

Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC140342
Page: 1 of 83

FCC Radio Test Report FCC ID: 2AAQL-M709

Original Grant

Report No. : TB-FCC140342

Applicant: More Star Industrial Group Limited

Equipment Under Test (EUT)

EUT Name: Tablet PC

Model No. : M709

Series Model : Vixen, M708

No.

Brand Name : N/A

Receipt Date : 2014-05-26

Test Date : 2014-05-26 to 2014-06-06

Issue Date : 2014-06-10

Standards: FCC Part 15, Subpart C(15.247)

Test Method : ANSI C63.4:2003

Conclusions : PASS

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

The EUT technically complies with the FCC requirements

Test/Witness Engineer :

Approved& Authorized :

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. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1.0



Contents

I EN 5	
GENERAL INFORMATION ABOUT EUT	2
1.1 Client Information	∠
1.2 General Description of EUT (Equipment Under Test)	∠
1.3 Block Diagram Showing the Configuration of System Tested	<i>6</i>
1.4 Description of Support Units	<i>6</i>
1.5 Description of Test Mode	<i>6</i>
1.6 Description of Test Software Setting	
1.7 Test Facility	
TEST SUMMARY	9
CONDUCTED EMISSION TEST	10
3.1 Test Standard and Limit	10
3.2 Test Setup	10
3.3 Test Procedure	10
3.4 Test Equipment Used	11
3.5 EUT Operating Mode	11
3.6 Test Data	11
RADIATED EMISSION TEST	14
4.1 Test Standard and Limit	14
4.2 Test Setup	15
4.3 Test Procedure	16
4.4 EUT Operating Condition	16
4.5 Test Equipment	16
RESTRICTED BANDS REQUIREMENT	32
5.1 Test Standard and Limit	32
5.2 Test Setup	32
5.3 Test Procedure	32
5.4 EUT Operating Condition	33
5.5 Test Equipment	33
NUMBER OF HOPPING CHANNEL	46
6.1 Test Standard and Limit	46
6.2 Test Setup	46
6.3 Test Procedure	46
6.4 EUT Operating Condition	46
6.5 Test Equipment	46
6.6 Test Data	46
AVERAGE TIME OF OCCUPANCY	48
·	
	GENERAL INFORMATION ABOUT EUT 1.1 Client Information. 1.2 General Description of EUT (Equipment Under Test) 1.3 Block Diagram Showing the Configuration of System Tested. 1.4 Description of Support Units 1.5 Description of Test Mode. 1.6 Description of Test Mode. 1.7 Test Facility. TEST SUMMARY. CONDUCTED EMISSION TEST. 3.1 Test Standard and Limit. 3.2 Test Setup. 3.3 Test Procedure. 3.4 Test Equipment Used. 3.5 EUT Operating Mode. 3.6 Test Data. RADIATED EMISSION TEST. 4.1 Test Standard and Limit. 4.2 Test Setup. 4.3 Test Setup. 4.3 Test Procedure. 4.4 EUT Operating Condition. 4.5 Test Equipment. RESTRICTED BANDS REQUIREMENT. 5.1 Test Standard and Limit. 5.2 Test Setup. 5.3 Test Procedure. 5.4 EUT Operating Condition. 5.5 Test Equipment. NUMBER OF HOPPING CHANNEL. 6.1 Test Standard and Limit. 6.2 Test Setup. 6.3 Test Procedure. 6.4 EUT Operating Condition. 6.5 Test Equipment. NUMBER OF HOPPING CHANNEL. 6.1 Test Standard and Limit. 6.2 Test Setup. 6.3 Test Procedure. 6.4 EUT Operating Condition. 6.5 Test Equipment. Condition. 6.5 Test Equipment. Condition. 6.6 Test Data. AVERAGE TIME OF OCCUPANCY. 7.1 Test Standard and Limit. 7.2 Test Setup. 7.3 Test Procedure.



Page: 3 of 83

	7.4 EUT Operating Condition	48
	7.5 Test Equipment	48
	7.6 Test Data	49
8.	CHANNEL SEPARATION AND BANDWIDTH TEST	61
	8.1 Test Standard and Limit	61
	8.2 Test Setup	61
	8.3 Test Procedure	61
	8.4 EUT Operating Condition	61
	8.5 Test Equipment	62
	8.6 Test Data	62
9.	PEAK OUTPUT POWER TEST	70
	9.1 Test Standard and Limit	70
	9.2 Test Setup	70
	9.3 Test Procedure	70
	9.4 EUT Operating Condition	70
	9.5 Test Equipment	70
	8.6 Test Data	70
10.	ANTENNA CONDUCTED SPURIOUS EMISSION	75
	10.1 Test Standard and Limit	75
	10.2 Test Setup	75
	10.3 Test Procedure	75
	10.4 EUT Operating Condition	76
	10.5 Test Equipment	
	10.6 Test Data	76
11.	ANTENNA REQUIREMENT	83
	11.1 Standard Requirement	83
	11.2 Antenna Connected Construction	83
	11.2 Popult	92



Page: 4 of 83

1. General Information about EUT

1.1 Client Information

Applicant: More Star Industrial Group Limited

Address: 3&4F, D Building, ZhuangBian Industrial Park, GuShu Industrial

Area, Xixiang Town, Bao'an District, ShenZhen, China

Manufacturer : More Star Industrial Group Limited

Address : 3&4F, D Building, ZhuangBian Industrial Park, GuShu Industrial

Area, Xixiang Town, Bao'an District, ShenZhen, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Tablet PC		
Models No.	:	M709, Vixen, M708		
Model	:	All models are identical in the same PCB layout, interior structure		
Difference		and electrical circuits, The	only difference is model name for	
		commercial purpose.		
		Operation Frequency:		
		Bluetooth:2402~2480MHz		
Product		Number of Channel: Bluetooth:79 Channels see note (2)		
Description	:	Max Peak Output Power:	8-DPSK: 0.12 dBm (Conducted Power)	
		Antenna Gain:	0 dBi Integral Antenna	
		Modulation Type:	GFSK 1Mbps(1 Mbps)	
			л /4-DQPSK(2 Mbps)	
			8-DPSK(3 Mbps)	
Power Supply	:	DC power supplied by AC/	DC Adapter	
		DC Voltage supplied from Li-Polymer battery.		
Power Rating	:	AC/DC Adapter(PS12A050K2000UD):		
		Input: AC 100~240V 50/60Hz 0.35A Output: DC 5V 2A		
		DC 3.7V 4000mAh from Li-ion battery		
Connecting I/O	:	Please refer to the User's I	Manual	
Port(S)				

Note:

- (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (2) This Test Report is FCC Part 15.247 for Bluetooth, and test procedure in accordance with Public Notice: DA 00-705.
- (3) Channel List:

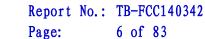
Channel	Frequency	Channel	Frequency	Channel	Frequency
	(MHz)		(MHz)		(MHz)



Page: 5 of 83

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

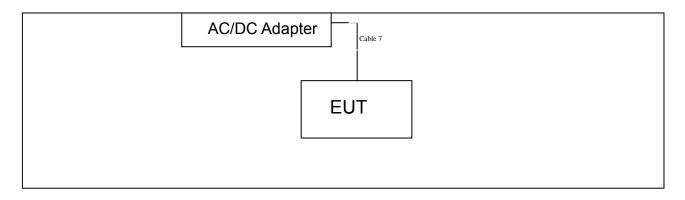
⁽⁴⁾ The Antenna information about the equipment is provided by the applicant.





1.3 Block Diagram Showing the Configuration of System Tested

TX Mode



1.4 Description of Support Units

Equipment Information					
Name	Model	FCC ID/DOC	Manufacturer	Used "√"	
PC	OPTIPLEX380	DOC	DELL		
LCD Monitor	E170Sc	DOC	DELL		
Keyboard	L100	DOC	DELL		
Mouse	M-UARDEL7	DOC	DELL		
	Cable Information				
Number	Shielded Type	Ferrite Core	Length	Note	
Cable 7	NO	NO	1.2M	Accessories	

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test		
Final Test Mode Description		
Mode 1 AC Charging with TX B Mode		

For Radiated Test		
Final Test Mode	Description	



Page: 7 of 83

Mode 1	AC Charging with TX B Mode
Mode 2	TX Mode(GFSK) Channel 00/39/78
Mode 3	TX Mode(π /4-DQPSK) Channel 00/39/78
Mode 4	TX Mode(8-DPSK) Channel 00/39/78
Mode 5	Hopping Mode(GFSK)
Mode 6	Hopping Mode(π /4-DQPSK)
Mode 7	Hopping Mode(8-DPSK)

Note:

(1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate. We have pretested all the test mode above.

According to ANSI C63.4 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:

TX Mode: GFSK (1 Mbps)
TX Mode: 8-DPSK (3 Mbps)

(2) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis, X-plane, Y-plane and Z-plane. The worst case was found positioned on X-plane as the normal use. Therefore only the test data of this X-plane was used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of Bluetooth mode.

Test Software Version	Test Program: Realtek MP Tool.apk		
Frequency	2402 MHz	2441MHz	2480 MHz
GFSK	DEF	DEF	DEF
π /4-DQPSK	DEF	DEF	DEF
8-DPSK	DEF	DEF	DEF

1.7 Test Facility

The testing was performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at:

1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China.

At the time of testing, the following bodies accredited the Laboratory:



Page: 8 of 83

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.



Page: 9 of 83

2. Test Summary

FCC Part 15 Subpart C(15.247)				
Standard Section	ndard Section Test Item		Remark	
15.203	Antenna Requirement	PASS	N/A	
15.207	Conducted Emission	PASS	N/A	
15.205	Restricted Bands	PASS	N/A	
15.247(a)(1)	Hopping Channel Separation	PASS	N/A	
15.247(a)(1)	Dwell Time	PASS	N/A	
15.247(b)(1)	Peak Output Power	PASS	N/A	
15.247(b)(1)	Number of Hopping Frequency	PASS	N/A	
15.247(c)	Radiated Spurious Emission	PASS	N/A	
15.247(c)	Antenna Conducted Spurious Emission	PASS	N/A	
15.247(a)	20dB Bandwidth	PASS	N/A	
Note: N/A is an abbreviation for Not Applicable.				



Page: 10 of 83

3. Conducted Emission Test

3.1 Test Standard and Limit

3.1.1Test Standard FCC Part 15.207

3.1.2 Test Limit

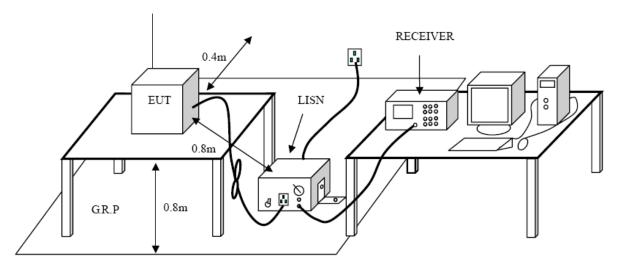
Conducted Emission Test Limit

Eroguenov	Maximum RF Lin	Maximum RF Line Voltage (dBμV)		
Frequency	Quasi-peak Level	Average Level		
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *		
500kHz~5MHz	56	46		
5MHz~30MHz	60	50		

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3.2 Test Setup



3.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.



Report No.: TB-FCC140342 Page: 11 of 83

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

3.4 Test Equipment Used

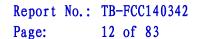
Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test	ROHDE&		400004	2013-08-10	2014-08-09
Receiver	SCHWARZ	ESCI	100321	2013-06-10	2014-06-09
50ΩCoaxial	Anritsu	MP59B	X10321	2013-08-10	2014-08-09
Switch	Aillisu	MESSE	X10321	2013-00-10	2014-00-09
L.I.S.N	Rohde & Schwarz	ENV216	101131	2013-08-10	2014-08-09
L.I.S.N	SCHWARZBECK	NNBL 8226-2	8226-2/164	2013-08-10	2014-08-09

3.5 EUT Operating Mode

Please refer to the description of test mode.

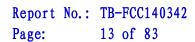
3.6 Test Data

Please see the next page.





EUT: Tablet PC Model Name: M709 25 ℃ **Relative Humidity:** Temperature: 55% **Test Voltage:** AC 120V/60 Hz Terminal: Line **Test Mode:** USB Charging with TX GFSK Mode 2402 MHz Remark: Only worse case is reported 90.0 dBuV QP: AVG: -10 0.5 (MHz) 30.000 0.150 Reading Correct Measure-Limit Over No. Mk. Freq. Level Factor ment MHz dBuV dΒ dBuV dBuV dΒ Detector Comment 10.05 56.00 -12.39 QΡ 1 0.5660 33.56 43.61 0.5660 23.88 10.05 33.93 46.00 -12.07 AVG 2 3 0.9580 27.28 10.07 37.35 56.00 -18.65 QΡ 4 0.9580 17.24 10.07 27.31 46.00 -18.69 AVG 5 1.2059 28.17 10.06 38.23 56.00 -17.77 QΡ AVG 6 1.2059 16.88 10.06 26.94 46.00 -19.06 7 2.0820 25.97 10.06 36.03 56.00 -19.97 QΡ 8 2.0820 16.60 10.06 26.66 46.00 -19.34 AVG QΡ 2.7500 27.51 10.04 37.55 56.00 -18.45 9 2.7500 14.57 10.04 46.00 -21.39 AVG 10 24.61 11 3.5580 25.37 10.01 35.38 56.00 -20.62 QΡ 12 3.5580 15.52 10.01 25.53 46.00 -20.47 AVG





EUT: Tablet PC Model Name: M709

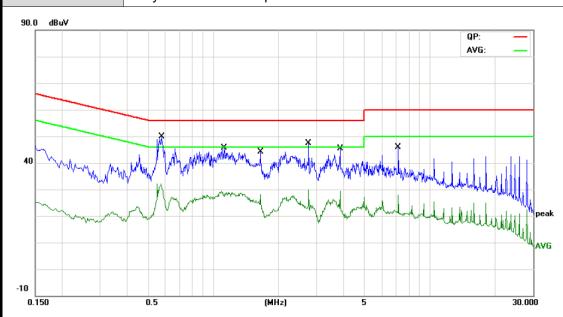
Temperature: 25 °C Relative Humidity: 55%

Test Voltage: AC 120V/60 Hz

Terminal: Neutral

Test Mode: USB Charging with TX GFSK Mode 2402 MHz

Remark: Only worse case is reported



Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
	0.5780	31.17	10.02	41.19	56.00	-14.81	QP	
	0.5780	20.16	10.02	30.18	46.00	-15.82	AVG	
	1.1180	27.34	10.15	37.49	56.00	-18.51	QP	
	1.1180	17.72	10.15	27.87	46.00	-18.13	AVG	
	1.6500	31.32	10.10	41.42	56.00	-14.58	QP	
	1.6500	16.47	10.10	26.57	46.00	-19.43	AVG	
*	2.7540	31.98	10.06	42.04	56.00	-13.96	QP	
	2.7540	16.31	10.06	26.37	46.00	-19.63	AVG	
	3.8540	31.19	10.06	41.25	56.00	-14.75	QP	
	3.8540	16.18	10.06	26.24	46.00	-19.76	AVG	
	7.1620	26.86	10.07	36.93	60.00	-23.07	QP	
	7.1620	13.26	10.07	23.33	50.00	-26.67	AVG	
	*	0.5780 0.5780 1.1180 1.1180 1.6500 * 2.7540 2.7540 3.8540 3.8540 7.1620	0.5780 31.17 0.5780 20.16 1.1180 27.34 1.1180 17.72 1.6500 31.32 1.6500 16.47 * 2.7540 31.98 2.7540 16.31 3.8540 31.19 3.8540 16.18 7.1620 26.86	0.5780 31.17 10.02 0.5780 20.16 10.02 1.1180 27.34 10.15 1.1180 17.72 10.15 1.6500 31.32 10.10 1.6500 16.47 10.10 * 2.7540 31.98 10.06 2.7540 16.31 10.06 3.8540 31.19 10.06 3.8540 16.18 10.06 7.1620 26.86 10.07	0.5780 31.17 10.02 41.19 0.5780 20.16 10.02 30.18 1.1180 27.34 10.15 37.49 1.1180 17.72 10.15 27.87 1.6500 31.32 10.10 41.42 1.6500 16.47 10.10 26.57 * 2.7540 31.98 10.06 42.04 2.7540 16.31 10.06 26.37 3.8540 31.19 10.06 41.25 3.8540 16.18 10.06 26.24 7.1620 26.86 10.07 36.93	0.5780 31.17 10.02 41.19 56.00 0.5780 20.16 10.02 30.18 46.00 1.1180 27.34 10.15 37.49 56.00 1.1180 17.72 10.15 27.87 46.00 1.6500 31.32 10.10 41.42 56.00 1.6500 16.47 10.10 26.57 46.00 * 2.7540 31.98 10.06 42.04 56.00 2.7540 16.31 10.06 26.37 46.00 3.8540 31.19 10.06 41.25 56.00 3.8540 16.18 10.06 26.24 46.00 7.1620 26.86 10.07 36.93 60.00	0.5780 31.17 10.02 41.19 56.00 -14.81 0.5780 20.16 10.02 30.18 46.00 -15.82 1.1180 27.34 10.15 37.49 56.00 -18.51 1.1180 17.72 10.15 27.87 46.00 -18.13 1.6500 31.32 10.10 41.42 56.00 -14.58 1.6500 16.47 10.10 26.57 46.00 -19.43 * 2.7540 31.98 10.06 42.04 56.00 -13.96 2.7540 16.31 10.06 26.37 46.00 -19.63 3.8540 31.19 10.06 41.25 56.00 -14.75 3.8540 16.18 10.06 26.24 46.00 -19.76 7.1620 26.86 10.07 36.93 60.00 -23.07	0.5780 31.17 10.02 41.19 56.00 -14.81 QP 0.5780 20.16 10.02 30.18 46.00 -15.82 AVG 1.1180 27.34 10.15 37.49 56.00 -18.51 QP 1.1180 17.72 10.15 27.87 46.00 -18.13 AVG 1.6500 31.32 10.10 41.42 56.00 -14.58 QP 1.6500 16.47 10.10 26.57 46.00 -19.43 AVG * 2.7540 31.98 10.06 42.04 56.00 -13.96 QP 2.7540 16.31 10.06 26.37 46.00 -19.63 AVG 3.8540 31.19 10.06 41.25 56.00 -14.75 QP 3.8540 16.18 10.06 26.24 46.00 -19.76 AVG 7.1620 26.86 10.07 36.93 60.00 -23.07 QP



Page: 14 of 83

4. Radiated Emission Test

4.1 Test Standard and Limit

4.1.1 Test Standard FCC Part 15.209

4.1.2 Test Limit

Radiated Emission Limit (9 kHz~1000MHz)

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

Radiated Emission Limit (Above 1000MHz)

Frequency	Class B (dBuV/m)(at 3m)		
(MHz)	Peak	Average	
Above 1000	74	54	

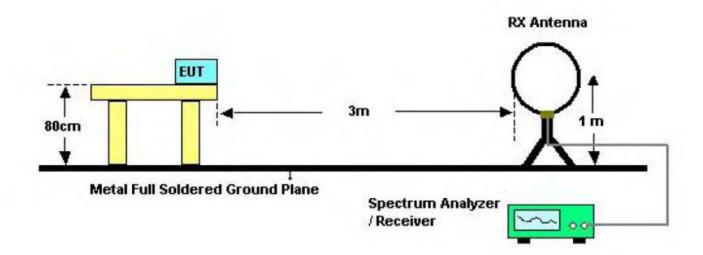
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level (uV/m)

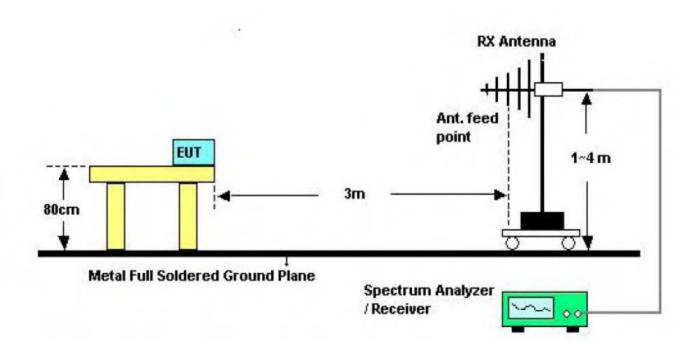


Page: 15 of 83

4.2 Test Setup



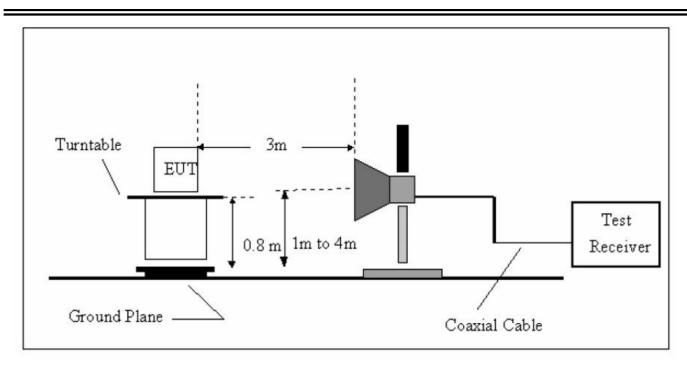
Bellow 30MHz Test Setup



Bellow 1000MHz Test Setup

Report No.: TB-FCC140342 Page: 16 of 83





Above 1GHz Test Setup

4.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (3) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (4) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (5) For the actual test configuration, please see the test setup photo.

4.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power in TX mode.

4.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015
Spectrum	Rohde & Schwarz	FSP30	DE25181	Aug. 10, 2013	Aug.09, 2014



Report No.: TB-FCC140342 Page: 17 of 83

Analyzer					
EMI Test Receiver	Rohde & Schwarz	ESCI	101165	Aug. 10, 2013	Aug.09, 2014
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 07, 2014	Mar.06, 2015
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	11909A	185903	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	8447B	3008A00849	Mar. 07, 2014	Mar.06, 2015
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 07, 2014	Mar.06, 2015
Signal Generator	Rohde & Schwarz	SML03	IKW682-054	Feb. 11, 2014	Feb.10, 2015
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A

4.6 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Test data please refer the following pages.



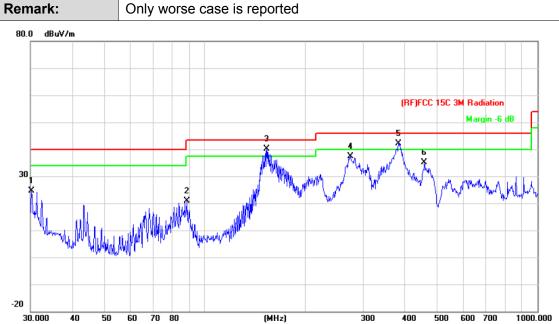
EUT: Tablet PC Model Name: M709

Temperature: 25 °C Relative Humidity: 55%

Test Voltage: DC 3.7V

Ant. Pol. Horizontal

Test Mode: TX GFSK Mode 2402MHz

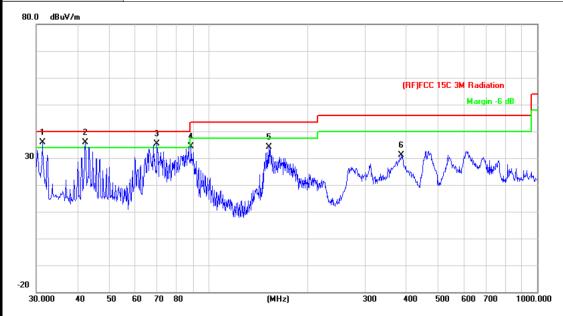


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		30.2111	38.71	-14.09	24.62	40.00	-15.38	peak
2		88.6524	43.68	-22.77	20.91	43.50	-22.59	peak
3	*	153.7385	60.93	-20.92	40.01	43.50	-3.49	peak
4		274.1939	55.04	-17.60	37.44	46.00	-8.56	peak
5	İ	382.5879	56.18	-13.96	42.22	46.00	-3.78	peak
6		457.5073	47.25	-12.20	35.05	46.00	-10.95	peak



19 of 83 Page:

EUT:	Tablet PC	Model Name :	M709					
Temperature:	25 ℃	55%						
Test Voltage:	DC 3.7V	DC 3.7V						
Ant. Pol.	Vertical							
Test Mode:	TX GFSK Mode 2402MH	z						
Remark:	Only worse case is reported							

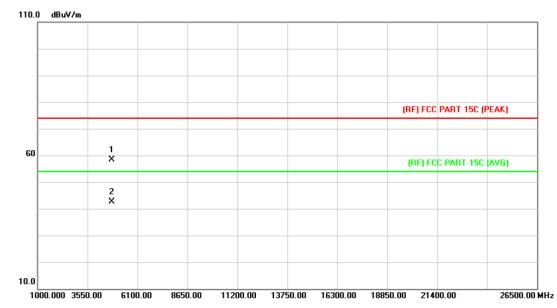


No	. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	İ	31.2893	50.64	-14.76	35.88	40.00	-4.12	peak
2	*	42.3022	57.13	-21.14	35.99	40.00	-4.01	peak
3	ļ	69.8450	59.02	-23.62	35.40	40.00	-4.60	peak
4		88.6524	57.12	-22.77	34.35	43.50	-9.15	peak
5		152.6641	55.09	-21.00	34.09	43.50	-9.41	peak
6		386.6338	44.92	-13.68	31.24	46.00	-14.76	peak



Page: 20 of 83

EUT:	Tablet PC	Model Name :	M709					
Temperature:	25 ℃	Relative Humidity:	55%					
Test Voltage:	DC 3.7V	DC 3.7V						
Ant. Pol.	Horizontal							
Test Mode:	TX GFSK Mode 2402MF	lz						
Remark:	No report for the emissio prescribed limit.	n which more than 10 o	dB below the					

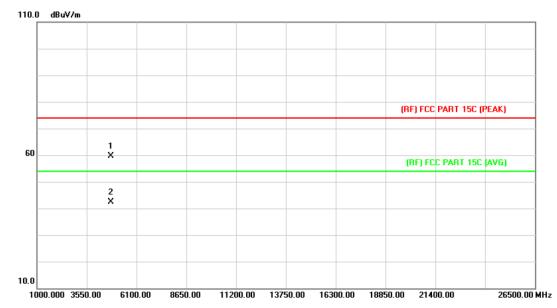


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4803.950	44.95	13.44	58.39	74.00	-15.61	peak
2	*	4803.950	29.21	13.44	42.65	54.00	-11.35	AVG



Page: 21 of 83

EUT:	Tablet PC	Model Name :	M709					
Temperature:	25 ℃	Relative Humidity:	55%					
Test Voltage:	DC 3.7V	DC 3.7V						
Ant. Pol.	Vertical							
Test Mode:	TX GFSK Mode 2402MF	lz						
Remark:	No report for the emissio prescribed limit.	n which more than 10 o	dB below the					

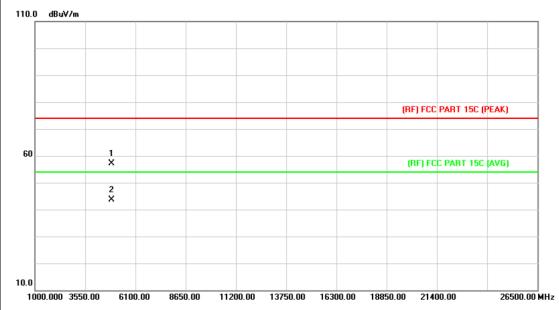


No	. Mk	. Freq.	_	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4803.960	46.20	13.44	59.64	74.00	-14.36	peak
2	*	4803.960	28.92	13.44	42.36	54.00	-11.64	AVG



Page: 22 of 83

EUT:	Tablet PC	Model Name :	M709				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 3.7V	DC 3.7V					
Ant. Pol.	Horizontal						
Test Mode:	TX GFSK Mode 2441MH	z					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.						

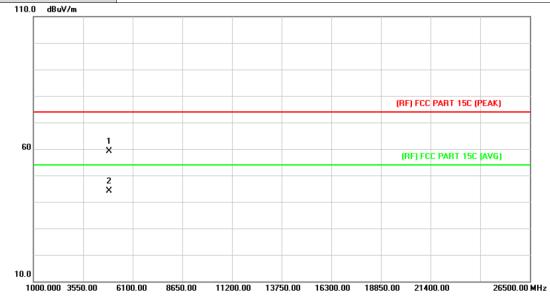


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4881.972	43.23	13.90	57.13	74.00	-16.87	peak
2	*	4881.972	29.79	13.90	43.69	54.00	-10.31	AVG



Page: 23 of 83

EUT:	Tablet PC	Model Name :	M709			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 3.7V					
Ant. Pol.	Vertical					
Test Mode:	TX GFSK Mode 2441MH	z				
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					
110.0 dBuV/m	110.0 dBuV/m					

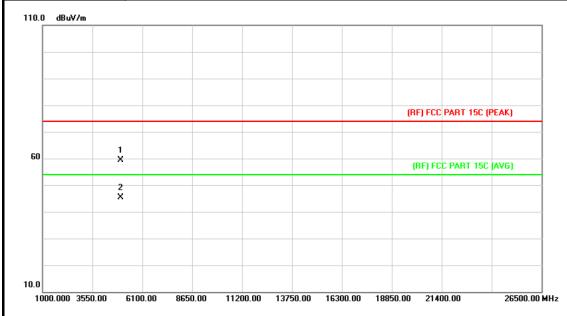


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4881.960	45.12	13.90	59.02	74.00	-14.98	peak
2	*	4881.960	30.22	13.90	44.12	54.00	-9.88	AVG



Page: 24 of 83

EUT:	Tablet PC	Model Name :	M709			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 3.7V					
Ant. Pol.	Horizontal					
Test Mode:	TX GFSK Mode 2480MH	z				
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					

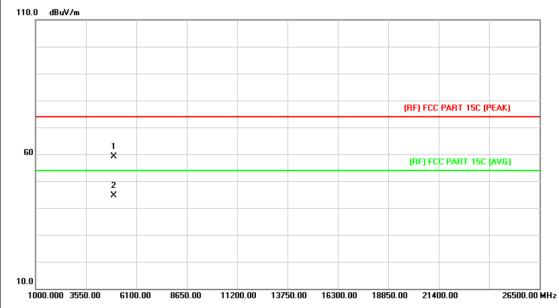


No.	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4989.968	44.82	14.54	59.36	74.00	-14.64	peak
2	*	4989.968	30.82	14.54	45.36	54.00	-8.64	AVG



Page: 25 of 83

EUT:	Tablet PC	Model Name :	M709			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 3.7V					
Ant. Pol.	Vertical					
Test Mode:	TX GFSK Mode 2480MH	Z				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

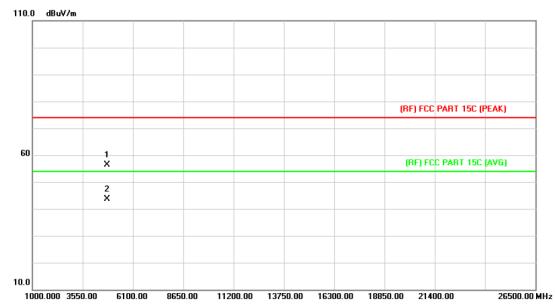


No	. Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4959.970	44.87	14.36	59.23	74.00	-14.77	peak
2	*	4959.970	30.33	14.36	44.69	54.00	-9.31	AVG



Page: 26 of 83

EUT:	Tablet PC	Model Name :	M709			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 3.7V					
Ant. Pol.	Horizontal					
Test Mode:	TX 8-DPSK Mode 2402N	1Hz				
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					

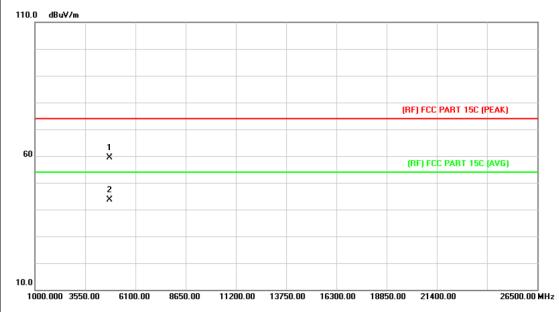


No	. Mk	. Freq.	_	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4803.978	42.94	13.44	56.38	74.00	-17.62	peak
2	*	4803.978	30.25	13.44	43.69	54.00	-10.31	AVG



Page: 27 of 83

EUT:	Tablet PC	Model Name :	M709				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 3.7V	DC 3.7V					
Ant. Pol.	Vertical						
Test Mode:	TX 8-DPSK Mode 2402N	1Hz					
Remark:	No report for the emissio prescribed limit.	n which more than 10 o	dB below the				

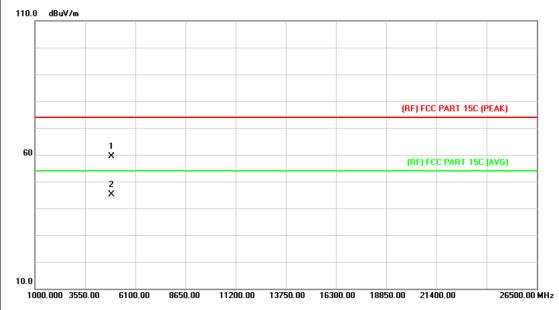


No	o. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4803.970	46.01	13.44	59.45	74.00	-14.55	peak
2	*	4803.970	30.21	13.44	43.65	54.00	-10.35	AVG



Page: 28 of 83

EUT:	Tablet PC	Model Name :	M709							
Temperature:	25 ℃	Relative Humidity:	55%							
Test Voltage:	DC 3.7V	C 3.7V								
Ant. Pol.	Horizontal									
Test Mode:	TX 8-DPSK Mode 2441N	1Hz								
Remark:	No report for the emissio prescribed limit.	n which more than 10 c	dB below the							

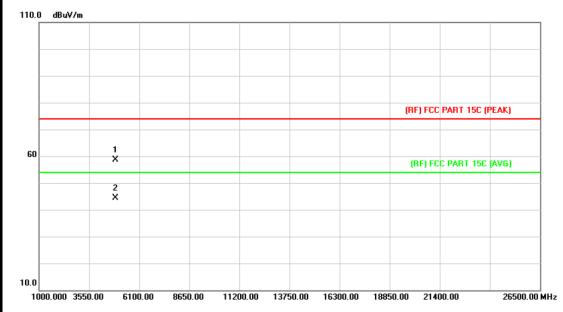


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit Over			
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	
1		4881.985	45.40	13.90	59.30	74.00	-14.70	peak	
2	*	4881.985	31.22	13.90	45.12	54.00	-8.88	AVG	



Page: 29 of 83

EUT:	Tablet PC	Model Name :	M709								
Temperature:	25 ℃	Relative Humidity:	55%								
Test Voltage:	DC 3.7V	OC 3.7V									
Ant. Pol.	Vertical	Vertical									
Test Mode:	TX 8-DPSK Mode 2441M	1Hz									
Remark:	No report for the emissio prescribed limit.	No report for the emission which more than 10 dB below the prescribed limit.									

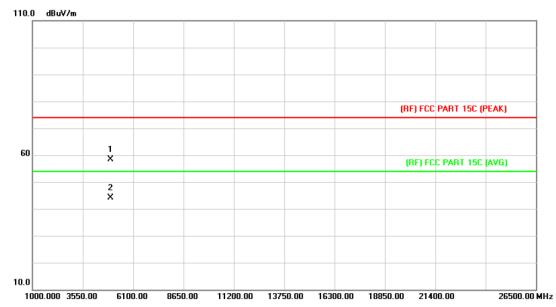


No	. Mk	Freq.	_	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4881.895	44.77	13.90	58.67	74.00	-15.33	peak
2	*	4881.895	30.46	13.90	44.36	54.00	-9.64	AVG



Page: 30 of 83

EUT:	Tablet PC	Model Name :	M709							
Temperature:	25 ℃	Relative Humidity:	55%							
Test Voltage:	DC 3.7V	C 3.7V								
Ant. Pol.	Horizontal									
Test Mode:	TX 8-DPSK Mode 2480N	1Hz								
Remark:	No report for the emissio prescribed limit.	n which more than 10 o	dB below the							

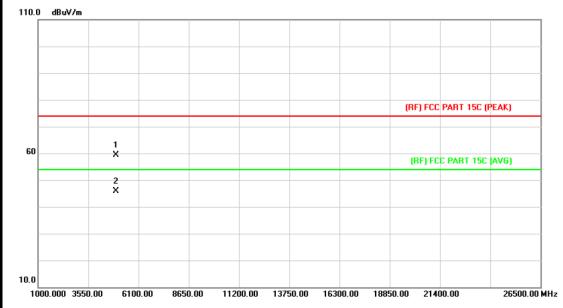


N	lo.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1			4959.898	44.00	14.36	58.36	74.00	-15.64	peak
2	,	r	4959.898	29.82	14.36	44.18	54.00	-9.82	AVG



Page: 31 of 83

EUT:	Tablet PC	Model Name :	M709							
Temperature:	25 ℃	Relative Humidity:	55%							
Test Voltage:	DC 3.7V	OC 3.7V								
Ant. Pol.	Vertical									
Test Mode:	TX 8-DPSK Mode 2480M	1Hz								
Remark:	No report for the emission which more than 10 dB below the prescribed limit.									



No	. Mk	Reading Correct Measo Freq. Level Factor mer		Measure- ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4959.957	44.96	14.36	59.32	74.00	-14.68	peak
2	*	4959.957	31.61	14.36	45.97	54.00	-8.03	AVG



Page: 32 of 83

5. Restricted Bands Requirement

5.1 Test Standard and Limit

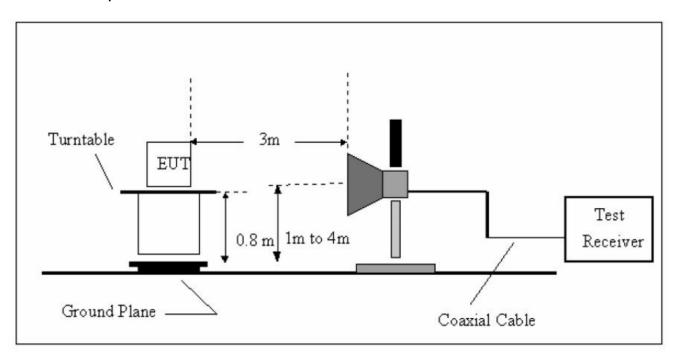
5.1.1 Test Standard FCC Part 15.209 FCC Part 15.205

5.1.2 Test Limit

Restricted Frequency	Class B (dBuV/m)(at 3m)						
Band (MHz)	Peak	Average					
2310 ~2390	74	54					
2483.5 ~2500	74	54					
Note: All restriction bonds boss	la a a a 4 a 4 a 4 a a 1 a a 1 a 4 la a a a 4	!					

Note: All restriction bands have been tested, only the worst case is reported.

5.2 Test Setup



5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (3) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked



Report No.: TB-FCC140342 33 of 83

Page:

and then Quasi Peak detector mode re-measured.

(4) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.

(5) For the actual test configuration, please see the test setup photo.

5.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

5.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date	
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015	
Spectrum Analyzer	Rohde & Schwarz	FSP30	DE25181	Aug. 10, 2013	Aug.09, 2014	
EMI Test Receiver	Rohde & Schwarz	ESCI	101165	Aug. 10, 2013	Aug.09, 2014	
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 07, 2014	Mar.06, 2015	
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 07, 2014	Mar.06, 2015	
Pre-amplifier	HP	11909A	185903	Mar. 07, 2014	Mar.06, 2015	
Pre-amplifier	HP	8447B	3008A00849	Mar. 07, 2014	Mar.06, 2015	
Cable	HUBER+SUHNE R	100	SUCOFLEX	Mar. 07, 2014	Mar.06, 2015	
Signal Generator	Rohde & Schwarz	SML03	IKW682-054	Feb. 11, 2014	Feb.10, 2015	
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A	

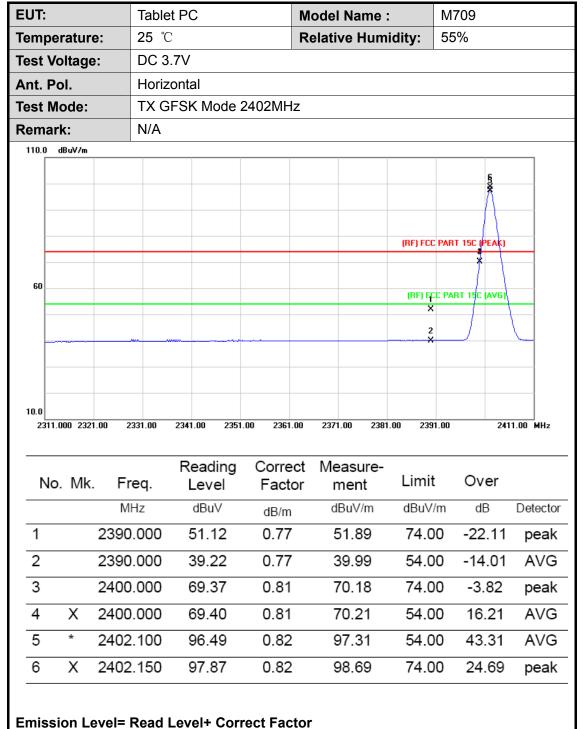
5.6 Test Data

All restriction bands have been tested, only the worst case is reported.



Page: 34 of 83

(1) Radiation Test





Page: 35 of 83

UT:	Tablet PC						Model Name :				M709					
emp	eratur	e:	25 ℃	!			Re	lativ	е Н	umic	dity:	55	%			
est V	/oltage) :	DC 3.	.7V												
nt. F	Pol.		Vertic	al												
est N	Mode:		TX G	FSK Mc	de 2	2402MH	Z									
ema	rk:		N/A													
110.0	dBuV/m															
														9		
														Π		
											(RF)	FCC PAI	RT 15C (I	PEAK)		
													Š	\top		
60	60										(RF		ART 15C	(AVG		
												×	-			
												2 X			\subseteq	
10.0																
231	1.000 232	1.00 2	2331.00	2341.00	2351	.00 236	1.00	2371	.00	2381.	.00	2391.00		24	11.00 N	МНz
				Read	ing	Corre	ct	Me	asur	e-						
Ν	o. Mk	. Fı	req.	Leve	el	Fact	or	m	ent		Lim	iit	Ove	er		
		M	Hz	dBu\	/	dB/m	1	dE	BuV/n	n	dBu	V/m	dB		Detec	ctor
1		2390	0.000	52.4	9	0.77	,	5	3.26	3	74.	.00	-20.	74	pea	ak
2		2390	0.000	39.2	9	0.77	,	4	0.06	3	54.	.00	-13.	94	ΑV	/G
3		2400	0.000	65.8	4	0.81		6	6.65	5	74.	.00	-7.3	35	pea	ak
4	Х	2400	0.000	63.8	0	0.81		6	4.61		54.	.00	10.	61	ΑV	/G
5	Х	2402	2.110	90.0	8	0.82		9	0.90)	74.	.00	16.	90	pea	ak
6	*	2402	2.140	90.9	0	0.82	2	9	1.72	2	54.	.00	37.	72	ΑV	/G



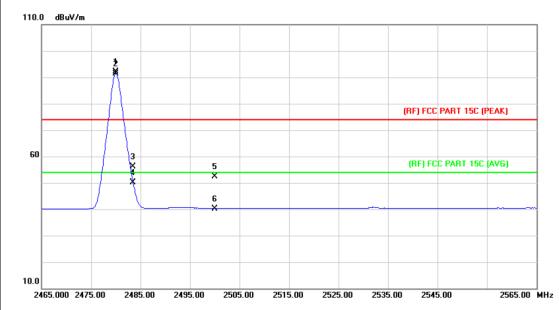
Page: 36 of 83

EUT:		Table	Tablet PC			ame :		M709		
Temperature:		25 ℃	25 ℃			Relative Humidity:			55%	
Test Voltage:		DC 3	DC 3.7V							
Ant.	Pol.	Horiz	Horizontal							
Test	Mode:	TX G	TX GFSK Mode 2480 MHz							
Rem	ark:	N/A	N/A							
110.0 dBuV/m										
		*								
						(RF) FCC PART 15C (PEAK)		
60		3	5				(BE	FCC PART 15C	AVG1	
		*	×				(
			6 X							
10.0 24	165.000 2475.00	2485.00	2495.00 250)5.00 2515	i.00 2525	.00 25	35.00 2	2545.00	2565.00 MH	
	No. Mk. Fr		Reading Correct Level Factor			Measure- ment		Over		
			15.17			dBuV/m			Detector	
_		MHz		dB/m			dBuV/n			
1		0.000	94.49	1.15	95.		74.00		peak	
2	* 248	0.000	92.98	1.15	94.	13	54.00	40.13	AVG	
3	248	3.500	55.51	1.17	56.	68	74.00	-17.32	peak	
4	2483.500		51.51	1.17	52.	68	54.00	-1.32	AVG	
5	5 2500.000		51.75	1.23	52.	98	74.00	-21.02	peak	
6	250	0.000	39.00	1.23	40.	23	54.00	-13.77	AVG	
Emission Level= Read Level+ Correct Factor										



Page: 37 of 83

EUT:	Tablet PC Model Name : M709						
Temperature:	25 °C Relative Humidity: 55%						
Test Voltage:	DC 3.7V						
Ant. Pol.	Vertical						
Test Mode:	TX GFSK Mode 2480 MH	TX GFSK Mode 2480 MHz					
Remark:	N/A						



No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Χ	2480.000	90.95	1.15	92.10	74.00	18.10	peak
2	*	2480.000	90.21	1.15	91.36	54.00	37.36	AVG
3		2483.500	55.04	1.17	56.21	74.00	-17.79	peak
4		2483.500	48.95	1.17	50.12	54.00	-3.88	AVG
5		2500.000	51.13	1.23	52.36	74.00	-21.64	peak
6		2500.000	38.99	1.23	40.22	54.00	-13.78	AVG

Emission Level= Read Level+ Correct Factor

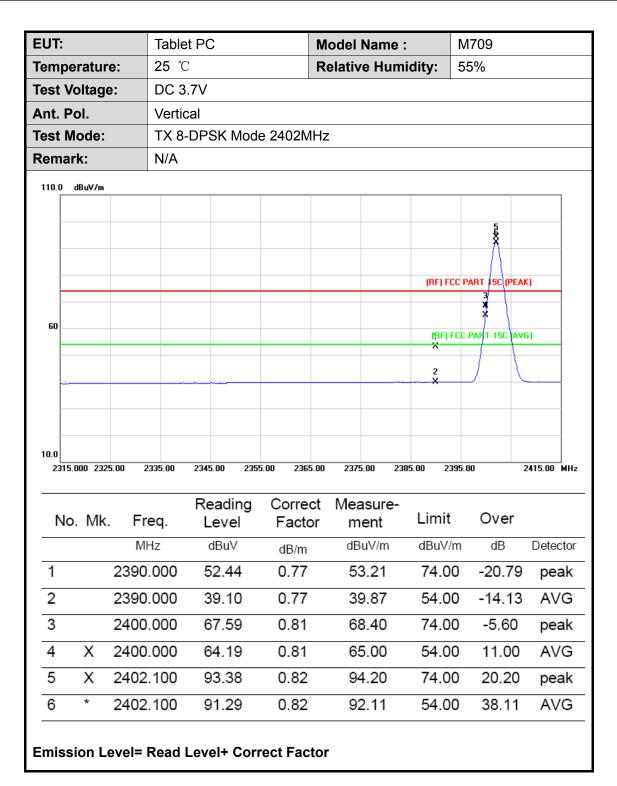


Page: 38 of 83

EUT:			Tabl	Tablet PC Model Name: M709						M7			
Tem	peratu	re:	25 °	Č			Re	elativ	e Hur	nidity:	55	%	
Test	Voltag	je:	DC :	3.7V									
Ant.	Pol.		Hori	zonta	al .			-			-		
Test	Mode:		TX 8	3-DPS	SK Mod	de 2402N	ЛHz						
Rem	ark:		N/A										
110.0	0 dBu∀/m	n											
												E	
							+					- 5 *	
			_				+					$\rightarrow \land \downarrow$	
							-			(RF)	FCC PA	.RT ₃ 15С (РЕ	AK)
										V		*	,
60													
										(FI	F) FCC F	PART 15C A	VG)
										2		1	
							+-			×	+		
							-						
10.0													
23	315.000 23	325.00	2335.00	2345	5.00 23	355.00 236	65.00	237	5.00	2385.00	2395.00	D	2415.00 MHz
				Re	ading	Corre	ct	Mea	sure-				
Ν	o. Mk	. Fre	eq.		evel	Facto			ent	Limi	it	Over	
		MH	Ηz	d	lBu∨	dB/m		dBı	uV/m	dBu\	//m	dB	Detector
1		2390.	.000	5′	1.54	0.77		52	2.31	74.	00	-21.69) peak
2		2390.	.000	38	8.91	0.77		39	.68	54.	00	-14.32	2 AVG
3		2400.	.000	7	1.29	0.81		72	2.10	74.	00	-1.90	peak
4	Х	2400.	.000	68	8.42	0.81		69	.23	54.	00	15.23	AVG
5	Х	2402.	100	96	6.38	0.82		97	.20	74.	00	23.20	peak
6	*	2402.	100	95	5.52	0.82		96	3.34	54.	00	42.34	AVG
Emis	ssion L	_evel=	Read	Leve	el+ Coı	rrect Fac	ctor						



Page: 39 of 83





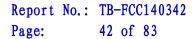
Page: 40 of 83

EUT:			Table	et PC			М	odel l	Nam	e :	N	1709		
Temp	peratur	e:	25 °	C			Re	lativ	e Hu	midity:	5	5%		
Test	Voltage	9 :	DC 3	3.7V										
Ant.	Pol.		Horiz	zontal										
Test	Mode:		TX 8	-DPSK	Mode	e 2480N	lHz							
Rema	ark:		N/A											
110.0	dBuV/m													1
		3												
		Λ												
										(R	F) FCC	PART 15C (PE	AK)	
		+												
60			3 X		5						RF) FCI	C PART 15C (A	VG1	
			*		×					•	,		•	
		J			6 X									
10.0														
	5.000 2475	5.00 2	2485.00	2495.00	250	5.00 251	5.00	2525	5.00	2535.00	2545	5.00	2565.00] MHz
							_							
N	lo. Mk	. Fr	req.	Read Lev	_	Corre Facto			asure ent	e- Lin	nit	Over		
			Hz	dBı		dB/m			uV/m	dBı	uV/m	dB	Detec	tor
1	Х	2480	0.000	92.	40	1.15		93	3.55	74	.00	19.55	pea	ak
2	*	2480	0.000	91.	22	1.15		92	2.37	54	.00	38.37	AV	G
3		2483	3.500	55.	54	1.17		56	3.71	74	.00	-17.29) pea	ak
4		2483	3.500	50.	08	1.17		51	1.25	54	.00	-2.75	AV	G
5		2500	0.000	51.	97	1.23		53	3.20	74	.00	-20.80) pea	ak
6		2500	0.000	38.	93	1.23		40).16	54	.00	-13.84	- AV	G
Emis	sion L	evel=	Read	Level+	Corr	ect Fac	tor							



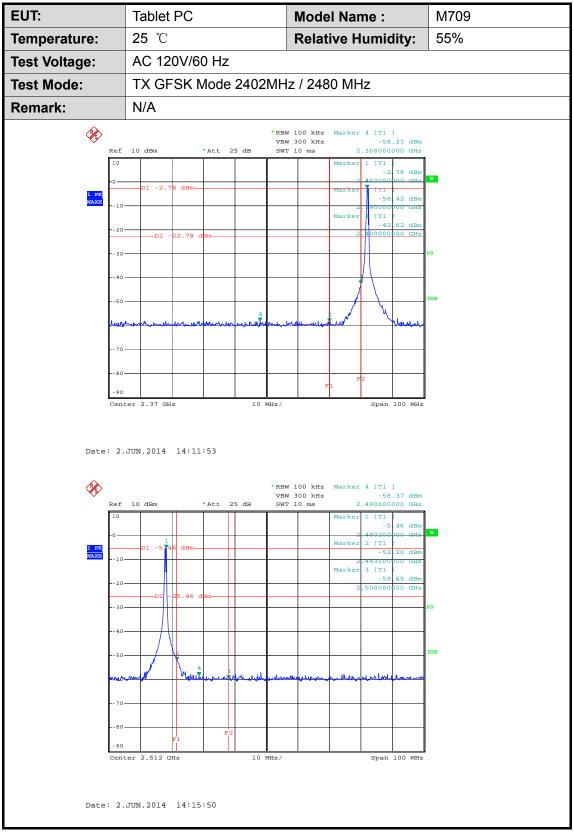
Page: 41 of 83

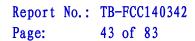
UT:			Tabl	et PC	<u></u>		Me	odel	Nam	e :		M709)		
emp	peratui	e:	25 '	C			Re	elativ	e Hu	ımid	ity:	55%			
est	Voltag	e:	DC:	3.7V											
nt.	Pol.		Vert	ical											
est	Mode:		TX 8	B-DPSK N	Node	2480N	1Hz								
tema	ark:		N/A												
110.0	dBuV/m														,
		3													
		$\perp \wedge$													
											(RF) FCC	PART 1	5C (PEAK	.)	
60		+	3	5	;						(RF) FC	C PART	15C (AVE	i)	
		\Box	*	>	3										
-		<i>J</i>	_	9											
10.0															
246	5.000 247	5.00	2485.00	2495.00	2505.0	00 251	5.00	2525	5.00	2535.0	0 254	5.00	2	565.00	мн
				Readii	na	Corre	ct	Mea	asure						
N	o. Mk	. Fr	req.	Leve	_	Facto			ent		Limit	0	ver		
		M	Hz	dBuV	'	dB/m		dB	uV/m		dBuV/n	n	dB	Dete	cto
1	Х	2480	0.000	92.06	3	1.15		93	3.21		74.00) 1	9.21	pea	ak
2	*	2480	0.000	89.9	7	1.15		9	1.12		54.00	3	7.12	ΑV	/G
3		2483	3.500	55.1	5	1.17		56	3.32		74.00) -1	7.68	pea	ak
4			3.500	48.52	2	1.17			9.69		54.00		4.31	AV	
5			0.000	50.87		1.23			2.10		74.00		1.90	pea	
6		2500	0.000	38.88	3	1.23		40	0.11		54.00) -1	3.89	AV	





(2) Conducted Test

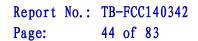






EUT: **Tablet PC Model Name:** M709 25 ℃ **Relative Humidity:** Temperature: 55% **Test Voltage:** AC 120V/60 Hz **Test Mode: GFSK Hopping Mode** Remark: N/A *RBW 100 kHz *VBW 300 kHz **%** -48.58 dBm 2.398600000 GHz *Att 25 dB SWT 10 ms Span 100 MHz Center 2.379 GHz 10 MHz/ Date: 3.JUN.2014 06:07:29 **%** *RBW 100 kHz Marker 4 [T1]

*VBW 300 kHz -46.13 dBm
SWT 10 ms 2.498000000 GHz *Att 25 dB Ref 10 dBm 10 Offset 1 dB Center 2.497 GHz Span 100 MHz Date: 3.JUN.2014 06:04:02

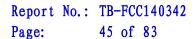




EUT: **Tablet PC Model Name:** M709 25 ℃ **Relative Humidity:** Temperature: 55% **Test Voltage:** AC 120V/60 HZ **Test Mode:** TX 8-DPSK Mode 2402MHz / 2480 MHz Remark: N/A **%** *RBW 100 kHz Marker 4 [T1] VBW 300 kHz -58.4 -58.49 dBm 2.368400000 GHz Ref 10 dBm *Att 25 dB 23 dB 22.86 Center 2.369 GHz Span 100 MHz 10 MHz/ Date: 2.JUN.2014 14:22:57 *RBW 100 kHz Marker 4 [T1]

VBW 300 kHz -56.71 dBm

SWT 10 ms 2.486400000 GHz 10 dBm *Att 25 dB Ref 1 PK MAXH 3 [T1 -59 Center 2.512 GHz Span 100 MHz Date: 2.JUN.2014 14:17:41





EUT: **Tablet PC Model Name:** M709 25 ℃ **Relative Humidity:** Temperature: 55% **Test Voltage:** AC 120V/60 HZ **Test Mode:** 8-DPSK Hopping Mode Remark: N/A *RBW 100 kHz *VBW 300 kHz **%** *Att 25 dB Center 2.379 GHz Span 100 MHz Date: 3.JUN.2014 06:11:15 **%** *RBW 100 kHz Marker 4 [T1]

*VBW 300 kHz -46.58 dBm
SWT 10 ms 2.499000000 GHz *Att 25 dB Ref 10 dBm 10 Offset 1 dB Center 2.504 GHz Span 100 MHz Date: 3.JUN.2014 06:15:45



Page: 46 of 83

6. Number of Hopping Channel

6.1 Test Standard and Limit

6.1.1 Test Standard FCC Part 15.247 (a)(1)

6.1.2 Test Limit

Section	Test Item	Limit
15.247	Number of Hopping Channel	>15

6.2 Test Setup



6.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting: RBW=100 KHz, VBW=100 KHz, Sweep time= Auto.

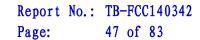
6.4 EUT Operating Condition

The EUT was set to the Hopping Mode by the Customer.

6.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015

6.6 Test Data



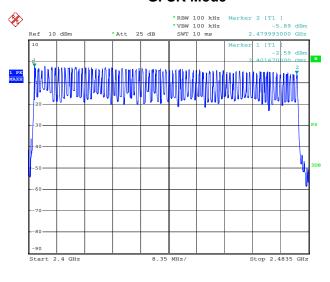


EUT:Tablet PCModel:M709Temperature:25 °CRelative Humidity:55%Test Voltage:AC 120V/60 HZ

Test Mode: Hopping Mode (GFSK/ 8-DPSK)

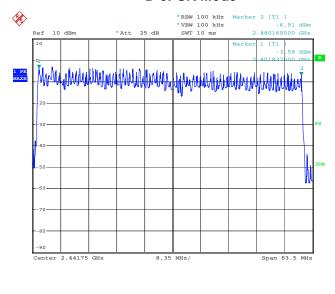
Frequency Range	Quantity of Hopping Channel	Limit
2402MHz~2480MHz	79	>4 E
2402WH2~2460WH2	79	>15

GFSK Mode



Date: 2.JUN.2014 14:53:07

D-8PSK Mode



Date: 3.JUN.2014 06:19:58



Page: 48 of 83

7. Average Time of Occupancy

7.1 Test Standard and Limit

5.1.1 Test Standard FCC Part 15.247 (a)(1)

5.1.2 Test Limit

Section	Test Item	Limit	
15.247(a)(1)/ RSS-210	Average Time of	0.4.000	
Annex 8(A8.1d)	Occupancy	0.4 sec	

7.2 Test Setup



7.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting: RBW=1MHz, VBW=1MHz.
- (3) Use video trigger with the trigger level set to enable triggering only on full pulses.
- (4) Sweep Time is more than once pulse time.
- (5) Set the center frequency on any frequency would be measure and set the frequency span to zero.
- (6) Measure the maximum time duration of one single pulse.
- (7) Set the EUT for packet transmitting.
- (8) Measure the maximum time duration of one single pulse.

7.4 EUT Operating Condition

The EUT was set to the Hopping Mode by the Customer.

7.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015

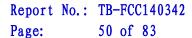


Page: 49 of 83

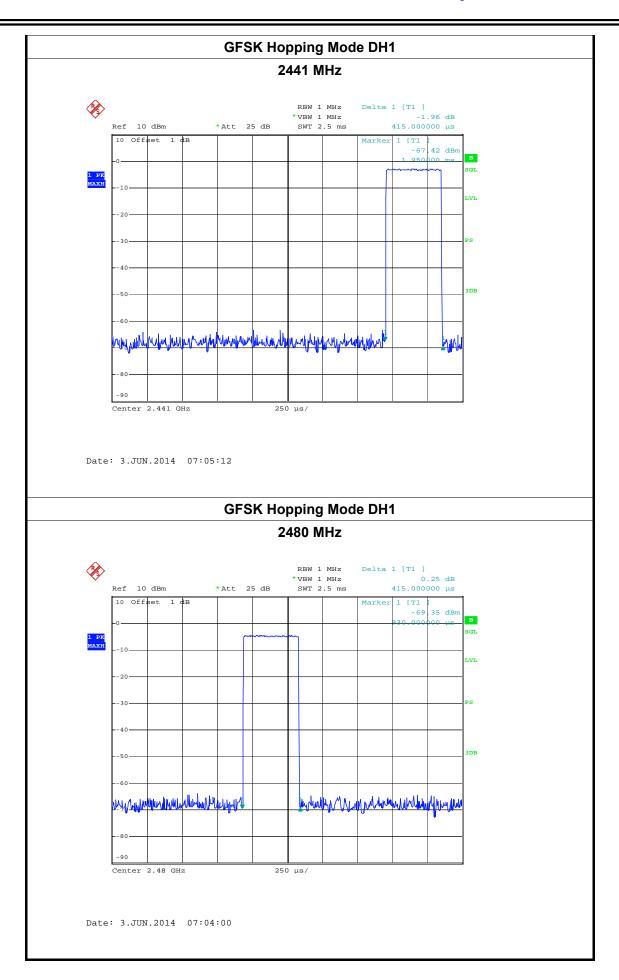
7.6 Test Data

EUT:	Tabl	let PC			Mode	l:		M709				
Temperature:	25	25 °C Relative Humidity: 55%										
Test Voltage:	AC	AC 120V/60 HZ										
Test Mode:	Нор	Hopping Mode (GFSK DH1)										
Channel	Pulse T	ime	Tota	al of	Perio	d Time	L	imit	Result			
(MHz)	(ms))	Dwell	(ms)	(s)	(ms)	Nesuit			
2402	0.41	5	132	2.80								
2441	0.41	5	132	2.80	31	.60	4	400	PASS			
2480	0.41	5	132	2.80								
			GFSK	Hoppi	ng Mod	le DH1						
			*Att 25 c	* VI	W 1 MHz W 1 MHz TT 2.5 ms		-0.58 15.000000 1 [T1]	μs dBm				

Center 2.402 GHz







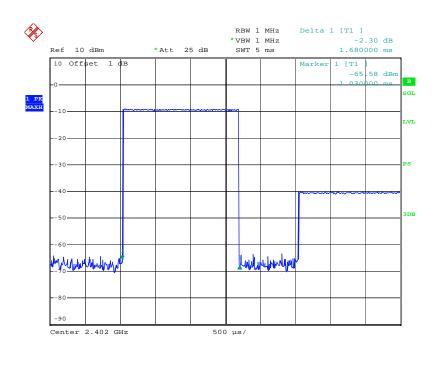


EUT:	Tablet PC	Model:	M709
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 HZ		

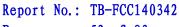
1001040.	1.15ppgdd (3.15.15)					
Channel	Pulse Time	Total of	Period Time	Limit	Result	
(MHz)	(ms)	Dwell (ms)	(s)	(ms)	Result	
2402	1.680	268.80				
2441	1.680	268.80	31.60	400	PASS	
2480	1.680	268.80				

GFSK Hopping Mode DH3

2402 MHz

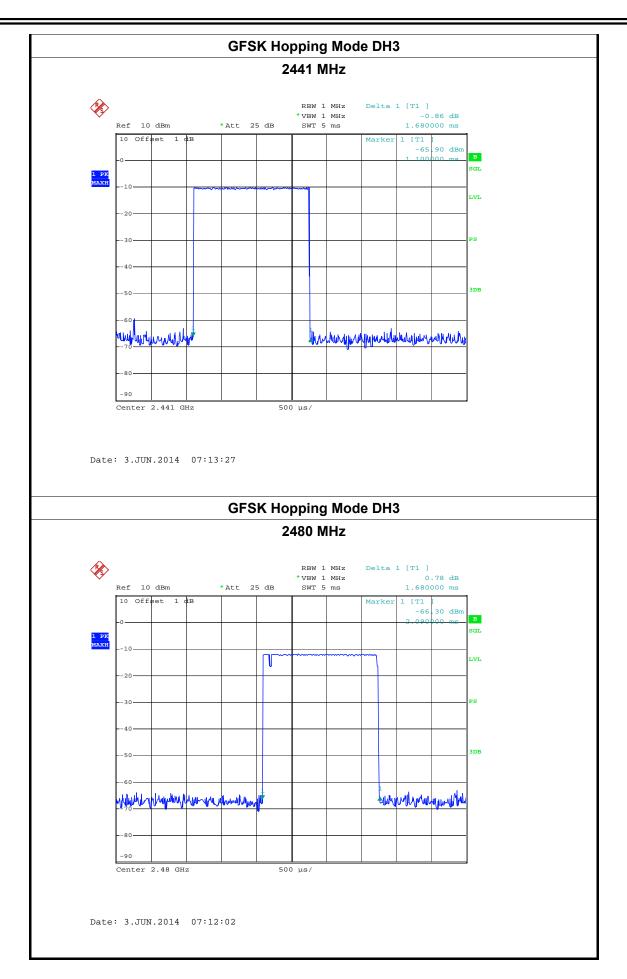


Date: 3.JUN.2014 07:09:50





Page: 52 of 83





Report No.: TB-FCC140342 Page: 53 of 83

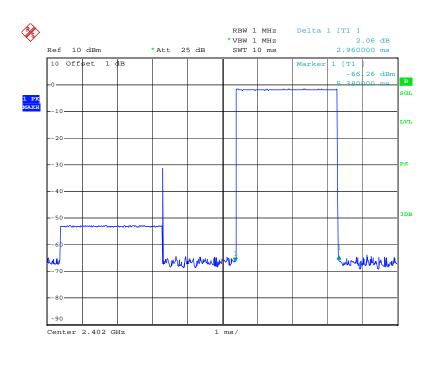
EUT:	Tablet PC	Model:	M709
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 HZ		

Test Mode: Hopping Mode (GFSK DH5)

Channel (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2402	2.960	315.73			
2441	2.960	315.73	31.60	400	PASS
2480	2.960	315.73			

GFSK Hopping Mode DH5

2402 MHz

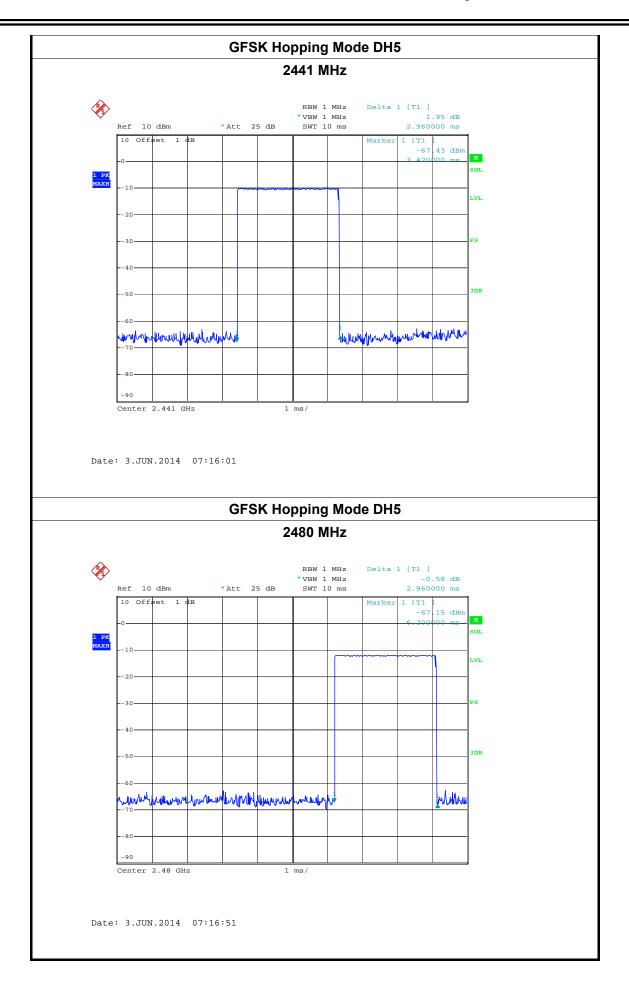


Date: 3.JUN.2014 07:15:00





Page: 54 of 83





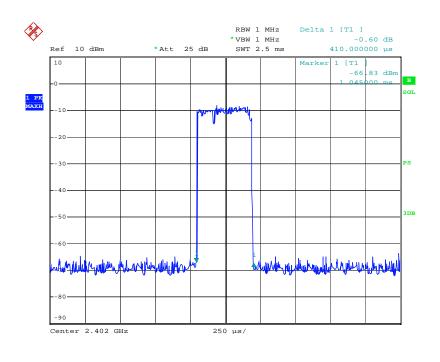
Page: 55 of 83

EUT:	Tablet PC Model: M709					
Temperature:	25 °C Relative Humidity: 55%					
Test Voltage:	AC 120V/60 HZ					
Test Mode:	Hopping Mode (8-DPSK DH1)					

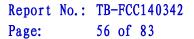
rest wode.	nopping wode (o-DP3K Dn1)				
Channel	Pulse Time	Total of	Period Time	Limit	Popult
(MHz)	(ms)	Dwell (ms)	(s)	(ms)	Result
2402	0.410	131.20			
2441	0.410	131.20	31.60	400	PASS
2480	0.410	131.20			

8-DPSK Hopping Mode DH1

2402 MHz



Date: 3.JUN.2014 06:44:57





8-DPSK Hopping Mode DH1 2441 MHz RBW 1 MHz 2.64 dB 410.000000 µs *VBW 1 MHz SWT 2.5 ms Ref 10 dBm *Att 25 dB when Almhar an halan a far a halan a far a far a far a far a far a far a far a far a far a far a far a far a far a Exhaus many market Center 2.441 GHz 250 μs/ Date: 3.JUN.2014 06:47:13 8-DPSK Hopping Mode DH1 2480 MHz Delta 1 [T1] 0.64 dB RBW 1 MHz *VBW 1 MHz 410.000000 µs *Att 25 dB Ref 10 dBm SWT 2.5 ms Marker 1 [T1] 39 dBn um Center 2.48 GHz Date: 3.JUN.2014 06:48:01



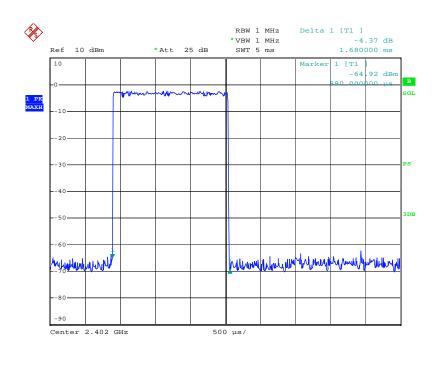
EUT:	Tablet PC	Model:	M709
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 HZ		

Test Mode:	Hopping Mode (8-DPSK DH3)
iest mode.	I hopping wood (o-bi on billo)

100111101101	rispping meas (c 1: cit 1: is)					
Channel	Pulse Time	Total of	Period Time	Limit	Popult	
(MHz)	(ms)	Dwell (ms)	(s)	(ms)	Result	
2402	1.680	268.80				
2441	1.670	267.20	31.60	400	PASS	
2480	1.670	267.20				

8-DPSK Hopping Mode DH3

2402 MHz

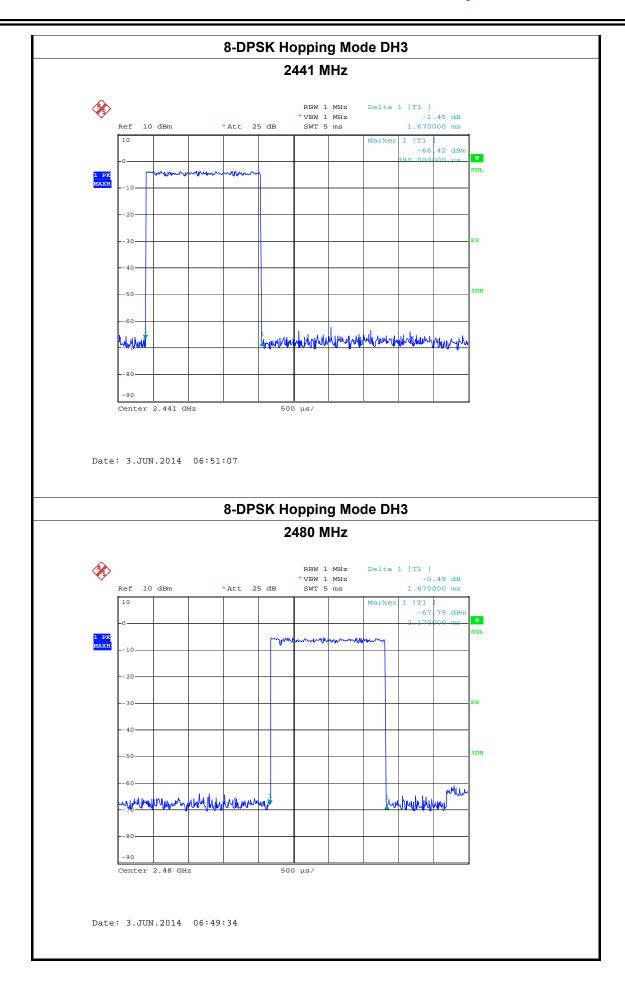


Date: 3.JUN.2014 06:54:36





Page: 58 of 83





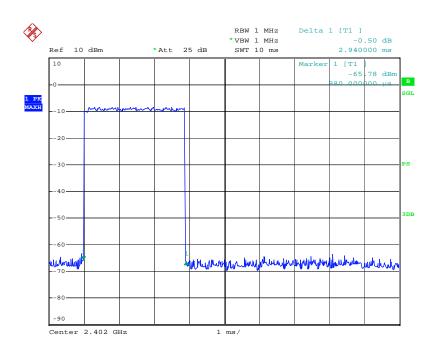
EUT:	Tablet PC	Model:	M709
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 HZ		

Test Mode: Hopping Mode (8-DPSK DH5)

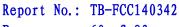
10010401	1.0009	rispping made (8 Er er Eris)					
Channel	Pulse Time	Total of	Period Time	Limit	Popult		
(MHz)	(ms)	Dwell (ms)	(s)	(ms)	Result		
2402	2.940	313.60					
2441	2.960	315.73	31.60	400	PASS		
2480	2.960	315.73					

8-DPSK Hopping Mode DH5

2402 MHz

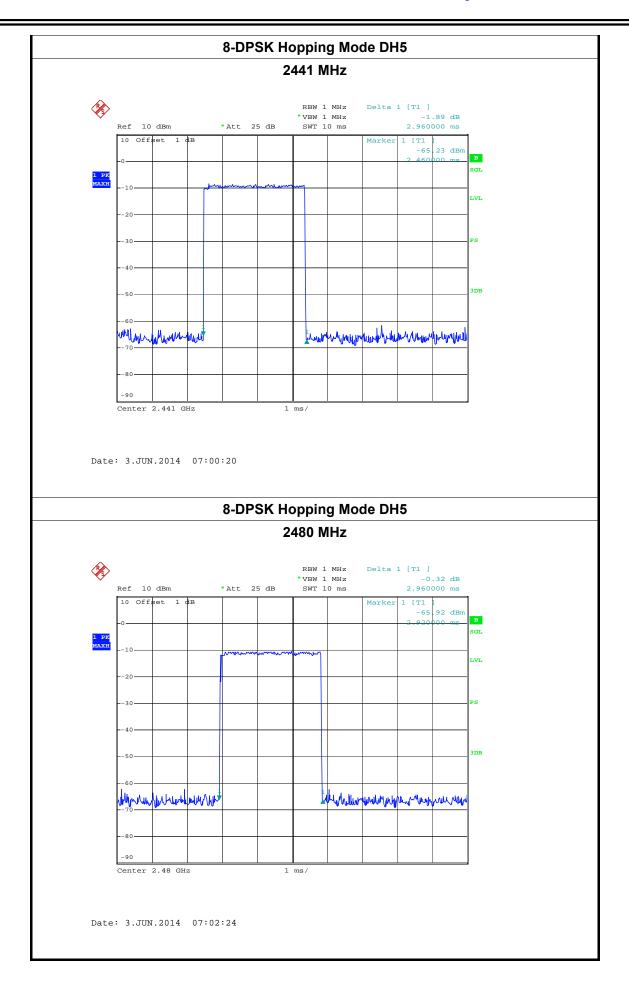


Date: 3.JUN.2014 06:58:01





Page: 60 of 83





Page: 61 of 83

8. Channel Separation and Bandwidth Test

8.1 Test Standard and Limit

8.1.1 Test Standard FCC Part 15.247

8.1.2 Test Limit

Test Item	Limit	Frequency Range(MHz)
Bandwidth	<=1 MHz (20dB bandwidth)	2400~2483.5
	>25KHz or >two-thirds of	
Channel Separation	the 20 dB bandwidth	2400~2483.5
	Which is greater	

8.2 Test Setup



8.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:

Channel Separation: RBW=30 kHz, VBW=100 kHz.

Bandwidth: RBW=30 kHz, VBW=100 kHz.

- (3) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.
- (4) Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:30 kHz, and Video Bandwidth:100 kHz. Sweep Time set auto.

8.4 EUT Operating Condition

The EUT was set to the Hopping Mode for Channel Separation Test and continuously transmitting for the Bandwidth Test.

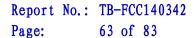


8.5 Test Equipment

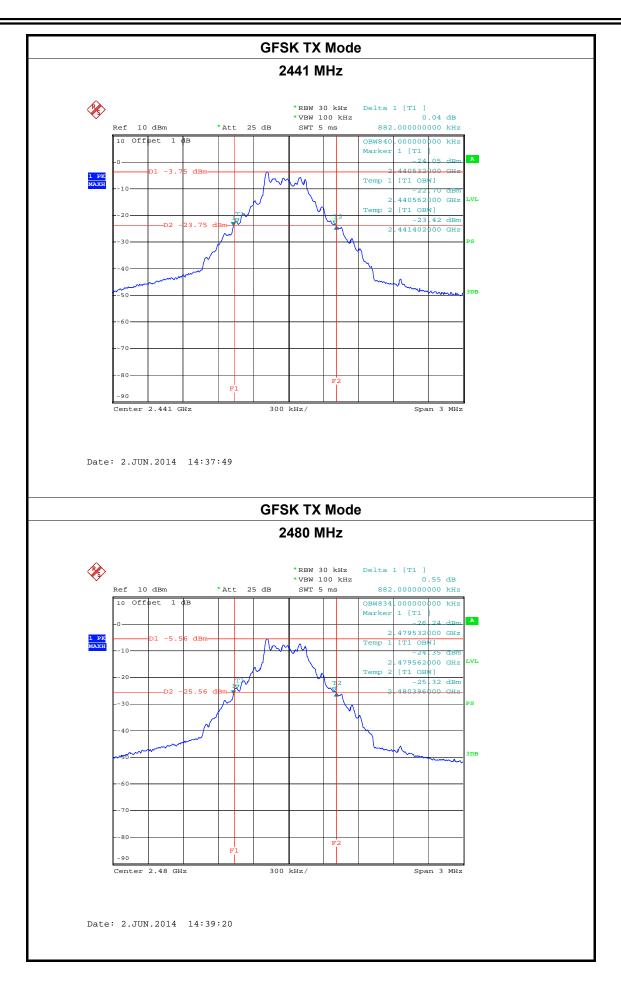
Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015

8.6 Test Data

EUT:	Та	blet PC			ı	Mod	el:				M70	9		
Temperature:	25	5 ℃			I	Relative Humidity:		55%	55%					
Test Voltage:	A	C 120V/6) HZ	-										
Test Mode:	T	K Mode (C	3FS	K)										-
Channel frequen (MHz)	су	99% C	BW	(kHz)	200		Ban kHz	dwid	th	20	dB Baı *2/3 (ndwidth kHz)	1
2402		8	46.0	0				82.0	-			588	•	
2441		8	40.0	0			8	82.0	00			588	.00	
2480		8	34.0	0			8	82.0	00			588	.00	
				GFS	к тх	Мо	de							
\$\overline{\psi} Ref 1) dBm	* 20	tt 2	5 dB	*RBW 3 *VBW 1	.00 kH			1 [T1 .00000	0.68 dı				
	set	1 dB						BW846 arker	.00000	0000 ki	_			
	D		T	300	kHz/	F2		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-2.40155 [T1 0:-2.40240	BW] 1.26 d1 6000 G1 BW]	and IZ LVL and Bm IZ PS 3DB			
Date: 2.JU	N.201	4 14:36:2	6											





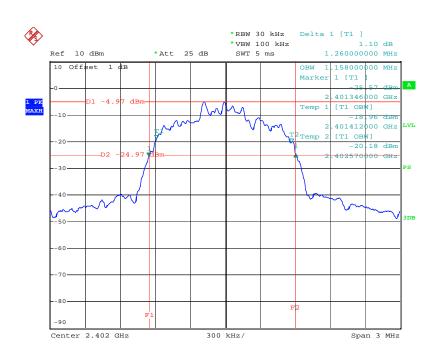




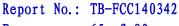
EUT:	Tablet PC	Model:	M709
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 HZ		
Test Mode:	TX Mode (8-DPSK)		

rest wode.	TX Wode (0-DF SIX)				
Channel frequence	y 99% OBW (kHz)	20dB Bandwidth	20dB Bandwidth		
(MHz)		(kHz)	*2/3 (kHz)		
2402	1158.00	1260.00	882.00		
2441	1158.00	1260.00	882.00		
2480	1158.00	1260.00	882.00		

8-DPSK TX Mode 2402 MHz

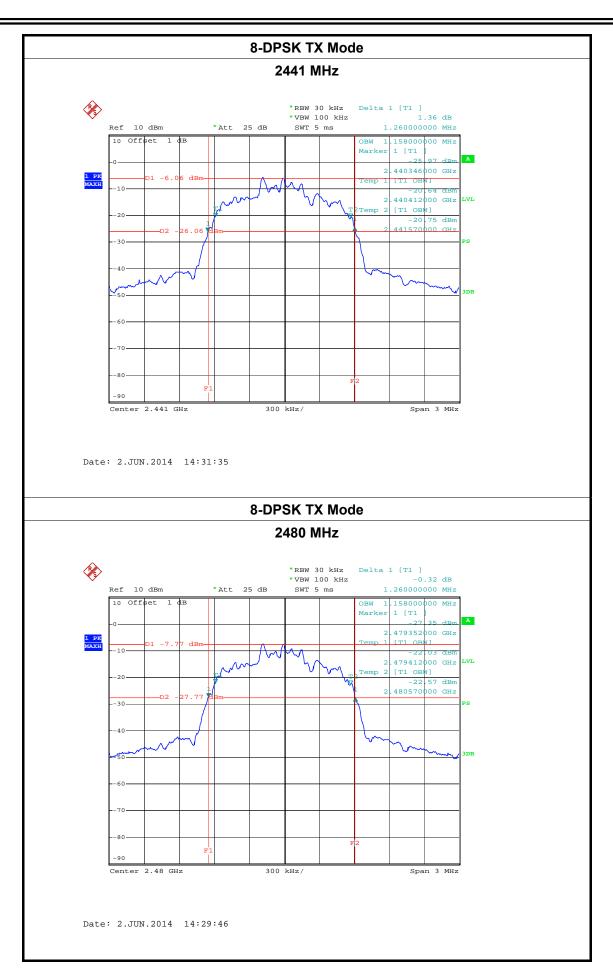


Date: 2.JUN.2014 14:35:02





Page: 65 of 83





Page: 66 of 83

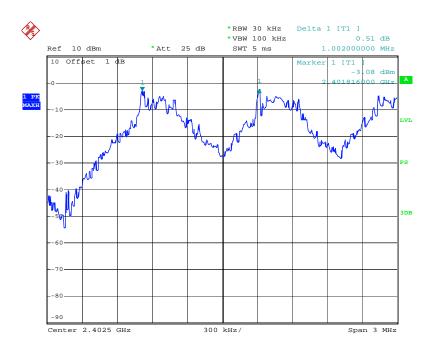
EUT:	Tablet PC	Model:	M709
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 HZ		

Test Mode:	Hopping Mode (GFSK)
------------	---------------------

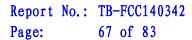
Channel frequency (MHz)	Separation Read Value (kHz)	Separation Limit (kHz)
2402	1002.00	882.00
2441	1002.00	882.00
2480	1002.00	882.00

GFSK Hopping Mode

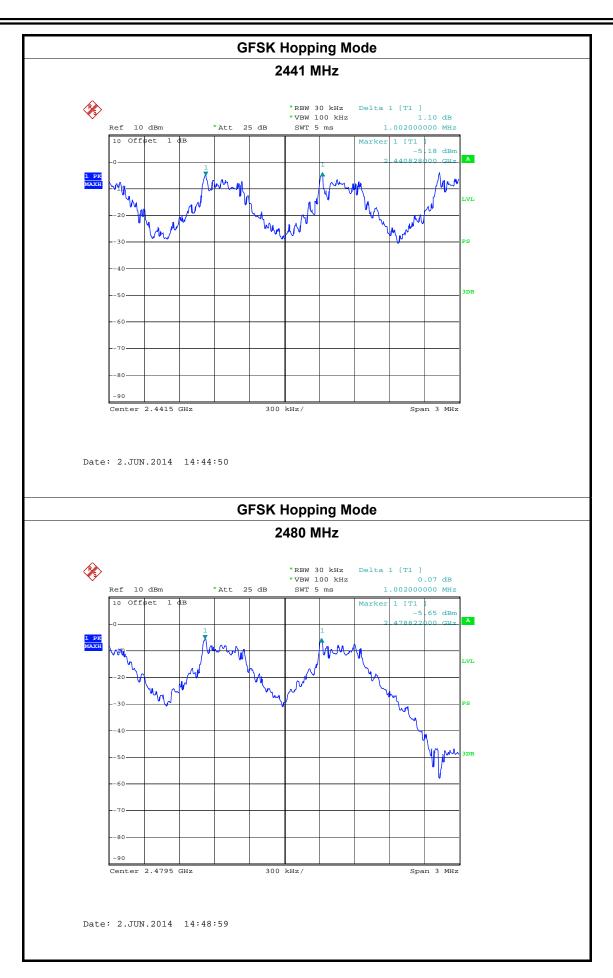
2402 MHz



Date: 2.JUN.2014 14:42:36









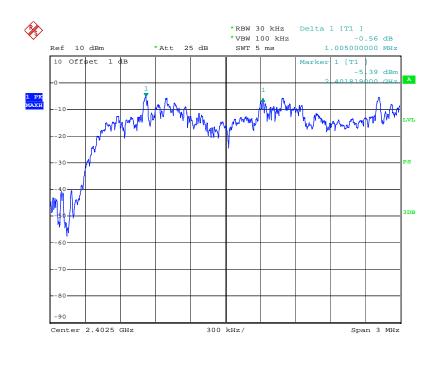
EUT:Tablet PCModel:M709Temperature:25 °CRelative Humidity:55%Test Voltage:AC 120V/60 HZ

Test Mode:	Hopping Mode (8-DPSK)
------------	-----------------------

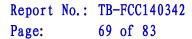
11 0	,		
Channel frequency (MHz)	Separation Read Value	Separation Limit (kHz)	
	(kHz)		
2402	1005.00	840.00	
2441	1005.00	840.00	
2480	1008.00	840.00	

8-DPSK Hopping Mode

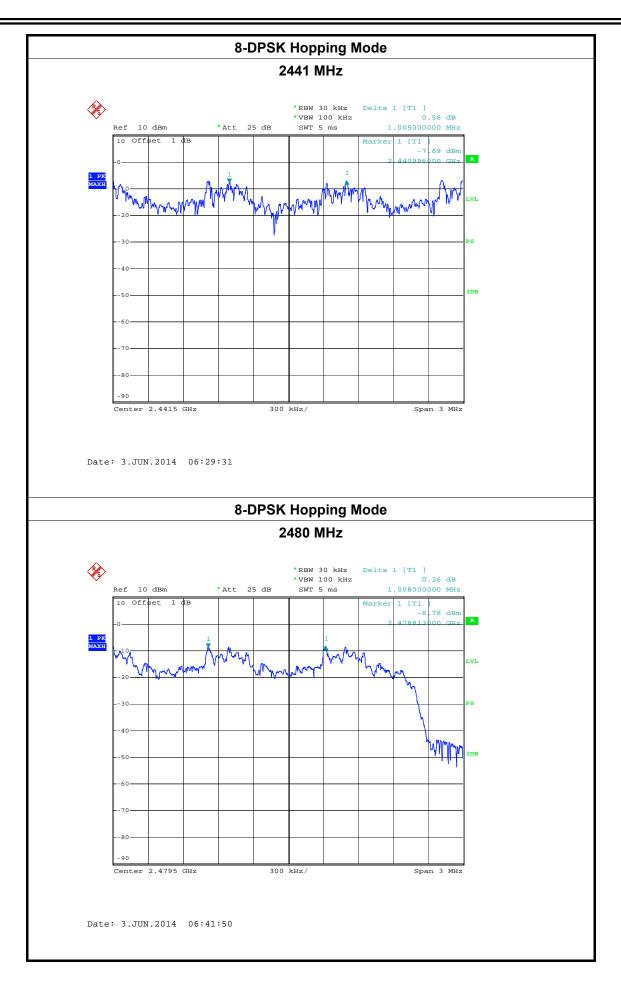
2402 MHz



Date: 3.JUN.2014 06:25:00









Page: 70 of 83

9. Peak Output Power Test

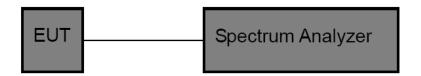
9.1 Test Standard and Limit

9.1.1 Test Standard FCC Part 15.247 (b) (1)

9.1.2 Test Limit

Test Item	Limit	Frequency Range(MHz)
Peak Output Power	Hopping Channels>75 Power<1W(30dBm)	2400~2483.5
	Other <125 mW(21dBm)	

9.2 Test Setup



9.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:

Peak Detector: RBW=1 MHz, VBW=3 MHz for bandwidth less than 1MHz. RBW=3 MHz, VBW=3 MHz for bandwidth more than 1MHz.

9.4 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.

9.5 Test Equipment

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015

8.6 Test Data



Page: 71 of 83

EUT:	Tablet PC	Model:	M709
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60 HZ		
Test Mode:	TX Mode (GFSK)		

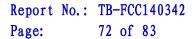
Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
2402	-1.64	
2441	-2.00	30
2480	-4.21	

GFSK TX Mode

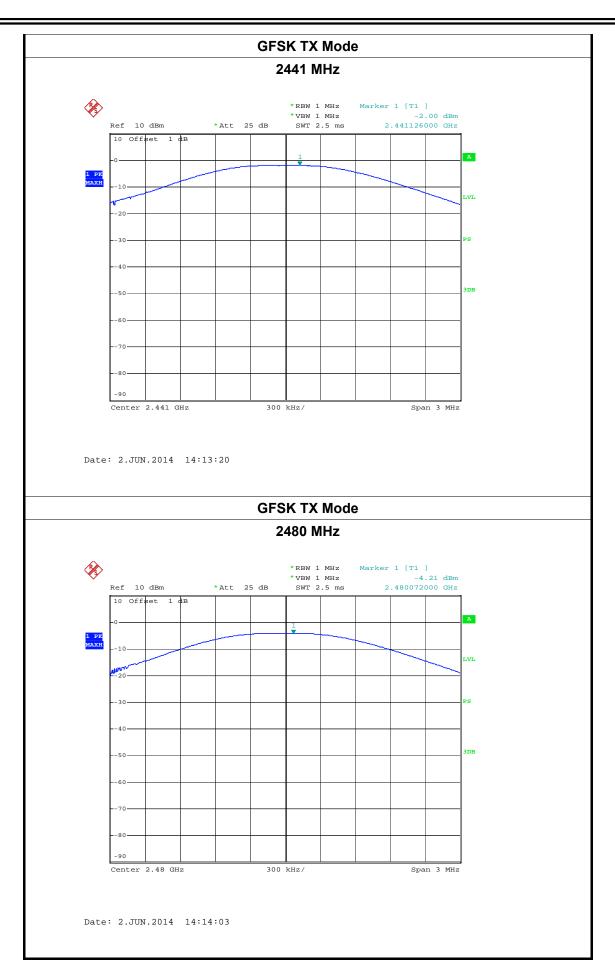
2402 MHz



Date: 2.JUN.2014 14:12:10









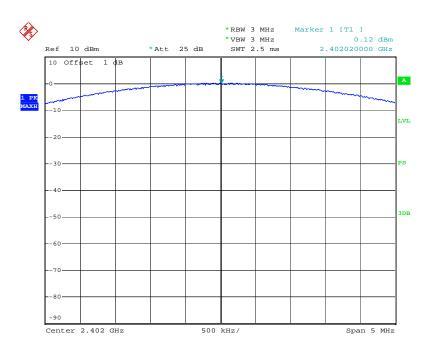
Page: 73 of 83

EUT:	Tablet PC	Model:		M709		
Temperature:	25 ℃	Relative Humidity:		55%		
Test Voltage:	AC 120V/60 HZ					
Test Mode:	TX Mode (8-DPSK)					
Channel frequency (MHz)		Test Result (dBm)			Limit (dBm)	

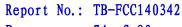
	•	
Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
2402	0.12	
2441	-0.81	21
2480	-2.45	

8-DPSK TX Mode

2402 MHz

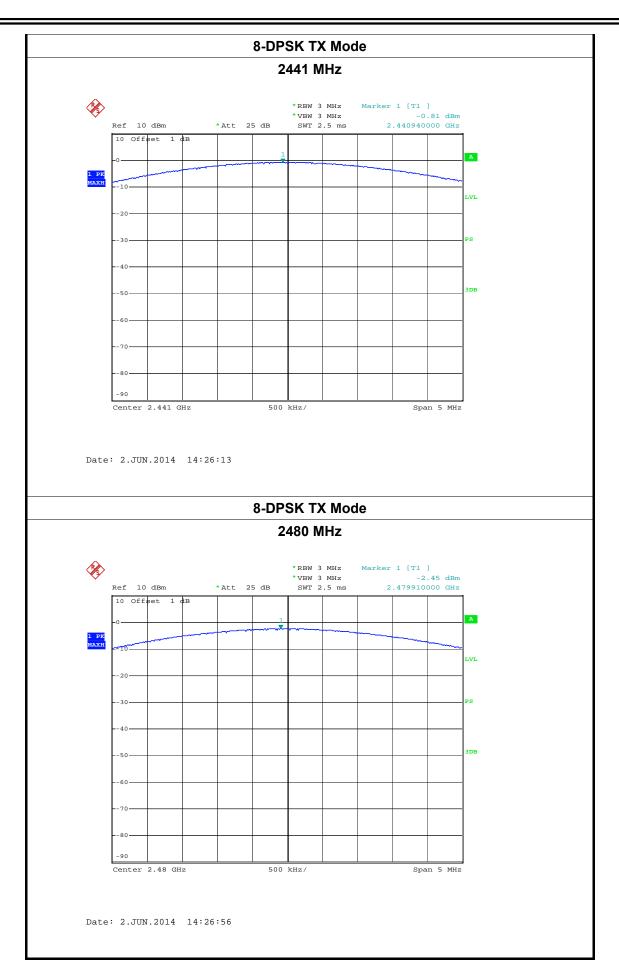


Date: 2.JUN.2014 14:20:57





Page: 74 of 83





Page: 75 of 83

10. Antenna Conducted Spurious Emission

10.1 Test Standard and Limit

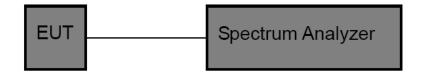
10.1.1 Test Standard FCC Part 15.247 (d)

10.1.2 Test Limit

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. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above~960	500	3

10.2 Test Setup



10.3 Test Procedure

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.

(2) Spectrum Setting:

RBW=100 KHz, VBW=300 KHz.

Frequency range: from 30MHz to 25 GHz



Page: 76 of 83

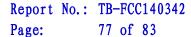
10.4 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.

10.5 Test Equipment

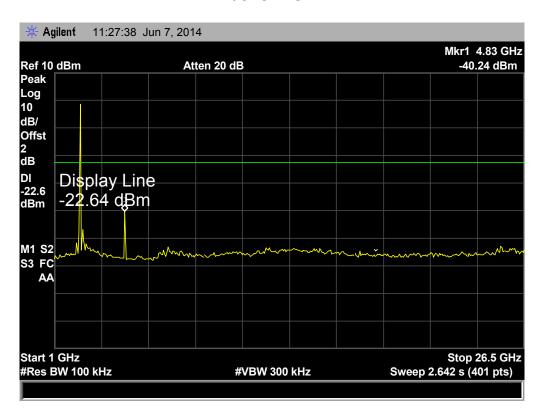
Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum	Agilent		MY45106456	Mar. 20. 2014	Mar. 19. 2015
Analyzer	Agiletit	E4407B	WH 45 100450	Mai. 20, 2014	Mai. 19, 2015

10.6 Test Data

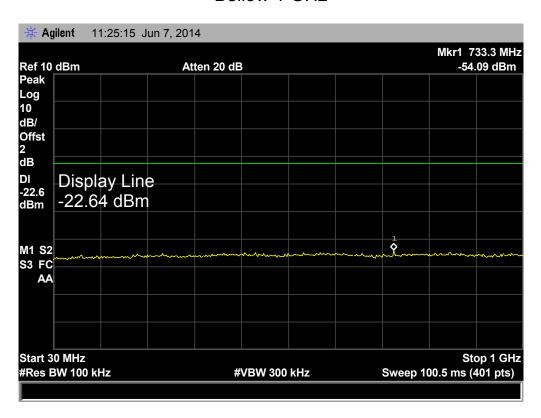




TX CH 00 2402MHz (1 Mbps)



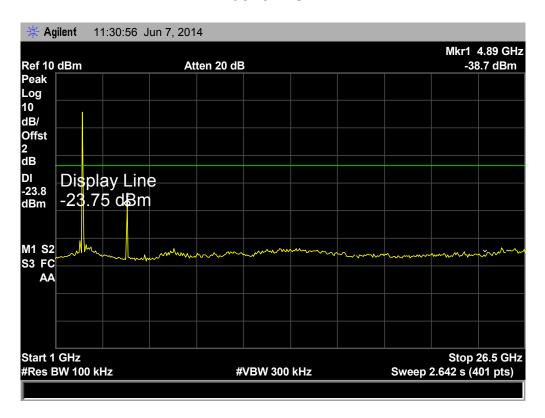
Bellow 1 GHz



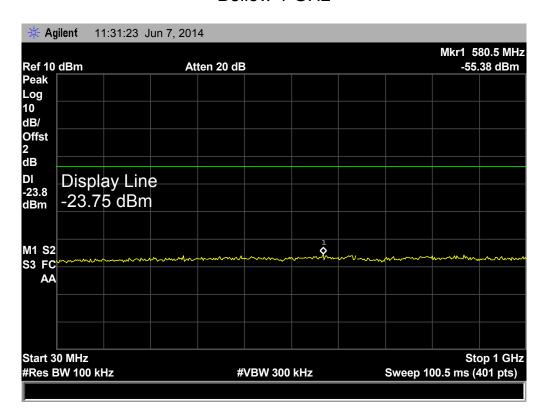


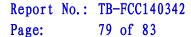


TX CH 39 2441MHz (1 Mbps)



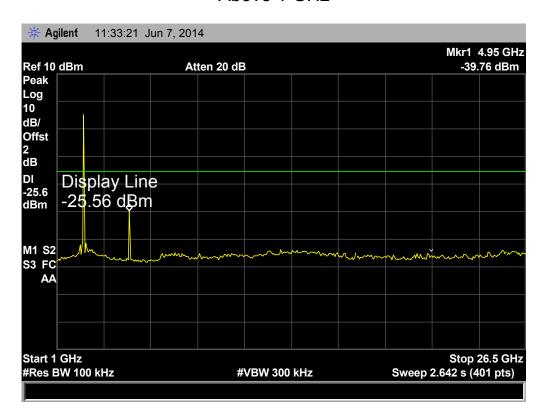
Bellow 1 GHz



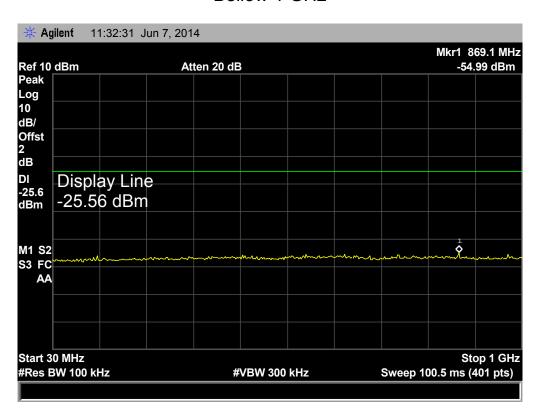


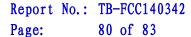


TX CH 78 2480MHz (1 Mbps)



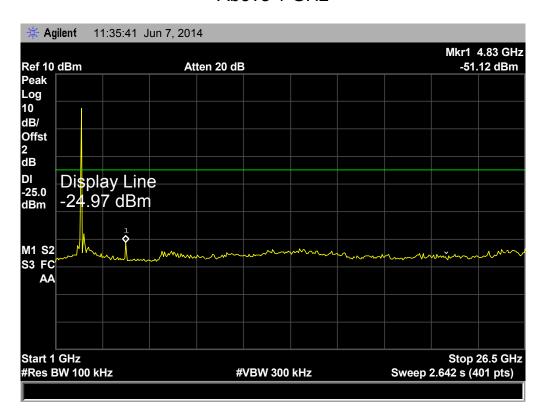
Bellow 1 GHz



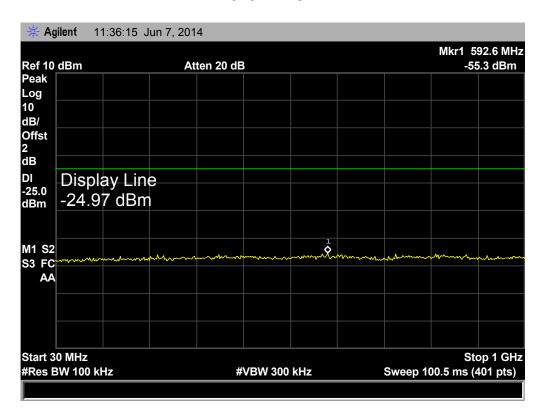


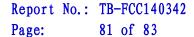


TX CH 00 2402MHz (3 Mbps)



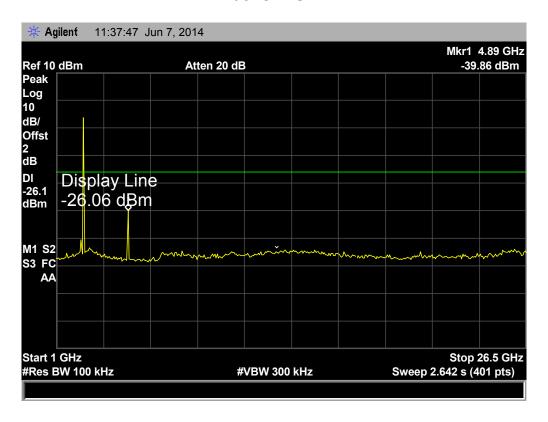
Bellow 1 GHz



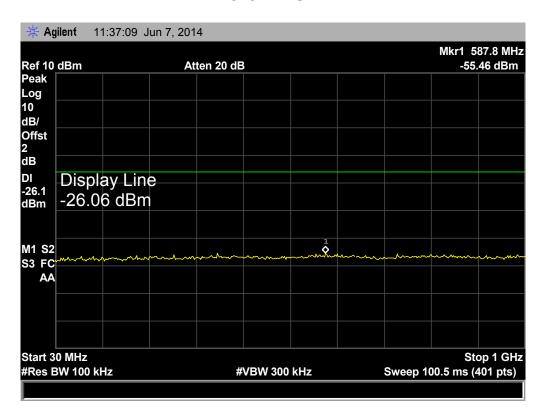


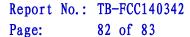


TX CH 39 2441MHz (3 Mbps)



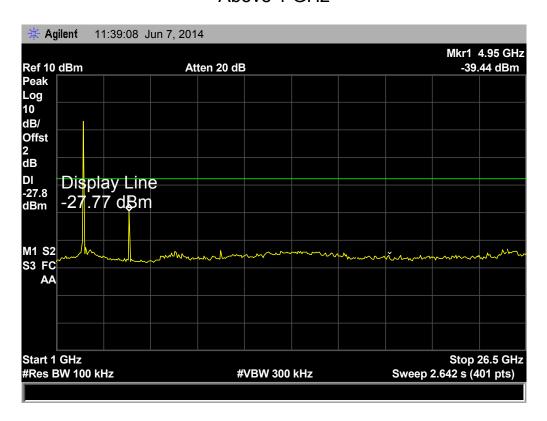
Bellow 1 GHz



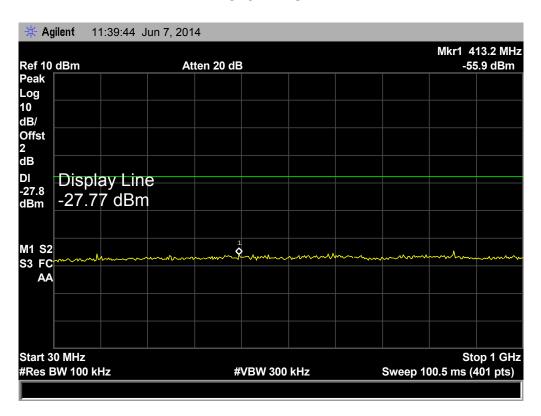




TX CH 78 2480MHz (3 Mbps)



Bellow 1 GHz





Page: 83 of 83

11. Antenna Requirement

11.1 Standard Requirement

11.1.1 Standard

FCC Part 15.203

11.1.2 Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

11.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 0 dBi, and the antenna connector is de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

11.2 Result

The EUT antenna is an Integral Antenna. It complies with the standard requirement.