FCC Radio Test Report

FCC ID: YDUA2105AH

This report concerns (check one) : ■ **Original Grant** □ **Class II Change**

Issued Date	:	May. 21, 2012
Project No.	:	1204C205
Equipment	:	Tablet PC
Brand Name	:	Lenovo
Model Name	:	60014;2288
Applicant	:	PLANER CHEVAL TECH PTE.LTD
Address	:	No. 10 Anson Road #15-17/18, International Plaza Singapore 079903

Tested by:
Neutron Engineering Inc. EMC Laboratory

Date of Receipt: Apr. 24, 2012

Date of Test:
Apr. 24, 2012 ~ May. 16, 2012

Testing Engineer : David Mao
(David Mao)

Technical Manager : Leo Hung
(Leo Hung)

Authorized Signatory : Steven Lu
(Steven Lu)

NEUTRON ENGINEERING INC.

No.3,Jinshagang 1st Road, ShiXia, Dalang Town,
Dong Guan, China.523792
TEL : +86-769-8318-3000 FAX : +86-769-8319-6000

Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

Neutron's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **Neutron** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **Neutron** issued reports.

Neutron's reports must not be used by the client to claim product endorsement by the authorities or any agency of the Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and **Neutron-self**, extracts from the test report shall not be reproduced except in full with **Neutron**'s authorized written approval.

Neutron's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Table of Contents Page

Table of Contents **Page**

1. CERTIFICATION

Equipment :	Tablet PC
Brand Name :	Lenovo
Model Name :	60014;2288
Applicant :	PLANER CHEVAL TECH PTE.LTD
Date of Test :	Apr. 24, 2012 ~ May. 16, 2012
Test Item :	ENGINEERING SAMPLE
Standards :	47 CFR FCC Part 24 Subpart E & ANSI C63.4 : 2009
	47 CFR FCC Part 2 & ANSI/TIA-603-C-2004

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-4-1204C205) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).
Test result included in this report is only for the GSM 1900MHz approval part of the product.

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part 24 Subpart E & Part 2				
Part	Standard Section	Test Item	Judgment	Remark
4.1	2.1047(d)	Modulation Characteristics	PASS	
4.2	2.1046/24.232	Radiated RF Output	PASS	
4.3	2.1049/24.238(b)	99% Occupied Bandwidth	PASS	
4.4	2.1051/24.238(a)	Spurious Emissions at Antenna Terminal	PASS	
4.5	2.1053/24.238(a)	Spurious Radiated Emissions	PASS	
4.6	24.238(b)	Band Edge	PASS	
4.7	2.1055/24.235	Frequency Stability	PASS	
4.8	15.207	Conducted Emission	PASS	

NOTE:

(1)” N/A” denotes test is not applicable in this Test Report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-C02/ DG-CB02** at the location of No.3,Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.523792
Neutron's test firm number is 319330

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
DG-C02	CISPR	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U，(dB)	NOTE
DG-CB02	CISPR	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Tablet PC
Brand Name	Lenovo
Model Name	60014;2288
Model Difference	Only difference is model name.
Product Description	The EUT is a Tablet PC Operation Frequency: TX:1850.2MHz~1909.8MHz RX:1930.2MHz~1989.8MHz Modulation Type: GMSK;8PSK Channel Band Width (99%): 248KHz Antenna Type: Please see Note 4. Conducted Output Power: GSM 1900: 30.55 dBm Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
Channel List	Please refer to the Note 3.
Power Source	#1 DC Voltage supplied from Li-Polymer battery. Model name: H11NT201A #2 DC Voltage supplied from AC/DC adapter. Model name: HKC0055010-2A #3 DC Voltage supplied from Host system.
Power Rating	#1 DC 3.7V 2500mAh /9.25Wh #2 I/P 100-240Va.c.,50/60Hz, 0.15A O/P 5.0V, 1.0A #3 120V/60Hz
Connecting I/O Port(s)	Please refer to the User's Manual

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2.

Module	Brand	Model name
BT+FM	QUALCOMM	WCN2243-0-58WLNSP-TR-05
WLAN	ATHEROS	AR6005G-CF1B-R
WCDMA+GPS(RX)	QUALCOMM	RTR-6285A-0-137CSP-TR-01

3.

Band	Channel	Frequency (MHz)	
1850.2MHz~1909.8MHz	512	Low	1850.2
	661	Mid	1880.0
	810	High	1909.8

4.

Table for Filed Antenna @GSM1900

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	JTIE	AH-JT-0203N0104	Integral	N/A	1.06

3.2 DESCRIPTION OF TEST MODES

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 above was evaluated respectively.

Test Items	Worst TX Mode	Channel
Radiated RF Output	GSM	512/661/810
Spurious Radiated Emissions	GSM	512/661/810
Band Edge Emissions	GSM	512/661/810
Frequency Stability	GSM	661
99% Occupied Bandwidth	GSM	512/661/810
Spurious Emissions at Antenna Terminal	GSM	512/661/810

For Conducted Emission	
Final Test Mode	Description
Mode 1	GSM(GMSK)
Mode 2	EGPRS(8PSK)
Mode 2	GSM+Bluetooth
Mode 3	GSM+WIFI

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

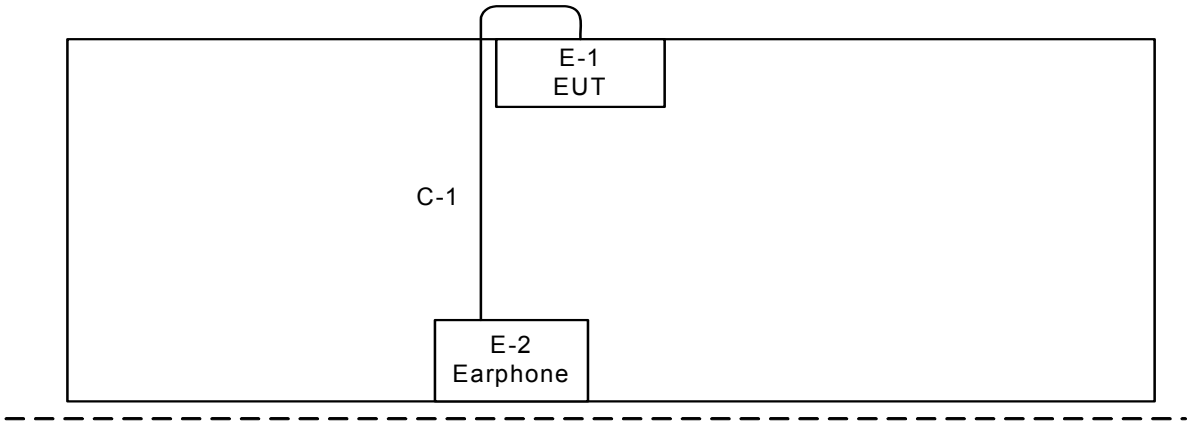
(2) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis. The worst case was found positioned on Z-plane. Therefore only the test data of this Z-plane was used for radiated emission measurement test.

3.3 TABLE OF PARAMETERS OF TEXT 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 GSM

During the test, Power Control level was set to 0, it is chosen as the worst case.

3.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



C-1 Audio Cable

3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	Tablet PC	Lenovo	60014	YDUA2105AH	N/A	EUT
E-2	Earphone	PLANER	NA	NA	NA	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1m	

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in m in『Length』column.

4. TEST RESULT

4.1 RADIATED RF OUTPUT POWER MEASUREMENT

4.1.1 LIMIT

The Radiated Peak Output Power shall be according to the specific rule Part 24.232(b) that "Mobile/Portable station are limited to 2 watts e.i.r.p." and 24.232(c) specifed that "Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.

4.1.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

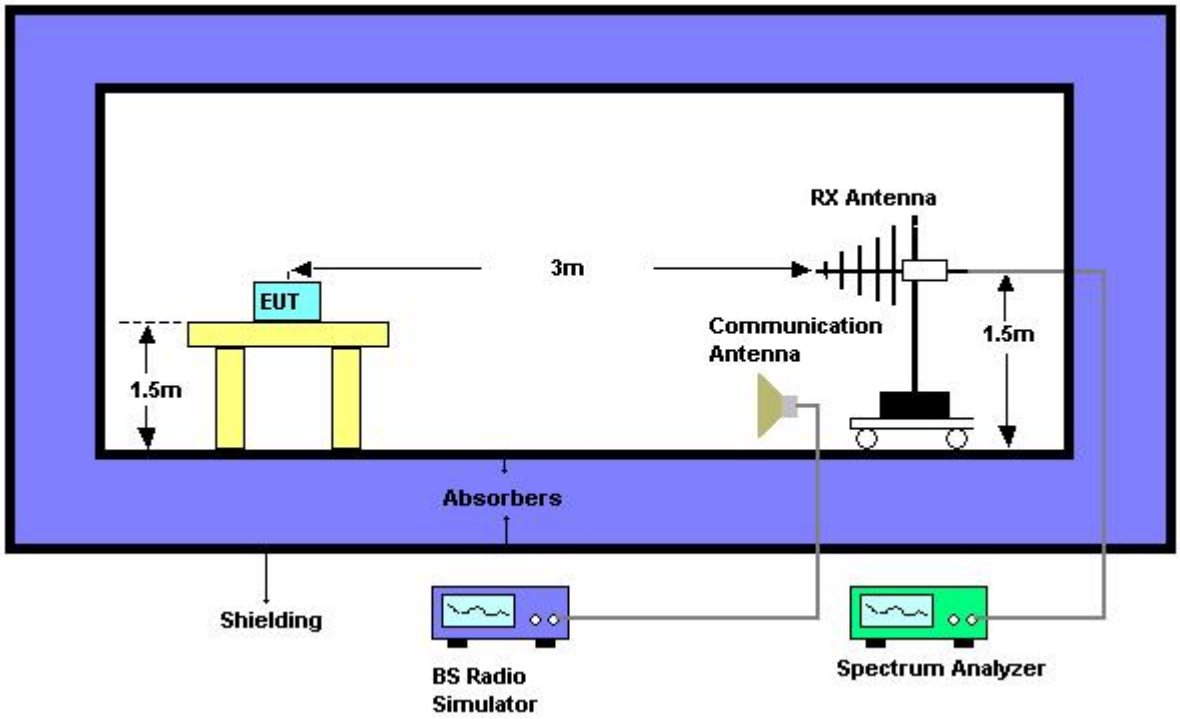
Spectrum Parameters	Setting
Attenuation	Auto
Center Frequency	Low / middle / high channels
Span Frequency	10MHz
RB / VB	3MHz / 3MHz for Peak

4.1.3 TEST PROCEDURE

1. The EUT was set up for the maximum peak power with GSM/EGPRS link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 512, 661 and 810 (low, middle and high operational frequency range).
2. The conducted peak output power used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. The path loss included the splitter loss, cable loss and 20dB pad loss. The spectrum set RB/VB 3MHz,then read peak power value and record to the test. (All transmitted path loss shall be considered in the test report data)
3. E.I.R.P peak power measurement. In the fully anechoic chamber, EUT placed on the 1.5m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
4. The substitution horn antenna is substituted for EUT at the same position, and signal generator export the CW signal to the calibration antenna. Rotated the Turn Table to find the maximum radiation power. "Raw" is the spectrum reading value, "SG" is signal generator export power, "TX Gain" is calibration antenna isotropic gain value, "TX cable" is the transmitted cable loss between the calibration antenna and signal generator. The "Factor" means that the transmission path loss is equal to "SG" - "TX cable" + "TX Gain" – "Raw".
5. Actually the real E.I.R.P peak power is equal to "Read Value" + "Factor"
6. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of Integral, E.R.P power=E.I.P.R power-2.14dBi.

4.1.4 TEST SETUP LAYOUT

EIRP Power Measurement



4.1.5 TEST DEVIATION

There is no deviation with the original standard.

4.1.6 EUT OPERATION DURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

4.1.7 TEST RESULT OF CONDUCTED RF OUTPUT POWER

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH 512/661/810		

GSM 1900		Conducted Power(dBm)			Max. Limit (dBm)	Result
		Channel 512	Channel 661	Channel 810		
GSM		**30.55**	**30.28**	**30.00**	**33**	**Complies**
GPRS (GMSK)	1Txslot	30.54	30.25	29.98	33	Complies
	2Txslots	30.47	30.21	29.94	33	Complies
EGPRS (GMSK)	1Txslot	30.52	30.23	29.96	33	Complies
	2Txslots	30.45	30.20	29.91	33	Complies
EGPRS (8PSK)	1UP	26.81	26.59	26.38	33	Complies
	2UP	26.25	26.03	25.92	33	Complies
	3UP	26.21	26.00	25.83	33	Complies
	4UP	25.69	25.50	25.26	33	Complies

REMARKS:

1. Peak Output Power(dBm)=Raw Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB) = Power Splitter Loss(dB) + Cable Loss(dB)
3. The EUT does employ a power control function by which the output power is controlled from +28dBm to +19dBm (nominal) by 2dB steps. Consequently the EUT meets the requirement of Part24.232(c).

4.1.8 TEST RESULT OF RADIATED RF OUTPUT POWER

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH 512/661/810		

GSM 1900:

GSM 1900		Radiated Power(dBm)			Max. Limit (dBm)	Result
		Channel 512	Channel 661	Channel 810		
GSM		**31.61**	**31.34**	**31.06**	**33**	**Complies**
GPRS (GMSK)	1Txslot	31.60	31.31	31.04	33	Complies
	2Txslots	31.53	31.27	31.00	33	Complies
EGPRS (GMSK)	1Txslot	31.58	31.29	31.02	33	Complies
	2Txslots	31.51	31.26	30.97	33	Complies
EGPRS (8PSK)	1UP	27.87	27.65	27.43	33	Complies
	2UP	27.31	27.09	26.98	33	Complies
	3UP	27.27	27.06	26.89	33	Complies
	4UP	26.75	26.56	26.32	33	Complies

REMARKS:

1. Radiated Output Power(dBm)=Raw Value(dBm) + Correction Factor(dB) +Ant Gain(dBi)
2. Correction Factor(dB) = Power Splitter Loss(dB) + Cable Loss(dB)
3. The EUT does employ a power control function by which the output power is controlled from +28dBm to +19dBm (nominal) by 2dB steps. Consequently the EUT meets the requirement of Part24.232(c).
4. The antenna gain is 1.06dBi

4.2 99% OCCUPIED BANDWIDTH MEASUREMENT

4.2.1 LIMIT

According to FCC 24.238(b) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

4.2.2 MEASURING INSTRUMENTS AND SETTING

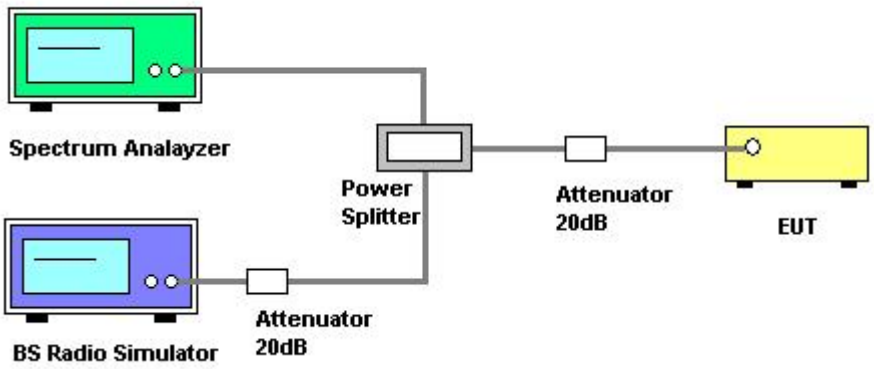
Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	30 kHz
VB	100 kHz
Trace	Max Hold

4.2.3 TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Used measurement function of spectrum to measure the 99% occupied bandwidth..

4.2.4 TEST SETUP LAYOUT



4.2.5 TEST DEVIATION

There is no deviation with the original standard.

4.2.6 EUT OPERATION DURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

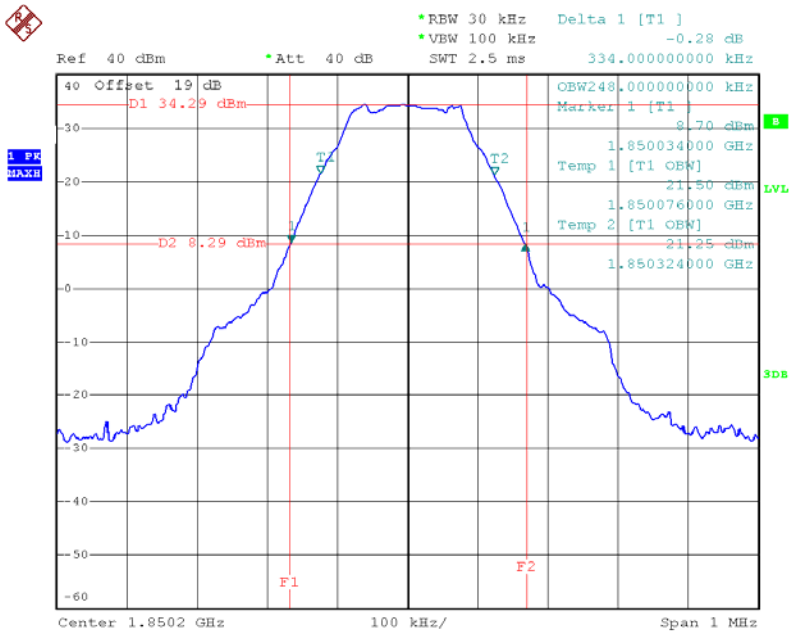
4.2.7 TEST RESULT OF 99% OCCUPIED BANDWIDTH

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH 512/661/810		

Configuration GSM(GMSK)

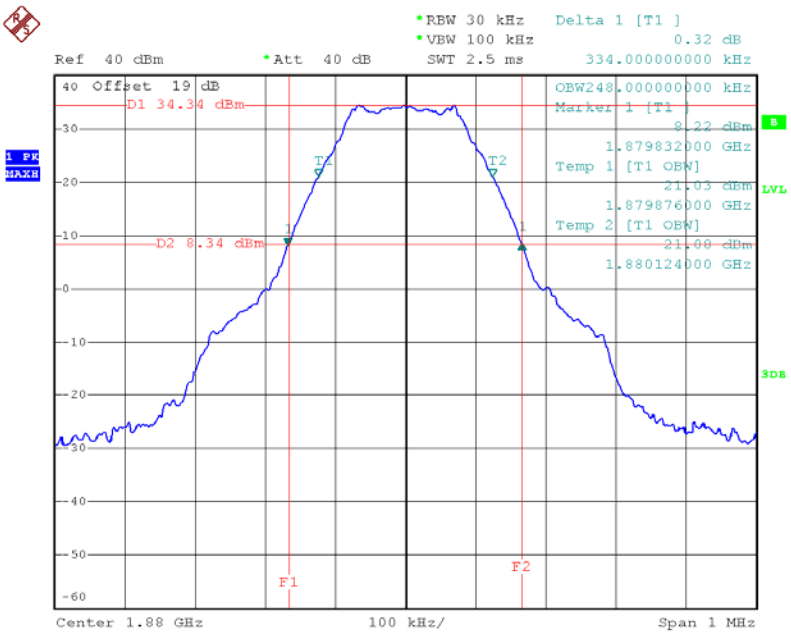
Channel	Frequency	99% OBW (KHz)	-26dBc Bandwidth	Result
512	1850.20MHz	248.00	334.00	**Complies**
661	1880.00 MHz	248.00	334.00	**Complies**
810	1909.80 MHz	248.00	332.00	**Complies**

99% Occupied Bandwidth channel 512



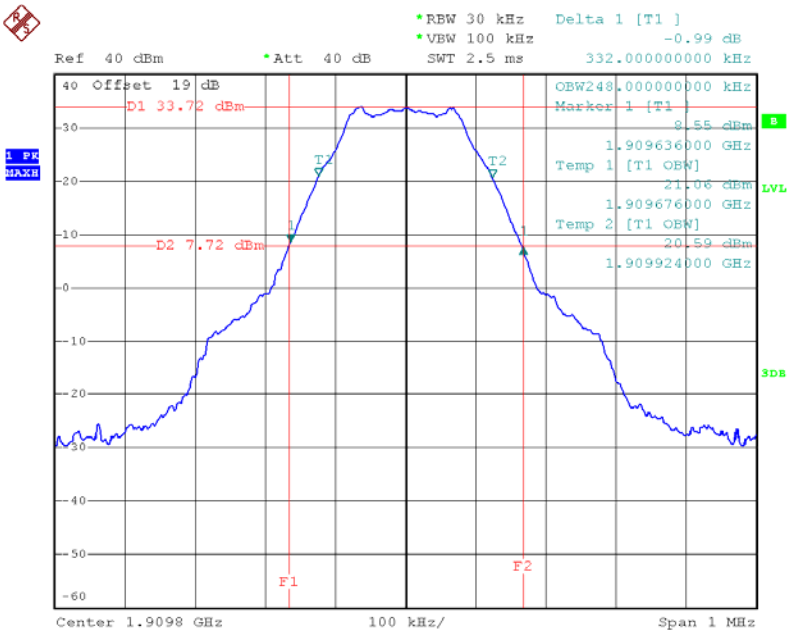
Date: 13.MAY.2012 15:37:50

99% Occupied Bandwidth channel 661



Date: 13.MAY.2012 15:39:49

99% Occupied Bandwidth channel 810



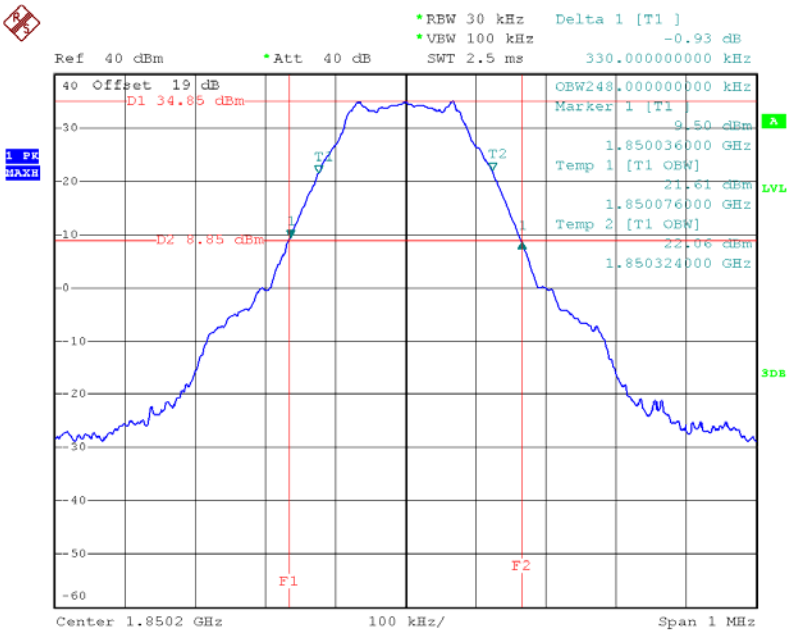
Date: 13.MAY.2012 15:41:56

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH 512/661/810		

Configuration EGPRS(8PSK)

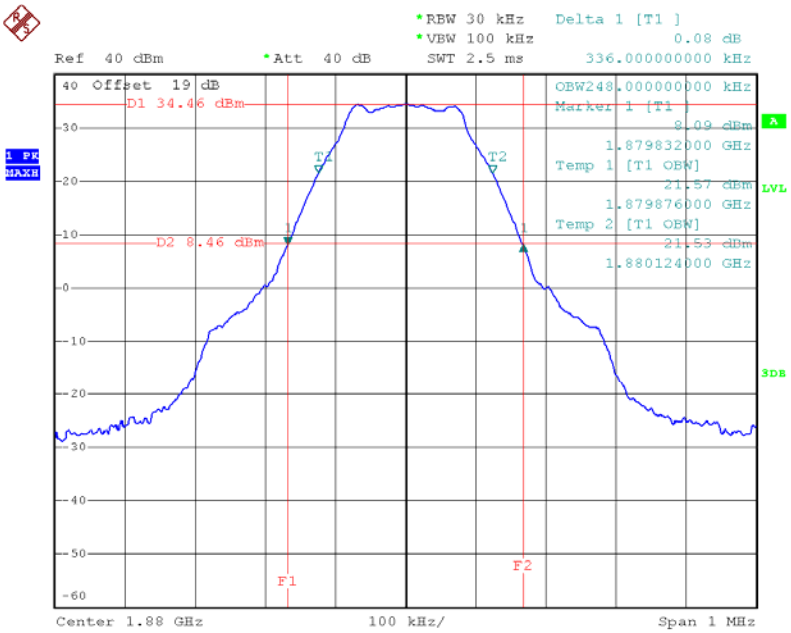
Channel	Frequency	99% OBW (KHz)	-26dBc Bandwidth	Result
512	1850.20MHz	248.00	330.00	**Complies**
661	1880.00 MHz	248.00	336.00	**Complies**
810	1909.80 MHz	248.00	330.00	**Complies**

99% Occupied Bandwidth channel 512



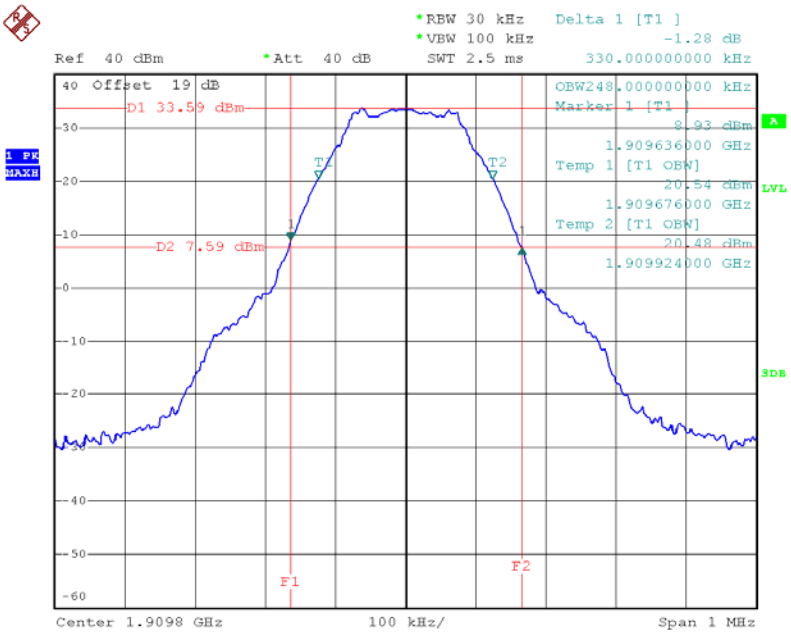
Date: 13.MAY.2012 15:26:03

99% Occupied Bandwidth channel 661



Date: 13.MAY.2012 15:23:55

99% Occupied Bandwidth channel 810



Date: 13.MAY.2012 15:27:29

4.3 SPURIOUS EMISSIONS AT ANTENNA TABLET PCS WEASUREMENT

4.3.1 LIMIT

In the FCC 24.238(a), on any frequency outside a licensee's frequency block within GSM spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB. The limit translates in the relevant power range (1 to 0.001W). At 1W(Power Control Level 0) the specified minimum attenuation becomes 43dB and the limit of emission equal to –13dBm.

4.3.2 MEASURING INSTRUMENTS AND SETTING

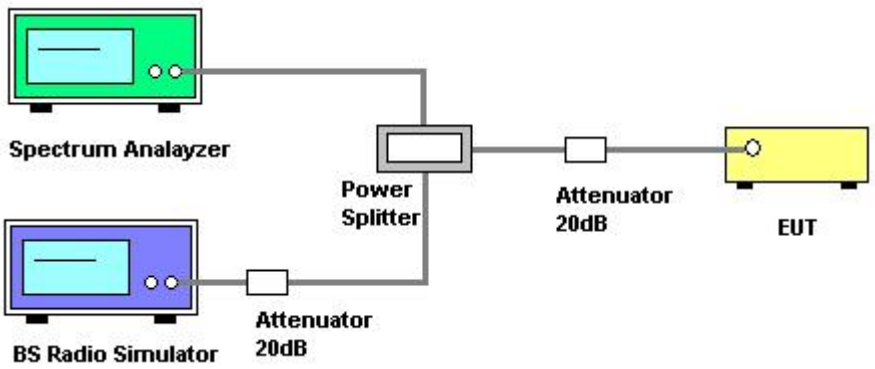
Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Start Frequency	30MHz
Stop Frequency	10th carrier harmonic
RB / VB	1 MHz / 1MHz for Peak

4.3.3 TEST PROCEDURES

1. The EUT was set up for the maximum peak power with GSM/EGPRS link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 512,661,810(low, middle and high operational frequency range.)
2. The conducted spurious emission used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss are the worst loss 4.5dB in the transmitted path track.
3. When the spectrum scanned from 9kHz to 3GHz, it shall be connected to the band reject filter attenuated the carried frequency. The spectrum set RB/VB 1MHz.
4. When the spectrum scanned from 3GHz to 10GHz, it shall be connected to the high pass filter attenuated the carried frequency. The spectrum set RB/VB 1MHz.

4.3.4 TEST SETUP LAYOUT



4.3.5 TEST DEVIATION

There is no deviation with the original standard.

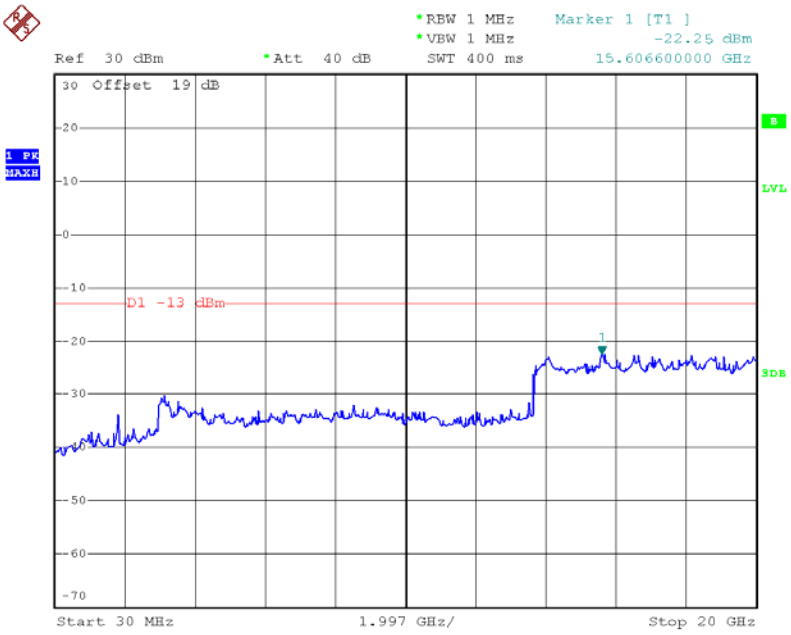
4.3.6 EUT OPERATION DURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

4.3.7 TEST RESULT OF SPURIOUS EMISSIONS AT ANTENNA TABLET PCS

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH 512		

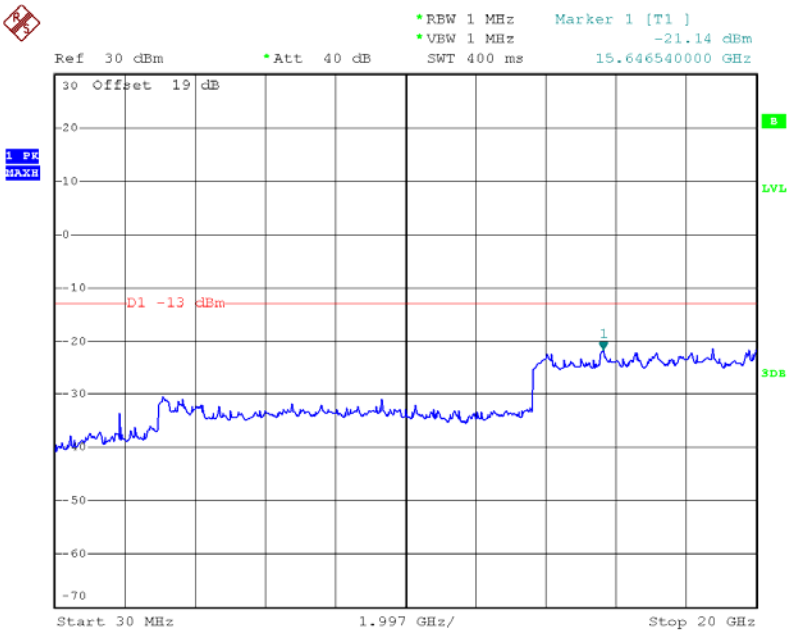
Conducted Spurious of Configuration GSM(GMSK) channel 512



Date: 13.MAY.2012 18:31:53

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH 661		

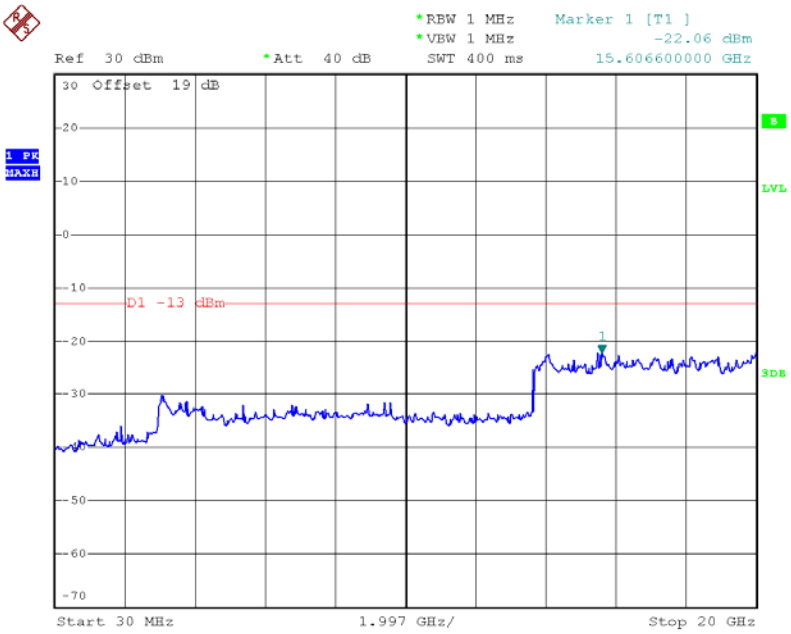
Conducted Spurious of Configuration GSM(GMSK) channel 661



Date: 13.MAY.2012 18:32:46

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH 810		

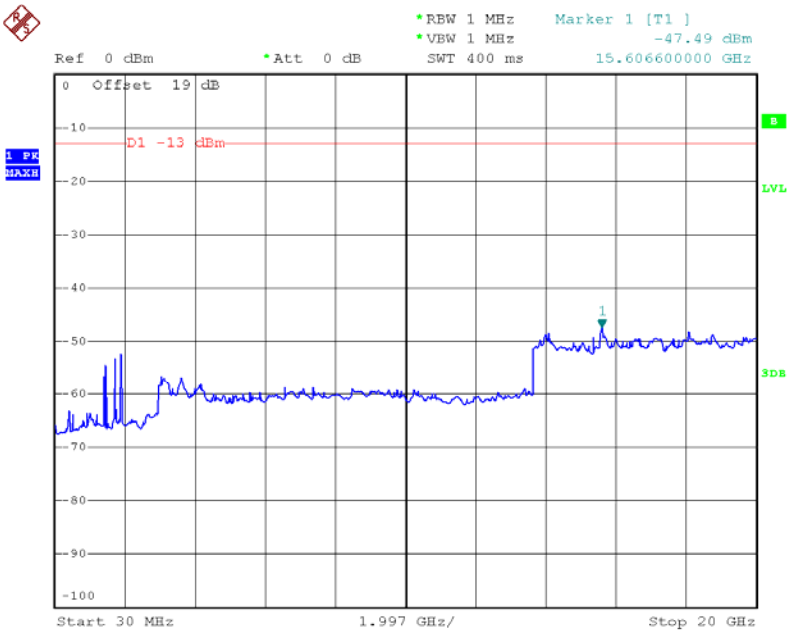
Conducted Spurious of Configuration GSM(GMSK) channel 810



Date: 13.MAY.2012 18:33:21

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH 512		

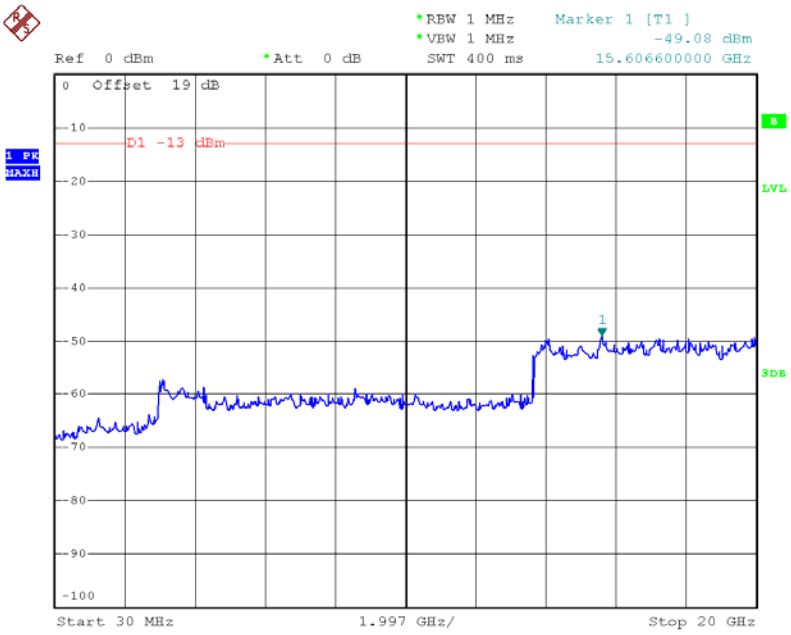
Conducted Spurious of Configuration EGPRS(8PSK) channel 512



Date: 13.MAY.2012 15:06:56

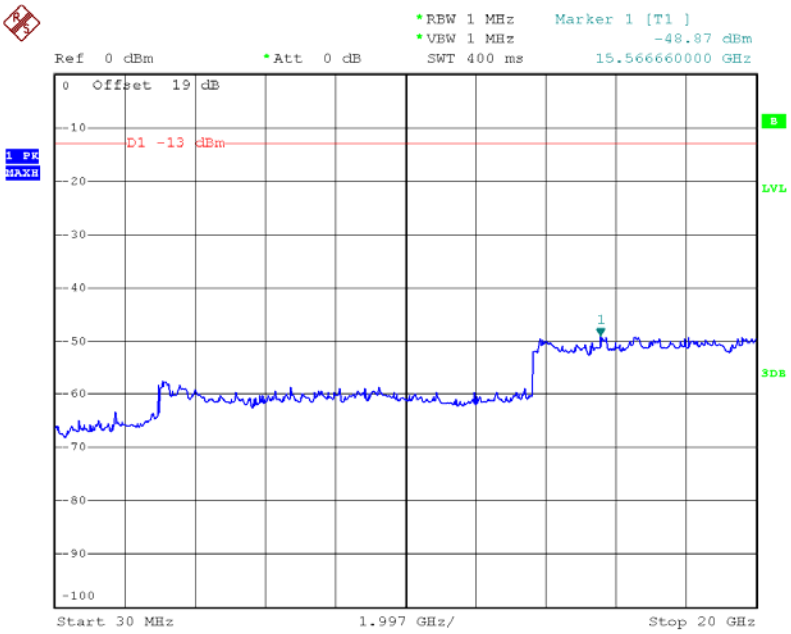
EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH 661		

Conducted Spurious of Configuration EGPRS(8PSK) channel 661



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH 810		

Conducted Spurious of Configuration EGPRS(8PSK) channel 810



Date: 13.MAY.2012 15:10:38

4.4 SPURIOUS RADIATED EMISSIONS MEASUREMENT

4.4.1 LIMIT

In the FCC 24.238(a), On any frequency outside a licensee's frequency block within GSM spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB. The limit translates in the relevant power range (1 to 0.001W). At 1W(Power Control Level 0) the specified minimum attenuation becomes 43dB and the limit of emission equal to –13dBm.At 0.001W(Power Control Level 15) the specified minimum attenuation becomes 13dB and the emission of limit equal to –13dBm.So the limit of emission is the same absolute specified line.

4.4.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Start Frequency	30 MHz
Stop Frequency	10th carrier harmonic
Detector	Positive Peak
Span	100 MHz
Sweep Time	1s
RB / VB	1 MHz / 1MHz
Attenuation	Positive Peak

4.4.3 TEST PROCEDURES

1. The EUT was placed on the top of the turntable in fully anechoic chamber.
2. The test shall be made in the transmitting mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. This measurement shall be repeated with the transmitter in standby mode where applicable.
4. For 30~1000MHz spurious emissions measurement, the broad band bi-log receiving antenna was placed 3 meters far away from the turntable. For 1~10th carrier harmonic measurement, the receiving Horn antenna was placed 1.5 meters far away from the turntable.
5. The broadband receiving antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level (Raw).
6. Replace the EUT by standard antenna and feed the RF port by signal generator.
7. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
8. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
9. The level of the spurious emission is the power level of (8) plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.

4.4.4 TEST SETUP LAYOUT

This test setup layout is the same as that shown in section 4.2.4.

4.4.5 TEST DEVIATION

There is no deviation with the original standard.

4.4.6 EUT OPERATION DURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

4.4.7 RESULTS OF TRANSMITTER SPURIOUS EMISSIONS BELOW 1GHZ

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH512 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
48.72	V	X	TX	-64.40	-13.00	-51.40	
113.94	V	X	TX	-56.32	-13.00	-43.32	
185.57	V	X	TX	-61.88	-13.00	-48.88	
231.56	V	X	TX	-65.89	-13.00	-52.89	
335.85	V	X	TX	-61.14	-13.00	-48.14	
454.65	V	X	TX	-62.33	-13.00	-49.33	

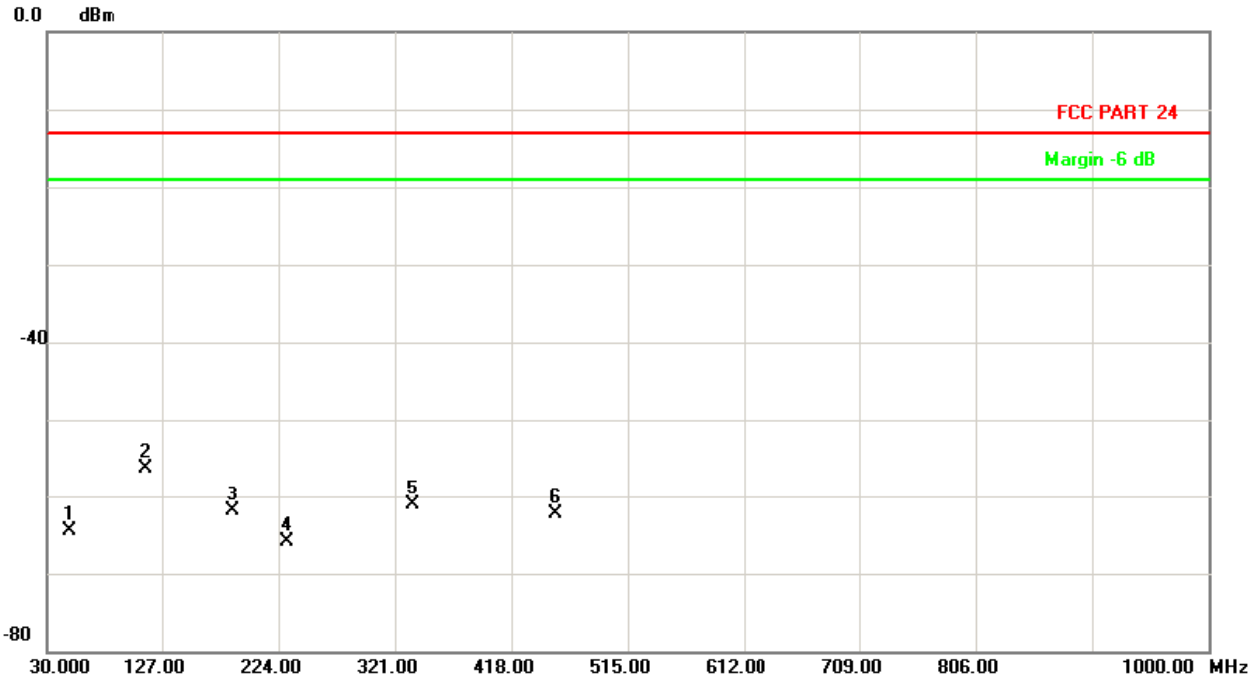
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH512 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS)	Limits	Margins	Note
41.53	H	X	TX	-59.33	-13.00	-46.33	
86.77	H	X	TX	-67.39	-13.00	-54.39	
186.59	H	X	TX	-64.66	-13.00	-51.66	
257.54	H	X	TX	-61.72	-13.00	-48.72	
313.56	H	X	TX	-58.36	-13.00	-45.36	
433.19	H	X	TX	-56.45	-13.00	-43.45	

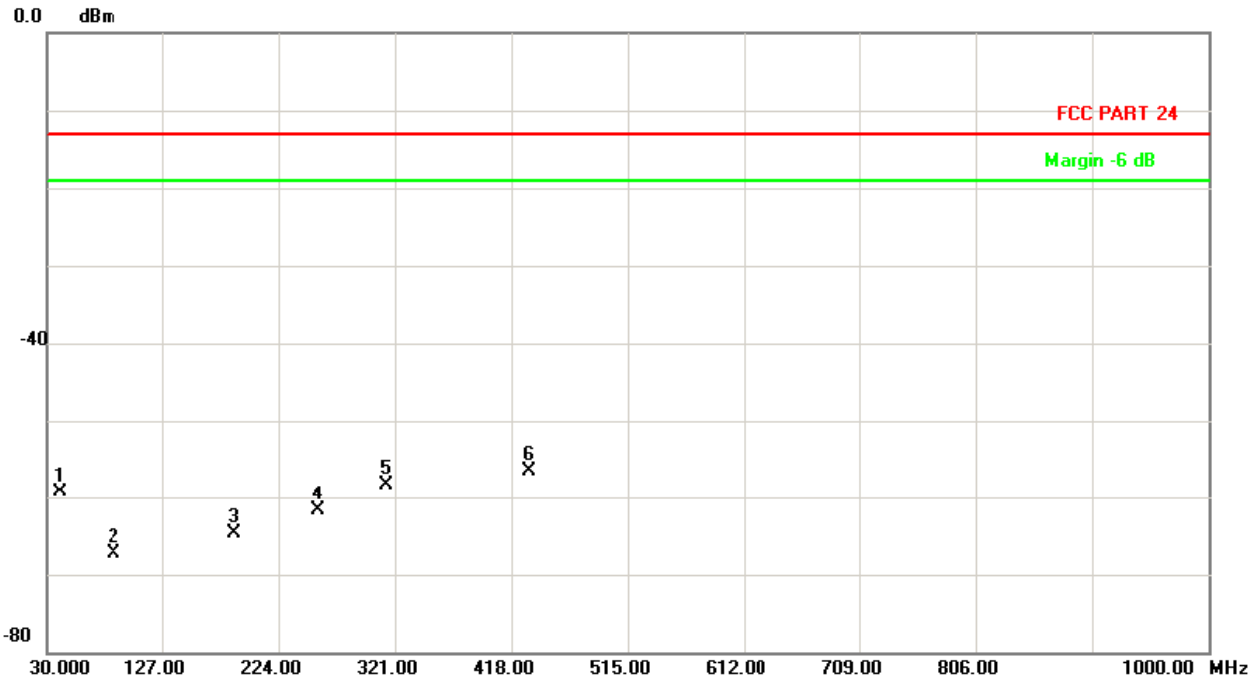
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH661 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
64.57	V	X	TX	-63.40	-13.00	-50.40	
141.27	V	X	TX	-60.32	-13.00	-47.32	
195.72	V	X	TX	-61.88	-13.00	-48.88	
217.31	V	X	TX	-65.89	-13.00	-52.89	
320.60	V	X	TX	-61.14	-13.00	-48.14	
453.17	V	X	TX	-62.33	-13.00	-49.33	

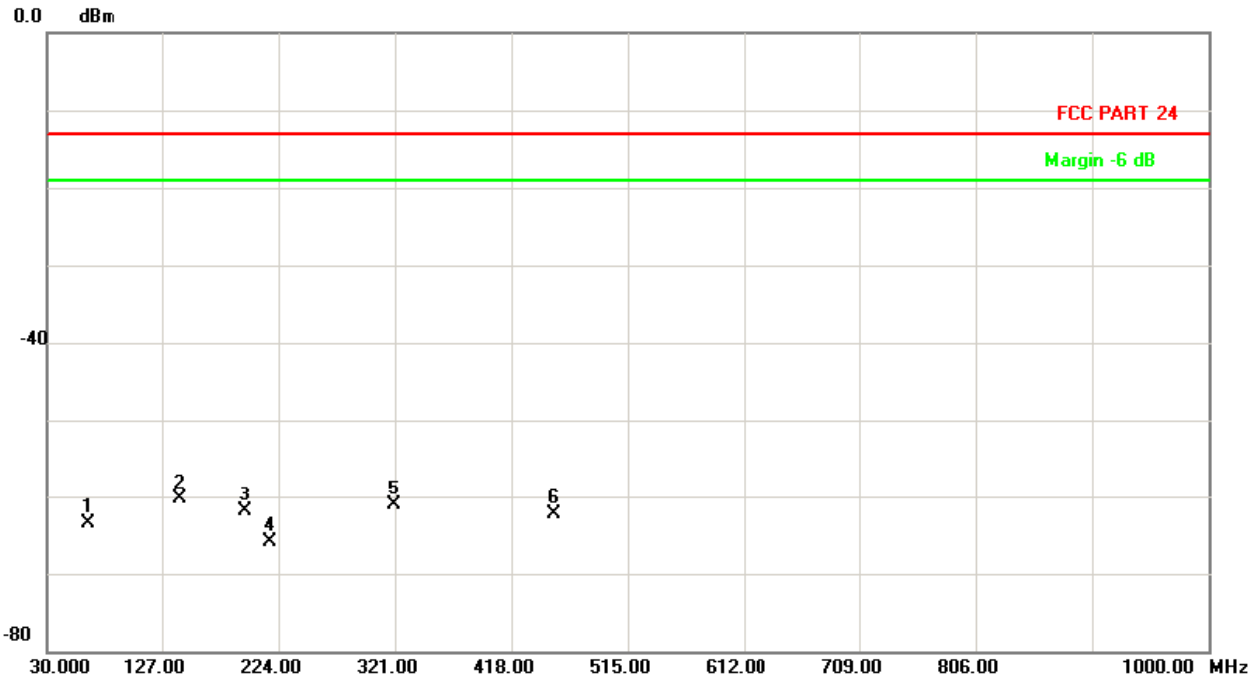
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH661 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS)	Limits	Margins	Note
47.52	H	X	TX	-61.33	-13.00	-48.33	
125.54	H	X	TX	-68.39	-13.00	-55.39	
157.94	H	X	TX	-63.75	-13.00	-50.75	
246.36	H	X	TX	-60.72	-13.00	-47.72	
312.34	H	X	TX	-58.36	-13.00	-45.36	
486.02	H	X	TX	-55.45	-13.00	-42.45	

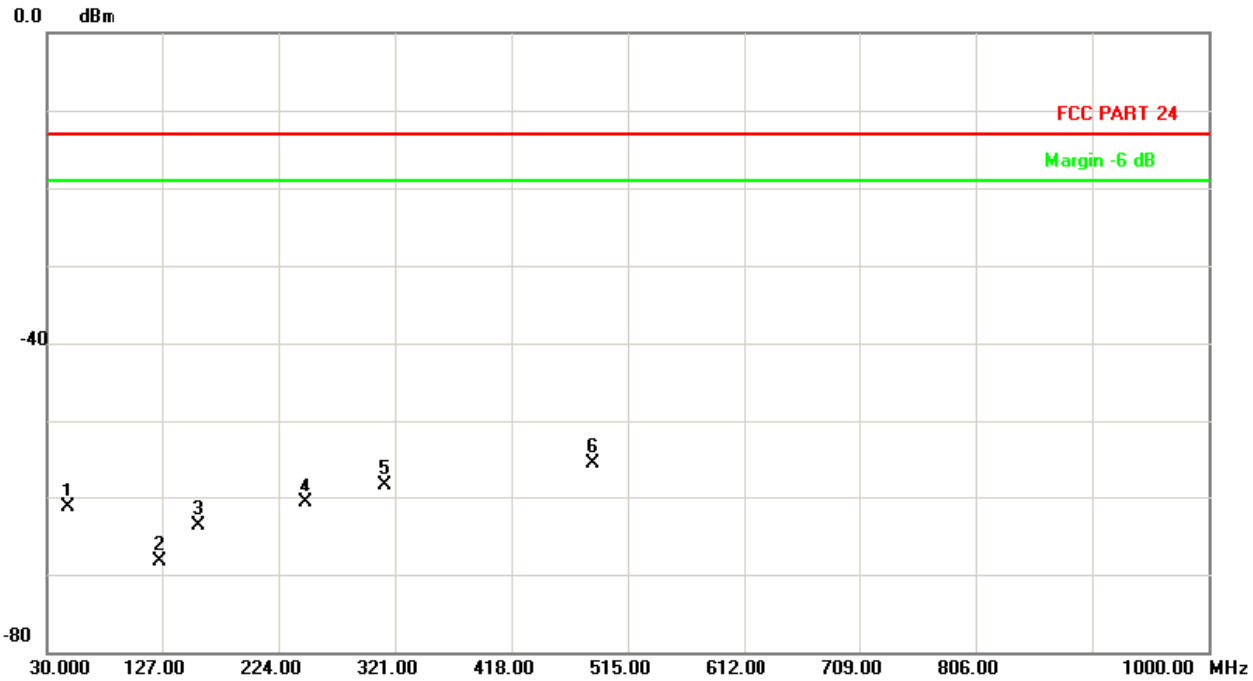
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH810 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
68.75	V	X	TX	-63.40	-13.00	-50.40	
189.28	V	X	TX	-63.32	-13.00	-50.32	
221.67	V	X	TX	-63.88	-13.00	-50.88	
267.18	V	X	TX	-65.89	-13.00	-52.89	
355.57	V	X	TX	-61.14	-13.00	-48.14	
425.36	V	X	TX	-62.33	-13.00	-49.33	

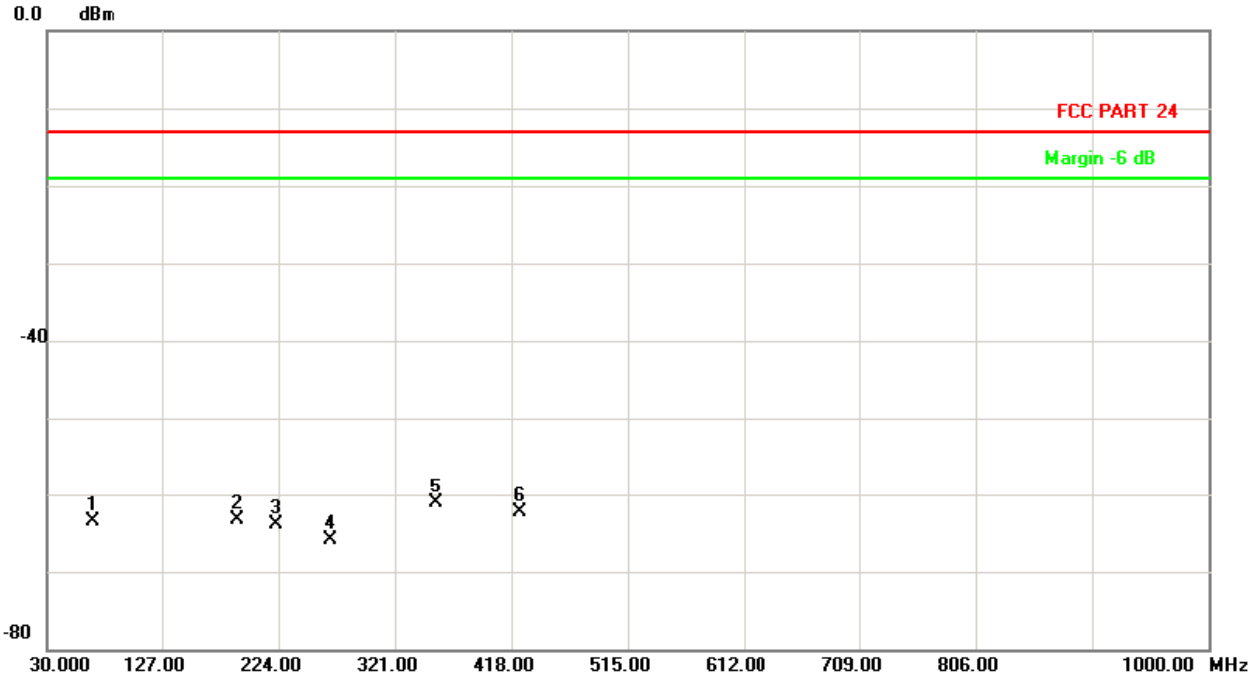
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH810 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS)	Limits	Margins	Note
34.67	H	X	TX	-61.24	-13.00	-48.24	
136.25	H	X	TX	-64.39	-13.00	-51.39	
192.52	H	X	TX	-63.75	-13.00	-50.75	
270.52	H	X	TX	-59.72	-13.00	-46.72	
320.36	H	X	TX	-60.36	-13.00	-47.36	
492.27	H	X	TX	-56.06	-13.00	-43.05	

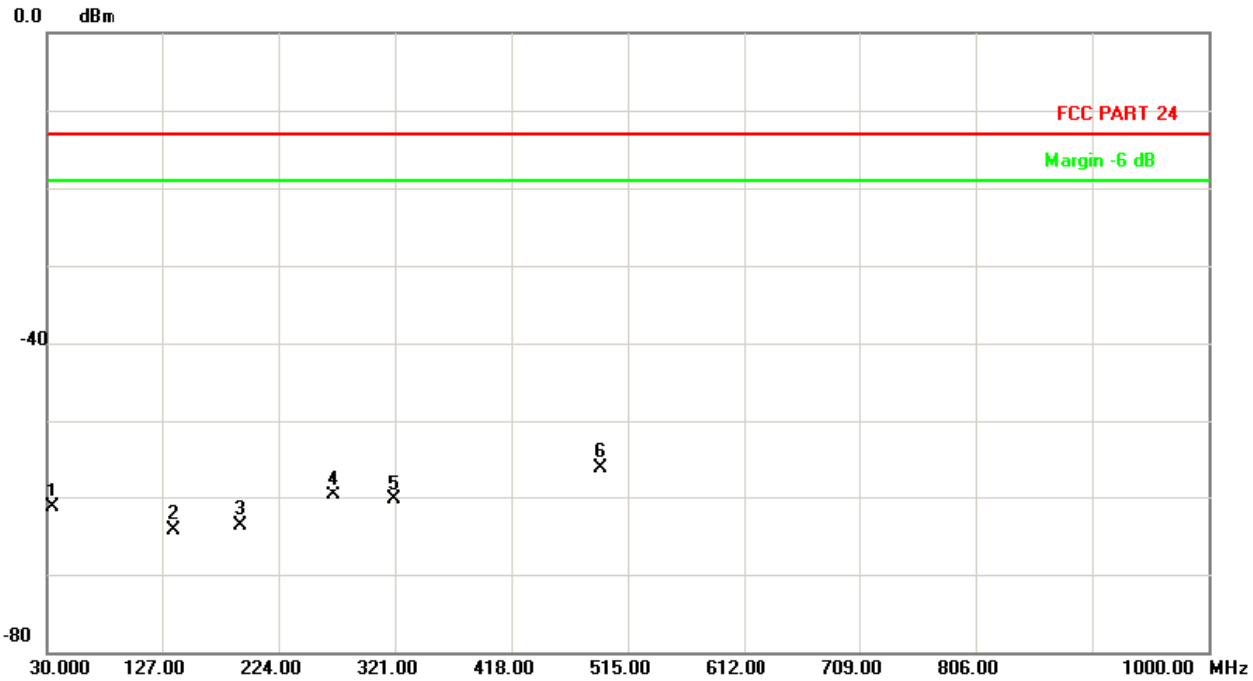
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH512 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
37.76	V	X	TX	-64.40	-13.00	-51.40	
124.09	V	X	TX	-56.32	-13.00	-43.32	
174.53	V	X	TX	-59.88	-13.00	-46.88	
194.90	V	X	TX	-65.89	-13.00	-52.89	
303.54	V	X	TX	-61.14	-13.00	-48.14	
420.91	V	X	TX	-62.33	-13.00	-49.33	

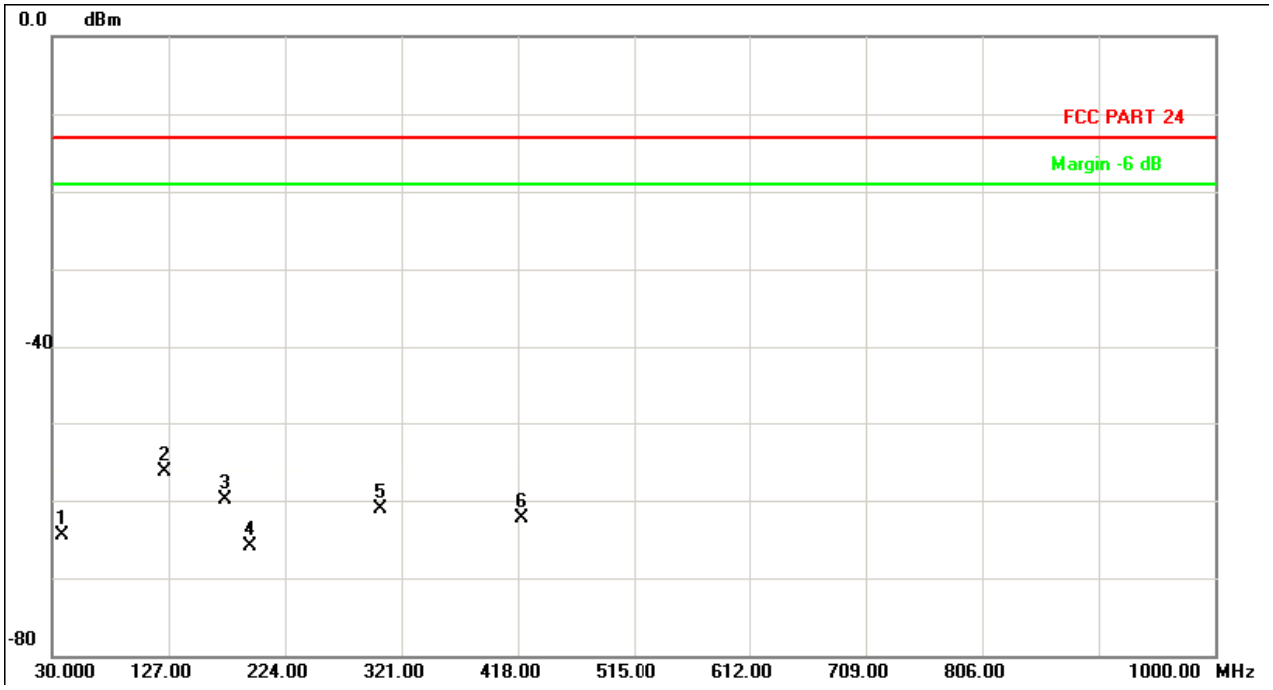
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz ◦

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦

(3) Measuring frequency range from 30MHz to 1000MHz ◦

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table ◦



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH512 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS)	Limits	Margins	Note
38.73	H	X	TX	-60.33	-13.00	-47.33	
91.11	H	X	TX	-68.39	-13.00	-55.39	
168.71	H	X	TX	-63.75	-13.00	-50.75	
287.05	H	X	TX	-60.72	-13.00	-47.72	
309.36	H	X	TX	-60.36	-13.00	-47.36	
463.59	H	X	TX	-56.45	-13.00	-43.45	

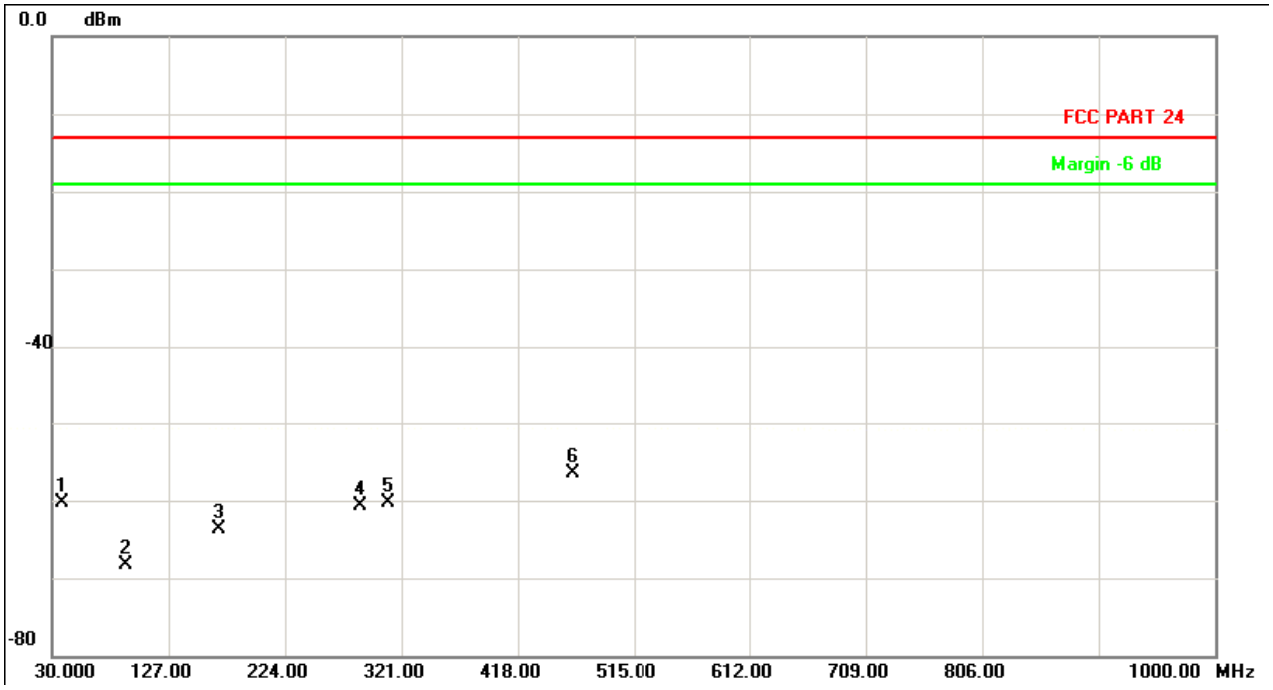
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH661 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
52.63	V	X	TX	-64.40	-13.00	-51.40	
134.24	V	X	TX	-60.32	-13.00	-47.32	
182.34	V	X	TX	-61.88	-13.00	-48.88	
210.35	V	X	TX	-65.89	-13.00	-52.89	
303.54	V	X	TX	-61.14	-13.00	-48.14	
409.12	V	X	TX	-62.33	-13.00	-49.33	

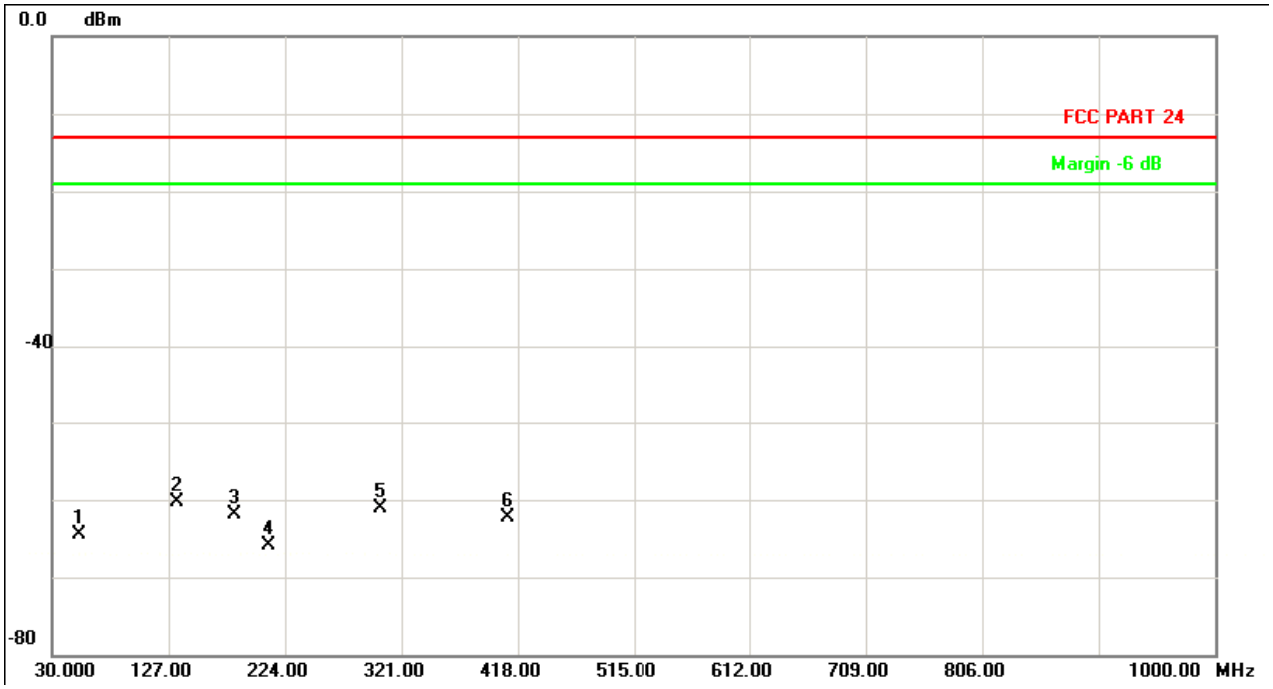
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH661 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS)	Limits	Margins	Note
45.34	H	X	TX	-61.33	-13.00	-48.33	
120.15	H	X	TX	-68.39	-13.00	-55.39	
176.59	H	X	TX	-63.75	-13.00	-50.75	
252.26	H	X	TX	-60.72	-13.00	-47.72	
321.35	H	X	TX	-60.36	-13.00	-47.36	
422.56	H	X	TX	-56.45	-13.00	-43.45	

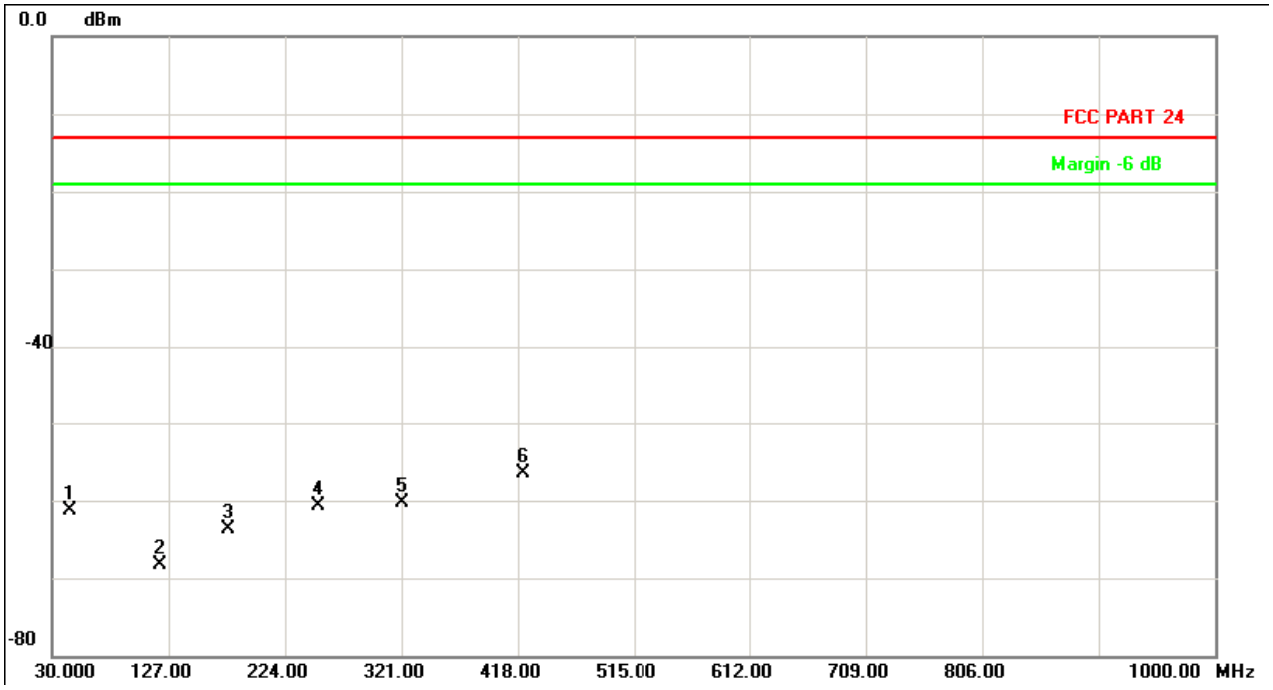
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH810 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
62.72	V	X	TX	-64.40	-13.00	-51.40	
172.32	V	X	TX	-60.32	-13.00	-47.32	
201.54	V	X	TX	-63.88	-13.00	-50.88	
246.16	V	X	TX	-65.89	-13.00	-52.89	
371.56	V	X	TX	-61.14	-13.00	-48.14	
446.29	V	X	TX	-62.33	-13.00	-49.33	

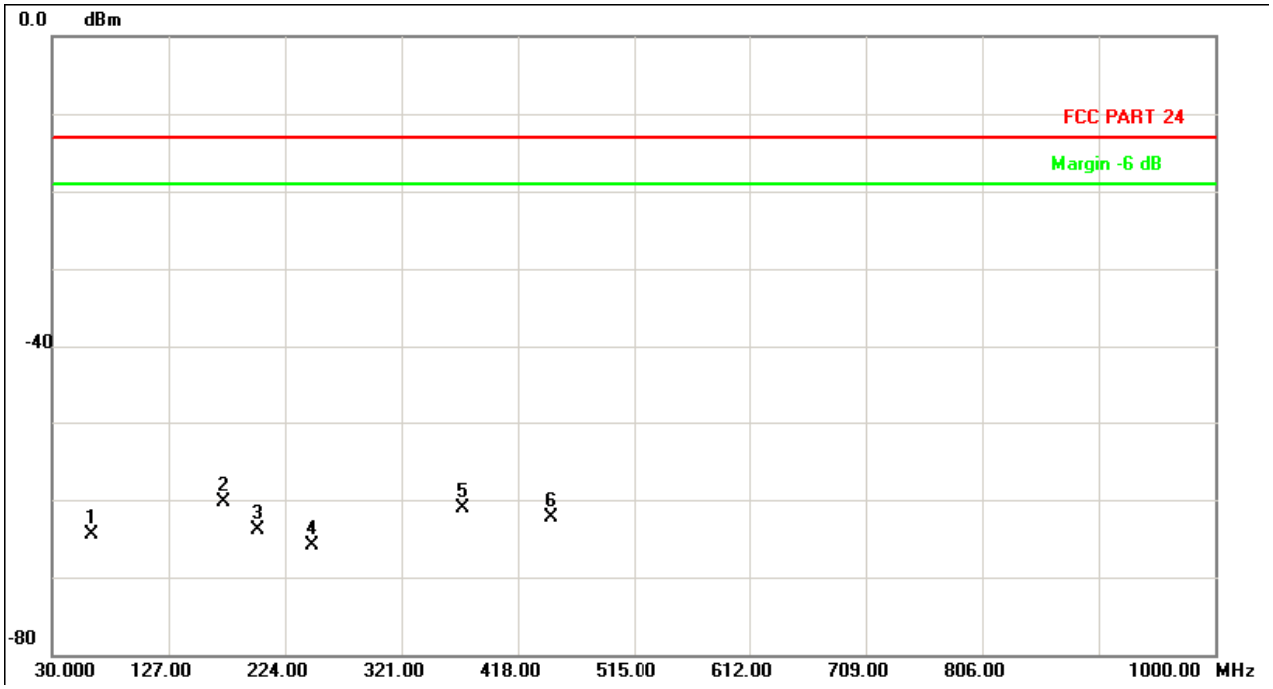
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH810 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS)	Limits	Margins	Note
42.16	H	X	TX	-59.33	-13.00	-46.33	
120.41	H	X	TX	-65.39	-13.00	-52.39	
182.12	H	X	TX	-63.75	-13.00	-50.75	
280.12	H	X	TX	-60.72	-13.00	-47.72	
322.35	H	X	TX	-60.36	-13.00	-47.36	
456.52	H	X	TX	-56.45	-13.00	-43.45	

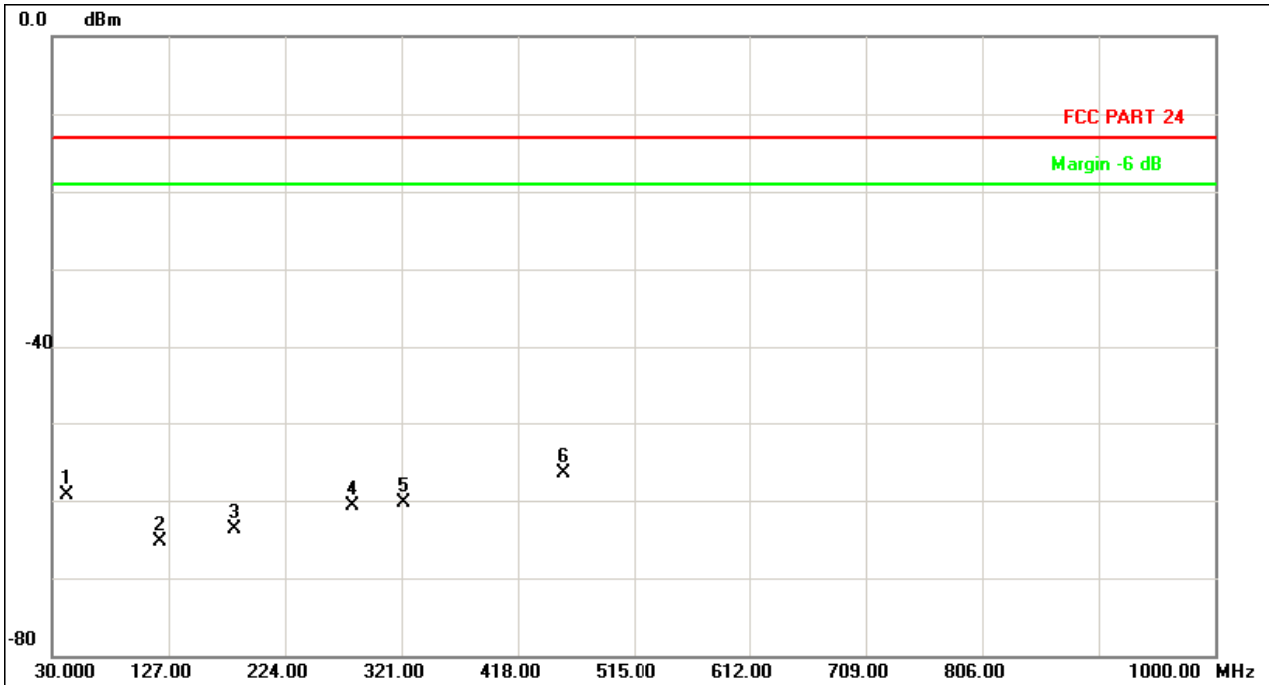
Remark：

(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。



4.4.8 RESULTS OF TRANSMITTER SPURIOUS EMISSIONS ABOVE 1GHZ

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH512 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.775	V	X	TX	-45.04	-13.00	-32.04	

Remark：

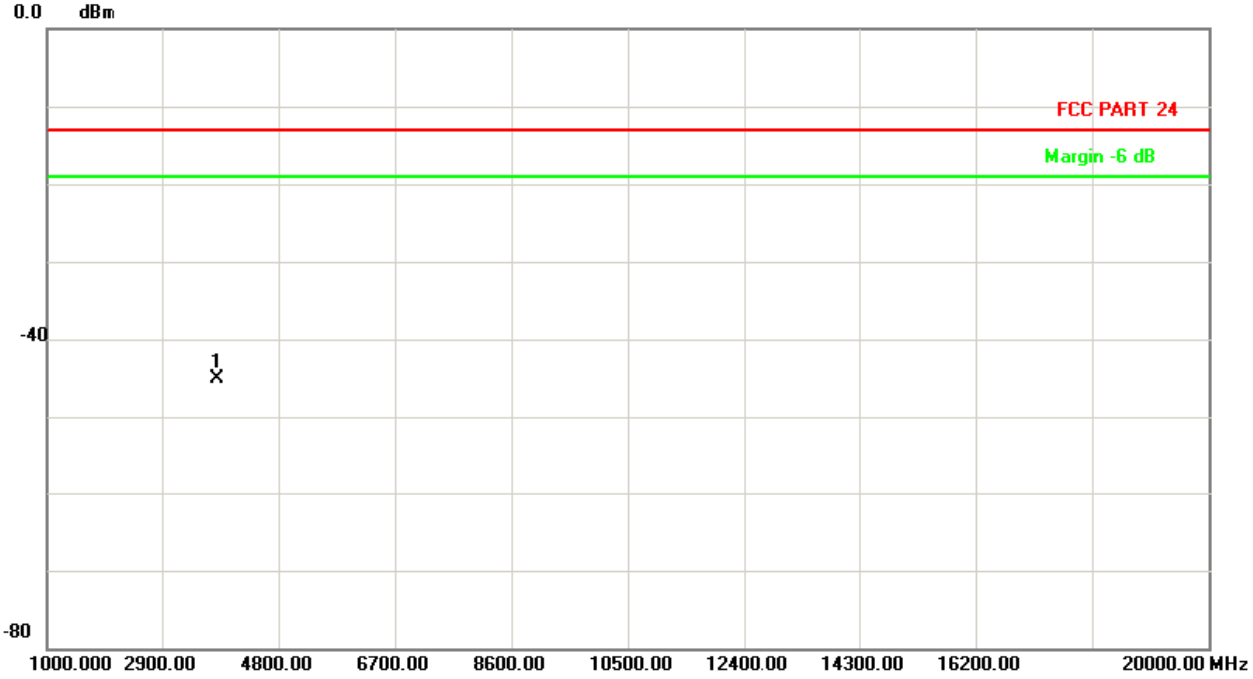
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。

TX CH512(Above 1000 MHz, Vertical)



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH512 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.775	H	X	TX	-41.28	-13.00	-28.28	

Remark：

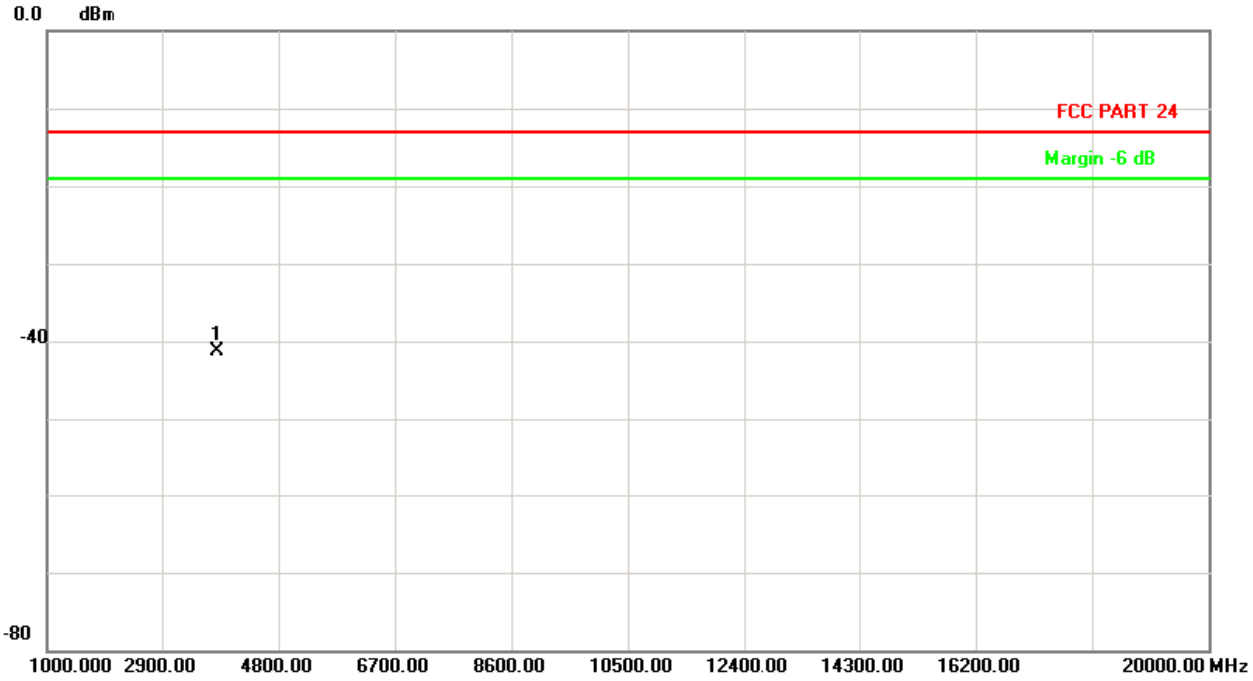
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。

TX CH512(Above 1000 MHz, Horizontal)



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH661 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.775	V	X	TX	-45.04	-13.00	-32.04	

Remark：

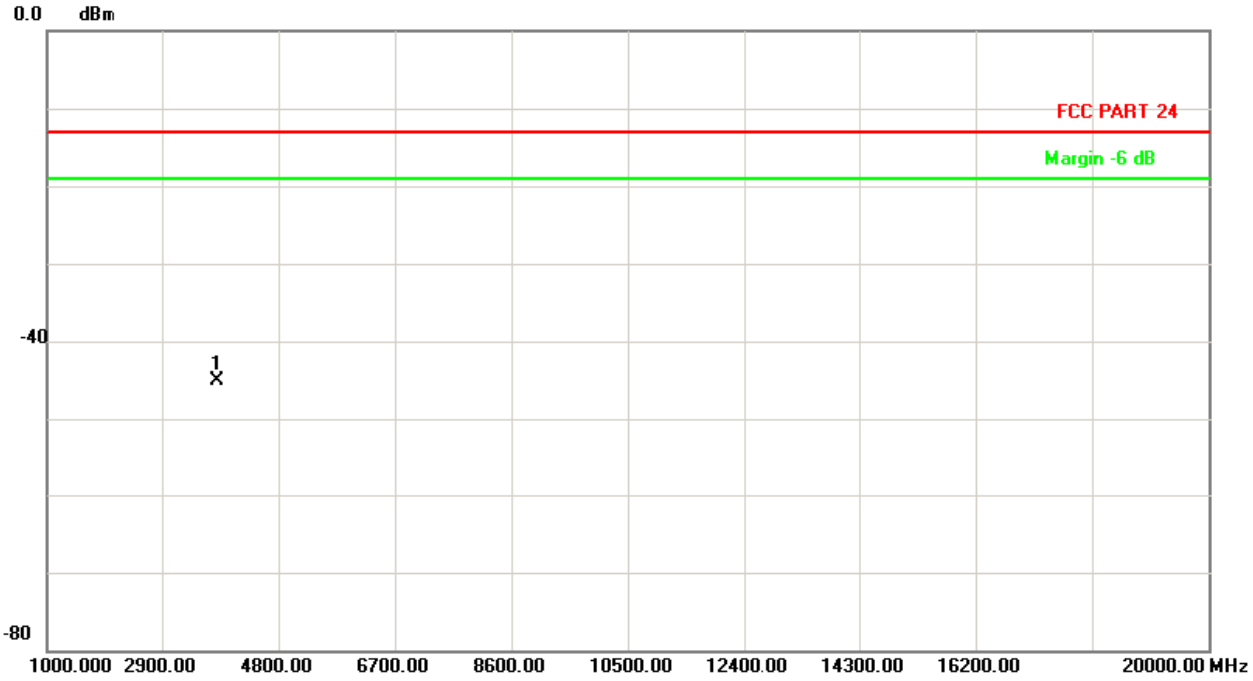
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz ◦

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦

(3) Measuring frequency range from 30MHz to 1000MHz ◦

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table ◦

TX CH661(Above 1000 MHz, Vertical)



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH661 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.775	H	X	TX	-41.28	-13.00	-28.28	

Remark：

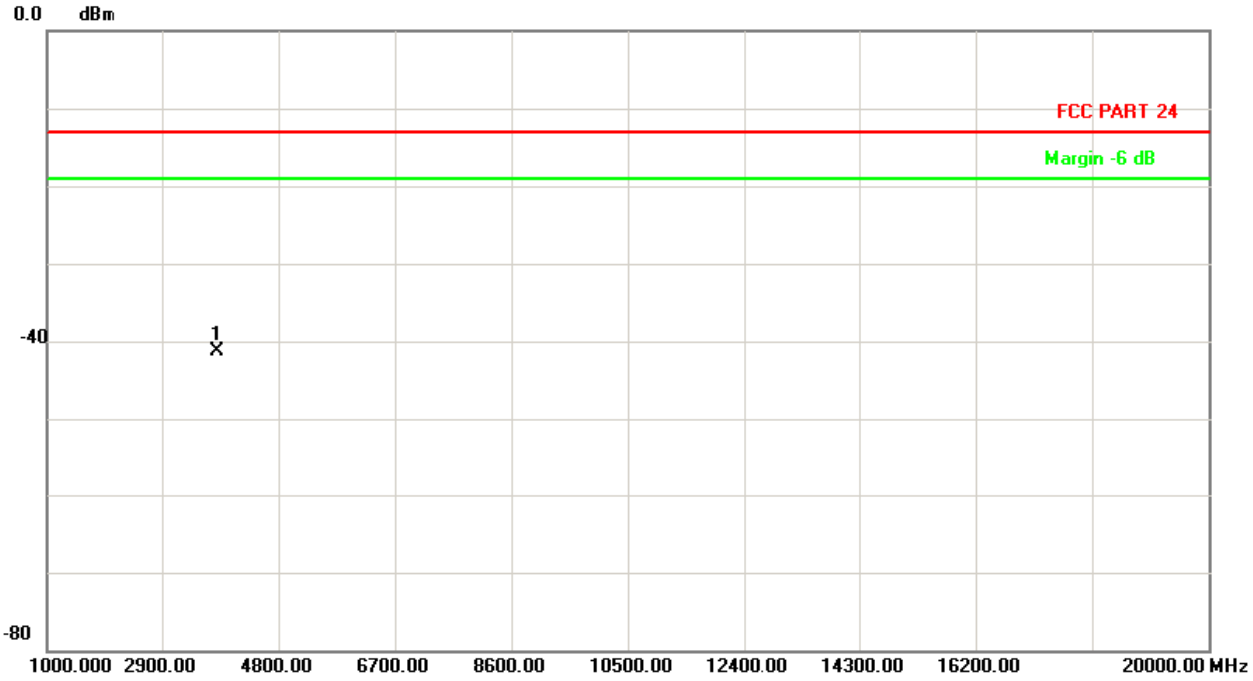
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。

TX CH661(Above 1000 MHz, Horizontal)



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH810 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.775	V	X	TX	-45.04	-13.00	-32.04	

Remark：

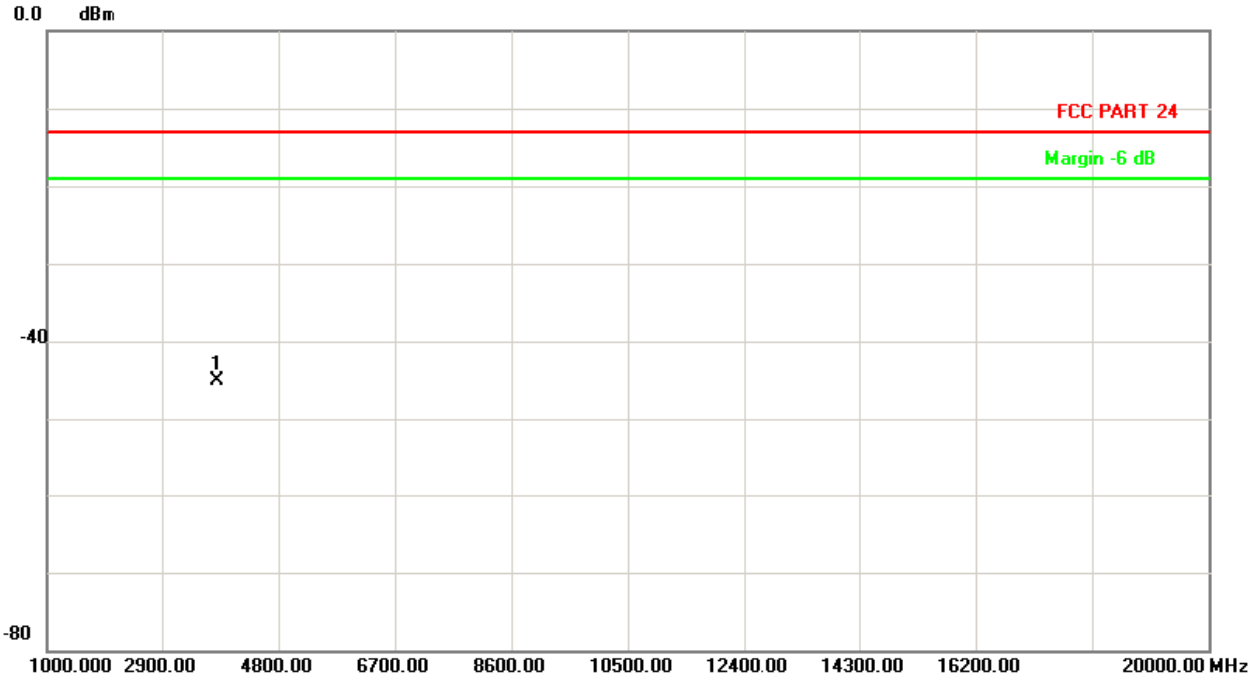
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz ◦

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦

(3) Measuring frequency range from 30MHz to 1000MHz ◦

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table ◦

TX CH810(Above 1000 MHz, Vertical)



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH810 GSM(GMSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.75	H	X	TX	-41.28	-13.00	-28.28	

Remark：

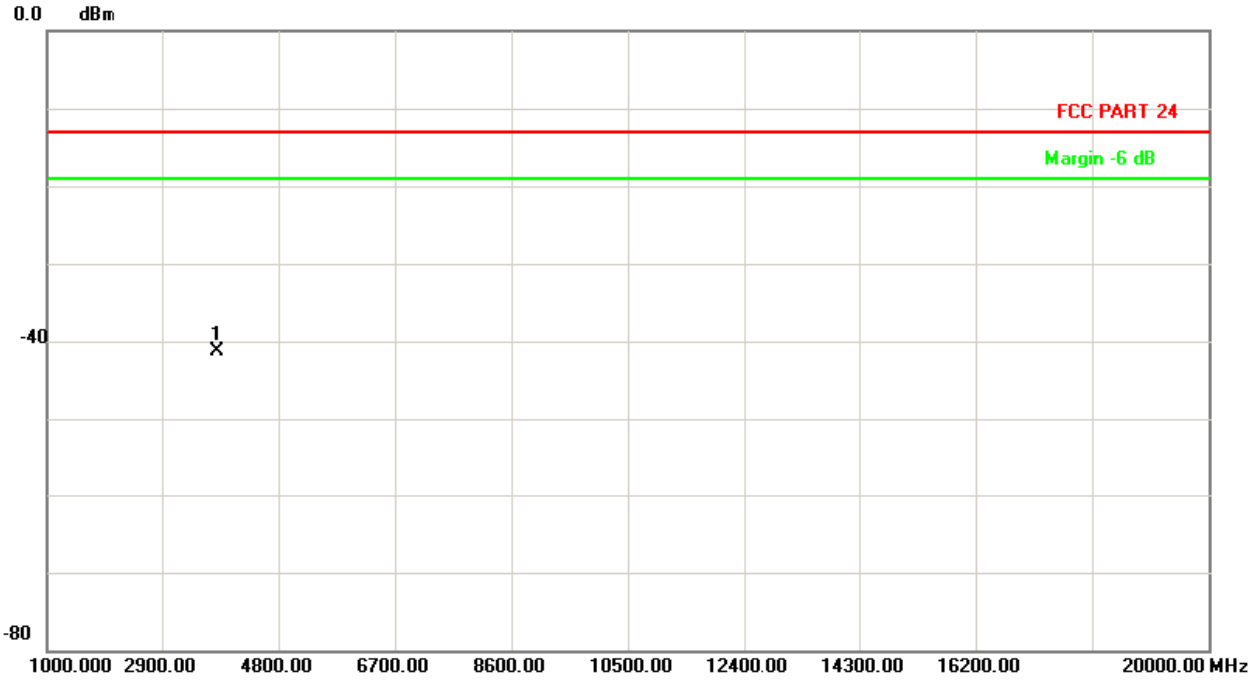
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。

TX CH810(Above 1000 MHz, Horizontal)



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH512 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.775	V	X	TX	-45.04	-13.00	-32.04	

Remark：

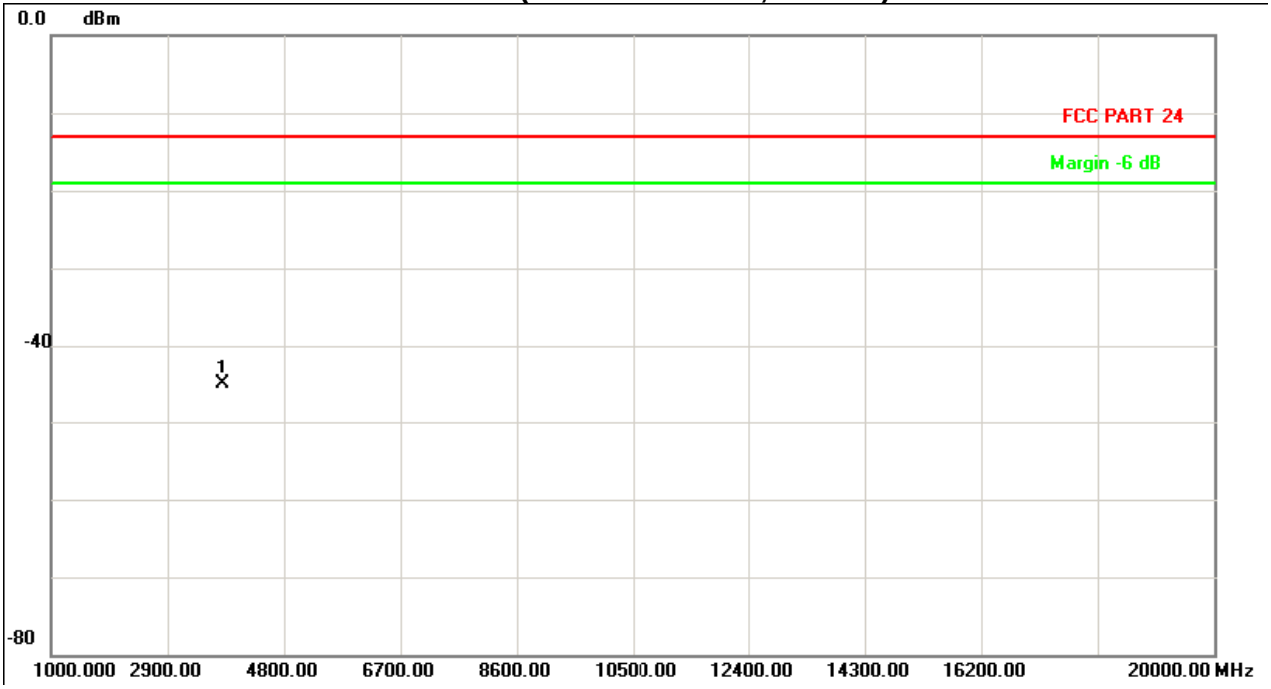
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。

TX CH512(Above 1000 MHz, Vertical)



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH512 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.775	H	X	TX	-41.28	-13.00	-28.28	

Remark：

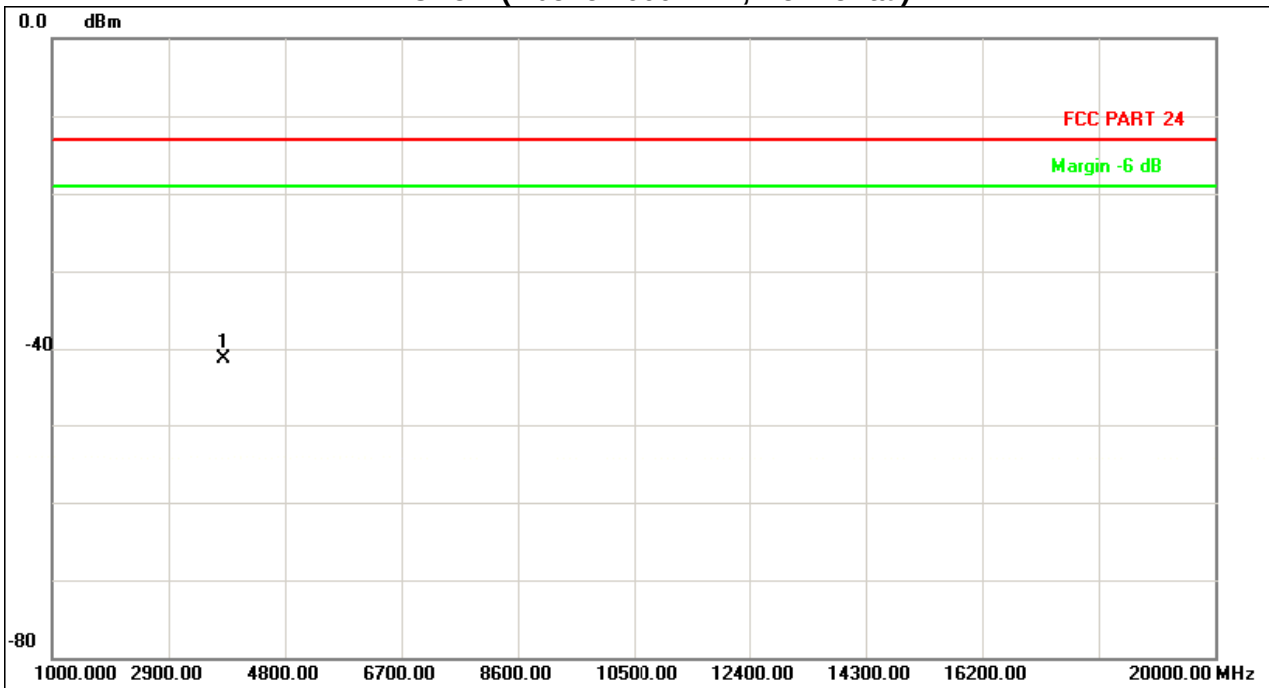
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。

TX CH512(Above 1000 MHz, Horizontal)



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH661 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.775	V	X	TX	-45.04	-13.00	-32.04	

Remark：

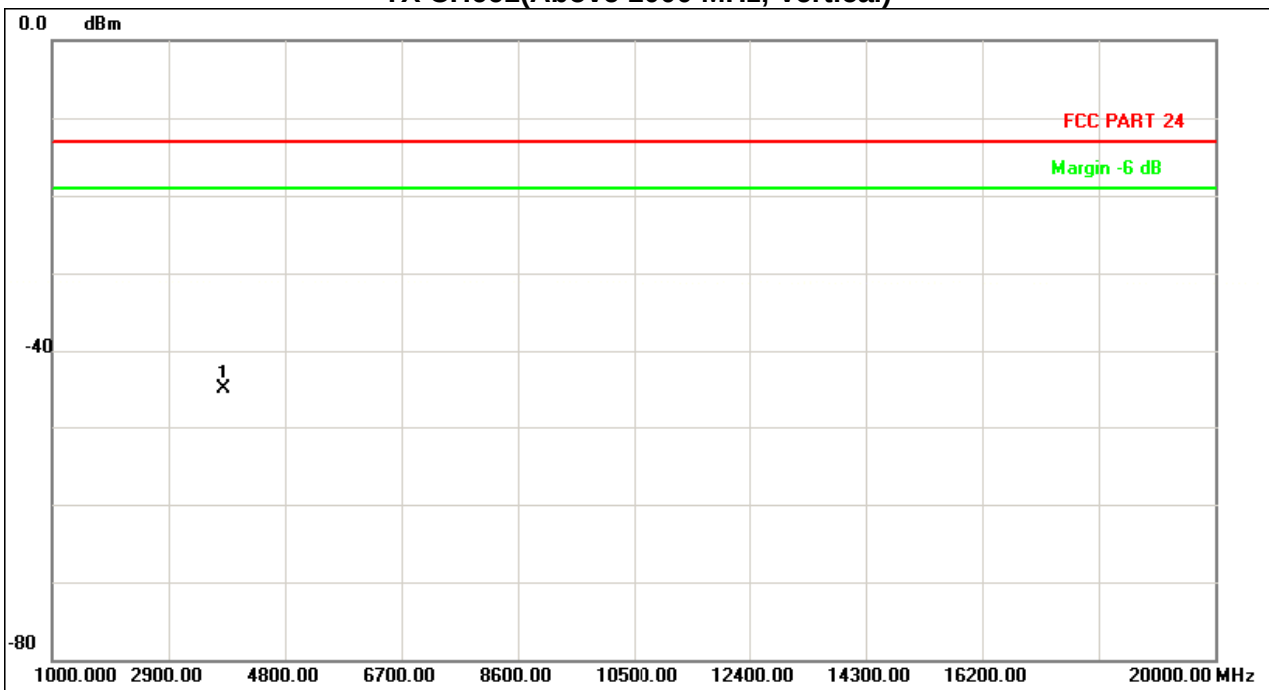
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz ◦

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦

(3) Measuring frequency range from 30MHz to 1000MHz ◦

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table ◦

TX CH661(Above 1000 MHz, Vertical)



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH661 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.775	H	X	TX	-41.28	-13.00	-28.28	

Remark：

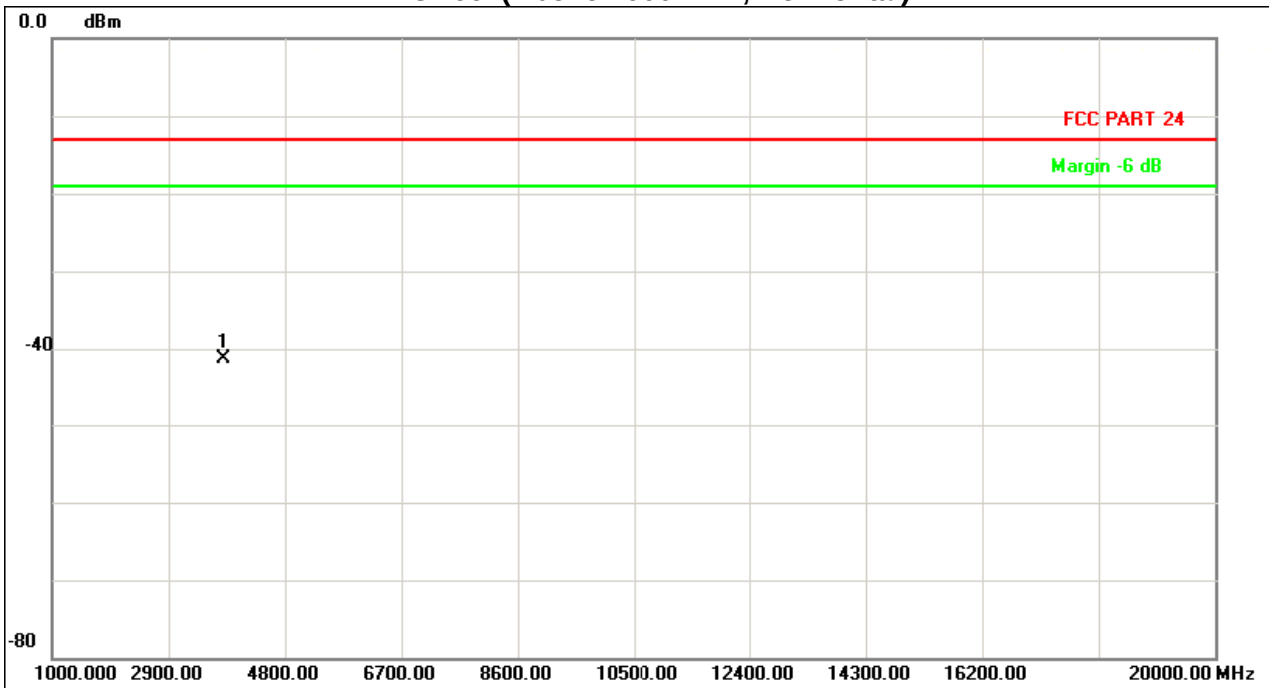
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。

TX CH661(Above 1000 MHz, Horizontal)



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH810 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.775	V	X	TX	-45.04	-13.00	-32.04	

Remark：

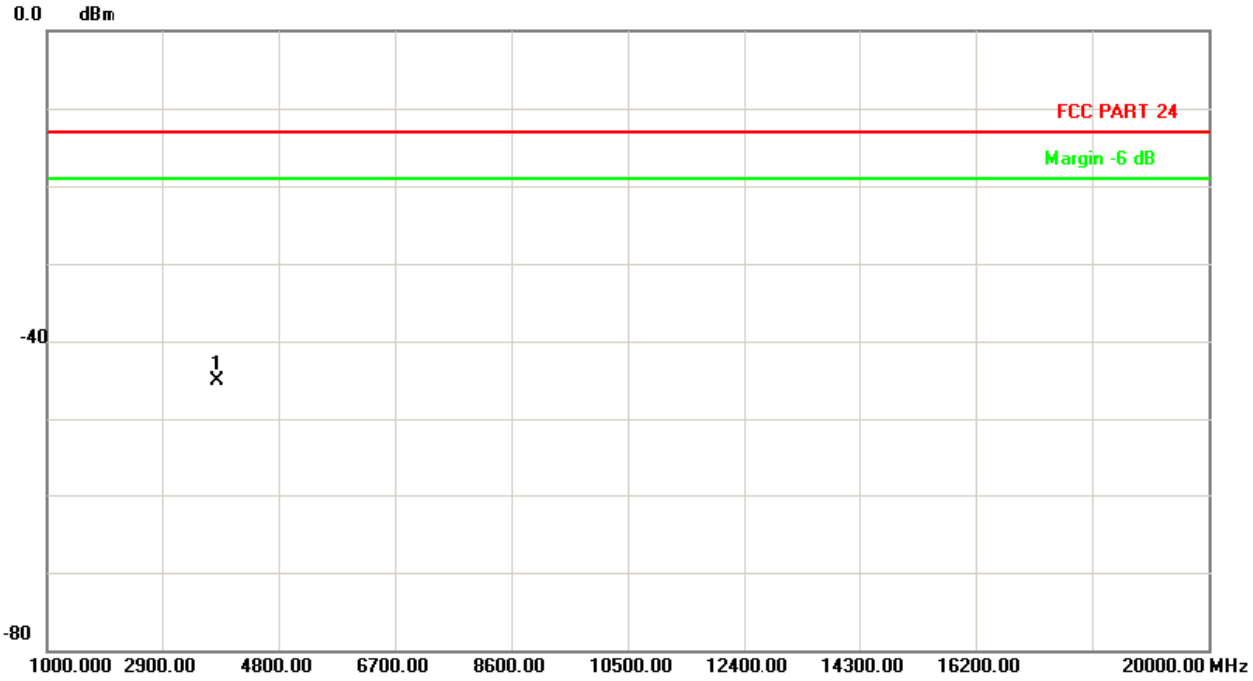
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz ◦

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform ◦

(3) Measuring frequency range from 30MHz to 1000MHz ◦

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table ◦

TX CH810(Above 1000 MHz, Vertical)



EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH810 EGPRS(8PSK)		

Frequency (MHz)	Ant H / V	EUT Axis (X/Y/Z)	TX/RX	Measured(FS) (dBm)	Limits (dBm)	Margins	Note
3809.75	H	X	TX	-41.28	-13.00	-28.28	

Remark：

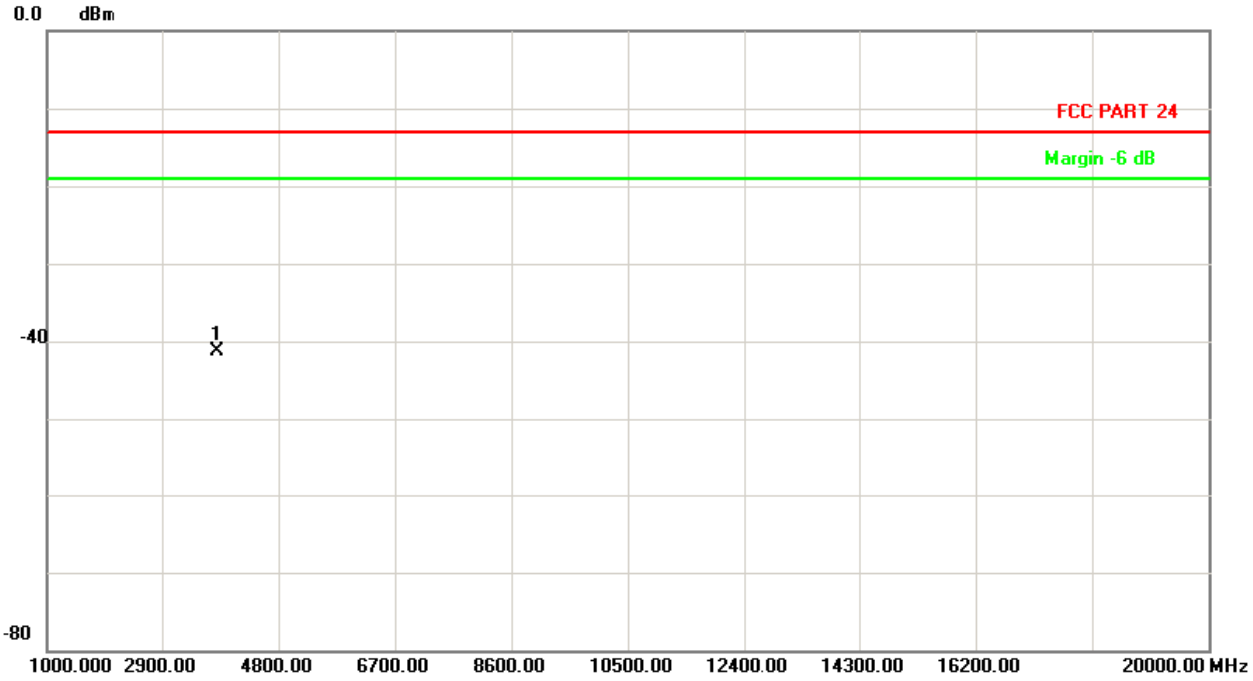
(1) Reading in which marked as Peak means measurements by using is Peak Mode with Detector SPA setting in RBW=1MHz, VBW =1MHz, Swp. Time = 0.3 sec./MHz。

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz。

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table。

TX CH810(Above 1000 MHz, Horizontal)



4.5 BAND EDGE MEASUREMENT

4.5.1 LIMIT

The PCS frequency bands refer to the FCC 24.229 rule. According to FCC 24.238(b) specified that power of any emission outside of the authorized operating frequency rangesmust be attenuated below the transmitting power (P) by a factor of at least 43 +10 log(P) dB . In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. Then we measure that the bandwidth is about 300kHz and the resolution bandwidth is 3kHz.

4.5.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	5 MHz
RB / VB	10 kHz /30 kHz
Trace	Sample
Sweep Time	Auto

4.5.3 TEST PROCEDURES

1. The EUT was set up for the maximum peak power with GSM/EGPRS link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels, 512 and 810(low and high operational frequency range.)
2. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. The splitter loss and cable loss are the worst loss 4dB in the transmitted path track.
3. The center frequency of spectrum is the band edge frequency and span is 5 MHz. RB of the spectrum is 10kHz and VB of the spectrum is 30KHz.
4. Record the Sample trace plot into the test report.

4.5.4 TEST SETUP LAYOUT

This test setup layout is the same as that shown in section 4.2.4.

4.5.5 TEST DEVIATION

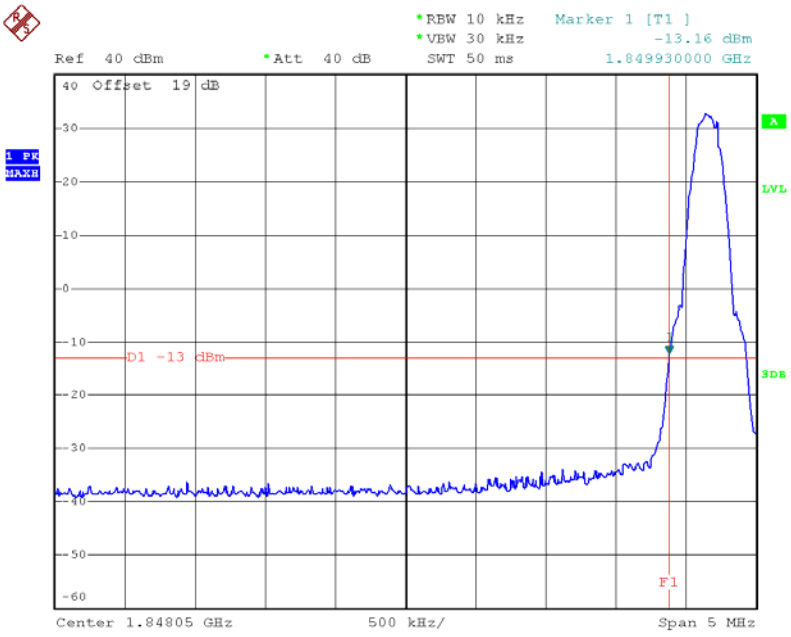
There is no deviation with the original standard.

4.5.6 EUT OPERATION DURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

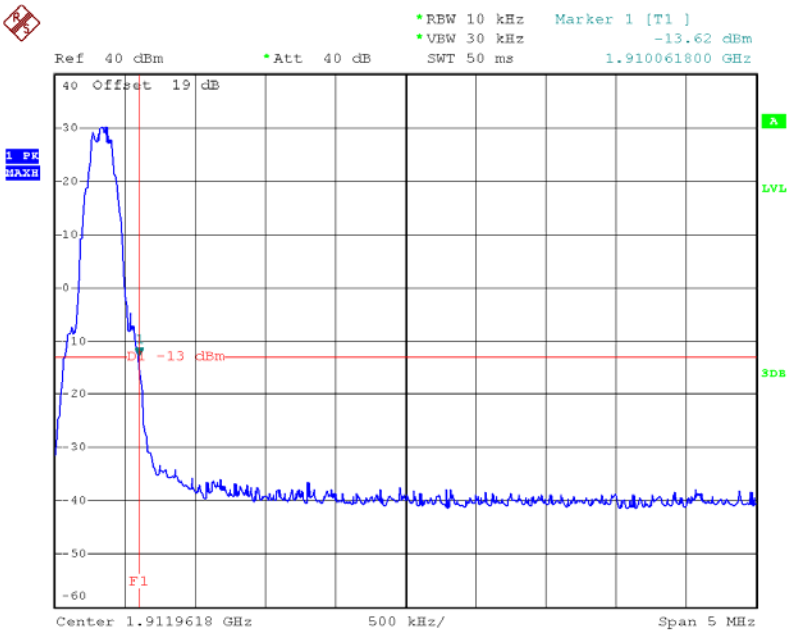
4.5.7 TEST RESULTS OF BAND EDGE

Band Edge on Configuration GSM(GMSK) / Channel 512-CONDUCTED MODE



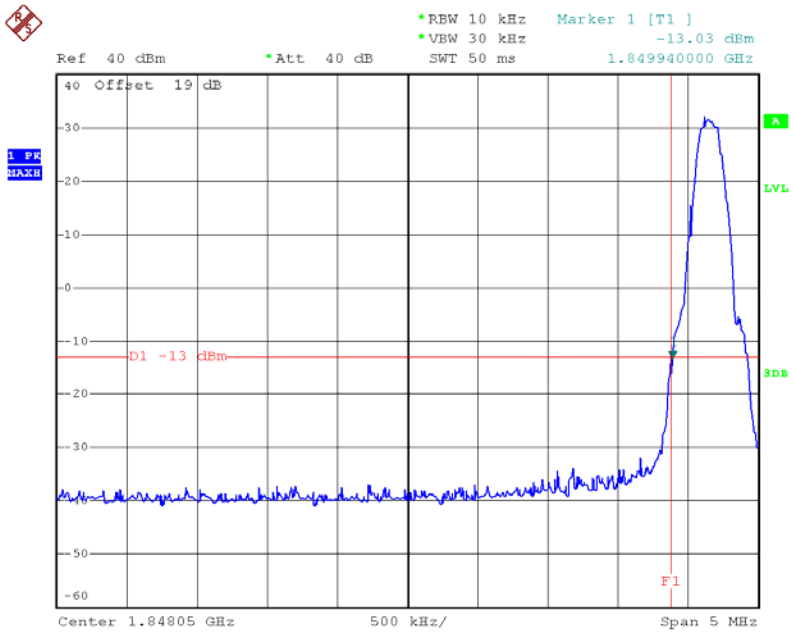
Date: 13.MAY.2012 15:35:03

Band Edge on Configuration GSM(GMSK) / Channel 810CONDUCTED MODE



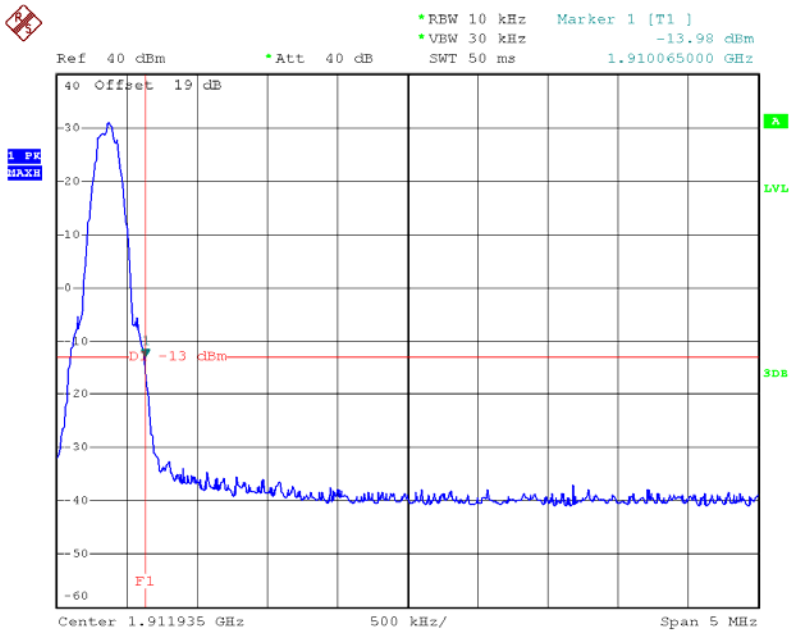
Date: 13.MAY.2012 15:42:46

Band Edge on Configuration EGPRS(8PSK) / Channel 512-CONDUCTED MODE



Date: 13.MAY.2012 16:09:52

Band Edge on Configuration EGPRS(8PSK) / Channel 810CONDUCTED MODE



Date: 13.MAY.2012 15:28:54

4.6 FREQUENCY STABILITY MEASUREMENT

4.6.1 LIMIT

According to the FCC part 2.4235 shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The frequency error rate is according to the JTC standard that the frequency error rate shall be accurate to within 0.1 ppm of the received frequency from the base station. The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with the 2.1055(a)(1) –30℃~50℃.

4.6.2 MEASURING INSTRUMENTS AND SETTING

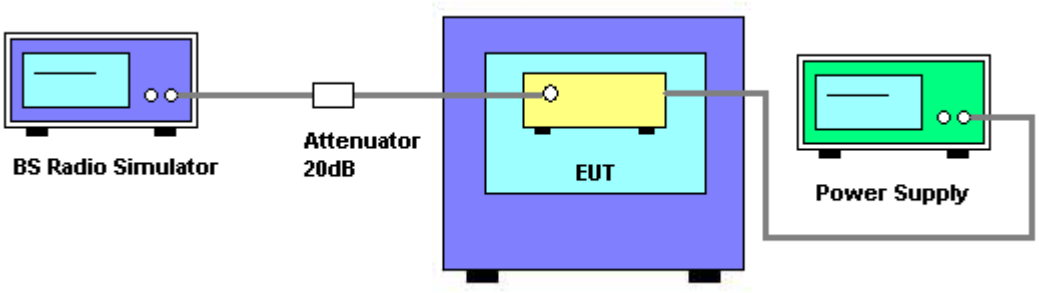
Please refer to section 5 in this report. The following table is the setting of the BS Simulator.

Spectrum Parameters	Setting
Frequency Error	The maximum of transmit frequency error

4.6.3 TEST PROCEDURES

1. The transmitter output (antenna port) was connected to the BS Simulator.
2. The BS simulator was used to set the TX channel and power level and modulate the TX signal with different bit patterns.
3. BS simulator used the frequency error function and measured the peak frequency error. Power must be removed when changing from one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error.
   The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.
4. EUT is connected the external power supply to control the DC input power. The various Volts from the minimum 3.1 Volts to 4.3 Volts. Each step shall be record the frequency error rate.
5. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
6. Extreme temperature rule is -30°C~50°C.

4.6.4 TEST SETUP LAYOUT



4.6.5 TEST DEVIATION

There is no deviation with the original standard.

4.6.6 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously un-modulation transmitting mode.

4.6.7 RESULTS OF FREQUENCY STABILITY

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH512 GSM(GMSK)		

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.2	15	0.008107232	0.1
3.3	13	0.007026267	0.1
3.4	13	0.007026267	0.1
3.5	11	0.005945303	0.1
3.6	10	0.005404821	0.1
3.7	14	0.00756675	0.1
3.8	12	0.006485785	0.1
3.9	14	0.00756675	0.1
4	15	0.008107232	0.1
4.1	13	0.007026267	0.1
4.2	**21**	**0.011350124**	**0.1**
Max. Deviation (ppm)	**21**	**0.011350124**	**0.1**

Temperature vs. Frequency Stability

Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
50	**18**	**0.009728678**	**0.1**
40	18	0.009728678	0.1
30	15	0.008107232	0.1
20	10	0.005404821	0.1
10	16	0.008647714	0.1
0	16	0.008647714	0.1
-10	15	0.008107232	0.1
-20	15	0.008107232	0.1
-30	14	0.00756675	0.1
Max. Deviation (ppm)	**18**	**0.009728678**	**0.1**

EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1010 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX CH 512 EGPRS(8PSK)		

Voltage vs. Frequency Stability

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
3.2	14	0.00756675	0.1
3.3	13	0.007026267	0.1
3.4	12	0.006485785	0.1
3.5	11	0.005945303	0.1
3.6	10	0.005404821	0.1
3.7	14	0.00756675	0.1
3.8	14	0.00756675	0.1
3.9	14	0.00756675	0.1
4	16	0.008647714	0.1
4.1	13	0.007026267	0.1
4.2	**23**	**0.012431089**	**0.1**
Max. Deviation (ppm)	**23**	**0.012431089**	**0.1**

Temperature vs. Frequency Stability

Temperature(℃)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
50	18	0.009728678	0.1
40	**19**	**0.01026916**	**0.1**
30	17	0.009188196	0.1
20	10	0.005404821	0.1
10	17	0.009188196	0.1
0	16	0.008647714	0.1
-10	14	0.00756675	0.1
-20	15	0.008107232	0.1
-30	13	0.007026267	0.1
Max. Deviation (ppm)	**19**	**0.01026916**	**0.1**

4.8 CONDUCTED EMISSION MEASUREMENT

4.8.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.8.2 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00052765	May.25.2012
2	LISN	R&S	ENV216	100087	May.25.2012
3	Test Cable	N/A	C_17	N/A	Mar.29.2013
4	EMI TEST RECEIVER	R&S	ESCS30	8333641017	May.26.2012
5	50Ω Terminator	SHX	TF2-3G-A	08122902	May.25.2012

Remark: ” N/A” denotes No Model Name. , Serial No. or No Calibration specified.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

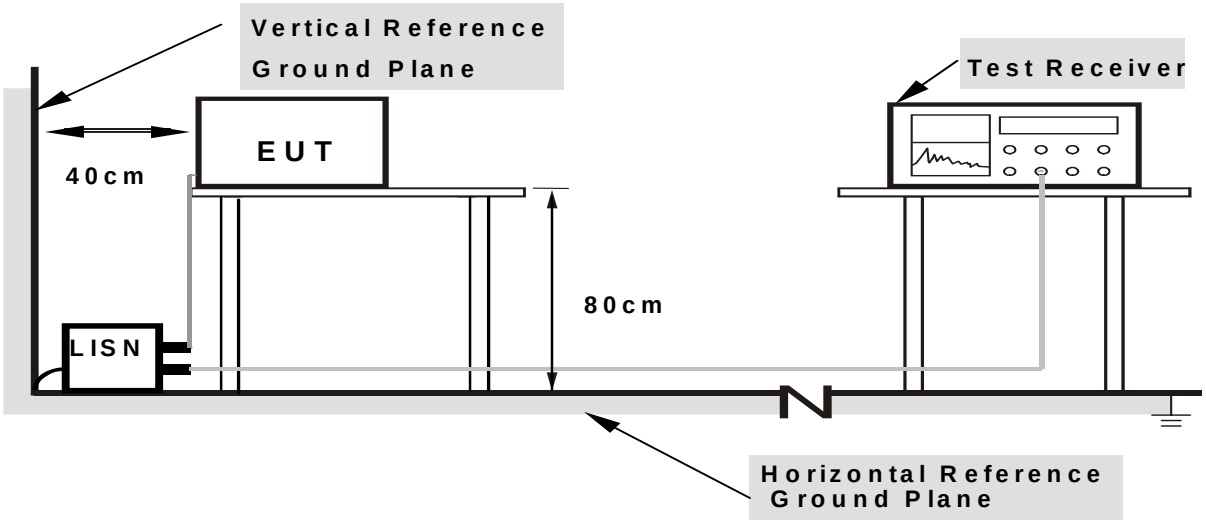
4.8.3 TEST PROCEDURE

a. 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.
b. 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.
c. 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.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.8.4 DEVIATION FROM TEST STANDARD

No deviation

4.8.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.8.6 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.8.7 TEST RESULTS

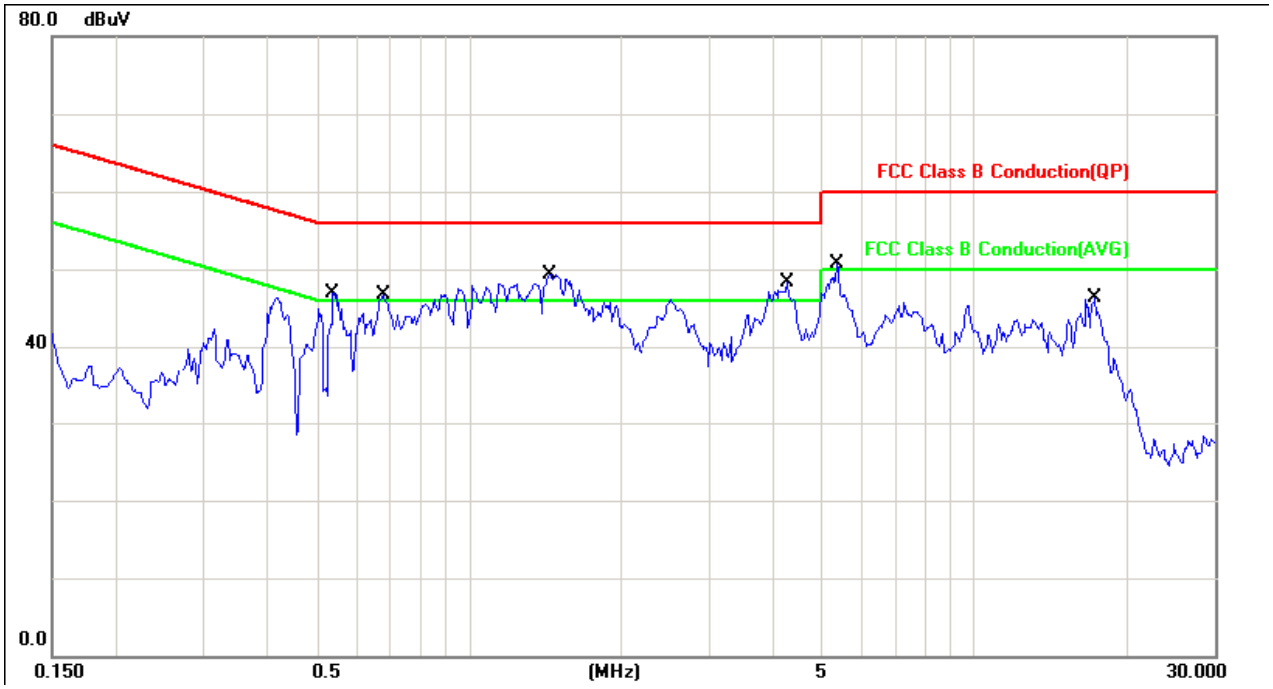
EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1008hPa	Test Voltage ：	AC 120V/60Hz
Test Mode：	Mode 1 - GSM		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.54	Line	44.92	32.28	56.00	46.00	-11.08	(AV)
0.68	Line	43.27	31.59	56.00	46.00	-12.73	(QP)
1.44	Line	46.27	35.79	56.00	46.00	-9.73	(QP)
4.30	Line	43.18	34.18	56.00	46.00	-11.82	(AV)
5.31	Line	44.20	35.20	60.00	50.00	-14.80	(AV)
17.43	Line	44.33	22.24	60.00	50.00	-15.67	(QP)

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ◦ In this case, a " * " marked in AVG Mode column of Interference Voltage Measured ◦

(2) Measuring frequency range from 150KHz to 30MHz ◦



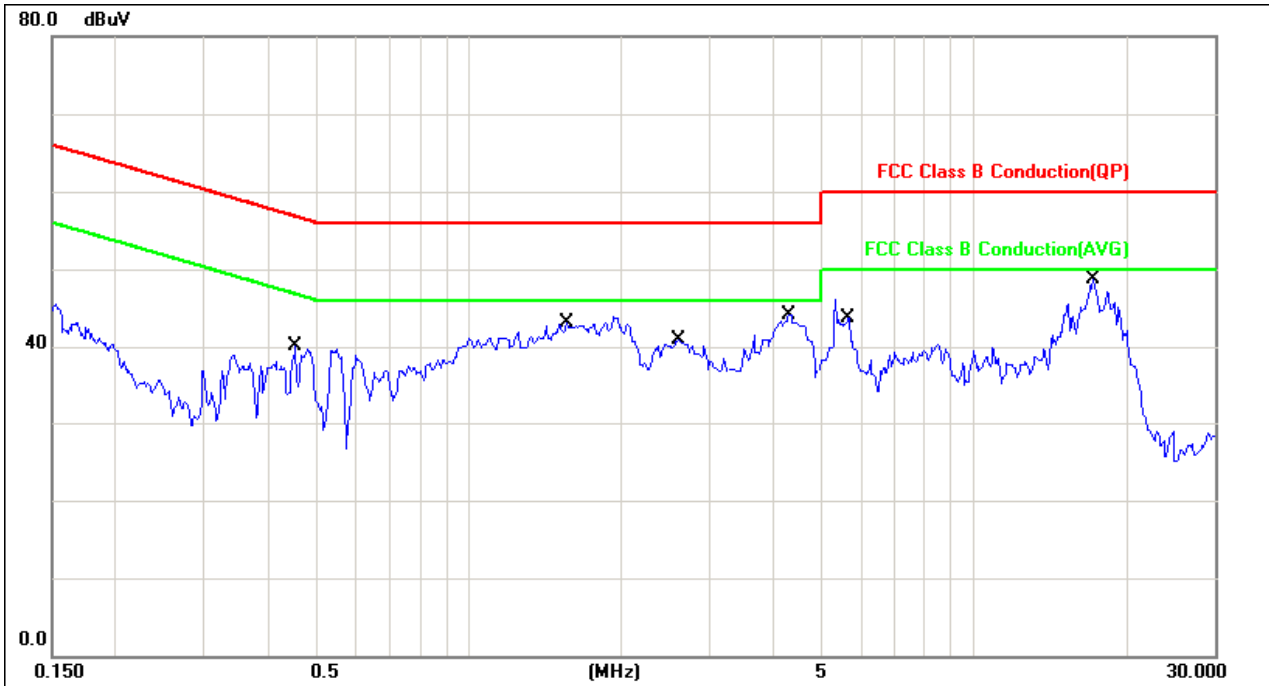
EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1008hPa	Test Voltage ：	AC 120V/60Hz
Test Mode：	Mode 1 - GSM		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.45	Neutral	38.02	25.13	56.79	46.79	-18.77	(AV)
1.56	Neutral	39.94	30.03	56.00	46.00	-15.97	(AV)
2.62	Neutral	38.22	28.52	56.00	46.00	-17.48	(AV)
4.32	Neutral	42.40	33.84	56.00	46.00	-12.16	(AV)
5.68	Neutral	42.75	33.64	60.00	50.00	-16.36	(AV)
17.02	Neutral	33.43	24.03	60.00	50.00	-25.97	(AV)

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ◦ In this case, a " * " marked in AVG Mode column of Interference Voltage Measured ◦

(2) Measuring frequency range from 150KHz to 30MHz ◦



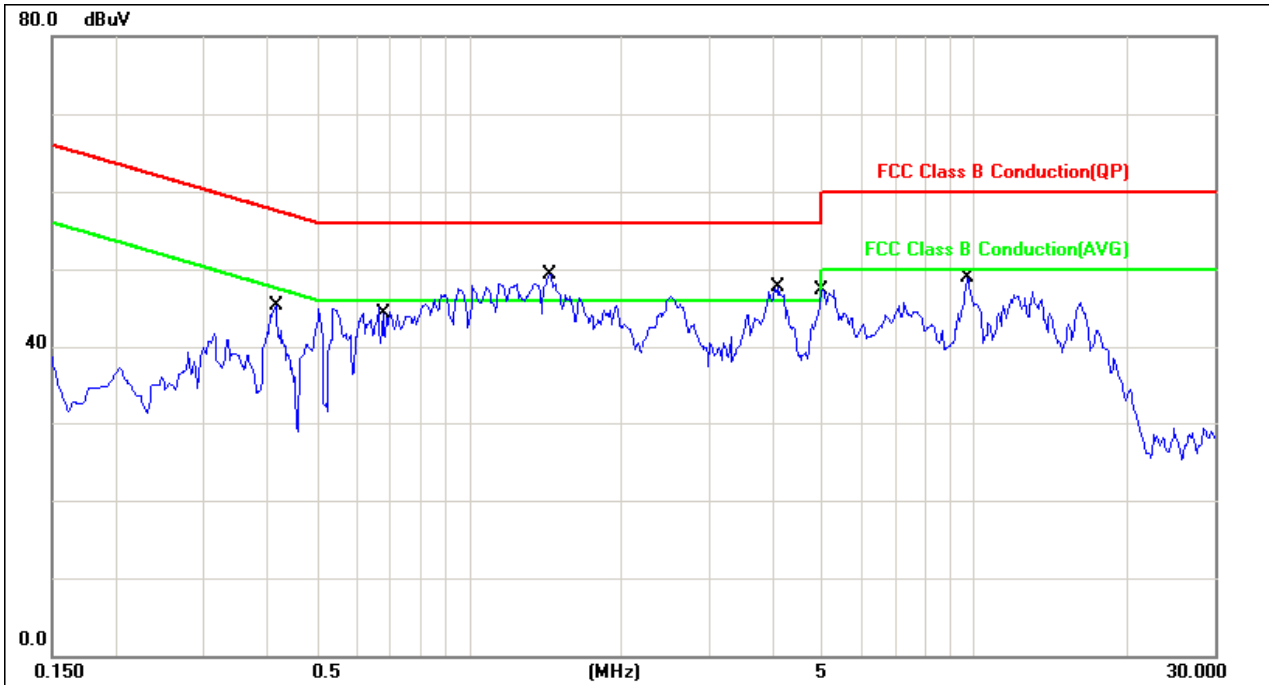
EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1008hPa	Test Voltage ：	AC 120V/60Hz
Test Mode：	Mode 2 – GSM+Bluetooth		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.42	Line	43.53	32.28	57.54	47.54	-14.01	(AV)
0.68	Line	42.49	31.59	56.00	46.00	-13.51	(QP)
1.44	Line	44.28	32.79	56.00	46.00	-11.72	(QP)
4.12	Line	43.73	32.18	56.00	46.00	-12.27	(QP)
5.02	Line	45.38	35.20	60.00	50.00	-14.62	(QP)
9.72	Line	42.85	27.24	60.00	50.00	-17.15	(QP)

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ◦ In this case, a " * " marked in AVG Mode column of Interference Voltage Measured ◦

(2) Measuring frequency range from 150KHz to 30MHz ◦



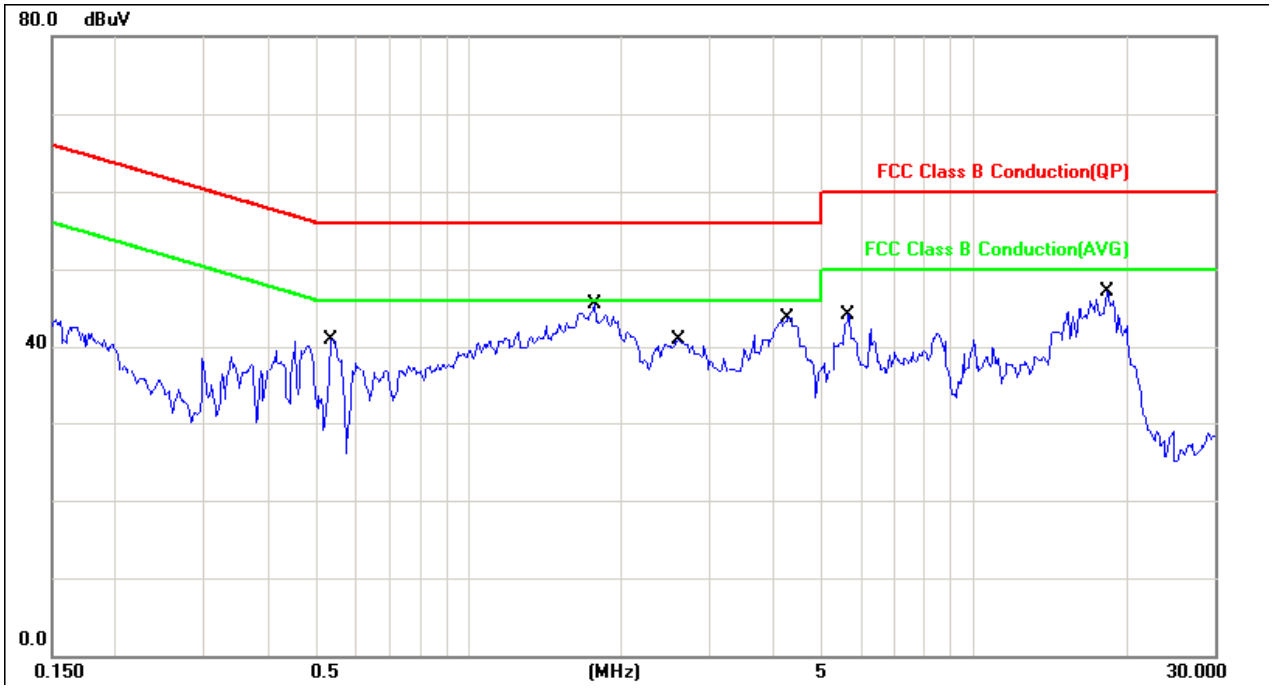
EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1008hPa	Test Voltage ：	AC 120V/60Hz
Test Mode：	Mode 2 – GSM+Bluetooth		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.53	Neutral	37.96	25.13	56.00	46.00	-18.04	(AV)
1.78	Neutral	42.45	30.49	56.00	46.00	-13.55	(QP)
2.62	Neutral	38.22	28.52	56.00	46.00	-17.48	(AV)
4.32	Neutral	42.40	30.96	56.00	46.00	-13.60	(QP)
5.68	Neutral	42.75	33.64	60.00	50.00	-16.36	(AV)
18.42	Neutral	43.02	26.03	60.00	50.00	-16.98	(QP)

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ◦ In this case, a " * " marked in AVG Mode column of Interference Voltage Measured ◦

(2) Measuring frequency range from 150KHz to 30MHz ◦



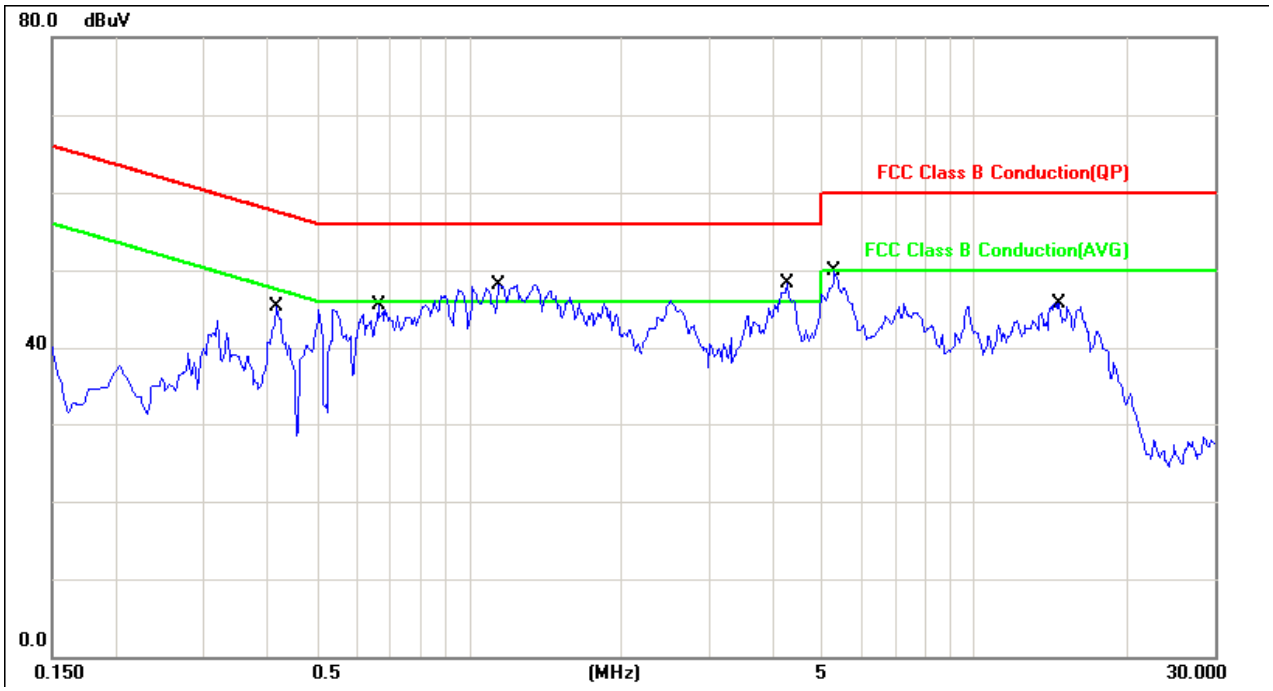
EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1008hPa	Test Voltage ：	AC 120V/60Hz
Test Mode：	Mode 3 – GSM+WIFI		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.42	Line	43.98	32.28	57.54	47.54	-13.56	(AV)
0.66	Line	41.03	29.59	56.00	46.00	-14.97	(QP)
1.15	Line	42.12	32.79	56.00	46.00	-13.21	(AV)
4.29	Line	43.18	34.18	56.00	46.00	-11.82	(AV)
5.31	Line	44.20	35.20	60.00	50.00	-14.80	(AV)
14.80	Line	38.75	25.24	60.00	50.00	-21.25	(QP)

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ◦ In this case, a " * " marked in AVG Mode column of Interference Voltage Measured ◦

(2) Measuring frequency range from 150KHz to 30MHz ◦



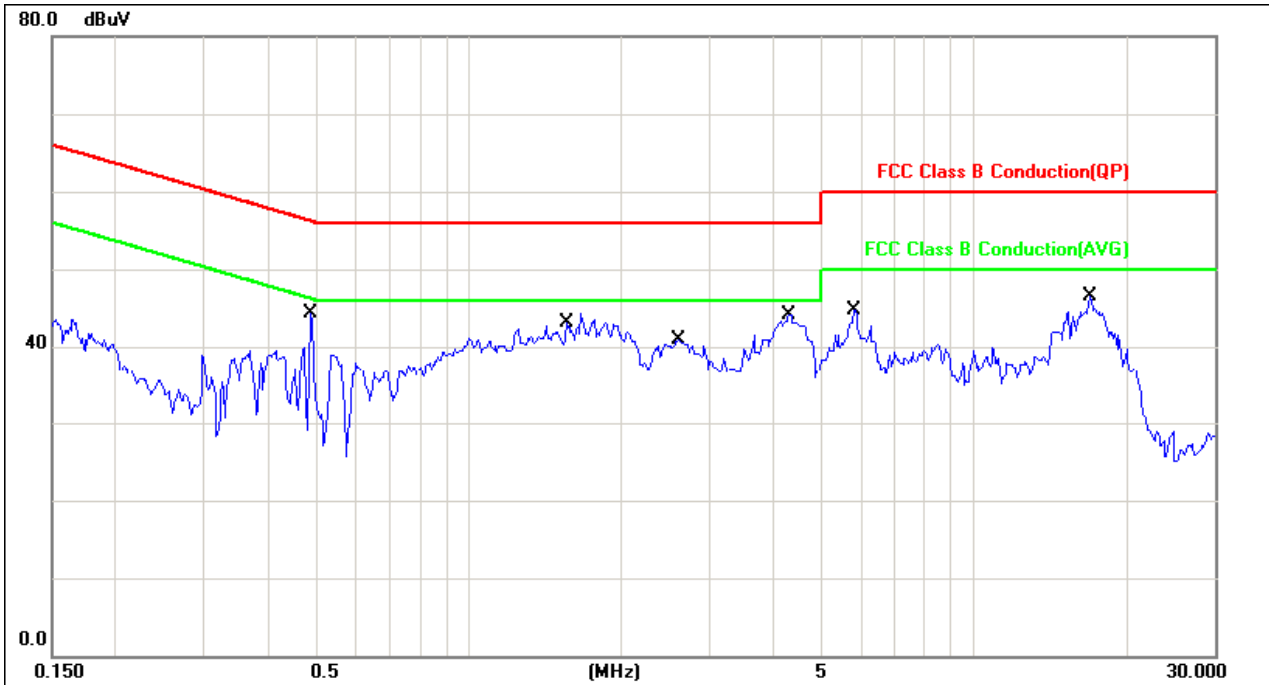
EUT：	Tablet PC	Model Name. ：	60014
Temperature：	23 ℃	Relative Humidity：	51 %
Pressure：	1008hPa	Test Voltage ：	AC 120V/60Hz
Test Mode：	Mode 3 – GSM+WIFI		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.49	Neutral	40.27	25.13	56.23	46.23	-15.96	(AV)
1.56	Neutral	40.04	31.49	56.00	46.00	-14.51	(AV)
2.62	Neutral	38.22	28.52	56.00	46.00	-17.48	(AV)
4.32	Neutral	42.40	31.08	56.00	46.00	-13.60	(QP)
5.81	Neutral	40.67	30.64	60.00	50.00	-19.33	(QP)
16.96	Neutral	39.44	26.03	60.00	50.00	-20.56	(QP)

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ◦ In this case, a " * " marked in AVG Mode column of Interference Voltage Measured ◦

(2) Measuring frequency range from 150KHz to 30MHz ◦



5. LIST OF MEASUREMENT EQUIPMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.25.2012
2	Signal Generator	R&S	SMR 40	3008A02274	May.26.2012
3	Signal Generator	HP	8648A	3636A02964	May.26.2012
4	Amplifier	Agilent	8447D	2944A11203	May.26.2012
5	Amplifier	Agilent	8449B	3008A02274	May.26.2012
6	Double Ridged Guide Antenna	ETS·LINDGREN	3115	00075846	May.26.2012
7	Antenna	SCHWARZBECK	VULB 9160	9160-3231	Jun .04.2012
8	Test Cable	N/A	CL-CB02-001	N/A	Dec.05.2012
9	Test Cable	N/A	CL-CB02-004	N/A	Dec.05.2012
10	Test Cable	N/A	CL-CB02-006	N/A	Dec.05.2012
11	Controller	CT	SC100	N/A	N/A
12	P-series Power meter	Agilent	N1911A	MY45100473	Apr.29.2013
13	Wireband Power sensor	Agilent	N1921A	MY51100041	Apr.29.2013
14	DC power supply	GW Instek	GPC-30300N	EK880675	Oct.20.2012
15	Temp. & Humid. Chamber	GIANT FORCE	ITH-225-20-S	IAB0309-001	Dec.05.2012