FCC Test Report

Report No.:	RFCCOG-WTW-P22060455-1
FCC ID:	2AH7L-UPSA
Test Model:	PAS800, PAS800L, PAS800P (Refer to item 3.1 for more details)
Received Date:	Jun. 15, 2022
Test Date:	Sep. 08, 2022
Issued Date:	Oct. 26, 2023
Applicant:	Schneider Electric Industries SAS
Address:	Electropole Site - 38EQ1, 31 rue Pierre Mendes France, Eybens - 38050 Grenoble cedex 9
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RFCCOG-WTW-P22060455-1	Original Release	Oct. 26, 2023

1 Certificate of Conformity

Product:	EcoStruxure™ Panel Server Advanced
Brand:	Schneider Electric
Test Model:	PAS800, PAS800L, PAS800P (Refer to item 3.1 for more details)
Sample Status:	Engineering sample
Applicant:	Schneider Electric Industries SAS
Test Date:	Sep. 08, 2022
Standards:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10-2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Vera Huang , **Date:** Oct. 26, 2023

Vera Huang / Specialist

Approved by : Jeremy Lin , **Date:** Oct. 26, 2023

Jeremy Lin / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(9)	AC Power Conducted Emissions	N/A	Refer to Note 1
15.407(b) (1/2/3/4(i/ii)/9)	Radiated Emissions & Band Edge Measurement	N/A	Refer to Note 1
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Internal Antenna: No antenna connector is used. External Antenna: Antenna connector is RP-SMA not a standard connector.

Note:
1. Only antenna port conducted measurement tests were performed for this addendum. Refer to original report for other test data.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	EcoStruxure™ Panel Server Advanced (Refer to note)
Brand	Schneider Electric
Test Model	PAS800, PAS800L, PAS800P
Model Difference	Refer to note
Sample Status	Engineering sample
Power Supply rating	PAS800: 110 to 277Vac/dc +/-10%, 50-60Hz(+/-5Hz) < 3.5W/12VA , -25˚C to 70˚C PAS800L: 24Vdc +/-10% , 145 mA , < 3.5W, -25˚C to 70˚C PAS800P: POE(PD) - Class 0, 37Vdc to 57Vdc, < 3.5 W, 48Vdc (Typical), 72 mA, -25˚C to 70˚C
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 150Mbps
Operating Frequency	5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 802.11a, 802.11n (HT20): 4 802.11n (HT40): 2 5745 ~ 5825MHz: 802.11a, 802.11n (HT20): 5 802.11n (HT40): 2
Output Power	5180 ~ 5240MHz: 0.1038mW 5745 ~ 5825MHz: 0.04864mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	External Antenna (Brand: Schneider Electric, Model: PASA-ANT1)
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the original report (BV CPS report no.: RFBHBQ-WTW-P21080521-1) are listed as below. The output power is lowered via firmware/software settings only (and cannot be changed by end-user / any other third parties. Therefore, only antenna port conducted measurement tests were verified and recorded in this report.
   - Reducing power setting
   - Changing internal antenna gain
   - Changing 5G antenna gain of external antenna

2. All models are listed as below.

Brand	Model	Difference
Schneider Electric	PAS800	All three models are similar in construction and functioning except the mode of powering. PAS800: powered by 110V-277Vac/dc PAS800L: powered by 24Vdc source PAS800P: Powered Over Ethernet.
	PAS800L	
	PAS800P	

3. The EUT provide 1 completed transmitter and 1 receiver.

Modulation Mode	TX Function
802.11a	1TX
802.11n (HT20)	1TX
802.11n (HT40)	1TX

4. The following antennas were provided to the EUT.

Internal Antenna

No.	Antenna Type	Brand	Model	Connector	Gain(dBi)		Remark
					2.4G	5G	
1	PCB	Schneider Electric	U31_1	NA	0.80	0.75	WLAN, BT LE
2	PCB	Schneider Electric	U7_1	NA	2.31	-	Zigbee (long cable)
3	PCB	Schneider Electric	U8_1	NA	0.91	-	Zigbee (short cable)

External Antenna

No.	Antenna Type	Brand	Model	Connector	Gain(dBi)			Remark
					2.4G	5G B1	5G B4	
1	Dipole	Schneider Electric	PASA-ANT1	RP-SMA	2.54	3.24	3.88	WLAN, BT LE, Zigbee

* Detail antenna specification please refer to antenna datasheet or an antenna gain measurement report.

5. The WLAN 2.4GHz, 5GHz, Zigbee and BT of the device can transmit simultaneously but not WLAN 2.4GHz and 5GHz at the same time.
6. Spurious emission of the simultaneous operation (WLAN 2.4GHz, 5GHz, Zigbee and BT) has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

For 5180 ~ 5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

For 5745 ~ 5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20):

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Antenna	Description
	RE≥1G	RE<1G	PLC	APCM		
-	-	-	-	√	External	EUT (PAS800) + AC power

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission APCM: Antenna Port Conducted Measurement

Note:

1. "-" means no effect.
2. The internal and external antenna had been pre-tested for reduced power conducted power. The worst case scenario is the external antenna.

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5

Test Condition:

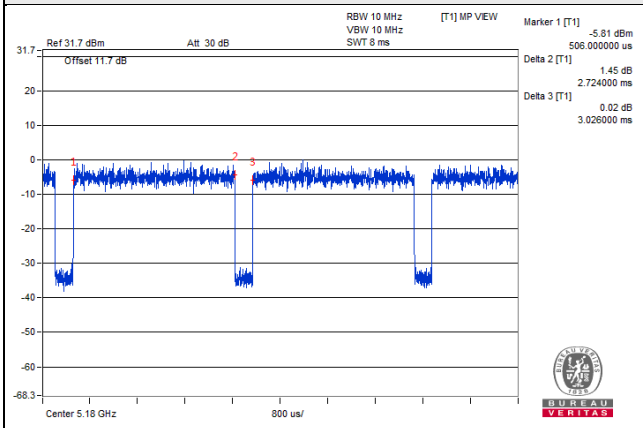
Applicable to	Environmental Conditions	Input Power (System)	Tested by
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Wayne Lin

3.3 Duty Cycle of Test Signal

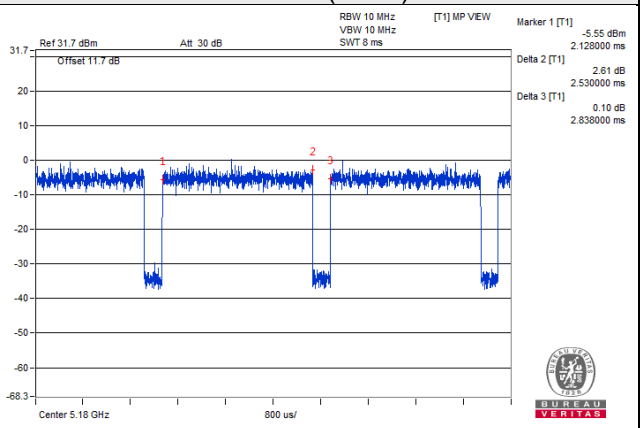
Duty cycle of test signal is < 98%, duty factor is required.

802.11a: Duty cycle = 2.724/3.026 = 0.90, Duty factor = 10 * log (1/0.90) = 0.46
802.11n (HT20): Duty cycle = 2.53/2.838 = 0.891, Duty factor = 10 * log (1/0.891) = 0.50
802.11n (HT40): Duty cycle = 1.239/1.541 = 0.804, Duty factor = 10 * log (1/0.804) = 0.95

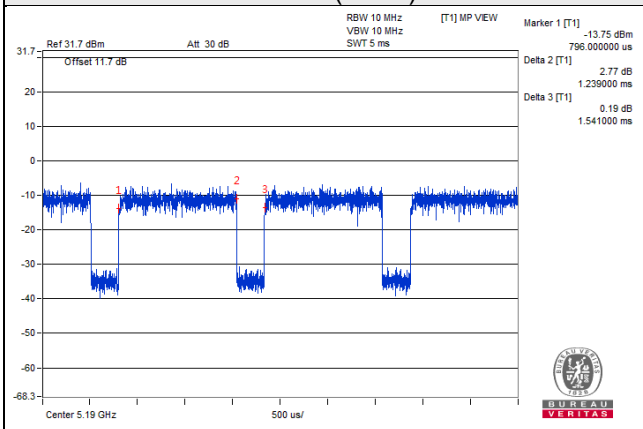
802.11a



802.11n (HT20)



802.11n (HT40)



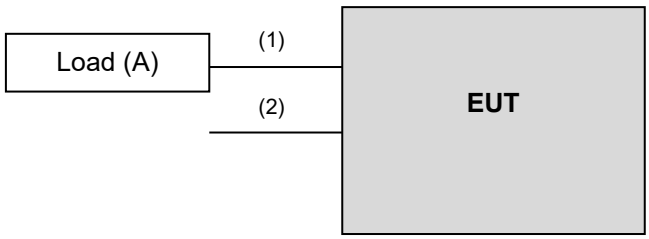
3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Load	NA	NA	NA	NA	Provided by Lab

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN	2	1.5	N	0	RJ45, Cat5e
2.	AC cable	1	30	Y	0	Provided by client

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test standard:
FCC Part 15, Subpart E (15.407)
ANSI C63.10-2013
ANSI C63.10-2020

All test items have been performed and recorded as per the above standards.

References Test Guidance:
KDB 789033 D02 General UNII Test Procedure New Rules v02r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

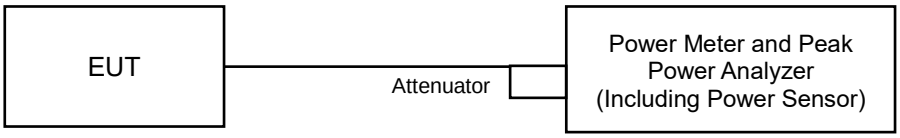
4.1 Transmit Power Measurement

4.1.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Mobile and Portable client device	250mW (24 dBm)
U-NII-2A			250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C			250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	√		1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

4.1.2 Test Setup



4.1.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSV40	100980	Apr. 20, 2022	Apr. 19, 2023
Peak Power Analyzer KEYSIGHT	8990B	MY51000485	Jan. 18, 2022	Jan. 17, 2023
Wideband Power Sensor KEYSIGHT	N1923A	MY58020002	Jan. 17, 2022	Jan. 16, 2023

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Oven room.

4.1.4 Test Procedure

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to average. Duty factor is not added to measured value.

4.1.5 Deviation from Test Standard

No deviation.

4.1.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.1.7 Test Result

Power Output:

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	**0.1038**	**-9.84**	24.00	Pass
40	5200	0.09204	-10.36	24.00	Pass
48	5240	0.0873	-10.59	24.00	Pass
149	5745	0.04457	-13.51	30.00	Pass
157	5785	**0.04864**	**-13.13**	30.00	Pass
165	5825	0.04732	-13.25	30.00	Pass

802.11n (HT20)

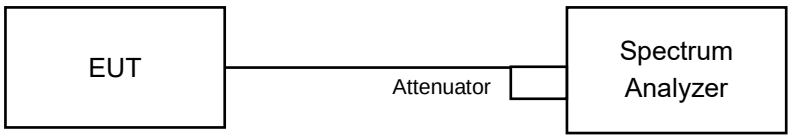
Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	0.09683	-10.14	24.00	Pass
40	5200	0.09183	-10.37	24.00	Pass
48	5240	0.08995	-10.46	24.00	Pass
149	5745	0.04624	-13.35	30.00	Pass
157	5785	0.04764	-13.22	30.00	Pass
165	5825	0.04742	-13.24	30.00	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	0.04875	-13.12	24.00	Pass
46	5230	0.05483	-12.61	24.00	Pass
151	5755	0.03784	-14.22	30.00	Pass
159	5795	0.03758	-14.25	30.00	Pass

4.2 Occupied Bandwidth Measurement

4.2.1 Test Setup



4.2.2 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.2.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.2.4 Test Result

802.11a

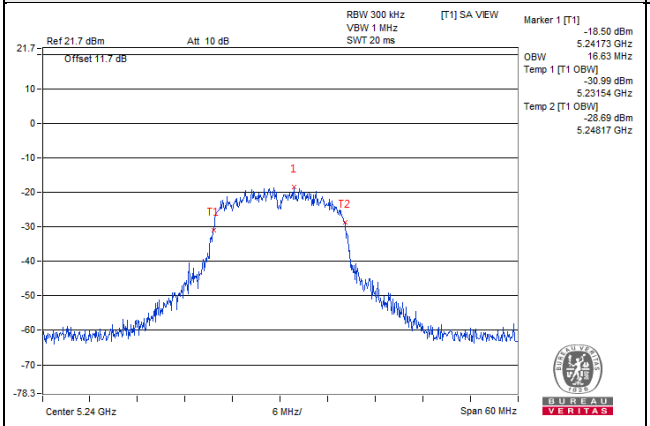
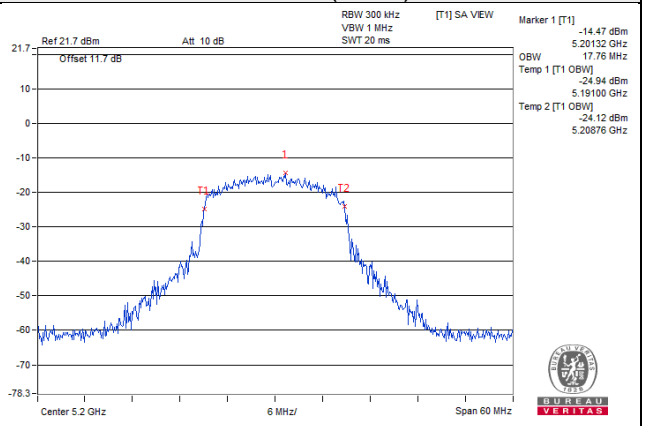
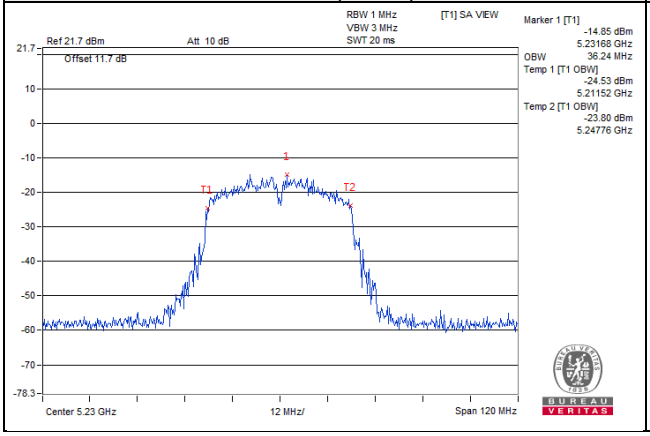
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)
36	5180	16.54
40	5200	16.56
48	5240	16.63
149	5745	16.45
157	5785	16.56
165	5825	16.56

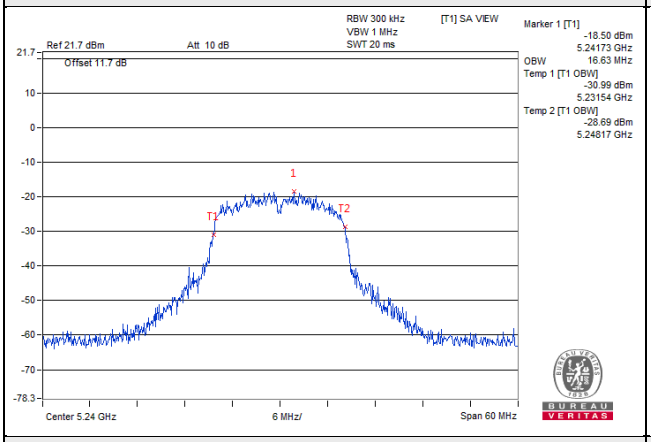
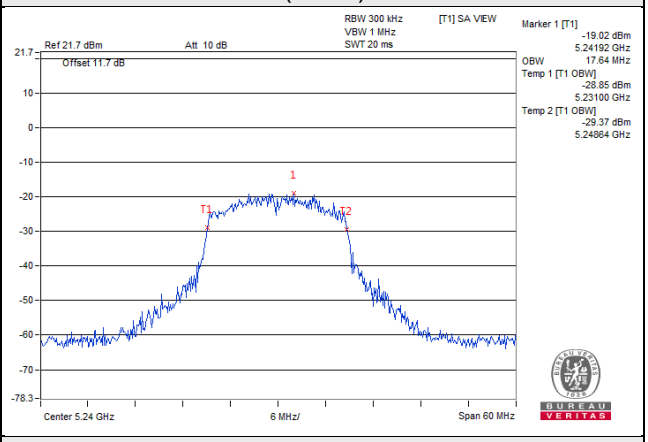
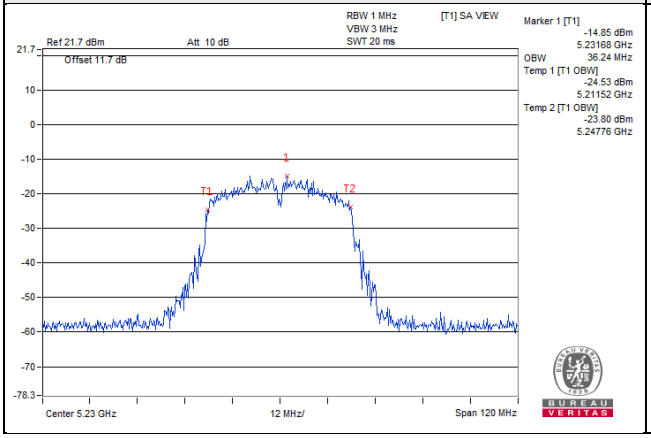
802.11n (HT20)

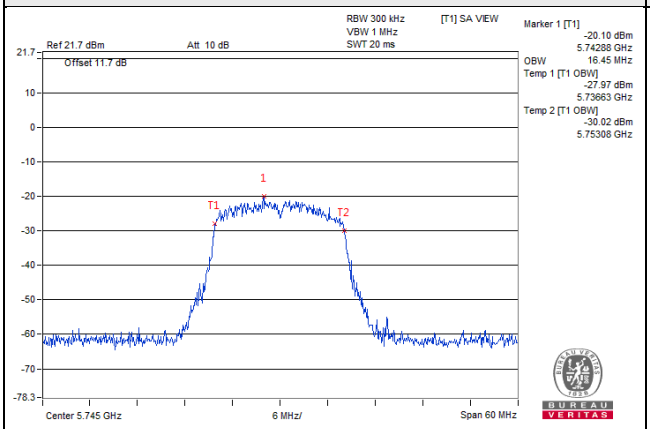
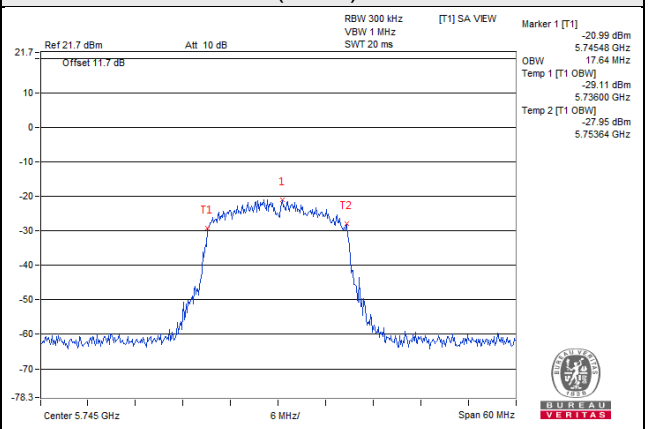
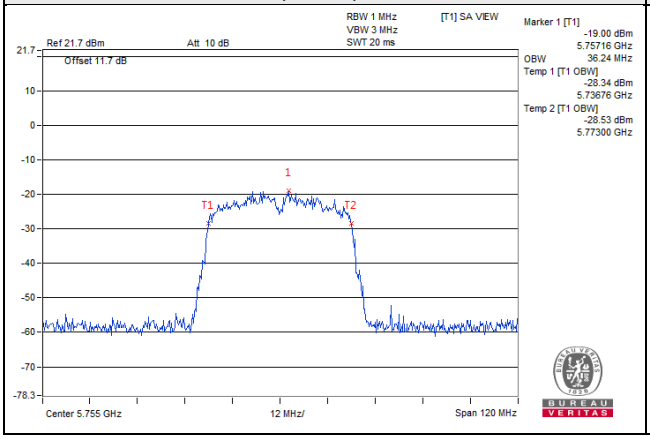
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)
36	5180	17.76
40	5200	17.76
48	5240	17.64
149	5745	17.64
157	5785	17.76
165	5825	17.64

802.11n (HT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)
38	5190	36.00
46	5230	36.24
151	5755	36.24
159	5795	35.76

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	
	

Spectrum Plot for near By DFS Band	
802.11a / CH 48	802.11n (HT20) / CH 48
	
802.11n (HT40) / CH 46	
	

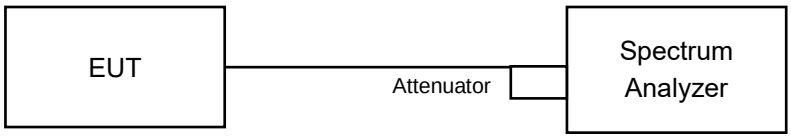
Spectrum Plot for near By DFS Band	
802.11a / CH 149	802.11n (HT20) / CH 149
	
802.11n (HT40) / CH 151	
	

4.3 Peak Power Spectral Density Measurement

4.3.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Mobile and Portable client device	11dBm/ MHz
U-NII-2A			11dBm/ MHz
U-NII-2C			11dBm/ MHz
U-NII-3		√	30dBm/ 500kHz

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.3.4 Test Procedures

For U-NII-1 band:

Using method SA-2

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS

c. Set Channel power measure = 1MHz

d. Sweep time = auto, trigger set to “free run”.

e. Trace average at least 100 traces in power averaging mode.

f. Record the max value and add 10 log (1/duty cycle)

For U-NII-3 band:

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.

b. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS

c. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.

d. Scale the observed power level to an equivalent value in 500 kHz by adjusting (increasing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz / 300 kHz)

e. Sweep time = auto, trigger set to “free run”.

f. Trace average at least 100 traces in power averaging mode.

g. Record the max value and add 10 log (1/duty cycle)

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

Same as 4.1.6.

4.3.7 Test Results

For U-NII-1 band:

802.11a

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
36	5180	-23.20	0.46	-22.74	11.00	Pass
40	5200	-23.60	0.46	-23.14	11.00	Pass
48	5240	-23.78	0.46	-23.32	11.00	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

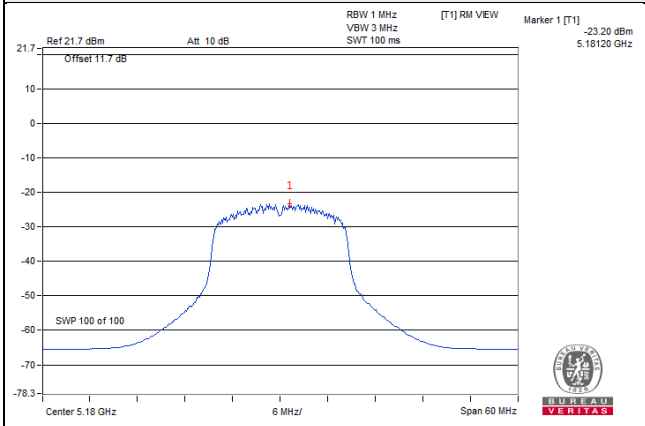
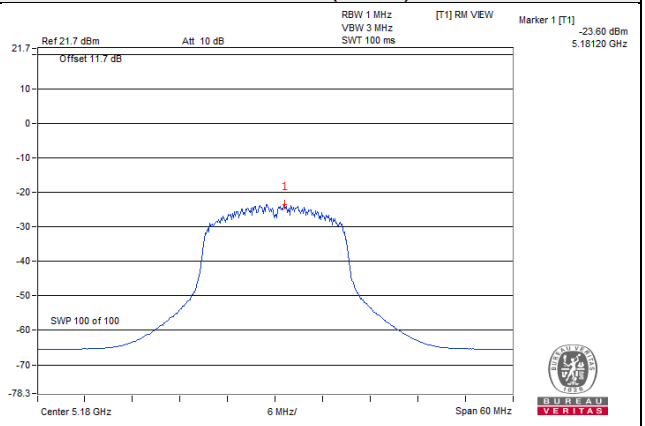
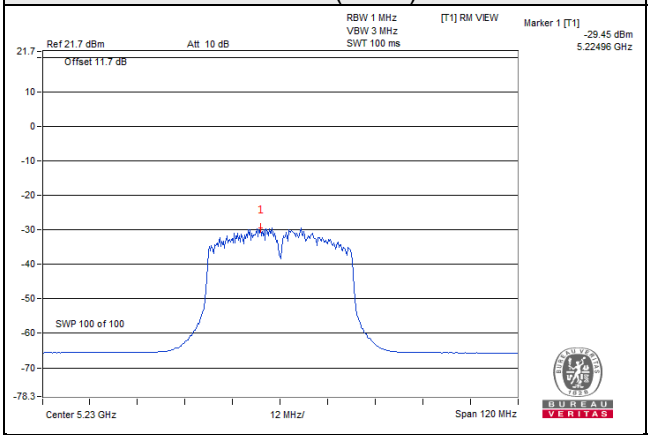
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
36	5180	-23.60	0.50	-23.10	11.00	Pass
40	5200	-23.73	0.50	-23.23	11.00	Pass
48	5240	-23.87	0.50	-23.37	11.00	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
38	5190	-29.98	0.95	-29.03	11.00	Pass
46	5230	-29.45	0.95	-28.50	11.00	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	
	

For U-NII-3 band:

802.11a

Chan.	Freq. (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
149	5745	-34.33	-32.11	0.46	-31.65	30.00	Pass
157	5785	-33.94	-31.72	0.46	-31.26	30.00	Pass
165	5825	-34.07	-31.85	0.46	-31.39	30.00	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

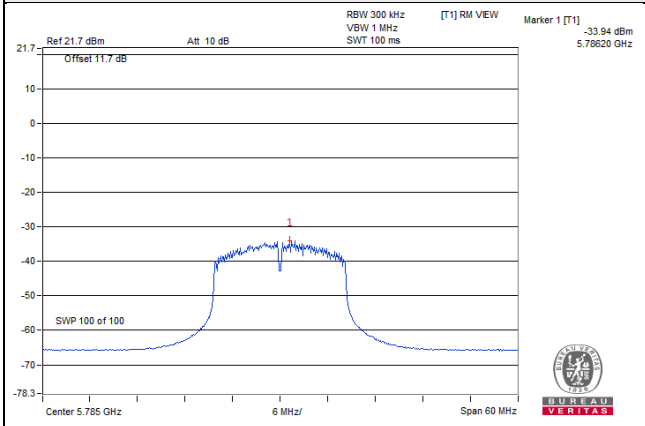
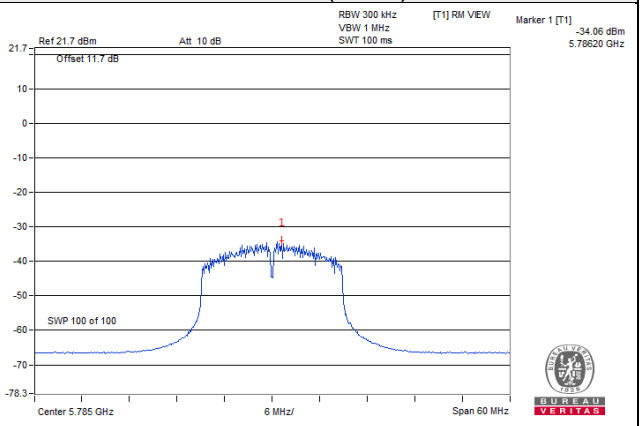
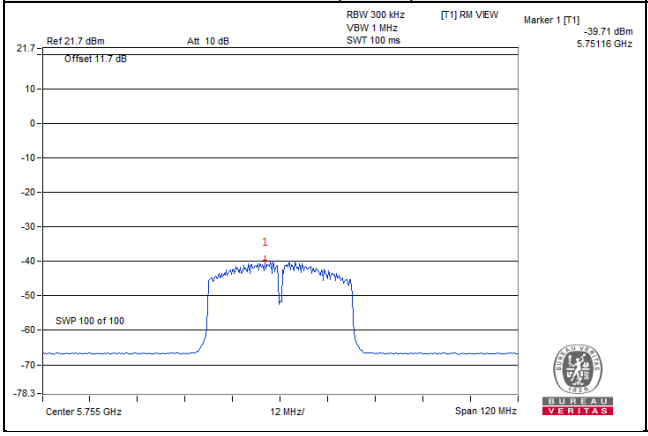
Chan.	Freq. (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
149	5745	-34.35	-32.13	0.5	-31.63	30.00	Pass
157	5785	-34.06	-31.84	0.5	-31.34	30.00	Pass
165	5825	-34.07	-31.85	0.5	-31.35	30.00	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
151	5755	-39.71	-37.49	0.95	-36.54	30.00	Pass
159	5795	-39.83	-37.61	0.95	-36.66	30.00	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

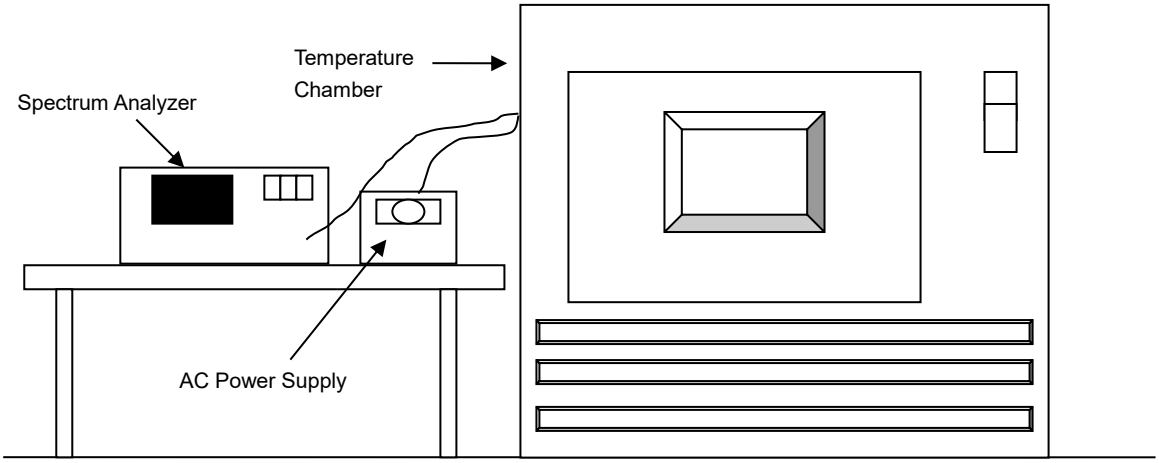
Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	
	

4.4 Frequency Stability

4.4.1 Limits of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation

4.4.2 Test Setup



4.4.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 15, 2021	Sep. 14, 2022
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	May 30, 2022	May 29, 2023
Three-phase coupling / decoupling network TESEQ	CDN 3063	4006	Mar. 08, 2022	Mar. 07, 2023
AC Power Supply Extech	SFW-105	E000603	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.

e. Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.

f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

4.4.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
70	120	5179.9932	Pass	5179.9959	Pass	5179.9958	Pass	5179.9935	Pass
60	120	5180.0098	Pass	5180.0057	Pass	5180.0084	Pass	5180.0084	Pass
50	120	5179.9824	Pass	5179.9799	Pass	5179.9808	Pass	5179.982	Pass
40	120	5180.0152	Pass	5180.0169	Pass	5180.0148	Pass	5180.0138	Pass
30	120	5180.0089	Pass	5180.0073	Pass	5180.0105	Pass	5180.009	Pass
20	120	5179.997	Pass	5179.9978	Pass	5179.9951	Pass	5179.9943	Pass
10	120	5180.0234	Pass	5180.0237	Pass	5180.0244	Pass	5180.0252	Pass
0	120	5179.9906	Pass	5179.9916	Pass	5179.9897	Pass	5179.9919	Pass
-10	120	5180.013	Pass	5180.015	Pass	5180.0155	Pass	5180.0149	Pass
-20	120	5179.9781	Pass	5179.979	Pass	5179.9783	Pass	5179.9768	Pass
-25	120	5179.9891	Pass	5179.987	Pass	5179.9844	Pass	5179.986	Pass

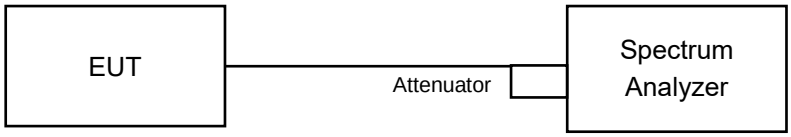
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5180.0001	Pass	5180.0003	Pass	5180.0007	Pass	5180.0009	Pass
	120	5179.997	Pass	5179.9978	Pass	5179.9951	Pass	5179.9943	Pass
	102	5179.9973	Pass	5179.9988	Pass	5179.9981	Pass	5180.0003	Pass

4.5 6dB Bandwidth Measurement

4.5.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.5.4 Test Procedure

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.5.7 Test Results

802.11a

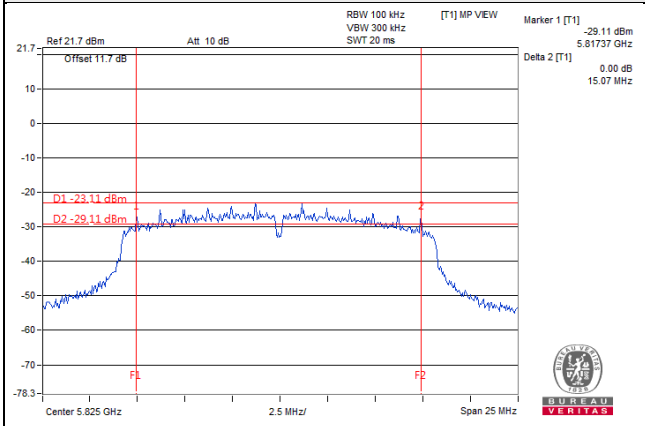
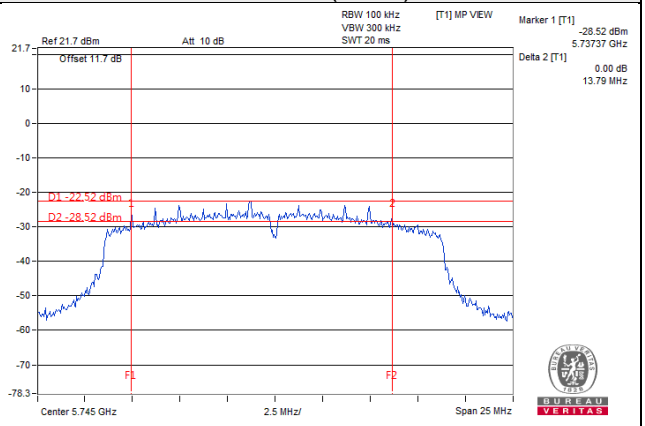
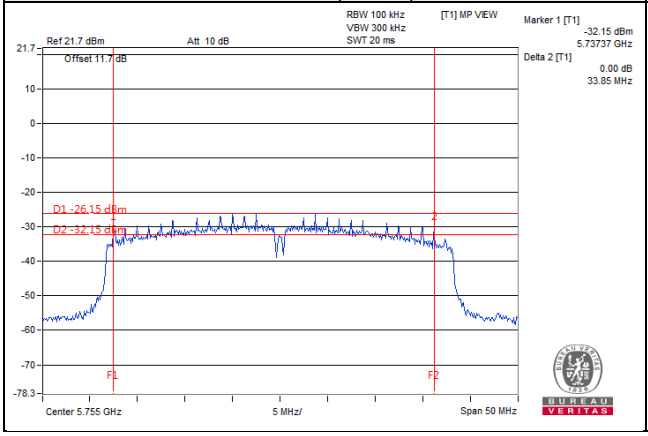
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.17	0.5	Pass
157	5785	15.10	0.5	Pass
165	5825	15.07	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	13.79	0.5	Pass
157	5785	15.08	0.5	Pass
165	5825	15.09	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	33.85	0.5	Pass
159	5795	33.85	0.5	Pass

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	
	

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@bureauveritas.com
Web Site: http://ee.bureauveritas.com.tw

The address and road map of all our labs can be found in our web site also.

--- END ---