FCC RF Test Report

APPLICANT : LC Future Center Limited Taiwan Branch

EQUIPMENT : Notebook
BRAND NAME : Lenovo
MODEL NAME : TP00086B

FCC ID : 2AJN7-TP00086B

STANDARD : FCC Part 15 Subpart E §15.407

CLASSIFICATION: (NII) Unlicensed National Information Infrastructure

This is a partial report. The product was received on Oct. 25, 2017 and testing was completed on Dec. 16, 2017. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR7O2534E	Rev. 01	Initial issue of report	Dec. 20, 2017

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.407(a)	Maximum Conducted Output Power	≤ 30 dBm	Pass	-
3.2	15.407(b)	Unwanted Emissions	15.407(b)(4)(i) &15.209(a)	Pass	Under limit 4.24 dB at 4990.000 MHz
3.3	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 18.90 dB at 0.174 MHz
3.4	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-

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1 General Description

1.1 Applicant

LC Future Center Limited Taiwan Branch

7F., No.780, Bei'an Rd., Zhongshan Dist., Taipei City 104, Taiwan (R.O.C.)

1.2 Manufacturer

LC Future Center Limited Taiwan Branch

7F., No.780, Bei'an Rd., Zhongshan Dist., Taipei City 104, Taiwan (R.O.C.)

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1.3 Product Feature of Equipment Under Test

Product Feature			
Equipment	Notebook		
Brand Name	Lenovo		
Model Name	TP00086B		
FCC ID	2AJN7-TP00086B		
Sample 1	EUT with Amphenol Antenna		
Sample 2	EUT with Speedwire Antenna		
Integrated WI AN Medule	Brand Name: Intel		
Integrated WLAN Module	Model Name: 8265NGW		
	WCDMA/HSPA/LTE		
FLIT assuments Dedice application	WLAN 11a/b/g/n HT20/HT40		
EUT supports Radios application	WLAN 11ac VHT20/VHT40/VHT80		
	Bluetooth BR/EDR/LE		
EUT Stage	Production Unit		

Remark:

- 1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
- 2. All the tests were performed for Sample 1.

	Antenna Information					
	Manufacturer	Amphenol				
	Antenna Type	Main: PIFA Antenna	Aux: PIFA Antenna			
Antenna 1	Part Number	LX7847-16-000-C	LX7848-16-000-C			
	Peak Gain (dbi)	Main Antenna:	Aux Antenna :			
		WLAN(5GHz B4): 2.99	WLAN(5GHz B4): 1.47			
	Manufacturer	Speedwire				
	Antenna Type	Main: PIFA Antenna	Aux: PIFA Antenna			
Antenna 2	Part Number	F.0G.ZV-0006-003-00	F.0G.ZV-0006-004-00			
	Peak Gain (dbi)	Main Antenna:	Aux Antenna :			
		WLAN(5GHz B4): 2.37	WLAN(5GHz B4): 2.35			

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1.4 Product Specification of Equipment Under Test

Standards-related Product Specification				
Tx/Rx Channel Frequency Range	5745 MHz ~ 5825 MHz			
	<5745 MHz ~ 5825	5 MHz>		
	<chain 1=""></chain>			
	802.11a : 13.45 dB	sm / 0.0221 W		
	802.11n HT20 : 13	.35 dBm / 0.0216 \	V	
	802.11n HT40 : 13	.47 dBm / 0.0222 \	V	
	802.11ac VHT20: 1	13.32 dBm / 0.0215	5 W	
	802.11ac VHT40: 1	13.46 dBm / 0.0222	2 W	
	802.11ac VHT80: 1	13.42 dBm / 0.0220) W	
	<chain 2=""></chain>			
	802.11a : 13.24 dB			
Maximum Output Power	802.11n HT20 : 13	.30 dBm / 0.0214 \	V	
	802.11n HT40 : 13.42 dBm / 0.0220 W			
	802.11ac VHT20: 13.27 dBm / 0.0212 W			
	802.11ac VHT40: 13.33 dBm / 0.0215 W			
	802.11ac VHT80: 13.40 dBm / 0.0219 W			
	MIMO <chain +="" 1="" 2=""></chain>			
	802.11n HT20 : 13.46 dBm / 0.0222 W			
	802.11n HT40 : 13.33 dBm / 0.0215 W			
	802.11ac VHT20: 13.43 dBm / 0.0220 W			
	802.11ac VHT40: 13.32 dBm / 0.0215 W			
	802.11ac VHT80: 1			
Type of Modulation	802.11a/n : OFDM	•	,	
1 ypo or modulation	802.11ac : OFDM	(BPSK / QPSK / 16	64QAM / 64QAM / 2	56QAM)
		Chain 1	Chain 2]
	802.11 a/n/ac	V	V	
Antenna Function Description	802.11 n/ac	.,	.,	
	MIMO	V	V	
				J

Note: MIMO Chain 1+2 is a calculated result from sum of the power MIMO Chain 1 and MIMO Chain 2.

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

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1.6 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 and TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

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Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park,		
rest site Location	Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.		
Took Cita No	Sporton	Site No.	
Test Site No.	TH05-HY	CO05-HY	

Note: The test site complies with ANSI C63.4 2014 requirement.

Test Site	SPORTON INTERNATIONAL INC.
Toot Site Legation	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist,
Test Site Location	Taoyuan City, Taiwan (R.O.C.)
Took Site No	Sporton Site No.
Test Site No.	03CH12-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

1.7 Applicable Standards

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

- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

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2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

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b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	149	5745	157	5785
5725-5850 MHz Band 4	151*	5755	159*	5795
(U-NII-3)	153	5765	161	5805
(3.411.0)	155#	5775	165	5825

Note:

- 1. The above Frequency and Channel in "*" were 802.11n HT40 and 802.11ac VHT40.
- 2. The above Frequency and Channel in "#" were 802.11ac VHT80.

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2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

Chain 1

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20 (Covered by VHT20)	MCS0
802.11n HT40 (Covered by VHT40)	MCS0
802.11ac VHT80	MCS0

MIMO <Chain 1+2>

Modulation	Data Rate
802.11n HT20 (Covered by VHT20)	MCS8
802.11n HT40 (Covered by VHT40)	MCS8
802.11ac VHT80	MCS0

Test Cases		
AC Conducted	Mode 1 : WLAN (5GHz) Link + TF + TC	
Emission	Wode 1 . WEAN (3GHZ) LIIK + 17 + 1C	

Remark:

- 1. TC stands for Test Configuration, and consists of Earphone, USB HD, iPod, Adapter 1, and SD Card.
- 2. TF stands for Test Function, and consists of MPEG4 and Camera.

	Ch #	Band IV:5725-5850 MHz				
Ch. #		802.11a	802.11n HT20	802.11n HT40	802.11ac VHT80	
L	Low	149	149	151	-	
М	Middle	157	157	-	155	
Н	High	165	165	159	-	

Remark: For radiated emission, all the tests were performed with adapter 1.

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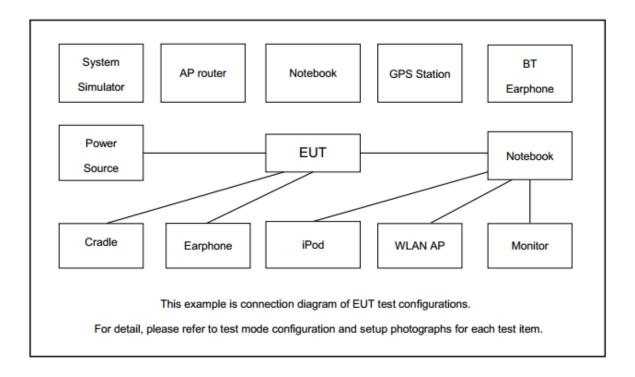
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2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
2.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
3.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A
4.	HD USB	Lenovo	F310S	FCC DoC	Shielded, 0.5m	N/A

2.5 EUT Operation Test Setup

For WLAN function, programmed RF utility, "DRTU" installed in the EUT provides functions like channel selection and power level for continuous transmitting and receiving signals.

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3 Test Result

3.1 Maximum Conducted Output Power Measurement

3.1.1 Limit of Maximum Conducted Output Power

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

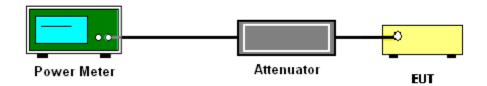
3.1.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.

Method PM (Measurement using an RF average power meter):

- 1. Measurement is performed using a wideband RF power meter.
- 2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
- 3. Measure the average power of the transmitter, and the average power is corrected with duty factor, $10 \log(1/x)$, where x is the duty cycle.

3.1.4 Test Setup



3.1.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

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3.2 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part15.205.

3.2.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5.725-5.85 GHz band: 15.407(b)(4)(i) 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
- (2) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits set forth as below table:

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

Note: The following formula is used to convert the EIRP to field strength.

edge increasing linearly to a level of 27 dBm/MHz at the band edge.

$$\mathsf{E} = \frac{1000000\sqrt{30P}}{3} \quad \text{ µV/m, where P is the eirp (Watts)}$$

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EIRP (dBm)	Field Strength at 3m (dBµV/m)
-17	78.3
- 27	68.3

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(3) KDB789033 D02 v01r04 G)2)c)

- (i) Sections 15.407(b)(1) to (b)(3) specify the unwanted emission limits for the U-NII-1 and U-NII-2 bands. As specified, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz.³
- (ii) Section 15.407(b)(4) specifies the unwanted emission limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). The emission limits are in terms of a Peak detector. An alternative to the band emissions mask is specified in Section 15.407(b)(4)(ii). The alternative limits are based on the highest antenna gain specified in the filing. There are also marketing and importation restrictions for the devices using the alternative limit.⁴
- **Note 3:** An out-of-band emission that complies with both the average and peak limits of Section 15.209 is not required to satisfy the -27 dBm/MHz peak emission limit.
- **Note 4:** Only devices with antenna gains of 10 dBi or less may be approved using the emission limits specified in Section 15.247(d) till March 2, 2018; all other devices operating in this band must use the mask specified in Section 15.407(b)(4)(i).

3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

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3.2.3 Test Procedures

- The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.
 Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW ≥ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
- 2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
- 3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- 4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- 5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- 6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
- 7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be

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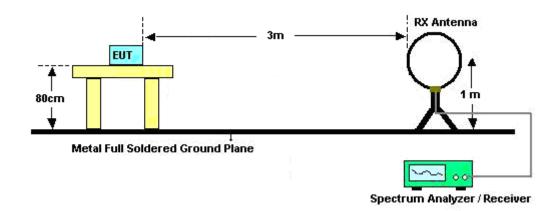
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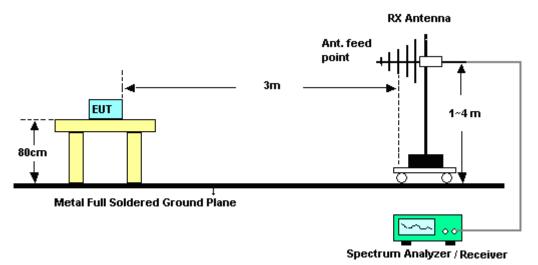
measured in average mode again and reported.

3.2.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



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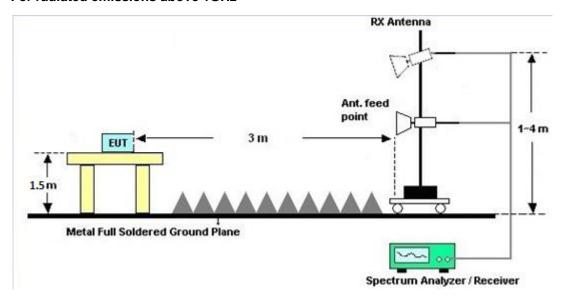
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For radiated emissions above 1GHz



3.2.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.2.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.2.7 Duty Cycle

Please refer to Appendix E.

3.2.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.

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3.3 AC Conducted Emission Measurement

3.3.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Eroquency of emission (MUz)	Conducted limit (dBµV)			
Frequency of emission (MHz)	Quasi-peak	Average		
0.15-0.5	66 to 56*	56 to 46*		
0.5-5	56	46		
5-30	60	50		

^{*}Decreases with the logarithm of the frequency.

3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- 2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 3. All the support units are connecting to the other LISN.
- 4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 6. Both sides of AC line were checked for maximum conducted interference.
- 7. The frequency range from 150 kHz to 30 MHz was searched.
- 8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

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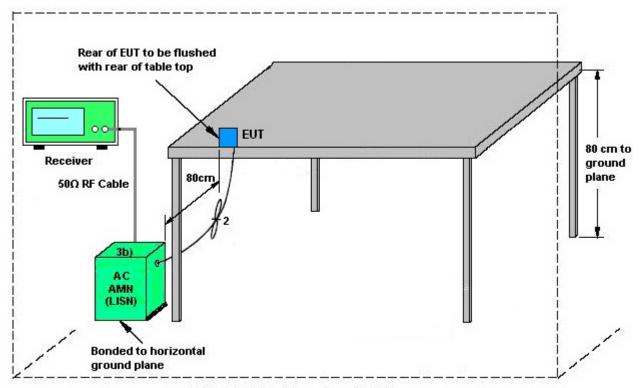
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3.3.4 Test Setup



AMN = Artificial mains network (LISN)

AE = Associated equipment

EUT = Equipment under test

ISN = Impedance stabilization network

3.3.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

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3.4 Antenna Requirements

3.4.1 Standard Applicable

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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3.4.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.4.3 Antenna Gain

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

The power limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

			DG	Power
			for	Limit
	Chain 1	Chain 2	Power	Reduction
	(dBi)	(dBi)	(dBi)	(dB)
Band IV	2.99	1.47	2.99	0.00

Power limit reduction = Composite gain - 6dBi, (min = 0)

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4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 26, 2017	Oct. 27, 2017~ Dec. 16, 2017	Sep. 25, 2018	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	0846202	300MHz~40GHz	Sep. 26, 2017	Oct. 27, 2017~ Dec. 16, 2017	Sep. 25, 2018	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9kHz ~ 30GHz	Nov. 17, 2016	Oct. 27, 2017~ Nov. 08, 2017	Nov. 16, 2017	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9kHz ~ 30GHz	Nov. 16, 2017	Dec. 16, 2017	Nov. 15, 2018	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Dec. 04, 2017	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Sep. 20, 2017	Dec. 04, 2017	Sep. 19, 2018	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Dec. 06, 2016	Dec. 04, 2017	Dec. 05, 2017	Conduction (CO05-HY)
Amplifier	MITEQ	TTA1840-35-H G	1871923	18GHz~40GHz, VSWR : 2.5:1 max	Jul. 18, 2017	Nov. 09, 2017~ Dec. 15, 2017	Jul. 17, 2018	Radiation (03CH12-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Oct. 20, 2016	Nov. 09, 2017~ Dec. 15, 2017	Oct. 19, 2018	Radiation (03CH12-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100390	20Hz~26.5GHz	Dec. 23, 2016	Nov. 09, 2017~ Dec. 15, 2017	Dec. 22, 2017	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120D	9120D-1328	1GHz ~ 18GHz	Oct. 20, 2017	Nov. 09, 2017~ Dec. 15, 2017	Oct. 19, 2018	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 23, 2017	Nov. 09, 2017~ Dec. 15, 2017	Mar. 22, 2018	Radiation (03CH12-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800	2025787	1GHz~18GHz	Feb. 13, 2017	Nov. 09, 2017~ Dec. 15, 2017	Feb. 12, 2018	Radiation (03CH12-HY)
Preamplifier	Keysight	83017A	MY53270148	1GHz~26.5GHz	Jan. 12, 2017	Nov. 09, 2017~ Dec. 15, 2017	Jan. 11, 2018	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9030A	MY52350276	3Hz~44GHz	Mar. 23, 2017	Nov. 09, 2017~ Dec. 15, 2017	Mar. 22, 2018	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Nov. 09, 2017~ Dec. 15, 2017	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Nov. 09, 2017~ Dec. 15, 2017	N/A	Radiation (03CH12-HY)
Attenuator	Fairview Microwave	SA18S5W-10	n/a	10db	Mar. 24, 2017	Nov. 09, 2017~ Dec. 15, 2017	Mar. 23, 2018	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917057 6	18GHz ~ 40GHz	Apr. 27, 2017	Nov. 09, 2017~ Dec. 15, 2017	Apr. 26, 2018	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800 N1D01N-06	40103&04	30MHz to 1GHz	Jan. 07, 2017	Nov. 09, 2017~ Dec. 15, 2017	Jan. 06, 2018	Radiation (03CH12-HY)

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Uncertainty of Evaluation 5

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence	2.70
of 95% (U = 2Uc(y))	2.70

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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence	5.10
of 95% (U = 2Uc(y))	3.10

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence	5.20
of 95% (U = 2Uc(y))	5.20

<u>Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)</u>

	-
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.70

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Appendix A. Test Result of Conducted Test Items

Remark: For Conducted Test Items, Ant. 1 means Chain 1 and Ant. 2 means Chain 2

Test Engineer:	AC Cherng	Temperature:	21~25	°C
Test Date:	2017/10/27~2017/12/16	Relative Humidity:	51~54	%

Report Number : FR7O2534E

TEST RESULTS DATA Average Power Table

	Band IV																													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)		uty ctor B)	Power Power Limit (dBm) (dBm)		ucted r Limit	_	G Bi)	Pass/Fail																		
					Ant 1	Ant 2	Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2																	
11a	6Mbps		149	5745	0.25	0.25	13.45	13.24		30.00	30.00	2.99	1.47	Pass																
11a	6Mbps	1	157	5785	0.25	0.25	13.40	13.20		30.00	30.00	2.99	1.47	Pass																
11a	6Mbps	1	165	5825	0.25	0.25	13.30	13.17		30.00	30.00	2.99	1.47	Pass																
HT20	MCS0	1	149	5745	0.20	0.00	13.35	13.30		30.00	30.00	2.99	1.47	Pass																
HT20	MCS0	1	157	5785	0.20	0.00	13.30	13.25		30.00	30.00	2.99	1.47	Pass																
HT20	MCS0	1	165	5825	0.20	0.00	13.23	13.22		30.00	30.00	2.99	1.47	Pass																
HT40	MCS0	1	151	5755	0.52	0.52	13.47	13.42		30.00	30.00	2.99	1.47	Pass																
HT40	MCS0	1	159	5795	0.52	0.52	13.43	13.37		30.00	30.00	2.99	1.47	Pass																
VHT20	MCS0	1	149	5745	0.22	0.22	13.32	13.27		30.00	30.00	2.99	1.47	Pass																
VHT20	MCS0	1	157	5785	0.22	0.22	13.29	13.22		30.00	30.00	2.99	1.47	Pass																
VHT20	MCS0	1	165	5825	0.22	0.22	13.22	13.20		30.00	30.00	2.99	1.47	Pass																
VHT40	MCS0	1	151	5755	0.52	0.48	13.46	13.33		30.00	30.00	2.99	1.47	Pass																
VHT40	MCS0	1	159	5795	0.52	0.48	13.40	13.25		30.00	30.00	2.99	1.47	Pass																
VHT80	MCS0	1	155	5775	0.50	0.57	13.42	13.40		30.00	30.00	2.99	1.47	Pass																
HT20	MCS 8	2	149	5745	0.55	0.55	10.50	10.40	13.46	30.	.00	2.9	99	Pass																
HT20	MCS 8	2	157	5785	0.55	0.55	10.40	10.49	13.45	30.	.00	2.9	99	Pass																
HT20	MCS 8	2	165	5825	0.55	0.55	10.05	10.45	13.26	30.	.00	2.99		2.99		2.99		2.99		2.99		2.99		2.99		2.99		2.99		Pass
HT40	MCS 8	2	151	5755	0.53	0.57	10.33	10.32	13.33 30.00		2.99		2.99		2.99		2.99		2.99		2.99		Pass							
HT40	MCS 8	2	159	5795	0.53	0.57	10.08	10.29	13.20	30.	.00	2.99		2.99		2.99		2.99		2.99		2.99		2.99		2.99		Pass		
VHT20	MCS0	2	149	5745	0.50	0.50	10.48	10.37	13.43	30.00 2.99		2.99		2.99		2.99		2.99		Pass										
VHT20	MCS0	2	157	5785	0.50	0.50	10.35	10.45	13.41	30.	.00	2.9	99	Pass																
VHT20	MCS0	2	165	5825	0.50	0.50	10.03	10.45	13.25	30.	.00	2.9	99	Pass																
VHT40	MCS0	2	151	5755	0.66	0.57	10.37	10.26	13.32	30.00 2.99		Pass																		
VHT40	MCS0	2	159	5795	0.66	0.57	10.11	10.20	13.16	30.	.00	2.9	99	Pass																
VHT80	MCS0	2	155	5775	0.63	0.60	10.36	10.41	13.40	30.00		2.99		Pass																

Appendix B. AC Conducted Emission Test Results

Test Engineer :	Plus Lan	Temperature :	24~25 ℃
rest Engineer.	blue Lan	Relative Humidity:	60~63%

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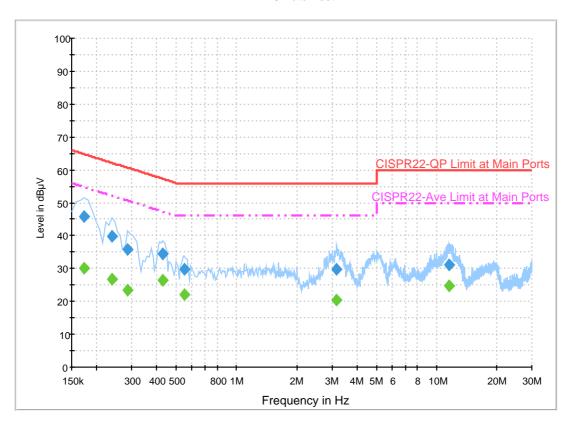
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EUT Information

Report NO: Test Mode: Test Voltage: Phase: 702534 Mode 1 120Vac/60Hz

Line

ENV216 Auto Test-L



Final Result 1

Frequency	QuasiPeak	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)			(dB)	(dB)	(dBµV)
0.174000	45.9	Off	L1	19.5	18.9	64.8
0.238000	39.7	Off	L1	19.5	22.5	62.2
0.286000	35.7	Off	L1	19.5	24.9	60.6
0.430000	34.3	Off	L1	19.5	23.0	57.3
0.550000	29.6	Off	L1	19.5	26.4	56.0
3.174000	29.9	Off	L1	19.5	26.1	56.0
11.558000	31.0	Off	L1	19.7	29.0	60.0

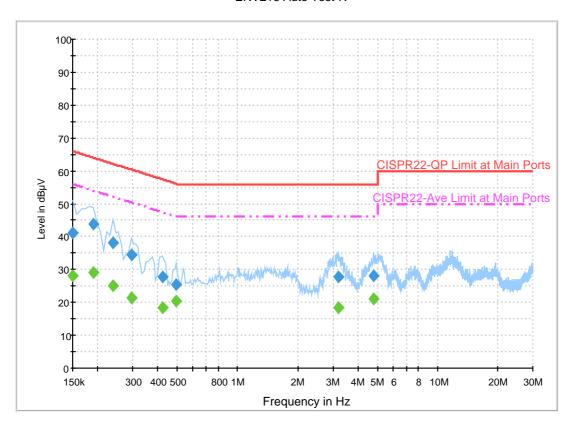
Final Result 2

Frequency	Average	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)			(dB)	(dB)	(dBµV)
0.174000	30.1	Off	L1	19.5	24.7	54.8
0.238000	26.6	Off	L1	19.5	25.6	52.2
0.286000	23.3	Off	L1	19.5	27.3	50.6
0.430000	26.4	Off	L1	19.5	20.9	47.3
0.550000	22.0	Off	L1	19.5	24.0	46.0
3.174000	20.3	Off	L1	19.5	25.7	46.0
11.558000	24.8	Off	L1	19.7	25.2	50.0

EUT Information

Report NO: 702534
Test Mode: Mode 1
Test Voltage: 120Vac/60Hz
Phase: Neutral

ENV216 Auto Test-N



Final Result 1

Frequency	QuasiPeak	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)			(dB)	(dB)	(dBµV)
0.150000	41.1	Off	N	19.5	24.9	66.0
0.190000	43.8	Off	N	19.5	20.2	64.0
0.238000	38.0	Off	N	19.5	24.2	62.2
0.294000	34.3	Off	N	19.5	26.1	60.4
0.422000	27.7	Off	N	19.5	29.7	57.4
0.494000	25.6	Off	N	19.5	30.5	56.1
3.182000	27.9	Off	N	19.5	28.1	56.0
4.806000	28.1	Off	N	19.6	27.9	56.0

Final Result 2

Frequency	Average	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)			(dB)	(dB)	(dBµV)
0.150000	28.1	Off	N	19.5	27.9	56.0
0.190000	29.0	Off	N	19.5	25.0	54.0
0.238000	25.2	Off	N	19.5	27.0	52.2
0.294000	21.6	Off	N	19.5	28.8	50.4
0.422000	18.4	Off	N	19.5	29.0	47.4
0.494000	20.5	Off	N	19.5	25.6	46.1
3.182000	18.5	Off	N	19.5	27.5	46.0
4.806000	21.2	Off	N	19.6	24.8	46.0

Appendix C. Radiated Spurious Emission

Test Engineer :	Nick Yu, Ray Chen, and Karl Hou	Temperature :	23~24°C
rest Engineer.	Nick Tu, Nay Chen, and Nair Hou	Relative Humidity :	65~66%

Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		5630.4	50.67	-17.53	68.2	43.15	32.17	6.35	31	398	107	Р	Н
		5686.2	51.09	-43.93	95.02	43.47	32.27	6.36	31.01	398	107	Р	Н
		5719.4	53.38	-57.25	110.63	45.72	32.31	6.37	31.02	398	107	Р	Н
		5725	57.53	-64.67	122.2	49.87	32.31	6.37	31.02	398	107	Р	Н
	*	5745	105.28	-	-	97.6	32.34	6.37	31.03	398	107	Р	Н
	*	5745	94.35	-	-	86.67	32.34	6.37	31.03	398	107	Α	Н
902 44 6													Н
802.11a CH 149													Н
5745MHz		5640	52.58	-15.62	68.2	45.04	32.19	6.35	31	211	187	Р	V
37 43141112		5694.8	53.92	-47.45	101.37	46.3	32.27	6.36	31.01	211	187	Р	V
		5714.4	56.54	-52.69	109.23	48.91	32.29	6.36	31.02	211	187	Р	٧
		5725	58.55	-63.65	122.2	50.89	32.31	6.37	31.02	211	187	Р	٧
	*	5745	109.94	-	-	102.26	32.34	6.37	31.03	211	187	Р	V
	*	5745	99.16	-	-	91.48	32.34	6.37	31.03	211	187	Α	٧
													٧
													٧

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WIFI Preamp Note Level Over Limit Read Antenna Cable Ant **Table** Peak Pol. Frequency Chain Limit Line **Factor** Level Loss Factor Pos Pos Avg. 1 (dB) (dB \(V/m \) (MHz) (dBµV/m) (dB_µV) (dB/m) (dB) (dB) (cm) (deg) (P/A) (H/V) 5620 50.1 -18.1 68.2 42.58 32.17 6.34 30.99 369 105 Н 5671.2 43.05 Р 50.63 -33.3 83.93 32.24 6.35 31.01 369 105 Н 5712.2 49.83 -58.79 108.62 42.2 32.29 6.36 31.02 369 105 Ρ Н 5720.8 49.26 -63.36 112.62 41.6 32.31 6.37 31.02 369 105 Ρ Н * 5785 104.27 96.55 32.39 6.38 31.05 369 105 Ρ Н 5785 32.39 369 105 93.4 85.68 6.38 31.05 Α Η Р 5851.8 50.11 42.27 32.48 31.06 369 105 Н -67.99 118.1 6.42 5860.8 50.51 -58.66 109.17 42.65 32.51 6.42 31.07 369 105 Ρ Н 5914 50.99 Ρ -25.32 76.31 43.04 32.58 6.46 31.09 369 105 Н Ρ 5946.2 50 -18.2 68.2 41.98 32.63 6.48 31.09 369 105 Н Н 802.11a Н **CH 157** 5623.8 51.59 -16.61 68.2 44.07 32.17 6.34 30.99 248 188 Ρ V 5785MHz 5692.4 53.03 -46.57 99.6 45.41 32.27 6.36 31.01 248 188 Ρ ٧ 5711.2 53.45 -54.89 108.34 45.82 32.29 6.36 31.02 248 188 Ρ ٧ ٧ 5724 53.07 -66.85 119.92 45.41 32.31 6.37 31.02 248 188 Ρ ٧ 5785 109.84 102.12 32.39 6.38 31.05 248 188 * 32.39 6.38 ٧ 5785 99.02 91.3 31.05 248 188 Α V 5853.4 52.78 -61.67 114.45 44.94 32.48 6.42 31.06 248 188 Ρ 5869.4 52.66 -54.11 106.77 44.79 32.51 6.43 31.07 248 188 Ρ ٧ ٧ 5875.6 51.97 -52.78 104.75 44.08 32.53 6.43 31.07 248 188 Ρ Ρ 5937 51.33 -16.8768.2 43.34 32.6 6.48 31.09 248 188 ٧ ٧ ٧

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WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain 1		(MHz)	(dBµV/m)	Limit (dB)	Line (dBµV/m)	Level (dBµV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	(H/V)
	*	5825	104.46	-	-	96.66	32.46	6.39	31.05	385	103	Р	Н
	*	5825	93.66	-	-	85.86	32.46	6.39	31.05	385	103	Α	Н
		5850.8	51.99	-68.39	120.38	44.15	32.48	6.42	31.06	385	103	Р	Н
		5856.6	50.49	-59.86	110.35	42.62	32.51	6.42	31.06	385	103	Р	Н
		5875.6	50.14	-54.61	104.75	42.25	32.53	6.43	31.07	385	103	Р	Н
		5941.6	50.78	-17.42	68.2	42.76	32.63	6.48	31.09	385	103	Р	Н
													Н
802.11a													Н
CH 165	*	5825	109.45	-	-	101.65	32.46	6.39	31.05	240	188	Р	V
5825MHz	*	5825	98.82	-	-	91.02	32.46	6.39	31.05	240	188	Α	V
		5852.4	54.93	-61.8	116.73	47.09	32.48	6.42	31.06	240	188	Р	V
		5859.8	53.96	-55.49	109.45	46.1	32.51	6.42	31.07	240	188	Р	V
		5878.6	53.43	-49.1	102.53	45.54	32.53	6.43	31.07	240	188	Р	V
		5936.2	50.9	-17.3	68.2	42.91	32.6	6.48	31.09	240	188	Р	V
													V
													V
													V
Remark		o other spurious		eak and	Average lim	it line.							

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Band 4 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)		(dBµV/m)	(dB _µ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V
		11490	47.64	-26.36	74	62.59	40.11	9.82	65.39	100	0	Р	Н
		17235	48.86	-19.34	68.2	58.86	41.54	12.09	64.27	100	0	Р	Н
802.11a													Н
CH 149													Н
5745MHz		4924	54.61	-19.39	74	48.17	31.56	5.84	30.96	261	253	Р	V
37 43WII IZ		4924	48.55	-5.45	54	42.11	31.56	5.84	30.96	261	253	Α	V
-		11490	47.36	-26.64	74	62.31	40.11	9.82	65.39	100	0	Р	V
		17235	49.41	-18.79	68.2	59.41	41.54	12.09	64.27	100	0	Р	V
		4960	52.84	-21.16	74	46.31	31.63	5.86	30.96	394	125	Р	Н
		4960	45.33	-8.67	54	38.8	31.63	5.86	30.96	394	125	Α	Н
		11570	48.39	-25.61	74	63.46	39.93	9.86	65.37	100	0	Р	Н
802.11a		17355	48.27	-19.93	68.2	57.6	41.96	12.19	64.11	100	0	Р	Н
CH 157 5785MHz		4960	54.98	-19.02	74	48.45	31.63	5.86	30.96	259	139	Р	V
37 03 WII 12		4960	48.91	-5.09	54	42.38	31.63	5.86	30.96	259	139	Α	V
		11570	49.08	-24.92	74	64.15	39.93	9.86	65.37	100	0	Р	V
		17355	47.95	-20.25	68.2	57.28	41.96	12.19	64.11	100	0	Р	V
		11650	48.58	-25.42	74	63.74	39.77	9.9	65.34	100	0	Р	Н
		17475	48.1	-20.1	68.2	56.76	42.38	12.29	63.95	100	0	Р	Н
													Н
802.11a													Н
CH 165		4990	55.76	-18.24	74	49.13	31.7	5.88	30.95	270	137	Р	V
5825MHz		4990	49.76	-4.24	54	43.13	31.7	5.88	30.95	270	137	Α	V
		11650	48.55	-25.45	74	63.71	39.77	9.9	65.34	100	0	Р	V
		17475	49.1	-19.1	68.2	57.76	42.38	12.29	63.95	100	0	Р	V

Remark

- 1. No other spurious found.
- 2. All results are PASS against Peak and Average limit line.

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Band 4 5725~5850MHz WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dB _µ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		5629.4	50.97	-17.23	68.2	43.45	32.17	6.35	31	397	107	Р	Н
		5662.8	50.75	-26.95	77.7	43.19	32.22	6.35	31.01	397	107	Р	Н
		5716.2	56.28	-53.46	109.74	48.65	32.29	6.36	31.02	397	107	Р	Н
		5724.2	56.33	-64.05	120.38	48.67	32.31	6.37	31.02	397	107	Р	I
	*	5745	104.68	-	-	97	32.34	6.37	31.03	397	107	Р	Н
	*	5745	94.03	-	-	86.35	32.34	6.37	31.03	397	107	Α	Н
802.11n													Н
HT20													Н
CH 149		5635.8	51.76	-16.44	68.2	44.22	32.19	6.35	31	237	188	Р	V
5745MHz		5690.6	55.28	-42.99	98.27	47.66	32.27	6.36	31.01	237	188	Р	٧
		5711.4	57.42	-50.97	108.39	49.79	32.29	6.36	31.02	237	188	Р	V
		5724.4	61.53	-59.3	120.83	53.87	32.31	6.37	31.02	237	188	Р	V
	*	5745	109.45	-	-	101.77	32.34	6.37	31.03	237	188	Р	V
	*	5745	98.9	-	-	91.22	32.34	6.37	31.03	237	188	Α	V
													V
													V

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WIFI Preamp Note Level Over Limit Read Antenna Cable Ant **Table** Peak Pol. Frequency Chain **Factor** Limit Line Level Loss **Factor** Pos Pos Avg. 1 (dBµV/m) (MHz) (dBµV/m) (dB) (dB_µV) (dB/m) (dB) (dB) (cm) (deg) (P/A) (H/V) 5632.6 50.4 -17.8 68.2 42.86 32.19 6.35 31 370 104 Н 32.24 Р 5666.8 51.13 -29.54 80.67 43.55 6.35 31.01 370 104 Н 5718.4 49.12 -61.23 110.35 41.46 32.31 6.37 31.02 370 104 Ρ Н 5724.4 50.13 -70.7 120.83 42.47 32.31 6.37 31.02 370 104 Ρ Н * 5785 103.65 -95.93 32.39 6.38 31.05 370 104 Ρ Н 5785 92.93 32.39 370 85.21 6.38 31.05 104 Α Η Р 5854 49.44 41.57 32.51 31.06 370 104 Н -63.64 113.08 6.42 104 5862.8 49.48 -59.13 108.61 41.61 32.51 6.43 31.07 370 Ρ Н 51.99 44.07 Ρ 5895.8 -37.78 89.77 32.56 6.44 31.08 370 104 Н Ρ 5929 49.8 -18.4 68.2 41.82 32.6 6.47 31.09 370 104 Н 802.11n Н HT20 Н CH 157 5628 51.68 -16.52 68.2 44.15 32.17 6.35 30.99 279 184 Ρ ٧ 5785MHz 5683.8 52.53 -40.72 93.25 44.91 32.27 6.36 31.01 279 184 Ρ ٧ 5705.8 53.19 -53.64 106.83 45.56 32.29 6.36 31.02 279 184 Ρ ٧ ٧ 5721.4 53.16 -60.83 113.99 45.5 32.31 6.37 31.02 279 184 Ρ ٧ 5785 109.33 101.61 32.39 6.38 31.05 279 184 * 32.39 6.38 ٧ 5785 98.48 _ 90.76 31.05 279 184 Α V 5854.2 51.82 -60.8 112.62 43.95 32.51 6.42 31.06 279 184 Ρ 5863.6 52.51 -55.88 108.39 44.64 32.51 6.43 31.07 279 184 Ρ ٧ ٧ 5876.8 51.87 -51.99 103.86 43.98 32.53 6.43 31.07 279 184 Ρ Ρ 5949.4 51.72 -16.48 68.2 43.7 32.63 6.48 31.09 279 184 ٧ ٧ ٧

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WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dB _µ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
	*	5825	104.84	-	-	97.04	32.46	6.39	31.05	400	101	Р	Н
	*	5825	93.8	-	-	86	32.46	6.39	31.05	400	101	Α	Н
		5852.8	56.82	-59	115.82	48.98	32.48	6.42	31.06	400	101	Р	Н
		5868.8	52.41	-54.52	106.93	44.54	32.51	6.43	31.07	400	101	Р	Н
		5875.6	50.66	-54.09	104.75	42.77	32.53	6.43	31.07	400	101	Р	Н
		5946	50.18	-18.02	68.2	42.16	32.63	6.48	31.09	400	101	Р	Н
802.11n													Н
HT20													П
CH 165	*	5825	110.32	-	-	102.52	32.46	6.39	31.05	256	187	Р	٧
5825MHz	*	5825	99.13	-	-	91.33	32.46	6.39	31.05	256	187	Α	V
		5850	56.92	-65.28	122.2	49.08	32.48	6.42	31.06	256	187	Р	V
		5855	56.22	-54.58	110.8	48.35	32.51	6.42	31.06	256	187	Р	٧
		5892.4	53.16	-39.13	92.29	45.24	32.56	6.44	31.08	256	187	Р	V
		5930.4	50.77	-17.43	68.2	42.79	32.6	6.47	31.09	256	187	Р	٧
													V
													٧
	1. No	o other spurious	s found										
Remark		•		\1 '	A	:4 II							
	2. All	results are PA	SS against F	eak and	Average lim	ıτ line.							

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Band 4 5725~5850MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	, ,	(dBµV/m)			(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V
		4924	52.91	-21.09	74	46.47	31.56	5.84	30.96	395	120	Р	Н
		4924	45.43	-8.57	54	38.99	31.56	5.84	30.96	395	120	Α	Н
802.11n		11490	48.28	-25.72	74	63.23	40.11	9.82	65.39	100	0	Р	Н
HT20		17235	49.5	-18.7	68.2	59.5	41.54	12.09	64.27	100	0	Р	Н
CH 149		4924	53.94	-20.06	74	47.5	31.56	5.84	30.96	265	138	Р	V
5745MHz		4924	48.43	-5.57	54	41.99	31.56	5.84	30.96	265	138	Α	V
		11490	46.84	-27.16	74	61.79	40.11	9.82	65.39	100	0	Р	V
		17235	49.71	-18.49	68.2	59.71	41.54	12.09	64.27	100	0	Р	V
		4960	52.4	-21.6	74	45.87	31.63	5.86	30.96	392	125	Р	Н
		4960	45.4	-8.6	54	38.87	31.63	5.86	30.96	392	125	Α	Н
802.11n		11570	48.45	-25.55	74	63.52	39.93	9.86	65.37	100	0	Р	Н
HT20		17355	49.8	-18.4	68.2	59.13	41.96	12.19	64.11	100	0	Р	Н
CH 157		4960	55.15	-18.85	74	48.62	31.63	5.86	30.96	293	140	Р	V
5785MHz		4960	49.62	-4.38	54	43.09	31.63	5.86	30.96	293	140	Α	V
		11570	48.5	-25.5	74	63.57	39.93	9.86	65.37	100	0	Р	V
		17355	48.41	-19.79	68.2	57.74	41.96	12.19	64.11	100	0	Р	V
		11650	48.86	-25.14	74	64.02	39.77	9.9	65.34	100	0	Р	Н
		17475	48.17	-20.03	68.2	56.83	42.38	12.29	63.95	100	0	Р	Н
802.11n													Н
HT20													Н
CH 165		4990	54.89	-19.11	74	48.26	31.7	5.88	30.95	271	136	Р	V
5825MHz		4990	49.45	-4.55	54	42.82	31.7	5.88	30.95	271	136	Α	V
		11650	48.36	-25.64	74	63.52	39.77	9.9	65.34	100	0	Р	V
		17475	48.03	-20.17	68.2	56.69	42.38	12.29	63.95	100	0	Р	V

Remark

1. No other spurious found.

2. All results are PASS against Peak and Average limit line.

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Band 4 5725~5850MHz WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain 1		(MHz)	(dBµV/m)	Limit (dB)	Line (dBµV/m)	Level (dBµV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	
		5639.4	51.39	-16.81	68.2	43.85	32.19	6.35	31	398	107	Р	Н
		5679.8	51.48	-38.81	90.29	43.9	32.24	6.35	31.01	398	107	Р	Н
		5719	58.56	-51.96	110.52	50.9	32.31	6.37	31.02	398	107	Р	Н
		5724	59.87	-60.05	119.92	52.21	32.31	6.37	31.02	398	107	Р	Н
	*	5755	101.68	-	-	93.98	32.36	6.37	31.03	398	107	Р	Н
	*	5755	90.99	-	-	83.29	32.36	6.37	31.03	398	107	Α	Н
		5850.6	49.91	-70.92	120.83	42.07	32.48	6.42	31.06	398	107	Р	Н
		5857.8	52.15	-57.86	110.01	44.29	32.51	6.42	31.07	398	107	Р	Н
		5877.2	50.32	-53.25	103.57	42.43	32.53	6.43	31.07	398	107	Р	Н
		5928.6	49.97	-18.23	68.2	41.99	32.6	6.47	31.09	398	107	Р	Н
802.11n													Н
HT40													Н
CH 151		5646.8	52.99	-15.21	68.2	45.45	32.19	6.35	31	250	185	Р	V
5755MHz		5691.4	54.65	-44.21	98.86	47.03	32.27	6.36	31.01	250	185	Р	V
		5718.8	60.31	-50.15	110.46	52.65	32.31	6.37	31.02	250	185	Р	V
		5723.6	61.58	-57.43	119.01	53.92	32.31	6.37	31.02	250	185	Р	V
	*	5755	106.87	-	-	99.17	32.36	6.37	31.03	250	185	Р	V
	*	5755	96.04	-	-	88.34	32.36	6.37	31.03	250	185	Α	V
		5854.6	52.78	-58.93	111.71	44.91	32.51	6.42	31.06	250	185	Р	V
		5861.4	53.47	-55.54	109.01	45.6	32.51	6.43	31.07	250	185	Р	V
		5921.2	52.4	-18.6	71	44.44	32.58	6.47	31.09	250	185	Р	V
		5926.6	50.58	-17.62	68.2	42.6	32.6	6.47	31.09	250	185	Р	V
													V
													٧

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WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		5645.4	50.57	-17.63	68.2	43.03	32.19	6.35	31	367	111	Р	Н
		5671.6	50.54	-33.68	84.22	42.96	32.24	6.35	31.01	367	111	Р	Н
		5706.2	50.31	-56.63	106.94	42.68	32.29	6.36	31.02	367	111	Р	Н
		5720.2	49.1	-62.16	111.26	41.44	32.31	6.37	31.02	367	111	Р	Н
	*	5795	100.52	-	-	92.78	32.41	6.38	31.05	367	111	Р	Н
	*	5795	89.73	-	-	81.99	32.41	6.38	31.05	367	111	Α	Н
		5851.2	50.17	-69.29	119.46	42.33	32.48	6.42	31.06	367	111	Р	Н
		5871.4	50.03	-56.18	106.21	42.14	32.53	6.43	31.07	367	111	Р	Н
		5890	50.67	-43.4	94.07	42.75	32.56	6.44	31.08	367	111	Р	Н
		5925.2	50.55	-17.65	68.2	42.57	32.6	6.47	31.09	367	111	Р	Н
802.11n													Н
HT40													Н
CH 159		5611.2	52.87	-15.33	68.2	45.38	32.14	6.34	30.99	219	188	Р	V
5795MHz		5678.2	53.5	-35.61	89.11	45.92	32.24	6.35	31.01	219	188	Р	V
		5713.4	53.57	-55.38	108.95	45.94	32.29	6.36	31.02	219	188	Р	V
		5722	52.3	-63.06	115.36	44.64	32.31	6.37	31.02	219	188	Р	V
	*	5795	106.42	-	-	98.68	32.41	6.38	31.05	219	188	Р	V
	*	5795	95.55	-	-	87.81	32.41	6.38	31.05	219	188	Α	V
		5851.2	52.96	-66.5	119.46	45.12	32.48	6.42	31.06	219	188	Р	V
		5856.6	52.93	-57.42	110.35	45.06	32.51	6.42	31.06	219	188	Р	V
		5875.4	53.83	-51.07	104.9	45.94	32.53	6.43	31.07	219	188	Р	V
		5929.6	51	-17.2	68.2	43.02	32.6	6.47	31.09	219	188	Р	V
													V
													V

Remark

2. All results are PASS against Peak and Average limit line.

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No other spurious found.

Band 4 5725~5850MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol
Chain		,	,,	Limit	Line	Level	Factor	Loss	Factor	Pos		Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dB _µ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V
		11510	46.79	-27.21	74	61.75	40.1	9.83	65.4	100	0	Р	Н
		17265	48.67	-19.53	68.2	58.49	41.66	12.11	64.23	100	0	Р	Н
802.11n													Н
HT40													Н
CH 151		4930	54.33	-19.67	74	47.88	31.56	5.85	30.96	260	137	Р	V
5755MHz		4930	49.14	-4.86	54	42.69	31.56	5.85	30.96	260	137	Α	V
		11510	47.25	-26.75	74	62.21	40.1	9.83	65.4	100	0	Р	V
		17265	48.58	-19.62	68.2	58.4	41.66	12.11	64.23	100	0	Р	V
		11590	47.66	-26.34	74	62.76	39.89	9.87	65.37	100	0	Р	Н
		17385	50.24	-17.96	68.2	59.38	42.08	12.21	64.06	100	0	Р	Н
802.11n													Н
HT40													Н
CH 159		4966	54.87	-19.13	74	48.32	31.63	5.87	30.95	285	136	Р	V
5795MHz		4966	49.31	-4.69	54	42.76	31.63	5.87	30.95	285	136	Α	V
		11590	47.71	-26.29	74	62.81	39.89	9.87	65.37	100	0	Р	V
		17385	49.67	-18.53	68.2	58.81	42.08	12.21	64.06	100	0	Р	V

Remark

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All results are PASS against Peak and Average limit line.

Band 4 5725~5850MHz WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		5608.4	51.2	-17	68.2	43.71	32.14	6.34	30.99	392	106	Р	Н
		5699.8	52.03	-53.02	105.05	44.41	32.27	6.36	31.01	392	106	Р	Н
		5719	55.27	-55.25	110.52	47.61	32.31	6.37	31.02	392	106	Р	Н
		5724.6	56.49	-64.8	121.29	48.83	32.31	6.37	31.02	392	106	Р	Н
	*	5775	99.07	-	-	91.34	32.39	6.38	31.04	392	106	Р	Н
	*	5775	88.23	-	-	80.5	32.39	6.38	31.04	392	106	Α	Н
		5851.4	52.61	-66.4	119.01	44.77	32.48	6.42	31.06	392	106	Р	Н
		5855	52.35	-58.45	110.8	44.48	32.51	6.42	31.06	392	106	Р	Н
		5875.2	51.62	-53.43	105.05	43.73	32.53	6.43	31.07	392	106	Р	Н
		5925.6	49.67	-18.53	68.2	41.69	32.6	6.47	31.09	392	106	Р	Н
802.11ac													Н
VHT80													Н
CH 155		5638.8	53.08	-15.12	68.2	45.54	32.19	6.35	31	249	187	Р	V
5775MHz		5698	59.69	-44.04	103.73	52.07	32.27	6.36	31.01	249	187	Р	V
		5712.6	62.89	-45.84	108.73	55.26	32.29	6.36	31.02	249	187	Р	V
		5725	62.85	-59.35	122.2	55.19	32.31	6.37	31.02	249	187	Р	V
	*	5775	104.5	-	-	96.77	32.39	6.38	31.04	249	187	Р	V
	*	5775	93.55	-	-	85.82	32.39	6.38	31.04	249	187	Α	V
		5854.6	56.96	-54.75	111.71	49.09	32.51	6.42	31.06	249	187	Р	V
		5858	56.78	-53.18	109.96	48.92	32.51	6.42	31.07	249	187	Р	V
		5875	53.22	-51.98	105.2	45.33	32.53	6.43	31.07	249	187	Р	V
		5926.2	51.31	-16.89	68.2	43.33	32.6	6.47	31.09	249	187	Р	V
													V
								_					V

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Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		11550	48.61	-25.39	74	63.65	39.98	9.85	65.38	100	0	Р	Н
		17325	48.84	-19.36	68.2	58.37	41.84	12.16	64.16	100	0	Р	Н
802.11ac													Н
VHT80													Н
CH 155		4948	54.39	-19.61	74	47.89	31.6	5.86	30.96	257	137	Р	V
5775MHz		4948	48.85	-5.15	54	42.35	31.6	5.86	30.96	257	137	Α	V
		11550	48.47	-25.53	74	63.51	39.98	9.85	65.38	100	0	Р	V
		17325	48.6	-19.6	68.2	58.13	41.84	12.16	64.16	100	0	Р	V

Remark

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^{1.} No other spurious found.

^{2.} All results are PASS against Peak and Average limit line.

Emission below 1GHz

5GHz WIFI 802.11n VHT80 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V
		182.82	20.85	-22.65	43.5	38.11	11.73	1.14	30.29	-	-	Р	Н
		240.06	24.5	-21.5	46	39.27	14.02	1.28	30.22	-	-	Р	Н
		283.8	22.48	-23.52	46	35.7	15.47	1.35	30.16	-	-	Р	Н
		458.2	24.11	-21.89	46	31.99	20.2	1.73	29.87	ı	-	Р	Н
		778.1	27.4	-18.6	46	29.02	25.38	2.26	29.38	100	0	Р	Н
		961.5	31.19	-22.81	54	28.94	28.54	2.51	29.04	-	-	Р	Н
													Н
													Н
													Н
													Н
5GHz													Н
802.11n													Н
vHT80		34.59	29.79	-10.21	40	41.11	18.48	0.48	30.25	100	0	Р	V
LF		112.62	22.66	-20.84	43.5	37.82	14.29	0.89	30.38	-	-	Р	V
		183.09	20.17	-23.33	43.5	37.43	11.73	1.14	30.29	-	-	Р	V
		458.2	28.52	-17.48	46	36.4	20.2	1.73	29.87	-	-	Р	V
		610.8	31.55	-14.45	46	36.37	22.77	1.97	29.65	-	-	Р	V
		968.5	31.77	-22.23	54	29.8	28.25	2.51	29.02	-	-	Р	V
													V
													V
													V
													V
													V
													V

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Band 4 - 5725~5850MHz WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		5638.8	49.87	-18.33	68.2	42.33	32.19	6.35	31	377	256	Р	Н
		5699	50.6	-53.86	104.46	42.98	32.27	6.36	31.01	377	256	Р	Н
		5713.2	52.36	-56.54	108.9	44.73	32.29	6.36	31.02	377	256	Р	Н
		5723.8	53.95	-65.51	119.46	46.29	32.31	6.37	31.02	377	256	Р	Н
	*	5745	103.75	-	-	96.07	32.34	6.37	31.03	377	256	Р	Н
	*	5745	93.52	-	-	85.84	32.34	6.37	31.03	377	256	Α	Н
802.11n													Н
HT20													Н
CH 149		5631.8	50.26	-17.94	68.2	42.74	32.17	6.35	31	103	347	Р	V
5745MHz		5686.6	51.74	-43.58	95.32	44.12	32.27	6.36	31.01	103	347	Р	V
		5714.8	56.54	-52.81	109.35	48.91	32.29	6.36	31.02	103	347	Р	V
		5724.8	57.78	-63.96	121.74	50.12	32.31	6.37	31.02	103	347	Р	V
	*	5745	108.75	-	-	101.07	32.34	6.37	31.03	103	347	Р	V
	*	5745	98.53	-	-	90.85	32.34	6.37	31.03	103	347	Α	V
													V
													V

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WIFI Preamp Note Level Over Limit Read Antenna Cable Ant **Table** Peak Pol. Frequency Chain Limit Line **Factor** Level Loss Factor Pos Pos Avg. (dB) (dB \(\psi V/m \) 1+2 (MHz) (dBµV/m) (dB_µV) (dB/m) (dB) (dB) (cm) (deg) (P/A) (H/V) 5647.4 50.31 -17.89 68.2 42.77 32.19 6.35 31 353 114 Н Р 5687.6 50.34 -45.71 96.05 42.72 32.27 6.36 31.01 353 114 Н 5719.8 49.97 -60.77 110.74 42.31 32.31 6.37 31.02 353 114 Ρ Н 5723.6 50.08 -68.93 119.01 42.42 32.31 6.37 31.02 353 114 Ρ Н * 5785 104.86 97.14 32.39 6.38 31.05 353 114 Ρ Н 5785 32.39 353 94.03 86.31 6.38 31.05 114 Α Η Р 5850.4 -72.1 32.48 31.06 353 Н 49.19 121.29 41.35 6.42 114 5855.2 49.6 -61.14 110.74 41.73 32.51 6.42 31.06 353 114 Ρ Н Ρ 5915 50.51 -25.06 75.57 42.56 32.58 6.46 31.09 353 114 Н 5941.2 50.52 -17.68 68.2 42.5 32.63 6.48 31.09 353 114 Ρ Н 802.11n Н HT20 Н **CH 157** 5620.8 50.07 -18.13 68.2 42.55 32.17 6.34 30.99 145 6 Ρ V 5785MHz 5667.4 51.15 -29.96 81.11 43.57 32.24 6.35 31.01 145 6 Ρ ٧ 5718.6 50.93 -59.48 110.41 43.27 32.31 6.37 31.02 145 6 Ρ ٧ Ρ ٧ 5723.6 50.86 -68.15 119.01 43.2 32.31 6.37 31.02 145 6 Ρ ٧ 5785 108.06 100.34 32.39 6.38 31.05 145 6 * 32.39 6.38 ٧ 5785 97.69 89.97 31.05 145 6 Α Ρ V 5851 50.64 -69.28 119.92 42.8 32.48 6.42 31.06 145 6 5865.8 51.29 -56.48 107.77 43.42 32.51 6.43 31.07 145 6 Ρ ٧ Ρ ٧ 5881.4 50.72 -49.73 100.45 42.82 32.53 6.44 31.07 145 6 Ρ 5950 50.77 -17.43 68.2 42.75 32.63 6.48 31.09 145 6 ٧ ٧ ٧

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WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain 1+2		(MHz)	(dBµV/m)	Limit (dB)	Line (dBµV/m)	Level (dBµV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)	Pos (deg)	Avg. (P/A)	(HVV
ITZ	*	5825	105.86	- (ub)	(ubµv/iii)	98.06	32.46	6.39	31.05	387	104	P	Н
	*	5825	95.65	-	-	87.85	32.46	6.39	31.05	387	104	Α	Н
		5852.4	52.49	-64.24	116.73	44.65	32.48	6.42	31.06	387	104	Р	Н
		5857.2	51.3	-58.88	110.18	43.43	32.51	6.42	31.06	387	104	Р	Н
		5879.6	50.03	-51.75	101.78	42.13	32.53	6.44	31.07	387	104	Р	Н
		5927.8	50.73	-17.47	68.2	42.75	32.6	6.47	31.09	387	104	Р	Н
802.11n													Н
HT20													Н
CH 165	*	5825	109.03	ı	-	101.23	32.46	6.39	31.05	132	7	Р	V
5825MHz	*	5825	98.82	ı	-	91.02	32.46	6.39	31.05	132	7	Α	V
		5853.8	55.44	-58.1	113.54	47.57	32.51	6.42	31.06	132	7	Р	V
		5858.4	57.06	-52.79	109.85	49.2	32.51	6.42	31.07	132	7	Р	V
		5876.6	51.59	-52.42	104.01	43.7	32.53	6.43	31.07	132	7	Р	V
		5925	50.6	-17.6	68.2	42.62	32.6	6.47	31.09	132	7	Р	V
													V
													V
	1. No	other spurious	s found.										
Remark		results are PA		ook and	Avorago lim	it lino							
	z. Ali	results are PA	SS ayamst F	cak and	Average IIII	it iii le.							

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Band 4 5725~5850MHz WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBµV/m)	, ,	(dBµV/m)			(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V
		4924	52.87	-21.13	74	46.43	31.56	5.84	30.96	392	114	Р	Н
		4924	47.02	-6.98	54	40.58	31.56	5.84	30.96	392	114	Α	Н
802.11n		11490	47.22	-26.78	74	62.17	40.11	9.82	65.39	100	0	Р	Н
HT20		17235	49.18	-19.02	68.2	59.18	41.54	12.09	64.27	100	0	Р	Н
CH 149		4924	53.99	-20.01	74	47.55	31.56	5.84	30.96	108	343	Р	V
5745MHz		4924	48.7	-5.3	54	42.26	31.56	5.84	30.96	108	343	Α	V
		11490	48.22	-25.78	74	63.17	40.11	9.82	65.39	100	0	Р	V
		17235	48.47	-19.73	68.2	58.47	41.54	12.09	64.27	100	0	Р	V
		11570	49.09	-24.91	74	64.16	39.93	9.86	65.37	100	0	Р	Н
		17355	48.53	-19.67	68.2	57.86	41.96	12.19	64.11	100	0	Р	Н
802.11n													Н
HT20													Н
CH 157		4958	53.62	-20.38	74	47.09	31.63	5.86	30.96	100	13	Р	V
5785MHz		4958	49.16	-4.84	54	42.63	31.63	5.86	30.96	100	13	Α	V
		11570	48.14	-25.86	74	63.21	39.93	9.86	65.37	100	0	Р	V
		17355	48.61	-19.59	68.2	57.94	41.96	12.19	64.11	100	0	Р	V
		11650	47.96	-26.04	74	63.12	39.77	9.9	65.34	100	0	Р	Н
		17475	48.18	-20.02	68.2	56.84	42.38	12.29	63.95	100	0	Р	Н
802.11n													Н
HT20													Н
CH 165		4994	53.98	-20.02	74	47.35	31.7	5.88	30.95	105	11	Р	V
5825MHz		4994	49.36	-4.64	54	42.73	31.7	5.88	30.95	105	11	Α	V
		11650	49.46	-24.54	74	64.62	39.77	9.9	65.34	100	0	Р	V
		17475	48.07	-20.13	68.2	56.73	42.38	12.29	63.95	100	0	Р	V

Remark

- 1. No other spurious found.
- 2. All results are PASS against Peak and Average limit line.

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Band 4 5725~5850MHz WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)		(dB/m)	(dB)	(dB)	(cm)		(P/A)	
		5622	49.22	-18.98	68.2	41.7	32.17	6.34	30.99	100	275	Р	Н
		5680	49.9	-40.54	90.44	42.32	32.24	6.35	31.01	100	275	Р	Н
		5718.2	50.44	-59.86	110.3	42.78	32.31	6.37	31.02	100	275	Р	Н
		5724.2	50.6	-69.78	120.38	42.94	32.31	6.37	31.02	100	275	Р	Н
	*	5755	95.54	-	-	87.84	32.36	6.37	31.03	100	275	Р	Н
	*	5755	84.71	-	-	77.01	32.36	6.37	31.03	100	275	Α	Н
		5852.8	48.55	-67.27	115.82	40.71	32.48	6.42	31.06	100	275	Р	Н
		5860.4	49.14	-60.15	109.29	41.28	32.51	6.42	31.07	100	275	Р	Н
		5898.4	49.9	-37.95	87.85	41.96	32.56	6.46	31.08	100	275	Р	Н
		5944.2	50.64	-17.56	68.2	42.62	32.63	6.48	31.09	100	275	Р	Н
802.11n													Н
HT40													Н
CH 151		5649.8	50.93	-17.27	68.2	43.36	32.22	6.35	31	116	348	Р	V
5755MHz		5672.4	52.28	-32.54	84.82	44.7	32.24	6.35	31.01	116	348	Р	٧
		5718.6	57.21	-53.2	110.41	49.55	32.31	6.37	31.02	116	348	Р	V
		5724.6	59.16	-62.13	121.29	51.5	32.31	6.37	31.02	116	348	Р	V
	*	5755	106.26	-	-	98.56	32.36	6.37	31.03	116	348	Р	V
	*	5755	95.39	-	-	87.69	32.36	6.37	31.03	116	348	Α	٧
		5853.4	51.74	-62.71	114.45	43.9	32.48	6.42	31.06	116	348	Р	V
		5873.2	51.6	-54.1	105.7	43.71	32.53	6.43	31.07	116	348	Р	V
		5919.4	51.38	-20.95	72.33	43.42	32.58	6.47	31.09	116	348	Р	V
		5938.2	50.93	-17.27	68.2	42.94	32.6	6.48	31.09	116	348	Р	V
													V
													V

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WIFI Preamp Note Level Over Limit Read Antenna Cable **Table** Peak Pol. Frequency Ant Chain Limit Line Level **Factor** Loss **Factor** Pos Pos Avg. (dB) (dB \(V/m \) 1+2 (MHz) (dBµV/m) (dB_µV) (dB/m) (dB) (dB) (cm) (deg) (P/A) (H/V) 5644.4 49.99 -18.21 68.2 42.45 32.19 6.35 31 388 247 Н Р 5693.8 50.25 -50.38 100.63 42.63 32.27 6.36 31.01 388 247 Н 5704.4 50.31 -56.12 106.43 42.67 32.29 6.36 31.01 388 247 Ρ Н 5722 50.4 -64.96 115.36 42.74 32.31 6.37 31.02 388 247 Ρ Н * 5795 98.04 90.3 32.41 6.38 31.05 388 247 Ρ Н 5795 87.3 79.56 32.41 6.38 31.05 388 247 Α Η 5853 Р 32.48 31.06 388 49.27 -66.09 115.36 41.43 6.42 247 Н 5866.6 50.08 -57.47 107.55 42.21 32.51 6.43 31.07 388 247 Ρ Н Ρ 5894.8 49.73 -40.78 90.51 41.81 32.56 6.44 31.08 388 247 Н 5926 49.51 -18.69 68.2 41.53 32.6 6.47 31.09 388 247 Ρ Н 802.11n Н **HT40** Н **CH 159** 5638.8 50.59 -17.61 68.2 43.05 32.19 6.35 31 126 348 Ρ ٧ 5795MHz 5679.6 50.64 -39.5 90.14 43.06 32.24 6.35 31.01 126 348 Ρ ٧ 5713.4 52.34 -56.61 108.95 44.71 32.29 6.36 31.02 126 348 Ρ ٧ ٧ 5720.8 50.76 -61.86 112.62 43.1 32.31 6.37 31.02 126 348 Ρ 5795 106.29 98.55 32.41 6.38 31.05 126 348 ٧ * ٧ 5795 95.14 87.4 32.41 6.38 31.05 126 348 Α 5853.2 51.54 -63.36 114.9 43.7 32.48 6.42 31.06 126 348 Ρ V 5871.6 51.56 -54.59 106.15 43.67 32.53 6.43 31.07 126 348 Ρ ٧ ٧ 5902.6 51.61 -33.13 84.74 43.67 32.56 6.46 31.08 126 348 Ρ Ρ 5939 50.57 -17.63 68.2 42.55 32.63 6.48 31.09 126 348 ٧ ٧ ٧

Remark

All results are PASS against Peak and Average limit line.

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No other spurious found.

Band 4 5725~5850MHz

WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol
Chain 1+2		(MHz)	(dBµV/m)	Limit (dB)	Line (dBµV/m)	Level	Factor (dB/m)	Loss (dB)	Factor (dB)	Pos (cm)		Avg. (P/A)	(H/V
		11510	47.85	-26.15	74	62.81	40.1	9.83	65.4	100	0	Р	Н
		17265	49.56	-18.64	68.2	59.38	41.66	12.11	64.23	100	0	Р	Н
802.11n													Н
HT40													Н
CH 151		4933	53.87	-20.13	74	47.42	31.56	5.85	30.96	114	342	Р	V
5755MHz		4933	49.04	-4.96	54	42.59	31.56	5.85	30.96	114	342	Α	V
		11510	47.71	-26.29	74	62.67	40.1	9.83	65.4	100	0	Р	V
		17263	48.81	-19.39	68.2	58.63	41.66	12.11	64.23	100	0	Р	V
		11590	47.92	-26.08	74	63.02	39.89	9.87	65.37	100	0	Р	Н
		17385	50.56	-17.64	68.2	59.7	42.08	12.21	64.06	100	0	Р	Н
802.11n													Н
HT40													Н
CH 159		4967	53.7	-20.3	74	47.15	31.63	5.87	30.95	269	211	Р	V
5795MHz		4967	48.72	-5.28	54	42.17	31.63	5.87	30.95	269	211	Α	V
		11590	48.28	-25.72	74	63.38	39.89	9.87	65.37	100	0	Р	V
		17385	50.05	-18.15	68.2	59.19	42.08	12.21	64.06	100	0	Р	V

Remark

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No other spurious found.

^{2.} All results are PASS against Peak and Average limit line.

Band 4 5725~5850MHz WIFI 802.11ac VHT80 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBµV/m)		(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	•
		5629.8	49.78	-18.42	68.2	42.26	32.17	6.35	31	396	115	Р	Н
		5700	52.05	-53.15	105.2	44.43	32.27	6.36	31.01	396	115	Р	Н
		5716.2	54.27	-55.47	109.74	46.64	32.29	6.36	31.02	396	115	Р	Н
		5722.6	55.22	-61.51	116.73	47.56	32.31	6.37	31.02	396	115	Р	Н
	*	5775	98.01	-	-	90.28	32.39	6.38	31.04	396	115	Р	Н
	*	5775	87.23	-	-	79.5	32.39	6.38	31.04	396	115	Α	Н
		5850.4	51.37	-69.92	121.29	43.53	32.48	6.42	31.06	396	115	Р	Н
		5855.8	51.5	-59.08	110.58	43.63	32.51	6.42	31.06	396	115	Р	Н
		5893.8	49.93	-41.32	91.25	42.01	32.56	6.44	31.08	396	115	Р	Н
		5946.6	49.46	-18.74	68.2	41.44	32.63	6.48	31.09	396	115	Р	Н
802.11ac													Н
VHT80													Н
CH 155		5621.4	49.98	-18.22	68.2	42.46	32.17	6.34	30.99	105	359	Р	V
5775MHz		5694.6	56.15	-45.07	101.22	48.53	32.27	6.36	31.01	105	359	Р	V
		5719.4	58.6	-52.03	110.63	50.94	32.31	6.37	31.02	105	359	Р	V
		5725	59.12	-63.08	122.2	51.46	32.31	6.37	31.02	105	359	Р	V
	*	5775	102.41	-	-	94.68	32.39	6.38	31.04	105	359	Р	V
	*	5775	91.4	-	-	83.67	32.39	6.38	31.04	105	359	Α	V
		5850.4	56.79	-64.5	121.29	48.95	32.48	6.42	31.06	105	359	Р	V
		5855	53.62	-57.18	110.8	45.75	32.51	6.42	31.06	105	359	Р	V
		5876.6	52	-52.01	104.01	44.11	32.53	6.43	31.07	105	359	Р	V
		5944.8	50.77	-17.43	68.2	42.75	32.63	6.48	31.09	105	359	Р	V
													V
													V

2. All results are PASS against Peak and Average limit line.

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Band 4 5725~5850MHz

WIFI 802.11ac VHT80 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dB _µ V)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
		11550	48.56	-25.44	74	63.6	39.98	9.85	65.38	100	0	Р	Н
		17325	48.72	-19.48	68.2	58.25	41.84	12.16	64.16	100	0	Р	Н
802.11ac													Н
VHT80													Н
CH 155		4950	53.5	-20.5	74	47	31.6	5.86	30.96	112	4	Р	V
5775MHz		4950	48.5	-5.5	54	42	31.6	5.86	30.96	112	4	Α	V
		11550	48.32	-25.68	74	63.36	39.98	9.85	65.38	100	0	Р	V
		17325	49.32	-18.88	68.2	58.85	41.84	12.16	64.16	100	0	Р	٧

Remark

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^{1.} No other spurious found.

^{2.} All results are PASS against Peak and Average limit line.

Emission below 1GHz

5GHz WIFI 802.11n HT20 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/\
		34.32	21.6	-18.4	40	32.09	19.31	0.48	30.25	100	0	Р	Н
		182.01	23.31	-20.19	43.5	40.57	11.77	1.09	30.29	-	-	Р	Н
		240.06	23.88	-22.12	46	38.65	14.02	1.28	30.22	-	-	Р	Н
		636	25	-21	46	29.1	23.38	2.02	29.61	-	-	Р	Н
		745.2	26.84	-19.16	46	29.01	24.96	2.21	29.44	-	-	Р	Н
		960.1	32.02	-21.98	54	29.73	28.58	2.51	29.04	-	-	Р	Н
													Н
													Н
													Н
													Н
5GHz													Н
802.11n													Н
HT20		34.59	29.69	-10.31	40	41.01	18.48	0.48	30.25	-	-	Р	٧
LF		134.22	19.29	-24.21	43.5	34.87	13.77	0.95	30.36	-	-	Р	٧
		182.55	23.99	-19.51	43.5	41.25	11.77	1.09	30.29	-	-	Р	٧
		610.8	30.2	-15.8	46	35.02	22.77	1.97	29.65	-	-	Р	V
		747.3	37.02	-8.98	46	39.16	24.99	2.21	29.44	100	0	Р	V
		958	31.61	-14.39	46	29.44	28.46	2.51	29.04	-	-	Р	V
													V
													V
													٧
													V
													V
													V

Remark

2. All results are PASS against limit line.

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Note symbol

Report No. : FR7O2534E

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions					
	shall not exceed the level of the fundamental frequency.					
!	Test result is over limit line.					
P/A	Peak or Average					
H/V	Horizontal or Vertical					

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A calculation example for radiated spurious emission is shown as below:

Report No.: FR7O2534E

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Chain				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	Р	Н
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	Α	Н

1. Level($dB\mu V/m$) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBµV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dB μ V/m) – Limit Line(dB μ V/m)

For Peak Limit @ 2390MHz:

- 1. Level(dBµV/m)
- = Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBµV) Preamp Factor(dB)
- $= 32.22(dB/m) + 4.58(dB) + 54.51(dB\mu V) 35.86 (dB)$
- $= 55.45 (dB\mu V/m)$
- 2. Over Limit(dB)
- = Level(dBµV/m) Limit Line(dBµV/m)
- $= 55.45(dB\mu V/m) 74(dB\mu V/m)$
- = -18.55(dB)

For Average Limit @ 2390MHz:

- 1. Level(dBµV/m)
- = Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBµV) Preamp Factor(dB)
- $= 32.22(dB/m) + 4.58(dB) + 42.6(dB\mu V) 35.86 (dB)$
- $= 43.54 (dB\mu V/m)$
- 2. Over Limit(dB)
- = Level($dB\mu V/m$) Limit Line($dB\mu V/m$)
- $= 43.54(dB\mu V/m) 54(dB\mu V/m)$
- = -10.46(dB)

Both peak and average measured complies with the limit line, so test result is "PASS".

Page Number

: C26 of C26

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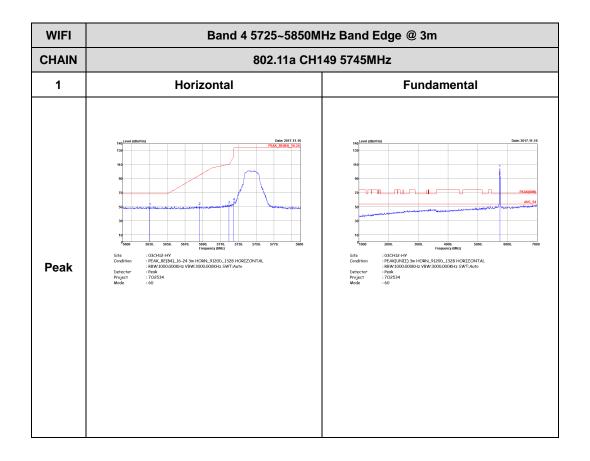
Appendix D. Radiated Spurious Emission Plots

Test Engineer :	Nick Yu, Ray Chen, and Karl Hou	Temperature :	23~24°C
rest Engineer .	INICK 10, Kay Chen, and Kan nou	Relative Humidity :	65~66%

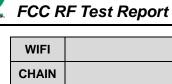
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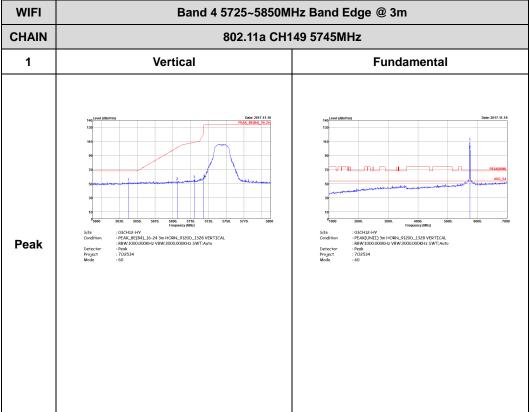
-L	Low channel location
-R	High channel location

Band 4 - 5725~5850MHz WIFI 802.11a (Band Edge @ 3m)

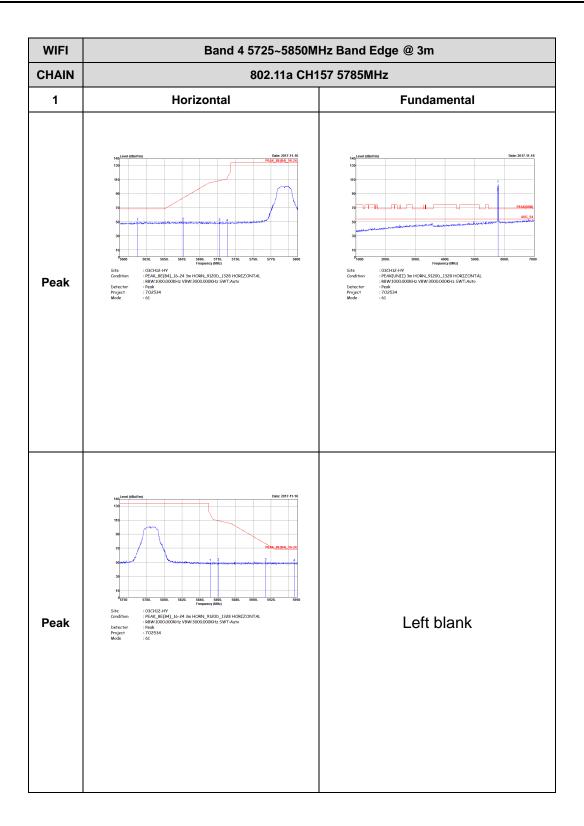


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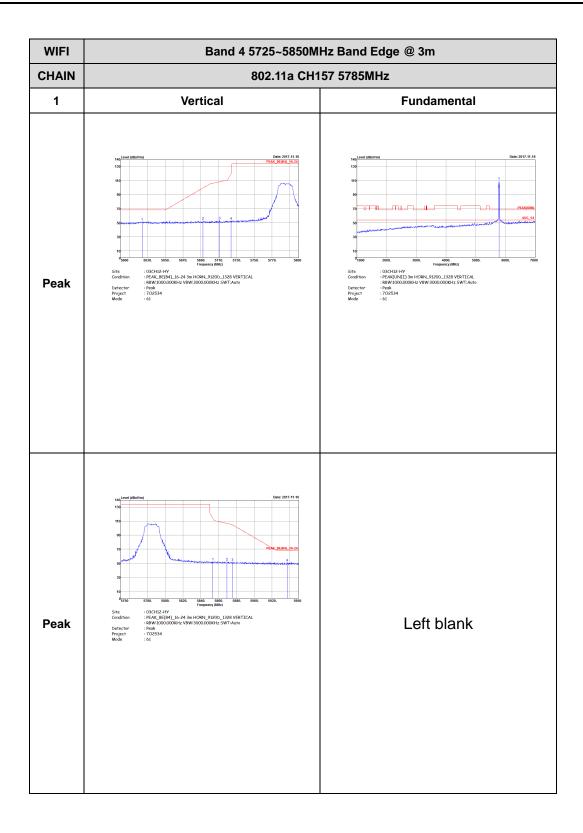




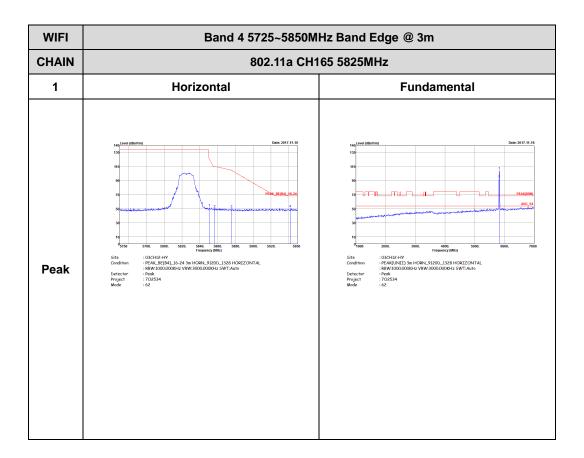
E-mail: Alex@sporton.com.tw



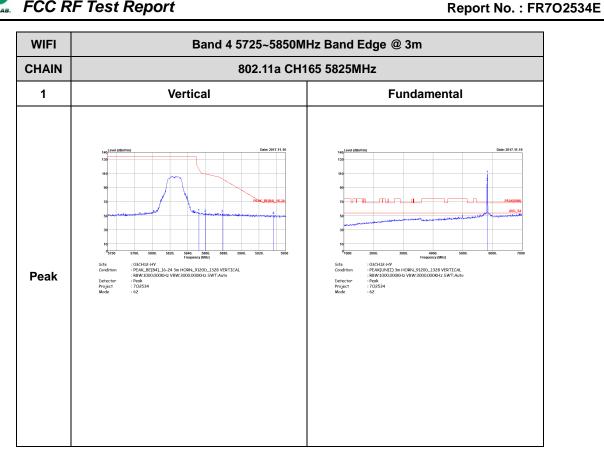
E-mail: Alex@sporton.com.tw



E-mail: Alex@sporton.com.tw



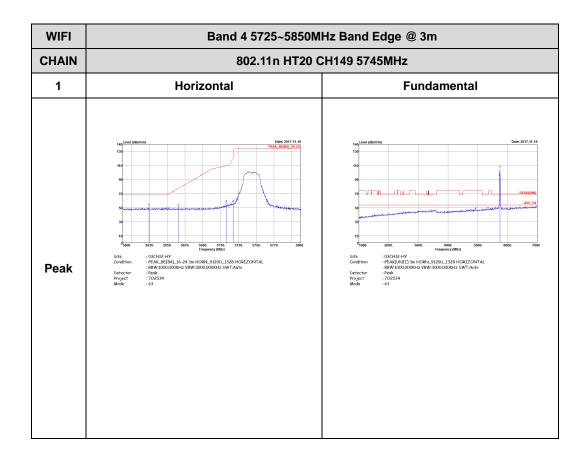
E-mail: Alex@sporton.com.tw



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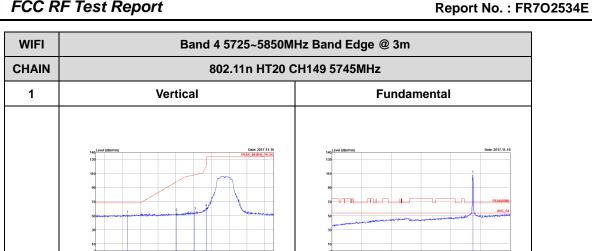
: D6 of D47

Band 4 5725~5850MHz WIFI 802.11n HT20 (Band Edge @ 3m)



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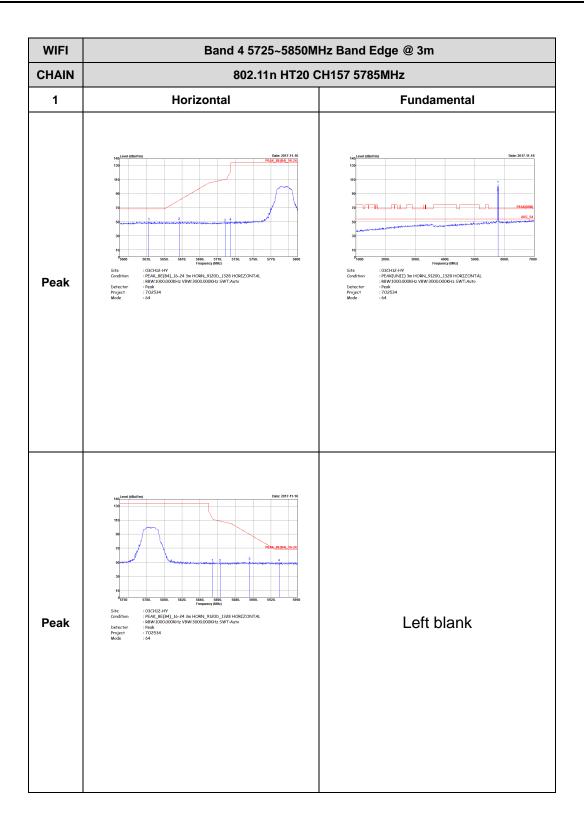
Peak



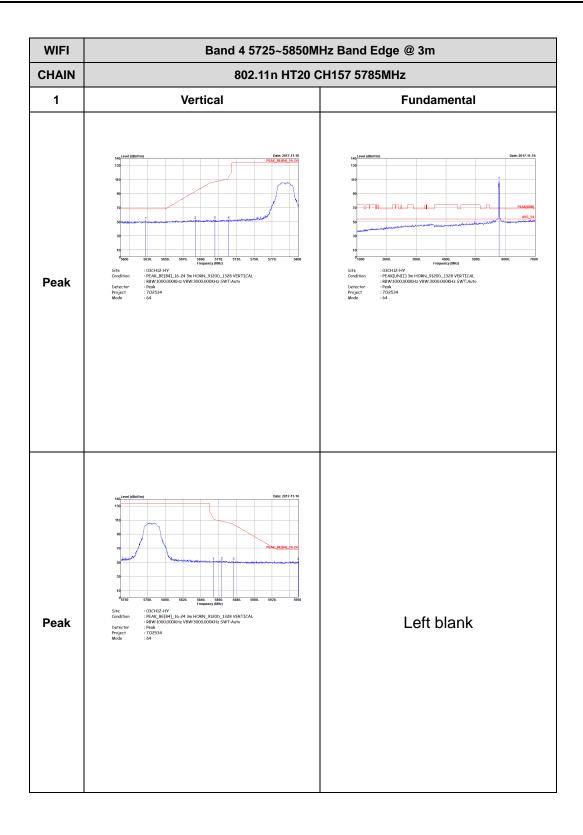
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E-mail: Alex@sporton.com.tw

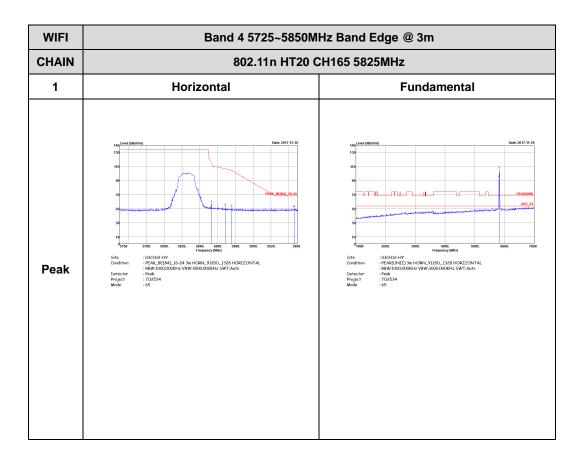


E-mail: Alex@sporton.com.tw

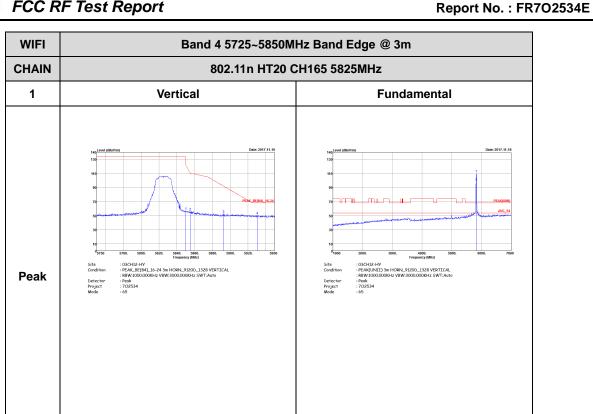


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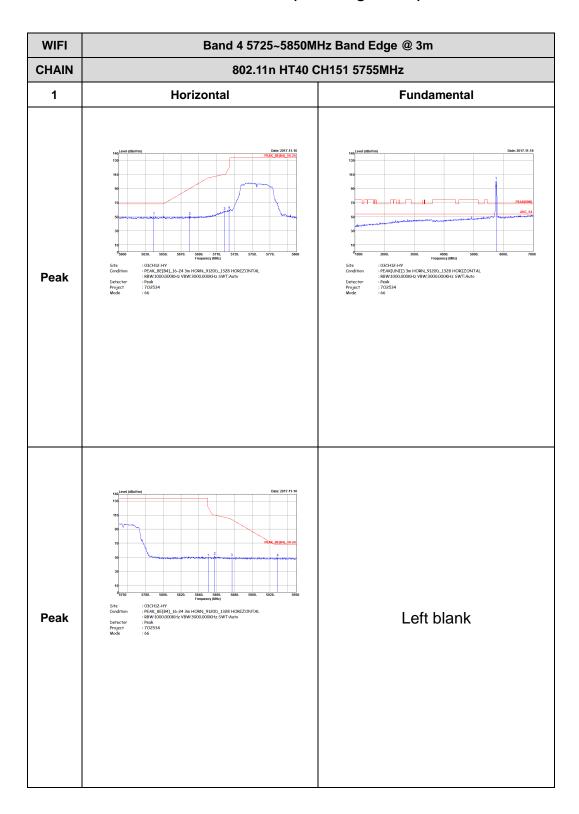


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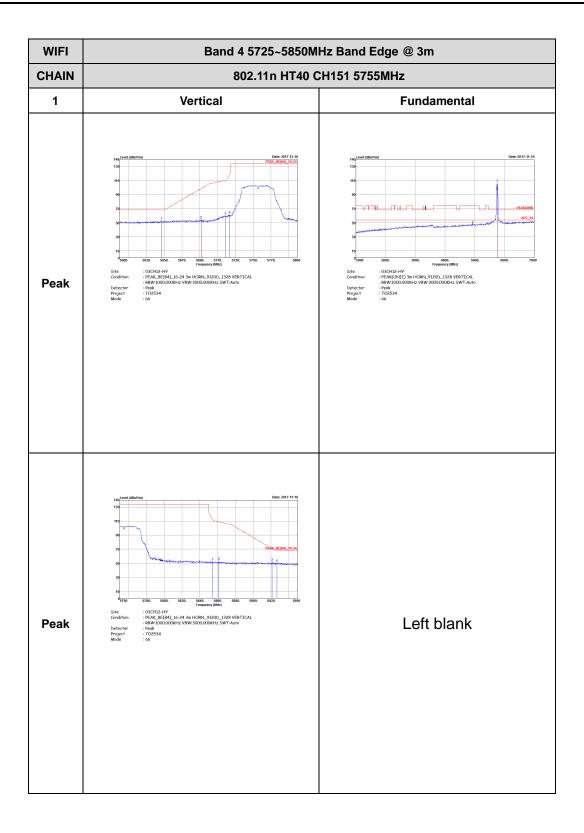
E-mail: Alex@sporton.com.tw

Band 4 5725~5850MHz WIFI 802.11n HT40 (Band Edge @ 3m)

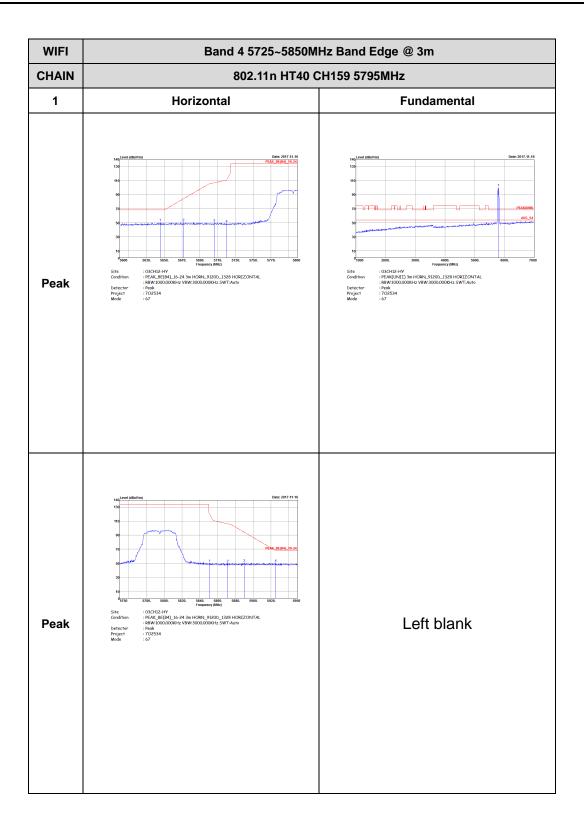


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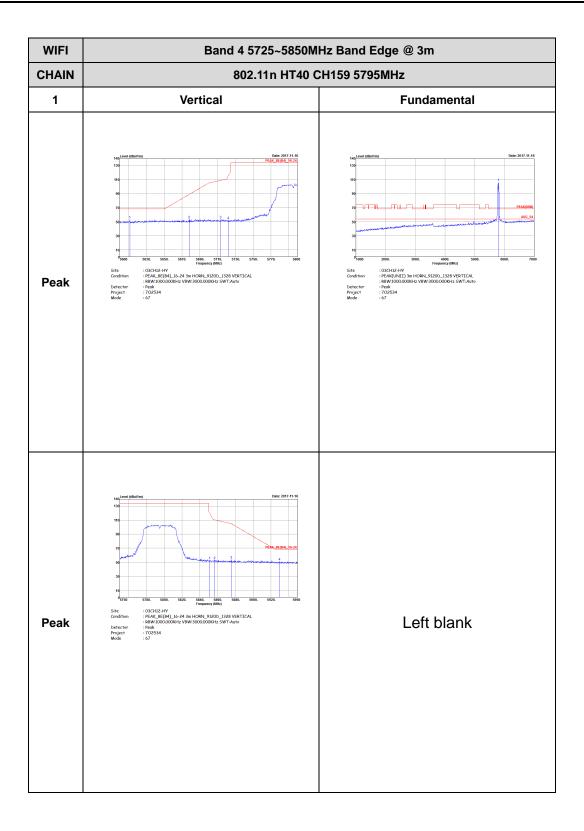
: D13 of D47



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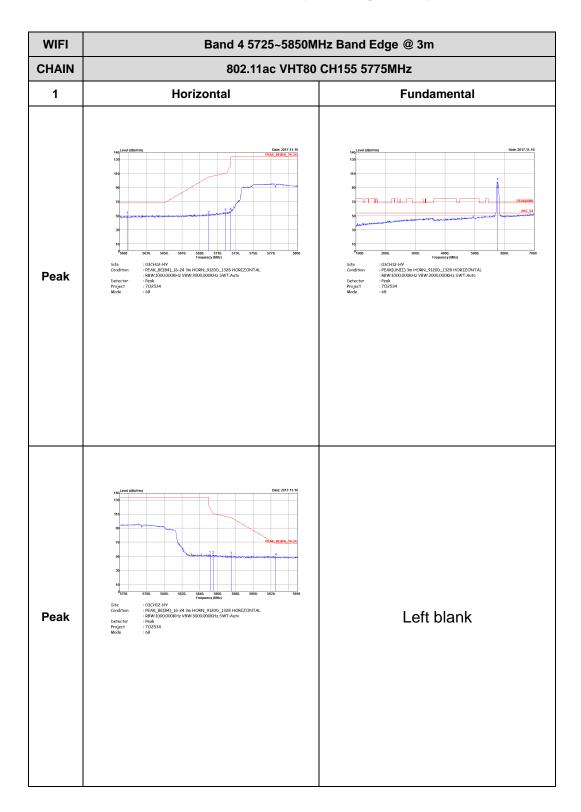


E-mail: Alex@sporton.com.tw

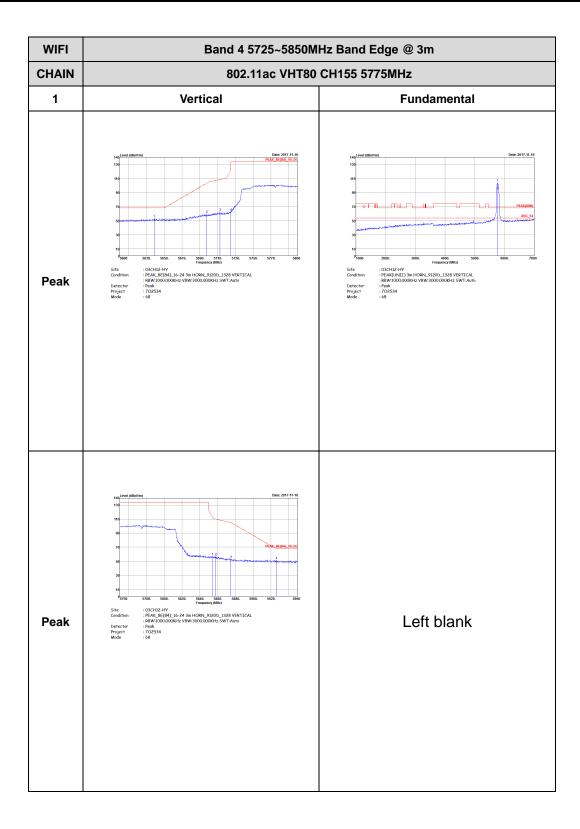


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Band 4 5725~5850MHz WIFI 802.11ac VHT80 (Band Edge @ 3m)



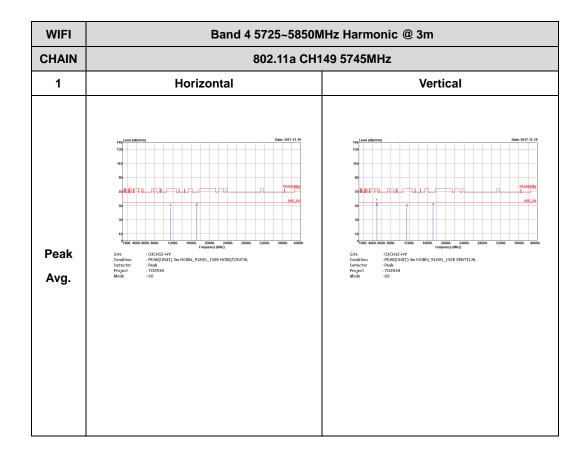
TEL: 0800-80005 FAX: 886-3-328-4978 E-mail: Alex@sporton.com.tw



E-mail: Alex@sporton.com.tw

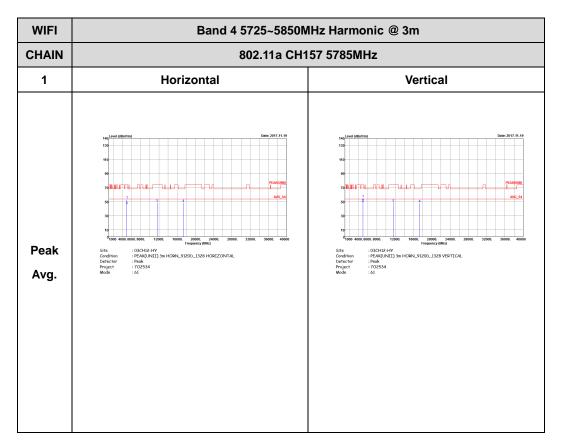
Band 4 - 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)



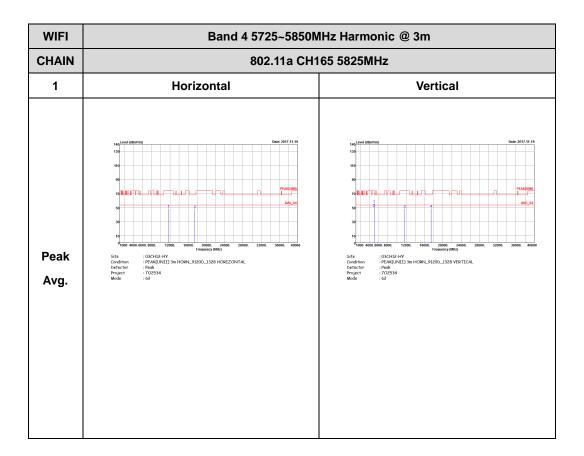
TEL: 0800-80005 FAX: 886-3-328-4978 E-mail: Alex@sporton.com.tw



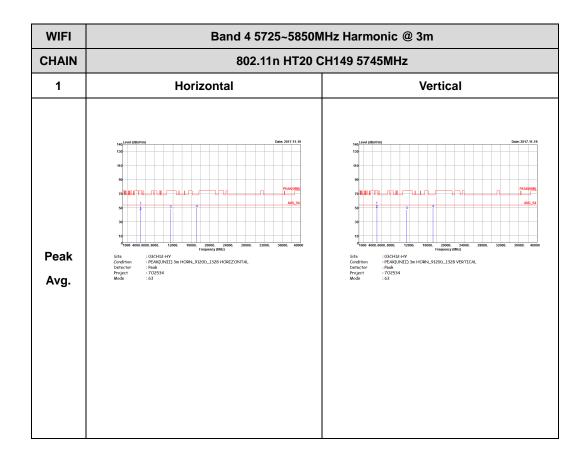


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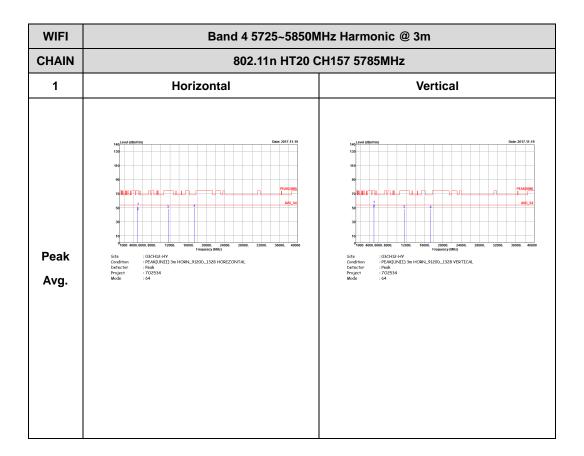


Band 4 5725~5850MHz WIFI 802.11n HT20 (Harmonic @ 3m)



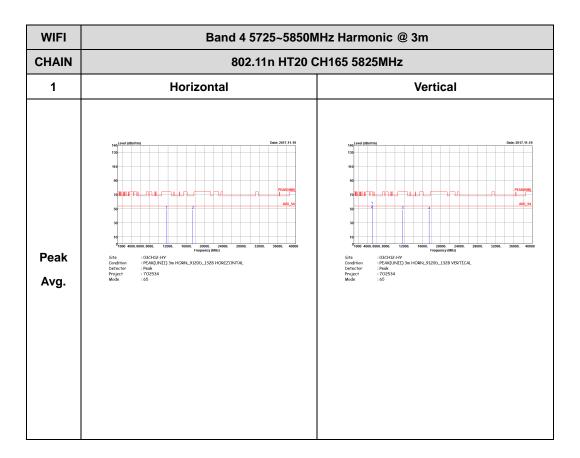
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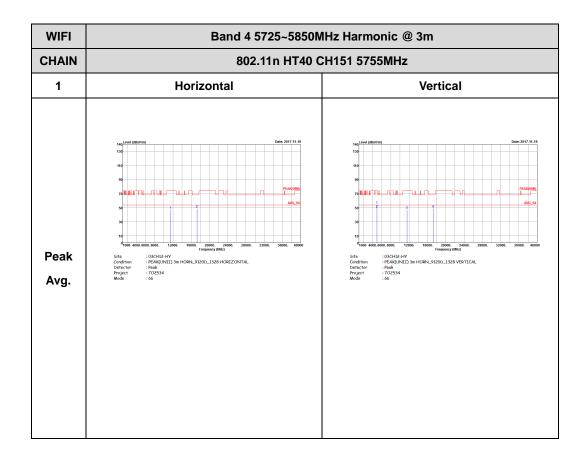


Page Number

: D23 of D47

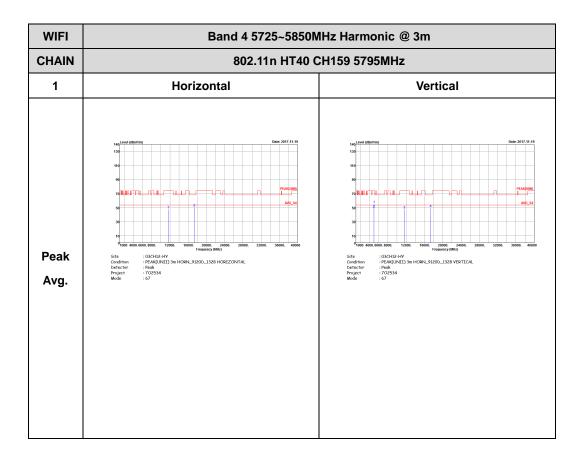


Band 4 5725~5850MHz WIFI 802.11n HT40 (Harmonic @ 3m)

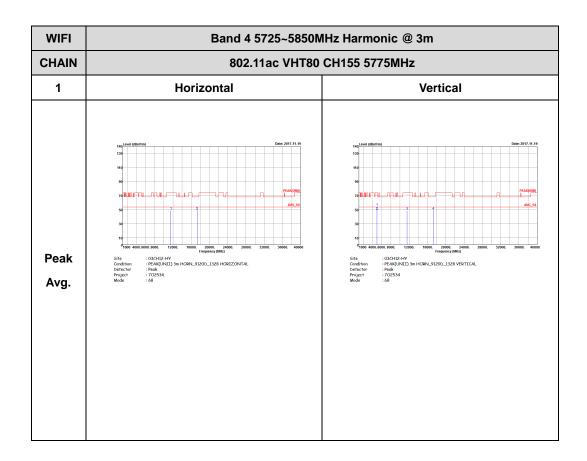


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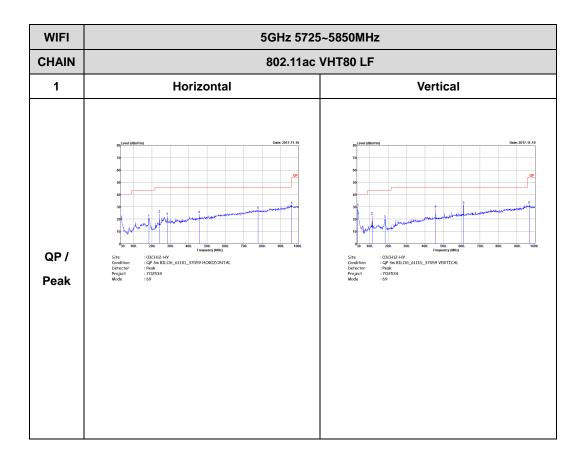


Band 4 5725~5850MHz WIFI 802.11ac VHT80 (Harmonic @ 3m)



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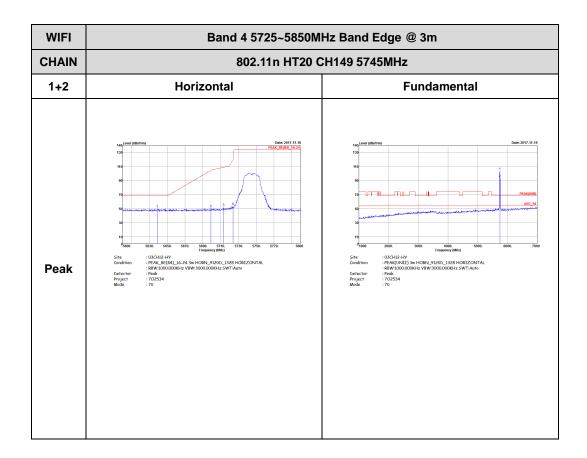
Emission below 1GHz 5GHz WIFI 802.11ac VHT80 (LF)



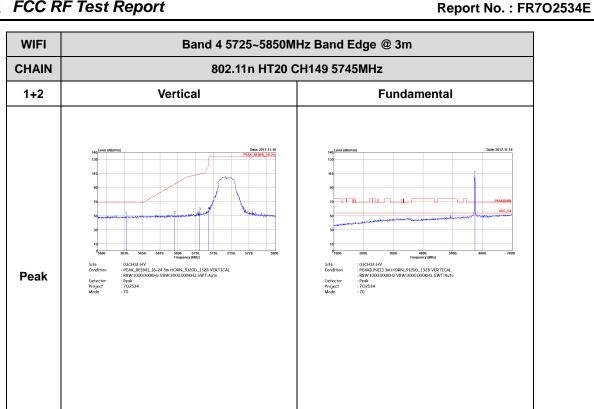
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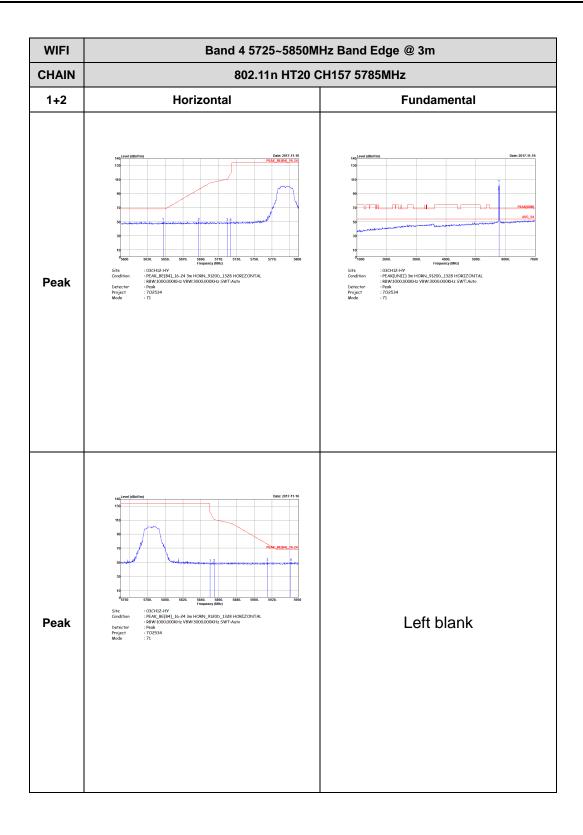
Band 4 - 5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

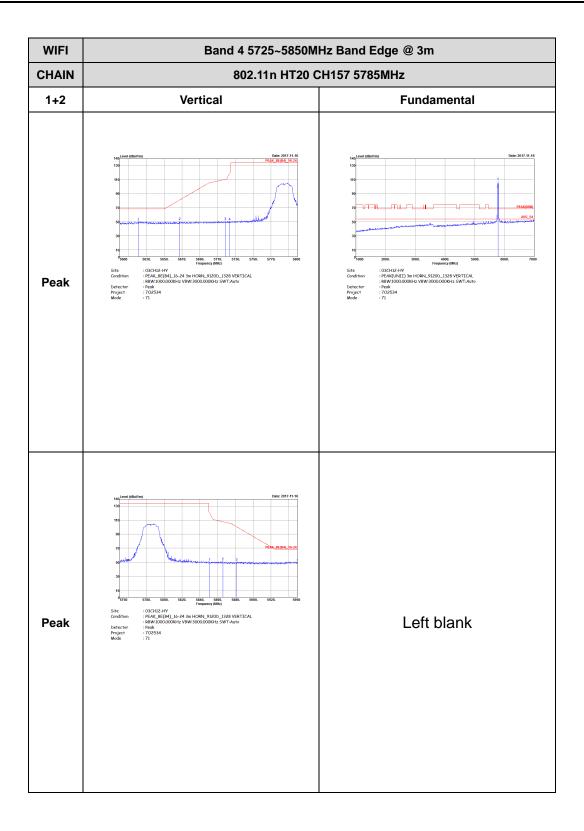


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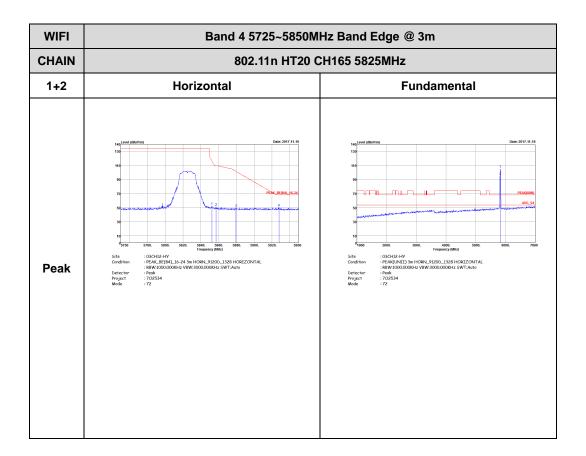


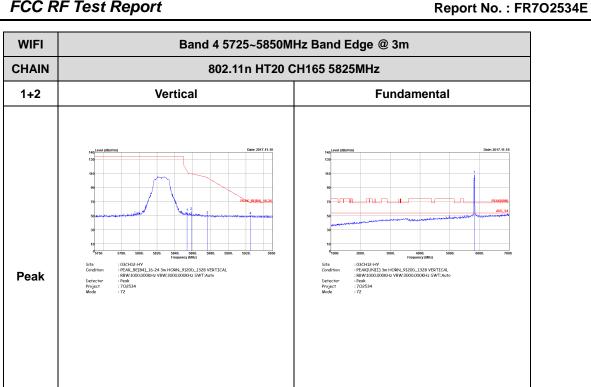
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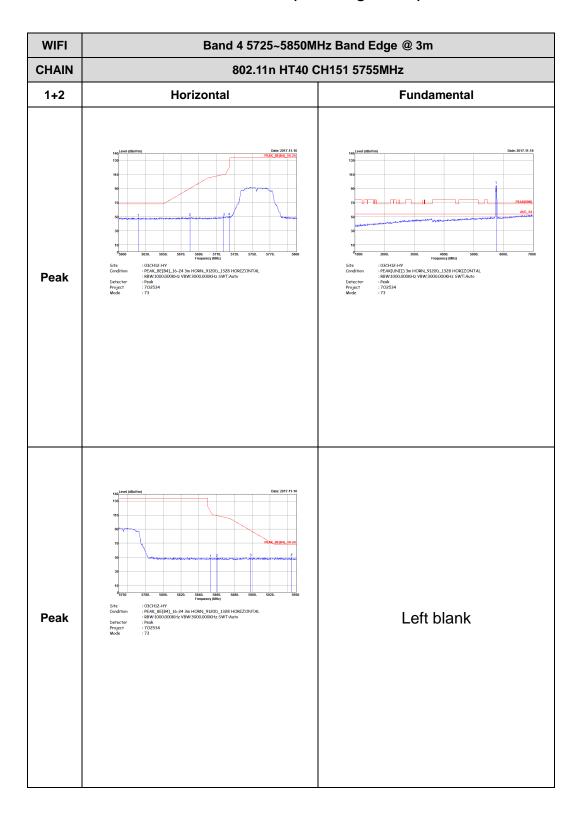
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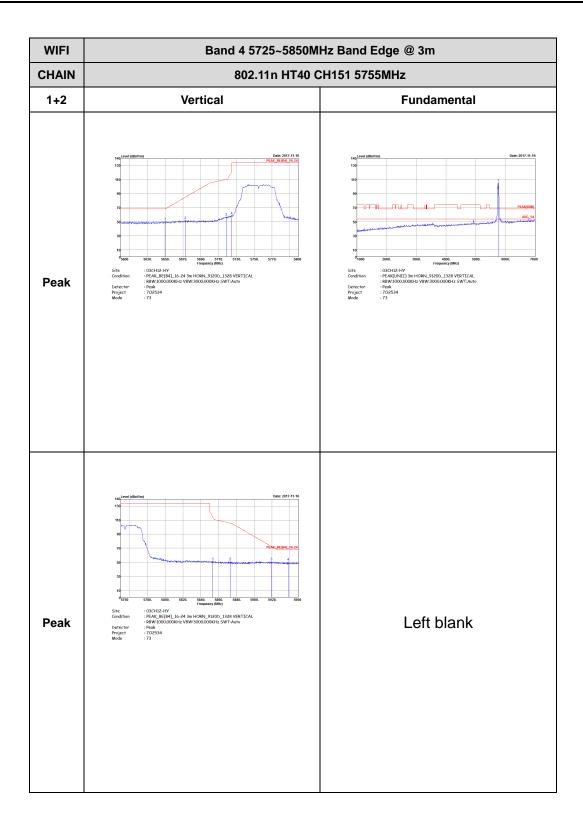




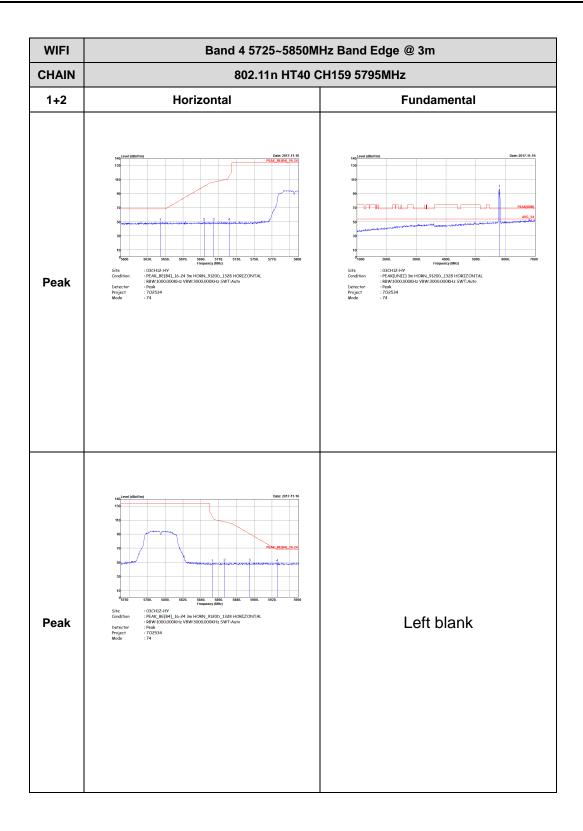
Band 4 5725~5850MHz WIFI 802.11n HT40 (Band Edge @ 3m)



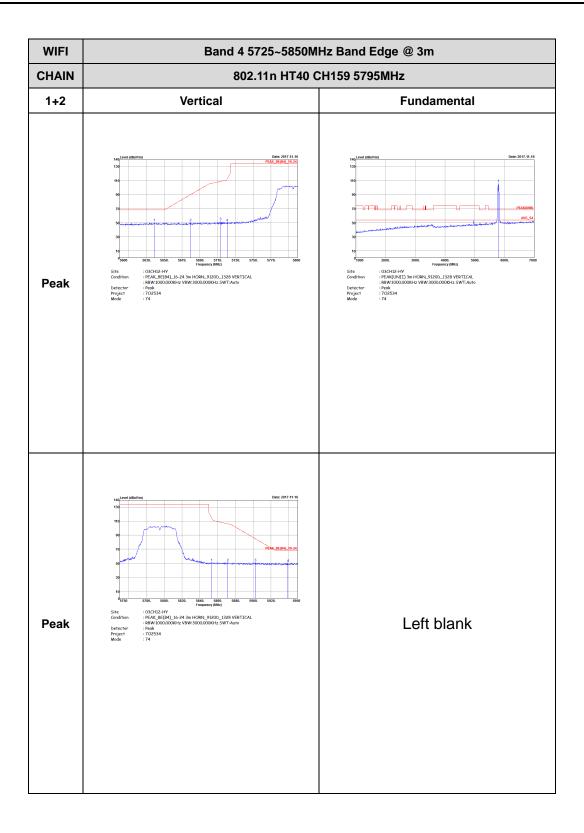
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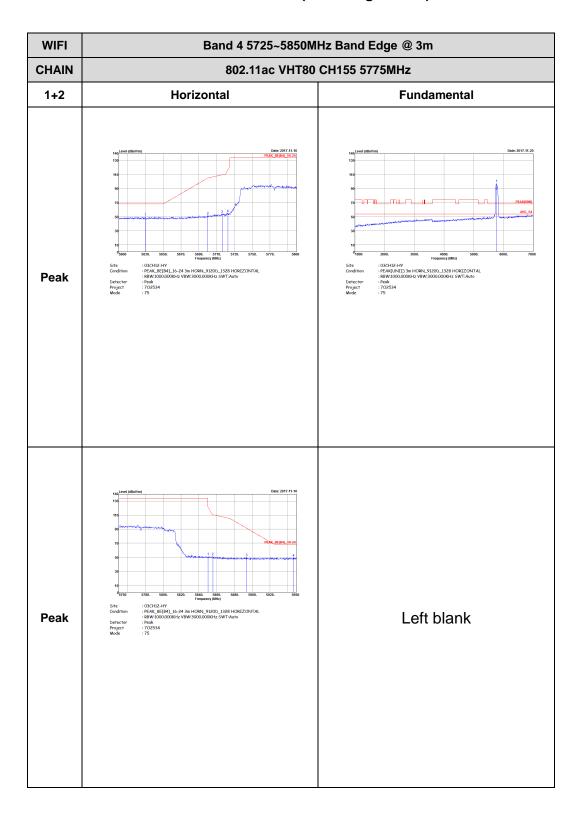


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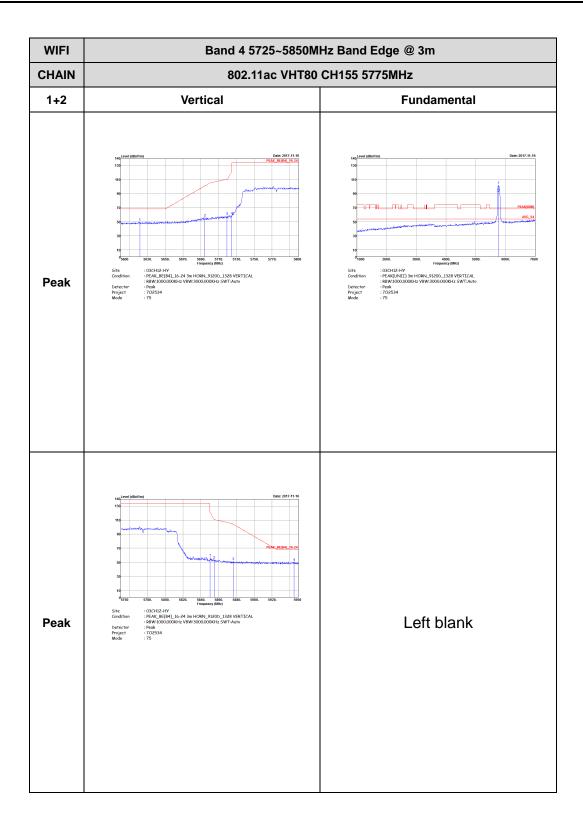


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Band 4 5725~5850MHz WIFI 802.11ac VHT80 (Band Edge @ 3m)



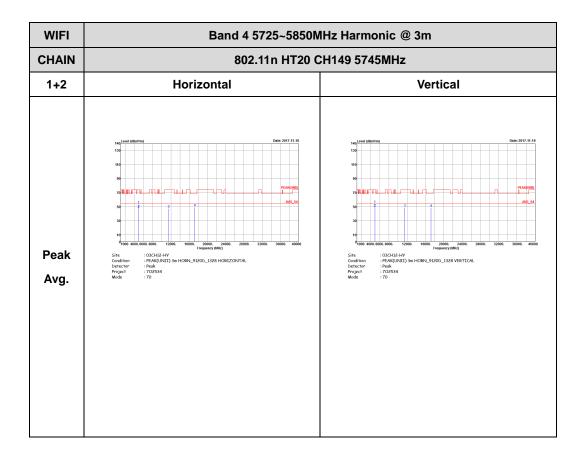
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E-mail: Alex@sporton.com.tw

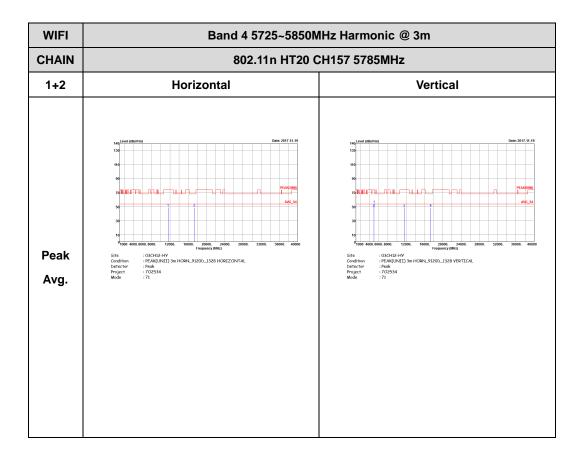
Band 4 - 5725~5850MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

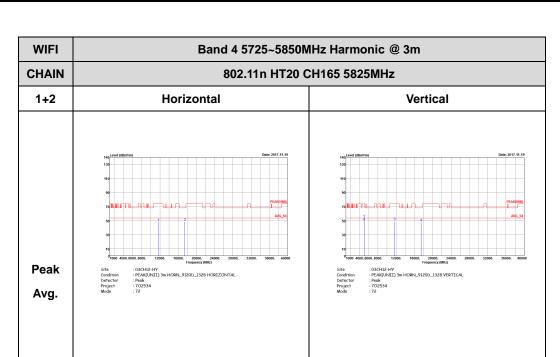


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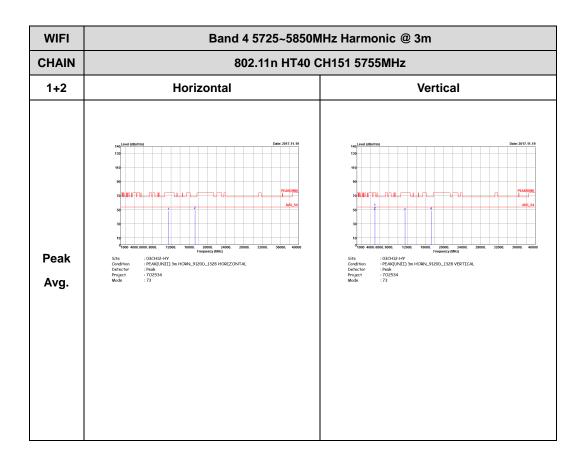




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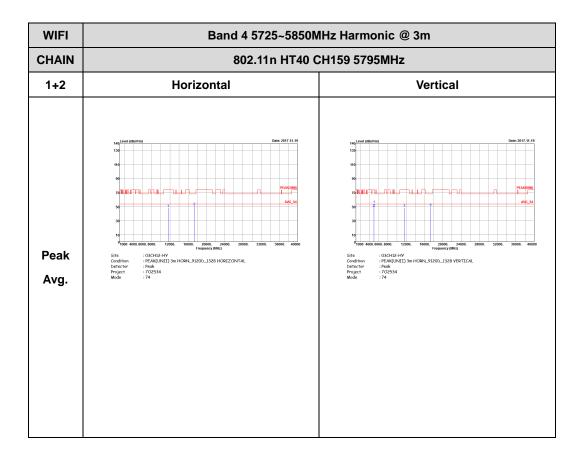


Band 4 5725~5850MHz WIFI 802.11n HT40 (Harmonic @ 3m)

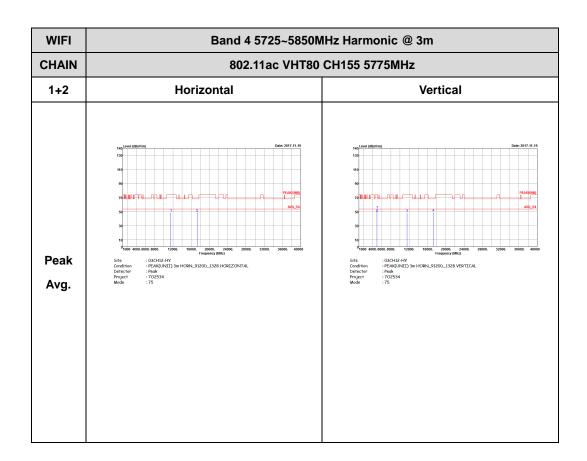


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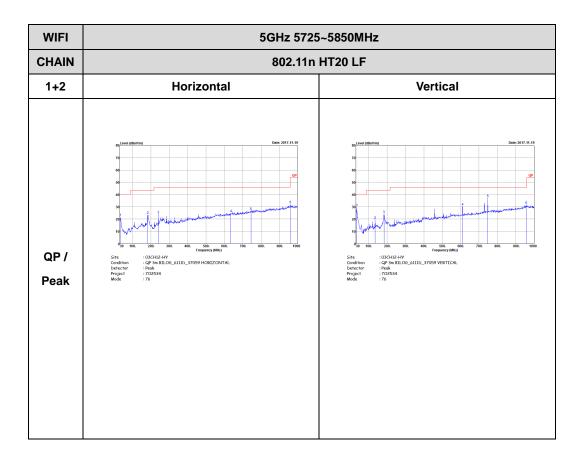


Band 4 5725~5850MHz WIFI 802.11ac VHT80 (Harmonic @ 3m)



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Emission below 1GHz 5GHz WIFI 802.11n HT20 (LF)



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Appendix E. Duty Cycle Plots

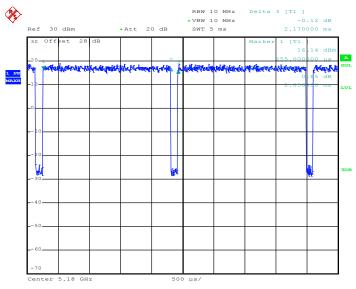
Chain	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1	802.11a	94.47	2050.00	0.49	1kHz
1	5GHz 802.11n HT20	95.52	1920.00	0.52	1kHz
1+2	5GHz 802.11n HT20 for Chain 1	88.18	970.00	1.03	3kHz
1+2	5GHz 802.11n HT20 for Chain 2	88.18	970.00	1.03	3kHz
1	5GHz 802.11n HT40	88.68	940.00	1.06	3kHz
1+2	5GHz 802.11n HT40 for Chain 1	88.49	492.00	2.03	3kHz
1+2	5GHz 802.11n HT40 for Chain 2	87.77	488.00	2.05	3kHz
1	5GHz 802.11ac VHT80	89.15	460.00	2.17	3kHz
1+2	5GHz 802.11ac VHT80 for Chain 1	86.49	256.00	3.88	10kHz
1+2	5GHz 802.11ac VHT80 for Chain 2	87.08	256.00	3.90	10kHz

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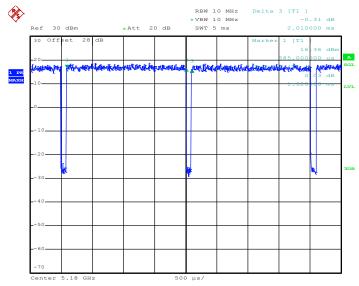
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802.11a



Date: 27.0CT.2017 12:20:59

802.11n HT20



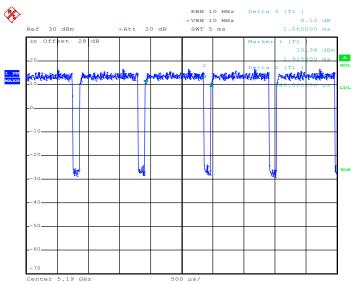
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TEL: 0800-80005 FAX: 886-3-328-4978

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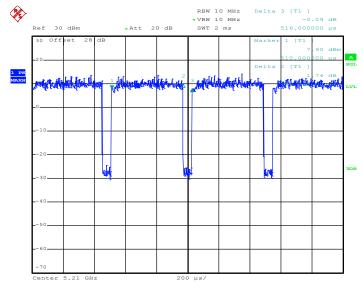






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802.11ac VHT80



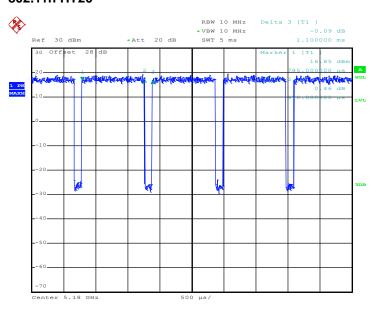
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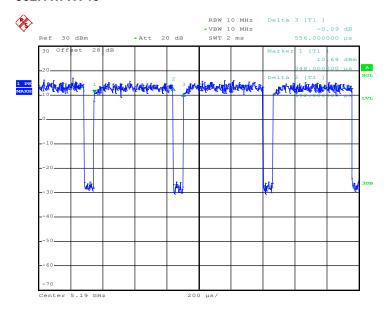


MIMO <Chain 1+2(1)> 802.11n HT20



Date: 27.OCT.2017 12:27:39

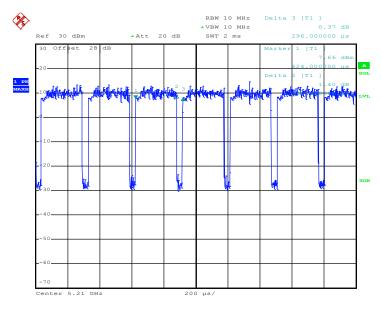
802.11n HT40



Date: 27.OCT.2017 14:10:20

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802.11ac VHT80



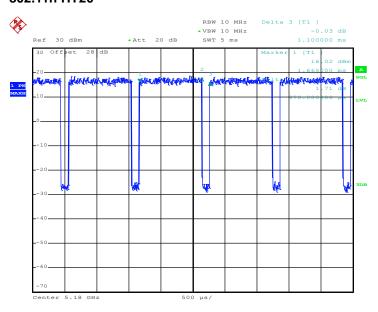
Date: 27.OCT.2017 14:27:51

TEL: 0800-80005 FAX: 886-3-328-4978

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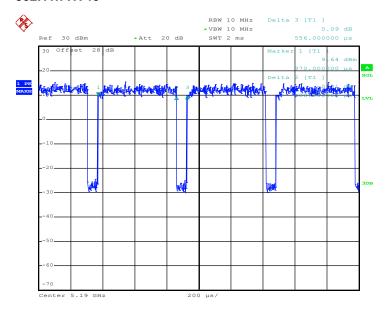


MIMO <Chain 1+2(2)> 802.11n HT20



Date: 27.OCT.2017 12:28:44

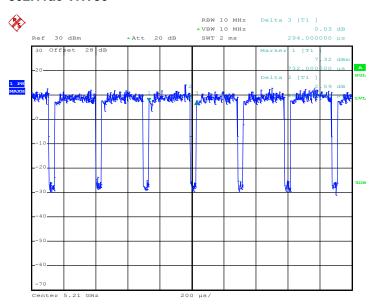
802.11n HT40



Date: 27.OCT.2017 14:11:21

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802.11ac VHT80



Date: 27.OCT.2017 14:28:55

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