FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 7

CERTIFICATION TEST REPORT

FOR

HANDHELD TERMINAL

MODEL NUMBER: DT-X7M10U

FCC ID: BBQDTX7M10U

IC: 2388F-DTX7M10U

REPORT NUMBER: 07J11143-2C

ISSUE DATE: SEPTEMBER 13, 2007

Prepared for

CASIO COMPUTER CO., LTD.
6-2 HON-MACHI 1-CHOME
SHIBUYA-KU, TOKYO 151-8543, JAPAN

Prepared by

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	9-11-07	Initial Issue	Hsin Fu Shih
B	9-12-07	Delete Model Difference, revise antenna model name, Revise AC Adapter model name	Hsin Fu Shih
C	9-13-07	Corrected some typos	Hsin Fu Shih

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: CASIO COMPUTER CO., LTD.
6-2 HON-MACHI 1-CHOME
SHIBUYA-KU, TOKYO 151-8543, JAPAN

EUT DESCRIPTION: HANDHELD TERMINAL

MODEL: DT-X7M10U

SERIAL NUMBER: DU-33

DATE TESTED: JULY 27 - 31, AND SEPTEMBER 10, 2007

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC Part 15 Subpart C	NO NON-COMPLIANCE NOTED
RSS-210 Issue 7 Annex 8 and RSS-GEN Issue 2	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

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ENGINEERING SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:

YOBI ZHOU
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 2, and RSS-210 Issue 7.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Bluetooth Handheld Terminal device and manufactured by Casio Computer Co., Ltd.

ACCESSORIES

The Handheld Terminal uses the following accessories during the tests:

Subassembly Description	Manufacturer	Part Number	Model Number
DRY-CELL BATTERY CASE	N/A	N/A	HA-F22BC
USB CRADLE	CASIO	PY-551AA	HA-F60 IO
ETHERNET CRADLE	CASIO	PY-551AA	HA-F62 IO
Cradle AC Adapter (for USB & Ethernet cradles)	CASIO	CS-22	AD-S42120B
CRADLE-TYPE BATTERY CHARGER	CASIO	PY-556AA	HA-F30CHG
Cradle AC Adapter	CASIO	2	AD-S15050B
CRADLE-TYPE DUAL BATTERY CHARGER	CASIO	PY-559	HA-F36DCHG
Cradle AC Adapter	CASIO	CS-8	AD-S60160B

5.2. TEST CONFIGURATION

EUT was connected to the host with a minimum configuration.

The following configuration was investigated during testing:

Test Configuration	Description
1	EUT (Handheld Terminal) with Dry-cell Battery Case
2	EUT (Handheld Terminal) with USB Cradle
3	EUT (Handheld Terminal) with Ethernet Cradle
4	EUT (Handheld Terminal) with Cradle-type Battery Charger
5	EUT (Handheld Terminal) with Cradle-type Dual Battery Charger

5.3. MODE(S) OF OPERATION

Test Mode	Description
1	Dry-cell Battery Case
2	LAN (Ethernet Cradle)
3	USB Host (Used either USB or Ethernet Cradle)
4	USB Client (Used either USB or Ethernet Cradle)
5	Cradle-type Battery Charger
6	Cradle-type Dual Battery Charger x 3 (6 Handheld Terminals)

5.4. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	Basic GFSK	10.68	11.69
2402 - 2480	Enhanced 8PSK	11.18	13.12

5.5. DESCRIPTION OF AVAILABLE ANTENNAS

_Di-pole antenna, model number AH083F245001, with maximum gain of 2.3dBi.

5.6. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was LMWin, Ver 6.16.
The test utility software used during testing was BTRadioTest, Ver. 1.00.

5.7. WORST-CASE CONFIGURATION AND MODE

EUT with the following items:

1. Dry-cell Battery Case
2. USB Cradle
3. Ethernet Cradle
4. Cradle-type Battery Charger
5. Cradle-type Dual Battery Charger

There are five configurations for Radiated Emission, four configurations for AC Power Line Conducted Emission and the worst-case configuration is the EUT with Ethernet Cradle (Please see setup diagrams & photos).

The worst-case channel is determined as the channel with the highest output power.

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT & PERIPHERALS

PERIPHERAL SUPPORT EQUIPMENT LIST			
Description	**Manufacturer**	**Model**	**Serial Number**
Cradle AC Adapter 1	CASIO	AD-S15050B	2
Cradle AC Adapter 2	CASIO	AD-S45150B	CS-8
Cradle AC Adapter 3	CASIO	AD-S60160B	CS-22
Dual Battery AC Adapter	SINO	SA165A-1540U-3	N/A
Laptop AC Adapter	NEC	ADP-50UH-A	6406983DD
USB Dongle	Buffalo	RUF2-E256-B	NA
USB Cradle	CASIO	HA-F60 IO	PY-550
Battery Charger Cradle	CASIO	HA-F30CHG	PY-556
Ethernet Cradle	CASIO	HA-F62IO	PY-554
Dual Battery Charger Cradle	CASIO	HA-F36DCHG	N/A
Laptop	NEC	PC-VY12FBEX	D04-0052003

I/O CABLES

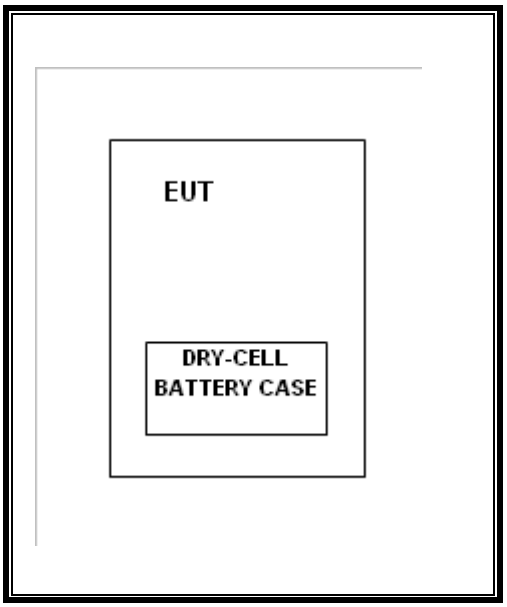
I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	2	US 115V	Un-shielded	1.5m	Config 2, 3, 4, 5
2	DC	2	DC	Un-shielded	1.5m	Config 2, 3, 4, 5
3	USB	1	USB	Shielded	1.5m	Config 2
4	Ethernet	1	RJ45	Un-shielded	2.5m	Config 2, 3

TEST SETUP

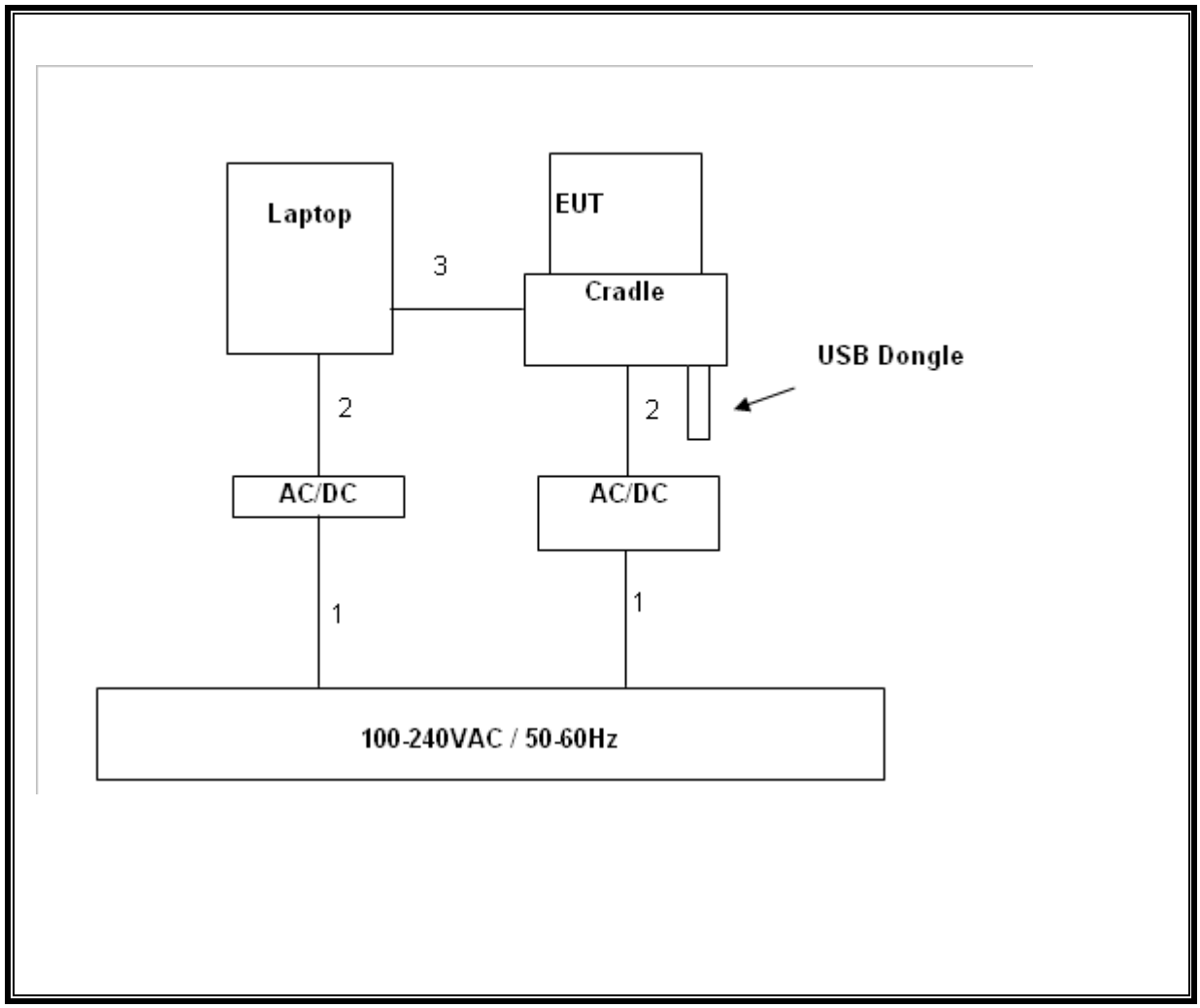
There are five different configurations for EUT during the tests (see setup diagrams & photos). Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS

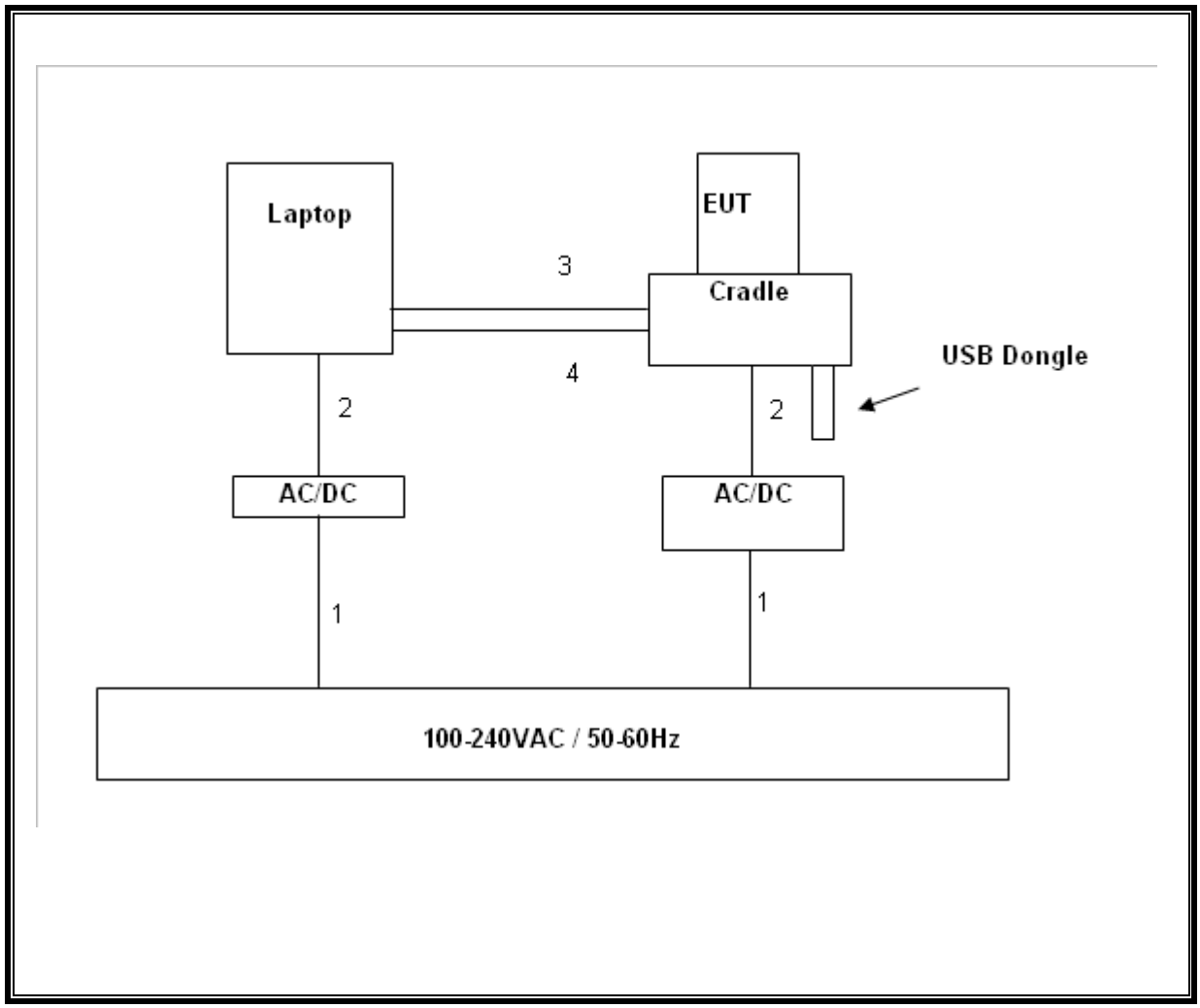
CONFIG 1: EUT WITH DRY CELL BATTERY



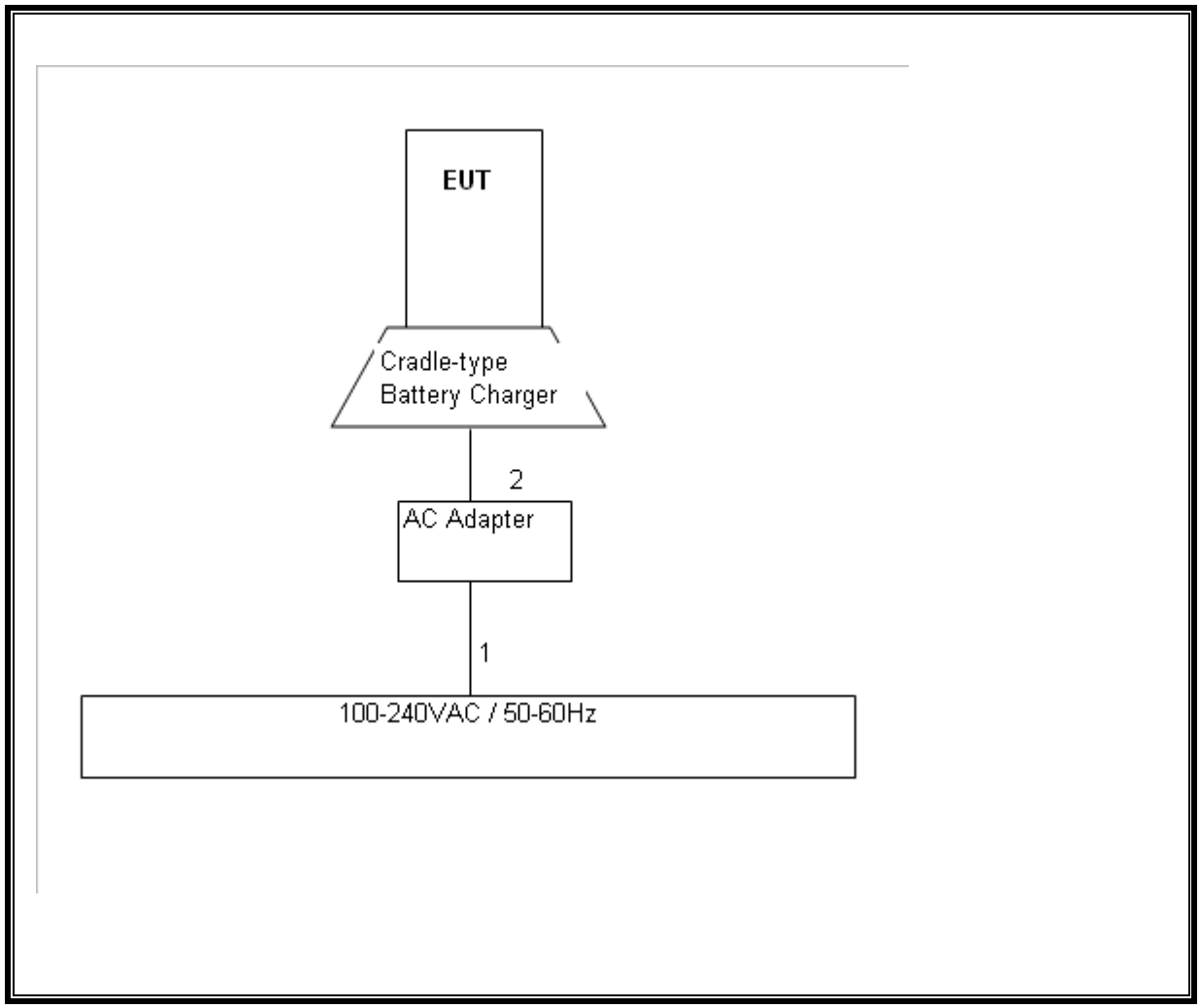
CONFIG 2: EUT WITH USB CRADLE



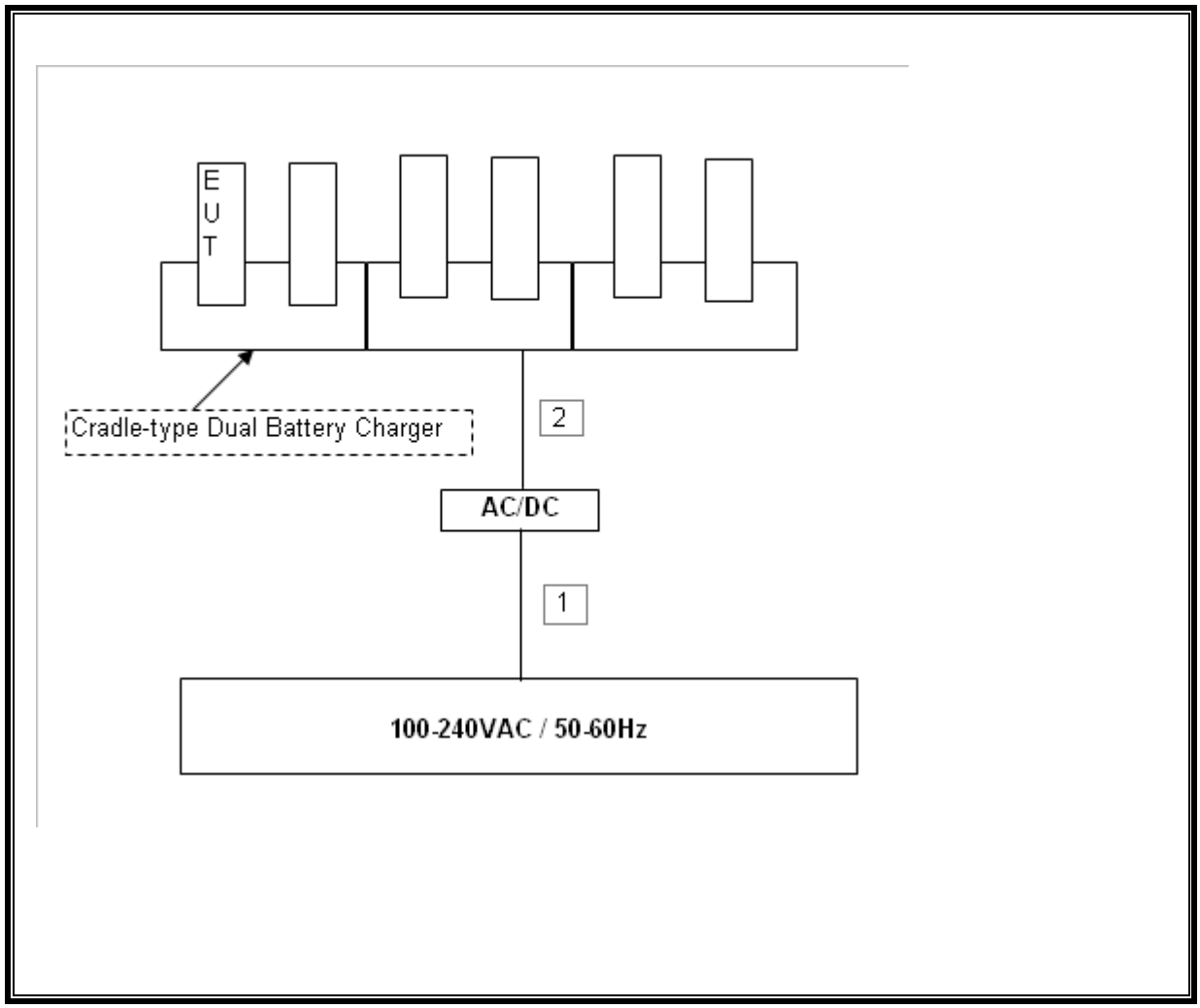
CONFIG 3: EUT WITH ETHERNET CRADLE (WORST-CASE)



CONFIG 4: EUT WITH CRADLE-TYPE BATTERY CHARGER



CONFIG 5: EUT WITH DUAL BATTERY CHARGERS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**Cal Due**
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	MY43360112	5/3/2008
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	4/22/2008
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00931	8/1/2008
Peak Power Meter	Agilent / HP	E4416A	GB41291160	12/2/2007
EMI Test Receiver	R & S	ESHS 20	827129/006	1/27/2008
Peak Power Meter	Agilent / HP	E4416A	GB41291160	12/2/2007
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	9/15/2007
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	9/15/2007
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A0022704	8/13/2007
Preamplifier, 1300 MHz	Agilent / HP	8447D	1937A02062	1/23/2008
4.0 GHz Highpass Filter	Micro-Tronics	HPM13351	4	CNR
RF Filter Section	Agilent / HP	85420E	3705A00256	2/4/2008

7. LIMITS AND RESULTS

7.1. BASIC DATA RATE GFSK MODULATION

7.1.1. 20 dB AND 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

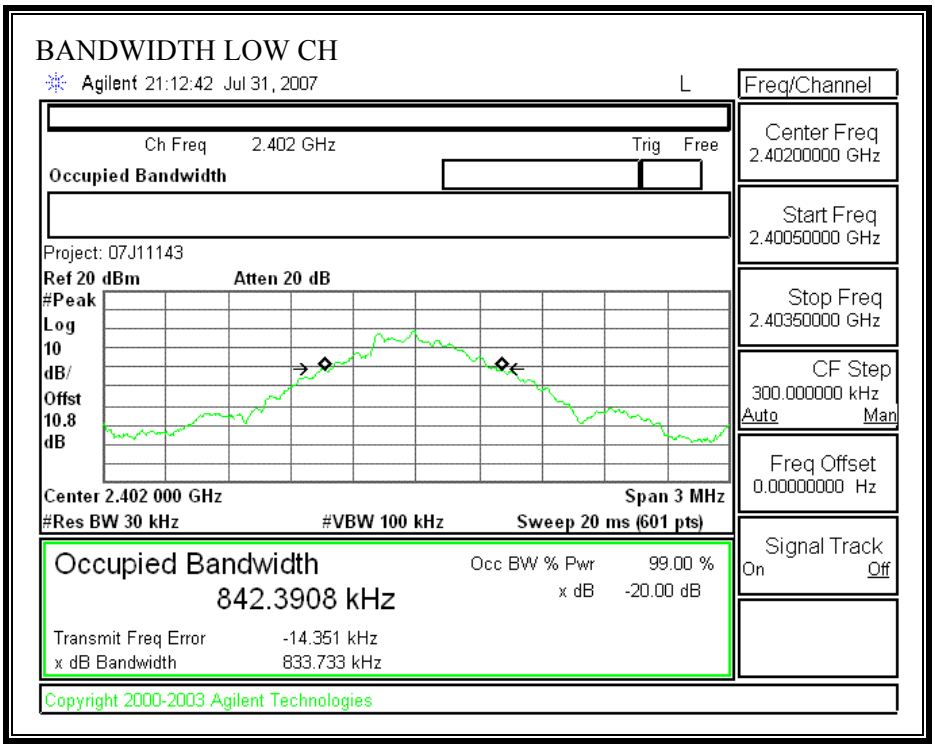
The transmitter output is connected to a spectrum analyzer. The RBW is set to 1% to 3% of the 20 dB bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

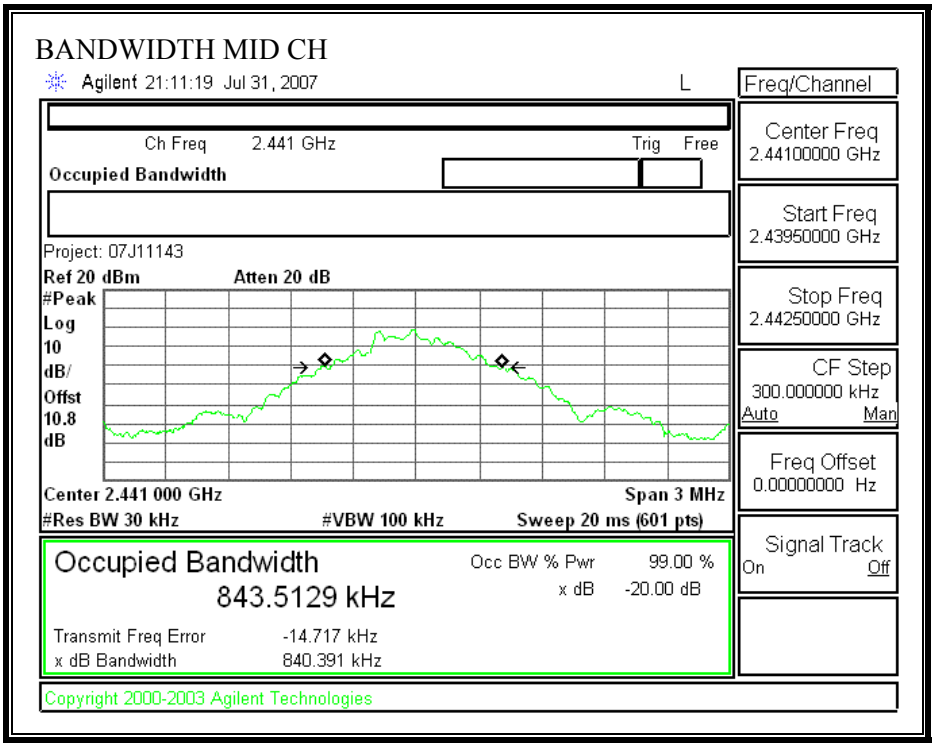
RESULTS

No non-compliance noted:

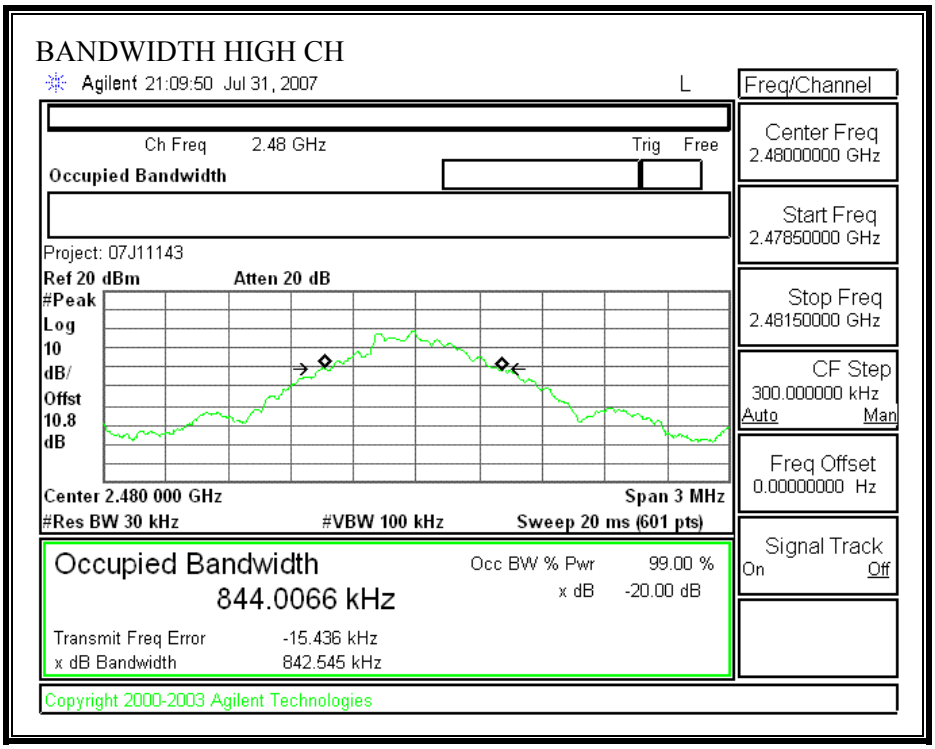
Channel	Frequency (MHz)	20 dB Bandwidth (kHz)	99% Bandwidth (kHz)
Low	2402	833.733	842.3908
Middle	2441	840.391	843.5129
High	2480	842.545	844.0066

20 dB AND 99% BANDWIDTH





20 dB AND 99% BANDWIDTH



7.1.2. HOPPING FREQUENCY SEPARATION

LIMIT

FCC §15.247 (a) (1)

IC RSS-210 A8.1 (b)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hoping channel, whichever is greater.

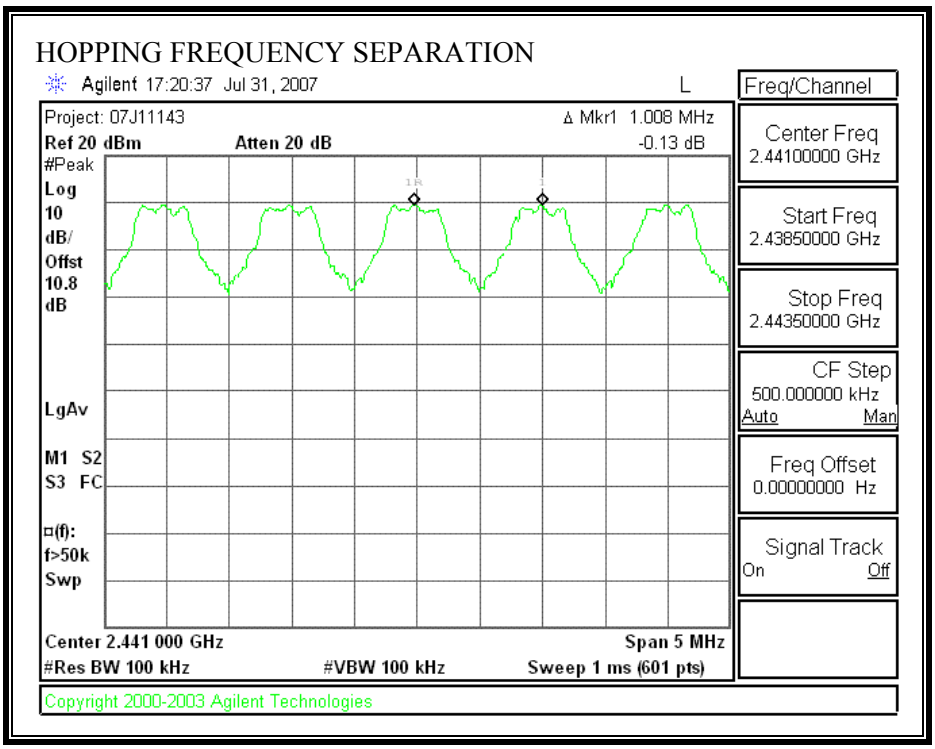
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 100 kHz. The sweep time is coupled.

RESULTS

No non-compliance noted:

HOPPING FREQUENCY SEPARATION



7.1.3. NUMBER OF HOPPING CHANNELS

LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-210 A8.1 (d)

Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

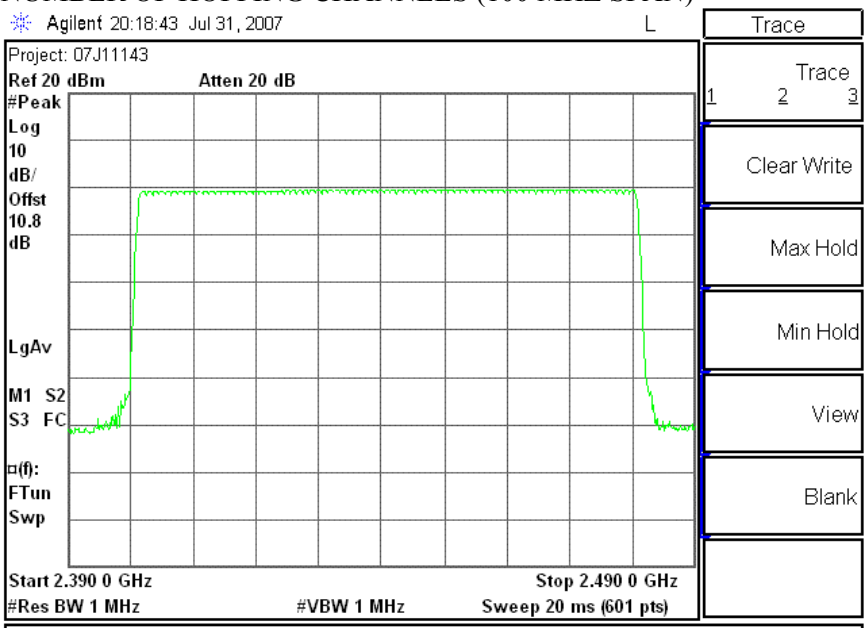
RESULTS

No non-compliance noted:

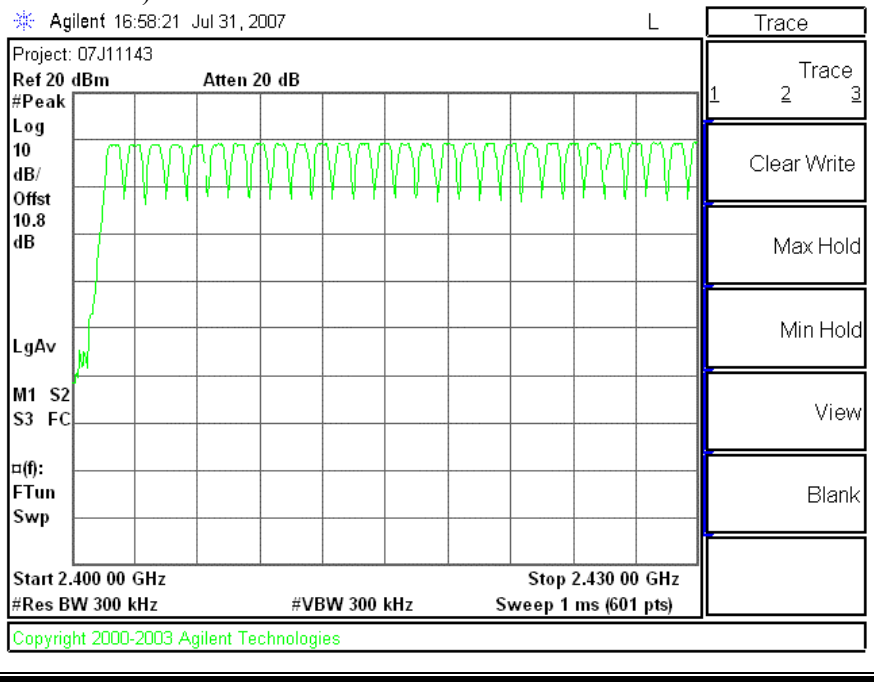
79 Channels observed.

NUMBER OF HOPPING CHANNELS

NUMBER OF HOPPING CHANNELS (100 MHZ SPAN)

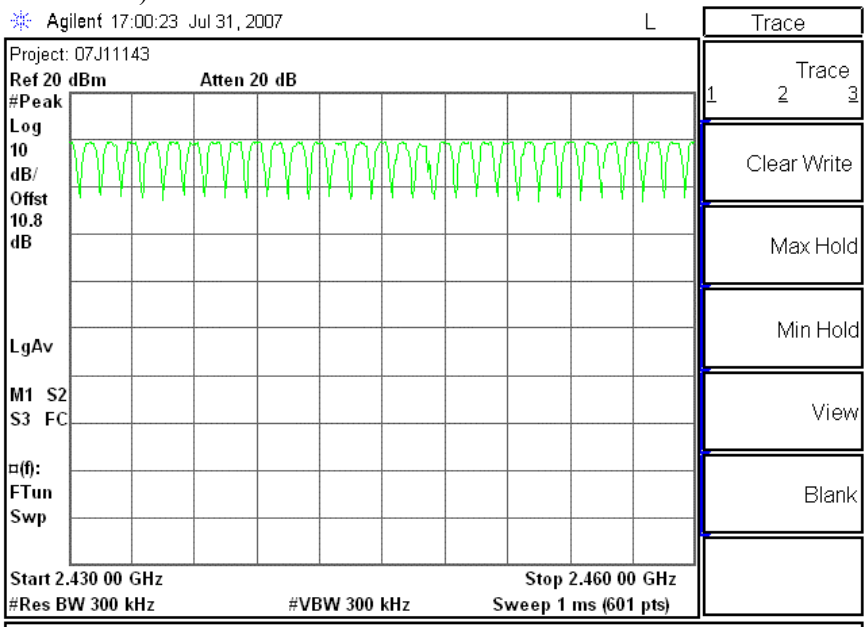


NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, FIRST SEGMENT)

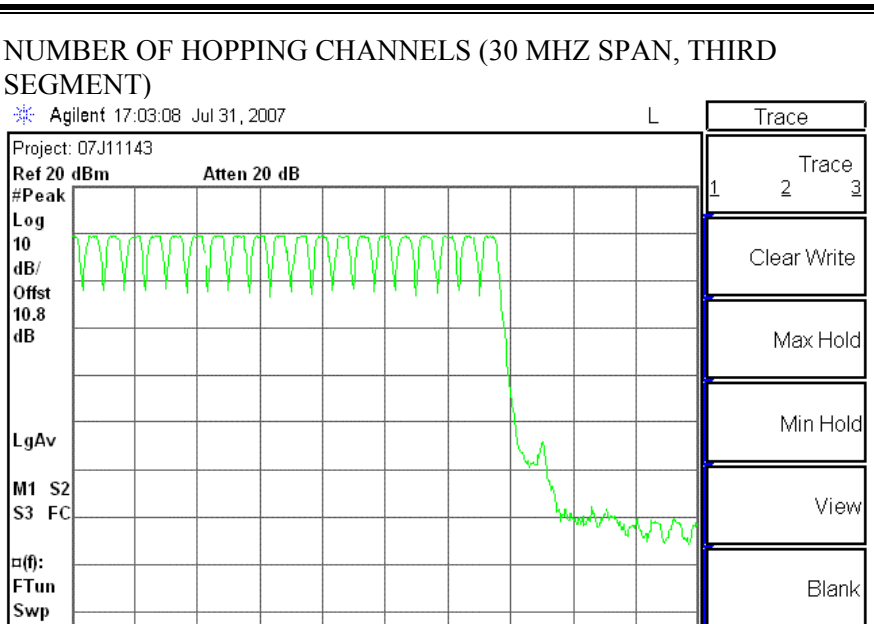


NUMBER OF HOPPING CHANNELS

NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, SECOND SEGMENT)



NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, THIRD SEGMENT)



7.1.4. AVERAGE TIME OF OCCUPANCY

LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-210 A8.1 (d)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

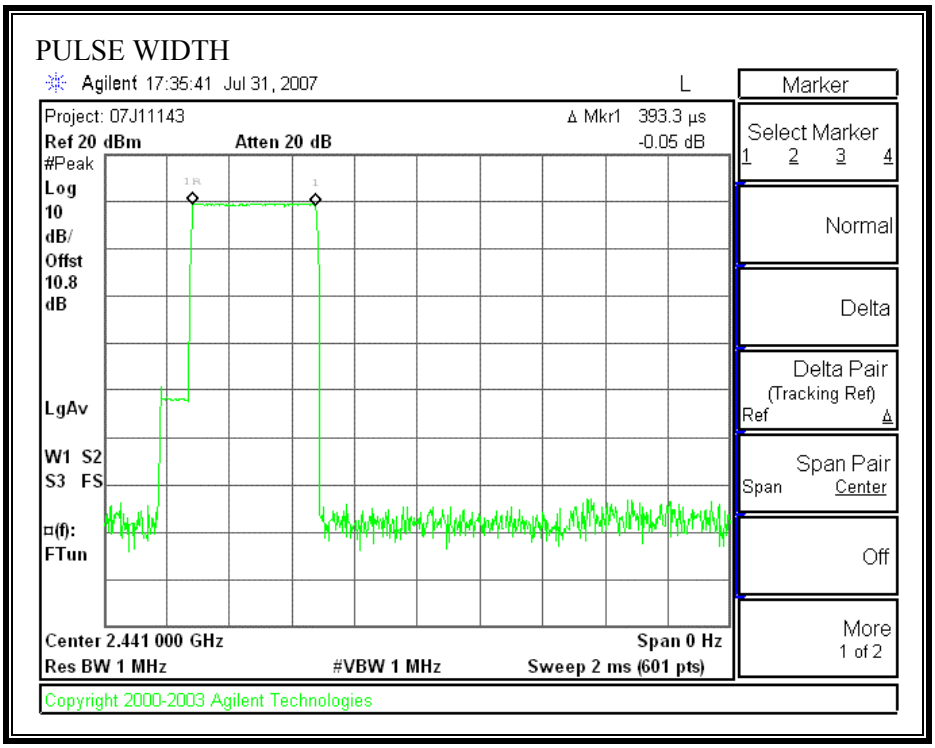
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to 10 * (# of pulses in 3.16 s) * pulse width.

RESULTS

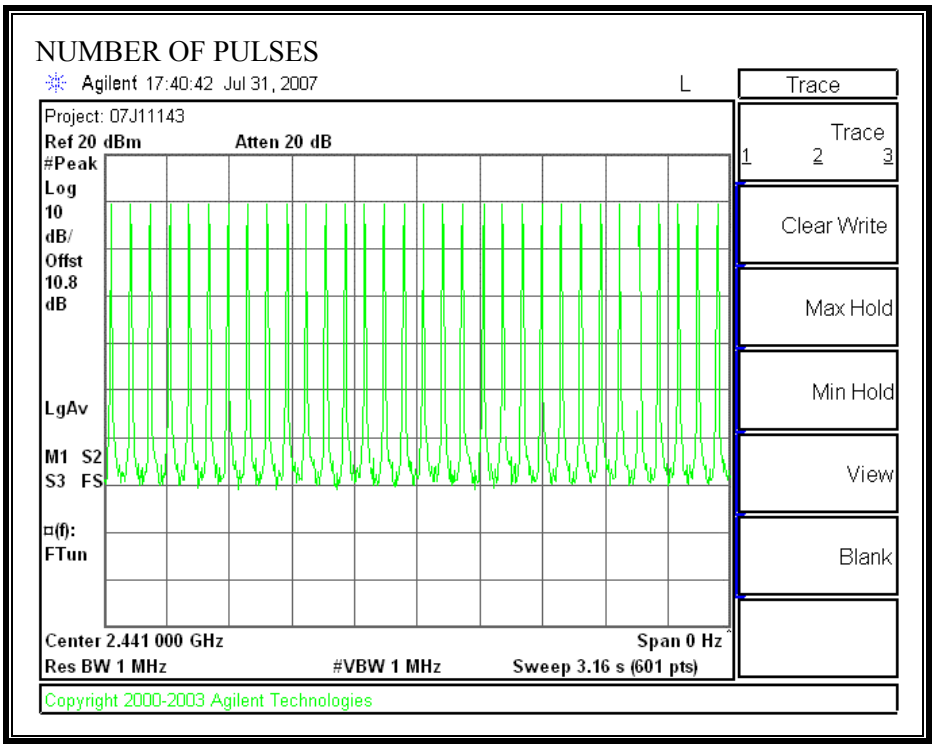
No non-compliance noted:

Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
0.393	32	0.126	0.4	0.274

PULSE WIDTH



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD



7.1.5. PEAK OUTPUT POWER

LIMIT

§15.247 (b) (1)

RSS-210 Issue 7 Clause A8.4

The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

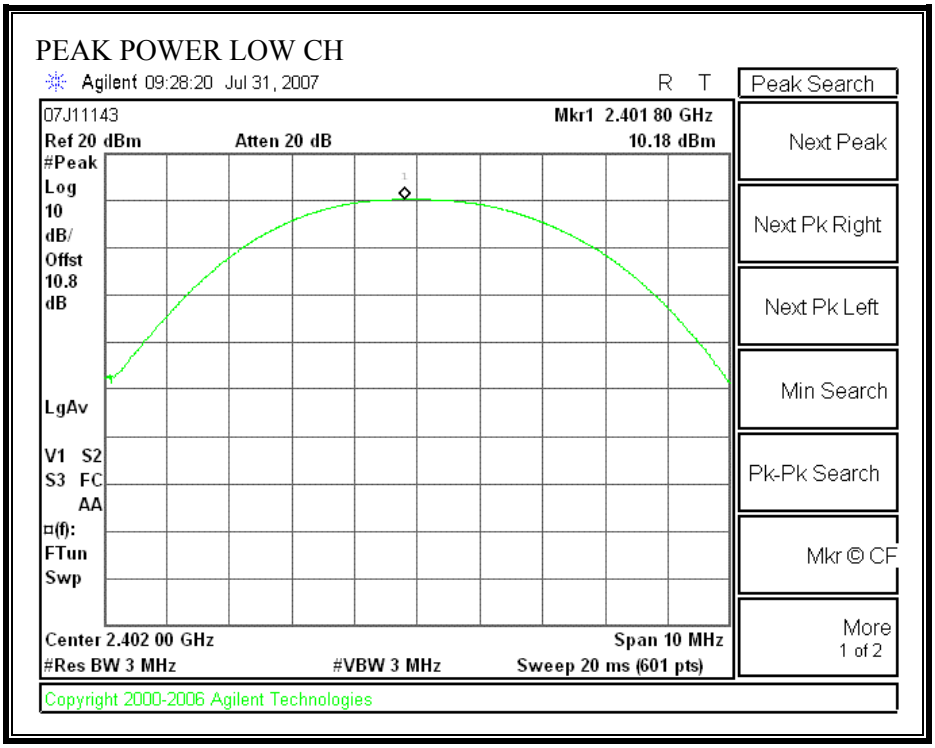
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

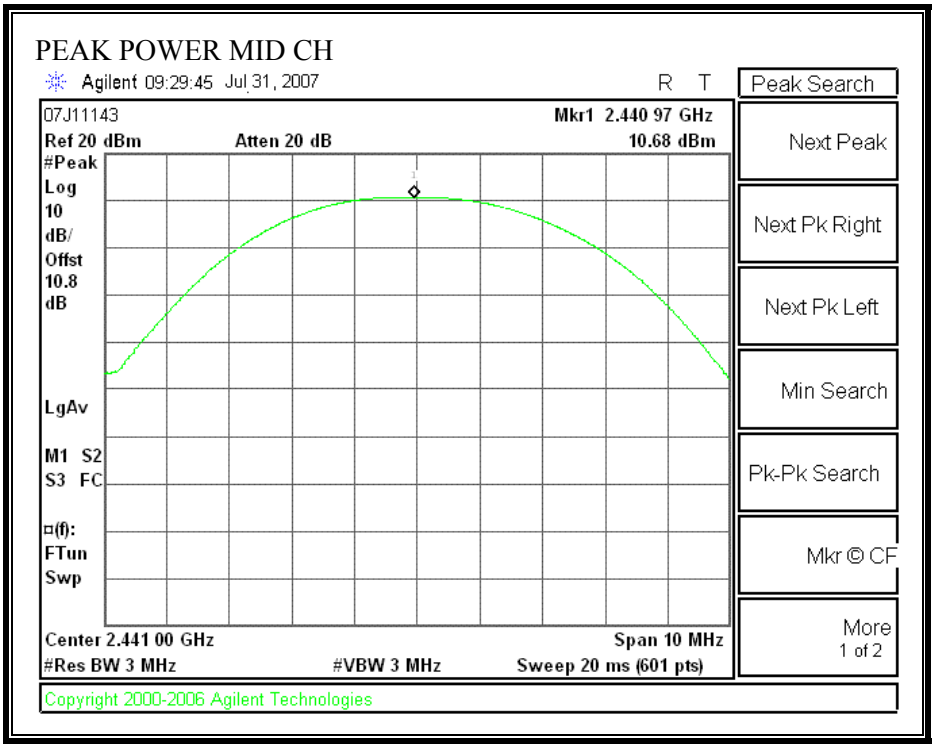
RESULTS

No non-compliance noted:

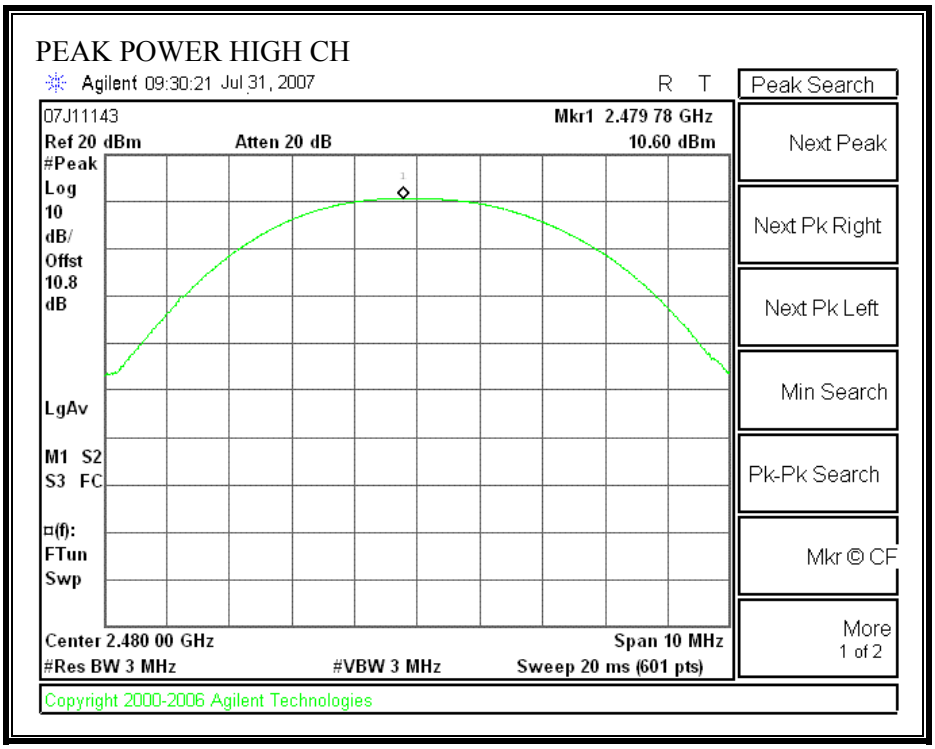
Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.18	30	-19.82
Middle	2441	10.68	30	-19.32
High	2480	10.60	30	-19.40

OUTPUT POWER





OUTPUT POWER



7.1.6. MAXIMUM PERMISSIBLE EXPOSURE

FCC RULES

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f^2)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

IC RULES

IC Safety Code 6, Section 2.2.1 (a) A person other than an RF and microwave exposed worker shall not be exposed to electromagnetic radiation in a frequency band listed in Column 1 of Table 5, if the field strength exceeds the value given in Column 2 or 3 of Table 5, when averaged spatially and over time, or if the power density exceeds the value given in Column 4 of Table 5, when averaged spatially and over time.

Table 5
Exposure Limits for Persons Not Classed As RF and Microwave Exposed Workers (Including the General Public)

1 Frequency (MHz)	2 Electric Field Strength; rms (V/m)	3 Magnetic Field Strength; rms (A/m)	4 Power Density (W/m^2)	5 Averaging Time (min)
0.003–1	280	2.19		6
1–10	$280/f$	$2.19/f$		6
10–30	28	$2.19/f$		6
30–300	28	0.073	2*	6
300–1 500	$1.585f^{0.5}$	$0.0042f^{0.5}$	$f/150$	6
1 500–15 000	61.4	0.163	10	6
15 000–150 000	61.4	0.163	10	$616\,000/f^{1.2}$
150 000–300 000	$0.158f^{0.5}$	$4.21 \times 10^{-4}f^{0.5}$	$6.67 \times 10^{-5}f$	$616\,000/f^{1.2}$

* Power density limit is applicable at frequencies greater than 100 MHz.

Notes: 1. Frequency, f, is in MHz.
2. A power density of 10 W/m^2 is equivalent to 1 mW/cm^2.
3. A magnetic field strength of 1 A/m corresponds to 1.257 microtesla (μT) or 12.57 milligauss (mG).

CALCULATIONS

Given

$E = \sqrt{(30 * P * G)} / d$

and

$S = E ^ 2 / 3770$

where

E = Field Strength in Volts/meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power Density in milliwatts/square centimeter

Combining equations, rearranging the terms to express the distance as a function of the remaining variables, changing to units of Power to mW and Distance to cm, and substituting the logarithmic form of power and gain yields:

$d = 0.282 * 10 ^ ((P + G) / 20) / \sqrt{S}$

where

d = MPE distance in cm
P = Power in dBm
G = Antenna Gain in dBi
S = Power Density Limit in mW/cm^2

Rearranging terms to calculate the power density at a specific distance yields

$S = 0.0795 * 10 ^ ((P + G) / 10) / (d^2)$

The power density in units of mW/cm^2 is converted to units of W/m^2 by multiplying by a factor of 10.

LIMITS

From FCC §1.1310 Table 1 (B), the maximum value of S = 1.0 mW/cm^2

From IC Safety Code 6, Section 2.2 Table 5 Column 4, S = 10 W/m^2

RESULTS

Mode	Band	MPE Distance (cm)	Output Power (dBm)	Antenna Gain (dBi)	FCC Power Density (mW/cm^2)	IC Power Density (W/m^2)
Bluetooth	2.4 GHz	20.0	10.68	2.30	0.00	0.04

NOTE: For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.

7.1.7. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 10 dB (including 10 dB pad and .8 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	9.93
Middle	2441	10.37
High	2480	10.26

7.1.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (c)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

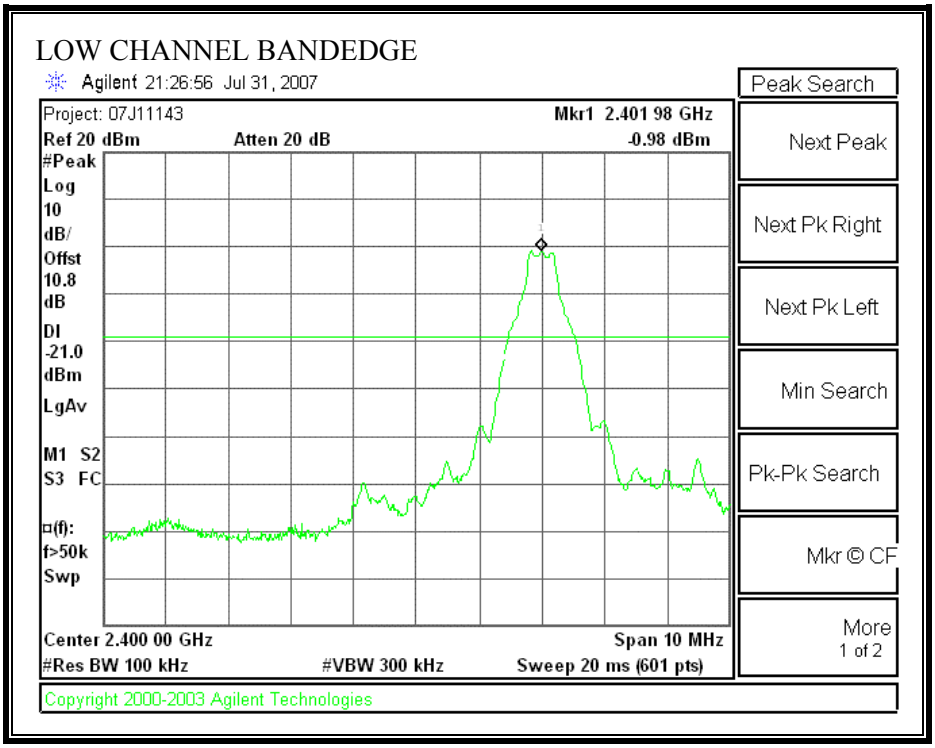
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

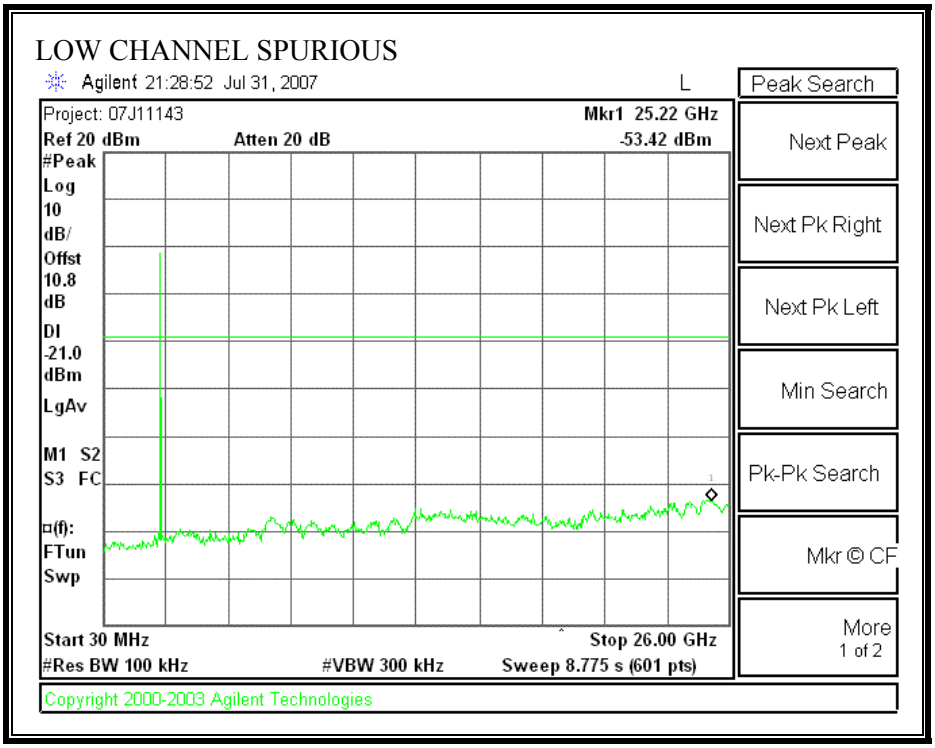
The band edges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

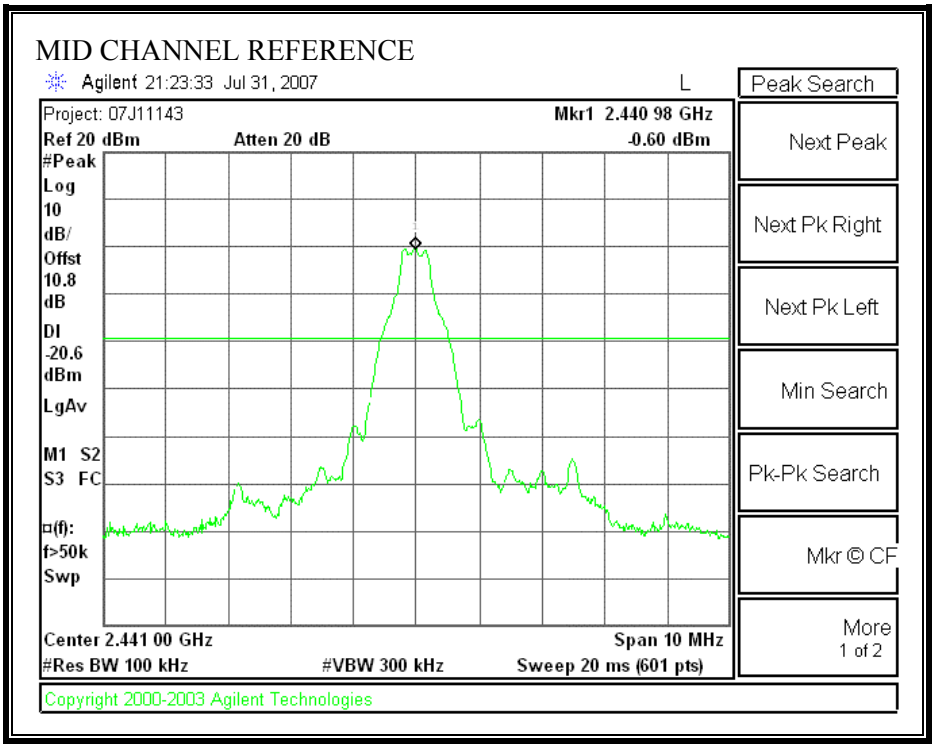
No non-compliance noted:

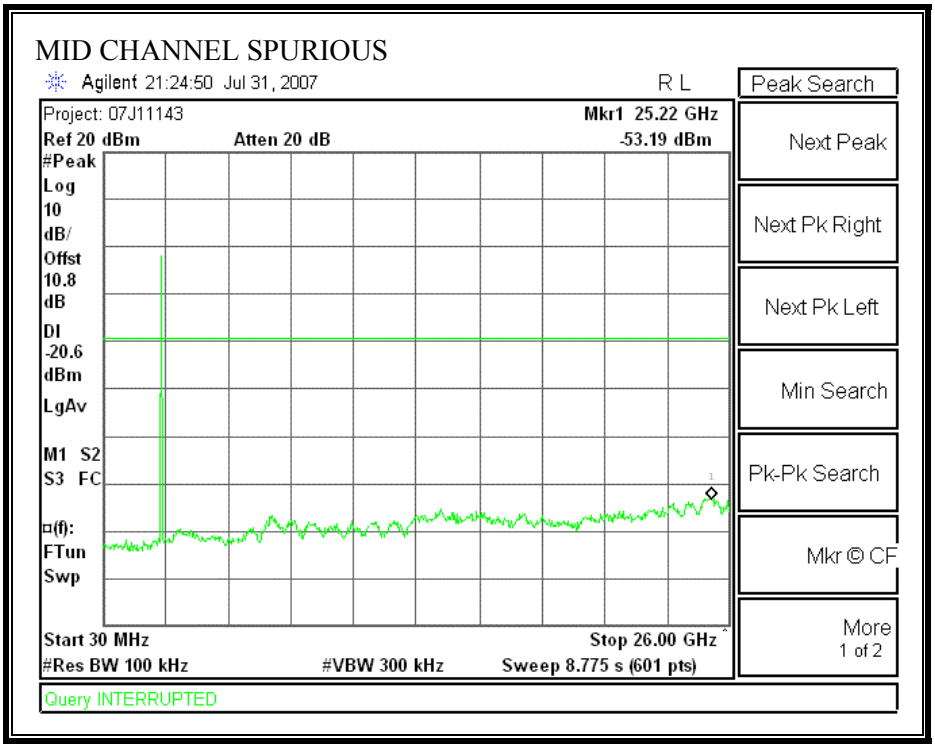
SPURIOUS EMISSIONS, LOW CHANNEL



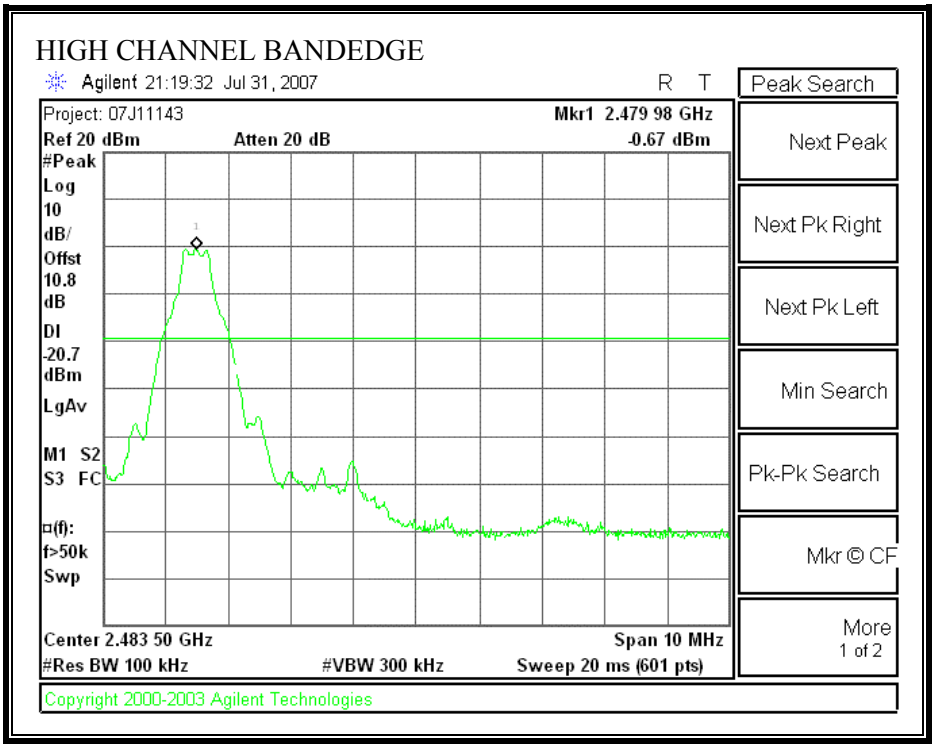


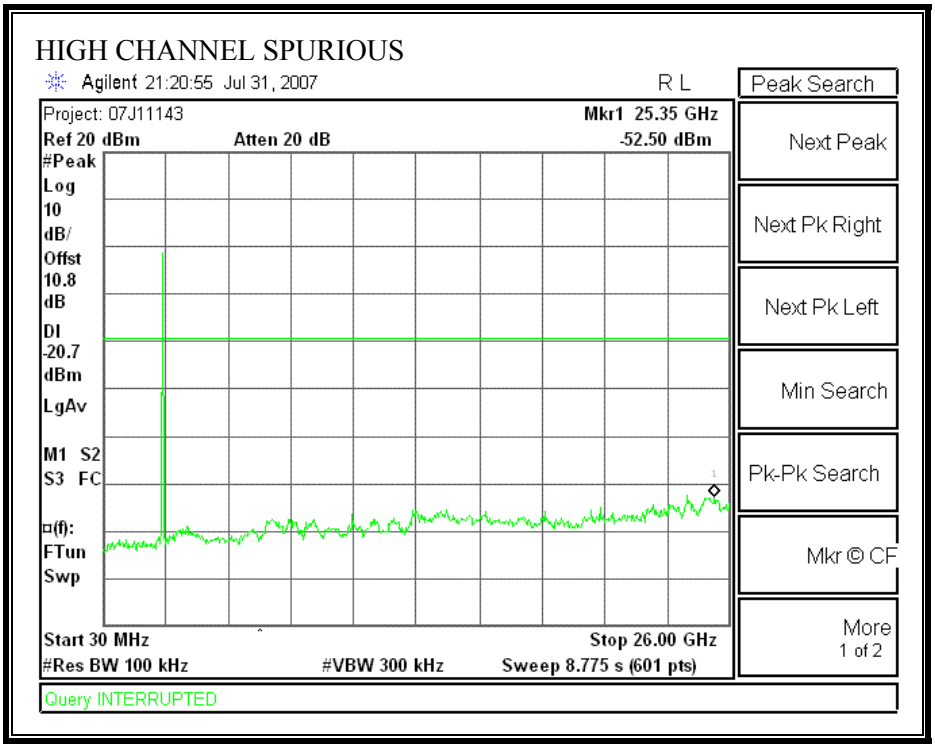
SPURIOUS EMISSIONS, MID CHANNEL





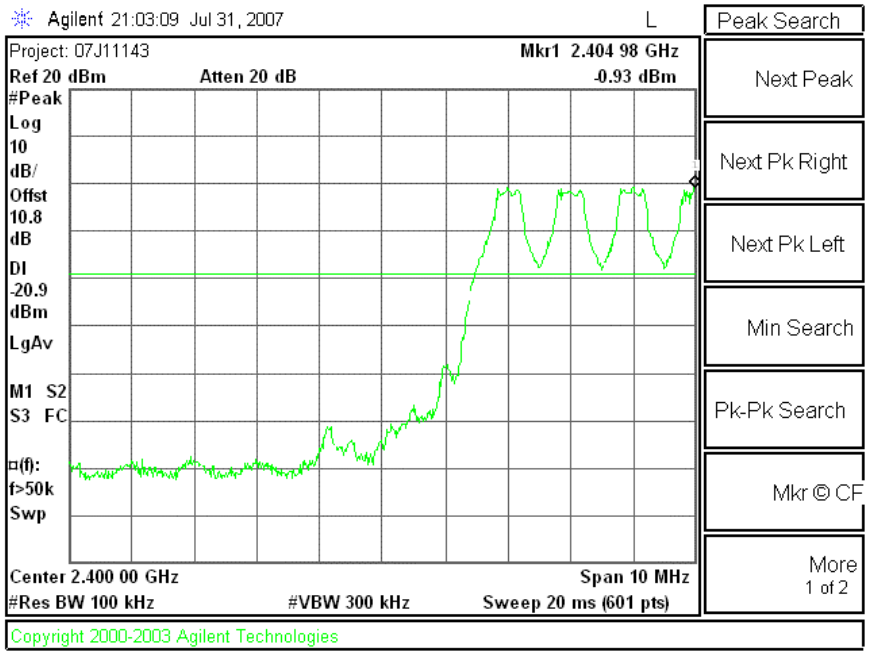
SPURIOUS EMISSIONS, HIGH CHANNEL



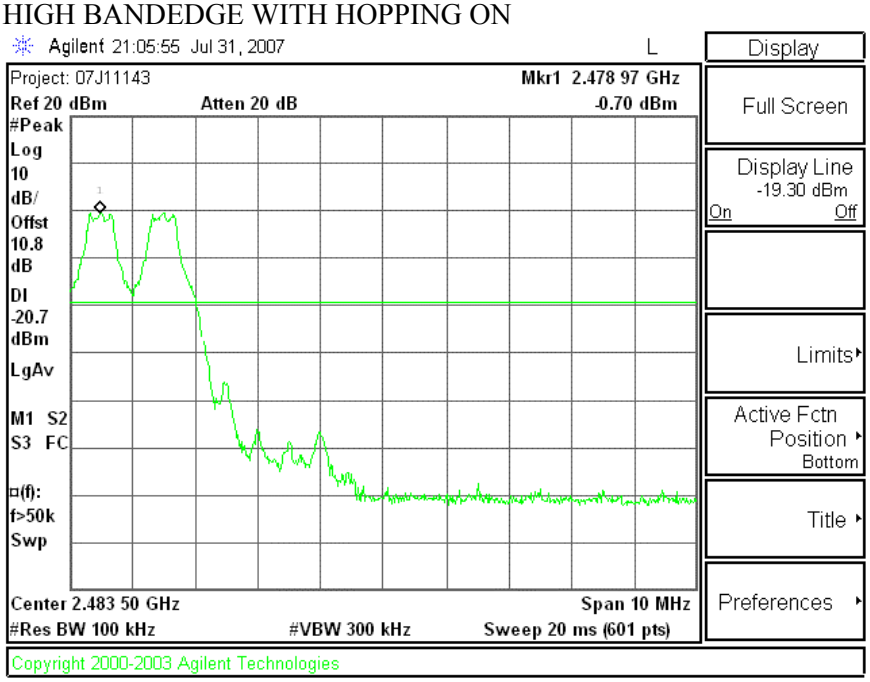


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON



7.2. ENHANCED DATA RATE 8PSK MODULATION

7.2.1. 20 dB AND 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

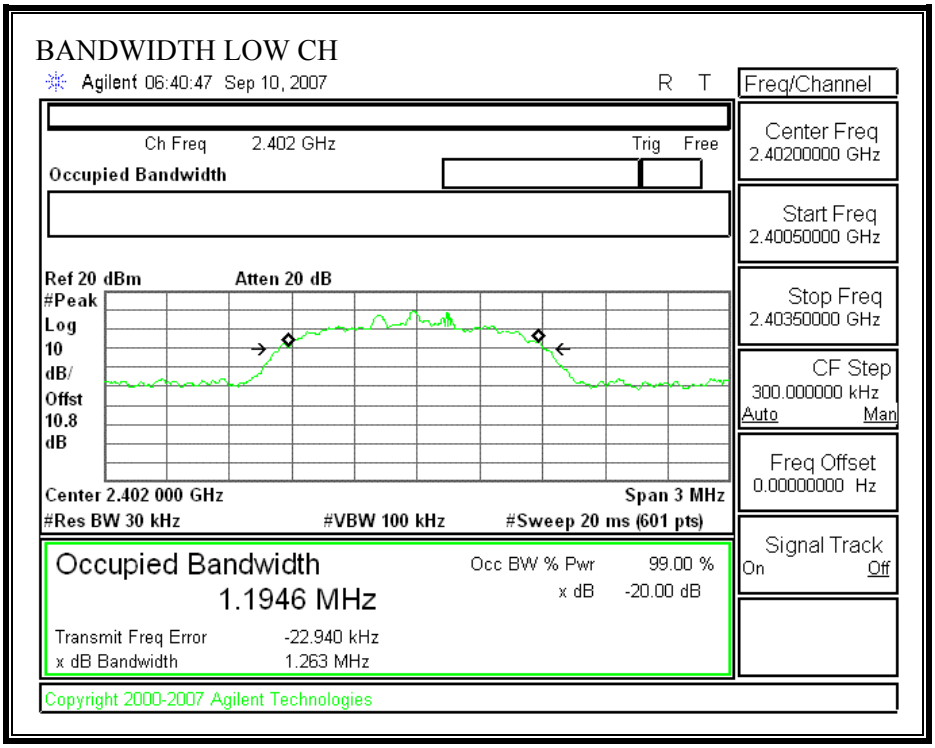
The transmitter output is connected to a spectrum analyzer. The RBW is set to 1% to 3% of the 20 dB bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

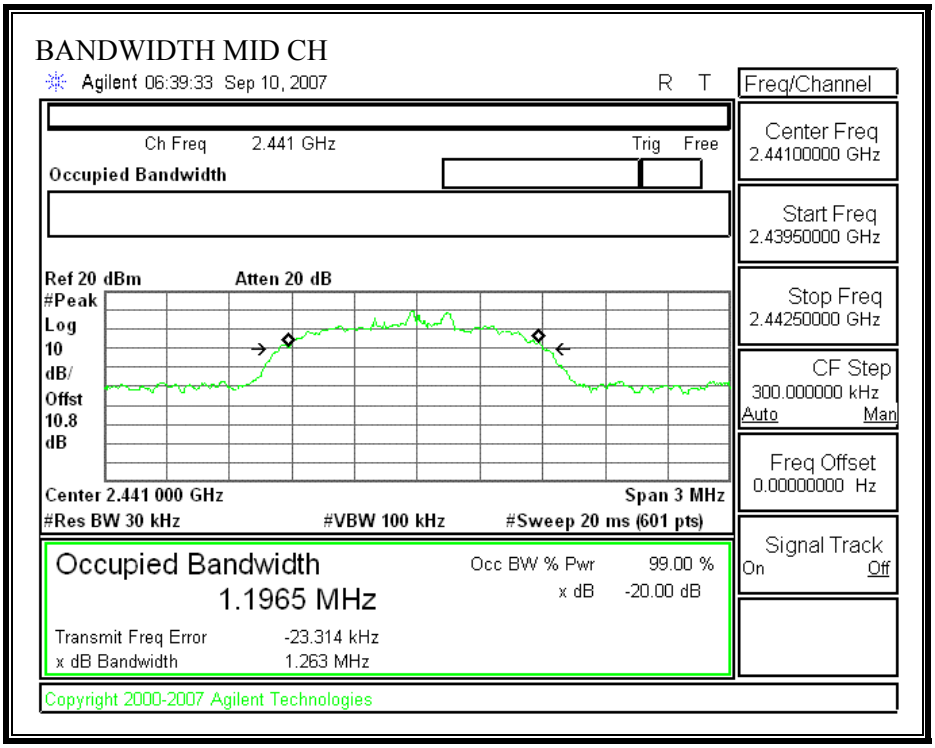
RESULTS

No non-compliance noted:

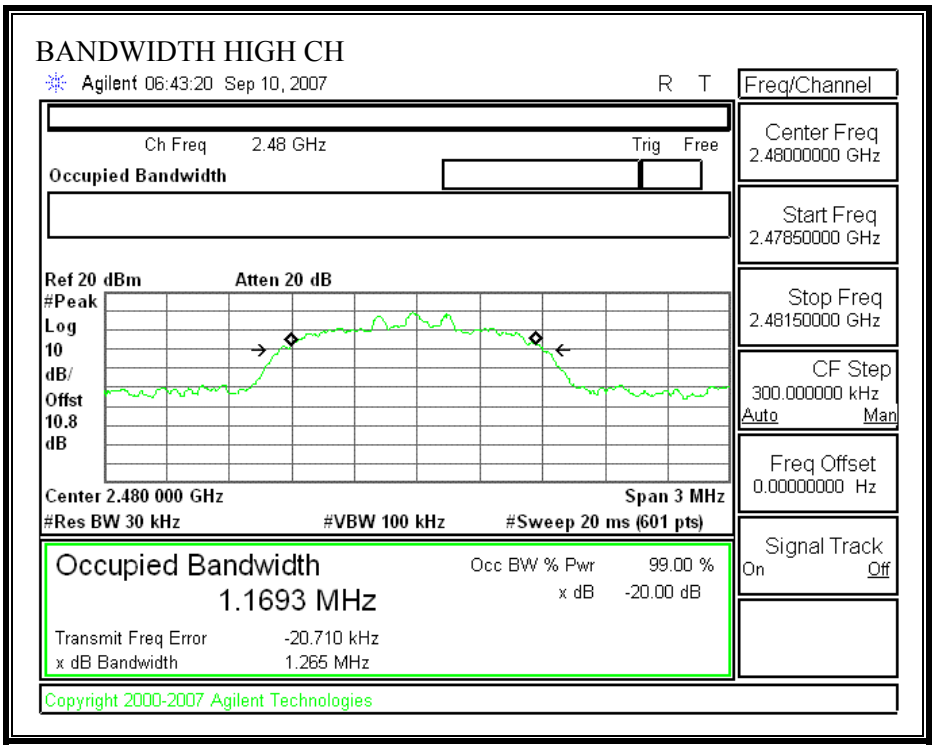
Channel	Frequency (MHz)	20 dB Bandwidth (kHz)	99% Bandwidth (kHz)
Low	2402	1263	1194.6
Middle	2441	1263	1196.5
High	2480	1265	1169.3

20 dB AND 99% BANDWIDTH





20 dB AND 99% BANDWIDTH



7.2.2. HOPPING FREQUENCY SEPARATION

LIMIT

FCC §15.247 (a) (1)

IC RSS-210 A8.1 (b)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hoping channel, whichever is greater.

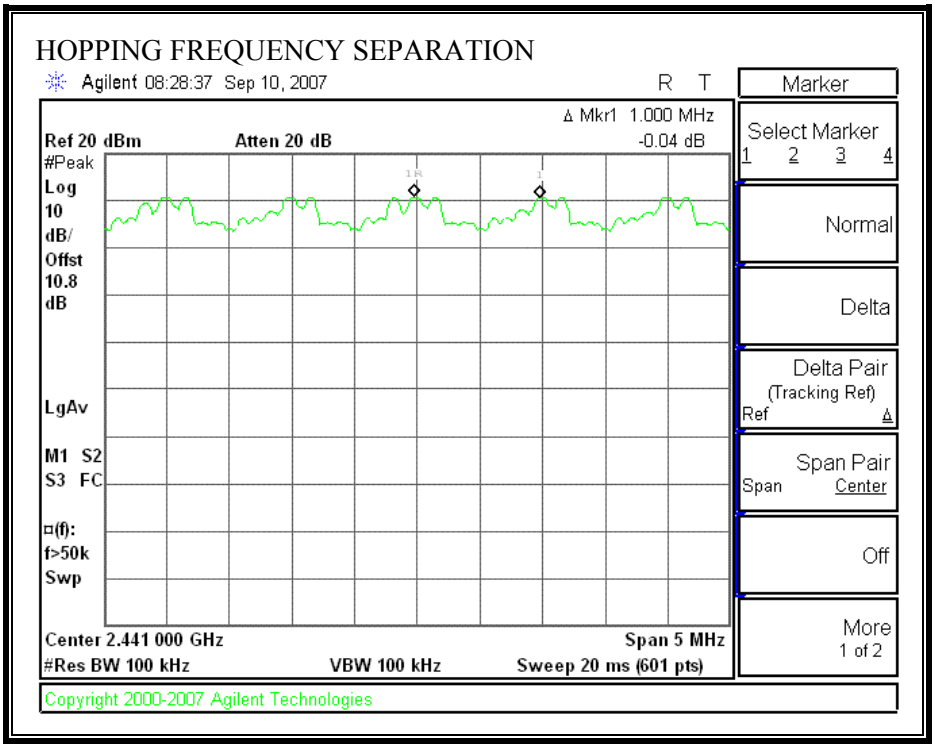
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 100 kHz. The sweep time is coupled.

RESULTS

No non-compliance noted:

HOPPING FREQUENCY SEPARATION



7.2.3. NUMBER OF HOPPING CHANNELS

LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-210 A8.1 (d)

Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

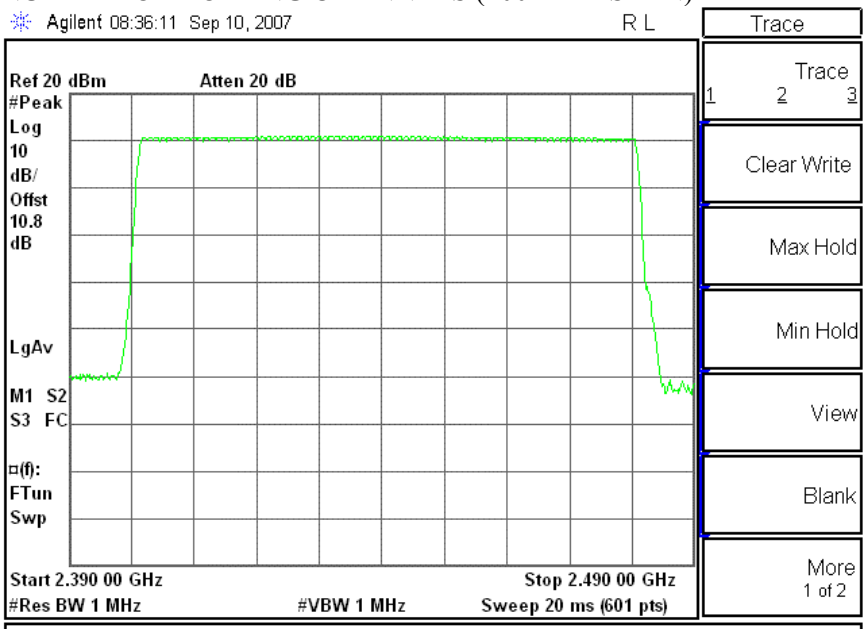
RESULTS

No non-compliance noted:

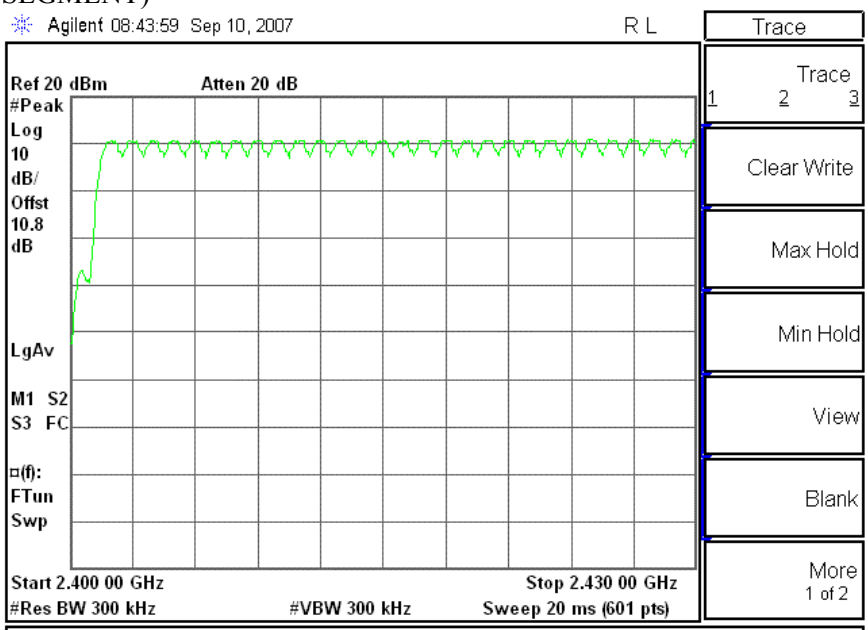
79 Channels observed.

NUMBER OF HOPPING CHANNELS

NUMBER OF HOPPING CHANNELS (100 MHZ SPAN)

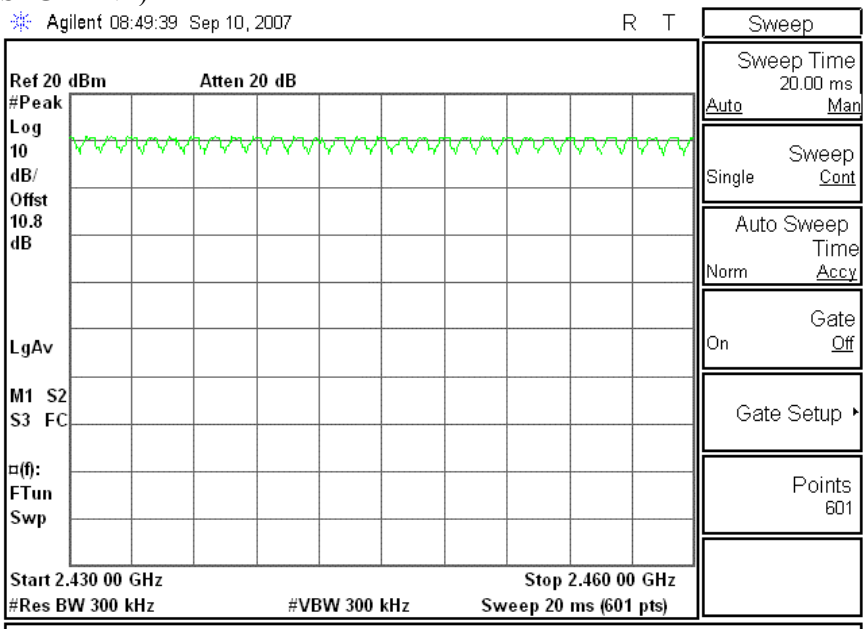


NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, FIRST SEGMENT)

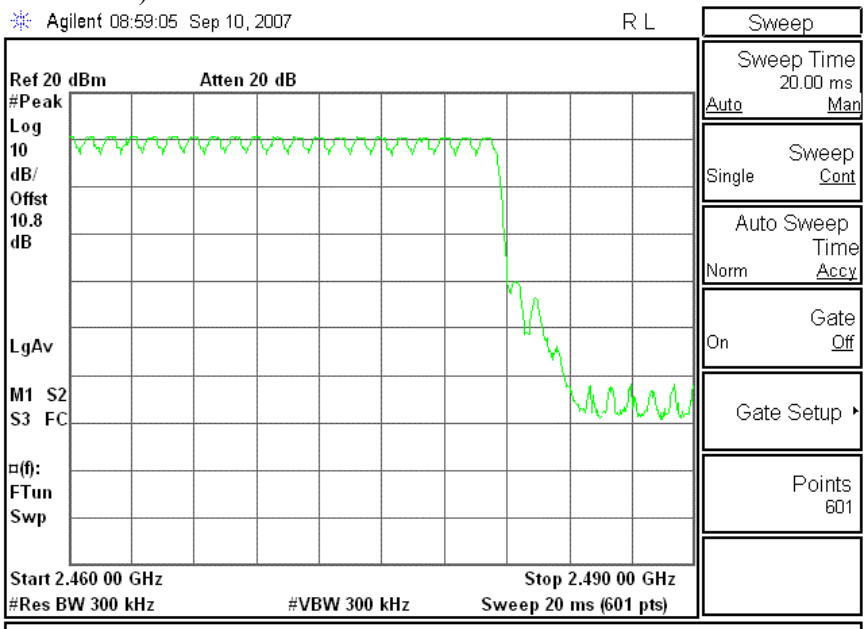


NUMBER OF HOPPING CHANNELS

NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, SECOND SEGMENT)



NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, THIRD SEGMENT)



7.2.4. AVERAGE TIME OF OCCUPANCY

LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-210 A8.1 (d)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

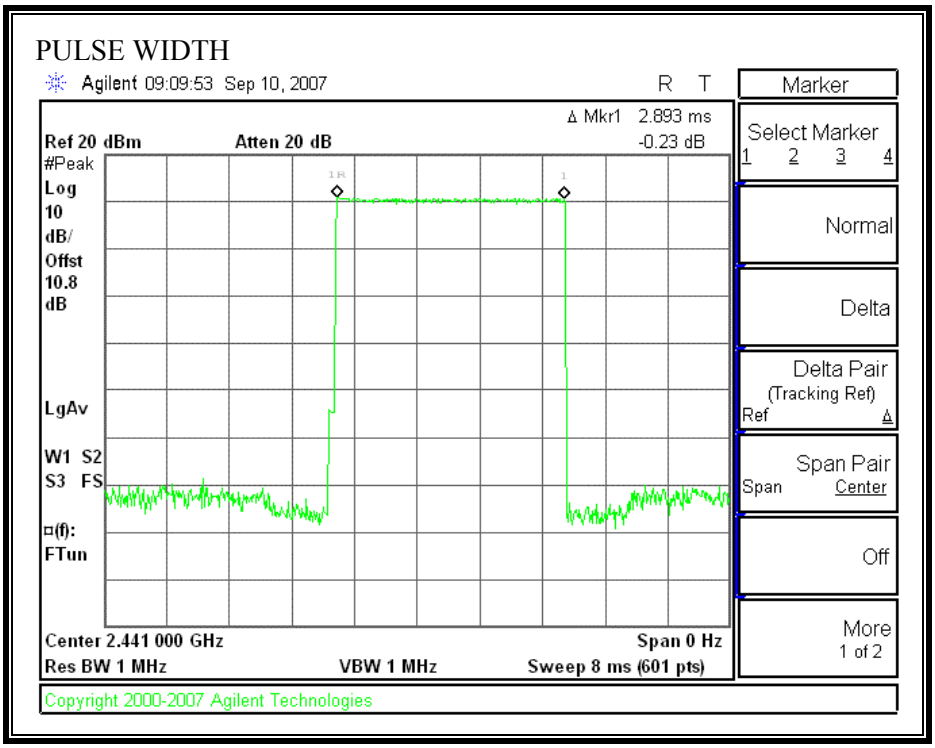
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to 10 * (# of pulses in 3.16 s) * pulse width.

RESULTS

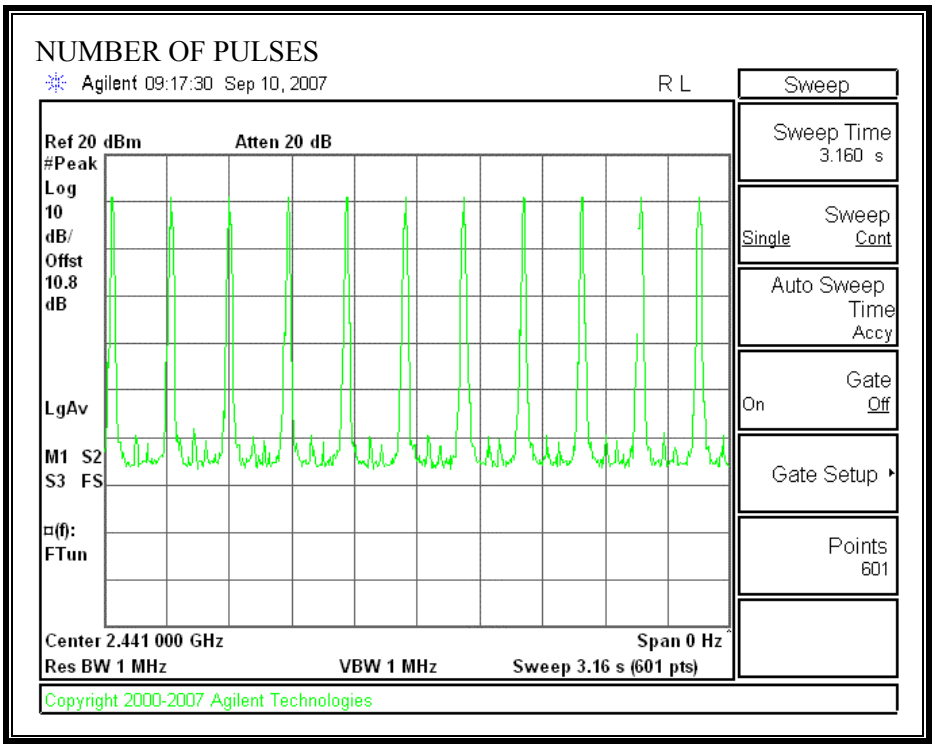
No non-compliance noted:

Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
2.893	11	0.318	0.4	0.082

PULSE WIDTH



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD



7.2.5. PEAK OUTPUT POWER

LIMIT

§15.247 (b) (1)

RSS-210 Issue 7 Clause A8.4

The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

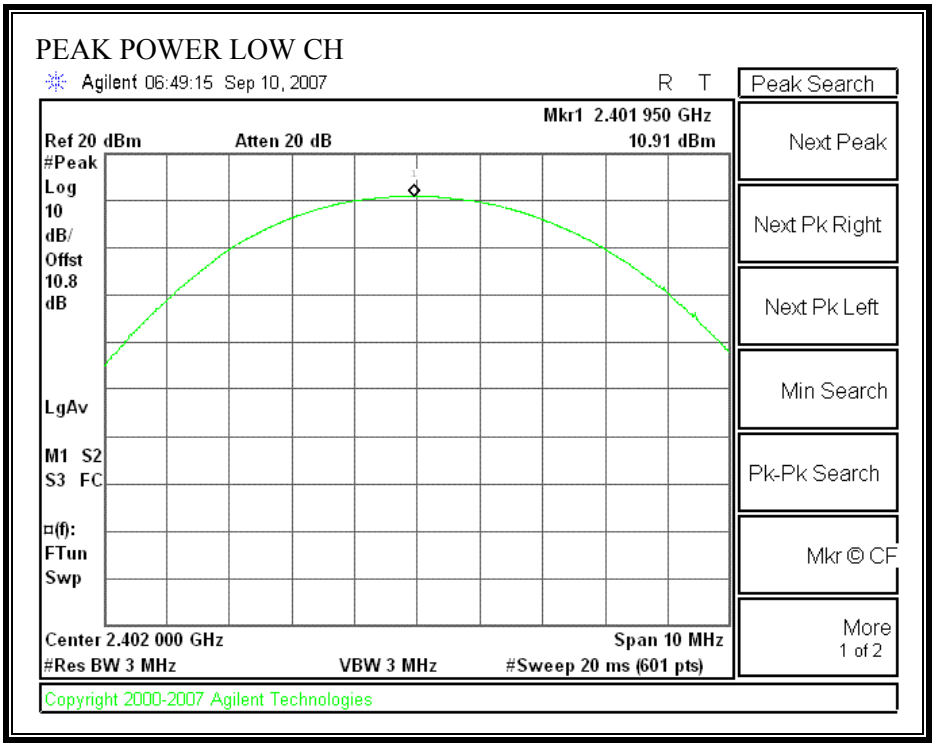
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

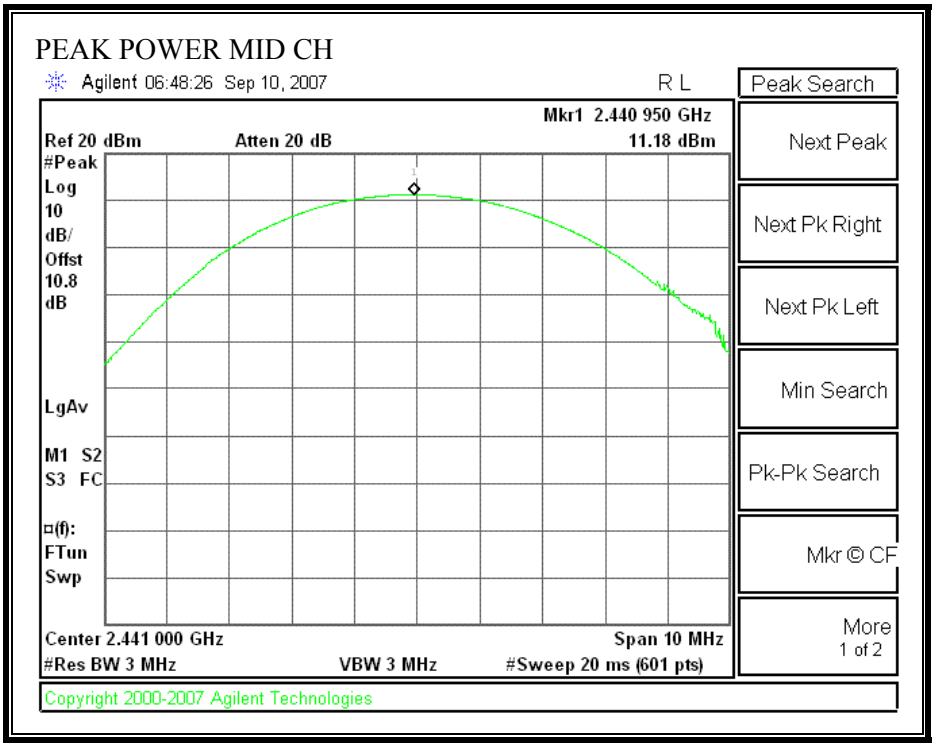
RESULTS

No non-compliance noted:

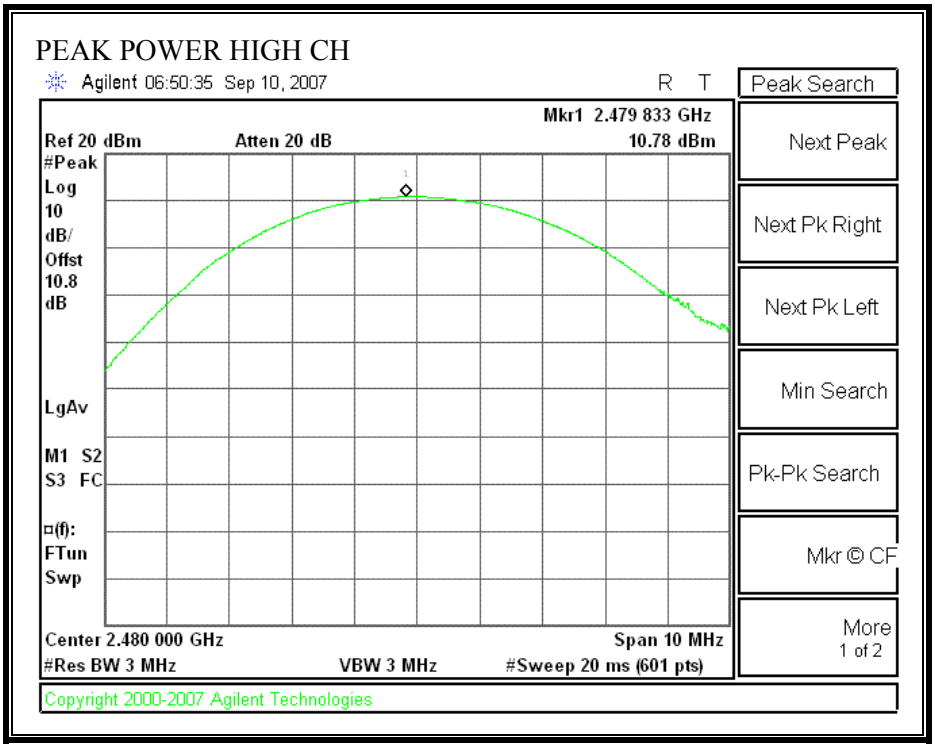
Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.91	30	-19.09
Middle	2441	11.18	30	-18.82
High	2480	10.78	30	-19.22

OUTPUT POWER





OUTPUT POWER



7.2.6. MAXIMUM PERMISSIBLE EXPOSURE

FCC RULES

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

IC RULES

IC Safety Code 6, Section 2.2.1 (a) A person other than an RF and microwave exposed worker shall not be exposed to electromagnetic radiation in a frequency band listed in Column 1 of Table 5, if the field strength exceeds the value given in Column 2 or 3 of Table 5, when averaged spatially and over time, or if the power density exceeds the value given in Column 4 of Table 5, when averaged spatially and over time.

Table 5
Exposure Limits for Persons Not Classed As RF and Microwave Exposed Workers (Including the General Public)

1 Frequency (MHz)	2 Electric Field Strength; rms (V/m)	3 Magnetic Field Strength; rms (A/m)	4 Power Density (W/m^2)	5 Averaging Time (min)
0.003–1	280	2.19		6
1–10	$280/f$	$2.19/f$		6
10–30	28	$2.19/f$		6
30–300	28	0.073	2*	6
300–1 500	$1.585f^{0.5}$	$0.0042f^{0.5}$	$f/150$	6
1 500–15 000	61.4	0.163	10	6
15 000–150 000	61.4	0.163	10	$616\,000/f^{1.2}$
150 000–300 000	$0.158f^{0.5}$	$4.21 \times 10^{-4}f^{0.5}$	$6.67 \times 10^{-5}f$	$616\,000/f^{1.2}$

* Power density limit is applicable at frequencies greater than 100 MHz.

Notes: 1. Frequency, f, is in MHz.
2. A power density of 10 W/m^2 is equivalent to 1 mW/cm^2.
3. A magnetic field strength of 1 A/m corresponds to 1.257 microtesla (μT) or 12.57 milligauss (mG).

CALCULATIONS

Given

$E = \sqrt{(30 * P * G)} / d$

and

$S = E ^ 2 / 3770$

where

E = Field Strength in Volts/meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power Density in milliwatts/square centimeter

Combining equations, rearranging the terms to express the distance as a function of the remaining variables, changing to units of Power to mW and Distance to cm, and substituting the logarithmic form of power and gain yields:

$d = 0.282 * 10 ^ ((P + G) / 20) / \sqrt{S}$

where

d = MPE distance in cm
P = Power in dBm
G = Antenna Gain in dBi
S = Power Density Limit in mW/cm^2

Rearranging terms to calculate the power density at a specific distance yields

$S = 0.0795 * 10 ^ ((P + G) / 10) / (d^2)$

The power density in units of mW/cm^2 is converted to units of W/m^2 by multiplying by a factor of 10.

LIMITS

From FCC §1.1310 Table 1 (B), the maximum value of S = 1.0 mW/cm^2

From IC Safety Code 6, Section 2.2 Table 5 Column 4, S = 10 W/m^2

RESULTS

Mode	Band	MPE Distance (cm)	Output Power (dBm)	Antenna Gain (dBi)	FCC Power Density (mW/cm^2)	IC Power Density (W/m^2)
Bluetooth	2.4 GHz	20.0	11.18	2.30	0.00	0.04

NOTE: For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.

7.2.7. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 10 dB (including 10 dB pad and .8 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	10.22
Middle	2441	10.29
High	2480	9.90

7.2.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (c)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

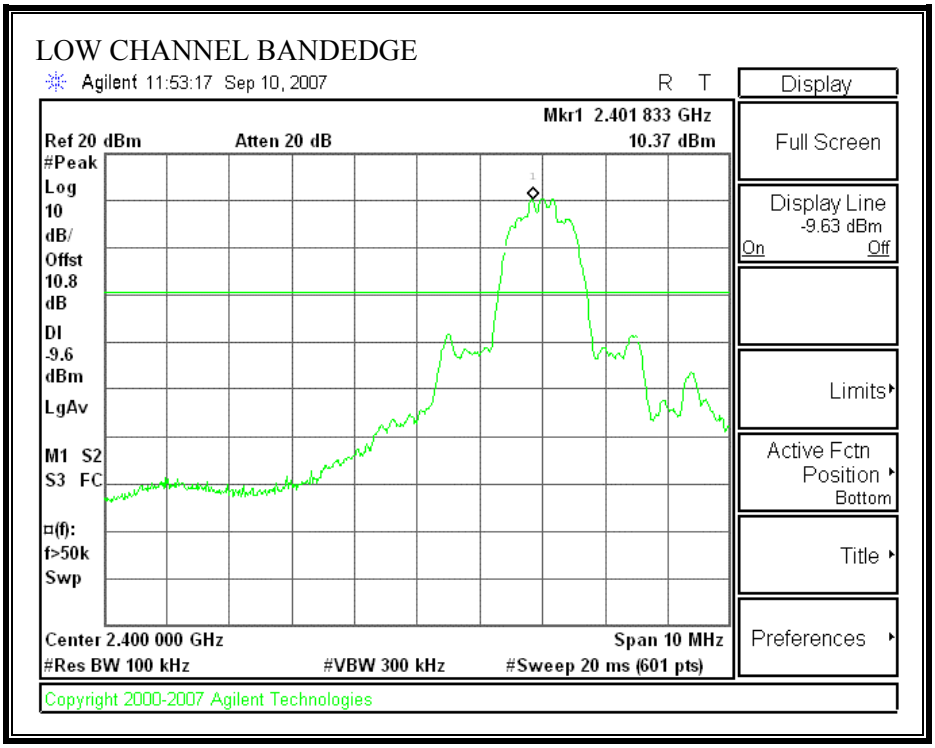
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

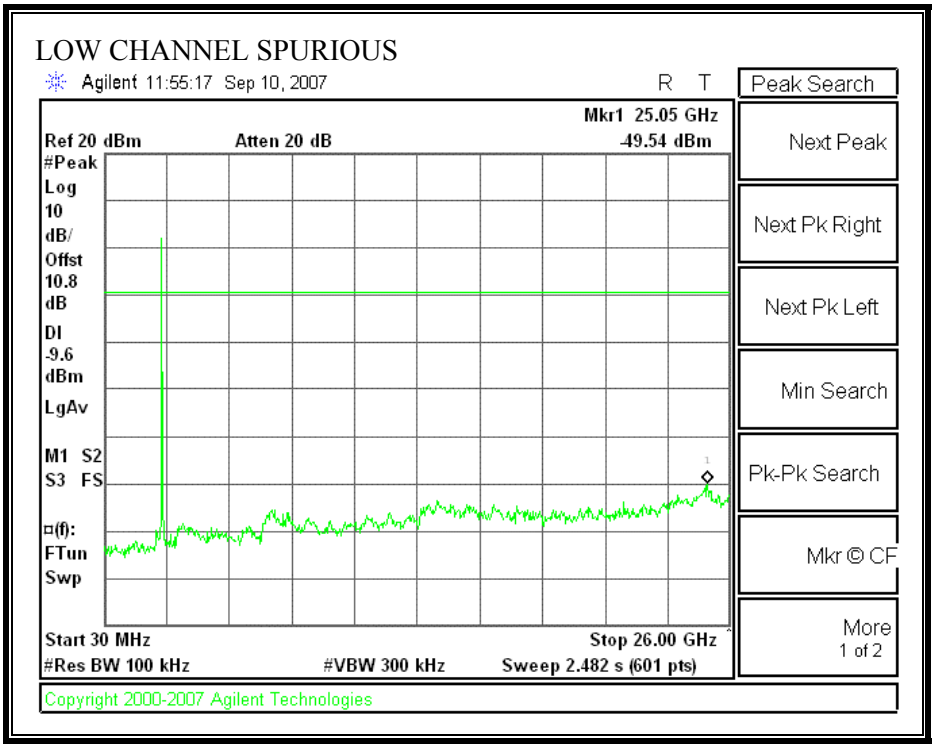
The band edges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

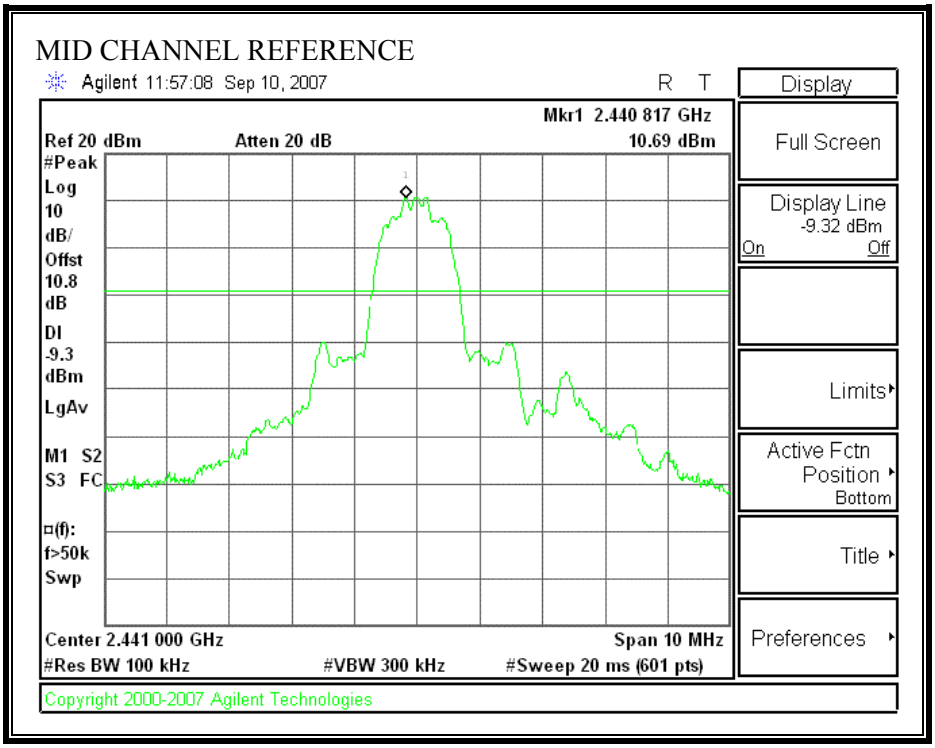
No non-compliance noted:

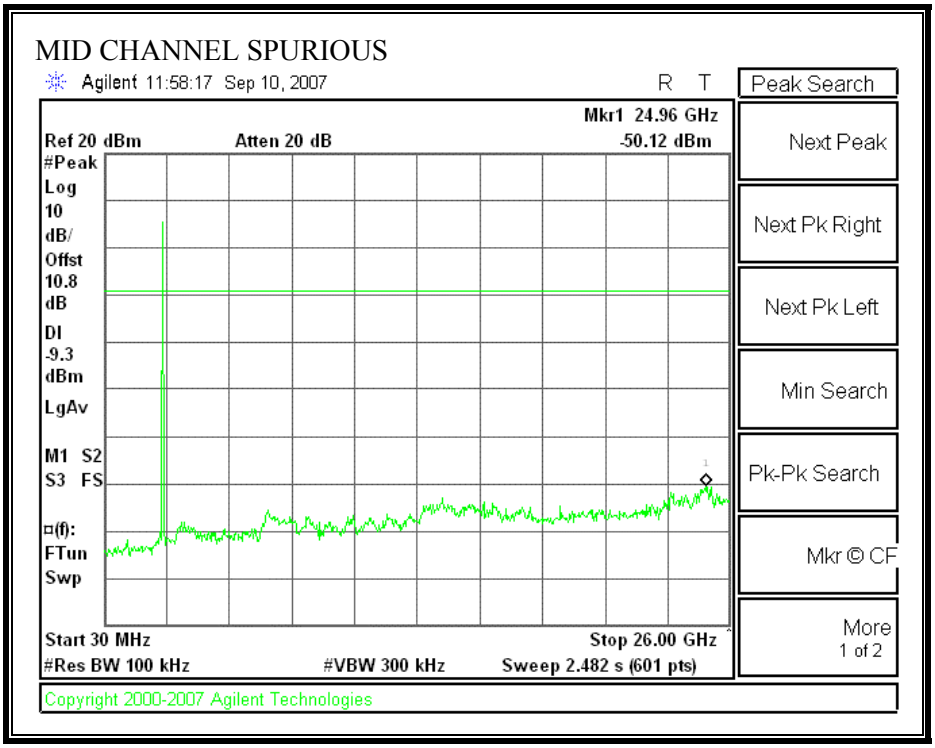
SPURIOUS EMISSIONS, LOW CHANNEL



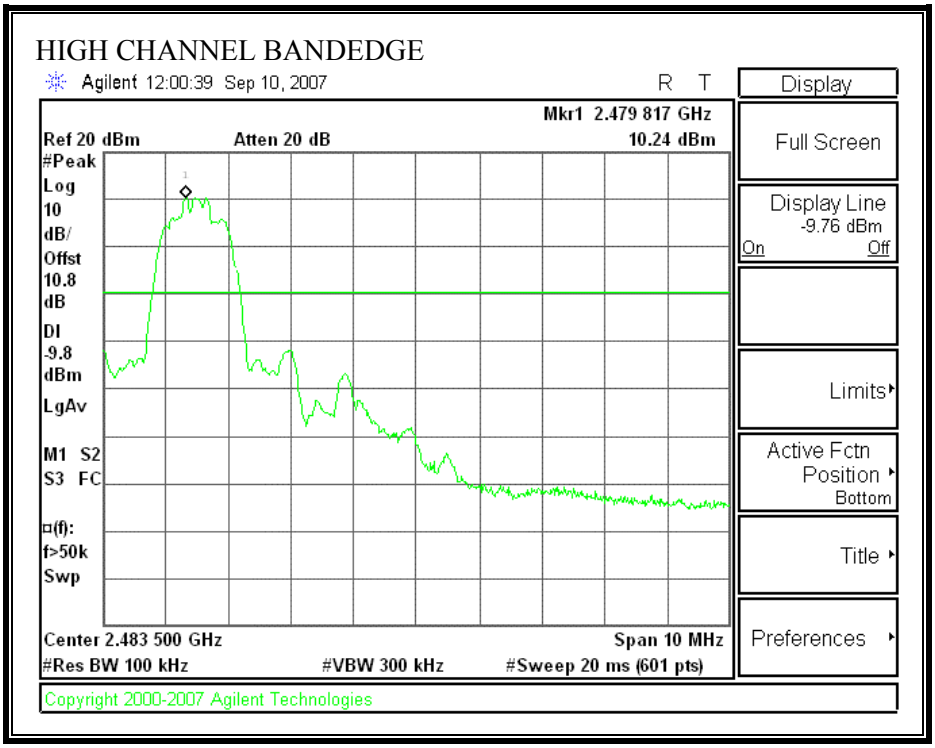


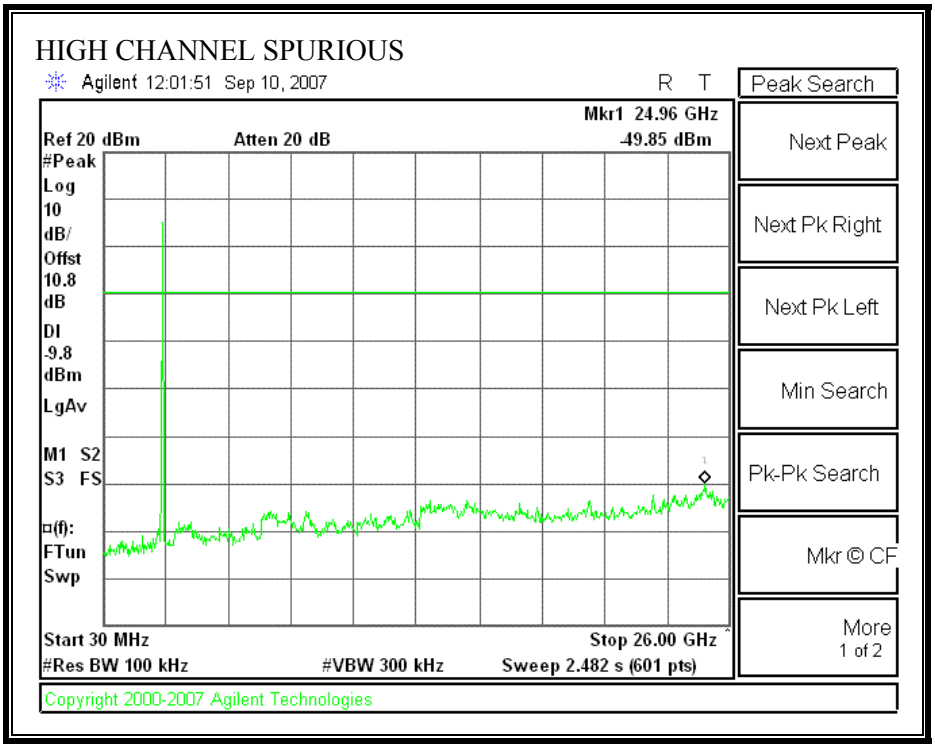
SPURIOUS EMISSIONS, MID CHANNEL





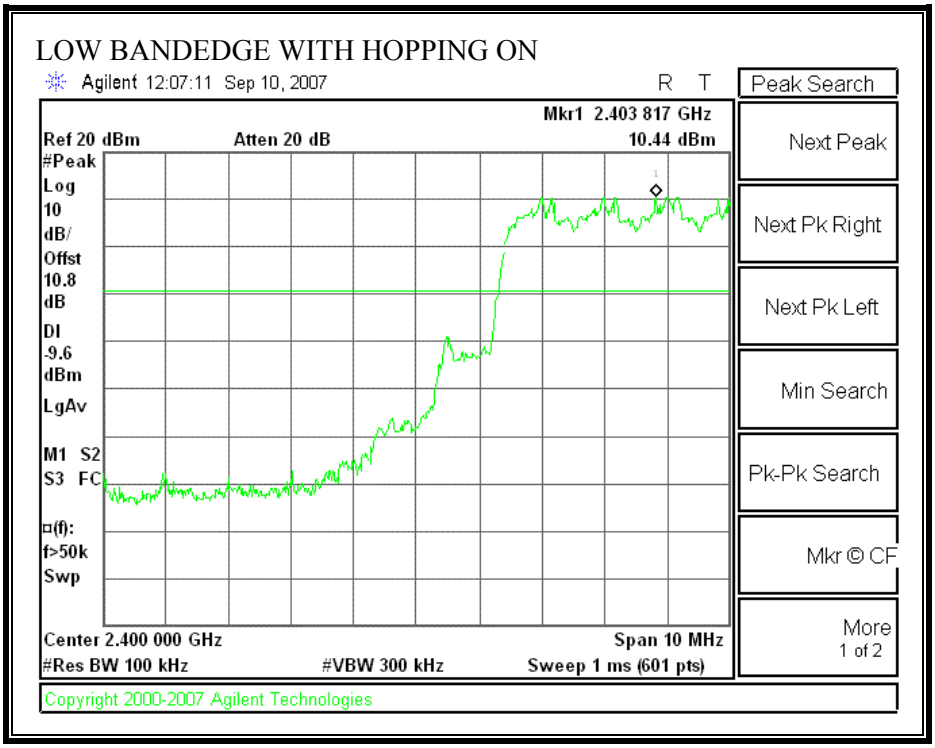
SPURIOUS EMISSIONS, HIGH CHANNEL



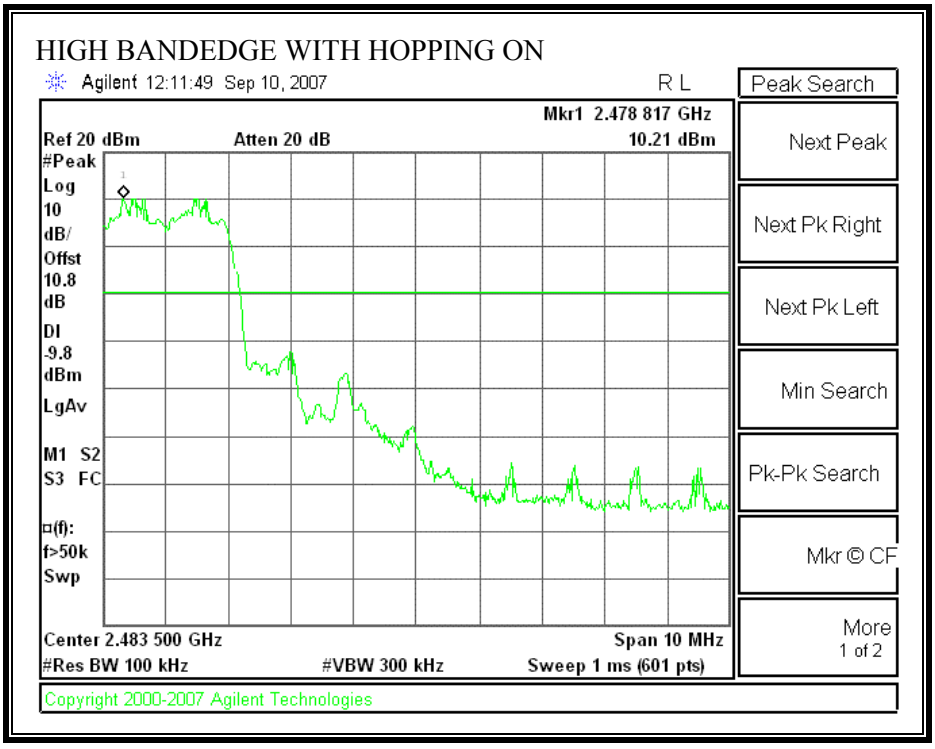


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON



7.3. RADIATED TEST RESULTS

7.3.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

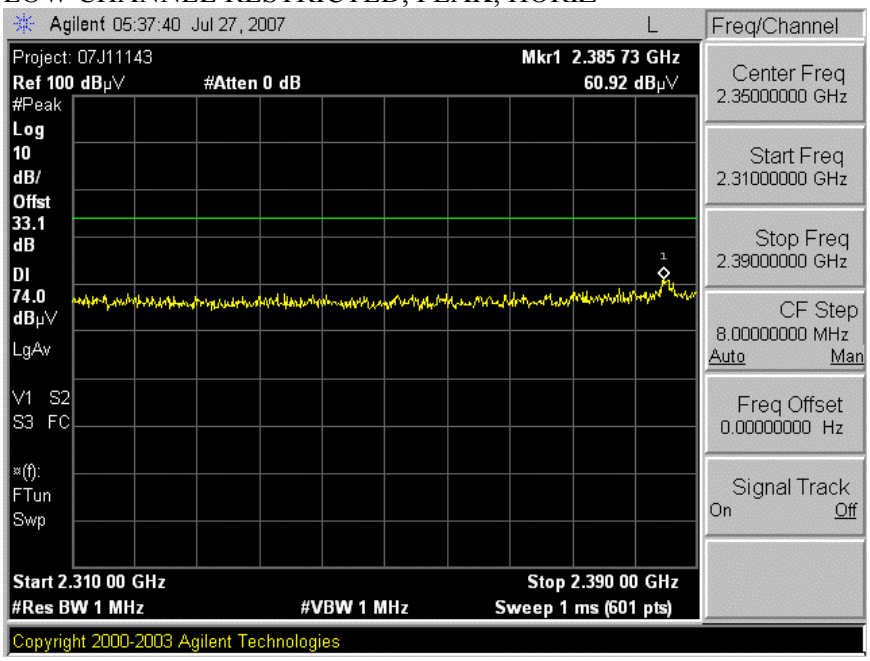
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

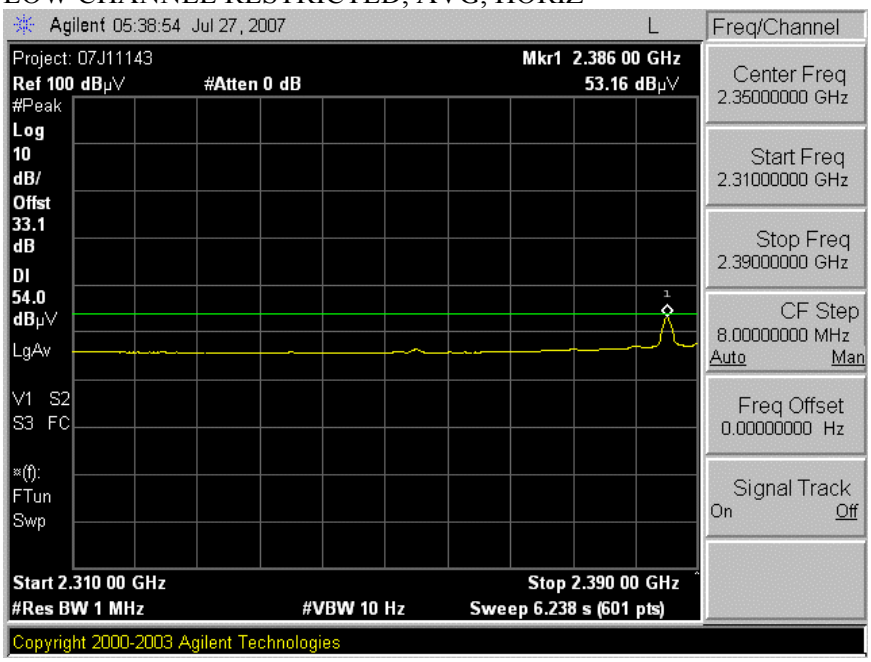
7.3.2. TRANSMITTER ABOVE 1 GHz FOR BASIC DATA RATE GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ

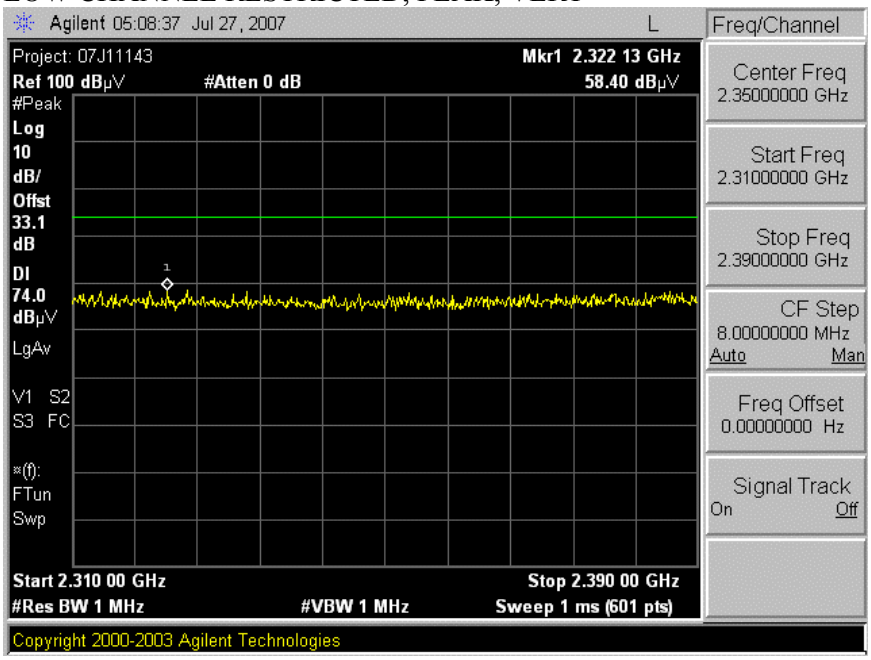


LOW CHANNEL RESTRICTED, AVG, HORIZ

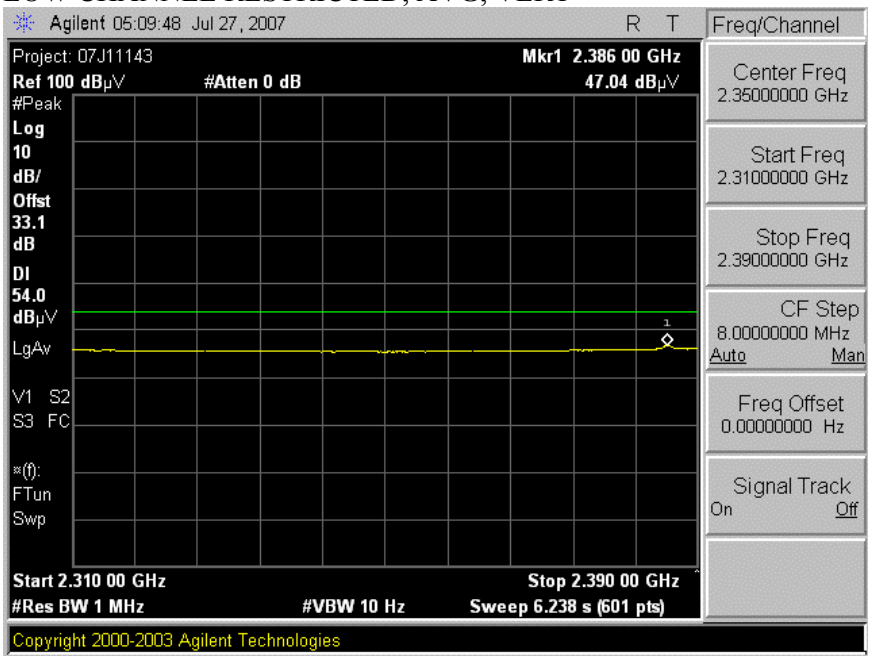


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

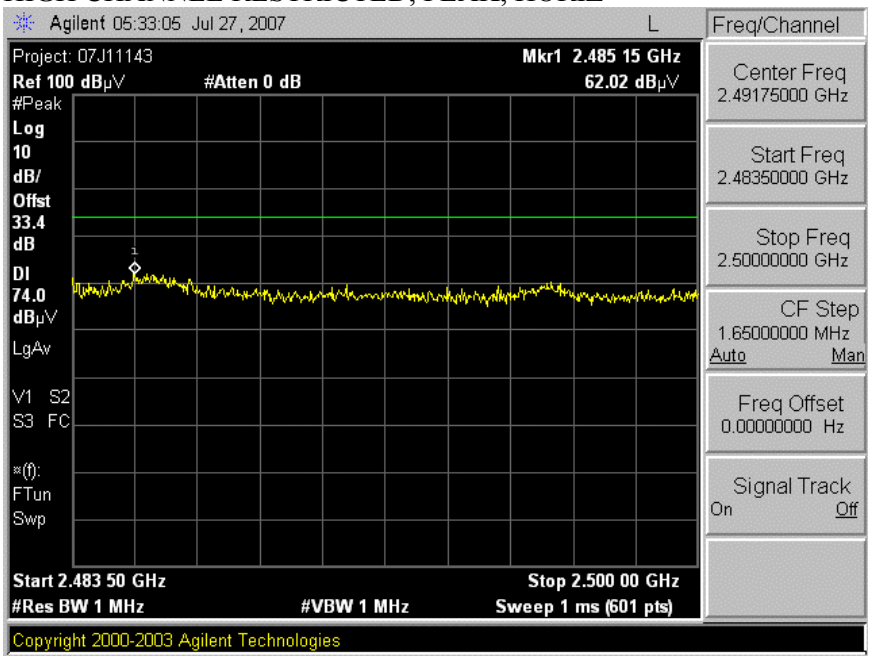


LOW CHANNEL RESTRICTED, AVG, VERT

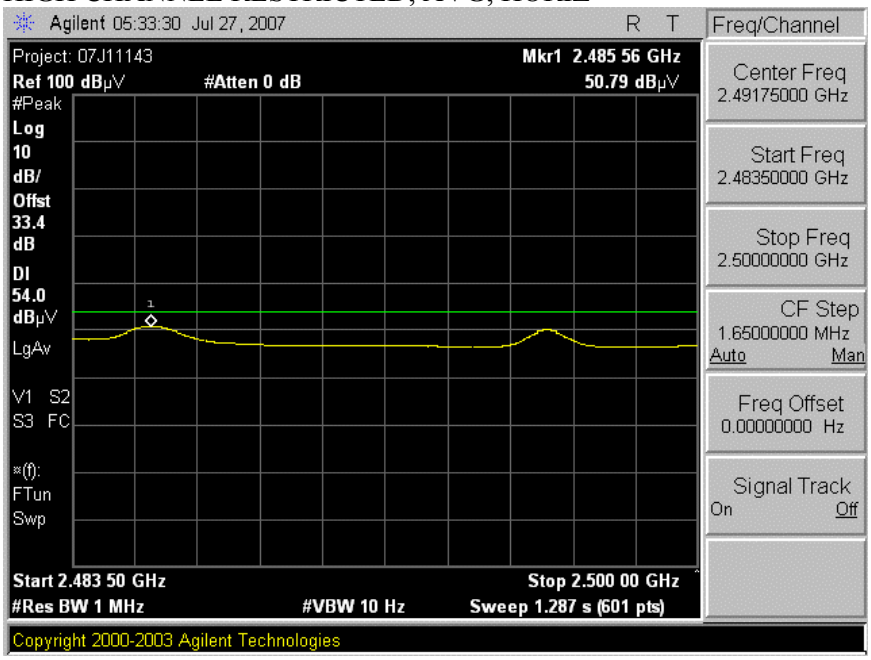


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

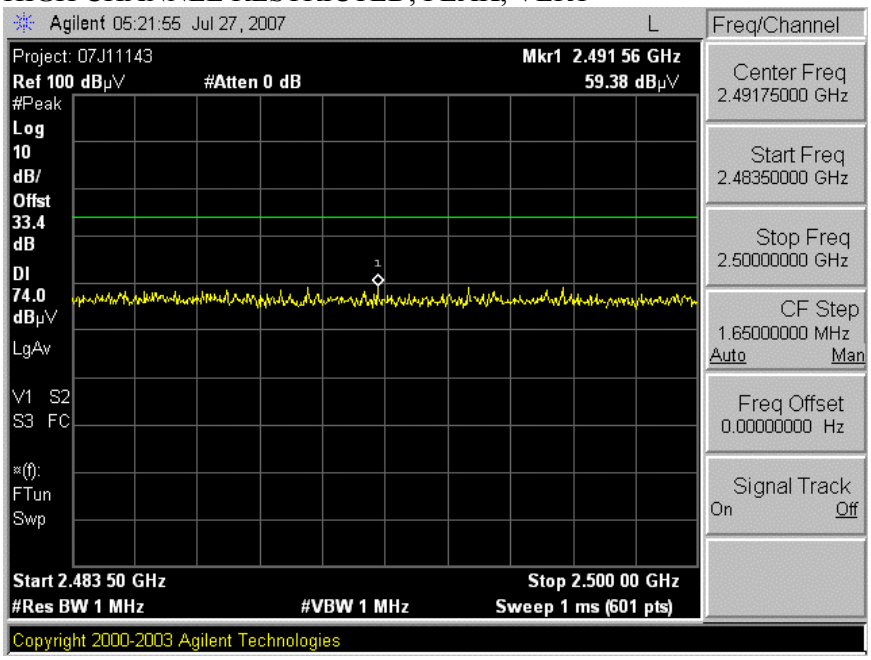


HIGH CHANNEL RESTRICTED, AVG, HORIZ

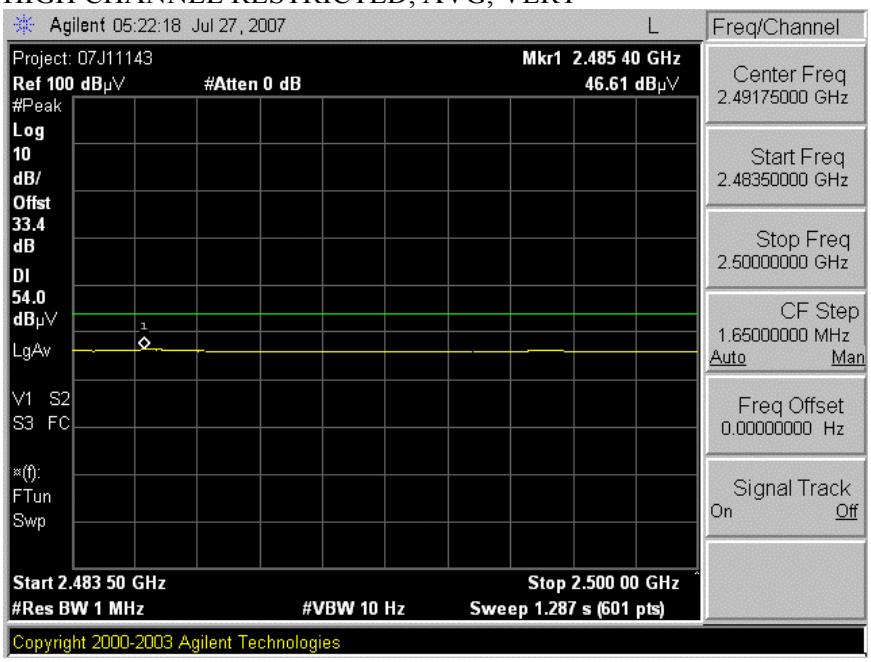


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Casio Computer
Project #: 07J11143
Date: 7/27/2007
Test Engineer: Tom Chen
Configuration: EUT with Cradle / AC Adaptor
Mode: Tx Mode GFSK Low / Mid / Hi Channels

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
		B-5m Chamber	HPF_4.0GHz	

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

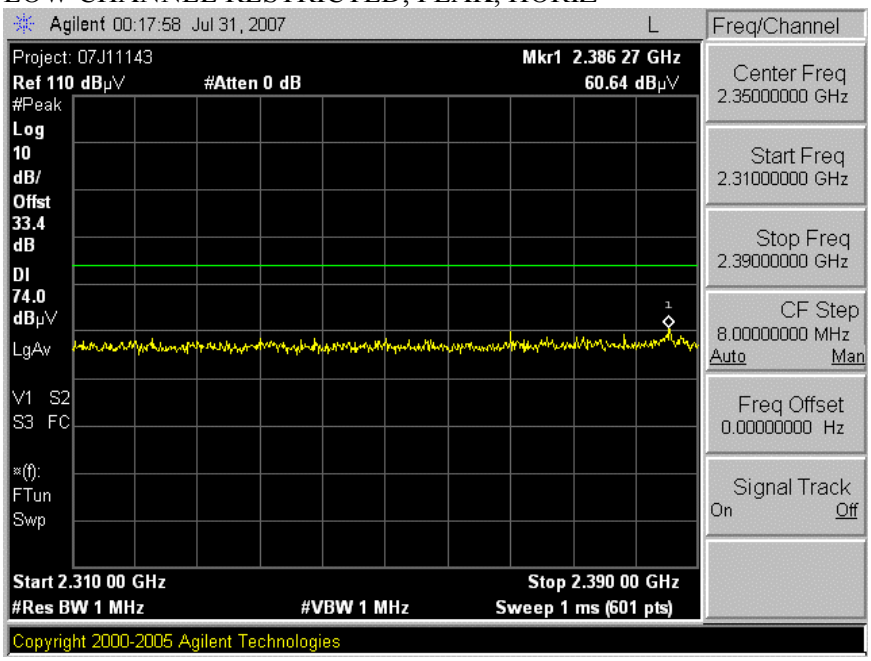
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch (2402MHz)															
4.804	3.0	41.7	32.1	33.3	7.1	-36.5	0.0	0.6	46.2	36.6	74	54	-27.8	-17.4	V
7.206	3.0	37.9	25.9	34.9	8.6	-36.2	0.0	0.6	45.8	33.8	74	54	-28.2	-20.2	V
4.804	3.0	44.1	39.0	33.3	7.1	-36.5	0.0	0.6	48.6	43.5	74	54	-25.4	-10.5	H
7.206	3.0	37.5	24.7	34.9	8.6	-36.2	0.0	0.6	45.4	32.6	74	54	-28.6	-21.4	H
Mid Ch.(2441MHz)															
4.882	3.0	46.4	37.9	33.4	7.2	-36.5	0.0	0.6	51.0	42.6	74	54	-23.0	-11.4	V
7.323	3.0	42.4	30.2	35.0	8.7	-36.2	0.0	0.6	50.5	38.3	74	54	-23.5	-15.7	V
4.882	3.0	46.8	40.6	33.4	7.2	-36.5	0.0	0.6	51.5	45.3	74	54	-22.5	-8.7	H
7.323	3.0	41.5	29.4	35.0	8.7	-36.2	0.0	0.6	49.6	37.5	74	54	-24.4	-16.5	H
Hi Ch.(2480MHz)															
4.960	3.0	45.7	41.4	33.4	7.2	-36.5	0.0	0.6	50.5	46.2	74	54	-23.5	-7.8	V
7.440	3.0	41.7	31.5	35.1	8.7	-36.2	0.0	0.6	49.9	39.7	74	54	-24.1	-14.3	V
4.960	3.0	44.8	38.4	33.4	7.2	-36.5	0.0	0.6	49.6	43.2	74	54	-24.4	-10.8	H
7.440	3.0	41.1	31.7	35.1	8.7	-36.2	0.0	0.6	49.3	39.9	74	54	-24.7	-14.1	H
		No other emissions were detected above system noise floor													

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

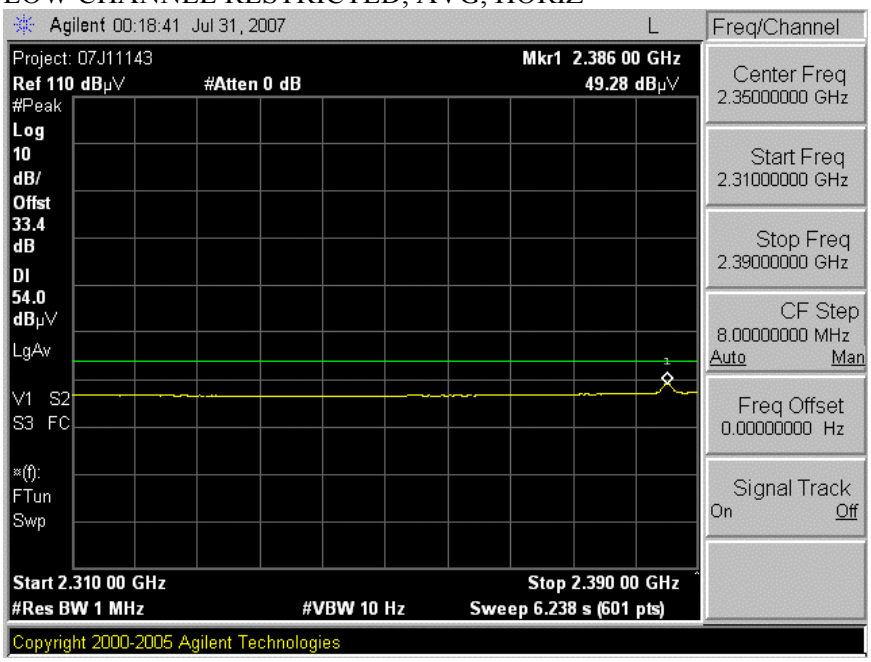
7.3.3. TRANSMITTER ABOVE 1 GHz FOR ENHANCED DATA RATE 8PSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ

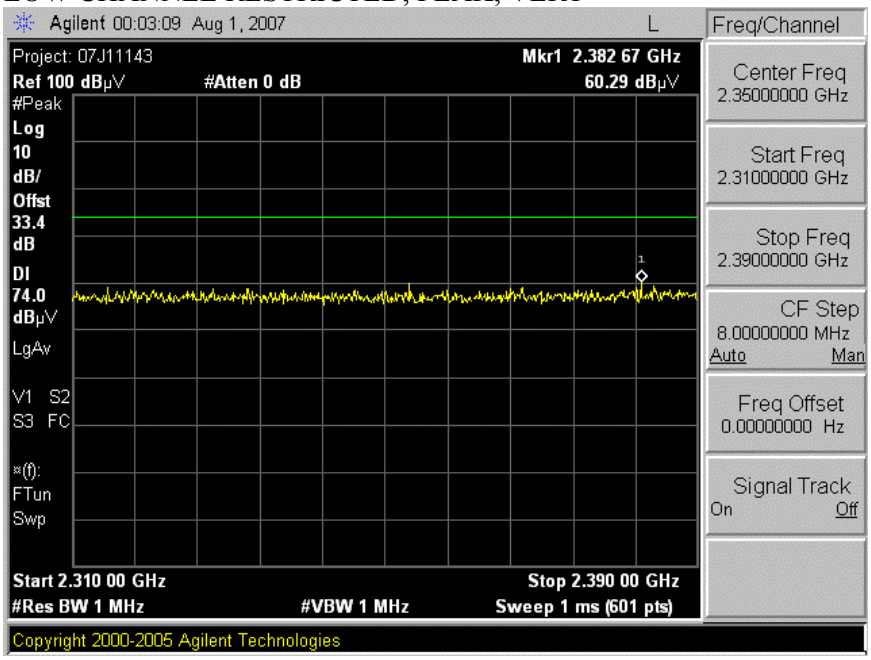


LOW CHANNEL RESTRICTED, AVG, HORIZ

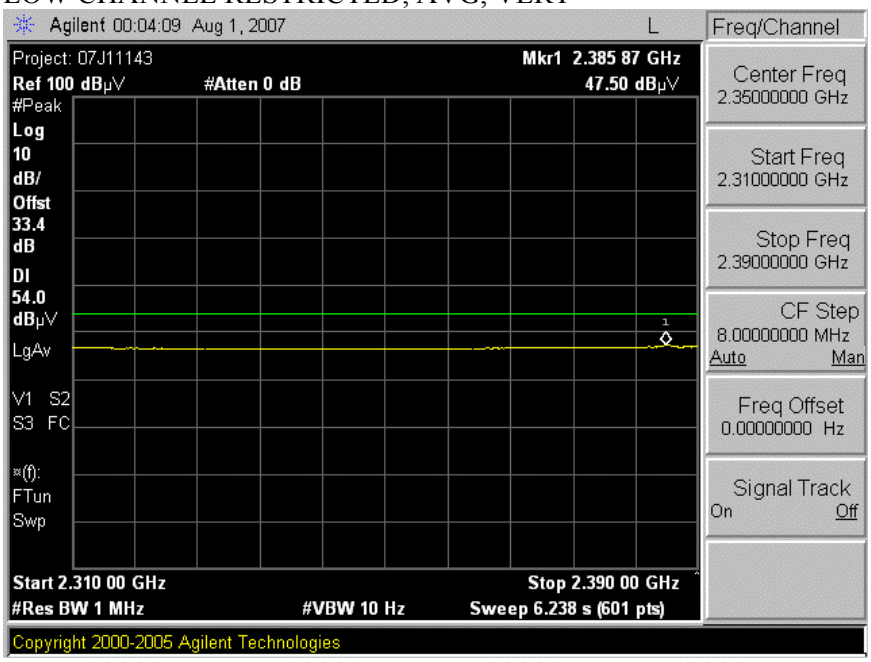


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

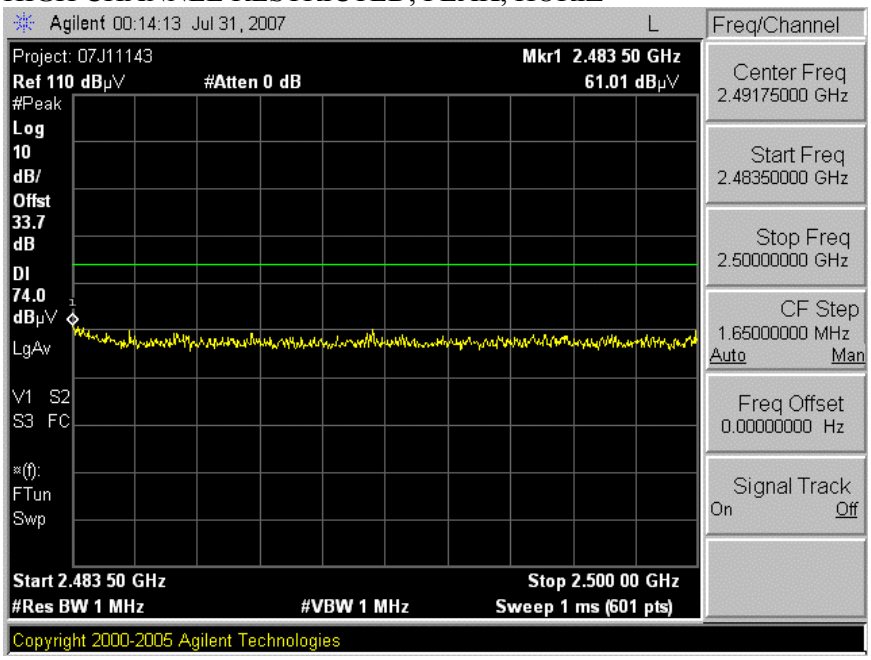


LOW CHANNEL RESTRICTED, AVG, VERT

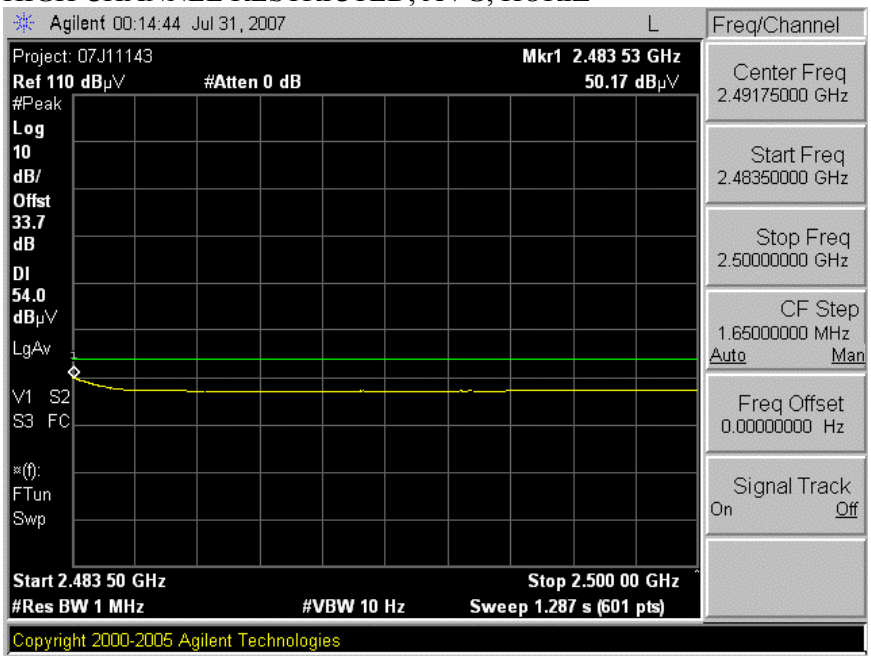


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

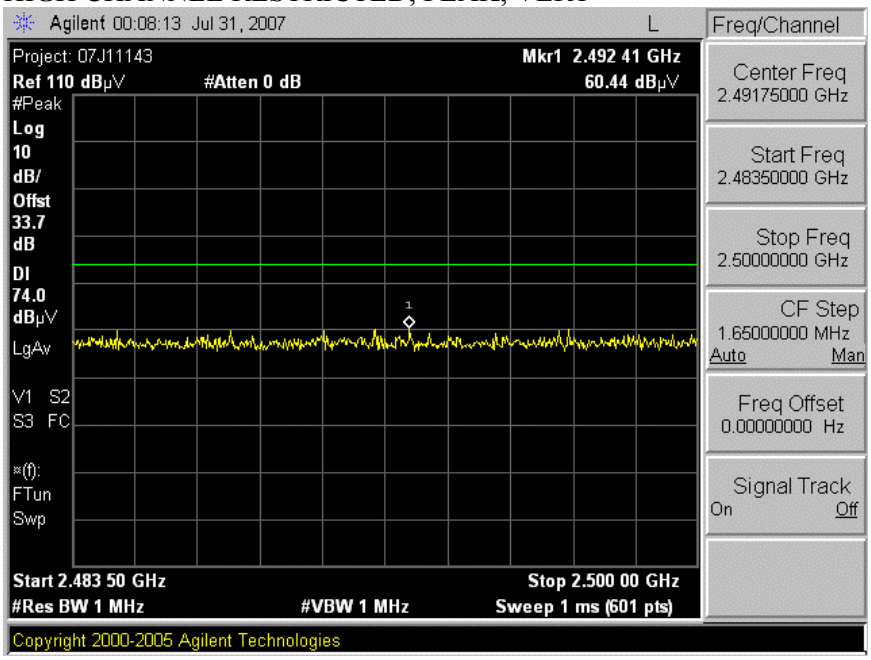


HIGH CHANNEL RESTRICTED, AVG, HORIZ

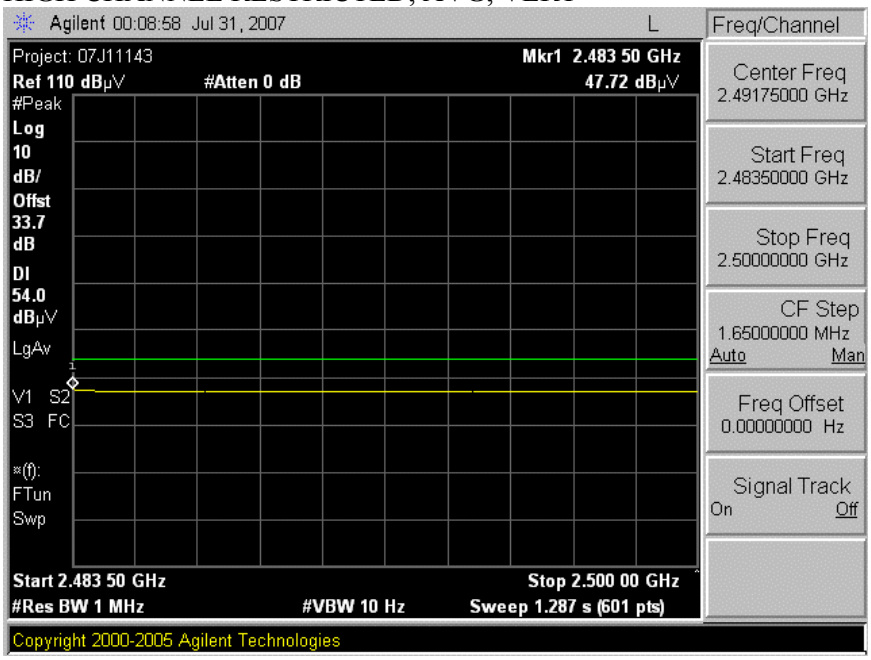


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Casio Computer
Project #: 07J11143
Date: 7/31/2007
Test Engineer: Tom Chen
Configuration: EUT with Cradle / AC Adaptor
Mode: Tx Mode 8PSK Low / Mid / Hi Channels

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T145 Agilent 3008A005(			FCC 15.209

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
		B-5m Chamber	HPF_4.0GHz	

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

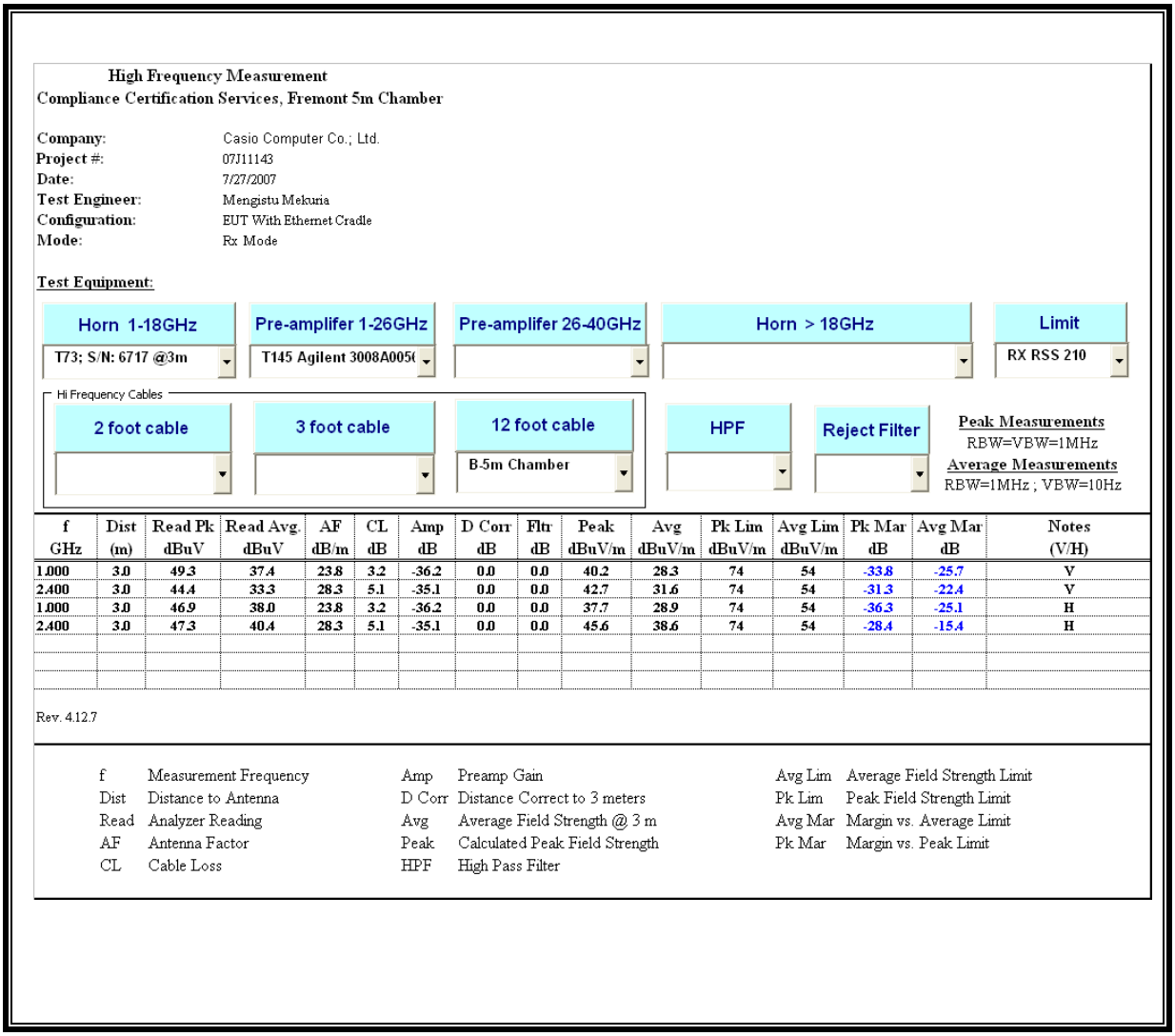
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Ch (2402MHz)															
4.804	3.0	38.0	28.0	33.0	7.1	-34.8	0.0	0.6	43.9	33.9	74	54	-30.1	-20.1	V
7.206	3.0	32.2	22.2	35.4	8.6	-34.7	0.0	0.6	42.1	32.1	74	54	-31.9	-21.9	V
4.804	3.0	38.4	28.4	33.0	7.1	-34.8	0.0	0.6	44.2	34.2	74	54	-29.8	-19.8	H
7.206	3.0	31.8	21.8	35.4	8.6	-34.7	0.0	0.6	41.7	31.7	74	54	-32.3	-22.3	H
Mid Ch.(2441MHz)															
4.882	3.0	40.6	30.6	33.1	7.2	-34.9	0.0	0.6	46.6	36.6	74	54	-27.4	-17.4	V
7.323	3.0	36.7	26.7	35.5	8.7	-34.7	0.0	0.6	46.8	36.8	74	54	-27.2	-17.2	V
4.882	3.0	41.1	31.1	33.1	7.2	-34.9	0.0	0.6	47.0	37.0	74	54	-27.0	-17.0	H
7.323	3.0	35.8	25.8	35.5	8.7	-34.7	0.0	0.6	45.9	35.9	74	54	-28.1	-18.1	H
Hi Ch.(2480MHz)															
4.960	3.0	40.0	30.0	33.1	7.2	-34.9	0.0	0.6	46.1	36.1	74	54	-27.9	-17.9	V
7.440	3.0	36.0	26.0	35.6	8.7	-34.6	0.0	0.6	46.3	36.3	74	54	-27.7	-17.7	V
4.960	3.0	39.1	29.1	33.1	7.2	-34.9	0.0	0.6	45.2	35.2	74	54	-28.8	-18.8	H
7.440	3.0	35.4	25.4	35.6	8.7	-34.6	0.0	0.6	45.7	35.7	74	54	-28.3	-18.3	H
		No other emissions were detected above system noise floor													

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

7.3.4. RECEIVER ABOVE 1 GHz

RESULTS FOR BASIC DATA RATE – GFSK MODULATION

No non-compliance noted:



High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company:	Casio Computer Co.; Ltd.
Project #:	07J11143
Date:	7/27/2007
Test Engineer:	Mengistu Mekuria
Configuration:	EUT With Ethernet Cradle
Mode:	Rx Mode

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T145 Agilent 3008A005(			RX RSS 210

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
		B-5m Chamber		

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
1.000	3.0	49.3	37.4	23.8	3.2	-36.2	0.0	0.0	40.2	28.3	74	54	-33.8	-25.7	V
2.400	3.0	44.4	33.3	28.3	5.1	-35.1	0.0	0.0	42.7	31.6	74	54	-31.3	-22.4	V
1.000	3.0	46.9	38.0	23.8	3.2	-36.2	0.0	0.0	37.7	28.9	74	54	-36.3	-25.1	H
2.400	3.0	47.3	40.4	28.3	5.1	-35.1	0.0	0.0	45.6	38.6	74	54	-28.4	-15.4	H

Rev. 4.12.7

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

RESULTS FOR ENHANCED DATA RATE – 8PSK MODULATION

No non-compliance noted:

High Frequency Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Casio Computer Co.; Ltd.
Project #: 07J11143
Date: 7/31/2007
Test Engineer: Tom Chen
Configuration: EUT With Ethernet Cradle
Mode: 8 PSK RX Mode Mid CH

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T145 Agilent 3008A005(			RX RSS 210

Hi Frequency Cables

2 foot cable	3 foot cable	12 foot cable	HPF	Reject Filter
		B-5m Chamber		

Peak Measurements
RBW=VBW=1MHz
Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
1.000	3.0	44.7	32.8	25.4	3.2	-36.2	0.0	0.0	37.2	25.3	74	54	-36.8	-28.7	V
2.400	3.0	39.5	28.7	28.6	5.1	-35.1	0.0	0.0	38.0	27.2	74	54	-36.0	-26.8	V
1.000	3.0	43.8	33.4	25.4	3.2	-36.2	0.0	0.0	36.3	25.9	74	54	-37.7	-28.1	H
2.400	3.0	41.4	35.3	28.6	5.1	-35.1	0.0	0.0	39.9	33.8	74	54	-34.1	-20.2	H

Rev. 4.12.7

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

7.3.5. WORST-CASE BELOW 1 GHz

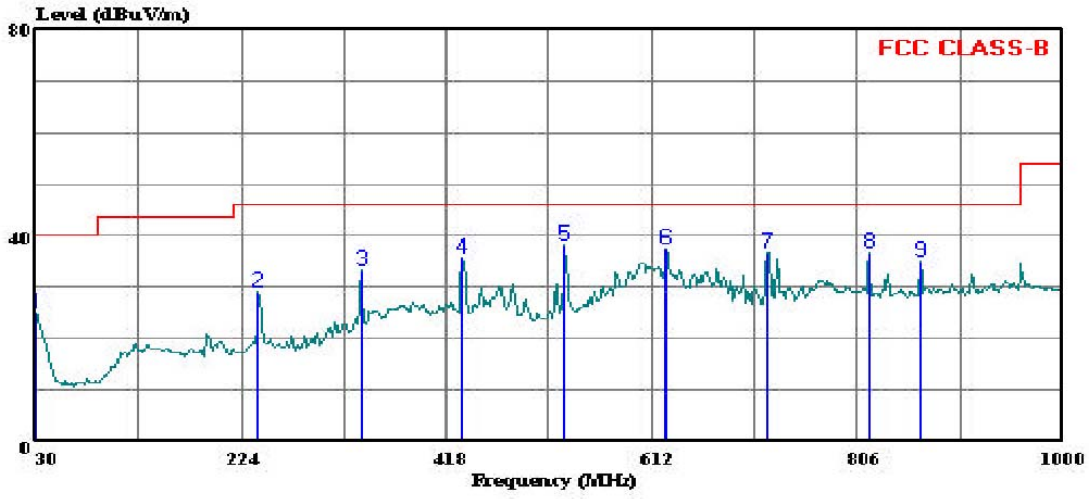
CONFIG 1: EUT WITH DRY CELL BATTERY

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 35 File#: 07J11143Chamber.EMI
Date: 07-30-2007 Time: 00:01:59



Trace: 33 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Engineer: : Mengistu Mekuria
Company: : Casio Computer Co.; Ltd.
Project #: : 07J11143
Test Configuration:: Configuration 1 (HA-F22 BC)
: EUT With Dry Cell Battery
Mode of operation: : Tx
Test Target: : FCC Class B

HORIZONTAL DATA

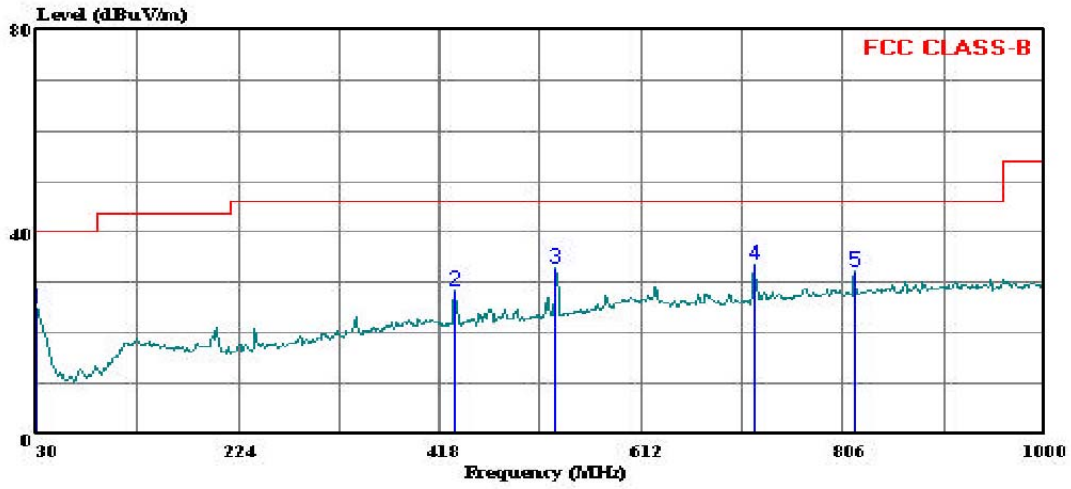
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.970	30.53	-5.76	24.77	40.00	-15.23	Peak
2	240.490	43.42	-14.48	28.94	46.00	-17.06	Peak
3	337.490	44.53	-11.33	33.20	46.00	-12.80	Peak
4	431.580	44.84	-9.06	35.78	46.00	-10.22	Peak
5	528.580	44.94	-6.80	38.14	46.00	-7.86	Peak
6	625.580	42.45	-4.92	37.53	46.00	-8.47	Peak
7	721.610	39.90	-3.20	36.70	46.00	-9.30	Peak
8	817.640	38.75	-1.96	36.79	46.00	-9.21	Peak
9	866.140	36.50	-1.37	35.13	46.00	-10.87	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 36 File#: 07J11143Chamber.EMI
Date: 07-30-2007 Time: 00:03:14



Trace: 34 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Engineer: : Mengistu Mekuria
Company: : Casio Computer Co.; Ltd.
Project #: : 07J11143
Test Configuration:: Configuration 1 (HA-F22 BC)
: EUT With Dry Cell Battery
Mode of operation: : Tx
Test Target: : FCC Class B

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	30.71	-5.76	24.95	40.00	-15.05	Peak
2	431.580	37.58	-9.06	28.52	46.00	-17.48	Peak
3	528.580	39.63	-6.80	32.83	46.00	-13.17	Peak
4	720.640	36.65	-3.20	33.45	46.00	-12.55	Peak
5	817.640	34.02	-1.96	32.06	46.00	-13.94	Peak

CONFIG 2: EUT WITH USB CRADLE

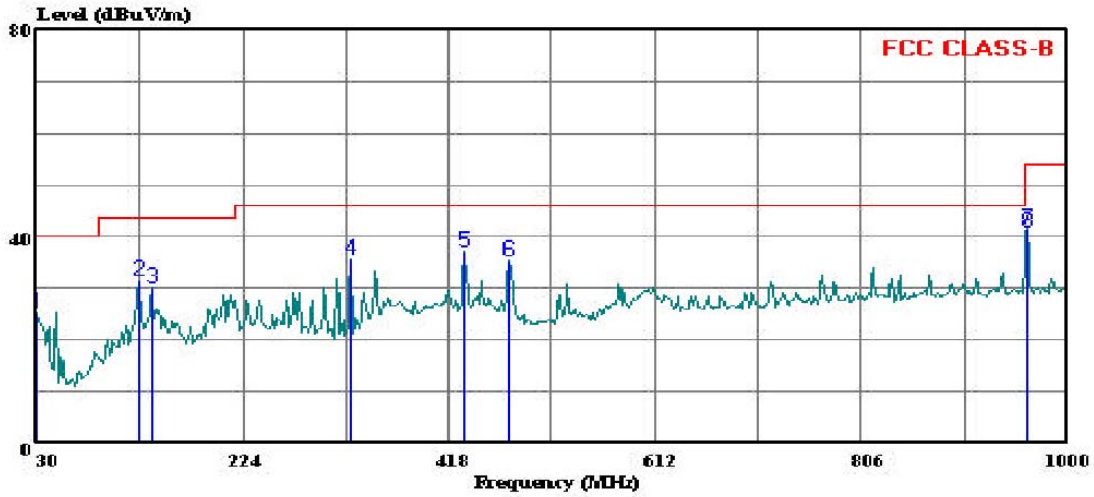
HOST

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 84 File#: 07J11143Chamber.EMI
Date: 08-08-2007 Time: 22:17:06



Trace: 77 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Engineer: : Mengistu Mekuria
Company: : Casio Computer Co.; Ltd.
Project #: : 07J11143
Test Configuration:: EUT With USB Cradle
Mode of operation: : Tx worst-case

Test Target: : FCC Class B

HORIZONTAL DATA

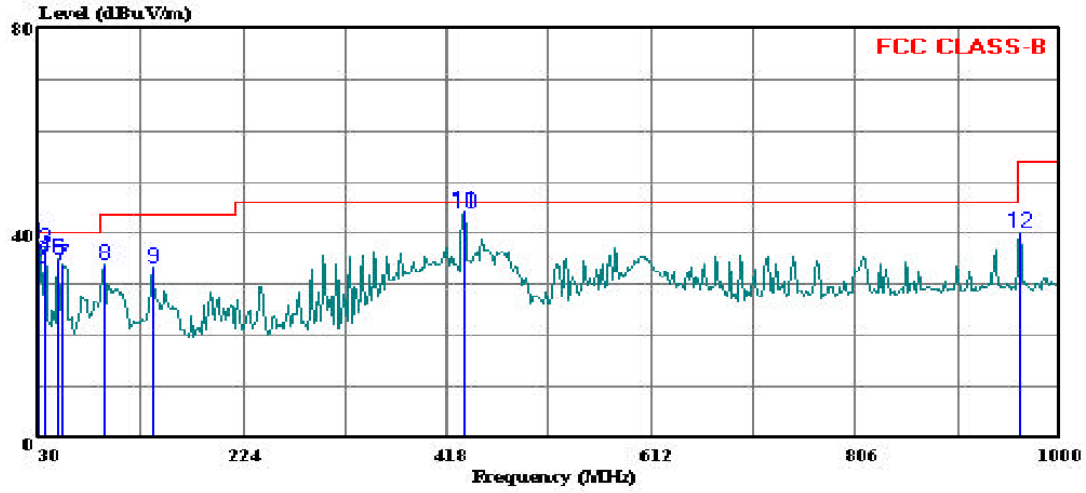
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	31.16	-5.76	25.40	40.00	-14.60	Peak
2	126.030	44.43	-12.99	31.44	43.50	-12.06	Peak
3	138.640	43.21	-13.21	29.99	43.50	-13.51	Peak
4	324.880	47.45	-11.61	35.84	46.00	-10.16	Peak
5	431.580	46.16	-9.06	37.10	46.00	-8.90	Peak
6	473.290	43.12	-7.96	35.16	46.00	-10.84	Peak
7	963.140	42.36	-0.71	41.65	54.00	-12.35	Peak
8	963.140	41.51	-0.71	40.80	54.00	-13.20	QP

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 83 File#: 07J11143Chamber.EMI
Date: 08-08-2007 Time: 22:29:45



Trace: 80 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Engineer: : Mengistu Mekuria
Company: : Casio Computer Co.; Ltd.
Project #: : 07J11143
Test Configuration::
: EUT With USB Cradle
Mode of operation: : Tx worst-case
Test Target: : FCC Class B

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	43.87	-5.76	38.11	40.00	-1.89	Peak
2	30.000	39.08	-5.76	33.32	40.00	-6.68	QP
3	36.790	47.19	-10.16	37.03	40.00	-2.97	Peak
4	36.790	45.77	-10.16	35.61	40.00	-4.39	QP
5	48.430	52.93	-17.85	35.08	40.00	-4.92	QP
6	48.430	52.98	-17.85	35.13	40.00	-4.87	Peak
7	53.280	53.07	-19.19	33.88	40.00	-6.12	Peak
8	92.080	52.84	-18.97	33.87	43.50	-9.63	Peak
9	138.640	46.62	-13.21	33.40	43.50	-10.10	Peak

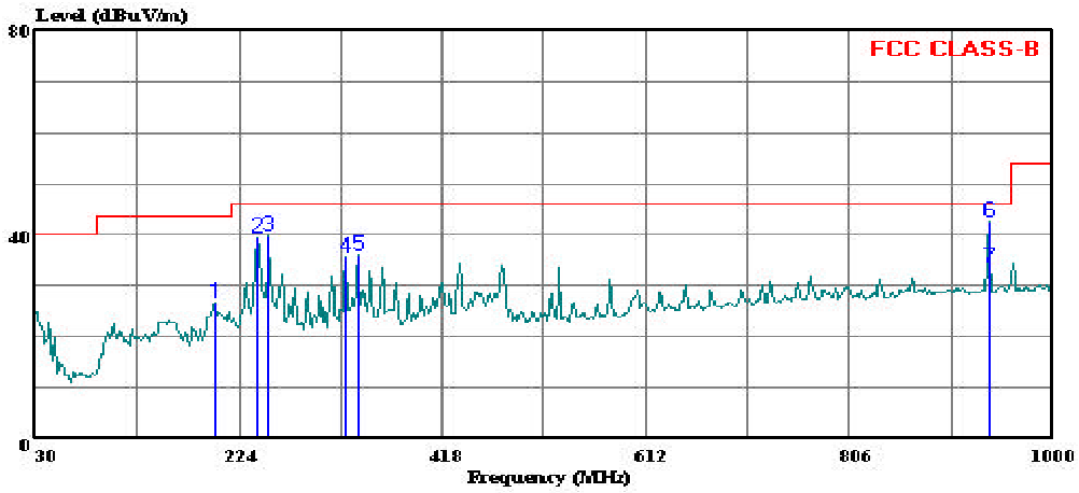
CLIENT

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 90 File#: 07J11143Chamber.EMI
Date: 07-30-2007 Time: 20:48:07



Trace: 55 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Engineer : Mengistu Mekuria
Company : Casio Computer Co.; Ltd.
Project #: 07J11143
Test Configuration:: Configuration 2 (HA-F60 IO)
: EUT With USB Cradle
Mode of operation: : Tx Worst-case
Test Target: : FCC Class B

HORIZONTAL DATA

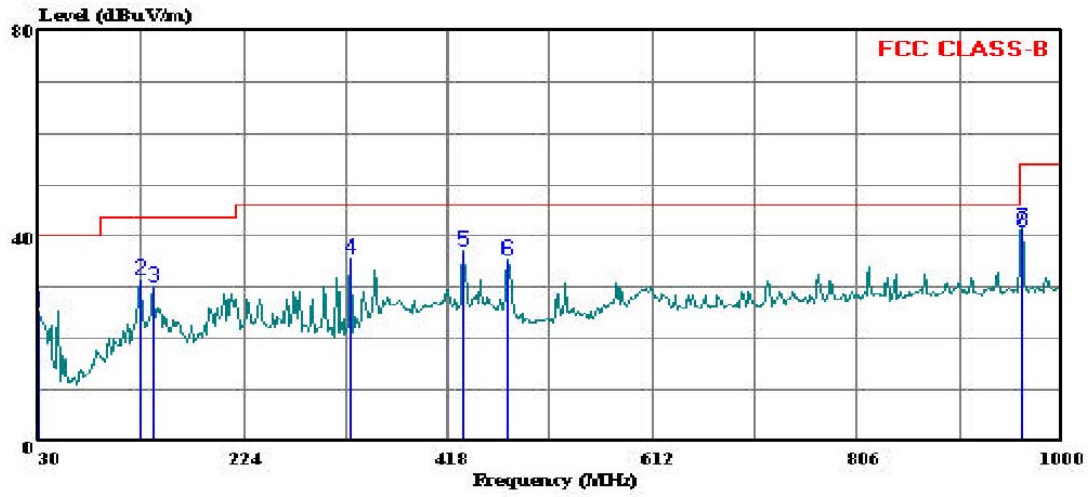
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	201.690	40.16	-13.60	26.56	43.50	-16.94	Peak
2	242.430	54.08	-14.43	39.65	46.00	-6.35	Peak
3	252.130	53.91	-14.11	39.80	46.00	-6.20	Peak
4	324.880	47.24	-11.61	35.63	46.00	-10.37	Peak
5	337.490	47.34	-11.33	36.01	46.00	-9.99	Peak
6	938.890	43.38	-0.87	42.51	46.00	-3.49	Peak
7	938.890	34.43	-0.87	33.56	46.00	-12.44	QP

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 84 File#: 07J11143Chamber.EMI
Date: 08-08-2007 Time: 22:17:06



Trace: 77 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Engineer: : Mengistu Mekuria
Company: : Casio Computer Co.; Ltd.
Project #: : 07J11143
Test Configuration:: EUT With USB Cradle
Mode of operation: : Tx worst-case

Test Target: : FCC Class B

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	31.16	-5.76	25.40	40.00	-14.60	Peak
2	126.030	44.43	-12.99	31.44	43.50	-12.06	Peak
3	138.640	43.21	-13.21	29.99	43.50	-13.51	Peak
4	324.880	47.45	-11.61	35.84	46.00	-10.16	Peak
5	431.580	46.16	-9.06	37.10	46.00	-8.90	Peak
6	473.290	43.12	-7.96	35.16	46.00	-10.84	Peak
7	963.140	42.36	-0.71	41.65	54.00	-12.35	Peak
8	963.140	41.51	-0.71	40.80	54.00	-13.20	QP

CONFIG 3: EUT WITH ETHERNET CRADLE

HOST

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 44 File#: 07J11143Chamber.EMI
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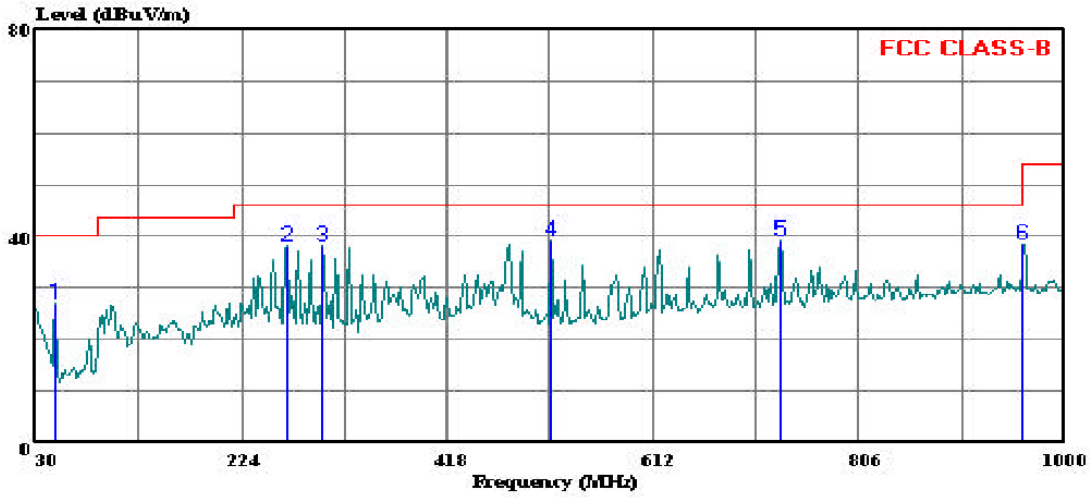


Trace: 43 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Engineer : Mengistu Mekuria
Company : Casio Computer Co.; Ltd.
Project #: 07J11143
Test Configuration::
: EUT With Ethernet Cradle
Mode of operation: : Tx worst-case
Test Target: : FCC Class B

HORIZONTAL DATA

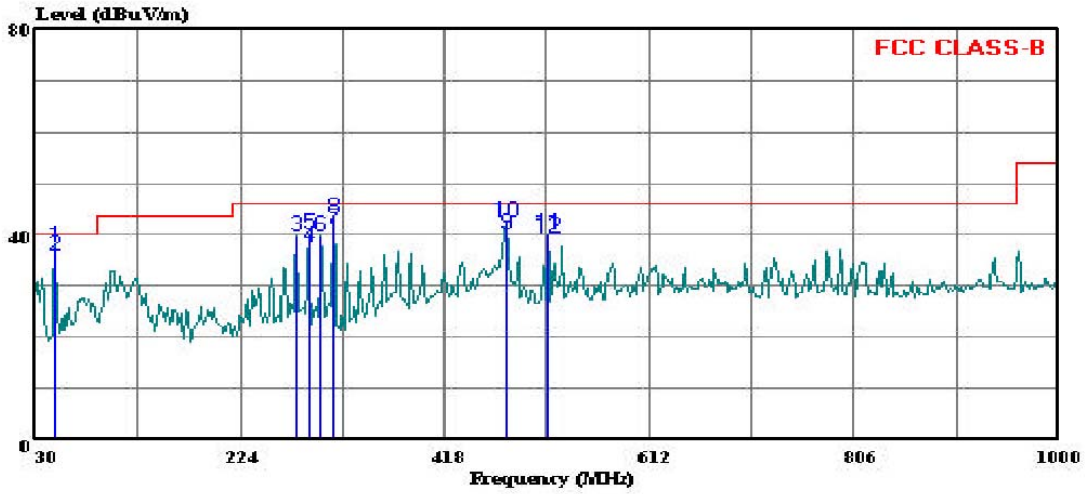
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	48.430	45.01	-17.85	27.16	40.00	-12.84	Peak
2	266.680	51.60	-13.55	38.05	46.00	-7.95	Peak
3	300.630	50.51	-12.26	38.25	46.00	-7.75	Peak
4	516.940	46.03	-7.06	38.96	46.00	-7.04	Peak
5	732.280	42.11	-2.99	39.12	46.00	-6.88	Peak
6	961.200	39.12	-0.68	38.44	54.00	-15.56	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 67 File#: 07J11143Chamber.EMI
Date: 07-30-2007 Time: 01:53:02



Trace: 45 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Engineer: : Mengistu Mekuria
Company: : Casio Computer Co.; Ltd.
Project #: : 07J11143
Test Configuration::
: EUT With Ethernet Cradle
Mode of operation: : Tx worst-case
Test Target: : FCC Class B

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	48.430	55.60	-17.85	37.75	40.00	-2.25	Peak
2	48.430	53.74	-17.85	35.89	40.00	-4.11	QP
3	276.380	53.09	-13.15	39.94	46.00	-6.06	Peak
4	288.990	50.47	-12.63	37.84	46.00	-8.16	QP
5	288.990	52.65	-12.63	40.02	46.00	-5.98	Peak
6	300.630	52.16	-12.26	39.90	46.00	-6.10	Peak
7	313.240	53.26	-11.91	41.35	46.00	-4.65	QP
8	313.240	55.27	-11.91	43.36	46.00	-2.64	Peak
9	475.230	47.93	-7.90	40.03	46.00	-5.97	QP

CLIENT

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 88 File#: 07J11143Chamber.EMI
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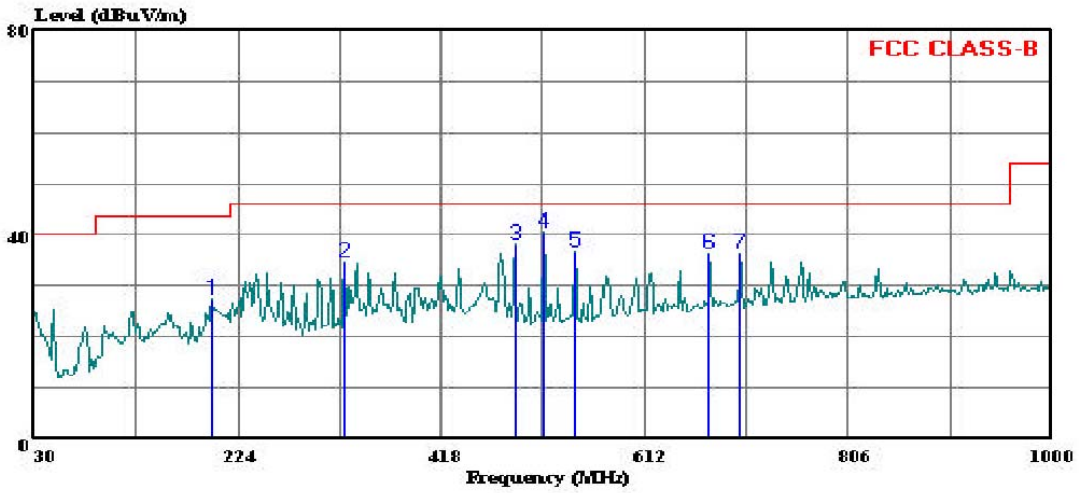

Trace: 58 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Engineer : Mengistu Mekuria
Company : Casio Computer Co.; Ltd.
Project #: 07J11143
Test Configuration::
: EUT With Ethernet Cradle
Mode of operation: : Tx worst-case
Test Target: : FCC Class B

HORIZONTAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	198.780	40.92	-13.63	27.29	43.50	-16.21	Peak
2	324.880	46.16	-11.61	34.55	46.00	-11.45	Peak
3	487.840	45.80	-7.60	38.20	46.00	-7.80	Peak
4	516.940	47.48	-7.06	40.41	46.00	-5.59	Peak
5	546.040	43.30	-6.44	36.86	46.00	-9.14	Peak
6	674.080	40.47	-3.94	36.53	46.00	-9.47	Peak
7	703.180	39.79	-3.40	36.39	46.00	-9.61	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 89 File#: 07J11143Chamber.EMI
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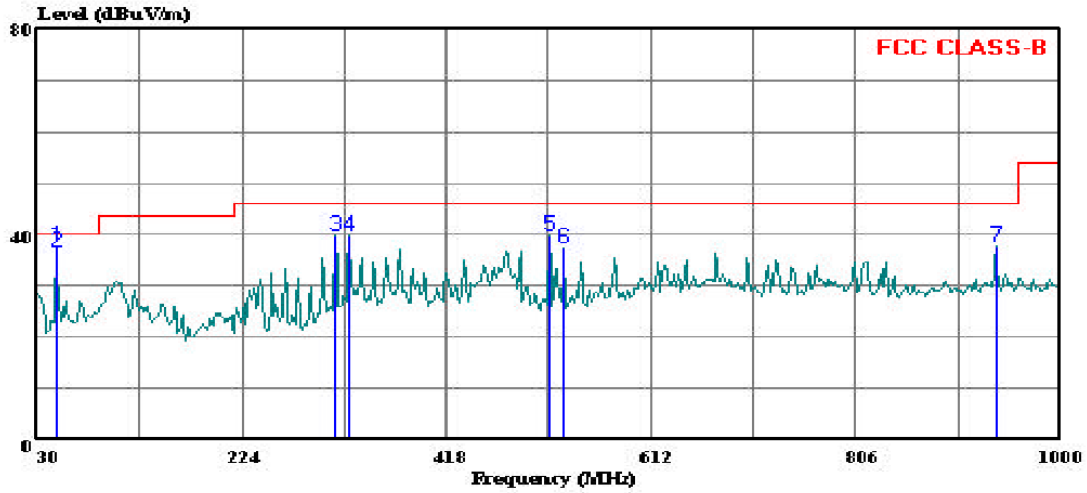

Trace: 60 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Engineer: : Mengistu Mekuria
Company: : Casio Computer Co.; Ltd.
Project #: : 07J11143
Test Configuration::
: EUT With Ethernet Cradle
Mode of operation: : Tx worst-case
Test Target: : FCC Class B

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	48.430	55.65	-17.85	37.80	40.00	-2.20	Peak
2	48.430	54.73	-17.85	36.88	40.00	-3.12	QP
3	313.240	51.78	-11.91	39.87	46.00	-6.13	Peak
4	324.880	51.52	-11.61	39.91	46.00	-6.09	Peak
5	516.940	47.06	-7.06	39.99	46.00	-6.01	Peak
6	528.580	44.19	-6.80	37.39	46.00	-8.61	Peak
7	938.890	38.66	-0.87	37.79	46.00	-8.21	Peak

CONFIG 4: EUT WITH CRADLE-TYPE BATTERY CHARGER

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 32 File#: 07J11143Chamber.EMI
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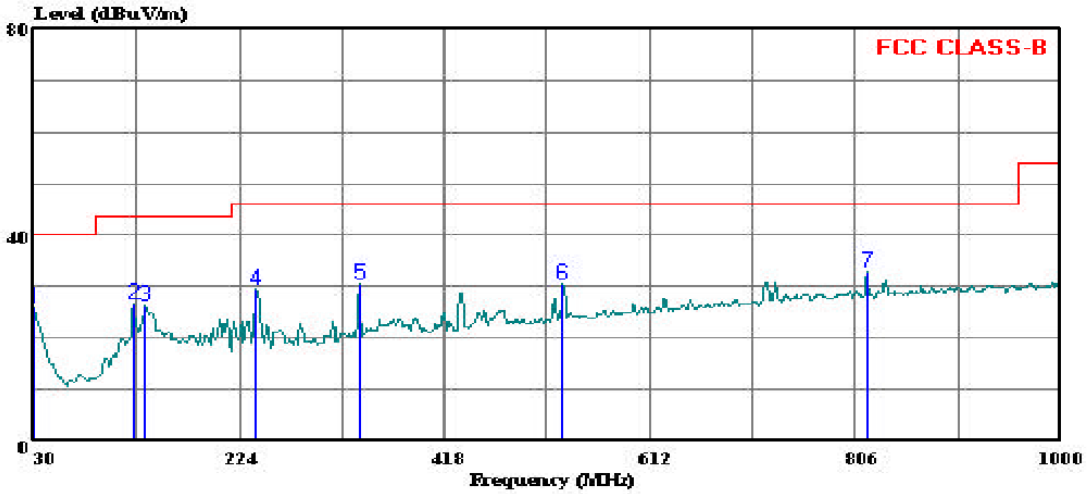


Trace: 31 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Engineer: : Mengistu Mekuria
Company: : Casio Computer Co.; Ltd.
Project #: : 07J11143
Test Configuration::
: EUT With Cradle Type Battery Charger
Mode of operation: : Tx worst-case
Test Target: : FCC Class B

HORIZONTAL DATA

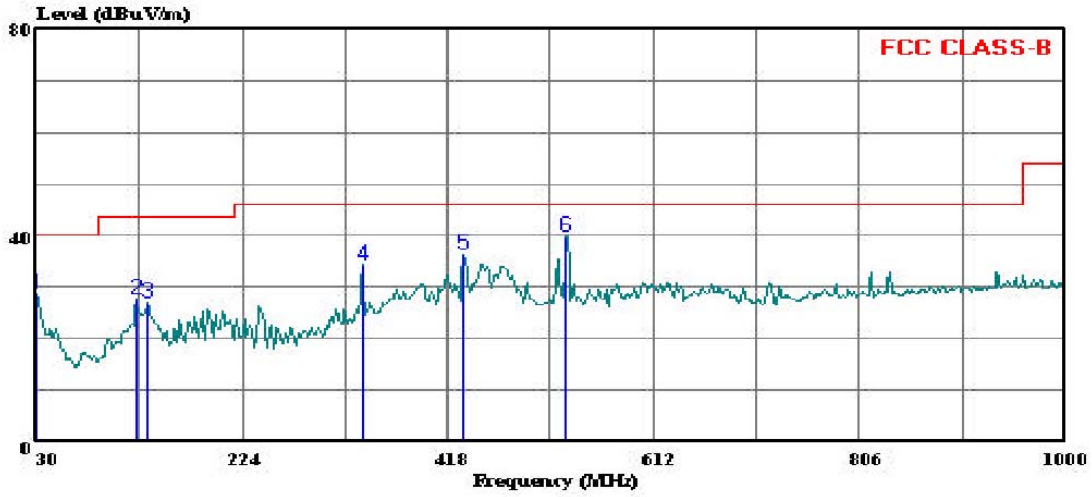
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	31.72	-5.76	25.96	40.00	-14.04	Peak
2	124.090	39.85	-13.05	26.80	43.50	-16.70	Peak
3	135.730	39.52	-13.17	26.35	43.50	-17.15	Peak
4	240.490	43.88	-14.48	29.40	46.00	-16.60	Peak
5	337.490	41.78	-11.33	30.45	46.00	-15.55	Peak
6	529.550	37.14	-6.78	30.36	46.00	-15.64	Peak
7	817.640	34.89	-1.96	32.93	46.00	-13.07	Peak

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT

Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 30 File#: 07J11143Chamber.EMI
Date: 07-29-2007 Time: 14:50:31



Trace: 25 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Engineer: : Mengistu Mekuria
Company: : Casio Computer Co.; Ltd.
Project #: : 07J11143
Test Configuration::
: EUT With Cradle Type Battery Charger
Mode of operation: : Tx worst-case
Test Target: : FCC Class B

VERTICAL DATA

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	34.43	-5.76	28.67	40.00	-11.33	Peak
2	124.090	40.59	-13.05	27.54	43.50	-15.96	Peak
3	135.730	40.05	-13.17	26.88	43.50	-16.62	Peak
4	337.490	45.73	-11.33	34.40	46.00	-11.60	Peak
5	431.580	45.27	-9.06	36.21	46.00	-9.79	Peak
6	528.580	46.78	-6.80	39.98	46.00	-6.02	Peak