FCC CFR47 PART 15 SUBPART C
CERTIFICATION
TEST REPORT

FOR

BLUETOOTH SPEAKER PHONE

MODEL NUMBER: BTSP1

FCC ID: TIYSPRACHTAURABT

REPORT NUMBER: 05U3538-1B

ISSUE DATE: AUGUST 30, 2005

Prepared for
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Revision History

Rev.	Issue Date	Revisions	Revised By
A	8/10/05	Initial Issue	TC
B	8/30/05	Revised wording of test setup on page 9 and corrected typo of I/O cable on page 7	TC

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: ORIENT DIRECT, INC.
2672 BAYSHORE PARKWAY, SUITE 900
MOUNTAIN VIEW
CALIFORNIA, 94043, USA

EUT DESCRIPTION: BLUETOOTH SPEAKER PHONE

MODEL: BTSP1

SERIAL NUMBER: 001

DATE TESTED: JULY 28-29, 2005

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C	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:

THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:

CHIN PANG
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 and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, 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 transceiver Speaker Phone

The radio module is manufactured Orient Direct Inc..

5.2. MAXIMUM OUTPUT POWER

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

2400 to 2483.5 MHz Authorized Band

Frequency Range (MHz)	Output Power (dBm)	Output Power (mW)
2402 - 2480	1.36	1.37

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an Ground Plane Dependent Antenna Type, with a maximum gain of 2.5dBi.

5.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was BLUETEST, rev. 1.21

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at 2441 MHz.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
laptop	Toshiba	Tecra 8100	NA	DoC
AC Adapter	Toshiba	PA244QU	NA	DoC
AC Adapter	ATARI	PAG-1200	C103889-001	DoC

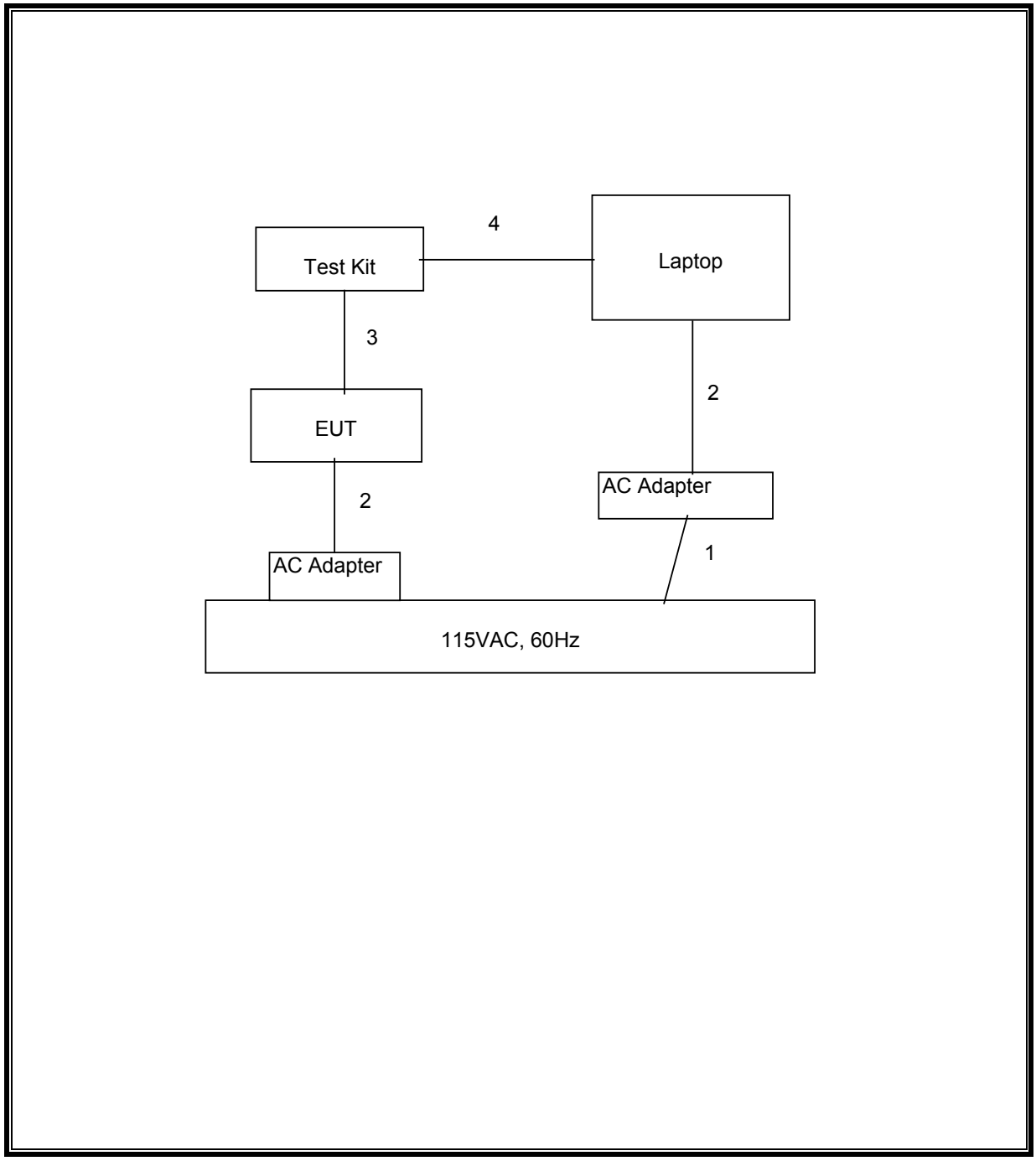
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	1	US 115V	Un-shielded	2m	No
2	DC	1	DC	Un-shielded	1m	No
3	Din	1	9 pin Connector	Un-shielded	0.1m	Yes
4	Serial	1	RS232	Un-shielded	1m	Yes

TEST SETUP

The EUT is connected to a test kit and to a Laptop Computer via a RS-232 cable. Test software exercised the radio card.

SETUP DIAGRAM FOR BLUETOOTH RF CONDUCTED TESTS



SETUP FOR DIGITAL DEVICE TESTS

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
MicroPhone	ODI	N/A	N/A	N/A
Cell Phone	Sony	N/A	N/A	Used as terminator

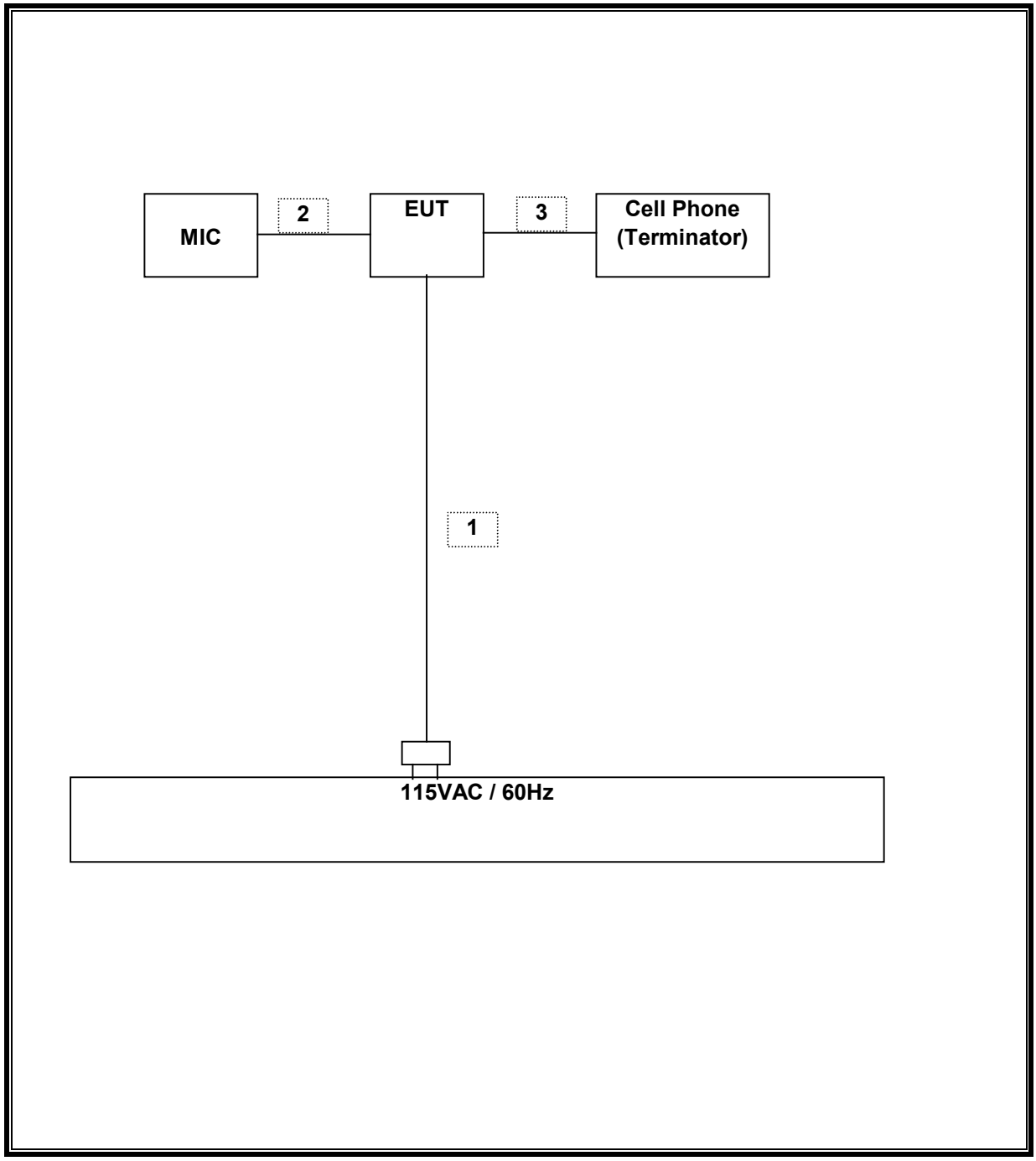
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	DC	1	DC Plug	Unshielded	2m	No
2	Audio	1	Line In	Unshielded	1m	No
3	Audio	1	Line In	Unshielded	1m	No

TEST SETUP

The EUT is connected to a cell phone and microphone for digital device testing.

SETUP DIAGRAM FOR DIGITAL DEVICE TESTS



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**
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	5/22/1918	4/22/2006
Preamplifier 1-26.5 GHz	HP	8449B	3008A00931	6/24/06
Antenna, Bilog 30MHz ~ 2Ghz	Sunol Sciences	JB1	A121003	3/3/06
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	3/29/06
RF Filter Section	HP	85420E	3705A00256	3/29/06
Site A Line Stabilizer/Conditioner	Tripplite	LC-1800a	A005181	CNR
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	8/30/05
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	837990	10/21/05
Spectrum Analyser	Agilent	E4407B	MY44210488	4/20/06
4.0GHz HPF	Microtronic	HPM13151	1	CNR

7. LIMITS AND RESULTS

7.1. ANTENNA PORT CHANNEL TESTS

7.1.1. 20 dB 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.

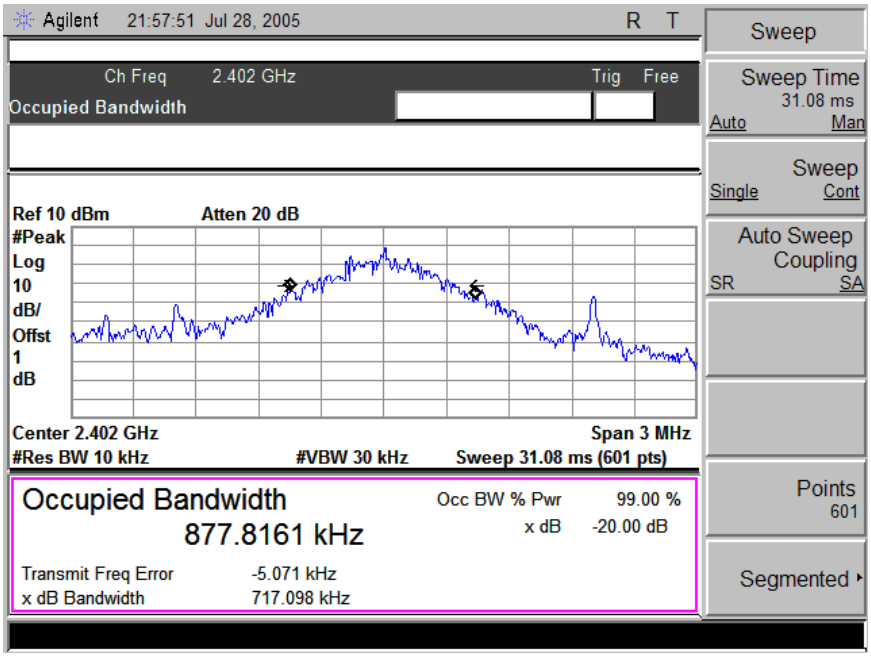
RESULTS

No non-compliance noted:

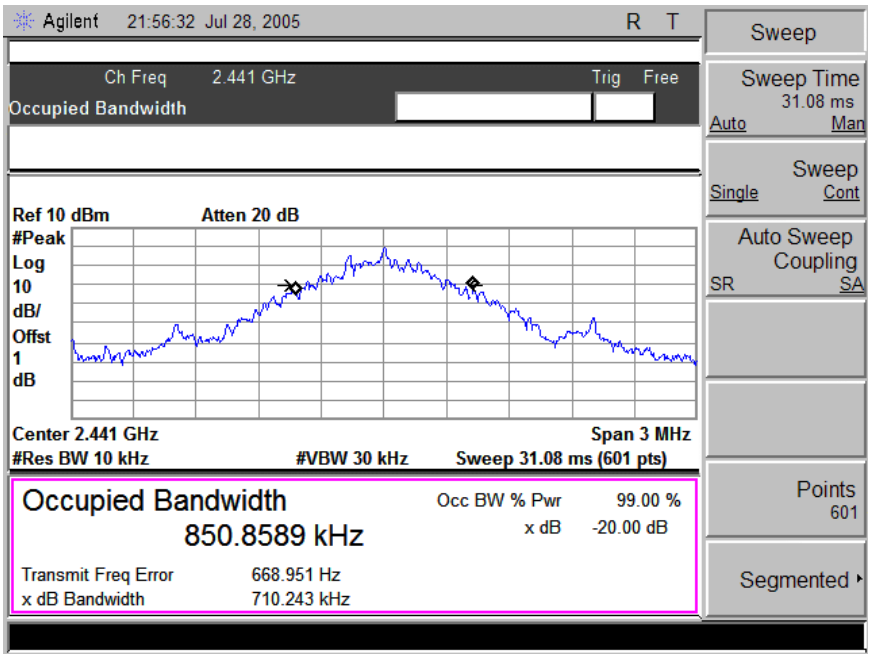
Channel	Frequency (MHz)	20 dB Bandwidth (kHz)
Low	2402	717.098
Middle	2441	710.243
High	2480	696.512

20 dB BANDWIDTH

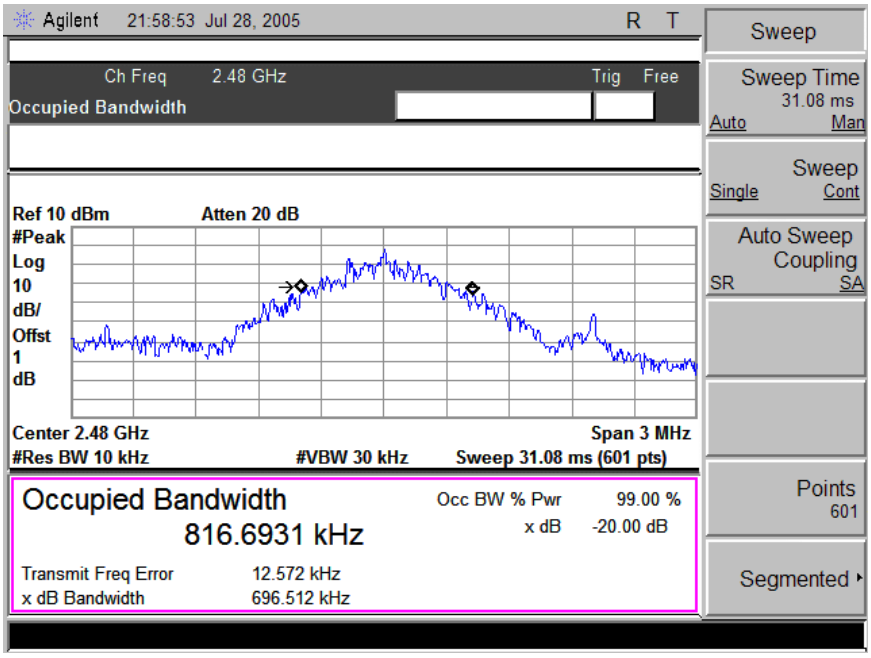
20 dB BANDWIDTH LOW CH



20 dB BANDWIDTH MID CH



20 dB BANDWIDTH HIGH CH



7.1.2. HOPPING FREQUENCY SEPARATION

LIMIT

§15.247 (a) (1) 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

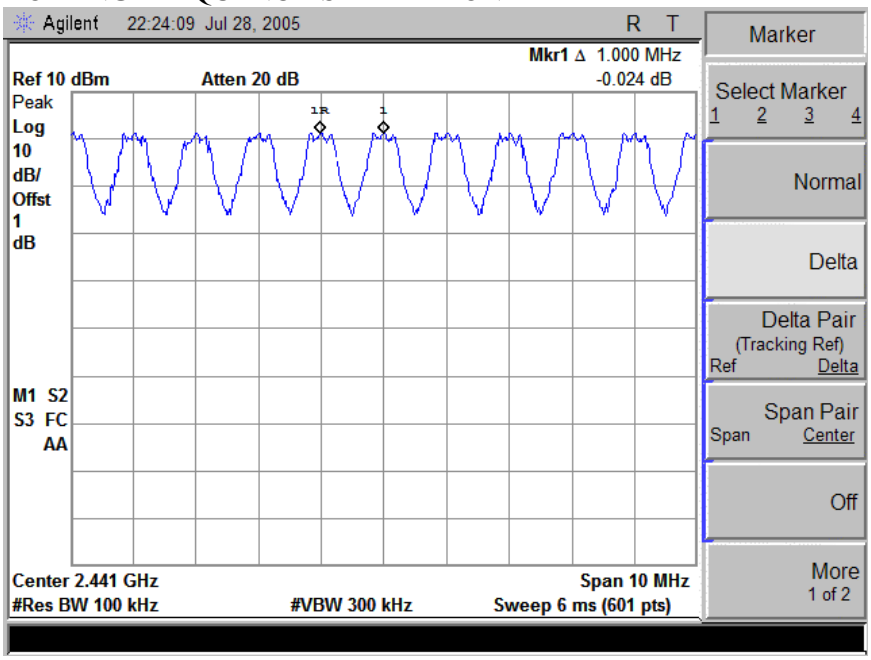
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 100 kHz. The sweep time is coupled.

RESULTS

No non-compliance noted:

HOPPING FREQUENCY SEPARATION

HOPPING FREQUENCY SEPARATION



7.1.3. NUMBER OF HOPPING CHANNELS

LIMIT

§15.247 (a) (1) (iii) 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 1 % of the span. The analyzer is set to Max Hold.

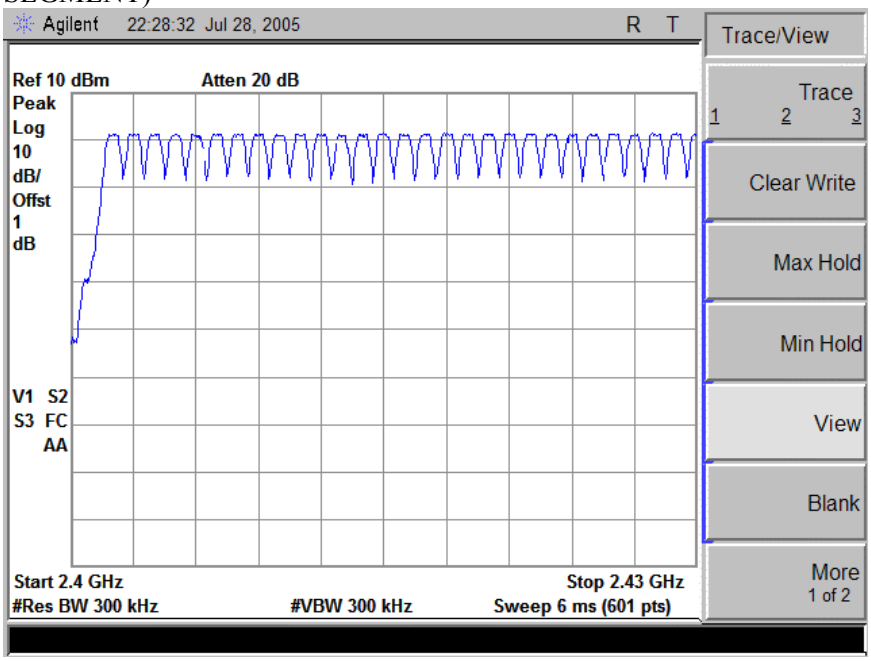
RESULTS

No non-compliance noted:

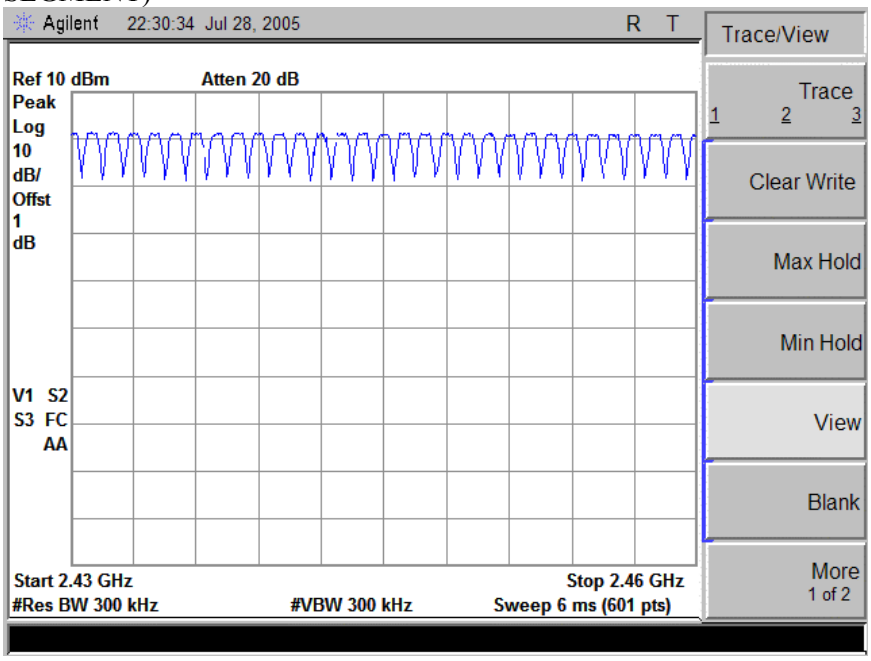
79 Channels observed.

NUMBER OF HOPPING CHANNELS

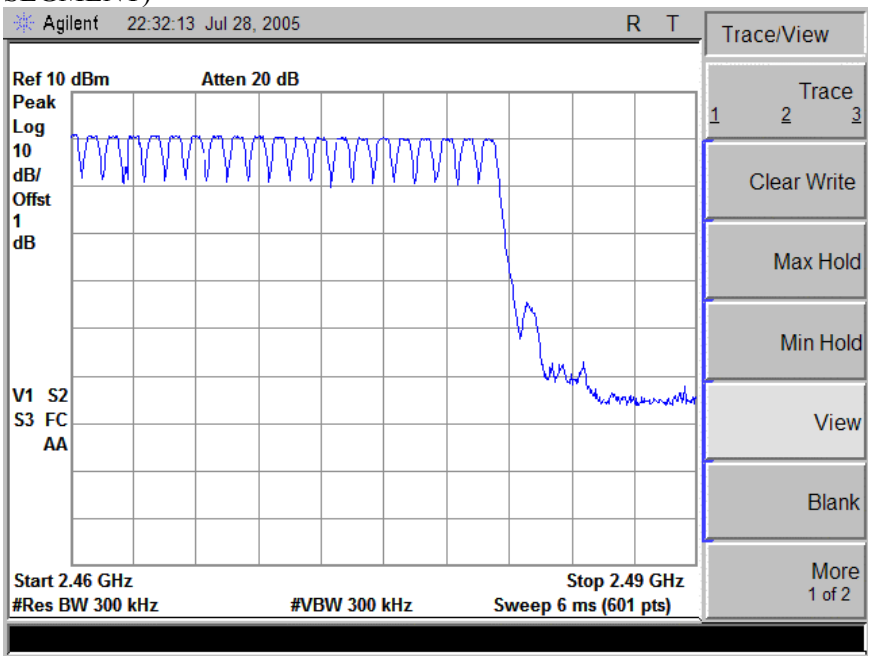
NUMBER OF HOPPING CHANNELS (30 MHZ SPAN, FIRST SEGMENT)



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

§15.247 (a) (1) (iii) Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels. 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

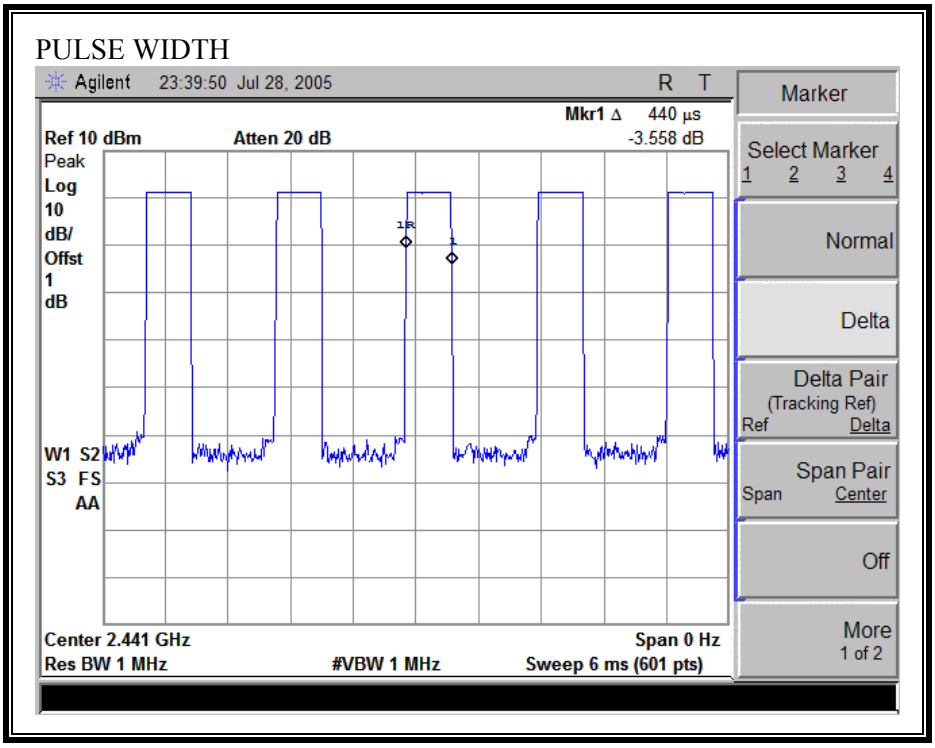
The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

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:

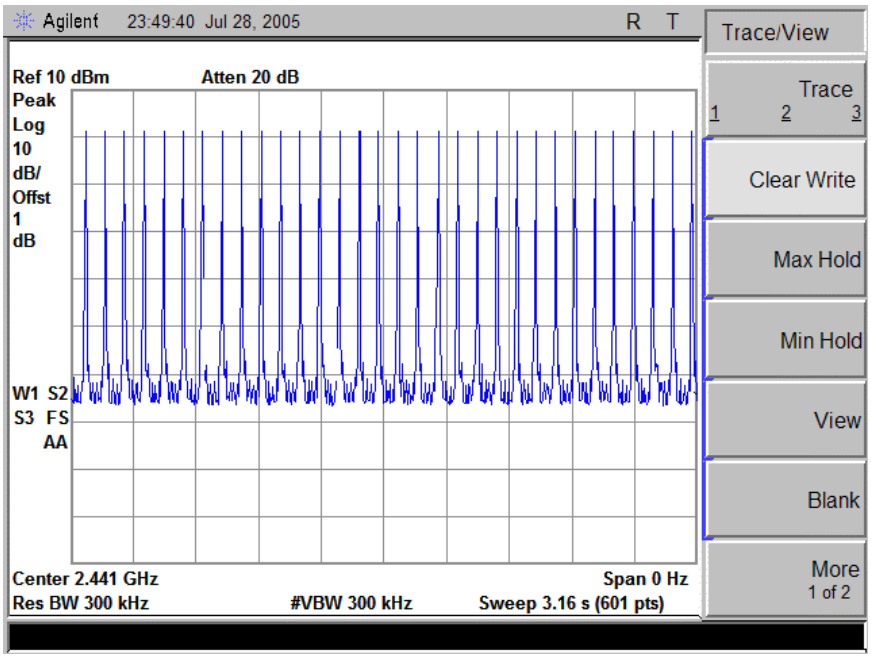
PULSE WIDTH



0.440 ms x 32 x 10 = 140.8 ms < 0.4 sec.

NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD

NUMBER OF PULSES



7.1.5. PEAK OUTPUT POWER

PEAK POWER LIMIT

§15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:

§15.247 (b) (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels: 1 watt.

§15.247 (b) (4) Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is 3.6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

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

RESULTS

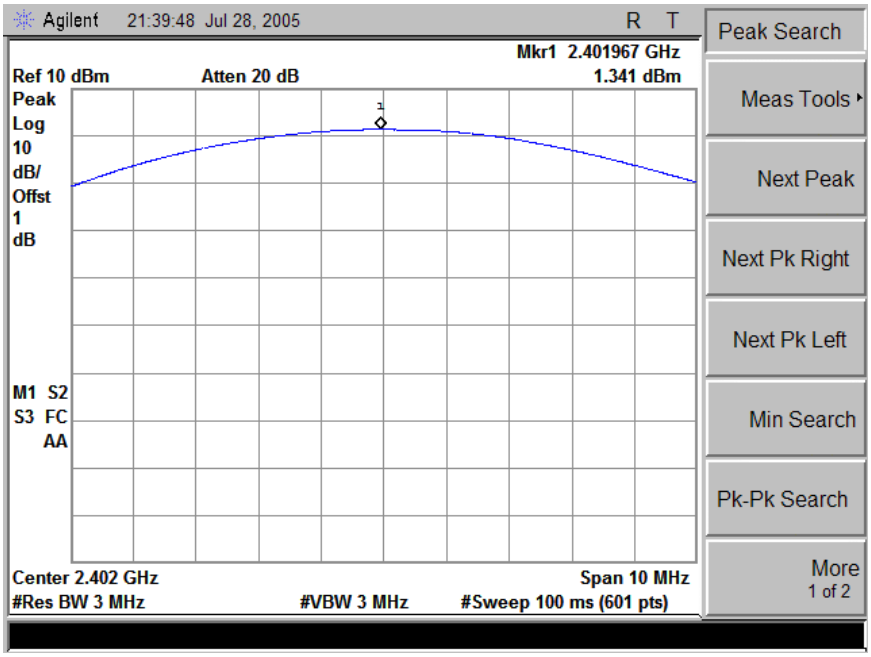
No non-compliance noted:

Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	1.34	30	-28.66
Middle	2441	1.36	30	-28.64
High	2480	0.11	30	-29.89

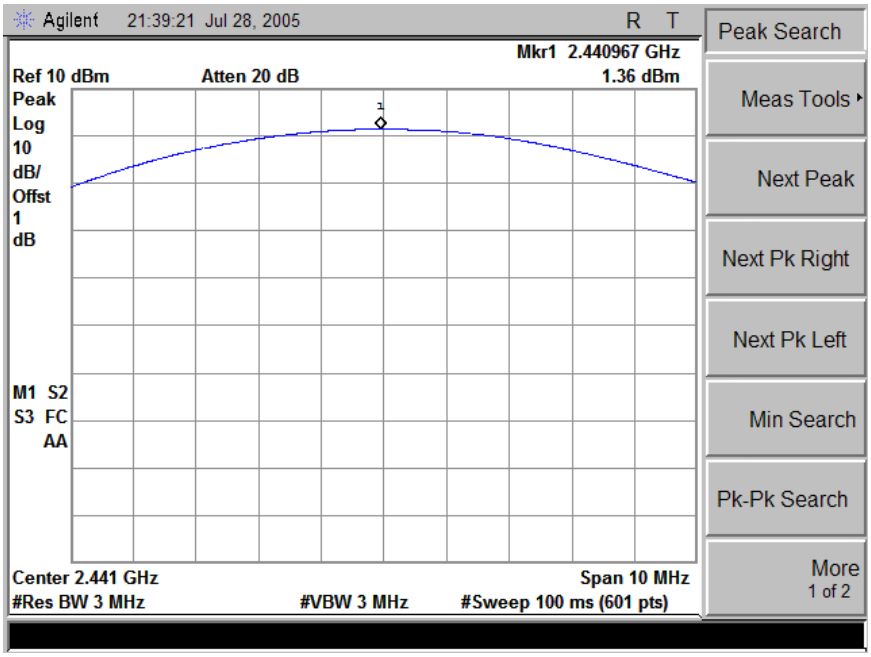
OUTPUT POWER

PEAK POWER LOW CH

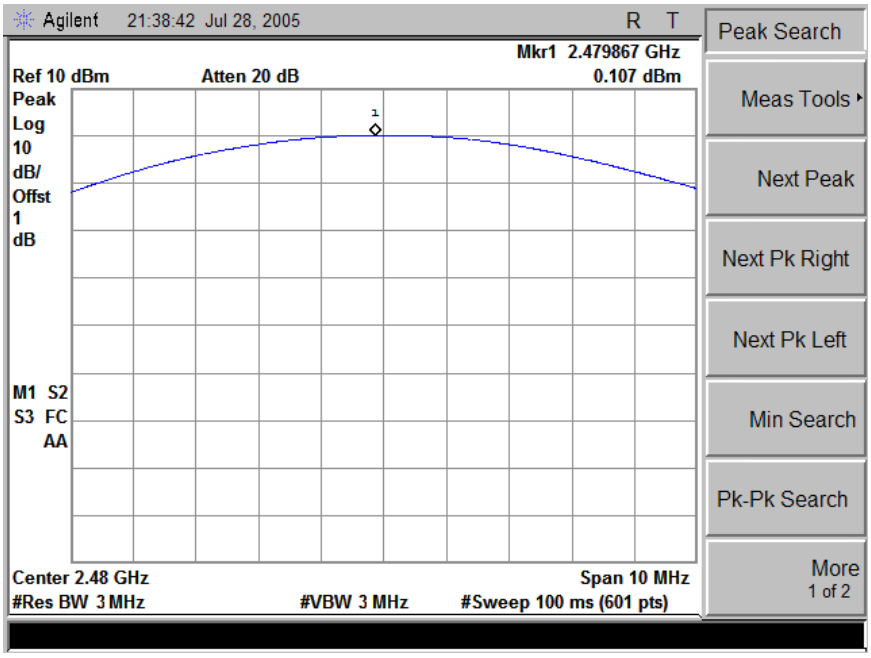
.



PEAK POWER MID CH



PEAK POWER HIGH CH



7.1.6. 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 1 dB (1dB 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	0.21
Middle	2441	0.30
High	2480	-0.93

7.1.7. PEAK POWER SPECTRAL DENSITY

LIMIT

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

§15.247 (f) The digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = 3 kHz and VBW > 3 kHz, sweep time = span / 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

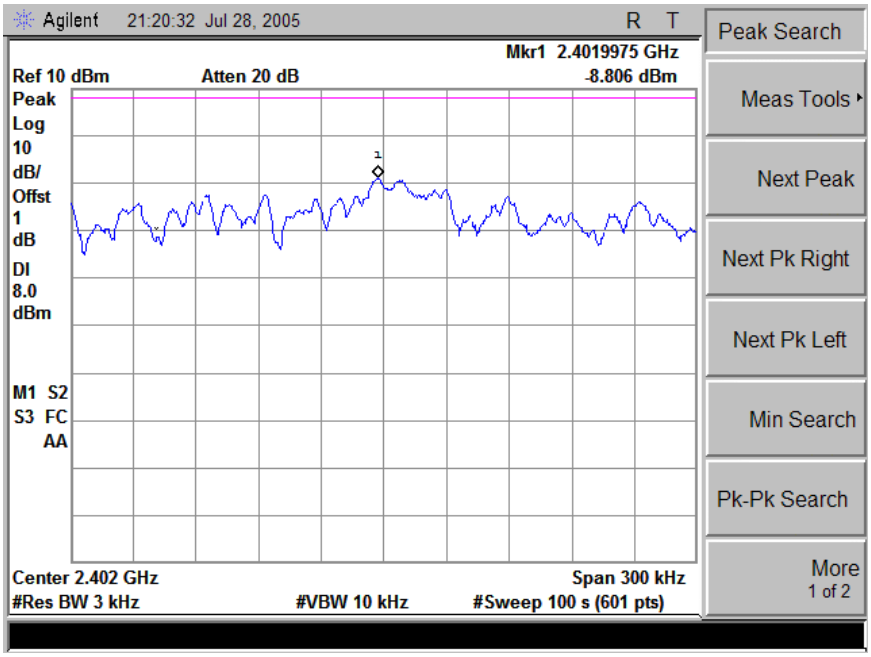
RESULTS

No non-compliance noted:

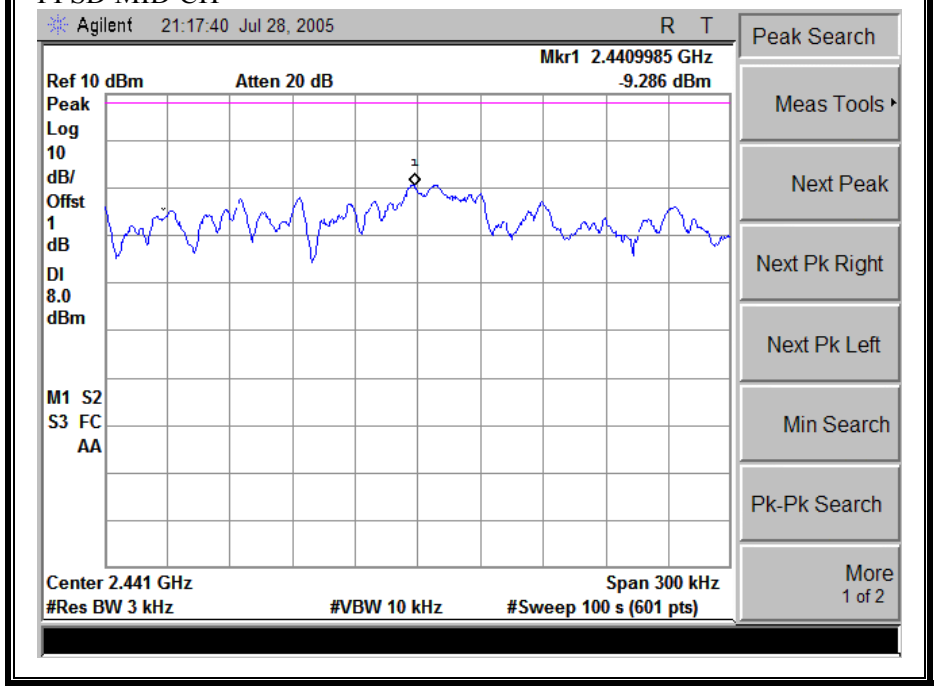
Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-8.81	8	-16.81
Middle	2441	-9.29	8	-17.29
High	2480	-10.15	8	-18.15

PEAK POWER SPECTRAL DENSITY

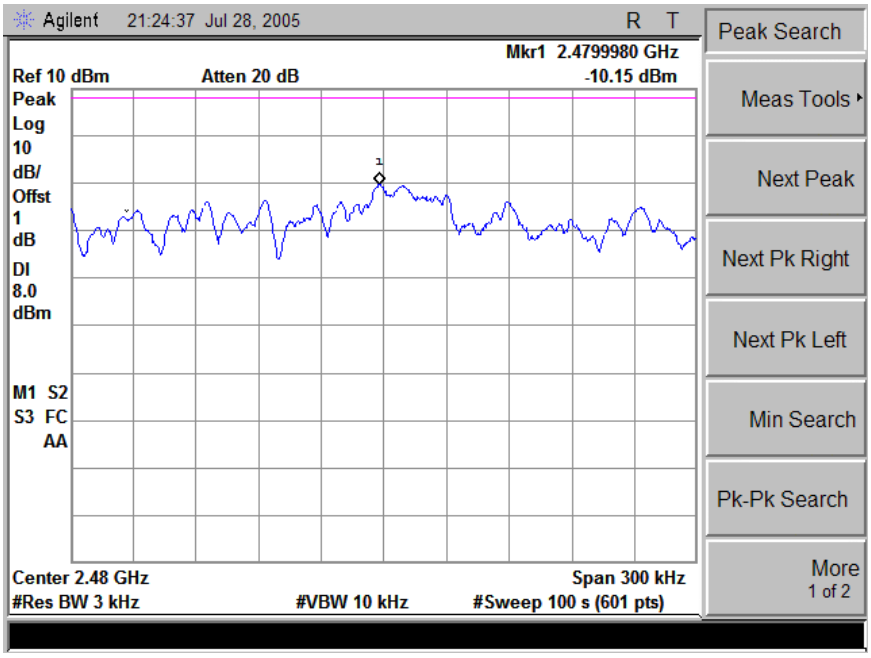
PPSD LOW CH



PPSD MID CH



PPSD HIGH CH



7.1.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

§15.247 (c) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

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.

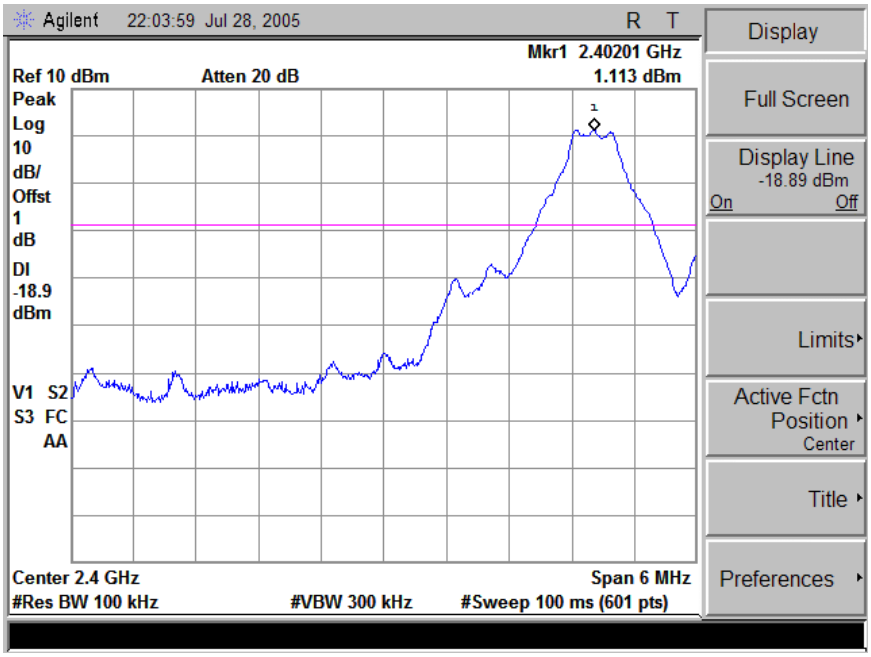
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

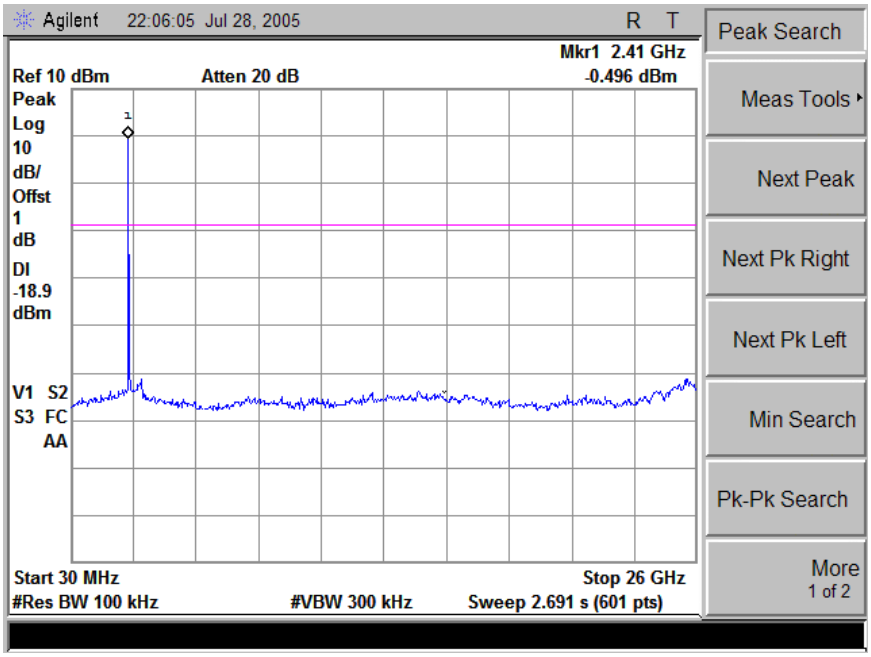
No non-compliance noted:

SPURIOUS EMISSIONS, LOW CHANNEL

LOW CHANNEL BANDEDGE

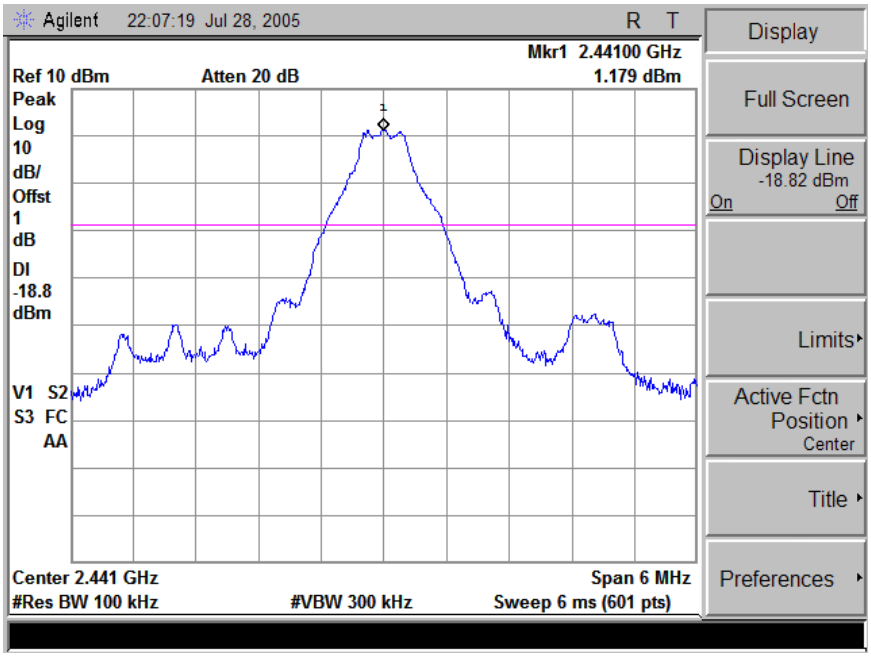


LOW CHANNEL SPURIOUS

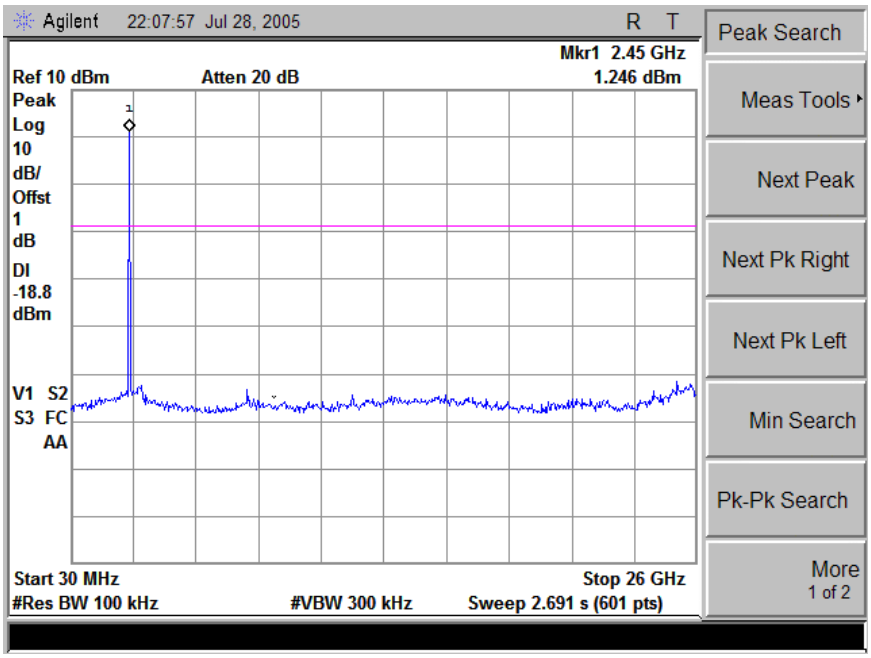


SPURIOUS EMISSIONS, MID CHANNEL

MID CHANNEL REFERENCE

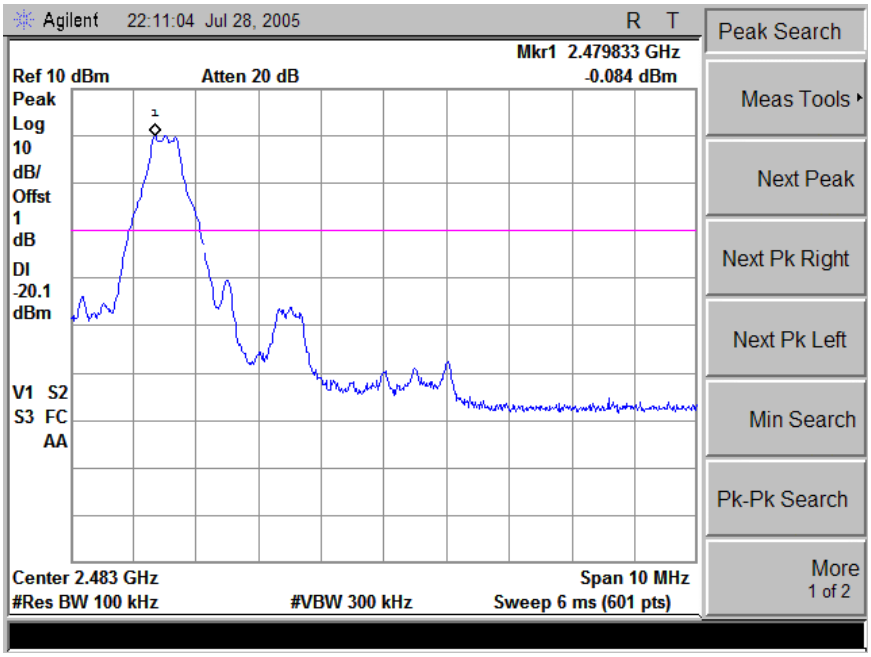


MID CHANNEL SPURIOUS

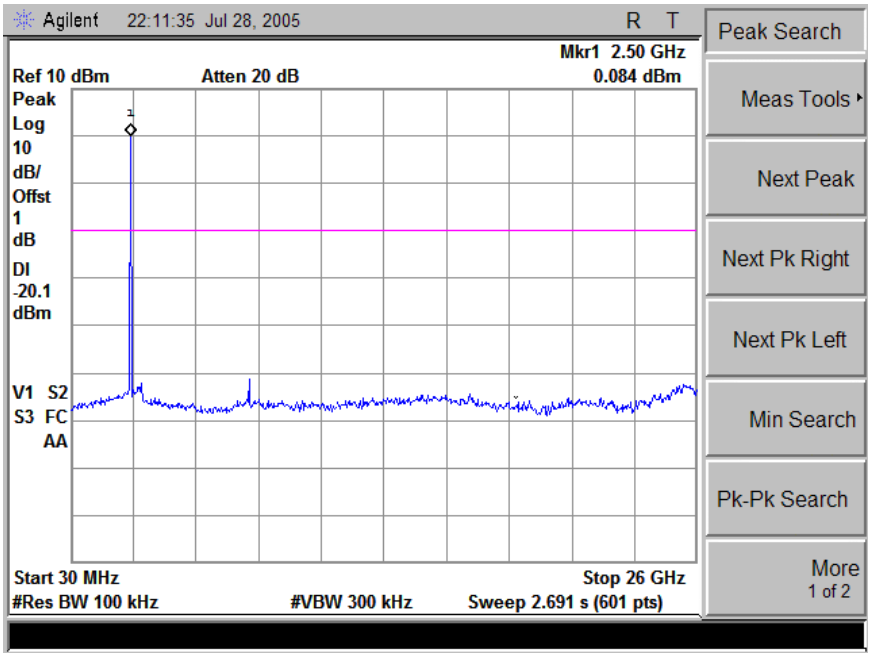


SPURIOUS EMISSIONS, HIGH CHANNEL

HIGH CHANNEL BANDEDGE

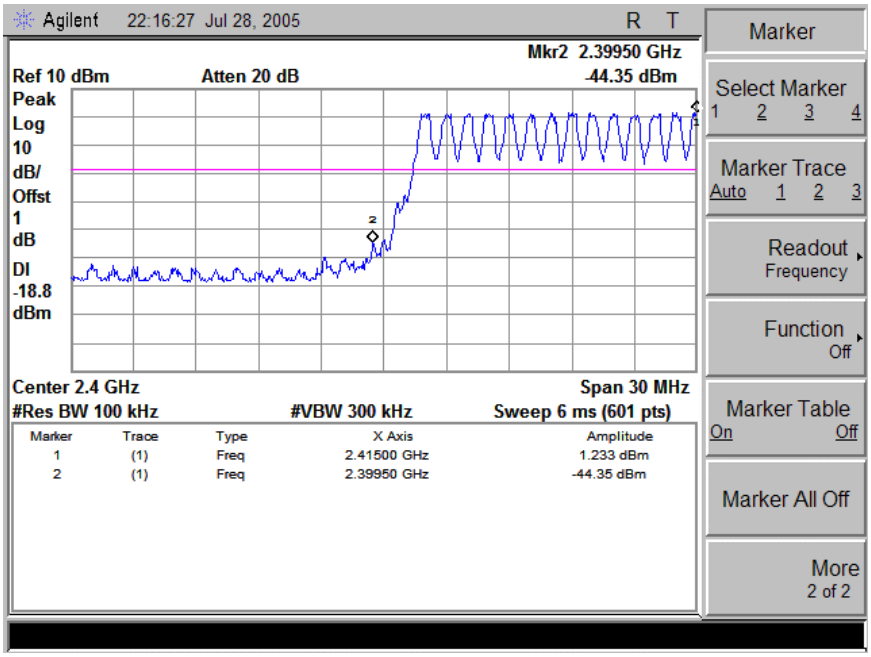


HIGH CHANNEL SPURIOUS

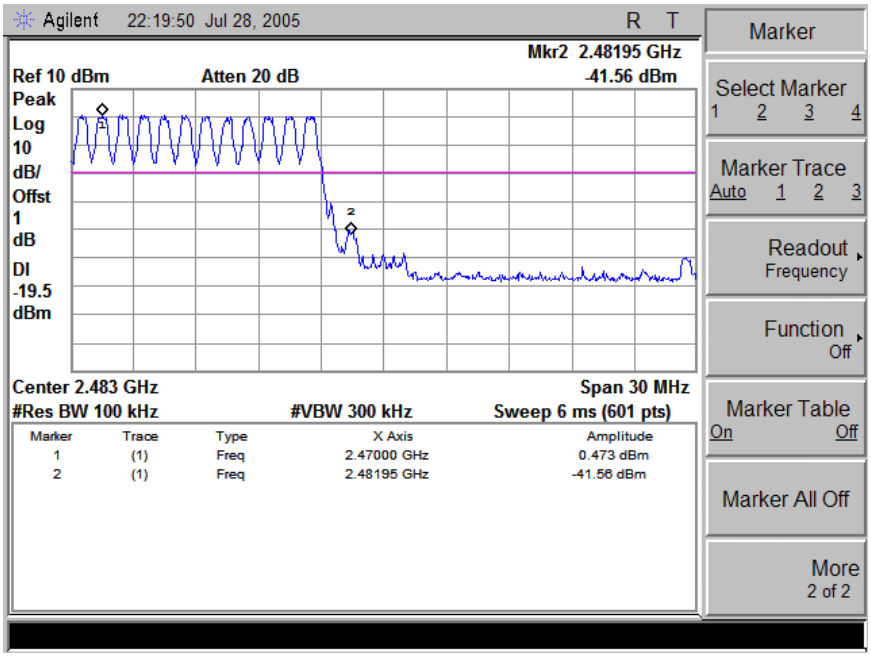


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

LOW BANDEDGE WITH HOPPING ON



HIGH BANDEDGE WITH HOPPING ON



7.2. RADIATED EMISSIONS

7.2.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

LIMITS

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2] Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

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 spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

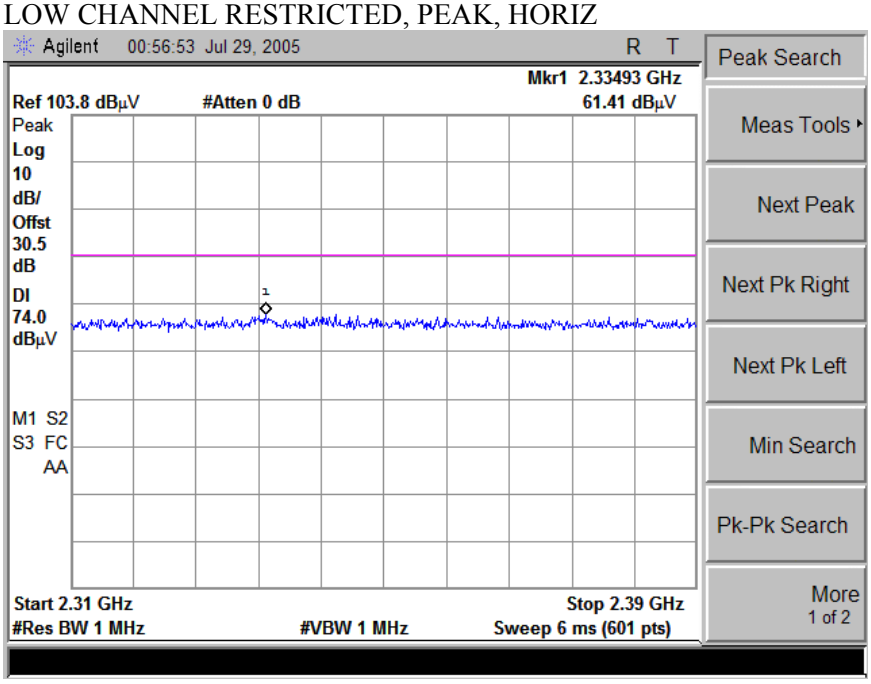
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

COMPLIANCE CERTIFICATION SERVICES DOCUMENT NO: CCSUP4031A
561F MONTEREY ROAD, MORGAN HILL, CA 95037 USA TEL: (408) 463-0885 FAX: (408) 463-0888

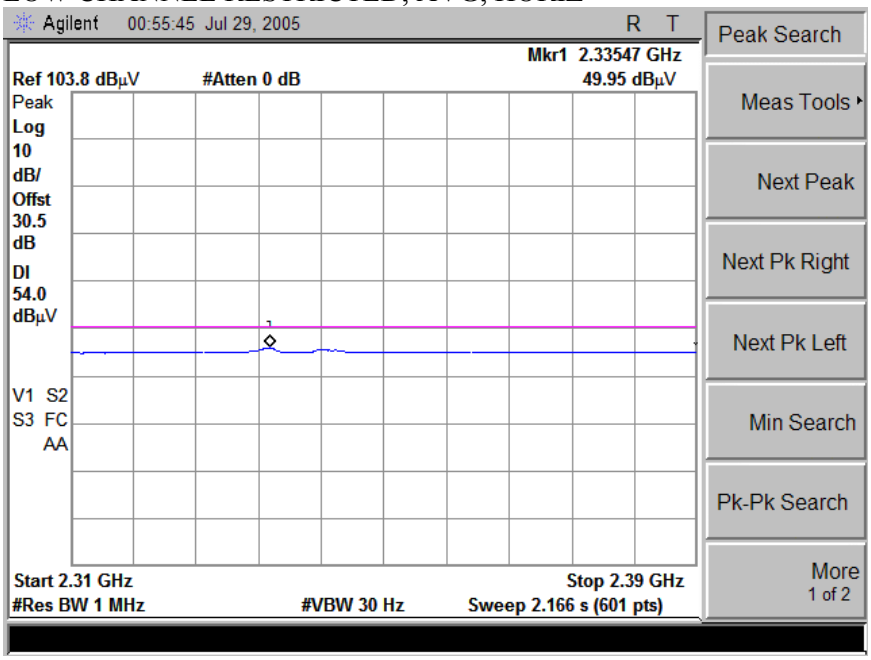
7.2.2. TRANSMITTER RADIATED EMISSIONS ABOVE 1 GHZ

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

LOW CHANNEL RESTRICTED, PEAK, HORIZ

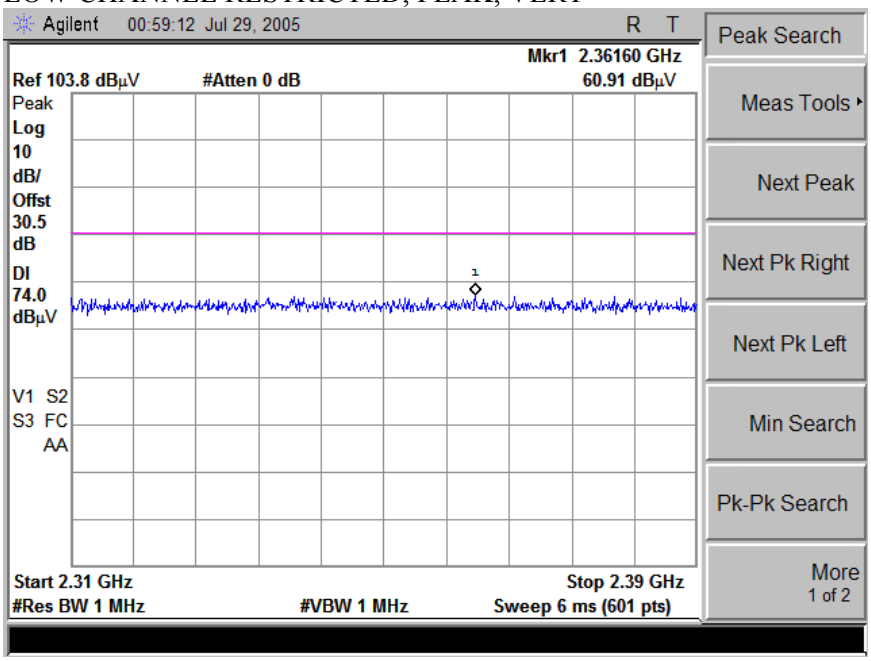


LOW CHANNEL RESTRICTED, AVG, HORIZ

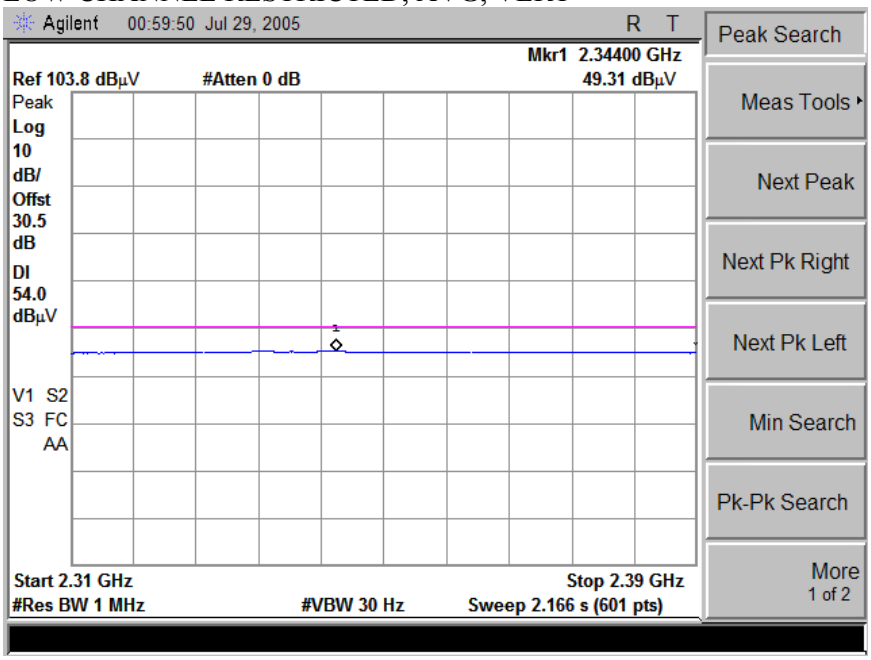


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

LOW CHANNEL RESTRICTED, PEAK, VERT

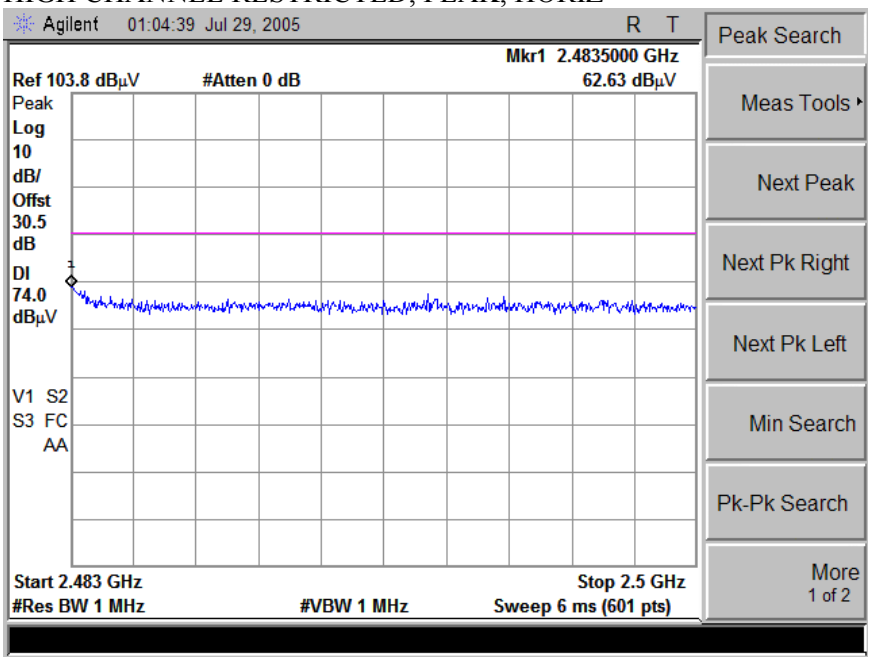


LOW CHANNEL RESTRICTED, AVG, VERT

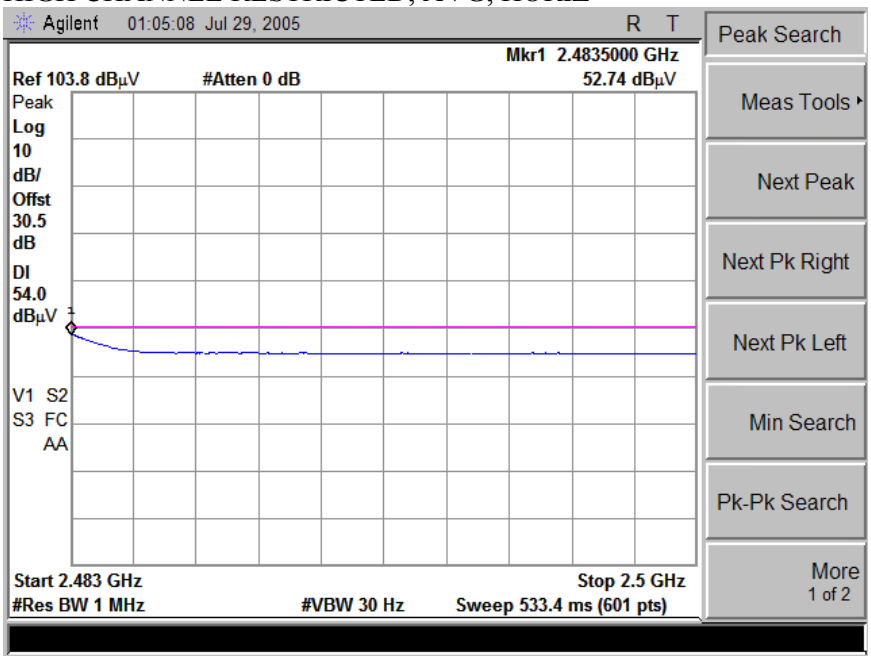


RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ

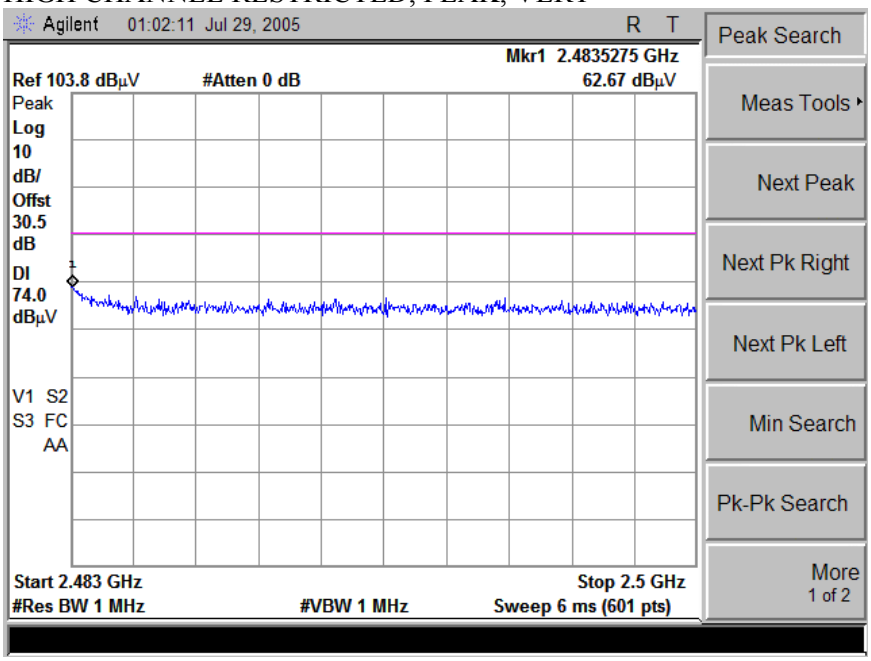


HIGH CHANNEL RESTRICTED, AVG, HORIZ

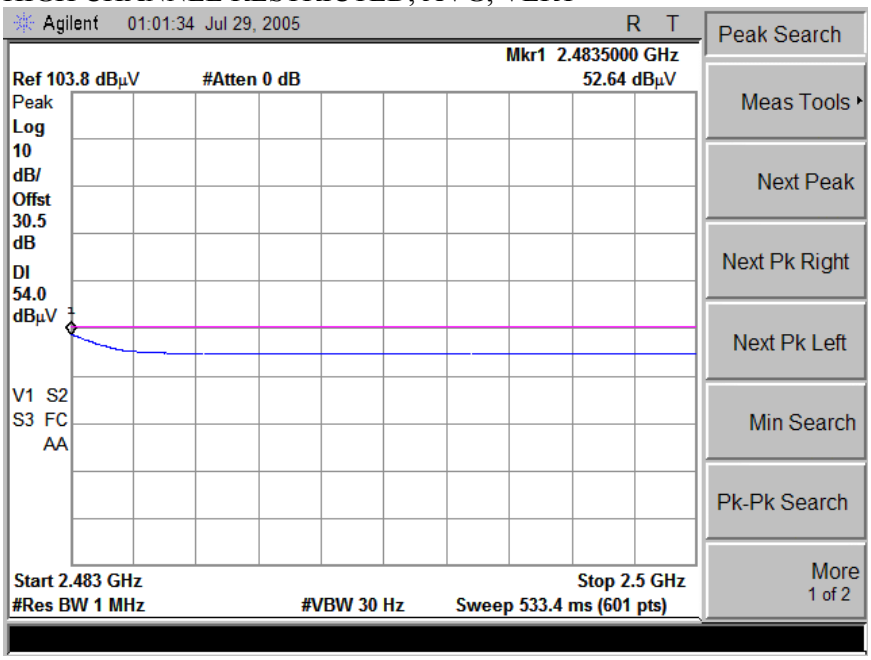


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

HIGH CHANNEL RESTRICTED, PEAK, VERT



HIGH CHANNEL RESTRICTED, AVG, VERT



HARMONICS AND SPURIOUS EMISSIONS

07/28/05 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr:Chin Pang
Project #:05U3538-1
Company:Orient Direct, Inc.
EUT Descrip.:Bluetooth Speaker Phone
EUT M/N:BTSP1
Test Target:FCC 15.247
Mode Oper:TX

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T73; S/N: 6717 @3m	T144 Miteq 3008A00931			FCC 15.205

Hi Frequency Cables

2 foot cable	3 foot cable	4 foot cable	12 foot cable	HPF	Reject Filter
	3_Chin		12_Neelesh	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															
4.804	3.0	51.0	40.5	33.7	3.7	-36.3	0.0	0.6	52.7	42.2	74	54	-21.3	-11.8	H
4.804	3.0	52.0	42.0	33.7	3.7	-36.3	0.0	0.6	53.7	43.7	74	54	-20.3	-10.3	V
Mid Ch															
4.882	3.0	50.7	40.7	33.8	3.8	-36.3	0.0	0.6	52.6	42.6	74	54	-21.4	-11.4	H
7.323	3.0	52.0	41.0	35.5	4.9	-36.7	0.0	0.6	56.4	45.4	74	54	-17.6	-8.6	H
4.882	3.0	51.2	44.5	33.8	3.8	-36.3	0.0	0.6	53.1	46.4	74	54	-20.9	-7.6	V
7.323	3.0	55.2	43.8	35.5	4.9	-36.7	0.0	0.6	59.6	48.2	74	54	-14.4	-5.8	V
High Ch															
4.960	3.0	50.0	39.0	33.9	3.8	-36.2	0.0	0.6	52.1	41.1	74	54	-21.9	-12.9	H
7.440	3.0	49.5	39.5	35.7	5.0	-36.7	0.0	0.6	54.1	44.1	74	54	-19.9	-9.9	H
4.960	3.0	51.4	40.0	33.9	3.8	-36.2	0.0	0.6	53.5	42.1	74	54	-20.5	-11.9	V
7.440	3.0	52.0	40.5	35.7	5.0	-36.7	0.0	0.6	56.6	45.1	74	54	-17.4	-8.9	V

Note: No other emissions were detected above the 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		

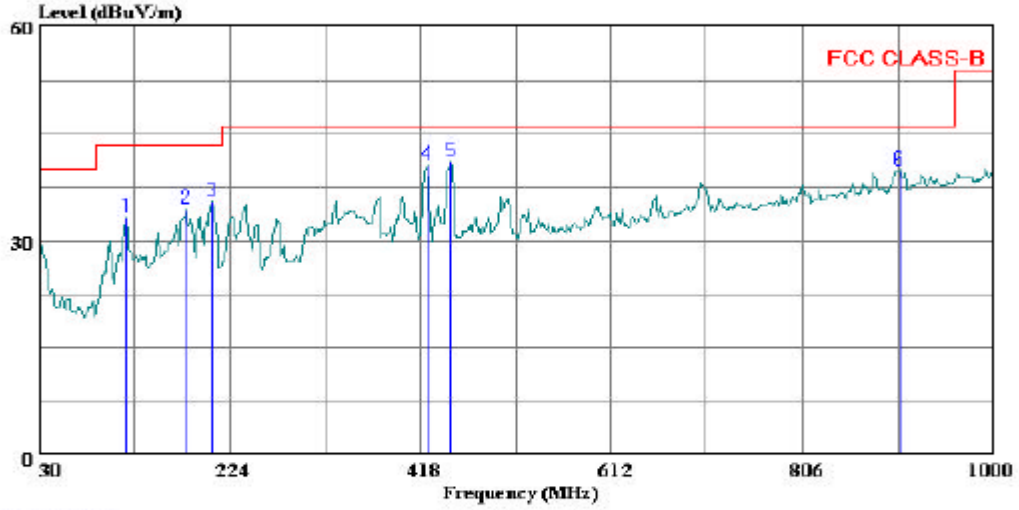
7.2.3. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

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

HORIZONTAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 13 File#: ODI .EMI Date: 07-29-2005 Time: 09:54:20



(Audix ATC)
Trace: 12 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator : Chin Pang
Project # : 05U3538-1
Company: : ORIENT DIRECT, INC. (ODI)
EUT: : Bluetooth Speaker Phone
Model No. : BTSP1
Configuration : EUT, AC/DC ADATER, MIC, AUDIO LINE
Target of Test : FCC Class B
Mode of Operation: TX (Mid Ch)

HORIZONTAL DATA

Page: 1

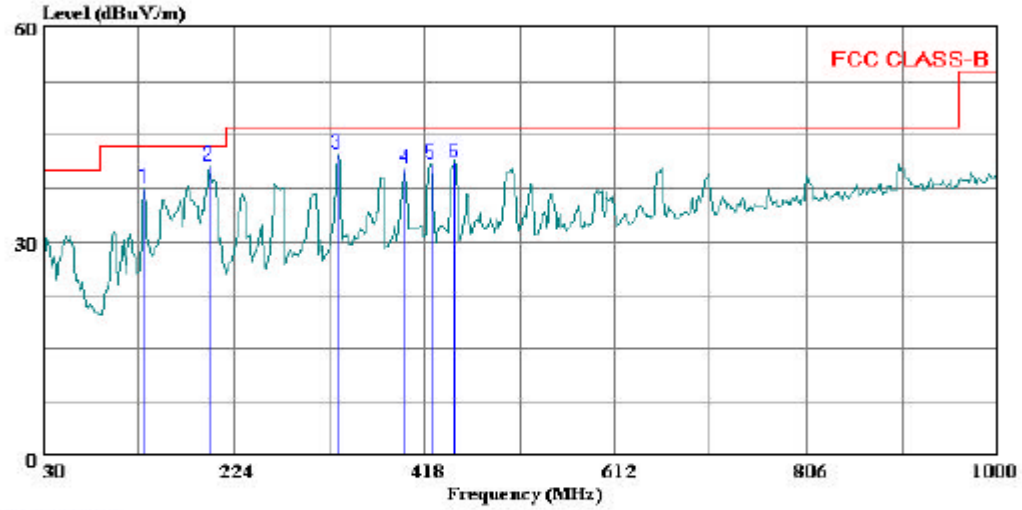
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	119.240	18.13	15.05	33.18	43.50	-10.32	Peak
2	179.380	21.52	13.03	34.55	43.50	-8.95	Peak
3	206.540	21.89	13.61	35.50	43.50	-8.00	Peak
4	424.790	22.00	18.64	40.64	46.00	-5.36	Peak
5	449.040	21.90	19.17	41.07	46.00	-4.93	Peak
6	903.970	13.99	25.97	39.96	46.00	-6.04	Peak

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

VERTICAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 11 File#: ODI .EMI Date: 07-29-2005 Time: 09:48:35



(Audix ATC)
Trace: 10 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : Chin Pang
Project #: : 05U3538-1
Company: : ORIENT DIRECT, INC. (ODI)
EUT: : Bluetooth Speaker Phone
Model No. : BTSP1
Configuration : EUT, AC/DC ADATER, MIC, AUDIO LINE
Target of Test : FCC Class B
Mode of Operation: TX (Mid Ch)

VERTICAL DATA

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	133.790	22.49	15.02	37.51	43.50	-5.99	Peak
2	198.780	26.43	14.37	40.80	43.50	-2.70	Peak
3	329.730	25.95	16.44	42.39	46.00	-3.61	Peak
4	397.630	22.37	17.99	40.36	46.00	-5.64	Peak
5	424.790	22.35	18.64	40.99	46.00	-5.01	Peak
6	448.070	21.95	19.13	41.08	46.00	-4.92	Peak

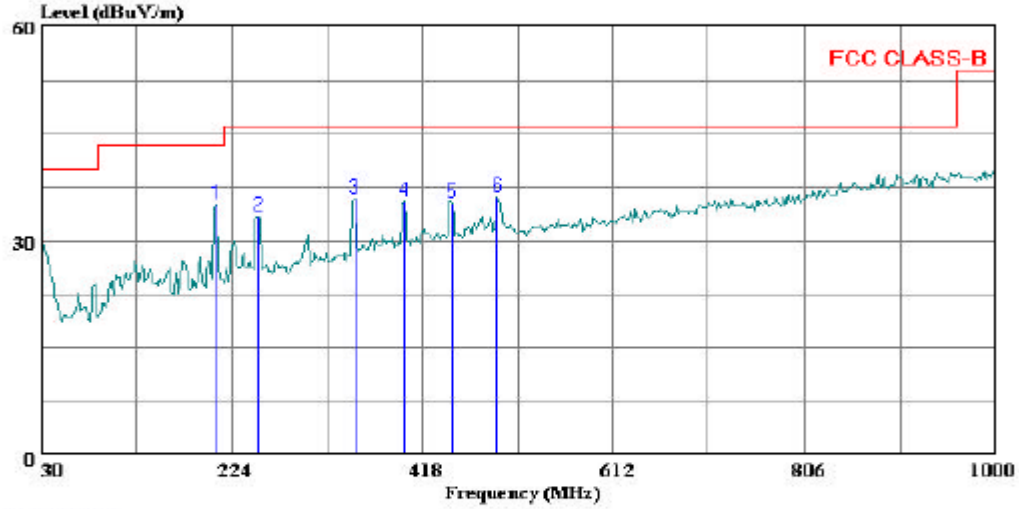
7.2.4. DIGITAL RADIATED EMISSIONS BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz, HORIZONTAL

HORIZONTAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 7 File#: Below1Ghz..EMI Date: 07-21-2005 Time: 10:01:42



(Audix ATC)
Trace: 6 Ref Trace:

Condition: FCC CLASS-B HORIZONTAL
Test Operator: : Thanh Nguyen
Project #: : 05U3538
Company: : ORIENT DIRECT, INC. (ODI)
EUT: : SPEAKER PHONE
Model No. : BTSP1
Configuration : EUT, AC/DC ADATER, MIC, AUDIO LINE
Target of Test : FCC, Class B
Mode of Operation: Normal Operation.

HORIZONTAL DATA

Page: 1

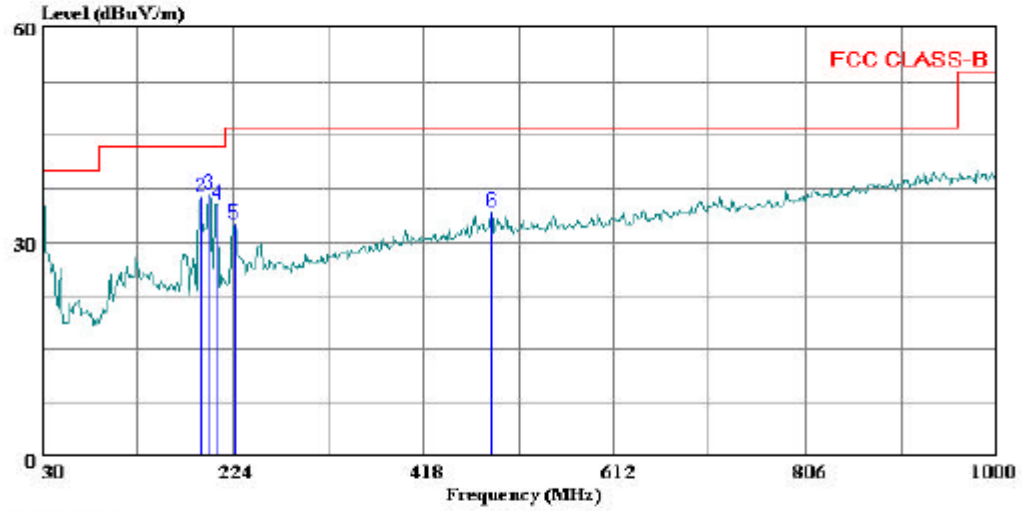
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	208.480	21.86	13.30	35.16	43.50	-8.34	Peak
2	251.160	19.50	13.93	33.43	46.00	-12.57	Peak
3	349.130	19.08	16.89	35.97	46.00	-10.03	Peak
4	399.570	17.41	18.03	35.44	46.00	-10.56	Peak
5	448.070	16.23	19.13	35.37	46.00	-10.63	Peak
6	494.630	16.07	20.14	36.21	46.00	-9.79	Peak

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

VERTICAL PLOT

561F Monterey Road
Morgan Hill, CA 95037
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 9 File#: Below1Ghz..EMI Date: 07-21-2005 Time: 10:04:05



(Audix ATC)
Trace: 8 Ref Trace:

Condition: FCC CLASS-B VERTICAL
Test Operator: : Thanh Nguyen
Project #: : 05U3538
Company: : ORIENT DIRECT, INC. (ODI)
EUT: : SPEAKER PHONE
Model No. : BTSP1
Configuration : EUT, AC/DC ADATER, MIC, AUDIO LINE
Target of Test : FCC, Class B
Mode of Operation: Normal Operation.

VERTICAL DATA

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	31.940	17.68	19.94	37.62	40.00	-2.38	Peak
2	191.990	23.11	13.25	36.36	43.50	-7.14	Peak
3	199.750	22.15	14.50	36.65	43.50	-6.85	Peak
4	208.480	21.95	13.30	35.25	43.50	-8.25	Peak
5	225.940	19.75	12.91	32.66	46.00	-13.34	Peak
6	487.840	14.27	20.00	34.27	46.00	-11.73	Peak

7.3. POWERLINE CONDUCTED EMISSIONS

LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

No non-compliance noted:

6 WORST EMISSIONS

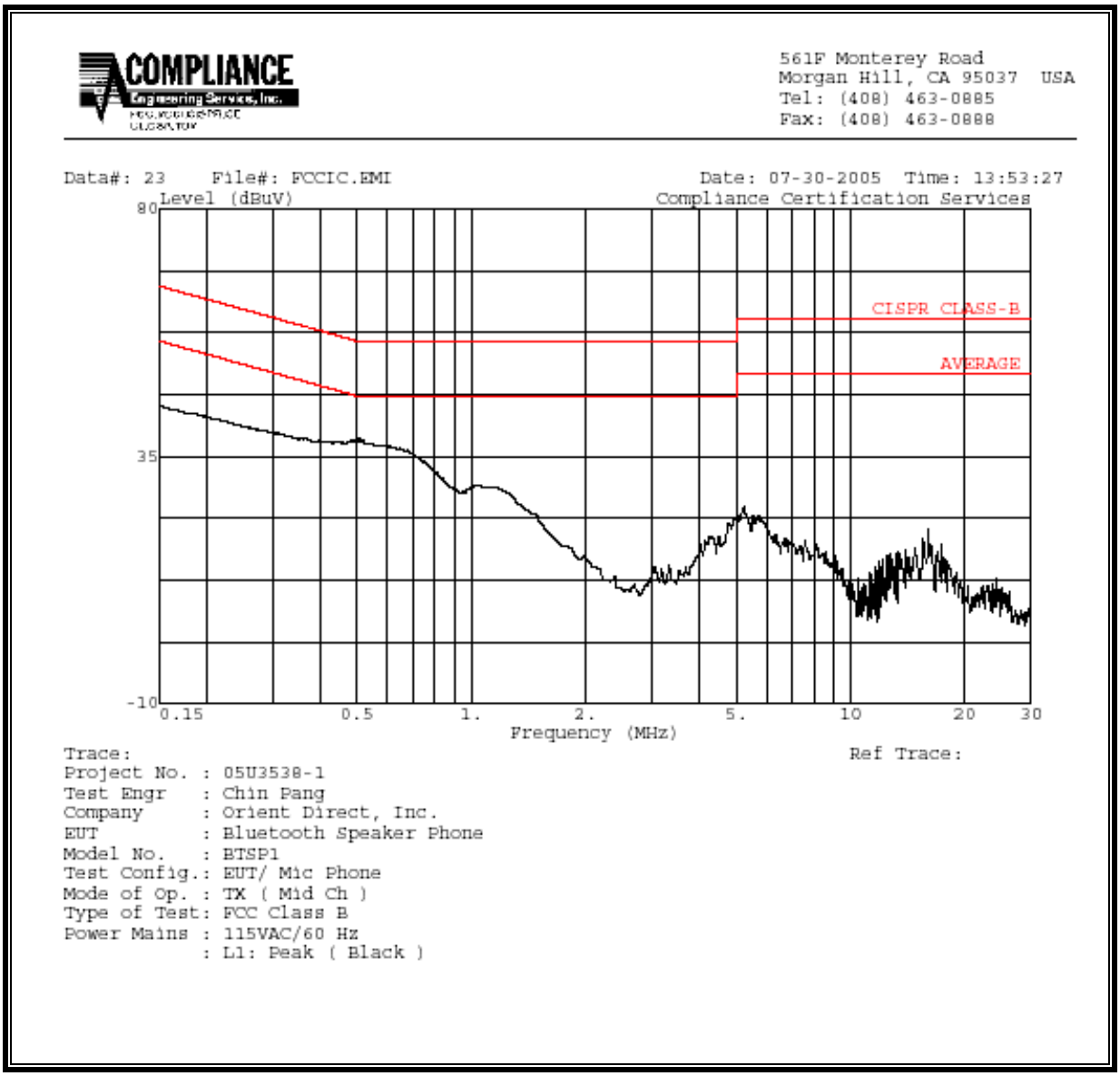
BLUETOOTH TRANSMITTING

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.16	43.72	--	--	0.00	65.52	55.52	-21.80	-11.80	L1
0.52	37.82	--	--	0.00	56.00	46.00	-18.18	-8.18	L1
5.00	23.84	--	--	0.00	60.00	50.00	-36.16	-26.16	L1
0.16	41.88	--	--	0.00	65.31	55.31	-23.43	-13.43	L2
0.45	32.36	--	--	0.00	56.89	46.89	-24.53	-14.53	L2
4.90	20.96	--	--	0.00	56.00	46.00	-35.04	-25.04	L2
6 Worst Data									

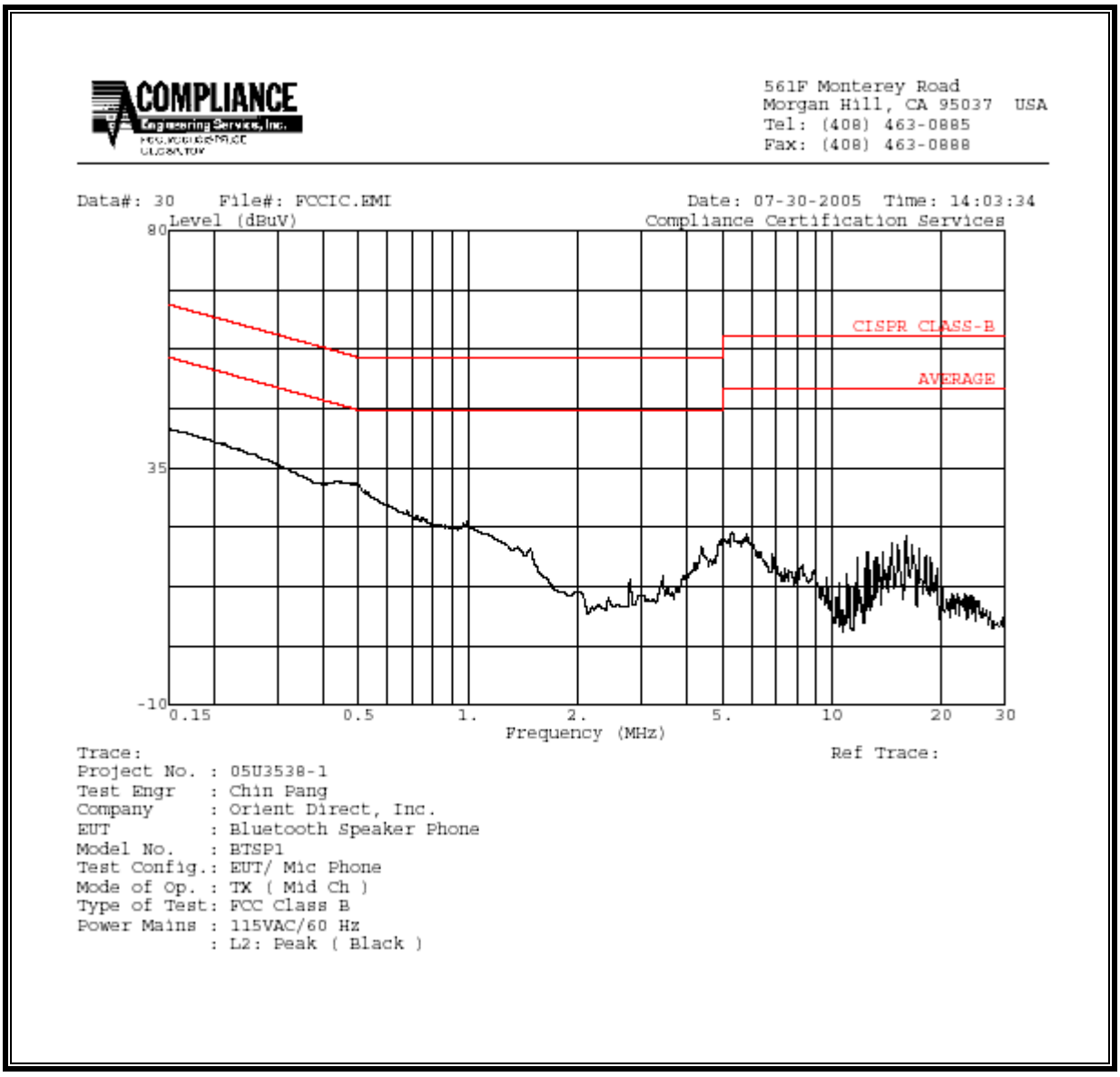
DIGITAL MODE

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	FCC_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.15	47.19	--	--	0.00	65.94	55.94	-18.75	-8.75	L1
4.93	20.22	--	--	0.00	56.00	46.00	-35.78	-25.78	L1
25.05	19.42	--	--	0.00	60.00	50.00	-40.58	-30.58	L1
0.15	45.72	--	--	0.00	65.84	55.84	-20.12	-10.12	L2
4.98	16.76	--	--	0.00	56.00	46.00	-39.24	-29.24	L2
24.01	19.50	--	--	0.00	60.00	50.00	-40.50	-30.50	L2
6 Worst Data									

LINE 1 RESULTS

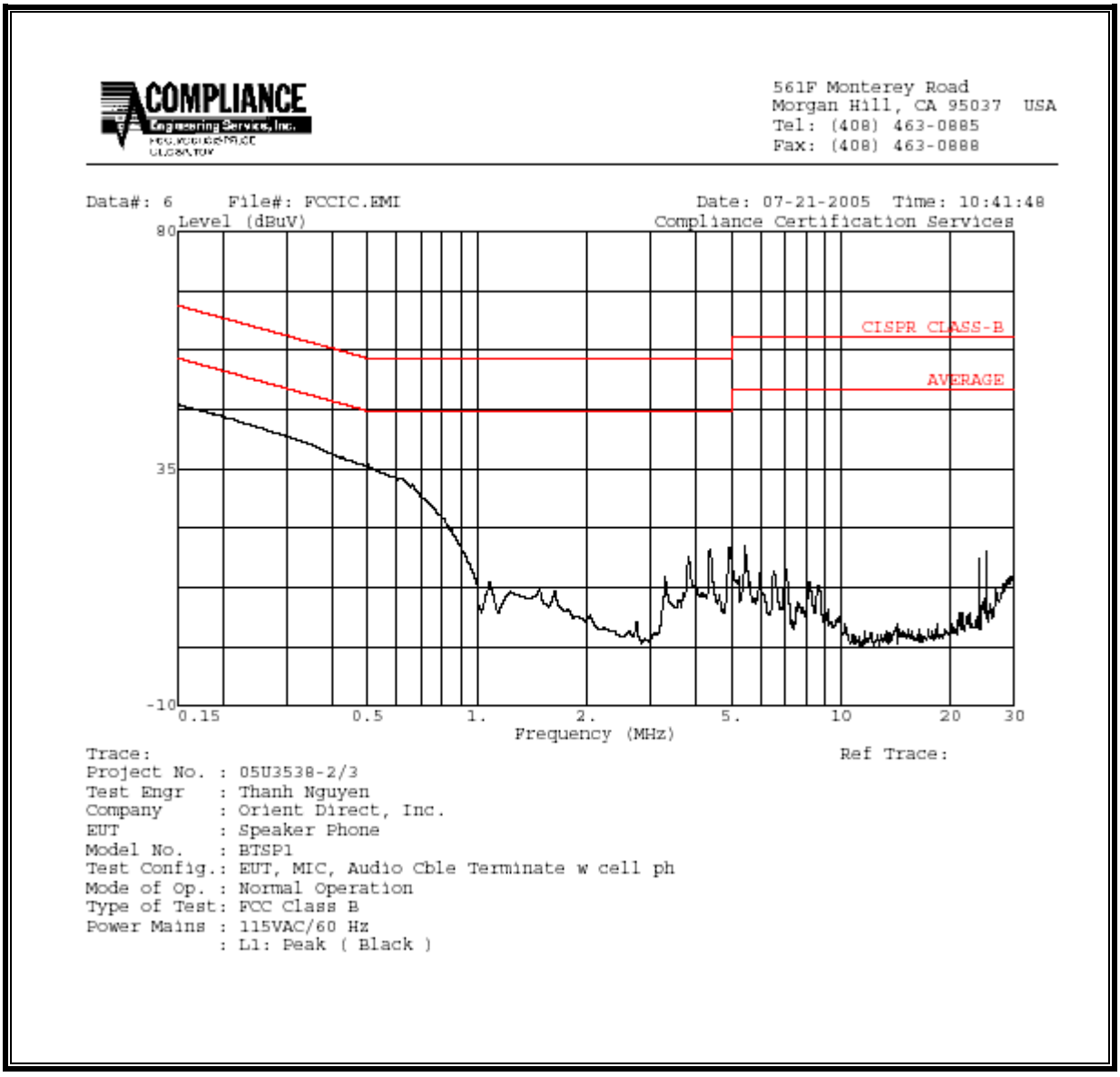


LINE 2 RESULTS



DIGITAL MODE

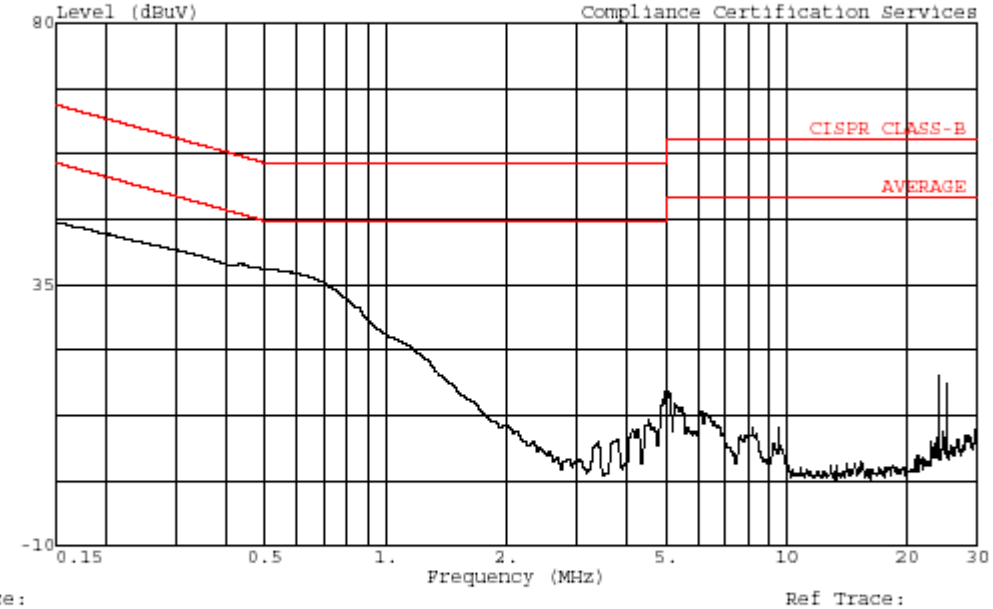
LINE 1 RESULTS



LINE 2 RESULTS

COMPLIANCE Engineering Services, Inc.
561F Monterey Road
Morgan Hill, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 13 File#: FCCIC.EMI Date: 07-21-2005 Time: 10:52:03

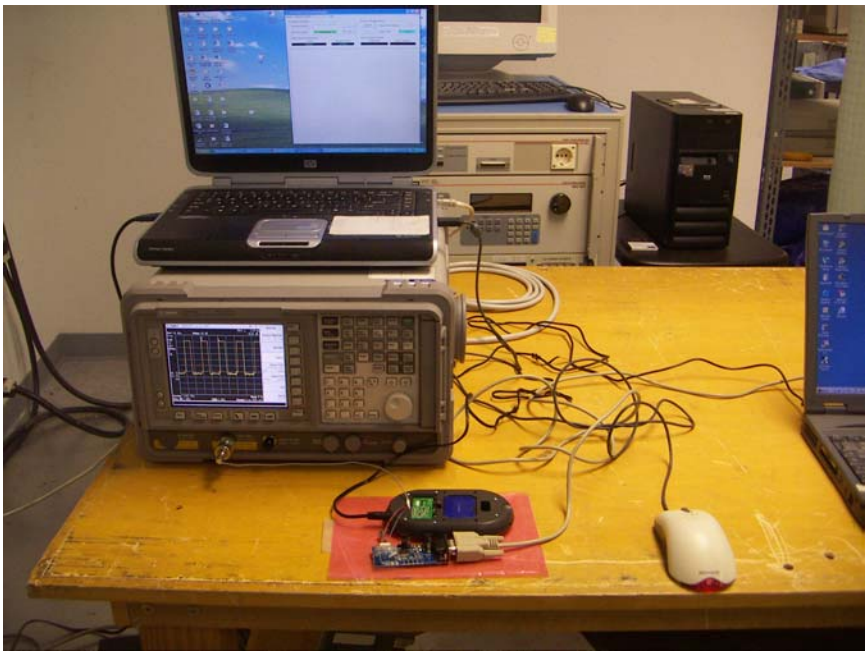


Trace: Ref Trace:
Project No. : 05U3538-2/3
Test Engr : Thanh Nguyen
Company : Orient Direct, Inc.
EUT : Speaker Phone
Model No. : BTSP1
Test Config.: EUT, MIC, Audio Cble Terminate w cell ph
Mode of Op. : Normal Operation
Type of Test: FCC Class B
Power Mains : 115VAC/60 Hz
: L2: Peak (Black)

8. SETUP PHOTOS

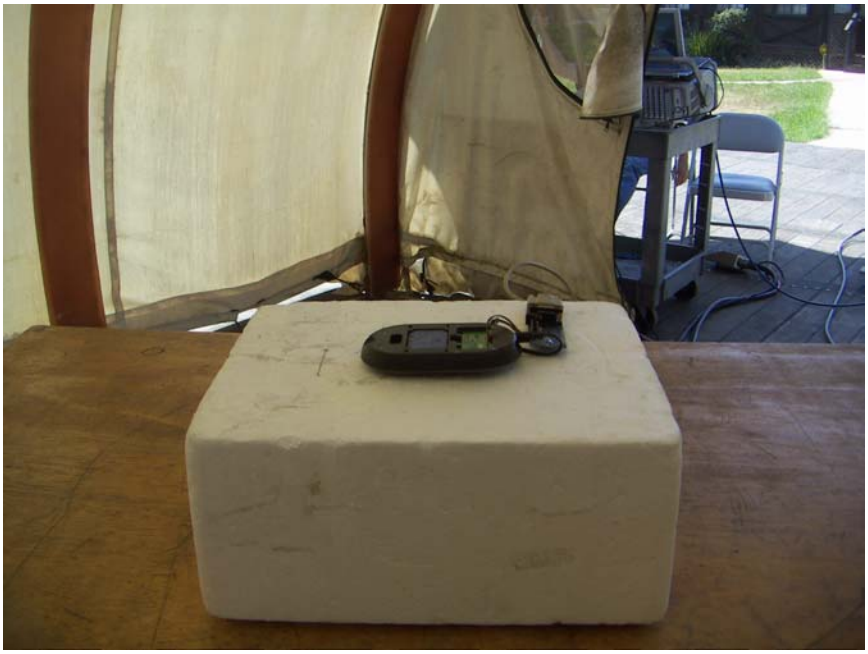
ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP

ANTENNA PORT CONDUCTED PHOTO

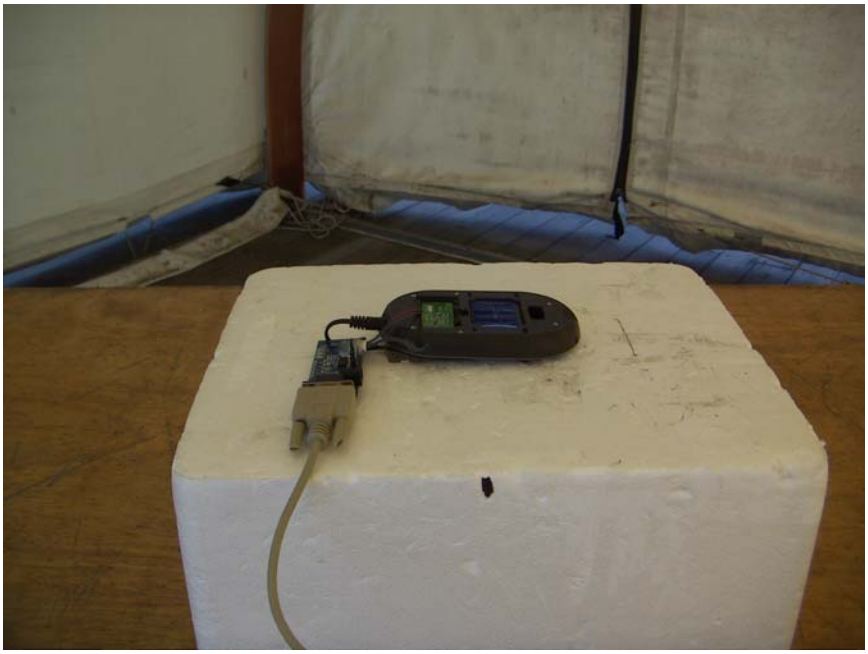


RADIATED RF MEASUREMENT SETUP FOR PORTABLE CONFIGURATION

X-AXIS FRONT PHOTO



X-AXIS BACK PHOTO

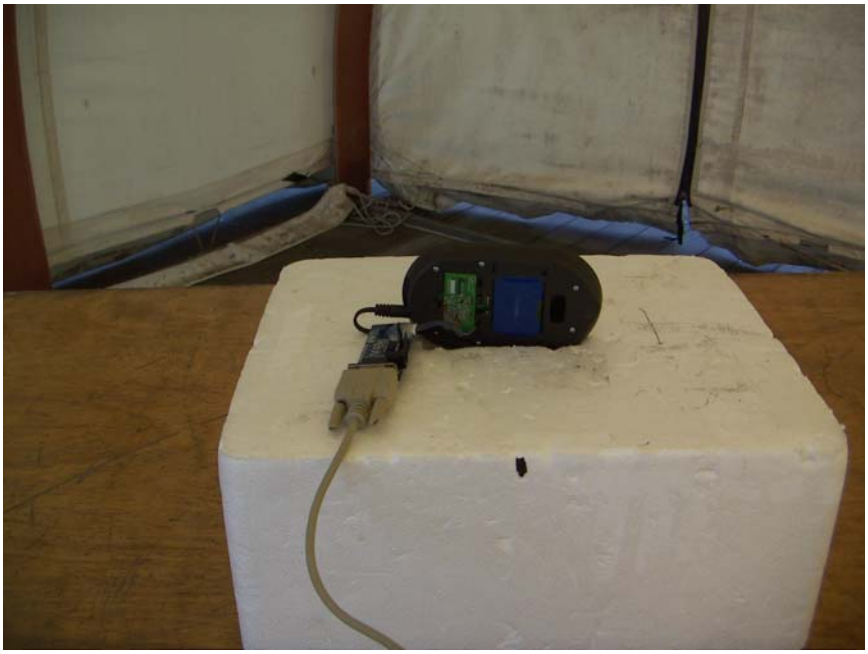


Y-AXIS FRONT PHOTO

Y-AXIS BACK PHOTO

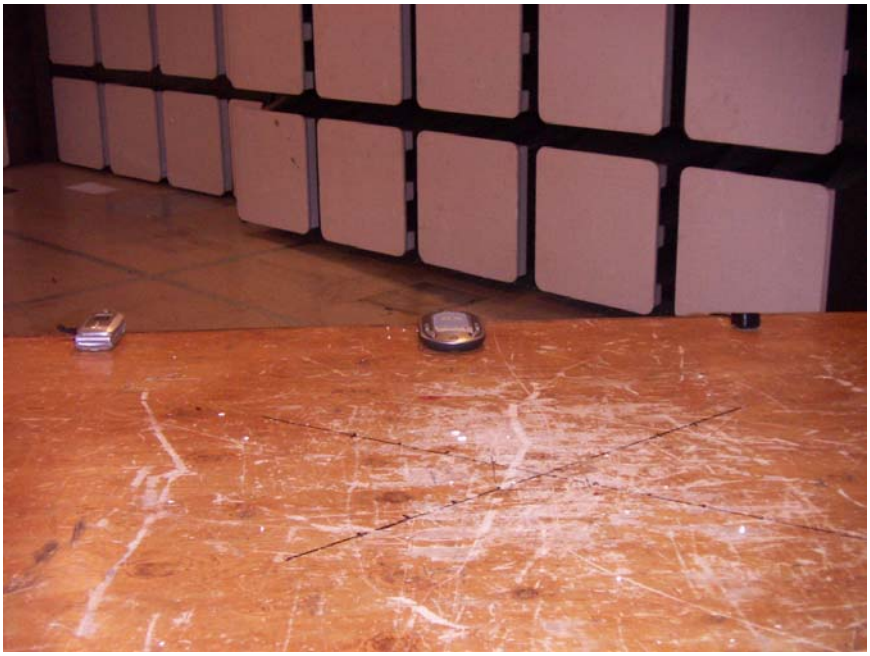
Z-AXIS FRONT PHOTO

Z-AXIS BACK PHOTO

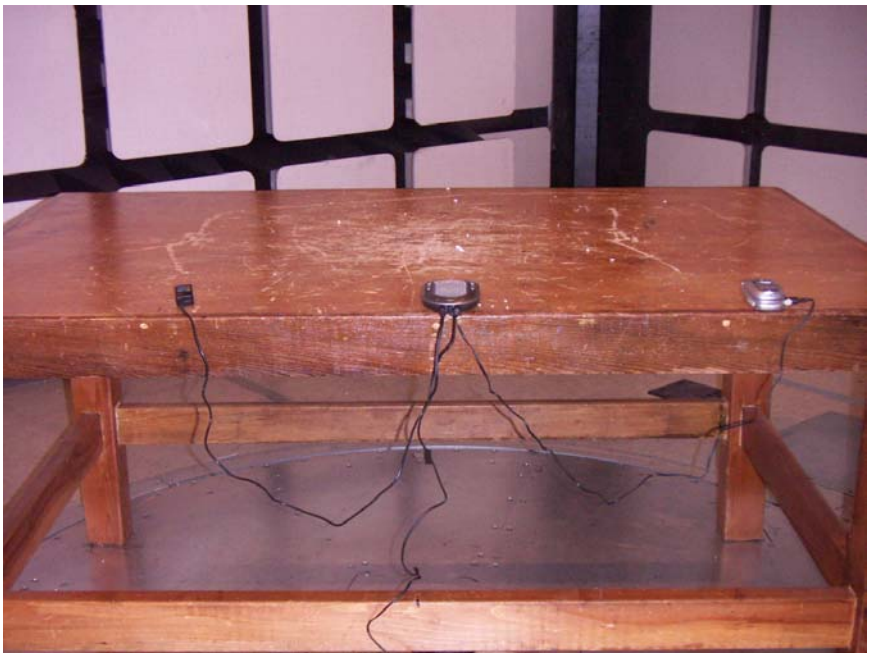


DIGITAL DEVICE RADIATED EMISSIONS SETUP

DIGITAL DEVICE FRONT PHOTO

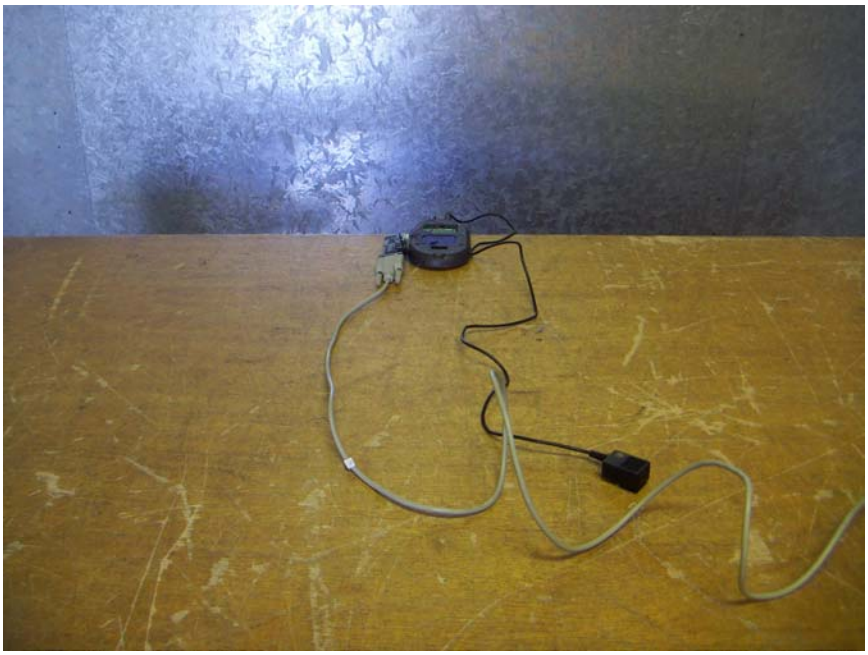


DIGITAL DEVICE BACK PHOTO



POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP

LINE CONDUCTED FRONT PHOTO



LINE CONDUCTED BACK PHOTO

POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP, DIGITAL MODE

LINE CONDUCTED FRONT PHOTO

LINE CONDUCTED BACK PHOTO

END OF REPORT