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# FCC Test Report

Report No.: AGC00529140206FE04

FCC ID	: Y7WPLUMX260
APPLICATION PURPOSE	: Original Equipment
PRODUCT DESIGNATION	: Velocity II 3G
BRAND NAME	: plum
MODEL NAME	: X260
CLIENT	: CLC Hong Kong Limited
DATE OF ISSUE	: Mar. 17, 2014
STANDARD(S)	: FCC Part 15 Rules
<b>REPORT VERSION</b>	: V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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# **Report Revise Record**

<b>Report Version</b>	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Mar. 17, 2014	Valid	Original Report

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Applicant	CLC Hong Kong Limited		
Address	2209, Concordia Plaza, North Tower, No.1 Science Museum Road, Tsim Sha Tsui East, Kowloon, Hong Kong		
Manufacturer	CLC Technology Co. Ltd		
Address Room 6G, Block C, NEO Building, Chegongmiao, Futian Distric P.R.China			
Product Designation	Velocity II 3G		
Brand Name	plum		
Test Model	X260		
Date of test	Mar. 07, 2014 to Mar. 15, 2014		
Deviation	None		
Condition of Test Sample	Normal		
Report Template	AGCRT-US-BGN/RF (2013-03-01)		

## **1. VERIFICATION OF CONFORMITY**

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with requirement of FCC Part 15 Rules requirement.

Prepared By

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Checked By

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Authorized By

Solger 2hang

Solger Zhang Mar. 17, 2014

# 2. GENERAL INFORMATION

## 2.1. PRODUCT DESCRIPTION

The EUT is designed as "Velocity II 3G". It is designed by way of utilizing the DSSS and OFDM technology to achieve the system operation.

A major technical description of 201 is described as following				
<b>Operation Frequency</b>	2.412 GHz~2.462GHz			
Output Bower	IEEE 802.11b:11.76dBm; IEEE 802.11g:7.79dBm;			
Output Power	IEEE 802.11n(20):9.06dBm; IEEE 802.11n(40):6.68dBm			
Modulation	DSSS(DBPSK/DQPSK/CCK);OFDM(BPSK/QPSK/16-QAM/64-QAM)			
Number of channels	11			
Hardware Version	MOLY.WR8.W1315.MD.WG.MP.V1.P3			
Software Version	N/A			
Antenna Designation	Integrated Antenna			
Antenna Gain	1.2 dBi			
Power Supply	DC3.7V by Built-in Li-ion Battery			

A major technical description of EUT is described as following

## 2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency		
	1	2412 MHZ		
	2	2417 MHZ		
	3	2422 MHZ		
	4	2427 MHZ		
	5	2432 MHZ		
2400~2483.5MHZ	6	2437 MHZ 2442 MHZ		
	7			
	8	2447 MHZ		
	9	2452 MHZ		
	10	2457 MHZ		
	11	2462 MHZ		

Note: For 20MHZ bandwidth system use Channel 1 to Channel 11 For 40MHZ bandwidth system use Channel 3 to Channel 9

MCS Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS		Data rate(Mbps) 800nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0
6	1	64-QAM	3/4	6	312	648	234	489	58.5	121.5
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0

## 2.3. IEEE 802.11N MODULATION SCHEME

Symbol	Explanation	
NSS	Number of spatial streams	
R	Code rate	
NBPSC	Number of coded bits per single carrier	
NCBPS	Number of coded bits per symbol	
NDBPS	Number of data bits per symbol	
GI Guard interval		

## 2.4. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: Y7WPLUMX260** filing to comply with the FCC Part 15 requirements.

## 2.5. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters. Others testing (listed at item 5.3) was performed according to the procedures in FCC Part 15.247 rules.

## 2.6. SPECIAL ACCESSORIES

Refer to section 5.2.

## 2.7. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

## **3. MEASUREMENT UNCERTAINTY**

Conducted measurement: +/- 2.75dB Radiated measurement: +/- 3.2dB

## 4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION					
1	Low channel TX					
2	Middle channel TX					
3	High channel TX					
4	Normal operating					
Note:	Note:					
Transmit by 802.11b with Date rate (1/2/5.5/11)						
Transmit by 802.11g with Date rate (6/9/12/18/24/36/48/54)						
Transm	Transmit by 802.11n (20MHz) with Date rate (6.5/13/19.5/26/39/52/58.5/65)					

Transmit by 802.11n (40MHz) with Date rate

(13.5/27/40.5/54/81/108/121.5/135)

## Note:

1. The EUT has been set to operate continuously on the lowest, middle and highest operation frequency individually.

2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.

3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.

## **5. SYSTEM TEST CONFIGURATION**

## **5.1. CONFIGURATION OF EUT SYSTEM**

## Configure:

EUT	Accessory
-----	-----------

## 5.2. EQUIPMENT USED IN EUT SYSTEM

ltem	Equipment	Model No. ID or Specification		Remark
1	Velocity II 3G	X260	FCC ID: Y7WPLUMX260	EUT
2	Adapter	PMC03	DC5.0V / 400mA	Accessory
3	Battery	PMB36	DC3.7V/ 1200 mAh	Accessory
4	Earphone	X260	N/A	Accessory
5	USB Cable	X260	N/A	Accessory

Note: All the accessories have been used during the test in conduction emission test.

## 5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.247	Peak Output Power	Compliant
§15.247	6 dB Bandwidth	Compliant
§15.247	Conducted Spurious Emission	Compliant
§15.247	Maximum Conducted Output Power SPECTRAL Density	Compliant
§15.209	Radiated Emission	Compliant
§15.247	Band Edges	Compliant
§15.207	Line Conduction Emission	Compliant

**Note:** The EUT received power from DC3.7V lithium battery.

## 6. TEST FACILITY

Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	2/F., Building 2, No.1-No.4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District, Shenzhen, Guangdong, China
Description	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2003.

## ALL TEST EQUIPMENT LIST

Description	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Power Probe	R&S	NRP-Z23	100323	07/17/2013	07/16/2014
RF attenuator	N/A	RFA20db	68	N/A	N/A
Spectrum Analyzer	Agilent	E4440A	US41421290	07/17/2013	07/16/2014
Amplifier	EM	EM30180	0607030	02/27/2014	02/26/2015
Horn Antenna	EM	EM-AH-10180	67	04/21/2013	04/20/2014
Horn Antenna	A.H. Systems Inc.	SAS-574		07/17/2013	07/16/2014
EMI Test Receiver	Rohde & Schwarz	ESCI	100694	07/17/2013	07/16/2014
Biological Antenna	A.H. Systems Inc.	SAS-521-4	26	06/07/2013	06/06/2014
Loop Antenna	A.H.	SAS-526B	264	07/14/2013	07/13/2014
LISN	R&S	ESH3-Z5	8389791009	07/17/2013	07/16/2014

# 7. PEAK OUTPUT POWER

## 7.1. MEASUREMENT PROCEDURE

## For peak power test:

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 3. Set the EUT Work on the top, middle and the bottom operation frequency individually.
- 4. Use the following spectrum analyzer settings:

Set the RBW = 1 MHz Set the VBW  $\geq$  3 RBW Set the span  $\geq$  1.5 x DTS bandwidth Detector = peak Sweep time = auto couple Trace mode = max hold

- 5. Allow the trace to stabilize. Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges.
- 6. Record the result form the Spectrum Analyzer.

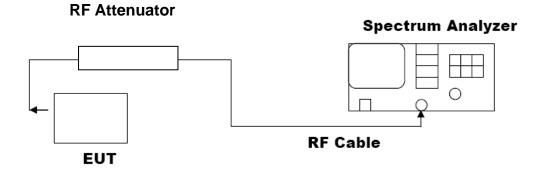
For average power test:

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Connect EUT RF output port to power probe through an RF attenuator.
- 3. Connect the power probe to the PC.
- 4. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 5. Record the maximum power from the software.
- 6. The maximum peak power shall be less 1 Watt (30dBm).

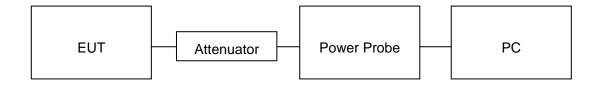
Note : The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

## 7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

## PEAK POWER TEST SETUP



#### AVERAGE POWER SETUP



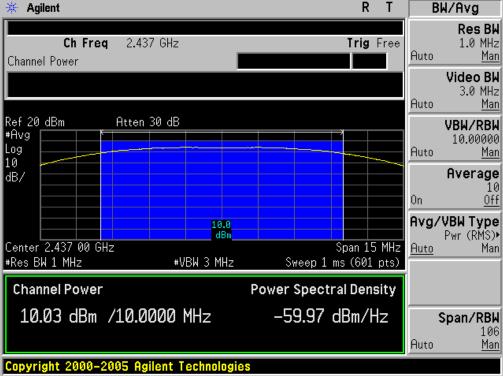
## 7.3. LIMITS AND MEASUREMENT RESULT

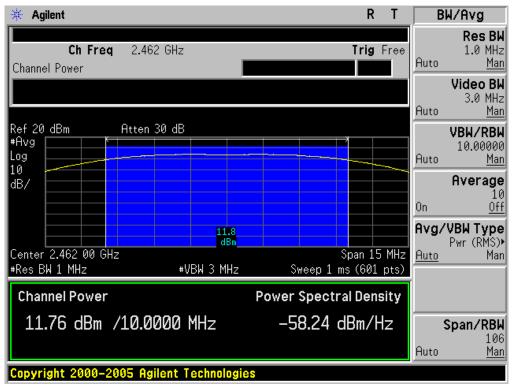
TEST ITEM	PEAK POWER
TEST MODE	802.11b with data rate 1

LIMITS AND MEASUREMENT RESULT					
Frequency (GHz)	Average Power (dBm)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail	
2.412	9.17	11.15	30	Pass	
2.437	8.05	10.03	30	Pass	
2.462	9.78	11.76	30	Pass	

	CH	)				
🔆 Agilent			R	Т	B	W/Avg
Ch Freq 2.412 GHz Channel Power			Trig	Free	Auto	Res BW 1.0 MHz <u>Man</u>
					Auto	Video BW 3.0 MHz <u>Man</u>
Ref 20 dBm Atten 30 dB #Avg Log 10					Auto	VBW/RBW 10.00000 <u>Man</u>
dB/					On	Average 10 <u>Off</u>
Center 2.412 00 GHz	11.2 dBm	Sp	)an 15	5 MHz	-	YBW Type Pwr (RMS)► Man
	BW 3 MHz	Sweep 1 ms				
Channel Power		ower Spectral	Den	sity		
11.15 dBm /10.0000	MHz	–58.85 dE	3m/ł	łz		Span/RBW 106
Copyright 2000–2005 Agilent T	echnologies				Auto	<u>Man</u>

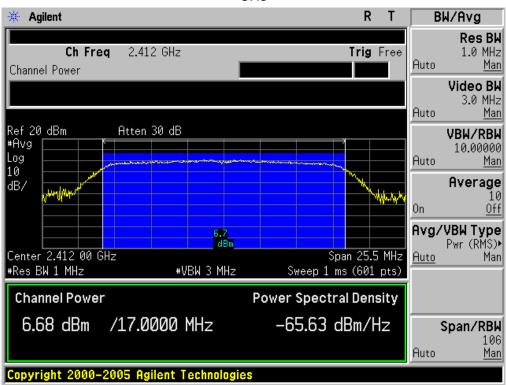


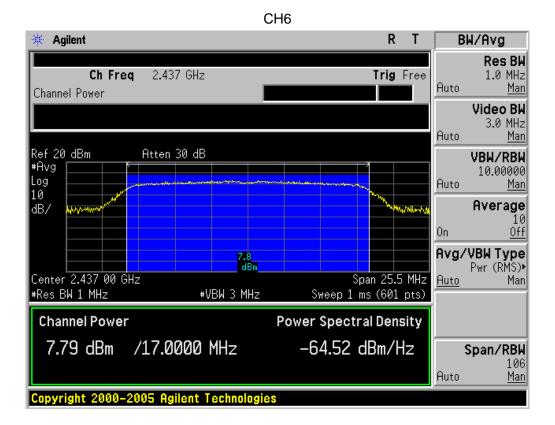


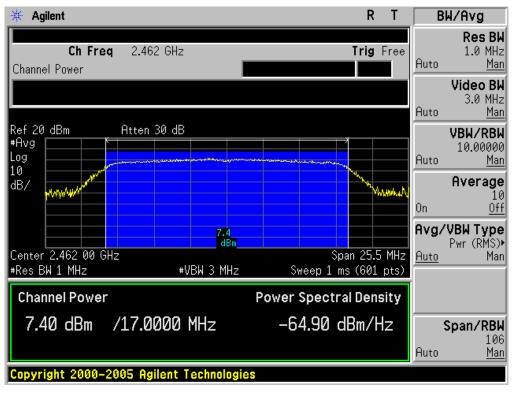


TEST ITEM	PEAK POWER
TEST MODE	802.11g with data rate 6

LIMITS AND MEASUREMENT RESULT					
Frequency (GHz)	Average Power (dBm)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail	
2.412	4.7	6.68	30	Pass	
2.437	5.81	7.79	30	Pass	
2.462	5.42	7.4	30	Pass	





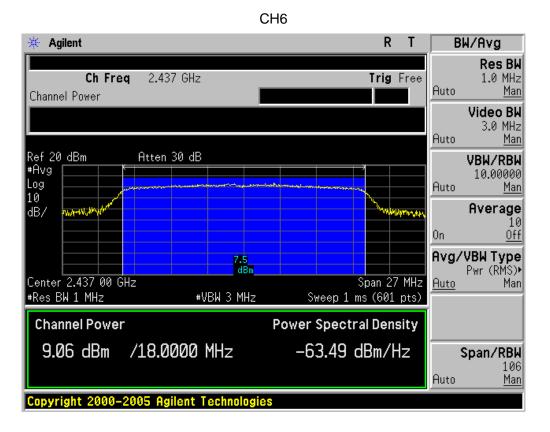


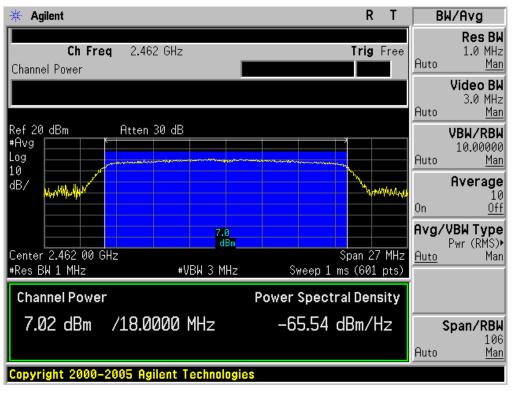
TEST ITEM	PEAK POWER
TEST MODE	802.11n 20 with data rate 6.5

LIMITS AND MEASUREMENT RESULT					
Frequency (GHz)Average Power (dBm)Peak Power (dBm)Applicable Limits (dBm)Pass or Fail					
2.412	4.85	6.83	30	Pass	
2.437	7.08	9.06	30	Pass	
2.462	5.04	7.02	30	Pass	

\* Agilent R Т Freq/Channel **Center Freq** Ch Freq 2.412 GHz Trig Free 2.41200000 GHz Channel Power Start Freq 2.39850000 GHz Ref 20 dBm #Avg Atten 30 dB Stop Freq 2.42550000 GHz Log 10 dB/ CF Step 2.7000000 MHz a. Lahil ANN V Man <u>Auto</u> 6.8 dBm FreqOffset 0.00000000 Hz Center 2.412 00 GHz Span 27 MHz #Res BW 1 MHz Sweep 1 ms (601 pts) ₩VBW 3 MHz Signal Track **Channel Power Power Spectral Density** 0n <u>Off</u> /18.0000 MHz -65.72 dBm/Hz 6.83 dBm Copyright 2000–2005 Agilent Technologies

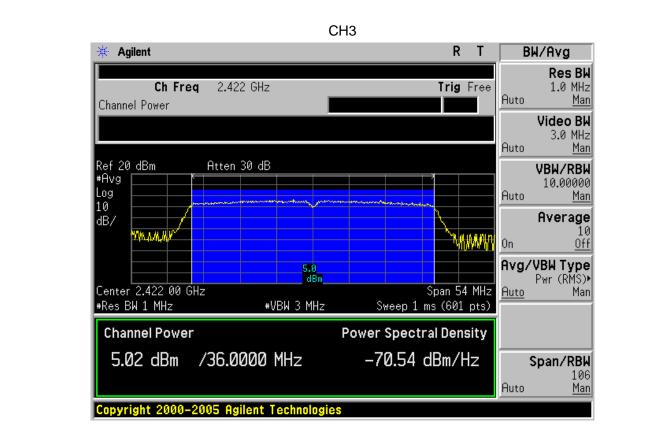
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CH3
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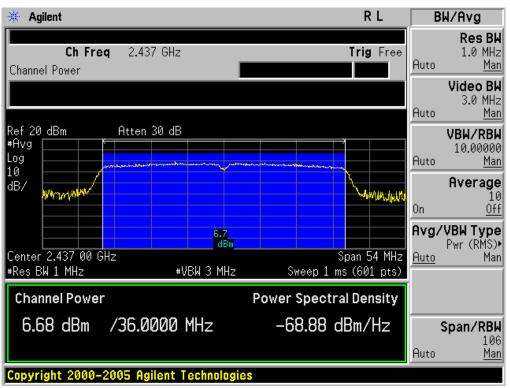


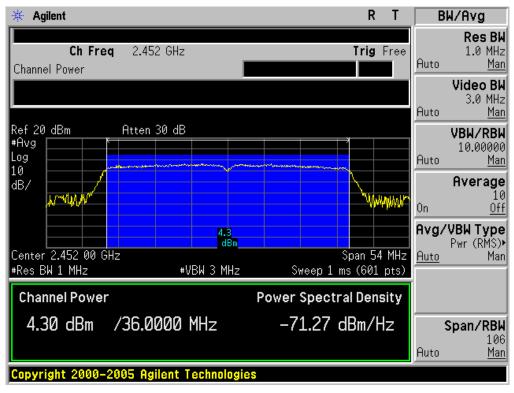
TEST ITEM	PEAK POWER
TEST MODE	802.11n 40 with data rate 13.5

LIMITS AND MEASUREMENT RESULT					
Frequency (GHz)Average Power (dBm)Peak Power (dBm)Applicable Limits (dBm)Pass or Fail					
2.422	3.04	5.02	30	Pass	
2.437	4.7	6.68	30	Pass	
2.452	2.32	4.3	30	Pass	









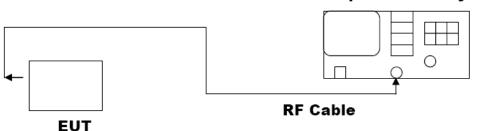
## 8. 6DB BANDWIDTH

## 8.1. MEASUREMENT PROCEDURE

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 4. Set SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW ≥ RBW.
- 5. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

## 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



## Spectrum Analyzer

# 8.3. LIMITS AND MEASUREMENT RESULTS

TEST ITEM	6DB BANDWIDTH
TEST MODE	802.11b with data rate 11

LIMITS AND MEASUREMENT RESULT							
Applicable Limite	Applicable Limits						
Applicable Limits	Test Da	Criteria					
	Low Channel	10.086	PASS				
>500KHZ	Middle Channel	10.066	PASS				
	High Channel	10.057	PASS				

TEST ITEM	6DB BANDWIDTH
TEST MODE	802.11g with data rate 54

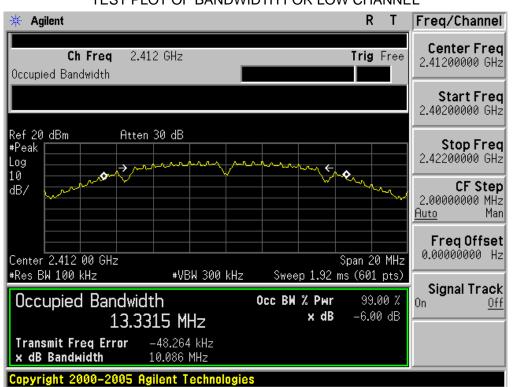
LIMITS AND MEASUREMENT RESULT							
Annlinghla Limita	Applicable Limits						
Applicable Limits	Test Da	Criteria					
	Low Channel	15.507	PASS				
>500KHZ	Middle Channel	16.306	PASS				
	High Channel	15.463	PASS				

TEST ITEM	6DB BANDWIDTH
TEST MODE	802.11n 20 with data rate 65

LIMITS AND MEASUREMENT RESULT							
Applicable Limite	Applicable Limits						
Applicable Limits	Test Da	Criteria					
	Low Channel	16.056	PASS				
>500KHZ	Middle Channel	17.570	PASS				
	High Channel	15.672	PASS				

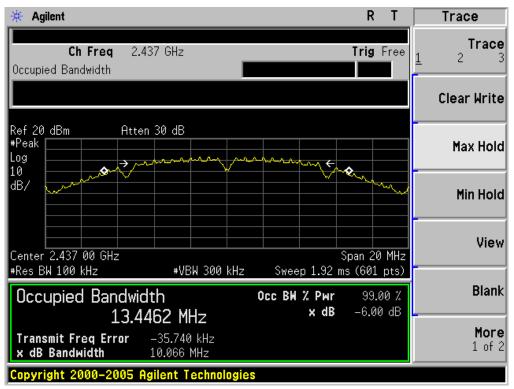
TEST ITEM	6DB BANDWIDTH
TEST MODE	802.11n 40 with data rate 135

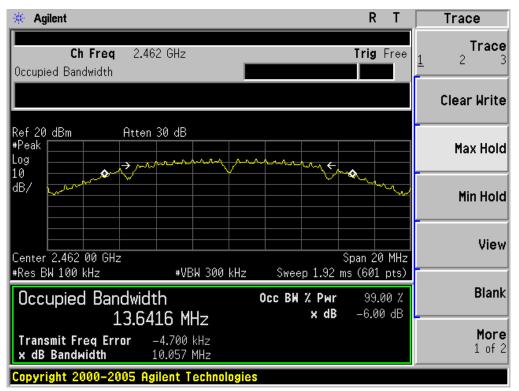
LIMITS AND MEASUREMENT RESULT							
Applicable Limite	Applicable Limits						
Applicable Limits	Test Da	Criteria					
	Low Channel	35.246	PASS				
>500KHZ	Middle Channel	35.411	PASS				
	High Channel	35.229	PASS				



## 802.11b TEST RESULT TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

## TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

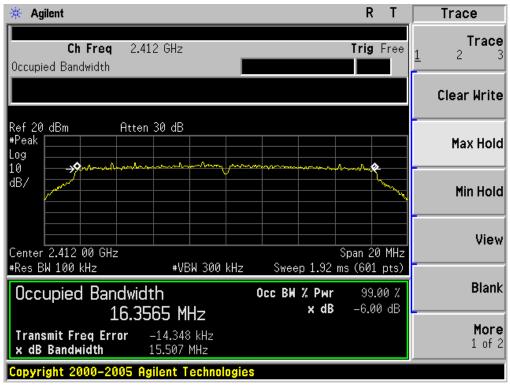


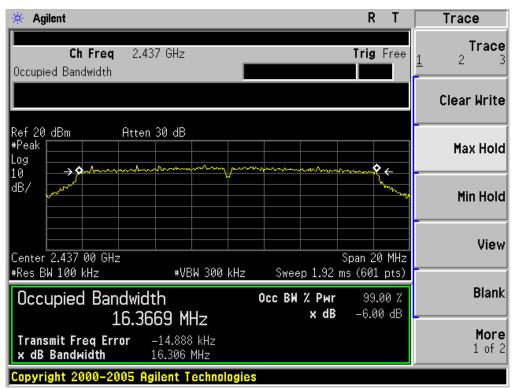


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

## 802.11g TEST RESULT

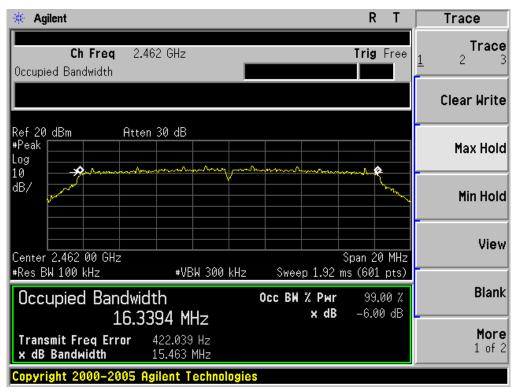
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

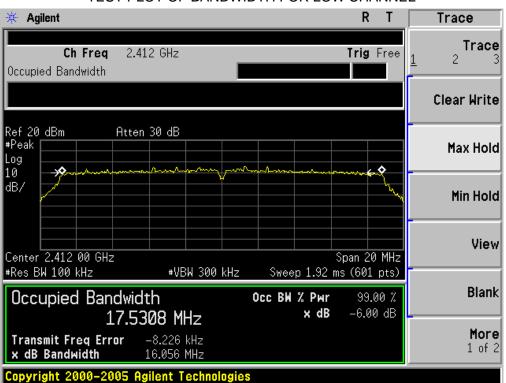




TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

## TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

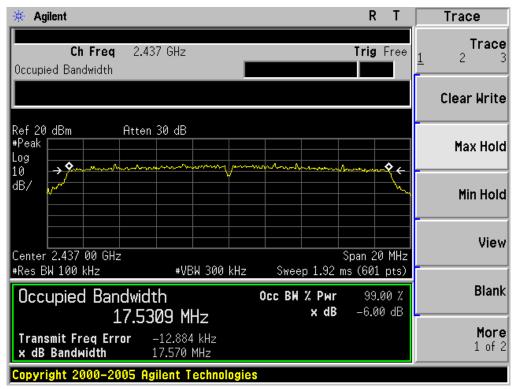


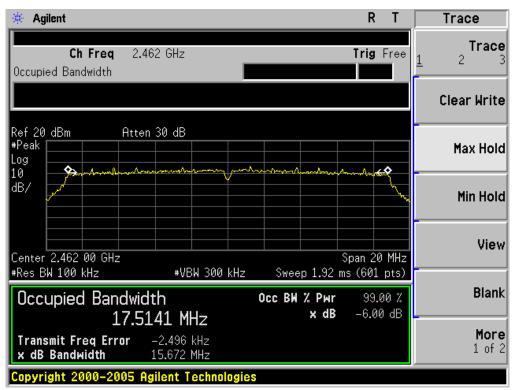


## 802.11n (20) TEST RESULT

## TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

## TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

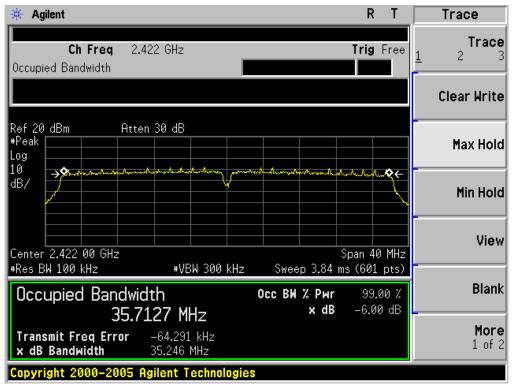


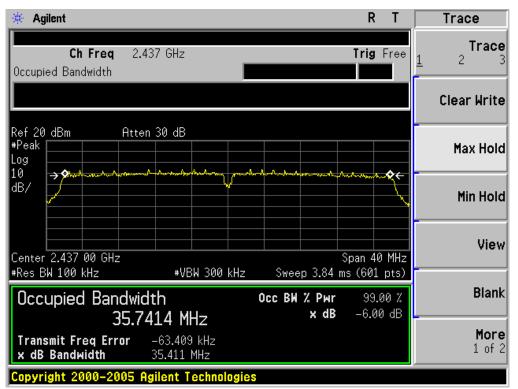


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

## 802.11n(40) TEST RESULT

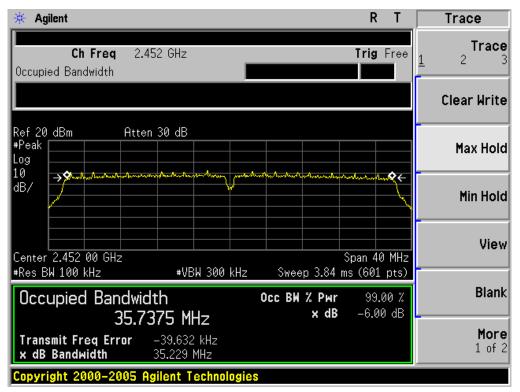
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL





TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

## TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



## 9. CONDUCTED SPURIOUS EMISSION

## 9.1. MEASUREMENT PROCEDURE

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 3, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 4. Set SPA Trace 1 Max hold, then View.
- Note: The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements. Owing to satisfy the requirements of the number of measurement points, we set the RBW=1MHz, VBW > RBW, scan up through 10th harmonic, and consider the tested results as the worst case, if the tested results conform to the requirement, we can deem that the real tested results(set the RBW=100KHz, VBW > RBW) are conform to the requirement.

## 9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

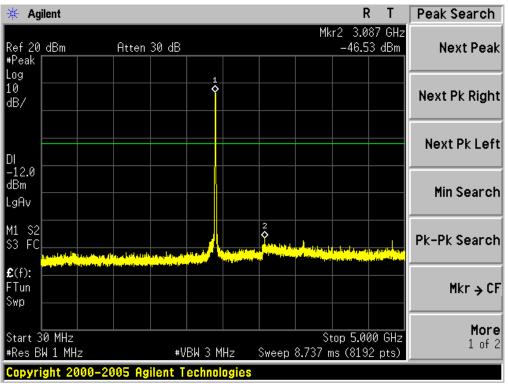
The same as described in section 8.2.

## 9.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.

## 9.4. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT								
Appliachte Limite	Measurement Result							
Applicable Limits	Test Data	Criteria						
In any 100 KHz Bandwidth Outside the	At least -20dBc than the limit							
frequency band in which the spread spectrum	Specified on the BOTTOM	PASS						
intentional radiator is operating, the radio frequency	Channel							
power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power. In addition, radiation emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in§15.209(a))	At least -20dBc than the limit Specified on the TOP Channel	PASS						

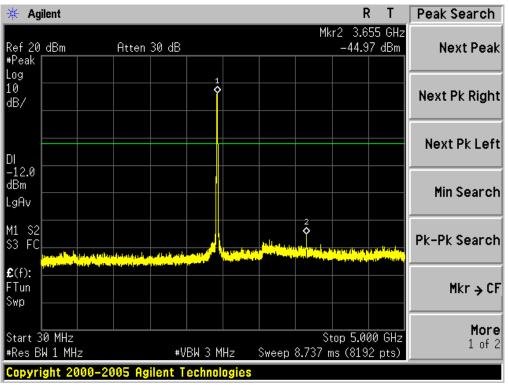


## TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE OF 802.11b FOR MODULATION IN LOW CHANNEL

🔆 Agi	ilent							F	t t	Peak Search
Ref 20 #Peak	dBm	Atten	30 dB				Mk		35 GHz 5 dBm	Next Peak
Log 10 dB/										Next Pk Right
DI										Next Pk Left
-12.0 dBm LgAv			1							Min Search
M1 S2 S3 FC	Land and the subsection	in definition of the		te del del sector	i de la constante de la consta El constante de la constante de					Pk-Pk Search
<b>£</b> (f): FTun Swp	i di si mi ja di si									Mkr→CF
	.000 GHz W 1 MHz		#\	/ВМ З М	lHz	Sweep			00 GHz 2 pts)	<b>More</b> 1 of 2
Copyri	ght 2000-	2005 Ag	ilent T	echnol	ogies					

🔆 Agi	ilent								R	Т	Peak Search
Ref20 #Peak⊺	dBm		Atten	30 dB				Mkr:	1 15.92 -44.93	21 GHz 1 dBm	Next Peak
Log 10 dB/											Next Pk Right
DI											Next Pk Left
-12.0 dBm LgAv											Min Search
M1 S2 S3 FC		detter til						a din bihing papagan Pangan pangan pa			Pk-Pk Search
€(f): FTun Swp											Mkr → CF
Start 1 #Res Bl				#V	ВМЗМ		Sweep		p 19.00 is (8192		<b>More</b> 1 of 2
Copyri	ght 20	00-20	005 Ag	ilent T	echnol	ogies					

🔆 Agi	ilent								F	₹ T	Peak Search
Ref 20 #Peak	dBm		Atten	30 dB				Mkr		01 GHz 4 dBm	
Log 10 dB/											Next Pk Right
DI											Next Pk Left
-12.0 dBm LgAv										1	Min Search
M1 S2 S3 FC		ور الله المراجع الله المراجع الله المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع ال محمد المراجع ال محمد المراجع ال			l dan dalilar ya	i di soth			in litter		Pk-Pk Search
€(f): FTun Swp											Mkr → CF
Start 1 #Res Bl				#\	ви з м	Hz	Sweepi			00 GHz 2 pts)	More 1 of 2
Copyri	ght 20	00-20	005 Ag	ilent T	echnol	ogies					



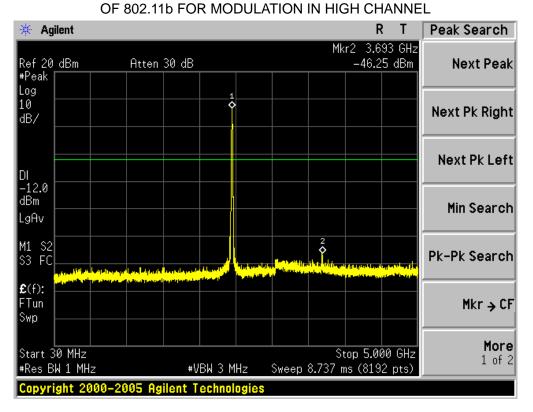
# TEST PLOT OF OUT OF BAND EMISSIONS

OF 802.11b FOR MODULATION IN MIDDLE CHANNEL

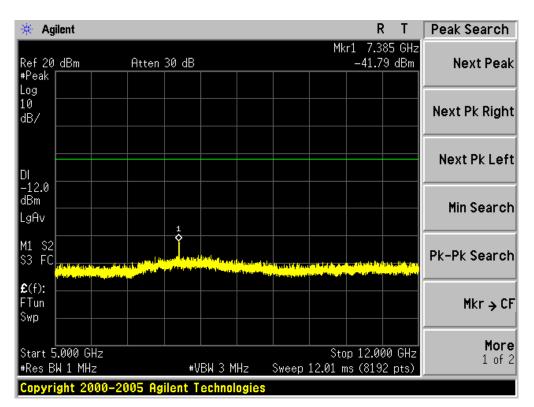
🔆 Agilent			R	T	Peak Search
Ref 20 dBm #Peak	Atten 30 dB		Mkr1 7.3 -40.4	LØ GHz 6 dBm	Next Peak
Log 10 dB/					Next Pk Right
DI				_	Next Pk Left
dBm LgAv					Min Search
M1 S2 S3 FC			al japan se inter a se internet internet internet internet internet internet internet internet internet interne	ungerbere frei Jahre	Pk-Pk Search
£(f): FTun Swp					Mkr → CF
Start 5.000 GHz #Res BW 1 MHz			Stop 12.00 12.01 ms (819;		<b>More</b> 1 of 2
Copyright 2000	-2005 Agilent Te	chnologies			

🔆 Agilent				R	Т	Peak Search
Ref 20 dBm #Peak	Atten 30 dB		Mkr1	. 15.199 -45.62		Next Peak
Log 10 dB/						Next Pk Right
						Next Pk Left
-12.0 dBm LgAv						Min Search
M1 S2 S3 FC and attended to be						Pk-Pk Search
£(f): FTun Swp						Mkr → CF
Start 12.000 GHz #Res BW 1 MHz	#VI	3W 3 MHz	Stop Sweep 14.2 m	p 19.000 s (8192		<b>More</b> 1 of 2
#Kes BW I MHZ Copyright 2000-3			5weep 14.2 m	s (8192	pts)	

🔆 Agi	lent								F	2 T	Peak Search
Ref20 #Peak	dBm		Atten	30 dB				Mkr		22 GHz 2 dBm	Next Peak
Log 10 dB/											Next Pk Right
DI											Next Pk Left
-12.0 dBm LgAv										1	Min Search
M1 S2 S3 FC			a da da ta da			a dala makee		a ang kanalang Manang kanalang			Pk-Pk Search
€(f): FTun Swp											Mkr → CF
Start 1 #Res Bl				#\	ВИЗМ	Hz	Sweep			00 GHz 2 pts)	<b>More</b> 1 of 2
Copyri	ght 20	00-20	005 Ag	ilent T	echnol	ogies					



# TEST PLOT OF OUT OF BAND EMISSIONS



🔆 Agilent				R	Т	Peak Search
Ref 20 dBm #Peak	Atten 30 dB		Mkr1	16.477 -46.37		Next Peak
Log 10 dB/						Next Pk Right
						Next Pk Left
-12.0 dBm LgAv						Min Search
M1 S2 S3 FC				e data data data data data data data dat	la de la color pla color de	Pk-Pk Search
<b>£</b> (f): FTun Swp						Mkr → CF
Start 12.000 GHz #Res BW 1 MHz	#VE	3W 3 MHz 3	Stor Sweep 14.2 m	p 19.000 s (8192		<b>More</b> 1 of 2
Copyright 2000-						

🔆 Agi	ilent								F	t t	Peak Search
Ref 20 #Peak	dBm	A	ltten 3	30 dB				Mkr:		88 GHz 0 dBm	
Log 10 dB/											Next Pk Right
DI -12.0											Next Pk Left
dBm LgAv										1	Min Search
M1 S2 S3 FC			len Helpele Steppelen							Š., A.	Pk-Pk Search
€(f): FTun Swp											Mkr → CF
	9.000 GH W 1 MHz	z		#V	BW 3 M	Hz	Sweep	Sto 15.29 m		00 GHz 2 pts)	<b>More</b> 1 of 2
Copyri	ght 2000	0-200	5 Agi	lent T	echnol	ogies					

## **10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY**

## **10.1 MEASUREMENT PROCEDURE**

- (1). The EUT was placed on a turn table which is 0.8m above ground plane.
- (2). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- (3). Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- (4). Set SPA Trace 1 Max hold, then View.

Note: The method of PKPSD in the KDB 558074 item 10.2 was used in this testing.

## **10.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)**

Refer To Section 8.2.

## **10.3 MEASUREMENT EQUIPMENT USED**

Refer To Section 6.

## **10.4 LIMITS AND MEASUREMENT RESULT**

TEST ITEM	POWER PECTRAL DENSITY
TEST MODE	802.11b with data rate 1

Channel No.	PSD (dBm)	Limit (dBm)	Result
Low Channel	-10.96	8	Pass
Middle Channel	-10.4	8	Pass
High Channel	-11.8	8	Pass

TEST ITEM	POWER PECTRAL DENSITY
TEST MODE	802.11g with data rate 6

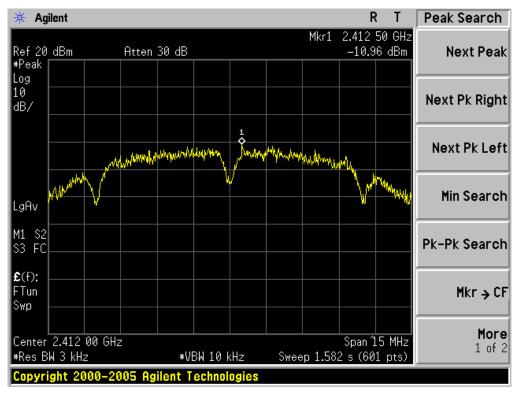
Channel No.	PSD (dBm)	Limit (dBm)	Result
Low Channel	-18.74	8	Pass
Middle Channel	-17	8	Pass
High Channel	-18.53	8	Pass

TEST ITEM	POWER PECTRAL DE	NSITY		
TEST MODE	802.11n 20 with data rate 6.5			
Channel No.	PSD (dBm)	Limit (dBm)	Result	
Low Channel	-17.73	8	Pass	

Pass	-14.26	Middle Channel
Pass	-18.57	High Channel
	-18.57	High Channel

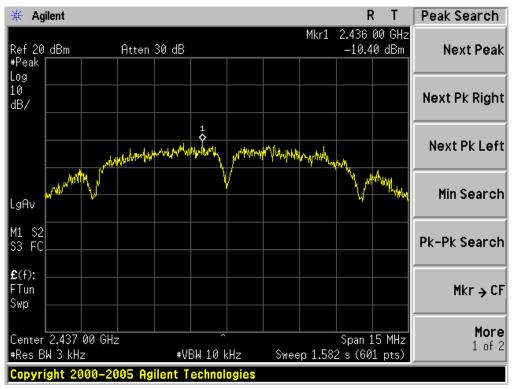
TEST ITEM	POWER PECTRAL DENSITY
TEST MODE	802.11n 40 with data rate 13.5

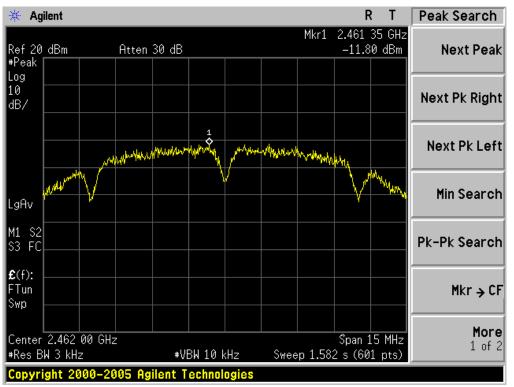
Channel No.	PSD (dBm)	Limit (dBm)	Result
Low Channel	-22.93	8	Pass
Middle Channel	-20.87	8	Pass
High Channel	-22.66	8	Pass



## 802.11b TEST RESULT TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL

### TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL

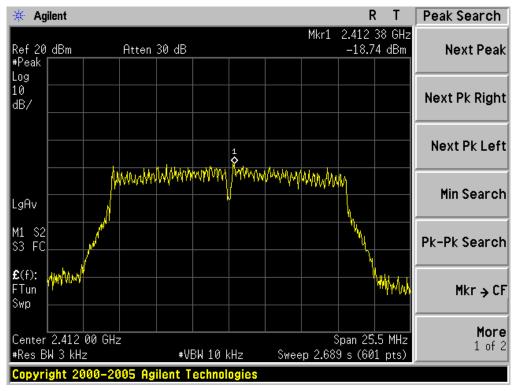


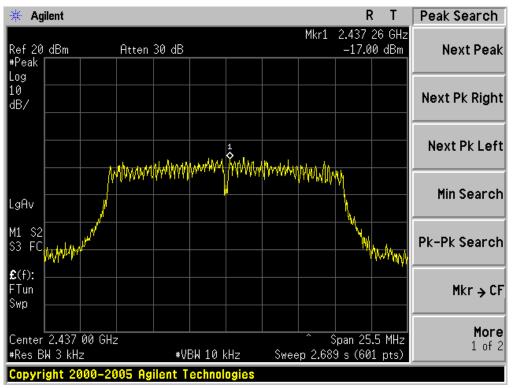


TEST PLOT OF SPECTRAL DENSITY FOR HIGH CHANNEL

## 802.11g TEST RESULT

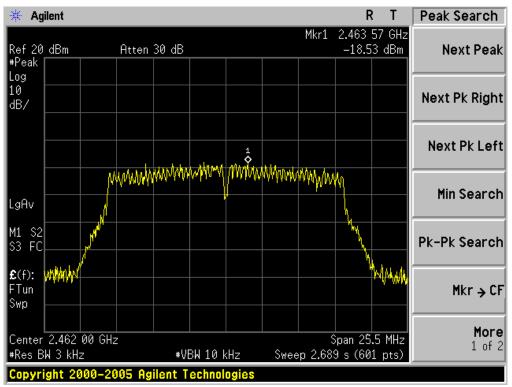
TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL

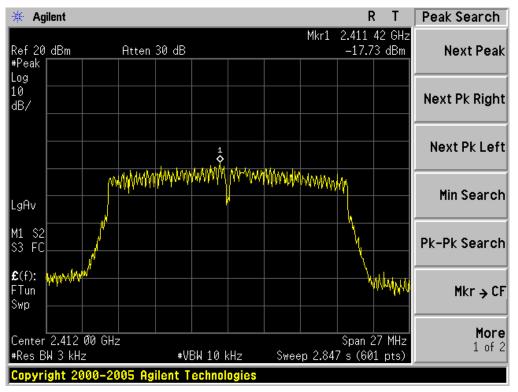




## TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL

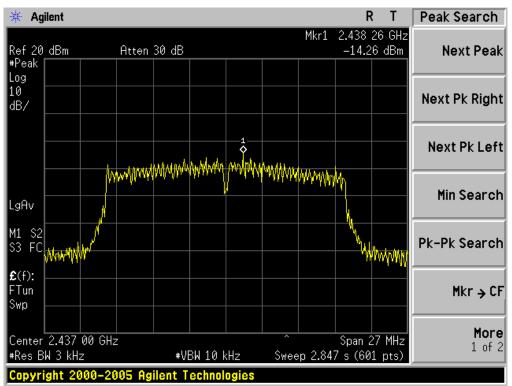
### TEST PLOT OF SPECTRAL DENSITY FOR HIGH CHANNEL

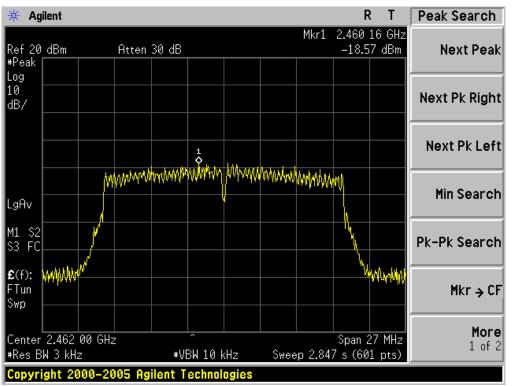




## 802.11n 20 TEST RESULT TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL

TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL

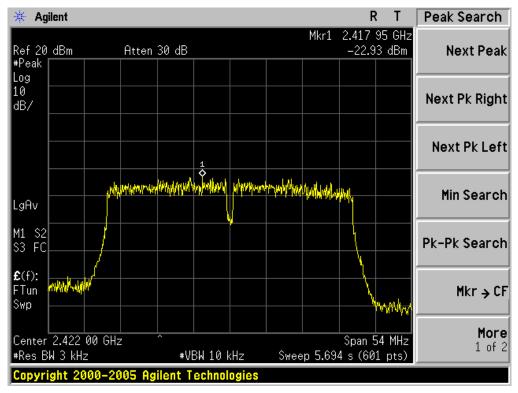


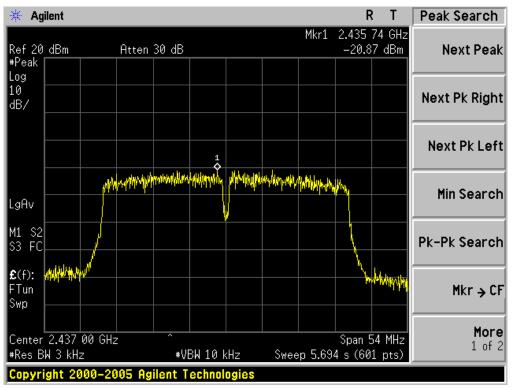


TEST PLOT OF SPECTRAL DENSITY FOR HIGH CHANNEL

## 802.11n 40 TEST RESULT

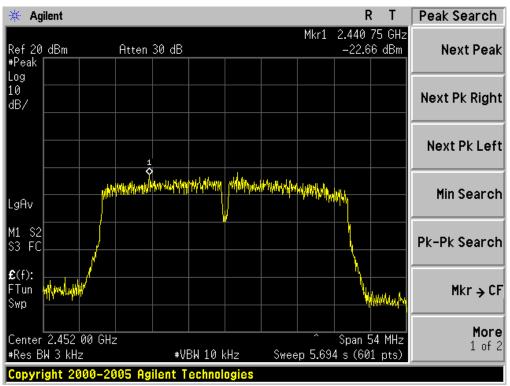
TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL





## TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL

### TEST PLOT OF SPECTRAL DENSITY FOR HIGH CHANNEL



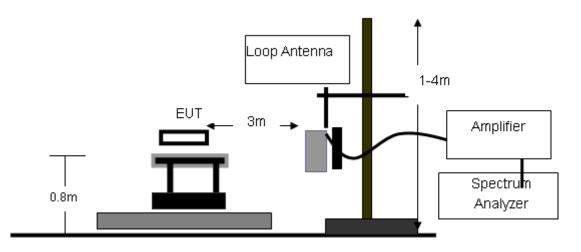
## **11. RADIATED EMISSION**

## 11.1. MEASUREMENT PROCEDURE

- 1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8.If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

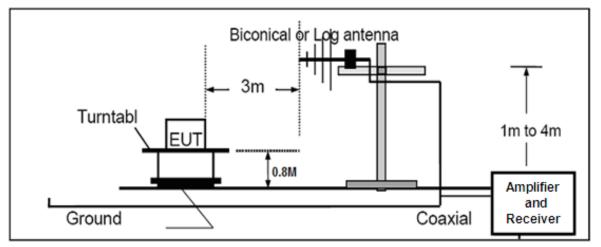
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

## 11.2. TEST SETUP

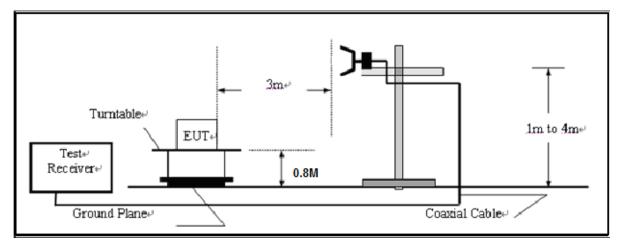


## RADIATED EMISSION TEST SETUP BELOW 30MHz

## RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



## **11.3. LIMITS AND MEASUREMENT RESULT**

15.209(a) Limit in the below table has to be followed

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

Note: All modes were tested For restricted band radiated emission,

the test records reported below are the worst result compared to other modes.

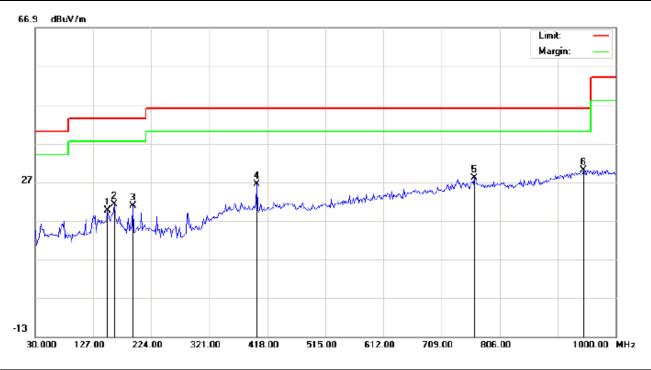
## 11.4. TEST RESULT

## **RADIATED EMISSION BELOW 30MHZ**

No emission found between lowest internal used/generated frequencies to 30MHz.

### **RADIATED EMISSION BELOW 1GHZ**

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1 2412MHZ	Antenna	Horizontal

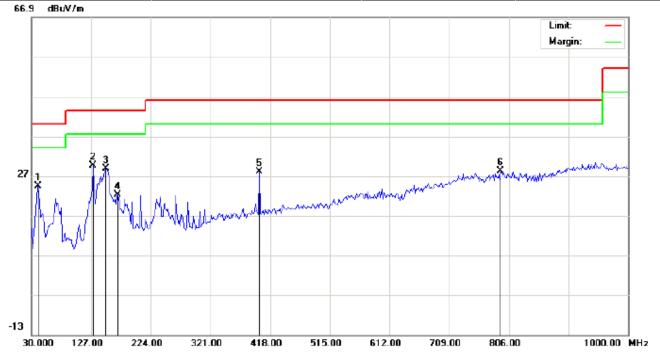


Site: site #1 Limit: FCC Class B 3M Radiation EUT: Velocity II 3G M/N: X260 Mode: Low Channel TX Note: Polarization: *Horizontal* Power: AC 120V/60Hz Distance: Temperature: 26 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		151.2500	4.32	15.27	19.59	43.50	-23.91	peak			
2		162.5665	6.49	14.78	21.27	43.50	-22.23	peak			
3		193.2831	9.17	11.69	20.86	43.50	-22.64	peak			
4		400.2167	7.34	19.08	26.42	46.00	-19.58	peak			
5		763.9665	1.10	26.82	27.92	46.00	-18.08	peak			
6	*	946.6499	0.10	29.91	30.01	46.00	-15.99	peak			

### Report No.: AGC00529140206FE04 Page 49 of 75

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1 2412MHZ	Antenna	Vertical

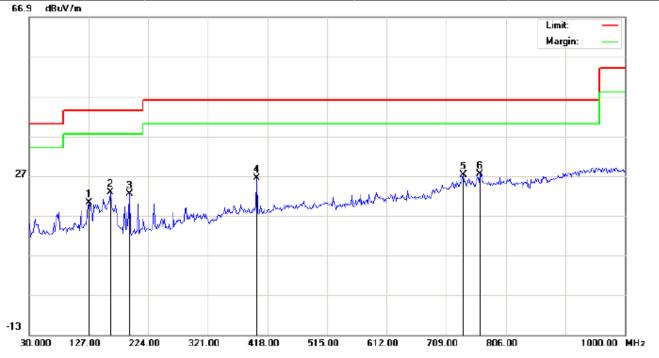


Site: site #1 Limit: FCC Class B 3M Radiation EUT: Velocity II 3G M/N: X260 Mode: Low Channel TX Note: Polarization: Vertical Power: AC 120V/60Hz Distance: Temperature: 26 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		41.3166	15.67	8.81	24.48	40.00	-15.52	peak			
2	*	130.2333	18.42	11.13	29.55	43.50	-13.95	peak			
3		151.2500	13.53	15.27	28.80	43.50	-14.70	peak			
4		170.6500	7.54	14.66	22.20	43.50	-21.30	peak			
5		400.2167	8.88	19.08	27.96	46.00	-18.04	peak			
6		793.0665	1.04	27.22	28.26	46.00	-17.74	peak			

### Report No.: AGC00529140206FE04 Page 50 of 75

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1 2437MHZ	Antenna	Horizontal

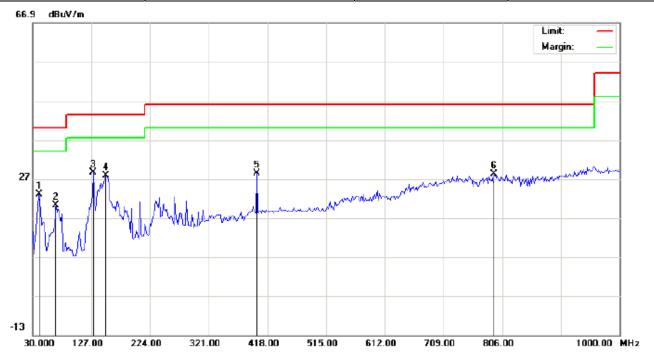


Site: site #1 Limit: FCC Class B 3M Radiation EUT: Velocity II 3G M/N: X260 Mode: Middle Channel TX Note: Polarization: *Horizontal* Power: AC 120V/60Hz Distance: Temperature: 26 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∨	dB/m	dBu∀/m	dBuV/m	dB		cm	degree	
1		127.0000	7.25	13.03	20.28	43.50	-23.22	peak			
2		162.5665	7.99	14.78	22.77	43.50	-20.73	peak			
3		193.2831	10.67	11.69	22.36	43.50	-21.14	peak			
4		400.2167	7.34	19.08	26.42	46.00	-19.58	peak			
5		736.4832	0.96	26.24	27.20	46.00	-18.80	peak			
6	*	763.9665	0.60	26.82	27.42	46.00	-18.58	peak			

### Report No.: AGC00529140206FE04 Page 51 of 75

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1 2437MHZ	Antenna	Vertical

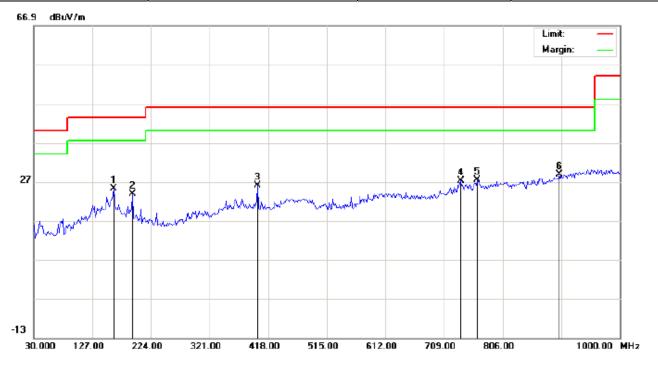


Site: site #1 Limit: FCC Class B 3M Radiation EUT: Velocity II 3G M/N: X260 Mode: Middle Channel TX Note: Polarization: Vertical Power: AC 120V/60Hz Distance: Temperature: 26 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∨	dB/m	dBu∀/m	dBuV/m	dB		cm	degree	
1		41.3166	14.17	8.81	22.98	40.00	-17.02	peak			
2		68.7998	15.45	4.73	20.18	40.00	-19.82	peak			
3	*	130.2333	17.42	11.13	28.55	43.50	-14.95	peak			
4		151.2500	12.53	15.27	27.80	43.50	-15.70	peak			
5		400.2167	9.38	19.08	28.46	46.00	-17.54	peak			
6		793.0665	1.04	27.22	28.26	46.00	-17.74	peak			

### Report No.: AGC00529140206FE04 Page 52 of 75

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1 2462MHZ	Antenna	Horizontal

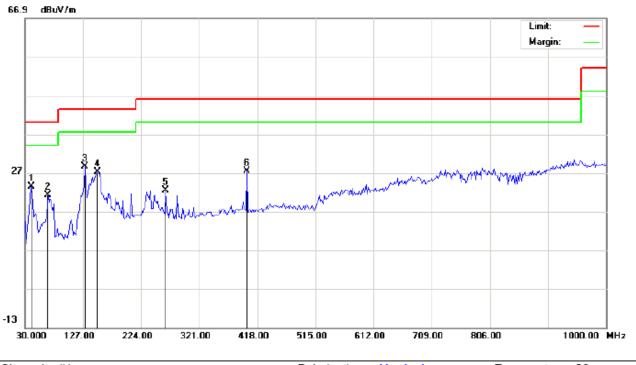


Site: site #1 Limit: FCC Class B 3M Radiation EUT: Velocity II 3G M/N: X260 Mode: High Channel TX Note: Polarization: *Horizontal* Power: AC 120V/60Hz Distance: Temperature: 26 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	•	MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		162.5665	10.49	14.78	25.27	43.50	-18.23	peak			
2		193.2831	12.17	11.69	23.86	43.50	-19.64	peak			
3		400.2167	6.84	19.08	25.92	46.00	-20.08	peak			
4		736.4832	0.96	26.24	27.20	46.00	-18.80	peak			
5		763.9665	0.60	26.82	27.42	46.00	-18.58	peak			
6	*	899.7667	0.18	28.60	28.78	46.00	-17.22	peak			

#### Report No.: AGC00529140206FE04 Page 53 of 75

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1 2462MHZ	Antenna	Vertical



Site: site #1 Limit: FCC Class B 3M Radiation EUT: Velocity II 3G M/N: X260 Mode: High Channel TX Note: Polarization: Vertical Power: AC 120V/60Hz Distance: Temperature: 26 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	•	MHz	dBu∀	dB/m	dBu∀/m	dBuV/m	dB		cm	degree	
1		41.3166	14.67	8.81	23.48	40.00	-16.52	peak			
2		68.7998	16.45	4.73	21.18	40.00	-18.82	peak			
3	*	130.2333	17.42	11.13	28.55	43.50	-14.95	peak			
4		151.2500	12.03	15.27	27.30	43.50	-16.20	peak			
5		264.4166	8.12	14.34	22.46	46.00	-23.54	peak			
6		400.2167	8.38	19.08	27.46	46.00	-18.54	peak			

## **RESULT: PASS**

**Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

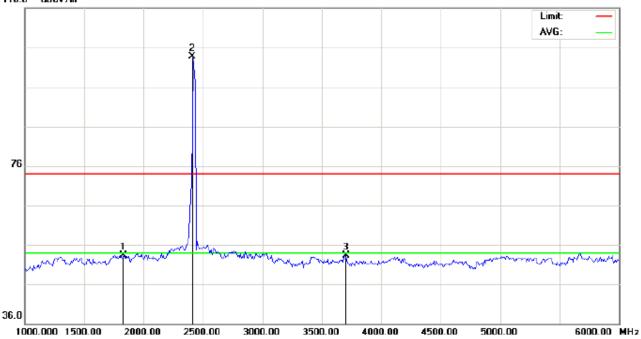
Temperature: 26

Humidity: 60 %

### **RADIATED EMISSION ABOVE 1GHZ**

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1 2412MHZ	Antenna	Horizontal





Site: site #1

Limit: FCC Class B 3M Radiation above 1GHZ(PK)

EUT: Velocity II 3G

M/N: X260

Mode: 802.11b Low Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	•	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		1833.333	65.16	-11.87	53.29	74.00	-20.71	peak			
2	*	2412.012	113.28	-9.67	103.61	74.00	29.61	peak			
3		3700.000	59.97	-6.66	53.31	74.00	-20.69	peak			

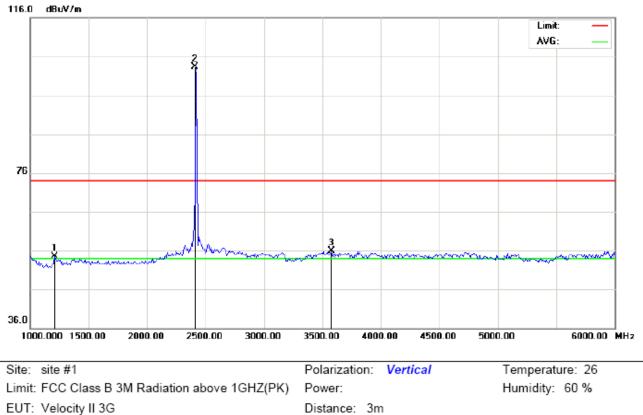
Power:

Distance: 3m

Polarization: Horizontal

#### Report No.: AGC00529140206FE04 Page 55 of 75

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with date rate 1 2412MHZ	Antenna	Vertical



M/N: X260

M/N. A200

Mode: 802.11b Low Channel TX Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu\//m	dBuV/m	dB		cm	degree	
1		1208.333	70.03	-15.50	54.53	74.00	-19.47	peak			
2	*	2412.023	113.07	-9.67	103.40	74.00	29.40	peak			
3		3575.000	63.28	-7.43	55.85	74.00	-18.15	peak			

## **RESULT: PASS**

Note: The other modes radiation emissions have more than 20dB margin.

All modes radiation emission from 6GHz to 25GHz at least have 20dB margin.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

## **12. BAND EDGE EMISSION**

## **12.1. MEASUREMENT PROCEDURE**

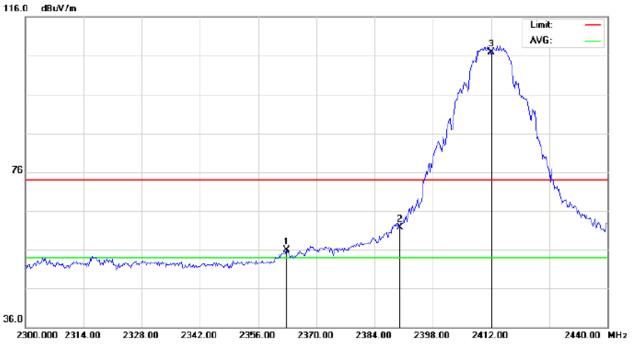
- 1. Set the EUT Work on the top, the bottom operation frequency individually.
- 2. Set SPA Start or Stop Frequency = Operation Frequency, RBW>=1%span, VBW>=RBW
- 3. The band edges was measured and recorded.

## 12.2. TEST SET-UP

Radiated same as 11.2

### 12.3. TEST RESULT

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1 2412MHZ	Antenna	Horizontal



Site: site #1 Limit: FCC Class B 3M Radiation above 1GHZ(PK)

EUT: Velocity II 3G M/N: X260 Power: Distance: 3m

Polarization: Horizontal

Temperature: 26 Humidity: 60 %

Distance: 3m

numiai

Mode: 802.11b Low Channel TX

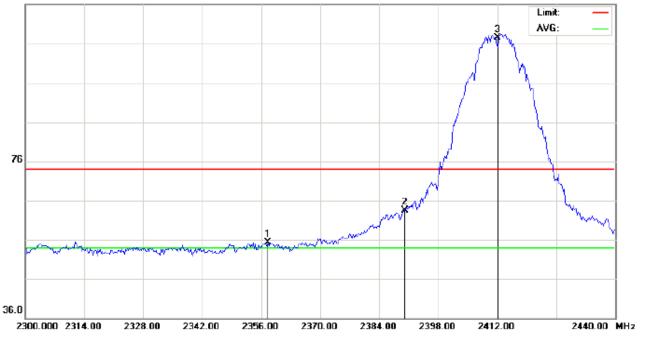
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment	
	-	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB		cm	degree		
1		2362.767	65.69	-9.72	55.97	74.00	-18.03	peak				
2		2390.000	71.40	-9.69	61.71	74.00	-12.29	peak				
3	*	2412.023	116.50	-9.67	106.83	74.00	32.83	peak				

### Report No.: AGC00529140206FE04 Page 58 of 75

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1 2412MHZ	Antenna	Vertical

116.0 dBuV/m



 Site:
 site #1
 Polarization:
 Vertical
 Temperature:
 26

 Limit:
 FCC Class B 3M Radiation above 1GHZ(PK)
 Power:
 Humidity:
 60 %

 EUT:
 Velocity II 3G
 Distance:
 3m

 M/N:
 X260
 X260
 Velocity II blow Channel TX

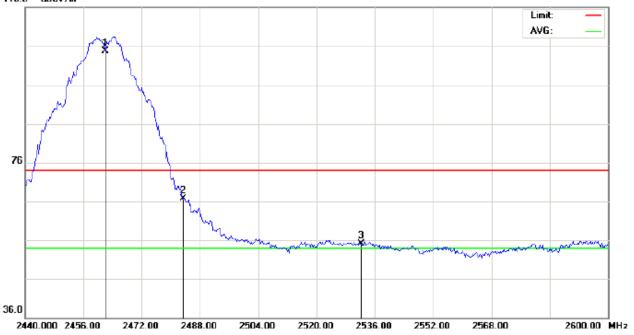
 Note:
 X260
 X260
 X260

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu\//m	dBu∨/m	dB		cm	degree	
1		2357.633	64.94	-9.73	55.21	74.00	-18.79	peak			
2		2390.000	73.28	-9.69	63.59	74.00	-10.41	peak			
3	*	2412.012	117.14	-9.67	107.47	74.00	33.47	peak			

### Report No.: AGC00529140206FE04 Page 59 of 75

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11b with data rate 1 2462MHZ	Antenna	Horizontal





Site: site #1

Limit: FCC Class B 3M Radiation above 1GHZ(PK) EUT: Velocity II 3G M/N: X260

Power: Distance: 3m

Polarization: Horizontal

Temperature: 26 Humidity: 60 %

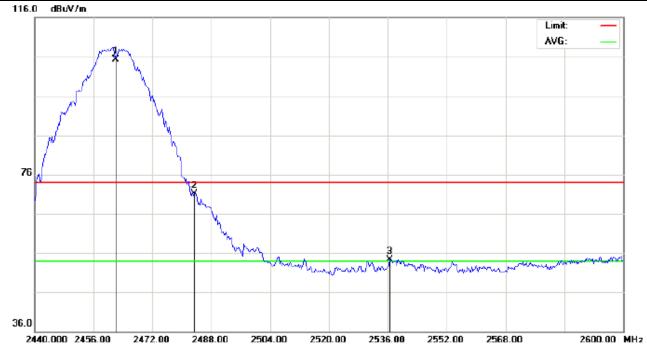
Mode: 802.11b High Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∨	dB/m	dBuV/m	dBu∨/m	dB	В	cm	degree	
1	*	2462.013	114.39	-9.61	104.78	74.00	30.78	peak			
2		2483.500	76.31	-9.59	66.72	74.00	-7.28	peak			
3		2532.267	64.69	-9.49	55.20	74.00	-18.80	peak			

#### Report No.: AGC00529140206FE04 Page 60 of 75

EUT	Velocity II 3G	Model Name	X260	
Temperature	25°C	Relative Humidity	55.4%	
Pressure	960hPa	Test Voltage	Normal Voltage	
Test Mode	802.11b with data rate 1 2462MHZ	Antenna	Vertical	



Site: site #1 Limit: FCC Class B 3M Radiation above 1GHZ(PK) EUT: Velocity II 3G M/N: X260

Mode: 802.11b High Channel TX Note: Polarization: Vertical Power:

Distance: 3m

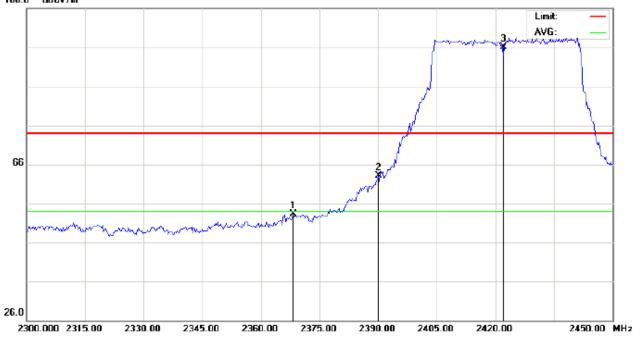
Temperature: 26 Humidity: 60 %

Table Antenna Measurement Limit Reading Factor Freq. Over Mk Height Degree No. Detector Comment MHz dBu∨ dB/m dBuV/m dBuV/m dB cm degree \* 105.31 1 2462.012 114.92 -9.61 74.00 31.31 peak 2 2483.500 80.72 -9.59 71.13 74.00 -2.87 peak 3 2536.533 63.80 -9.48 54.32 74.00 -19.68 peak

#### Report No.: AGC00529140206FE04 Page 61 of 75

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n 40 with data rate 13.5 2422MHZ	Antenna	Horizontal





 Site:
 site #1
 Polarization:
 Horizontal
 Temperature:
 26

 Limit:
 FCC Class B 3M Radiation above 1GHZ(PK)
 Power:
 Humidity:
 60 %

 EUT:
 Velocity II 3G
 Distance:
 3m

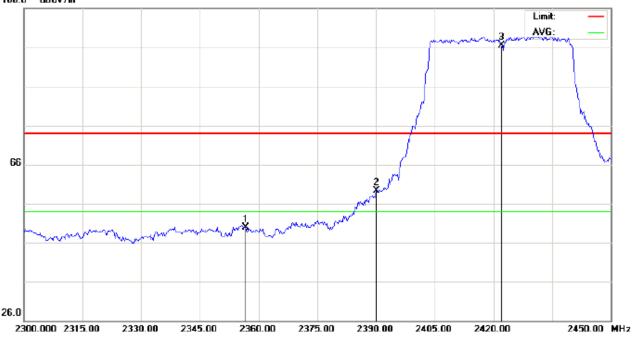
 M/N:
 X260
 Velocity II 00 Low Channel TX
 Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∨	dB/m	dBu\//m	dBuV/m	dB		cm	degree	
1		2368.250	62.98	-9.71	53.27	74.00	-20.73	peak			
2		2390.000	72.71	-9.69	63.02	74.00	-10.98	peak			
3	*	2422.013	105.81	-9.66	96.15	74.00	22.15	peak			

#### Report No.: AGC00529140206FE04 Page 62 of 75

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n 40 with data rate 13.5 2422MHZ	Antenna	Vertical

106.0 dBuV/m



Site: site #1

Limit: FCC Class B 3M Radiation above 1GHZ(PK)

EUT: Velocity II 3G

M/N: X260

Mode: 802.11n(40) Low Channel TX Note: Power: Distance: 3m

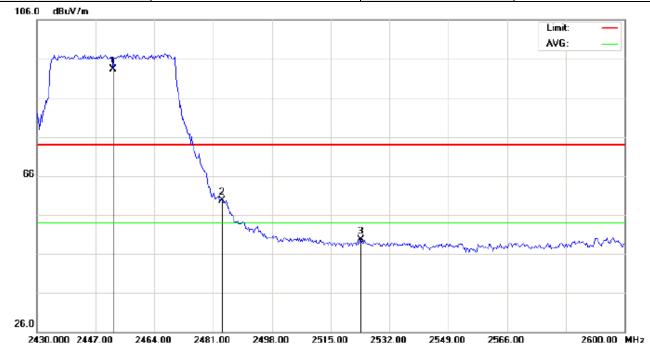
Polarization: Vertical

Temperature: 26 Humidity: 60 %

Antenna Table Reading Freq. Factor Measurement Limit Over Mk No. Height Degree Detector Comment dBu∨ dB/m dBuV/m dBu∀/m MHz dB degree cm 49.99 1 2356.750 59.72 -9.73 74.00 -24.01 peak 2 2390.000 68.90 -9.69 59.21 74.00 -14.79 peak 3 2422.014 106.07 -9.66 96.41 74.00 22.41 \* peak

### Report No.: AGC00529140206FE04 Page 63 of 75

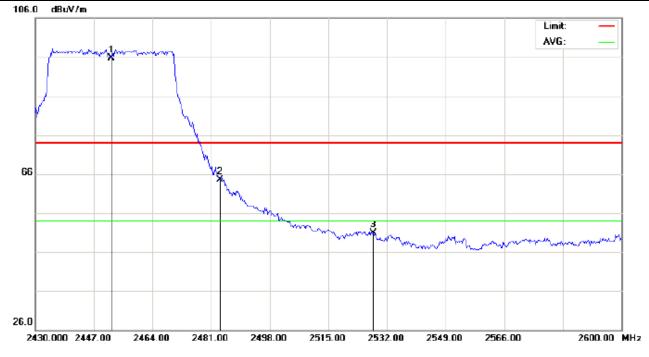
EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n 40 with data rate 13.5 2452MHZ	Antenna	Horizontal



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Table or Height Degree		Comment
	-	MHz	dBu∀	dB/m	dBu\//m	dBuV/m	dB		cm	degree	
1	*	2452.010	102.97	-9.62	93.35	74.00	19.35	peak			
2		2483.500	69.29	-9.59	59.70	74.00	-14.30	peak			
3		2523.783	59.14	-9.51	49.63	74.00	-24.37	peak			

#### Report No.: AGC00529140206FE04 Page 64 of 75

EUT	Velocity II 3G	Model Name	X260
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n 40 with data rate 13.5 2452MHZ	Antenna	Vertical



 Site:
 site #1
 Polarization:
 Vertical
 Temperature:
 26

 Limit:
 FCC Class B 3M Radiation above 1GHZ(PK)
 Power:
 Humidity:
 60 %

 EUT:
 Velocity II 3G
 Distance:
 3m

 M/N:
 X260
 Vertical
 Vertical

 Mode:
 802.11n(40) High Channel TX
 Vertical
 Vertical

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∨	dB/m	dBuV/m	dBu∨/m	dB		cm	degree	
1	*	2452.014	105.40	-9.62	95.78	74.00	21.78	peak			
2		2483.500	74.03	-9.59	64.44	74.00	-9.56	peak			
3		2528.033	60.34	-9.50	50.84	74.00	-23.16	peak			

## **RESULT: PASS**

Note: The other modes radiation emission have enough 20dB margin.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

# **13. FCC LINE CONDUCTED EMISSION TEST**

## **13.1. LIMITS OF LINE CONDUCTED EMISSION TEST**

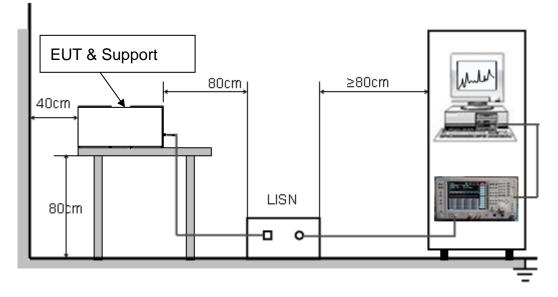
Frequency	Maximum RF Line Voltage						
Frequency	Q.P.( dBuV)	Average( dBuV)					
150kHz~500kHz	66-56	56-46					
500kHz~5MHz	56	46					
5MHz~30MHz	60	50					

Note:

1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

## 13.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



## 13.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

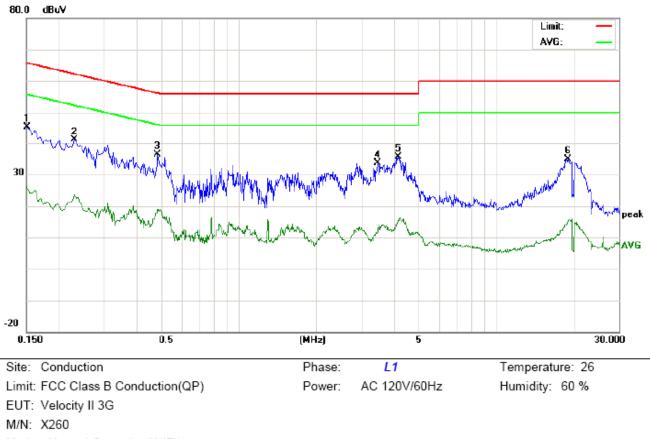
- The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.4.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4. All support equipments received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received charging voltage by adapter which received 120V/60Hzpower by a LISN..
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

## 13.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case condition(s) was reported on the Summary Data page.

## **13.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST**

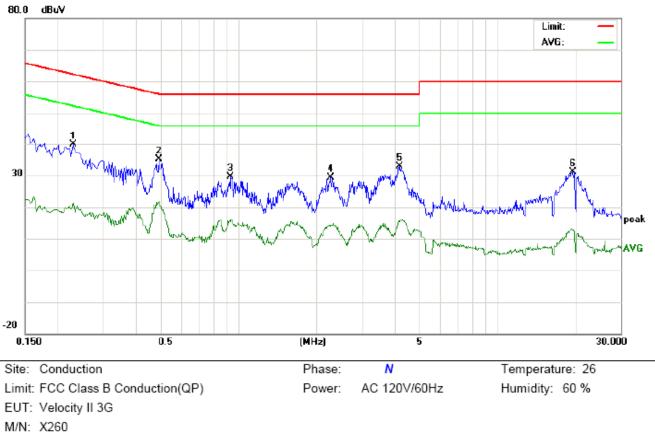


### LINE CONDUCTED EMISSION TEST LINE 1-L

Mode: Normal Operating(WiFi) Note: No. 1 2 3 4

5 6

Freq.		iding_L (dBuV)		Correct Factor		asuren (dBuV)			nit uV)	Mar (d	gin B)	P/F	Comment
(MHz)	Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
0.1499	35.31		16.02	10.16	45.47		26.18	66.00	56.00	-20.53	-29.82	Р	
0.2300	30.84		13.42	10.25	41.09		23.67	62.45	52.45	-21.36	-28.78	Ρ	
0.4858	25.92		8.43	10.39	36.31		18.82	56.24	46.24	-19.93	-27.42	Ρ	
3.4620	23.11		1.03	10.51	33.62		11.54	56.00	46.00	-22.38	-34.46	Ρ	
4.1736	25.22		4.94	10.35	35.57		15.29	56.00	46.00	-20.43	-30.71	Ρ	
19.1018	24.86		5.10	10.12	34.98		15.22	60.00	50.00	-25.02	-34.78	Ρ	



### Line Conducted Emission Test Line 2-N

M/N: X250 Mode: Normal Operating(WiFi) Note:

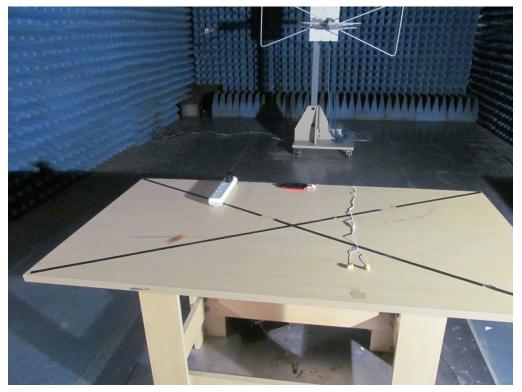
No.	Freq.	Reading_Level (dBuV)			Correct Factor				Limit (dBuV)		Margin (dB)		P/F	Comment
	(MHz)	Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.2300	29.67		11.11	10.25	39.92		21.36	62.45	52.45	-22.53	-31.09	Р	
2	0.4939	24.81		11.39	10.40	35.21		21.79	56.10	46.10	-20.89	-24.31	Ρ	
3	0.9340	19.30		5.75	10.40	29.70		16.15	56.00	46.00	-26.30	-29.85	Р	
4	2.2780	18.98		4.11	10.34	29.32		14.45	56.00	46.00	-26.68	-31.55	Р	
5	4.2019	22.60		5.01	10.34	32.94		15.35	56.00	46.00	-23.06	-30.65	Р	
6	19.5819	21.01		2.70	10.11	31.12		12.81	60.00	50.00	-28.88	-37.19	Р	

# APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC LINE CONDUCTED EMISSION TEST SETUP



FCC RADIATED EMISSION TEST SETUP





# APPENDIX B: PHOTOGRAPHS OF EUT

TOTAL VIEW OF EUT

TOP VIEW OF EUT





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BOTTOM VIEW OF EUT

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BACK VIEW OF EUT

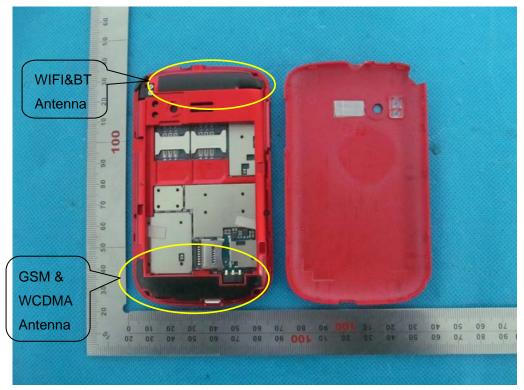
LEFT VIEW OF EUT

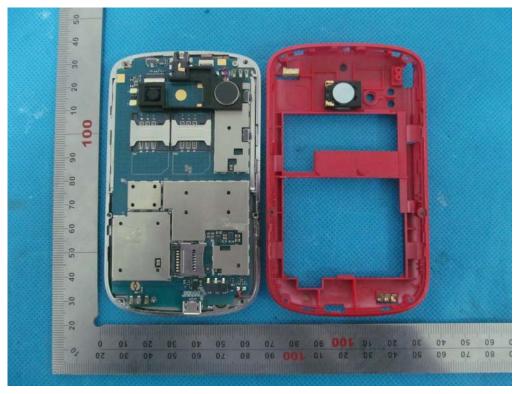




RIGHT VIEW OF EUT

OPEN VIEW OF EUT-1

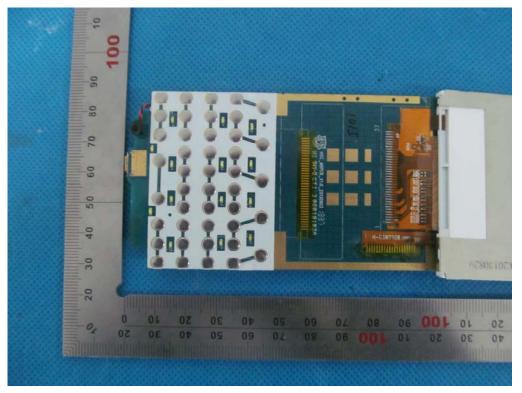




**OPEN VIEW OF EUT-2** 

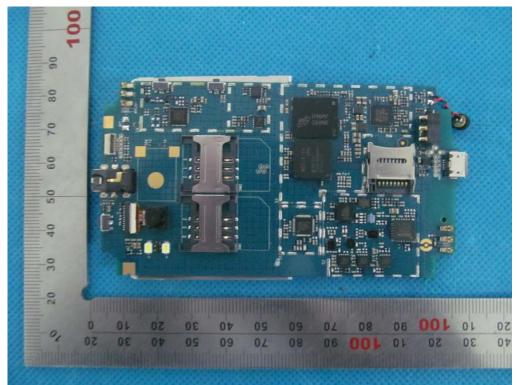
**OPEN VIEW OF EUT-3** 





INTERNAL VIEW OF EUT-1

**INTERNAL VIEW OF EUT-2** 



## ----END OF REPORT----