TEST REPORT

Report No.:	BCTC2106132479-2E
Applicant:	REOLINK INNOVATION LIMITED
Product Name:	WiFi IP Camera
Model/Type Ref.:	Reolink Duo WiFi
Tested Date:	2021-07-01 to 2021-07-08
Issued Date:	2021-08-06

Shenzhen BCTC Testing Co., Ltd.

FCC ID: 2AYHE-2107A

Product Name:	WiFi IP Camera
Trademark:	reolink
Model/Type Ref.:	Reolink Duo WiFi RLC-542WA
Prepared For:	REOLINK INNOVATION LIMITED
Address:	RM 705, 7/F, FA YUEN COMM BLDG, 75-77, FA YUEN STREET, MONG KOK, KLN, HONG KONG
Manufacturer:	REOLINK INNOVATION LIMITED
Address:	RM 705, 7/F, FA YUEN COMM BLDG, 75-77, FA YUEN STREET, MONG KOK, KLN, HONG KONG
Factory:	Shenzhen Reolink Technology Co., Ltd.
Address:	2-4th Floor, Building 2, YuanLing Industrial Park, ShangWu, Shiyan Street, Bao'an District, Shenzhen, China
Prepared By:	Shenzhen BCTC Testing Co., Ltd.
Address:	1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	2021-07-01
Sample tested Date:	2021-07-01 to 2021-07-08
Issue Date:	2021-08-06
Report No.:	BCTC2106132479-2E
Test Standards:	FCC Part15 15.407 ANSI C63.10-2013 KDB 662911 D01 v02r01 KDB 789033 D02 v02r01
Test Results:	PASS

Tested by:

Eric Yang/Project Handler

Approved by:

Zero Zhou/Reviewer

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

TABLE OF CONTENT

(Note: N/A means not applicable)

1. VERSION

Report No.	Issue Date	Description	Approved
BCTC2106132479-2E	2021-08-06	Original	Valid

2. TEST SUMMARY

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No	Results
1	Spurious Radiated Emissions	15.209(a), 15.407 (b)(1) 15.407 (b)(4) 15.407 (b)(8)	PASS
2	Conducted Emission	15.207	PASS
3	26 dB and 99% Emission Bandwidth	15.407 (a)(12) 15.1049	PASS
4	Minimum 6 dB bandwidth	15.407(e)	PASS
5	Maximum Conducted Output Power	15.407 (a)(1) 15.407 (a)(3)	PASS
6	Band Edge	2.1051, 15.407(b)(1) 15.407(b)(4)	PASS
7	Power Spectral Density	15.407 (a)(1) 15.407 (a)(3)	PASS
8	Spurious Emissions at Antenna Terminals	2.1051, 15.407(b)	PASS
9	Antenna Requirement	15.203	PASS

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(9kHz-30MHz)	U=3.7dB
2	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
3	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
4	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
5	Conducted Emission(150kHz-30MHz)	U=3.20dB
6	Conducted Adjacent channel power	U=1.38dB
7	Conducted output power uncertainty Above 1G	U=1.576dB
8	Conducted output power uncertainty below 1G	U=1.28dB
9	humidity uncertainty	U=5.3%
10	Temperature uncertainty	U=0.59℃

4. PRODUCT INFORMATION AND TEST SETUP

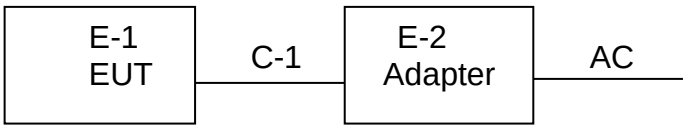
4.1 Product Information

Model/Type Ref.:	Reolink Duo WiFi RLC-542WA
Model differences:	All the model are the same circuit and RF module, except model names.
Hardware Version:	V120
Software Version:	A1
IEEE 802.11 WLAN Mode Supported	802.11a/n(20MHz channel bandwidth) 802.11n(40MHz channel bandwidth)
Operation Frequency:	5180-5240MHz for 802.11a/n(HT20); 5190-5230MHz for 802.11n(HT40); 5745-5825 MHz for 802.11a/n(HT20); 5755-5795 MHz for 802.11n(HT40);
Data Rate	802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15;
Type of Modulation:	OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11a/n;
Number Of Channel	4 channels for 802.11a/n20 in the 5180-5240MHz band ; 2 channels for 802.11 n40 in the 5190-5230MHz band ; 5 channels for 802.11a/n20 in the 5745-5825MHz band ; 2 channels for 802.11 n40 in the 5755-5795MHz band ;
Antenna installation:	External antenna
Antenna Gain:	Antenna A: 2dBi Antenna B: 2dBi
Ratings:	DC 12V
Adapter:	Model: DCT24W120200EU-A0 Input: 100-240V 50/60Hz 0.7A max Output: 12.0V 2.0A 24.0W

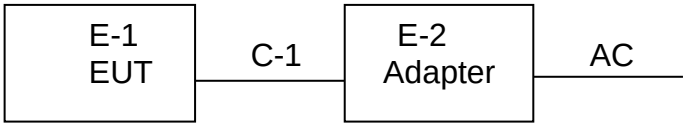
4.2 Test Setup Configuration

See test photographs attached in *EUT TEST SETUP PHOTOGRAPHS* for the actual connections between Product and support equipment.

Conducted Emission Test:



Radiated Spurious Emission



4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-2	Adapter	N/A	DCT24W120200EU-A0	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1M	DC cable unshielded

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

802.11a/n(20MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220	40	5200	48	5240
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

802.11n (40MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230	-	-	-	-
151	5755	159	5795	-	-	-	-

4.5 Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	802.11a / n 20 CH36/ CH40/ CH 48 802.11a /n 20 CH149/ CH157/ CH 165
Mode 2	802.11n40 CH38/ CH 46 802.11n40 CH 151 / CH 159
Mode 3	Link Mode

Note:

(1)The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.

4.6 table of parameters of text software setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters

Test software Version	serial port instruction		
Parameters	DEF	DEF	DEF

4.7 Antenna

EUT has two External antennas with Max gain GANT 2dBi on every antenna, CDD device with two spatial streams, also can operat with one spatial streams according to KDB662911 D01 v02r01,
Directional gain= GANT + Array Gain, where Array Gain is as follows.
1)For power spectral density(PSD) measurements,
Array Gain=10log(NANT/NSS)dB=10log(2/1)=5.01dBi,
So the directional gain for PSD is 5.01dBi
2)For power measurements,
The Array gain=0 dB for NANT≤4,
So the directional gain for Power measurements is 2dBi

Antenna	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
A	N/A	N/A	External antenna	2	
B	N/A	N/A	External antenna	2	

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

FCC Test Firm Registration Number: 712850

IC Registered No.: 23583

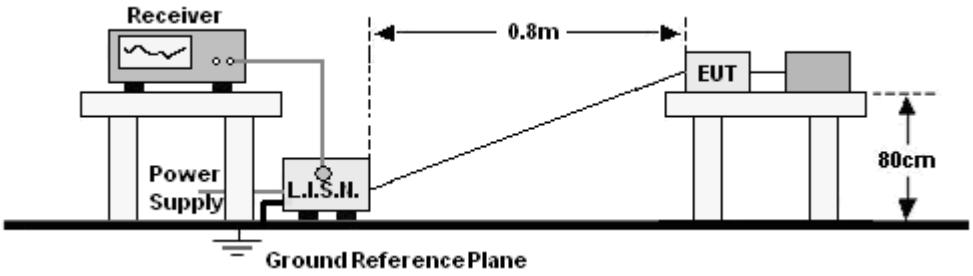
5.2 Test Instrument Used

Conducted emissions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Receiver	R&S	ESR3	102075	May 28, 2021	May 27, 2022
LISN	R&S	ENV216	101375	May 28, 2021	May 27, 2022
ISN	HPX	ISN T800	S1509001	May 28, 2021	May 27, 2022
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

Radiated emissions Test (966 chamber)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	Jun. 06. 2020	Jun. 05, 2023
Receiver	R&S	ESR3	102075	May 28, 2021	May 27, 2022
Receiver	R&S	ESRP	101154	May 28, 2021	May 27, 2022
Amplifier	SKET	LAPA_01G 18G-45dB	\	May 28, 2021	May 27, 2022
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 28, 2021	May 27, 2022
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163-942	Jun. 01, 2021	May 31, 2022
Horn Antenna	SCHWARZBECK	BBHA9120 D	1541	Jun. 02, 2021	Jun. 01, 2022
Horn Antenna (18GHz-40GHz)	SCHWARZBECK	BBHA9170	822	May 28, 2021	May 27, 2022
Amplifier (18GHz-40GHz)	MITEQ	TTA1840-35-HG	2034381	May 28, 2021	May 27, 2022
Loop Antenna (9KHz-30MHz)	SCHWARZBECK	FMZB1519 B	014	Jun. 02, 2021	Jun. 01, 2022
RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30MHz	B1702988-0008	May 28, 2021	May 27, 2022
RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1GHz	1486150	May 28, 2021	May 27, 2022
RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40GHz	1607106	May 28, 2021	May 27, 2022
Power Metter	Keysight	E4419B	\	May 28, 2021	May 27, 2022
Power Sensor (AV)	Keysight	E9 300A	\	May 28, 2021	May 27, 2022
Signal Analyzer 20kHz-26.5GHz	KEYSIGHT	N9020A	MY49100060	May 28, 2021	May 27, 2022
Spectrum Analyzer 9kHz-40GHz	R&S	FSP40	100363	May 28, 2021	May 27, 2022
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

6. CONDUCTED EMISSIONS

6.1 Block Diagram Of Test Setup



6.2 Limit

FREQUENCY (MHz)	Limit (dBuV)	
	Quas-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Notes:
1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

6.3 Test procedure

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.

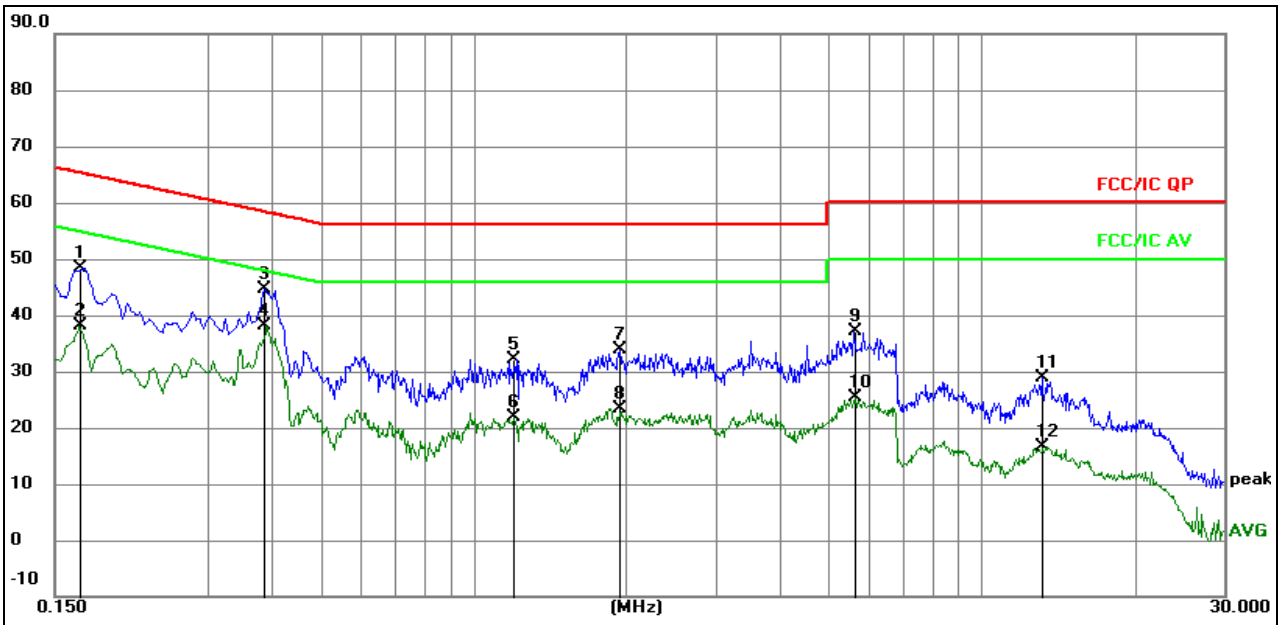
c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

6.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

6.5 Test Result

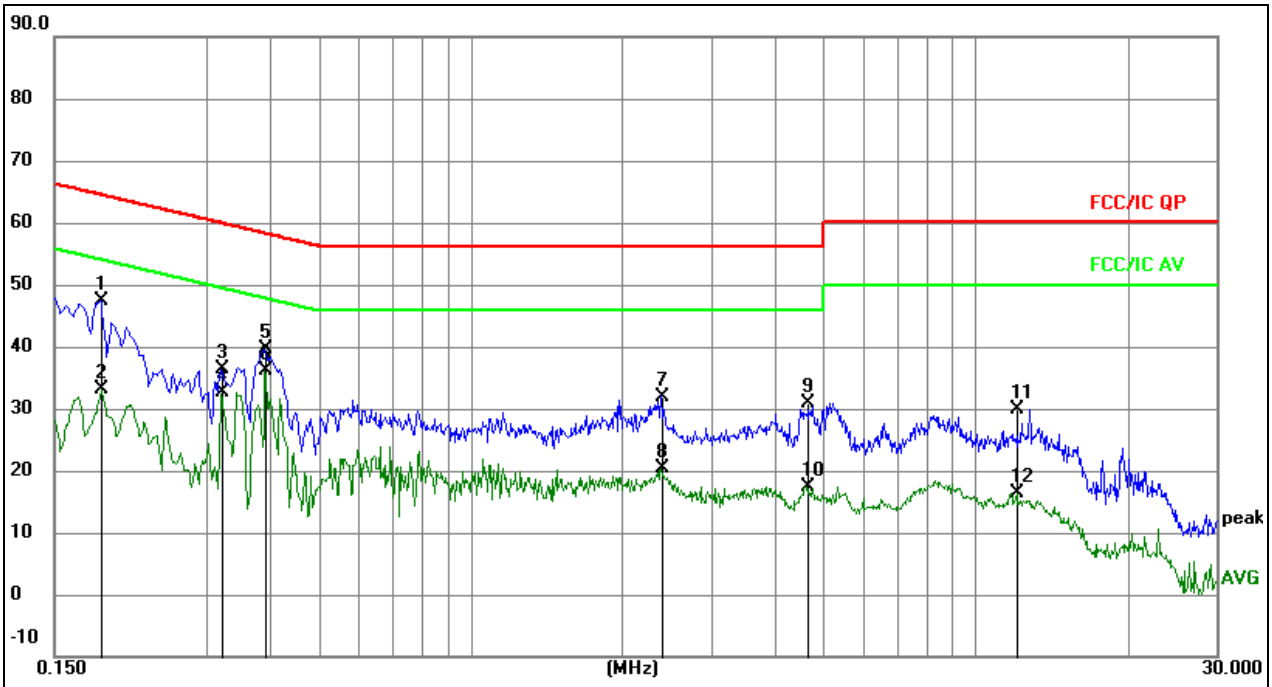
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Phase：	L
Test Voltage ：	AC 120V/60Hz	Test Mode：	Mode 3



Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1		0.1677	38.92	9.50	48.42	65.07	-16.65	QP
2		0.1677	28.57	9.50	38.07	55.07	-17.00	AVG
3		0.3871	35.04	9.51	44.55	58.13	-13.58	QP
4	*	0.3871	28.50	9.51	38.01	48.13	-10.12	AVG
5		1.1970	22.53	9.57	32.10	56.00	-23.90	QP
6		1.1970	12.30	9.57	21.87	46.00	-24.13	AVG
7		1.9386	24.17	9.59	33.76	56.00	-22.24	QP
8		1.9386	13.80	9.59	23.39	46.00	-22.61	AVG
9		5.6531	27.46	9.77	37.23	60.00	-22.77	QP
10		5.6531	15.54	9.77	25.31	50.00	-24.69	AVG
11		13.1269	19.29	9.70	28.99	60.00	-31.01	QP
12		13.1269	6.85	9.70	16.55	50.00	-33.45	AVG

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Phase：	N
Test Voltage ：	AC 120V/60Hz	Test Mode：	Mode 3



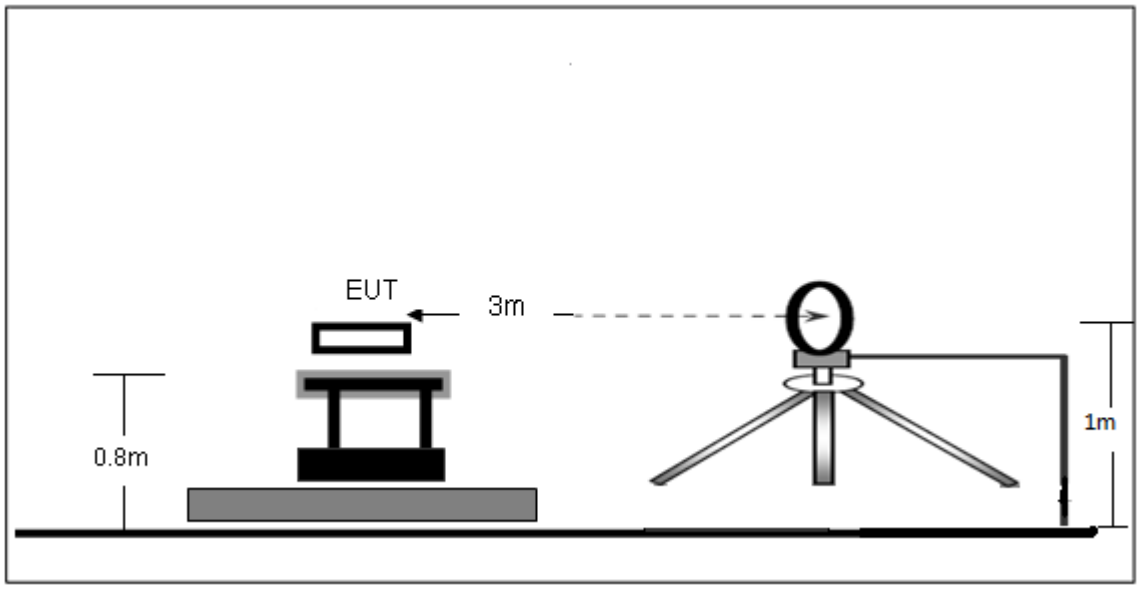
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1		0.1860	37.90	9.48	47.38	64.21	-16.83	QP
2		0.1860	23.75	9.48	33.23	54.21	-20.98	AVG
3		0.3209	26.78	9.56	36.34	59.68	-23.34	QP
4		0.3209	22.99	9.56	32.55	49.68	-17.13	AVG
5		0.3930	30.08	9.51	39.59	58.00	-18.41	QP
6	*	0.3930	26.61	9.51	36.12	48.00	-11.88	AVG
7		2.3955	22.38	9.62	32.00	56.00	-24.00	QP
8		2.3955	10.79	9.62	20.41	46.00	-25.59	AVG
9		4.6320	21.21	9.77	30.98	56.00	-25.02	QP
10		4.6320	7.62	9.77	17.39	46.00	-28.61	AVG
11		12.0705	20.13	9.69	29.82	60.00	-30.18	QP
12		12.0705	6.68	9.69	16.37	50.00	-33.63	AVG

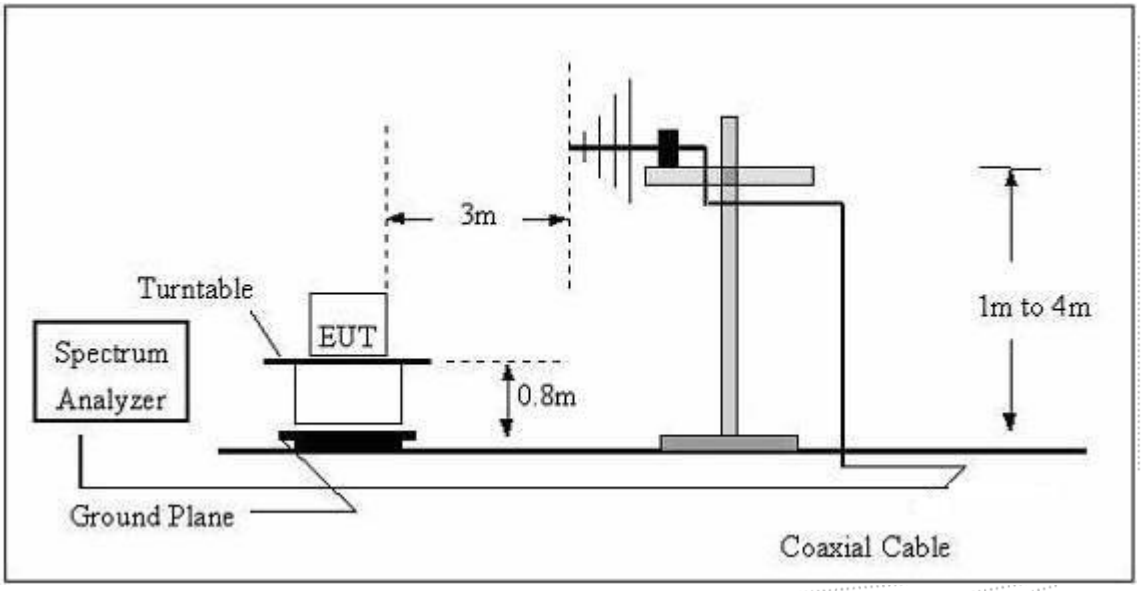
7. RADIATED EMISSIONS

7.1 Block Diagram Of Test Setup

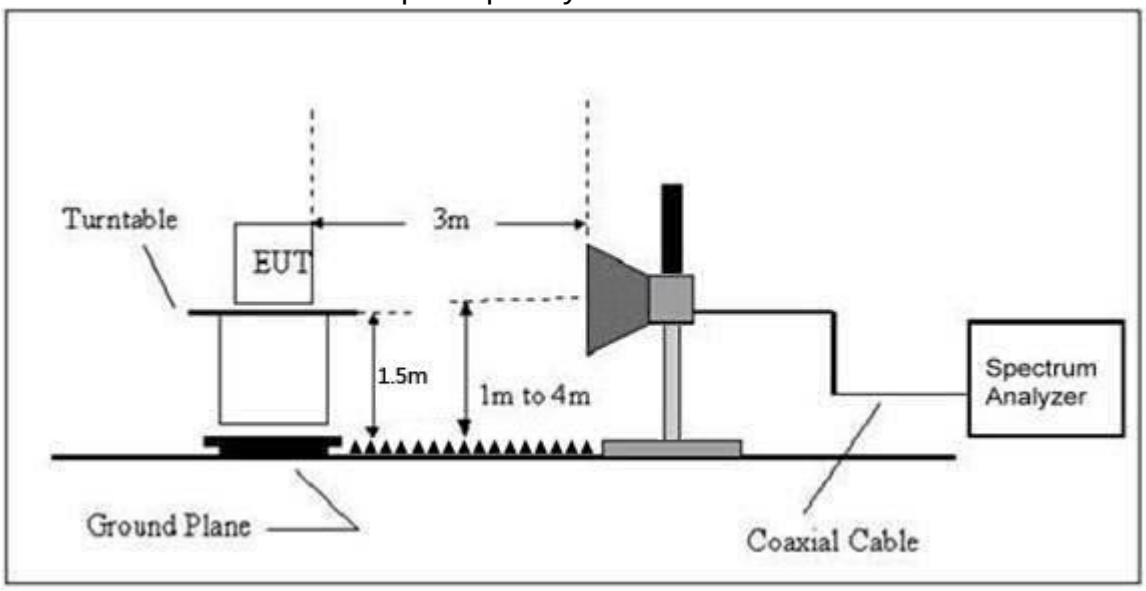
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



7.2 Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequency	Field Strength	Distance	Field Strength Limit at 3m Distance	
(MHz)	uV/m	(m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))}$ + 80
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))}$ + 40
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)}$ + 40
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:
(1)The limit for radiated test was performed according to FCC PART 15C.
(2)The tighter limit applies at the band edges.
(3) Emission level (dBuV/m)=20log Emission level (uV/m).

7.3 Test procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.
This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205.
It must be performed with the highest gain of each type of antenna proposed for use with the EUT.
Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.
Note:
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10*lg(100 [kHz]/narrower RBW [kHz]). , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

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7.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

7.5 Test Result

Below 30MHz

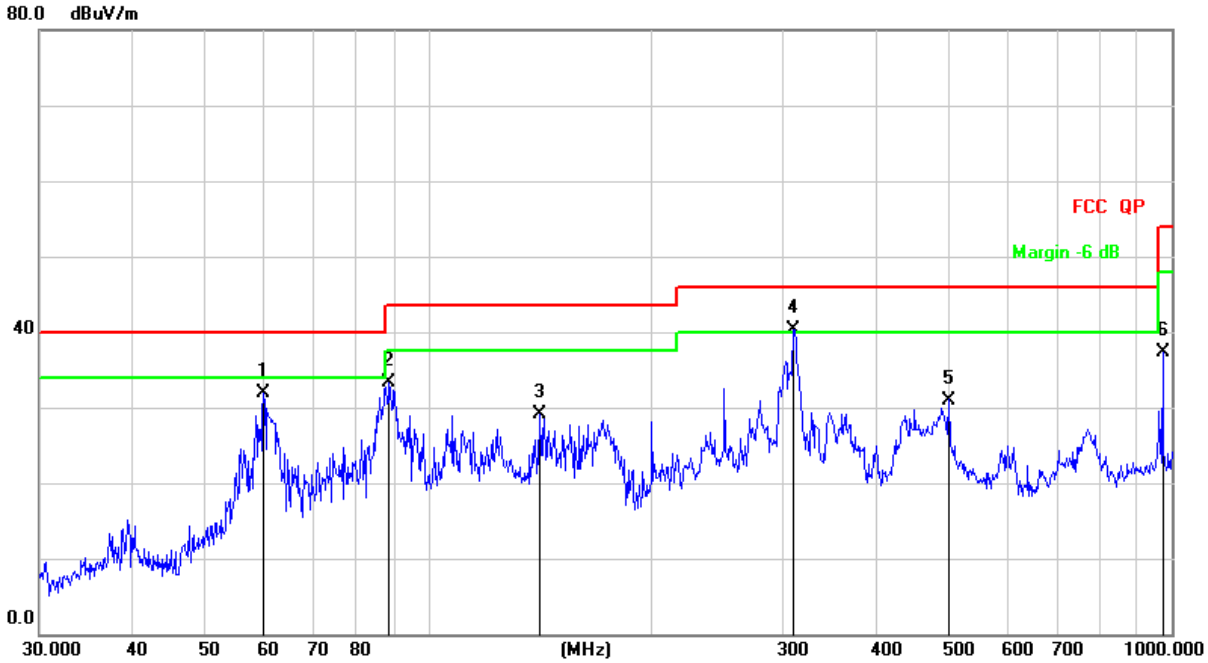
Temperature：	26℃	Relative Humidtity：	24%
Pressure：	101 kPa	Test Voltage ：	AC120V 60Hz
Test Mode ：	Mode 4	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

Between 30MHz – 1GHz

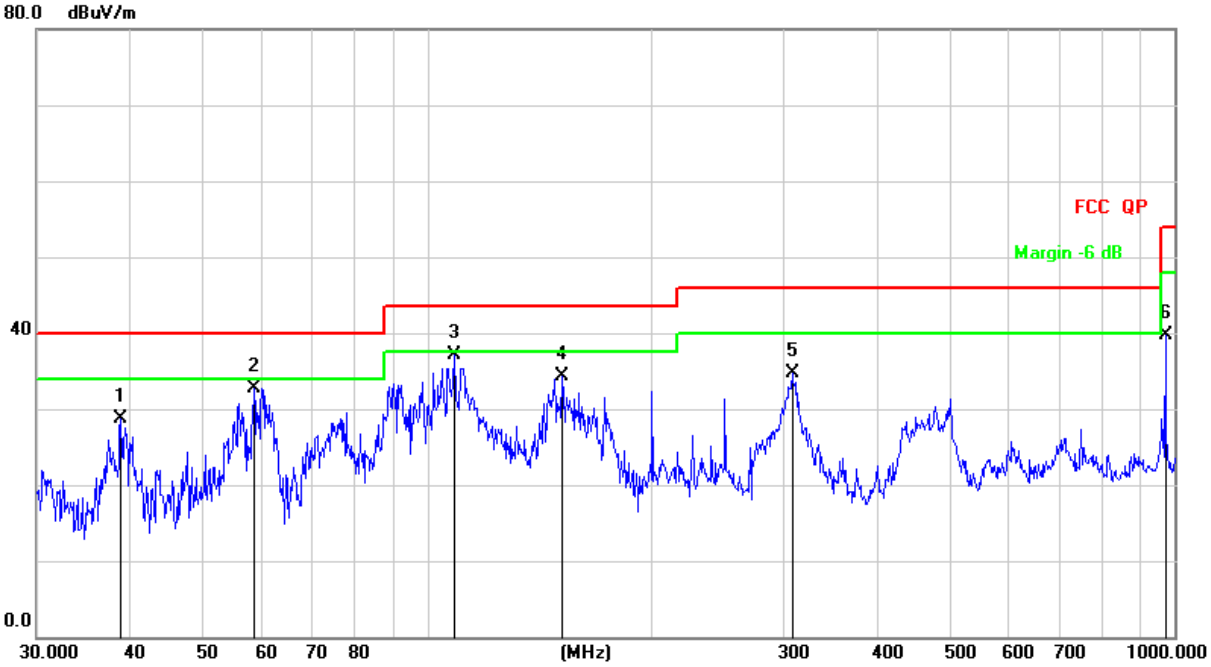
Temperature：	26℃	Relative Humidtity：	54%
Pressure：	101 kPa	Test Voltage ：	AC120V 60Hz
Test Mode ：	Mode 3	Polarization :	Horizontal



Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		60.0691	47.85	-15.93	31.92	40.00	-8.08	QP
2		88.6524	51.72	-18.41	33.31	43.50	-10.19	QP
3		141.3298	48.06	-18.94	29.12	43.50	-14.38	QP
4	*	309.9977	53.71	-13.33	40.38	46.00	-5.62	QP
5		501.1790	39.91	-8.91	31.00	46.00	-15.00	QP
6		972.3374	38.27	-0.98	37.29	54.00	-16.71	QP

Temperature：	26℃	Relative Humidtity：	54%
Pressure：	101 kpa	Test Voltage ：	AC120V 60Hz
Test Mode ：	Mode 3	Polarization :	Vertical



Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		38.8878	44.32	-15.62	28.70	40.00	-11.30	QP
2		58.6126	48.56	-15.76	32.80	40.00	-7.20	QP
3	*	108.6470	53.91	-16.84	37.07	43.50	-6.43	QP
4		151.5972	53.69	-19.40	34.29	43.50	-9.21	QP
5		307.8313	48.02	-13.39	34.63	46.00	-11.37	QP
6		972.3374	40.60	-0.98	39.62	54.00	-14.38	QP

Between 1GHz – 40GHz

Test Mode :	TX(5.2G) - 802.11a

Polar (H/V)	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G									
V	4434.024	64.30	5.94	35.40	44.00	61.64	68.20	-6.56	PK
V	4434.024	43.10	5.94	35.40	44.00	40.44	54.00	-13.56	AV
V	10360.040	63.02	8.46	39.75	44.50	66.73	74.00	-7.27	PK
V	10360.040	43.64	8.46	39.75	44.50	47.35	54.00	-6.65	AV
V	15540.004	63.88	10.12	38.80	44.10	68.70	74.00	-5.30	PK
V	15540.004	43.30	10.12	38.80	42.70	49.52	54.00	-4.48	AV
H	4434.077	63.18	5.94	35.18	44.00	60.30	68.20	-7.90	PK
H	4434.077	43.70	5.94	35.18	44.00	40.82	54.00	-13.18	AV
H	10360.182	52.27	8.46	38.71	44.50	54.94	74.00	-19.06	PK
H	10360.182	43.36	8.46	38.71	44.50	46.03	54.00	-7.97	AV
H	15540.131	53.62	10.12	38.38	44.10	58.02	74.00	-15.98	PK
H	15540.131	40.66	10.12	38.38	44.10	45.06	54.00	-8.94	AV
middle Channel (5200 MHz)-Above 1G									
V	4592.067	64.03	6.48	36.35	44.05	62.81	74.00	-11.19	PK
V	4592.067	43.11	6.48	36.35	44.05	41.89	54.00	-12.11	AV
V	10400.092	62.65	8.47	37.88	44.51	64.49	68.20	-3.71	PK
V	10400.092	43.86	8.47	37.88	44.51	45.70	54.00	-8.30	AV
V	15600.175	61.47	10.12	38.80	44.10	66.29	74.00	-7.71	PK
V	15600.175	43.20	10.12	38.80	42.70	49.42	54.00	-4.58	AV
H	4592.070	64.01	6.48	36.37	44.05	62.81	74.00	-11.19	PK
H	4592.070	43.02	6.48	36.37	44.05	41.82	54.00	-12.18	AV
H	10400.070	52.37	8.47	38.64	44.50	54.98	68.20	-13.22	PK
H	10400.070	42.78	8.47	38.64	44.50	45.39	54.00	-8.61	AV
H	15600.150	54.67	10.12	38.38	44.10	59.07	74.00	-14.93	PK
H	15600.150	40.49	10.12	38.38	44.10	44.89	54.00	-9.11	AV
High Channel (5240 MHz)-Above 1G									
V	4739.167	61.34	7.10	37.24	43.50	62.18	74.00	-11.82	PK
V	4739.167	43.33	7.10	37.24	43.50	44.17	54.00	-9.83	AV
V	10480.130	61.46	8.46	37.68	44.50	63.10	68.20	-5.10	PK
V	10480.130	43.47	8.46	37.68	44.50	45.11	54.00	-8.89	AV
V	15720.190	60.97	10.12	38.80	44.10	65.79	74.00	-8.21	PK
V	15720.190	43.72	10.12	38.80	42.70	49.94	54.00	-4.06	AV
H	4739.116	63.28	7.10	37.24	43.50	64.12	74.00	-9.88	PK
H	4739.116	43.23	7.10	37.24	43.50	44.07	54.00	-9.93	AV
H	10480.130	53.63	8.46	38.57	44.50	56.16	68.20	-12.04	PK
H	10480.130	40.33	8.46	38.57	44.50	42.86	54.00	-11.14	AV
H	15720.150	52.80	10.12	38.38	44.10	57.20	74.00	-16.80	PK
H	15720.150	43.08	10.12	38.38	44.10	47.48	54.00	-6.52	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
The worst case is Antenna A.

Test Mode :	TX(5.2G) - 802.11n-HT20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5180 MHz)-Above 1G									
V	4434.024	64.40	5.94	35.40	44.00	61.74	68.20	-6.46	PK
V	4434.024	43.04	5.94	35.40	44.00	40.38	54.00	-13.62	AV
V	10360.077	63.47	8.46	39.75	44.50	67.18	68.20	-1.02	PK
V	10360.077	43.26	8.46	39.75	44.50	46.97	54.00	-7.03	AV
V	15540.109	62.03	10.12	38.80	44.10	66.85	74.00	-7.15	PK
V	15540.109	43.78	10.12	38.80	42.70	50.00	54.00	-4.00	AV
H	4434.055	64.05	5.94	35.18	44.00	61.17	68.20	-7.03	PK
H	4434.055	43.20	5.94	35.18	44.00	40.32	54.00	-13.68	AV
H	10360.199	52.34	8.46	38.71	44.50	55.01	68.20	-13.19	PK
H	10360.199	41.52	8.46	38.71	44.50	44.19	54.00	-9.81	AV
H	15540.129	53.26	10.12	38.38	44.10	57.66	74.00	-16.34	PK
H	15540.129	42.92	10.12	38.38	44.10	47.32	54.00	-6.68	AV
middle Channel (5200 MHz)-Above 1G									
V	4592.196	60.80	6.48	36.35	44.05	59.58	74.00	-14.42	PK
V	4592.196	43.90	6.48	36.35	44.05	42.68	54.00	-11.32	AV
V	10400.139	64.30	8.47	37.88	44.51	66.14	68.20	-2.06	PK
V	10400.139	43.91	8.47	37.88	44.51	45.75	54.00	-8.25	AV
V	15600.063	64.57	10.12	38.80	44.10	69.39	74.00	-4.61	PK
V	15600.063	43.85	10.12	38.80	42.70	50.07	54.00	-3.93	AV
H	4592.116	64.27	6.48	36.37	44.05	63.07	74.00	-10.93	PK
H	4592.116	43.53	6.48	36.37	44.05	42.33	54.00	-11.67	AV
H	10400.068	50.34	8.47	38.64	44.50	52.95	68.20	-15.25	PK
H	10400.068	43.23	8.47	38.64	44.50	45.84	54.00	-8.16	AV
H	15600.002	54.43	10.12	38.38	44.10	58.83	74.00	-15.17	PK
H	15600.002	40.56	10.12	38.38	44.10	44.96	54.00	-9.04	AV
High Channel (5240 MHz)-Above 1G									
V	4739.029	62.66	7.10	37.24	43.50	63.50	74.00	-10.50	PK
V	4739.029	43.13	7.10	37.24	43.50	43.97	54.00	-10.03	AV
V	10480.037	62.34	8.46	37.68	44.50	63.98	68.20	-4.22	PK
V	10480.037	43.66	8.46	37.68	44.50	45.30	54.00	-8.70	AV
V	15720.142	62.05	10.12	38.80	44.10	66.87	74.00	-7.13	PK
V	15720.142	43.50	10.12	38.80	42.70	49.72	54.00	-4.28	AV
H	4739.023	64.39	7.10	37.24	43.50	65.23	74.00	-8.77	PK
H	4739.023	43.63	7.10	37.24	43.50	44.47	54.00	-9.53	AV
H	10480.167	50.83	8.46	38.57	44.50	53.36	68.20	-14.84	PK
H	10480.167	43.46	8.46	38.57	44.50	45.99	54.00	-8.01	AV
H	15720.183	54.99	10.12	38.38	44.10	59.39	74.00	-14.61	PK
H	15720.183	44.69	10.12	38.38	44.10	49.09	54.00	-4.91	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
Test Mode is MIMO Mode.

Test Mode :	TX(5.2G) - 802.11n-HT40

Polar (H/V)	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5190 MHz)-Above 1G									
V	4434.060	64.89	5.94	35.40	44.00	62.23	74.00	-11.77	PK
V	4434.060	43.85	5.94	35.40	44.00	41.19	54.00	-12.81	AV
V	10380.194	60.69	8.46	39.75	44.50	64.40	68.20	-3.80	PK
V	10380.194	43.18	8.46	39.75	44.50	46.89	54.00	-7.11	AV
V	15570.085	63.67	10.12	38.80	44.10	68.49	74.00	-5.51	PK
V	15570.085	43.55	10.12	38.80	42.70	49.77	54.00	-4.23	AV
H	4434.076	60.79	5.94	35.18	44.00	57.91	74.00	-16.09	PK
H	4434.076	43.35	5.94	35.18	44.00	40.47	54.00	-13.53	AV
H	10380.131	51.44	8.46	38.71	44.50	54.11	68.20	-14.09	PK
H	10380.131	42.93	8.46	38.71	44.50	45.60	54.00	-8.40	AV
H	15570.088	53.70	10.12	38.38	44.10	58.10	74.00	-15.90	PK
H	15570.088	41.01	10.12	38.38	44.10	45.41	54.00	-8.59	AV
middle Channel (5230 MHz)-Above 1G									
V	4739.009	63.09	6.48	36.35	44.05	61.87	74.00	-12.13	PK
V	4739.009	43.92	6.48	36.35	44.05	42.70	54.00	-11.30	AV
V	10460.193	64.25	8.47	37.88	44.51	66.09	68.20	-2.11	PK
V	10460.193	43.04	8.47	37.88	44.51	44.88	54.00	-9.12	AV
V	15690.027	60.62	10.12	38.80	44.10	65.44	74.00	-8.56	PK
V	15690.027	43.75	10.12	38.80	42.70	49.97	54.00	-4.03	AV
H	4739.064	63.83	6.48	36.37	44.05	62.63	74.00	-11.37	PK
H	4739.064	43.05	6.48	36.37	44.05	41.85	54.00	-12.15	AV
H	10460.081	53.19	8.47	38.64	44.50	55.80	68.20	-12.40	PK
H	10460.081	40.95	8.47	38.64	44.50	43.56	54.00	-10.44	AV
H	15690.127	51.01	10.12	38.38	44.10	55.41	74.00	-18.59	PK
H	15690.127	44.82	10.12	38.38	44.10	49.22	54.00	-4.78	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
Test Mode is MIMO Mode.

Test Mode :	TX (5.8G) -- 802.11a

Polar (H/V)	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G									
V	4679.073	56.16	5.94	35.40	44.00	53.50	74.00	-20.50	PK
V	4679.073	43.74	5.94	35.40	44.00	41.08	54.00	-12.92	AV
V	11490.163	54.65	8.46	39.75	44.50	58.36	68.20	-9.84	PK
V	11490.163	43.00	8.46	39.75	44.50	46.71	54.00	-7.29	AV
V	17235.180	60.79	10.12	38.80	44.10	65.61	74.00	-8.39	PK
V	17235.180	43.05	10.12	38.80	42.70	49.27	54.00	-4.73	AV
H	4679.113	56.36	5.94	35.18	44.00	53.48	74.00	-20.52	PK
H	4679.113	43.67	5.94	35.18	44.00	40.79	54.00	-13.21	AV
H	11490.103	50.72	8.46	38.71	44.50	53.39	68.20	-14.81	PK
H	11490.103	40.47	8.46	38.71	44.50	43.14	54.00	-10.86	AV
H	17235.093	53.42	10.12	38.38	44.10	57.82	74.00	-16.18	PK
H	17235.093	43.58	10.12	38.38	44.10	47.98	54.00	-6.02	AV
middle Channel (5785 MHz)-Above 1G									
V	4592.081	56.38	6.48	36.35	44.05	55.16	74.00	-18.84	PK
V	4592.081	43.09	6.48	36.35	44.05	41.87	54.00	-12.13	AV
V	11570.189	55.13	8.47	37.88	44.51	56.97	68.20	-11.23	PK
V	11570.189	43.17	8.47	37.88	44.51	45.01	54.00	-8.99	AV
V	17355.053	57.67	10.12	38.80	44.10	62.49	74.00	-11.51	PK
V	17355.053	39.76	10.12	38.80	42.70	45.98	54.00	-8.02	AV
H	4592.085	59.73	6.48	36.37	44.05	58.53	74.00	-15.47	PK
H	4592.085	43.04	6.48	36.37	44.05	41.84	54.00	-12.16	AV
H	11570.070	51.92	8.47	38.64	44.50	54.53	68.20	-13.67	PK
H	11570.070	44.32	8.47	38.64	44.50	46.93	54.00	-7.07	AV
H	17355.095	51.92	10.12	38.38	44.10	56.32	74.00	-17.68	PK
H	17355.095	40.69	10.12	38.38	44.10	45.09	54.00	-8.91	AV
High Channel (5825 MHz)-Above 1G									
V	6039.106	59.84	7.10	37.24	43.50	60.68	68.20	-7.52	PK
V	6039.106	43.17	7.10	37.24	43.50	44.01	54.00	-9.99	AV
V	11650.142	59.38	8.46	37.68	44.50	61.02	74.00	-12.98	PK
V	11650.142	43.41	8.46	37.68	44.50	45.05	54.00	-8.95	AV
V	17475.003	53.92	10.12	38.80	44.10	58.74	68.20	-9.46	PK
V	17475.003	43.72	10.12	38.80	42.70	49.94	54.00	-4.06	AV
H	6039.131	54.54	7.10	37.24	43.50	55.38	68.20	-12.82	PK
H	6039.131	43.38	7.10	37.24	43.50	44.22	54.00	-9.78	AV
H	11650.086	53.74	8.46	38.57	44.50	56.27	74.00	-17.73	PK
H	11650.086	44.29	8.46	38.57	44.50	46.82	54.00	-7.18	AV
H	17475.196	52.82	10.12	38.38	44.10	57.22	68.20	-10.98	PK
H	17475.196	43.63	10.12	38.38	44.10	48.03	54.00	-5.97	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
The Worst mode is Antenna A.

Test Mode :	TX (5.8G) --802.11n-HT20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Cable loss (dB)	Antenna Factor dB/m	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5745 MHz)-Above 1G									
V	4679.104	56.21	5.94	35.40	44.00	53.55	74.00	-20.45	PK
V	4679.104	43.15	5.94	35.40	44.00	40.49	54.00	-13.51	AV
V	11490.181	54.59	8.46	39.75	44.50	58.30	68.20	-9.90	PK
V	11490.181	43.15	8.46	39.75	44.50	46.86	54.00	-7.14	AV
V	17235.194	59.10	10.12	38.80	44.10	63.92	74.00	-10.08	PK
V	17235.194	43.00	10.12	38.80	42.70	49.22	54.00	-4.78	AV
H	4679.179	59.90	5.94	35.18	44.00	57.02	74.00	-16.98	PK
H	4679.179	43.79	5.94	35.18	44.00	40.91	54.00	-13.09	AV
H	11490.161	50.11	8.46	38.71	44.50	52.78	68.20	-15.42	PK
H	11490.161	45.00	8.46	38.71	44.50	47.67	54.00	-6.33	AV
H	17235.106	53.42	10.12	38.38	44.10	57.82	74.00	-16.18	PK
H	17235.106	42.93	10.12	38.38	44.10	47.33	54.00	-6.67	AV
middle Channel (5785 MHz)-Above 1G									
V	4592.068	61.93	6.48	36.35	44.05	60.71	74.00	-13.29	PK
V	4592.068	43.74	6.48	36.35	44.05	42.52	54.00	-11.48	AV
V	11570.092	55.37	8.47	37.88	44.51	57.21	68.20	-10.99	PK
V	11570.092	44.00	8.47	37.88	44.51	45.84	54.00	-8.16	AV
V	17355.143	59.91	10.12	38.80	44.10	64.73	74.00	-9.27	PK
V	17355.143	43.15	10.12	38.80	42.70	49.37	54.00	-4.63	AV
H	4592.149	60.69	6.48	36.37	44.05	59.49	74.00	-14.51	PK
H	4592.149	43.16	6.48	36.37	44.05	41.96	54.00	-12.04	AV
H	11570.080	52.41	8.47	38.64	44.50	55.02	68.20	-13.18	PK
H	11570.080	42.38	8.47	38.64	44.50	44.99	54.00	-9.01	AV
H	17355.100	52.50	10.12	38.38	44.10	56.90	74.00	-17.10	PK
H	17355.100	41.03	10.12	38.38	44.10	45.43	54.00	-8.57	AV
High Channel (5825 MHz)-Above 1G									
V	6039.185	59.57	7.10	37.24	43.50	60.41	68.20	-7.79	PK
V	6039.185	43.24	7.10	37.24	43.50	44.08	54.00	-9.92	AV
V	11650.019	60.33	8.46	37.68	44.50	61.97	74.00	-12.03	PK
V	11650.019	43.80	8.46	37.68	44.50	45.44	54.00	-8.56	AV
V	17475.003	59.50	10.12	38.80	44.10	64.32	68.20	-3.88	PK
V	17475.003	43.03	10.12	38.80	42.70	49.25	54.00	-4.75	AV
H	6039.106	58.86	7.10	37.24	43.50	59.70	68.20	-8.50	PK
H	6039.106	43.20	7.10	37.24	43.50	44.04	54.00	-9.96	AV
H	11650.154	53.97	8.46	38.57	44.50	56.50	74.00	-17.50	PK
H	11650.154	43.00	8.46	38.57	44.50	45.53	54.00	-8.47	AV
H	17475.069	50.63	10.12	38.38	44.10	55.03	68.20	-13.17	PK
H	17475.069	40.31	10.12	38.38	44.10	44.71	54.00	-9.29	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
Test Mode is MIMO Mode.

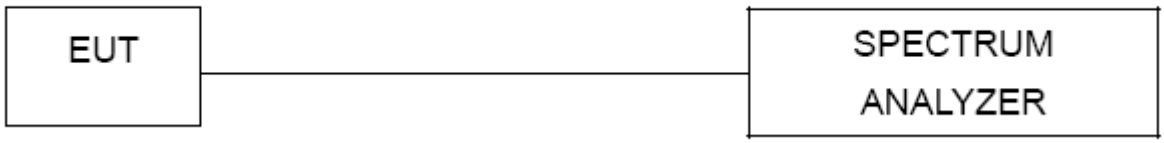
Test Mode :	TX (5.8G) -- 802.11n-HT40

Polar (H/V)	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5755 MHz)-Above 1G									
V	4679.002	60.12	5.94	35.40	44.00	57.46	74.00	-16.54	PK
V	4679.002	43.16	5.94	35.40	44.00	40.50	54.00	-13.50	AV
V	11510.183	55.57	8.46	39.75	44.50	59.28	68.20	-8.92	PK
V	11510.183	43.40	8.46	39.75	44.50	47.11	54.00	-6.89	AV
V	17265.128	59.12	10.12	38.80	44.10	63.94	74.00	-10.06	PK
V	17265.128	2.00	10.12	38.80	42.70	8.22	54.00	-45.78	AV
H	4679.104	56.53	5.94	35.18	44.00	53.65	74.00	-20.35	PK
H	4679.104	43.13	5.94	35.18	44.00	40.25	54.00	-13.75	AV
H	11510.162	54.95	8.46	38.71	44.50	57.62	68.20	-10.58	PK
H	11510.162	42.70	8.46	38.71	44.50	45.37	54.00	-8.63	AV
H	17265.101	50.59	10.12	38.38	44.10	54.99	74.00	-19.01	PK
H	17265.101	43.62	10.12	38.38	44.10	48.02	54.00	-5.98	AV
middle Channel (5795 MHz)-Above 1G									
V	6039.131	60.30	6.48	36.35	44.05	59.08	68.20	-9.12	PK
V	6039.131	43.87	6.48	36.35	44.05	42.65	54.00	-11.35	AV
V	11590.010	56.37	8.47	37.88	44.51	58.21	74.00	-15.79	PK
V	11590.010	43.71	8.47	37.88	44.51	45.55	54.00	-8.45	AV
V	17385.023	55.06	10.12	38.80	44.10	59.88	68.20	-8.32	PK
V	17385.023	41.13	10.12	38.80	42.70	47.35	54.00	-6.65	AV
H	6039.190	58.66	6.48	36.37	44.05	57.46	68.20	-10.74	PK
H	6039.190	43.12	6.48	36.37	44.05	41.92	54.00	-12.08	AV
H	11590.025	54.73	8.47	38.64	44.50	57.34	74.00	-16.66	PK
H	11590.025	40.29	8.47	38.64	44.50	42.90	54.00	-11.10	AV
H	17385.193	53.14	10.12	38.38	44.10	57.54	68.20	-10.66	PK
H	17385.193	43.20	10.12	38.38	44.10	47.60	54.00	-6.40	AV

Note: PK value is lower than the Average value limit, So average didn't record.
The 26.5-40G amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
The Worst mode is Antenna A.

8. POWER SPECTRAL DENSITY TEST

8.1 Block Diagram Of Test Setup



8.2 Limit

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz

(3)For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.3 Test procedure

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/T, where T is defined in section II.B.I.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10log(1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

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8.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

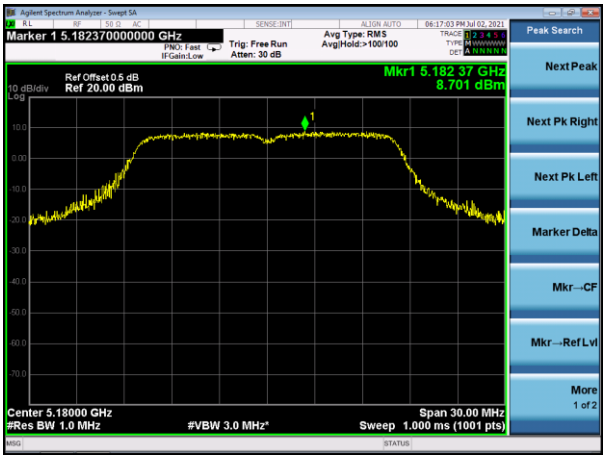
8.5 Test Result

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC 12V
Test Mode ：	TX Frequency U-NII-1 (5180-5240MHz)		

Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B, only shown Antenna B Plot.

Mode	Frequency	Measured Power Density (dBm/MHz)			Limit (dBm/MHz)	Result
		ANT A	ANT B	Total		
802.11 a	5180 MHz	7.782	**8.701**	/	11	PASS
	5200 MHz	6.046	8.328	/	11	PASS
	5240 MHz	3.526	6.906	/	11	PASS
802.11 n20	5180 MHz	4.486	5.365	7.958	11	PASS
	5200 MHz	2.594	5.147	7.066	11	PASS
	5240 MHz	-0.129	3.740	5.233	11	PASS
802.11 n40	5190 MHz	0.657	1.830	4.293	11	PASS
	5230 MHz	-2.909	0.665	2.246	11	PASS

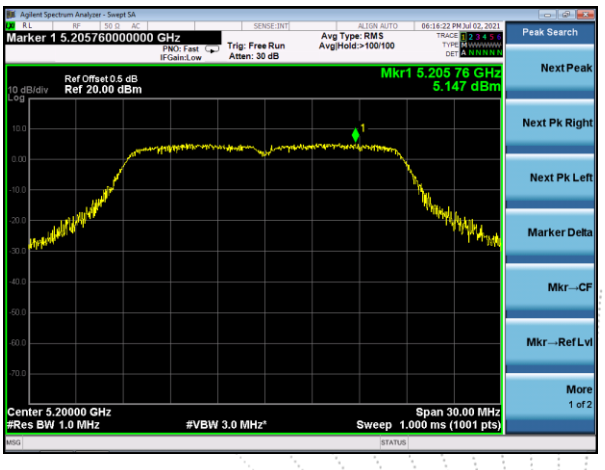
(802.11a) PSD plot on channel 36



(802.11n20) PSD plot on channel 36

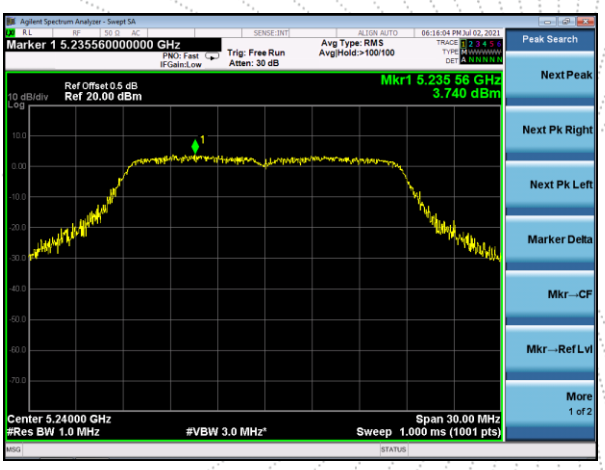
(802.11a) PSD plot on channel 40

(802.11n20) PSD plot on channel 40

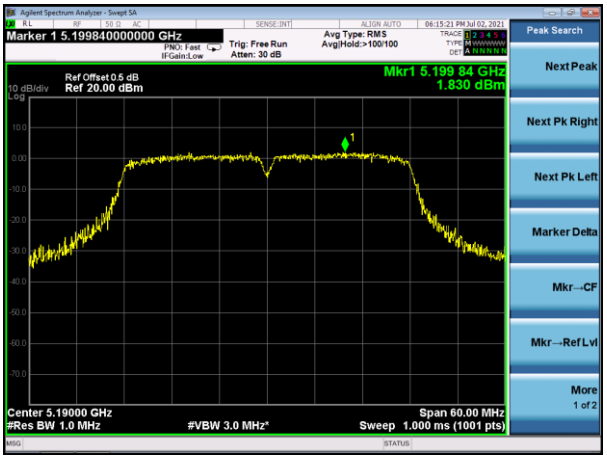


(802.11a) PSD plot on channel 48

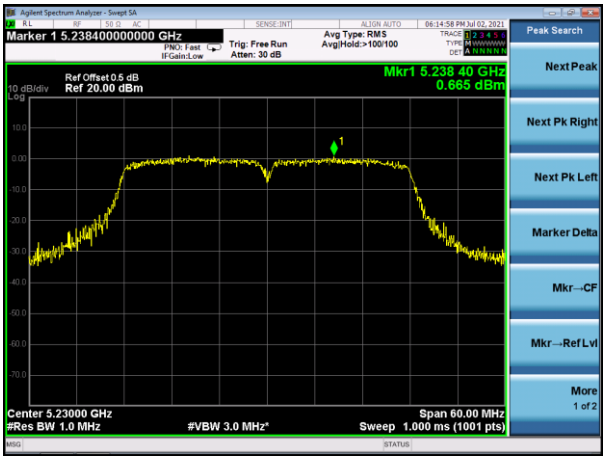
(802.11n20) PSD plot on channel 48



(802.11n40) PSD plot on channel 38



(802.11n40) PSD plot on channel 46



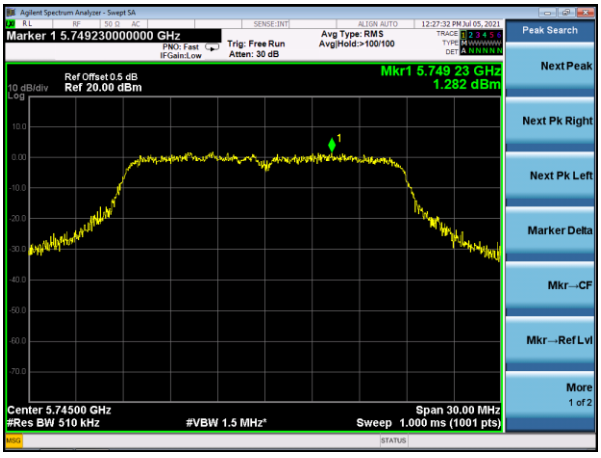
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC 12V
Test Mode ：	TX Frequency U-NII-3 (5745-5825MHz)		

Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A ,only shown Antenna A Plot.

Mode	Frequency	Measured Power Density (dBm/500KHz)			Limit (dBm/500kHz)	Result
		ANT A	ANT B	Total		
802.11 a	5745 MHz	4.360	5.020	/	30	PASS
	5785 MHz	**5.089**	4.955	/	30	PASS
	5825 MHz	4.171	4.416	/	30	PASS
802.11 n20	5745 MHz	1.282	1.872	4.597	30	PASS
	5785 MHz	1.804	2.152	4.992	30	PASS
	5825 MHz	0.955	1.923	4.476	30	PASS
802.11 n40	5755 MHz	-1.608	-1.479	1.467	30	PASS
	5795 MHz	-1.965	-1.910	1.073	30	PASS

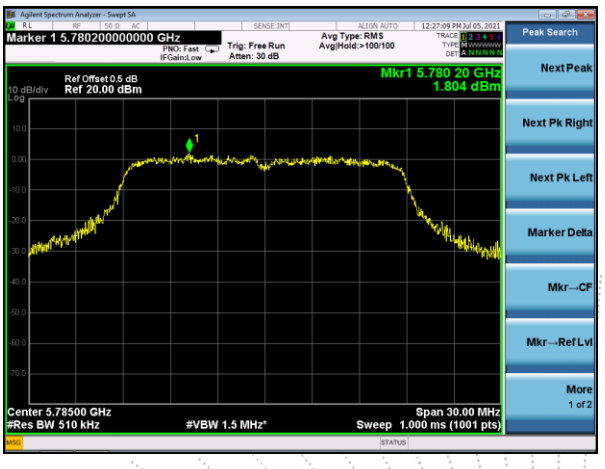
(802.11a) PSD plot on channel 149

(802.11n20) PSD plot on channel 149



(802.11a) PSD plot on channel 157

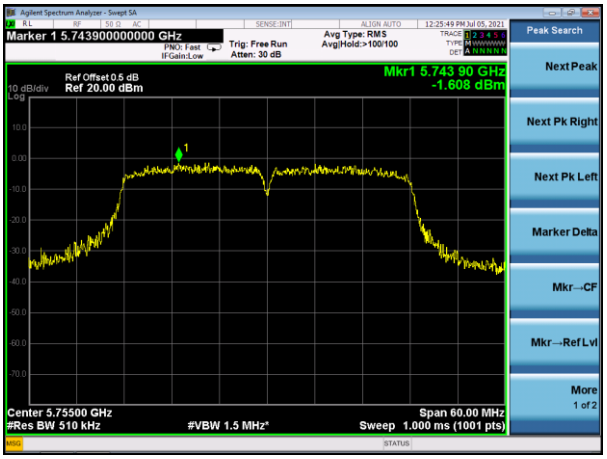
(802.11n20) PSD plot on channel 157



(802.11a) PSD plot on channel 165

(802.11n20) PSD plot on channel 165

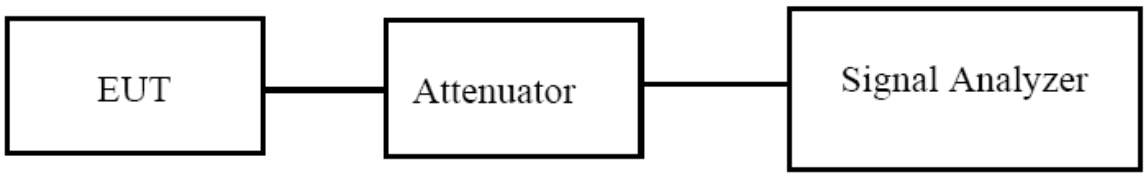
(802.11n40) PSD plot on channel 151



(802.11n40) PSD plot on channel 159

9. 26DB & 6DB & 99% EMISSION BANDWIDTH

9.1 Block Diagram Of Test Setup



9.2 Limit

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power
is integrated over the full reference bandwidth.

9.3 Test procedure

a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

9.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

9.5 Test Result

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC 12V
Test Mode ：	TX Frequency U-NII-1 (5180-5240MHz)		

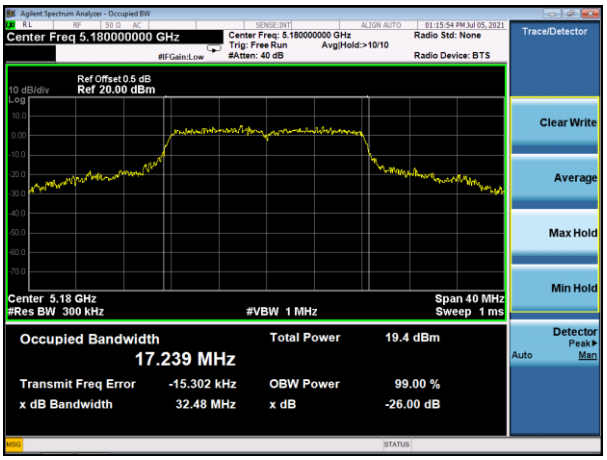
Note: A(B) Represent the value of antenna A and B, The worst data is Antenna A ,only shown Antenna A Plot.

Mode	Channel	Frequency (MHz)	99% bandwidth (MHz)	26dB bandwidth (MHz)	Limit MHz	Result
			ANT A	ANT A		
802.11a	CH36	5180	17.239	32.48	N/A	Pass
	CH40	5200	17.113	31.64	N/A	Pass
	CH48	5240	16.781	27.53	N/A	Pass
802.11 n20	CH36	5180	17.932	23.50	N/A	Pass
	CH40	5200	17.844	23.58	N/A	Pass
	CH48	5240	17.881	23.39	N/A	Pass
802.11 n40	CH 38	5190	36.780	49.64	N/A	Pass
	CH 46	5230	**37.096**	49.29	N/A	Pass

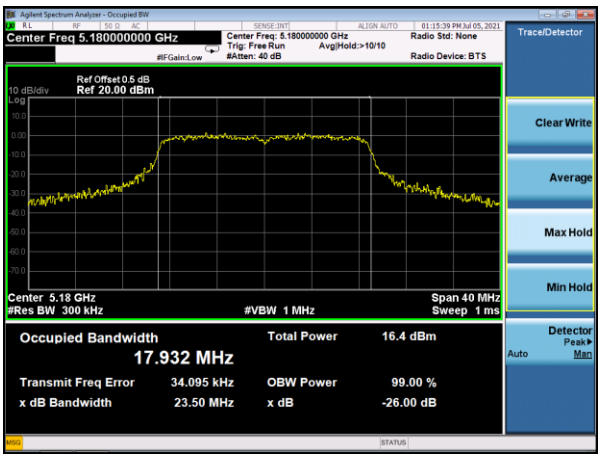
Mode	Channel	Frequency (MHz)	99% bandwidth (MHz)	26dB bandwidth (MHz)	Limit MHz	Result
			ANT B	ANT B		
802.11a	CH36	5180	16.804	25.01	N/A	Pass
	CH40	5200	16.949	26.10	N/A	Pass
	CH48	5240	16.944	28.53	N/A	Pass
802.11 n20	CH36	5180	17.874	23.50	N/A	Pass
	CH40	5200	17.925	23.56	N/A	Pass
	CH48	5240	17.887	22.85	N/A	Pass
802.11 n40	CH 38	5190	36.746	48.68	N/A	Pass
	CH 46	5230	36.980	49.48	N/A	Pass

Test plot

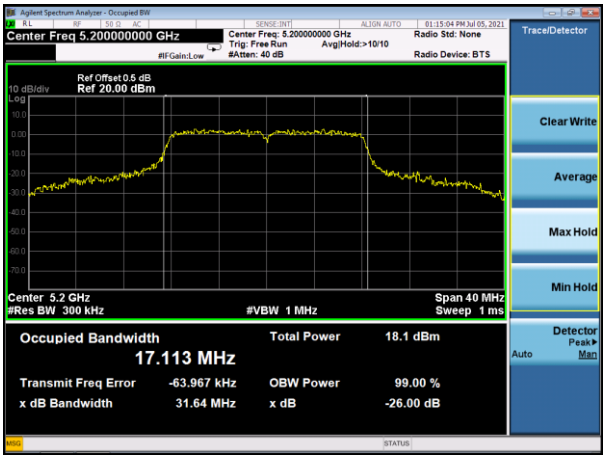
(802.11a) 26dB&99%Bandwidth plot on channel 36



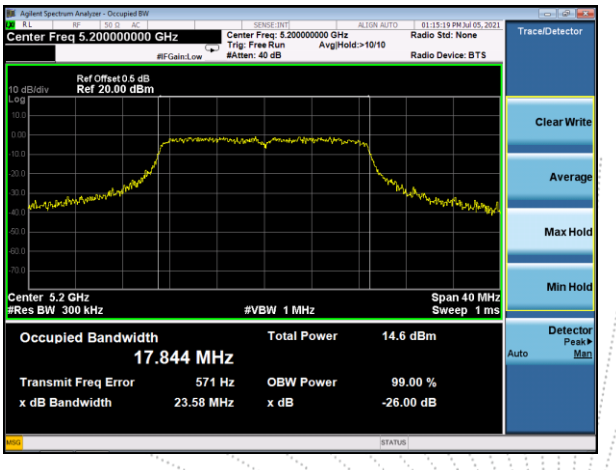
(802.11 n20) 26dB&99%Bandwidth plot on channel 36



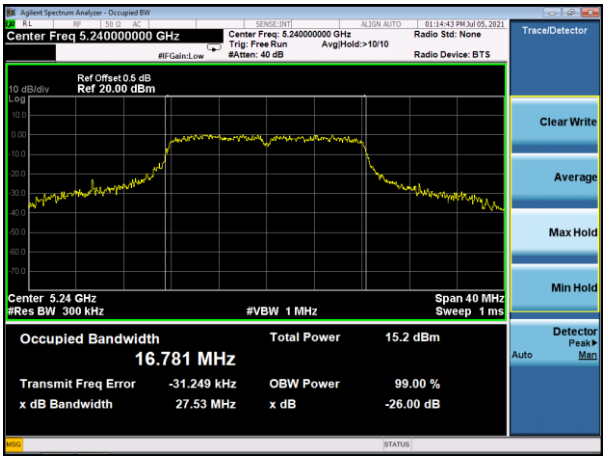
(802.11a) 26dB&99%Bandwidth plot on channel 40



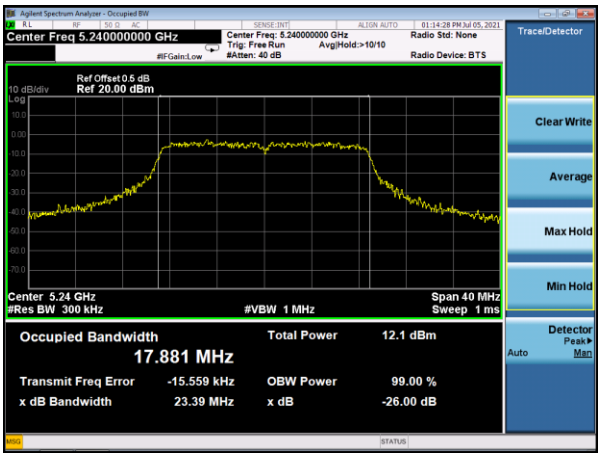
(802.11 n20) 26dB&99%Bandwidth plot on channel 40



(802.11a) 26dB&99%Bandwidth plot on channel 48

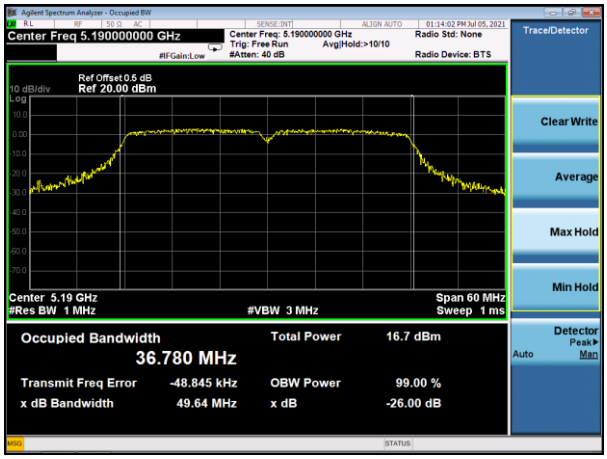


(802.11 n20) 26dB&99%Bandwidth plot on channel 48

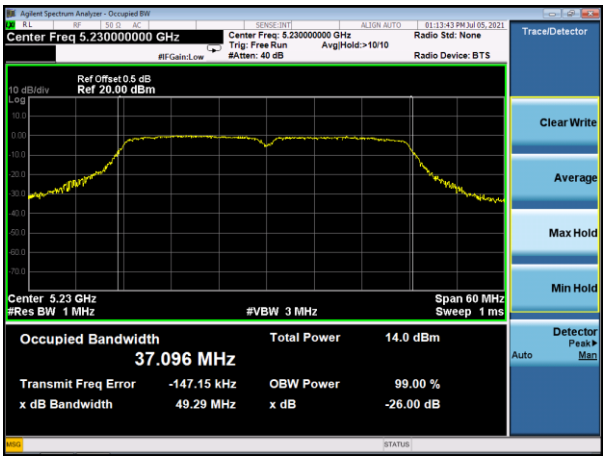


Test plot

(802.11 n40) 26dB&99%Bandwidth plot on channel 38



(802.11 n40) 26dB&99%Bandwidth plot on channel 46

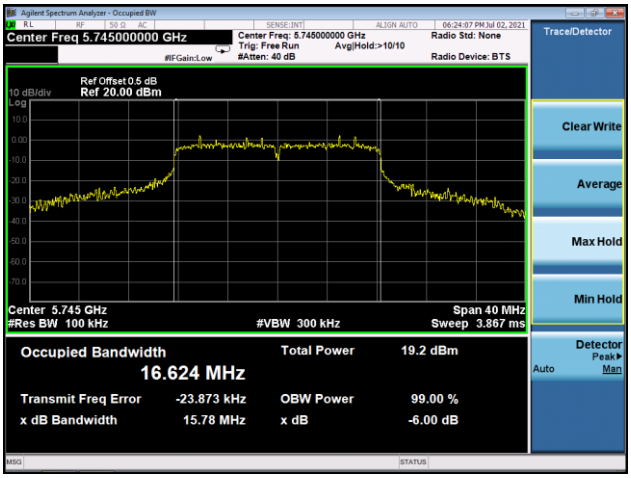


Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC 12V
Test Mode ：	TX Frequency U-NII-3(5745-5825MHz)		

Note: A(B) Represent the value of antenna A and B, The worst data is Antenna B ,only shown Antenna B Plot.

Mode	Channel	Frequency (MHz)	99% bandwidth (MHz)	6dB bandwidth (MHz)	Limit MHz	Result
			ANT A	ANT A		
802.11a	CH149	5745	17.119	16.11	≥500	Pass
	CH157	5785	17.199	16.08	≥500	Pass
	CH165	5825	17.243	16.05	≥500	Pass
802.11 n20	CH149	5745	17.872	16.99	≥500	Pass
	CH157	5785	17.903	16.93	≥500	Pass
	CH165	5825	17.880	16.93	≥500	Pass
802.11 n40	CH151	5755	36.846	35.39	≥500	Pass
	CH159	5795	36.810	35.17	≥500	Pass

Mode	Channel	Frequency (MHz)	99% bandwidth (MHz)	6dB bandwidth (MHz)	Limit MHz	Result
			ANT B	ANT B		
802.11a	CH149	5745	17.150	15.78	≥500	Pass
	CH157	5785	17.386	16.05	≥500	Pass
	CH165	5825	17.802	15.82	≥500	Pass
802.11 n20	CH149	5745	17.909	17.06	≥500	Pass
	CH157	5785	17.928	17.21	≥500	Pass
	CH165	5825	17.890	17.00	≥500	Pass
802.11 n40	CH151	5755	36.930	35.15	≥500	Pass
	CH159	5795	**37.055**	35.49	≥500	Pass

Mode:	802.11a
5745MHz **6dB bandwidth**	
5745MHz 99% bandwidth