

Report No.: ER/2009/60018-03

Issue Date: Jul. 29, 2010

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# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

# INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

**Product Name: SmartBRIDGE** 

**Brand Name:** Cadi

**Model Name: SMB-800** 

**Model Difference:** N/A

FCC ID: VPE-SMB800

**Report No.:** ER/2009/60018-03

**Issue Date:** Jul. 29, 2010

**FCC Rule Part:** §15.249

**CADI Scientific Pte. Ltd. Prepared for:** 

31 Ubi Road 1, #03-00 Aztech Building, Singapore

408694

SGS Taiwan Ltd. Prepared by:

**Electronics & Communication Laboratory** 

No. 134, Wu Kung Rd., Wuku Industrial Zone,

Taipei County, Taiwan.



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#### VERIFICATION OF COMPLIANCE

**Applicant:** CADI Scientific Pte. Ltd.

31 Ubi Road 1, #03-00 Aztech Building, Singapore 408694

**Product Description:** SmartBRIDGE

**Brand Name:** Cadi

FCC ID: VPE-SMB800

Model No.: SMB-800

**Model Difference:** N/A

**File Number:** ER/2009/60018-03

**Date of test:** Jun. 11, 2009 ~ Jul. 27, 2010

**Date of EUT Received:** Jun. 11, 2009

# We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd., Electronics & Communication Laboratory. 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 15.249.

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

Test By:	Jason We	Date:	Jul. 29, 2010	
_	Jason Wu /Asst. Supervisor			
Prepared By:	Gigi yeh	Date:	Jul. 29, 2010	
Approved By:	Gigi Yeh / Clerk  ALW HSIEH  Arno Hsieh / Asst. Supervisor	Date:	Jul. 29, 2010	

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# Version

Version No.	Date	Description
00	Jul. 29, 2010	Initial creation of document

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#### **GENERAL INFORMATION**

# 1.1 Product Description

Product Name:	SmartBRIDGE		
Brand Name:	Cadi		
Model Name:	SMB-800		
Model Difference:	N/A		
Transmit Power	94dBuV/m		
Operation Frequency:	919.8MHz and 925MHz		
Channel number:	1 channels		
Modulation Type:	FSK		
Downer Complex		rgeable battery or /DC power adapter	
Power Supply	Adapter:	Model No.: SNP-A048-M, Brand Name: Skynet Electronic	

#### FCC 15.249

Transmit Power	<94dBuV/m
Operation Frequency:	919.8MHz and 925MHz
Channel number:	1 channels
Modulation Type:	FSK

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WLAN: 802.11 b/g:

Frequency Range:	2412 – 2462 MHz
Channel number:	11 channels
Output Power:	802.11 b: 13.51dBm 802.11 g: 13.89dBm
Modulation Technology:	DSSS, OFDM
Modulation type:	CCK, DQPSK, DBPSK for DSSS 64QAM. 16QAM, QPSK, BPSK for OFDM
Transition Rate:	802.11 b: 1/2/5.5/11 Mbps; 802.11 g: 6/9/12/18/24/36/48/54 Mbps
Antenna Designation:	Dipole Antenna, 2dBi.

This report complies with FCC 15.249

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### 1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: <u>VPE-SMB800</u>** filing to comply with Section 15.249 of the FCC Part 15, Subpart C Rules.

#### 1.3 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.

# 1.4 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number is: 990257 and 236194, Canada Registration Number: 4620A-4.

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 & 10 meters) and FCC Registration Number: 94644.

#### 1.5 Special Accessories

Not available for this EUT intended for grant.

## 1.6 Equipment Modifications

Not available for this EUT intended for grant.

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# 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 Transmitter was operated in the engineering operating mode. the Tx frequency was fixed which 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.

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#### Limitation

#### (1) Conducted Emission

According to section 15.207(a) Conducted Emission Limits is as following.

Frequency	Conducted 1	Limit (dBuV)
(MHz)	Quasi-Peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

# (2) Radiated Emission 15.249(a)

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following.

Frequency	Field strength of		
(MHz)	Fundamental	Harmonics	
902 - 928	50 mV/m	500 uV/m	3
	(94dBuV/m)	(54dBuV/m)	
2400 – 2483.5	50 mV/m	500 uV/m	3
	(94dBuV/m)	(54dBuV/m)	
5725 – 5875	50 mV/m	500 uV/m	3
	(94dBuV/m)	(54dBuV/m)	
24.0 – 24.25 GHz	250 mV/m	2500 uV/m	3
	(107.95dBuV/m)	(67.95dBuV/m)	

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## (3) Radiated Emission15.249 (d)

Emission Radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in Section 15.209 as below, whichever is the lesser attenuation.

Frequency	Field strength	Distance (m)	Field strength at 3m
(MHz)	μV/m		dBμV/m
1.705-30	30	30	69.54
30-88	100	3	40
88-216	150	3	43.5
216-960	200	3	46
Above 960	500	3	54

# (4) Radiated Emission 15.249(e)

For frequencies above 1000MHz, the above field strength limits are based on average limits. The peak filed strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20dB under any condition of modulation.

Remark: 1. Emission level in dBuV/m=20 log (uV/m)

- Measurement was performed at an antenna to the closed point of EUT distance of meters.
- 3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of  $\xi$  15.205
- 4. Emission spurious frequency which appearing within the Restricted Bands specified in provision of  $\xi$ 15.205, then the general radiated emission limits in  $\xi$ 15.209 apply.

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#### **Configuration of Tested System**

Fig. 2-1 Configuration

**EUT** 

Table 2-2 Equipment Used in Tested System

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

Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

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# 3. Summary of Test Results

FCC Rules	<b>Description Of Test</b>	Result
§15.207	Conducted Emission	Compliant
§15.249(a)(e)	Radiated Emission	Compliant
§15.249(d)	20dB band width Measurement	Compliant

## **Description of test modes**

The EUT has been tested under operating condition. The EUT is staying in continuous transmitting mode.

919.8MHz and 925MHz with highest data rate are chosen for full testing.

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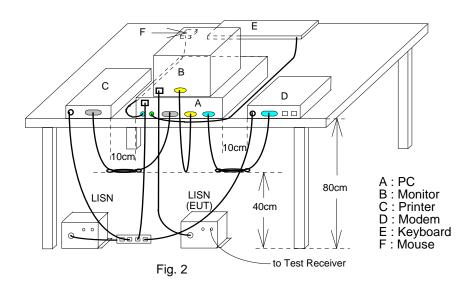
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# **Conducted Emissions Test**

#### 4.1 **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.

# **4.2** Test SET-UP (Block Diagram of Configuration)



#### **Measurement Equipment Used:** 4.3

Conducted Emission Test Site						
EQUIPMENT	MFR	MODEL	<b>SERIAL</b>	LAST	CAL DUE.	
TYPE		NUMBER	NUMBER	CAL.		
EMI Test Receiver	R&S	ESCS30	828985/004	09/15/2009	09/14/2010	
LISN	Rolf-Heine	NNB-2/16Z	99012	02/02/2010	02/01/2011	
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	02/02/2010	02/01/2011	
Coaxial Cables	N/A	WK CE Cable	N/A	11/28/2009	11/27/2010	

#### 4.4 **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-peaked.

Note: Refer to next page for measurement data and plots.

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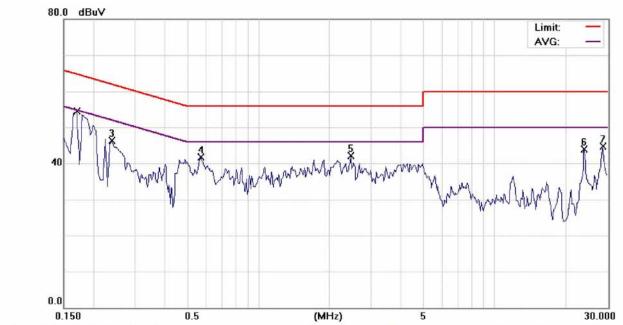
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# AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Opearation Mode		Test Date:	Jul. 10, 2010	
Temperature:	23 °C	Humidity:	57 %	Test By:	Jason



Site SGS CONDUCTED #1

Limit: CISPR22/11/EN55022 Class B

EUT: Wireless Temperature Monitor

M/N: SMB-800

Note: Operation Mode

Phase:	L1	Temperature:	23 ℃
Power:	AC 120V/60Hz	Humidity:	57 %
D: 1		A:- D	

Distance: Air Pressure: hpa

Time to			Reading	F4	Measure-	1.516	0		
No.	Mk.	Freq.	Level	Factor	ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1700	51.40	0.13	51.53	64.96	-13.43	QP	
2		0.1700	34.80	0.13	34.93	54.96	-20.03	AVG	
3		0.2400	46.22	0.12	46.34	62.10	-15.76	peak	
4		0.5700	41.63	0.12	41.75	56.00	-14.25	peak	
5		2.4700	41.87	0.17	42.04	56.00	-13.96	peak	
6		24.0000	43.22	0.68	43.90	60.00	-16.10	peak	
7		28.6200	43.13	1.48	44.61	60.00	-15.39	peak	

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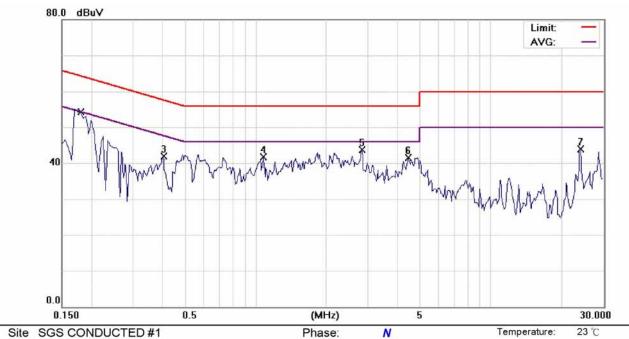
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Humidity:

Air Pressure:

57 %

hpa



Power:

Distance:

Site SGS CONDUCTED #1

Limit: CISPR22/11/EN55022 Class B

**EUT: Wireless Temperature Monitor** 

M/N: SMB-800

Note: Operation Mode

No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1800	52.90	0.14	53.04	64.49	-11.45	QP	
2		0.1800	36.10	0.14	36.24	54.49	-18.25	AVG	
3		0.4050	41.76	0.12	41.88	57.75	-15.87	peak	
4		1.0800	41.57	0.13	41.70	56.00	-14.30	peak	
5		2.8300	43.49	0.18	43.67	56.00	-12.33	peak	
6		4.4600	41.23	0.21	41.44	56.00	-14.56	peak	
7		24.1000	43.38	0.52	43.90	60.00	-16.10	peak	

AC 120V/60Hz

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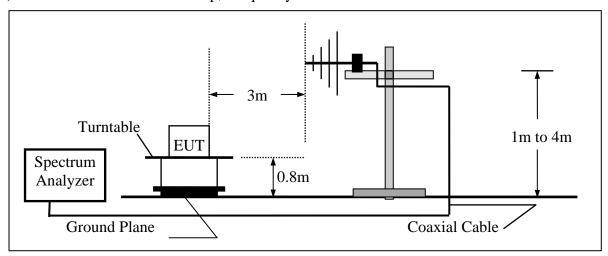
# 5. Radiated Emission Test

#### **5.1** Measurement Procedure

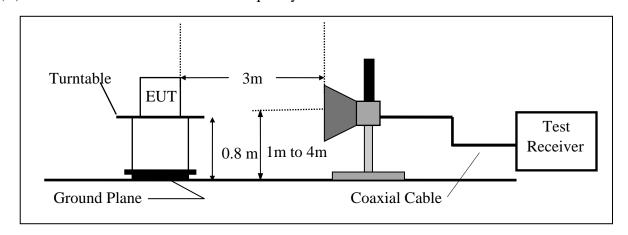
- 1. The EUT was placed on a turntable that is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 4. Repeat above procedures until all frequency measured were complete.

# **5.2** Test SET-UP (Block Diagram of Configuration)

# (A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



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



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# **Measurement Equipment Used:**

	966 Chamber											
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.							
TYPE		NUMBER	NUMBER	CAL.								
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2010	02/11/2011							
Bilog Antenna	SCHWAZBECK	VULB9160	3136	11/19/2009	11/18/2010							
Horn antenna	SCHWAZBECK	BBHA 9120D	309/320	03/09/2009	03/08/2011							
Pre-Amplifier	Agilent	8447D	1937A02834	11/28/2009	11/28/2010							
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2010	01/04/2011							
Radio Communication Analyzer	R & S	CMU200	111787	10/31/2008	10/30/2010							
DC Block	Agilent	BLK-18	155452	07/05/2010	07/04/2011							
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	01/05/2010	01/04/2011							
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2010	01/04/2011							
3m Site	SGS	966 chamber	N/A	11/08/2009	11/09/2010							
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2010	02/11/2011							

#### 5.4 **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	

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#### **Measurement Result**

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

Operation Mode Operation mode Jul. 10, 2010 Test Date

Fundamental Frequency 919.8MHz Test By Jason Pol Temperature 25 °C 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	45.14	-14.66	30.48	40.00	-9.52
90.14	V	Peak	49.07	-17.62	31.45	43.50	-12.05
240.49	V	Peak	43.51	-14.11	29.40	46.00	-16.60
288.99	V	Peak	42.06	-13.23	28.83	46.00	-17.17
720.64	V	Peak	38.05	-4.73	33.32	46.00	-12.68
769.14	V	Peak	38.76	-3.80	34.96	46.00	-11.04
240.49	H	Peak	53.97	-14.11	39.86	46.00	-6.14
288.99	H	Peak	54.63	-13.23	41.40	46.00	-4.60
480.08	H	Peak	42.3	-8.56	33.74	46.00	-12.26
720.64	H	Peak	43.91	-4.73	39.18	46.00	-6.82
769.14	H	Peak	43.77	-3.80	39.97	46.00	-6.03
814.73	Н	Peak	39.69	-2.70	36.99	46.00	-9.01

#### Remark:

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak / QP detector mode.
- 4 Measurement result 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.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz, VBW=300KHz.

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

Operation Mode Operation mode Test Date Jul. 10, 2010

Fundamental Frequency 925MHz Test By Jason 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)
53.28	V	Peak	45.79	-14.40	31.39	40.00	-8.61
90.14	V	Peak	50.28	-17.62	32.66	43.50	-10.84
145.43	V	Peak	43.01	-13.14	29.87	43.50	-13.63
288.99	V	Peak	42.13	-13.23	28.90	46.00	-17.10
720.64	V	Peak	38.49	-4.73	33.76	46.00	-12.24
769.14	V	Peak	37.58	-3.80	33.78	46.00	-12.22
148.34	H	Peak	43.46	-12.90	30.56	43.50	-12.94
240.49	Н	Peak	54.75	-14.11	40.64	46.00	-5.36
288.99	H	Peak	55.28	-13.23	42.05	46.00	-3.95
720.64	H	Peak	44.58	-4.73	39.85	46.00	-6.15
769.14	H	Peak	43.55	-3.80	39.75	46.00	-6.25
798.24	H	Peak	40.32	-3.08	37.24	46.00	-8.76

#### Remark:

- 1 No further spurious emissions detected from the lowest internal frequency and 30MHz.
- 2 Measuring frequencies from the lowest internal frequency to the 1GHz.
- 3 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak / QP detector mode.
- 4 Measurement result 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.
- 5 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz, VBW=300KHz.

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## Carrier Power and Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: Operation mode Test Date: Jul. 10, 2010

Fundamental Frequency: 919.8MHz Test By: Jason Pol: Temperature: 25 °C Vertical

Humidity: 65 %

		Peak	$\mathbf{AV}$		Actual	Actual	Peak Limit	AV Limit		
Freq.	Ant.Pol.	Reading	Reading	Factor	Peak FS	AV FS	at 3m	at 3m	Margin	
(MHz)	H/V	(dBuV)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
919.8	V	90.32		-1.04	89.28		114.00	94.00	-4.72	F
1839.6	V	37.29		-4.28	33.01		74.00	54.00	-20.99	Н
2759.4	V	38.56		-0.19	38.37		74.00	54.00		Н
3679.2	V	37.24		2.66	39.90		74.00	54.00		Н
4599.0	V	35.45		5.55	41.00		74.00	54.00		Н
5518.8	V						74.00	54.00		Н
5706.0	V	34.40		8.00	42.40		74.00	54.00	-11.60	Н
6438.6	V						74.00	54.00		Н
7358.4	V						74.00	54.00		Н
8278.2	V						74.00	54.00		Н
9198.0	V						74.00	54.00		Н

## Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data 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.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz-26GHz, RBW=1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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### Carrier Power and Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: Operation mode Test Date: Jul. 10, 2010

Fundamental Frequency: 919.8MHz Test By: Jason 25 °C Pol: Horizontal Temperature:

Humidity: 65 %

		Peak	$\mathbf{AV}$		Actual	Actual	Peak Limit	<b>AV</b> Limit		
Freq.	Ant.Pol.	Reading	Reading	Factor	Peak FS	AV FS	at 3m	at 3m	Margin	
(MHz)	H/V	(dBuV)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
919.8	Н	89.78		-1.04	88.74		114.00	94.00	-5.26	F
1839.6	Н	42.74		-4.28	38.46		74.00	54.00	-15.54	Н
2759.4	Н	42.74		-0.19	42.55		74.00	54.00	-11.45	Н
3679.2	Н	35.40		2.66	38.06		74.00	54.00	-15.94	Н
4599.0	Н	35.09		5.55	40.64		74.00	54.00	-13.36	Н
5518.8	Н						74.00	54.00		Н
6438.6	Н						74.00	54.00		Н
7358.4	Н						74.00	54.00		Η
8278.2	Н						74.00	54.00		Н
9198.0	Н						74.00	54.00		Н

#### Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data 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.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz-26GHz, RBW=1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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### Carrier Power and Radiated Spurious Emission Measurement Result (above 1GHz)

Test Date: Jul. 10, 2010 Operation Mode: Operation mode

Fundamental Frequency: 925MHz Test By: Jason Pol: Temperature: 25 °C Vertical

Humidity: 65 %

		Peak	$\mathbf{AV}$		Actual	Actual	Peak Limit	<b>AV</b> Limit		
Freq.	Ant.Pol.	Reading	Reading	Factor	Peak FS	AV FS	at 3m	at 3m	Margin	
(MHz)	H/V	(dBuV)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
925.0	V	89.16		-1.04	88.12		114.00	94.00	-5.88	F
1849.9	V	37.79		-4.28	33.51		74.00	54.00	-20.49	Н
2293.5	V	39.27		-4.28	34.99		74.00	54.00	-19.01	Н
2774.9	V	38.67		-0.14	38.53		74.00	54.00		Н
3699.8	V	36.75		2.65	39.40		74.00	54.00	-14.60	Н
4624.8	V						74.00	54.00		Н
5303.0	V	34.78		7.07	41.85		74.00	54.00	-12.15	Н
5549.7	V						74.00	54.00		Н
6474.7	V						74.00	54.00		Н
7399.6	V						74.00	54.00		Н
8324.6	V						74.00	54.00		Н
9249.5	V						74.00	54.00		Н

### Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data 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.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz-26GHz, RBW=1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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### Carrier Power and Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: Operation mode Test Date: Jul. 10, 2010

Fundamental Frequency: 925MHz Test By: Jason Pol: Horizontal Temperature: 25 °C

Humidity: 65 %

		Peak	$\mathbf{AV}$		Actual	Actual	Peak Limit	<b>AV</b> Limit		
Freq.	Ant.Pol.	Reading	Reading	Factor	Peak FS	AV FS	at 3m	at 3m	Margin	
(MHz)	H/V	(dBuV)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
925.0	Н	88.75		-1.04	87.71		114.00	94.00	-6.29	F
1849.9	Н	39.63		-4.28	35.35		74.00	54.00	-18.65	Н
2774.9	Н	44.08		2.65	46.73		74.00	54.00	-7.27	Н
3699.8	Н						74.00	54.00		Η
4393.0	Н	34.87		-6.44	28.43		74.00	54.00	-25.57	Н
4624.8	Н						74.00	54.00		Н
5218.5	Н	35.16		-6.44	28.72		74.00	54.00	-25.28	Н
5549.7	Н						74.00	54.00		Н
6474.7	Н						74.00	54.00		Н
7399.6	Н						74.00	54.00		Η
8324.6	Н						74.00	54.00		Н
9249.5	Н						74.00	54.00		Н

#### Remark:

- 1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 3 "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 4 Measurement of data 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.
- 5 Spectrum Peak mode IF bandwidth Setting: 1GHz-26GHz, RBW=1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- 6 Spectrum AV mode if bandwidth Setting: 1GHz-26GHz, RBW=1MHz, VBW=10Hz, Sweep time= 200 ms.

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## 20 dB Band Width Measurement

#### **6.1** Measurement Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Set ETU normal operating mode.
- 3. Set SPA Center Frequency = fundamental frequency, RBW = 100kHz, VBW = 300kHz, Span =1MHz.
- 4. Set SPA Max hold. Mark peak, -20dB.

# **6.2** Test SET-UP (Block Diagram of Configuration)

Same as 4.2 Radiated Emission Measurement.

# **6.3** Measurement Equipment Used:

Same as 4.2 Radiated Emission Measurement.

#### **6.4** Measurement Results:

919.8MHz = 256.307 kHz925MHz = 257.012 kHz

Refer to attached data chart.

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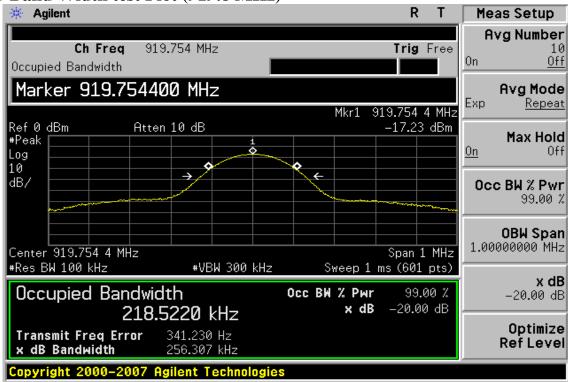


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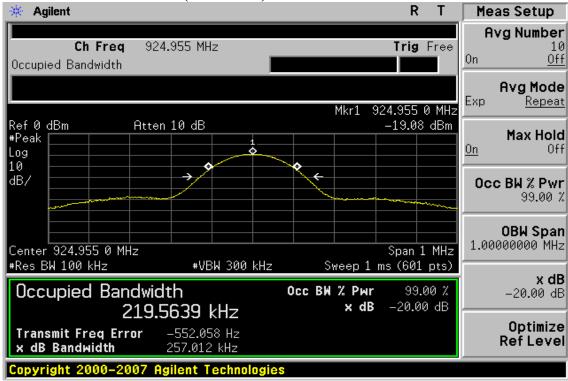
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# 20dB Band Width test Plot (919.8 MHz)



# 20dB Band Width test Plot (925 MHz)



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