

REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 1 of 56

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

# INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

*OF* 

**Product Name: Pocket PC mobile phone** 

**Brand Name: JAMA101** 

**Model Name:** P30i

**Model Differences:** N/A

FCC ID: VKPP30I

EH/2007/70034 **Report No.:** 

**Issue Date:** Aug 15, 2007

**FCC Rule Part: §15.247** 

Prepared for: Mobile XP Technology Co., LTD

No.9 Shangdi East Road, Haidian District

Beijing 100085 P.R.China

Prepared by: SGS Taiwan Ltd.

No. 134, Wu Kung Rd., Wuku Industrial

Zone, Taipei County, Taiwan.





Testing Laboratory 0513

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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 2

# VERIFICATION OF COMPLIANCE

**Applicant:** Mobile XP Technology Co., LTD

No.9 Shangdi East Road, Haidian District Beijing 100085 P.R.China

**Equipment Under Test:** Pocket PC mobile phone

**Brand Name:** JAMA101

**FCC ID Number:** VKPP30I

Model No.: P30i

**Model Difference:** N/A

File Number: EH/2007/70034

Date of test: Jul 28, 2007 ~ Aug. 14, 2007

**Date of EUT Received:** Jul 27, 2007

#### We hereby certify that:

The above equipment was tested by SGS Taiwan 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 conducted and radiated emission limits of FCC Rules Part 15.247.

The test results of this report relate only to the tested sample identified in this report.

Test By:	Vanny Yeh	Date	Aug 15, 2007	
Prepared By:	Danny Yeh / Engineer	Date	Aug 15, 2007	
Approved By:	Gigi Yeh/Clerk Tihunt Su	Date	Aug 15, 2007	
	Vincent Su/Manager			

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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 3

### Version

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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 4

### **Table of Contents**

1.	GEN	ERAL INFORMATION	7
	1.1.	Related Submittal(s) / Grant (s)	8
	1.2.	Test Methodology	8
	1.3.	Test Facility	8
	1.4.	Special Accessories	8
	1.5.	Equipment Modifications	8
2.	SYST	TEM TEST CONFIGURATION	9
	2.1.	EUT Configuration	
	2.2.	EUT Exercise	9
	2.3.	Test Procedure	9
	2.4.	Configuration of Tested System	10
3.	SUM	MARY OF TEST RESULTS	11
4.		CRIPTION OF TEST MODES	
5.		DUCTED EMISSION TEST	
	5.1.	Standard Applicable	
	5.2.	EUT Setup	12
	5.3.	Measurement Procedure	12
	5.4.	Measurement Equipment Used:	13
	5.5.	Measurement Result	13
6.	PEA	K OUTPUT POWER MEASUREMENT	16
	6.1.	Standard Applicable	
	6.2.	Measurement Procedure	16
	6.3.	Measurement Result	16
	6.4.	Measurement Equipment Used:	16
7.	20dB	BAND WIDTH	19
	7.1.	Standard Applicable	
	7.2.	Measurement Procedure	
	7.3.	Measurement Result	
	7 4	Measurement Equipment Used:	10

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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 5

8.	100K	Hz BANDWIDTH OF BAND EDGES MEASUREMENT	22
	8.1.	Standard Applicable	22
	8.2.	Measurement Procedure	22
	8.3.	Measurement Result	22
	8.4.	Measurement Equipment Used:	22
9.	SPUR	RIOUS RADIATED EMISSION TEST	27
	9.1.	Standard Applicable	27
	9.2.	EUT Setup	27
	9.3.	Measurement Procedure	27
	9.4.	Test SET-UP (Block Diagram of Configuration)	28
	9.5.	Measurement Equipment Used:	29
	9.6.	Field Strength Calculation	29
	9.7.	Measurement Result	29
10.	FRE(	QUENCY SEPARATION	42
	10.1.	Standard Applicable	
	10.2.	Measurement Procedure	42
	10.3.	Measurement Result	42
	10.4.	Measurement Equipment Used:	42
11.	NUM	BER OF HOPPING FREQUENCY	44
	11.1.	Standard Applicable	
	11.2.	Measurement Procedure	44
	11.3.	Measurement Result	44
	11.4.	Measurement Equipment Used:	44
12.	TIME	E OF OCCUPANCY (DWELL TIME)	46
		Standard Applicable	
	12.2.	Measurement Procedure	46
	12.3.	Measurement Result	46
	12.4.	Measurement Equipment Used:	47
13.	Peak	Power Spectral Density	53
	13.1.	Standard Applicable	
	13.2.	Measurement Procedure	53
	13.3.	Measurement Result	53
	13.4.	Measurement Equipment Used:	53

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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 6

14.	ANTE	NNA REQUIREMENT	56
		Standard Applicable	
	14.2.	Antenna Connected Construction	56
PH	OTOG	RPHS OF SET UP	57
PHO	OTOG	RPHS OF EUT	60



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 7

#### 1. GENERAL INFORMATION

Product Name	Pocket PC mobile phone			
Model Name	P30i			
Model Difference:	N/A	N/A		
Brand Name	JAMA101			
Data Cable	1 cable, model: N/A			
Simple Hands-Free (SHF):	1 cable, model: N/A			
	3.7 Vdc re-c	3.7 Vdc re-chargeable battery or 5Vdc by AC/DC power adapter		
Power Supply	Battery: Model: i-mate JAMA, Supplier: Shenzhen Jingyo			
	Adapter:	Adapter: Model: KSCF80500070W1UV-1, Supplier: Ktec		

#### GSM:

Frequency Range and Power	EGSM 900: 880MHz – 915MHz 33 dBm		
	GSM 1800: 1710MHz-1785MHz	30 dBm	
	GSM 1900: 1850MHz –1910MHz	30 dBm	
Type of Emission	300KGXW		
Software Version	53287185		
Hardware Version	BP01		
IMEI	355313010110135		

# **Bluetooth:**

Frequency Range	2402 – 2480MHz
Channel number	79 channels
Rated Power	1.88 dBm Peak
Modulation type	Frequency Hopping Spread Spectrum (FHSS)(FGSK)
Type of Emission	1M20F1D
Antenna Designation	Chip Antenna, 2.3 dBi

The EUT is compliance with Bluetooth Standard.

This test report applies for Bluetooth.

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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 8

### 1.1. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: VKPP30I filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules. The composite system (digital device) is compliance with Subpart B is authorized under a Doc procedure.

# 1.2. Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

#### 1.3. Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the address of SGS Taiwan Ltd. No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003 and CISPR 22/EN 55022 requirements. Site No. 1(3 &10 meters) Registration Number: 94644, Both OATS and Anechoic chamber (3 meters) was accredited by TAF (0513). Canada Registration Number: 4620A-1

### 1.4. Special Accessories

Not available for this EUT intended for grant.

#### 1.5. Equipment Modifications

Not available for this EUT intended for grant.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 9

### 2. SYSTEM TEST CONFIGURATION

#### 2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

#### 2.2. EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

#### 2.3. Test Procedure

#### 2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

#### 2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8 and 13 of ANSI C63.4-2003.



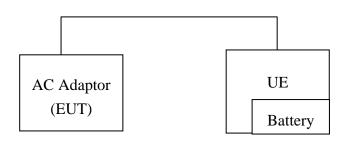
REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 10

# 2.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



**Table 2-1 Equipment Used in Tested System** 

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1						

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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 11** 

#### 3. SUMMARY OF TEST RESULTS

FCC Rules	<b>Description Of Test</b>	Result
§15.207(a)	Conducted Emission	Compliant
§15.247(b)(1)	Peak Output Power	Compliant
§15.247(a)	20dB Bandwidth	Compliant
§15.247(c)	100 KHz Bandwidth Of Fre-	Compliant
	quency Band Edges	
§15.209(a) (f)	Spurious Emission	Compliant
§15.247(a)(1)	Frequency Separation	Compliant
§15.247(a)(1)(iii)	Number of hopping frequency	Compliant
§15.247(a)(1)(iii) Time of Occupancy		Compliant
§15.247	§15.247 Peak Power Density	
§15.203,	Antenna Requirement	Compliant
§15.247(b)(4)(i)		

### 4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Channel low (2402MHz) · mid (2441MHz) and high (2480MHz) with highest data rate are chosen for full testing.

The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for channel Low, Mid and High were reported. The worst case H axis was reported.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 12** 

#### 5. CONDUCTED EMISSION TEST

# 5.1. Standard Applicable

According to §15.207. frequency within 150KHz to 30MHz shall not exceed the limit table as below.

Frequency range	Lin dB(	
MHz	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

#### Note

# 5.2. EUT Setup

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2003.
- 2. The EUT was plug-in the host PC. The host system was placed on the center of the back edge on the test table. The peripherals was placed on the side of the host PC system. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
- 3. The spacing between the peripherals was 10 centimeters.
- 4. External I/O cables were draped along the edge of the test table and bundle when necessary.
- 5. The host system was connected with 110Vac/60Hz power source.

#### **5.3.** Measurement Procedure

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all frequency measured were complete.

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<sup>1.</sup> The lower limit shall apply at the transition frequencies

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



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 13

# 5.4. Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
EMC Analyzer	HP	8594EM	3624A00203	09/02/2006	09/03/2007
EMI Test Receiver	R&S	ESCS30	828985/004	06/09/2007	06/10/2008
Transient Limiter	HP	11947A	3107A02062	09/02/2006	09/03/2007
LISN	Rolf-Heine	NNB-2/16Z	99012	12/31/2006	12/30/2007
LISN	Rolf-Heine	NNB-2/16Z	99013	12/24/2006	12/23/2007
Coaxial Cables	N/A	No. 3, 4	N/A	12/01/2006	12/01/2007

#### 5.5. **Measurement Result**

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peake.



REPORT NO: EH/2007/70034

25 °C

hpa

62 %

Temperature

Air Pressure:

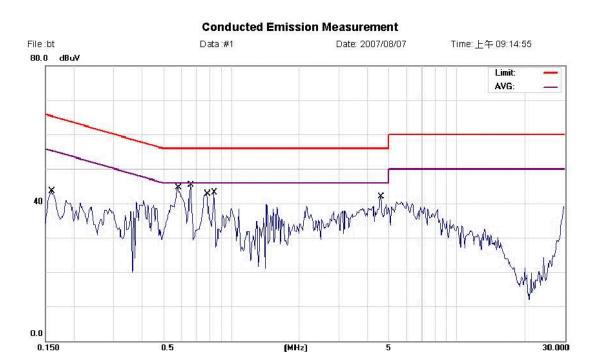
Humidity:

**DATE: Aug. 15, 2007** 

**Page: 14** 

### AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation Mode		Test Date:	Aug 07, 2007	
Temperature:	25 °C	Humidity:	62 %	Test By:	Danny



Phase:

Power:

Distance:

L1

AC 120V/60Hz

Site SGS CONDUCTED #1

Limit: CISPR22 Class B Conduction(QP)

EUT: mobile phone

M/N: P30i

Note: BT Operation

No. Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over			
	MHz	dBu∀	dB	dBu√	dBu∀	dB	Detector	Comment	
1	0.1600	42.47	0.95	43.42	65.46	-22.04	QP		
2 *	0.5800	44.51	0.02	44.53	56.00	-11.47	QP		
3	0.6600	38.85	0.02	38.87	56.00	-17.13	QP		
4	0.6600	31.22	0.02	31.24	46.00	-14.76	AVG		
5	0.7800	42.60	0.01	42.61	56.00	-13.39	QP		
6	0.8400	43.04	0.01	43.05	56.00	-12.95	QP		
7	4.6200	41.85	0.09	41.94	56.00	-14.06	QP		

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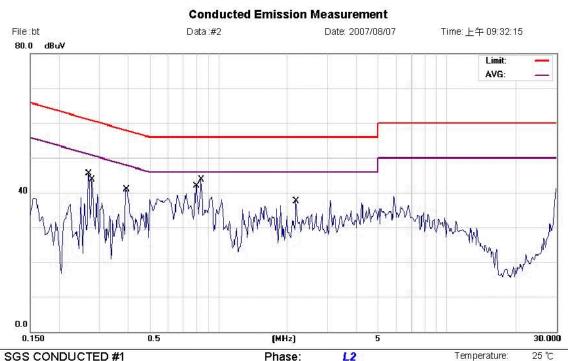
REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 15** 

#### AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation Mode		Test Date:	Aug. 07, 2007	
Temperature:	25 ℃	Humidity:	62 %	Test By:	Danny



Power:

Measure-

ment

dBu∀

45.47

43.62

40.94

41.95

43.74

37.55

Factor

dB

0.02

0.02

0.02

0.01

0.01

0.04

Distance:

AC 120V/60Hz

Site SGS CONDUCTED #1

Freq.

MHz

0.2700

0.2800

0.3950

0.8000

0.8400

2.1800

Limit: CISPR22 Class B Conduction(QP)

Reading

Level

dBu∀

45.45

43.60

40.92

41.94

43.73

37.51

EUT: mobile phone

M/N: P30i

No. Mk.

1

2

3 4

5

6

Note: BT Operation

-	Limit	Over			
	dBu∀	dB	Detector	Comment	
	61.12	-15.65	QP		*
	60.82	-17.20	QP		
	57.96	-17.02	QP		X
	56.00	-14.05	QP		

Humidity:

Air Pressure:

hpa

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56.00

56.00

-12.26

-18.45

QP

QP



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 16** 

### 6. PEAK OUTPUT POWER MEASUREMENT

# 6.1. Standard Applicable

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850MHz band: 1Watt. For all other frequency hopping systems in the 2400 – 2483.5MHz band: 0.125 Watts.

#### **6.2.** Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum. (Channel power function, RBW, VBW = 1MHz)
- 3. Record the max. reading.
- 4. Repeat above procedures until all frequency measured were complete.

#### 6.3. Measurement Result

СН	Frequency (MHz)	Reading Power dBm	Cable Loss	Output Power dBm	Output Power W	Limit (W)
LOW	2402.0	1.78	0.10	1.88	0.00154	1
MID	2441.0	1.30	0.10	1.40	0.00138	1
HIGH	2480.0	1.42	0.10	1.52	0.00142	1

6.4. Measurement Equipment Used:

0.4. Measurement Equipment Osea.										
Conducted Emission Test Site										
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.					
ТҮРЕ		NUMBER	NUMBER	CAL.						
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2007	03/28/2008					
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2007	06/29/2008					
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A					
Attenuator	Mini-Circult	BW-S10W5	N/A	10/07/2006	10/06/2007					
Attenuator	Mini-Circult	BW-S6W5	N/A	10/07/2006	10/06/2007					
Splitter	Agilent	Power Biviber	51818	01/05/2007	01/04/2008					

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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 17** 

# **Peak Power Output Data Plot (CH Low)**



# Peak Power Output Data Plot (CH Mid)



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 18** 

# Peak Power Output Data Plot (CH High)



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 19** 

#### 7. 20dB BAND WIDTH

# 7.1. Standard Applicable

For frequency hopping systems operating in the 2400MHz-2483.5 MHz no limit for 20dB bandwidth.

#### 7.2. Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer as RBW=10KHz (1 % of Bandwidth.), Span= 3MHz, Sweep=auto
- 4. Mark the peak frequency and –20dB (upper and lower) frequency.
- 5. Repeat above procedures until all frequency measured were complete.

#### 7.3. Measurement Result

СН	Bandwidth (MHz)
Lower	1.293
Mid	1.285
Higher	1.250

7.4. Measurement Equipment Used:

7.11 Medicinent Equipment Occus										
Conducted Emission Test Site										
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.					
TYPE		NUMBER	NUMBER	CAL.						
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2007	03/28/2008					
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2007	06/29/2008					
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A					
Attenuator	Mini-Circult	BW-S10W5	N/A	10/07/2006	10/06/2007					
Attenuator	Mini-Circult	BW-S6W5	N/A	10/07/2006	10/06/2007					
Splitter	Agilent	Power Biviber	51818	01/05/2007	01/04/2008					

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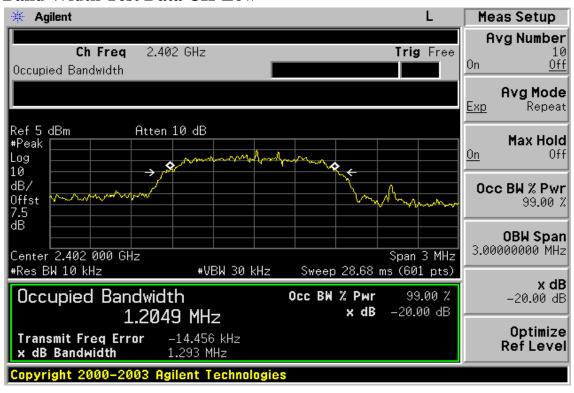


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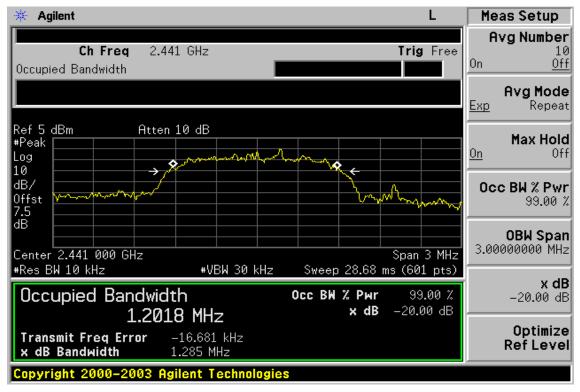
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**Page: 20** 

#### 20dB Band Width Test Data CH-Low



### 20dB Band Width Test Data CH-Mid



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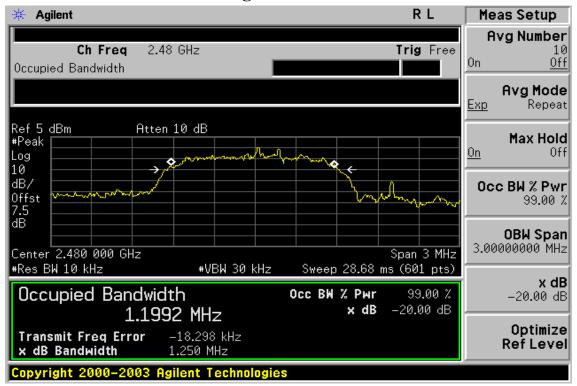


REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 21** 

# 20dB Band Width Test Data CH-High



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 22** 

### 8. 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT

# 8.1. Standard Applicable

According to §15.247(c), in any 100 KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated 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).

#### 8.2. Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set center frequency of spectrum analyzer = operating frequency.
- 4. Set the spectrum analyzer as RBW, VBW=100KHz, Span=25MHz, Sweep = auto
- 5. Mark Peak, 2.390GHz and 2.488GHz and record the max. level.
- 6. Repeat above procedures until all frequency measured were complete.
- 7. Radiated Emission refer to section 9.

#### 8.3. Measurement Result

Refer to attach spectrum analyzer data chart.

**8.4.** Measurement Equipment Used:

	Conducted Emission Test Site										
<b>EQUIPMENT</b>	MFR	MODEL	SERIAL	LAST	CAL DUE.						
ТҮРЕ		NUMBER	NUMBER	CAL.							
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2007	03/28/2008						
Spectrum Analyzer	Spectrum Analyzer Agilent		US41160416	06/28/2007	06/29/2008						
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A						
Attenuator	Mini-Circult	BW-S10W5	N/A	10/07/2006	10/06/2007						
Attenuator Mini-Circult		BW-S6W5	N/A	10/07/2006	10/06/2007						
Splitter	Agilent	Power Biviber	51818	01/05/2007	01/04/2008						

Note: Measurement Equipment for radiated emission refers to section 9.

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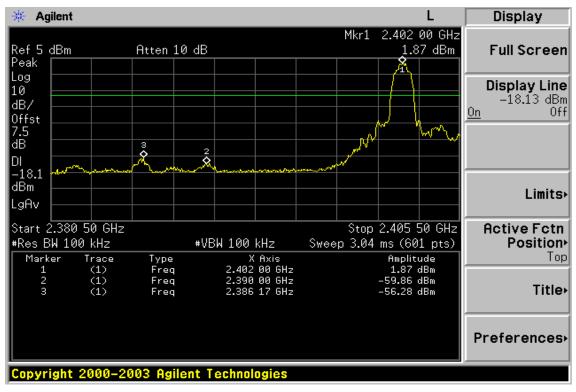


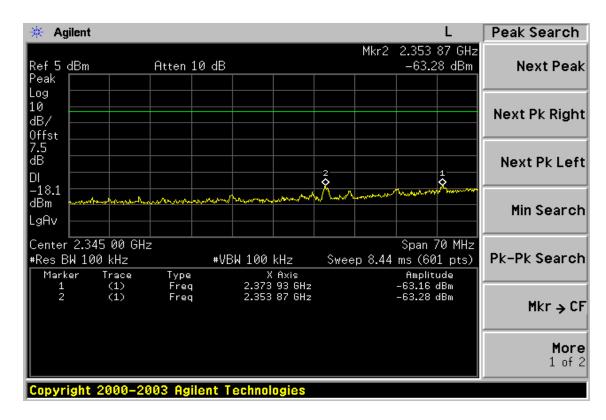
REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 23** 

### **Conducted Emission: Test Data CH-Low**





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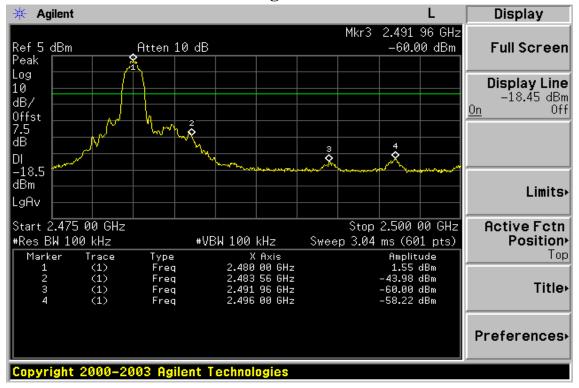


REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 24** 

# **Conducted Emission: Test Data CH-High**



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 25** 

#### **Radiated Emission:**

TX CH Low **Test Date** Aug. 08, 2007 Operation Mode Fundamental Frequency 2402 MHz Test By Danny Temperature 25 °C Pol Ver. Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/n	n) (dB)	
2386.0	34.00		-1.40	32.60		74.00	54.00	-21.40	Peak
2390.0	34.51		-1.39	33.12		74.00	54.00	-20.88	Peak
Omanation	Mada	TV C	<b>111</b> 1			Так	Data	A 00 2	007
Operation			CH Low			rest	Date	Aug. 08, 2	007
Fundamen	tal Freque	ncy 2402	MHz			Test	By	Danny	
Temperatu	ıre	25 °C				Pol		Hor.	

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq	. Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2386.	0 34.45		-1.40	33.05		74.00	54.00	-20.95	Peak
2390.	0 35.88		-1.39	34.49		74.00	54.00	-19.51	Peak

#### Remark:

Humidity

- (1) Datas of measurement within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column o
- (3) Spectrum Peak Setting: 1GHz-26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (4) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time=200

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65 %



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 26** 

#### **Radiated Emission:**

Test Date Operation Mode TX CH High Aug. 08, 2007 Fundamental Frequency 2480 MHz Test By Danny Temperature 25 °C Pol Ver. Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	dBuV/m)	(dB)	
2383.6	45.44		-0.92	44.52		74.00	54.00	-9.48	Peak
2496.0	34.05		-0.84	33.21		74.00	54.00	-20.79	Peak

Operation Mode TX CH High Test Date Aug. 08, 2007 Fundamental Frequency 2480 MHz Test By Danny Temperature 25 ℃ Pol Hor. Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2483.6	47.93		-0.92	47.01		74.00	54.00	-6.99	Peak
2496.0	34.56		-0.84	33.72		74.00	54.00	-20.28	Peak

#### Remark:

- (1) Datas of measurement within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column o
- (3) Spectrum Peak Setting: 1GHz-26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (4) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 27** 

### 9. SPURIOUS RADIATED EMISSION TEST

# 9.1. Standard Applicable

According to §15.247(c), all other emissions outside these bands shall not exceed the general radiated emission limits specified in §15.209(a). And according to §15.33(a)(1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

# 9.2. EUT Setup

- 1. The radiated emission tests were performed in the 3 meter open-test site, using the setup in accordance with the ANSI C63.4-2003.
- 2. The EUT was put in the front of the test table. The peripherals was placed on the side of the host system. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
- 3. The spacing between the peripherals was 10 centimeters.
- 4. External I/O cables were draped along the edge of the test table and bundle when necessary.
- 5. The host PC system was connected with 110Vac/60Hz power source.

#### 9.3. Measurement Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until all frequency measured were complete.



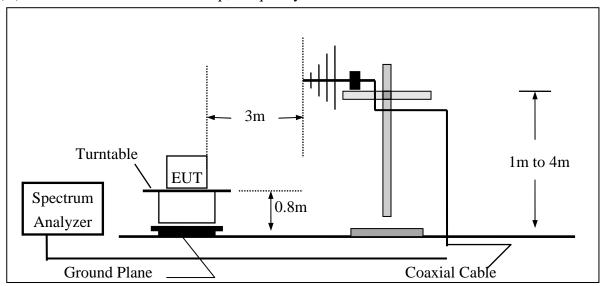
REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

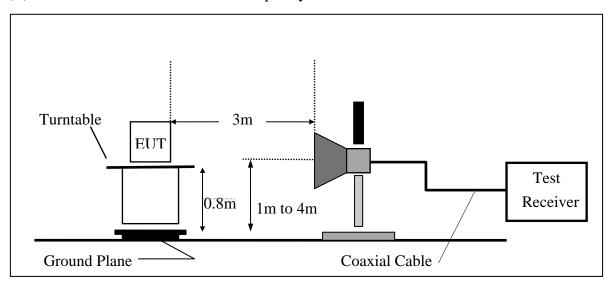
**Page: 28** 

# 9.4. Test SET-UP (Block Diagram of Configuration)

(A) Radiated Emission Test Set-Up, Frequency Below 1GHz



# (B) Radiated Emission Test Set-UP Frequency Over 1 GHz





REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 29

#### 9.5. **Measurement Equipment Used:**

966 Chamber									
EQUIPMENT	EQUIPMENT MFR			LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	R&S	FSP 40	100034	05/27/2007	05/26/2008				
Spectrum Analyzer	Agilent	E7405A	US41160416	08/27/2006	08/26/2007				
Bilog Antenna	SCHWAZBECK	VULB9163	152	06/03/2007	06/02/2008				
Horn antenna	Schwarzbeck	BBHA 9120D	309/320	08/16/2006	08/15/2007				
Horn antenna	Schwarzbeck	BBHA 9170	184/185	07/04/2007	07/03/2008				
Pre-Amplifier	HP	8447D	2944A09469	07/19/2007	07/18/2008				
Pre-Amplifier	HP	8494B	3008A00578	02/26/2007	02/25/2008				
Turn Table	HD	DT420	N/A	N.C.R	N.C.R				
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R				
Controller	HD	HD100	N/A	N.C.R	N.C.R				
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	10/09/2006	10/08/2007				
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2006	10/08/2007				
Site NSA	SGS	966 chamber	N/A	11/17/2006	11/16/2007				

# 9.6. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

### 9.7. Measurement Result

Refer to attach tabular data sheets.

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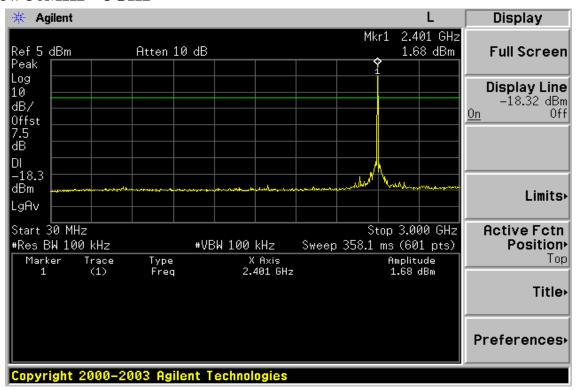


REPORT NO: EH/2007/70034

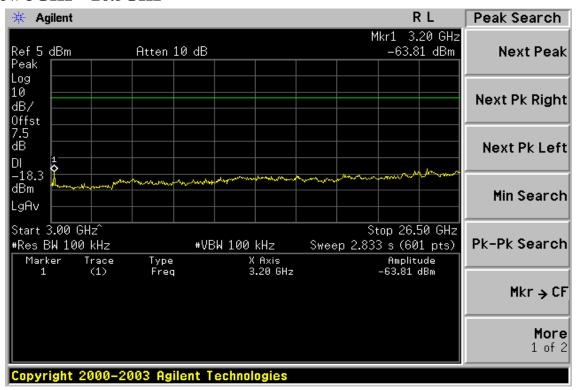
**DATE: Aug. 15, 2007** 

**Page: 30** 

# **Conducted Spurious Emission Measurement Result** Ch Low 30MHz - 3GHz



#### Ch Low 3GHz – 26.5GHz



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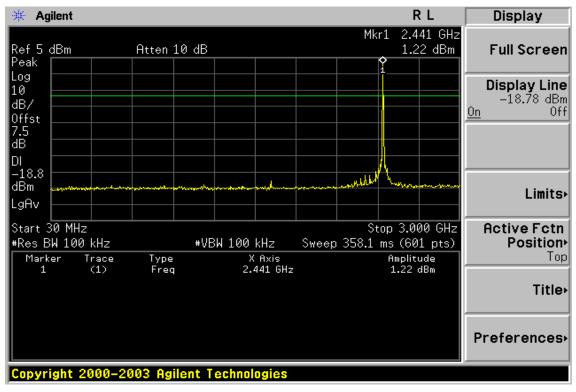


REPORT NO: EH/2007/70034

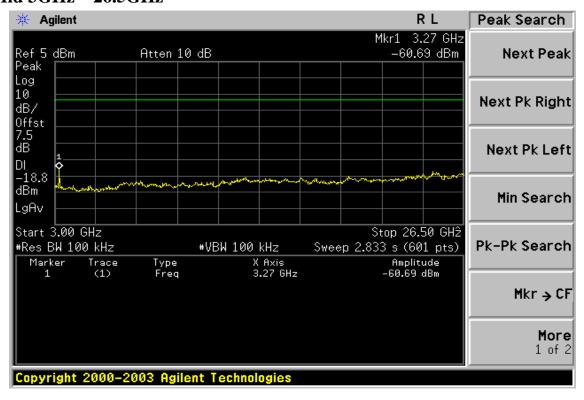
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**Page: 31** 

### Ch Mid 30MHz - 3GHz



#### Ch Mid 3GHz – 26.5GHz



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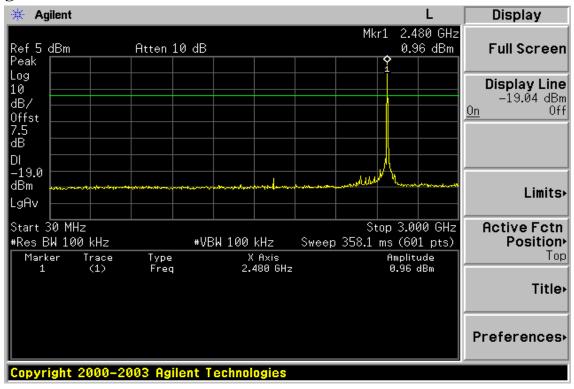


REPORT NO: EH/2007/70034

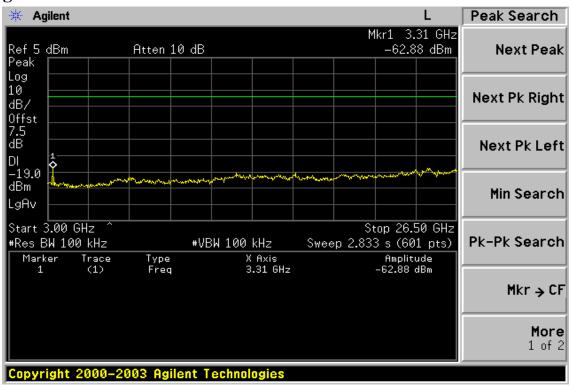
**DATE: Aug. 15, 2007** 

**Page: 32** 

# Ch High 30MHz - 3GHz



# Ch High 3GHz - 26.5GHz



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 33** 

#### Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode TX CH Low **Test Date** Aug. 08, 2007 Fundamental Frequency 2402MHz Test By Danny Temperature 25 °C Pol Ver./Hor. Humidity 65 %

	Freq.	Ant.Pol.	Detector Mode	Reading	Factor	<b>Actual FS</b>	Limit3m	Safe Margin
_	(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
	56.19	V	Peak	47.49	-14.63	32.86	40.00	-7.14
	101.78	V	Peak	48.57	-16.87	31.70	43.50	-11.80
	58.13	Н	Peak	42.42	-14.66	27.76	40.00	-12.24
	101.78	Н	Peak	45.53	-16.87	28.66	43.50	-14.84

- 1 Measuring frequencies from 30 MHz to the 1GHz •
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 34** 

#### Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode TX CH Mid **Test Date** Aug. 08, 2007 Fundamental Frequency 2441MHz Test By Danny Temperature 25 °C Pol Ver./Hor. Humidity 65 %

	Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
_	(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
	58.13	V	Peak	47.67	-14.66	33.01	40.00	-6.99
	101.78	V	Peak	49.58	-16.87	32.71	43.50	-10.79
	101.78	Н	Peak	46.82	-16.87	29.95	43.50	-13.55
	155.13	Н	Peak	33.98	-13.12	20.86	43.50	-22.64

- 1 Measuring frequencies from 30 MHz to the 1GHz •
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Datas of measurement within this frequency range shown " " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 35** 

#### Radiated Spurious Emission Measurement Result (below 1GHz)

TX CH High Test Date Aug. 08, 2007 Operation Mode Fundamental Frequency 2480MHz Test By Danny Temperature 25 °C Pol Ver./Hor. Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
56.19	V	Peak	47.60	-14.63	32.97	40.00	-7.03
101.78	V	Peak	49.34	-16.87	32.47	43.50	-11.03
101.78	Н	Peak	46.57	-16.87	29.70	43.50	-13.80
138.64	Н	Peak	45.34	-13.80	31.54	43.50	-11.96

- 1 Measuring frequencies from 30 MHz to the 1GHz •
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 36** 

#### Radiated Spurious Emission Measurement Result (above 1GHz)

TX CH Low Operation Mode **Test Date** Aug. 08, 2007

Fundamental Frequency 2402 MHz Test By Danny Temperature 25 °C Pol Ver.

Humidity 65 %

	Peak	$\mathbf{AV}$		Actı	ıal FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m	(dBuV/m	(dBuV/m	(dBuV/m)	(dB)	Remarl
4804.0	38.70		5.99	44.69		74.00	54.00	-9.31	Peak
7206.0						74.00	54.00		
9608.0						74.00	54.00		
12010.0						74.00	54.00		
14412.0						74.00	54.00		
16814.0						74.00	54.00		
19216.0						74.00	54.00		
21618.0						74.00	54.00		
24020.0						74.00	54.00		

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency o
- (2) Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column o
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 37** 

#### Radiated Spurious Emission Measurement Result (above 1GHz)

TX CH Low Operation Mode **Test Date** Aug. 08, 2007 Fundamental Frequency 2402 MHz Test By Danny

Temperature 25 ℃ Pol Hor.

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq. (MHz)	Reading (dBuV)	Reading (dBuV)	Ant./CL CF(dB)	Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804.0	36.84		5.99	42.83		74.00	54.00	-11.17	Peak
7206.0						74.00	54.00		
9608.0						74.00	54.00		
12010.0						74.00	54.00		
14412.0						74.00	54.00		
16814.0						74.00	54.00		
19216.0						74.00	54.00		
21618.0						74.00	54.00		
24020.0						74.00	54.00		

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency o
- (2) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
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- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 38** 

#### Radiated Spurious Emission Measurement Result (above 1GHz)

TX CH Mid Operation Mode **Test Date** Aug. 08, 2007

Fundamental Frequency 2441 MHz Test By Danny Temperature 25 °C Pol Ver.

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	Remark
4882.0	38.85		6.17	45.02		74.00	54.00	-8.98	Peak
7323.0						74.00	54.00		
9764.0						74.00	54.00		
12205.0						74.00	54.00		
14646.0						74.00	54.00		
17087.0						74.00	54.00		
19528.0						74.00	54.00		
21969.0						74.00	54.00		
24410.0						74.00	54.00		

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency o
- (2) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column o
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 39

#### Radiated Spurious Emission Measurement Result (above 1GHz)

TX CH Mid Operation Mode **Test Date** Aug. 08, 2007 Fundamental Frequency 2441 MHz Test By Danny Temperature 25 °C Pol Hor.

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	Remark
4882.0	37.22		6.17	43.39		74.00	54.00	-10.61	Peak
7323.0						74.00	54.00		
9764.0						74.00	54.00		
12205.0						74.00	54.00		
14646.0						74.00	54.00		
17087.0						74.00	54.00		
19528.0						74.00	54.00		
21969.0						74.00	54.00		
24410.0						74.00	54.00		

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency o
- (2) Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column o
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 40** 

#### Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode TX CH High Test Date Aug. 08, 2007

Fundamental Frequency 2480 MHz Test By Danny Temperature  $25 \,^{\circ}\text{C}$  Pol Ver.

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	Remark
4960.0						74.00	54.00		
7440.0						74.00	54.00		
9920.0						74.00	54.00		
12400.0						74.00	54.00		
14880.0						74.00	54.00		
17360.0						74.00	54.00		
19840.0						74.00	54.00		
22320.0						74.00	54.00		
24800.0						74.00	54.00		

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency  $\circ$
- (2) Datas of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column  $\circ$
- (4) Spectrum Peak Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 41** 

#### Radiated Spurious Emission Measurement Result (above 1GHz)

TX CH High Operation Mode Test Date Aug. 08, 2007 Fundamental Frequency 2480 MHz Test By Danny Temperature 25 °C Pol Hor.

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	Remar
4960.0						74.00	54.00		
7440.0						74.00	54.00		
9920.0						74.00	54.00		
12400.0						74.00	54.00		
14880.0						74.00	54.00		
17360.0						74.00	54.00		
19840.0						74.00	54.00		
22320.0						74.00	54.00		
24800.0						74.00	54.00		

- (1) Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency o
- (2) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (3) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column o
- (4) Spectrum Peak Setting: 1GHz-26GHz, RBW=1MHz, VBW=3MHz, Sweep time=200
- (5) Spectrum AV Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 42** 

## 10. FREQUENCY SEPARATION

## 10.1. Standard Applicable

According to §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25KHz or the 2/3\*20dB bandwidth of the hopping channel, whichever is greater.

#### 10.2. Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set center frequency of spectrum analyzer = middle of hopping channel.
- 4. Set the spectrum analyzer as RBW, VBW=100KHz, Adjust Span to 5 MHz, Sweep = auto.
- 5. Max hold. Mark 3 Peaks of hopping channel and record the 3 peaks frequency.

#### 10.3. Measurement Result

Channel separation	Limit	Result	
MHz	kHz		
1	>=25KHz or 2/3* 20 dB bandwidth	PASS	

## 10.4. Measurement Equipment Used:

EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	R&S	FSP 40	100034	05/27/2007	05/26/2008
Spectrum Analyzer	Agilent	E7405A	US41160416	08/27/2006	08/26/2007
Spectrum Analyzer	Agilent	E4446A	MY43360126	01/22/2007	01/21/2008
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A
Attenuator	Mini-Circult	BW-S6W5	N/A	10/07/2006	10/06/2007

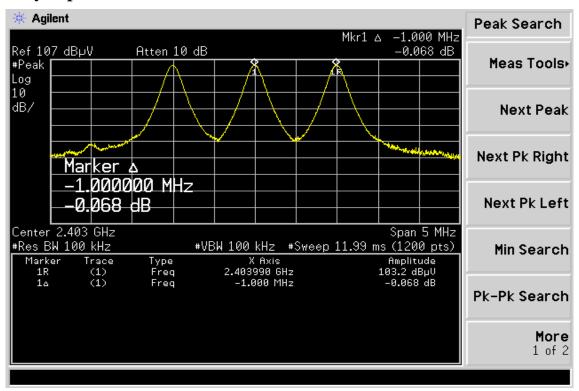


REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 43** 

## **Frequency Separation Test Data**





REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 44** 

## 11. NUMBER OF HOPPING FREQUENCY

## 11.1. Standard Applicable

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands shall use at least 15 hopping frequencies.

#### 11.2. Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set spectrum analyzer Start=2400MHz, Stop = 2483.5MHz, Sweep = auto.
- 4. Set the spectrum analyzer as RBW, VBW=100KHz,
- 5. Max hold, view and count how many channel in the band.

#### 11.3. Measurement Result

Total No of hopping channel	Limit (CH)	Measurement result (CH)	Result
	15	79	Pass

## 11.4. Measurement Equipment Used:

EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	R&S	FSP 40	100034	05/27/2007	05/26/2008
Spectrum Analyzer	Agilent	E7405A	US41160416	08/27/2006	08/26/2007
Spectrum Analyzer	Agilent	E4446A	MY43360126	01/22/2007	01/21/2008
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A
Attenuator	Mini-Circult	BW-S6W5	N/A	10/07/2006	10/06/2007



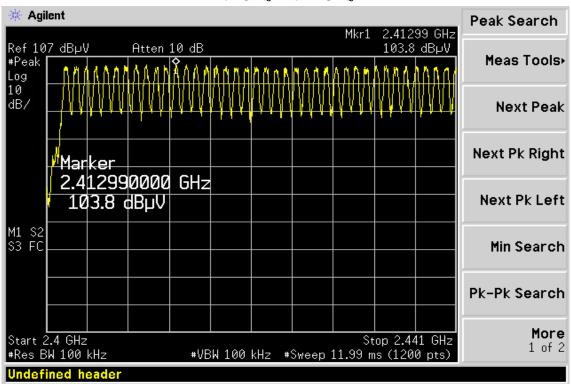
REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

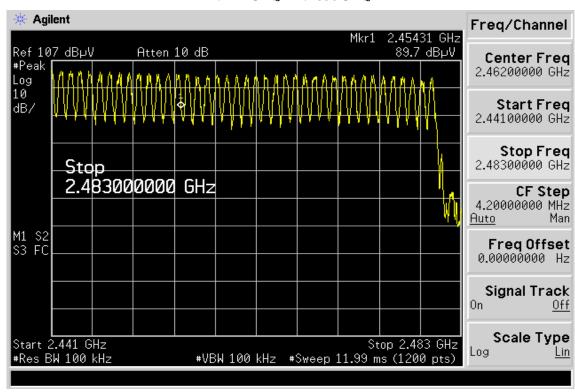
**Page: 45** 

#### **Channel Number**

2.4 GHz - 2.441GHz



2.441 GHz - 2.4835GHz



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 46** 

## 12. TIME OF OCCUPANCY (DWELL TIME)

## 12.1. Standard Applicable

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz. The average time of occupancy on any frequency shall not greater than 0.4 s within period of 0.4 seconds multiplied by the number of hopping channel employed.

#### 12.2. Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set center frequency of spectrum analyzer = operating frequency.
- 4. Set the spectrum analyzer as RBW, VBW=100KHz, Span = 0Hz, Adjust Sweep = 30s.
- 5. Repeat above procedures until all frequency measured were complete.

#### 12.3. Measurement Result

A period time = 0.4 (ms) \* 79 = 31.6 (s)

CH Low: DH1 time slot = 0.405 (ms) \* (1600/(1\*79)) \* 31.6 = 259.1 (ms)

DH3 time slot = 1.675 (ms) \* (1600/(3\*79)) \* 31.6 = 357.2 (ms)

DH5 time slot = 2.925 (ms) \* (1600/(5\*79)) \* 31.6 = 374.3 (ms)

CH Mid: DH1 time slot = 0.405 (ms) \* (1600/(1\*79)) \* 31.6 = 259.1 (ms)

DH3 time slot = 1.675 (ms) \* (1600/(3\*79)) \* 31.6 = 357.2 (ms)

DH5 time slot = 2.906 (ms) \* (1600/(5\*79)) \* 31.6 = 371.9 (ms)

CH High: DH1 time slot = 0.416 (ms) \* (1600/(1\*79)) \* 31.6 = 266.1 (ms)

DH3 time slot = 1.662 (ms) \* (1600/(3\*79)) \* 31.6 = 354.5 (ms)

DH5 time slot = 2.906 (ms) \* (1600/(5\*79)) \* 31.6 = 371.9 (ms)

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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 47

## 12.4. Measurement Equipment Used:

Conducted Emission Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
ТҮРЕ		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2007	03/28/2008				
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2007	06/29/2008				
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A				
Attenuator	Mini-Circult	BW-S10W5	N/A	10/07/2006	10/06/2007				
Attenuator	Mini-Circult	BW-S6W5	N/A	10/07/2006	10/06/2007				
Splitter	Agilent	Power Biviber	51818	01/05/2007	01/04/2008				



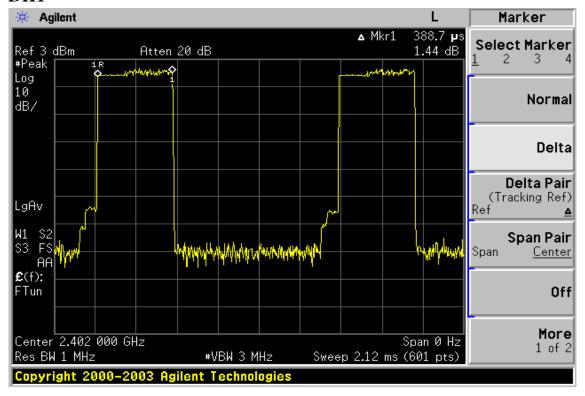
REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 48** 

## **Dwell Time Test Data** CH-Low

#### DH1



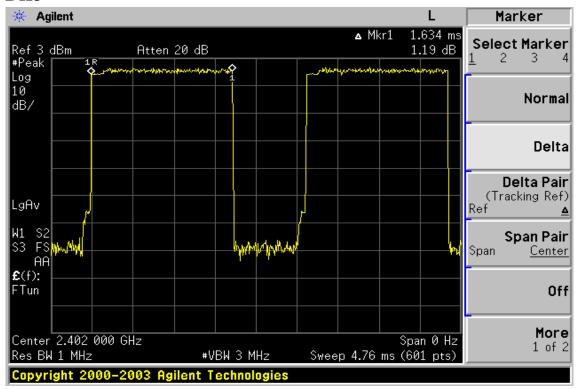


REPORT NO: EH/2007/70034

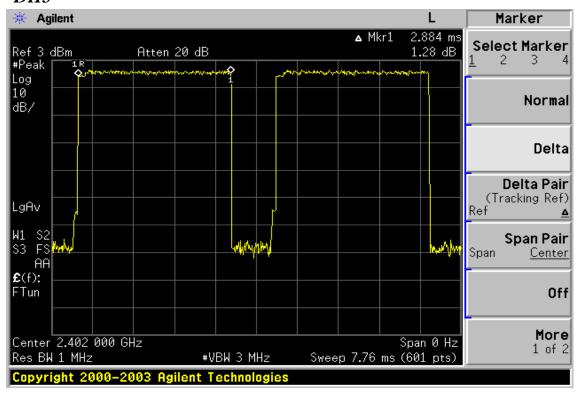
**DATE: Aug. 15, 2007** 

**Page: 49** 

#### DH3



#### DH5



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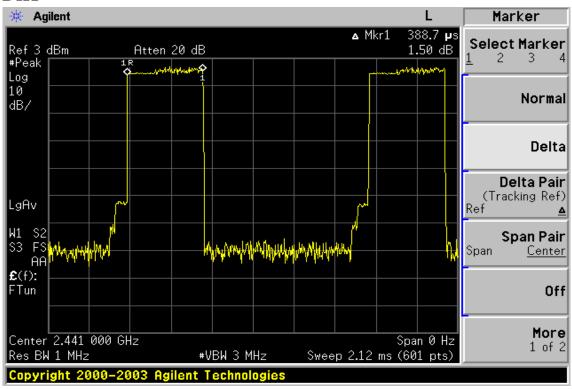
REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

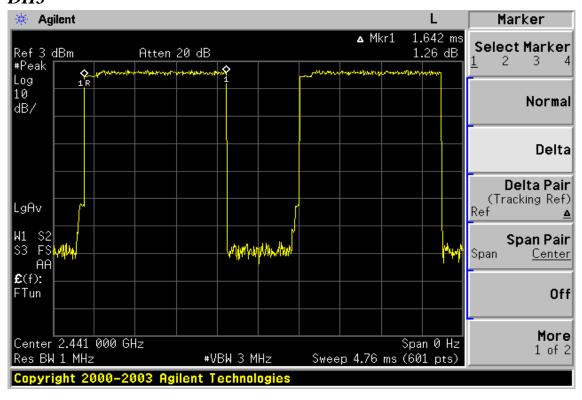
**Page: 50** 

#### CH-Mid

#### DH1



#### DH3



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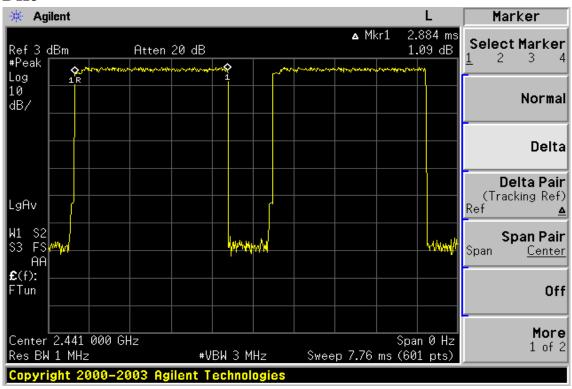


REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

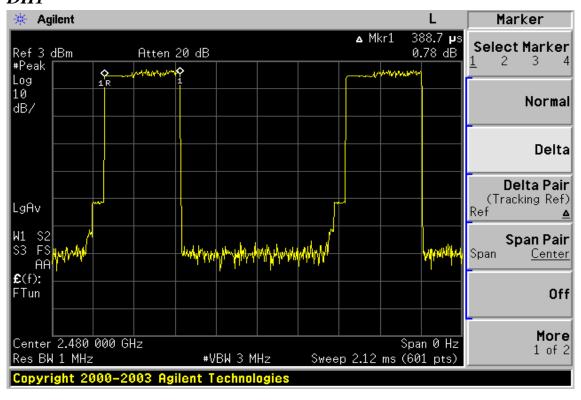
**Page: 51** 

#### DH5



## CH-High

#### DH1



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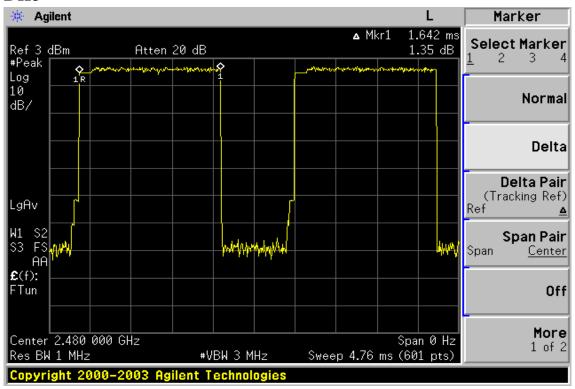


REPORT NO: EH/2007/70034

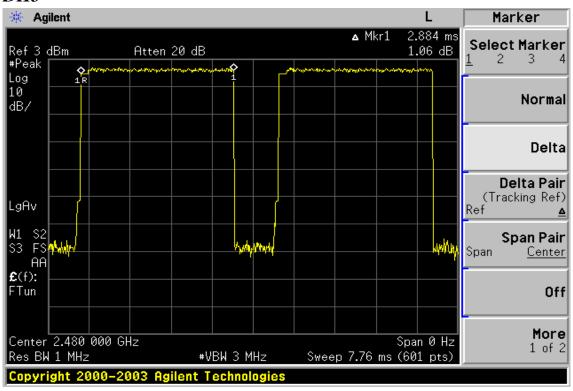
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**Page: 52** 

#### DH3



#### DH5



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 53** 

## 13. Peak Power Spectral Density

## 13.1. Standard Applicable

According to §15.247(d), for direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3kHz band during any time interval of continuous transmission.

#### 13.2. Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer as RBW = 3KHz, VBW = 10KHz, Span = 1.5MHz, Sweep=100s
- 4. Record the max. reading.
- 5. Repeat above procedures until all frequency measured were complete.

#### 13.3. Measurement Result

СН	RF Power Density	Cable loss	RF Power Density	Maximum Limit
Сп	Reading (dBm)	(dB)	Level (dBm)	(dBm)
Low	-11.77	0.10	-11.67	8
Mid	-12.09	0.10	-11.99	8
High	-12.48	0.10	-12.38	8

13.4. Measurement Equipment Used:

13.4. Weasurement Equipment Oscu.									
Conducted Emission Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2007	03/28/2008				
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2007	06/29/2008				
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A				
Attenuator	Mini-Circult	BW-S10W5	N/A	10/07/2006	10/06/2007				
Attenuator	Mini-Circult	BW-S6W5	N/A	10/07/2006	10/06/2007				
Splitter	Agilent	Power Biviber	51818	01/05/2007	01/04/2008				

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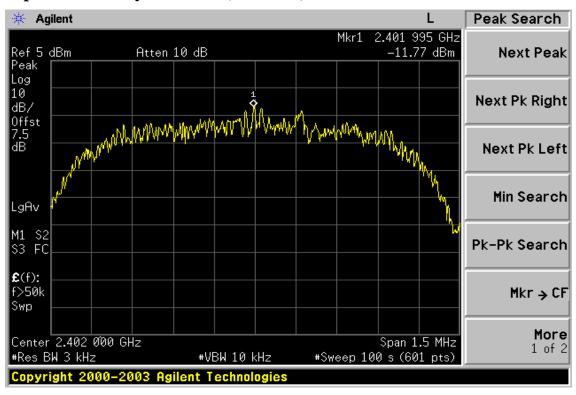


REPORT NO: EH/2007/70034

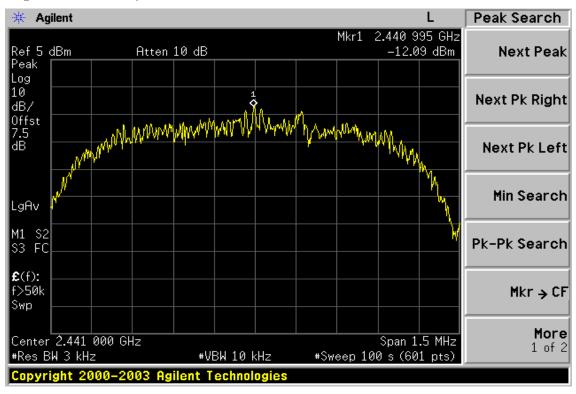
**DATE: Aug. 15, 2007** 

**Page: 54** 

## **Power Spectral Density Test Plot (CH-Low)**



## **Power Spectral Density Test Plot (CH-Mid)**



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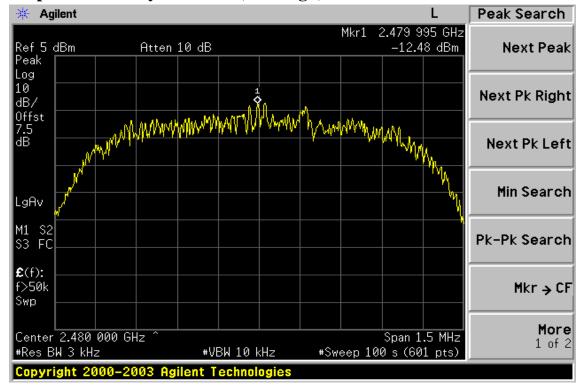


REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 55** 

## **Power Spectral Density Test Plot (CH-High)**



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 56** 

## 14. ANTENNA REQUIREMENT

## 14.1. Standard Applicable

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

And according to §15.247(4)(1), system operating in the 2400-2483.5MHz bands that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

#### 14.2. Antenna Connected Construction

The directional gains of antenna used for transmitting is 2.3 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.



REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 57

# **APPENDIX 1** PHOTOGRPHS OF SET UP

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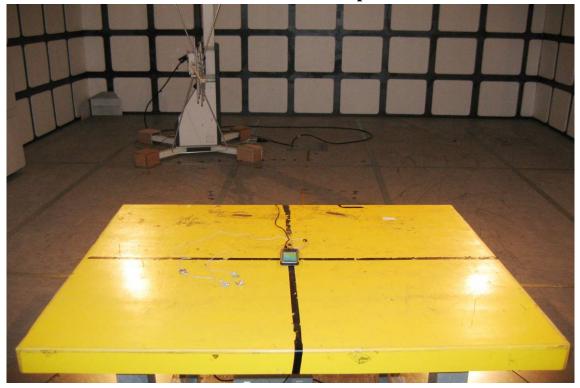


REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 58

## **Radiated Emission Set up Photo**



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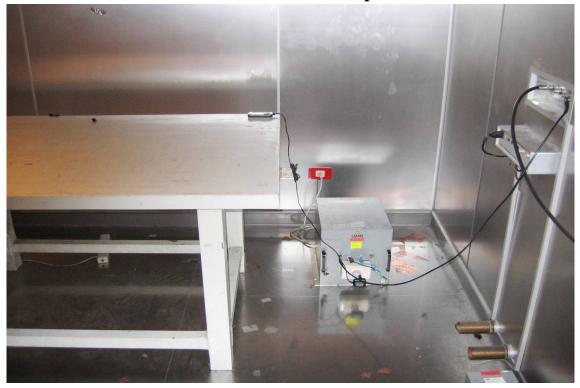


REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 59

## **Conducted Emission Set up Photo**





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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 60

# **APPENDIX 2** PHOTOGRPHS OF EUT

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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 61

#### All View of EUT



#### Adaptor



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 62** 

#### Battery - 1



#### Front View of EUT



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 63

#### Back View of EUT



Side View of EUT - 1



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 64

#### Side View of EUT - 2



Side View of EUT - 3



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REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 65

#### Side View of EUT - 4



Open View of EUT - 1



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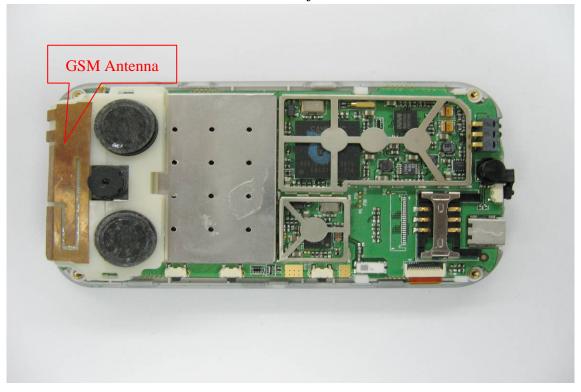
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Page: 66

#### Open View of EUT - 2



Internal View of EUT - 1



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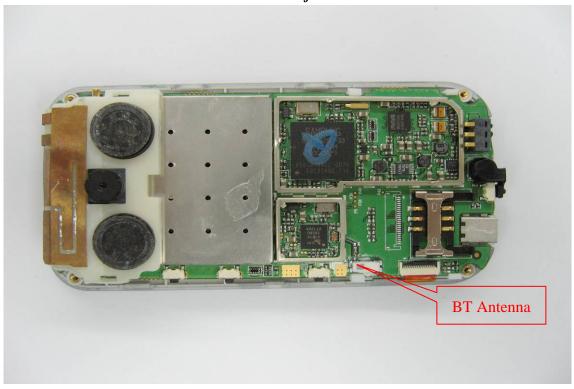
**DATE: Aug. 15, 2007** 

Page: 67

## Internal View of EUT - 2



#### Internal View of EUT - 3



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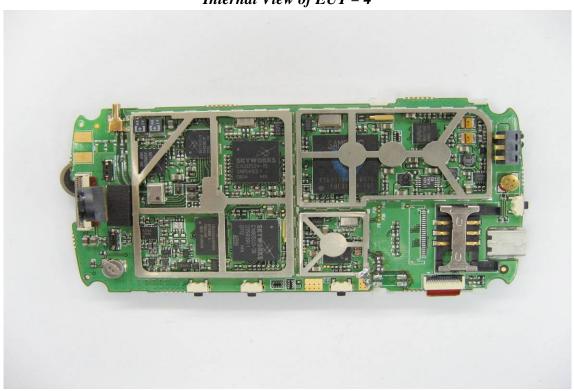


REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

Page: 68

#### Internal View of EUT - 4



## Internal View of EUT - 5



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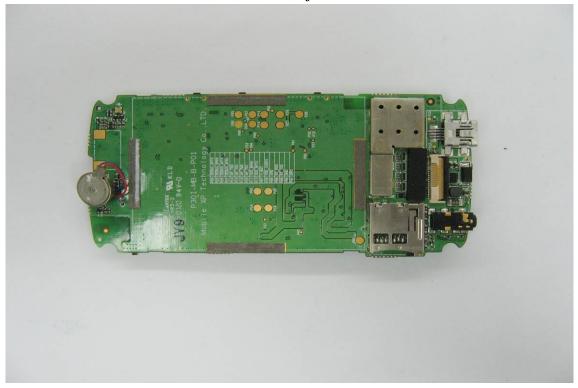


REPORT NO: EH/2007/70034

**DATE: Aug. 15, 2007** 

**Page: 69** 

#### Internal View of EUT - 6



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