Report No.: FR972347AC





FCC RADIO TEST REPORT

FCC ID : YZKOAP100

Equipment : DUAL-BAND 11AC WAVE 2 OUTDOOR AP

Brand Name : Edgecore Model Name : OAP100

Applicant : Edgecore Networks Corporation

No. 1, Creation Rd. III, Science Park Hsin Chu

30077. Taiwan

Manufacturer (1) : Accton Technology Corporation

No. 1, Creation Rd. III, Science Park Hsin Chu

30077, Taiwan

Manufacturer (2) Accton Technology Corporation Zhunan Factory

1F.& 5F.No. 1, Keyi St., Zhunan Township, Miaoli

County 350 - TAIWAN

Standard : 47 CFR FCC Part 15.407

The product was received on Jul. 27, 2019, and testing was started from Aug. 15, 2019 and completed on Oct. 09, 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.

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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

TEL: 886-3-656-9065

FAX: 886-3-656-9085

Report Template No.: CB Ver1.0

Page Number : 1 of 29

: Oct. 18, 2019 Issued Date

Report Version : 01

Table of Contents

Histo	ry of this test report	3
Sumn	nary of Test Result	4
1	General Description	5
1.1	Information	5
1.2	Applicable Standards	8
1.3	Testing Location Information	8
1.4	Measurement Uncertainty	8
2	Test Configuration of EUT	9
2.1	Test Channel Mode	9
2.2	The Worst Case Measurement Configuration	10
2.3	EUT Operation during Test	11
2.4	Accessories	12
2.5	Support Equipment	12
2.6	Test Setup Diagram	13
3	Transmitter Test Result	16
3.1	AC Power-line Conducted Emissions	16
3.2	Emission Bandwidth	18
3.3	Maximum Conducted Output Power	19
3.4	Peak Power Spectral Density	21
3.5	Unwanted Emissions	24
4	Test Equipment and Calibration Data	28
Appe	ndix A. Test Results of AC Power-line Conducted Emissions	
Appe	ndix 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 v01

TEL: 886-3-656-9065 FAX: 886-3-656-9085 Report Template No.: CB Ver1.0 Page Number : 2 of 29 : Oct. 18, 2019 Issued Date

Report No.: FR972347AC

Report Version : 01

History of this test report

Report No.: FR972347AC

Report No.	Version	Description	Issued Date
FR972347AC	01	Initial issue of report	Oct. 18, 2019

TEL: 886-3-656-9065 Page Number : 3 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

Summary of Test Result

Report No.: FR972347AC

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: Sandy Chuang

TEL: 886-3-656-9065 Page Number : 4 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

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]

Report No.: FR972347AC

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	2TX
5.15-5.25GHz	802.11ac VHT20	20	2TX
5.15-5.25GHz	802.11ac VHT40	40	2TX
5.15-5.25GHz	802.11ac VHT80	80	2TX
5.725-5.85GHz	802.11a	20	2TX
5.725-5.85GHz	802.11ac VHT20	20	2TX
5.725-5.85GHz	802.11ac VHT40	40	2TX
5.725-5.85GHz	802.11ac VHT80	80	2TX

Note:

- 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- VHT20, VHT40, 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.

TEL: 886-3-656-9065 Page Number : 5 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1/2	ACCTON	OAP 100 -1018-EC	Patch Array Antenna	I-PEX	
2	1/2	ACCTON	OAP 100 -1018-EC	Patch Array Antenna	I-PEX	
3	1/2	ACCTON	OAP 100 -1018-EC	PCB Dipole Antenna	I-PEX	
4	1/2	ACCTON	OAP 100 -1018-EC	Patch Array Antenna	I-PEX	Note 1
5	1	ACCTON	OAP100-1018-EC	PCB Dipole Antenna	I-PEX	
6	1	Master Wave	OAP100-1018-EC	Chip Antenna	I-PEX	
7	1	Master Wave	8615 Outdoor Antenna	External omni antenna	I-PEX	

Report No.: FR972347AC

Note 1

A m4	Dort			Gain (dBi)		
Ant.	Port	2.4GHz	5GHz	Bluetooth	GPS	LTE
1	1	-	15.5	-	-	-
2	2	-	11.1	-	-	-
3	1	5.6	-	-	-	-
4	2	10.4	-	-	-	-
5	1	-	-	4.5	-	-
6	1	-	-	-	3.76	-
7	1	-	-	-	-	2.87

Note 2: The above information was declared by manufacturer.

<For 2.4GHz Band>

For IEEE 802.11b/g/n mode (2TX/2RX)

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

<For 5GHz Band>

Because Ant. 1 and Ant. 2 are the same type antennas, only the higher gain antenna "Ant. 1" was tested and recorded in the report.

For IEEE 802.11a/n/ac mode (2TX/2RX)

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

<Bluetooth>

Only Port 1 can be used as transmitting/receiving antenna.

TEL: 886-3-656-9065 Page Number : 6 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
802.11a	0.96	0.18	2.068m	1k
802.11ac VHT20	0.985	0.07	n/a (DC>=0.98)	n/a (DC>=0.98)
802.11ac VHT40	0.97	0.13	2.44m	1k
802.11ac VHT80	0.938	0.28	1.153m	1k

Report No.: FR972347AC

NI	\sim	ŧ.	_	
ľ	v	υ	ᆫ	

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

1.1.4 EUT Operational Condition

EUT Power Type		m PoE or DC 24V		
Beamforming Function		With beamforming	\boxtimes	Without beamforming
Function	\boxtimes	Outdoor P2M		Indoor P2M
Function		Fixed P2P		Client
Test Software Version	QR	CT V3.0.264.0		

Note: The above information was declared by manufacturer.

 TEL: 886-3-656-9065
 Page Number : 7 of 29

 FAX: 886-3-656-9085
 Issued Date : Oct. 18, 2019

1.2 Applicable Standards

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

Report No.: FR972347AC

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- FCC KDB 789033 D02 v02r01
- FCC KDB 662911 D01 v02r01
- FCC KDB 412172 D01 v01r01
- FCC KDB 414788 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	TH02-CB	Owen Hsu	24.5-25.5°C / 56-58 %	Aug. 15, 2019~ Sep. 05, 2019
Radiated (Below 1GHz)	03CH05-CB	Eason Chen	24.9-25.9°C / 59-63 %	Aug. 23, 2019~ Oct. 07, 2019
Radiated (Above 1GHz)	03CH03-CB	Eason Chen	23.8-26.2°C / 59-62 %	Aug. 23, 2019~ Oct. 07, 2019
AC Conduction	CO01-CB	Rick Yeh	25-26°C / 47-48 %	Oct. 09, 2019

Test site Designation No. TW0006 with FCC.

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)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	5.1 dB	Confidence levels of 95%
Conducted Emission	2.4 dB	Confidence levels of 95%
Output Power Measurement	1.5 dB	Confidence levels of 95%
Power Density Measurement	2.4 dB	Confidence levels of 95%
Bandwidth Measurement	2%	Confidence levels of 95%

TEL: 886-3-656-9065 Page Number : 8 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

Test site registered number IC 4086D with Industry Canada.

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	PowerSetting
802.11a_Nss1,(6Mbps)_2TX	-
5180MHz	8
5200MHz	8
5240MHz	8
5745MHz	15.5
5785MHz	16
5825MHz	16
802.11ac VHT20_Nss1,(MCS0)_2TX	-
5180MHz	8
5200MHz	8
5240MHz	8
5745MHz	15
5785MHz	15.5
5825MHz	16
802.11ac VHT40_Nss1,(MCS0)_2TX	-
5190MHz	8
5230MHz	8
5755MHz	15.5
5795MHz	15.5
802.11ac VHT80_Nss1,(MCS0)_2TX	-
5210MHz	8
5775MHz	15.5

Report No.: FR972347AC

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.

TEL: 886-3-656-9065 Page Number : 9 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

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 CTX			
1	LTE Band 1+Ant. 3_2.4GHz+PoE 1		
2	LTE Band 1+Ant. 3_DC 24V		
Mode 1 has been evaluated follow this same test mode.	ated to be the worst case among Mode 1~2, thus measurement for Mode 3 ~ 5 will de.		
3	LTE Band 1+Ant. 4_2.4GHz+PoE 1		
4	LTE Band 1+Ant. 1_5GHz+PoE 1		
5	LTE Band 1+Ant. 5_Bluetooth LE+PoE 1		
For operating mode 1 is	the worst case and it was record in this test report.		

Report No.: FR972347AC

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

TEL: 886-3-656-9065 Page Number : 10 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

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	CTX			
The EUT can be placed in Y-axis and Z-axis. EUT Y axis has been evaluated to be the worst case at Unwanted Emissions <above 1ghz="">; thus, the measurement will follow this same test configuration.</above>				
1	LTE Band 1+Ant. 3_2.4GHz+PoE 2 - EUT in Y axis			
2	LTE Band 1+Ant. 3_DC 24V - EUT in Y axis			
Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 ~ 5 will follow this same test mode.				
3	LTE Band 1+Ant. 4_2.4GHz+PoE 2 - EUT in Y axis			
4	LTE Band 1+Ant. 1_5GHz+PoE 2 - EUT in Y axis			
5	LTE Band 1+Ant. 5_Bluetooth LE+PoE 2 - EUT in Y axis			
For operating mode 5 is the worst case and it was record in this test report.				
Operating Mode > 1GHz	CTX			
	The EUT can be placed in Y-axis and Z-axis. After evaluating, Y-axis was the worst case, so the test will follow this same test configuration.			
1	EUT in Y axis			

Report No.: FR972347AC

The Worst Case Mode for Following Conformance Tests		
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation	
Operating Mode		
1	WLAN 2.4GHz + WLAN 5GHz	
Refer to Sporton Test Report No.: FA921805 for Co-location RF Exposure Evaluation.		

Note: The PoE below are for measurement only, would not be marketed.

The PoE information as below:

Support Unit	Brand	Model Number
PoE 1	PowerDsine	PD-3501G/AC
PoE 2	GME	GME40B-480135FDA

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

TEL: 886-3-656-9065 Page Number : 11 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

2.4 Accessories

Wall-mounted rack*1

2.5 Support Equipment

For AC Conduction:

	Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID	
А	PoE 1	PowerDsine	PD-3501G/AC	N/A	
В	LTE module	QUECTEL	EC25-J	N/A	
С	LAN NB	DELL	E6430	N/A	

Report No.: FR972347AC

For Radiated:

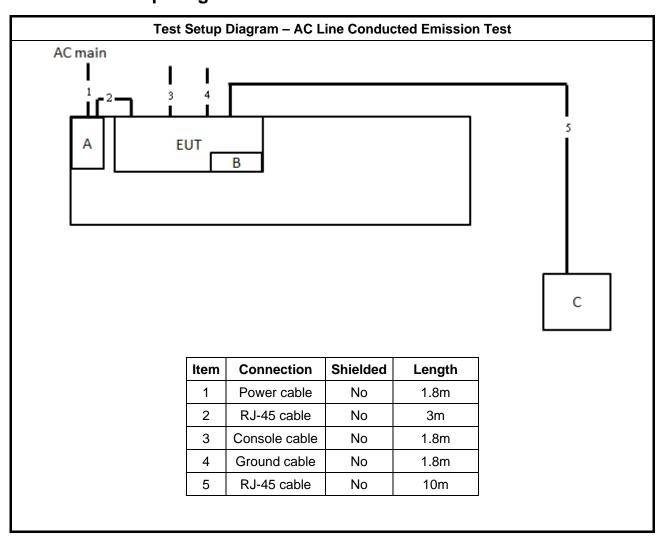
Support Equipment				
No.	No. Equipment Brand Name Model Name F			
Α	PoE 2	GME	GME40B-480135FDA	N/A
В	NB	DELL	E4300	N/A

For RF Conducted:

	Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID	
Α	NB	DELL	E4300	N/A	
В	PoE 2	GME	GME40B-480135FDA	N/A	

TEL: 886-3-656-9065 Page Number : 12 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

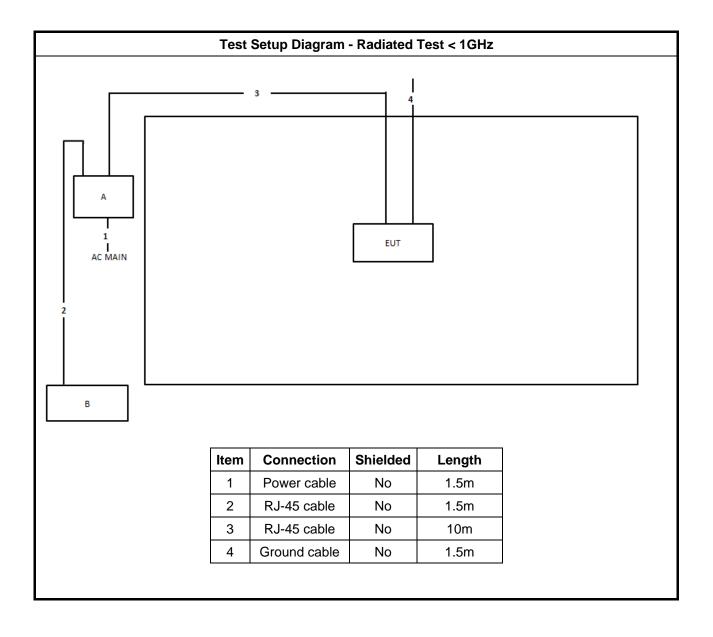
2.6 Test Setup Diagram



Report No.: FR972347AC

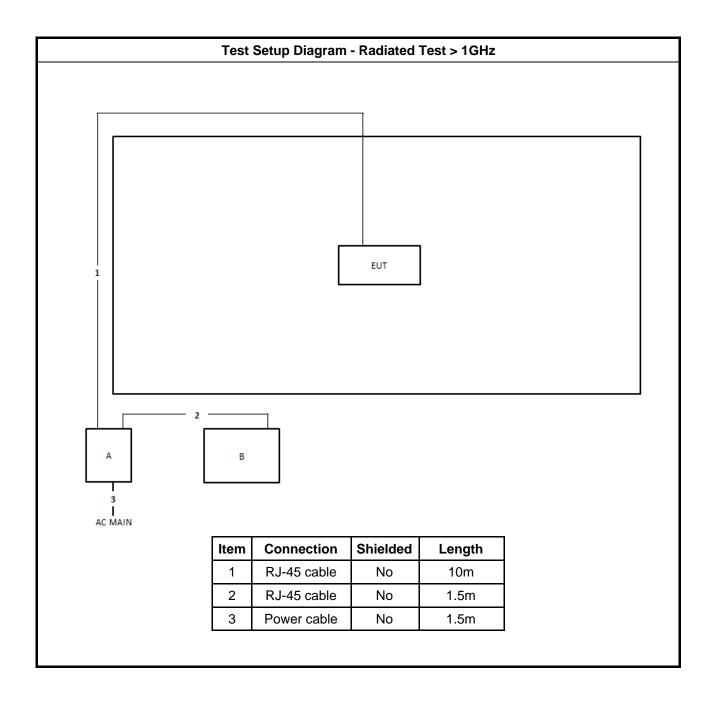
TEL: 886-3-656-9065 Page Number : 13 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

Report No.: FR972347AC



TEL: 886-3-656-9065 Page Number : 14 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

Report No.: FR972347AC



TEL: 886-3-656-9065 Page Number : 15 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit			
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	of the frequency.		

Report No.: FR972347AC

3.1.2 Measuring Instruments

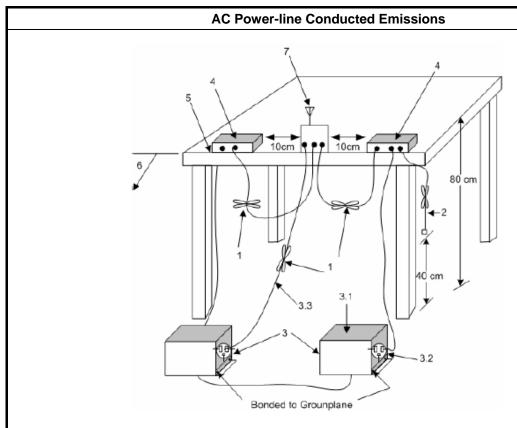
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

TEL: 886-3-656-9065 Page Number : 16 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

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.

Report No.: FR972347AC

- 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 Ω 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

TEL: 886-3-656-9065 Page Number : 17 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

	Emission Bandwidth Limit						
UNI	INII 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.						

Report No.: FR972347AC

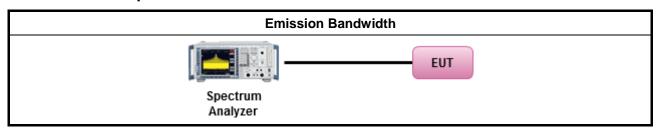
3.2.2 Measuring Instruments

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:							
	\boxtimes	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

TEL: 886-3-656-9065 Page Number : 18 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

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_{Out}) shall not exceed the lesser of 1 W. If G_{TX} > 6 dBi, then P_{Out} = 30 - (G_{TX} - 6). 							
	 Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. 							
LE-	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 _{Out}) shall not exceed the lesser of 1 W. If G _{TX} > 6 dBi, then P _{Out} = 30 – (G _{TX} – 6).							
	Point-to-point systems (P2P): the maximum conducted output power (P _{Out}) shall not exceed the lesser of 1 W.							
	e = maximum conducted output power in dBm, = the maximum transmitting antenna directional gain in dBi.							

Report No.: FR972347AC

TEL: 886-3-656-9065 Page Number : 19 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

3.3.2 Measuring Instruments

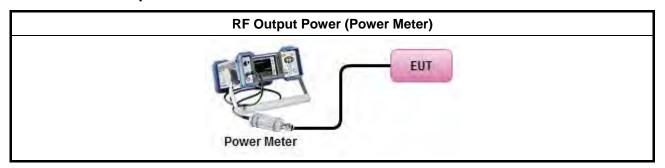
Refer a test equipment and calibration data table in this test report.

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)							
l	Wideband RF power meter and average over on/off periods with duty factor							
<u> </u>	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.							
	 If multiple transmit chains, EIRP calculation could be following as methods: P_{total} = P₁ + P₂ + + P_n (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP_{total} = P_{total} + DG 							

Report No.: FR972347AC

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

TEL: 886-3-656-9065 Page Number : 20 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

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:
	 Outdoor 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).
	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) ≤ 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 – $(G_{TX} - 6)$.
\boxtimes	For the 5.725-5.85 GHz band:
	Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) \leq 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.
	 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: -13 dBW/MHz for 0° ≤ θ < 8°; -13 − 0.716 (θ-8) dBW/MHz for 8° ≤ θ < 40° -35.9 − 1.22 (θ-40) dBW/MHz for 40° ≤ θ ≤ 45°; -42 dBW/MHz for θ > 45°
	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) \leq 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	SD = 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.

Report No.: FR972347AC

TEL: 886-3-656-9065 Page Number : 21 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

3.4.2 Measuring Instruments

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

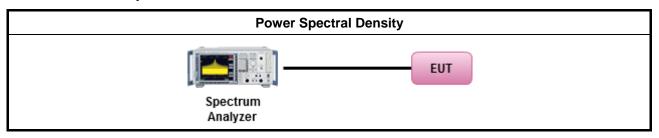
3.4.3 Test Procedures

		Test Method						
•	outp funct	eak power spectral density procedures that the same method as used to determine the conducted atput power shall be used to determine the peak power spectral density and use the peak search anction on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density hall be measured using below options:						
	Refer as FCC KDB 789033, F)5) power spectral density can be measured using resoluti 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, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission 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 $						

Report No.: FR972347AC

TEL: 886-3-656-9065 Page Number : 22 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

3.4.4 Test Setup



Report No.: FR972347AC

3.4.5 Test Result of Peak Power Spectral Density

Refer as Appendix D

TEL: 886-3-656-9065 Page Number : 23 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

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				

Report No.: FR972347AC

- 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

TEL: 886-3-656-9065 Page Number : 24 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

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

Report No.: FR972347AC

3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

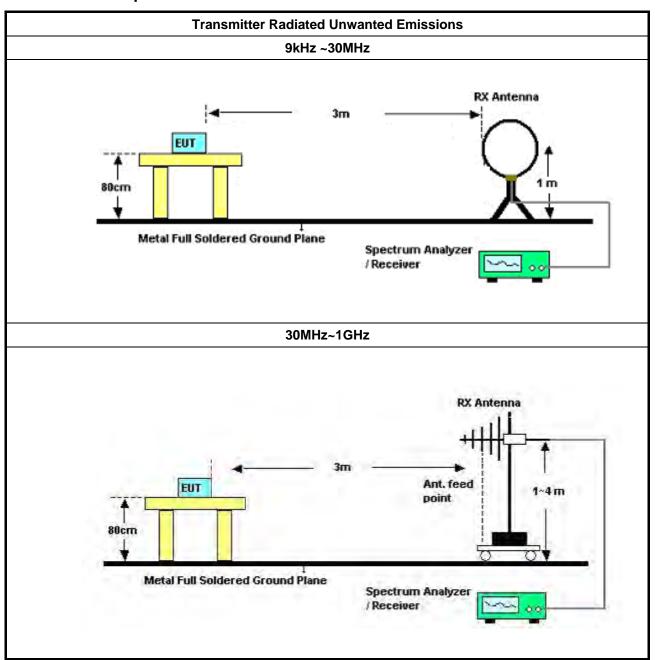
Test Method

- 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.

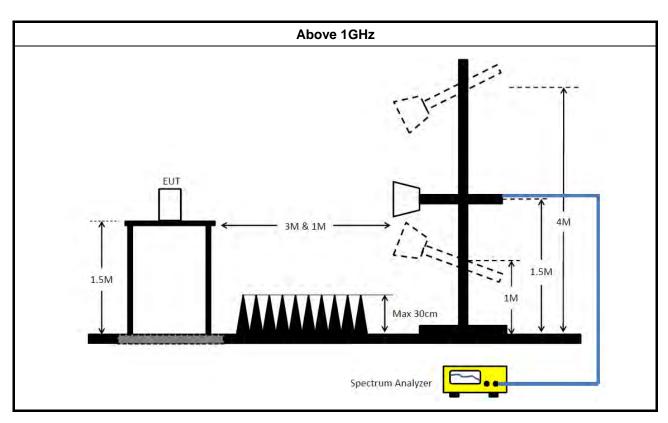
TEL: 886-3-656-9065 Page Number : 25 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

Report No.: FR972347AC

3.5.4 Test Setup



TEL: 886-3-656-9065 Page Number : 26 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019



Report No.: FR972347AC

3.5.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.5.6 Transmitter Unwanted Emissions (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

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.

3.5.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E

TEL: 886-3-656-9065 Page Number : 27 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

4 Test Equipment and Calibration Data

					Calibration	Calibration	
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Date	Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	9kHz ~ 8.45GHz Jan. 28, 2019		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 (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESE & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 28, 2019	Mar. 27, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 02, 2019	May 01, 2020	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Aug, 15, 2019	Aug, 14, 2020	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 15, 2019	May 14, 2020	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz~1GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+23	30MHz~18GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH05-CB)
Horn Antenna	ETS · Lindgren	3115	6821	750MHz~18GHz	Jan. 24, 2019	Jan. 23, 2020	Radiation (03CH03-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jun. 27, 2019	Jun. 26, 2020	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Dec. 20, 2018	Dec. 19, 2019	Radiation (03CH03-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 03, 2019	Jul. 02, 2020	Radiation (03CH03-CB)
Spectrum Analyzer	R&S	FSP40	100019	9kHz ~ 40GHz	Jun. 19, 2019	Jun. 18, 2020	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-20+27	1GHz ~ 18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-27	1GHz ~ 18GHz	Oct. 07, 2019	Oct. 06, 2020	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 24, 2019	Jul. 23, 2020	Radiation (03CH03-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Jul. 02, 2019	Jul. 01, 2020	Conducted (TH02-CB)

Report No.: FR972347AC

 TEL: 886-3-656-9065
 Page Number : 28 of 29

 FAX: 886-3-656-9085
 Issued Date : Oct. 18, 2019

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Jan. 15, 2019	Jan. 14, 2020	Conducted (TH02-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Jan. 15, 2019	Jan. 14, 2020	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-3	1 GHz – 26.5 GHz	Oct. 24, 2018	Oct. 23, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)

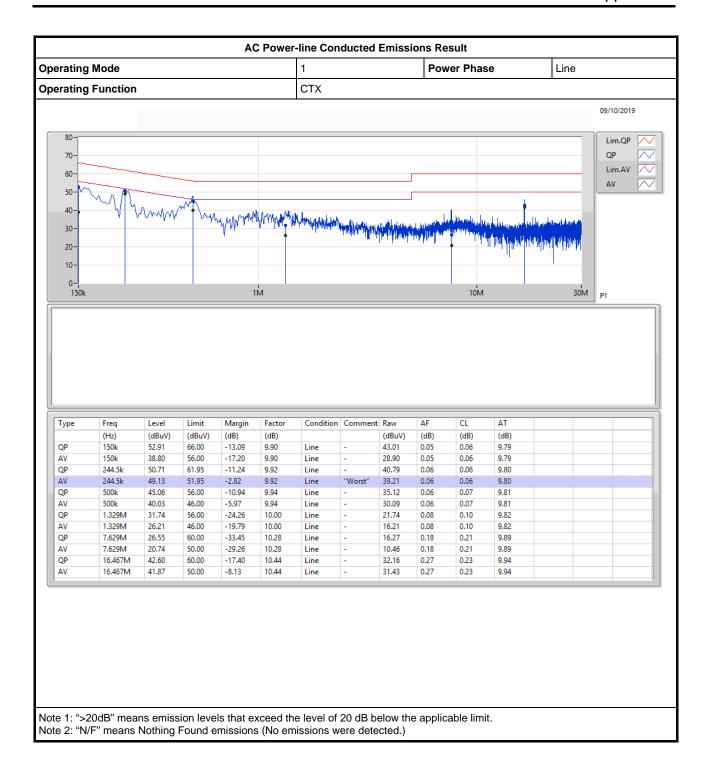
Report No.: FR972347AC

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

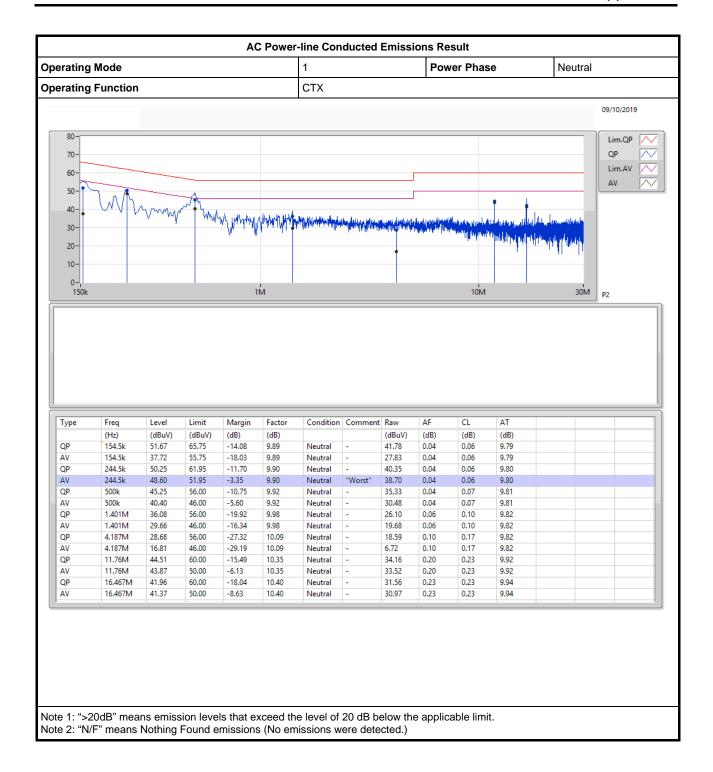
NCR means Non-Calibration required.

TEL: 886-3-656-9065 Page Number : 29 of 29
FAX: 886-3-656-9085 Issued Date : Oct. 18, 2019

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)_2TX	19.11M	16.442M	16M4D1D	18.87M	16.398M
802.11ac VHT20_Nss1,(MCS0)_2TX	19.83M	17.634M	17M6D1D	19.74M	17.605M
802.11ac VHT40_Nss1,(MCS0)_2TX	39.6M	35.994M	36M0D1D	39.3M	35.905M
802.11ac VHT80_Nss1,(MCS0)_2TX	82.68M	75.649M	75M6D1D	82.56M	75.558M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	16.32M	16.418M	16M4D1D	16.29M	16.385M
802.11ac VHT20_Nss1,(MCS0)_2TX	17.58M	17.623M	17M6D1D	17.52M	17.605M
802.11ac VHT40_Nss1,(MCS0)_2TX	35.22M	36.024M	36M0D1D	34.08M	35.941M
802.11ac VHT80_Nss1,(MCS0)_2TX	75.96M	75.888M	75M9D1D	75.48M	75.796M

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;



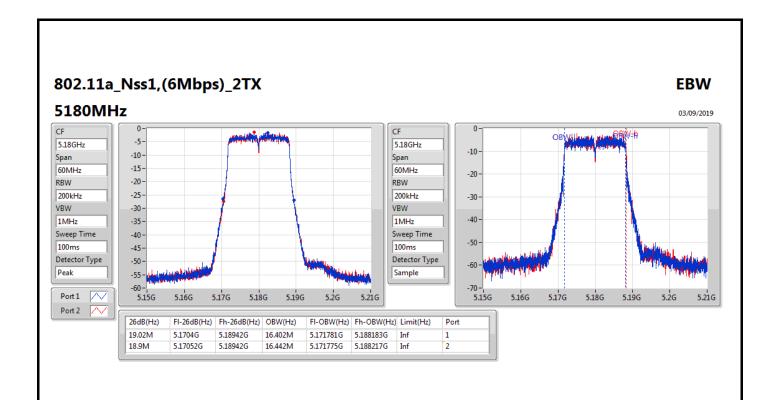
Result

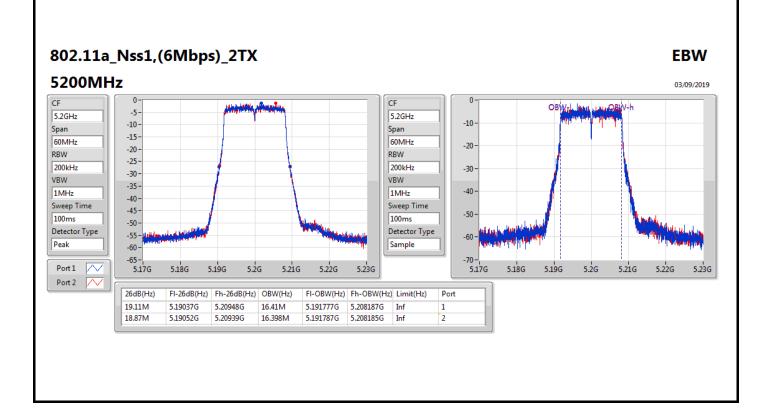
Mode	Result	Limit	Port 1-N dB	Port 1-OBW	Port 2-N dB	Port 2-OBW
		(Hz)	(Hz)	(Hz)	(Hz)	(Hz)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	19.02M	16.402M	18.9M	16.442M
5200MHz	Pass	Inf	19.11M	16.41M	18.87M	16.398M
5240MHz	Pass	Inf	19.05M	16.409M	18.87M	16.398M
5745MHz	Pass	500k	16.29M	16.399M	16.32M	16.418M
5785MHz	Pass	500k	16.32M	16.404M	16.32M	16.396M
5825MHz	Pass	500k	16.32M	16.385M	16.32M	16.387M
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	19.74M	17.608M	19.8M	17.634M
5200MHz	Pass	Inf	19.83M	17.616M	19.77M	17.605M
5240MHz	Pass	Inf	19.74M	17.616M	19.83M	17.624M
5745MHz	Pass	500k	17.52M	17.61M	17.55M	17.606M
5785MHz	Pass	500k	17.55M	17.606M	17.58M	17.623M
5825MHz	Pass	500k	17.55M	17.612M	17.55M	17.605M
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	39.42M	35.96M	39.3M	35.905M
5230MHz	Pass	Inf	39.6M	35.994M	39.42M	35.953M
5755MHz	Pass	500k	34.44M	35.971M	35.04M	35.961M
5795MHz	Pass	500k	35.22M	36.024M	34.08M	35.941M
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	82.56M	75.558M	82.68M	75.649M
5775MHz	Pass	500k	75.48M	75.796M	75.96M	75.888M

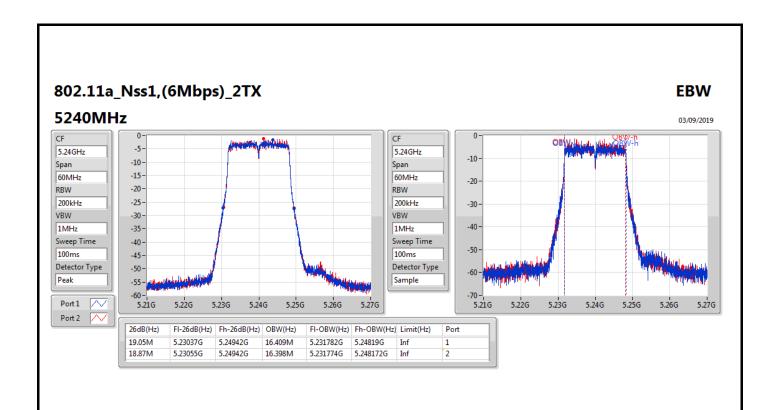
Page No.

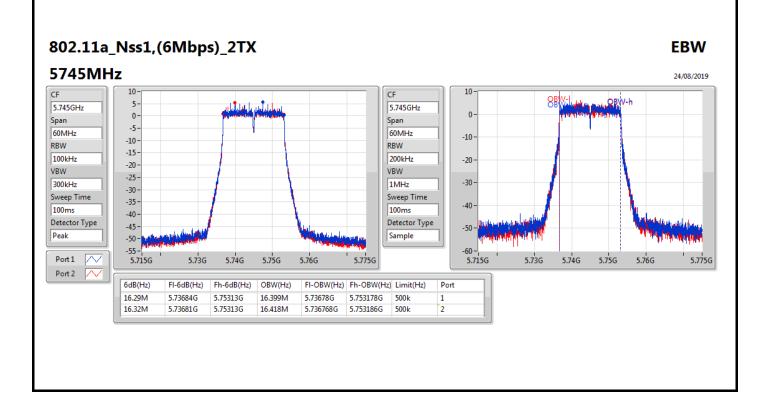
: 2 of 11

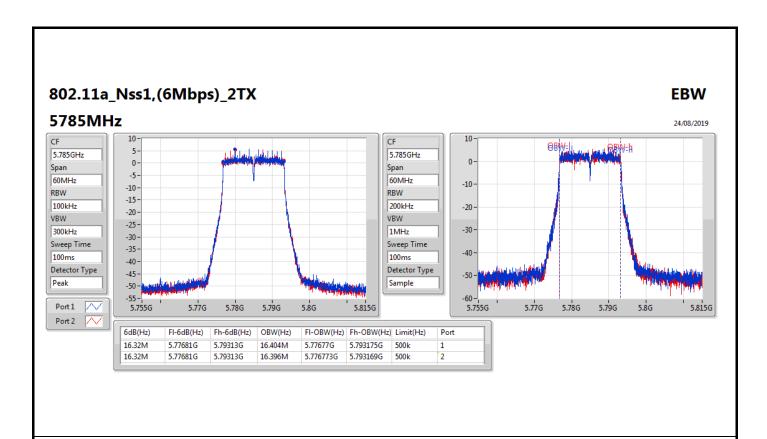
Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band Port X-OBW = Port X 99% occupied bandwidth;

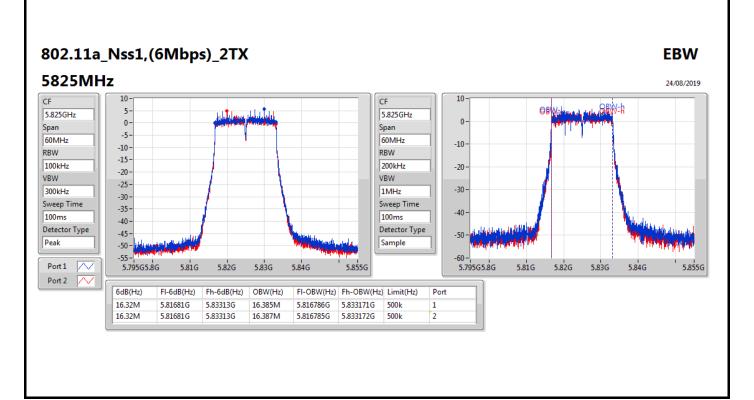


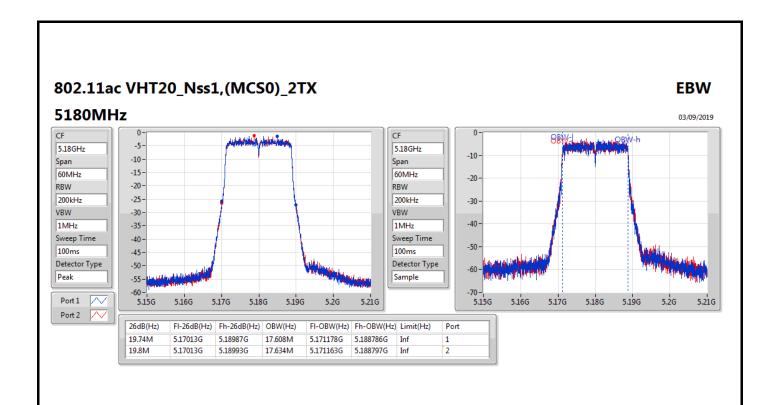


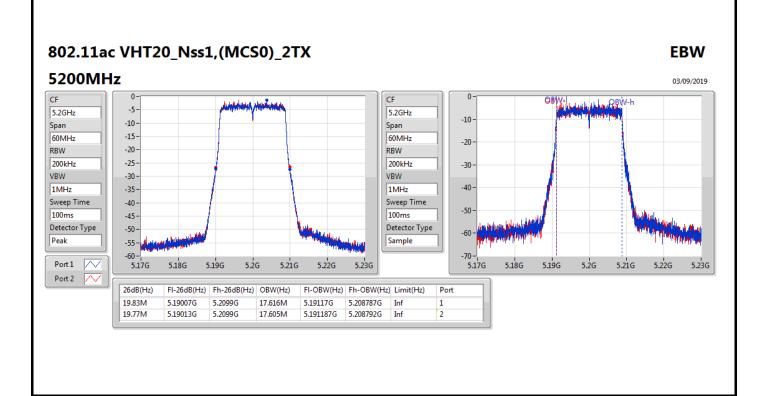


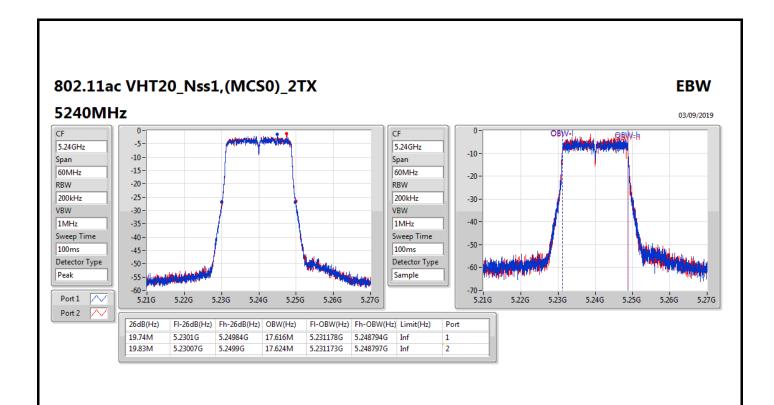


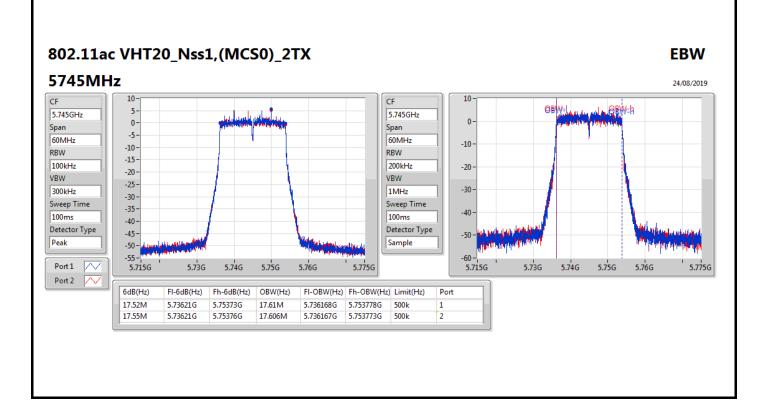


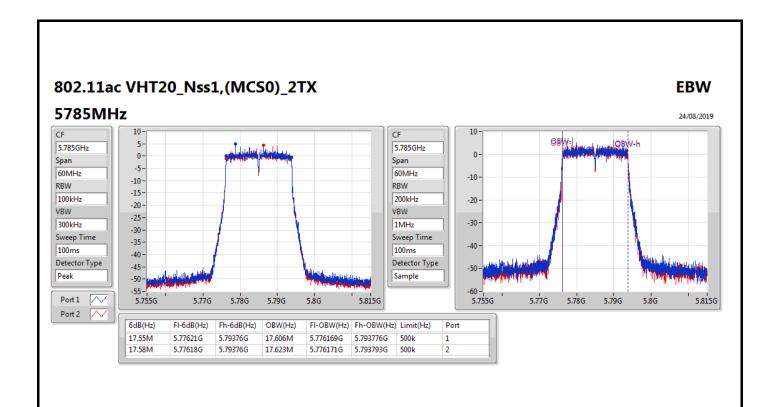


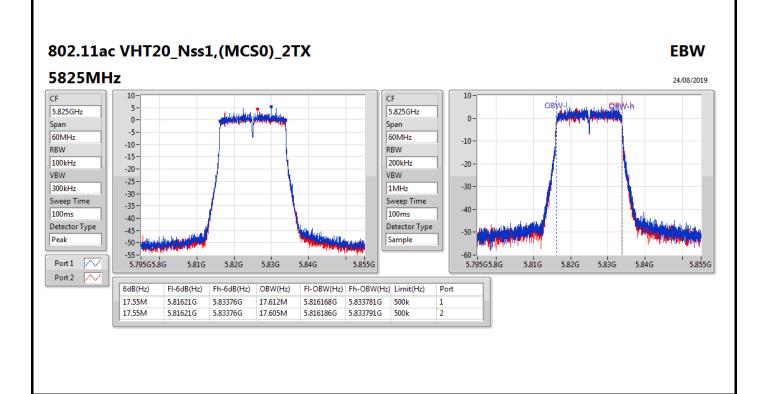


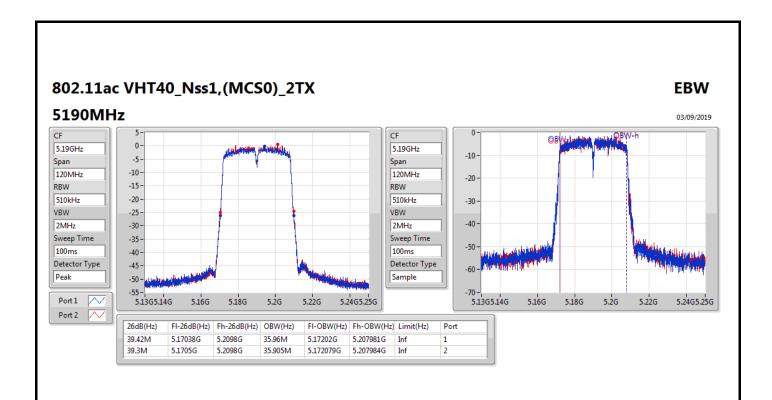


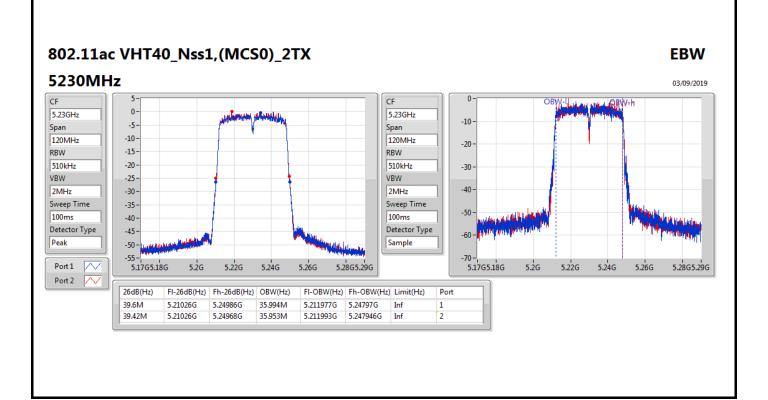


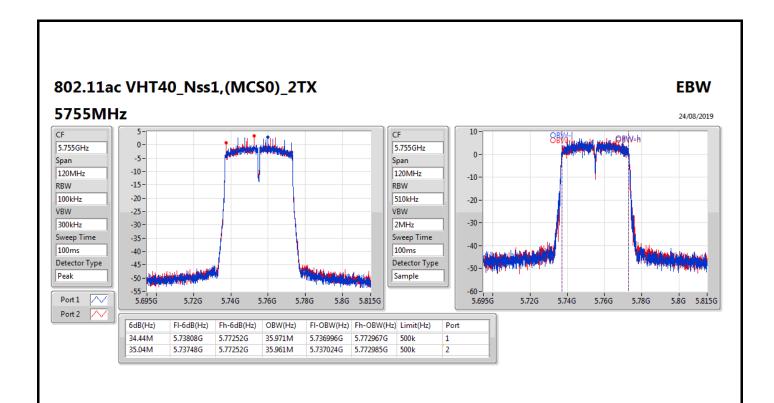


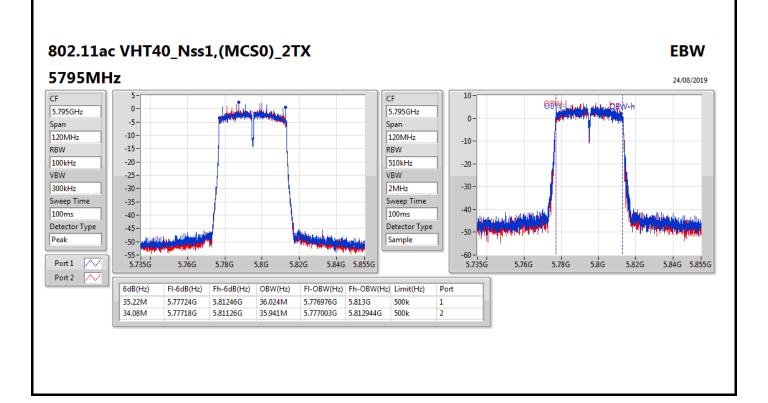


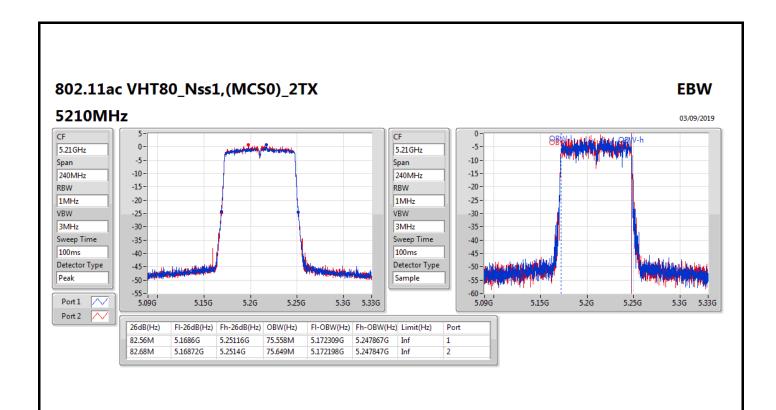


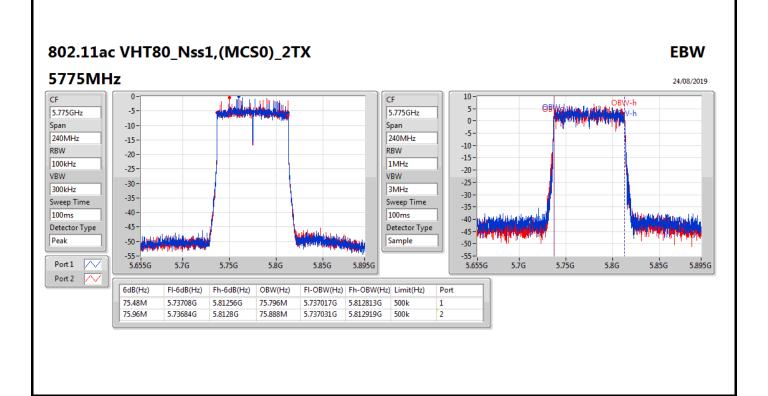














Average Power Appendix C.1

Summary

Mode	Total Power	Total Power	EIRP	EIRP
	(dBm)	(W)	(dBm)	(W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	12.96	0.01977	28.46/20.89	0.70146/0.12274
802.11ac VHT20_Nss1,(MCS0)_2TX	13.06	0.02023	28.56/20.99	0.71779/0.12560
802.11ac VHT40_Nss1,(MCS0)_2TX	12.99	0.01991	28.49/20.92	0.70632/0.12359
802.11ac VHT80_Nss1,(MCS0)_2TX	12.91	0.01954	28.41/20.84	0.69343/0.12134
5.725-5.85GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	20.48	0.11169	35.98	3.96278
802.11ac VHT20_Nss1,(MCS0)_2TX	20.32	0.10765	35.82	3.81944
802.11ac VHT40_Nss1,(MCS0)_2TX	20.23	0.10544	35.73	3.74111
802.11ac VHT80_Nss1,(MCS0)_2TX	20.14	0.10328	35.64	3.66438



Average Power Appendix C.1

Result

Mode	Result	DG	Port 1	Port 2	Total Power	Power Limit	EIRP	EIRP Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	15.50	9.72	9.84	12.79	20.50	28.29/20.72	36.00/21.00
5200MHz	Pass	15.50	9.76	10.09	12.94	20.50	28.44/20.87	36.00/21.00
5240MHz	Pass	15.50	9.76	10.14	12.96	20.50	28.46/20.89	36.00/21.00
5745MHz	Pass	15.50	17.68	17.20	20.46	20.50	35.96	36.00
5785MHz	Pass	15.50	17.58	17.35	20.48	20.50	35.98	36.00
5825MHz	Pass	15.50	17.54	17.10	20.34	20.50	35.84	36.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	15.50	9.63	10.09	12.88	20.50	28.38/20.81	36.00/21.00
5200MHz	Pass	15.50	9.90	10.11	13.02	20.50	28.52/20.95	36.00/21.00
5240MHz	Pass	15.50	9.76	10.33	13.06	20.50	28.56/20.99	36.00/21.00
5745MHz	Pass	15.50	17.15	17.05	20.11	20.50	35.61	36.00
5785MHz	Pass	15.50	17.18	17.00	20.10	20.50	35.60	36.00
5825MHz	Pass	15.50	17.49	17.12	20.32	20.50	35.82	36.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	15.50	9.92	9.98	12.96	20.50	28.46/20.89	36.00/21.00
5230MHz	Pass	15.50	9.97	9.98	12.99	20.50	28.49/20.92	36.00/21.00
5755MHz	Pass	15.50	17.34	17.10	20.23	20.50	35.73	36.00
5795MHz	Pass	15.50	17.05	17.11	20.09	20.50	35.59	36.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	15.50	9.85	9.95	12.91	20.50	28.41/20.84	36.00/21.00
5775MHz	Pass	15.50	17.16	17.09	20.14	20.50	35.64	36.00

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

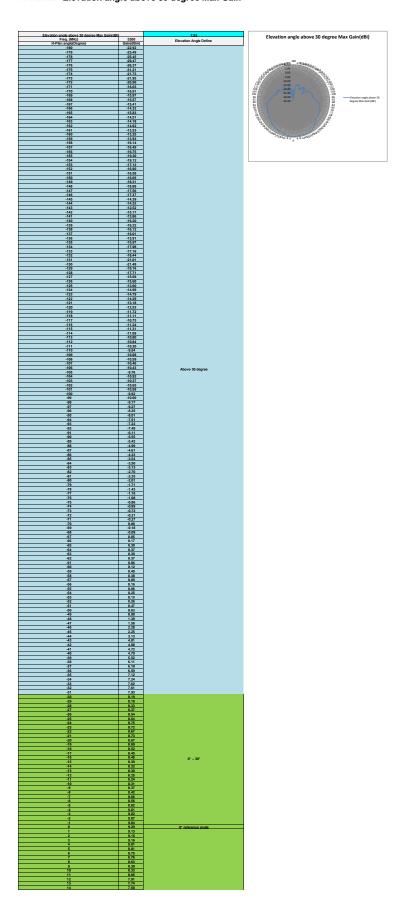


EIRP Elevation 30° Appendix C.2

Result

Mode	Result	Gain- Elevation 30° (dBi)	Total Power (dBm	EIRP- Elevation 30° (dBm)	EIRP Limit- Elevation 30° (dBm)
802.11a_Nss1,(6Mbps)_2TX_5180MHz	Pass	7.93	12.79	20.72	21.00
802.11a_Nss1,(6Mbps)_2TX_5200MHz	Pass	7.93	12.94	20.87	21.00
802.11a_Nss1,(6Mbps)_2TX_5240MHz	Pass	7.93	12.96	20.89	21.00
802.11ac VHT20_Nss1,(MCS0)_2TX_5180MHz	Pass	7.93	12.88	20.81	21.00
802.11ac VHT20_Nss1,(MCS0)_2TX_5200MHz	Pass	7.93	13.02	20.95	21.00
802.11ac VHT20_Nss1,(MCS0)_2TX_5240MHz	Pass	7.93	13.06	20.99	21.00
802.11ac VHT40_Nss1,(MCS0)_2TX_5190MHz	Pass	7.93	12.96	20.89	21.00
802.11ac VHT40_Nss1,(MCS0)_2TX_5230MHz	Pass	7.93	12.99	20.92	21.00
802.11ac VHT80_Nss1,(MCS0)_2TX_5210MHz	Pass	7.93	12.91	20.84	21.00

Elevation angle above 30 degree Max Gain





			20 danua May Cain
SPORTON LAB.	ievation ang	Ie abc	ove 30 degree Max Gain
	6 7	7.36 7.23	J 30
	8	7.23 7.06 7.04	
	10 11 12	6.82	
	12 13 14	6.69 6.62	
		6.59 6.52	
	17	6.62 6.59 6.52 6.14 6.14 6.07	
	19 10	6.07 5.93 5.85	
2	1	5.55	
3	12 13	5.43 5.29	
	14 15 16	5.04 4.91	
	17	4.91 4.76 4.55	
3	18 19	4.01	
	10 11 12	4.17 3.83	
	13 14	3.83 3.45 3.42 3.08	
	15	3.13	
	16	2.88 2.44 2.33	
	19 10	2.07	
	1	2.07 1.68 1.74	
	i2 i3	1.54	
	55 66	1.19	
	66 67 68	1.21 0.93 0.78	
	i9	0.20	
	i0 i1	-0.13 -0.17	
	3 4	0.19 -0.61 -0.69	
	i5	-0.90	
	6 7 8	-0.66 -0.71 -0.87	
	58 59 70	-0.87 -1.17 -1.12	
7	4	-1.37	
	72 74 75	-1.39 -1.54	
- 1	5	-1.64 -1.72	
	76 77 78	-1.89 -1.85 -1.93	
	9	-1.93 -1.65	
	9	-1.65 -1.87 -1.79	
	13	-1.81 -2.19 -2.57	
	14 15	-2.57 -2.81	
- E	15 16 17	-2.81 -3.54 -4.11	
	18 19	4.75	
<u> </u>	10 11	-4.65 -4.67 -5.21	
	12 13 14	-5.21 -5.44 -6.07	
9	15	+6.26	
	17	-6.40 -7.51	
	19 00	+7.11 +8.00 +8.09	
	01 02	-8.39	
	03 04 05	-8.76	
	05 06	-8.76 -8.94 -10.45 -10.24	Above 30 degree
1	07 08	-11.20	
	09 10 11	-11.95 -11.37 -11.45 -13.37	
- 1	11	-11.45 -13.37	
1	12 13 14	-12.99 -13.05	
1	15 16	-11.57 -11.90	
1	17	-12.02	
1	18 19 20	-11.11 -12.30 -12.56	
1	21 22	-11.67	
1	23	43.25 43.69 41.72	
	24 25 26		
1	27 28 29	-13.11 -14.15 -15.09	
1	29 30	-15.09 -16.66	
1	30 31 32	-16.66 -18.97 -18.89	
1	32 33 34	-18.89 -19.63 -20.15	
1	35 36 37	-19.26 -18.70 -17.22	
1	37 38	-17.22 -15.96	
1	38 39 40	-15.96 -15.14 -14.37	
1	40 41 42	-14.37 -14.55 -13.83	
1	43 44 45		
1	45 46	-13.35 -13.59 -13.11	
	46 47 48	-13.11 -13.64 -14.49	
		-16.41 -19.24	
1	51 52	-19.51 -24.79 -25.37 -21.57	
1	53 54	-25.37 -21.57	
1	49 50 51 52 53 54 55 56	-22.09	
1	58 59 60	-18.90 -16.87 -15.96 -17.55 -16.01	
i	62	-17.55 -16.01	
1	63 64	47.00	
1	63 64 65 66 67	-18.69 -18.36 -20.56	
1	67 68	-20.56 -26.52	
1	68 69 70	-26.52 -32.27 -33.86	
1	71 72 73 74 75 76	23.11 31.72 -21.49 -23.15 -20.72 -20.96	
1	74	-21.49 -23.15	
	75 76	-20.72 -20.96	
1	77 78 79	-19.92 -21.89 -22.21	



Page No.

: 1 of 8

Summary

Mode	PD	EIRP PD
	(dBm/RBW)	(dBm/RBW)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_2TX	-0.50	18.01
802.11ac VHT20_Nss1,(MCS0)_2TX	-0.89	17.62
802.11ac VHT40_Nss1,(MCS0)_2TX	-3.64	14.87
802.11ac VHT80_Nss1,(MCS0)_2TX	-7.20	11.31
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_2TX	6.19	24.70
802.11ac VHT20_Nss1,(MCS0)_2TX	5.57	24.08
802.11ac VHT40_Nss1,(MCS0)_2TX	3.24	21.75
802.11ac VHT80_Nss1,(MCS0)_2TX	-0.69	17.82

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

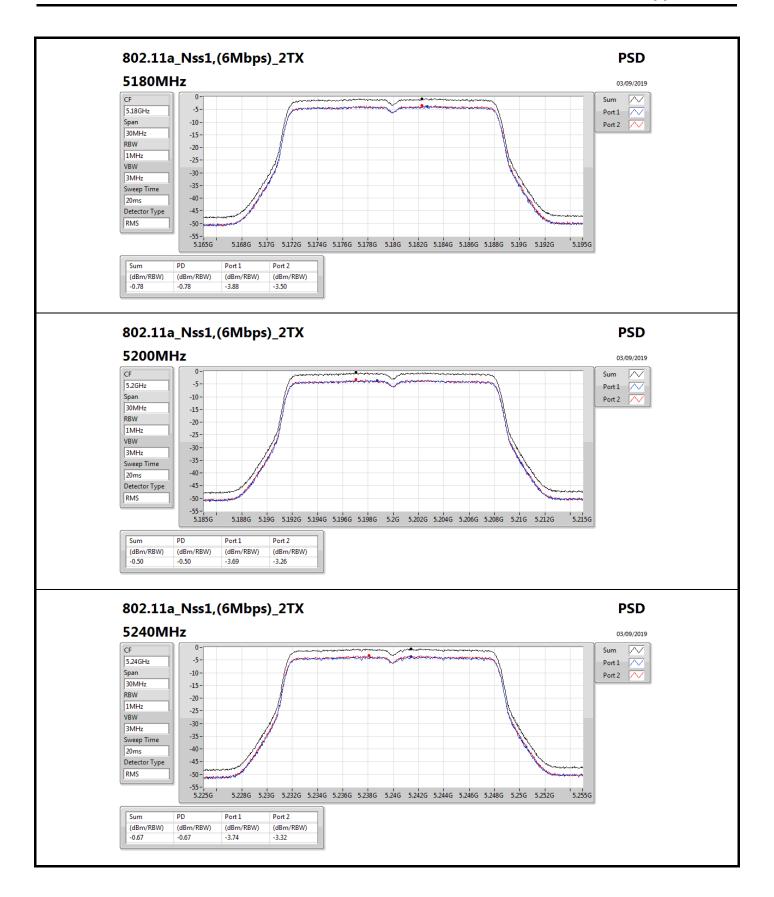


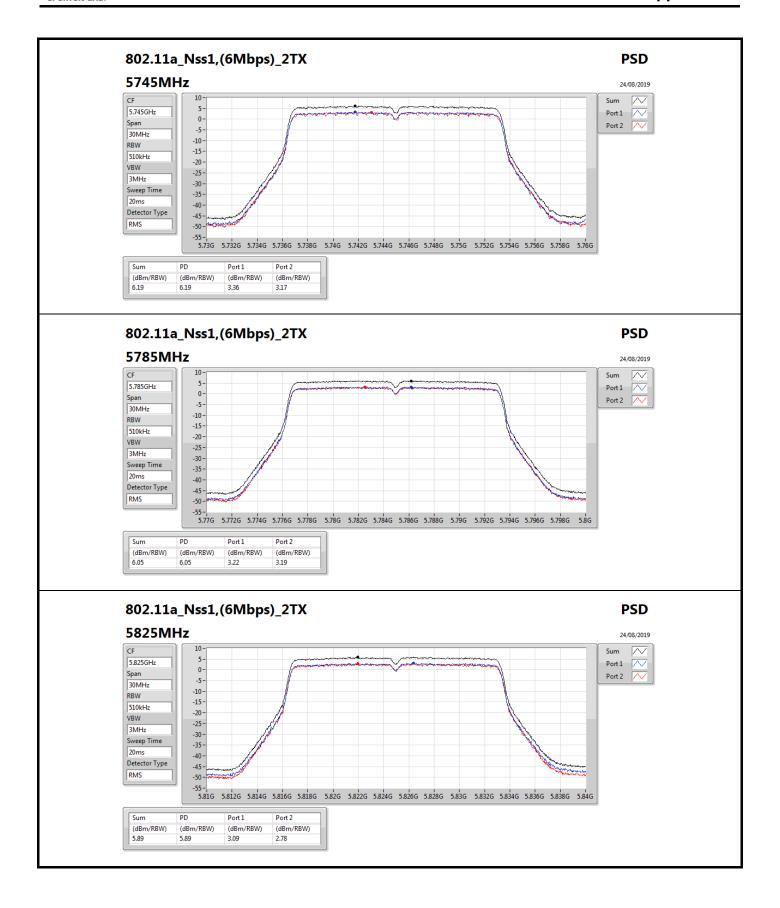
Appendix D **PSD**

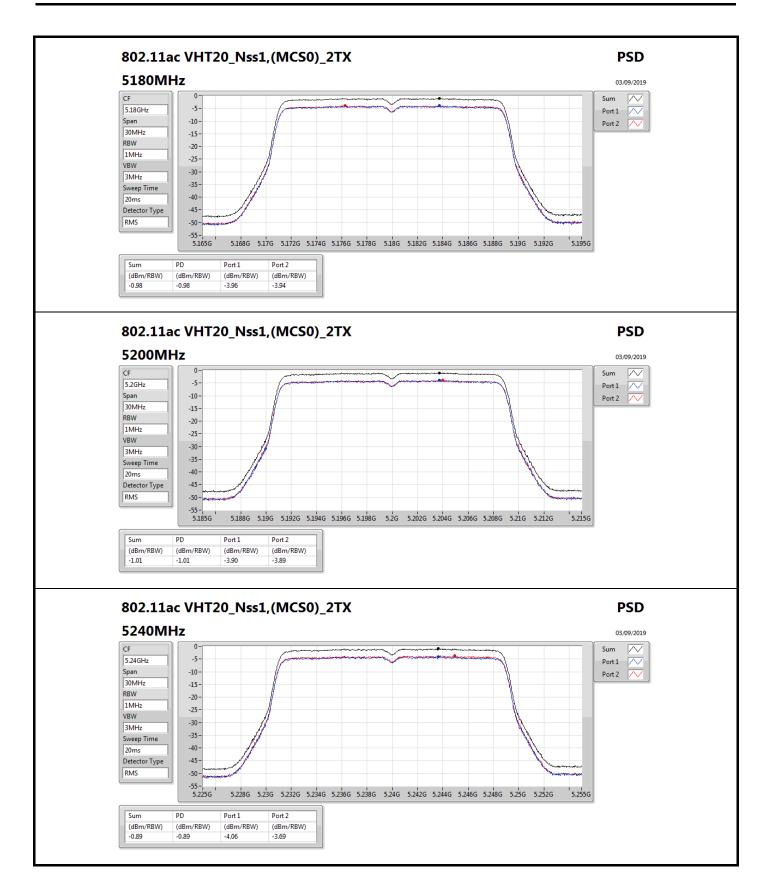
Result

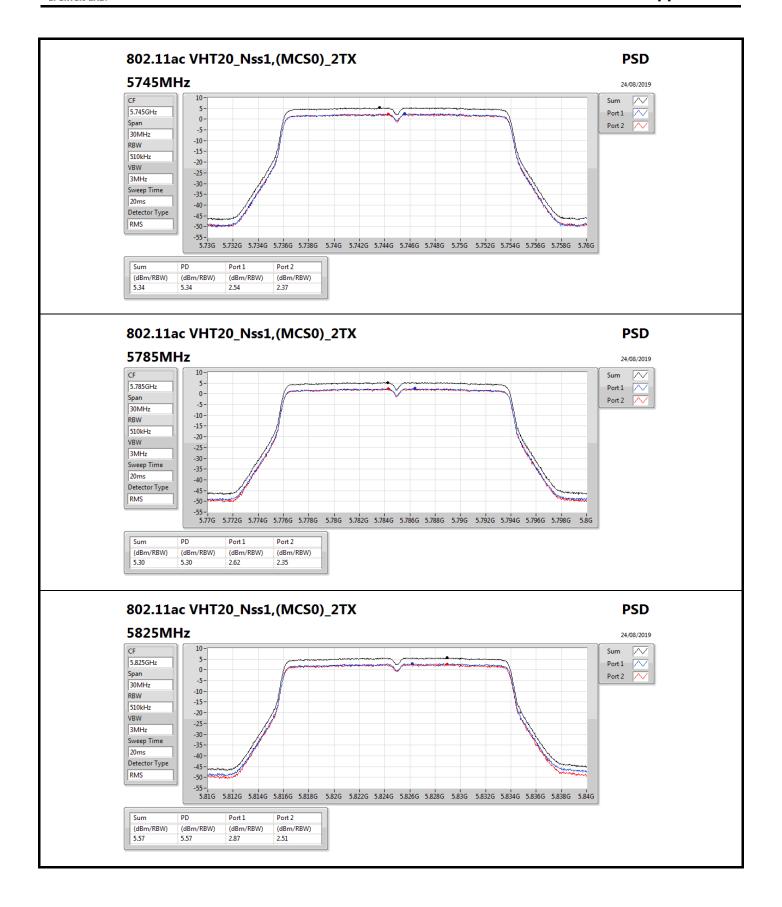
Mode	Result	DG	Port 1	Port 2	PD	PD Limit	EIRP PD	EIRP PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	18.51	-3.88	-3.50	-0.78	4.49	17.73	Inf
5200MHz	Pass	18.51	-3.69	-3.26	-0.50	4.49	18.01	Inf
5240MHz	Pass	18.51	-3.74	-3.32	-0.67	4.49	17.84	Inf
5745MHz	Pass	18.51	3.36	3.17	6.19	17.49	24.70	Inf
5785MHz	Pass	18.51	3.22	3.19	6.05	17.49	24.56	Inf
5825MHz	Pass	18.51	3.09	2.78	5.89	17.49	24.40	Inf
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	18.51	-3.96	-3.94	-0.98	4.49	17.53	Inf
5200MHz	Pass	18.51	-3.90	-3.89	-1.01	4.49	17.50	Inf
5240MHz	Pass	18.51	-4.06	-3.69	-0.89	4.49	17.62	Inf
5745MHz	Pass	18.51	2.54	2.37	5.34	17.49	23.85	Inf
5785MHz	Pass	18.51	2.62	2.35	5.30	17.49	23.81	Inf
5825MHz	Pass	18.51	2.87	2.51	5.57	17.49	24.08	Inf
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	18.51	-6.71	-6.41	-3.64	4.49	14.87	Inf
5230MHz	Pass	18.51	-7.01	-6.86	-4.08	4.49	14.43	Inf
5755MHz	Pass	18.51	0.29	0.25	3.24	17.49	21.75	Inf
5795MHz	Pass	18.51	-0.28	-0.31	2.69	17.49	21.20	Inf
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	18.51	-10.19	-10.08	-7.20	4.49	11.31	Inf
5775MHz	Pass	18.51	-3.48	-3.54	-0.69	17.49	17.82	Inf

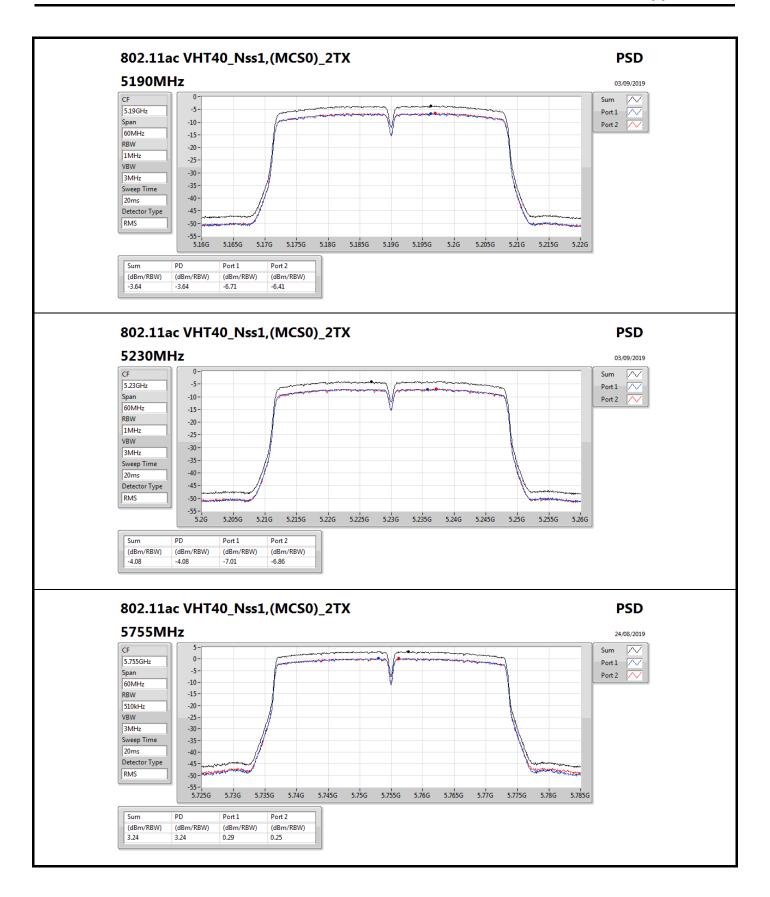
DG = Directional Gain; RBW = 500 kHz for 5.725-5.85GHz band / 1MHz for other band;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X power density;

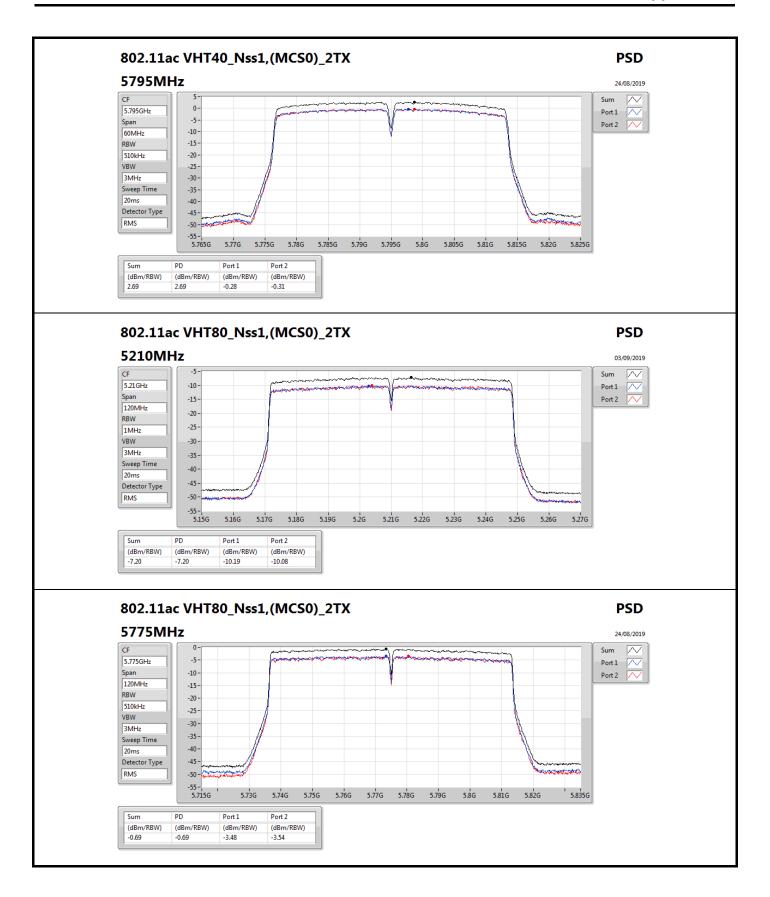




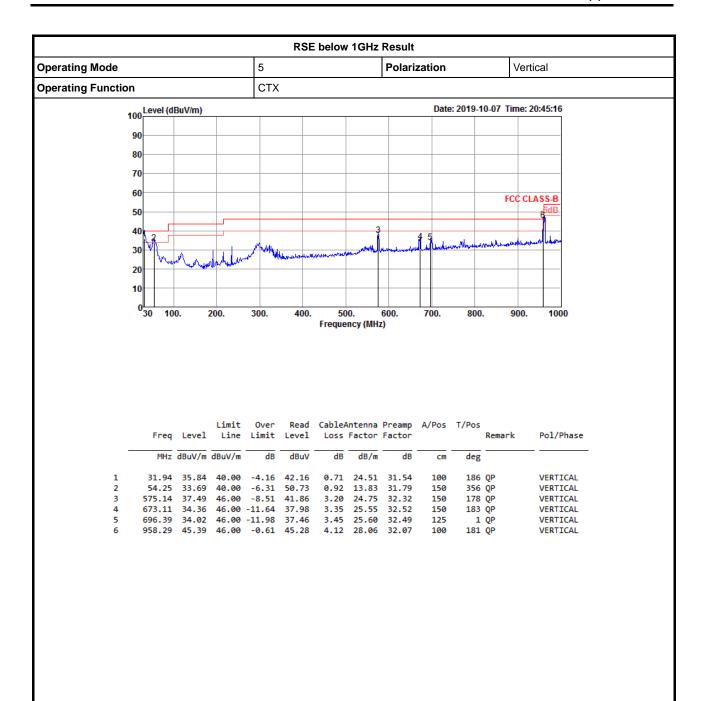








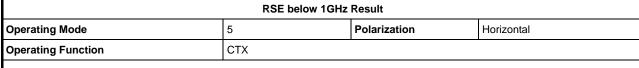


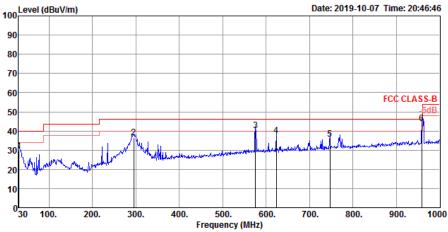


Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)







	Freq	Level		Over Limit						T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.97	29.64	40.00	-10.36	35.40	0.69	25.11	31.56	150	164	QP	HORIZONTAL
2	294.81	36.52	46.00	-9.48	46.70	2.20	19.70	32.08	125	90	QP	HORIZONTAL
3	575.14	40.30	46.00	-5.70	44.67	3.20	24.75	32.32	150	56	QP	HORIZONTAL
4	623.64	37.70	46.00	-8.30	41.64	3.28	25.19	32.41	125	1	QP	HORIZONTAL
5	746.83	35.64	46.00	-10.36	38.18	3.63	26.17	32.34	125	100	QP	HORIZONTAL
6	958.29	43.80	46.00	-2.20	43.69	4.12	28.06	32.07	125	164	QP	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

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)	
5.15-5.25GHz	-	-	-	-	-	-		-	-	-	-	-
802.11ac VHT80_Nss1,(MCS0)_2TX	Pass	AV	5.1388G	53.88	54.00	-0.12	7.92	3	Horizontal	12	2.24	-



