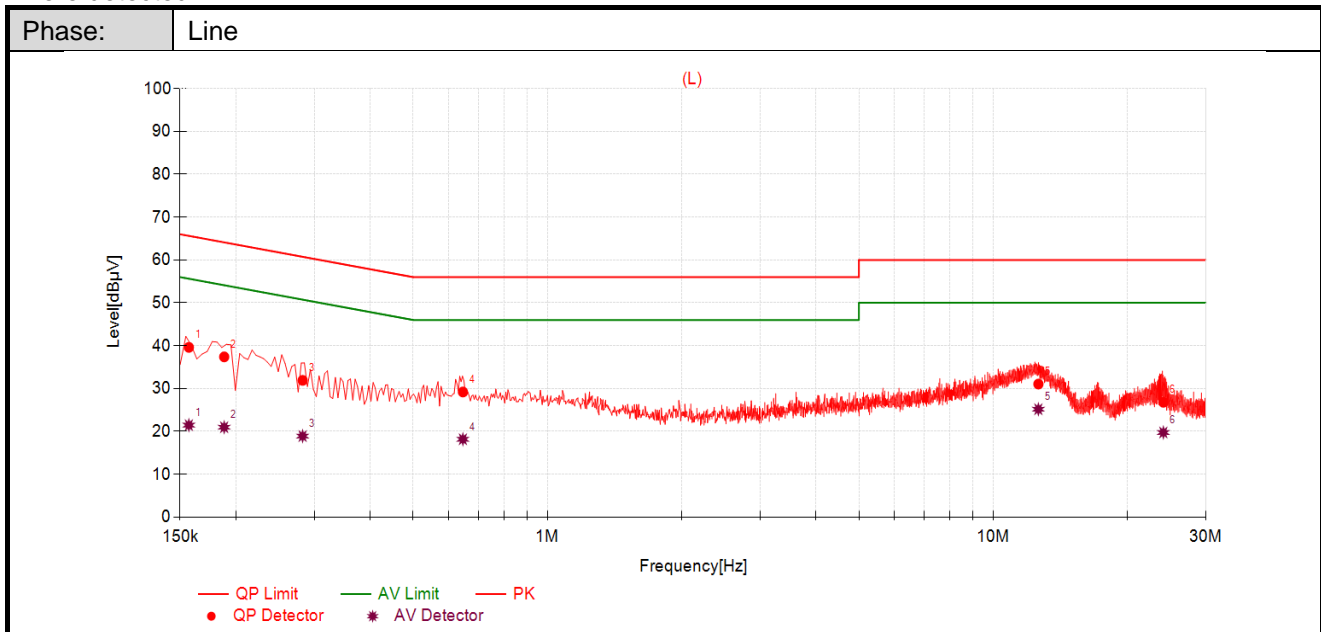
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Measurement Data

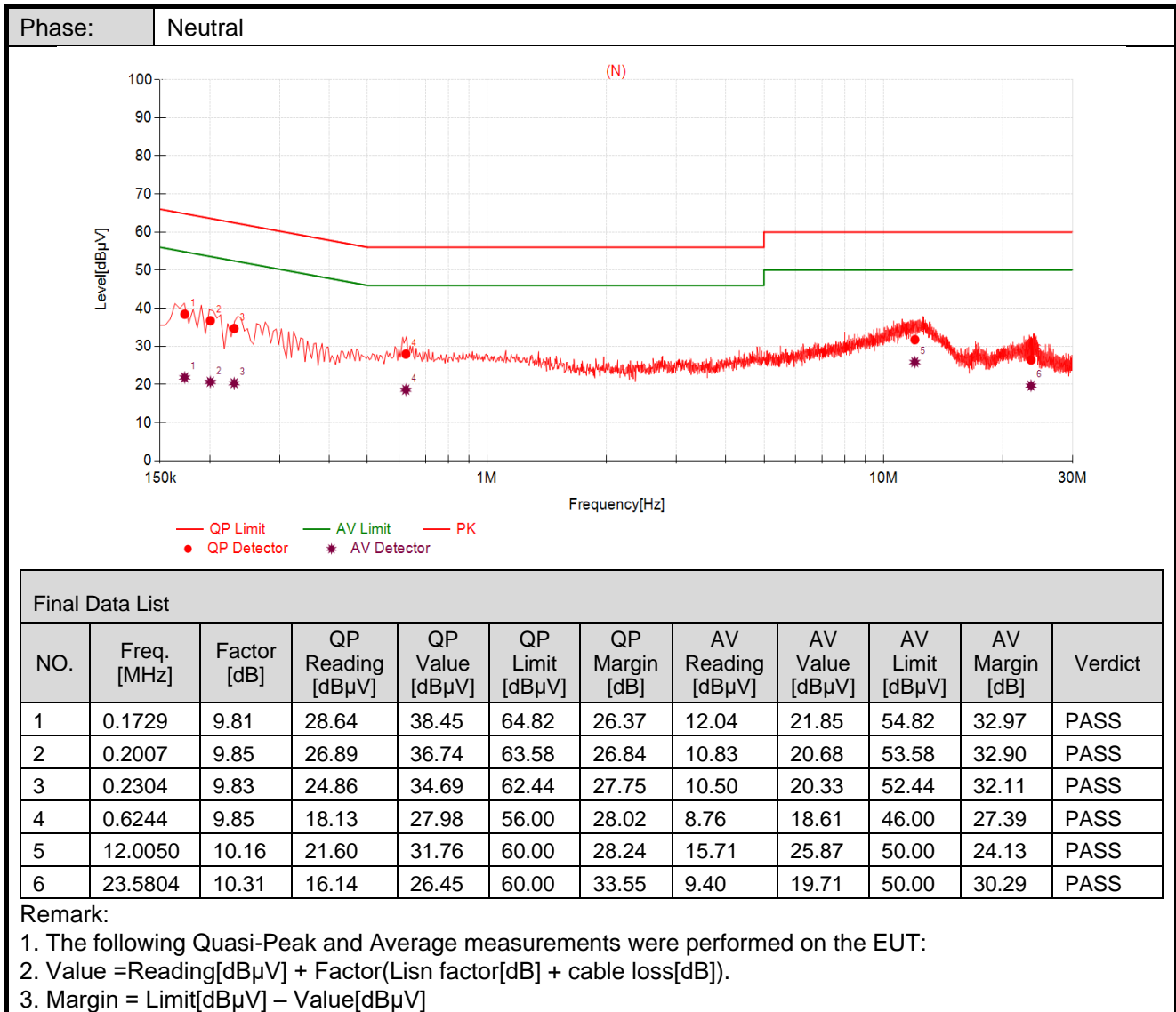
An initial pre-scan was performed on the live and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



Data List											
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBµV]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Verdict
1	0.1569	9.86	29.76	39.62	65.62	26.00	11.60	21.46	55.62	34.16	PASS
2	0.1883	9.84	27.56	37.40	64.11	26.71	11.14	20.98	54.11	33.13	PASS
3	0.2824	9.90	22.02	31.92	60.74	28.82	9.01	18.91	50.74	31.83	PASS
4	0.6464	9.93	19.28	29.21	56.00	26.79	8.24	18.17	46.00	27.83	PASS
5	12.6391	10.08	20.97	31.05	60.00	28.95	15.09	25.17	50.00	24.83	PASS
6	24.1081	10.26	16.55	26.81	60.00	33.19	9.48	19.74	50.00	30.26	PASS

Remark:
 1. The following Quasi-Peak and Average measurements were performed on the EUT:
 2. Value = Reading [dBµV] + Factor (Lisn factor [dB] + cable loss [dB]).
 3. Margin = Limit [dBµV] – Value [dBµV]





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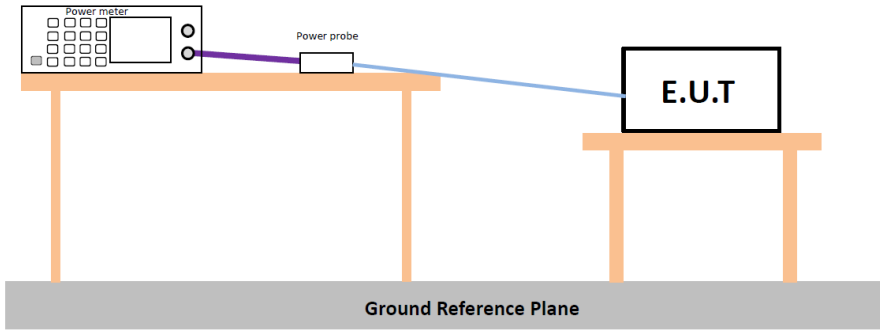
4.3 Duty Cycle

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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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:	 <p>* 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.</p>	
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		



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	



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 least 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		



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:

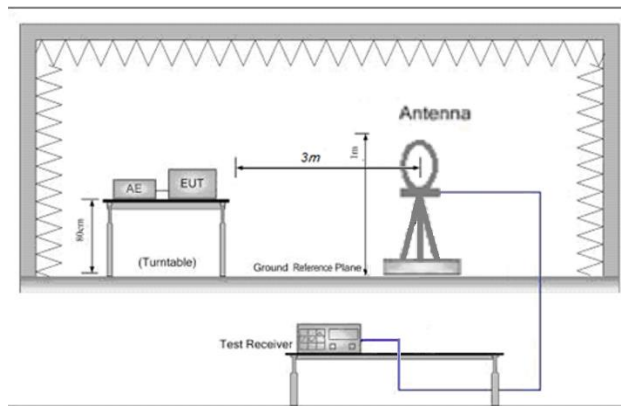


Figure 1. 9kHz to 30MHz

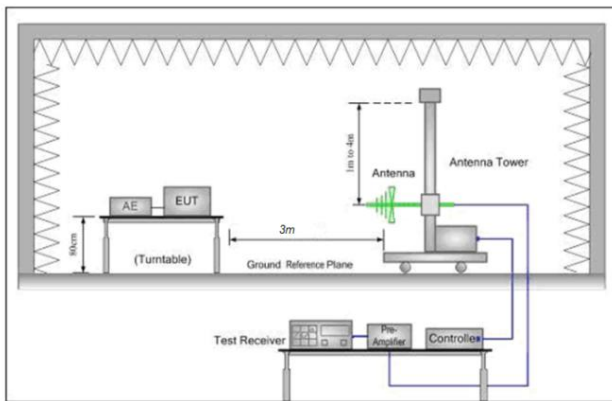


Figure 1. 30MHz to 1GHz

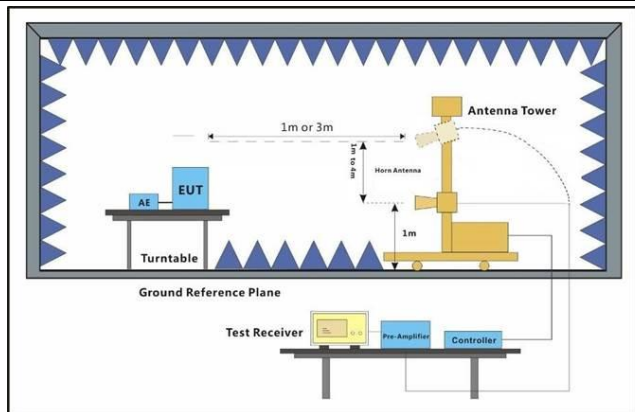


Figure 2. Above 1 GHz

Test Procedure:

- 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 chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- 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 chamber. The table was rotated 360 degrees to determine the position of the highest radiation. (Distance from antenna to EUT is 1m for measurements >18GHz).
- 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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	<p>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.</p> <p>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.</p> <p>f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>g. Test the EUT in the outermost channels.</p> <p>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.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p> <p>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</p> <p>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.</p> <p>l. At a measurement distance of 1 meter the limit line was increased by $20 \cdot \text{LOG}(3/1) = 9.54 \text{ dB}$.</p>
<p>Test Configuration:</p>	<p>Measurements below 30MHz</p> <ul style="list-style-type: none"> • RBW = 10 kHz • VBW = 30 kHz • Detector = Peak & Average & Quasi-peak • Trace mode = max hold <p>Measurements Below 1000MHz</p> <ul style="list-style-type: none"> • RBW = 120 kHz • VBW = 300 kHz • Detector = Quasi-peak • Trace mode = max hold <p>Peak Measurements Above 1000 MHz</p> <ul style="list-style-type: none"> • RBW = 1 MHz • VBW $\geq 3 \text{ MHz}$ • Detector = Peak • Sweep time = auto • Trace mode = max hold <p>Average Measurements Above 1000MHz</p> <ul style="list-style-type: none"> • 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.
<p>Exploratory Test Mode:</p>	<p>Transmitting with all kind of modulations, data rates.</p>



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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	



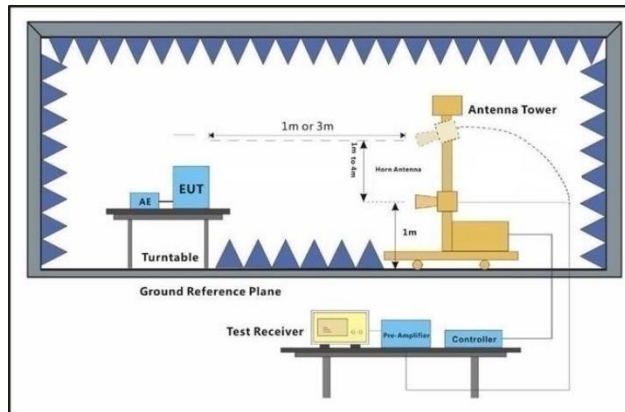
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4.10 Restricted bands around fundamental frequency

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



	<p>modulation for lowest and highest channel</p> <p>g. Test the EUT in the outermost channels.</p> <p>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.</p> <p>i. Repeat above procedures until all frequencies measured was complete.</p>
Test Configuration:	<p>Measurements Below 1000MHz</p> <ul style="list-style-type: none"> • RBW = 120 kHz • VBW = 300 kHz • Detector = Quasi-peak • Trace mode = max hold <p>Peak Measurements Above 1000 MHz</p> <ul style="list-style-type: none"> • RBW = 1 MHz • VBW ≥ 3 MHz • Detector = Peak • Sweep time = auto • Trace mode = max hold <p>Average Measurements Above 1000MHz</p> <ul style="list-style-type: none"> • RBW = 1 MHz • VBW = 10Hz, when duty cycle is no less than 98 percent. • VBW ≥ 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	



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
<p>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.</p>		



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
<p>Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.</p> <p>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.</p> <p>Note 3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.</p>	



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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 $\left\{ \begin{matrix} \left(\frac{1}{360} \right) \cdot \\ \left(\frac{19 \cdot 10^6}{PRI_{\mu\text{sec}}} \right) \end{matrix} \right\}$	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.					



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**



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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7 Photographs - Setup Photos

Refer to Appendix A.2 WLAN Setup Photos.



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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	Ant2	5180	22.680	5168.560	5191.240	For Report Purpose
	Ant9	5180	23.080	5167.880	5190.960	
	Ant2	5200	23.360	5187.920	5211.280	
	Ant9	5200	22.680	5188.200	5210.880	
	Ant2	5240	25.480	5226.520	5252.000	
	Ant9	5240	23.320	5228.080	5251.400	
	Ant2	5260	24.440	5248.200	5272.640	
	Ant9	5260	22.480	5249.040	5271.520	
	Ant2	5280	22.800	5268.200	5291.000	
	Ant9	5280	21.320	5269.440	5290.760	
	Ant2	5320	22.040	5309.040	5331.080	
	Ant9	5320	22.080	5308.920	5331.000	
	Ant2	5500	24.120	5488.160	5512.280	
	Ant9	5500	22.480	5488.800	5511.280	
	Ant2	5580	23.760	5568.160	5591.920	
	Ant9	5580	24.440	5567.920	5592.360	
	Ant2	5700	22.240	5688.480	5710.720	
	Ant9	5700	22.560	5688.760	5711.320	
	Ant2	5745	24.240	5733.080	5757.320	
	Ant9	5745	25.800	5731.200	5757.000	
Ant2	5785	23.560	5772.680	5796.240		
Ant9	5785	26.080	5771.800	5797.880		
Ant2	5825	22.680	5814.520	5837.200		
Ant9	5825	25.600	5812.760	5838.360		
11n20MIMO	Ant2	5180	23.360	5168.120	5191.480	
	Ant9	5180	23.160	5168.720	5191.880	
	Ant2	5200	24.080	5187.160	5211.240	
	Ant9	5200	23.920	5187.800	5211.720	
	Ant2	5240	24.400	5227.280	5251.680	
	Ant9	5240	23.960	5228.320	5252.280	
	Ant2	5260	24.440	5247.280	5271.720	
	Ant9	5260	23.600	5249.040	5272.640	
	Ant2	5280	23.440	5267.880	5291.320	
	Ant9	5280	22.760	5268.760	5291.520	
	Ant2	5320	24.560	5307.400	5331.960	
	Ant9	5320	23.520	5308.640	5332.160	
	Ant2	5500	23.880	5487.280	5511.160	
	Ant9	5500	22.240	5489.000	5511.240	
	Ant2	5580	25.840	5567.760	5593.600	
	Ant9	5580	23.520	5567.920	5591.440	
	Ant2	5700	23.800	5687.880	5711.680	
	Ant9	5700	22.840	5687.960	5710.800	
	Ant2	5745	25.840	5732.040	5757.880	
	Ant9	5745	25.440	5732.760	5758.200	
Ant2	5785	23.760	5773.040	5796.800		
Ant9	5785	26.760	5771.360	5798.120		
Ant2	5825	26.360	5813.480	5839.840		
Ant9	5825	26.280	5812.840	5839.120		



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11n40MIMO	Ant2	5190	39.600	5169.760	5209.360
	Ant9	5190	39.120	5170.480	5209.600
	Ant2	5230	40.320	5209.760	5250.080
	Ant9	5230	39.040	5210.640	5249.680
	Ant2	5270	40.480	5250.080	5290.560
	Ant9	5270	39.200	5250.480	5289.680
	Ant2	5310	40.000	5290.080	5330.080
	Ant9	5310	39.200	5290.400	5329.600
	Ant2	5510	40.480	5489.440	5529.920
	Ant9	5510	39.360	5490.320	5529.680
	Ant2	5550	39.600	5530.400	5570.000
	Ant9	5550	38.800	5530.800	5569.600
	Ant2	5670	40.400	5649.840	5690.240
	Ant9	5670	40.000	5649.920	5689.920
	Ant2	5755	47.120	5729.000	5776.120
	Ant9	5755	54.000	5725.960	5779.960
Ant2	5795	46.880	5772.840	5819.720	
Ant9	5795	42.320	5774.440	5816.760	
11ac20MIMO	Ant2	5180	23.560	5168.520	5192.080
	Ant9	5180	23.200	5168.480	5191.680
	Ant2	5200	24.040	5188.000	5212.040
	Ant9	5200	23.880	5187.800	5211.680
	Ant2	5240	23.840	5228.080	5251.920
	Ant9	5240	22.080	5228.760	5250.840
	Ant2	5260	24.000	5248.320	5272.320
	Ant9	5260	23.520	5249.000	5272.520
	Ant2	5280	23.440	5268.200	5291.640
	Ant9	5280	22.840	5268.760	5291.600
	Ant2	5320	23.360	5308.360	5331.720
	Ant9	5320	24.240	5308.080	5332.320
	Ant2	5500	25.360	5487.520	5512.880
	Ant9	5500	22.400	5488.920	5511.320
	Ant2	5580	23.600	5568.440	5592.040
	Ant9	5580	23.560	5568.240	5591.800
	Ant2	5700	23.760	5688.600	5712.360
	Ant9	5700	22.320	5688.760	5711.080
	Ant2	5745	25.080	5732.160	5757.240
	Ant9	5745	25.120	5732.200	5757.320
Ant2	5785	23.480	5773.480	5796.960	
Ant9	5785	26.600	5773.040	5799.640	
Ant2	5825	27.360	5811.960	5839.320	
Ant9	5825	26.560	5812.520	5839.080	
11ac40MIMO	Ant2	5190	40.160	5169.920	5210.080
	Ant9	5190	39.440	5170.240	5209.680
	Ant2	5230	39.440	5210.080	5249.520
	Ant9	5230	39.680	5210.080	5249.760
	Ant2	5270	39.600	5250.480	5290.080
	Ant9	5270	39.280	5250.320	5289.600
	Ant2	5310	39.600	5290.400	5330.000
	Ant9	5310	39.280	5290.400	5329.680
	Ant2	5510	40.160	5489.680	5529.840
	Ant9	5510	39.440	5490.240	5529.680
Ant2	5550	40.000	5529.920	5569.920	



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	Ant9	5550	39.280	5530.480	5569.760
	Ant2	5670	40.320	5649.760	5690.080
	Ant9	5670	39.280	5650.400	5689.680
	Ant2	5755	41.840	5733.480	5775.320
	Ant9	5755	40.960	5734.760	5775.720
	Ant2	5795	39.760	5775.160	5814.920
	Ant9	5795	39.840	5775.160	5815.000
11ac80MIMO	Ant2	5210	89.120	5161.040	5250.160
	Ant9	5210	79.520	5170.160	5249.680
	Ant2	5290	80.160	5250.000	5330.160
	Ant9	5290	80.000	5250.000	5330.000
	Ant2	5530	79.680	5490.160	5569.840
	Ant9	5530	79.680	5490.160	5569.840
	Ant2	5610	80.320	5570.320	5650.640
	Ant9	5610	79.840	5570.000	5649.840
	Ant2	5775	80.000	5735.000	5815.000
11ax20MIMO	Ant9	5775	80.160	5735.00	5815.160
	Ant2	5180	21.320	5169.480	5190.800
	Ant9	5180	20.400	5169.880	5190.280
	Ant2	5200	21.560	5189.320	5210.880
	Ant9	5200	22.000	5188.440	5210.440
	Ant2	5240	21.400	5229.120	5250.520
	Ant9	5240	21.760	5228.840	5250.600
	Ant2	5260	21.360	5249.480	5270.840
	Ant9	5260	21.240	5249.400	5270.640
	Ant2	5280	21.040	5269.720	5290.760
	Ant9	5280	20.840	5269.520	5290.360
	Ant2	5320	21.400	5309.240	5330.640
	Ant9	5320	20.920	5309.520	5330.440
	Ant2	5500	22.400	5489.240	5511.640
	Ant9	5500	21.240	5489.440	5510.680
	Ant2	5580	21.440	5569.640	5591.080
	Ant9	5580	23.240	5567.960	5591.200
	Ant2	5700	21.560	5689.200	5710.760
	Ant9	5700	20.920	5689.560	5710.480
	Ant2	5745	21.800	5734.360	5756.160
	Ant9	5745	21.640	5734.080	5755.720
Ant2	5785	22.800	5774.080	5796.880	
Ant9	5785	22.080	5774.200	5796.280	
Ant2	5825	22.600	5814.120	5836.720	
Ant9	5825	26.400	5812.320	5838.720	
11ax40MIMO	Ant2	5190	39.440	5170.240	5209.680
	Ant9	5190	39.520	5170.240	5209.760
	Ant2	5230	39.360	5210.240	5249.600
	Ant9	5230	39.440	5210.320	5249.760
	Ant2	5270	38.880	5250.720	5289.600
	Ant9	5270	39.280	5250.480	5289.760
	Ant2	5310	39.520	5290.320	5329.840
	Ant9	5310	39.360	5290.400	5329.760
	Ant2	5510	39.360	5490.320	5529.680
	Ant9	5510	39.440	5490.320	5529.760
	Ant2	5550	39.600	5530.320	5569.920
	Ant9	5550	39.440	5530.320	5569.760



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	Ant2	5670	39.440	5650.240	5689.680
	Ant9	5670	39.520	5650.240	5689.760
	Ant2	5755	39.360	5735.320	5774.680
	Ant9	5755	48.320	5734.600	5782.920
	Ant2	5795	43.120	5771.640	5814.760
	Ant9	5795	47.920	5775.320	5823.240
11ax80MIMO	Ant2	5210	80.160	5169.840	5250.000
	Ant9	5210	80.480	5169.680	5250.160
	Ant2	5290	80.320	5250.000	5330.320
	Ant9	5290	80.320	5249.840	5330.160
	Ant2	5530	80.320	5489.840	5570.160
	Ant9	5530	80.160	5490.000	5570.160
	Ant2	5610	80.320	5569.840	5650.160
	Ant9	5610	80.480	5570.000	5650.480
	Ant2	5775	80.320	5734.840	5815.160
	Ant9	5775	80.160	5735.000	5815.160



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Test Graphs



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11a-CDD Ant2 5200



Frequency
 Auto Tune
 Center Freq
 5.20000000 GHz
 Start Freq
 5.18000000 GHz
 Stop Freq
 5.22000000 GHz
 CF Step
 4.000000 MHz
 Freq Offset
 0 Hz

11a-CDD Ant9 5200



Frequency
 Auto Tune
 Center Freq
 5.20000000 GHz
 Start Freq
 5.18000000 GHz
 Stop Freq
 5.22000000 GHz
 CF Step
 4.000000 MHz
 Freq Offset
 0 Hz



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11a-CDD Ant2 5240



11a-CDD Ant9 5240



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11a-CDD Ant2 5260



11a-CDD Ant9 5260



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11a-CDD Ant2 5280



11a-CDD Ant9 5280



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11a-CDD Ant2 5320



11a-CDD Ant9 5320



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11a-CDD Ant2 5500



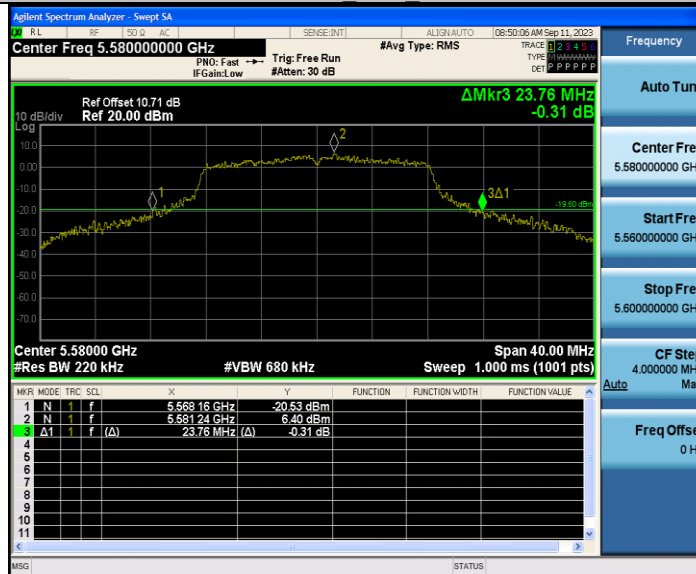
11a-CDD Ant9 5500



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11a-CDD Ant2 5580



11a-CDD Ant9 5580



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11a-CDD Ant2 5700



11a-CDD Ant9 5700



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11a-CDD Ant2 5785



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