

Report No: JYTSZB-R12-2100802

FCC REPORT

Applicant:	Todos Industrial Limited		
Address of Applicant:	Room 308, building A3, Fuhai information port, Fuhai street, Bao'an District, Shenzhen City, Guangdong Province, China, 518000		
Equipment Under Test (E	EUT)		
Product Name:	Tablet PC		
Model No.:	Tab X2, TabX2, TabX3, TabX4, TabX5, TabT1, TabT2, TabT3, TabN1, TabN2, TabN3, TabXX (XX can be any number)		
Trade mark:	aprix, Geex, hiup, Todos		
FCC ID:	2AZQ6-APX2		
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247		
Date of sample receipt:	11 May, 2021		
Date of Test:	12 May, to 25 Jun., 2021		
Date of report issued:	30 Jun., 2021		
Test Result:	PASS*		

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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Version 2

Version No.	Date	Description
00	30 Jun., 2021	Original

Tested by:

Janet Wei Test Engineer

Date: 30 Jun., 2021

Reviewed by:

Winner Mang

Project Engineer

Date: 30 Jun., 2021

Project No.: JYTSZE2105055



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4 Test Summary

Test Items	Section in CFR 47	Test Data	Result
Antenna requirement	15.203 & 15.247 (b)	See Section 6.1	Pass
AC Power Line Conducted Emission	15.207	See Section 6.2	Pass
Duty Cycle	ANSI C63.10-2013	Appendix A – 2.4G Wi-Fi	Pass
Conducted Peak Output Power	15.247 (b)(3))(3) Appendix A – 2.4G Wi-Fi	
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Appendix A – 2.4G Wi-Fi	Pass
Power Spectral Density	15.247 (e)	Appendix A – 2.4G Wi-Fi	Pass
Conducted Band Edge		Appendix A – 2.4G Wi-Fi	Pass
Radiated Band Edge	15.247 (d)	See Section 6.6.2	Pass
Conducted Spurious Emission	45.005.8.45.000	Appendix A – 2.4G Wi-Fi	Pass
Radiated Spurious Emission	15.205 & 15.209	See Section 6.7.2	Pass
Remark:	1	•	

1. Pass: The EUT complies with the essential requirements in the standard.

2. N/A: Not Applicable.

3. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).

Test Method:

ANSI C63.10-2013 KDB 558074 D01 15.247 Meas Guidance v05r02



5 General Information

5.1 Client Information

Applicant:	Todos Industrial Limited
Address:	Room 308, building A3, Fuhai information port, Fuhai street, Bao'an District, Shenzhen City, Guangdong Province, China, 518000
Manufacturer/ Factory:	Todos Industrial Limited
Address:	Room 308, building A3, Fuhai information port, Fuhai street, Bao'an District, Shenzhen City, Guangdong Province, China, 518000

5.2 General Description of E.U.T.

Product Name:	Tablet PC			
Model No.:	Tab X2, TabX2, TabX3, TabX4, TabX5, TabT1, TabT2, TabT3, TabN1, TabN2, TabN3, TabXX (XX can be any number)			
Operation Frequency:	2412MHz~2462MHz: 802.11b/802.11g/802.11n(HT20)			
	2422MHz~2452MHz: 802.11n(HT40)			
Channel numbers:	11: 802.11b/802.11g/802.11(HT20)			
	7: 802.11n(HT40)			
Channel separation:	5MHz			
Modulation technology:	Direct Sequence Spread Spectrum (DSSS)			
(IEEE 802.11b)				
Modulation technology:	Orthogonal Frequency Division Multiplexing(OFDM)			
(IEEE 802.11g/802.11n)				
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps			
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps			
Data speed (IEEE 802.11n):	Up to 150Mbps			
Antenna Type:	Internal Antenna			
Antenna gain:	2.15dBi			
Power supply:	Rechargeable Li-ion Battery DC3.8V, 6000mAh			
AC adapter:	Model: EE-0602000UZ			
	Input: AC100-220V, 50/60Hz, 0.5A			
	Output: DC 5.0V, 2000mA			
Remark:	Model No.: Tab X2, TabX2, TabX3, TabX4, TabX5, TabT1, TabT2, TabT3, TabN1, TabN2, TabN3, TabXX (XX can be any number) The internal circuit design, layout, components used and internal wiring are all the same, all trademarks correspond to all models, the only difference is the model name.			
Test Sample Condition:	The test samples were provided in good working order with no visible defects.			

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3 2422MHz 6 2437MHz 9 2452MHz							

1. For 802.11n-HT40 mode, the channel number is from 3 to 9;

2. Channel 1, 6 & 11 selected for 802.11b/g/n-HT20 as Lowest, Middle and Highest channel. Channel 3, 6 & 9 selected for 802.11n-HT40 as Lowest, Middle and Highest Channel.





5.3 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Transmitting mode	Keep the EUT in continuous transmitting with modulation

Radiated Emission: The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Mode	Data rate			
802.11b	1Mbps			
802.11g	6Mbps			
802.11n(HT20)	6.5Mbps			
802.11n(HT40)	13.5Mbps			

5.4 Description of Support Units

The EUT has been tested as an independent unit.

5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.16 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±3.20 dB (k=2)

5.6 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

• FCC - Designation No.: CN1211

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

• ISED – CAB identifier.: CN0021

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

• A2LA - Registration No.: 4346.01

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <u>https://portal.a2la.org/scopepdf/4346-01.pdf</u>

5.7 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd. Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China. Tel: +86-755-23118282, Fax: +86-755-23116366 Email: info-JYTee@lets.com, Website: http://www.ccis-cb.com



5.8 Test Instruments list

Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	ETS	9m*6m*6m	966	01-19-2021	01-18-2024
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-03-2021	03-02-2022
Biconical Antenna	SCHWARZBECK	VUBA9117	359	06-18-2020	06-17-2021
Diconical Antenna	SCHWARZBECK	VODAJITI		06-18-2021	06-17-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-03-2021	03-02-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-18-2020	06-17-2021
				06-18-2021	06-17-2022
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-18-2020	11-17-2021
EMI Test Software	AUDIX	E3	N N	/ersion: 6.110919b)
Pre-amplifier	HP	8447D	2944A09358	03-03-2021	03-02-2022
Pre-amplifier	CD	PAP-1G18	11804	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-18-2020	11-17-2021
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-03-2021	03-02-2022
Spectrum Analyzer	Agilent	N9020A	MY50510123	11-18-2020	11-17-2021
Signal Generator	Rohde & Schwarz	SMX	835454/016	03-03-2021	03-02-2022
Signal Generator	R&S	SMR20	1008100050	03-03-2021	03-02-2022
RF Switch Unit	MWRFTEST	MW200	N/A	N/A	N/A
Test Software	MWRFTEST	MTS8200	Version: 2.0.0.0		
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-03-2021	03-02-2022
Cable	MICRO-COAX	MFR64639	K10742-5	03-03-2021	03-02-2022
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-03-2021	03-02-2022
DC Power Supply	XinNuoEr	WYK-10020K	1409050110020	09-25-2020	09-24-2021
Temperature Humidity Chamber	HengPu	HPGDS-500	20140828008	11-01-2020	10-31-2021
Simulated Station	Rohde & Schwarz	CMW500	140493	07-22-2020	07-21-2021
10m SAC	ETS	RFSD-100-F/A	Q2005	03-31-2021	04-01-2024
BiConiLog Antenna	SCHWARZBECK	VULB 9168	1249	03-31-2021	04-01-2022
BiConiLog Antenna	SCHWARZBECK	VULB 9168	1250	03-31-2021	04-01-2022
EMI Test Receiver	R&S	ESR 3	102800	04-06-2021	04-07-2022
EMI Test Receiver	R&S	ESR 3	102802	04-06-2021	04-07-2022
Pre-amplifier	Bost	LNA 0920N	2016	04-06-2021	04-07-2022
Pre-amplifier	Bost	LNA 0920N	2019	04-06-2021	04-07-2022
Test Software	R&S	EMC32	Version: 10.50.40		

Conducted Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-03-2021	03-02-2022
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-03-2021	03-02-2022
LISN	CHASE	MN2050D	1447	03-03-2021	03-02-2022
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	06-18-2020	06-17-2021
LISIN	Ronde & Schwarz	E3H3-Z5	6436621/010	06-18-2021	06-17-2022
Cable	HP	10503A	N/A	03-03-2021	03-02-2022
EMI Test Software	AUDIX	E3	١	/ersion: 6.110919I	0

Conducted method:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
Spectrum Analyzer	Keysight	N9010B	MY60240202	11-27-2020	11-26-2021
Vector Signal Generator	Keysight	N5182B	MY59101009	11-27-2020	11-26-2021
Analog Signal Generator	Keysight	N5173B	MY59100765	11-27-2020	11-26-2021

JianYan Testing Group Shenzhen Co., Ltd. No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China. Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366

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Power Detector Box	MWRF-test	MW100-PSB	MW201020JYT	11-27-2020	11-26-2021
Simulated Station	Rohde & Schwarz	CMW270	102335	11-27-2020	11-26-2021
RF Control Box	MWRF-test	MW100-RFCB	MW200927JYT	N/A	N/A
PDU	MWRF-test	XY-G10	N/A	N/A	N/A
Test Software	MWRF-tes	MTS 8310	, v	Version: 2.0.0.0	
DC Power Supply	Keysight	E3642A	MY60296194	11-27-2020	11-26-2021

6 Test results and Measurement Data

6.1 Antenna requirement

Standard requirement:	FCC Part 15 C Section 15.203 /247(b)
responsible party shall be us antenna that uses a unique so that a broken antenna ca electrical connector is prohit 15.247(b) (4) requirement: (4) The conducted output po antennas with directional ga section, if transmitting anten power from the intentional ra	be designed to ensure that no antenna other than that furnished by the sed with the device. The use of a permanently attached antenna or of an coupling to the intentional radiator, the manufacturer may design the unit n be replaced by the user, but the use of a standard antenna jack or bited. wer limit specified in paragraph (b) of this section is based on the use of ins that do not exceed 6 dBi. Except as shown in paragraph (c) of this nas of directional gain greater than 6 dBi are used, the conducted output adiator shall be reduced below the stated values in paragraphs (b)(1), ion, as appropriate, by the amount in dB that the directional gain of the
E.U.T Antenna:	
The Wi-Fi antenna is an Inter antenna is 2.15 dBi.	nal antenna which cannot replace by end-user, the best case gain of the



6.2 Conducted Emission

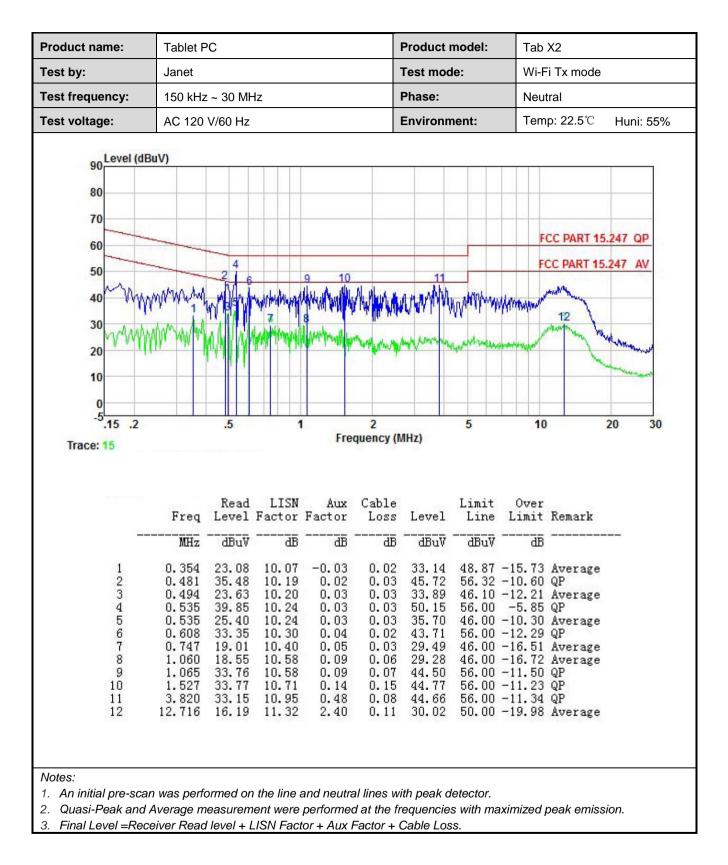
Test Requirement:	FCC Part 15 C Section 15.2	07	
Test Frequency Range:	150 kHz to 30 MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9 kHz, VBW=30 kHz		
Limit:	Frequency range (MHz)	Limit (o	<i>i</i>
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5 5-30	<u> </u>	<u>46</u> 50
	5-30 * Decreases with the logarit		50
Test procedure	 The E.U.T and simulate line impedance stabilize 50ohm/50uH coupling i The peripheral devices LISN that provides a 50 termination. (Please rel photographs). Both sides of A.C. line interference. In order to positions of equipment 	brs are connected to the m ation network (L.I.S.N.), w mpedance for the measur are also connected to the Dohm/50uH coupling imper fer to the block diagram of are checked for maximum o find the maximum emissi and all of the interface cal .10(latest version) on cond	hich provides a ing equipment. main power through a dance with 50ohm the test setup and conducted on, the relative bles must be changed
Test setup:		.t	er AC power
Test Instruments:	Refer to section 5.9 for deta	ils	
Test mode:	Refer to section 5.3 for deta	ils	
Test results:	Passed		



Measurement Data:

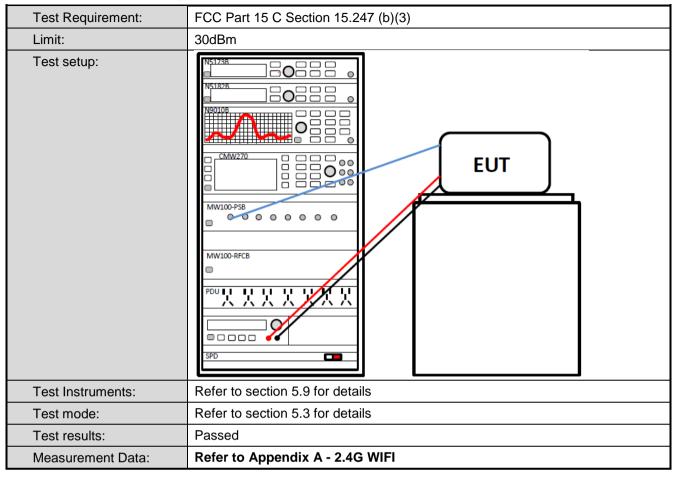
Product name:	Tablet I	PC				Product	model:	Tab	X2	
Test by:	Janet					Test mod	le:	Wi-F	ï Tx mode	
Test frequency:	150 kH	z ~ 30 M	IHz			Phase:		Line		
Test voltage:	AC 120) V/60 Hz	2			Environn	nent:	Tem	p: 22.5℃	Huni: 55%
90 Level (d	BuV)									
80										
70	1									20.00
60		_						F	CC PART 15.	247 QP
50		6						FC	C PART 15.	247 AV
		415		8					12	1
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20				1						
10										"The stinke
0							_			
-5.15 .2		.5		1	2		5	10		20 30
Trace: 13				Fre	equency (M	(Hz)				
indoor to										
		Read			Cable		Limit	Over		
	Freq	Level	Factor	Factor	Loss	Level	Line	Limit	Remark	
	MHz	dBu∛	<u>ab</u>	dB	₫₿	dBu∛	 dBu∛	<u>d</u> B		
1	0.282	28.60	10.20	-0.25	0.02	38.57	60.76	-22.19	QP	
2	0.415	27.38	10.29	0.31	0.04	38.02	57.55	-19.53	QP	
3 4	0.481 0.486	26.78		-0.24	0.03 0.03	36.90 42.07	46.32	-9.42	Average QP	
5	0.521	36.42	10.35	-0.36	0.03	46.44	56.00	-9.56	QP	
6 7	0.527 0.544	30.90 25.08		-0.36	0.03 0.03	40.92 35.11			Average Average	
8	1.100	28.96		0.36	0.03	39.88		-16.12		
9	1.487	20.50	10.51	0.01	0.14	31.16	46.00	-14.84	Average	
10 11	3.840 12.318	20.83 17.95		-0.07 2.78	0.08 0.10	31.46 31.76			Average Average	
12	12.852	29.59		2.95	0.11	43.61		-16.39		
Notes:										
1. An initial pre-sca	an was nort	formod o	n tha lina							
	an was pen	unneu u	n me inte	and neutr	ai lines wi	th peak d	etector.			





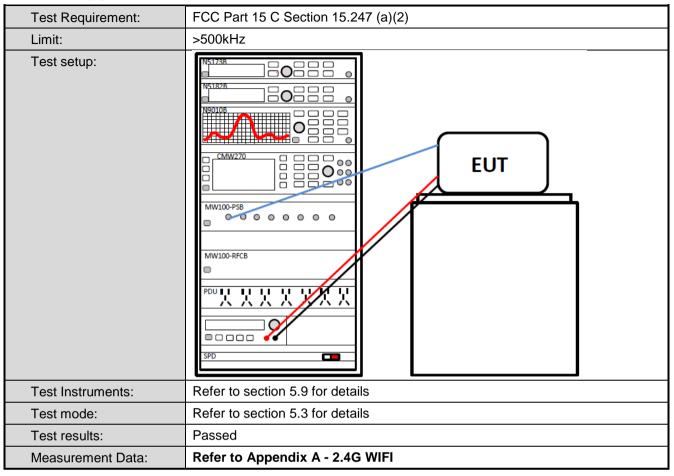


6.3 Conducted Output Power



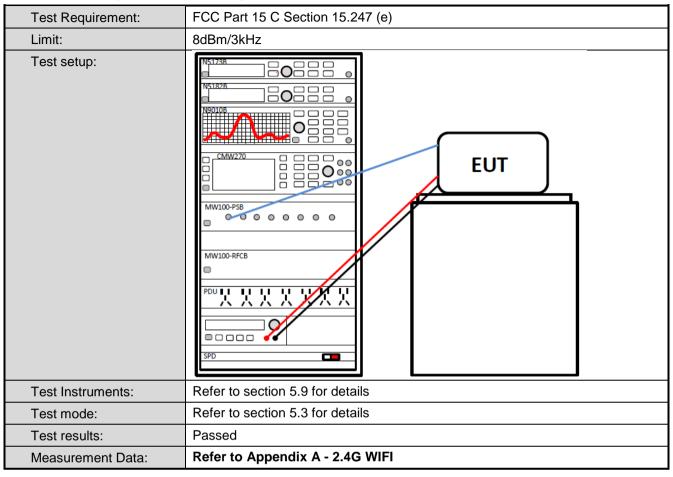


6.4 Occupy Bandwidth





6.5 Power Spectral Density





6.6 Band Edge

6.6.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph(b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Measurement Data:	Refer to Appendix A - 2.4G WIFI



6.6.2 Radiated Emission Method

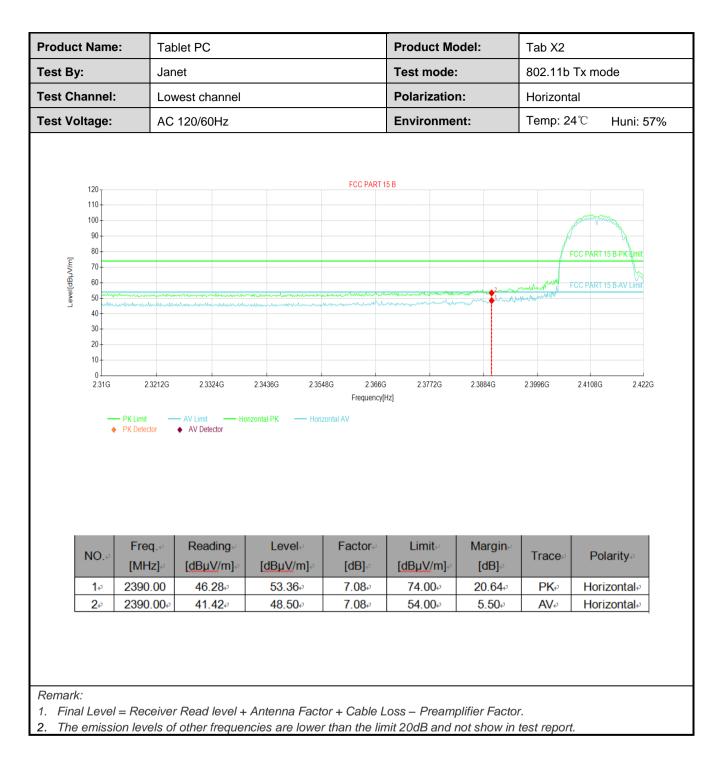
Test Requirement:	FCC Part 15 C Se	ection 15.209	and 15.205					
Test Frequency Range:	2310 MHz to 2390) MHz and 24	483.5 MHz to 2	500 MI	Hz			
Test Distance:	3m							
Receiver setup:	Frequency	Detector	RBW		ЗW	Remark		
	Above 1GHz	Peak	1MHz		<u>/Hz</u>	Peak Value		
		RMS	1MHz		/Hz	Average Value		
Limit:	Frequency		<u>mit (dBuV/m @</u> 54.00	3m)	Δ	Remark verage Value		
	Above 1GHz 74.00 Peak Value							
Test Procedure:	 the ground at determine the ground at determine the 2. The EUT was antenna, whit tower. 3. The antenna ground to det horizontal an measuremen 4. For each sus and then the and the rota t maximum rea 5. The test-rece Specified Bar 6. If the emission limit specified the EUT wou 10dB margin 	a 3 meter ca e position of the s set 3 meter ch was mour height is var cermine the n d vertical pol t. pected emiss antenna was table was tur ading. viver system howidth with on level of the d, then testing ld be reporte would be re-	amber. The tak the highest radi s away from the ted on the top ied from one m naximum value arizations of the sion, the EUT w tuned to heigh ned from 0 deg was set to Peal Maximum Hold EUT in peak r g could be stop d. Otherwise th	ble was iation. e interfe of a va eter to of the e anter vas arra- nts from rees to k Detec I Mode. mode w ped an ne emis one usi	s rotated erence riable-h four my field stri- na are anged to 1 met 360 do ct Func vas 10d d the p ssions t ng pea	d 360 degrees to -receiving height antenna eters above the rength. Both set to make the to its worst case er to 4 meters egrees to find the tion and IB lower than the heak values of hat did not have k, quasi-peak or		
Test setup:		AE EUT (Turntable)	Horn Ground Reference Plane Receiver	Antenna /	Antenna Towe			
Test Instruments:	Refer to section 5	.9 for details						
Test mode:	Refer to section 5	.3 for details						
Test results:	Passed							



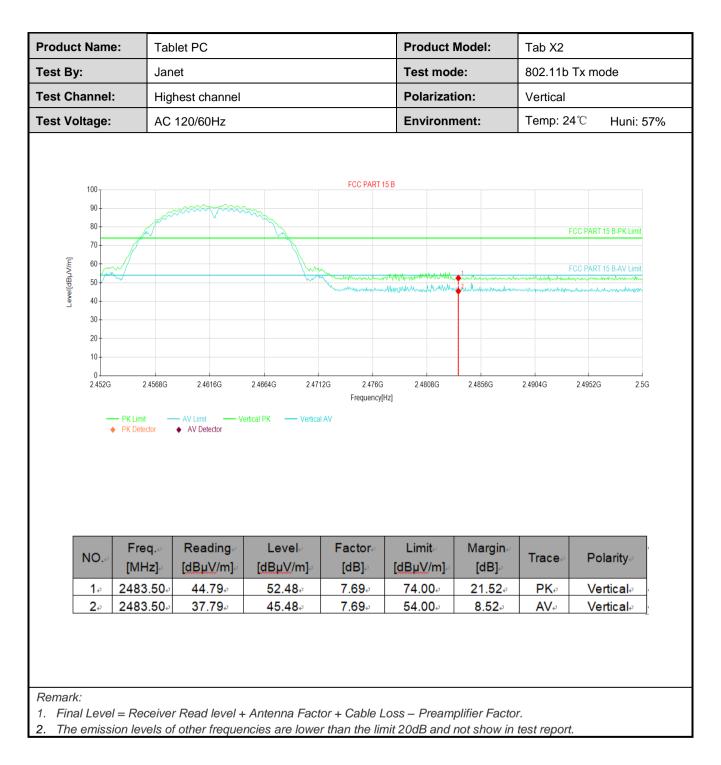
802.11b mode:

	Name	a lab	let PC			Product	Model:	Tab X2		
est By:		Jan	ət			Test mod	le:	802.11b	Tx moo	de
est Char	nnel:	Low	Lowest channel Polarization: Vertical							
est Volta	age:	AC	120/60Hz			Environn	nent:	Temp: 2	24 ℃	Huni: 57%
Levei[dBµV/m]	100 90 80 70 60 50 40 30 20				FCC PART 1	5 B			FCC PART 12	
	10 0 2.31G	2.3212G PK Limit - PK Detector	2.3324G AV Limit Ve AV Detector	2.3436G 2.35 ertical PK — Vertical	Frequency[H		2.3884G	2.3996G	2.4108G	2.422G
	0 2.31G	– PK Limit –	— AV Limit — Ve		Frequency[H		2.3884G Margine [dB]-2	2.3996G		2.422G
Ν	0 2.31G	PK Limit PK Detector	AV Limit Ve AV Detector	ertical PK — Vertical	Frequency(F	Limit~	Margine		Pola	

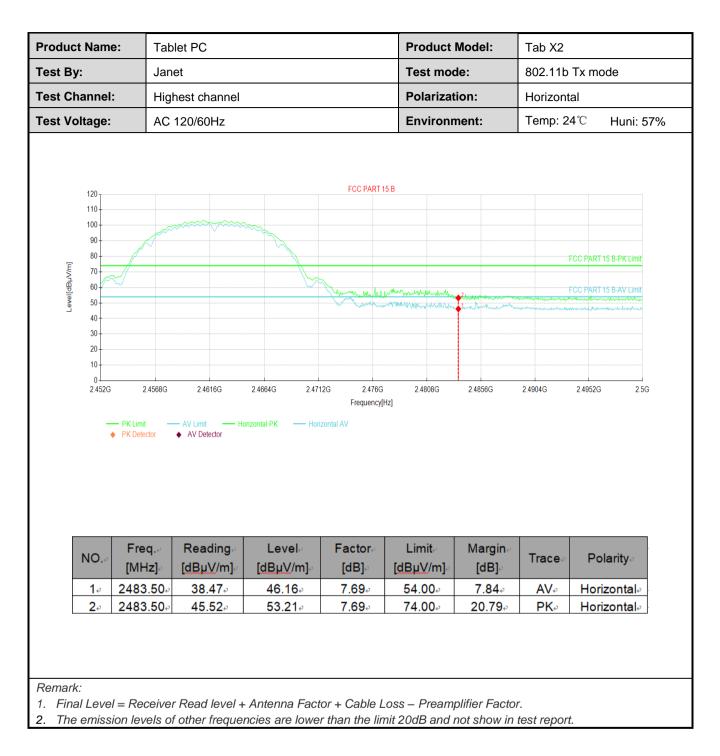










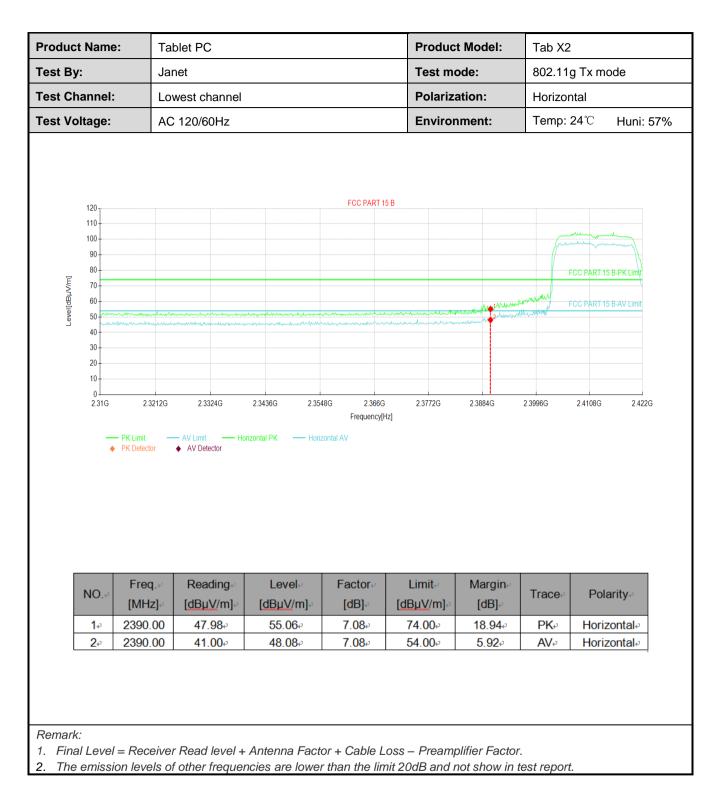




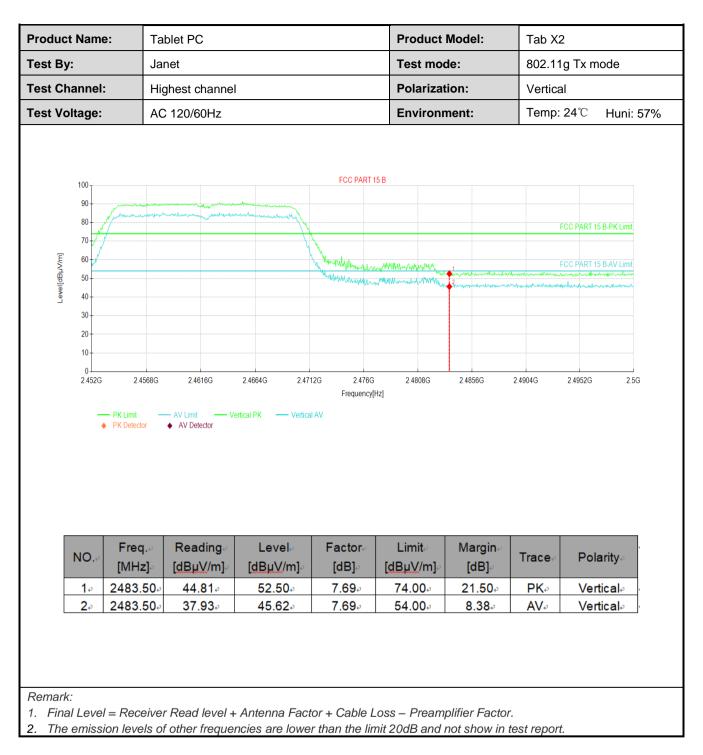
802.11g mode:

	Name	e: Ta	ablet PC			Product	Model:	Tab X2	
est By:		Ja	anet			Test mo	de:	802.11g T	x mode
Fest Cha	annel:	: Lo	west channel			Polariza	tion:	Vertical	
Fest Vol	Itage:	A	C 120/60Hz Environment: Temp: 24°C Huni						℃ Huni: 57%
Leve[dBµV/m]	100 90 80 70 60 50 40 30 20 10				FCC PART 1			FCC	PART 15 B-PK Limit
_	0 2.31G	2.3212G – PK Limit - • PK Detector		2.3436G 2.35 ertical PK — Vertical	Frequency[H		2 3884G	2.3996G 2.	.4108G 2.422G
	2.31G	– PK Limit –	— AV Limit — V		Frequency[H		23884G Margin⊮ [dB]⊮	2 3996G 2.	4108G 2.422G
	2.31G	PK Limit PK Detector Freq.+	AV Limit V AV Detector V	ertical PK — Vertical	Frequency(H	Limit~	Margin		

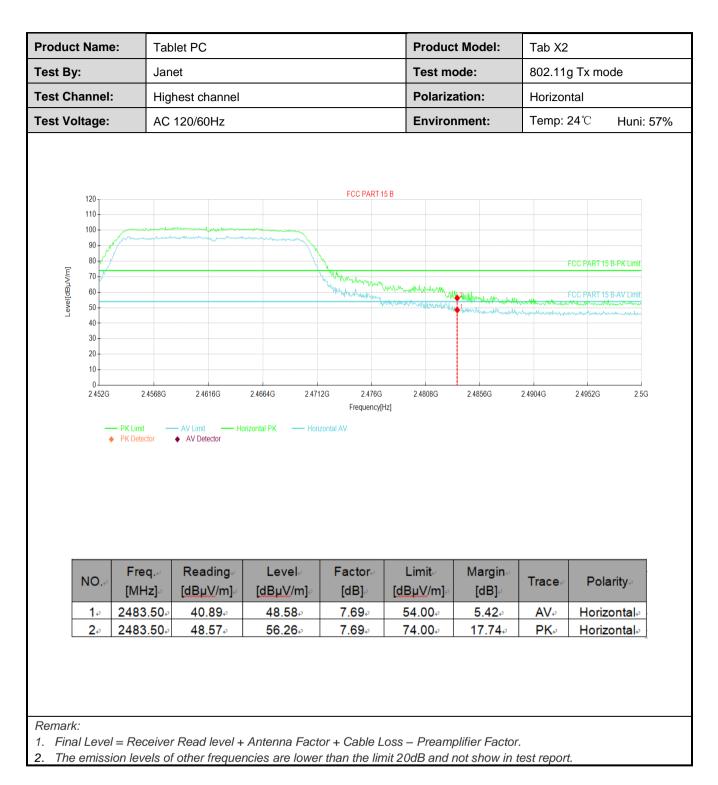










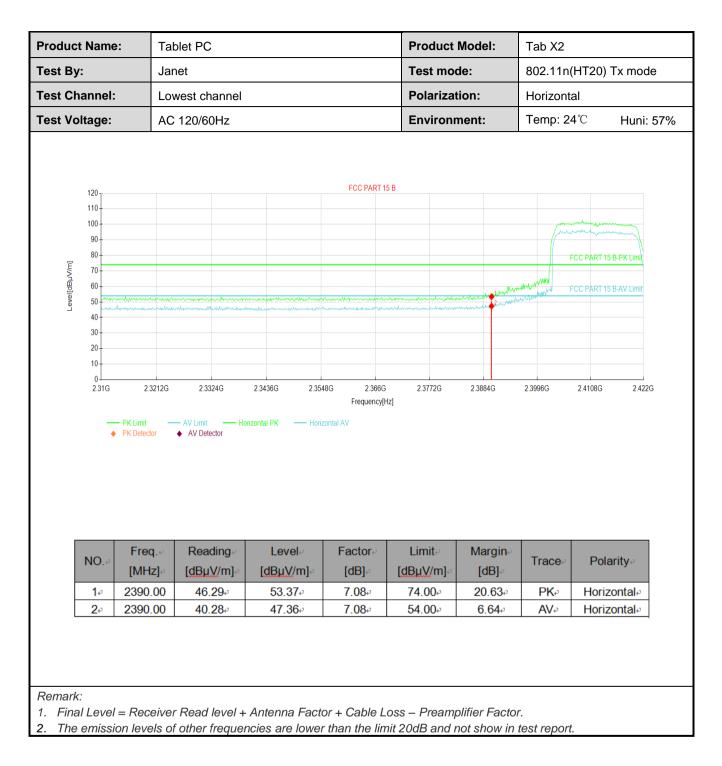




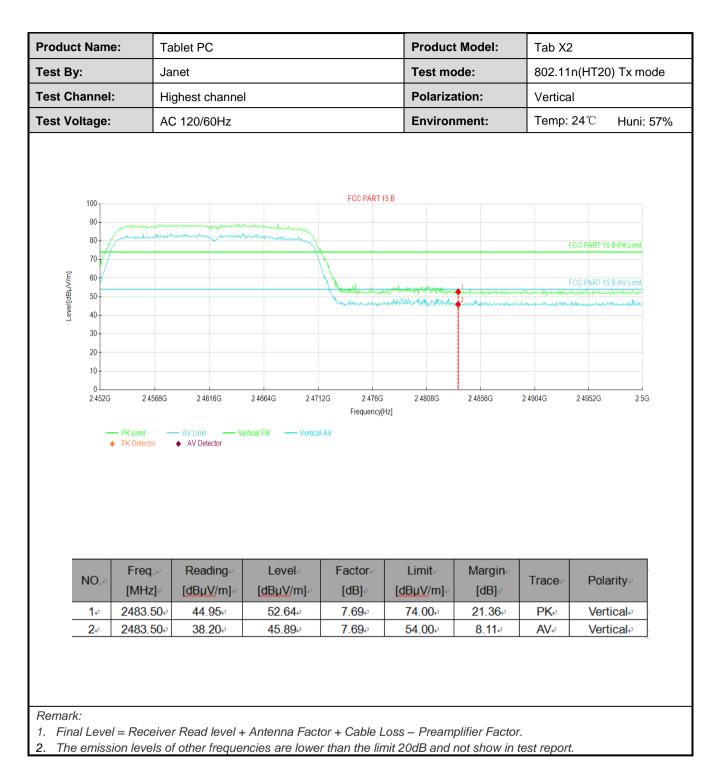


	ame:	Table	et PC			Product N	Model:	Tab X2	2		
est By:		Jane	t			Test mod	e:	802.11	n(HT20) Tx mod	le
est Chann	nel:	Lowe	est channel		Polarizati	on:	Vertica	al			
est Voltag	ge:	AC 1	20/60Hz			Environm	nent:	Temp:	24° C	Huni: 8	57%
100- 90- 80- 70- [um_ 60- 50- 50- 80- 80- 80- 80- 80- 80- 80- 80- 80- 8		where the second s	Marine Anna Carry Marine San		FCC PART 1			norme Mark	FCC PART	15 B-PK Lint	
30 - 20 - 10 - 0 -	31G	2.3212G	23324G — AV Limit — Vi ◆ AV Detector	2.3436G 2.35- ertical PK — Vertical	Frequency[ł		2.3884G	2.3996G	2.4108G	2.4220	?G
30 - 20 - 10 - 0 -	→ PKI	Einit Detector Freq.≁ MHz]⊃	— AV Limit —— V		Frequency[ł	iz] Limit⊮ [dBµV/m]↔	23884G 23884G Margine [dB]-2	2 3996G	ο Ρο	larity₀	2G
30. 20. 0. 2.3	31G → PKI → PKI	Einit Detector	AV Limit Vi ♦ AV Detector Vi Reading.e/	ertical PK — Vertical	Frequency[I AV Factor⊷	Limit~	Margine		Po Ve		2G

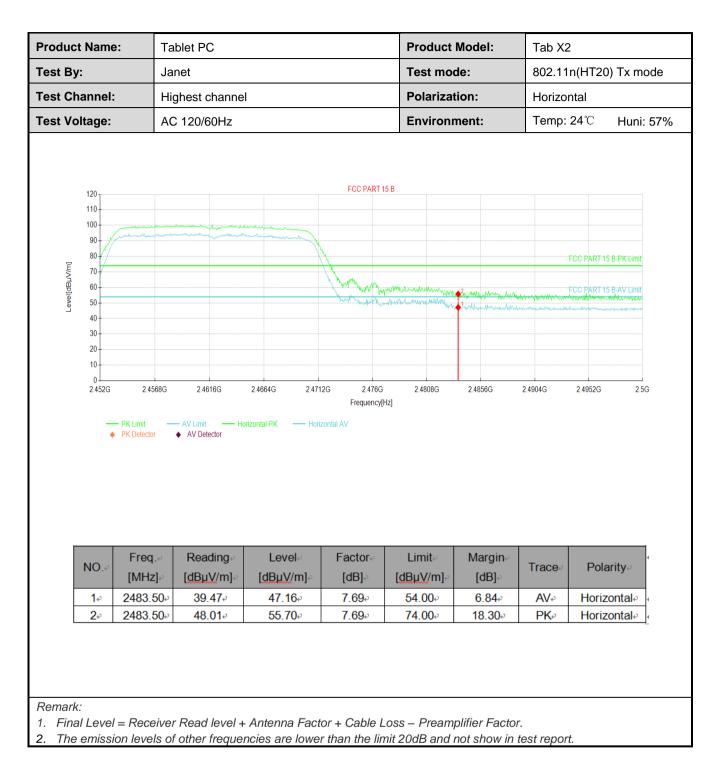










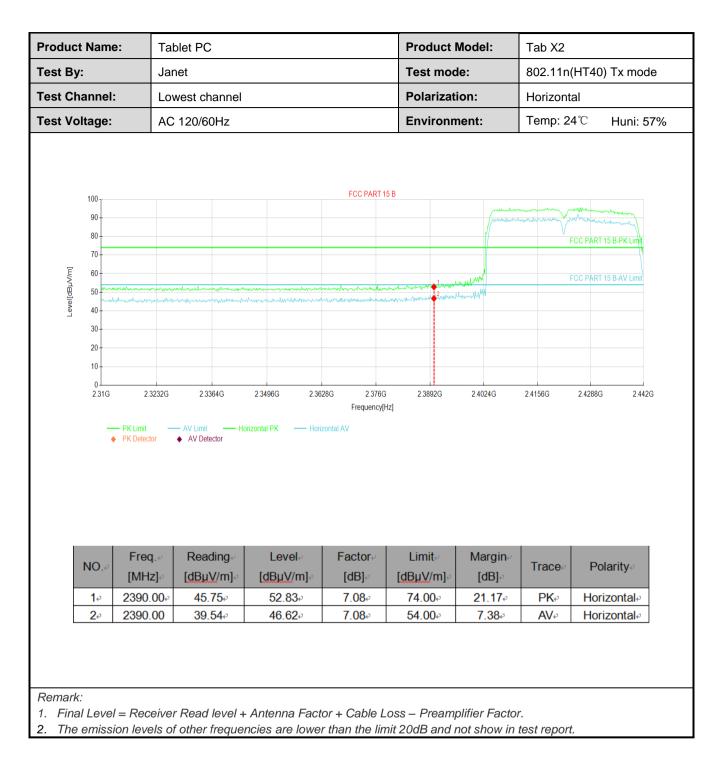




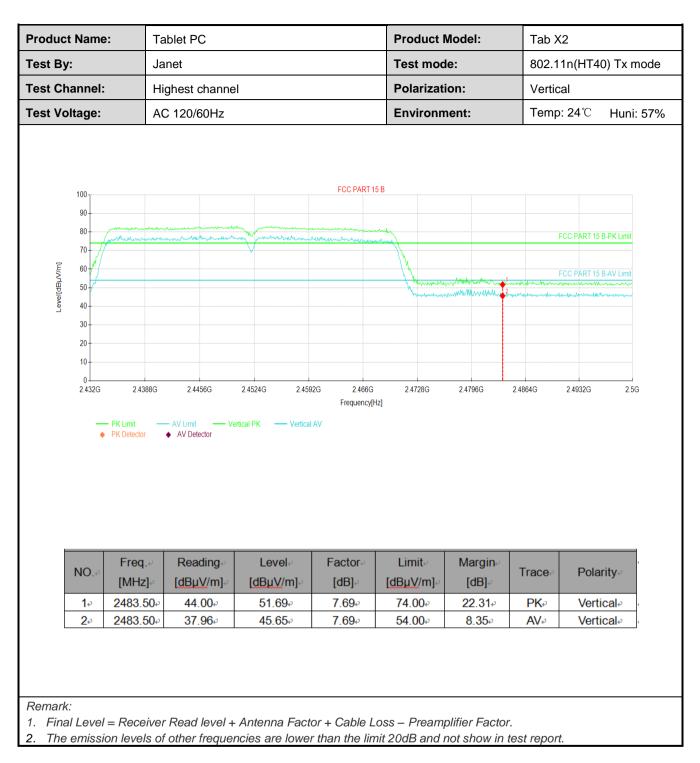
802.11n(HT40):

fest By:		100101	PC			Product	Model:	Tab X2		
		Janet				Test mo	de:	802.11n	(HT40) Tx moo	de
est Chann	el:	Lowes	t channel			Polariza	tion:	Vertical		
est Voltag	e:	AC 12	0/60Hz			Environ	ment:	Temp: 2	4℃ Huni: (57%
100 - 90 - 80 - 70 - [[] 90 - 80 - 70 - [] 90 - 80 - 70 - 10 - 10 - 30 - 20 - 10 - 2.3	er-or of Acaroly devided good a	1	2.3364G	23496G 236	Frequency[ł	23892G	2.4024G	FC	ALC PART 15 B-PK Limit IC PART 15 B-AV Limit IC PART 15 B-AV Limit 24288G 2.442G	ŝ
	PK Lim PK Dete	ector •	AV Detector	ertical PK — Vertical						
NO.	PK Detr	ector ◆		ertical PK — Vertical Level⊮ [dBµV/m]⊮	Factor⊬ [dB]₀	Limit⊮ [<u>dBµV/</u> m]⊮	Margin⊮ [dB]∉	Trace	Polarity	
NO. 1.0 2.0	 PK Detr Fre [Mi] 2390 	ector ♦ Hz]↔ [0.00	AV Detector	Level↔	Factor.₀		-	Trace. PK. AV.	Polarity Vertical	

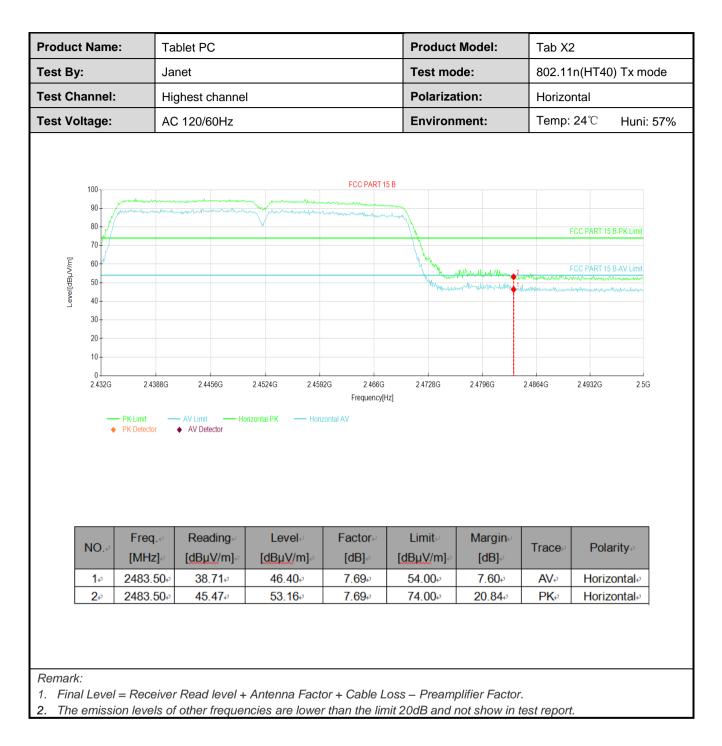












Project No.: JYTSZE2105055



6.7 Spurious Emission

6.7.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph(b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Measurement Data:	Refer to Appendix A - 2.4G WIFI



6.7.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Se	ection 15	.209 an	d 15.205			
Test Frequency Range:	9kHz to 25GHz						
Test Distance:	3m or 10m						
Receiver setup:	Frequency	RBW	V	BW	Remark		
	30MHz-1GHz	Quasi-	peak	120KHz 300		KHz Quasi-peak Value	
	Above 1GHz	Pea	ak	1MHz	31	ЛНz	Peak Value
	Above TGHZ	RM		1MHz		ИНz	Average Value
Limit:	Frequency		Limit	(dBuV/m @10)m)		Remark
	30MHz-88MH			30.0			uasi-peak Value
	88MHz-216MH			33.5			uasi-peak Value
	216MHz-960M			36.0		1	uasi-peak Value
	960MHz-1GH	z		44.0		Q	uasi-peak Value
	Frequency		Limi	t (dBuV/m @3	m)		Remark
	Above 1GHz	2		54.0			Average Value
Test Procedure:	1. The EUT wa			74.0	- rol		Peak Value table 0.8m(below
Test setup:	 1GHz)/1.5m(above 1GHz) above the ground at a 10 meter chan (below 1GHz)or 3 meter chamber(above 1GHz). The table was rota 360 degrees to determine the position of the highest radiation. The EUT was set 10 meters(below 1GHz) or 3 meters(above 1G away from the interference-receiving antenna, which was mounted the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above th ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst cat and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not ha 10dB margin would be re-tested one by one using peak, quasi-peak average method as specified and then reported in a data sheet. 						table was rotated adiation. ters(above 1GHz) was mounted on heters above the trength. Both e set to make the to its worst case ter to 4 meters degrees to find the ction and dB lower than the peak values of that did not have ak, quasi-peak or
	Below 1GHz		4m 1m			Anter Searc Anter RF Tess Receive	nna

Project No.: JYTSZE2105055



Report No: JYTSZB-R12-2100802

	Horn Antenna Tower Horn Antenna Tower Horn Antenna Tower Ground Reference Plane Test Receiver
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	 Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case. 9 kHz to 30MHz is lower than the limit 20dB, so only shows the data of above 30MHz in this report.



Measurement Data (worst case):

Below 1GHz:

oduct N	lame:	Table	t PC		P	roduct Mo	del:	Tab X2	
st By:		Janet					Test mode: Wi-Fi Tx mo		
st Freq	uency:	30 MI	Hz ~ 1 GHz	GHz Polarization: Vertical & Horizonta			lorizontal		
st Volta	ige:	AC 12	20/60Hz		E	nvironmen	it:	Temp: 24°C	Huni: 5
				Full S	pectrum				
	45 -							CC PART 15.	247 10m
	40								
	40				_				
	≥ 30								-**
	. <u>=</u> 20 -					*		€	
	- Fev								
	10-				W		Mandhald	wh ^{aphere}	
		ANN AND			a Million and	Land Land Hard	WINDOW.		
	-16-16	1. (1)			and built	4			
	0+			10014					
	30M		50 60 80		200	300	400	500	800 1G
				Fre	quency in H	Z			
_		_	_						
-	Frequen		MaxPeak↓	Limit↓	Margin↓	Height↓	Pol₽	Azimuth↓	Corr.↓
	(MHz)		(dB ^µ V/m)∂	(dB µ	(dB)⊮	(cm)⊮	11.	(deg)⊮	(dB/m)⊮
	457.77	9000¢	14.82↩ 19.22↩	30.00↩ 36.00↩	15.18₽ 16.78₽	100.0⊮ 100.0⊮	H₽ H₽	39.0₽ 113.0₽	-17.2₽ -10.1₽
	457.77 575.91		19.22₽ 24.46₽	36.00₽ 36.00₽	16.78- 11.54-	100.0₽ 100.0₽	H₽ H₽	113.0¢ 148.0¢	-10.1₽ -7.2₽
	305.18		24.46₽ 20.27₽	36.00¢ 36.00¢	15.73	100.0	Ne Ve	103.0	-14.4e
	911.63		26.47	36.00∉	9.53	100.0	V.	196.0	-0.6
		0000	22.55	36.00√	13.45 ₀	100.0	• •	244.0	

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.

- 2. The emission levels of other frequencies are lower than the limit 20dB and not show in test report.
- 3. The Aux Factor is a notch filter switch box loss, this item is not used.



Above 1GHz

			802.11b			
			annel: Lowest ch			
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	tector: Peak Valu Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4824.00	58.25	-9.46	48.79	74.00	25.21	Vertical
4824.00	62.87	-9.46	53.41	74.00	20.59	Horizonta
		Dete	ctor: Average Va	llue	1	
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4824.00	53.67	-9.46	44.21	54.00	9.79	Vertical
4824.00	59.57	-9.46	50.11	54.00	3.89	Horizonta
		Teet ob	annel: Middle ch	annal		
			tector: Peak Valu			
Frequency	Read Level	De	Level	Limit Line	Margin	
(MHz)	(dBuV)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	Polarizatio
4874.00	59.95	-10.17	49.78	74.00	24.22	Vertical
4874.00	61.47	-10.17	51.30	74.00	22.70	Horizonta
		Dete	ctor: Average Va	lue		
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4874.00	54.53	-10.17	44.36	54.00	9.64	Vertical
4874.00	59.99	-10.17	49.82	54.00	4.18	Horizonta
			annel: Highest ch			
_	I	Det	tector: Peak Valu		T	
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4924.00	57.85	-10.02	47.83	74.00	26.17	Vertical
4924.00	60.12	-10.02	50.10	74.00	23.90	Horizonta
	1	Dete	ctor: Average Va		T	
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4924.00	52.53	-10.02	42.51	54.00	11.49	Vertical
	58.76	-10.02	48.74	54.00	5.26	Horizonta



			802.11g			
		Test ch	annel: Lowest ch	nannel		
		De	tector: Peak Valu	le	1	
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarization
4824.00	59.65	-10.33	49.32	74.00	24.68	Vertical
4824.00	61.33	-10.33	51.00	74.00	23.00	Horizonta
		Dete	ctor: Average Va	alue		
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4824.00	54.52	-10.33	44.19	54.00	9.81	Vertical
4824.00	58.79	-10.33	48.46	54.00	5.54	Horizonta
		Test ch	annel: Middle ch	annel		
		Det	tector: Peak Valu	le		
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4874.00	60.52	-10.17	50.35	74.00	23.65	Vertical
4874.00	61.37	-10.17	51.20	74.00	22.80	Horizonta
		Dete	ctor: Average Va	alue		
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4874.00	55.52	-10.17	45.35	54.00	8.65	Vertical
4874.00	60.27	-10.17	50.10	54.00	3.90	Horizonta
			annel: Highest cl tector: Peak Valu			
Frequency	Read Level		Level	Limit Line	Margin	
(MHz)	(dBuV)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	Polarizatio
4924.00	56.60	-10.02	46.58	74.00	-27.42	Vertical
4924.00	59.77	-10.02	49.75	74.00	-24.25	Horizonta
		Dete	ctor: Average Va	alue		
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4924.00	51.43	-10.02	41.41	54.00	12.59	Vertical
4924.00	57.82	-10.02	47.80	54.00	6.20	Horizonta
	Receiver Read level levels of other frequ		er than the limit 200	dB and not show in te	est report.	



			802.11n(HT20) annel: Lowest ch	annel		
			tector: Peak Valu			
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4824.00	60.33	-10.33	50.00	74.00	24.00	Vertical
4824.00	62.53	-10.33	52.20	74.00	21.80	Horizonta
		Dete	ctor: Average Va	lue		
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4824.00	55.50	-10.33	45.17	54.00	8.83	Vertical
4824.00	57.19	-10.33	46.86	54.00	7.14	Horizonta
		Test ch	annel: Middle ch	annel		
		Det	ector: Peak Valu	e		
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4874.00	59.60	-10.17	49.43	74.00	24.57	Vertical
4874.00	62.19	-10.17	52.02	74.00	21.98	Horizonta
		Dete	ctor: Average Va	lue		
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4874.00	56.65	-10.17	46.48	54.00	7.52	Vertical
4874.00	59.74	-10.17	49.57	54.00	4.43	Horizonta
		Test ch	annel: Highest ch	annel		
			ector: Peak Valu			
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4924.00	55.52	-10.02	45.50	74.00	28.50	Vertical
4924.00	59.81	-10.02	49.79	74.00	24.21	Horizonta
		Dete	ctor: Average Va	lue	-	
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4924.00	52.26	-10.02	42.24	54.00	11.76	Vertical
4924.00	56.69	-10.02	46.67	54.00	7.33	Horizonta



			802.11n(HT40) annel: Lowest ch	annel		
			ector: Peak Valu			
Frequency	Read Level		Level	Limit Line	Margin	
(MHz)	(dBuV)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	Polarizatio
4844.00	61.53	-10.33	51.20	74.00	22.80	Vertical
4844.00	62.48	-10.33	52.15	74.00	21.85	Horizonta
	1	Dete	ctor: Average Va	lue	1	
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4844.00	54.52	-10.33	44.19	54.00	9.81	Vertical
4844.00	56.90	-10.33	46.57	54.00	7.43	Horizonta
		Toot ob	annel: Middle ch	annal		
			ector: Peak Valu			
Fraguanay	Road Loval	Det	Level	Limit Line	Margin	
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	(dBuV/m)	(dBuV/m)	Margin (dB)	Polarizatio
4874.00	60.50	-10.17	50.33	74.00	23.67	Vertical
4874.00	61.44	-10.17	51.27	74.00	22.73	Horizonta
	1	Dete	ctor: Average Va	lue	1	-1
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4874.00	55.52	-10.17	45.35	54.00	8.65	Vertical
4874.00	60.37	-10.17	50.20	54.00	3.80	Horizonta
		Test cha	annel: Highest ch	annel		
		Det	ector: Peak Valu	е		
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4904.00	54.51	-10.02	44.49	74.00	29.51	Vertical
4904.00	60.78	-10.02	50.76	74.00	23.24	Horizonta
		Dete	ctor: Average Va	lue		
Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarizatio
4904.00	51.53	-10.02	41.51	54.00	12.49	Vertical
4904.00	56.67	-10.02	46.65	54.00	7.35	Horizonta