ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

Product Name:	**2.4GHz Wireless Dongle**
Brand Name:	**N/A**
Model No.:	**C55**
Model Difference:	**N/A**
FCC ID:	**P5A-CL0023**
Report No.:	**ER/2011/90015**
Issue Date:	**Sep. 16, 2011**
FCC Rule Part:	**§15.249**
Prepared for:	**ARESON Technology Corp.** **11F, No.646, Sec.5, Chongsin Rd., San Chung Dist., New Taipei City 241,Taiwan (R.O.C.)**
Prepared by:	**SGS Taiwan Ltd.** **Electronics & Communication Laboratory** **No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.**

Testing Laboratory
0513

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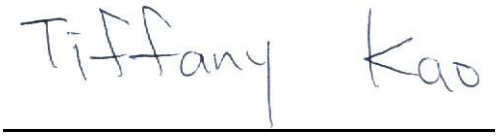
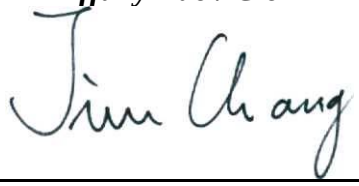
VERIFICATION OF COMPLIANCE

Applicant:	ARESON Technology Corp. 11F, No.646, Sec.5, Chongsin Rd., San Chung Dist., New Taipei City 241,Taiwan (R.O.C.).
Product Description:	2.4GHz Wireless Dongle
Brand Name:	N/A
Model No.:	C55
FCC ID:	P5A-CL0023
Model Difference:	N/A
File Number:	ER/2011/90015
Date of test:	Aug. 20, 2011 ~ Aug. 29, 2011
Date of EUT Received:	Aug. 20, 2011

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:		***Date:***	Sep. 16, 2011
	Eric Su / Asst. Supervisor		
Prepared By:		***Date:***	Sep. 16, 2011
	Tiffany Kao / Clerk		
Approved By:		***Date:***	Sep. 16, 2011
	Jim Chang / Supervisor		

Version

Version No.	Date	Description
00	Sep. 16, 2011	Initial creation of document

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1. GENERAL INFORMATION

1.1 Product Description

Product Name:	2.4GHz Wireless Dongle
Brand Name:	N/A
Model No.:	C55
Model Difference:	N/A
Hardware Version	N/A
Software Version	N/A
Operation Frequency:	2408~2474MHz, Step: 1MHz
Channel number:	67 channels
Modulation Type:	GFSK
Power Supply	DC 5Vdc from USB Port
Antenna Designation:	Printed Antenna

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **P5A-CL0023** 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.

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.

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 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 (MHz)	Field strength μV/m	Distance (m)	Field strength at 3m 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)
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 ξ 15.205
4. Emission spurious frequency which appearing within the Restricted Bands specified in provision of ξ15.205, then the general radiated emission limits in ξ 15.209 apply.

2.5 Configuration of Tested System

Fig. 2-1 Configuration

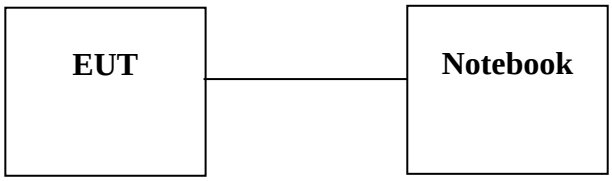


Table 2-2 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Notebook	DELL	E5400	3704625136	shielding	Un-shielding

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	N/A
§15.249(a)(e)	Radiated Emission	Compliant
§15.249(d)	20dB band width Measurement	Compliant

4. Description of test modes

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

Channel low (2408MHz)、mid (2441MHz) and high (2474MHz) with highest data rate are chosen for full testing.

5. Conducted Emissions Test

5.1 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.

5.2 Test SET-UP (Block Diagram of Configuration)

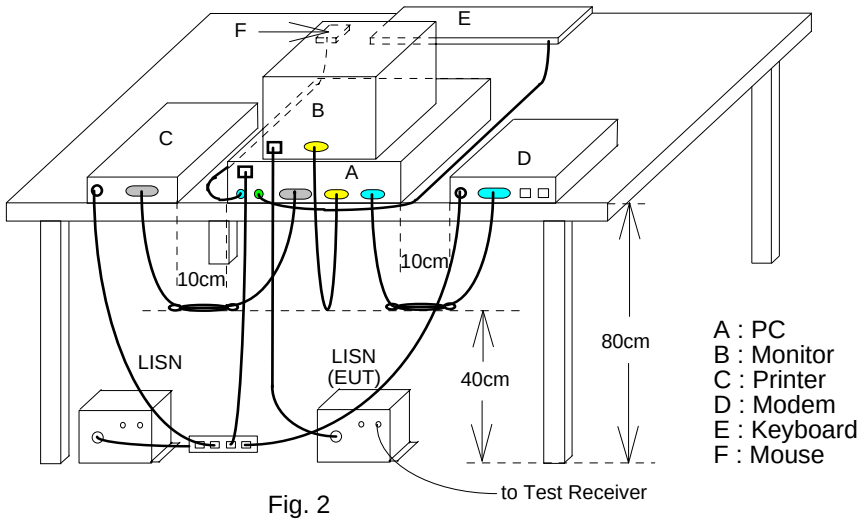


Fig. 2

5.3 Measurement Equipment Used:

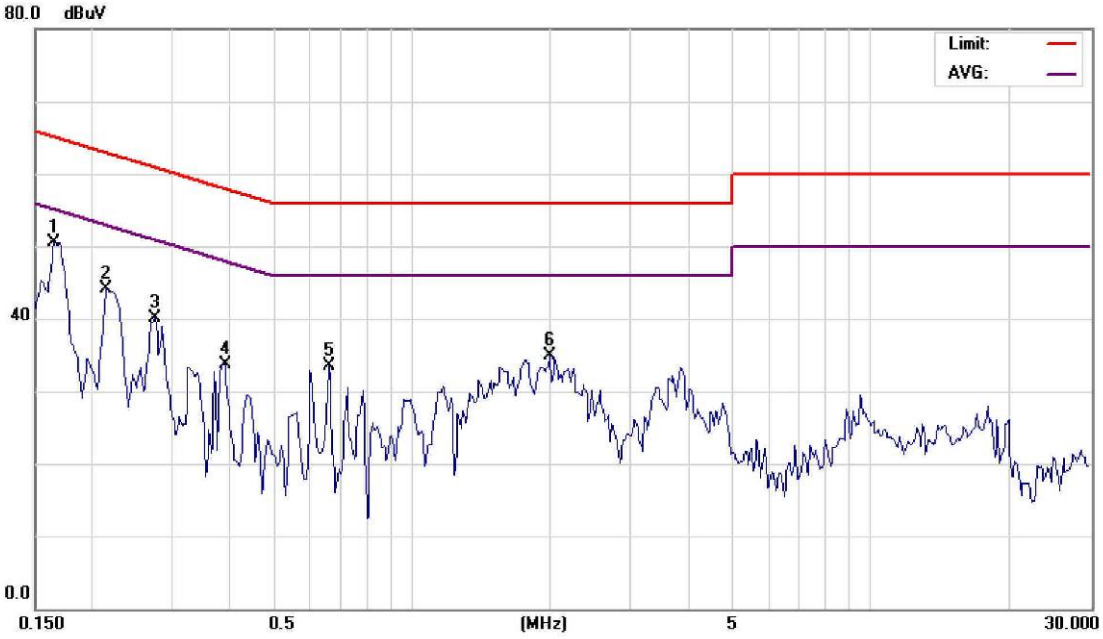
Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCS30	828985/004	09/23/2010	09/22/2012
LISN	Rolf-Heine	NNB-2/16Z	99012	03/31/2011	03/30/2012
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	03/31/2011	03/30/2012
Coaxial Cables	N/A	WK CE Cable	N/A	11/28/2010	11/27/2011

5.4 Measurement Result:

Refer to next page for measurement data and plots.

AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Charger Mode			Test Date:	Aug. 22, 2011
Temperature:	23 ℃	Humidity:	61 %	Test By:	Bondi

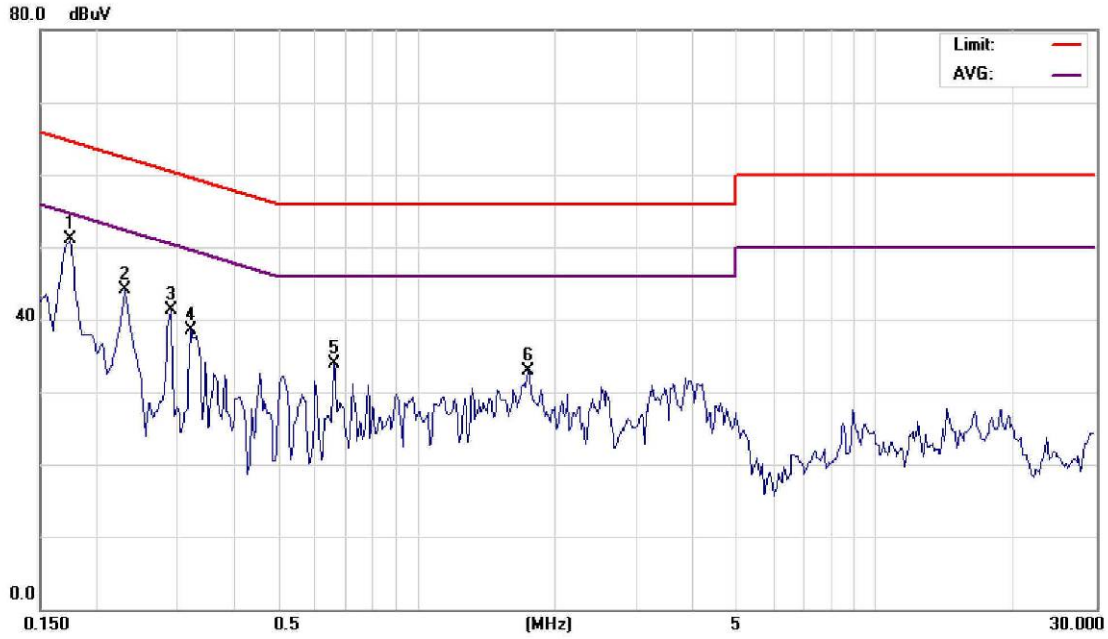


Site SGS CONDUCTED #1
Limit: FCC Class B Conduction(QP)
EUT: **2.4GHz Wireless Dongle**
M/N: B319
Note: Operation mode
Dongle

Phase: *L1*
Power: AC 120V/60Hz
Distance:

Temperature: 23 ℃
Humidity: 61%
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1650	50.40	0.13	50.53	65.21	-14.68	peak	
2		0.2150	44.07	0.12	44.19	63.01	-18.82	peak	
3		0.2750	39.92	0.12	40.04	60.97	-20.93	peak	
4		0.3900	33.61	0.12	33.73	58.06	-24.33	peak	
5		0.6600	33.35	0.12	33.47	56.00	-22.53	peak	
6		2.0000	34.74	0.15	34.89	56.00	-21.11	peak	



Site SGS CONDUCTED #1
Limit: FCC Class B Conduction(QP)
EUT: **2.4GHz Wireless Dongle**
M/N: B319
Note: Operation mode
Dongle

Phase: *N*
Power: AC 120V/60Hz
Distance:

Temperature: 23 ℃
Humidity: 61%
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1750	50.86	0.17	51.03	64.72	-13.69	peak	
2		0.2300	43.98	0.16	44.14	62.45	-18.31	peak	
3		0.2900	41.17	0.16	41.33	60.52	-19.19	peak	
4		0.3200	38.43	0.15	38.58	59.71	-21.13	peak	
5		0.6600	33.71	0.16	33.87	56.00	-22.13	peak	
6		1.7500	32.72	0.17	32.89	56.00	-23.11	peak	

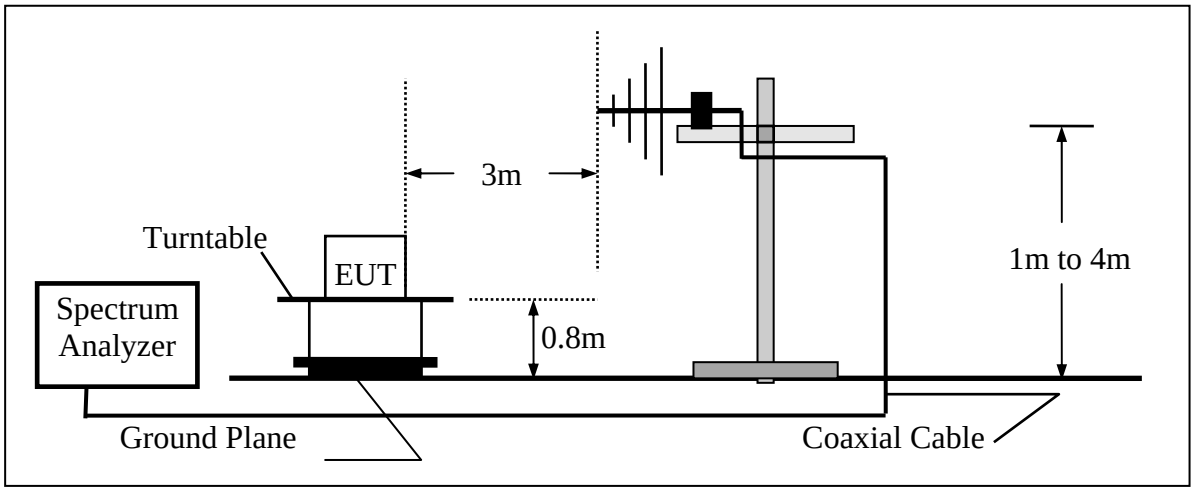
6. Radiated Emission Test

6.1 Measurement Procedure

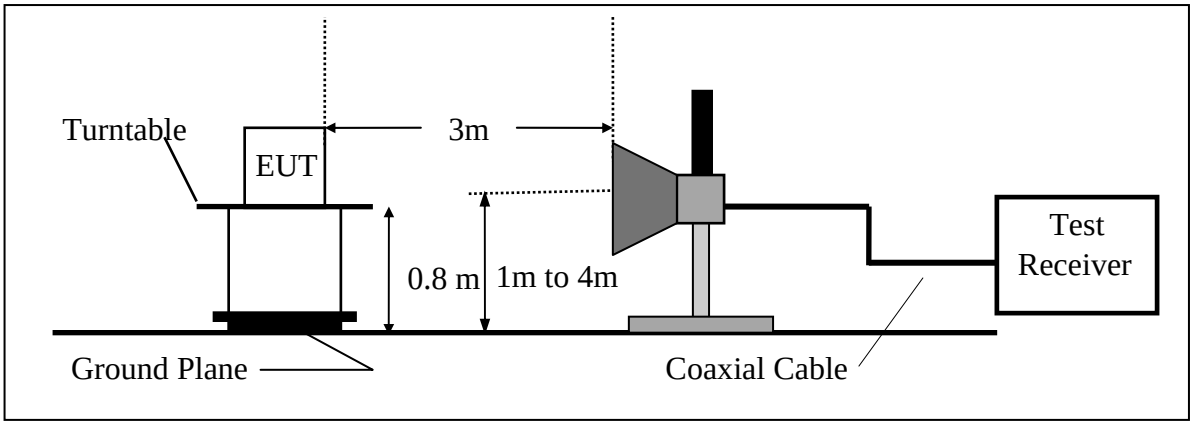
1. The EUT was placed on a turntable that is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above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

6.2 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



6.3 Measurement Equipment Used:

966 Chamber					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	R&S	FSP 40	100034	03/30/2011	03/29/2012
Bilog Antenna	SCHWAZBECK	VULB9160	3136	11/19/2010	11/18/2011
Horn antenna	SCHWAZBECK	BBHA 9120D	309/320	01/22/2010	01/21/2012
Pre-Amplifier	Agilent	8447D	1937A02834	11/28/2010	11/27/2011
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2011	01/04/2012
Radio Communication Analyzer	R & S	CMU200	111787	10/31/2010	10/30/202
DC Block	Agilent	BLK-18	155452	01/05/2011	01/04/2012
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	01/05/2011	01/04/2012
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2011	01/04/2012
3m Site	SGS	966 chamber	N/A	09/06/2011	09/05/2012

6.4 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	

6.5 Measurement Result

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX CH Low	Test Date	Aug. 22, 2011
Fundamental Frequency	2408MHz	Test By	Eric
Temperature	25 ℃	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)
94.99	V	Peak	49.58	-17.01	32.57	43.50	-10.93
265.71	V	Peak	46.35	-13.37	32.98	46.00	-13.02
388.90	V	Peak	42.49	-11.05	31.44	46.00	-14.56
500.45	V	Peak	44.32	-9.09	35.23	46.00	-10.77
664.38	V	Peak	39.95	-5.74	34.21	46.00	-11.79
833.16	V	Peak	39.37	-3.35	36.02	46.00	-9.98
299.66	H	Peak	48.99	-12.45	36.54	46.00	-9.46
365.62	H	Peak	44.16	-11.34	32.82	46.00	-13.18
431.58	H	Peak	40.74	-10.20	30.54	46.00	-15.46
666.32	H	Peak	40.15	-5.72	34.43	46.00	-11.57
700.27	H	Peak	40.93	-4.51	36.42	46.00	-9.58
740.04	H	Peak	40.54	-4.51	36.03	46.00	-9.97
833.16	H	Peak	41.74	-3.35	38.39	46.00	-7.61

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.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX CH Mid	Test Date	Aug. 22, 2011
Fundamental Frequency	2441MHz	Test By	Eric
Temperature	25 ℃	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)
95.96	V	Peak	47.71	-17.01	30.70	43.50	-12.80
278.32	V	Peak	54.26	-13.01	41.25	46.00	-4.75
299.66	V	Peak	48.91	-12.45	36.46	46.00	-9.54
367.56	V	Peak	43.68	-11.31	32.37	46.00	-13.63
665.35	V	Peak	40.36	-5.72	34.64	46.00	-11.36
740.04	V	Peak	39.99	-4.51	35.48	46.00	-10.52
834.13	V	Peak	39.17	-3.36	35.81	46.00	-10.19
97.90	H	Peak	48.06	-16.85	31.21	43.50	-12.29
387.93	H	Peak	39.90	-11.04	28.86	46.00	-17.14
431.58	H	Peak	39.46	-10.20	29.26	46.00	-16.74
499.48	H	Peak	42.00	-9.16	32.84	46.00	-13.16
664.38	H	Peak	39.90	-5.74	34.16	46.00	-11.84
832.19	H	Peak	39.77	-3.37	36.40	46.00	-9.60

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.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	TX CH High	Test Date	Aug. 22, 2011
Fundamental Frequency	2474MHz	Test By	Eric
Temperature	25 ℃	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)
95.96	V	Peak	48.15	-17.01	31.14	43.50	-12.36
222.06	V	Peak	47.93	-14.95	32.98	46.00	-13.02
265.71	V	Peak	44.38	-13.37	31.01	46.00	-14.99
499.48	V	Peak	44.78	-9.16	35.62	46.00	-10.38
664.38	V	Peak	40.62	-5.74	34.88	46.00	-11.12
833.16	V	Peak	41.35	-3.35	38.00	46.00	-8.00
199.75	H	Peak	50.35	-15.99	34.36	43.50	-9.14
278.32	H	Peak	51.26	-13.01	38.25	46.00	-7.75
367.56	H	Peak	46.68	-11.31	35.37	46.00	-10.63
527.61	H	Peak	40.15	-8.58	31.57	46.00	-14.43
700.27	H	Peak	42.30	-5.28	37.02	46.00	-8.98
740.04	H	Peak	40.99	-4.51	36.48	46.00	-9.52

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.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH Low
Fundamental Frequency: 2408MHz
Temperature : 25 ℃
Humidity : 65 %

Test Date : Aug. 22, 2011
Test By: Eric
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)	
2408.0	V	89.58	89.38	-0.98	88.60	88.40	114.00	94.00	-5.60	F
1019.5	V	46.33	--	-5.69	40.64	--	74.00	54.00	-13.36	H
1331.5	V	43.82	--	-4.78	39.04	--	74.00	54.00	-14.96	H
1663.0	V	44.92	--	-4.13	40.79	--	74.00	54.00	-13.21	H
4816.0	V	--	--			--	74.00	54.00		H
7224.0	V	--	--			--	74.00	54.00		H
9632.0	V	--	--			--	74.00	54.00		H
12040.0	V	--	--			--	74.00	54.00		H
14448.0	V	--	--			--	74.00	54.00		H
16856.0	V	--	--			--	74.00	54.00		H
19264.0	V	--	--			--	74.00	54.00		H
21672.0	V	--	--			--	74.00	54.00		H
24080.0	V	--	--			--	74.00	54.00		H

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.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH Low
Fundamental Frequency: 2408MHz
Temperature : 25 ℃
Humidity : 65 %

Test Date : Aug. 22, 2011
Test By: Eric
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)	
2408.0	H	87.98	87.56	-0.98	87.00	86.58	114.00	94.00	-7.42	F
1331.5	H	48.97	--	-4.78	44.19	--	74.00	54.00	-9.81	H
1500.5	H	42.02	--	-4.58	37.44	--	74.00	54.00	-16.56	H
1663.0	H	41.66	--	-4.13	37.53	--	74.00	54.00	-16.47	H
4816.0	H	--	--			--	74.00	54.00		H
7224.0	H	--	--			--	74.00	54.00		H
9632.0	H	--	--			--	74.00	54.00		H
12040.0	H	--	--			--	74.00	54.00		H
14448.0	H	--	--			--	74.00	54.00		H
16856.0	H	--	--			--	74.00	54.00		H
19264.0	H	--	--			--	74.00	54.00		H
21672.0	H	--	--			--	74.00	54.00		H
24080.0	H	--	--			--	74.00	54.00		H

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.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode:	TX CH Mid	Test Date :	Aug. 22, 2011
Fundamental Frequency:	2441MHz	Test By:	Eric
Temperature :	25 ℃	Pol:	Vertical
Humidity :	65 %		

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	89.97	89.57	-0.49	89.48	89.08	114.00	94.00	-4.92	F
1331.5	V	46.73	--	-4.78	41.95	--	74.00	54.00	-12.05	H
1663.0	V	44.48	--	-4.13	40.35	--	74.00	54.00	-13.65	H
4882.0	V	39.98	--	5.38	45.36	--	74.00	54.00	-8.64	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 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.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode:	TX CH Mid	Test Date :	Aug. 22, 2011
Fundamental Frequency:	2441MHz	Test By:	Eric
Temperature :	25 ℃	Pol:	Horizontal
Humidity :	65 %		

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	89.56	89.18	-0.49	99.71	88.69	114.00	94.00	-5.31	F
1331.5	H	49.13	--	-4.78	44.35	--	74.00	54.00	-9.65	H
1500.5	H	42.66	--	-4.58	38.08	--	74.00	54.00	-15.92	H
1663.0	H	42.67	--	-4.13	38.54	--	74.00	54.00	-15.46	H
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 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.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH High
Fundamental Frequency: 2474MHz
Temperature : 25 ℃
Humidity : 65 %

Test Date : Aug. 22, 2011
Test By: Eric
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)	
2474.0	V	88.78	87.95	-0.59	88.19	87.36	114.00	94.00	-6.64	F
1662.5	V	43.34	--	-5.54	37.80	--	74.00	54.00	-16.20	H
1331.5	V	47.21	--	-4.78	42.43	--	74.00	54.00	-11.57	H
1663.0	V	44.91	--	-4.13	40.78	--	74.00	54.00	-13.22	H
1994.5	V	41.64	--	-2.98	38.66	--	74.00	54.00	-15.34	H
4948.0	V	42.21	--	5.56	47.77	--	74.00	54.00	-6.23	H
7422.0	V	--	--			--	74.00	54.00		H
9896.0	V	--	--			--	74.00	54.00		H
12370.0	V	--	--			--	74.00	54.00		H
14844.0	V	--	--			--	74.00	54.00		H
17318.0	V	--	--			--	74.00	54.00		H
19792.0	V	--	--			--	74.00	54.00		H
22266.0	V	--	--			--	74.00	54.00		H
24740.0	V	--	--			--	74.00	54.00		H

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.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode: TX CH High
Fundamental Frequency: 2474MHz
Temperature : 25 ℃
Humidity : 65 %

Test Date : Aug. 22, 2011
Test By: Eric
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)	
2474.0	H	88.49	87.44	-0.59	99.71	86.85	114.00	94.00	-7.15	F
1331.5	H	50.09	--	-4.78	45.31	--	74.00	54.00	-8.69	H
1500.5	H	43.02	--	-4.58	38.44	--	74.00	54.00	-15.56	H
1598.0	H	41.15	--	-4.11	37.04	--	74.00	54.00	-16.96	H
1663.0	H	41.76	--	-4.13	37.63	--	74.00	54.00	-16.37	H
4948.0	H	--	--			--	74.00	54.00		H
7422.0	H	--	--			--	74.00	54.00		H
9896.0	H	--	--			--	74.00	54.00		H
12370.0	H	--	--			--	74.00	54.00		H
14844.0	H	--	--			--	74.00	54.00		H
17318.0	H	--	--			--	74.00	54.00		H
19792.0	H	--	--			--	74.00	54.00		H
22266.0	H	--	--			--	74.00	54.00		H
24740.0	H	--	--			--	74.00	54.00		H

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.

7. 20 dB Band Width Measurement

7.1 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.

7.2 Test SET-UP (Block Diagram of Configuration)

Same as 4.2 Radiated Emission Measurement.

7.3 Measurement Equipment Used:

Same as 4.2 Radiated Emission Measurement.

7.4 Measurement Results:

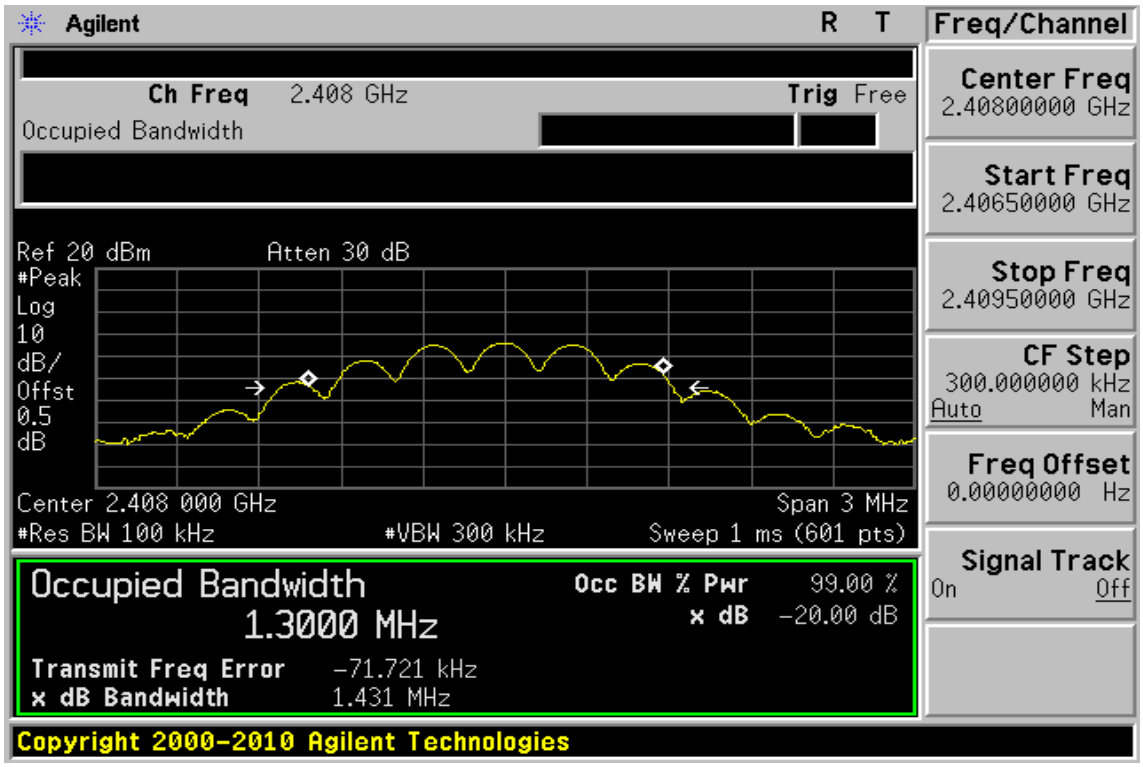
2408 Channel = 1.431MHz

2441 Channel = 1.438MHz

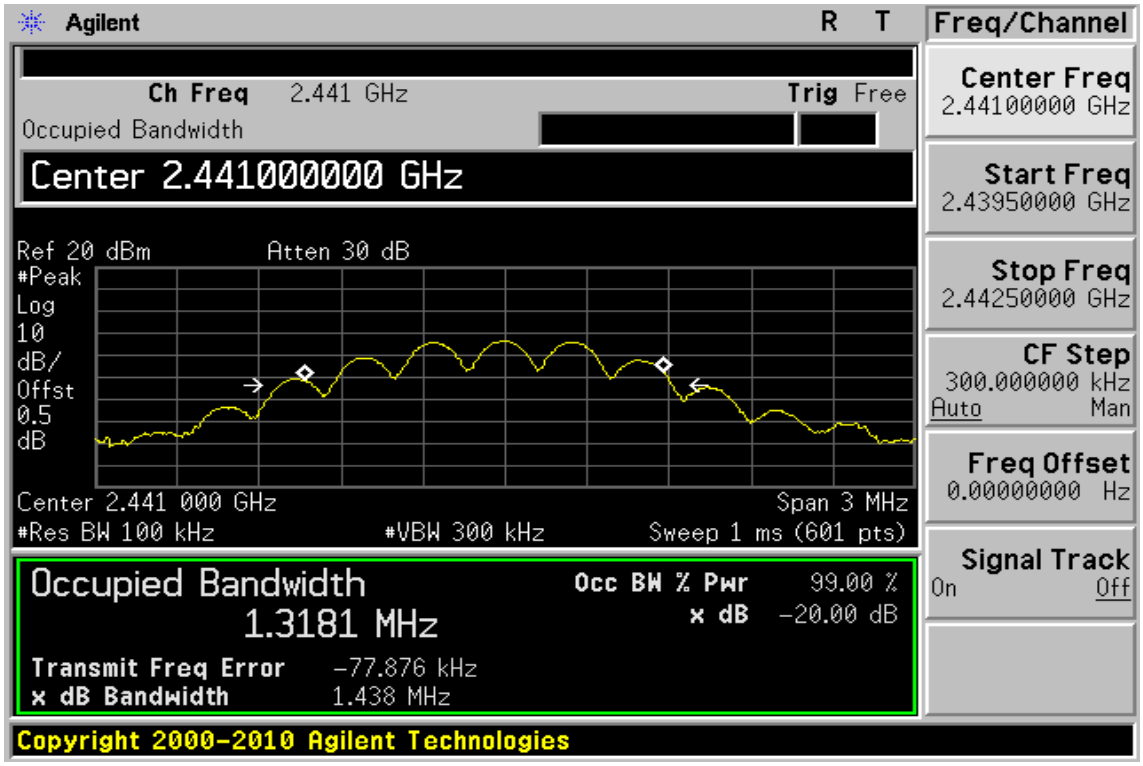
2474 Channel = 1.611MHz

Refer to attached data chart.

20dB Bandwidth Test Data CH-Low



20dB Bandwidth Test Data CH-Mid



20dB Bandwidth Test Data CH-High