



Report No.: FR932923AB



# **FCC RADIO TEST REPORT**

FCC ID : O2U-CH7368

Equipment : Wireless Gateway

Brand Name : CO

Model Name : CH7368, CH7368XXXXXXX (The "X" in the model

name can be 0 to 9, A to Z, dash ok blank, for

marketing purpose)

Applicant : COMPAL BROADBAND NETWORKS,INC.

13F-1, No.1, Taiyuan 1st St., Zhubei City, Hsinchu

County 30288, Taiwan, R.O.C.

Manufacturer : COMPAL BROADBAND NETWORKS, INC.

13F-1, No.1, Taiyuan 1st St., Zhubei City, Hsinchu

County 30288, Taiwan, R.O.C.

Standard: 47 CFR FCC Part 15.407

The product was received on Apr. 09, 2019, and testing was started from Apr. 24, 2019 and completed on May 27, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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Issued Date

: Jun. 19, 2019

Report Version :

: 02

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Appendix A. Test Results of AC Power-line Conducted Emissions

Appendix B. Test Results of Emission Bandwidth

Appendix C. Test Results of Maximum Conducted Output Power

Appendix D. Test Results of Peak Power Spectral Density

**Appendix E. Test Results of Unwanted Emissions** 

**Appendix F. Test Photos** 

Photographs of EUT v02

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# History of this test report

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Report No.	Version	Description	Issued Date
FR932923AB	01	Initial issue of report	Jun. 14, 2019
FR932923AB	02	Revise the equipment name and add a model name.	Jun. 19, 2019

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# **Summary of Test Result**

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Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.407(a)	Emission Bandwidth	PASS	-
3.3	15.407(a)	Maximum Conducted Output Power	PASS	-
3.4	15.407(a)	Peak Power Spectral Density	PASS	-
3.5	15.407(b)	Unwanted Emissions	PASS	-

#### **Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

#### **Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen
Report Producer: Cindy Peng

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## 1 General Description

### 1.1 Information

#### 1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20)	5180-5240	36-48 [4]
5725-5850		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40)	5190-5230	38-46 [2]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80)	5210	42 [1]
5725-5850		5775	155 [1]

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Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	4TX
5.15-5.25GHz	802.11n HT20	20	4TX
5.15-5.25GHz	802.11ac VHT20	20	4TX
5.15-5.25GHz	802.11n HT40	40	4TX
5.15-5.25GHz	802.11ac VHT40	40	4TX
5.15-5.25GHz	802.11ac VHT80	80	4TX
5.725-5.85GHz	802.11a	20	4TX
5.725-5.85GHz	802.11n HT20	20	4TX
5.725-5.85GHz	802.11ac VHT20	20	4TX
5.725-5.85GHz	802.11n HT40	40	4TX
5.725-5.85GHz	802.11ac VHT40	40	4TX
5.725-5.85GHz	802.11ac VHT80	80	4TX

#### Note:

- 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- VHT20, VHT40 and VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- BWch is the nominal channel bandwidth.
- Nss-Min is the minimum number of spatial streams.
- Nant is the number of outputs. e.g., 2(2,3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

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#### 1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Remark
1	3	CBN	CH7368	Diople Antenna	I-PEX	5.2	2.4GHz
2	2	CBN	CH7368	Diople Antenna	I-PEX	3.6	2.4GHz
3	1	CBN	CH7368	Diople Antenna	I-PEX	5.5	2.4GHz
4	4	CBN	CH7368	Diople Antenna	I-PEX	7.1	5GHz
5	3	CBN	CH7368	Diople Antenna	I-PEX	6.8	5GHz
6	2	CBN	CH7368	Diople Antenna	I-PEX	7.0	5GHz
7	1	CBN	CH7368	Diople Antenna	I-PEX	5.9	5GHz

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Note 1: The above information was declared by manufacturer.

Note 2: The EUT has seven antennas (Ant. 1~Ant. 3 for WLAN 2.4GHz use, and the other antennas for WLAN 5GHz use) .

Note 3: For WLAN 2.4GHz:

802.11b (1TX/1RX): Only Port 1 could transmit/receive simultaneously.

802.11g/n (3TX/3RX): Port 1, Port 2 and Port 3 could transmit/receive simultaneously.

Note 4: For WLAN 5GHz:

802.11a/n/ac (4TX/4RX): Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

### 1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.983	0.07	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ac VHT20	0.983	0.07	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ac VHT40	0.966	0.15	657.5u	3k
802.11ac VHT80	0.931	0.31	326.25u	10k

#### Note:

- DC is Duty Cycle.
- DCF is Duty Cycle Factor.

#### 1.1.4 EUT Operational Condition

EUT Power Type	From power adapter				
Beamforming Function		With beamforming	$\boxtimes$	Without beamforming	
Function		Outdoor P2M		Indoor P2M	
Tunction		Fixed P2P		Client	
Test Software Version		q DUT Generation Wave	500		
Test Sample Serial Number	Normal Link and CTX - 5GHz:		z:	1417368200002	
	СТХ	- 2.4GHz:		1417368200000	

Note: The above information was declared by manufacturer.

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## 1.1.5 Table for Multiple Listing

The brand/model names in the following table are all refer to the identical product.

Brand Name	Model Name	Description
	CH7368	All the models are identical, and
con	CH7368XXXXXX (The "X" in the model name can be	the difference model served as
	0 to 9 , A to Z , dash ok blank , for maketing purpose)	marketing strategy.

From the above models, model: CH7368 was selected as representative model for the test and its data was recorded in this report.

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## 1.2 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

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- 47 CFR FCC Part 15
- ANSI C63.10-2013
- FCC KDB 789033 D02 v02r01
- FCC KDB 662911 D01 v02r01
- FCC KDB 412172 D01 v01r01

## 1.3 Testing Location Information

	Testing Location						
	HWA YA ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)						
		TEL	:	886-3-327-3456 FAX : 886-3-327-0973			
$\boxtimes$	JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.			
		TEL	:	886-3-656-9065 FAX : 886-3-656-9085			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Welson Chen	22~24°C / 54~56%	Apr. 26, 2019~May 10, 2019
Radiated (Below 1GHz)	03CH01-CB	Paul Chen	22~24°C / 50~60%	May 24, 2019
Radiated (Above 1GHz)	03CH01-CB	Welson Chen	22~24°C / 53~55%	Apr. 24, 2019~May 07, 2019
AC Conduction	CO01-CB	Deven Huang	22~23°C / 55~58%	May 27, 2019

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086B with Industry Canada.

## 1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74 x10 <sup>-8</sup>	Confidence levels of 95%

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# 2 Test Configuration of EUT

## 2.1 Test Channel Mode

Mode	Power Setting
802.11a_Nss1,(6Mbps)_4TX	-
5180MHz	17.5
5200MHz	17.5
5240MHz	18
5745MHz	23
5785MHz	23
5825MHz	23
802.11ac VHT20_Nss1,(MCS0)_4TX	-
5180MHz	18
5200MHz	17.5
5240MHz	18.5
5745MHz	23
5785MHz	23
5825MHz	23
802.11ac VHT40_Nss1,(MCS0)_4TX	-
5190MHz	16
5230MHz	20
5755MHz	22.5
5795MHz	23
802.11ac VHT80_Nss1,(MCS0)_4TX	-
5210MHz	14
5775MHz	18.5

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## Note:

• VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.

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# 2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests		
Tests Item	AC power-line conducted emissions	
Condition	AC power-line conducted measurement for line and neutral	
Operating Mode		
1	Normal Link	

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The Worst Case Mode for Following Conformance Tests		
Tests Item	Emission Bandwidth Maximum Conducted Output Power Peak Power Spectral Density	
Test Condition	Conducted measurement at transmit chains	

Th	The Worst Case Mode for Following Conformance Tests			
Tests Item	Unwanted Emissions			
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.			
Operating Mode < 1GHz				
1	Normal Link			
Operating Mode > 1GHz				
1	CTX			

Note: The EUT can only be used at Y axis position.

# 2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

### 2.4 Accessories

			Accessories	
No.	<b>Equipment Name</b>	Brand Name	Model Name	Rating
1	Adapter	Frecom	F30L2-120250SPAU	INPUT: 100-240Vac, 50/60Hz, 0.8A OUTPUT: 12Vdc, 2.5A

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# 2.5 Support Equipment

#### For AC Conduction:

	Support Equipment			
No.	Equipment	FCC ID		
Α	Flash disk3.0	Transcend	JetFlash-700	N/A
В	LAN NB	DELL	E6430	N/A
С	2.4G NB	DELL	E6430	N/A
D	5G NB	DELL	E6430	N/A
Е	Terminal system	MOTOROLA	BSR2000	N/A
F	Terminal system NB	ACER	MS2308	N/A
G	Phone 1	SAMPO	HT-B 907WL	N/A
Н	Phone 2	SAMPO	HT-B 907WL	N/A
1	Splitter	N/A	N/A	N/A

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For Radiated (below 1GHz):

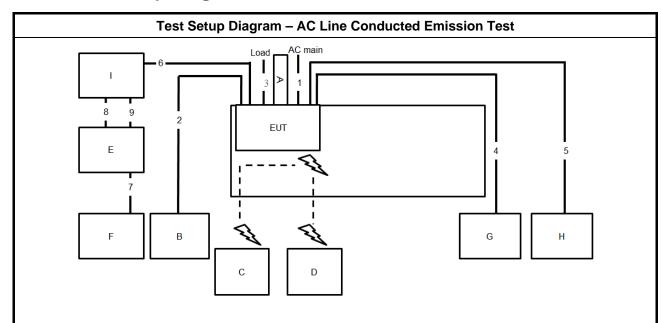
		Support Equ	ipment	
No.	Equipment	Brand Name	Model Name	FCC ID
Α	2.4G NB	Apple	Mac Book	N/A
В	5G NB	Apple	Mac Book	N/A
С	LAN NB	DELL	E4300	N/A
D	Terminal system NB	acer	N/A	N/A
Е	Phone 1	SAMPO	HT-B 907WL	N/A
F	Phone 2	SAMPO	HT-B 907WL	N/A
G	Terminal system	MOTOROLA	BSR2000	N/A
Н	Splitter	N/A	N/A	N/A
I	Flash disk3.0	Silicon Power	B06	N/A

For Radiated (above 1GHz) and RF Conducted:

		Support Equ	ipment	
No.	Equipment	Brand Name	Model Name	FCC ID
Α	NB	DELL	E4300	N/A

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# 2.6 Test Setup Diagram



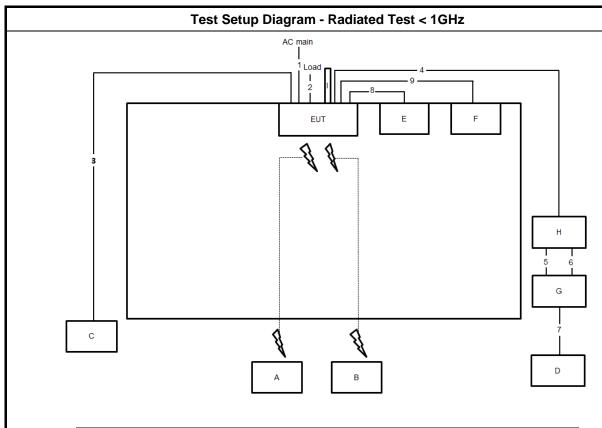
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Item	Connection	Shielded	Length
1	Power cable	No	2m
2	RJ-45 cable	No	10m
3	RJ-45 cable*3	No	1.5m
4	RJ-11 cable	No	10m
5	RJ-11 cable	No	10m
6	Coaxial cable	Yes	10m
7	RJ-45 cable	No	1.5m
8	Coaxial cable	Yes	2m
9	Coaxial cable	Yes	2m

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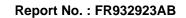
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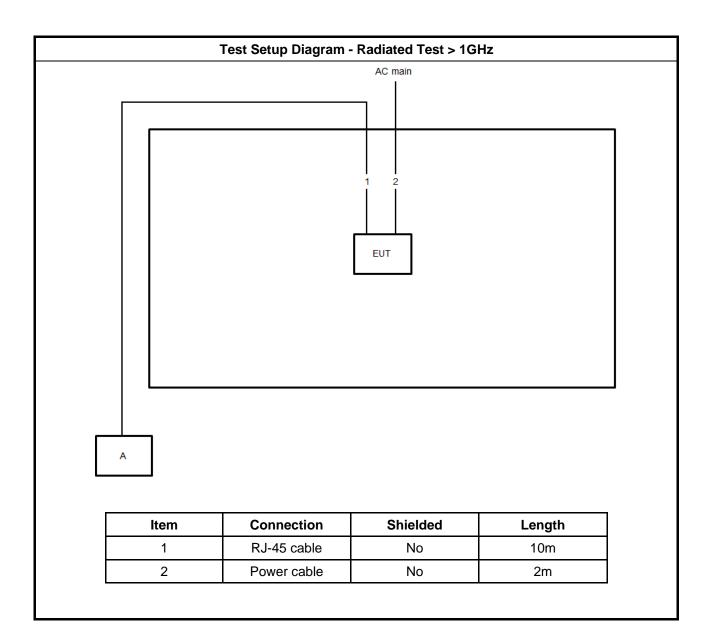
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Item	Connection	Shielded	Length
1	Power cable	No	2m
2	RJ-45 cable*3	No	1.5m
3	RJ-45 cable	No	10m
4	Coaxial cable	Yes	10m
5	Coaxial cable	Yes	2m
6	Coaxial cable	Yes	2m
7	RJ-45 cable	No	3m
8	RJ-11 cable	No	1.5m
9	RJ-11 cable	No	1.5m

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## 3 Transmitter Test Result

## 3.1 AC Power-line Conducted Emissions

#### 3.1.1 AC Power-line Conducted Emissions Limit

AC Powe	er-line Conducted Emissions L	imit
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

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### 3.1.2 Measuring Instruments

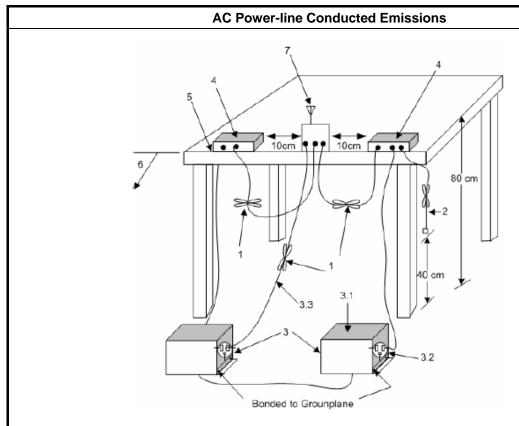
Refer a test equipment and calibration data table in this test report.

#### 3.1.3 Test Procedures

	Test Method
$\boxtimes$	Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

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### 3.1.4 Test Setup



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.

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- 2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- 3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50  $\Omega$  loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
- 3.1—All other equipment powered from additional LISN(s).
- 3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
- 3.3—LISN at least 80 cm from nearest part of EUT chassis.
- 4—Non-EUT components of EUT system being tested.
- 5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
- 6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
- 7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

#### 3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

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## 3.2 Emission Bandwidth

#### 3.2.1 Emission Bandwidth Limit

	Emission Bandwidth Limit								
UN	JNII Devices								
$\boxtimes$	For the 5.15-5.25 GHz band, N/A								
	For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + $10 \log B$ , where B is the 26 dB emission bandwidth in MHz.								
	For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz.								
$\boxtimes$	For the 5.725-5.85 GHz band, 6 dB emission bandwidth ≥ 500kHz.								
LE-	LAN Devices								
	For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.								
	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz								
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$ , dBm, whichever power is less. B is the 99% emission bandwidth in MHz								
	For the 5.725-5.85 GHz band, 6 dB emission bandwidth ≥ 500kHz.								

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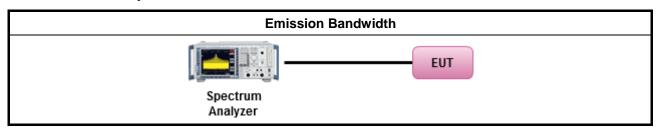
## 3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.2.3 Test Procedures

	Test Method									
•	For the emission bandwidth shall be measured using one of the options below:									
	Refer as FCC KDB 789033, clause C for EBW and clause D for OBW measurement.									
	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.									
		Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.								

### 3.2.4 Test Setup



#### 3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

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# 3.3 Maximum Conducted Output Power

## 3.3.1 Maximum Conducted Output Power Limit

	Maximum Conducted Output Power Limit
UNI	I Devices
$\boxtimes$	For the 5.15-5.25 GHz band:
	Outdoor AP: the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 1 W. If $G_{TX}$ > 6 dBi, then $P_{Out}$ = 30 - ( $G_{TX}$ - 6). e.i.r.p. at any elevation angle above 30 degrees $\leq$ 125mW [21dBm]
	Indoor AP: the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$
	Point-to-point AP: the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 1 W If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$ .
	Mobile or Portable Client: the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$ .
	For the 5.25-5.35 GHz band, the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$ .
	For the 5.47-5.725 GHz band, the maximum conducted output power ( $P_{Out}$ ) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX}$ > 6 dBi, then $P_{Out}$ = 24 - ( $G_{TX}$ - 6).
$\boxtimes$	For the 5.725-5.85 GHz band:
	■ Point-to-multipoint systems (P2M): the maximum conducted output power (P <sub>Out</sub> ) shall not exceed the lesser of 1 W. If G <sub>TX</sub> > 6 dBi, then P <sub>Out</sub> = 30 – (G <sub>TX</sub> – 6).
	Point-to-point systems (P2P): the maximum conducted output power (P <sub>Out</sub> ) shall not exceed the lesser of 1 W.
LE-I	LAN Devices
	For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log B$ , dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
	For the $5.47-5.6$ GHz band and $5.65-5.725$ GHz band, the maximum e.i.r.p. shall not exceed $1.0$ W or $17+10\log B$ , dBm, whichever power is less. B is the 99% emission bandwidth in MHz
	For the 5.725-5.85 GHz band:
	■ Point-to-multipoint systems (P2M): the maximum conducted output power (P <sub>Out</sub> ) shall not exceed the lesser of 1 W. If G <sub>TX</sub> > 6 dBi, then P <sub>Out</sub> = 30 – (G <sub>TX</sub> – 6).
	Point-to-point systems (P2P): the maximum conducted output power (P <sub>Out</sub> ) shall not exceed the lesser of 1 W.
	= maximum conducted output power in dBm, = the maximum transmitting antenna directional gain in dBi.

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### 3.3.2 Measuring Instruments

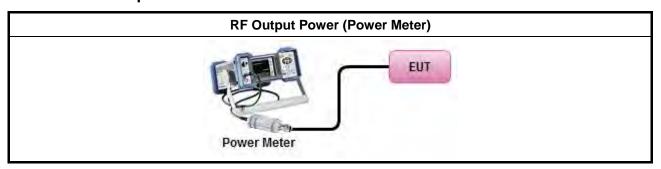
Refer a test equipment and calibration data table in this test report.

#### 3.3.3 Test Procedures

	Test Method									
•	Maximum Conducted Output Power									
	Average over on/off periods with duty factor									
	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).									
	Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)									
	Wideband RF power meter and average over on/off periods with duty factor									
	Refer as FCC KDB 789033, clause E Method PM-G (using an RF average power meter).									
•	For conducted measurement.									
	■ If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.									
	<ul> <li>If multiple transmit chains, EIRP calculation could be following as methods:</li> <li>P<sub>total</sub> = P<sub>1</sub> + P<sub>2</sub> + + P<sub>n</sub></li> <li>(calculated in linear unit [mW] and transfer to log unit [dBm])</li> <li>EIRP<sub>total</sub> = P<sub>total</sub> + DG</li> </ul>									

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### 3.3.4 Test Setup



## 3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

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## 3.4 Peak Power Spectral Density

## 3.4.1 Peak Power Spectral Density Limit

	Peak Power Spectral Density Limit
UNI	I Devices
$\boxtimes$	For the 5.15-5.25 GHz band:
	<ul> <li>Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If G<sub>TX</sub> &gt; 6 dBi, then P<sub>Out</sub> = 17 - (G<sub>TX</sub> - 6).</li> </ul>
	Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$ .
	Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$ .
	■ Mobile or Portable Client: the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= 11 $-$ ( $G_{TX} - 6$ )
	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz. If $G_{TX} >$ 6 dBi, then PPSD= 11 – ( $G_{TX} -$ 6).
	For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz. If $G_{TX} >$ 6 dBi, then PPSD= 11 – ( $G_{TX} -$ 6).
	For the 5.725-5.85 GHz band:
	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= $30 - (G_{TX} - 6)$ .
	Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
LE-	LAN Devices
	For the 5.15-5.25 GHz band, the e.i.r.p. peak power spectral density (PPSD) ≤ 10 dBm/MHz.
	For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz.
	<ul> <li>e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below:</li> <li>-13 dBW/MHz for 0° ≤ θ &lt; 8°; -13 − 0.716 (θ-8) dBW/MHz for 8° ≤ θ &lt; 40°</li> <li>-35.9 − 1.22 (θ-40) dBW/MHz for 40° ≤ θ ≤ 45°; -42 dBW/MHz for θ &gt; 45°</li> </ul>
	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) $\leq$ 11 dBm/MHz.
	For the 5.725-5.85 GHz band:
	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= $30 - (G_{TX} - 6)$ .
	Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
pow	<b>SD</b> = peak power spectral density that he same method as used to determine the conducted output ver shall be used to determine the power spectral density. And power spectral density in dBm/MHz = the maximum transmitting antenna directional gain in dBi.

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### 3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

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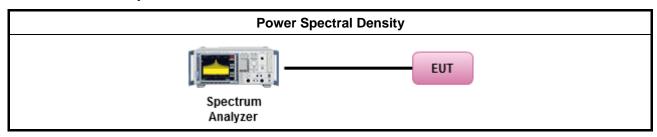
### 3.4.3 Test Procedures

		Test Method										
	outp func	k power spectral density procedures that the same method as used to determine the conducted ut power shall be used to determine the peak power spectral density and use the peak search tion on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density I be measured using below options:										
		Refer as FCC KDB 789033, F)5) power spectral density can be measured using resolutio bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth										
	[duty	/ cycle ≥ 98% or external video / power trigger]										
	$\boxtimes$	Refer as FCC KDB 789033, clause E Method SA-1 (spectral trace averaging).										
		Refer as FCC KDB 789033, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)										
	duty	cycle < 98% and average over on/off periods with duty factor										
	$\boxtimes$	Refer as FCC KDB 789033, clause E Method SA-2 (spectral trace averaging).										
		Refer as FCC KDB 789033, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)										
•	For conducted measurement.											
		If the EUT supports multiple transmit chains using options given below:										
		Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.										
Option 2: Measure and sum spectral maxima across the outputs. With this technique, are measured at each output of the device at the required resolution bandwidth maximum value (peak) of each spectrum is determined. These maximum values a summed mathematically in linear power units across the outputs. These operations is performed separately over frequency spans that have different out-of-band or semission limits,												
		Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.										
	•	If multiple transmit chains, EIRP PPSD calculation could be following as methods: $ PPSD_{total} = PPSD_1 + PPSD_2 + + PPSD_n \\ (calculated in linear unit [mW] and transfer to log unit [dBm]) \\ EIRP_{total} = PPSD_{total} + DG $										

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## 3.4.4 Test Setup



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## 3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix D

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#### 3.5 Unwanted Emissions

#### 3.5.1 Transmitter Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz limit									
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)						
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300						
0.490~1.705	24000/F(kHz)	33.8 - 23	30						
1.705~30.0	30	29	30						
30~88	100	40	3						
88~216	150	43.5	3						
216~960	200	46	3						
Above 960	500	54	3						

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- Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
- Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

	Un-restricted band emissions above 1GHz Limit										
Operating Band	Limit										
⊠ 5.15 - 5.25 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]										
☐ 5.25 - 5.35 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]										
☐ 5.47 - 5.725 GHz	e.i.r.p27 dBm [68.2 dBuV/m@3m]										
⊠ 5.725 - 5.85 GHz	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.										

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of

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linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

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#### 3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.5.3 Test Procedures

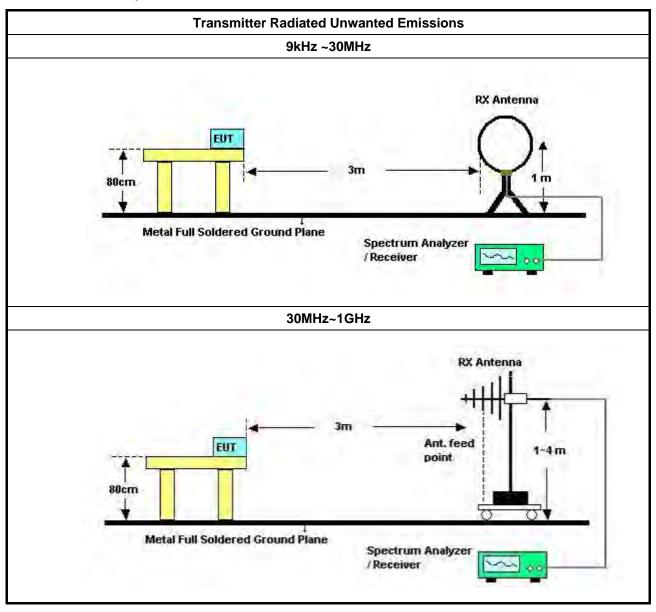
#### **Test Method**

- Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
- The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
- For the transmitter unwanted emissions shall be measured using following options below:
  - Refer as FCC KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.
  - Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands.
    - Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).
    - Refer as FCC KDB 789033, G)6) Method VB (Reduced VBW).
    - Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time.
    - Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
    - Refer as FCC KDB 789033, clause G)5) measurement procedure peak limit.
    - Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
- For radiated measurement.
  - Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
  - Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
  - Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
- The any unwanted emissions level shall not exceed the fundamental emission level.
- All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

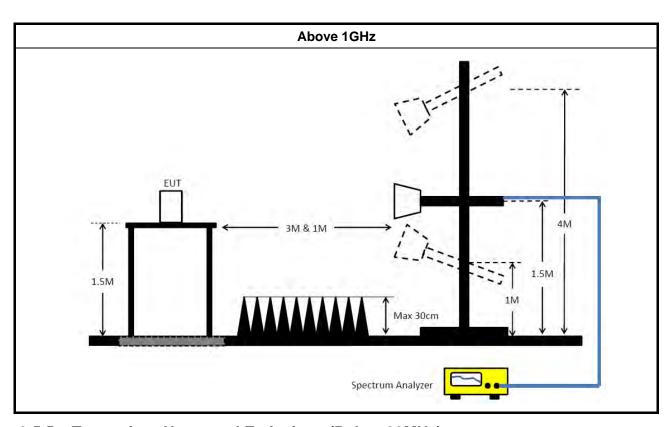
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## 3.5.4 Test Setup



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## 3.5.5 Transmitter Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10 harmonic or 40 GHz, whichever is appropriate.

### 3.5.6 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E

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# 4 Test Equipment and Calibration Data

Instrument	Manufacture r	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 28, 2019	Jan. 29, 2020	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50 -16-2	04083	150kHz ~ 100MHz	Dec. 24, 2018	Dec. 23, 2019	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Jan. 11, 2019	Jan. 10, 2020	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 21, 2019	May 20, 2020	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 29, 2019	Mar. 28, 2020	Radiation (03CH01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 27, 2018	Aug. 26, 2019	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 13, 2018	Nov. 12, 2019	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 28, 2018	Jun. 27, 2019	Radiation (03CH01-CB)
Pre-Amplifier	EMCI	EMC330N	980391	20MHz ~ 3GHz	Jun. 13, 2018	Jun. 12, 2019	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 08, 2019	Jan. 07, 2020	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35- HG	1864479	18GHz ~ 40GHz	Jul. 04, 2018	Jul. 03, 2019	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Jan. 31, 2019	Jan. 30, 2020	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESCS	100359	9kHz ~ 2.75GHz	Jul. 03, 2018	Jul. 02, 2019	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Feb. 25, 2019	Feb. 24, 2020	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)

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Instrument	Manufacture r Model No. Serial No. Characteristics		Characteristics	Calibration Date	Calibration Due Date	Remark	
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-28	1 GHz –26.5 GHz	Nov. 19, 2018	Nov. 18, 2019	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 05, 2018	Nov. 04, 2019	Conducted (TH01-CB)

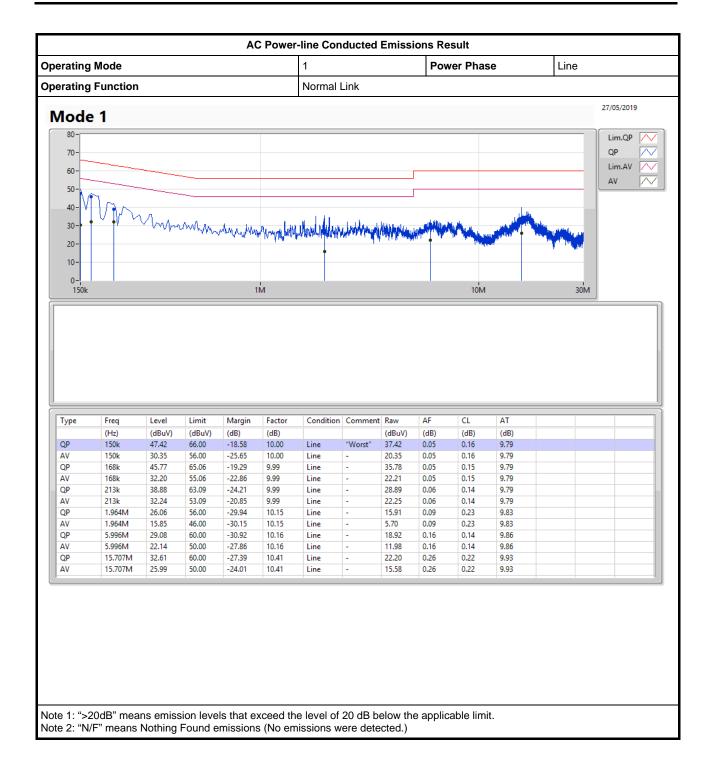
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Note: Calibration Interval of instruments listed above is one year.

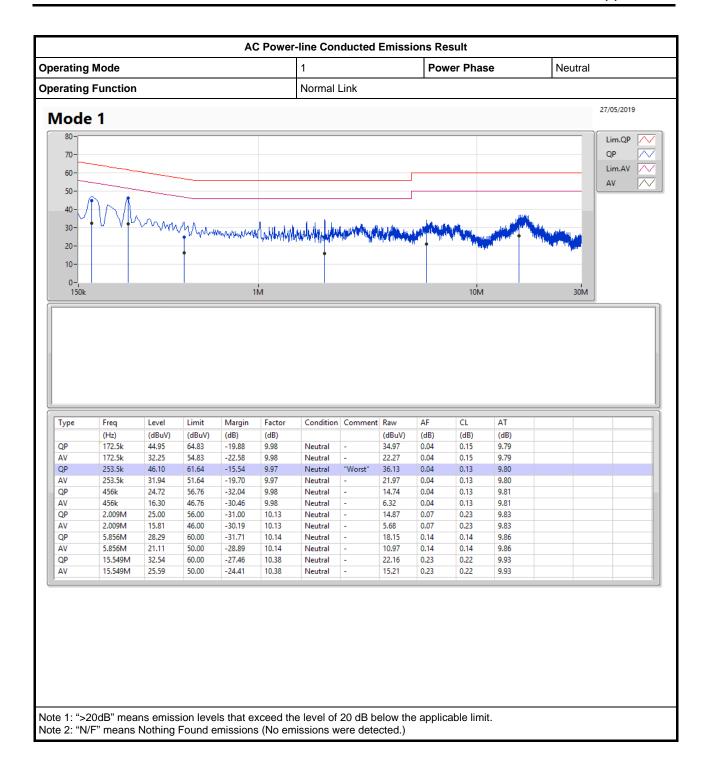
N.C.R. means Non-Calibration required.

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### AC Power-line Conducted Emissions Result



### AC Power-line Conducted Emissions Result





**Summary** 

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	28.75M	16.692M	16M7D1D	23.45M	16.517M
802.11ac VHT20_Nss1,(MCS0)_4TX	35.35M	17.841M	17M8D1D	24.4M	17.691M
802.11ac VHT40_Nss1,(MCS0)_4TX	88.4M	38.781M	38M8D1D	44.75M	36.082M
802.11ac VHT80_Nss1,(MCS0)_4TX	88.6M	74.963M	75M0D1D	84.8M	74.763M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_4TX	16.35M	31.034M	31M0D1D	15.775M	20.065M
802.11ac VHT20_Nss1,(MCS0)_4TX	17.575M	32.534M	32M5D1D	16.775M	20.59M
802.11ac VHT40_Nss1,(MCS0)_4TX	36.3M	62.669M	62M7D1D	35.05M	37.581M
802.11ac VHT80_Nss1,(MCS0)_4TX	75.1M	75.262M	75M3D1D	75M	75.062M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

Max-OBW = Maximum99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

Min-OBW = Minimum 99% occupied bandwidth;

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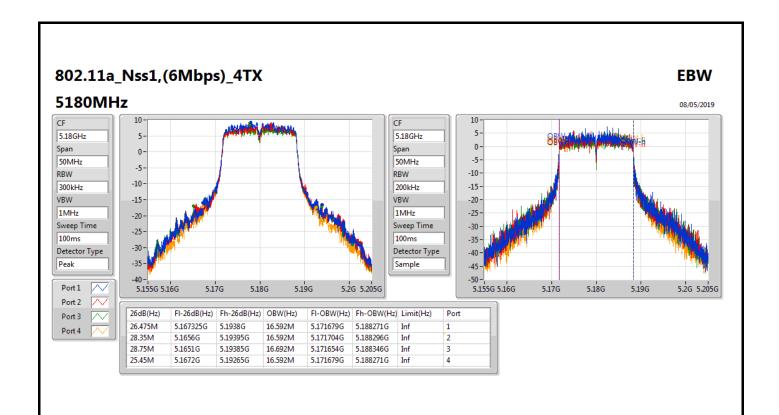
#### Result

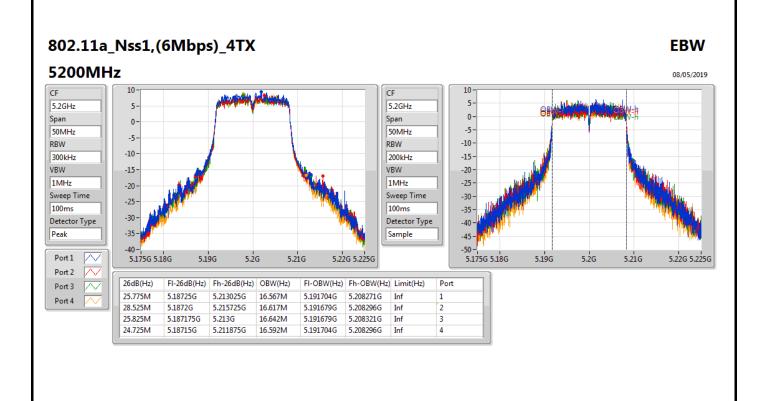
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW	Port 3-N dB	Port 3-OBW	Port 4-N dB	Port 4-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	26.475M	16.592M	28.35M	16.592M	28.75M	16.692M	25.45M	16.592M
5200MHz	Pass	Inf	25.775M	16.567M	28.525M	16.617M	25.825M	16.642M	24.725M	16.592M
5240MHz	Pass	Inf	24.725M	16.517M	26.075M	16.592M	27.125M	16.592M	23.45M	16.567M
5745MHz	Pass	500k	16.325M	23.563M	16.3M	30.685M	16.325M	30.06M	15.775M	20.065M
5785MHz	Pass	500k	16.325M	23.913M	16.35M	30.71M	16.3M	29.76M	15.925M	21.589M
5825MHz	Pass	500k	16.325M	24.463M	16.3M	31.034M	16.325M	29.735M	16.3M	21.564M
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5180MHz	Pass	Inf	29M	17.716M	30.975M	17.841M	35.35M	17.816M	28.075M	17.766M
5200MHz	Pass	Inf	25.65M	17.766M	26.65M	17.791M	28.15M	17.791M	25.95M	17.791M
5240MHz	Pass	Inf	24.4M	17.691M	27.75M	17.766M	29.875M	17.816M	25.85M	17.766M
5745MHz	Pass	500k	17.55M	24.763M	17.55M	32.534M	17.525M	30.76M	16.775M	20.59M
5785MHz	Pass	500k	17.525M	24.988M	17.55M	32.384M	17.575M	30.36M	17.475M	22.989M
5825MHz	Pass	500k	17.525M	25.887M	17.575M	32.259M	17.575M	30.76M	17.15M	22.164M
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5190MHz	Pass	Inf	44.75M	36.282M	45.9M	36.132M	45.3M	36.182M	46.55M	36.082M
5230MHz	Pass	Inf	87.15M	37.431M	88.4M	38.781M	80.75M	37.631M	80.7M	36.482M
5755MHz	Pass	500k	35.65M	42.779M	35.05M	56.972M	36.05M	55.822M	35.2M	37.581M
5795MHz	Pass	500k	36.3M	49.125M	35.45M	61.469M	35.45M	62.669M	35.7M	41.329M
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-
5210MHz	Pass	Inf	84.8M	74.863M	85.5M	74.863M	86.8M	74.963M	88.6M	74.763M
5775MHz	Pass	500k	75.1M	75.062M	75M	75.262M	75M	75.262M	75.1M	75.262M

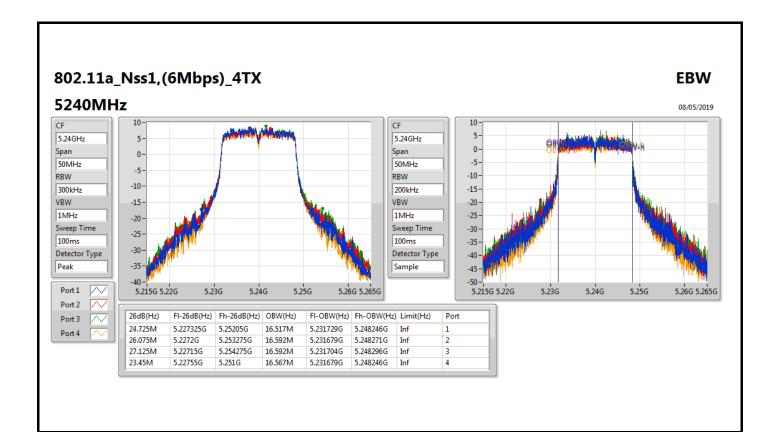
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth;

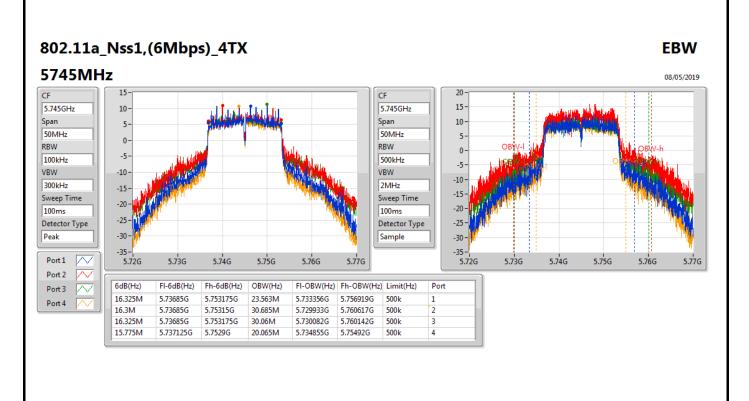
Page No.

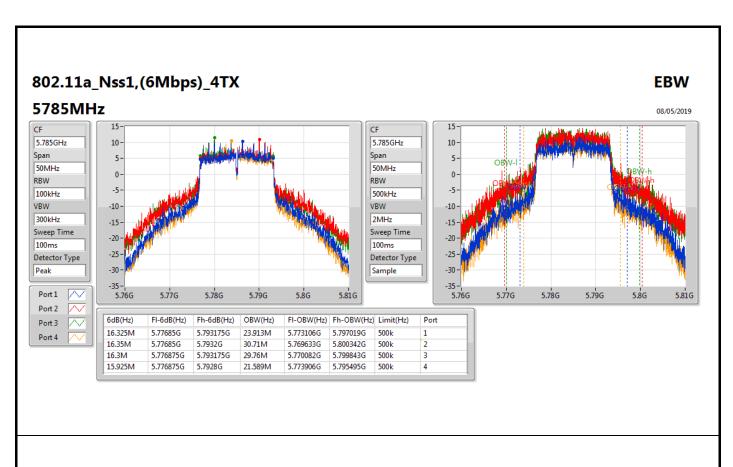
2 of 11

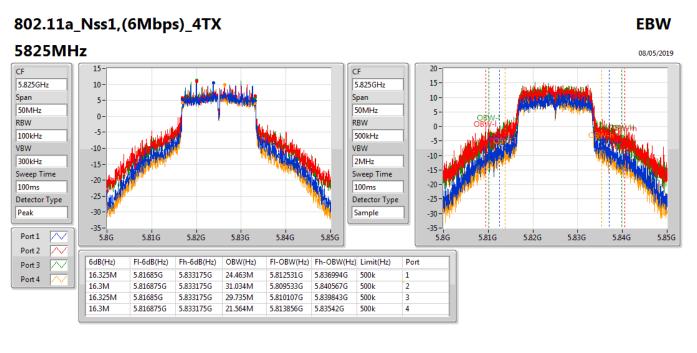


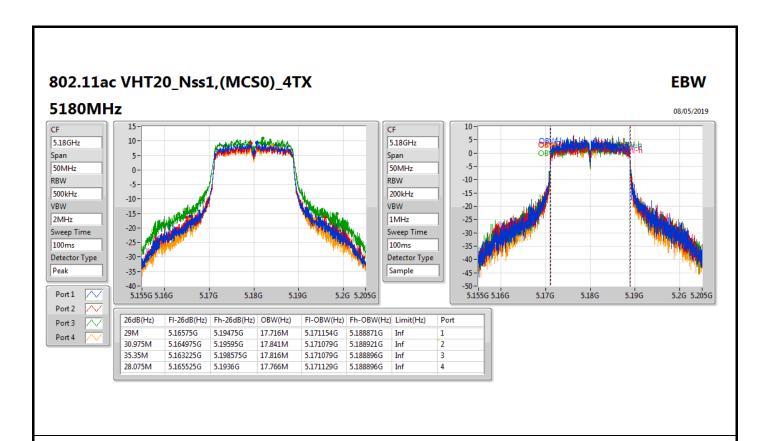


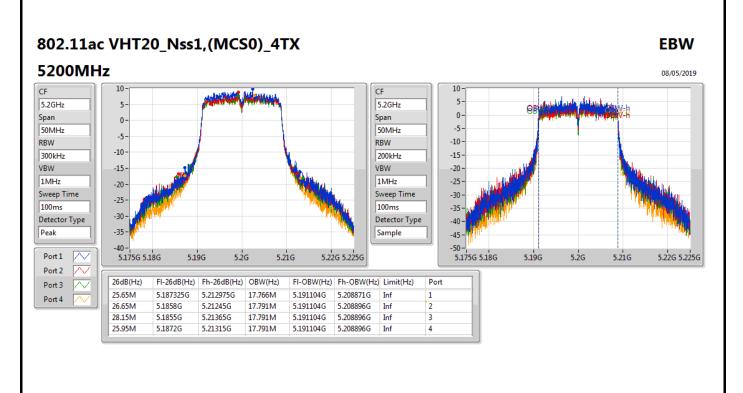


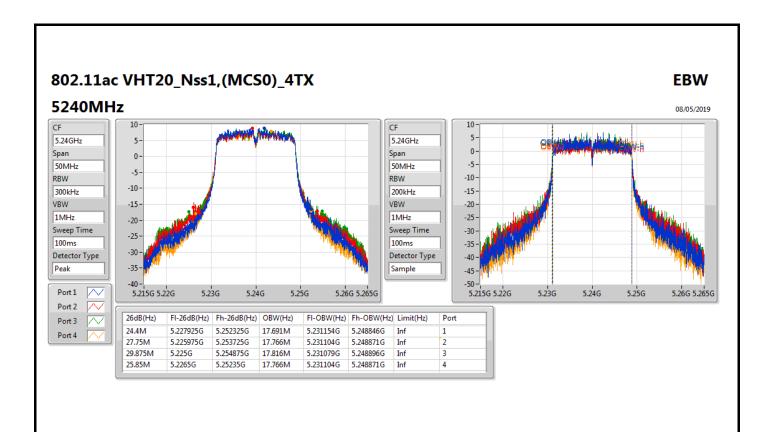


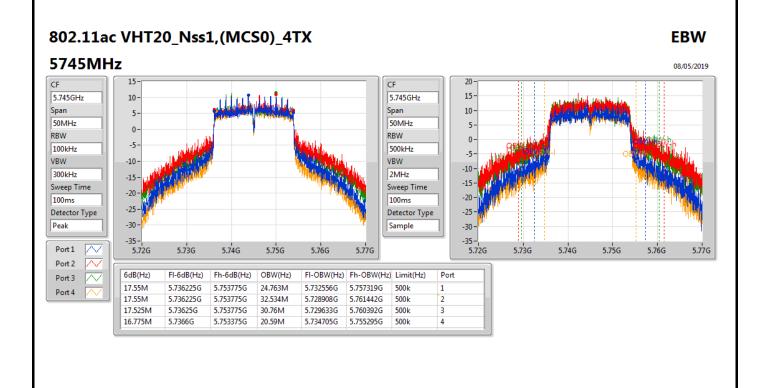


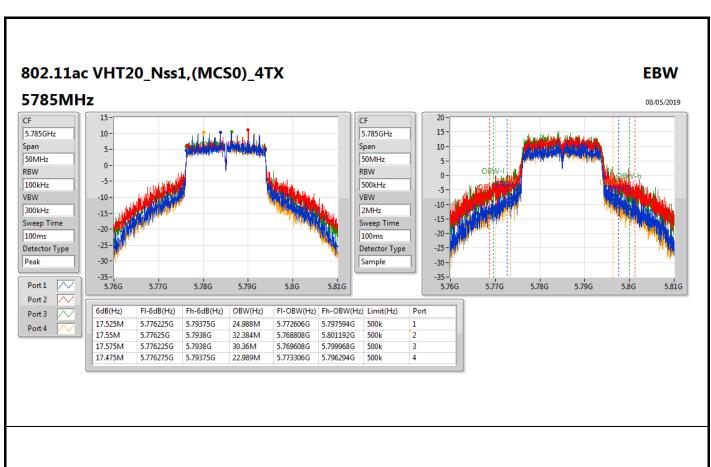


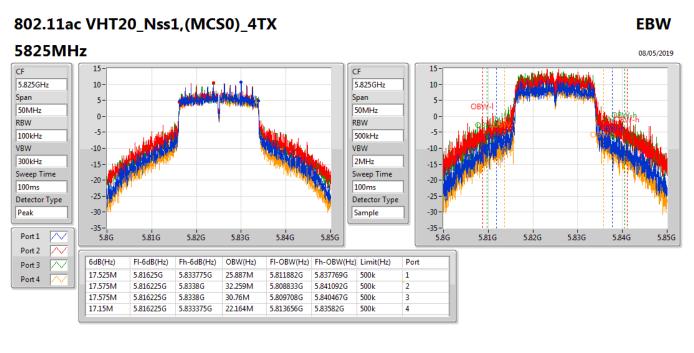


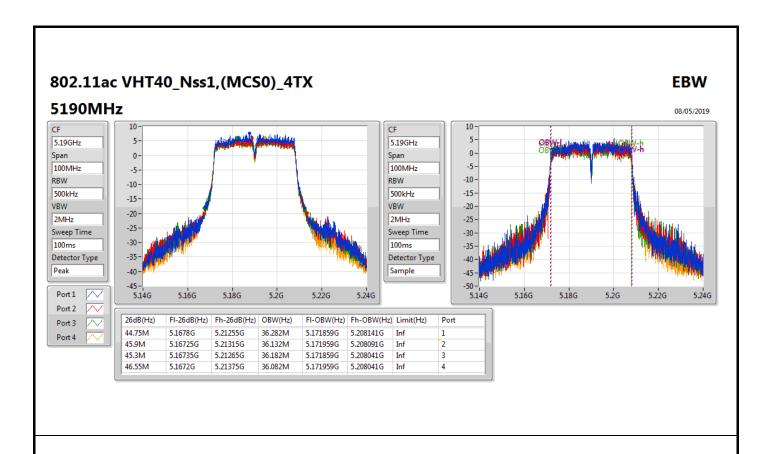


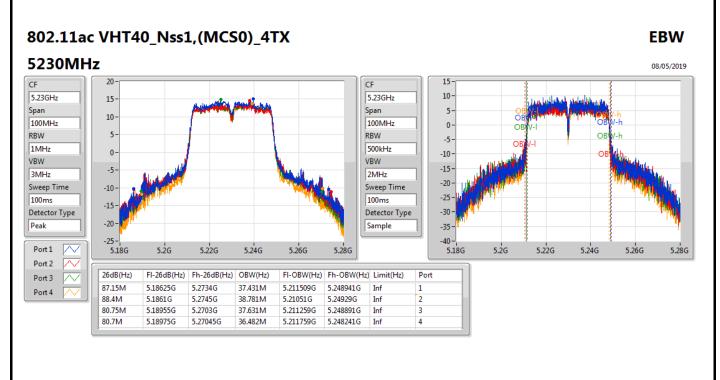


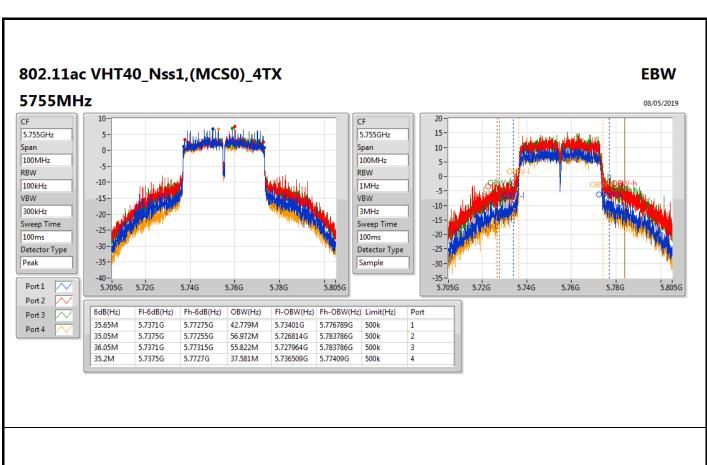


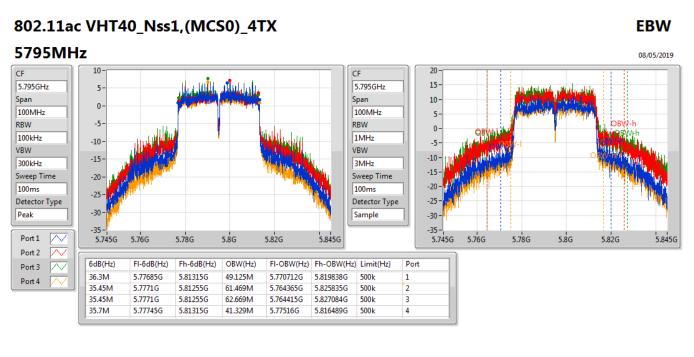


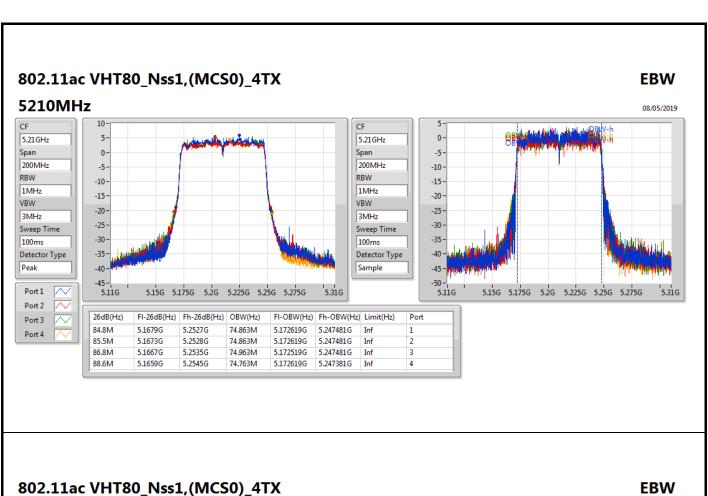


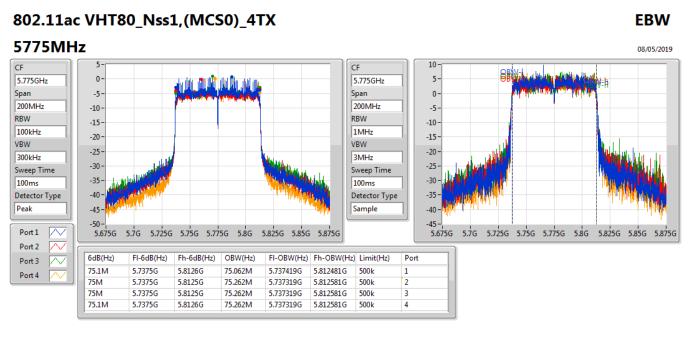














## Average Power Result

Appendix C

**Summary** 

Mode	Total Power	Total Power
	(dBm)	(w)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	23.42	0.21979
802.11ac VHT20_Nss1,(MCS0)_4TX	23.64	0.23121
802.11ac VHT40_Nss1,(MCS0)_4TX	25.90	0.38905
802.11ac VHT80_Nss1,(MCS0)_4TX	19.42	0.08750
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_4TX	28.25	0.66834
802.11ac VHT20_Nss1,(MCS0)_4TX	28.28	0.67298
802.11ac VHT40_Nss1,(MCS0)_4TX	27.73	0.59293
802.11ac VHT80_Nss1,(MCS0)_4TX	23.20	0.20893



## Result

Mode	Result	DG	Port 1	Port 2	Port 3	Port 4	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	7.10	18.01	17.02	16.93	17.17	23.32	28.90
5200MHz	Pass	7.10	17.93	17.10	17.13	17.37	23.42	28.90
5240MHz	Pass	7.10	17.32	16.95	17.44	16.83	23.16	28.90
5745MHz	Pass	7.10	22.17	22.39	22.42	21.92	28.25	28.90
5785MHz	Pass	7.10	21.67	21.96	22.13	21.56	27.86	28.90
5825MHz	Pass	7.10	21.92	22.27	22.35	21.61	28.07	28.90
802.11ac VHT20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	7.10	18.34	17.51	17.19	17.36	23.64	28.90
5200MHz	Pass	7.10	18.08	17.25	16.98	17.19	23.42	28.90
5240MHz	Pass	7.10	17.65	17.24	17.73	17.15	23.47	28.90
5745MHz	Pass	7.10	22.33	22.40	22.29	22.01	28.28	28.90
5785MHz	Pass	7.10	21.85	21.93	22.12	21.34	27.84	28.90
5825MHz	Pass	7.10	21.96	22.17	22.28	21.62	28.04	28.90
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	7.10	16.44	15.46	15.22	15.29	21.65	28.90
5230MHz	Pass	7.10	20.40	19.59	19.64	19.83	25.90	28.90
5755MHz	Pass	7.10	21.34	21.56	21.78	21.15	27.48	28.90
5795MHz	Pass	7.10	21.79	21.64	22.06	21.31	27.73	28.90
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	7.10	13.89	13.12	13.21	13.35	19.42	28.90
5775MHz	Pass	7.10	17.22	16.96	17.49	17.03	23.20	28.90

**DG** = Directional Gain; **Port X** = Port X output power



**Summary** 

Mode	PD
	(dBm/RBW)
5.15-5.25GHz	-
802.11a_Nss1,(6Mbps)_4TX	10.26
802.11ac VHT20_Nss1,(MCS0)_4TX	10.25
802.11ac VHT40_Nss1,(MCS0)_4TX	9.61
802.11ac VHT80_Nss1,(MCS0)_4TX	0.19
5.725-5.85GHz	
802.11a_Nss1,(6Mbps)_4TX	13.48
802.11ac VHT20_Nss1,(MCS0)_4TX	13.27
802.11ac VHT40_Nss1,(MCS0)_4TX	9.87
802.11ac VHT80_Nss1,(MCS0)_4TX	2.80

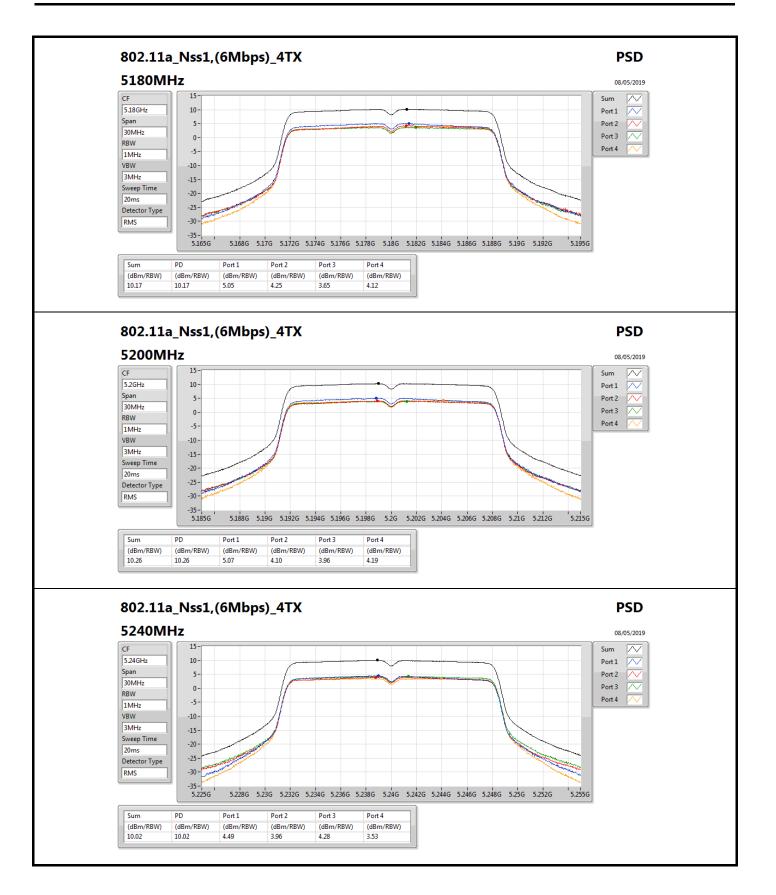
RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;

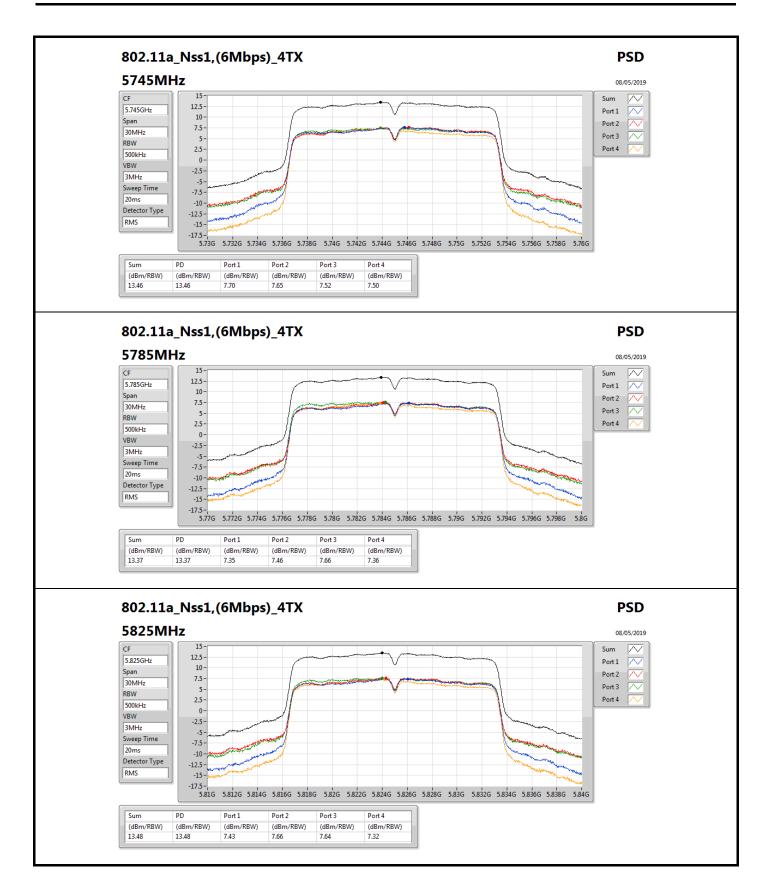


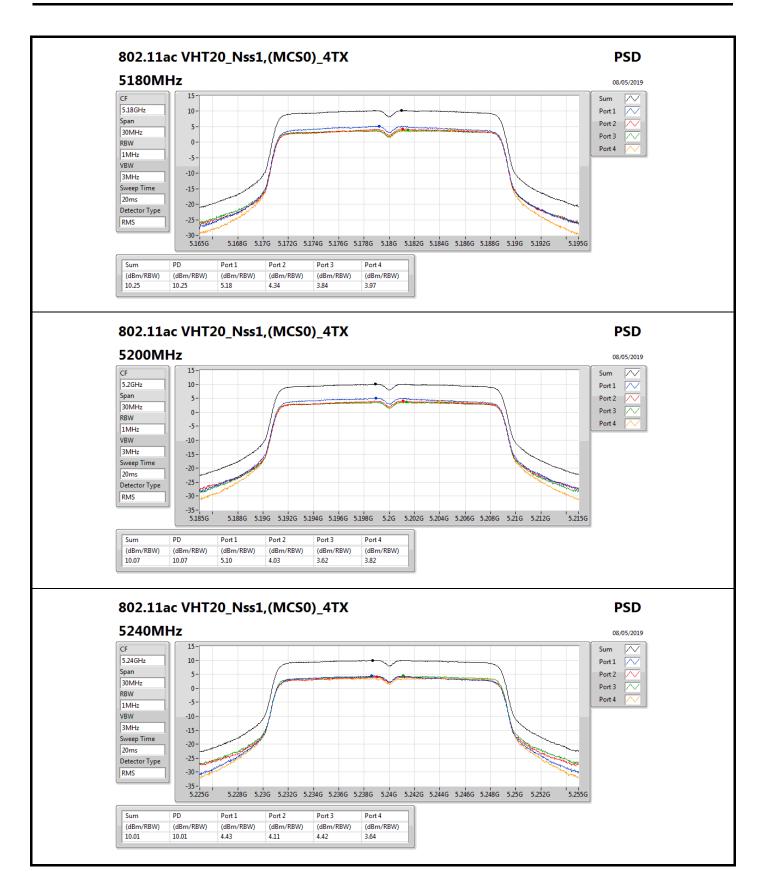
## Result

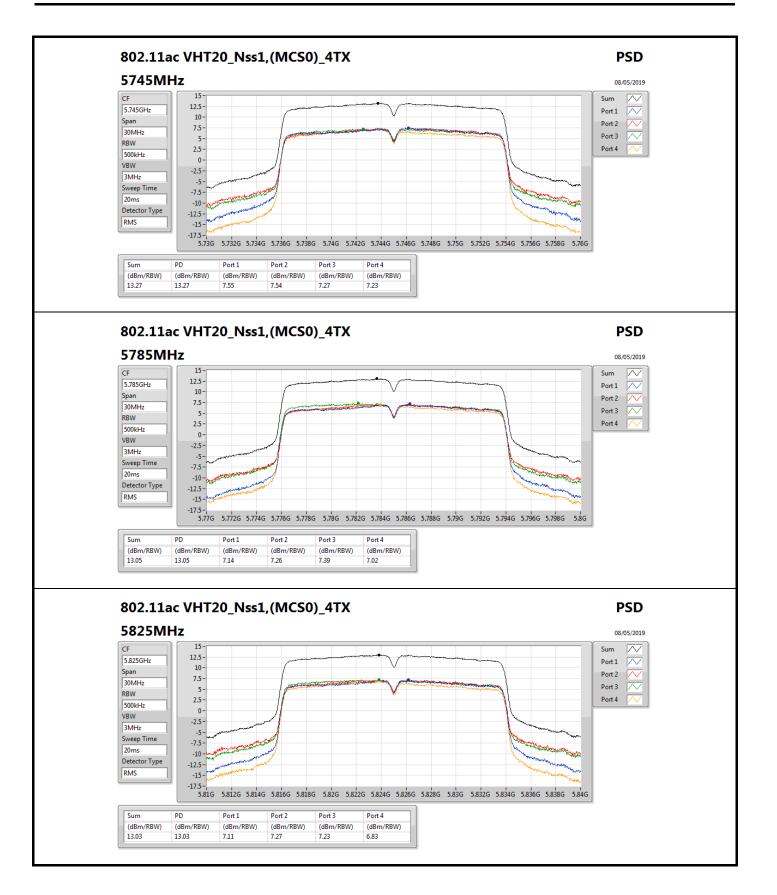
Mode	Result	DG	Port 1	Port 2	Port 3	Port 4	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11a_Nss1,(6Mbps)_4TX	-	-	-	-	-	-	-	-
5180MHz	Pass	12.73	5.05	4.25	3.65	4.12	10.17	10.27
5200MHz	Pass	12.73	5.07	4.10	3.96	4.19	10.26	10.27
5240MHz	Pass	12.73	4.49	3.96	4.28	3.53	10.02	10.27
5745MHz	Pass	12.73	7.70	7.65	7.52	7.50	13.46	23.27
5785MHz	Pass	12.73	7.35	7.46	7.66	7.36	13.37	23.27
5825MHz	Pass	12.73	7.43	7.66	7.64	7.32	13.48	23.27
802.11ac VHT20_Nss1,(MCS0)_4TX	-	_	-	-	-	-	-	-
5180MHz	Pass	12.73	5.18	4.34	3.84	3.97	10.25	10.27
5200MHz	Pass	12.73	5.10	4.03	3.62	3.82	10.07	10.27
5240MHz	Pass	12.73	4.43	4.11	4.42	3.64	10.01	10.27
5745MHz	Pass	12.73	7.55	7.54	7.27	7.23	13.27	23.27
5785MHz	Pass	12.73	7.14	7.26	7.39	7.02	13.05	23.27
5825MHz	Pass	12.73	7.11	7.27	7.23	6.83	13.03	23.27
802.11ac VHT40_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5190MHz	Pass	12.73	-0.06	-0.78	-0.95	-0.62	5.26	10.27
5230MHz	Pass	12.73	4.29	3.41	3.52	3.80	9.61	10.27
5755MHz	Pass	12.73	3.72	3.87	3.92	3.73	9.56	23.27
5795MHz	Pass	12.73	4.06	4.01	4.39	3.91	9.87	23.27
802.11ac VHT80_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-
5210MHz	Pass	12.73	-4.97	-6.00	-5.85	-5.59	0.19	10.27
5775MHz	Pass	12.73	-2.96	-3.47	-2.19	-3.46	2.80	23.27

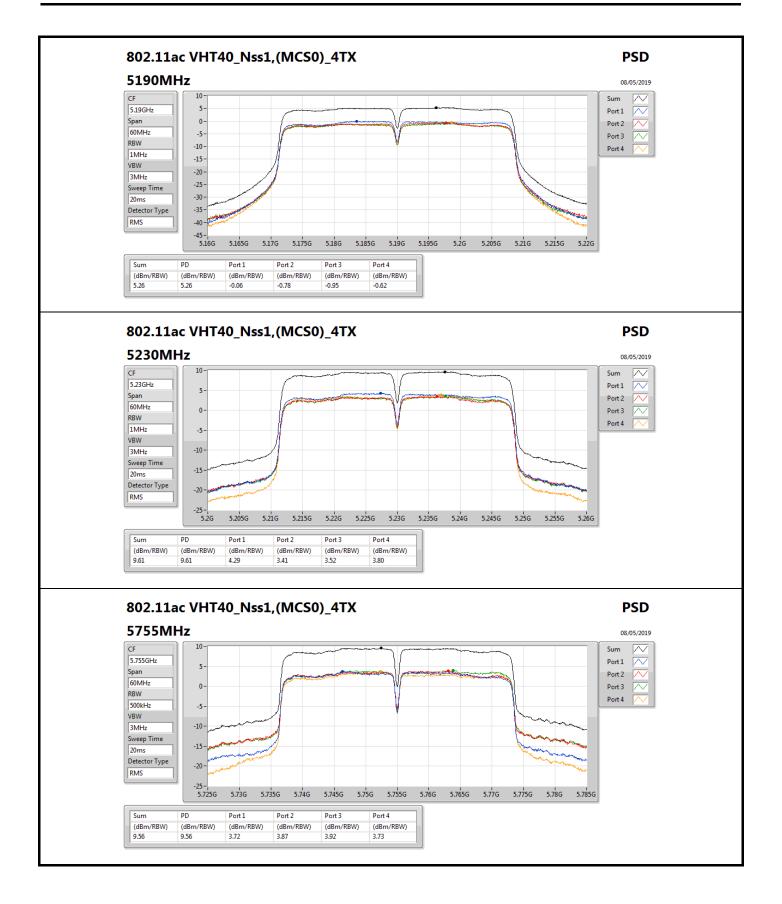
**DG** = Directional Gain; **RBW** = 500 kHz for 5.725-5.85GHz band / 1MHz for other band; **PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

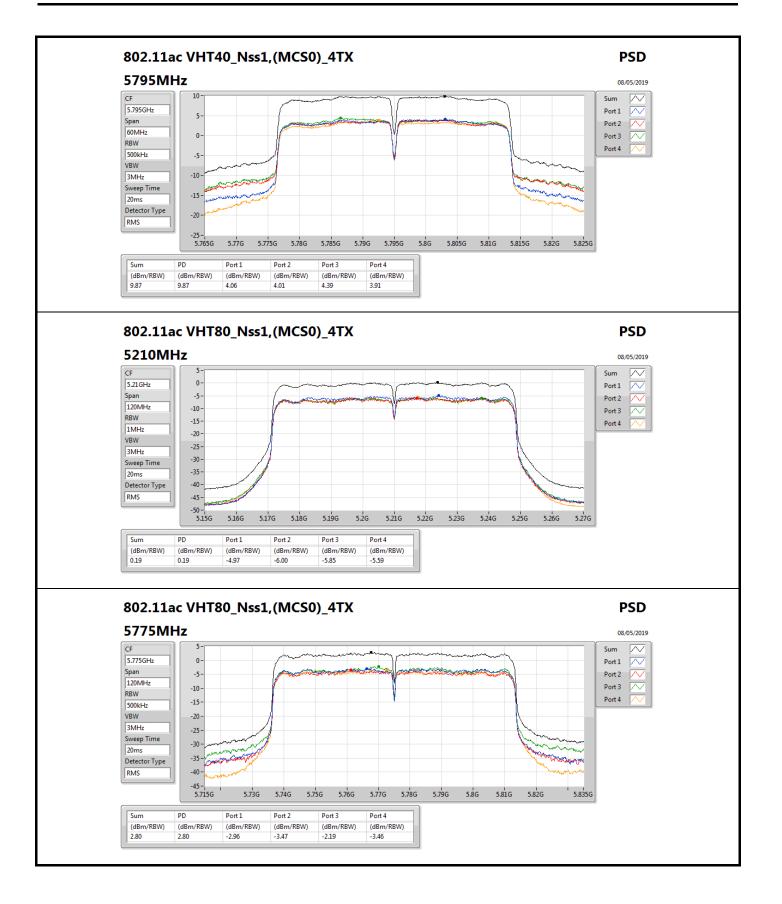






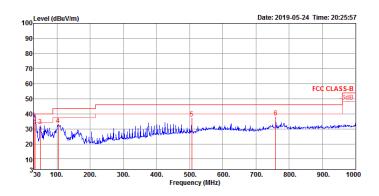








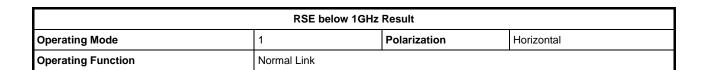
RSE below 1GHz Result									
Operating Mode	1	Vertical							
Operating Function	Normal Link								

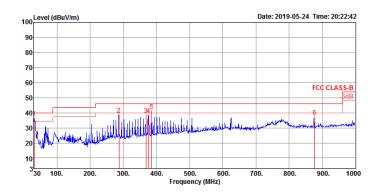


	Freq	Level						Factor		1/205	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.00	36.13	40.00	-3.87	39.50	0.80	24.40	28.57	125	129	QP	VERTICAL
2	33.88	33.99	40.00	-6.01	39.30	0.72	22.54	28.57	100	227	QP	VERTICAL
3	49.40	32.12	40.00	-7.88	45.23	0.93	14.52	28.56	100	53	Peak	VERTICAL
4	103.72	32.78	43.50	-10.72	42.72	1.25	17.24	28.43	100	288	Peak	VERTICAL
5	506.27	37.13	46.00	-8.87	40.58	2.39	23.55	29.39	100	251	Peak	VERTICAL
6	759.44	37.59	46.00	-8.41	38.01	3.00	25.97	29.39	100	221	Peak	VERTICAL

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit. Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

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	Freq	Level	Limit					Factor		1/205	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	31.94	36.68	40.00	-3.32	41.37	0.76	23.12	28.57	300	215	Peak	HORIZONTAL
2	287.05	38.94	46.00	-7.06	46.12	1.90	18.87	27.95	125	76	Peak	HORIZONTAL
3	368.53	38.74	46.00	-7.26	44.56	2.05	20.65	28.52	100	61	Peak	HORIZONTAL
4	375.32	38.40	46.00	-7.60	44.16	2.09	20.73	28.58	100	202	Peak	HORIZONTAL
5	385.02	41.28	46.00	-4.72	46.81	2.13	21.00	28.66	100	84	Peak	HORIZONTAL
6	875.84	37.47	46.00	-8.53	36.72	3.31	26.57	29.13	100	199	Peak	HORIZONTAL

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit. Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)



## RSE TX above 1GHz Result

Appendix E.2

**Summary** 

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
5.725-5.85GHz	-	-	-	-	-	-	-	-	-	-	-	-
802.11ac VHT40_Nss1,(MCS0)_4TX	Pass	PK	5.65G	68.18	68.20	-0.02	5.69	3	Vertical	290	1.50	-







