

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

Product Name: Quick save keypad Dongle

Brand Name: GENOVATION

Model Name: DRD1

FCC ID: FBX-5831-0608-01

Report No.: ER/2006/90009

Issue Date: Oct. 11, 2006

FCC Rule Part: §15.249

Prepared for Datacomp Electronics Co., Ltd.

No. 38 Sec. 2, Nankan Rd., Lu-Chu
Village, Taoyuan Taiwan, R.O.C.

Prepared by SGS Taiwan Ltd.

No. 134, Wu Kung Rd., Wuku Industrial
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VERIFICATION OF COMPLIANCE

Applicant: Datacomp Electronics Co., Ltd.
No. 38 Sec. 2, Nankan Rd., Lu-Chu Village, Taoyuan Taiwan, R.O.C.

Product Description: Quick save keypad Dongle

Brand Name: GENOVATION

FCC ID Number: FBX-5831-0608-01

Model No.: DRD1

Model Difference: N/A

File Number: ER/2006/90009

Date of test: Sep. 16, 2006 ~ Oct. 05, 2006

Date of EUT Received: Sep. 15, 2006

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 15.249.

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

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Prepared By:		Date	Oct. 11, 2006
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Version

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1. GENERAL INFORMATION

1.1 Product Description

The Datacomp Electronics Co., Ltd., Model: DRD1 (referred to as the EUT in this report) is Quick save keypad Dongle, the major technical descriptions of EUT is described as following:

A). Operation Frequency: 2402 – 2480MHz, 79 channels, 1MHz step.

B). Modulation Type: DSSS, GFSK

C). Power Supply: 5 Vdc from PC USB Port.

D). Antenna Designation: Non-User Replaceable (Fixed)

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **FBX-5831-0608-01** filing to comply with Section 15.249 of the FCC Part 15, Subpart C Rules. The composite system (digital device) is compliance with Subpart B is authorized under a DoC procedure.

1.3 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 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).

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 Equipment Modifications

Not available for this EUT intended for grant.

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 placed on a 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 placed on a 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.

2.4 Limitation

(1) Conducted Emission

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

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

(3) Radiated Emission 15.249 (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 (MHz)	Field strength $\mu\text{V/m}$	Distance (m)	Field strength at 3m $\text{dB}\mu\text{V/m}$
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 field 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 $\text{dB}\mu\text{V/m}=20 \log (\mu\text{V/m})$

2. 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 § 15.205

4. Emission spurious frequency which appearing within the Restricted Bands specified in provision of §15.205, then the general radiated emission limits in § 15.209 apply.

2.5 Configuration of Tested System

Fig. 2-1 Configuration of TX

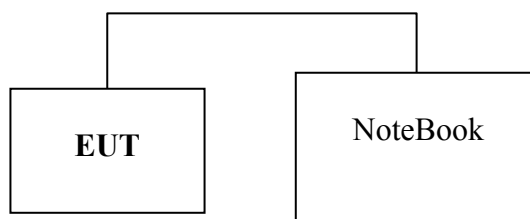


Fig 2-2 Conduction Emission of Tested System

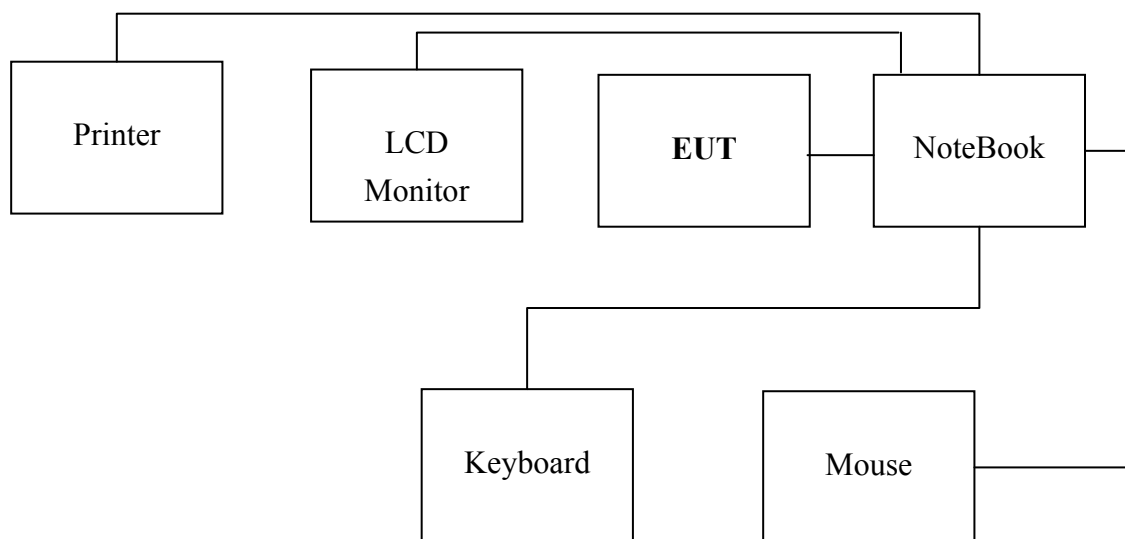


Table 2-2 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	FCC ID	Series No.	Data Cable	Power Cord
1.	NoteBook	IBM	T40	N/A	99HCYF4	120cm , shielded	Un-shield
2.	LCD Monitor	HP	Vf51	N/A	TWTFG01092	1.5mm , shielded	Un-shield
3.	Printer	HP	DJ640C	N/A	TH12QE110Y	1.5mm , shielded	Un-shield
4.	Keyboard	DELL	SK-8110	N/A	N/A	1.6mm , shielded	Un-shield
5.	Mouse	DELL	MO71KC	N/A	433033166	1.5mm , shielded	Un-shield

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.

3. Summary Of Test Results

FCC Rules	Description Of Test	Result
§ 15.207	Conducted Emission	Compliant
§ 15.249(a)(e)	Radiated Emission	Compliant
§ 15.249(d)	26dB band width Measurement	Compliant

Description of test modes

The EUT has been tested under engineering testing condition.

EUT is staying in continuous transmitting mode is programmed.

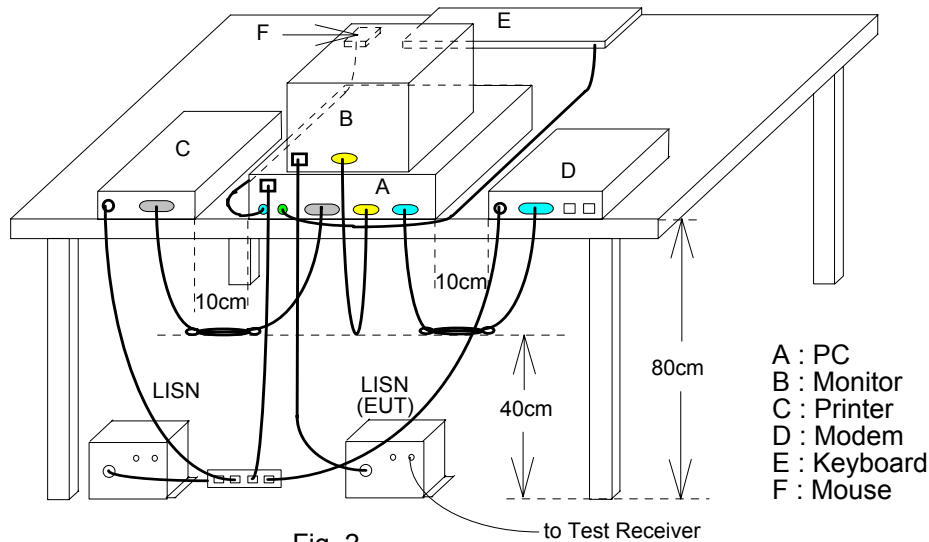
Channel low (2402MHz)、mid (2441MHz) and high (2480MHz) with highest data rate are chosen for full testing.

4. 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)



4.3 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMC Analyzer	HP	8594EM	3624A00203	09/02/2006	09/03/2007
EMI Test Receiver	R&S	ESCS30	828985/004	06/09/2006	06/10/2007
Transient Limiter	HP	11947A	3107A02062	09/02/2006	09/03/2007
LISN	Rolf-Heine	NNB-2/16Z	99012	12/31/2005	12/30/2006
LISN	Rolf-Heine	NNB-2/16Z	99013	12/24/2005	12/23/2006
Coaxial Cables	N/A	No. 3, 4	N/A	12/01/2005	12/01/2206

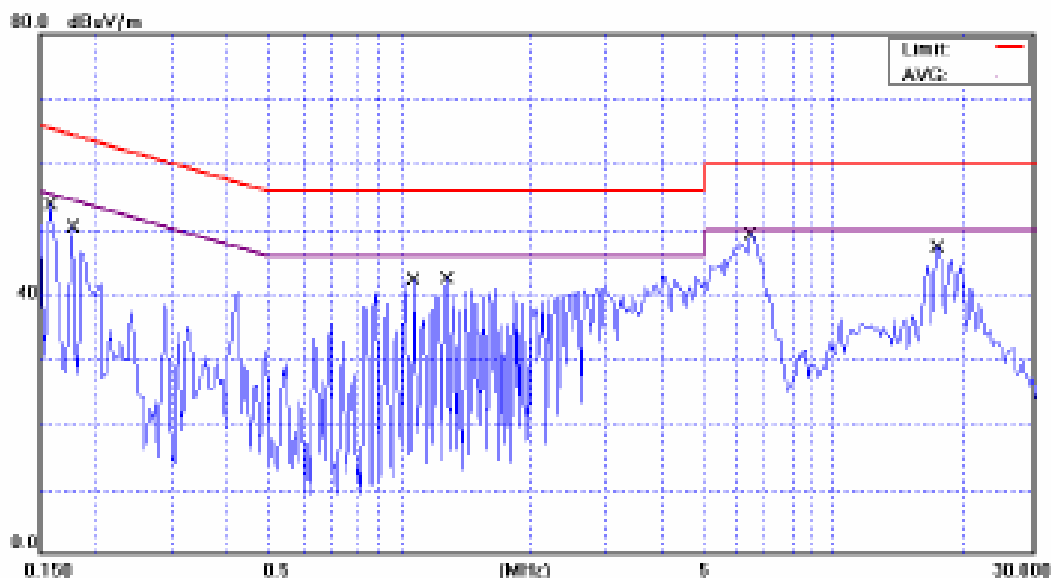
4.4 Measurement Result:

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.

AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	OPERATION			Test Date:	Oct. 04, 2006
Temperature:	24 °C	Humidity:	56%	Test By:	Sky

Conducted Emission Measurement



Site: SGS CONDUCTED #1

Phase: L1

Temperature: 24 °C

Limit: EN55022 Class B Conduction(QP)

Power: AC110V/60HZ

Humidity: 56 %

EUT: Quick save keypad Dongle

Distance:

Air Pressure: hpa

MN: DRD1

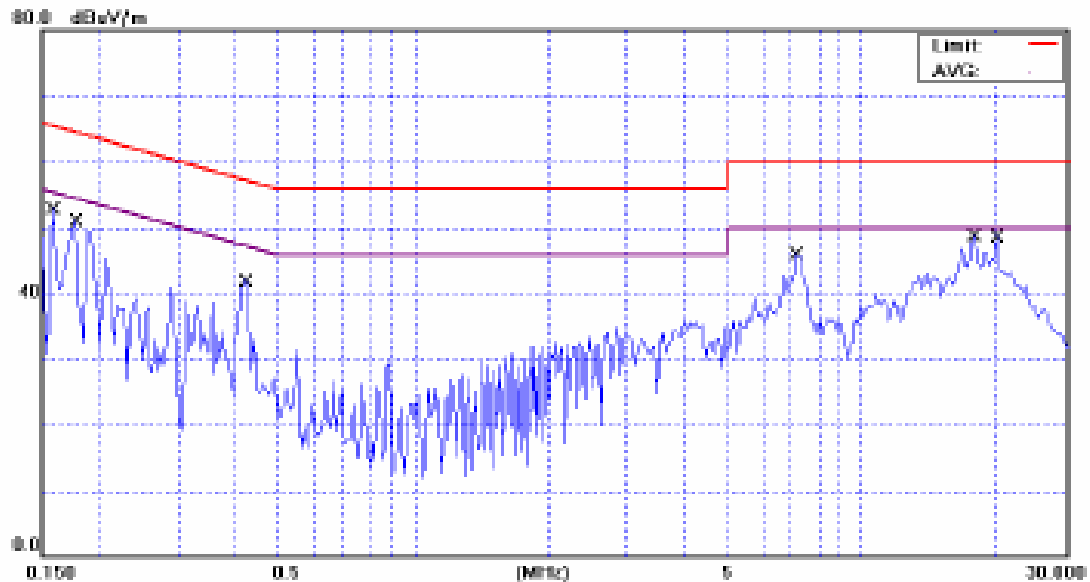
Note: Operation mode

No.	u	Freq.	Reading Level	Factor	Measurement	Limit	Over		
		MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.1578	57.39	0.20	57.59	65.58	-7.99	QP	
2		0.1578	35.65	0.20	35.85	65.58	-19.73	AVG	
3		0.1773	51.22	0.20	51.42	64.61	-13.19	QP	
4		0.1773	34.39	0.20	34.59	64.61	-20.02	AVG	
5		1.0836	43.38	0.20	43.58	56.00	-12.42	QP	
6	*	1.0836	42.85	0.20	43.05	56.00	-2.95	AVG	
7		1.2828	43.84	0.20	44.04	56.00	-11.96	QP	
8		1.2828	42.03	0.20	42.23	56.00	-3.77	AVG	
9		6.5094	43.82	0.53	44.35	60.00	-15.65	QP	
10		6.5094	43.35	0.53	43.88	60.00	-6.12	AVG	
11		17.5055	46.16	0.70	46.86	60.00	-13.14	QP	
12		17.5055	40.79	0.70	41.49	60.00	-8.51	AVG	

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Operation Mode:	OPERATION			Test Date:	Oct. 04, 2006
Temperature:	24 °C	Humidity:	56%	Test By:	Sky

Conducted Emission Measurement



Site SGS CONDUCTED #1

Limit: EN55022 Class B Conduction(QP)

EUT: Quick save keypad Dongle

M/N: DRD1

Note: Operation mode

Phase: N

Power: AC110V/60HZ

Distance:

Temperature: 24 °C

Humidity: 56 %

Air Pressure: hpa

No.	M	Freq.	Reading Level	Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		
1		0.1578	57.22	0.20	57.42	65.58	-8.16	QP	
2		0.1578	40.47	0.20	40.67	65.58	-14.91	AVG	
3		0.1773	51.02	0.20	51.22	64.61	-13.39	QP	
4		0.1773	36.47	0.20	36.67	64.61	-17.94	AVG	
5		0.4234	40.25	0.20	40.45	57.38	-16.93	QP	
6	*	0.4234	39.89	0.20	40.09	47.38	-7.29	AVG	
7		7.2008	43.78	0.56	44.34	60.00	-15.66	QP	
8		7.2008	36.53	0.56	37.09	60.00	-12.91	AVG	
9		17.9625	44.98	0.76	45.74	60.00	-14.26	QP	
10		17.9625	36.90	0.76	37.66	60.00	-12.34	AVG	
11		20.2594	40.82	0.81	41.63	60.00	-18.37	QP	
12		20.2594	32.82	0.81	33.63	60.00	-16.37	AVG	

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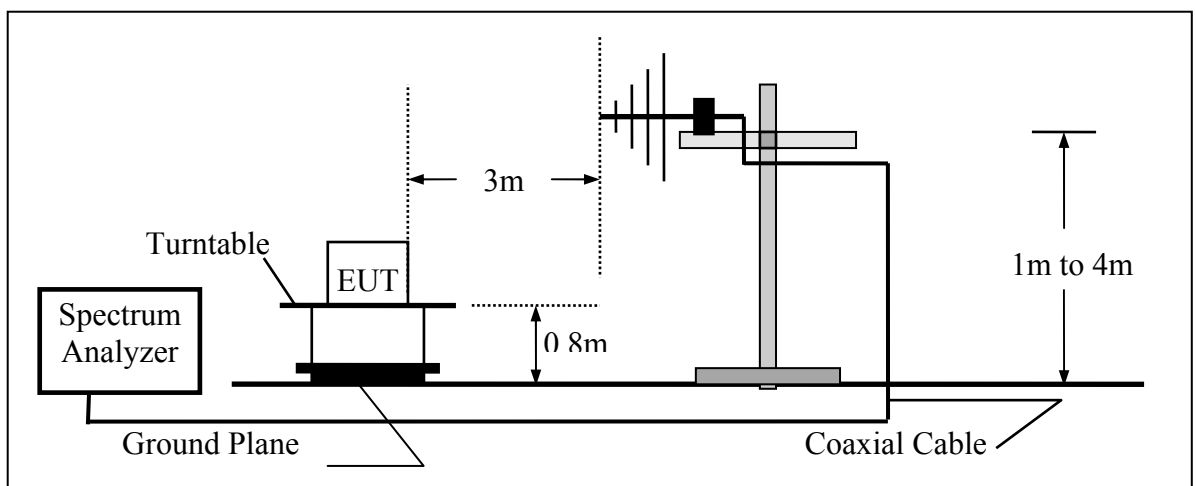
5. Radiated Emission Test

5.1 Measurement Procedure

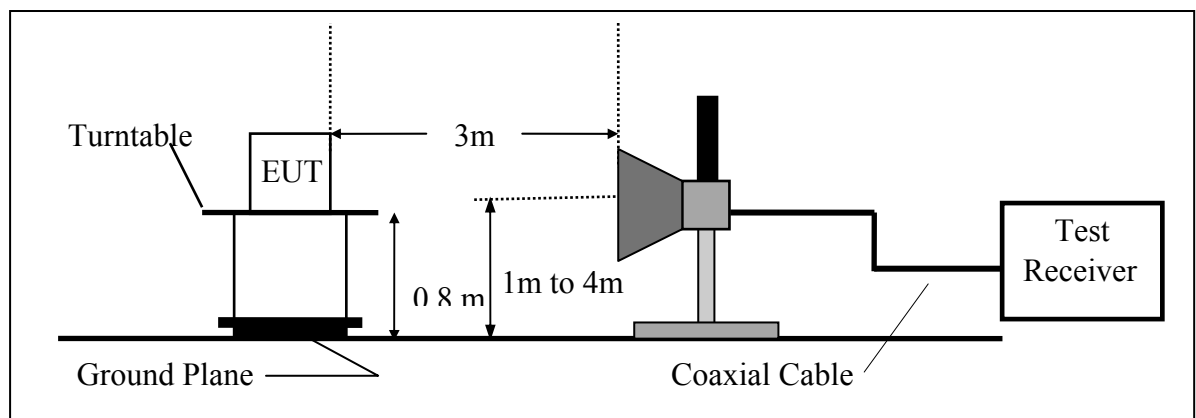
1. The EUT was placed on a turntable that is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above 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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5.3 Measurement Equipment Used:

966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	R&S	FSP 40	100034	05/27/2006	05/26/2007
Spectrum Analyzer	Agilent	E7405A	US41160416	08/27/2006	08/27/2007
Bilog Antenna	SCHWAZBECK	VULB9163	152	06/03/2006	06/02/2007
Bilog Antenna	SCHWAZBECK	VULB9160		06/03/2006	06/02/2007
Horn Antenna	SCHWAZBECK	BBHA 9120D	309/320	08/16/2006	08/15/2007
Pre-Amplifier	HP	8447D	2944A09469	07/19/2006	07/18/2007
Pre-Amplifier	HP	8449B	3008A00578	02/26/2006	02/25/2007
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	10/09/2005	10/08/2006
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2005	10/08/2006
Site NSA	SGS	966 chamber	N/A	11/17/2005	11/16/2006

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	

5.5 Measurement Result

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX	Test Date	Oct. 04, 2006
Fundamental Frequency	CH Low / 2402MHz	Test By	Sky
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
71.71	V	Peak	48.16	-16.45	31.71	40.00	-8.29
95.96	V	Peak	51.23	-17.21	34.02	43.50	-9.48
142.52	V	Peak	48.68	-13.49	35.19	43.50	-8.31
288.02	V	Peak	47.89	-13.24	34.65	46.00	-11.35
144.46	H	Peak	41.85	-13.21	28.64	43.50	-14.86
288.02	H	Peak	53.56	-13.24	40.32	46.00	-5.68
335.55	H	Peak	45.41	-12.10	33.31	46.00	-12.69

Remark :

- (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, VBW=300KHz.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX	Test Date	Oct. 04, 2006
Fundamental Frequency	CH Mid / 2441MHz	Test By	Sky
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
71.71	V	Peak	46.97	-16.45	30.52	40.00	-9.48
95.96	V	Peak	52.09	-17.21	34.88	43.50	-8.62
265.71	V	Peak	40.92	-13.59	27.33	46.00	-18.67
288.02	V	Peak	45.77	-13.24	32.53	46.00	-13.47
95.96	H	Peak	45.03	-17.21	27.82	43.50	-15.68
265.71	H	Peak	45.38	-13.59	31.79	46.00	-14.21
288.02	H	Peak	50.92	-13.24	37.68	46.00	-8.32
331.67	H	Peak	44.44	-12.20	32.24	46.00	-13.76

Remark :

- (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, VBW=300KHz.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX	Test Date	Oct. 04, 2006
Fundamental Frequency	CH High / 2480MHz	Test By	Sky
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
71.71	V	Peak	47.67	-16.45	31.22	40.00	-8.78
95.96	V	Peak	51.98	-17.21	34.77	43.50	-8.73
288.02	V	Peak	45.08	-13.24	31.84	46.00	-14.16
331.67	V	Peak	37.99	-12.20	25.79	46.00	-20.21
288.02	H	Peak	51.90	-13.24	38.66	46.00	-7.34
335.55	H	Peak	45.87	-12.10	33.77	46.00	-12.23
479.11	H	Peak	39.33	-8.56	30.77	46.00	-15.23
641.10	H	Peak	35.01	-5.17	29.84	46.00	-16.16

Remark :

- (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, VBW=300KHz.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX
 Fundamental Frequency: CH Low / 2402MHz
 Temperature : 25 °C
 Humidity : 65 %

Test Date : Oct. 04, 2006
 Test By: Sky
 Pol: Vertical

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB)	Actual Peak FS (dBuV/m)	Actual AV FS (dBuV/m)	Peak Limit at 3m (dBuV/m)	AV Limit at 3m (dBuV/m)	Margin (dB)	
2402.0	V	69.56	--	-1.36	68.20	--	114.00	94.00	-25.80	F
1802.2	V	38.89	--	-4.47	34.42	--	74.00	54.00	-19.58	S
4804.0	V	--	--			--	74.00	54.00		H
7206.0	V	--	--			--	74.00	54.00		H
9608.0	V	--	--			--	74.00	54.00		H
12010.0	V	--	--			--	74.00	54.00		H
14412.0	V	--	--			--	74.00	54.00		H
16814.0	V	--	--			--	74.00	54.00		H
19216.0	V	--	--			--	74.00	54.00		H
21618.0	V	--	--			--	74.00	54.00		H
24020.0	V	--	--			--	74.00	54.00		H
2400.0	V									

Remark :

- (1) Measuring frequencies from 30MHz 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) 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.
- (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 B bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX
 Fundamental Frequency: CH Low / 2402MHz
 Temperature : 25 °C
 Humidity : 68 %

Test Date : Oct. 04, 2006
 Test By: Sky
 Pol: Horizontal

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB)	Actual Peak FS (dBuV/m)	Actual AV FS (dBuV/m)	Peak Limit at 3m (dBuV/m)	AV Limit at 3m (dBuV/m)	Margin (dB)	
2402.0	H	94.74	87.60	-1.36	93.38	86.24	114.00	94.00	-7.76	F
1351.4	H	42.40	--	-6.56	35.84	--	74.00	54.00	-18.16	S
1501.2	H	39.99	--	-5.90	34.09	--	74.00	54.00	-19.91	S
1802.2	H	41.24	--	-4.47	36.77	--	74.00	54.00	-17.23	S
4804.0	H	--	--			--	74.00	54.00		H
7206.0	H	--	--			--	74.00	54.00		H
9608.0	H	--	--			--	74.00	54.00		H
12010.0	H	--	--			--	74.00	54.00		H
14412.0	H	--	--			--	74.00	54.00		H
16814.0	H	--	--			--	74.00	54.00		H
19216.0	H	--	--			--	74.00	54.00		H
21618.0	H	--	--			--	74.00	54.00		H
24020.0	H	--	--			--	74.00	54.00		H
2400.0	H									

Remark :

- (1) Measuring frequencies from 30MHz 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) 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.
- (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 B bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX
 Fundamental Frequency: CH Mid / 2441MHz
 Temperature : 25 °C
 Humidity : 65 %

Test Date : Oct. 04, 2006
 Test By: Sky
 Pol: Vertical

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB)	Actual Peak FS (dBuV/m)	Actual AV FS (dBuV/m)	Peak Limit at 3m (dBuV/m)	AV Limit at 3m (dBuV/m)	Margin (dB)	
2441.0	V	68.34	--	-1.12	67.22	--	114.00	94.00	-26.78	F
1802.2	V	38.96	--	-4.47	34.49	--	74.00	54.00	-19.51	S
4882.0	V	--	--			--	74.00	54.00		H
7323.0	V	--	--			--	74.00	54.00		H
9764.0	V	--	--			--	74.00	54.00		H
12205.0	V	--	--			--	74.00	54.00		H
14646.0	V	--	--			--	74.00	54.00		H
17087.0	V	--	--			--	74.00	54.00		H
19528.0	V	--	--			--	74.00	54.00		H
21969.0	V	--	--			--	74.00	54.00		H
24410.0	V	--	--			--	74.00	54.00		H

Remark :

- (1) Measuring frequencies from 30MHz 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) 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.
- (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 B bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX
 Fundamental Frequency: CH Mid / 2441MHz
 Temperature : 25 °C
 Humidity : 68 %

Test Date : Oct. 04, 2006
 Test By: Sky
 Pol: Horizontal

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB)	Actual Peak FS (dBuV/m)	Actual AV FS (dBuV/m)	Peak Limit at 3m (dBuV/m)	AV Limit at 3m (dBuV/m)	Margin (dB)	
2441.0	H	94.74	87.50	-1.13	93.61	86.37	114.00	94.00	-7.63	F
1050.4	H	40.78	--	-7.91	32.87	--	74.00	54.00	-21.13	S
1351.4	H	41.85	--	-6.56	35.29	--	74.00	54.00	-18.71	S
1501.2	H	41.51	--	-5.90	35.61	--	74.00	54.00	-18.39	S
1802.2	H	41.16	--	-4.47	36.69	--	74.00	54.00	-17.31	S
4882.0	H	--	--			--	74.00	54.00		H
7323.0	H	--	--			--	74.00	54.00		H
9764.0	H	--	--			--	74.00	54.00		H
12205.0	H	--	--			--	74.00	54.00		H
14646.0	H	--	--			--	74.00	54.00		H
17087.0	H	--	--			--	74.00	54.00		H
19528.0	H	--	--			--	74.00	54.00		H
21969.0	H	--	--			--	74.00	54.00		H
24410.0	H	--	--			--	74.00	54.00		H

Remark :

- (1) Measuring frequencies from 30MHz 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) 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.
- (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 B bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX
 Fundamental Frequency: CH High / 2480MHz
 Temperature : 25 °C
 Humidity : 65 %

Test Date : Oct. 04, 2006
 Test By: Sky
 Pol: Vertical

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB)	Actual Peak FS (dBuV/m)	Actual AV FS (dBuV/m)	Peak Limit at 3m (dBuV/m)	AV Limit at 3m (dBuV/m)	Margin (dB)	
2480.0	V	71.05	--	-0.92	70.13	--	114.00	94.00	-23.87	F
4960.0	V	--	--			--	74.00	54.00		H
7440.0	V	--	--			--	74.00	54.00		H
9920.0	V	--	--			--	74.00	54.00		H
12400.0	V	--	--			--	74.00	54.00		H
14880.0	V	--	--			--	74.00	54.00		H
17360.0	V	--	--			--	74.00	54.00		H
19840.0	V	--	--			--	74.00	54.00		H
22320.0	V	--	--			--	74.00	54.00		H
24800.0	V	--	--			--	74.00	54.00		H
2483.5	V									

Remark :

- (1) Measuring frequencies from 30MHz 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) 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.
- (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 B bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX
Fundamental Frequency: CH High / 2480MHz
Temperature : 25 °C
Humidity : 68 %

Test Date : Oct. 04, 2006
Test By: Sky
Pol: Horizontal

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Factor (dB)	Actual Peak FS (dBuV/m)	Actual AV FS (dBuV/m)	Peak Limit at 3m (dBuV/m)	AV Limit at 3m (dBuV/m)	Margin (dB)	
2480.0	H	94.82	88.20	-0.92	93.90	87.28	114.00	94.00	-6.72	F
1351.4	H	41.96	--	-6.56	35.40	--	74.00	54.00	-18.60	S
1375.2	H	41.27	--	-6.47	34.80	--	74.00	54.00	-19.20	S
1501.2	H	40.79	--	-5.90	34.89	--	74.00	54.00	-19.11	S
1802.2	H	40.67	--	-4.47	36.20	--	74.00	54.00	-17.80	S
4960.0	H	--	--			--	74.00	54.00		H
7440.0	H	--	--			--	74.00	54.00		H
9920.0	H	--	--			--	74.00	54.00		H
12400.0	H	--	--			--	74.00	54.00		H
14880.0	H	--	--			--	74.00	54.00		H
17360.0	H	--	--			--	74.00	54.00		H
19840.0	H	--	--			--	74.00	54.00		H
22320.0	H	--	--			--	74.00	54.00		H
24800.0	H	--	--			--	74.00	54.00		H
2483.5	H									

Remark :

- Measuring frequencies from 30MHz to the 10th of fundamental frequency .
- 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
- "F" denotes fundamental frequency; "H" denotes harmonics frequency. "S" denotes spurious frequency.
- 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.
- Spectrum Peak mode IF bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, Sweep time= 200 ms., the VBW setting was 3 MHz.
- Spectrum AV mode IF B bandwidth Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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6. 26 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, VBW = 100KHz, Span = 3MHz.
4. Set SPA Max hold. Mark peak, -26dB.

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:

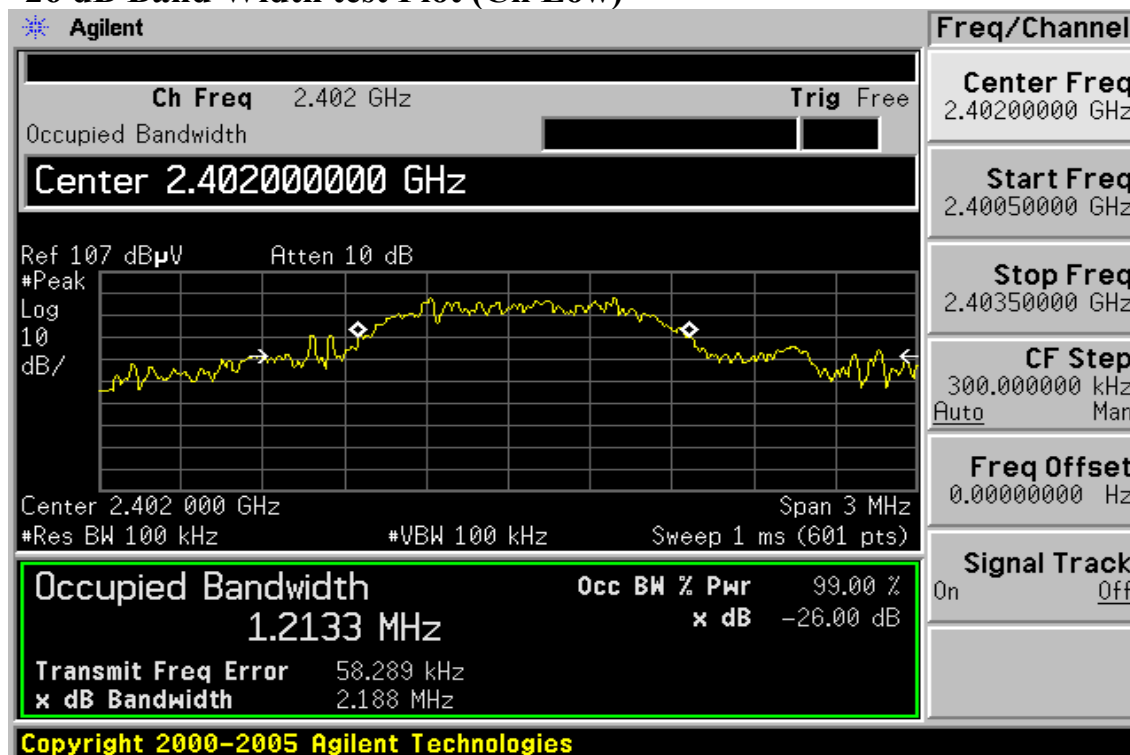
Ch Low 26dB Bandwidth = 2.188MHz

Ch Mid 26dB Bandwidth = 2.419MHz

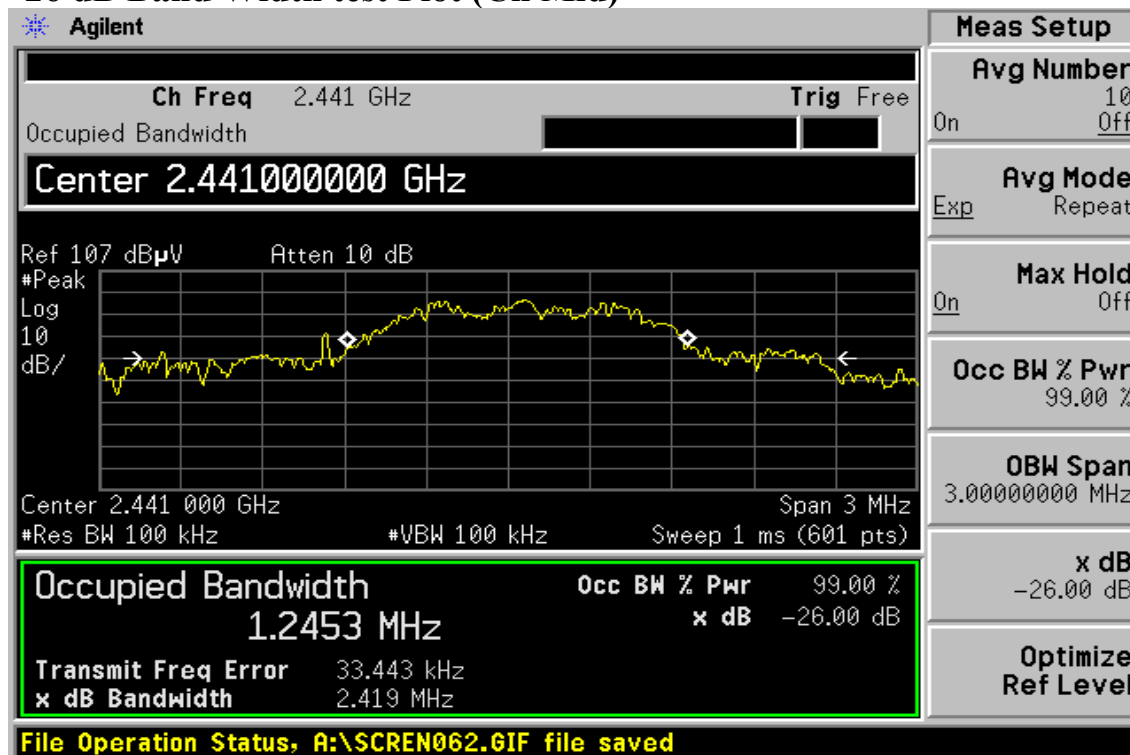
Ch High 26dB Bandwidth = 2.688MHz

Refer to attached data chart.

26 dB Band Width test Plot (Ch Low)

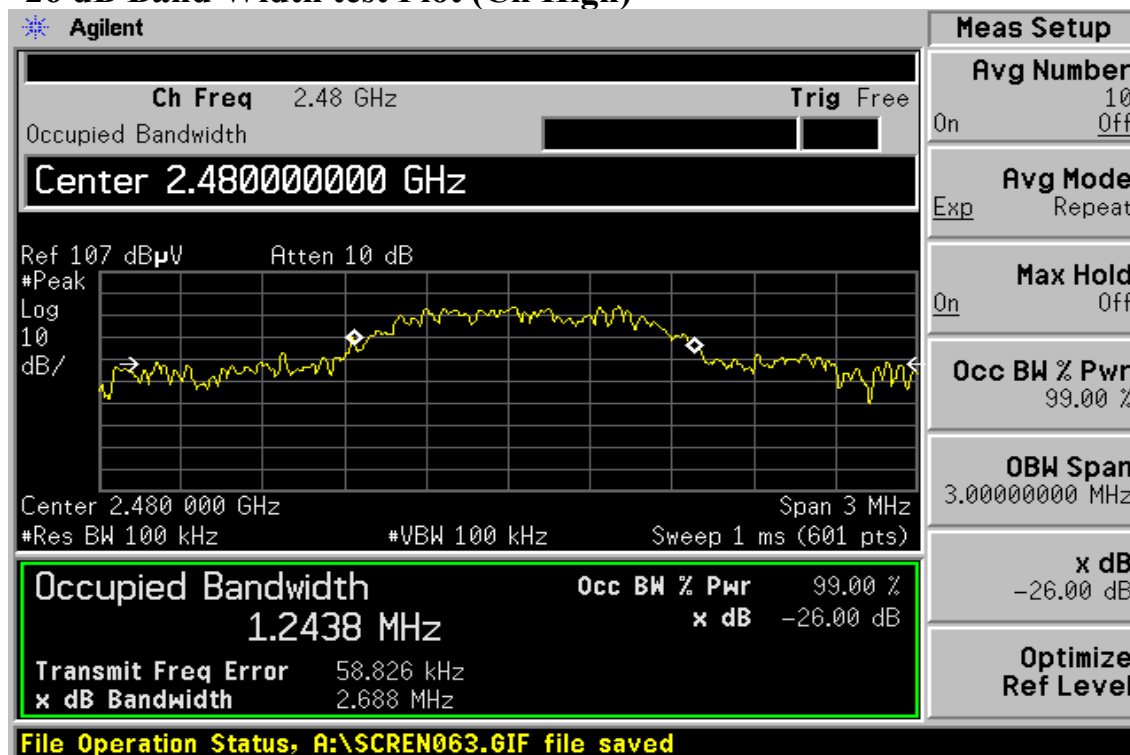


26 dB Band Width test Plot (Ch Mid)



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26 dB Band Width test Plot (Ch High)



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