



FCC RADIO TEST REPORT

FCC ID : UZ7WS5002
Equipment : WS50 Wearable Computer
Brand Name : Zebra
Model Name : WS5002
Applicant : Zebra Technologies Corporation
1 Zebra Plaza, Holtsville, NY 11742
Manufacturer : Zebra Technologies Corporation
1 Zebra Plaza, Holtsville, NY 11742
Standard : FCC Part 15 Subpart E §15.407

The product was received on Mar. 19, 2024 and testing was performed from Mar. 29, 2024 to Apr. 04, 2024. We, Sporton International Inc. Wensan Laboratory, 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 variant report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issue Date
FR431802F	01	Initial issue of report	May 03, 2024



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	15.403(i)	6dB & 26dB Bandwidth	Not Required	-
-	2.1049	99% Occupied Bandwidth	Not Required	-
3.1	15.407(a)	Maximum Conducted Output Power	Pass	-
-	15.407(a)	Power Spectral Density	Not Required	-
3.2	15.407(b)	Unwanted Emissions	Pass	6.56 dB under the limit at 17475.00 MHz
-	15.207	AC Conducted Emission	Not Required	-
3.3	15.203	Antenna Requirement	Pass	-

Note:

1. Not required means after assessing, test items are not necessary to carry out.
2. This is a variant report by removing NFC function and changing model name. All the test cases were performed on original report which can be referred to Sporton Report Number FR1O0707-02F. Based on the original report, the test cases were verified.

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Wei Chen

Report Producer: Rebecca Wu



1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	WS50 Wearable Computer
Brand Name	Zebra
Model Name	WS5002
FCC ID	UZ7WS5002
EUT supports Radios application	WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
HW Version	MV
SW Version	11-38-19.00-RN-U00-PRD-WTX-04
MFD	25DEC23
EUT Stage	Identical Prototype

Remark: The EUT's information above is declared by manufacturer.

SKU List				
Helix SKU	Scanner	Battery	Camera	Mounting
SKU 3-1	N/A	Standard Battery	Yes	Wrist Strap
SKU 3-2	N/A	Standard Battery	N/A	Wrist Strap

Specification of Accessories				
Adaptor	Brand Name	Zebra	Model Number	PWR-WUA5V12W0US
Standard Battery	Brand Name	Zebra	Model Number	BT-000446
USB charging cable with cup	Brand Name	Zebra	Model Number	CBL-WS5X-USB1-01
USB C CABLE	Brand Name	Zebra	Model Number	CBL-TC2X-USBC-01

Supported Unit used in test configuration and system				
Converged Scanner Shell	Brand Name	Zebra	Part Number	SG-WS5X-SH LCS-01
Replacement Finger Trigger for Converged	Brand Name	Zebra	Part Number	SG-WS5X-TRGA-01
Wrist Shell	Brand Name	Zebra	Part Number	SG-WS5X-SHLWR-01
Wrist Strap	Brand Name	Zebra	Part Number	SG-WS5X-WSTRP-01
Wrist Mount (without strap)	Brand Name	Zebra	Part Number	SG-WS5X-WSTMT-01
Wrist Mount with strap	Brand Name	Zebra	Part Number	SG-WS5X-WPLTS-01
Back of Hand Mount for Converged	Brand Name	Zebra	Part Number	SG-WS5X-BHMT-01
Thin Mount	Brand Name	Zebra	Part Number	SG-WS5X-TNMNT-01
Black Strap	Brand Name	Zebra	Part Number	SG-WS5X-BNDBK-01
Blur Strap	Brand Name	Zebra	Part Number	SG-WS5X-BNDBL-01
Clip Mount	Brand Name	Zebra	Part Number	SG-WS5X-CPMNT-01
Clip for Clip Mount	Brand Name	Zebra	Part Number	SG-WS5X-MCLIP-01
Shell for Clip Mount	Brand Name	Zebra	Part Number	SG-WS5X-SHELL-01
Headphone 1	Brand Name	Zebra	Part Number	HS2100
Headphone 2	Brand Name	Zebra	Part Number	HDST-35MM-PTT1-01
Generic Lanyard	Brand Name	Zebra	Part Number	N/A



1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx/Rx Frequency Range	5745 MHz ~ 5825 MHz
Maximum Output Power to Antenna	802.11a: 19.30 dBm / 0.0851 W 802.11n HT20: 19.20 dBm / 0.0832 W 802.11n HT40: 19.60 dBm / 0.0912 W 802.11ac VHT20: 19.50 dBm / 0.0891 W 802.11ac VHT40: 19.60 dBm / 0.0912 W 802.11ac VHT80: 19.50 dBm / 0.0891 W
Antenna Type / Gain	PIFA Antenna with gain 3.92 dBi
Type of Modulation	802.11a/n: OFDM (BPSK/QPSK/16QAM/64QAM) 802.11ac: OFDM (BPSK/QPSK/16QAM/64QAM/256QAM)

Note:

1. For other wireless features of this EUT, test report will be issued separately.
2. The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.3 Modification of EUT

No modifications made to the EUT during the testing.



1.4 Testing Location

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	Sporton Site No. TH05-HY, 03CH11-HY

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

FCC designation No.: TW3786

1.5 Applicable Standards

According to the specifications declared by 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 v02r01.
- ♦ ANSI C63.10-2013

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.
3. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



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: radiation emission (1 GHz to 18GHz). For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and only the worst case emissions were reported in this report.

2.1 Carrier Frequency and Channel

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

Note:

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



2.2 Test Mode

The final test modes include the worst data rates for each modulation shown in the table below.

Single Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

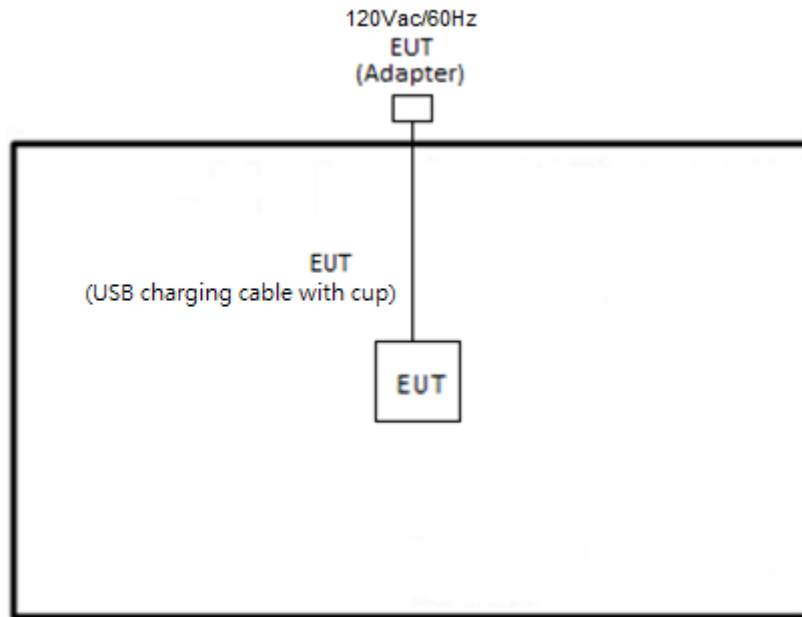
Ch. #		Band IV : 5725-5850 MHz	
		802.11a	
L	Low	-	
M	Middle	-	
H	High	165	

Remark:

1. For radiation spurious emission, the modulation and the data rate picked for testing are determined by the Max. RF conducted power.
2. For Radiated Test Cases, the tests were performed with SKU 3-1.

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



2.4 EUT Operation Test Setup

The RF test items, utility "QRCT Version 4.0.211.0" was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

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

Please refer to the measuring equipment list in this test report.

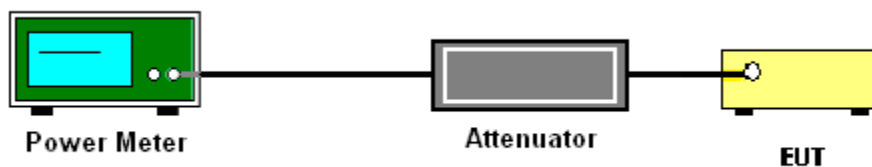
3.1.3 Test Procedures

The testing follows Method PM-G of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method PM-G (Measurement using a gated RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit at its maximum power control level.
3. Measure the average power of the transmitter.
4. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

3.1.4 Test Setup



3.1.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.



3.2 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

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

(2) Unwanted spurious emissions falls in restricted bands shall comply with the general field strength limits as below table,

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (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.

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

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

(3) KDB789033 D02 v02r01 G)2)c)

(i) Sections 15.407(b)(1-3) specifies the unwanted emissions limit 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.

(ii) Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). The emission limits are based on the use of a peak detector.



3.2.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

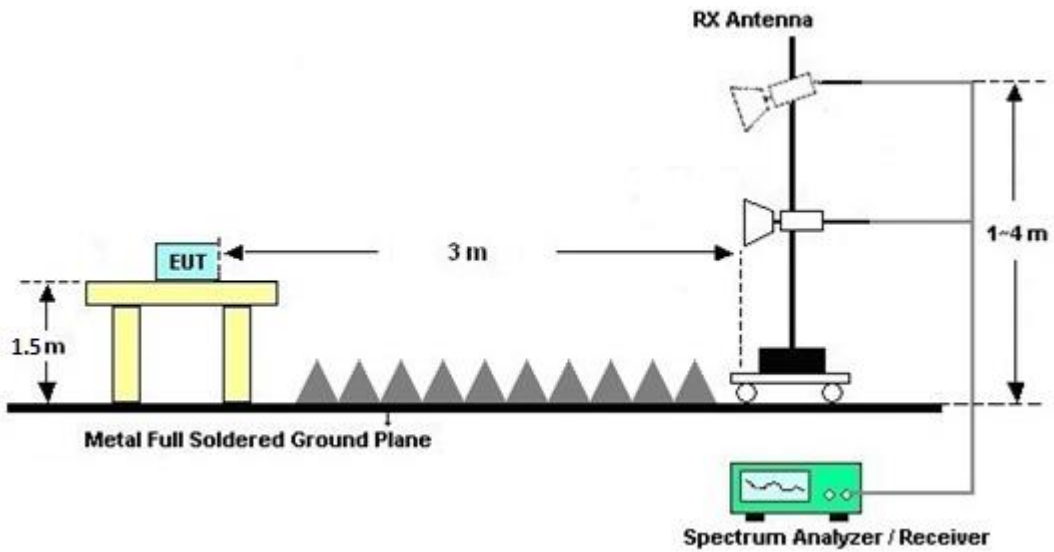
3.2.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
 - (1) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW \geq 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - (2) Procedures for Average Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW \geq 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 is placed on a turntable with 1.5 meter for frequency above 1 GHz respectively above ground.
3. The EUT is set 3 meters away from the receiving antenna which is 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 is 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. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies.

When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-“.

3.2.4 Test Setup

For radiated test above 1GHz



3.2.5 Test Result of Radiated Band Edges

Please refer to Appendix B and C.

3.2.6 Duty Cycle

Please refer to Appendix D.

3.2.7 Test Result of Unwanted Radiated Emission

Please refer to Appendix B and C.



3.3 Antenna Requirements

3.3.1 Standard Applicable

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.3.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-01620	1GHz~18GHz	Aug. 17, 2023	Apr. 01, 2024~ Apr. 04, 2024	Aug. 16, 2024	Radiation (03CH11-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-10M-700 0-MR	EC1900245	10MHz~7GHz	Jan. 09, 2024	Apr. 01, 2024~ Apr. 04, 2024	Jan. 08, 2025	Radiation (03CH11-HY)
Preamplifier	Jet-Power	JPA0118-55-30 3	17100018000 55007	1GHz~18GHz	Jun. 14, 2023	Apr. 01, 2024~ Apr. 04, 2024	Jun. 13, 2024	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 05, 2023	Apr. 01, 2024~ Apr. 04, 2024	Oct. 04, 2024	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Apr. 01, 2024~ Apr. 04, 2024	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Apr. 01, 2024~ Apr. 04, 2024	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Apr. 01, 2024~ Apr. 04, 2024	N/A	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Apr. 01, 2024~ Apr. 04, 2024	N/A	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY1595/2	30MHz~40GHz	Mar. 06, 2024	Apr. 01, 2024~ Apr. 04, 2024	Mar. 05, 2025	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz~40GHz	Mar. 06, 2024	Apr. 01, 2024~ Apr. 04, 2024	Mar. 05, 2025	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	30M~40G	Mar. 06, 2024	Apr. 01, 2024~ Apr. 04, 2024	Mar. 05, 2025	Radiation (03CH11-HY)
Filter	Wainwright	WHKX8-5872. 5-6750-18000- 40SS	SN3	6.75GHz High Pass Filter	Sep. 11, 2023	Apr. 01, 2024~ Apr. 04, 2024	Sep. 10, 2024	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP140325	N/A	Dec. 08, 2023	Apr. 01, 2024~ Apr. 04, 2024	Dec. 07, 2024	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 07, 2023	Mar. 29, 2024	Nov. 06, 2024	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	17I00015SNO 36 (NO:35)	10MHz~6GHz	Aug. 23, 2023	Mar. 29, 2024	Aug. 22, 2024	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101564	10Hz ~ 40GHz	Sep. 12, 2023	Mar. 29, 2024	Sep. 11, 2024	Conducted (TH05-HY)



5 Measurement Uncertainty

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 6000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.3 dB
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Uncertainty of Radiated Emission Measurement (6000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.3 dB
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	Willy Chang	Temperature:	21~25	°C
Test Date:	2024/3/29	Relative Humidity:	51~54	%

TEST RESULTS DATA
Average Power Table

U-NII-3 single antenna												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	
11a	6Mbps	1	149	5745	19.30	-		30.00	-	3.92	-	Pass
HT20	MCS0	1	157	5785	19.20	-		30.00	-	3.92	-	Pass
HT40	MCS0	1	151	5755	19.60	-		30.00	-	3.92	-	Pass
VHT20	MCS0	1	157	5785	19.50	-		30.00	-	3.92	-	Pass
VHT40	MCS0	1	151	5755	19.60	-		30.00	-	3.92	-	Pass
VHT80	MCS0	1	155	5775	19.50	-		30.00	-	3.92	-	Pass



Appendix B. Radiated Spurious Emission

Test Engineer :	Fu Chen, Sam Chou, and Troye Hsieh	Temperature :	20.0~20.8°C
		Relative Humidity :	53.2~64.8%

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

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)	
802.11a CH 165 5825MHz	*	5825	112	-	-	102.08	33.95	10.86	34.89	100	247	P	H	
	*	5825	104.16	-	-	94.24	33.95	10.86	34.89	100	247	A	H	
		5850	64.94	-57.26	122.2	54.95	34	10.87	34.88	100	247	P	H	
		5858.6	62.82	-46.97	109.79	52.79	34.03	10.87	34.87	100	247	P	H	
		5877.2	56.74	-46.83	103.57	46.61	34.11	10.88	34.86	100	247	P	H	
		5936.2	50.66	-17.54	68.2	40.32	34.27	10.9	34.83	100	247	P	H	
														H
														H
	*	5825	108.01	-	-	98.09	33.95	10.86	34.89	350	273	P	V	
	*	5825	100.39	-	-	90.47	33.95	10.86	34.89	350	273	A	V	
		5850.2	62.76	-58.98	121.74	52.77	34	10.87	34.88	350	273	P	V	
		5855.4	59.86	-50.83	110.69	49.84	34.02	10.87	34.87	350	273	P	V	
		5878	51.92	-51.05	102.97	41.79	34.11	10.88	34.86	350	273	P	V	
		5927.8	50.69	-17.51	68.2	40.37	34.26	10.89	34.83	350	273	P	V	
													V	
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													



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

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11a CH 165 5825MHz		11650	46.95	-27.05	74	51.96	38.6	18.05	61.66	-	-	P	H
		17475	61.64	-6.56	68.2	57.42	38.65	22.7	57.13	300	43	P	H
													H
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			11650	47.06	-26.94	74	52.07	38.6	18.05	61.66	-	-	P
		17475	59.57	-8.63	68.2	55.35	38.65	22.7	57.13	100	57	P	V
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													V
Remark	<ol style="list-style-type: none"> No other spurious found. All results are PASS against Peak and Average limit line. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only. 												



Note symbol

*	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



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

WIFI	Note	Frequency	Level	Margin	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.					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)
802.11a		5650	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 36		5650	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H
5180MHz													

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) = Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
3. Margin(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 5650MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
= 55.45 (dBμV/m)
2. Margin (dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 5650MHz:

1. Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
= 43.54 (dBμV/m)
2. Margin (dB) = Level(dBμV/m) – Limit Line(dBμV/m)
= 43.54(dBμV/m) – 54(dBμV/m)
= -10.46(dB)

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



Appendix C. Radiated Spurious Emission Plots

Test Engineer :	Fu Chen, Sam Chou, and Troye Hsieh	Temperature :	20.0~20.8°C
		Relative Humidity :	53.2~64.8%

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

WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Fundamental
Peak	<p>Site Condition : 03CH11-HY : PEAK_BE(84)_16-24 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site Condition : 03CH11-HY : PEAK(UNII) 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	Left blank	<p>Site Condition : 03CH11-HY : AVG_54 3m 91200_01620_230817 HORIZONTAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>



WIFI	Band 4 5725~5850MHz Band Edge @ 3m	
ANT	802.11a CH165 5825MHz	
1	Vertical	Fundamental
Peak	<p>Site : 03CH11-HY Condition : PEAK_8E(B4)_16-24 3m 91200_01620_230817 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>	<p>Site : 03CH11-HY Condition : PEAK(UNIT) 3m 91200_01620_230817 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto</p>
Avg.	Left blank	<p>Site : 03CH11-HY Condition : AVG_54 3m 91200_01620_230817 VERTICAL : RBW:1000.000KHz VBW:0.010KHz SWT:Auto</p>



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

WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Vertical
Peak Avg.	<p>Site : 03CH11-HY Condition : PEAK(UWB) 3m 91200_01620_230817 HORIZONTAL</p>	<p>Site : 03CH11-HY Condition : PEAK(UWB) 3m 91200_01620_230817 VERTICAL</p>



WIFI	Band 4 5725~5850MHz Harmonic @ 3m	
ANT	802.11a CH165 5825MHz	
1	Horizontal	Vertical
14.47G ~14.5G Avg.	<p>Site : 03CHI1-HY Condition : AVG_54 3m 91200_01620_230817 HORIZONTAL</p>	<p>Site : 03CHI1-HY Condition : AVG_54 3m 91200_01620_230817 VERTICAL</p>
	<p>Site : 03CHI1-HY Condition : AV6_54 3m 91200_01620_230817 HORIZONTAL</p>	<p>Site : 03CHI1-HY Condition : AV6_54 3m 91200_01620_230817 VERTICAL</p>
17.7G ~18G Avg.		



Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
802.11a	99.14	-	-	10Hz

