



# FCC TEST REPORT

Prepared For :	More Star Industrial Group Limited
Product Name:	Tablet PC
Model :	M9706, LPQ-497W, M9718, M9708, M9731, M9732, M9733, M9735, M9736, M9738, M9739
Prepared By :	Shenzhen BATT Testing Technology Co., Ltd. 11F, Bldg.B, Xinbaoyuan, Xinnanhu Commercial city, Bao'an District, Shenzhen, Guangdong, China. Tel: 86-755-27753991 Fax: 86-755-27754182
Test Date:	Dec 27, 2013 to Jan 09, 2014
Date of Report :	Jan 11, 2014
Report No.:	BATT201401010-03

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# 1 TEST CERTIFICATION

<b>Product:</b>	Tablet PC
<b>Model:</b>	M9706, LPQ-497W, M9718, M9708, M9731, M9732, M9733, M9735, M9736, M9738, M9739
<b>Applicant:</b>	More Star Industrial Group Limited 3&4 F, Block D, ZhuangBian Industrial Park, Gushu, Hangchen Rord, Xi'xiang, Bao'an District, Shenzhen, P.R.C
<b>Factory:</b>	Shen Zhen Banana Technology Co.LTD 3,4,6thF,D Building, Gushu Industrial Park, Zhuangbian Social Park, Xi'xiang Street, Baoyuan Road, Xi'xiang Town, Bao'an District, Shenzhen, P.R.C
<b>Trade Mark:</b>	N/A
<b>Tested:</b>	Dec 27, 2013 to Jan 09, 2014
<b>Test Voltage:</b>	7.4V by Li-polymer battery
<b>Operational Frequency:</b>	5180MHz, 5200MHz, 5220MHz, 5240MHz; 5745MHz, 5765MHz, 5785MHz, 5805MHz
<b>Modulation Type:</b>	IEEE 802.11a : OFDM(64QAM, 16QAM, QPSK, BPSK)
<b>Air Data Rate</b>	IEEE 802.11a : 54, 48, 36, 24, 18, 12, 9, 6 Mbps (Note: 6Mbps was selected to test, It was the worst case)
<b>Frequency Selection</b>	By software
<b>Antenna:</b>	Integral Antenna used, the antenna gain is 1.3dBi for 5G band
<b>Power Supply:</b>	Model No.: FJ-SW1202000N Input: 100-240V, 50/60Hz, 0.6A Max; Output: DC12V, 2000mA
<b>FCC ID:</b>	2AAQL-M9706
<b>Applicable Standards:</b>	FCC Part 15.407

The test report was prepared by Shenzhen BATT Testing Technology Co., Ltd. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.



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Approved & Authorized Signer :

*Jones Song*

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2.0 Test Equipments					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2013-08-27	2014-08-26
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2013-08-27	2014-08-26
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2013-08-27	2014-08-26
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2013-08-27	2014-08-26
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2013-08-27	2014-08-26
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2013-08-27	2014-08-26
System Controller	CT	SC100	-	--	--
Printer	EPSON	PHOTO EX3	CFNH234850	--	--
Computer	IBM	8434	1S8434KCE99BL XLO*	-	-
Loop Antenna	EMCO	6502	00042960	2013-08-27	2014-08-26
Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2013-08-27	2014-08-26
3m OATS	--	--	N/A	2013-08-27	2014-08-26
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2013-08-27	2014-08-26
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2013-08-27	2014-08-26
Power meter	Anritsu	ML2487A	6K00003613	2013-08-27	2014-08-26
Power sensor	Anritsu	MA2491A	32263	2013-08-27	2014-08-26
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2013-08-27	2014-08-26
LISN	AFJ	LS16C	10010947251	2013-08-27	2014-08-26
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2013-08-27	2014-08-26
9*6*6 Anechoic	--	--	N/A	2013-08-27	2014-08-26
EMI Test Receiver	RS	ESCS30	100139	2013-08-27	2014-08-26
LISN	AFJ	LS16C	10010947251	2013-08-27	2014-08-26



Shenzhen BATT Testing Technology Co., Ltd.

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LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2013-08-27	2014-08-26
Pre-Amplifier	A.H.	PAM-0126	1415261	2013-08-27	2014-08-26



### 3.0 Technical Details

#### 3.1 Summary of test results

**The EUT has been tested according to the following specifications:**

Test mode: Keeping WIFI TX ,duty cycle =100%

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107 & 15.407	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart E Paragraph 15.407 (b1/4/5/6/7), Part 15.205 and Part 15.209	Undesirable Emission and Restrict band	PASS	Complies
FCC Part 15, Paragraph 15.407 (a1/2/3)	Peak Transmit Power	PASS	Complies
FCC Part 15, Paragraph 15.407 (a)(6)	Peak Power Excursion	PASS	Complies
FCC Part 15, Paragraph 15.407 (a1/2/3)	Peak Power Spectral Density	PASS	Complies
FCC Part 15, Paragraph 15.407(g)	Frequency Stability	PASS	Complies

### 4.0 Test LAB Details

All Tests Performed at

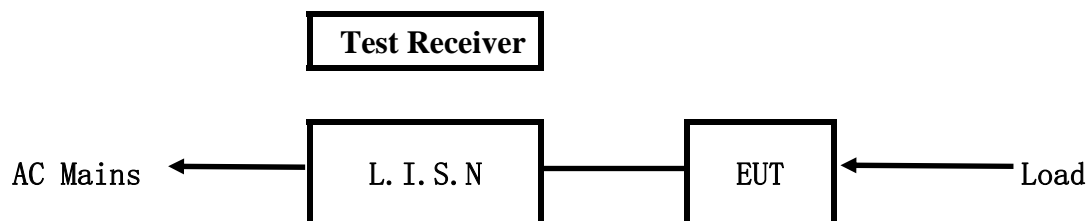
Name: Shenzhen Emtek Co., Ltd.

Address: Bldg. 69, Majialong Industry Zone,,Nanshan District,Shenzhen, Guangdong, 518052China

FCC Registration Number: 406365

## 5. Power Line Conducted Emission Test

### 5.1 Schematics of the test



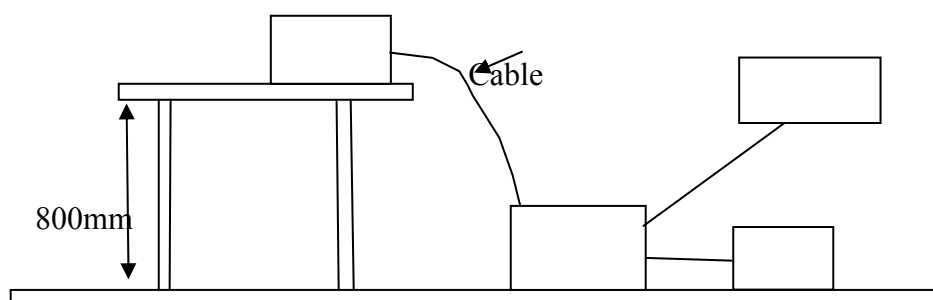
EUT: Equipment Under Test

### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



### 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

#### A. EUT

Device	Manufacturer	Model	FCC
Tablet PC	Shen Zhen Banana Technology Co.LTD	M9706, LPQ-497W, M9718, M9708, M9731, M9732, M9733, M9735, M9736, M9738, M9739	2AAQL-M9796





## B. Internal Device

Device	Manufacturer	Model	Rating

## C. Peripherals

Device	Manufacturer	Model	Rating
--	--	--	--

## 5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

## 5.5 Power line conducted Emission Limit according to Paragraph 15.207 and 15.107

Frequency (MHz)	Class A Limits (dB $\mu$ V)		Class B Limits (dB $\mu$ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ~ 0.50	79.0	66.0	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	73.0	60.0	56.0	46.0
5.00 ~ 30.00	73.0	60.0	60.0	50.0

Notes: 1. \*Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

## 5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

# A: Conducted Emission on Live Terminal (150kHz to 30MHz)

## EUT Operating Environment

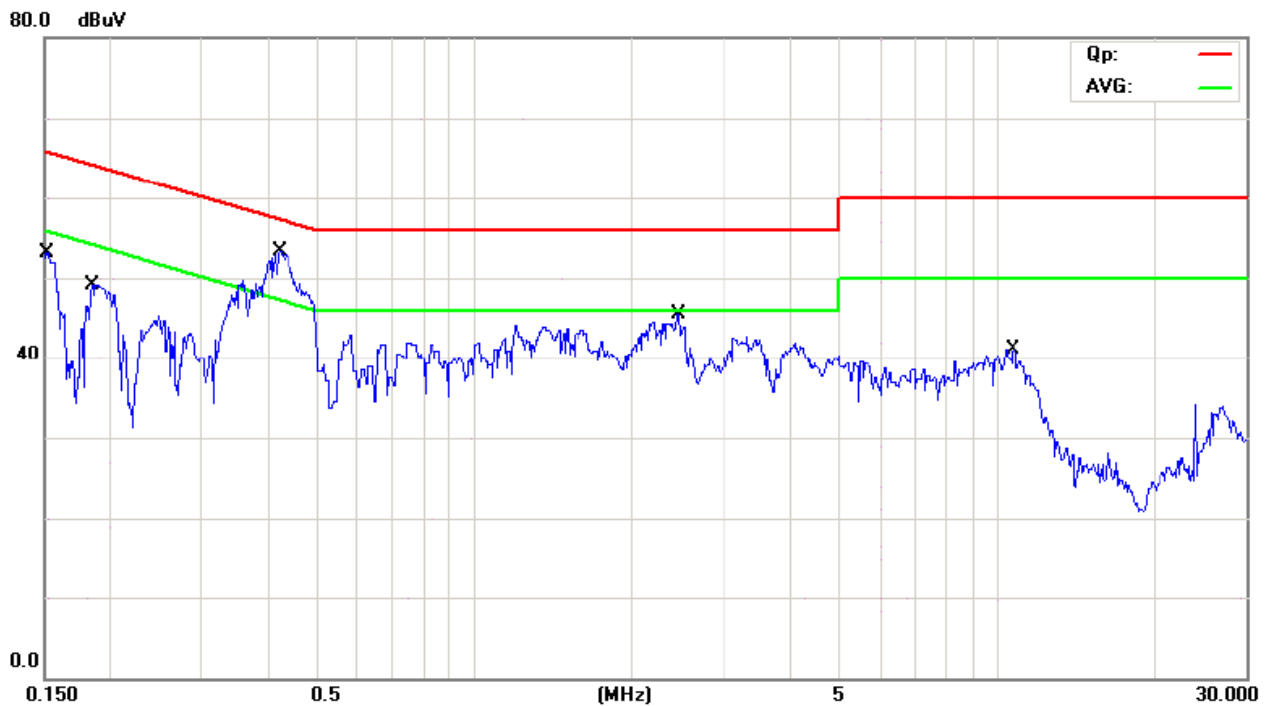
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Charging and WIFI Keeping TX mode

Equipment Level: Class B

Results: PASS

Please refer to following diagram for individual



Frequency (MHz)	Line	Reading(dBμV)		Limit(dBμV)	
		Quasi-peak	Average	Quasi-peak	Average
0.1517	Live	43.18	24.18	65.91	55.91
0.1850	Live	37.13	19.12	64.26	54.26
0.4220	Live	45.30	18.30	57.41	47.41
2.4350	Live	30.45	6.49	56.00	46.00
10.7500	Live	24.13	1.65	60.00	50.00

# B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

## EUT Operating Environment

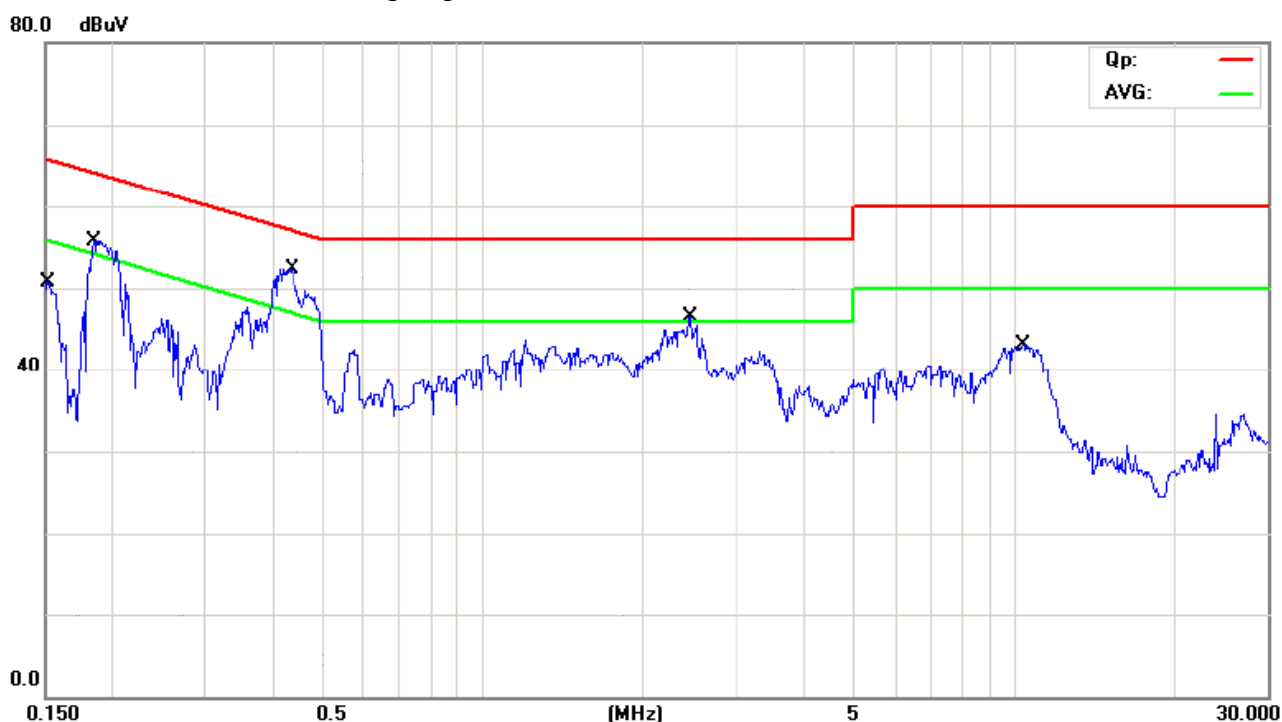
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

**EUT set Condition: Charging and WIFI Keeping TX mode**

**Equipment Level: Class B**

**Results: Pass**

Please refer to following diagram for individual



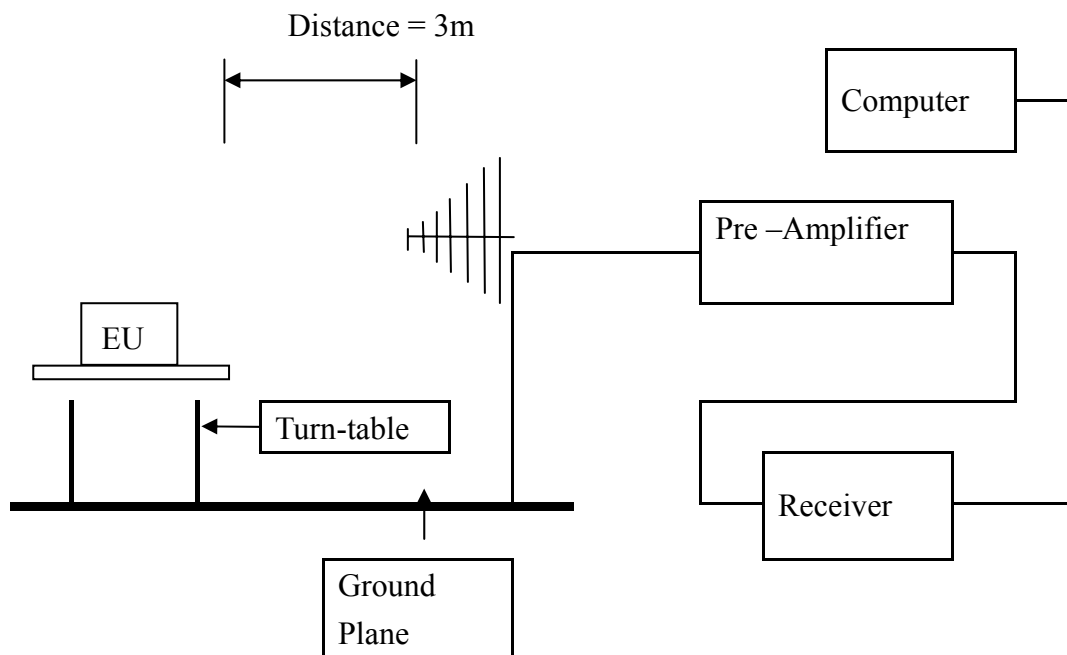
Frequency (MHz)	Line	Reading(dBμV)		Limit(dBμV)	
		Quasi-peak	Average	Quasi-peak	Average
0.1517	Neutral	41.68	23.68	65.91	55.91
0.1850	Neutral	45.63	21.73	64.26	54.26
0.4334	Neutral	27.39	12.39	56.00	46.00
2.4350	Neutral	27.15	8.49	56.00	46.00
10.3750	Neutral	23.07	9.71	60.00	50.00

## 6 Undesirable Emission and Restrict band

### 6.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 40 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=1MHz, VBW=3MHz and PK detector.  
Detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a “QP” in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.

### Block diagram of Test setup



### 6.2 Configuration of The EUT

Same as section 5.3 of this report

### 6.3 EUT Operating Condition

Same as section 5.4 of this report.

### 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

#### **Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109**

Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- (1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz
- (2) For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27dBm/MHz.

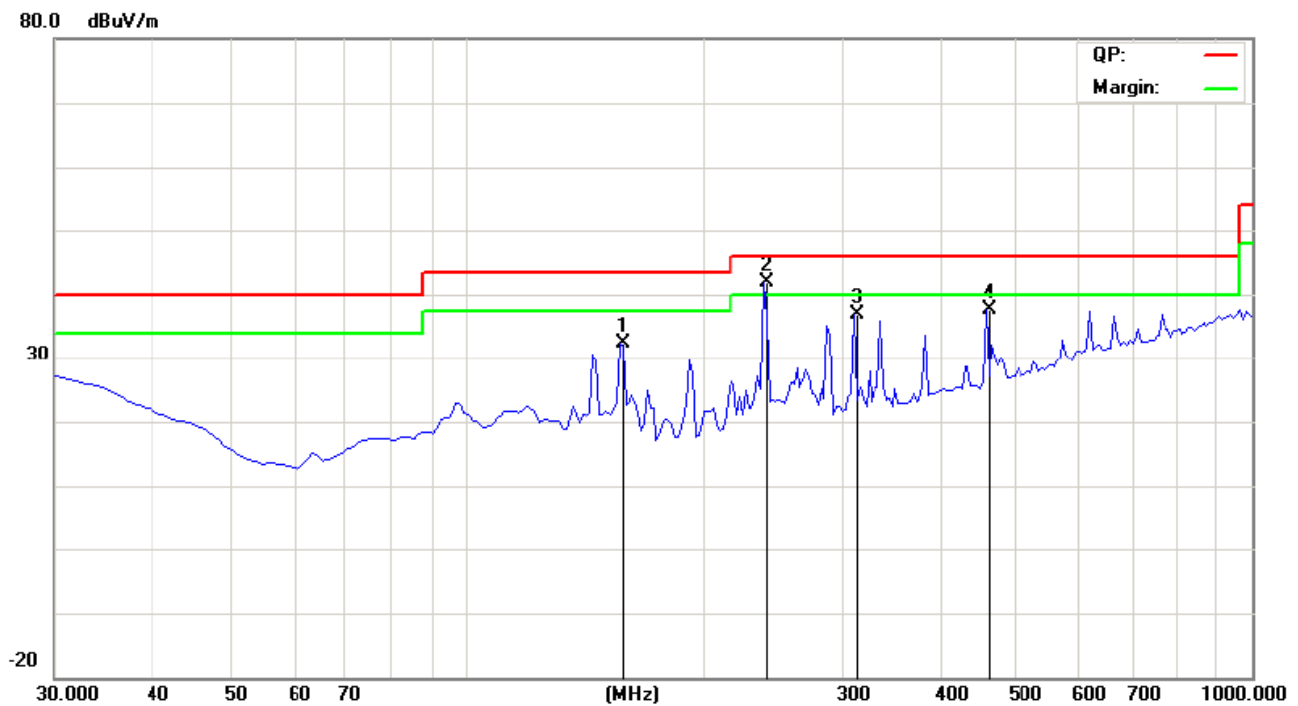
- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
  2. In the Above Table, the higher limit applies at the band edges.
  3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
  4. This is a handheld device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

**Test result****General Radiated Emission Data and Harmonics Radiated Emission Data****Radiated Emission In Horizontal (30MHz---1000MHz)****EUT set**                      **Charging and WIFI Keeping TX mode****Condition:****Results:**                      **Pass**

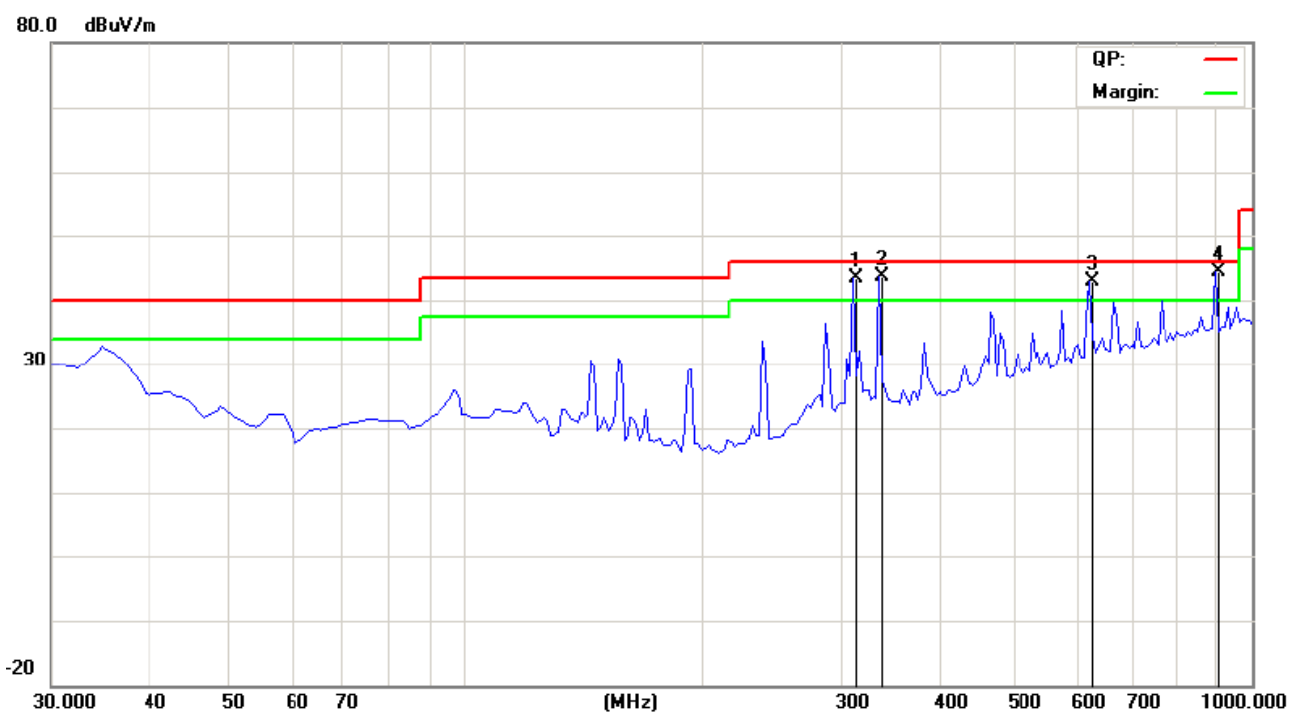
Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
158.525	32.48	H	43.50
240.975	41.84	H	46.00
313.726	36.89	H	46.00
459.224	37.61	H	46.00
313.725	43.50	V	46.00
337.975	43.64	V	46.00
624.125	42.76	V	46.00
905.425	44.29	v	46.00

Test Figure:

### Horizontal



### Vertical



**Operation Mode: WIFI Keeping TX mode under CH36 for 11g at 6Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
5180.00	79.32 ( PK )	H	Fundamental Frequency
5180.00	83.19 ( PK )	V	
10360	--	H	74(Peak)/ 54(AV)
15540	--	V	74(Peak)/ 54(AV)
20720	--	H/V	74(Peak)/ 54(AV)
25900	--	H/V	74(Peak)/ 54(AV)
31080	--	H/V	74(Peak)/ 54(AV)
36260	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11a mode 6Mbps

**Operation Mode: WIFI Keeping TX mode under CH40 for 11g at 6Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
5200.00	79.33 ( PK )	H	Fundamental Frequency
5200.00	83.28 ( PK )	V	
10400	--	H	74(Peak)/ 54(AV)
15600	--	V	74(Peak)/ 54(AV)
20800	--	H/V	74(Peak)/ 54(AV)
26000	--	H/V	74(Peak)/ 54(AV)
31200	--	H/V	74(Peak)/ 54(AV)
36400	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11a mode 6Mbps



**Operation Mode: WIFI Keeping TX mode under CH48 for 11g at 6Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
5240.00	79.58 ( PK )	H	Fundamental Frequency
5240.00	83.50 ( PK )	V	
10480	--	H	74(Peak)/ 54(AV)
15720	--	V	74(Peak)/ 54(AV)
20960	--	H/V	74(Peak)/ 54(AV)
26200	--	H/V	74(Peak)/ 54(AV)
31440	--	H/V	74(Peak)/ 54(AV)
36680	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11a mode 6Mbps

**Operation Mode: WIFI MIMO Keeping TX mode under CH149 for 11g at 6Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
5745.00	78.62 ( PK )	H	Fundamental Frequency
5745.00	85.17 ( PK )	V	
11490	--	H	74(Peak)/ 54(AV)
17235	--	V	74(Peak)/ 54(AV)
22980	--	H/V	74(Peak)/ 54(AV)
28725	--	H/V	74(Peak)/ 54(AV)
34470	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11a mode 6Mbps

**Operation Mode: WIFI MIMO Keeping TX mode under CH153 for 11g at 6Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
5765.00	78.46 ( PK )	H	Fundamental Frequency
5765.00	86.17 ( PK )	V	
11530	--	H	74(Peak)/ 54(AV)
17295	--	V	74(Peak)/ 54(AV)
23060	--	H/V	74(Peak)/ 54(AV)
28825	--	H/V	74(Peak)/ 54(AV)
34590	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11a mode 6Mbps

**Operation Mode: WIFI MIMO Keeping TX mode under CH161 for 11g at 6Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
5805.00	78.31 ( PK )	H	Fundamental Frequency
5805.00	87.22 ( PK )	V	
11610	--	H	74(Peak)/ 54(AV)
17415	--	V	74(Peak)/ 54(AV)
23220	--	H/V	74(Peak)/ 54(AV)
29025	--	H/V	74(Peak)/ 54(AV)
34830	--	H/V	74(Peak)/ 54(AV)

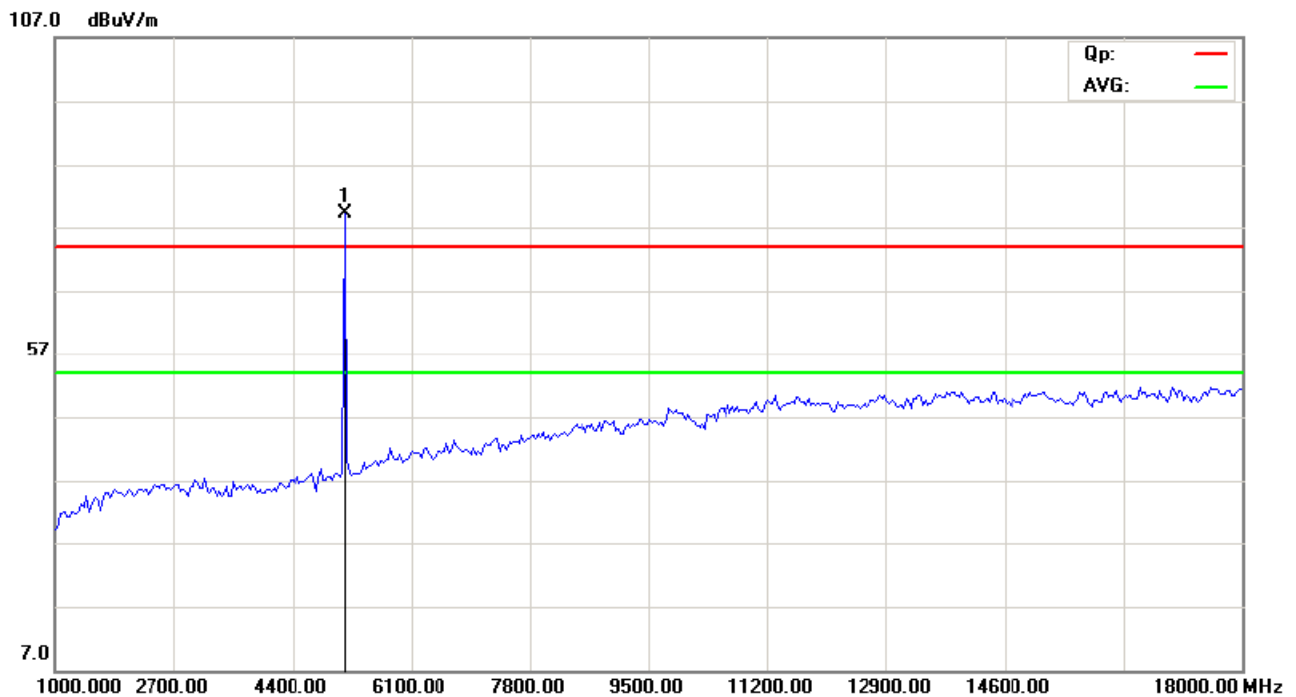
Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

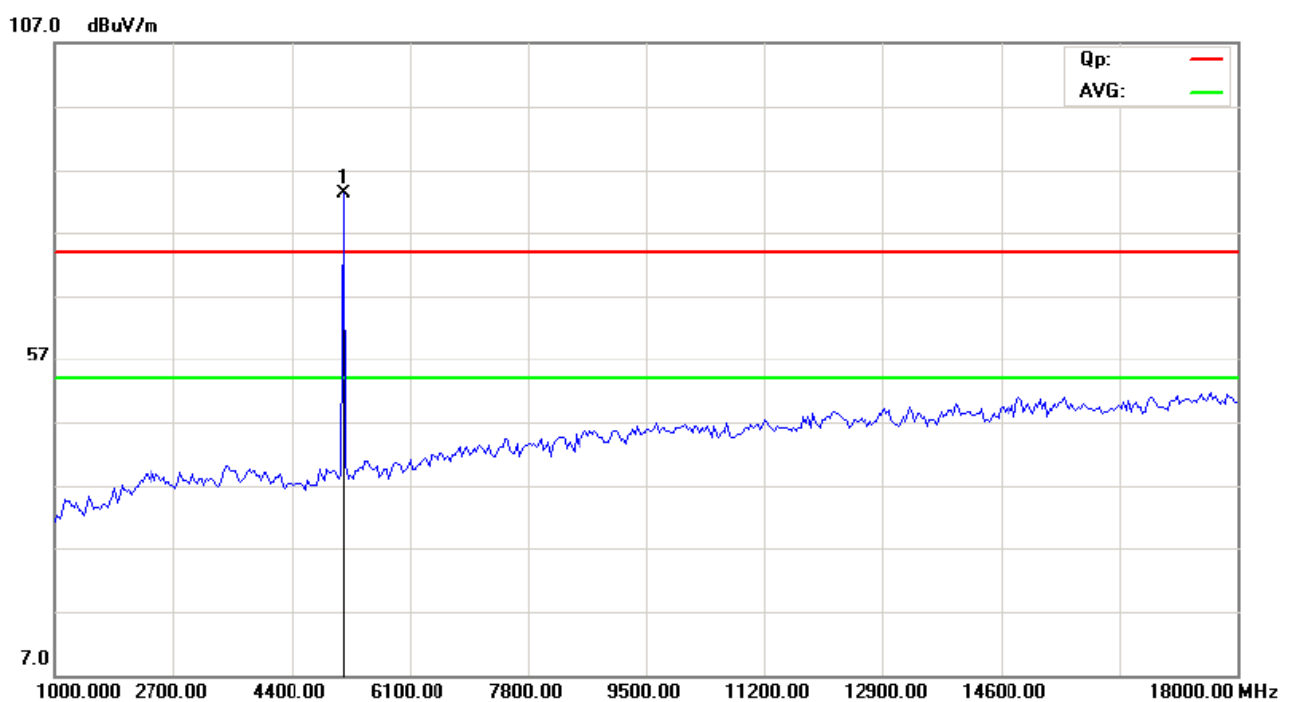
3. For 802.11a mode 6Mbps

Please refer to the following test plots for details:

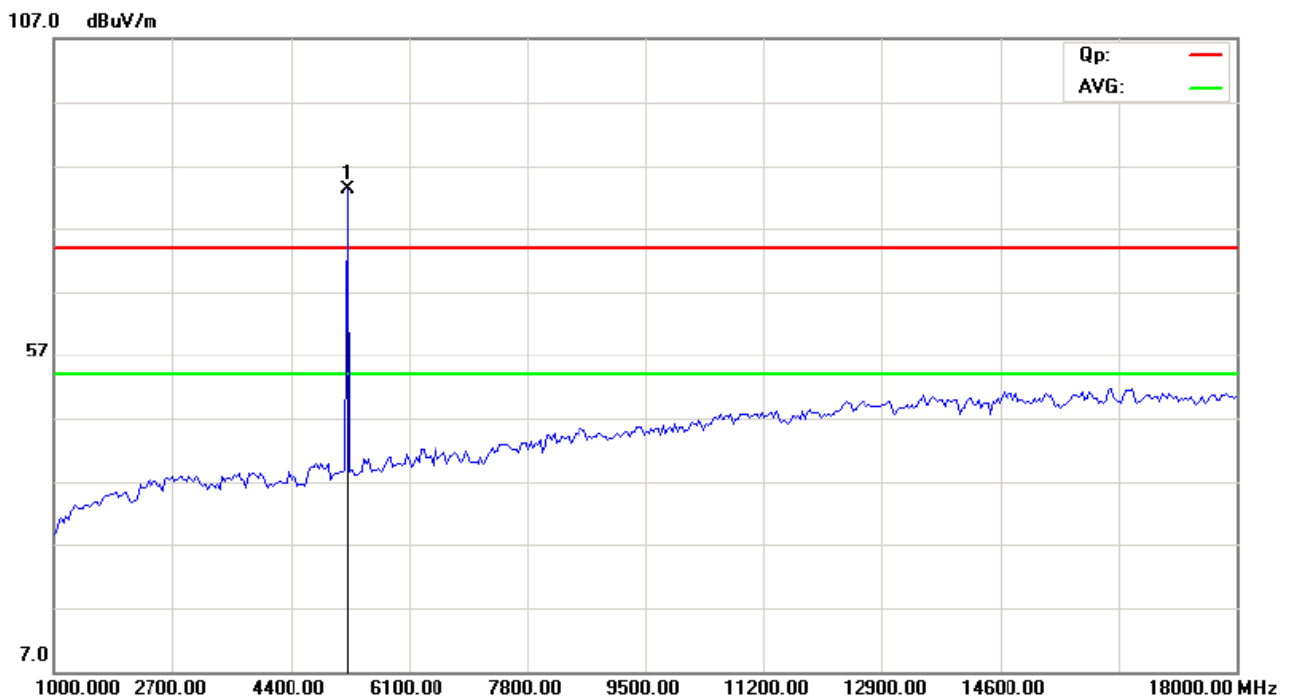
### CH36 for 11g at 6Mbps: Horizontal



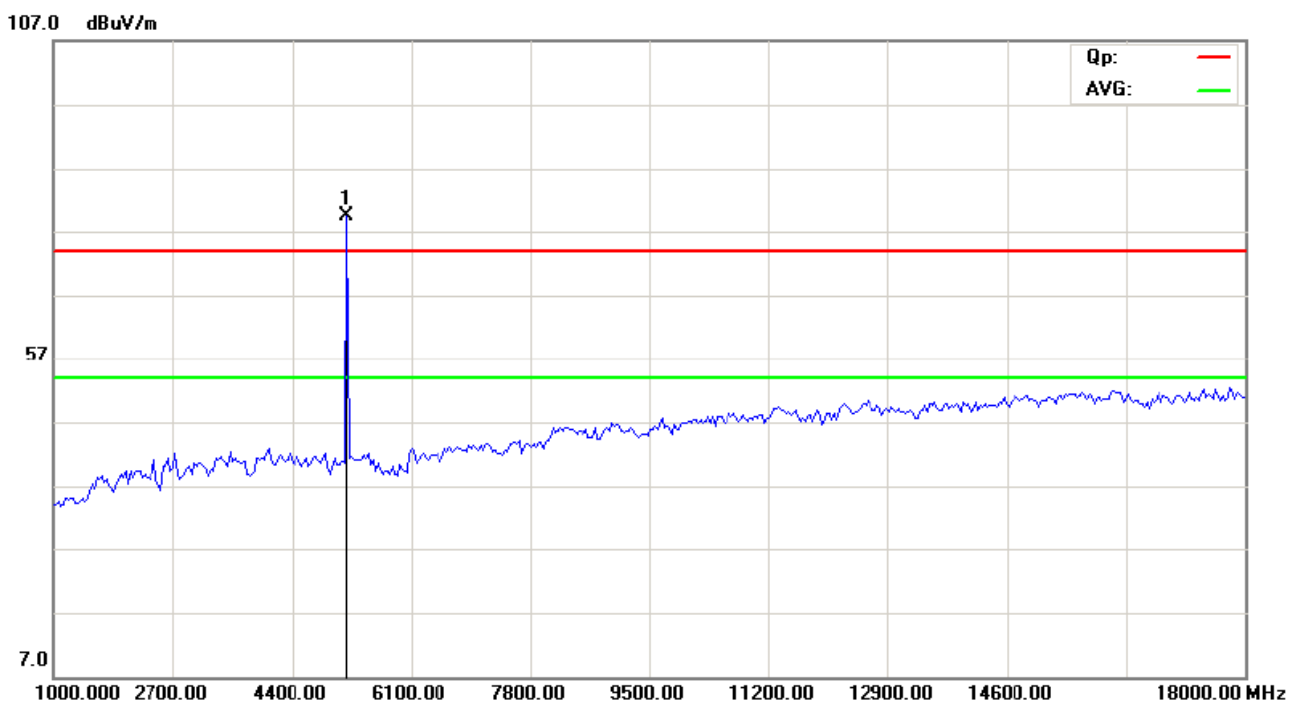
### CH36 for 11g at 6Mbps: Vertical



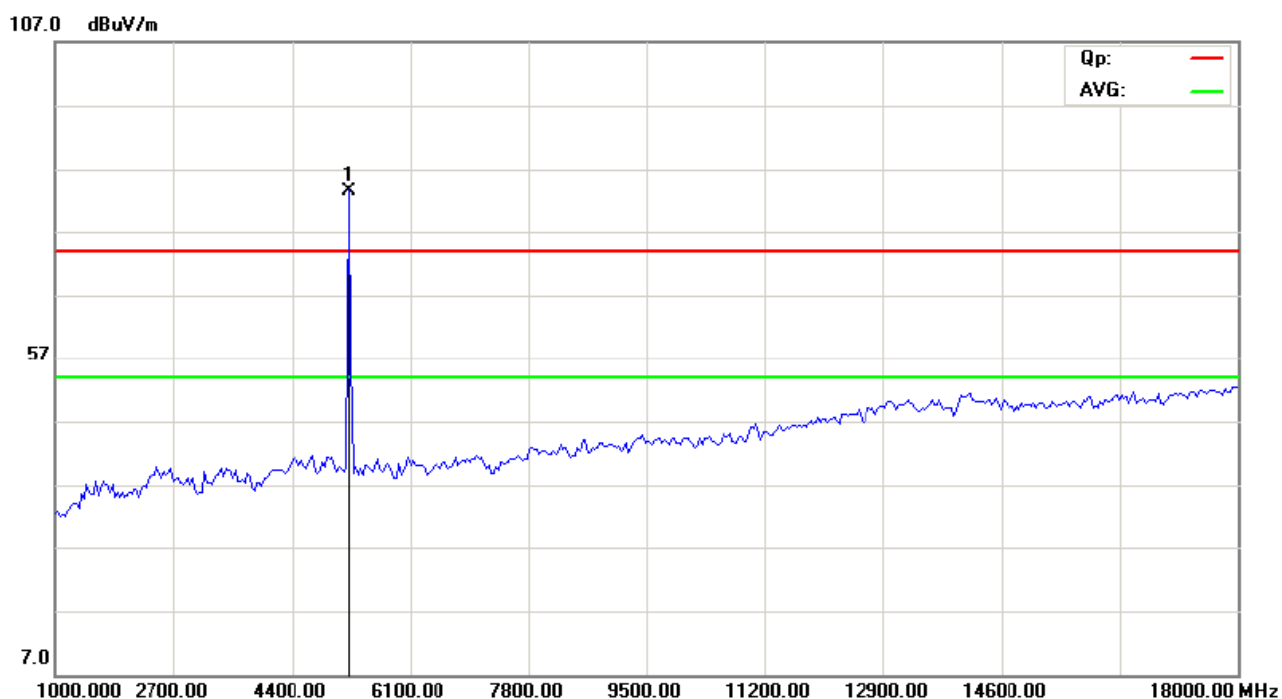
### CH40 for 11g at 6Mbps: Vertical



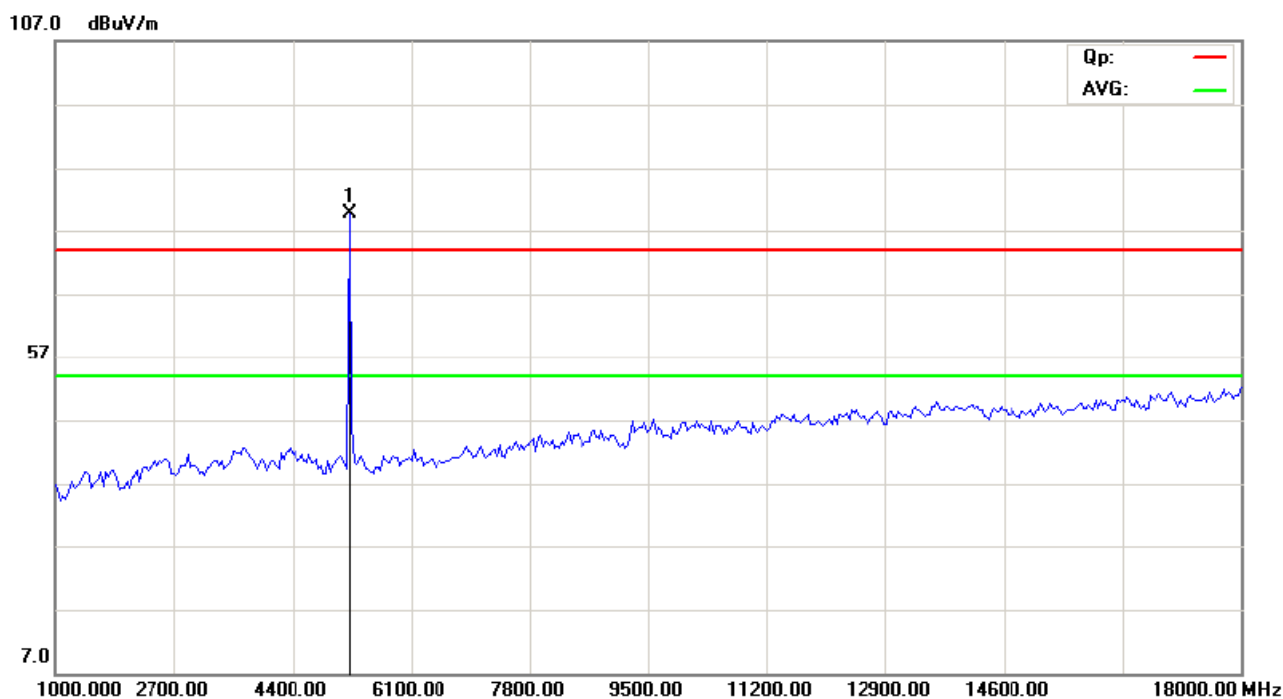
### CH40 for 11g at 6Mbps: Horizontal



### CH48 for 11g at 6Mbps: Vertical

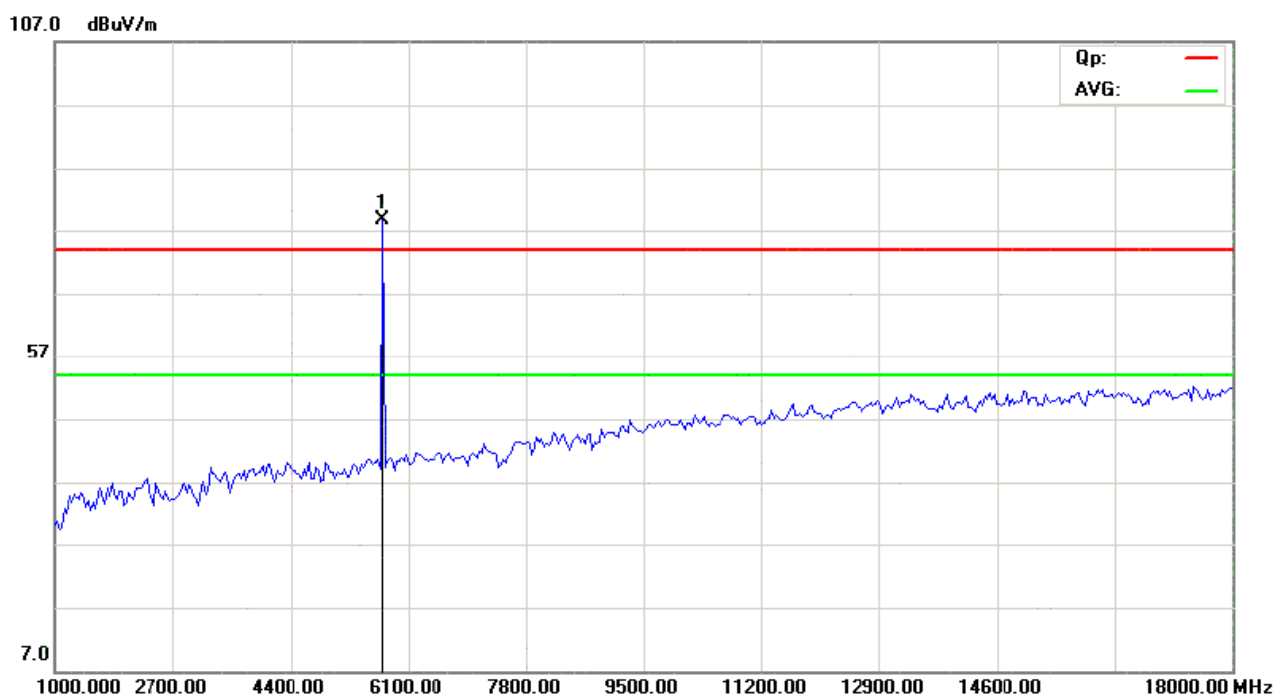


### CH48 for 11g at 6Mbps: Horizontal

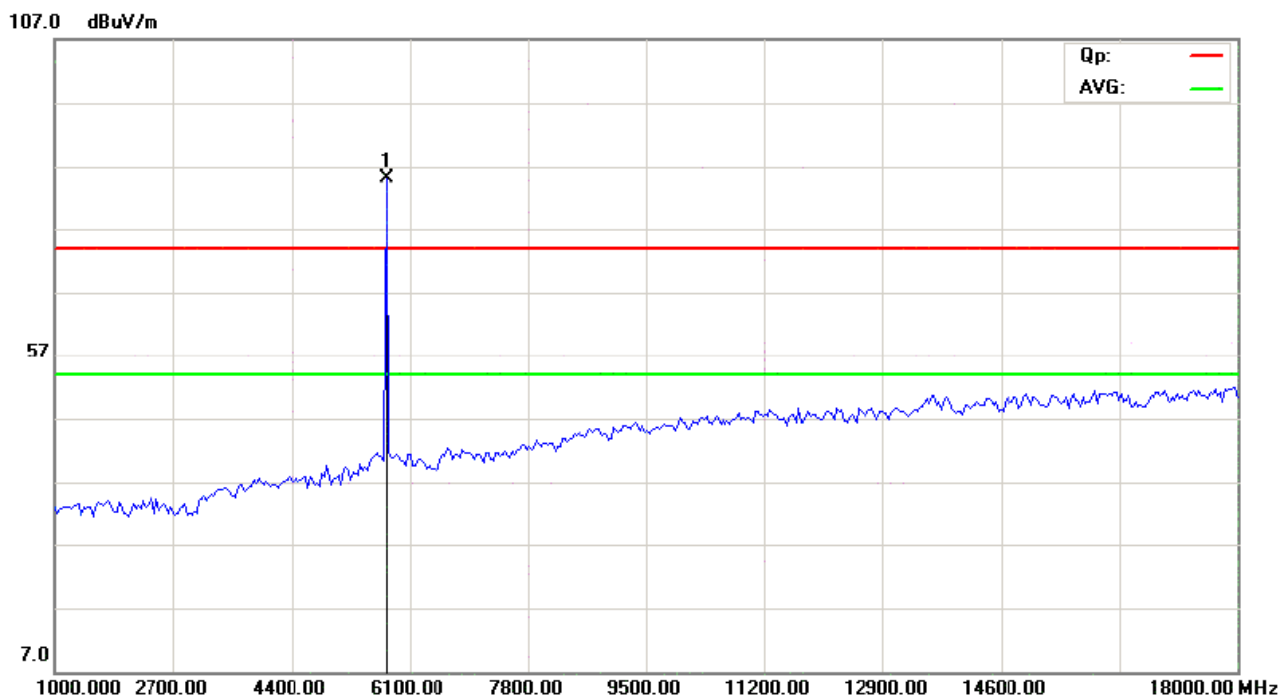


Please refer to the following test plots for details:

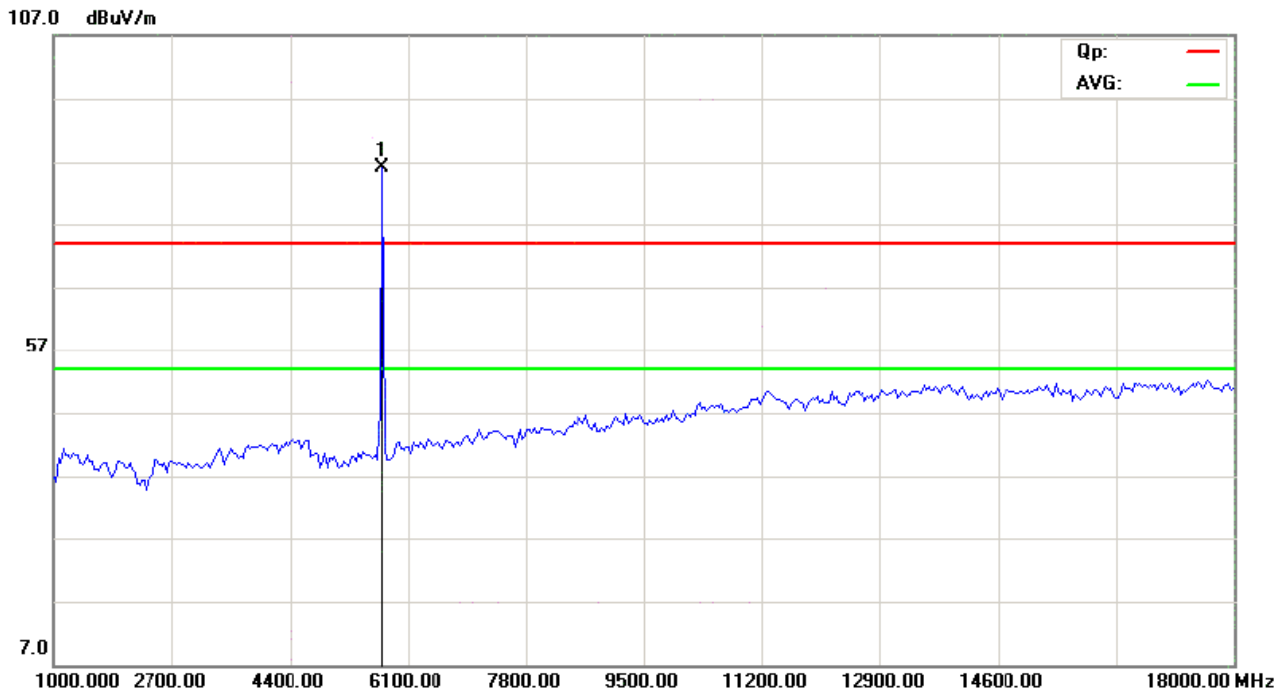
### CH149 for 11g at 6Mbps: Horizontal



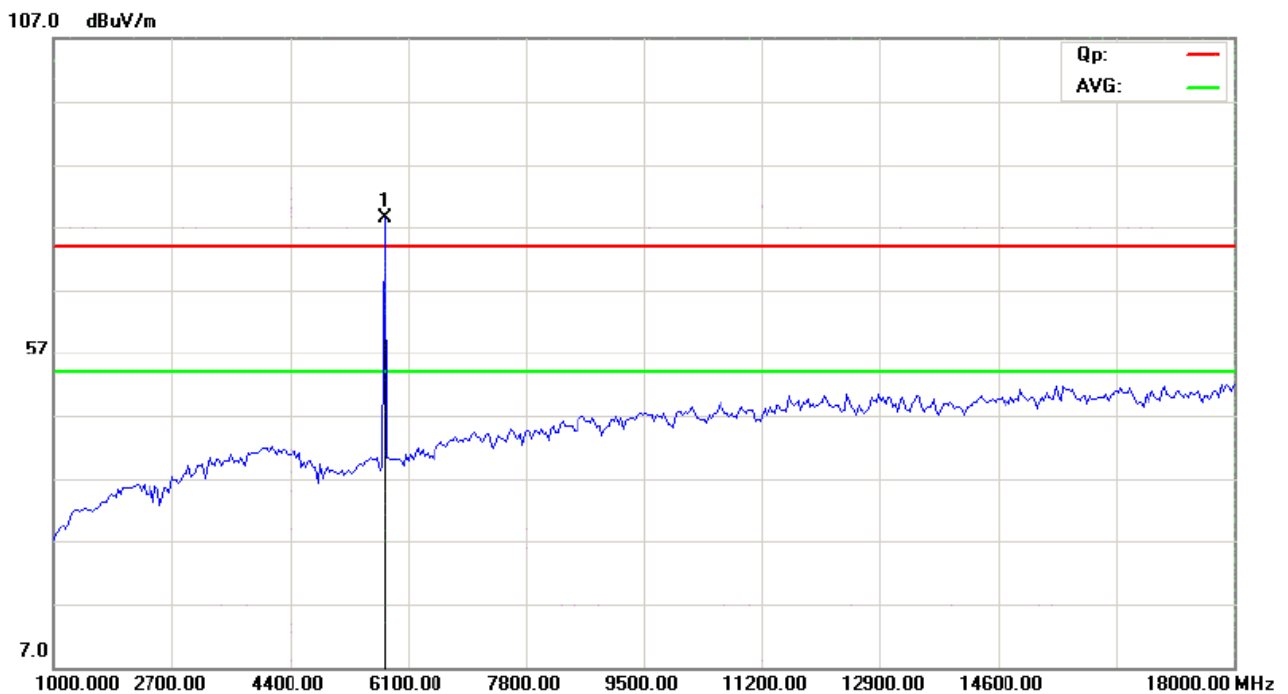
### CH149 for 11g at 6Mbps: Vertical



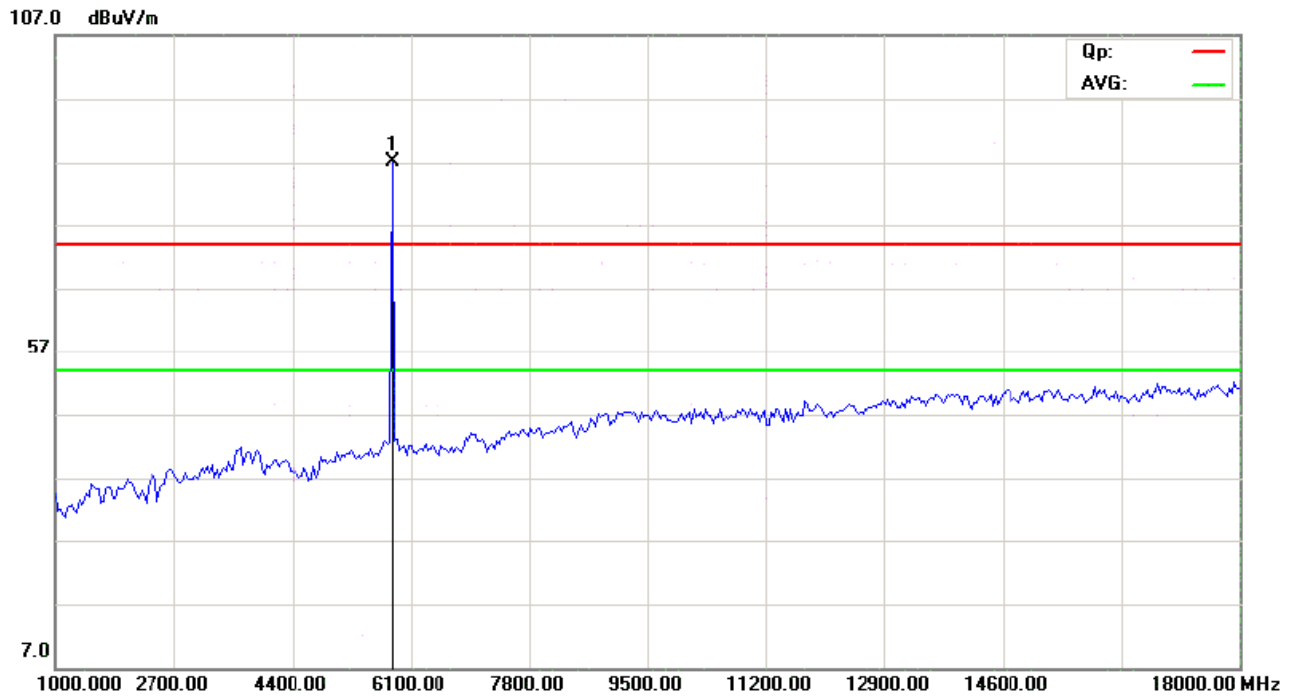
### CH153 for 11g at 6Mbps: Vertical



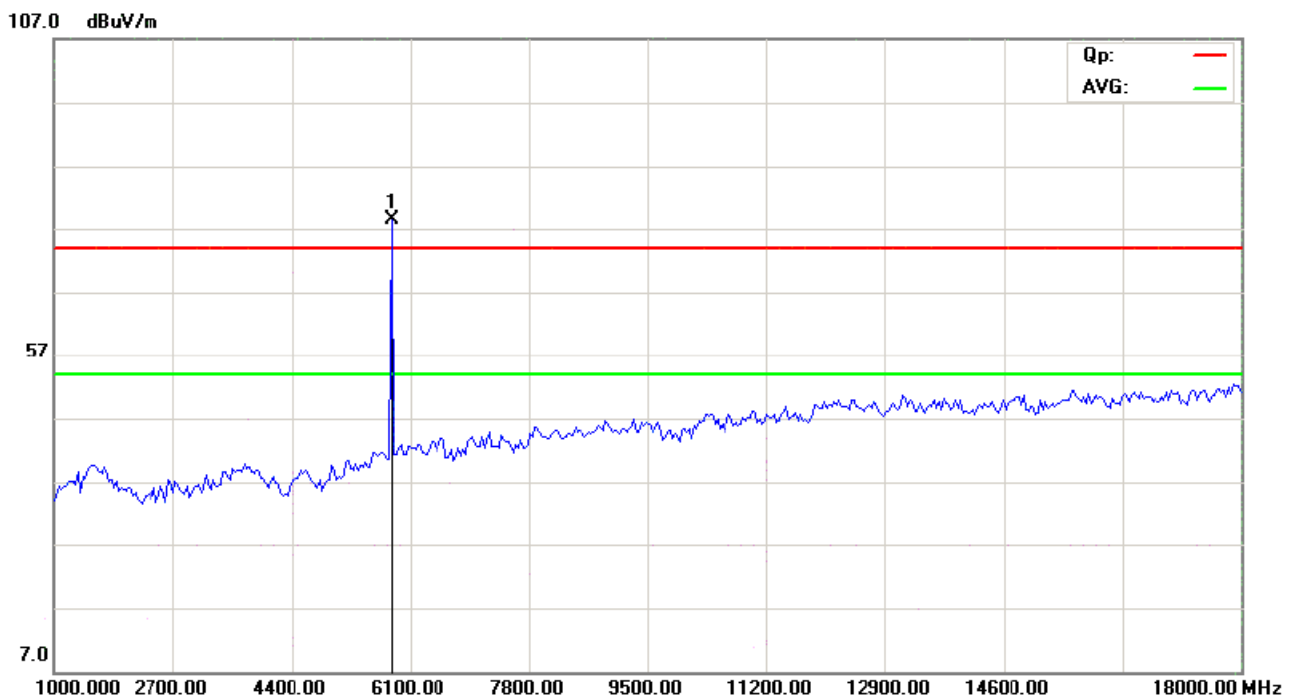
### CH153 for 11g at 6Mbps: Horizontal



### CH161 for 11g at 6Mbps: Vertical



### CH161 for 11g at 6Mbps: Horizontal

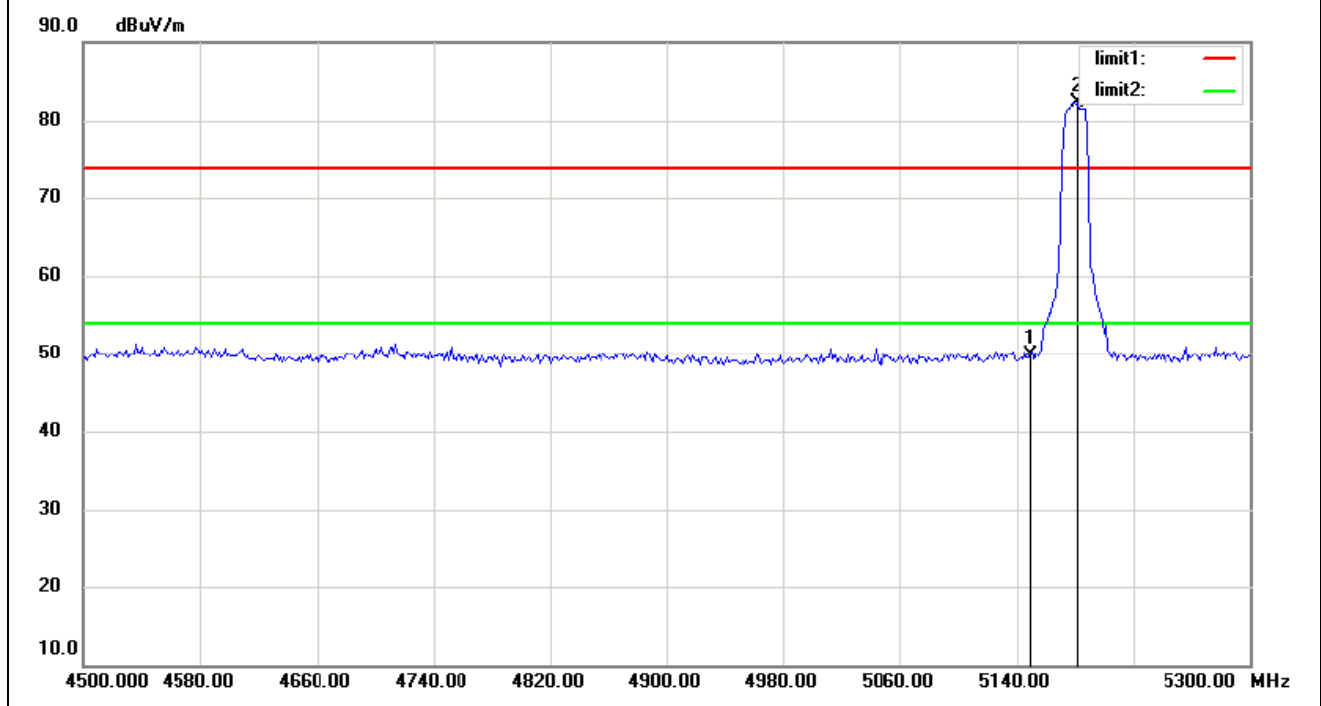


Note: For radiated Emissions from 18-40GHz, it is only the floor noise.



Restricted band Measurement				
EUT	Tablet PC		Test Mode:	Channel 36 (5180MHz)
Mode	WIFI Keeping TX mode		Input Voltage	DC7.4V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5150	PK (dBμV/m)	49.91 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-45.29		

Test figure: Vertical



Remark: 1. According to KDB 789033 v01r03 section H) d) (iii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$\text{EIRP[dBm]} = \text{E[dB}\mu\text{V/m]} - 95.2$$

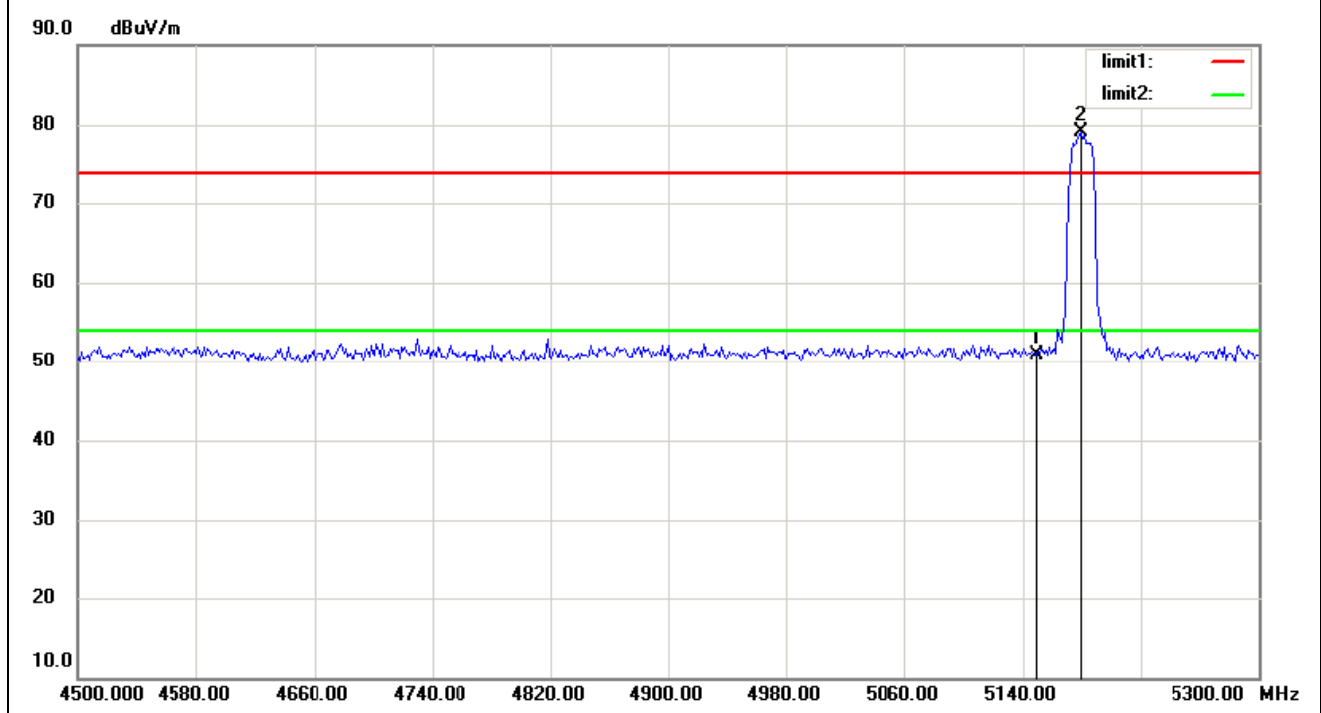
For Example, if  $\text{E[dB}\mu\text{V/m]} = 49.91 \text{ dB}\mu\text{V/m}$ ,

$$\text{EIRP[dBm]} = \text{E[dB}\mu\text{V/m]} - 95.2 = 49.91 - 95.2 = -45.29 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	Tablet PC		Test Mode:	Channel 36 (5180MHz)
Mode	WIFI Keeping TX mode		Input Voltage	DC7.4V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5150	PK (dBμV/m)	50.95 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-44.25		

Test figure: Horizontal



Remark: 1. According to KDB 789033 v01r03 section H) d) (iii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

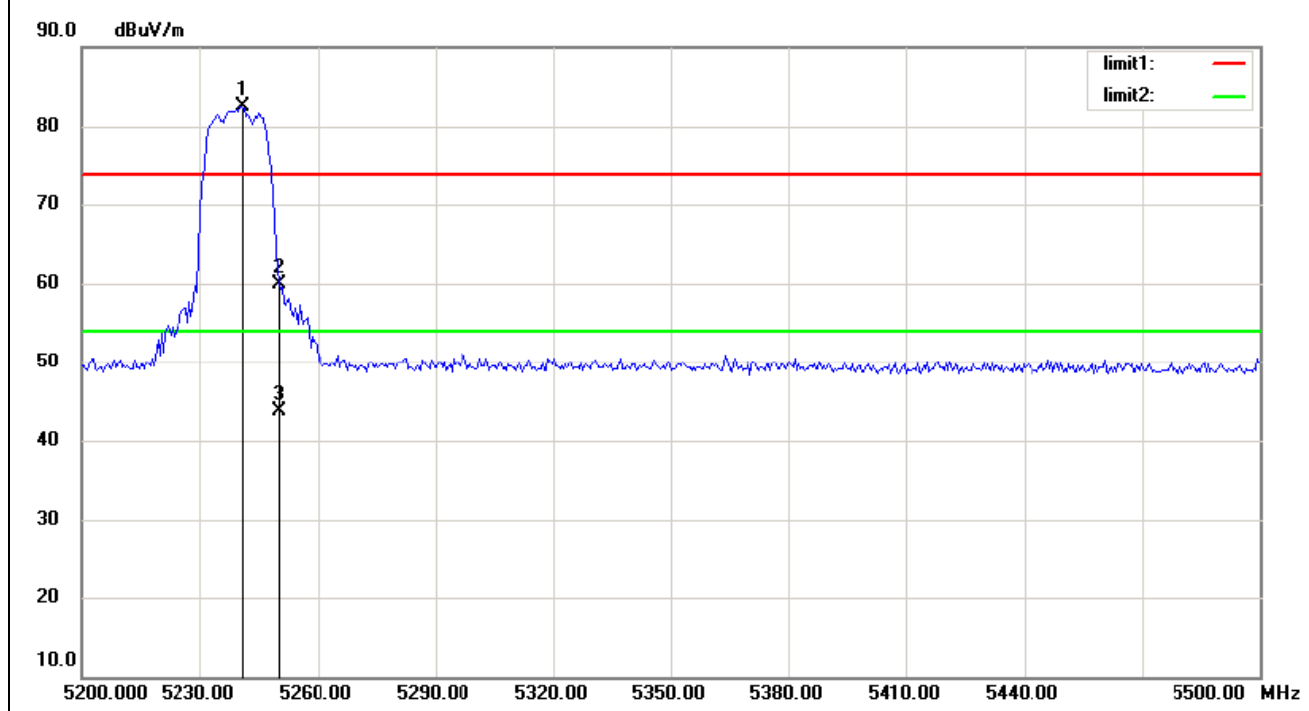
For Example, if  $E[dB\mu V/m] = 50.95 \text{ dB}\mu V/m$ ,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2 = 50.95 - 95.2 = -44.25 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	Tablet PC		Test Mode:	Channel 48 (5240MHz)
Mode	WIFI Keeping TX mode		Input Voltage	DC7.4V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5250	PK (dBμV/m)	59.84 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-35.36		

Test figure: Vertical



Remark: 1. According to KDB 789033 v01r03 section H) d) (iii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$\text{EIRP[dBm]} = \text{E[dB}\mu\text{V/m]} - 95.2$$

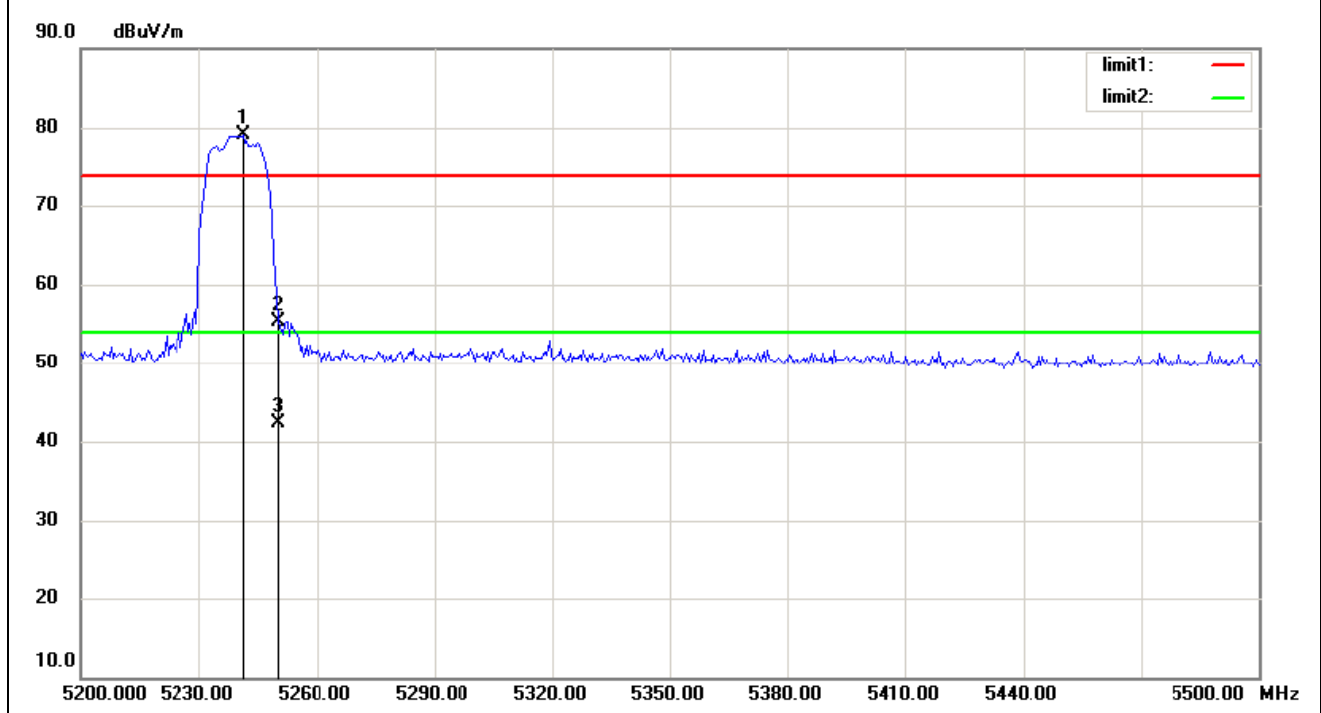
For Example, if E[dBμV/m]=59.84 dBμV/m,

$$\text{EIRP[dBm]} = \text{E[dB}\mu\text{V/m]} - 95.2 = 59.84 - 95.2 = -35.36\text{dBm}$$

2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	Tablet PC		Test Mode:	Channel 48 (5240MHz)
Mode	WIFI Keeping TX mode		Input Voltage	DC7.4V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5250	PK (dBμV/m)	55.38 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-39.82		

Test figure: Horizontal



Remark: 1. According to KDB 789033 v01r03 section H) d) (iii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$EIRP[dBm] = E[dB\mu V/m] - 95.2$$

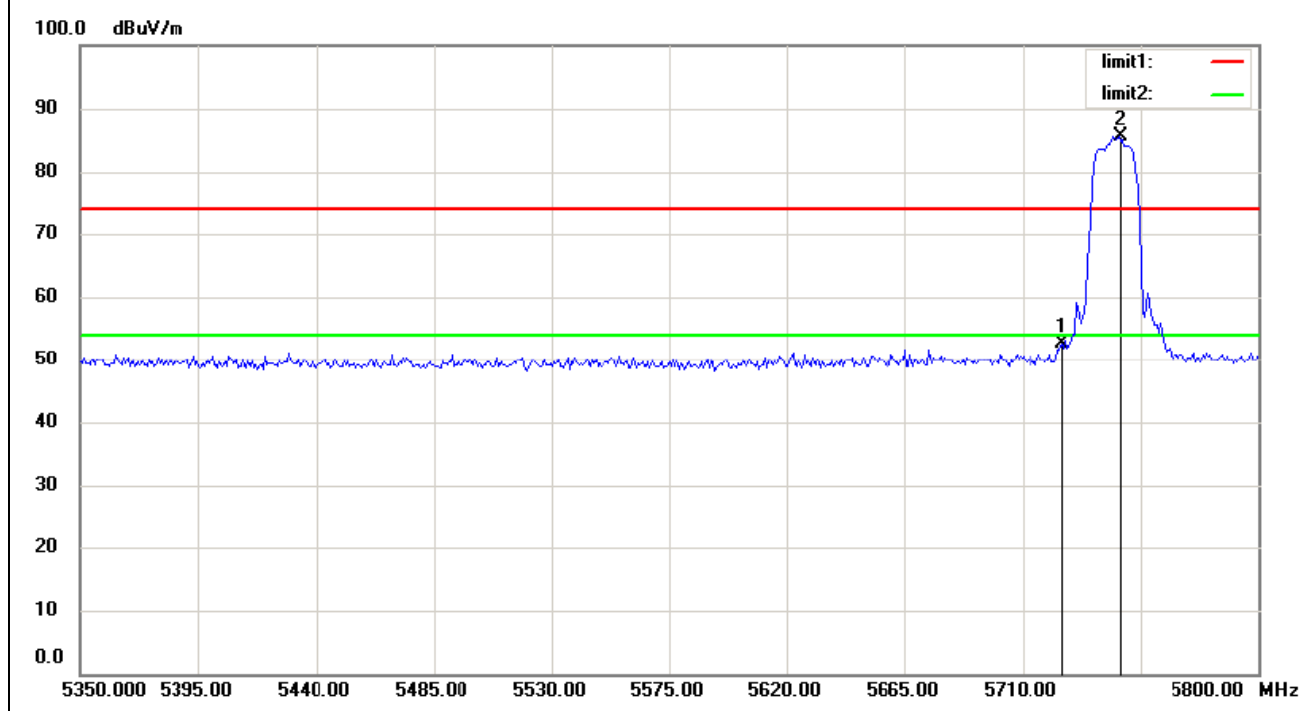
For Example, if  $E[dB\mu V/m] = 55.38 \text{ dB}\mu V/m$ ,

$$EIRP[dBm] = E[dB\mu V/m] - 95.2 = 55.38 - 95.2 = -39.82 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	Tablet PC		Test Mode:	Channel 149 (5745MHz)
Mode	WIFI Keeping TX mode		Input Voltage	DC7.4V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5725	PK (dBμV/m)	52.72 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-42.48		

Test figure: Vertical



Remark: 1. According to KDB 789033 v01r03 section H) d) (iii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$\text{EIRP[dBm]} = \text{E[dB}\mu\text{V/m]} - 95.2$$

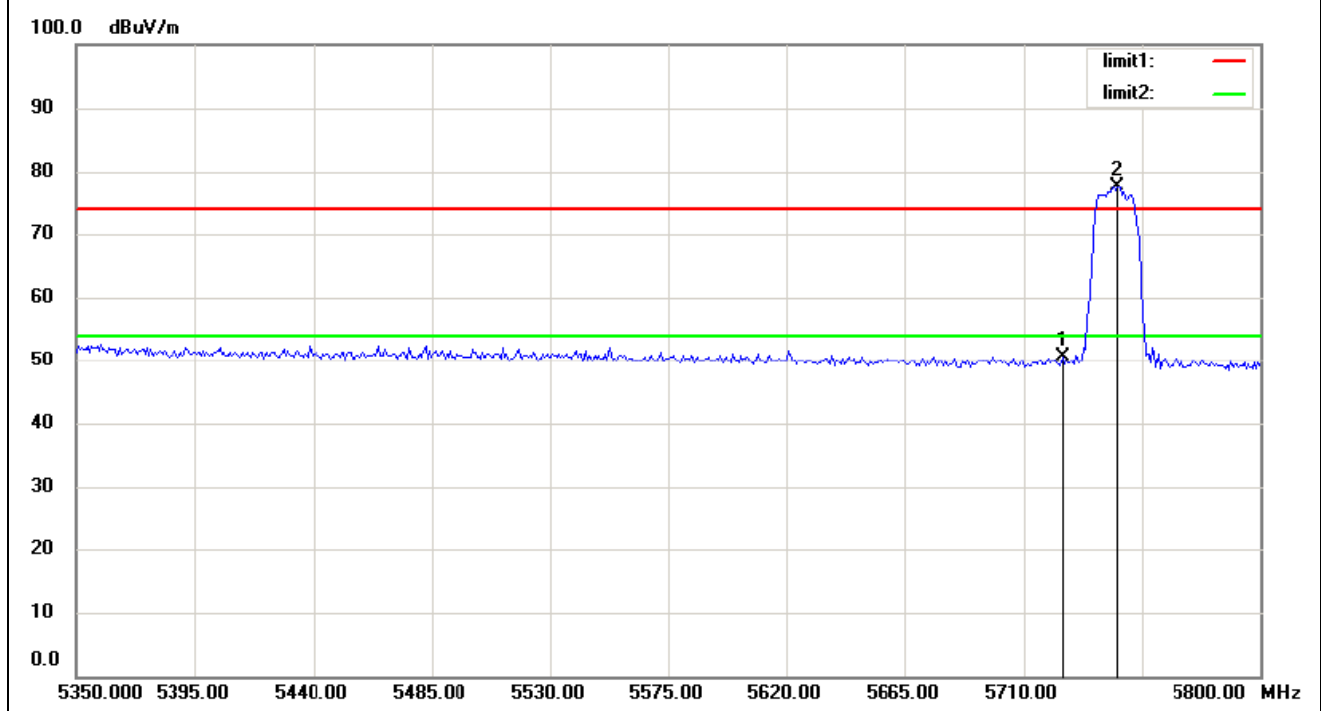
For Example, if  $\text{E[dB}\mu\text{V/m]} = 52.72 \text{ dB}\mu\text{V/m}$ ,

$$\text{EIRP[dBm]} = \text{E[dB}\mu\text{V/m]} - 95.2 = 52.72 - 95.2 = -42.48 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	Tablet PC		Test Mode:	Channel 149 (5745MHz)
Mode	WIFI Keeping TX mode		Input Voltage	DC7.4V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5725	PK (dBμV/m)	50.59 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-44.61		

Test figure: Horizontal



Remark: 1. According to KDB 789033 v01r03 section H) d) (iii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$\text{EIRP}[\text{dBm}] = \text{E}[\text{dB}\mu\text{V/m}] - 95.2$$

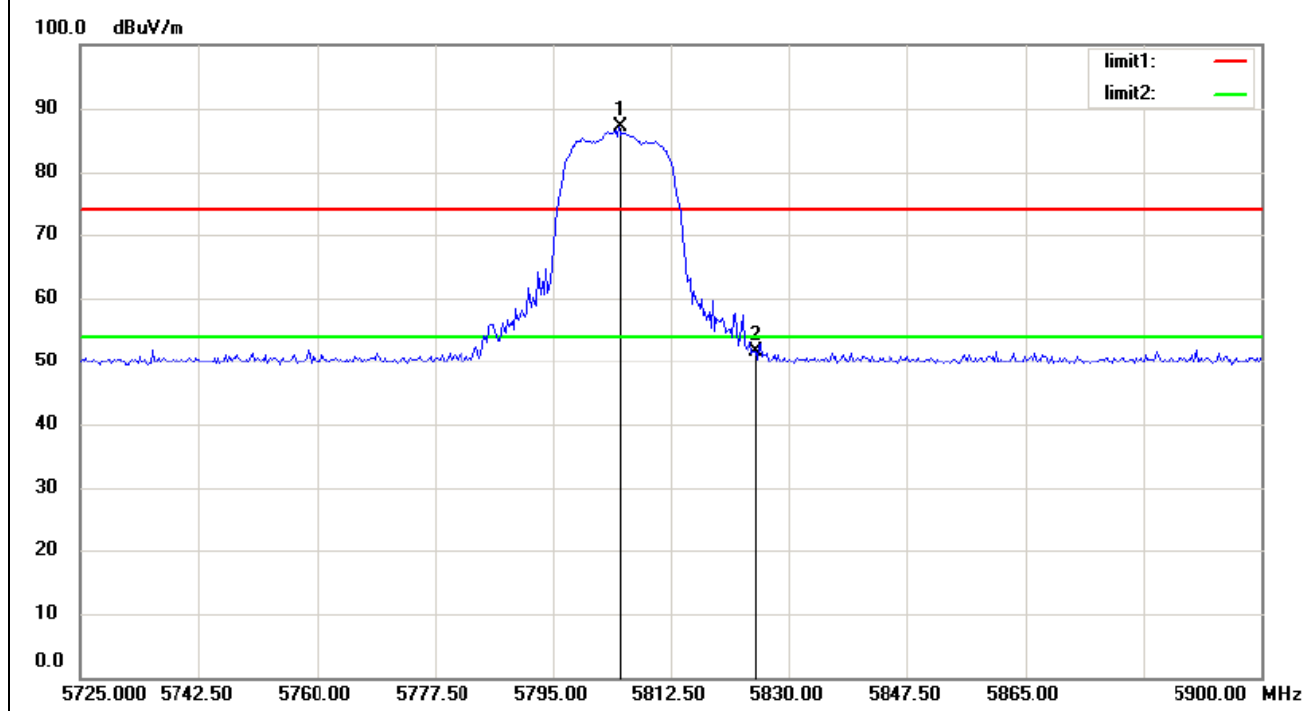
For Example, if  $\text{E}[\text{dB}\mu\text{V/m}] = 50.59 \text{ dB}\mu\text{V/m}$ ,

$$\text{EIRP}[\text{dBm}] = \text{E}[\text{dB}\mu\text{V/m}] - 95.2 = 50.59 - 95.2 = -44.61 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	Tablet PC		Test Mode:	Channel 161 (5745MHz)
Mode	WIFI Keeping TX mode		Input Voltage	DC7.4V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5825	PK (dBμV/m)	51.60 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-43.60		

Test figure: Vertical



Remark: 1. According to KDB 789033 v01r03 section H) d) (iii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$\text{EIRP}[\text{dBm}] = \text{E}[\text{dB}\mu\text{V/m}] - 95.2$$

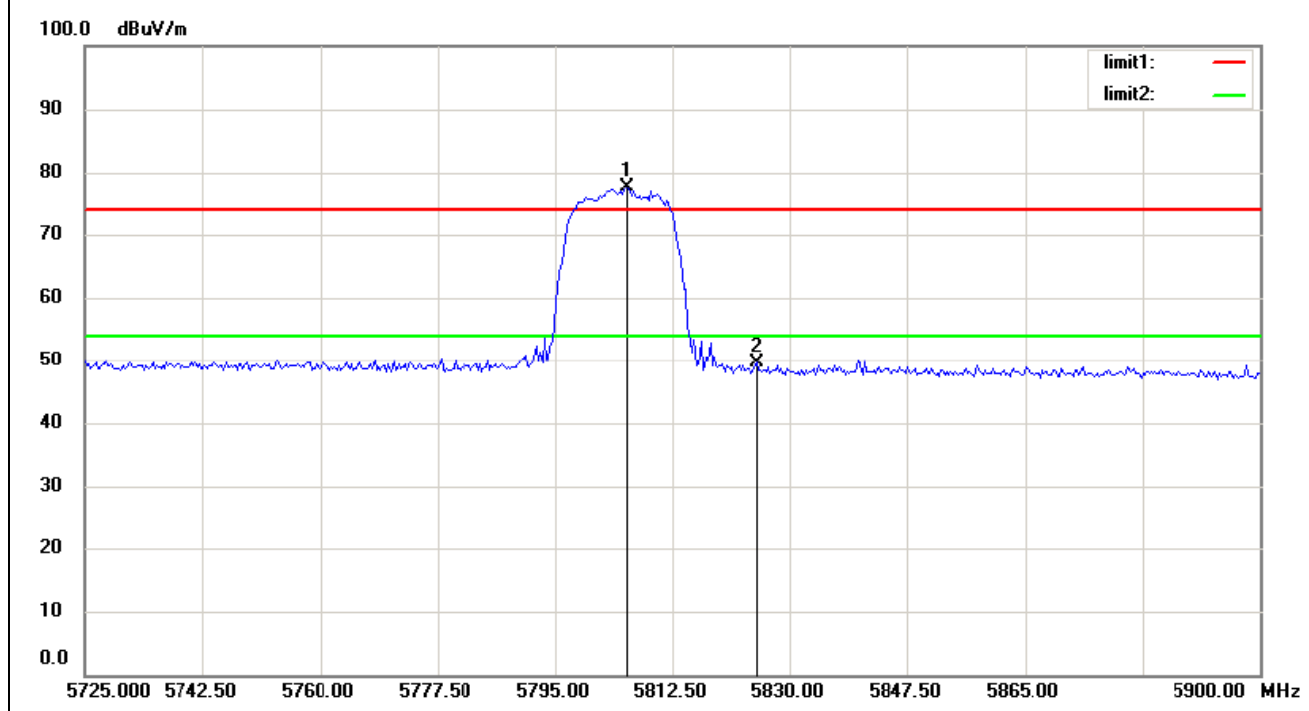
For Example, if  $\text{E}[\text{dB}\mu\text{V/m}] = 51.60 \text{ dB}\mu\text{V/m}$ ,

$$\text{EIRP}[\text{dBm}] = \text{E}[\text{dB}\mu\text{V/m}] - 95.2 = 51.60 - 95.2 = -43.60 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz

Restricted band Measurement				
EUT	Tablet PC		Test Mode:	Channel 161 (5745MHz)
Mode	WIFI Keeping TX mode		Input Voltage	DC7.4V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
5825	PK (dBμV/m)	49.59 (PK)	Limit	-27dBm/MHz
	EIRP (dBm)	-45.61		

Test figure: Horizontal



Remark: 1. According to KDB 789033 v01r03 section H) d) (iii), for measurement above 1000MHz@3m distance, the limit of EIRP is calculated as follows:

$$\text{EIRP[dBm]} = \text{E[dB}\mu\text{V/m]} - 95.2$$

For Example, if  $\text{E[dB}\mu\text{V/m]} = 49.59 \text{ dB}\mu\text{V/m}$ ,

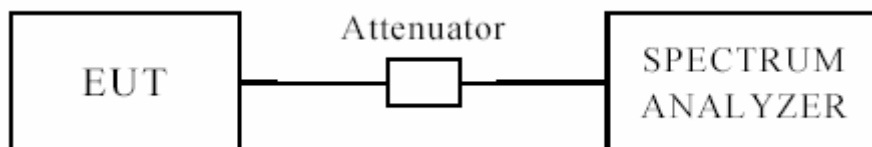
$$\text{EIRP[dBm]} = \text{E[dB}\mu\text{V/m]} - 95.2 = 49.59 - 95.2 = -45.61 \text{ dBm}$$

2. RBW=1MHz, VBW=3MHz



## 7.0 26 dB OCCUPIED BANDWIDTH

### 7.1 Test Setup



### 7.3 Test Procedure

1. Set resolution bandwidth (RBW) = 300 kHz
2. Set the video bandwidth (VBW) = 1MHz
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

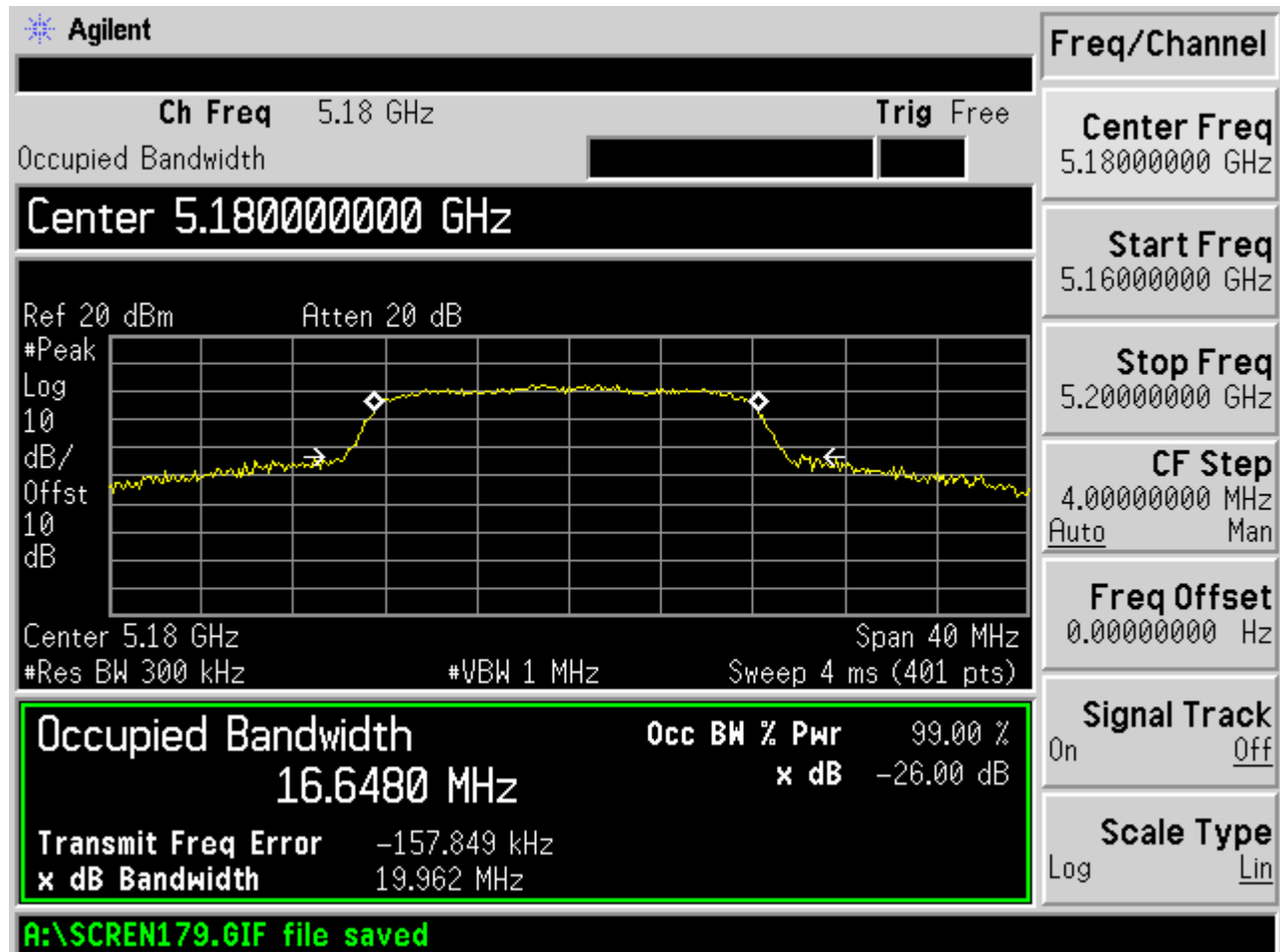
### 7.4 Test Result

**26dB Occupied Bandwidth**

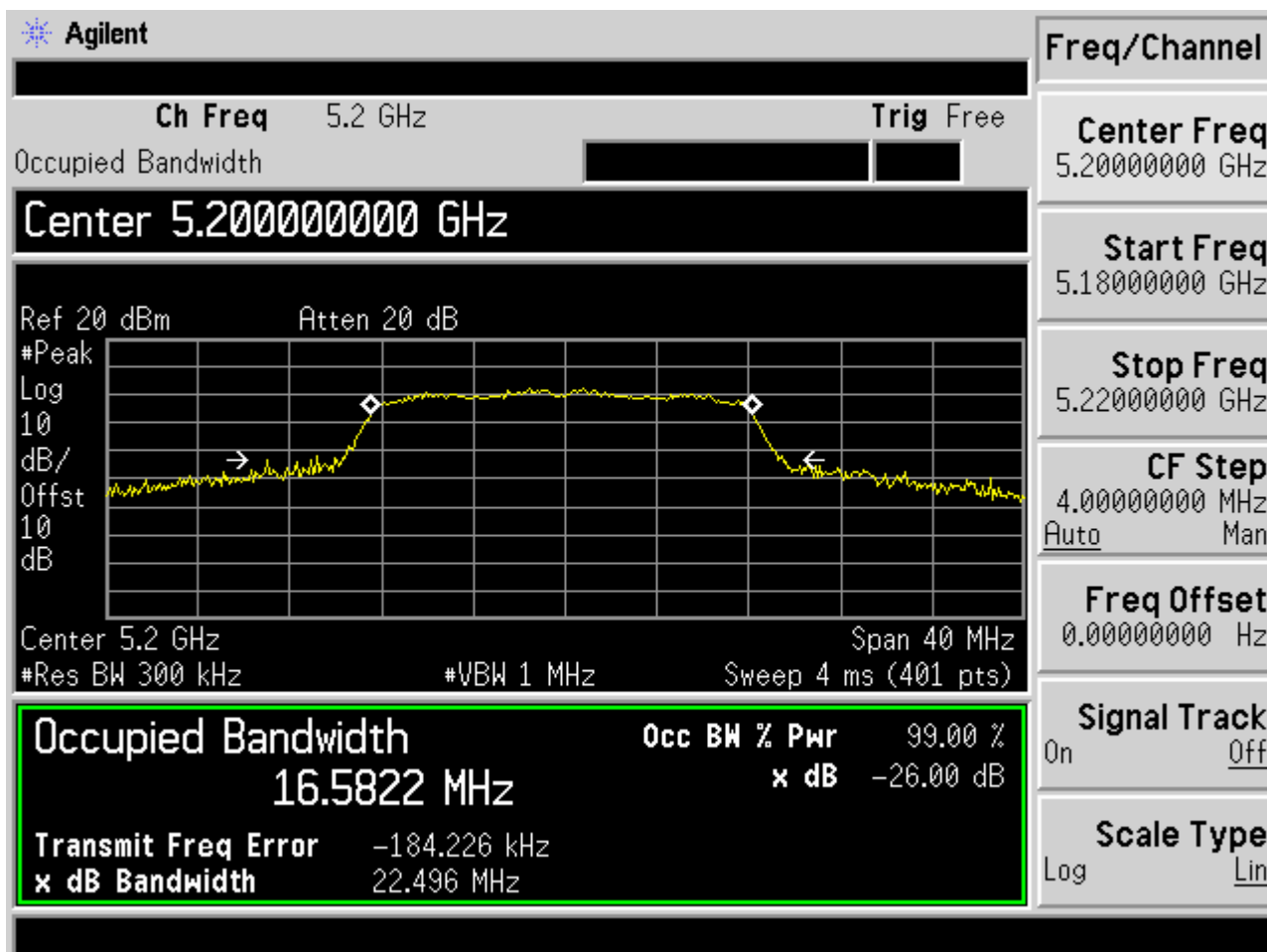
EUT	Tablet PC		Model	M9706	
Mode	802.11a		Input Voltage	DC7.4V	
Temperature	24 deg. C,		Humidity	56% RH	
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	26 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
36	5180	6	19.962	--	Pass
40	5200	6	22.496	--	Pass
48	5240	6	20.171	--	Pass
149	5745	6	19.037	--	Pass
153	5765	6	19.118	--	Pass
161	5805	6	18.927	--	Pass

Test Figure:

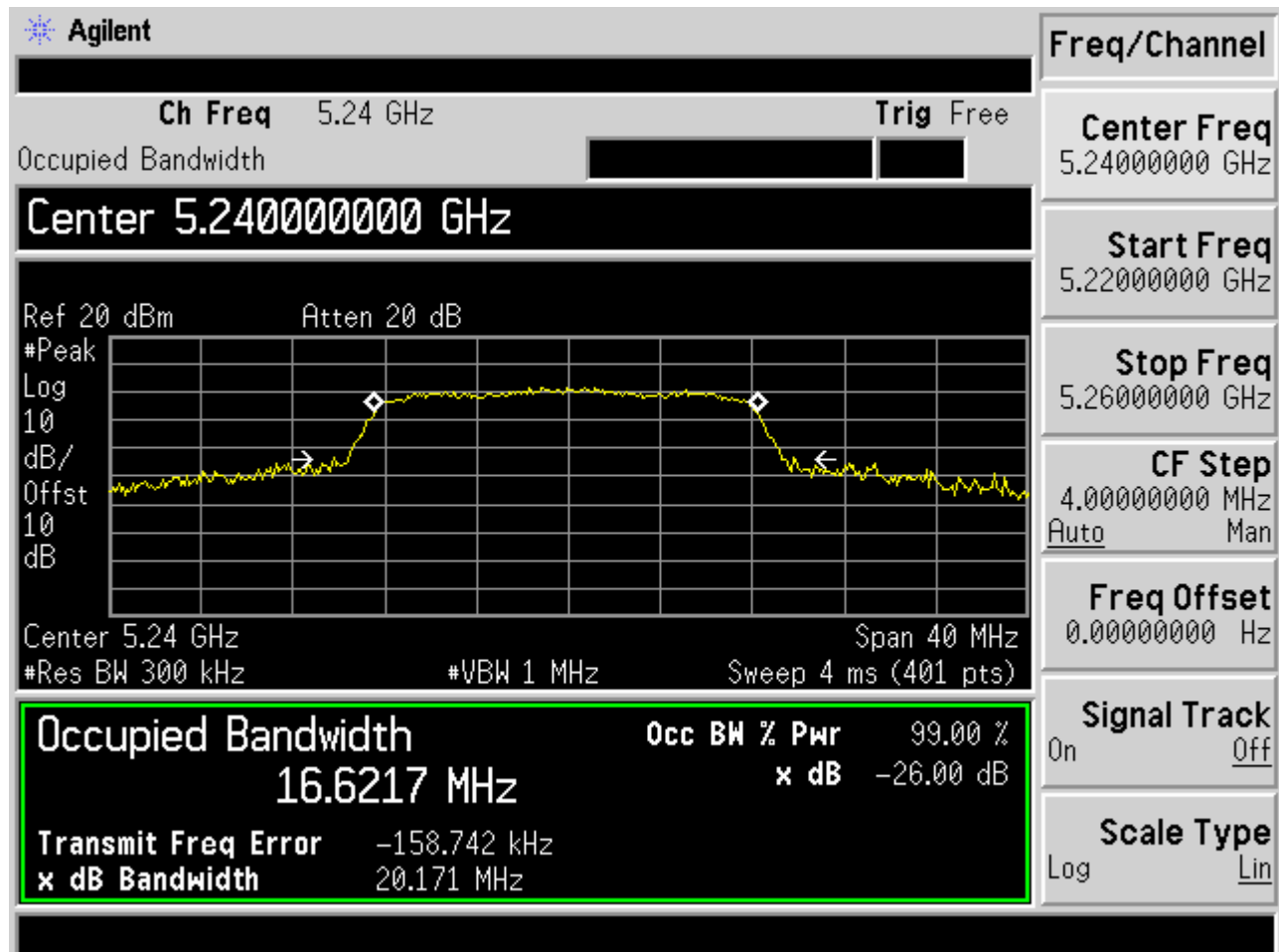
Channel 36



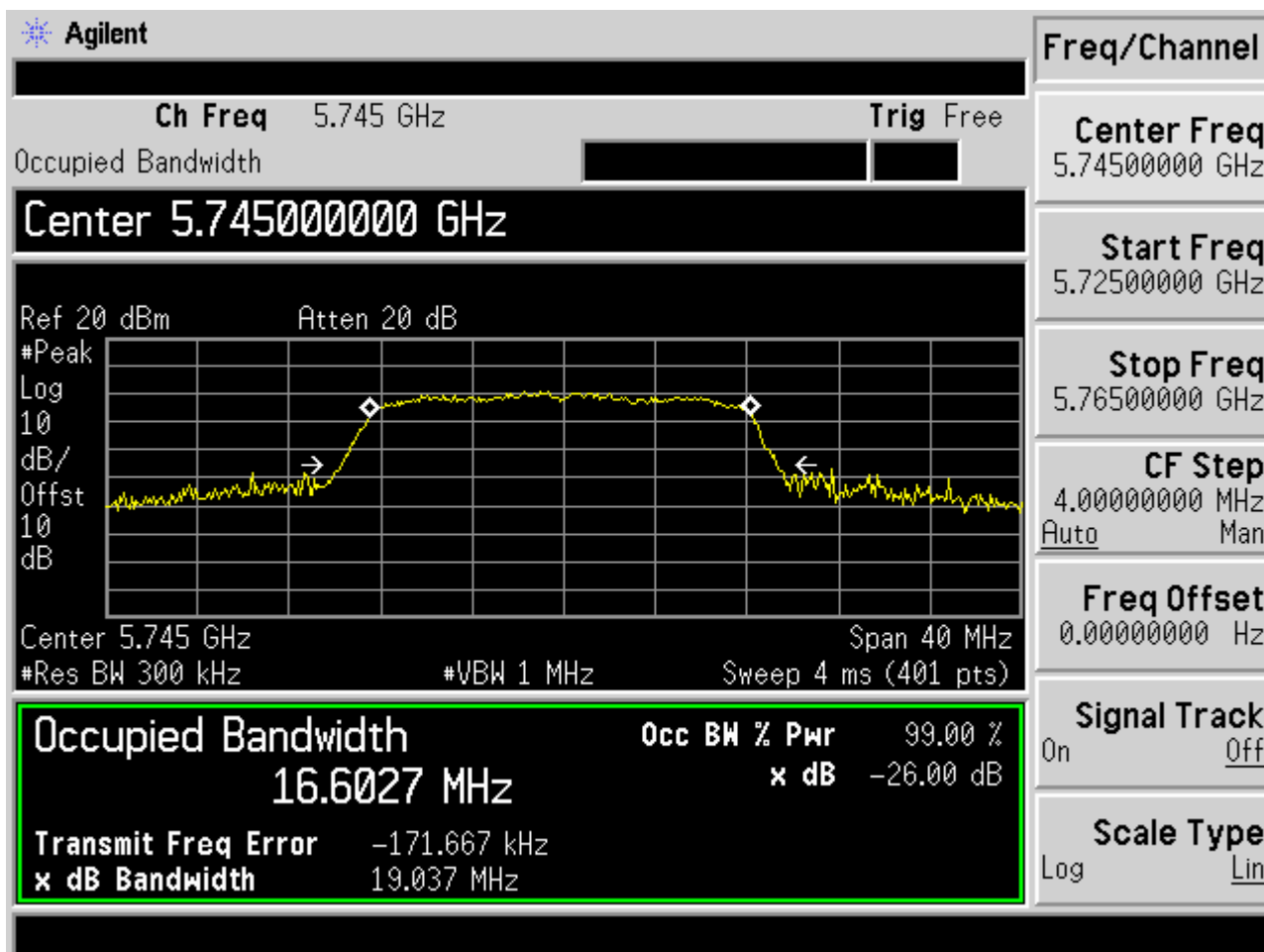
Channel 40



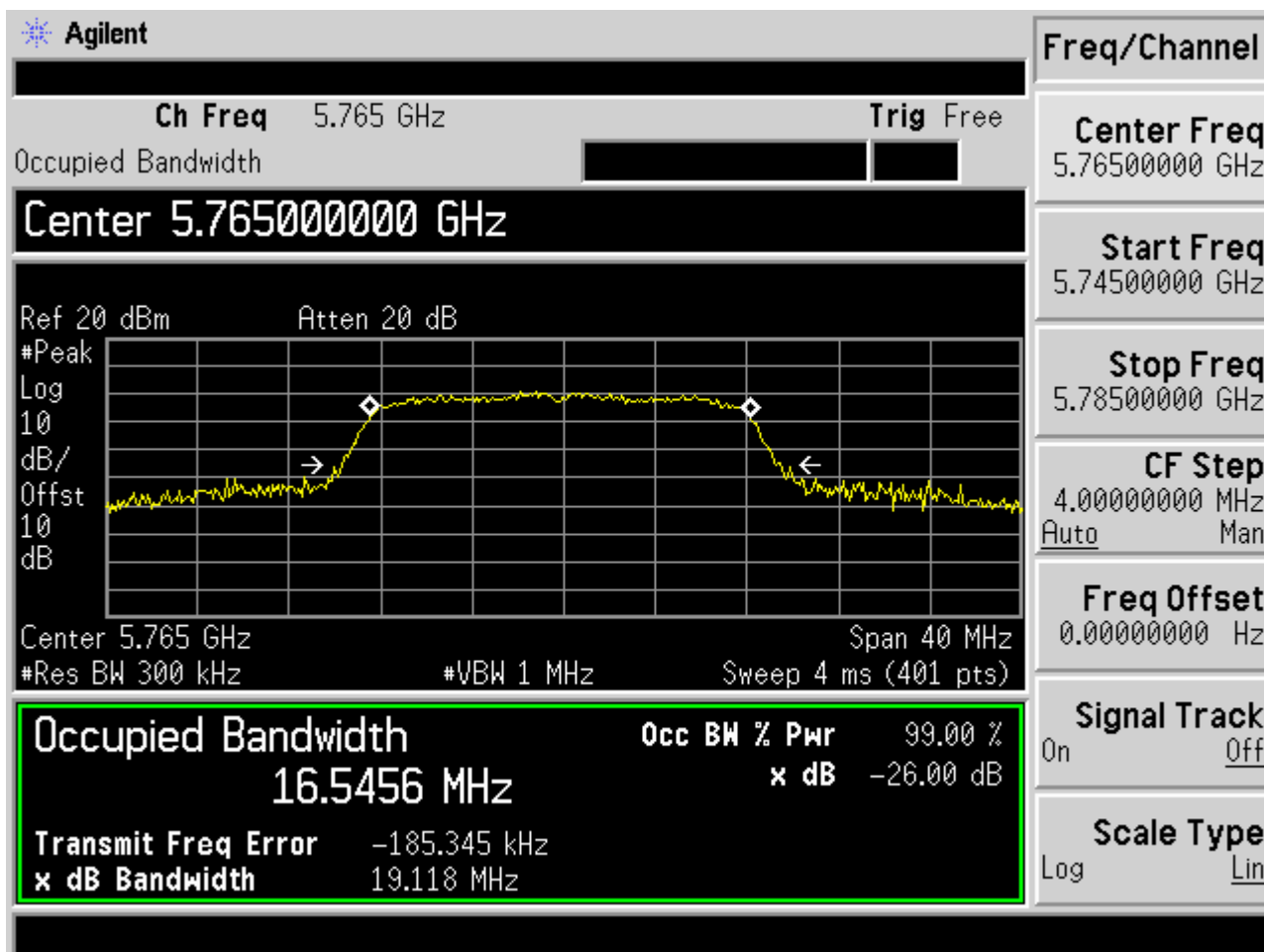
Channel 48



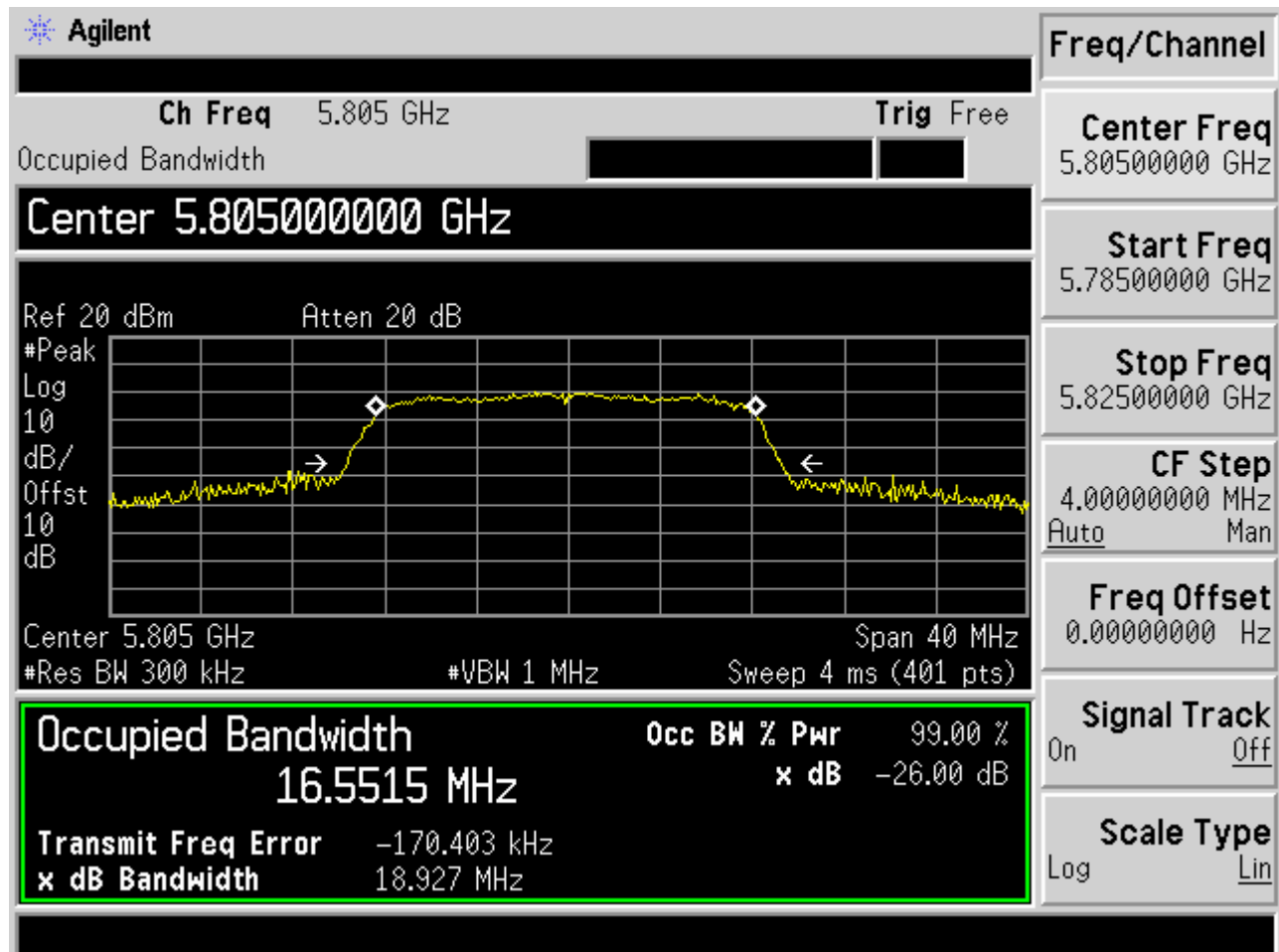
Channel 149



Channel 153



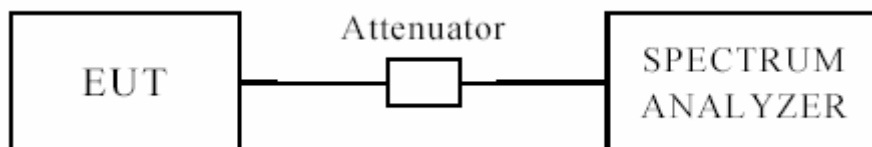
Channel 161





## 8.0 Peak Transmit Power Measurement

### 8.1 Test Setup



### 8.2 Limits of Peak Transmit Power Measurement

Frequency Band	Limit
5.15 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz and 5.470-5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

Note: Where B is the 26dB emission bandwidth in MHz.

### 8.3 Test Procedure

The RF power output was measured with a Spectrum analyzer connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

**Note: the average power was measured**

#### 8.4 Test Results

EUT		Tablet PC	Model	M9706	
Mode		802.11a	Input Voltage	DC7.4V	
Temperature		24 deg. C,	Humidity	56% RH	
Channel	Frequency (MHz)	Average Power Output (dBm)		Limit (dBm)	Pass/ Fail
36	5180	5.75		17	Pass
40	5200	5.71		17	Pass
48	5240	5.37		17	Pass
149	5745	4.22		30	Pass
153	5765	4.36		30	Pass
161	5805	4.67		30	Pass

Note: 1. At final test to get the worst-case emission at 6Mbps for CH36, CH40, CH48, CH149, CH153 and CH161

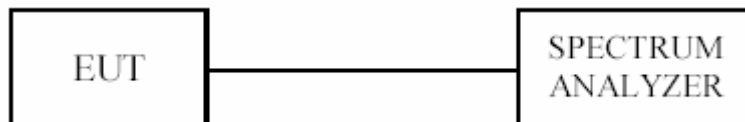
2. The result basic equation calculation as follow:

Average Power Output = Peak Power Reading + Cable loss + Attenuator

3. The worse case was recorded

## 9. Peak Power Spectral Density Measurement

### 9.1 Test Setup



### 9.2 Limits of Power Spectral Density Measurement

Frequency Band	Limit
5.15 – 5.25GHz	4dBm
5.25 – 5.35GHz and 5.470-5.725GHz	11dBm
5.725 – 5.825GHz	17dBm

### 9.3 Test Procedure

1. The EUT was directly connected to the spectrum analyzer
2. Set the RBW = 1MHz.
3. Set the VBW =3MHz.
4. Set the span to encompass the entire emissions bandwidth (EBW) of the signal
5. Detector = RMS
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.

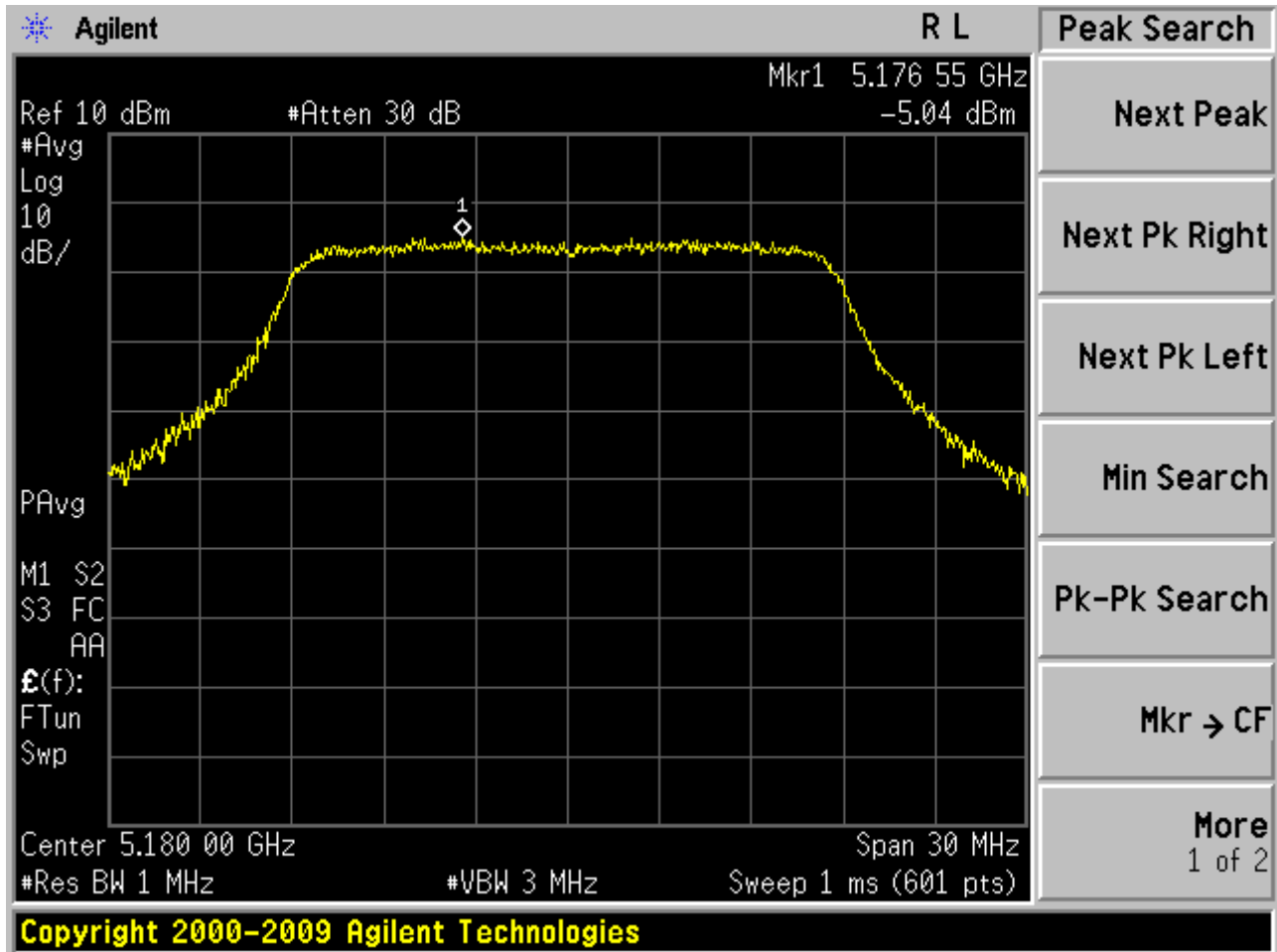
REMARK:Duty cycle is 100% then  $10\log(1/\text{dutycycle})=0$

**9.4 Test Result**

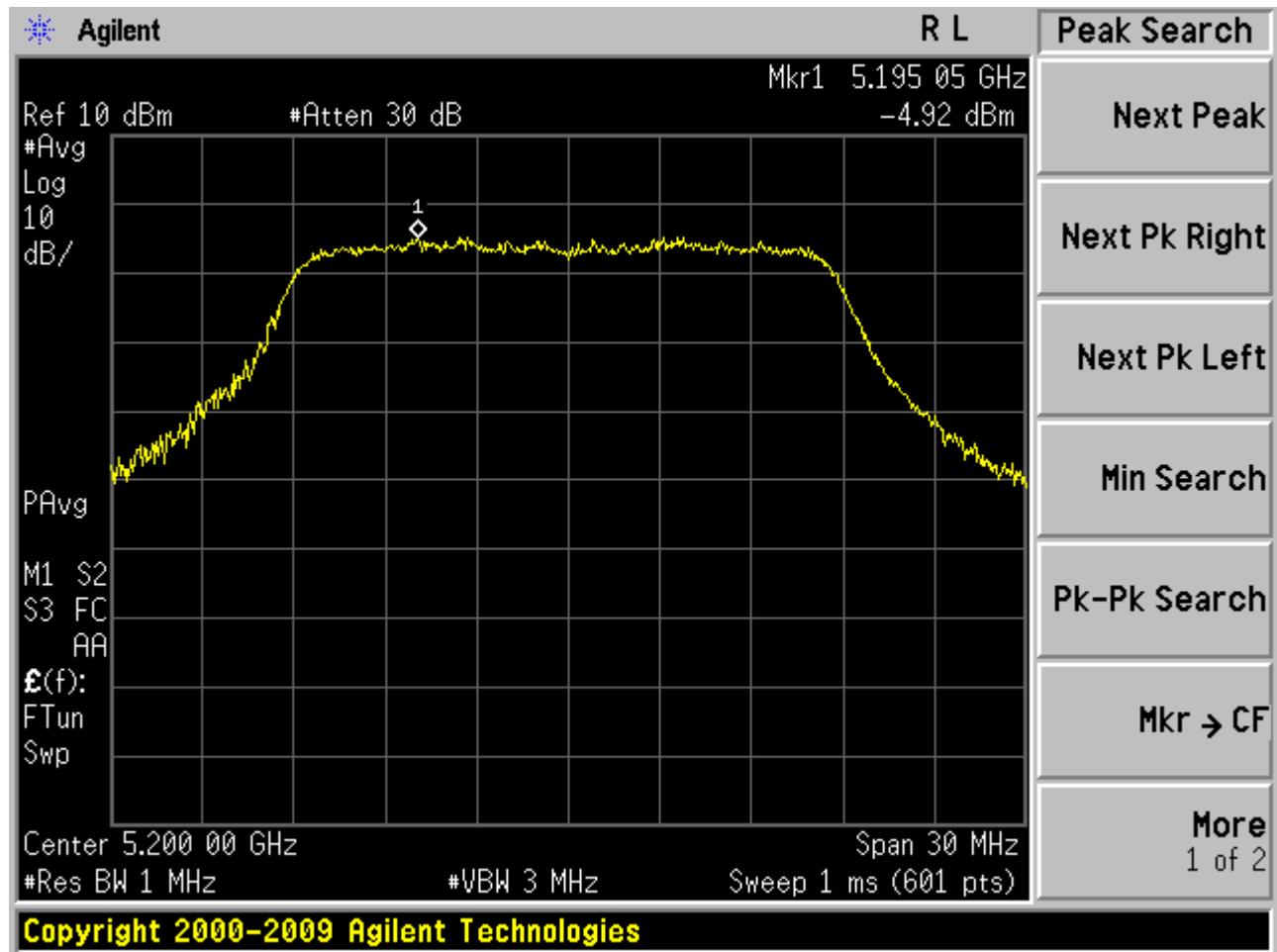
EUT	Table PC	Model	M9706	
Mode	802.11a 6Mbps	Input Voltage	DC7.4V	
Temperature	24 deg. C,	Humidity	56% RH	
Channel	Frequency (MHz)	Final Power Spectral Density (dBm)	Limit (dBm)	Pass/ Fail
36	5180	-5.04	4	Pass
40	5200	-4.92	4	Pass
48	5240	-5.00	4	Pass
149	5745	-4.61	17	Pass
153	5765	-4.33	17	Pass
161	5805	-5.69	17	Pass

## 9.5 Photo of Power Spectral Density Measurement

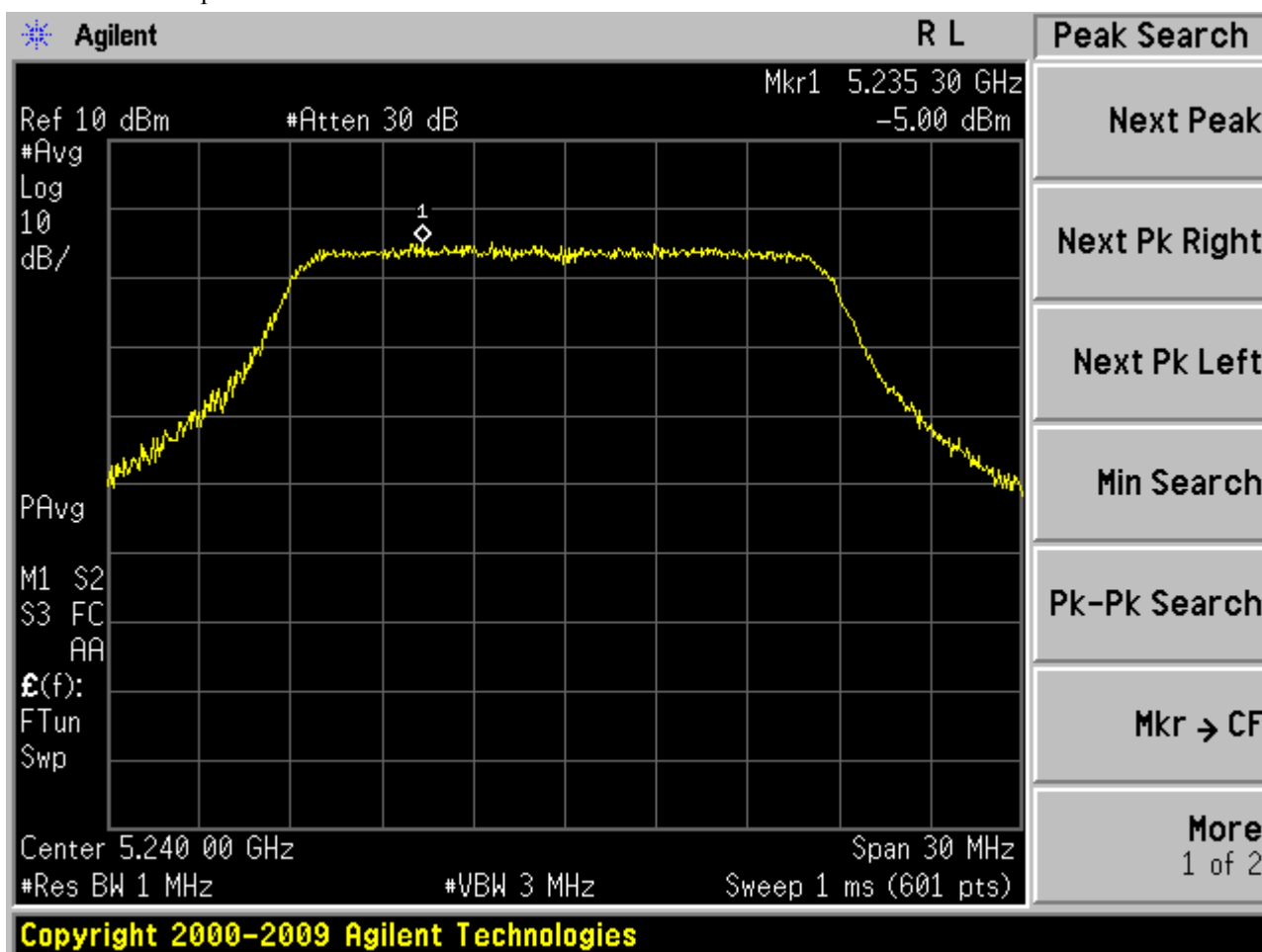
1.802.11a at 6Mbps of CH36



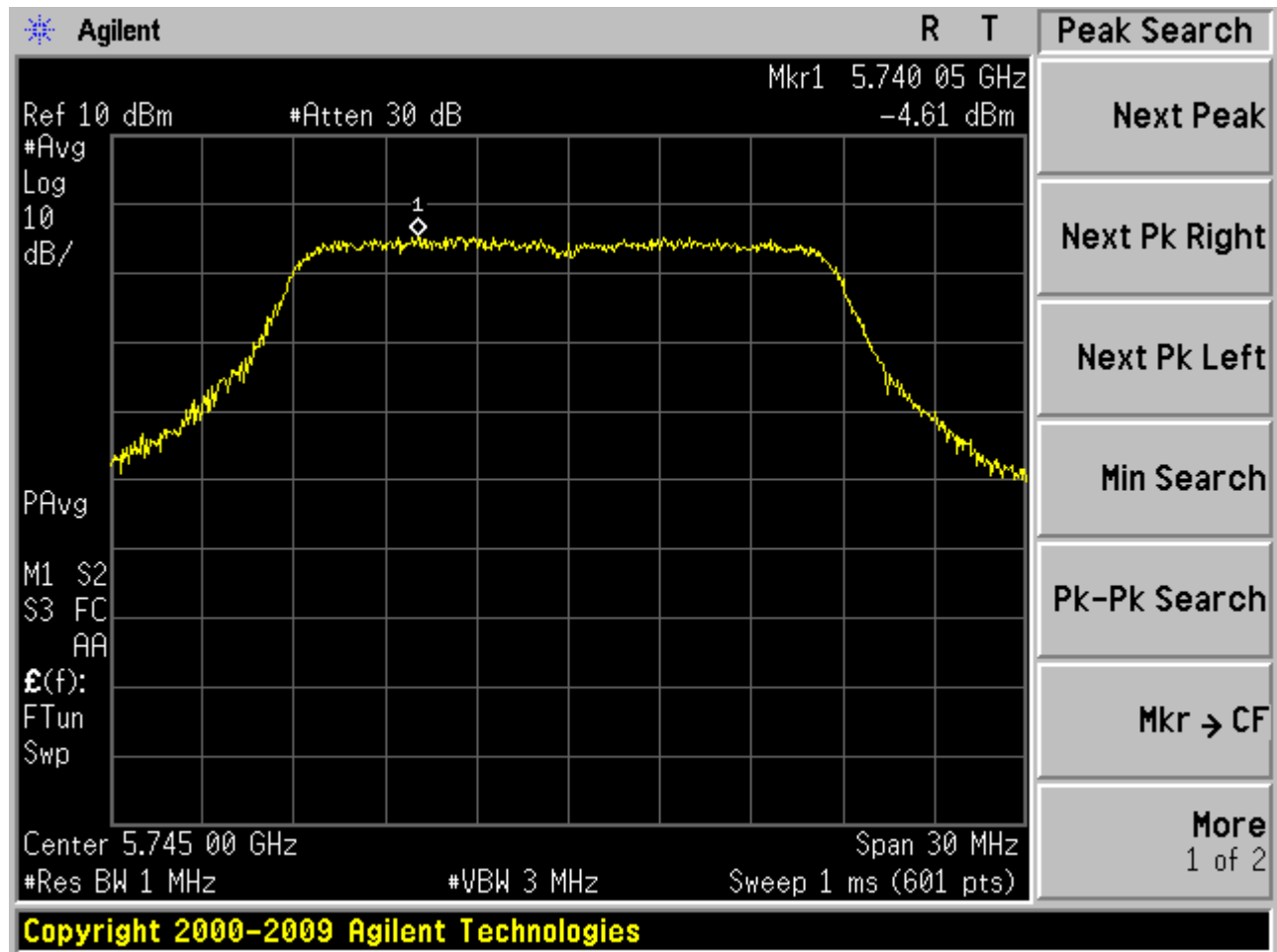
2.802.11a at 6Mbps of CH40



3.802.11a at 6Mbps of CH48

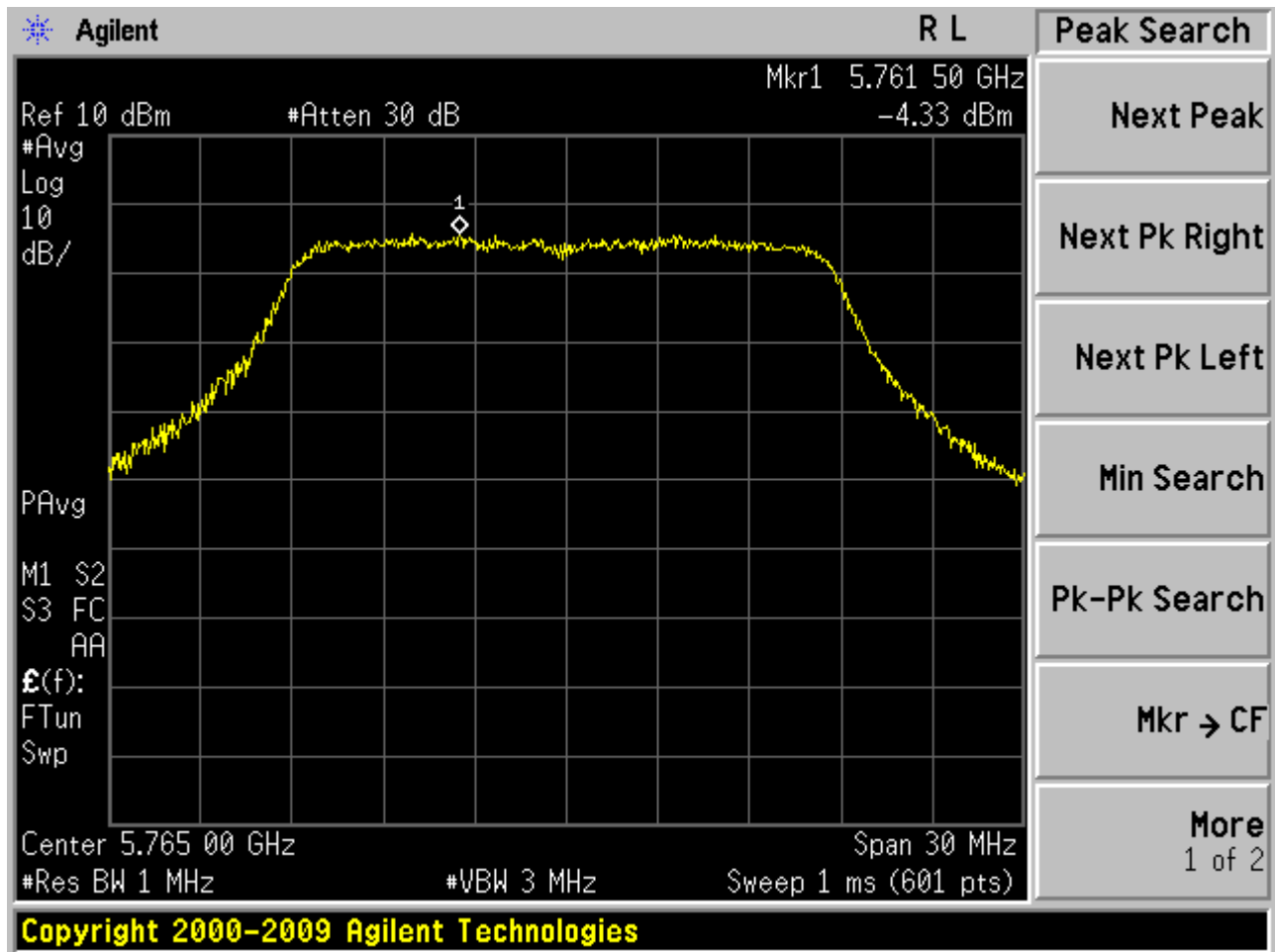


4.802.11a at 6Mbps of CH149

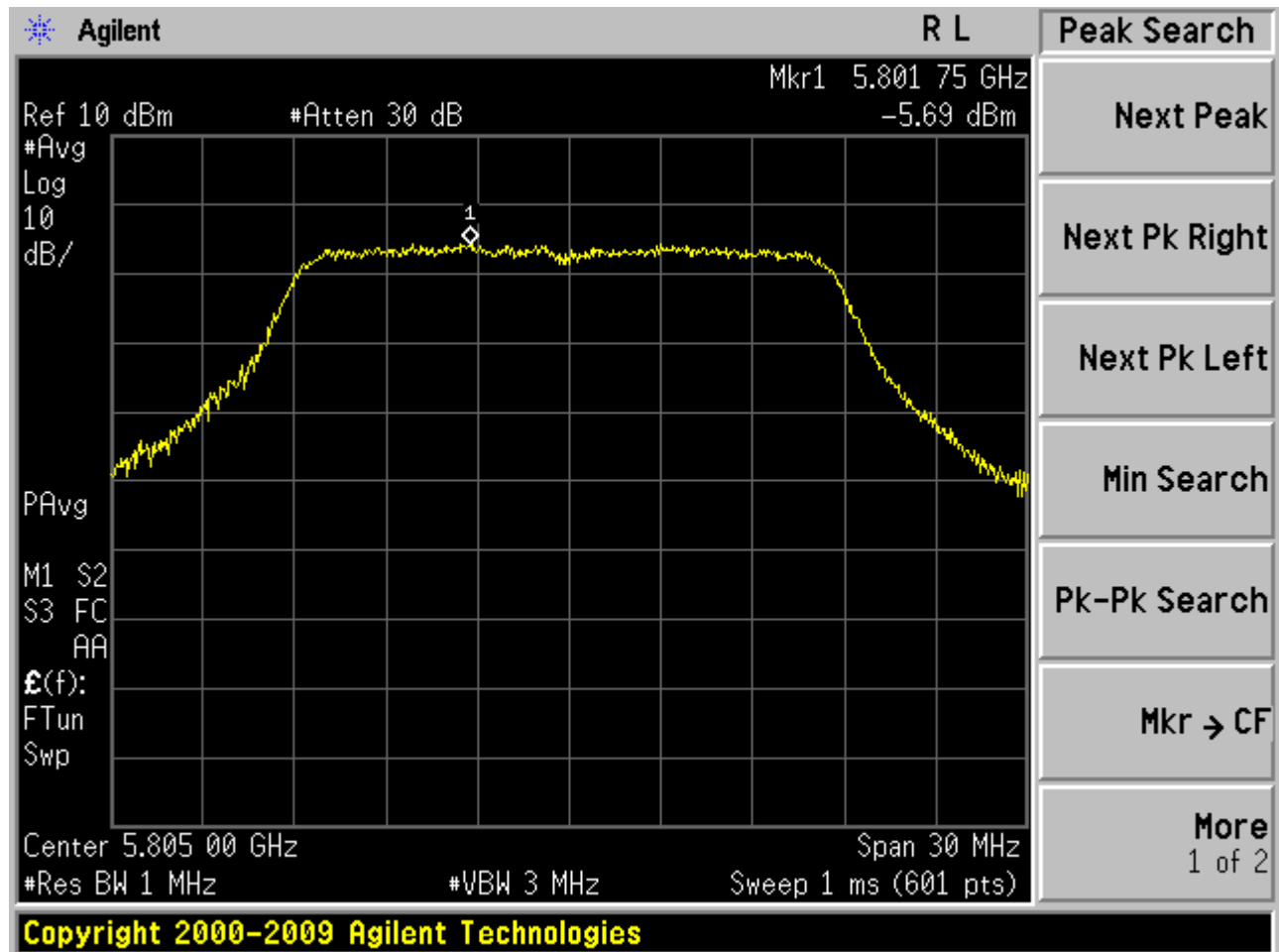




5.802.11a at 6Mbps of CH153

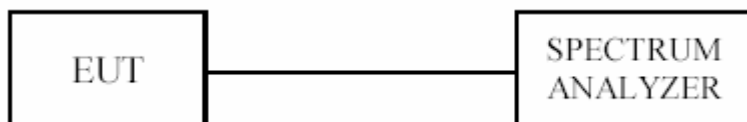


6.802.11a at 6Mbps of CH0161



## 10. Peak Excursion Measurement

### 10.2 Test Setup



### 10.2 Limits of Peak Power Excursion Measurement

Frequency Band	Limit
5.15 – 5.25GHz	13
5.25 – 5.35GHz and 5.470-5.725GHz	13
5.725 – 5.825GHz	13

### 10.3 Test Procedure

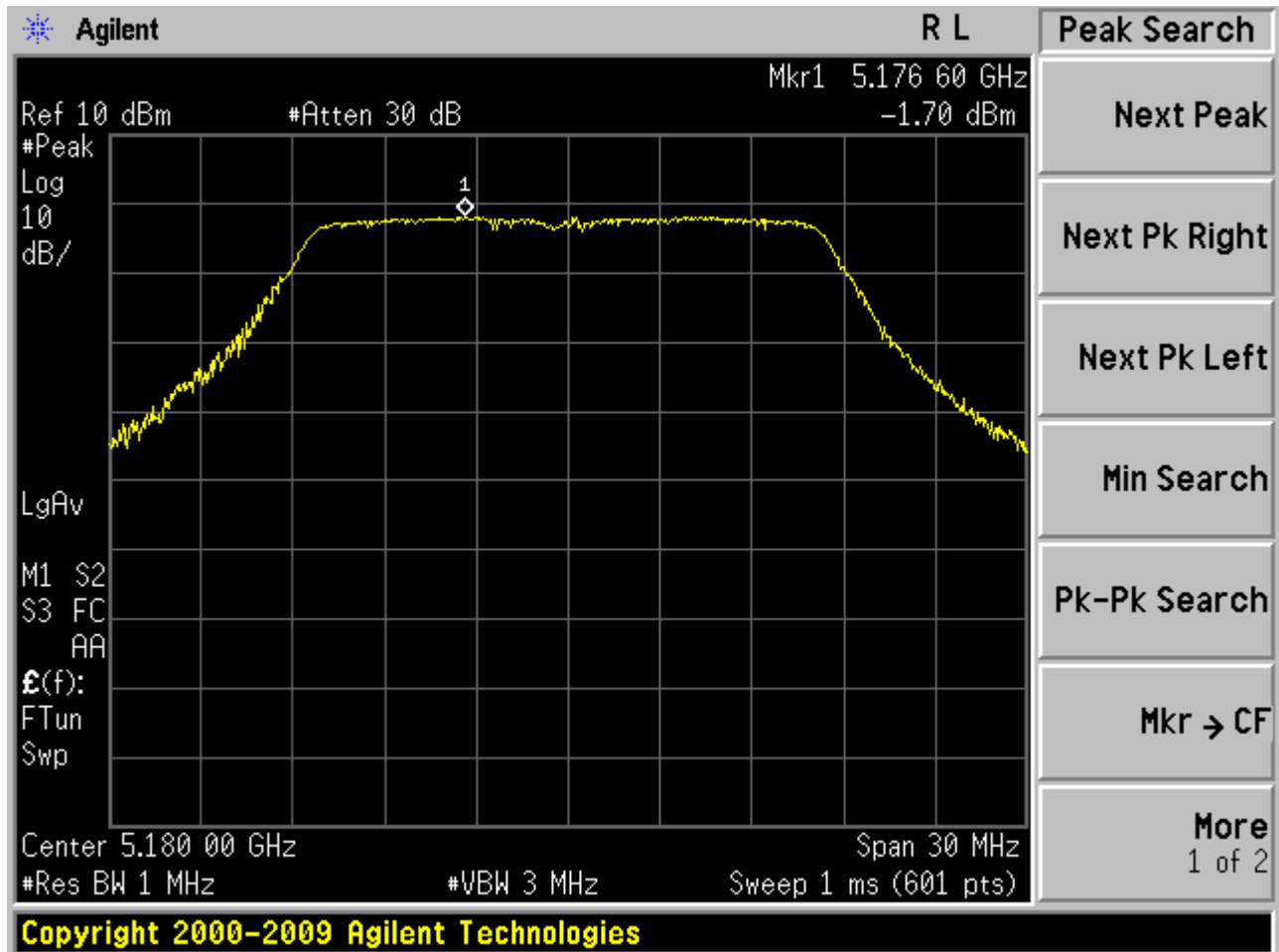
1. The EUT was directly connected to the spectrum analyzer and antenna
2. Set the RBW = 1MHz (Peak and Average Trace)
3. Set the VBW = 3MHz (Peak and Average Trace)
4. Set the span to encompass the entire emissions bandwidth (EBW) of the signal
5. Detector = Peak (Peak Trace) / RMS (Average Trace)
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.

**10.4 Test Result**

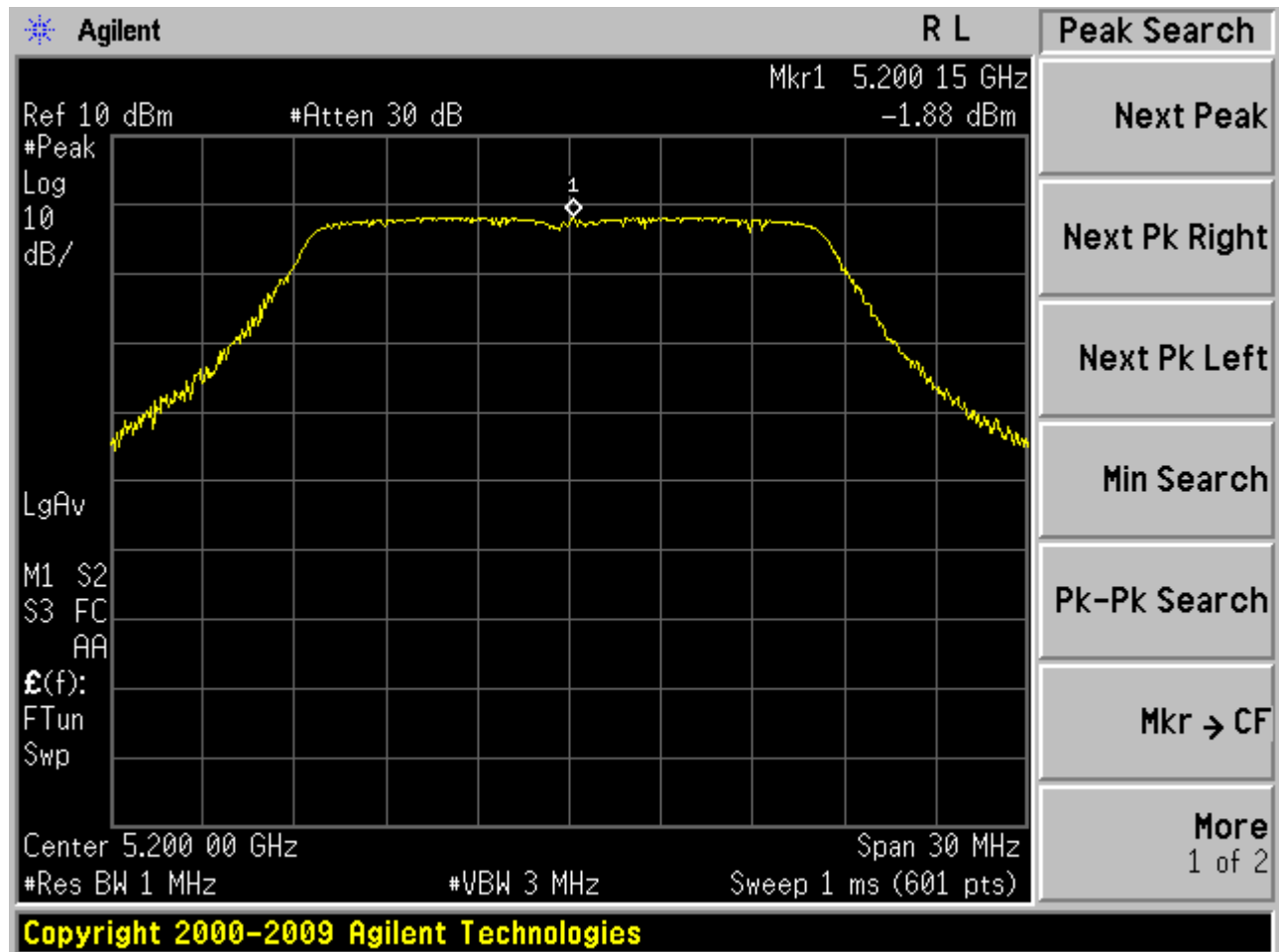
EUT		Tablet PC		Model		M9706
Mode		802.11a 6Mbps		Input Voltage		DC7.4V
Temperature		24 deg. C,		Humidity		56% RH
Channel	Frequency (MHz)	Peak Level (dBm)	PSD (dBm)	Peak Excursion (dB)	Limit (dB)	Pass/ Fail
36	5180	-1.70	-5.04	3.34	13	Pass
40	5200	-1.88	-4.92	3.04	13	Pass
48	5240	-2.04	-5.00	2.96	13	Pass
149	5745	-1.01	-4.61	3.60	13	Pass
153	5765	-0.84	-4.33	3.49	13	Pass
161	5805	-2.34	-5.69	3.35	13	Pass

## 10.5 Photo of Peak Level

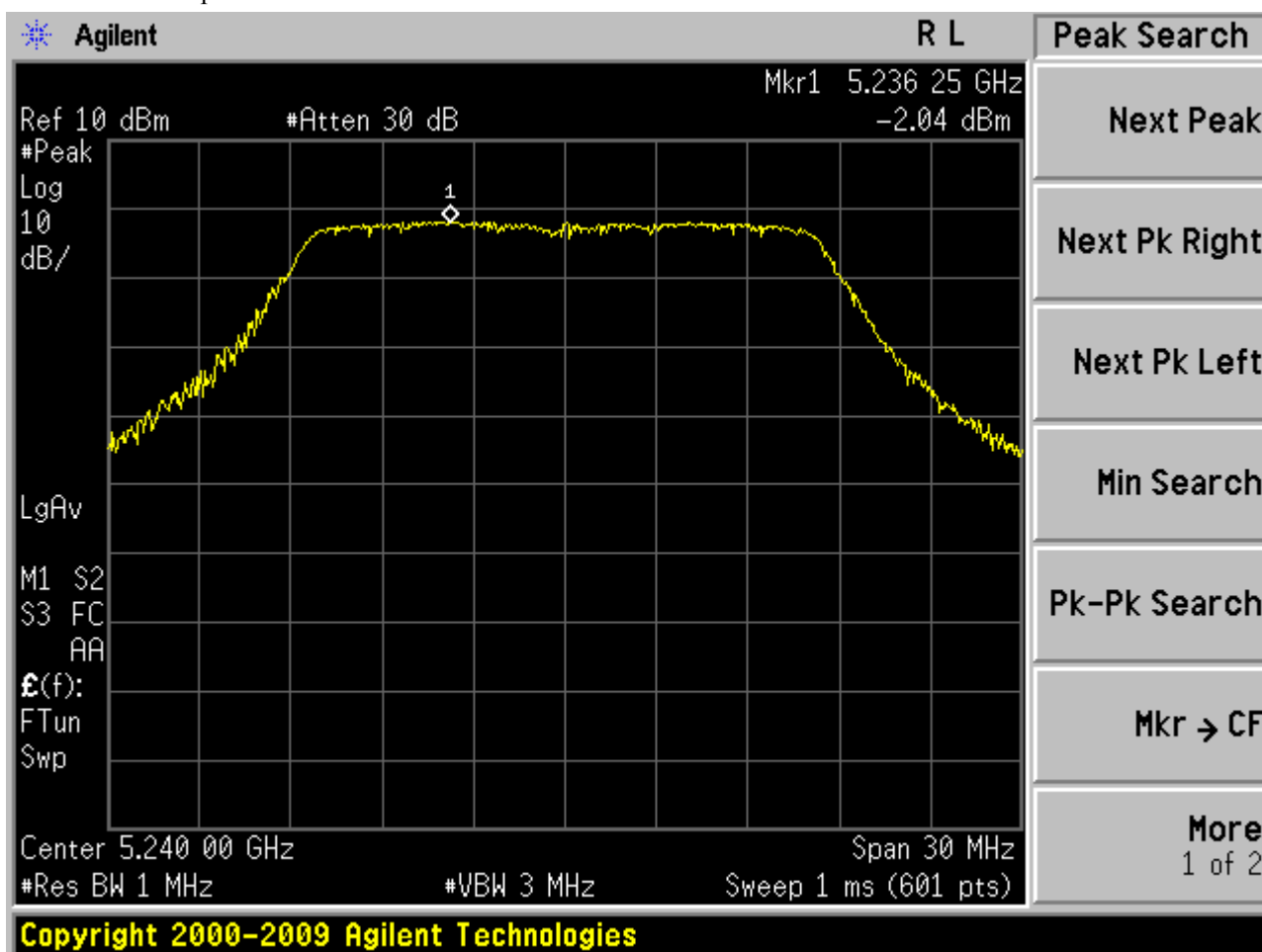
1.802.11a at 6Mbps of CH36



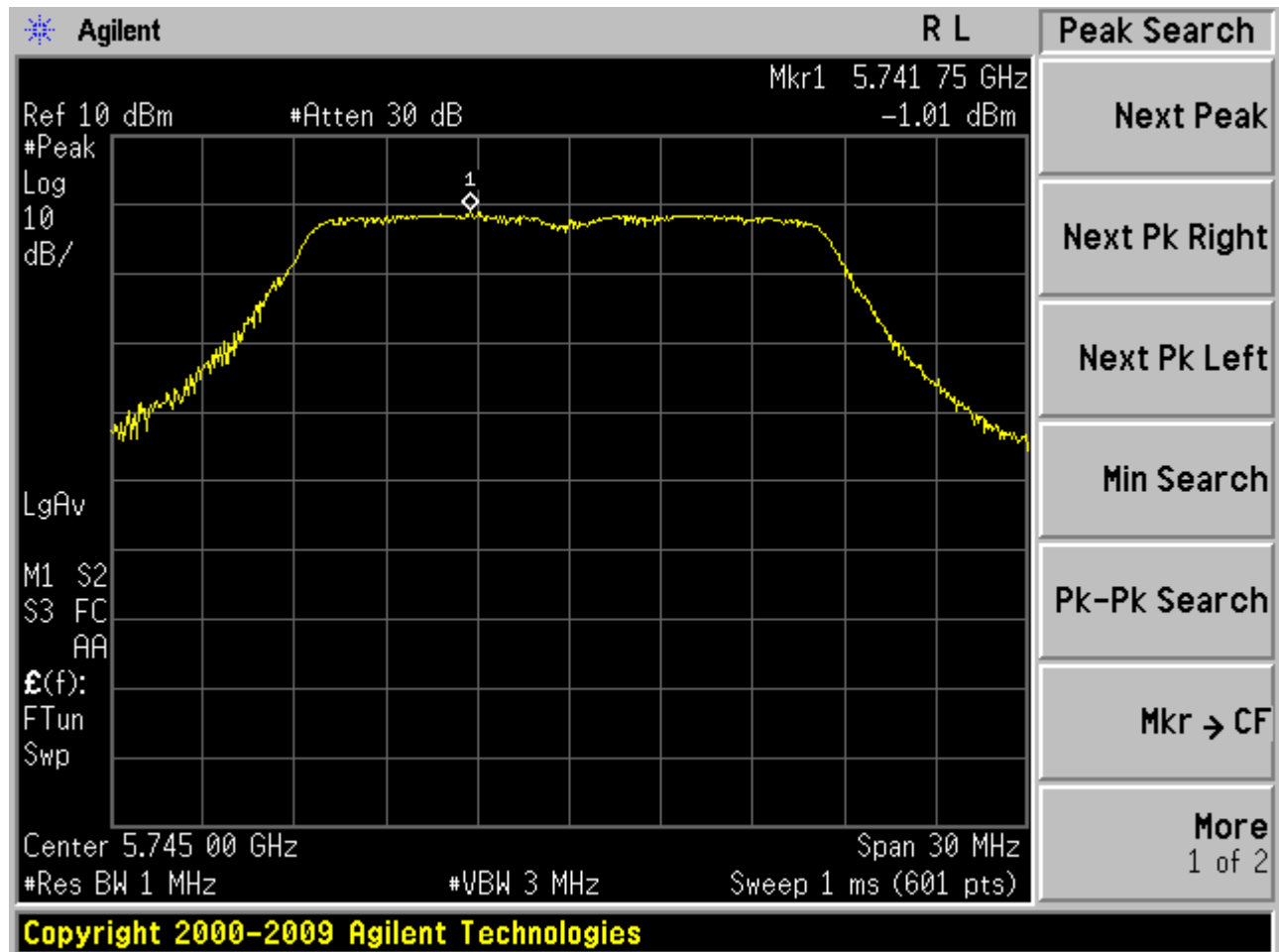
2.802.11a at 6Mbps of CH40



3.802.11a at 6Mbps of CH48

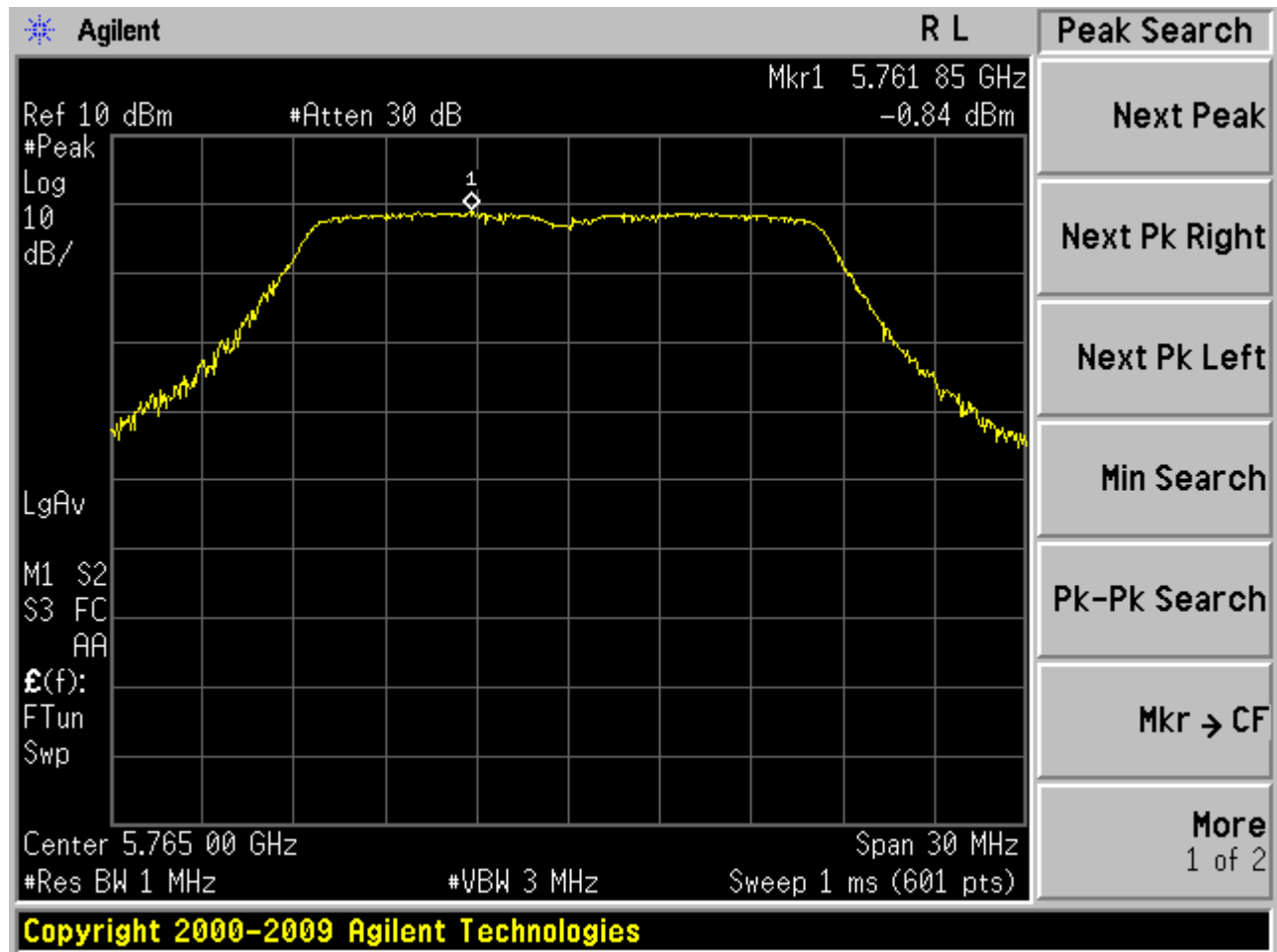


4.802.11a at 6Mbps of CH149

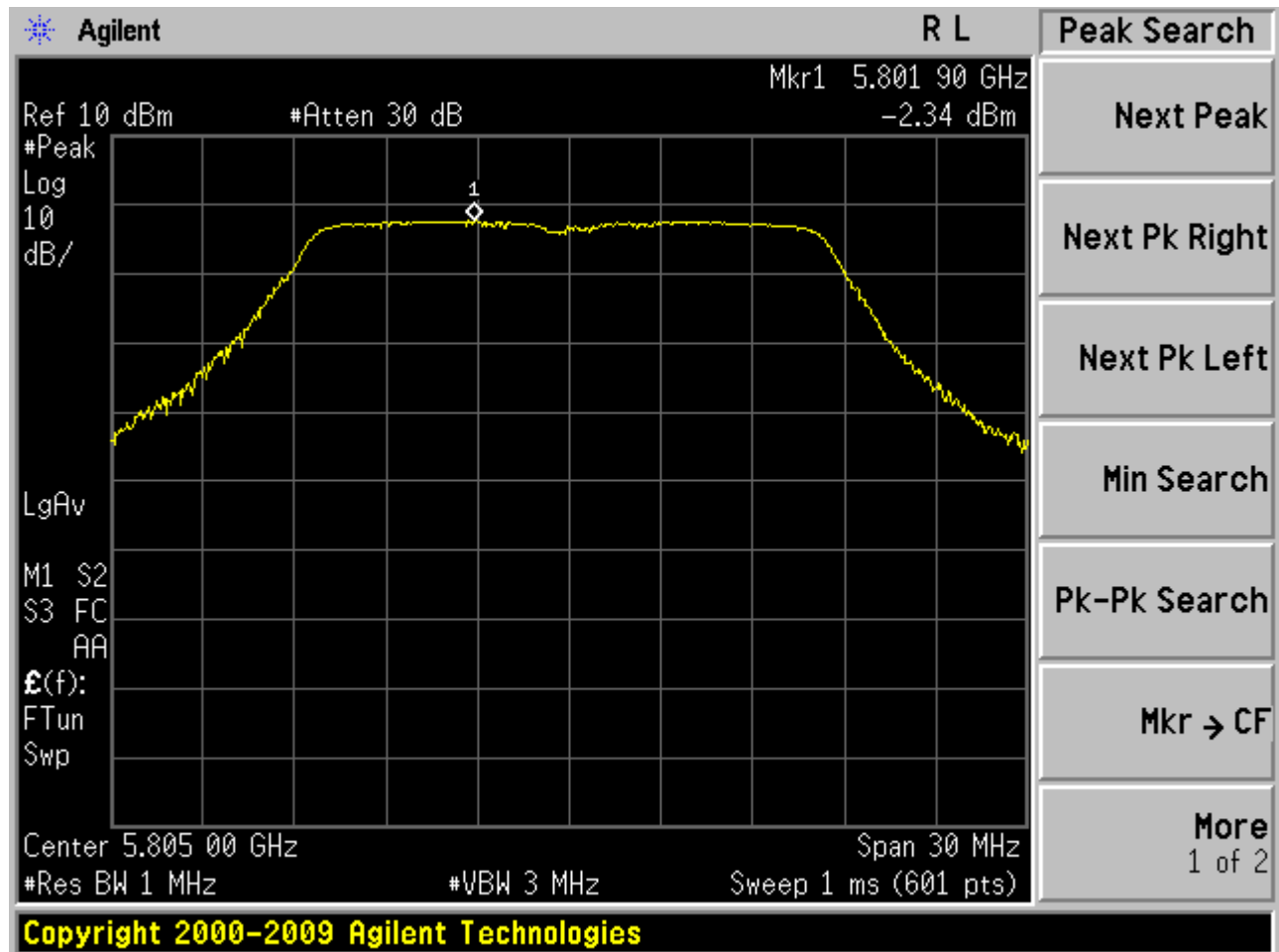




5.802.11a at 6Mbps of CH153



6.802.11a at 6Mbps of CH161





## **11.0 Frequency Stability**

### **11.1 Limits of Frequency Stability Measurement**

The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.02\%$  of the operating frequency over a temperature variation of  $-30$  degrees to  $50$  degrees C at normal supply voltage, and for a variation in the primary supply voltage from  $85\%$  to  $115\%$  of the rated supply voltage at a temperature of  $20$  degrees

### **11.2 Test Procedure**

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at  $+20$  degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from  $85\%$  to  $115\%$  and the frequency record.

**11.3 Test Result****Channel 36 (5180MHz)****Voltage vs. Frequency Stability**

Voltage	Measurement Frequency (MHz)
8.5V	5179.9765
7.4V	5179.9717
6.3V	5179.9806
Max. Deviation (MHz)	0.0283
Max. Deviation (ppm)	5.5

Rated working voltage: DC7.4V

**Temperature vs. Frequency Stability**

Temperature (°C)	Measurement Frequency (MHz)
-30	5179.9738
-20	5179.9726
-10	5179.9772
0	5179.9715
10	5179.9783
20	5179.9810
30	5179.9829
40	5179.9733
50	5179.9761
Max. Deviation (MHz)	0.0285
Max. Deviation (ppm)	5.5

**Channel 40 (5200MHz)****Voltage vs. Frequency Stability**

Voltage	Measurement Frequency (MHz)
8.5V	5199.9689
7.4V	5199.9778
6.3V	5199.9708
Max. Deviation (MHz)	0.0311
Max. Deviation (ppm)	6.0

Rated working voltage: DC7.4V

**Temperature vs. Frequency Stability**

Temperature (°C)	Measurement Frequency (MHz)
-30	5199.9758
-20	5199.9792
-10	5199.9727
0	5199.9812
10	5199.9809
20	5199.9822
30	5199.9790
40	5199.9812
50	5199.9751
Max. Deviation (MHz)	0.0273
Max. Deviation (ppm)	5.3

**Channel 48 (5240MHz)****Voltage vs. Frequency Stability**

Voltage	Measurement Frequency (MHz)
8.5V	5239.9675
7.4V	5239.9737
6.3V	5239.9809
Max. Deviation (MHz)	0.0325
Max. Deviation (ppm)	6.2

Rated working voltage: DC7.4V

**Temperature vs. Frequency Stability**

Temperature (°C)	Measurement Frequency (MHz)
-30	5239.9718
-20	5239.9708
-10	5329.9748
0	5239.9709
10	5239.9812
20	5239.9771
30	5239.9809
40	5239.9819
50	5239.9758
Max. Deviation (MHz)	0.0292
Max. Deviation (ppm)	5.6

**Channel 149 (5745MHz)****Voltage vs. Frequency Stability**

Voltage	Measurement Frequency (MHz)
8.5V	5744.9671
7.4V	5744.9812
6.3V	5744.9683
Max. Deviation (MHz)	0.0329
Max. Deviation (ppm)	5.7

Rated working voltage: DC7.4V

**Temperature vs. Frequency Stability**

Temperature (°C)	Measurement Frequency (MHz)
-30	5744.9716
-20	5744.9733
-10	5744.9822
0	5744.9752
10	5744.9709
20	5744.9749
30	5744.9816
40	5744.9820
50	5744.9753
Max. Deviation (MHz)	0.0284
Max. Deviation (ppm)	4.9

**Channel 153 (5765MHz)****Voltage vs. Frequency Stability**

Voltage	Measurement Frequency (MHz)
8.5V	5764.9734
7.4V	5764.9826
6.3V	5764.9792
Max. Deviation (MHz)	0.0266
Max. Deviation (ppm)	4.6

Rated working voltage: DC7.4V

**Temperature vs. Frequency Stability**

Temperature (°C)	Measurement Frequency (MHz)
-30	5764.9724
-20	5764.9691
-10	5764.9834
0	5764.9809
10	5764.9781
20	5764.9803
30	5764.9785
40	5764.9810
50	5764.9786
Max. Deviation (MHz)	0.0309
Max. Deviation (ppm)	5.4



**Channel 161 (5805MHz)****Voltage vs. Frequency Stability**

Voltage	Measurement Frequency (MHz)
8.5V	5804.9616
7.4V	5804.9786
6.3V	5804.9663
Max. Deviation (MHz)	0.0384
Max. Deviation (ppm)	6.6

Rated working voltage: DC7.4V

**Temperature vs. Frequency Stability**

Temperature (°C)	Measurement Frequency (MHz)
-30	5804.9811
-20	5804.9785
-10	5804.9805
0	5804.9783
10	5804.9811
20	5804.9769
30	5804.9788
40	5804.9802
50	5804.9725
Max. Deviation (MHz)	0.0275
Max. Deviation (ppm)	4.7



## **12.0 Antenna Requirement**

### **12.1 Standard Applicable**

For intentional device, according to FCC 47 CFR Section 15.203, 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **12.2 Antenna Connected construction**

Integral antenna used. The maximum Gain of each antenna is 1.3dBi for 5G band.

**13.0 FCC ID Label****FCC ID: 2AAQL- M9706**

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

**Mark Location:**

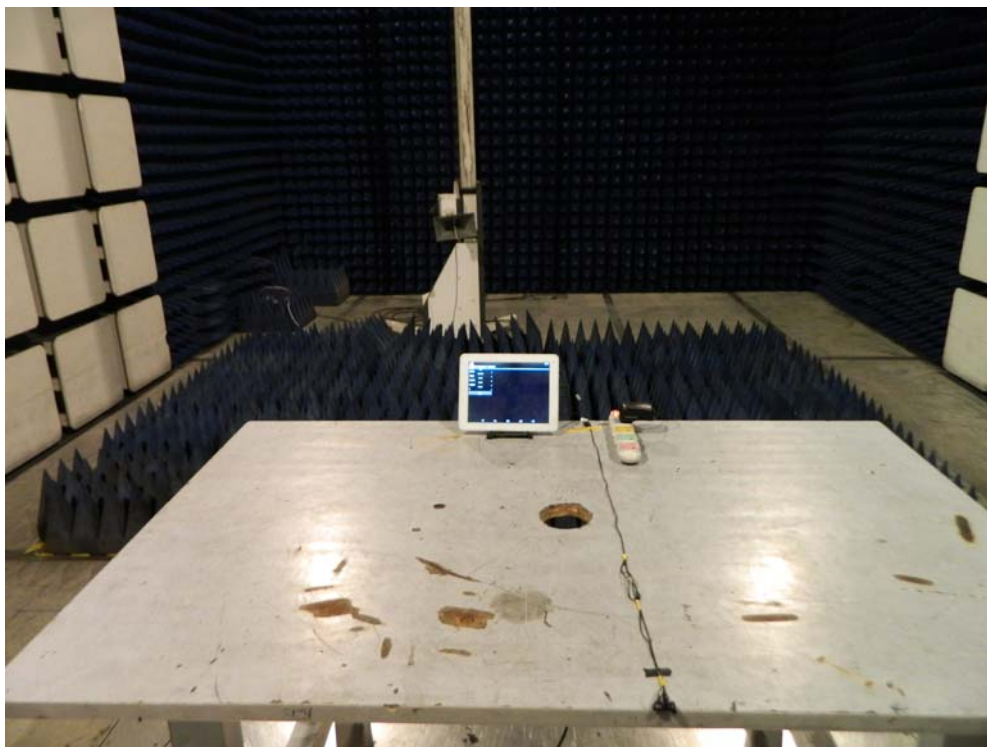
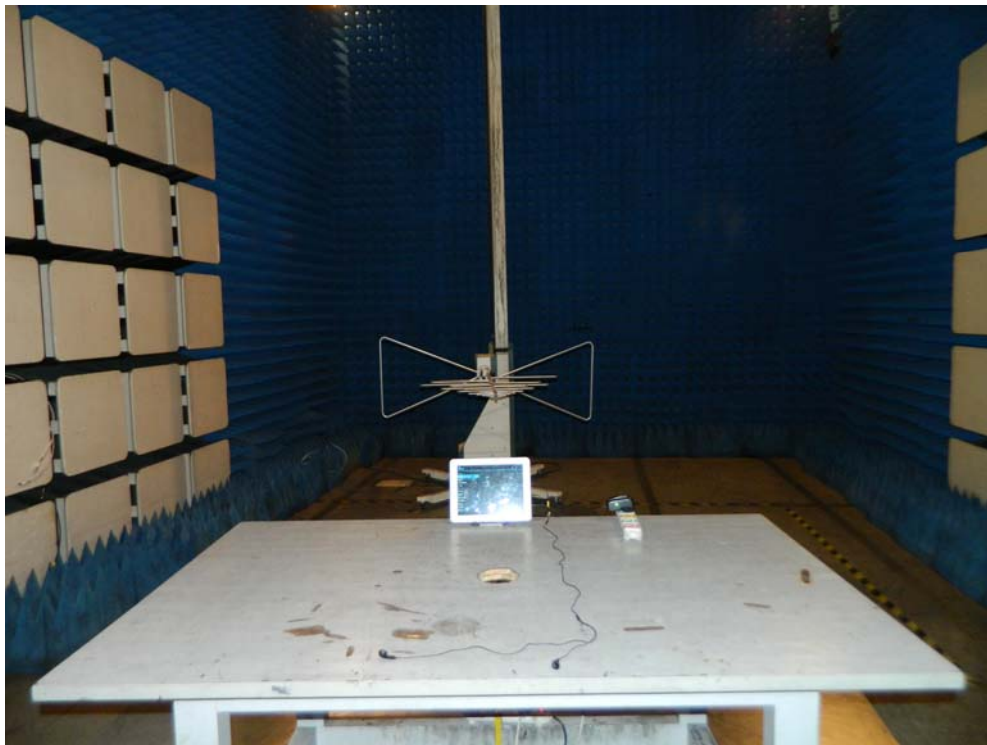
FCC ID Label Location

## 14 PHOTOGRAPHS OF THE TEST CONFIGURATION

### Conducted Emissions



Radiated Emissions





## PHOTOGRAPHS OF EUT



Photo 1



Photo 2





Photo 3



Photo 4





Photo 5



Photo 6





Photo 7



Photo 8





Photo 9

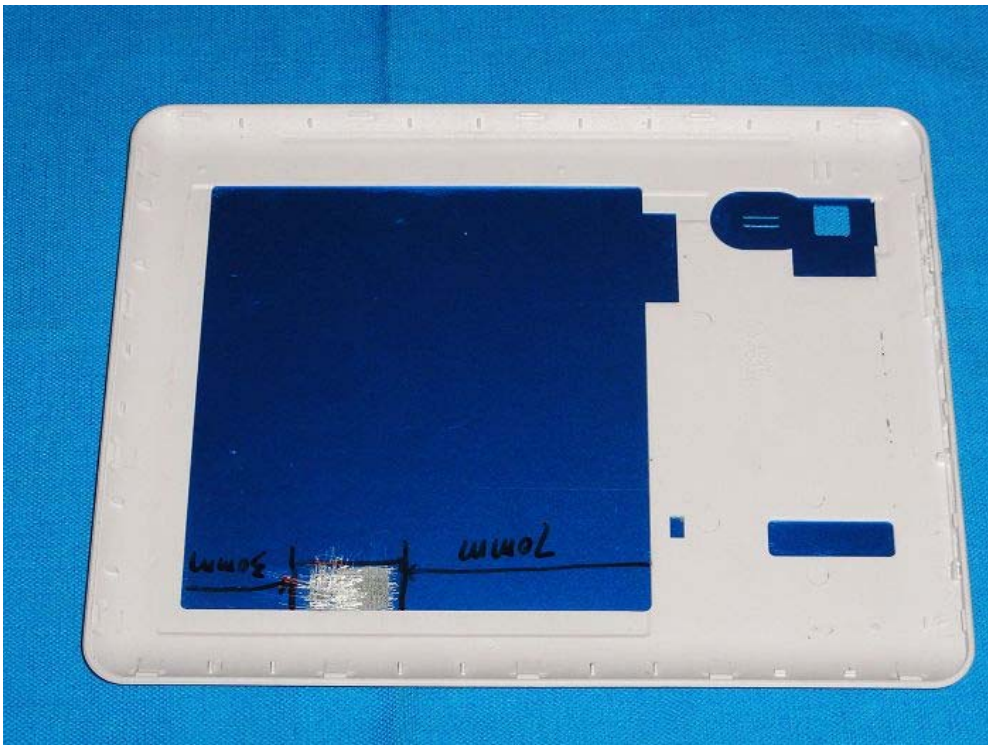


Photo 10



Photo 11



Photo 12



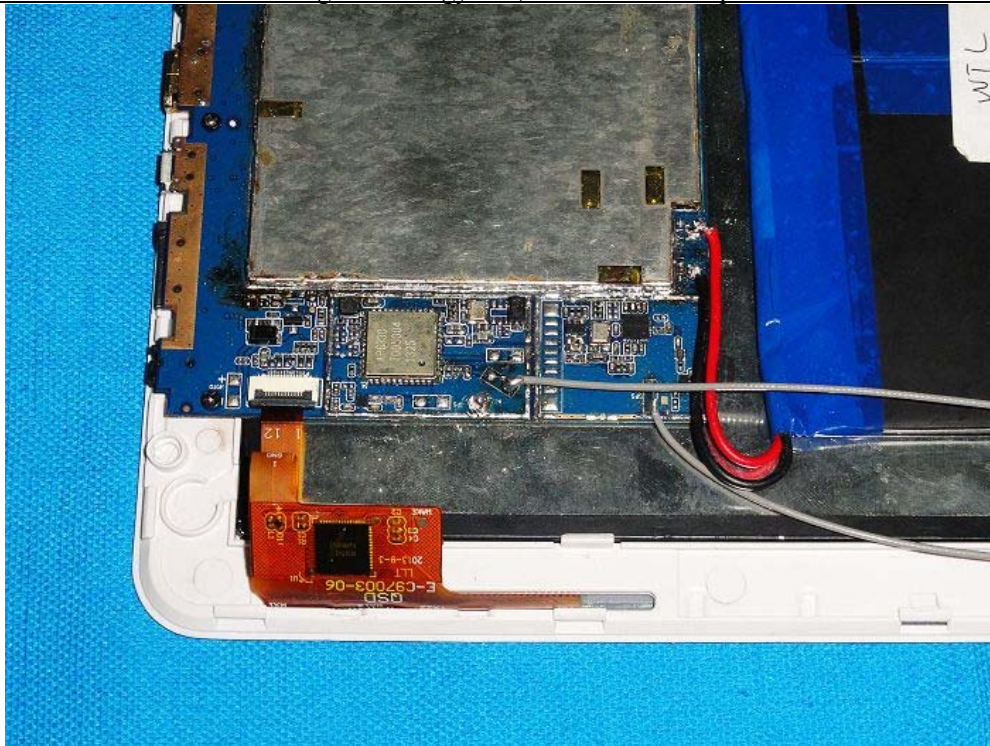


Photo 13



Photo 14



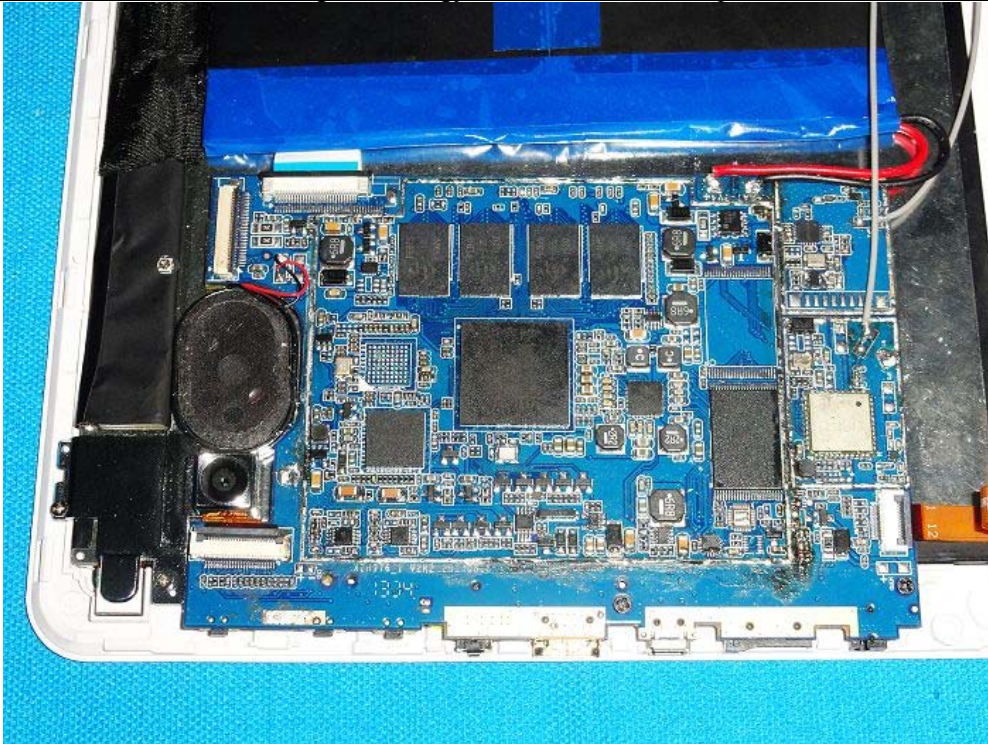


Photo 15

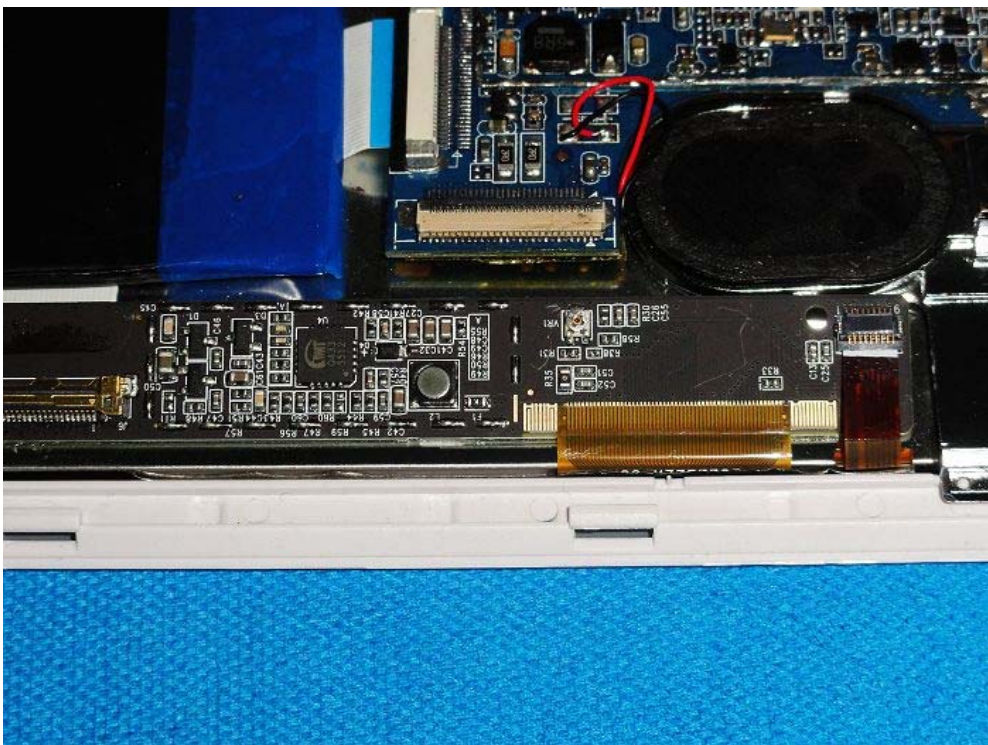


Photo 16



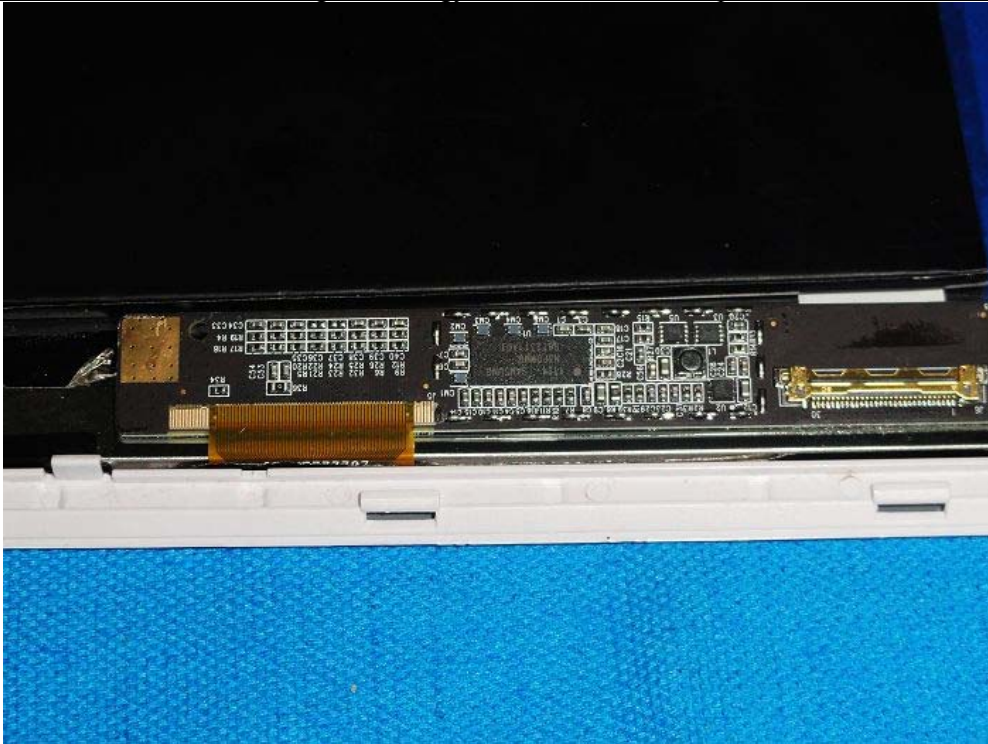


Photo 17

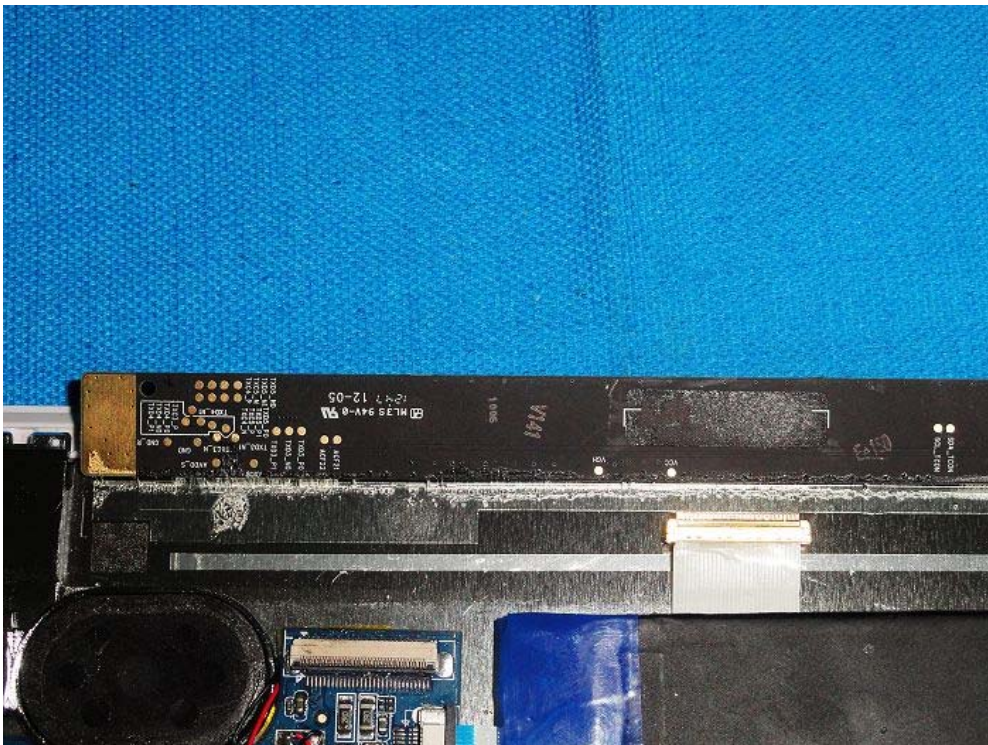


Photo 18









Photo 21

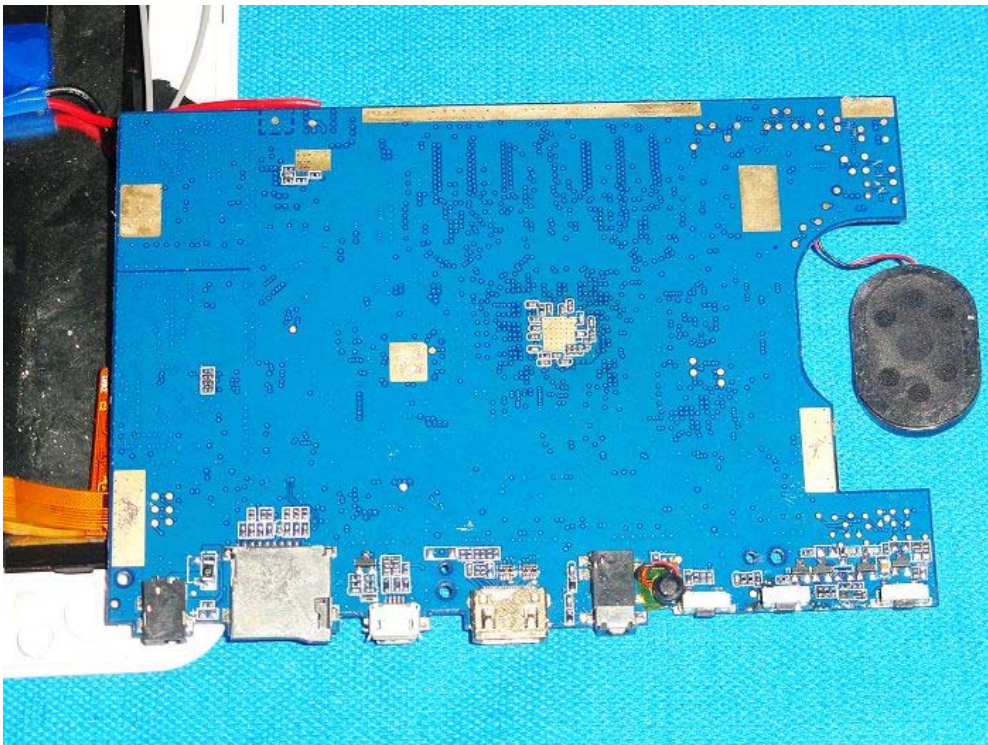


Photo 22



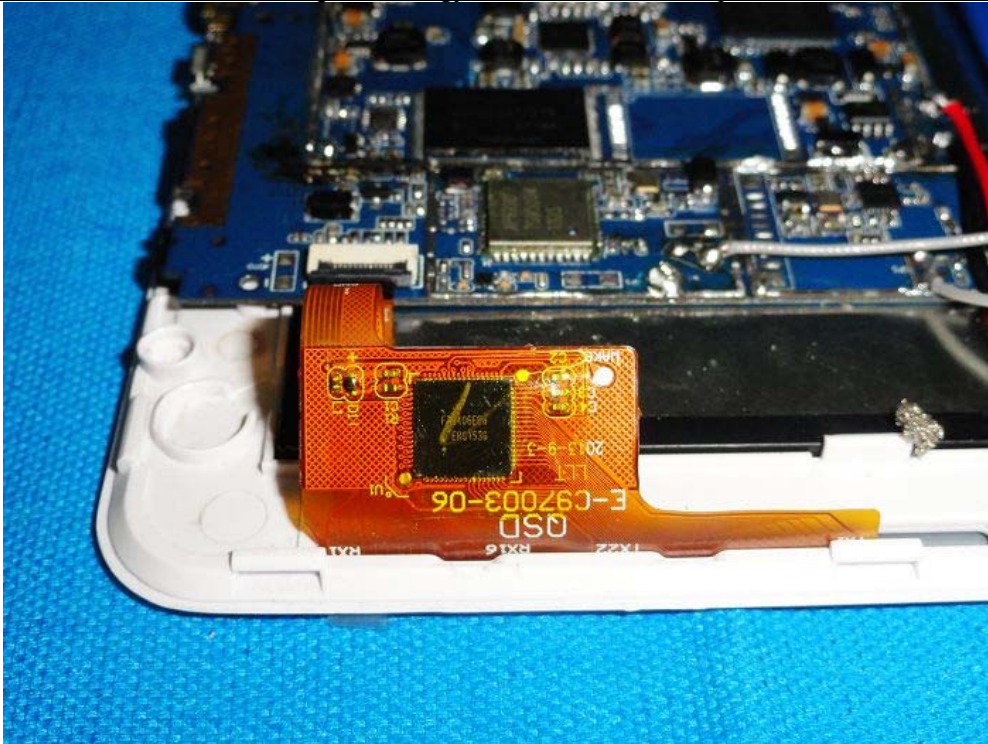


Photo 23

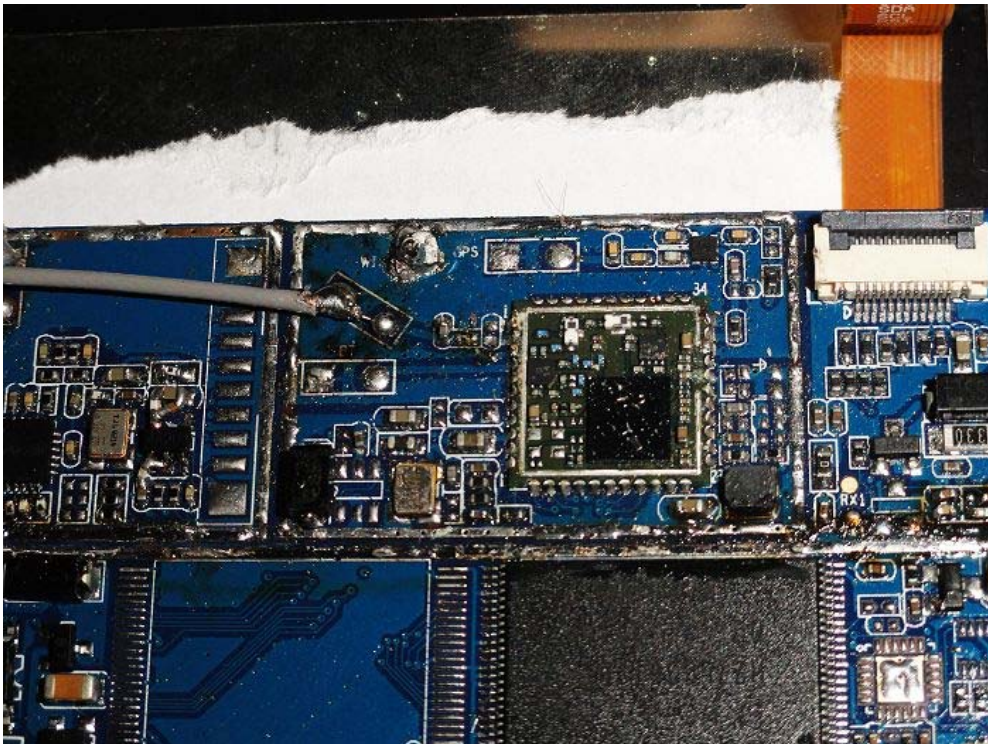


Photo 24

**The Report End**