

FCC Test Report

Product Name	TABLET PC
Model No.	PM-521
FCC ID.	2ABTU-PM-521

Applicant	RuggON Corporation
Address	3F., No.10, Ln. 181, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City, Taiwan

Date of Receipt	Jan. 06, 2015
Issued Date	Feb. 16, 2015
Report No.	1510151R-RFUSP23V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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Test Report

Issued Date: Feb. 16, 2015 Report No.: 1510151R-RFUSP23V00

QuieTek

Product Name	TABLET PC
Applicant	RuggON Corporation
Address	3F., No.10, Ln. 181, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City, Taiwan
Manufacturer	Ubiqconn Technology,Inc.
Model No.	PM-521
FCC ID.	2ABTU-PM-521
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	RuggON
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2014
	ANSI C63.4: 2014, ANSI C63.10: 2009
Test Result	Complied
Documented By	Joanne lin
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	(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	TABLET PC
Trade Name	RuggON
Model No.	PM-521
FCC ID.	2ABTU-PM-521
Frequency Range	2402 – 2480MHz
Channel Number	79
Type of Modulation	FHSS: GFSK(1Mbps) / π /4DQPSK(2Mbps) / 8DPSK(3Mbps)
Intenna Type PIFA Antenna	
Channel Control Auto	
Antenna Gain	Refer to the table "Antenna List"
Power Adapter	MFR: FSP, M/N: FSP065-REB
	Input: AC 100-240V~1.5A, 50-60Hz
Output: 19V==3.42A	
Cable Out: Shielded, 1.5m, with one ferrite core bonded.	
Contain Module	Intel / 7260HMW

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	ethertronics	5001791 (Main)	PIFA Antenna	3.8dBi for 2.4GHz
		5001799 (Aux)		

Note: The antenna of EUT is conform to FCC 15.203.

Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00:	2402 MHz	Channel 20:	2422 MHz	Channel 40:	2442 MHz	Channel 60:	2462 MHz
Channel 01:	2403 MHz	Channel 21:	2423 MHz	Channel 41:	2443 MHz	Channel 61:	2463 MHz
Channel 02:	2404 MHz	Channel 22:	2424 MHz	Channel 42:	2444 MHz	Channel 62:	2464 MHz
Channel 03:	2405 MHz	Channel 23:	2425 MHz	Channel 43:	2445 MHz	Channel 63:	2465 MHz
Channel 04:	2406 MHz	Channel 24:	2426 MHz	Channel 44:	2446 MHz	Channel 64:	2466 MHz
Channel 05:	2407 MHz	Channel 25:	2427 MHz	Channel 45:	2447 MHz	Channel 65:	2467 MHz
Channel 06:	2408 MHz	Channel 26:	2428 MHz	Channel 46:	2448 MHz	Channel 66:	2468 MHz
Channel 07:	2409 MHz	Channel 27:	2429 MHz	Channel 47:	2449 MHz	Channel 67:	2469 MHz
Channel 08:	2410 MHz	Channel 28:	2430 MHz	Channel 48:	2450 MHz	Channel 68:	2470 MHz
Channel 09:	2411 MHz	Channel 29:	2431 MHz	Channel 49:	2451 MHz	Channel 69:	2471 MHz
Channel 10:	2412 MHz	Channel 30:	2432 MHz	Channel 50:	2452 MHz	Channel 70:	2472 MHz
Channel 11:	2413 MHz	Channel 31:	2433 MHz	Channel 51:	2453 MHz	Channel 71:	2473 MHz
Channel 12:	2414 MHz	Channel 32:	2434 MHz	Channel 52:	2454 MHz	Channel 72:	2474 MHz
Channel 13:	2415 MHz	Channel 33:	2435 MHz	Channel 53:	2455 MHz	Channel 73:	2475 MHz
Channel 14:	2416 MHz	Channel 34:	2436 MHz	Channel 54:	2456 MHz	Channel 74:	2476 MHz
Channel 15:	2417 MHz	Channel 35:	2437 MHz	Channel 55:	2457 MHz	Channel 75:	2477 MHz
Channel 16:	2418 MHz	Channel 36:	2438 MHz	Channel 56:	2458 MHz	Channel 76:	2478 MHz
Channel 17:	2419 MHz	Channel 37:	2439 MHz	Channel 57:	2459 MHz	Channel 77:	2479 MHz
Channel 18:	2420 MHz	Channel 38:	2440 MHz	Channel 58:	2460 MHz	Channel 78:	2480 MHz
Channel 19:	2421 MHz	Channel 39:	2441 MHz	Channel 59:	2461 MHz		

- The EUT is a TABLET PC with a built-in WLAN
 Bluetooth and GPS transceiver, this report for Bluetooth.
- 2. These tests were conducted on a sample for the purpose of demonstrating compliance of Bluetooth transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
- 3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report
- 5. Bluetooth operation was evaluated at both 1Mb/s and 3Mb/s data rates. 2Mb/s data rate was found, through pre-testing, to produce emissions similar to those for 3Mb/s.

Test Mode	Mode 1: Transmit - 1Mbps (GFSK)
	Mode 2: Transmit - 3Mbps (8DPSK)

1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Pro	oduct	Manufacturer	Model No.	Serial No.	Power Cord
1	Monitor	DELL	ST2320L	N/A	Non-Shielded, 1.8m
2	Earphone	AIWA	N/A	N/A	N/A
3	IPod nano	Apple	A1199	YM708A72VQ5	N/A
4	Modem	ACEEX	DM-1414	0102027553	N/A
5	USB Dongle	Transcend	JF V30	N/A	Non-Shielded, 1.8m

Sig	nal Cable Type	Signal cable Description
А	HDMI Cable	Shielded, 1.8m
В	Earphone Cable	Shielded, 1.8m
С	IPod Cable	Shielded, 1.2m
D	RS-232 Cable	Shielded, 1.8m
Е	RJ45 Cable	Shielded, 2.0m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- 1. Setup the EUT as shown in Section 1.4.
- 2. Execute software "DRTU-v1.7.3.859" on the EUT
- 3. Configure the test mode, the test channel, and the data rate.
- 4. Press "OK" to start the continuous Transmit.
- 5. Verify that the EUT works properly.

1.6. Test Facility

Items	Required (IEC 68-1)	Actual		
Temperature (°C)	15-35	20-35		
Humidity (%RH)	25-75	30-65		
Barometric pressure (mbar)	860-1060	950-1000		

Ambient conditions in the laboratory:

The related certificate for our laboratories about the test site and management system can be downloaded

from QuieTek Corporation's Web Site: <u>http://www.quietek.com/tw/ctg/cts/accreditations.htm</u> The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site: <u>http://www.quietek.com/</u>

Site Description:	File on
	Federal Communications Commission
	FCC Engineering Laboratory
	7435 Oakland Mills Road
	Columbia, MD 21046
	Registration Number: 92195

Site Name:	Quietek Corporation
Site Address:	No.5-22, Ruishukeng,
	Linkou Dist. New Taipei City 24451,
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	TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
	E-Mail : <u>service@quietek.com</u>

FCC Accreditation Number: TW1014

2. Conducted Emission

2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
Х	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2014	
Х	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2015	Peripherals
Х	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2015	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar., 2014	EUT
Х	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2015	
	No.1 Shielded Room				

Note:

- 1. All equipments are calibrated every one year.
- 2. The test instruments marked by "X" are used to measure the final test results.

2.2. Test Setup



FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit			
Frequency	Lir	nits	
MHz	QP	AV	
0.15 - 0.50	66-56	56-46	
0.50-5.0	56	46	
5.0 - 30	60	50	

2.3. Limits

Remarks: In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and Peripherals are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all the interface cables must be changed according to ANSI C63.10: 2009 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission
--

:	TABLET PC
:	Conducted Emission Test
:	Line 1
:	Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)
	: : : :

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.193	9.650	38.270	47.920	-16.851	64.771
0.275	9.655	24.110	33.765	-28.664	62.429
0.474	9.665	24.110	33.775	-22.968	56.743
0.654	9.675	33.340	43.015	-12.985	56.000
1.029	9.696	26.320	36.016	-19.984	56.000
2.947	9.797	21.290	31.087	-24.913	56.000
Average					
0.193	9.650	28.350	38.000	-16.771	54.771
0.275	9.655	8.720	18.375	-34.054	52.429
0.474	9.665	14.330	23.995	-22.748	46.743
0.654	9.675	25.630	35.305	-10.695	46.000
1.029	9.696	16.490	26.186	-19.814	46.000
2.947	9.797	10.530	20.327	-25.673	46.000

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. " " means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

Product	:	TABLET PC
Test Item	:	Conducted Emission Test
Power Line	:	Line 2
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
	Factor	Level	Level		
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.205	9.661	35.220	44.881	-19.548	64.429
0.283	9.664	24.490	34.154	-28.046	62.200
0.396	9.661	22.260	31.921	-27.050	58.971
0.611	9.673	32.840	42.513	-13.487	56.000
0.826	9.695	29.430	39.125	-16.875	56.000
1.416	9.727	26.320	36.047	-19.953	56.000
Average					
0.205	9.661	26.850	36.511	-17.918	54.429
0.283	9.664	15.540	25.204	-26.996	52.200
0.396	9.661	14.480	24.141	-24.830	48.971
0.611	9.673	24.310	33.983	-12.017	46.000
0.826	9.695	19.390	29.085	-16.915	46.000
1.416	9.727	14.770	24.497	-21.503	46.000

Note:

1. All Reading Levels are Quasi-Peak and average value.

2. " means the worst emission level.

3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Х	Power Meter	Anritsu	ML2495A/6K00003357	May, 2014
Х	Power Sensor	Anritsu	MA2411B/0738448	Jun., 2014

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

3.2. Test Setup



3.3. Limit

The maximum peak power shall be less 1Watt.

3.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

3.5. Uncertainty

 \pm 1.27 dB

3.6. Test Result of Peak Power Output

Product	:	TABLET PC
Test Item	:	Peak Power Output
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Channel No.	Frequency	Measurement	Required Limit	Result
	(MHz)	(dBm)		
Channel 00	2402.00	3.12	1 Watt= 30 dBm	Pass
Channel 39	2441.00	3.28	1 Watt= 30 dBm	Pass
Channel 78	2480.00	3.19	1 Watt= 30 dBm	Pass

Product	:	TABLET PC
Test Item	:	Peak Power Output
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

Channel No.	Frequency	Measurement	Required Limit	Result
	(MHz)	(dBm)		
Channel 00	2402.00	2.28	1 Watt= 30 dBm	Pass
Channel 39	2441.00	2.36	1 Watt= 30 dBm	Pass
Channel 78	2480.00	2.37	1 Watt= 30 dBm	Pass

4. Radiated Emission

4.1. Test Equipment

The following test equipments are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3	3 X Bilog Antenna S		Schaffner Chase	CBL6112B/2673	Sep., 2014
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
	Х	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
X Pre-Amplifier		Agilent	8447D/2944A09549	Sep., 2014	
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
	Х	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2015
	Х	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

4.2. Test Setup

Below 1GHz



Above 1GHz



4.3. Limits

General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits						
Frequency MHz	uV/m @3m	dBµV/m@3m				
30-88	100	40				
88-216	150	43.5				
216-960	200	46				
Above 960	500	54				

Remarks: 1. RF Voltage $(dB\mu V) = 20 \log RF$ Voltage (uV)

- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10, 2009 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement. The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The worst radiated emission is measured on the Final Measurement.

The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

4.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz

Product	: TABLET PC						
Test Item	: Harmonic Radiated Emission						
Test Site	: No.3 OATS						
Test Mode	: Mode 1:	Transmit - 1Mbp	s (GFSK)(2402MHz))			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$		
Horizontal							
Peak Detector:							
4804.000	3.327	38.150	41.477	-32.523	74.000		
7206.000	10.136	37.260	47.396	-26.604	74.000		
9608.000	13.706	36.260	49.966	-24.034	74.000		
Average							
Detector:							
Vertical							
Peak Detector:							
4804.000	6.638	40.260	46.897	-27.103	74.000		
7206.000	11.005	36.690	47.695	-26.305	74.000		
9608.000	14.103	37.150	51.253	-22.747	74.000		
Average							
Detector:							

4.6. Test Result of Radiated Emission

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: TABLET PC						
Test Item	: Harmonic Radiated Emission						
Test Site	: No.3 OATS						
Test Mode	: Mode 1:	Transmit - 1Mbp	os (GFSK)(2441MHz))			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBµV	dBµV/m	dB	dBµV/m		
Horizontal							
Peak Detector:							
4882.000	3.001	38.260	41.261	-32.739	74.000		
7323.000	11.846	36.260	48.107	-25.893	74.000		
9764.000	12.563	39.020	51.583	-22.417	74.000		
Average							
Detector:							
Vertical							
Peak Detector:							
4882.000	5.713	38.150	43.864	-30.136	74.000		
7323.000	12.727	35.290	48.018	-25.982	74.000		
9764.000	13.028	37.150	50.178	-23.822	74.000		
Average							
Detector:							

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: TABLET PC						
Test Item	Harmonic Radiated Emission						
Test Site	: No.3 OATS						
Test Mode	: Mode 1	: Transmit - 1Mbp	os (GFSK)(2480MHz))			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBµV	dBµV/m	dB	dBµV/m		
Horizontal							
Peak Detector:							
4960.000	2.760	38.150	40.910	-33.090	74.000		
7440.000	12.567	35.290	47.856	-26.144	74.000		
9920.000	13.456	36.000	49.456	-24.544	74.000		
Average							
Detector:							
Vertical							
Peak Detector:							
4960.000	5.557	40.290	45.847	-28.153	74.000		
7440.000	13.426	36.690	50.115	-23.885	74.000		
9920.000	13.958	36.580	50.538	-23.462	74.000		
Average							
Detector:							

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: TABLET PC						
Test Item	: Harmonic Radiated Emission						
Test Site	: No.3 OATS						
Test Mode	: Mode 2: 7	Transmit - 3Mbp	os (8DPSK)(2402MHz	z)			
Frequency	Correct	Reading	Measurement	Margin	Limit		
	Factor	Level	Level				
MHz	dB	dBµV	$dB\mu V/m$	dB	$dB\mu V/m$		
Horizontal							
Peak Detector:							
4804.000	3.327	39.260	42.587	-31.413	74.000		
7206.000	10.136	37.150	47.286	-26.714	74.000		
9608.000	13.706	36.260	49.966	-24.034	74.000		
Average							
Detector:							
Vertical							
Peak Detector:							
4804.000	6.638	37.150	43.787	-30.213	74.000		
7206.000	11.005	36.550	47.555	-26.445	74.000		
9608.000	14.103	36.590	50.693	-23.307	74.000		
Average							
Detector:							

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: TABLET PC							
Test Item	: Harmonic Radiated Emission							
Test Site	: No.3 OA	: No.3 OATS						
Test Mode	: Mode 2:	: Transmit - 3Mbp	os (8DPSK) (2441MH	[z)				
Frequency	Correct	Reading	Measurement	Margin	Limit			
	Factor	Level	Level					
MHz	dB	dBµV	dBµV/m	dB	dBµV/m			
Horizontal								
Peak Detector:								
4882.000	3.001	38.590	41.591	-32.409	74.000			
7323.000	11.846	36.590	48.437	-25.563	74.000			
9764.000	12.563	37.150	49.713	-24.287	74.000			
Average								
Detector:								
Vertical								
Peak Detector:								
4882.000	5.713	36.590	42.304	-31.696	74.000			
7323.000	12.727	36.150	48.878	-25.122	74.000			
9764.000	13.028	37.510	50.538	-23.462	74.000			
Average								
Detector:								

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product	: TABLET PC							
Test Item	: Harmonic Radiated Emission							
Test Site	: No.3 OA	: No.3 OATS						
Test Mode	: Mode 2	: Transmit - 3Mbp	os (8DPSK) (2480MH	z)				
Frequency	Correct	Reading	Measurement	Margin	Limit			
	Factor	Level	Level					
MHz	dB	dBµV	dBµV/m	dB	dBµV/m			
Horizontal								
Peak Detector:								
4960.000	2.760	38.590	41.350	-32.650	74.000			
7440.000	12.567	36.590	49.156	-24.844	74.000			
9920.000	13.456	36.510	49.966	-24.034	74.000			
Average								
Detector:								
Vertical								
Peak Detector:								
4960.000	5.557	40.260	45.817	-28.183	74.000			
7440.000	13.426	36.590	50.015	-23.985	74.000			
9920.000	13.958	36.550	50.508	-23.492	74.000			
Average								
Detector:								

Note:

-

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

: TABLET PC					
: General Radiated Emission					
: No.3 OATS					
: Mode 1:	Transmit - 1Mbp	s (GFSK) (2441MHz	2)		
	_				
Correct	Reading	Measurement	Margin	Limit	
Factor	Level	Level			
dB	dBµV	dBµV/m	dB	dBµV/m	
-11.535	33.236	21.701	-18.299	40.000	
-10.889	36.227	25.338	-18.162	43.500	
0.759	31.582	32.341	-13.659	46.000	
4.384	26.638	31.022	-14.978	46.000	
6.626	23.245	29.871	-16.129	46.000	
9.119	34.223	43.342	-10.658	54.000	
-5.003	37.302	32.299	-7.701	40.000	
-7.739	40.319	32.580	-10.920	43.500	
-0.471	34.227	33.756	-12.244	46.000	
2.510	29.345	31.855	-14.145	46.000	
7.260	27.635	34.895	-19.105	54.000	
4.329	43.531	47.860	-6.140	54.000	
	 TABLE General No.3 OA Mode 1: Correct Factor dB -11.535 -10.889 0.759 4.384 6.626 9.119 -5.003 -7.739 -0.471 2.510 7.260 4.329 	 TABLET PC General Radiated Emissio No.3 OATS Mode 1: Transmit - 1Mbp Correct Reading Factor Level dB dBμV -11.535 33.236 -10.889 36.227 0.759 31.582 4.384 26.638 6.626 23.245 9.119 34.223 -5.003 37.302 -7.739 40.319 -0.471 34.227 2.510 29.345 7.260 27.635 4.329 43.531 	 TABLET PC General Radiated Emission No.3 OATS Mode 1: Transmit - 1Mbps (GFSK) (2441MHz Correct Reading Measurement Factor Level Level dB dBµV dBµV/m -11.535 33.236 21.701 -10.889 36.227 25.338 0.759 31.582 32.341 4.384 26.638 31.022 6.626 23.245 29.871 9.119 34.223 43.342 -5.003 37.302 32.299 -7.739 40.319 32.580 -0.471 34.227 33.756 2.510 29.345 31.855 7.260 27.635 34.895 	: TABLET PC : General Radiated Emission : No.3 OATS : Mode 1: Transmit - 1Mbps (GFSK) (2441MHz) Correct Reading Measurement Margin Factor Level Level dB dB μ V dB μ V/m dB -11.535 33.236 21.701 -18.299 -10.889 36.227 25.338 -18.162 0.759 31.582 32.341 -13.659 4.384 26.638 31.022 -14.978 6.626 23.245 29.871 -16.129 9.119 34.223 43.342 -10.658 -5.003 37.302 32.299 -7.701 -7.739 40.319 32.580 -10.920 -0.471 34.227 33.756 -12.244 2.510 29.345 31.855 -14.145 7.260 27.635 34.895 -19.105 4.329 43.531 47.860 -6.140	

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Limit

dBµV/m

QuieTek

MHz	dB	dBµV	$dB\mu V/m$	dB		
	Factor	Level	Level			
Frequency	Correct	Reading	Measurement	Margin		
Test Mode	: Mode 2:	: Transmit - 3Mbp	os (8DPSK) (2441MH	[z)		
Test Site	: No.3 OA	No.3 OATS				
Test Item	: General	General Radiated Emission				
Product	: TABLE	T PC				

_			•	•		•
	Horizontal					
	84.320	-10.564	36.109	25.545	-14.455	40.000
	202.660	-10.889	34.675	23.786	-19.714	43.500
	371.440	-1.097	26.195	25.098	-20.902	46.000
	507.240	0.759	30.069	30.828	-15.172	46.000
	664.380	2.062	28.668	30.730	-15.270	46.000
	996.120	7.669	34.656	42.325	-11.675	54.000
	Vertical					
	30.000	1.020	33.419	34.439	-5.561	40.000
	84.320	-4.484	39.604	35.120	-4.880	40.000
	202.660	-7.739	38.097	30.358	-13.142	43.500
	507.240	-0.471	33.185	32.714	-13.286	46.000
	749.740	2.510	29.437	31.947	-14.053	46.000
	1000.000	4.329	45.804	50.133	-3.867	54.000

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

5. RF Antenna Conducted Test

5.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note: 1. All equipments are calibrated every one year.

2. The test instruments Marked "X" are used to measure the final test results.

5.2. Test Setup



5.3. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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 measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

5.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

5.5. Uncertainty

± 150Hz

5.6. Test Result of RF Antenna Conducted Test

Product	:	TABLET PC
Test Item	:	RF Antenna Conducted Test
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Figure Channel 00:







Figure Channel 78:



Product	:	TABLET PC
Test Item	:	RF Antenna Conducted Test
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)











6. Band Edge

6.1. Test Equipment

RF Conducted Measurement

The following test equipments are used during the band edge tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

RF Radiated Measurement:

The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2014
	Х	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
	Horn Antenna		Schwarzbeck	BBHA9170/208	Jul., 2014
	Х	Pre-Amplifier	Agilent	8447D/2944A09549	Sep., 2014
	Х	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	Х	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2015
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	Χ	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

6.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:

Above 1GHz



6.3. 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2009 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

6.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz

6.6. Test Result of Band Edge

Product	:	TABLET PC
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2402MHz)

RF Radiated Measurement (Horizontal):

Channal No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
Channel No.	(MHz)	(dB)	(dBµV)	$(dB\mu V/m)$	$(dB\mu V/m)$	$(dB\mu V/m)$	Result
00 (Peak)	2384.400	33.734	23.842	57.576	74.00	54.00	Pass
00 (Peak)	2390.000	33.739	20.701	54.440	74.00	54.00	Pass
00 (Peak)	2400.000	33.752	32.449	66.200			
00 (Peak)	2402.200	33.755	67.134	100.889			
00 (Average)	2375.600	33.728	12.222	45.949	74.00	54.00	Pass
00 (Average)	2390.000	33.739	12.165	45.904	74.00	54.00	Pass
00 (Average)	2400.000	33.752	24.223	57.974			
00 (Average)	2402.000	33.755	54.693	88.447			

Figure Channel 00:



Figure Channel 00:

Horizontal (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product	:	TABLET PC
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2402MHz)

RF Radiated Measurement (VERTICAL):

Channal No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
Channel No.	(MHz)	(dB)	(dBµV)	$(dB\mu V/m)$	(dBµV/m)	$(dB\mu V/m)$	Result
00 (Peak)	2375.400	32.369	24.330	56.699	74.00	54.00	Pass
00 (Peak)	2390.000	32.267	22.077	54.344	74.00	54.00	Pass
00 (Peak)	2400.000	32.241	37.790	70.031			
00 (Peak)	2402.200	32.241	72.328	104.569			
00 (Average)	2356.600	32.508	12.246	44.754	74.00	54.00	Pass
00 (Average)	2390.000	32.267	12.146	44.413	74.00	54.00	Pass
00 (Average)	2400.000	32.241	28.352	60.593			-
00 (Average)	2402.000	32.241	58.769	91.010			



VERTICAL (Peak)



Figure Channel 00:

VERTICAL (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product	:	TABLET PC
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2480MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
	(MHz)	(dB)	(dBµV)	(dBµV/m)	$(dB\mu V/m)$	$(dB\mu V/m)$	Result
78 (Peak)	2479.900	33.941	71.113	105.053			
78 (Peak)	2483.500	33.951	24.015	57.965	74.00	54.00	Pass
78 (Peak)	2485.500	33.956	23.940	57.895	74.00	54.00	Pass
78 (Average)	2479.900	33.941	57.811	91.751			
78 (Average)	2483.500	33.951	15.803	49.753	74.00	54.00	Pass

Figure Channel 78:

Horizontal (Peak)





Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

2. Peak measurements: RBW = 1MHz, VBW = 3MHz, Sweep: Auto.

3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.

- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product	:	TABLET PC
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2480MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
	(MHz)	(dB)	(dBµV)	(dBµV/m)	$(dB\mu V/m)$	$(dB\mu V/m)$	Result
78 (Peak)	2479.900	32.568	74.104	106.671			
78 (Peak)	2483.500	32.586	27.060	59.645	74.00	54.00	Pass
78 (Average)	2479.900	32.568	60.181	92.748			
78 (Average)	2483.500	32.586	17.520	50.105	74.00	54.00	Pass

Figure Channel 78:

VERTICAL (Peak)



Figure Channel 78:

VERTICAL (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product	:	TABLET PC
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)

RF Radiated Measurement (Horizontal):

Channel Ma	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
Channel No.	(MHz)	(dB)	(dBµV)	(dBµV/m)	(dBµV/m)	$(dB\mu V/m)$	Result
00 (Peak)	2372.800	33.725	23.204	56.929	74.00	54.00	Pass
00 (Peak)	2390.000	33.739	21.754	55.493	74.00	54.00	Pass
00 (Peak)	2400.000	33.752	35.089	68.840			
00 (Peak)	2402.200	33.755	64.653	98.408			
00 (Average)	2390.000	33.739	12.170	45.909	74.00	54.00	Pass
00 (Average)	2400.000	33.752	22.891	56.642			
00 (Average)	2402.000	33.755	50.439	84.193			



Figure Channel 00:

Horizontal (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product	:	TABLET PC
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
Channel No.	(MHz)	(dB)	(dBµV)	$(dB\mu V/m)$	$(dB\mu V/m)$	$(dB\mu V/m)$	Result
00 (Peak)	2365.000	32.442	23.926	56.369	74.00	54.00	Pass
00 (Peak)	2390.000	32.267	21.820	54.087	74.00	54.00	Pass
00 (Peak)	2400.000	32.241	40.806	73.047			
00 (Peak)	2402.200	32.241	70.189	102.430			
00 (Average)	2390.000	32.267	12.189	44.456	74.00	54.00	Pass
00 (Average)	2400.000	32.241	27.238	59.479			
00 (Average)	2402.000	32.241	54.554	86.795			

Figure Channel 00:

VERTICAL (Peak)



Figure Channel 00:

VERTICAL l (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product	:	TABLET PC
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2480MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Pagult
	(MHz)	(dB)	(dBµV)	(dBµV/m)	$(dB\mu V/m)$	$(dB\mu V/m)$	Result
78 (Peak)	2480.100	33.941	70.166	104.107			
78 (Peak)	2483.500	33.951	25.130	59.080	74.00	54.00	Pass
78 (Average)	2479.900	33.941	54.760	88.700			
78 (Average)	2483.500	33.951	15.104	49.054	74.00	54.00	Pass

Figure Channel 78:

Horizontal (Peak)





Horizontal (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.

2. Peak measurements: RBW = 1MHz, VBW = 3MHz, Sweep: Auto.

- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.



Product	:	TABLET PC
Test Item	:	Band Edge
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2480MHz)

RF Radiated Measurement (VERTICAL):

Channel No.	Frequency	Correct Factor	Reading Level	Emission Level	Peak Limit	Average Limit	Dogult
	(MHz)	(dB)	(dBµV)	(dBµV/m)	(dBµV/m)	$(dB\mu V/m)$	Result
78 (Peak)	2479.900	32.568	72.804	105.371			
78 (Peak)	2483.500	32.586	25.492	58.077	74.00	54.00	Pass
78 (Average)	2480.100	32.569	57.059	89.627			
78 (Average)	2483.500	32.586	16.399	48.984	74.00	54.00	Pass

Figure Channel 78:

VERTICAL (Peak)



Figure Channel 78:

VERTICAL (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

7. Channel Number

7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

7.2. Test Setup



7.3. Limit

Frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 75 hopping frequencies.

7.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

7.5. Uncertainty

N/A

7.6. Test Result of Channel Number

Product	:	TABLET PC
Test Item	:	Channel Number
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Frequency Range	Measurement	Required Limit	Pagult	
(MHz)	(Hopping Channel)	(Hopping Channel)	Kesult	
2402 ~ 2480	79	>75	Pass	

2402-2421MHz

2422-2441MHz

Agileat Sportrum Analyzer - Swept SA	4	Agilent Spectrum Analyzer - Swept SA
M RF SD 0 AC SEME INTI ALIGNAUTO D2:30:17FM Sep 03,2014 Fr Center Freq 2.411500000 GHz Trice Frag Pure Avg Type: Log-Pure Trice Frag Pure Trice Frag P	Frequency	Op RL RF SD Q AC SD/EE/NT ALIGNAUTO D2/31/06PM Sep 03, 2014 Center Freq 2.431500000 GHz Avg Type: Log-Pwr RMAC 12 3 4 5 6 Frequency
PROTECT STATUTE SAfter: 30 dB CERTINA CERTIFICATION DE CERTINALINA 10 dR/div. Ref 20.00 dBm 8.71 dBm 8.71 dBm	Auto Tune	Ministry Product and Carl
	Center Freq 11500000 GHz	eq 100 d Center Fi 120 cm Andrew
-200	Start Freq 01500000 GHz	eq 300 Start Fi 300 2.421600000 0
400 400 700	Stop Freq 21500000 GHz	40.0 Stop Fi eq 40.0 2.44150000 0 2.44150000 0
Start 2.40150 GHz Stop 2.42150 GHz #Res BW 100 kHz \$weep 2.47 ms (1001 pts)	CF Step 2.000000 MHz	Start 2.42150 GHz Stop 2.44150 GHz CF SI #Res BW 100 kHz #VBW 100 kHz Sweep 2.47 ms (1001 pts) 2.000000 hz
Instruction X X Instruction Function Function Function Auto 1 N 1 1 2402.00.GHz 872.dBm Function Function Auto 2 N 1 7 2.421.00.GHz 8.72.dBm Auto Auto Auto	Man D	Image: Description Y Indextiding Function
3 4 6 6	Freq Offset 0 Hz	et 3
7		7 8 9 9
11		

2442-2461MHz

2462-2480MHz

Agilent Spoctrum Analyzer - Swept SA		Agilent Spectrum Analyzer - Swept SA		
Center Freq 2.451500000 GHz AUGUAU	/TO 02:31:44PM Sep 03, 2014 Wr TRACE 1 2 3 4 5 6 Frequency	Center Freq 2.471500000 GHz	SBNSEINT ALIGNAUTO 02:32:33 PM Sep 03, 2014 Avg Type: Log-Pwr TRACE 1 2 3 4 5 6 Free	quency
PNO: Fast Trig: Free Run IFGaincl.ew #Atten: 30 dB	DET P NNNN N	PNO: Fast G	Trig: Free Run Trieptwwwww.www. #Atten: 30 dB Det P NNNN	
10 dB/div Ref 20.00 dBm	Ikr2 2.461 00 GHz 8.65 dBm	10 dB/div Ref 20.00 dBm	Mkr2 2.480 00 GHz ***********************************	tuto i une
	Center Freq 2.451500000 GHz		24715 Ce 24715	enter Freq
-300	2.441500000 GHz	-200	24615	Start Freq
500 600 700	2.461500000 GHz	400 400 700	2.4815	Stop Free
Start 2.44150 GHz #Res BW 100 kHz #VBW 100 kHz Swee	Stop 2.46150 GHz ep 2.47 ms (1001 pts) CF Step	Start 2.46150 GHz #Res BW 100 kHz #VBW	Stop 2.48150 GHz 100 kHz Sweep 2.47 ms (1001 pts)	CF Step
MINE MARCE MARCE <thm< td=""><td>Auto Man</td><td>1 N 1 f 2.462.00 GHz</td><td>Y FUNCTION FUNCTION FUNCTION FUNCTION ALUE</td><td>Mar</td></thm<>	Auto Man	1 N 1 f 2.462.00 GHz	Y FUNCTION FUNCTION FUNCTION FUNCTION ALUE	Mar
22 N 1 1 7 2.46100 GHz 8.65 dBm 4 5 5	Freq Offset	2. N 1 f 2.480.00 GHz 4. 5.		req Offsel 0 H
6 7 8 9		7 8 9 9		
10 11 12		10 11 12		
usg st	TATUS	MSG	STATUS	

Product	:	TABLET PC
Test Item	:	Channel Number
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

Frequency Range	Measurement	Required Limit	Result		
(MHz)	(Hopping Channel)	(Hopping Channel)			
$2402 \sim 2480$	79	>75	Pass		

2402-2421MHz

2422-2441MHz

Agilent Spectrum Analyzer - Swept SA		Agilent Spectrum Analyzer - Swept SA
M R4 8F 50.9 AC SEPSEINT AUGUAUTO D355/3284 Sep 3,2014 Center Freq 2.411500000 GHz Trig: Free Run Avg Type: Log-Pwr TRACE [2 3 4 5 6 Trig: Free Run	Frequency	M BF SDD AC SERVERT AUSYLINTO D35652704 SERVER Frequency Center Freq 2.431500000 GHz Trig: Free Run Avg Type: Log-Pwr Trig: Serve Run Trig: Free Run
If Galact.ow ARtien: 30 dB COLSPANNING 10 dB/div Ref 20.00 dBm 5.83 dBm	Auto Tune	If Galacture #Atten: 30 dB Cell P MINION 10 dB/div Ref 20.00 dBm Auto Tun 6.63 dBm
	Center Freq 2.411500000 GHz	Log 100 000 100 100 100 100 100 10
	Start Freq 2.401500000 GHz	.300
600 600 	Stop Freq 2.421500000 GHz	400
Start 2.40150 GHz Stop 2.42150 GHz #Res BW 100 kHz #VBW 100 kHz Sweep 2.47 ms (1001 pts)	CF Step 2.000000 MHz	Start 2.42150 GHz Stop 2.44150 GHz CF Ste #Res BW 100 kHz #VBW 100 kHz Sweep 2.47 ms (1001 pts) 2.000000 MH
DB2E D026E 1826 553 X LEXEND 1004-0000111 EXENDED EXENO	<u>Auto</u> Man	1002(150201 822) キシュー・シー・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・
3 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Freq Offset 0 Hz	3 FreqOffse 5 6 ОН 6 ОН
12		MEG BTATUS

2442-2461MHz

2462-2480MHz

Agilent Spoctrum Analyzer - Swept SA	Agilent Spectrum Analyzer - Swept SA
RL RF SD R AC SB/SE/NTI ALIGN/AU/TO D3 58/04 PM Sep 03, 2014 Frequency Center Freq 2.451500000 GHz Avg Type: Log-Pwr TRACE [1 2 3 4 5 6 Frequency	Off RL RF 50.0 AC SERVED.TT AUGNAUTO 03:59:22PM Sep03,2014 Frequency Center Freq 2.471500000 GHz Table Sep 0, ac Avg Type: Log-Pwr TMACE [12:3:4:5:6 Frequency
PNO: Fast Trig: Free Run Trig: Pree Run Billion Billio	PNO: Fast C Ing. Free Run If Gainclew #Atten: 30 dB DETP NNNNN
Mkr2 2.461 00 GHz 400 Tu 10 dB/div Ref 20.00 dBm 8.67 dBm	Mkr2 2.480 00 GHz
Log 1 100	247 100 100 100 100 100 100 100 100
200	100 Start Fr 102 400 246150000 0
400	400
Start 2.44150 GHz Stop 2.46150 GHz CF Ste #Res BW 100 kHz #VBW 100 kHz Sweep 2.47 ms (1001 pts)	Start 2.46150 GHz Stop 2.48150 GHz CF St #Res BW 100 kHz #VBW 100 kHz Sweep 2.47 ms (1001 pts)
CODE X Auto Multiple Auto Multiple 1 N f 2.442.00 GHz 6.29 dBm Public Solution Public Solution Auto Multiple 2 N f 2.442.00 GHz 8.67 dBm Public Solution	n 102 (1920) 172 BAL 28 1 28 1 28 1 28 1 29 1 20 1 20 1 20 1 20 1 20 1 20 1 20
3 0 FreqOffs 4	at bit bit
7 8 9 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10	7 7 9 9 10 10
MSG STATUS	M6G STATUS

8. Channel Separation

8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note: 1. All equipments are calibrated every one year.

2. The test instruments mark by "X" are used to measure the final test results.

8.2. Test Setup



8.3. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

8.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

8.5. Uncertainty

 \pm 150Hz

8.6. Test Result of Channel Separation

Product	:	TABLET PC
Test Item	:	Channel Separation
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

	Fraguanay	Measurement	Limit	Limit of (2/3)*20dB	Result	
Channel No.	(MHz)	Level	(1417)	Pondwidth (kHz)		
	(WITZ)	(kHz)	(кпz)	Daliuwiuui (KFIZ)		
00	2402	1000	>25 kHz	760.0	Pass	
39	2441	1000	>25 kHz	753.3	Pass	
78	2480	1000	>25 kHz	753.3	Pass	

NOTE: The 20dB Bandwidth is refer to section 10.

Agiler	it Spe	ctrum	i Ana	lyzer - Sw	ept SA										
الا Cen	ter	Fre	RF q 2	50 Ω 2.40200	AC	GHz			SE:INT	Avg	Type	ALIGNAUTO	05:51:33 TF	2PM Sep 25, 2014 ACE 1 2 3 4 5 6	Frequency
10 d	B/div		Ref	20.00	dBm	PNO: Wid IFGain:Lo	de ⊂ _∎ _)w	Atten: 30 o	B	Avgi	-1010.	Mkr	2 2.40	3 00 GHz 012 dBm	Auto Tune
Log 10.0 0.00 -10.0										2					Center Freq 2.402000000 GHz
-20.0 -30.0 -40.0												\			Start Freq 2.397000000 GHz
-50.0 -60.0 -70.0	we white	₩∼₩	امتحلو		an de Bit de la d	nhan were							an Wildel and Marine		Stop Freq 2.407000000 GHz
Cen #Re	ter 2 s B\	2.40 N 10	20 00	00 GHz kHz		#	VBW	100 kHz		Newlet		#Sweep	Span 500 ms	10.00 MHz (1001 pts)	CF Step 1.000000 MHz
1	N N	1	f f		2.40 2.40	2 00 GHz 3 00 GHz	z	5.932 dB 6.012 dB	m m	INCHON					
3 4 5 6															Freq Offset 0 Hz
7 8 9															
10 11 12	1						2				1				

Channel 00 2402MHz

Agilent Spectrum Analyzer - Swept SA	an an		an a	
Marker 2 2.442000000000 GHz	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	05:52:48 PM Sep 25, 2014 TRACE 1 2 3 4 5 6	Marker
PNO: Wide 🦕 IFGain:Low	Atten: 30 dB		DET PNNNN	Select Marker
10 dB/div Ref 20.00 dBm		Mkr	2 2.442 00 GHz 6.078 dBm	2
10.0 0.00 -10.0		2		Normal
-20.0 -30.0 -40.0				Delta
-50.0 -60.0 -70.0			an marine and a second second	Fixed⊳
Center 2.441000 GHz #Res BW 100 kHz #VBW	100 kHz	#Sweep	Span 10.00 MHz 500 ms (1001 pts) FUNCTION VALUE	Off
2 N 1 2.442 00 GHz 3	6.078 dBm			Properties▶
' ' 8				More 1 of 2
MSG		STATUS	, ,	

Channel 39 2441MHz

Channel 78 2480 MHz

Agilent Spectrum Analyzer - Swept SA					
Marker 2 2.479000000000	GHz	NSE:INT Avg Type:	LIGNAUTO 05:54:26 PM Log-Pwr TRAC	1 Sep 25, 2014 1 2 3 4 5 6	Marker
10 dB/div Ref 20.00 dBm	PNO: Wide D Ing: Free IFGain:Low Atten: 30	a Kun Avginoid: e I dB	Mkr2 2.479	00 GHz 00 dBm	Select Marker 2
10.0 0.00 -10.0	2				Normal
-20.0					Delta
-50.0		- Alender - Alen	in an	esterning and a start of the st	Fixed⊳
Center 2.480000 GHz #Res BW 100 kHz	#VBW 100 kHz		Span 10 Sweep 500 ms (* FUNCTIO	0.00 MHz 1001 pts) NVALUE	Off
N I 2.49 2 N f 2.47 3 - - 2.47 4 - - - 5 - - - 6 - - - 7 - - - -	9 00 GHz 6.190 di	Bm Bm			Properties▶
8 9 10 11 12 12					More 1 of 2
MSG			STATUS		

Product	:	TABLET PC
Test Item	:	Channel Separation
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

	Frequency	Measurement	Limit	Limit of (2/3)*20dB	
Channel No.	(MHz)	Level	(kHz)	Bandwidth (kHz)	Result
	(IVIIIZ)	(kHz)	(KIIZ)	Danuwidun (KHZ)	
00	2402	1000	>25 kHz	946.7	Pass
39	2441	1000	>25 kHz	946.7	Pass
78	2480	1000	>25 kHz	946.7	Pass

NOTE: The 20dB Bandwidth is refer to section 10.

Channel 00 2402MHz

Agilent Spectrum Analyzer - Swept SA				
KF 50 Ω AC Marker 2 2.40300000000 C	SENSE:IN	ALIGN AUTO Avg Type: Log-Pwr	05:56:40 PM Sep 25, 2014 TRACE 1 2 3 4 5 6	Marker
	PNO: Wide 🖵 Trig: Free Run FGain:Low Atten: 30 dB	n Avg Hold: 71/100 Mkr.	2 2.403 00 GHz	Select Marker
10 dB/div Ref 20.00 dBm Log 10.0 0.00		2		Normal
-10.0 -20.0 -30.0 -40.0				Delta
-50.0			handler	Fixed⊳
Res BW 100 kHz	#VBW 100 kHz	#Sweep	Span 10.00 MHz 500 ms (1001 pts) FUNCTION VALUE	Off
1 N 1 2.402 2 N 1 f 2.403 3	00 GHz -1.519 dBm			Properties▶
7 - 8 - 9 - 10 - 11 - 12 -				More 1 of 2
MSG		STATUS	3	0



Agiler	nt Spe	ctru	m An	alyzer - Sw	ept SA										50				
<u>ы</u> Mar	L ker	22	RF	50 Ω)0 GI	-17		SE	ENSE:INT	-	Avg Ty	Al (pe: l	LIGN AUTO	05:57:4 TF	3 PM Se RACE 1	2 3 4 5 6		Marker
mai	NOI			20000	0000	PN	IO: Wide Gain:Lov	e 🖵 v	Trig: Fre Atten: 3	e Run 0 dB		Avg Ho	id: 6	5/100	2	DET P	NNNN	5	Select Marker
10 d	B/div	,	Ref	f 20.00 (dBm									Mkr	2 2.44: -1.	2 00 273) GHz dBm		2
10.0 0.00 -10.0											~* ²								Normal
-20.0 -30.0 -40.0								~~~					~	\sim					Delta
-50.0 -60.0 -70.0				weller bleverer	-	^{سري} به الم										inter and a start of the	-Anto-Ayadara		Fixed⊳
Cen #Re	ter : s B\ MODE	2.44 N 1	410 00	00 GHz kHz	×		#V	/BW	100 kHz		FUNCTI		#: FUNC	Sweep	Span 500 ms	10.0 6 (10	00 MHz 01 pts)		Off
1 2 3 4 5 6	N	1	f		2	.441 0	0 GHZ 0 GHZ		-1.427 d	Bm									Properties►
7 9 10 11 12																			More 1 of 2
MSG														STATUS					

Channel 39 2441MHz

Channel 78 2480 MHz

Agilent Spectru	ım Analyzer - Swi	ept SA							
Marker 2	RF 50 Ω	AC 00000 GHz	SE	NSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	05:58:31 P TRAC	M Sep 25, 2014 E 1 2 3 4 5 6	Marker
		PNO: Wid IFGain:Lo	le 🖵 Trig: Free w Atten: 30	e Run I dB	Avg Hold:	: 61/100			Select Marker
10 dB/div	Ref 20.00 (dBm				IVIKI	-1.5	46 dBm	2
10.0			2	1					Normal
-10.0		[[
-20.0									
-30.0									Delta
-50.0	man	hered			<u> </u>		- where the same		
-70.0									Fixed⊳
Center 2.4	80000 GHz						Span 1	0.00 MHz	
#Res BW	100 kHz	#*	VBW 100 kHz	FUN	CTION FU	#Sweep	500 ms (1001 pts)	Off
1 N 1 2 N 1	f f	2.480 00 GHz 2.479 00 GHz	-1.347 d -1.546 d	Bm Bm					
3 4 5			1						Properties►
6 7									
9 10									More
11 12									1 of 2
MSG						STATUS	5		

9. Dwell Time

9.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

9.2. Test Setup



9.3. Limit

The dwell time shall be the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

9.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

9.5. Uncertainty

± 25msec

9.6. Test Result of Dwell Time

:	TABLET PC
:	Dwell Time
:	No.3 OATS
:	Mode 1: Transmit - 1Mbps (GFSK) (Channel 00,39,78 –DH5)
	:

Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Duty cycle	Dwell Time (Sec)	Limit (Sec)	Result
2402	2.890	14	50	0.81	0.324	0.4	Pass
2441	2.900	14	50	0.81	0.325	0.4	Pass
2480	2.890	14	50	0.81	0.324	0.4	Pass

Duty cycle =((Time slot length(ms)*Hopping of Number) / Sweep time (ms)

Dwell time = (Duty cycle / 79) * (79*0.4)

CH 00 Time Interval between hops

CH 00 Transmission Time

Agiles	t Spectr	rum Anal	lyzer -	Swept	SA															Agile	int Spect	trum Ar	maly:	ver - Swi	ept SA												
UN R	L	RF	5	0.0	4Ç.				- 1	SENSE	247			ALIGNA	U/TO	01:42:5	FM Sep 03	3,2014		100 1	RL.	R	(F	50.0	AC				SENSE:	NT			ALIGNAUTO	01:43:31	FM Sep 03	,2014	
Cen	ter F	reg 2	.402	000	000	GHz						Av	g Type	: Log-F	Pwr	TR	ACE 1 2 3	456	Frequency	Cer	nter F	req	2.4	40200	00000	GH	z	- L.			Avs	Type:	Log-Pwr	TRA	ACE 1 2 3	456	Frequency
						PNO	: Fast (P	Trig: Fr #Atten:	ee Ru 30 dB	3						DET P N N	INNN				101310				PN IFG	0: Fast G	#At	g: Free Ru ten: 30 dB	n		S2257	22	'n	DET P N N	INNN	
10 d	Bidly	Ref	20.0	0 dB	m														Auto Tune	10 0	Bidiy	Re	of 2	20.00	IBm									Mkr3 6 9	3.750 13 d	ms Bm	Auto Tune
Log			2010					-		-		-		_	_		-	_		Log	1					1	1			(2	3		1	1		
															- 1			- 1	Center Freq	10.0	° —	-	-		5	Ť		-	-	-	1	-		+	+		Center Freq
10.0	10	-	_	+	1.5	-	-	-	-	+	1.	100	-		-	-1.	110	-	2.402000000 GHz	0.00	0	-	-			-	-	-	-		-	-++	_	+	+	+	2.402000000 GHz
		- 111														- 11		- 11		-10.0	0					_									_		
0.00	Ш.		_			_			_	Ц						\rightarrow		_	-	-					11						1				1		
		- 111														- 11		- 11	Start Freq	-2011																	Start Freq
10.0			_																2 402000000 GHz	-30.0	0	-			11	-		-				-++			-		2 402000000 GHz
-10.0		11		TT								TTT			TH					-40.0	0	-	-			-	-	-		-	-			+	+	+	
12.2		- 111														- 11		- 11	-	-50.0	0	-	-		-	-		-				+			-	- 1	
-20.0		-111	-	++-	-++-			-111-			-	+++			111		+++-		Stop Freq	-601					With,	141	<u></u>				41.21	Ŵ				hm	Stop Freq
		- 111														- 11		- 11	2 40200000 GHz	-		_										_					2 402000000 GHz
-30.0	-+++		-	++-	-++-	-			-	++-	++-	+++	-	+	+++	-++-	+++-	- 1	E.HOLOGOGO OTTE	VUI		-		-										-	-		E. TOE COUCH OT IL
		- 11									11	111			111		111	- 1		Cer	nter 2	4020	000	0000 G	Hz	_		-						22	Snan (0 Hz	
-40.0			-	++-		-			-			+++	-	-				-	CF Step	Res	SBW	1.0 N	MH2	7			#VBM	1.0	MHz			S	weep 1	10.00 ms	(1001	pts)	CF Step
		- 111										111				- 11	111	- 1	1.000000 MHz					-		_				-	DOGMON	-	meep .		1.001	100	1.000000 MHz
40.0			_	11									_						Auto Man	and the	MODE 1		1		×	3.00	20.000	_	10 10	Fi, N	OCTION	FUN	CTION WIDTH	FUNCT	CON VALUE		Auto Man
100	W .		- 1	4	10			ų.				I U			h	k.	1	- 1		2	N	1 1	+			5.89	30 ms		12 dBm			+		+		-1	
1.1		1			· ·		r.	°1°		°I –	10	1 ° °		r i		- p	1.000	1	Eren Offent	3	N	1 t				6.75	50 ms	5	.13 dBm								From Offert
-60.0														1					auto auto	4		-	+			_		_			_	-		+			nicq onset
															- 1			- 1	0 112	6		-	+									-		+			0 Hz
-70.0				-		+		-		+		+		-	-		+		1	7																	-
															- 1			- 1		8		-	+	_	_							-				-	
-								_							_		-			10																	
Cen	ter 2.	40200	10000	GH	z		-			2			1.1				span	UHZ	1	11			1														
Res	DW 1	LU MIH	12				#VE	944 1.	.0 MIH	2				owee	h 20	.00 ms	(1001	prs)		12		-	-	_						_		-	1.1.5	<u></u>			8
MSG														5	TATUS					MSG													STATU	5			

CH39 Time Interval between hops

CH 39Transmission Time

Agilent Sp	ctrum /	Inalyzer	Swept	SA														Agile	nt Sp	pectrum	Anal	lyzer - Swept SJ										
Center	Freq	2.441	000	000 0	SHz	-		SE	NSE INT		Avg T	ype: L	og-Pwr	02:07	TRACE	ep 03, 2014 1 2 3 4 5 6	Frequency	Cer	nter	r Fred	12.	50 Q AC	00 GHz	-		SENSE	201	Avg Type	ALIGNAUTO	02:08:2	3FM 5ep 03, 2014 ACE 1 2 3 4 5 6	Frequency
					PNO: F FGain:	Low	#A	tten: 30	dB						DET	NNNN	Auto Tune	_				1244-1340/12424	PNO: IFGai	Fast G	#A	tten: 30 di	B				DETPNNNN	Auto Tune
10 dB/di	R	ef 20.0	0 dB	m														10 d	iB/d	liv R	tef	20.00 dBm	1							MKr3	4.230 ms 0.13 dBm	
10.0			_				_	11				11	-11-				Center Freq 2.441000000 GHz	10.0		01	-			2	•		_	_				Center Freq 2.441000000 GHz
0.00					t												Start Freq 2.441000000 GHz	-10.0 -20.0 -30.0 -40.0			-											Start Freq 2.441000000 GHz
-20.0			_														Stop Freq 2.441000000 GHz	-50.0 -60.0 -70.0	~	ru	+		+	Bonty	-	_			Wingshipment		-	Stop Freq 2.441000000 GHz
-40.0			-														CF Step 1.000000 MHz Auto Man	Cer Res	B	W 1.0	MH	0000 GHz Iz	*	#VBV	N 1.0	MHz	FUNC	110N FU	Sweep 1	0.00 ms	Span 0 Hz (1001 pts)	CF Step 1.000000 MHz Auto Man
60.0	¥	4		Ļ	W	ų		V	h	W		ų	-1	41	V	ų	Freq Offset 0 Hz	1 2 3 4 5 6	NNN	1	t		480.0 3.380 4.230	ns ms		9.14 dBm 9.42 dBm 9.13 dBm						Freq Offset 0 Hz
Center Res BM	2.441	00000 WHz	GH	z		#VBW	V 1.0	MH7				SW	veen f	50.00 n	Spa ns (10	an 0 Hz		7 8 9 10 11														
MSG													STATU	5		e. pro	1	MSG		-	-			_					STATUS			()

CH 78 Time Interval between hops

CH 78 Transmission Time

Lgilent Spect	trum A	nalyzer	- Swep	t SA															Agilen	nt Spec	strum An	salyzer	r - Swept													
Center F	Freq	2.48	50 R 0000	AC 0000	GHz		_,	ria: Fra	JENSE I		A	vg Typ	e: Log-	Pwr	02:19:2	7PM Sep 03, 2 RACE 1 2 3 4 TYPE WWWW	5 6 Freq	luency	Cen	iter	Freq	2.48	50 g 30000	⁴⁰	GHz		Tria	SENSE	201	A	rg Typ	ALIGNAUTO	02:20:0	TYPE W	23456	Frequency
				1	IFGai	incl.ow		Atten:	30 dB	1						DET P NNN	A	uto Tune			1123		21.22		IFGai	inclow	#Att	en: 30 dE	3				Mkr3	6.44	0 ms	Auto Tur
10 dB/div	Re	ef 20.	00 di	3m					F			_	_				Ce 2.4800	nter Freq 00000 GHz	10 dl 10.0 0.00	Bidiv	Re	f 20.	.00 dB	Ŷ)1				<u>()</u> 2		3			9.76		Center Fre 2.480000000 GH
0.00									F	F			F		+		\$ 2.4800	Start Freq 00000 GHz	-20.0 -30.0 -40.0						-								=	+		Start Fre 2.480000000 GH
-20.0									t		#		1				2.4800	Stop Freq 00000 GHz	-50.0 -60.0 -70.0			_	k aa	empl				-	-	Helan		_	=	+	toget	Stop Fre 2.48000000 GF
40.0				+		-							-	$\left \right $	+		Auto 1.0	CF Step 00000 MHz Man	Cen Res	BW	2.4800 1.0 M	000 IHz	00 GH	z		#VB	N 1.0 I	MHz	10	NOTION	1	Sweep 1	.0.00 m [.]	Spa s (100	n 0 Hz D1 pts)	CF Ste 1.000000 MF Auto Mi
60.0 W	X	- 2	ų	N			V	7,6	-	đ	V	,	1	44	2	ų,	h Fr	eq Offset 0 Hz	1 2 3 4 5 6	N N N	1 t 1 t			ł	2,690 6,580 6,440) ms) ms) ms	9) 9) 9)	76 dBm 80 dBm 76 dBm					-			Freq Offso 0 F
Center 2	.480	00000	00 Gł	łz		#\/B	144.4	0.044	Ì						00 m	Span 0 1	Hz		7 8 9 10 11																	
ASS DW	1.0 1	1112				#VD		o win	•				owee	STATUS	.00 1115	, (1001 p	(3)		MSG	_	_	-	_	_	_	_	_			_	_	STATU	5		_	

Note:

The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.

Product	:	TABLET PC
Test Item	:	Dwell Time
Test Site	:	No.3 OATS
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (Channel 00,39,78 –DH5)

Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Duty cycle	Dwell Time (Sec)	Limit (Sec)	Result
2402	2.900	14	50	0.81	0.325	0.4	Pass
2441	2.900	14	50	0.81	0.325	0.4	Pass
2480	2.910	14	50	0.81	0.326	0.4	Pass

Duty cycle =((Time slot length(ms)*Hopping of Number) / Sweep time (ms)

Dwell time = (Duty cycle /79) * (79*0.4)

CH 00 Time Interval between hops

Center Freq 2.402000000 GHz PN0: Fast ↔ ALIGNAUTO Avg Type: Log-Pwr Frequency Frequency Aug Type: Log-P Trig: Free Run #Atten: 30 dB Auto Tu Auto Ti Mkr3 4.210 ms 8.11 dBm Ref 20.00 10 d Log Center Fre Center Fre Start Free Start Fre Stop Fre Kompton . WIN Stop Fre 000000 GI Center 2.402000000 G Res BW 1.0 MHz Span 0 Ha Sweep 10.00 ms (1001 pts CF Step 1.000000 MH Mar CF Step 1.000000 MH: Mar #VBW 1.0 MHz 4 h., ų V 4 6 NN 8.10 dBn 7.71 dBn 8.11 dBn Ņ h W 460.0 µs 3.360 ms 4.210 ms ų Freq Offse Freq Offse OF Center 2.402000000 GHz Res BW 1.0 MHz Span 0 Hz Sweep 50.00 ms (1001 pts) #VBW 1.0 MHz

CH39 Time Interval between hops

CH 39Transmission Time

Agilent	Spectru	= Analyz	er - Swe	pt SA															Agile	int Sp	pectrum	Anal	yzer Swe	rpt SA												
Cent	er Fre	eq 2.4	50 g 4100	0000	GH	z		Tele: Fr	SERVICE OF	NT]	Avg	A Type:	LIGNAUTO Log-Pwr	03:	12:34P	M Sep 03, 20	5.6	Frequency	Cer	nte	r Fre	r⊮ q 2.	50 Q 44100	00000	GHz		Tela	SENSE	201	Av	g Type	Log-Pwr	03:13	TRACE	ep 03, 2014 1 2 3 4 5 6	Frequency
10 48	64llu	Ref 20	0.00 d	Bm	IFG	0: Fast aincl.ow	, e	#Atten:	30 dB						D	a P NNNI	NN	Auto Tune		-Bid	410	Pof	20.00 d	Bm	PNO: I IFGain	Fast C _e	#Atte	n: 30 dE	3				Mkr3	6.5 8.5	20 ms	Auto Tune
10.0						71			-		hr	_	<u> </u>		1]	Center Freq 2.441000000 GHz	10.0				20.00 0		21						♦3			-	7	Center Freq 2.441000000 GHz
0.00 +10.0									t	#							-[Start Freq 2.441000000 GHz	-20.0 -30.0 -40.0										-				-	+		Start Freq 2.441000000 GHz
-20.0									t								1	Stop Freq 2.441000000 GHz	-50.0 -60.0 -70.0	0		-		an a				-	W	rspul	s		=	+	Hiving	Stop Freq 2.441000000 GHz
-40.0				-		+			+	+		+					_	CF Step 1.000000 MHz Auto Man	Cer Res	nter s B\	r 2.44 W 1.0	100 MH	0000 G Iz	Hz		#VBV	V 1.0 N	ЛНz	10	NATION	1	Sweep	10.00 m	Spa Spans (10	an 0 Hz J01 pts)	CF Step 1.000000 MHz Auto Man
60.0	W	N	ų	4		Ŋ	4		•	4	м	-	ł		¥.	W		Freq Offset 0 Hz	123456	NNN	1	t t			2.770 5.670 5.520	ms ms ms	8. 8. 8.	55 dBm 27 dBm 54 dBm					=			Freq Offset 0 Hz
-70.0 Cente	er 2.44	\$10000	000 G	Hz					t					L	S	ipan 0 F	Hz		7 8 9 10															_		-
Res E	BW 1.0	0 MHz				#V	BW 1	.0 MH	z			S	weep 5	0.00	ms (1001 pt	ts)		12 MSG	_		_	_	_	-	_	_			-	_	STAT	JS	-		

CH 00 Transmission Time

CH 78 Time Interval between hops

CH 78 Transmission Time

Agilent	pectrum	Analyze	- Swep	t SA															Agile	ent S	ipectrum	Anal	lyzer Si	wept SA														
Cente	r Fred	1 2.48	50 Q 30000	AC 0000 (GHz	_	1.	SE	INSE INT		Avg T	A Type: I	LIGNAUTO	03:	34:44FM TRACE	1 Sep 03, 20	5 6	Frequency	Ce	nte	er Fre	g 2.	.4800	00000	O GI	łz			SENSE 3	VT[Avg T	Type:	LIGNAUTO	D)¢ F	03:35:23 FM TRAC	5ep 03, 201	4 6	Frequency
				1	PNO: F	ast G	Tr #A	ig: Fre Itten: 3	e Run 0 dB						DE	PNNN	NN	Auto Tuno							P	NO: Fas Galin:Lo	at 🖓	#Atten:	ee Rui 30 dB	•	- 100		- 22		DE	PNNNN	Ň	Auto Tuno
10 dB/	siv R	ef 20.	.00 dE	Bm														Auto Tune	10 (dBio	div I	Ref	20.00	dBm										M	kr3 7. 8.9	360 ms 30 dBm		Auto Tune
10.0	<u>، ال</u>				1		-	1	h r	_		_		-h (***				Center Freq 2.480000000 GHz	10 0.0			-			7		(<u>1</u>					2	♦ 3	-		*****		Center Freq 2.480000000 GHz
0.00 -10.0																	Ī	Start Freq 2.480000000 GHz	-10. -20.1 -30.1 -40.1													_						Start Freq 2.480000000 GHz
-20.0																	_	Stop Freq 2.48000000 GHz	-50. -60. -70.	0				-	4	-			-	_	Ļ	quijin	~		_			Stop Freq 2.480000000 GHz
-40.0								-	╟			+					-	CF Step 1.000000 MHz Auto Man	Ce Re	nte s B	r 2.48 W 1.0	000 MH	10000 1z	GHz	_	#1	/BW	1.0 MH	z	RUNG	TION	S	weep	10.0	S 0 ms (1	pan 0 Ha 1001 pts	Au	CF Step 1.000000 MHz to Man
60.0	(J	4		4	2				v	H	4	1	ų	Å.	'n	ų	-	Freq Offset 0 Hz	123456	NNN	1	t t			3.6 6.5 7.3	10 ms 20 ms 60 ms		8.91 8.25 8.90	dBm dBm dBm								F	Freq Offset 0 Hz
-70.0 Cente	r 2.480	00000	00 GH	łz											S	pan 0 H	-1z		7 8 9 10 11												_							
Kes B	w 1.0	MHZ				#vBV	v 1.0	MHZ				SI	STATI	50.00 /5	ms (1	1001 pt	(S)		MSG			-		_	_	_	-	_	-		-	_	STAT	US	_		1	

Note:

The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.

10. Occupied Bandwidth

10.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
Х	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note: 1. All equipments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

10.2. Test Setup



10.3. Limits

N/A

10.4. Test Procedure

The EUT was setup to ANSI C63.10: 2009; tested to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

10.5. Uncertainty

± 150Hz

10.6. Test Result of Occupied Bandwidth

Product	:	TABLET PC
Test Item	:	Occupied Bandwidth Data
Test Site	:	No.3 OATS
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)(2402MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1140		NA
39	2441	1130		NA
78	2480	1130		NA

Figure Channel 00:

Agilent Spe	ectrum An	nalyzer - Swe	ept SA								
Center	Freq	50 Ω 2.40200	AC 00000 GH	lz	SEI		Avg Ty	ALIGNAUTO ype: Log-Pwr	01:37:30P TRAC TY	M Sep 03, 2014 E 1 2 3 4 5 6	Frequency
10 dB/div	v Re	ef 20.00 (dBm	IO: Wide 🕞 Sain:Low	#Atten: 30) dB		Mkr	2 2.401 -11.	44 GHz 10 dBm	Auto Tune
Log 10.0 0.00 -10.0					²					-10.70 dBm	Center Freq 2.402000000 GHz
-20.0			~~~	\sim			VL	-	<u>`</u>		Start Freq 2.397000000 GHz
-50.0 -60.0	~~^^	Instant							Lower	him	Stop Freq 2.407000000 GHz
Center #Res B	2.4020 W 100	00 GHz kHz	× 2.402 1	#VBW	100 kHz 9.30 dl	FUN	CTION	Sweep	Span 1 1.27 ms (0.00 MHz 1001 pts) IN VALUE	CF Step 1.000000 MHz <u>Auto</u> Man
2 N 3 N 4 5 6	1 f 1 f		2.401 4 2.402 5	4 GHz 8 GHz	<u>-11.10 dE</u> -11.85 dE	3m 3m					Freq Offset 0 Hz
7 8 9 10 11 12											
MSG		<u></u>						STATUS			



Figure Channel 39:

Agilent	t Spec	ctrun	n Ana	alyzer - Swe	ept SA								
Cent	ter	Fre	RF	50 Ω 2.44100	AC 00000 GH	Ηz	S Tria: Erc	ENSE:INT	Avg T	ALIGNAUTO ype: Log-Pwr	01:55:04 P TRAC	M Sep 03, 2014 E 1 2 3 4 5 6	Frequency
<u> </u>					Pr IF(10: Wide Gain:Low	#Atten:	30 dB		Mkr	2 2.440	44 GHz	Auto Tune
10 dE Log	3/div		Ref	20.00 c	lBm			A 4			-10.3	82 a.B.M	
10.0 ·							2∕_	3				-10.40 dBm	Center Freq 2.441000000 GHz
-20.0 -30.0 -40.0					N	w			y				Start Freq 2.436000000 GHz
-50.0 -60.0 -70.0	s m	m	~	mmund							m	Lunder	Stop Freq 2.446000000 GHz
Cent #Res	ter 2 s BV	2.44 N 1	110 00	00 GHz kHz		#VI	3W 100 kH:			Sweep	Span 1 1.27 ms (0.00 MHz 1001 pts)	CF Step 1.000000 MHz
MKR M 1 2	10DE N N	TRC 1	SCL f		× 2.441 0 2.440 4	1 GHz 4 GHz	9.60 o -10.82 o	iBm Bm	JNCTION	FUNCTION WIDTH	FUNCTIO	IN VALUE	<u>Auto</u> Man
3 4 5 6	N	1	f		2.441 5	7 GHz	-10.63 c	IBm					Freq Offset 0 Hz
7 8 9 10										2			
11 12 MSG										STATUS	3		

Figure Channel 78:

Agilent Spectrum Analyzer - Swept SA							
KE RF 50 Ω AC Center Freq 2.480000000	GHz _	SENSE:INT	Avg Type:	ALIGN AUTO Log-Pwr	02:14:11P	E 1 2 3 4 5 6	Frequency
10 dB/div Ref 20.00 dBm	PNO: Wide () IFGain:Low	#Atten: 30 dB		Mkr2	2 2.479 -10.1	44 GHz 15 dBm	Auto Tune
10.0 0.00 -10.0			3			-10.08 dBm	Center Freq 2.480000000 GHz
-20.0							Start Freq 2.475000000 GHz
-50.0					por the	Marcan	Stop Freq 2.485000000 GHz
Center 2.480000 GHz #Res BW 100 kHz MKR MODE TRO SCL	#VBW	100 kHz	FUNCTION FUN	Sweep 1	Span 1 1.27 ms (* FUNCIO	0.00 MHz 1001 pts) NVALUE	CF Step 1.000000 MHz Auto Man
1 N 1 f 2.48 2 N 1 f 2.48 3 N 1 f 2.48 4	80 17 GHz 19 44 GHz 30 57 GHz	9.92 dBm -10.15 dBm -10.62 dBm					Freq Offset 0 Hz
MSG				STATUS			

:	TABLET PC
:	Occupied Bandwidth Data
:	No.3 OATS
:	Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)
	:

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1420		NA
39	2441	1420		NA
78	2480	1420		NA

Figure Channel 00:

Agilent Spectr	um Analyzer - S	wept SA								
Center F	RF 50 req 2.4020	Ω AC 000000 GH	lz	SENS	SE:INT	Avg Typ	ALIGNAUTO e: Log-Pwr	02:33:36 P TRAC	M Sep 03, 2014 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref 20.00) dBm	O: Wide Cp Jain:Low	#Atten: 30	dB		Mkr	2 2.401 -12.	30 GHz 32 dBm	Auto Tune
10.0 0.00 -10.0					1				-11.90 dBm	Center Freq 2.402000000 GHz
-20.0 -30.0 -40.0						L	m.	~ ~		Start Freq 2.397000000 GHz
-50.0 -60.0	row							- Jud Smm	Mun	Stop Freq 2.407000000 GHz
Center 2. #Res BW	102000 GH 100 kHz	Z 2.402.0′	#VBW	/ 100 kHz Y 8.10 dB	FUN	CTION F	Sweep	Span 1 1.27 ms (0.00 MHz 1001 pts) IN VALUE	CF Step 1.000000 MHz <u>Auto</u> Man
2 N 1 3 N 1 4 5 6 7	f	2.401 30 2.402 72	2 GHz	-12.32 dBi -12.56 dBi	m m					Freq Offset 0 Hz
8 9 10 11 12										



Figure Channel 39:

Agilent Spectrum Analyzer - Swept SA				
Center Freq 2.441000000 GHz	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	03:05:01 PM Sep 03, 2014 TRACE 1 2 3 4 5 6	Frequency
PN0: Wide ⊂ IFGain:Low	Auto Tune			
10 dB/div Ref 20.00 dBm	04		-11.54 dBm	
10.0			-11.33 dBm	Center Freq 2.441000000 GHz
-20.0		m		Start Freq 2.436000000 GHz
-50.0 -60.0 -70.0			and have more	Stop Freq 2.446000000 GHz
Center 2.441000 GHz #Res BW 100 kHz #VBW	100 kHz	Sweep	Span 10.00 MHz 1.27 ms (1001 pts)	CF Step 1.000000 MHz
MKR MODE TRC SCL X 1 N 1 f 2.441 17 GHz	Y FUND 8.67 dBm	TION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Man
2 N 1 f 2.440 29 GHz 3 N 1 f 2.441 71 GHz 4 - - - - 5 - - - - 6 - - - - -	-11.54 dBm -11.60 dBm			Freq Offset 0 Hz
7 8 9 10				
12 MSG		STATUS	<u> </u>	

Figure Channel 78:

Agilent Spectrum Analyzer - Swept SA								
Center Freq 2.48000000	0 GHz	SENSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	03:24:22 Pf TRAC	4 Sep 03, 2014 E 1 2 3 4 5 6	Frequency	
10 dB/div Ref 20.00 dBm	PNO: Wide Trig: Free Run IFGain:Low #Atten: 30 dB Mkr2 2.479 29 GHz -11.15 dBm -11.15 dBm							
10.0 0.00 -10.0			3			-10.99 dBm	Center Freq 2.480000000 GHz	
-20.0 -30.0 -40.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		- V	M			Start Freq 2.475000000 GHz	
-50.0 -60.0 -70.0					h	monor	Stop Freq 2.485000000 GHz	
Center 2.480000 GHz #Res BW 100 kHz MKR MODE TRO SCL	Center 2.480000 GHz Span 10.00 MHz Span 10.00 MHz Res BW 100 kHz #VBW 100 kHz Sweep 1.27 ms (1001 pts)							
1 N 1 f 2 2 N 1 f 2 3 N 1 f 2 4	.480 01 GHz .479 29 GHz .480 71 GHz	9.01 dBm -11.15 dBm -11.21 dBm					Freq Offset 0 Hz	
11				STATUS				

11. EMI Reduction Method During Compliance Testing

No modification was made during testing.



Attachment 1: EUT Test Photographs



Attachment 2: EUT Detailed Photographs