

Logitech, Inc.

ClearChat PC Wireless Headset M/N: A-00006

March 11, 2008

Report No. LABT0296.1

Report Prepared By



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1-888-EMI-CERT

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EMC Test Report

Certificate of Test

Issue Date: March 11, 2008
Logitech, Inc.

Model: ClearChat PC Wireless Headset M/N: A-00006

Emissions			
Test Description	Specification	Test Method	Pass/Fail
Spurious Radiated Emissions	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	Pass
Spurious Conducted Emissions	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	Pass
Peak Output power	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	Pass
Occupied Band Width	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	Pass
Band Edge Compliance	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	Pass
Power Spectral Density	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	Pass
Spurious Radiated Emissions of the Receiver	RSS-Gen:2007	RSS-Gen:2007	Pass
Conducted Emissions	FCC 15.207:2007	ANSI C63.4:2003	Pass
Radiated Emissions	FCC 15.109(g) (CISPR 22:1997):2007	ANSI C63.4:2003	Pass

Modifications made to the product

See the Modifications section of this report

Test Facility

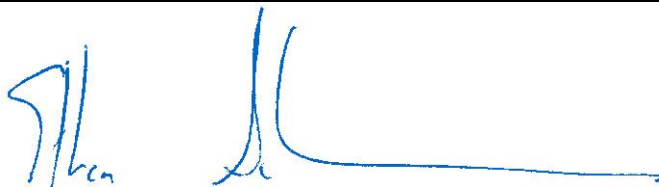
The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400
Hillsboro, OR 97124

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada.

Approved By:



Ethan Schoonover, Sultan Lab Manager



NVLAP Lab Code: 200630-0

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision Number	Description	Date	Page Number
00	None		

FCC: Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.



NVLAP: Northwest EMC, Inc. is accredited under the United States Department of Commerce, National Institute of Standards and Technology, and National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.



NVLAP LAB CODE 200629-0
 NVLAP LAB CODE 200630-0
 NVLAP LAB CODE 200676-0
 NVLAP LAB CODE 200761-0

Industry Canada: Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS 212, Issue 1 (Provisional) and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements.



CAB: Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.



TÜV Product Service: Included in TÜV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TÜV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TÜV's current Listing of CARAT Laboratories, available from TÜV. A certificate was issued to represent that this laboratory continues to meet TÜV's CARAT Program requirements. Certificate No. USA0604C.



TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.



NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).



Australia/New Zealand: The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).



VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. (*Registration Numbers. - Hillsboro: C-1071, R-1025, C-2687, T-289, and R-2318, Irvine: R-1943, C-2766, and T-298, Sultan: R-871, C-1784, and T-294.*)



BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement. License No.SL2-IN-E-1017.



GOST: Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification



MIC: Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157*)



SCOPE

For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/scope.asp>

How important is it to understand performance criteria?

It is the responsibility of the test laboratory to observe the results of the tests that are performed and to accurately report those results. As the responsible party (manufacturer, importer, etc) it is your responsibility to take those results, compare them against the specifications and standards, then, if appropriate make a declaration of conformity. As the responsible party it makes sense that you are fully aware of the requirements, how your device performs when tested to those requirements, and what information is being used to declare conformity.

To better assist you in making those conformity decisions, Northwest EMC has adopted a very simple, yet very clear performance assessment procedure. The following criteria is used when performing immunity or susceptibility tests:

Performance Criteria 1:

- ❑ The EUT exhibited no change in performance when operating as specified by the manufacturer. In this case no changes were observed during the test.
- ❑ In most cases this would be equivalent to Performance Criteria A. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, no changes were observed. Basically nothing happened.

Performance Criteria 2:

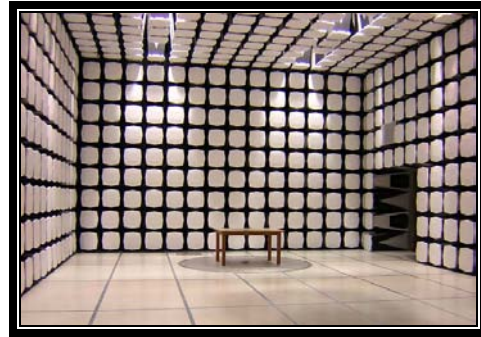
- ❑ The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment recovered without any operator intervention, once the test signal was removed. The data sheets will detail the exact phenomena observed.
- ❑ In most cases this would be equivalent to Performance Criteria B. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT was able to recover from those changes without any operator intervention, once the test signal was removed.

Performance Criteria 3:

- ❑ The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment required some operator intervention in order to recover. This intervention may be in the form of changing EUT settings, or even resetting the system. The data sheets will detail the exact phenomena observed.
- ❑ In most cases this would be equivalent to Performance Criteria C. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. The EUT required some sort of operator intervention to recover. There was no permanent damage and the EUT appeared to function normally after completion of test.

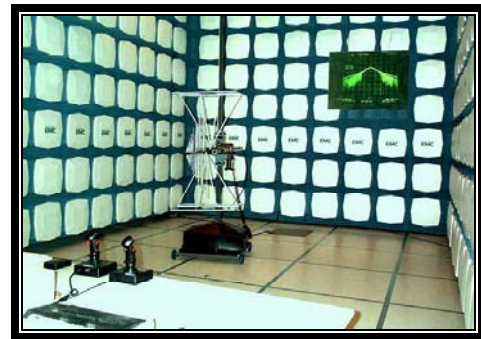
Performance Criteria 4:

- ❑ The EUT exhibited a change in performance when operating as specified by the manufacturer. In this case the equipment was damaged and would not recover. The data sheets will detail the exact phenomena observed.
- ❑ In most cases there is no specific criterion to compare this to; it typically ends the test. When operating the equipment in the modes or configurations specified by the responsible party, monitoring the parameters specified, changes were observed. There was no recovery; the equipment would no longer function as intended.



**California – Orange County Facility
Labs OC01 – OC13**

41 Tesla Ave. Irvine, CA 92618
(888) 364-2378 Fax: (503) 844-3826



**Oregon – Evergreen Facility
Labs EV01 – EV11**

22975 NW Evergreen Pkwy. Suite 400 Hillsboro, OR 97124
(503) 844-4066 Fax: (503) 844-3826



**Washington – Sultan Facility
Labs SU01 – SU07**

14128 339th Ave. SE Sultan, WA 98294
(888) 364-2378

Party Requesting the Test

Company Name:	Logitech, Inc.
Address:	1499 SE Tech Center Place Suite 350
City, State, Zip:	Vancouver, WA 98683
Test Requested By:	Aaron Cohen
Model:	ClearChat PC Wireless Headset M/N: A-00006
First Date of Test:	March 4, 2008
Last Date of Test:	March 8, 2008
Receipt Date of Samples:	February 22, 2008
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):

The ClearChat PC Wireless Headset (A-00006) transmit/receives in pi/4-DQPSK modulation only. It has two antennas (but only one antenna output port - antennas use a switch). The radio operates in the 2400-2483.5 MHz band.

Testing Objective:

Logitech is seeking a limited modular approval of the radio under FCC 15.247.

CONFIGURATION 1 LABT0296**Software/Firmware Running during test**

Description	Version
AWAdeveloper	1.0.076

EUT

Description	Manufacturer	Model/Part Number	Serial Number
ClearChat PC Wireless Headset	Logitech, Inc.	A-00006	Unknown

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
AC Adapter	Logitech, Inc.	P925BW06042AB50	Unknown

Remote Equipment Outside of Test Setup Boundary

Description	Manufacturer	Model/Part Number	Serial Number
SPI/USB Converter	Avnera	USB to SPI Converter	24
Connector Board	Logitech, Inc.	210-000247-002	Unknown
Laptop	Dell	PP20L	Unknown

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
SPI	No	0.3m	No	Headset	SPI/USB converter (during set-up only)
DC	No	1.6m	No	Headset	AC Adapter
SPI	No	0.2m	No	Connector Board	SPI/USB converter
USB	Yes	1.0m	Yes	SPI/USB converter	Laptop

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

CONFIGURATION 5 LABT0296**Software/Firmware Running during test**

Description	Version
AWAdeveloper	1.0.076

EUT

Description	Manufacturer	Model/Part Number	Serial Number
ClearChat PC Wireless Headset	Logitech, Inc.	A-00006	210-000226-008

Remote Equipment Outside of Test Setup Boundary

Description	Manufacturer	Model/Part Number	Serial Number
SPI/USB Converter	Avnera	USB to SPI Converter	24
Connector Board	Logitech, Inc.	210-000247-002	Unknown
Laptop	Dell	PP20L	Unknown

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
SPI	No	0.3m	No	Headset	SPI/USB converter (during set-up only)
SPI	No	0.2m	No	Connector Board	SPI/USB converter
USB	Yes	1.0m	Yes	SPI/USB converter	Laptop

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	2\25\2008	Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	3/4/2008	Peak Output Power	Modified from delivered configuration. Initial or No Modification	Installed C39. 9pF cap between C36 pin 1 and C37 pin 1. Modification done by Aaron Cohen.	EUT remained at Northwest EMC following the test.
3	3/4/2008	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	3/4/2008	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	3/4/2008	Spurious conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	3/5/2008	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	3/8/2008	Occupied Band Width	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Pink Noise playing at 50% volume level. Running NWEMC H pattern.

MODE USED FOR FINAL DATA

Pink Noise playing at 50% volume level. Running NWEMC H pattern.

POWER SETTINGS INVESTIGATED

230VAC/50Hz

120VAC/60Hz

POWER SETTINGS USED FOR FINAL DATA

120VAC/60Hz

FREQUENCY RANGE INVESTIGATED

Start Frequency	30MHz	Stop Frequency	1000MHz
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SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Biconilog	EMCO	3142	AXB	1/15/2008	24
EV11 Cables		10m Test Distance Cables	EVL	5/1/2007	13
Pre-Amplifier	Miteq	AM-1551	AOY	5/1/2007	13
Spectrum Analyzer	Agilent	E4443A	AAS	12/7/2007	13

MEASUREMENT BANDWIDTHS

	Frequency Range	Peak Data	Quasi-Peak Data	Average Data
	(MHz)	(kHz)	(kHz)	(kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a final radiated emission frequency range investigated (scanned), is also noted in this report. Radiated emission: EUT azimuth and antenna height such that the maximum radiated emissions level will be measured by a turntable and an antenna positioner. The preferred method of a continuous azimuth scan of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly positioned antenna at the specified distance from the periphery of the EUT.

Tests were made with the antenna positioned in both the horizontal and vertical planes (or varied in height above the conducting ground plane to obtain the maximum signal strength). The measurement distance shall be 3 meters or 10 meters. At any measurement distance from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization. For vertical polarization the minimum height of the center of the antenna shall be increased so that the antenna clears the ground surface by at least 25 cm.

EUT:	ClearChat PC Wireless Headset and Dongle	Work Order:	LABT0297
Serial Number:	Unknown	Date:	02/25/08
Customer:	Logitech, Inc.	Temperature:	23 °C
Attendees:	none	Humidity:	31%
Project:	N/A	Barometric Pres.:	1026.5mb
Tested by:	David DiVergigelis	Power:	120VAC/60Hz
		Job Site:	EV11

TEST SPECIFICATIONS	Test Method
FCC 15.109(g) (CISPR 22:1997):2007 Class B	ANSI C63.4:2003

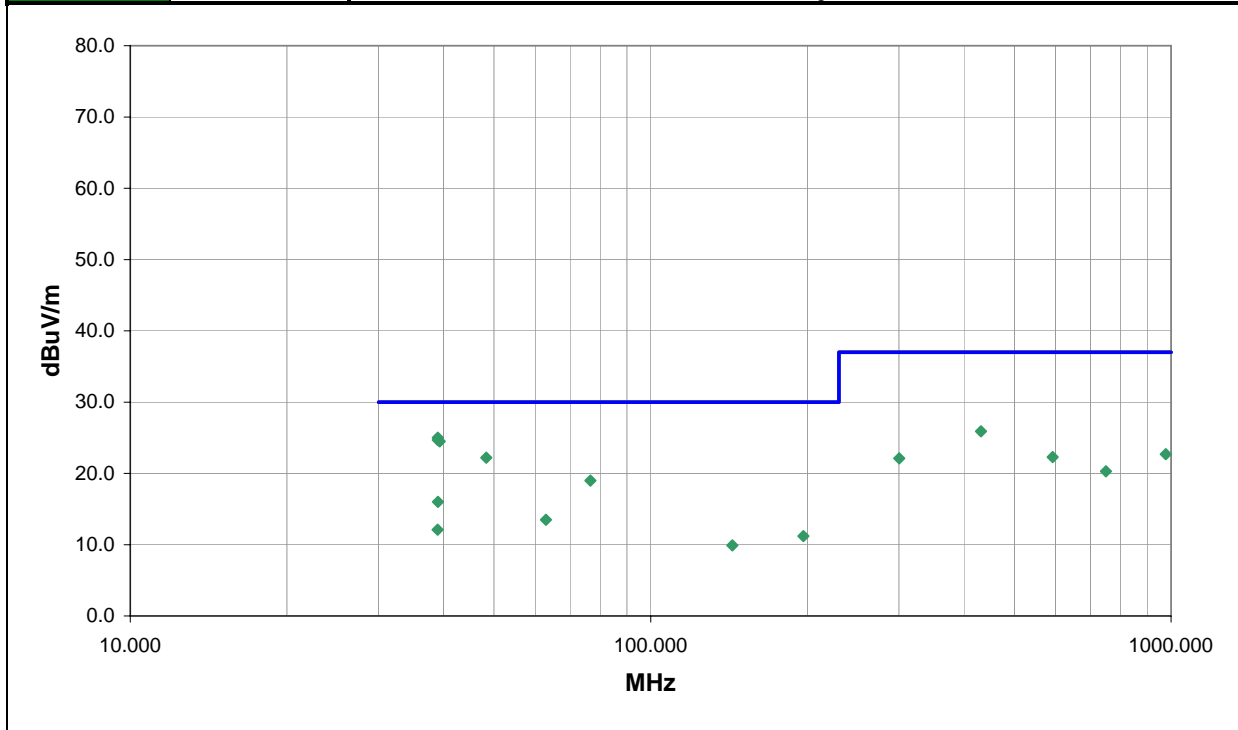
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 10

COMMENTS
Dongle plugged into USB Cradle, Headset powered by Direct Plug-in Adaptor.

EUT OPERATING MODES
Pink Noise playing at 50% volume level. Running NWEMC H pattern.

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	1	Signature <i>[Handwritten Signature]</i>
Configuration #	2	
Results	Pass	



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
38.987	45.0	-20.0	21.0	1.0	10.0	0.0	V-Bilog	QP	0.0	25.0	30.0	-5.0
38.992	44.7	-20.0	326.0	1.0	10.0	0.0	V-Bilog	QP	0.0	24.7	30.0	-5.3
39.322	44.7	-20.2	334.0	1.0	10.0	0.0	V-Bilog	QP	0.0	24.5	30.0	-5.5
48.320	45.7	-23.5	355.0	1.0	10.0	0.0	V-Bilog	QP	0.0	22.2	30.0	-7.8
76.576	46.4	-27.4	-1.0	2.2	10.0	0.0	V-Bilog	QP	0.0	19.0	30.0	-11.0
431.375	42.1	-16.2	331.0	3.4	10.0	0.0	V-Bilog	QP	0.0	25.9	37.0	-11.1
39.005	36.0	-20.0	292.0	3.1	10.0	0.0	H-Bilog	QP	0.0	16.0	30.0	-14.0
977.129	30.4	-7.7	345.0	1.9	10.0	0.0	H-Bilog	QP	0.0	22.7	37.0	-14.3
592.360	34.9	-12.6	361.0	3.4	10.0	0.0	V-Bilog	QP	0.0	22.3	37.0	-14.7
300.279	41.5	-19.4	-1.0	1.2	10.0	0.0	V-Bilog	QP	0.0	22.1	37.0	-14.9
62.905	40.3	-26.8	207.0	2.2	10.0	0.0	V-Bilog	QP	0.0	13.5	30.0	-16.5
749.614	30.8	-10.5	61.0	3.4	10.0	0.0	V-Bilog	QP	0.0	20.3	37.0	-16.7
38.961	32.1	-20.0	168.0	3.6	10.0	0.0	H-Bilog	QP	0.0	12.1	30.0	-17.9
196.608	34.6	-23.4	134.0	3.4	10.0	0.0	V-Bilog	QP	0.0	11.2	30.0	-18.8
143.503	36.0	-26.1	252.0	2.0	10.0	0.0	V-Bilog	QP	0.0	9.9	30.0	-20.1

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Receive mode mid channel 20, low diversity antenna
 Transmitting high channel 37, low diversity antenna
 Transmitting mid channel 20, low diversity antenna
 Transmitting low channel 2, low diversity antenna

POWER SETTINGS INVESTIGATED

USB

CONFIGURATIONS INVESTIGATED

1 - Headset - SRE config

SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
LISN	Solar	9252-50-R-24-BNC	LIR	1/4/2008	13 mo
Attenuator	Coaxicom	66702 2910-20	RBR	5/25/2007	13 mo
High Pass Filter	T.T.E.	7766	HFG	2/5/2008	13 mo
EV07 Cables		Conducted Cables	EVG	4/17/2007	13 mo
Receiver	Rohde & Schwartz	ESCI	ARG	12/7/2007	13 mo

MEASUREMENT BANDWIDTHS

	Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm.

EMC

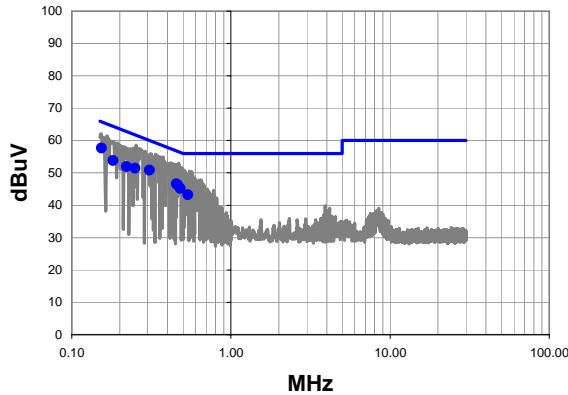
CONDUCTED EMISSIONS

Work Order:	LABT0296	Date:	02/27/08	<i>David DiVergigelis</i>
Project:	None	Temperature:	22	
Job Site:	EV07	Humidity:	26	
Serial Number:	Unknown	Barometric Pres.:	1016.9	
EUT:	ClearChat PC Wireless Headset, M/N: A-00006			
Configuration:	1 - Headset - SRE config			
Customer:	Logitech, Inc.			
Attendees:	none			
EUT Power:	USB			
Operating Mode:	Transmitting low channel 2, low diversity antenna			
Deviations:	No deviations.			
Comments:	USB to remote PC			

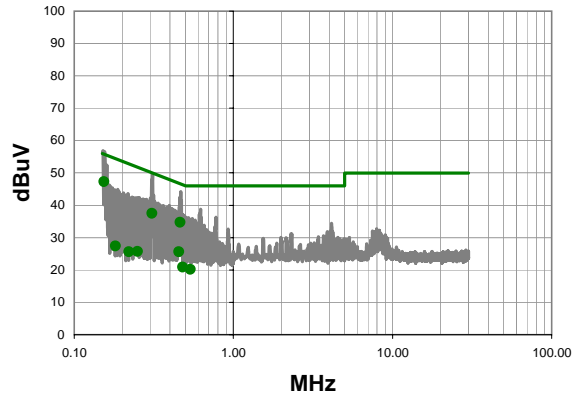
Test Specifications FCC 15.207:2007	Class B	Test Method ANSI C63.4:2003
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Run #	9	Line:	Neutral	Ext. Attenuation:	20	Results	Pass
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Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.154	35.7	21.9	57.6	65.8	-8.2
0.308	29.9	20.9	50.8	60.0	-9.2
0.454	25.7	20.8	46.5	56.8	-10.3
0.250	30.5	21.0	51.5	61.8	-10.3
0.462	25.5	20.8	46.3	56.7	-10.3
0.182	32.4	21.4	53.8	64.4	-10.6
0.221	30.9	21.0	51.9	62.8	-10.9
0.480	24.4	20.8	45.2	56.3	-11.1
0.538	22.4	20.8	43.2	56.0	-12.8

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.154	25.4	21.9	47.3	55.8	-8.5
0.462	13.9	20.8	34.7	46.7	-11.9
0.308	16.6	20.9	37.5	50.0	-12.5
0.454	4.8	20.8	25.6	46.8	-21.2
0.480	0.0	20.8	20.8	46.3	-25.5
0.538	-0.6	20.8	20.2	46.0	-25.8
0.250	4.7	21.0	25.7	51.8	-26.1
0.182	6.0	21.4	27.4	54.4	-27.0
0.221	4.6	21.0	25.6	52.8	-27.2

EMC

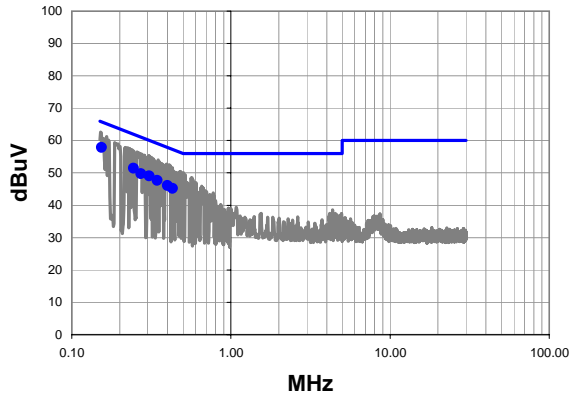
CONDUCTED EMISSIONS

Work Order:	LABT0296	Date:	02/27/08	<i>David DiVergigelis</i>
Project:	None	Temperature:	22	
Job Site:	EV07	Humidity:	26	
Serial Number:	Unknown	Barometric Pres.:	1016.9	
EUT:	ClearChat PC Wireless Headset, M/N: A-00006			
Configuration:	1 - Headset - SRE config			
Customer:	Logitech, Inc.			
Attendees:	none			
EUT Power:	USB			
Operating Mode:	Transmitting low channel 2, low diversity antenna			
Deviations:	No deviations.			
Comments:	USB to remote PC			

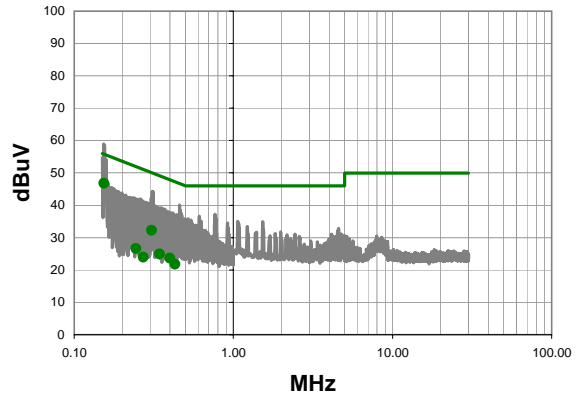
Test Specifications FCC 15.207:2007	Class B	Test Method ANSI C63.4:2003
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Run #	10	Line:	High Line	Ext. Attenuation:	20	Results	Pass
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Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.154	35.9	21.9	57.8	65.8	-8.0
0.244	30.5	21.0	51.5	62.0	-10.5
0.306	28.1	20.9	49.0	60.1	-11.0
0.272	28.8	21.0	49.8	61.1	-11.3
0.345	26.8	20.9	47.7	59.1	-11.4
0.400	25.2	20.9	46.1	57.9	-11.8
0.429	24.3	20.9	45.2	57.3	-12.1

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.154	24.9	21.9	46.8	55.8	-9.0
0.306	11.3	20.9	32.2	50.1	-17.8
0.345	4.0	20.9	24.9	49.1	-24.2
0.400	2.8	20.9	23.7	47.9	-24.2
0.244	5.6	21.0	26.6	52.0	-25.4
0.429	0.9	20.9	21.8	47.3	-25.5
0.272	3.0	21.0	24.0	51.1	-27.1

EMC

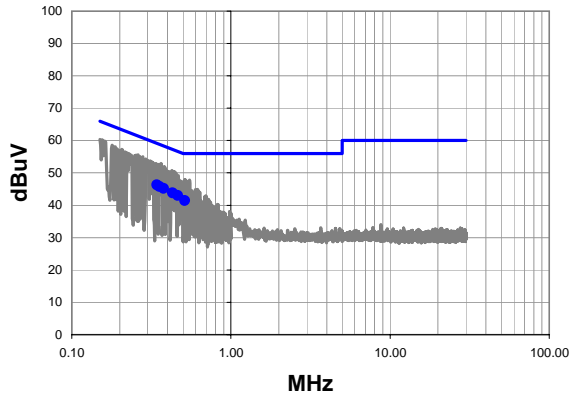
CONDUCTED EMISSIONS

Work Order:	LABT0296	Date:	02/27/08	<i>David DiVergigelis</i>
Project:	None	Temperature:	22	
Job Site:	EV07	Humidity:	26	
Serial Number:	Unknown	Barometric Pres.:	1016.9	
EUT:	ClearChat PC Wireless Headset, M/N: A-00006			
Configuration:	1 - Headset - SRE config			
Customer:	Logitech, Inc.			
Attendees:	none			
EUT Power:	USB			
Operating Mode:	Transmitting mid channel 20, low diversity antenna			
Deviations:	No deviations.			
Comments:	USB to remote PC			

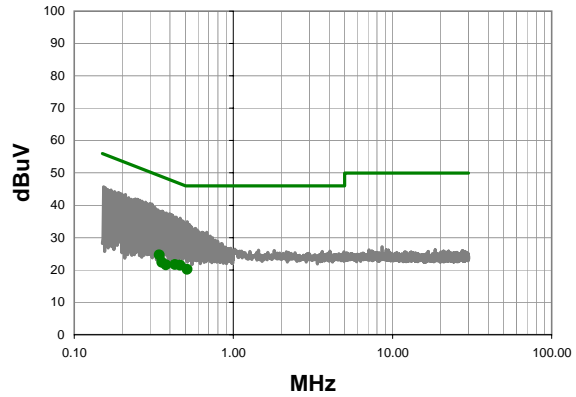
Test Specifications	Class B	Test Method
FCC 15.207:2007		ANSI C63.4:2003

Run #	11	Line:	High Line	Ext. Attenuation:	20	Results	Pass
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Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.343	25.4	20.9	46.3	59.1	-12.8
0.356	24.9	20.9	45.8	58.8	-13.0
0.378	24.3	20.9	45.2	58.3	-13.1
0.429	23.0	20.9	43.9	57.3	-13.4
0.462	22.2	20.8	43.0	56.7	-13.6
0.512	20.6	20.8	41.4	56.0	-14.6

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.343	3.7	20.9	24.6	49.1	-24.5
0.462	0.6	20.8	21.4	46.7	-25.2
0.429	0.8	20.9	21.7	47.3	-25.6
0.512	-0.6	20.8	20.2	46.0	-25.8
0.356	1.5	20.9	22.4	48.8	-26.4
0.378	0.7	20.9	21.6	48.3	-26.7

EMC

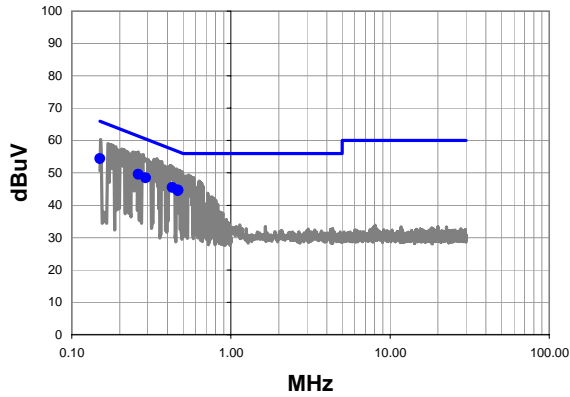
CONDUCTED EMISSIONS

Work Order:	LABT0296	Date:	02/27/08	<i>David DiVergigelis</i>
Project:	None	Temperature:	22	
Job Site:	EV07	Humidity:	26	
Serial Number:	Unknown	Barometric Pres.:	1016.9	
EUT:	ClearChat PC Wireless Headset, M/N: A-00006			
Configuration:	1 - Headset - SRE config			
Customer:	Logitech, Inc.			
Attendees:	none			
EUT Power:	USB			
Operating Mode:	Transmitting mid channel 20, low diversity antenna			
Deviations:	No deviations.			
Comments:	USB to remote PC			

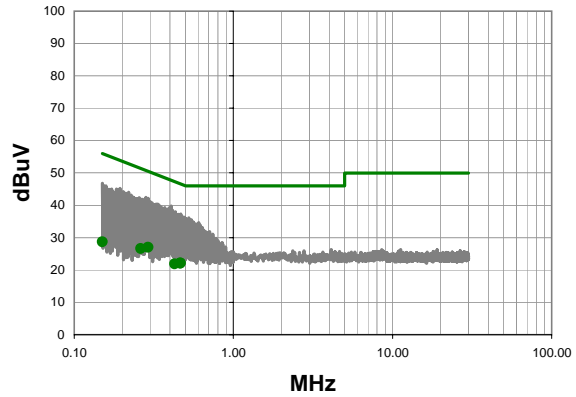
Test Specifications FCC 15.207:2007	Class B	Test Method ANSI C63.4:2003
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Run #	12	Line:	Neutral	Ext. Attenuation:	20	Results	Pass
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Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.150	32.4	22.0	54.4	66.0	-11.6
0.262	28.6	21.0	49.6	61.4	-11.8
0.428	24.6	20.9	45.5	57.3	-11.8
0.466	23.9	20.8	44.7	56.6	-11.9
0.466	23.7	20.8	44.5	56.6	-12.1
0.291	27.5	20.9	48.4	60.5	-12.1

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.291	6.1	20.9	27.0	50.5	-23.5
0.466	1.3	20.8	22.1	46.6	-24.5
0.466	1.2	20.8	22.0	46.6	-24.6
0.262	5.6	21.0	26.6	51.4	-24.8
0.428	1.0	20.9	21.9	47.3	-25.4
0.150	6.7	22.0	28.7	56.0	-27.3

EMC

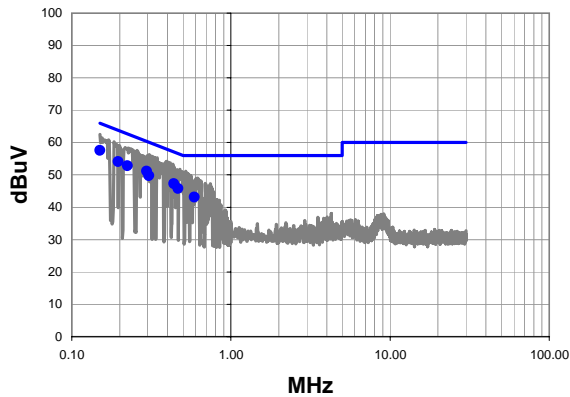
CONDUCTED EMISSIONS

Work Order:	LABT0296	Date:	02/27/08	<i>David DiVergigelis</i>
Project:	None	Temperature:	22	
Job Site:	EV07	Humidity:	26	
Serial Number:	Unknown	Barometric Pres.:	1016.9	
EUT:	ClearChat PC Wireless Headset, M/N: A-00006			
Configuration:	1 - Headset - SRE config			
Customer:	Logitech, Inc.			
Attendees:	none			
EUT Power:	USB			
Operating Mode:	Transmitting high channel 37, low diversity antenna			
Deviations:	No deviations.			
Comments:	USB to remote PC			

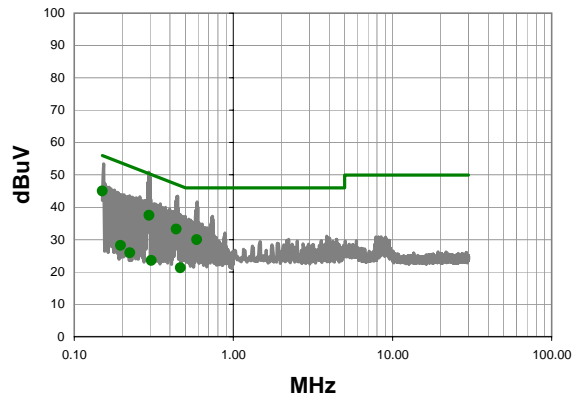
Test Specifications FCC 15.207:2007	Class B	Test Method ANSI C63.4:2003
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Run #	13	Line:	Neutral	Ext. Attenuation:	20	Results	Pass
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Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.150	35.6	22.0	57.6	66.0	-8.4
0.295	30.2	20.9	51.1	60.4	-9.2
0.196	33.0	21.1	54.1	63.8	-9.7
0.438	26.4	20.9	47.3	57.1	-9.8
0.224	31.8	21.0	52.8	62.7	-9.9
0.305	28.8	20.9	49.7	60.1	-10.4
0.466	25.0	20.8	45.8	56.6	-10.8
0.588	22.4	20.8	43.2	56.0	-12.8

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.150	23.0	22.0	45.0	56.0	-11.0
0.295	16.5	20.9	37.4	50.4	-12.9
0.438	12.4	20.9	33.3	47.1	-13.8
0.588	9.2	20.8	30.0	46.0	-16.0
0.466	0.4	20.8	21.2	46.6	-25.4
0.196	7.1	21.1	28.2	53.8	-25.6
0.305	2.6	20.9	23.5	50.1	-26.6
0.224	4.9	21.0	25.9	52.7	-26.8

EMC

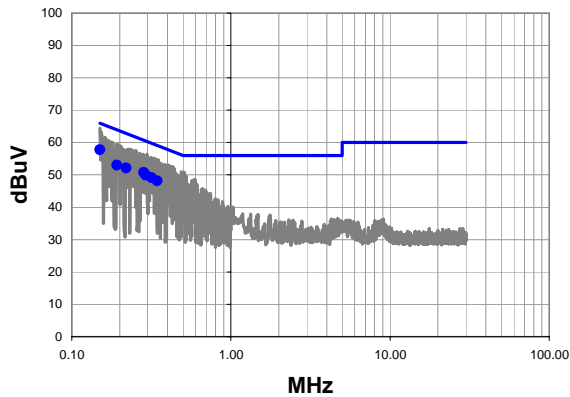
CONDUCTED EMISSIONS

Work Order:	LABT0296	Date:	02/28/08	<i>David DiVergigelis</i>
Project:	None	Temperature:	22	
Job Site:	EV07	Humidity:	26	
Serial Number:	Unknown	Barometric Pres.:	1016.9	
EUT:	ClearChat PC Wireless Headset, M/N: A-00006			
Configuration:	1 - Headset - SRE config			
Customer:	Logitech, Inc.			
Attendees:	none			
EUT Power:	USB			
Operating Mode:	Transmitting high channel 37, low diversity antenna			
Deviations:	No deviations.			
Comments:	USB to remote PC			

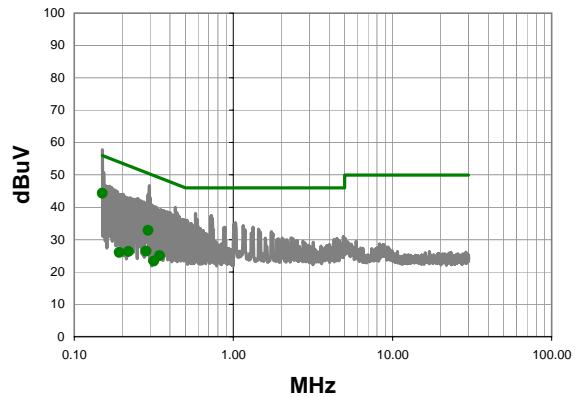
Test Specifications FCC 15.207:2007	Class B	Test Method ANSI C63.4:2003
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Run #	14	Line:	High Line	Ext. Attenuation:	20	Results	Pass
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Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.150	35.8	22.0	57.8	66.0	-8.2
0.284	29.8	20.9	50.7	60.7	-10.0
0.292	29.0	20.9	49.9	60.5	-10.5
0.317	28.2	20.9	49.1	59.8	-10.7
0.220	31.1	21.0	52.1	62.8	-10.7
0.345	27.3	20.9	48.2	59.1	-10.9
0.192	31.9	21.2	53.1	63.9	-10.9

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.150	22.3	22.0	44.3	56.0	-11.7
0.292	11.9	20.9	32.8	50.5	-17.6
0.345	4.1	20.9	25.0	49.1	-24.1
0.284	5.5	20.9	26.4	50.7	-24.3
0.317	2.4	20.9	23.3	49.8	-26.5
0.220	5.3	21.0	26.3	52.8	-26.5
0.192	4.9	21.2	26.1	53.9	-27.9

EMC

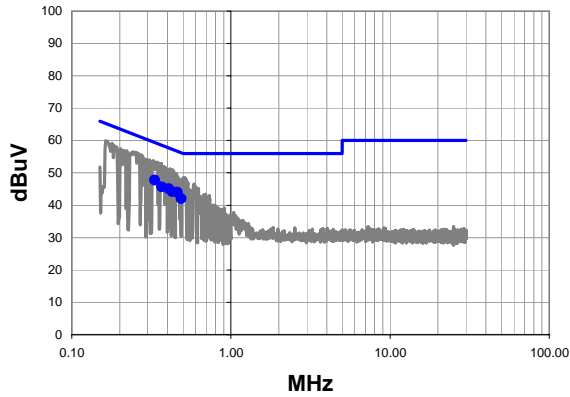
CONDUCTED EMISSIONS

Work Order:	LABT0296	Date:	02/28/08	<i>David DiVergigelis</i>
Project:	None	Temperature:	22	
Job Site:	EV07	Humidity:	26	
Serial Number:	Unknown	Barometric Pres.:	1016.9	
EUT:	ClearChat PC Wireless Headset, M/N: A-00006			
Configuration:	1 - Headset - SRE config			
Customer:	Logitech, Inc.			
Attendees:	none			
EUT Power:	USB			
Operating Mode:	Receive mode mid channel 20, low diversity antenna			
Deviations:	No deviations.			
Comments:	USB to remote PC			

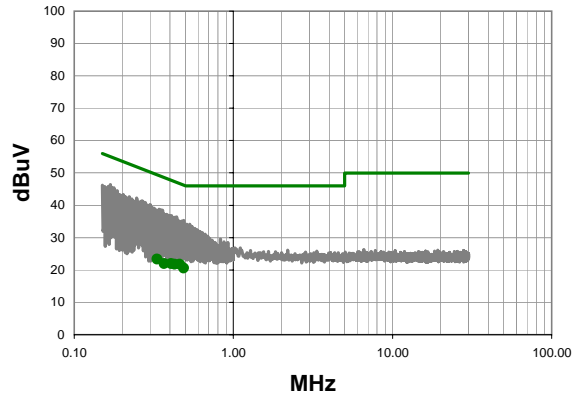
Test Specifications FCC 15.207:2007	Class B	Test Method ANSI C63.4:2003
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Run #	15	Line:	High Line	Ext. Attenuation:	20	Results	Pass
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Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.331	26.9	20.9	47.8	59.4	-11.6
0.461	23.2	20.8	44.0	56.7	-12.6
0.407	24.2	20.9	45.1	57.7	-12.6
0.368	24.8	20.9	45.7	58.5	-12.9
0.428	23.4	20.9	44.3	57.3	-13.0
0.488	21.2	20.8	42.0	56.2	-14.2

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.461	0.9	20.8	21.7	46.7	-24.9
0.428	0.9	20.9	21.8	47.3	-25.5
0.488	-0.2	20.8	20.6	46.2	-25.6
0.407	1.1	20.9	22.0	47.7	-25.7
0.331	2.4	20.9	23.3	49.4	-26.1
0.368	1.1	20.9	22.0	48.5	-26.6

EMC

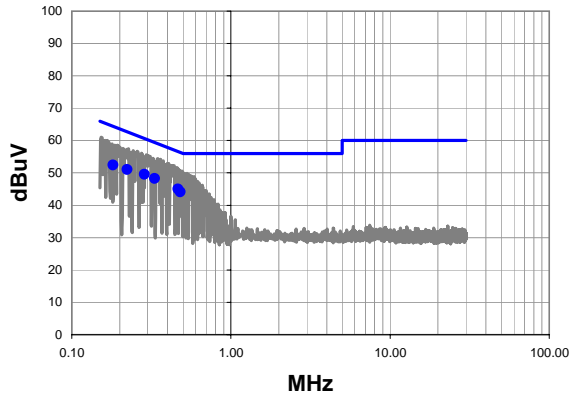
CONDUCTED EMISSIONS

Work Order:	LABT0296	Date:	02/28/08	<i>David DiVergigelis</i>
Project:	None	Temperature:	22	
Job Site:	EV07	Humidity:	26	
Serial Number:	Unknown	Barometric Pres.:	1016.9	
EUT:	ClearChat PC Wireless Headset, M/N: A-00006			
Configuration:	1 - Headset - SRE config			
Customer:	Logitech, Inc.			
Attendees:	none			
EUT Power:	USB			
Operating Mode:	Receive mode mid channel 20, low diversity antenna			
Deviations:	No deviations.			
Comments:	USB to remote PC			

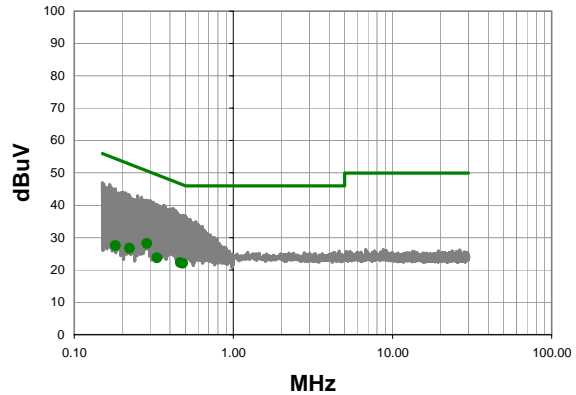
Test Specifications FCC 15.207:2007	Class B	Test Method ANSI C63.4:2003
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Run #	16	Line:	Neutral	Ext. Attenuation:	20	Results	Pass
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Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.286	28.6	20.9	49.5	60.6	-11.1
0.331	27.4	20.9	48.3	59.4	-11.1
0.466	24.2	20.8	45.0	56.6	-11.6
0.223	30.1	21.0	51.1	62.7	-11.6
0.182	31.1	21.4	52.5	64.4	-11.9
0.481	23.3	20.8	44.1	56.3	-12.2

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.286	7.2	20.9	28.1	50.6	-22.5
0.481	1.2	20.8	22.0	46.3	-24.3
0.466	1.4	20.8	22.2	46.6	-24.4
0.331	2.8	20.9	23.7	49.4	-25.7
0.223	5.7	21.0	26.7	52.7	-26.0
0.182	6.1	21.4	27.5	54.4	-26.9

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Receive mode mid channel 20, low diversity antenna
 Receive mode mid channel 20, High diversity antenna

POWER SETTINGS INVESTIGATED

120VAC/60Hz

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 15 GHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4446A	AAT	12/7/2007	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	12/29/2006	16
Antenna, Biconilog	EMCO	3141	AXE	1/15/2008	24
EV01 Cables		Bilog Cables	EVA	10/23/2007	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	1/3/2008	13
Antenna, Horn	EMCO	3115	AHC	8/24/2006	24
EV01 Cables		Double Ridge Horn Cables	EVB	1/3/2008	13
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	6/22/2007	13
Antenna, Horn	ETS	3160-07	AHU	NCR	0
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	6/22/2007	13
Antenna, Horn	ETS	3160-08	AHV	NCR	0
EV01 Cables		Standard Gain Horns Cables	EVF	10/23/2007	13

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for mid channel receive frequency. For this configuration, the spectrum was scanned throughout the specified range. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes.

RECIEVER SPURIOUS EMISSIONS

EMC

EUT:	ClearChat PC Wireless Headset, M/N: A-00006	Work Order:	LABT0296
Serial Number:	210-000226-008	Date:	03/05/08
Customer:	Logitech, Inc.	Temperature:	22
Attendees:	None	Humidity:	26%
Project:	None	Barometric Pres.:	1016.9
Tested by:	David DiVergigelis	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS	Test Method
RSS-Gen:2007	RSS-Gen:2007

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS
None

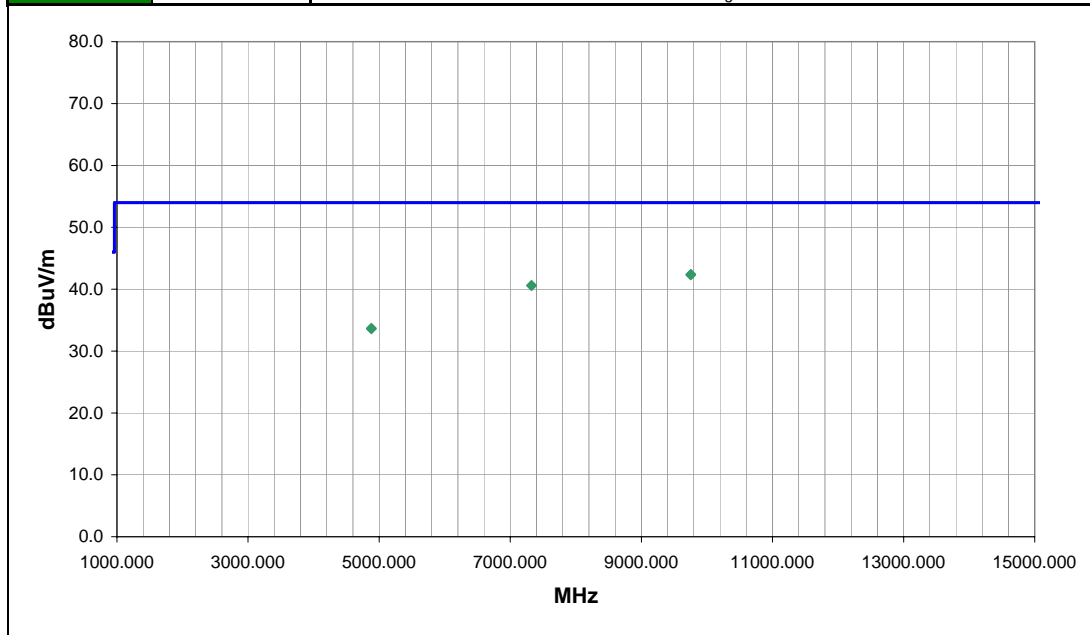
EUT OPERATING MODES

Receive mode mid channel 20, High diversity antenna

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	3	<i>Signature</i> 
Configuration #	5	
Results	Pass	



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
9754.708	23.1	19.3	238.0	1.0	3.0	0.0	V-Horn	AV	0.0	42.4	54.0	-11.6	Headset Horizontal
9753.475	23.0	19.3	147.0	1.0	3.0	0.0	H-Horn	AV	0.0	42.3	54.0	-11.7	Headset on side
7322.763	23.5	17.1	112.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.6	54.0	-13.4	Headset Horizontal
7322.948	23.5	17.1	223.0	3.7	3.0	0.0	H-Horn	AV	0.0	40.6	54.0	-13.4	Headset on side
4881.842	23.2	10.5	145.0	1.0	3.0	0.0	V-Horn	AV	0.0	33.7	54.0	-20.3	Headset Horizontal
4881.837	23.1	10.5	164.0	1.0	3.0	0.0	H-Horn	AV	0.0	33.6	54.0	-20.4	Headset on side

RECIEVER SPURIOUS EMISSIONS

EUT:	ClearChat PC Wireless Headset, M/N: A-00006	Work Order:	LABT0296
Serial Number:	210-000226-008	Date:	03/05/08
Customer:	Logitech, Inc.	Temperature:	22
Attendees:	None	Humidity:	26%
Project:	None	Barometric Pres.:	1016.9
Tested by:	David DiVergigelis	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS		Test Method	
RSS-Gen:2007		RSS-Gen:2007	

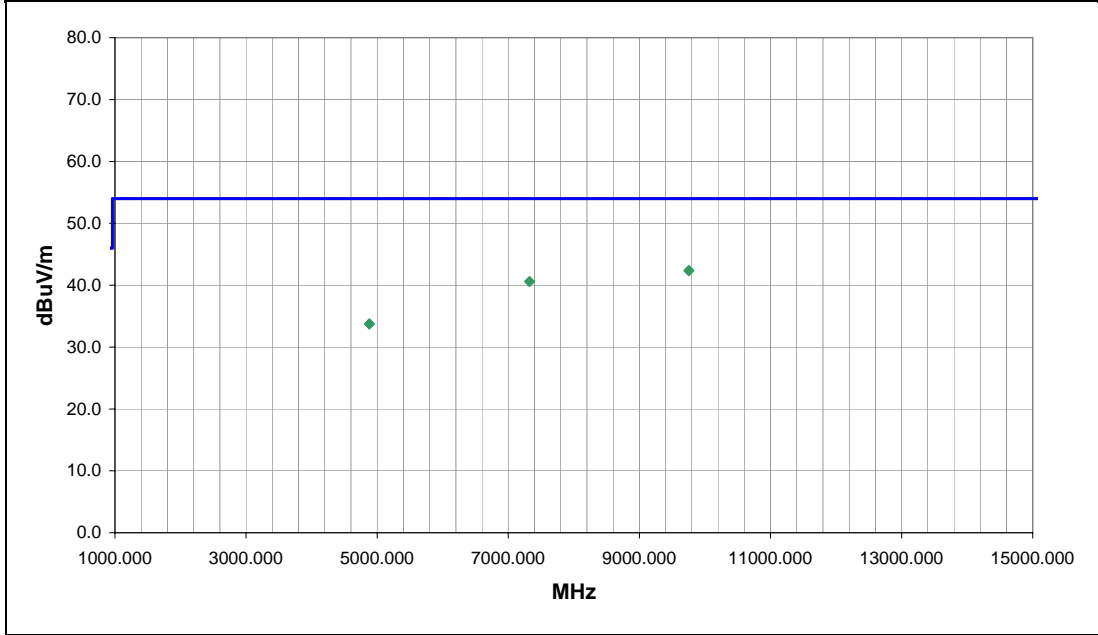
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS			
None			

EUT OPERATING MODES			
Receive mode mid channel 20, low diversity antenna			

DEVIATIONS FROM TEST STANDARD			
No deviations.			

Run #	4	Signature <i>David DiVergigelis</i>
Configuration #	5	
Results	Pass	



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
9754.140	23.1	19.3	218.0	1.0	0.0	0.0	H-Horn	AV	0.0	42.4	54.0	-11.6	Headset Vertical
9754.683	23.0	19.3	356.0	1.0	0.0	0.0	V-Horn	AV	0.0	42.3	54.0	-11.7	Headset Horizontal
7322.932	23.5	17.1	303.0	1.0	0.0	0.0	H-Horn	AV	0.0	40.6	54.0	-13.4	Headset Vertical
7322.935	23.5	17.1	160.0	1.6	0.0	0.0	V-Horn	AV	0.0	40.6	54.0	-13.4	Headset Horizontal
4881.065	23.3	10.5	224.0	1.0	0.0	0.0	H-Horn	AV	0.0	33.8	54.0	-20.2	Headset Vertical
4881.820	23.2	10.5	149.0	1.6	0.0	0.0	V-Horn	AV	0.0	33.7	54.0	-20.3	Headset Horizontal

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Transmit mode, Low channel
 Transmit mode, mid channel
 Transmit mode, high channel

POWER SETTINGS INVESTIGATED

120VAC/60Hz

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	25 GHz
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SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4446A	AAT	12/7/2007	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	12/29/2006	16
Antenna, Biconilog	EMCO	3141	AXE	1/15/2008	24
EV01 Cables		Bilog Cables	EVA	10/23/2007	13
High Pass Filter	Micro-Tronics	HPM50111	HFO	1/16/2008	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	1/3/2008	13
Antenna, Horn	EMCO	3115	AHC	8/24/2006	24
EV01 Cables		Double Ridge Horn Cables	EVB	1/3/2008	13
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	6/22/2007	13
Antenna, Horn	ETS	3160-07	AHU	NCR	0
EV01 Cables		Standard Gain Horns Cables	EVF	10/23/2007	13
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	6/22/2007	13
Antenna, Horn	ETS	3160-08	AHV	NCR	0
EV01 Cables		Standard Gain Horns Cables	EVF	10/23/2007	13
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	7/25/2007	13
Antenna, Horn	EMCO	3160-09	AHG	NCR	0
EV01 Cables		6GHz Standard Gain Horn C	EVD	7/25/2007	13

MEASUREMENT BANDWIDTHS

Frequency Range	Peak Data	Quasi-Peak Data	Average Data
(MHz)	(kHz)	(kHz)	(kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

EUT: ClearChat PC Wireless Headset, MN: A-00006	Work Order: LABT0296
Serial Number: 210-000226-008	Date: 03/04/08
Customer: Logitech, Inc.	Temperature: 22
Attendees: None	Humidity: 26%
Project: None	Barometric Pres.: 1010.8
Tested by: Holly Ashkannejhad	Power: 120VAC/60Hz
	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

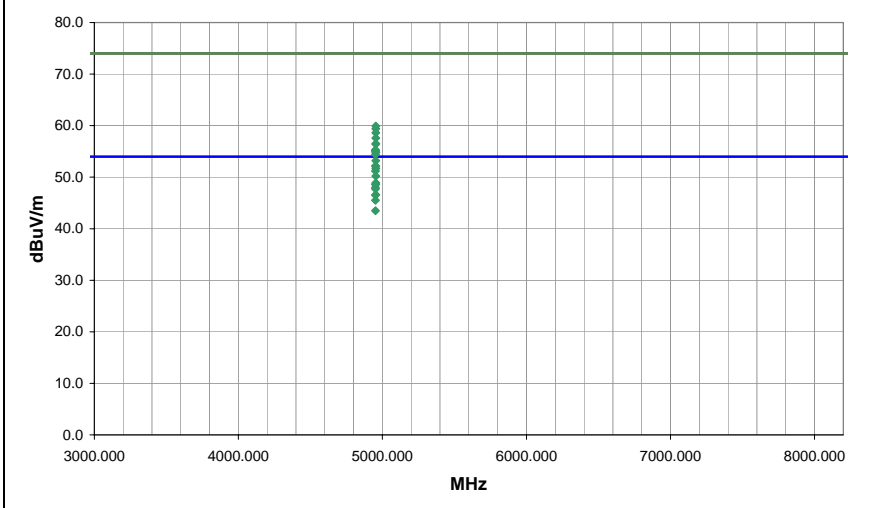
COMMENTS
C39 installed (9 pF cap, C36 pad 1 to C37 pad 1).

EUT OPERATING MODES
Transmit mode, high channel, see comments for antenna

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	15
Configuration #	1
Results	Pass

Signature *Holly Ashkannejhad*



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4954.000	42.2	11.0	181.0	1.0	3.0	0.0	H-Horn	AV	0.0	53.2	54.0	-0.8	High diversity antenna, Side position.
4954.000	41.1	11.0	166.0	1.0	3.0	0.0	H-Horn	AV	0.0	52.1	54.0	-1.9	Low diversity antenna, Side position.
4954.000	40.7	11.0	201.0	1.0	3.0	0.0	V-Horn	AV	0.0	51.7	54.0	-2.3	High diversity antenna, Horizontal position.
4954.000	39.2	11.0	175.0	1.0	3.0	0.0	H-Horn	AV	0.0	50.2	54.0	-3.8	High diversity antenna, Vertical position.
4954.000	37.9	11.0	232.0	1.0	3.0	0.0	V-Horn	AV	0.0	48.9	54.0	-5.1	High diversity antenna, Vertical position.
4952.000	37.6	11.0	169.0	1.0	3.0	0.0	H-Horn	AV	0.0	48.6	54.0	-5.4	High diversity antenna, Vertical position.
4954.000	37.6	11.0	92.0	1.5	3.0	0.0	H-Horn	AV	0.0	48.6	54.0	-5.4	High diversity antenna, Horizontal position.
4952.000	37.0	11.0	100.0	1.0	3.0	0.0	H-Horn	AV	0.0	48.0	54.0	-6.0	High diversity antenna, Side position.
4952.000	36.7	11.0	222.0	1.0	3.0	0.0	V-Horn	AV	0.0	47.7	54.0	-6.3	High diversity antenna, Vertical position.
4954.000	35.6	11.0	121.0	1.0	3.0	0.0	V-Horn	AV	0.0	46.6	54.0	-7.4	High diversity antenna, Side position.
4952.000	35.5	11.0	199.0	1.0	3.0	0.0	V-Horn	AV	0.0	46.5	54.0	-7.5	High diversity antenna, Horizontal position.
4952.000	34.5	11.0	116.0	1.0	3.0	0.0	H-Horn	AV	0.0	45.5	54.0	-8.5	High diversity antenna, Horizontal position.
4952.000	32.5	11.0	167.0	1.0	3.0	0.0	V-Horn	AV	0.0	43.5	54.0	-10.5	High diversity antenna, Side position.
4954.000	48.9	11.0	181.0	1.0	3.0	0.0	H-Horn	PK	0.0	59.9	74.0	-14.1	High diversity antenna, Side position.
4954.000	48.4	11.0	166.0	1.0	3.0	0.0	H-Horn	PK	0.0	59.4	74.0	-14.6	Low diversity antenna, Side position.
4954.000	47.6	11.0	201.0	1.0	3.0	0.0	V-Horn	PK	0.0	58.6	74.0	-15.4	High diversity antenna, Horizontal position.

EUT:	ClearChat PC Wireless Headset, M/N: A-00006	Work Order:	LABT0296
Serial Number:	210-000226-008	Date:	03/05/08
Customer:	Logitech, Inc.	Temperature:	22
Attendees:	None	Humidity:	26%
Project:	None	Barometric Pres.:	1010.8
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS		Test Method	
FCC 15.247 (DTS):2007		ANSI C63.4:2003, KDB No. 558074	

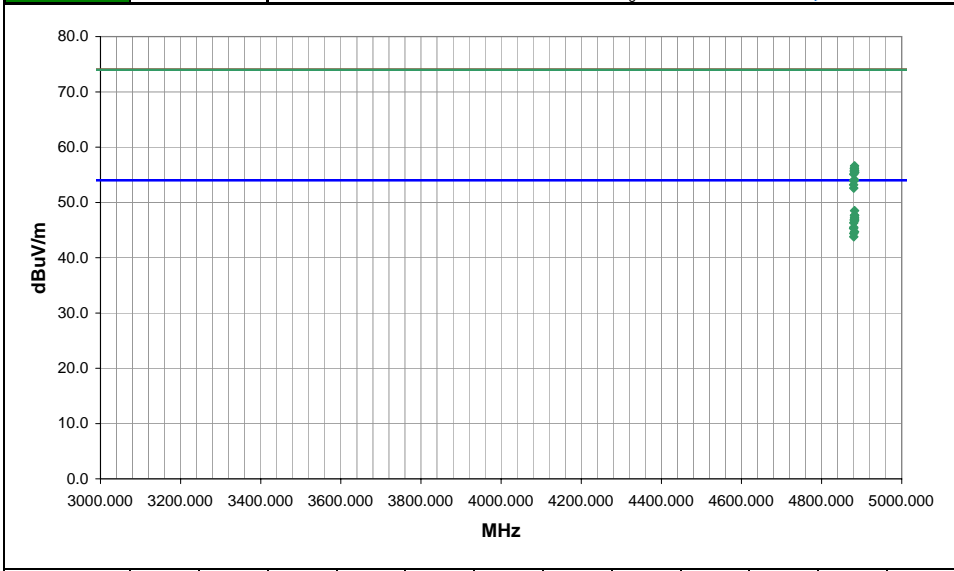
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS
C39 installed (9 pF cap, C36 pad 1 to C37 pad 1)

EUT OPERATING MODES
Transmit mode, mid channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	16	 Signature
Configuration #	1	
Results	Pass	



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4882.042	38.0	10.5	169.0	1.0	3.0	0.0	V-Horn	AV	0.0	48.5	54.0	-5.5	Low diversity antenna, Horizontal position.
4882.045	37.2	10.5	131.0	1.0	3.0	0.0	V-Horn	AV	0.0	47.7	54.0	-6.3	High diversity antenna, Vertical position
4882.078	37.1	10.5	176.0	1.0	3.0	0.0	H-Horn	AV	0.0	47.6	54.0	-6.4	Low diversity antenna, Vertical position.
4882.032	36.8	10.5	205.0	1.0	3.0	0.0	H-Horn	AV	0.0	47.3	54.0	-6.7	Low diversity antenna, Side position.
4882.115	36.5	10.5	166.0	1.0	3.0	0.0	V-Horn	AV	0.0	47.0	54.0	-7.0	High diversity antenna, Horizontal position.
4881.978	36.4	10.5	219.0	1.2	3.0	0.0	H-Horn	AV	0.0	46.9	54.0	-7.1	High diversity antenna, Side position
4881.975	36.3	10.5	170.0	1.1	3.0	0.0	H-Horn	AV	0.0	46.8	54.0	-7.2	High diversity antenna, Vertical position
4882.018	36.2	10.5	196.0	1.1	3.0	0.0	V-Horn	AV	0.0	46.7	54.0	-7.3	High diversity antenna, Side position
4880.025	35.8	10.5	219.0	1.0	3.0	0.0	V-Horn	AV	0.0	46.3	54.0	-7.7	High diversity antenna, Vertical position
4880.025	35.0	10.5	170.0	1.0	3.0	0.0	V-Horn	AV	0.0	45.5	54.0	-8.5	Low diversity antenna, Horizontal position.
4879.965	34.8	10.5	195.0	1.0	3.0	0.0	V-Horn	AV	0.0	45.3	54.0	-8.7	High diversity antenna, horizontal position
4882.020	34.2	10.5	185.0	1.0	3.0	0.0	V-Horn	AV	0.0	44.7	54.0	-9.3	Low diversity antenna, Vertical position.
4880.018	33.9	10.5	117.0	1.9	3.0	0.0	H-Horn	AV	0.0	44.4	54.0	-9.6	High diversity antenna, horizontal position
4880.070	33.3	10.5	226.0	1.1	3.0	0.0	H-Horn	AV	0.0	43.8	54.0	-10.2	Low diversity antenna, Side position.
4882.232	46.1	10.5	169.0	1.0	3.0	0.0	V-Horn	PK	0.0	56.6	74.0	-17.4	Low diversity antenna, Horizontal position.
4881.830	45.7	10.5	166.0	1.0	3.0	0.0	V-Horn	PK	0.0	56.2	74.0	-17.8	High diversity antenna, Horizontal position.
4881.730	45.6	10.5	131.0	1.0	3.0	0.0	V-Horn	PK	0.0	56.1	74.0	-17.9	High diversity antenna, Vertical position
4882.110	45.3	10.5	176.0	1.0	3.0	0.0	H-Horn	PK	0.0	55.8	74.0	-18.2	Low diversity antenna, Vertical position.
4881.675	45.2	10.5	196.0	1.1	3.0	0.0	V-Horn	PK	0.0	55.7	74.0	-18.3	High diversity antenna, Side position
4881.865	45.2	10.5	204.0	1.0	3.0	0.0	H-Horn	PK	0.0	55.7	74.0	-18.3	Low diversity antenna, Side position.

EUT: ClearChat PC Wireless Headset, M/N: A-00006	Work Order: LABT0296
Serial Number: 210-000226-008	Date: 03/04/08
Customer: Logitech, Inc.	Temperature: 22
Attendees: None	Humidity: 26%
Project: None	Barometric Pres.: 1010.8
Tested by: Rod Peloquin	Power: 120VAC/60Hz
	Job Site: EV01

TEST SPECIFICATIONS		Test Method	
FCC 15.247 (DTS):2007		ANSI C63.4:2003, KDB No. 558074	

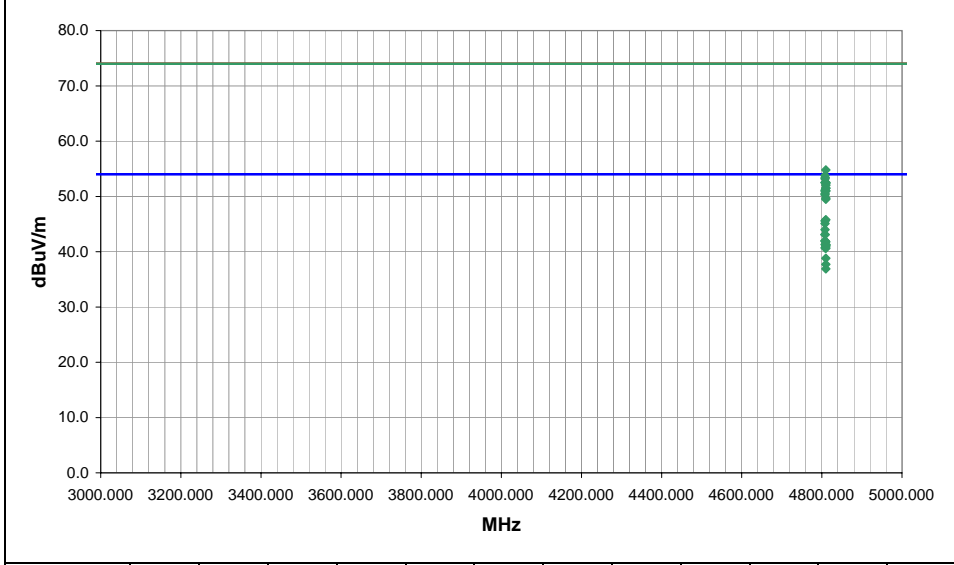
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS
 C39 installed (9 pF cap, C36 pad 1 to C37 pad 1)

EUT OPERATING MODES
 Transmit mode, Low channel

DEVIATIONS FROM TEST STANDARD
 No deviations.

Run #	17	 Signature
Configuration #	1	
Results	Pass	



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4810.000	35.7	10.1	177.0	1.1	3.0	0.0	H-Horn	AV	0.0	45.8	54.0	-8.2	High diversity antenna, Side position
4808.000	35.5	10.1	179.0	1.0	3.0	0.0	H-Horn	AV	0.0	45.6	54.0	-8.4	High diversity antenna, Side position
4808.022	35.0	10.1	186.0	1.1	3.0	0.0	V-Horn	AV	0.0	45.1	54.0	-8.9	High diversity antenna, Vertical position
4808.038	33.9	10.1	190.0	1.0	3.0	0.0	V-Horn	AV	0.0	44.0	54.0	-10.0	High diversity antenna, Horizontal position
4808.005	33.0	10.1	224.0	1.1	3.0	0.0	H-Horn	AV	0.0	43.1	54.0	-10.9	Low diversity antenna, Side position
4808.048	33.0	10.1	118.0	1.6	3.0	0.0	H-Horn	AV	0.0	43.1	54.0	-10.9	Low diversity antenna, Vertical position
4808.050	31.9	10.1	146.0	1.7	3.0	0.0	H-Horn	AV	0.0	42.0	54.0	-12.0	Low diversity antenna, Horizontal position
4808.020	31.8	10.1	193.0	1.1	3.0	0.0	V-Horn	AV	0.0	41.9	54.0	-12.1	Low diversity antenna, Side position
4809.915	31.7	10.1	183.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.8	54.0	-12.2	High diversity antenna, Horizontal position
4808.000	31.2	10.1	149.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.3	54.0	-12.7	High diversity antenna, Side position
4810.000	31.2	10.1	108.0	1.3	3.0	0.0	V-Horn	AV	0.0	41.3	54.0	-12.7	High diversity antenna, Side position
4810.065	31.1	10.1	108.0	1.6	3.0	0.0	H-Horn	AV	0.0	41.2	54.0	-12.8	Low diversity antenna, Vertical position
4810.070	31.1	10.1	109.0	1.0	3.0	0.0	H-Horn	AV	0.0	41.2	54.0	-12.8	High diversity antenna, Vertical position
4810.060	30.8	10.1	221.0	1.2	3.0	0.0	H-Horn	AV	0.0	40.9	54.0	-13.1	Low diversity antenna, Side position
4808.050	30.6	10.1	146.0	1.7	3.0	0.0	H-Horn	AV	0.0	40.7	54.0	-13.3	High diversity antenna, Horizontal position
4809.992	30.5	10.1	189.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.6	54.0	-13.4	High diversity antenna, Vertical position
4810.025	28.7	10.1	131.0	1.1	3.0	0.0	H-Horn	AV	0.0	38.8	54.0	-15.2	Low diversity antenna, Horizontal position
4809.978	27.6	10.1	269.0	1.0	3.0	0.0	V-Horn	AV	0.0	37.7	54.0	-16.3	Low diversity antenna, Side position
4810.048	26.8	10.1	130.0	1.0	3.0	0.0	H-Horn	AV	0.0	36.9	54.0	-17.1	High diversity antenna, Horizontal position
4810.000	44.7	10.1	177.0	1.1	3.0	0.0	H-Horn	PK	0.0	54.8	74.0	-19.2	High diversity antenna, Side position

EUT: ClearChat PC Wireless Headset, M/N: A-00006	Work Order: LABT0296
Serial Number: 210-000226-008	Date: 03/05/08
Customer: Logitech, Inc.	Temperature: 22
Attendees: None	Humidity: 26%
Project: None	Barometric Pres.: 1010.8
Tested by: Rod Peloquin	Power: 120VAC/60Hz
	Job Site: EV01

TEST SPECIFICATIONS	
FCC 15.247 (DTS):2007	Test Method ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

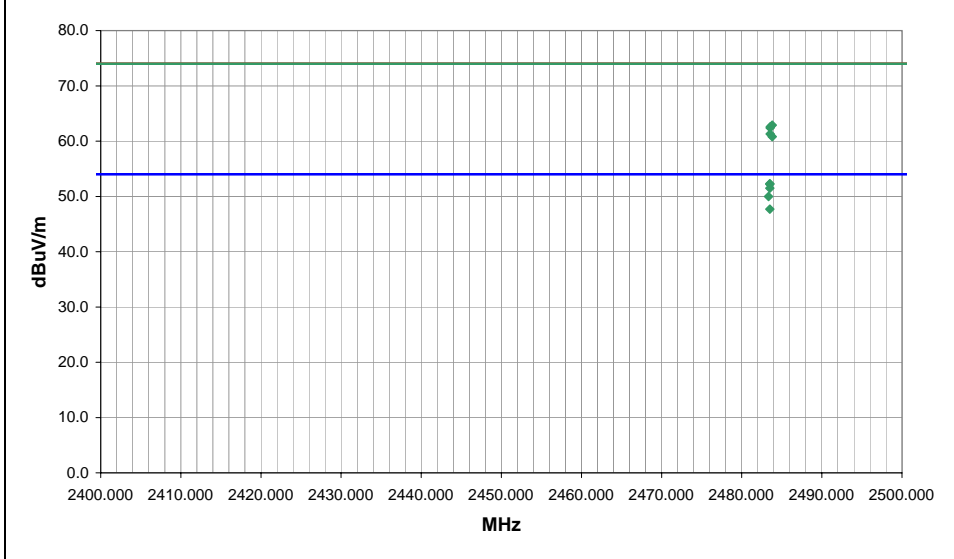
COMMENTS
C39 installed (9 pF cap, C36 pad 1 to C37 pad 1)

EUT OPERATING MODES
Transmitting high channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	18
Configuration #	1
Results	Pass

Rod Peloquin
Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
2483.500	30.1	2.2	296.0	1.0	3.0	20.0	H-Horn	AV	0.0	52.3	54.0	-1.7	High diversity antenna, Vertical position
2483.500	30.0	2.2	211.0	1.0	3.0	20.0	V-Horn	AV	0.0	52.2	54.0	-1.8	High diversity antenna, Horizontal position
2483.500	29.3	2.2	186.0	1.0	3.0	20.0	H-Horn	AV	0.0	51.5	54.0	-2.5	High diversity antenna, Horizontal position
2483.342	27.8	2.2	251.0	1.2	3.0	20.0	H-Horn	AV	0.0	50.0	54.0	-4.0	Low diversity antenna, Side position
2483.500	25.5	2.2	229.0	1.1	3.0	20.0	V-Horn	AV	0.0	47.7	54.0	-6.3	Low diversity antenna, Horizontal position
2483.803	40.7	2.2	211.0	1.0	3.0	20.0	V-Horn	PK	0.0	62.9	74.0	-11.1	High diversity antenna, Horizontal position
2483.560	40.4	2.2	186.0	1.0	3.0	20.0	H-Horn	PK	0.0	62.6	74.0	-11.4	High diversity antenna, Horizontal position
2483.542	40.2	2.2	296.0	1.0	3.0	20.0	H-Horn	PK	0.0	62.4	74.0	-11.6	High diversity antenna, Vertical position
2483.550	39.1	2.2	251.0	1.2	3.0	20.0	H-Horn	PK	0.0	61.3	74.0	-12.7	Low diversity antenna, Side position
2483.800	38.6	2.2	229.0	1.1	3.0	20.0	V-Horn	PK	0.0	60.8	74.0	-13.2	Low diversity antenna, Horizontal position

EUT: ClearChat PC Wireless Headset, M/N: A-00006	Work Order: LABT0296
Serial Number: 210-000226-008	Date: 03/05/08
Customer: Logitech, Inc.	Temperature: 22
Attendees: None	Humidity: 26%
Project: None	Barometric Pres.: 1010.8
Tested by: David Divergjelis	Power: 120VAC/60Hz
	Job Site: EV01

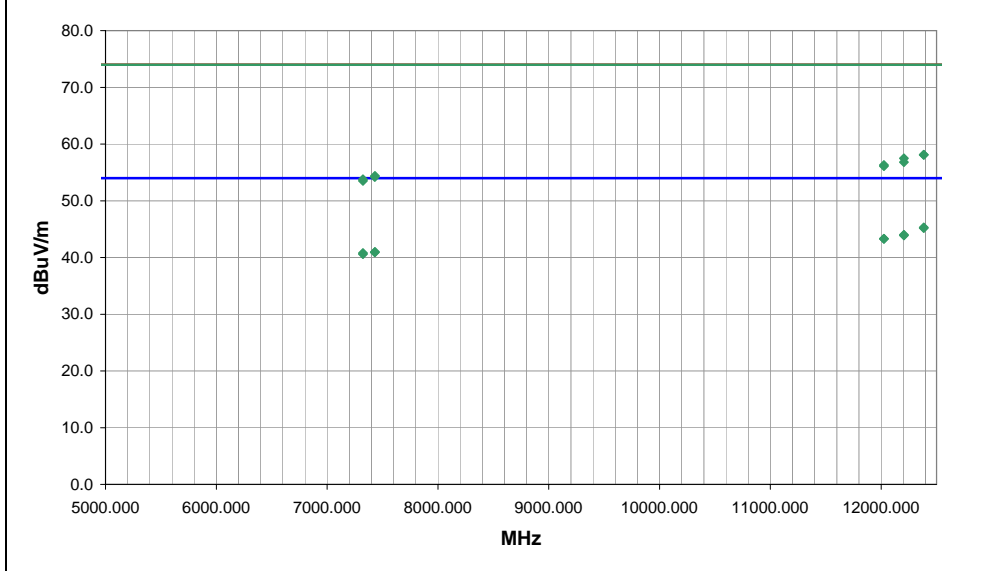
TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
C39 installed (9 pF cap, C36 pad 1 to C37 pad 1)

EUT OPERATING MODES
Low diversity antenna, see comments below for channel tested.
DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	20	Signature <i>A. N. Rife E.</i>
Configuration #	1	
Results	Pass	



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
12384.760	23.7	21.6	145.0	1.0	0.0	0.0	V-Horn	AV	0.0	45.3	54.0	-8.7	TX high channel, headset horizontal
12384.380	23.6	21.6	278.0	1.0	0.0	0.0	H-Horn	AV	0.0	45.2	54.0	-8.8	TX high channel, headset vertical
12204.880	23.3	20.7	90.0	1.0	0.0	0.0	V-Horn	AV	0.0	44.0	54.0	-10.0	TX mid channel, headset horizontal
12205.520	23.2	20.7	240.0	3.5	0.0	0.0	H-Horn	AV	0.0	43.9	54.0	-10.1	TX mid channel, headset vertical
12024.780	23.5	19.8	163.0	1.0	0.0	0.0	H-Horn	AV	0.0	43.3	54.0	-10.7	TX low channel, headset vertical
12025.580	23.5	19.8	229.0	1.0	0.0	0.0	V-Horn	AV	0.0	43.3	54.0	-10.7	TX low channel, headset horizontal
7430.958	23.4	17.6	153.0	1.0	0.0	0.0	V-Horn	AV	0.0	41.0	54.0	-13.0	TX high channel, headset horizontal
7430.718	23.3	17.6	242.0	2.6	0.0	0.0	H-Horn	AV	0.0	40.9	54.0	-13.1	TX high channel, headset vertical
7323.083	23.7	17.1	171.0	1.0	0.0	0.0	V-Horn	AV	0.0	40.8	54.0	-13.2	TX mid channel, headset horizontal
7322.878	23.5	17.1	236.0	1.0	0.0	0.0	H-Horn	AV	0.0	40.6	54.0	-13.4	TX mid channel, headset vertical
12384.840	36.5	21.6	145.0	1.0	0.0	0.0	V-Horn	PK	0.0	58.1	74.0	-15.9	TX high channel, headset horizontal
12385.050	36.5	21.6	278.0	1.0	0.0	0.0	H-Horn	PK	0.0	58.1	74.0	-15.9	TX high channel, headset vertical
12205.490	36.8	20.7	90.0	1.0	0.0	0.0	V-Horn	PK	0.0	57.5	74.0	-16.5	TX mid channel, headset horizontal
12204.950	36.1	20.7	240.0	3.5	0.0	0.0	H-Horn	PK	0.0	56.8	74.0	-17.2	TX mid channel, headset vertical
12024.620	36.5	19.8	163.0	1.0	0.0	0.0	H-Horn	PK	0.0	56.3	74.0	-17.7	TX low channel, headset vertical
12025.410	36.3	19.8	229.0	1.0	0.0	0.0	V-Horn	PK	0.0	56.1	74.0	-17.9	TX low channel, headset horizontal
7431.403	36.8	17.6	153.0	1.0	0.0	0.0	V-Horn	PK	0.0	54.4	74.0	-19.6	TX high channel, headset horizontal
7430.907	36.6	17.6	242.0	2.6	0.0	0.0	H-Horn	PK	0.0	54.2	74.0	-19.8	TX high channel, headset vertical
7323.407	36.7	17.1	171.0	1.0	0.0	0.0	V-Horn	PK	0.0	53.8	74.0	-20.2	TX mid channel, headset horizontal
7323.237	36.4	17.1	236.0	1.0	0.0	0.0	H-Horn	PK	0.0	53.5	74.0	-20.5	TX mid channel, headset vertical

RADIATED SPURIOUS EMISSIONS

EUT: ClearChat PC Wireless Headset, M/N: A-00006	Work Order: LABT0296
Serial Number: 210-000226-008	Date: 03/05/08
Customer: Logitech, Inc.	Temperature: 22
Attendees: None	Humidity: 26%
Project: None	Barometric Pres.: 1010.8
Tested by: David Divergigelis	Power: 120VAC/60Hz
	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
C39 installed (9 pF cap, C36 pad 1 to C37 pad 1)

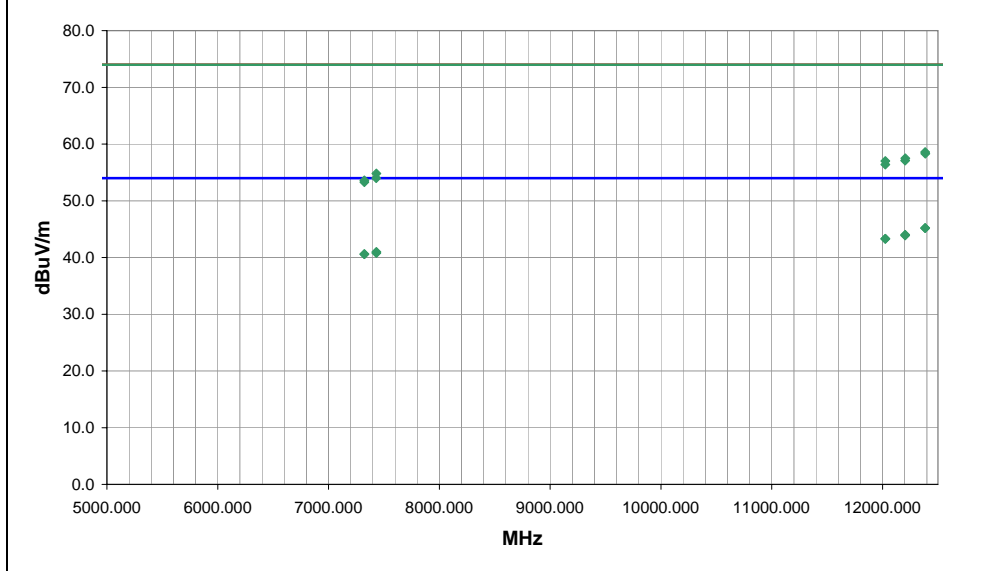
EUT OPERATING MODES
High diversity antenna, see comments below for channel tested.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	21
Configuration #	1
Results	Pass

Signature *[Handwritten Signature]*



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
12384.990	23.6	21.6	166.0	2.0	3.0	0.0	H-Horn	AV	0.0	45.2	54.0	-8.8	TX high channel, headset on side
12385.130	23.6	21.6	218.0	2.7	3.0	0.0	V-Horn	AV	0.0	45.2	54.0	-8.8	TX high channel, headset horizontal
12204.270	23.3	20.7	312.0	2.5	3.0	0.0	H-Horn	AV	0.0	44.0	54.0	-10.0	TX mid channel, headset on side
12204.570	23.2	20.7	333.0	1.0	3.0	0.0	V-Horn	AV	0.0	43.9	54.0	-10.1	TX mid channel, headset horizontal
12025.180	23.5	19.8	242.0	1.0	3.0	0.0	V-Horn	AV	0.0	43.3	54.0	-10.7	TX low channel, headset horizontal
12025.540	23.5	19.8	303.0	1.0	3.0	0.0	H-Horn	AV	0.0	43.3	54.0	-10.7	TX low channel, headset on side
7430.980	23.4	17.6	319.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.0	54.0	-13.0	TX high channel, headset horizontal
7430.980	23.2	17.6	317.0	3.2	3.0	0.0	H-Horn	AV	0.0	40.8	54.0	-13.2	TX high channel, headset on side
7322.728	23.5	17.1	136.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.6	54.0	-13.4	TX mid channel, headset horizontal
7323.048	23.5	17.1	-1.0	3.6	3.0	0.0	H-Horn	AV	0.0	40.6	54.0	-13.4	TX mid channel, headset on side
12384.680	37.0	21.6	218.0	2.7	3.0	0.0	V-Horn	PK	0.0	58.6	74.0	-15.4	TX high channel, headset horizontal
12385.480	36.7	21.6	166.0	2.0	3.0	0.0	H-Horn	PK	0.0	58.3	74.0	-15.7	TX high channel, headset on side
12205.030	36.8	20.7	333.0	1.0	3.0	0.0	V-Horn	PK	0.0	57.5	74.0	-16.5	TX mid channel, headset horizontal
12204.500	36.4	20.7	312.0	2.5	3.0	0.0	H-Horn	PK	0.0	57.1	74.0	-16.9	TX mid channel, headset on side
12025.280	37.2	19.8	303.0	1.0	3.0	0.0	H-Horn	PK	0.0	57.0	74.0	-17.0	TX low channel, headset on side
12024.960	36.6	19.8	242.0	1.0	3.0	0.0	V-Horn	PK	0.0	56.4	74.0	-17.6	TX low channel, headset horizontal
7430.983	37.2	17.6	319.0	1.0	3.0	0.0	V-Horn	PK	0.0	54.8	74.0	-19.2	TX high channel, headset horizontal
7430.887	36.4	17.6	317.0	3.2	3.0	0.0	H-Horn	PK	0.0	54.0	74.0	-20.0	TX high channel, headset on side
7322.815	36.5	17.1	136.0	1.0	3.0	0.0	V-Horn	PK	0.0	53.6	74.0	-20.4	TX mid channel, headset horizontal
7322.925	36.2	17.1	-1.0	3.6	3.0	0.0	H-Horn	PK	0.0	53.3	74.0	-20.7	TX mid channel, headset on side

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The occupied bandwidth was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode.

EMC

Occupied Bandwidth

EUT:	ClearChat PC Wireless Headset, M/N: A-00006	Work Order:	LABT0296
Serial Number:	210-000226-008	Date:	03/08/08
Customer:	Logitech, Inc.	Temperature:	23°C
Attendees:	None	Humidity:	25%
Project:	None	Barometric Pres.:	1010.8mb
Tested by:	Holly Ashkannejhad	Power:	3.7VDC
		Job Site:	EV06

TEST SPECIFICATIONS		Test Method	
FCC 15.247 (DTS):2007		ANSI C63.4:2003 KDB No. 558074	

COMMENTS
37 channels, 2MHz channel separation. C39 installed (9pF cap, C36 pin1 to C37 pin1).

DEVIATIONS FROM TEST STANDARD
No Deviations

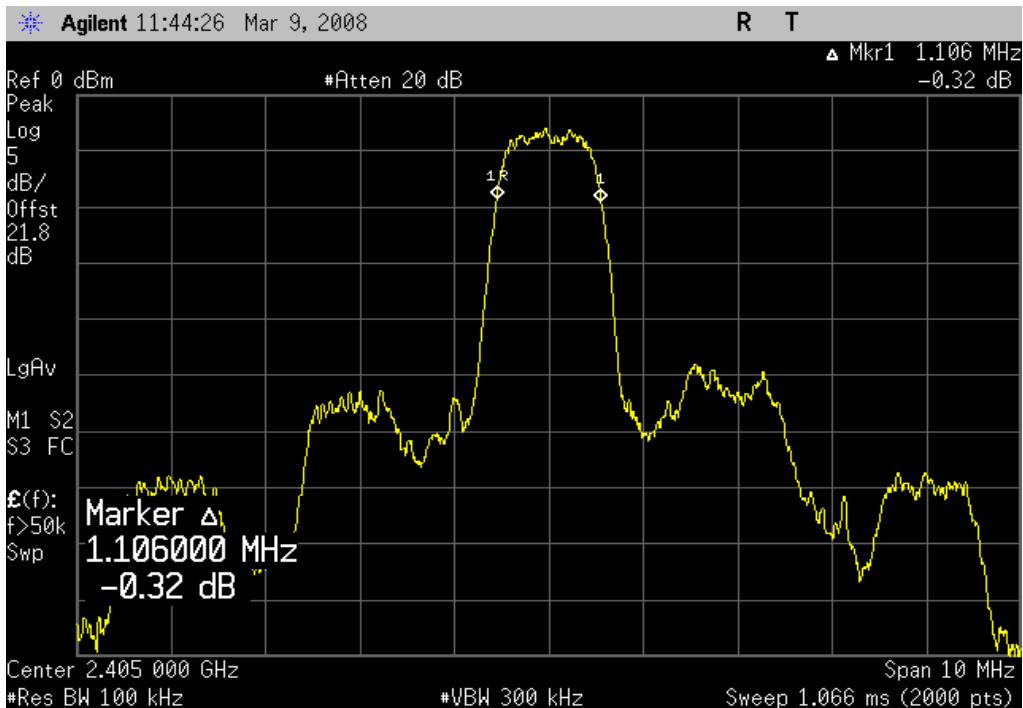
Configuration #	5	Signature <i>Holly Ashkannejhad</i>
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	Value	Limit	Results
Transmit mode, Headset, M/N: A-00006			
pi/4-DQPSK			
Low channel, Ch. 2, 2405MHz	1.106 MHz	≥ 500 kHz	Pass
Mid channel, Ch. 20, 2441MHz	1.131 MHz	≥ 500 kHz	Pass
High channel, Ch. 38, 2477MHz	1.121 MHz	≥ 500 kHz	Pass

Occupied Bandwidth

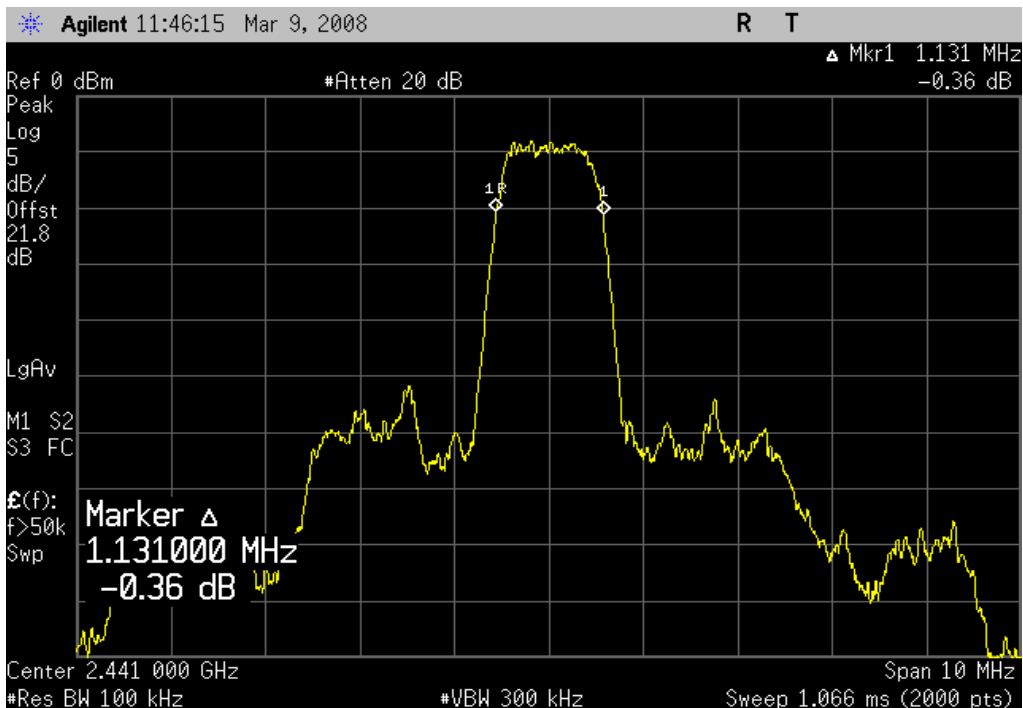
Transmit mode, Headset, M/N: A-00006, pi/4-DQPSK, Low channel, Ch. 2, 2405MHz

Result: Pass **Value:** 1.106 MHz **Limit:** ≥ 500 kHz



Transmit mode, headset, M/N: A-00006, pi/4-DQPSK, Mid channel, Ch. 20, 2441MHz

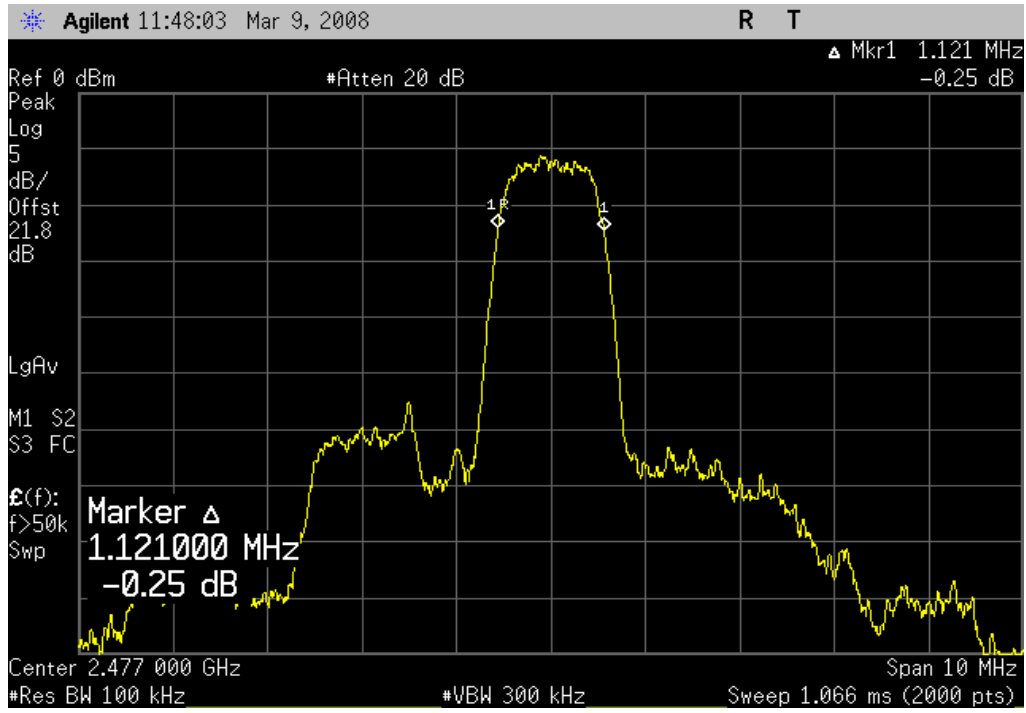
Result: Pass **Value:** 1.131 MHz **Limit:** ≥ 500 kHz



Occupied Bandwidth

Transmit mode, Headset, M/N: A-00006, pi/4-DQPSK, High channel, Ch. 38, 2477MHz

Result: Pass **Value:** 1.121 MHz **Limit:** ≥ 500 kHz



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Spectrum Analyzer	Agilent	E4446A	AAV	12/18/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

Peak Output Power

EMC

EUT:	ClearChat PC Wireless Headset, M/N: A-00006	Work Order:	LABT0296
Serial Number:	210-000226-008	Date:	03/04/08
Customer:	Logitech, Inc.	Temperature:	23°C
Attendees:	None	Humidity:	25%
Project:	None	Barometric Pres.:	1010.8mb
Tested by:	Holly Ashkannejhad	Power:	3.7VDC
		Job Site:	EV06

TEST SPECIFICATIONS		Test Method	
FCC 15.247 (DTS):2007		ANSI C63.4:2003 KDB No. 558074	

COMMENTS
C39 installed (9 pF cap, C36 pin1 to C37 pin 1)

DEVIATIONS FROM TEST STANDARD

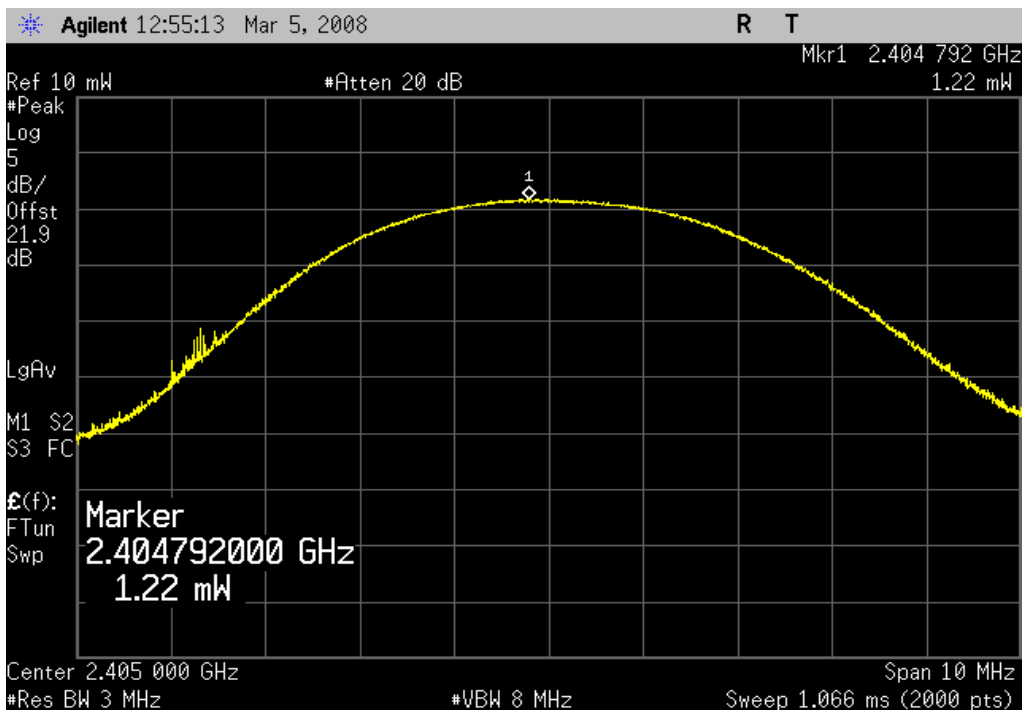
Configuration #	5	Signature <i>Holly Ashkannejhad</i>
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	Value	Limit	Results
Headset, M/N: A-00006, Low diversity antenna			
pi/4-DQPSK			
Low channel, Ch. 2, 2405MHz	1.220 mW	0.125 Watts	Pass
Mid channel, Ch. 20, 2441MHz	1.080 mW	0.125 Watts	Pass
High channel, Ch. 38, 2477MHz	0.839 mW	0.125 Watts	Pass

Peak Output Power

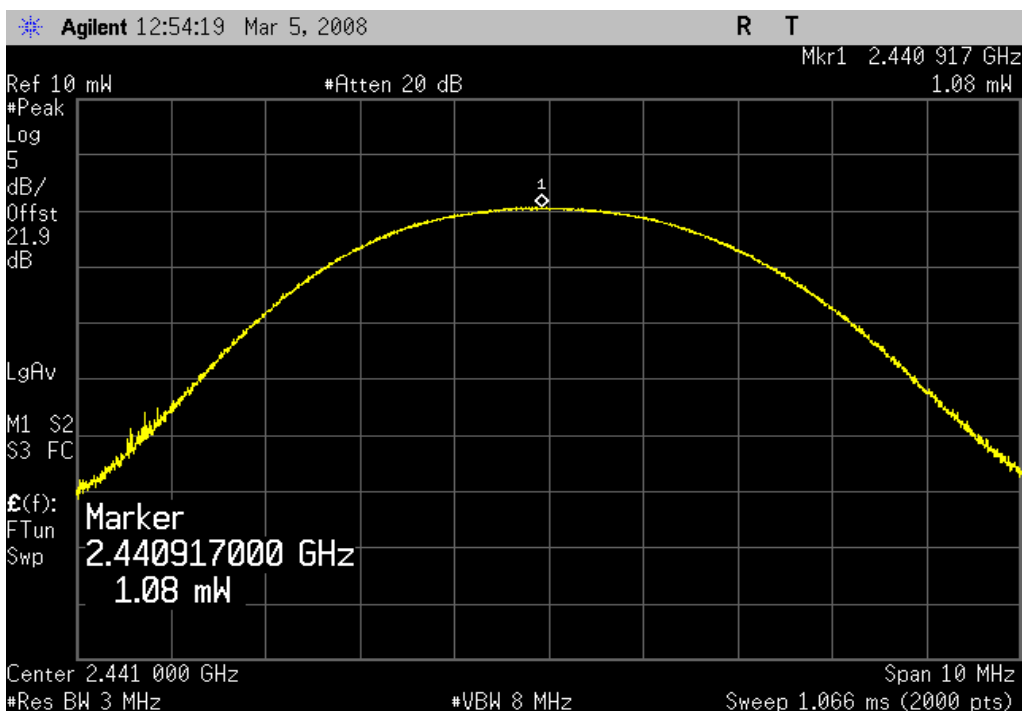
Headset, M/N: A-00006, Low diversity antenna, pi/4-DQPSK, Low channel, Ch. 2, 2405MHz

Result: Pass **Value:** 1.220 mW **Limit:** 0.125 Watts



Headset, M/N: A-00006, Low diversity antenna, pi/4-DQPSK, Mid channel, Ch. 20, 2441MHz

Result: Pass **Value:** 1.080 mW **Limit:** 0.125 Watts



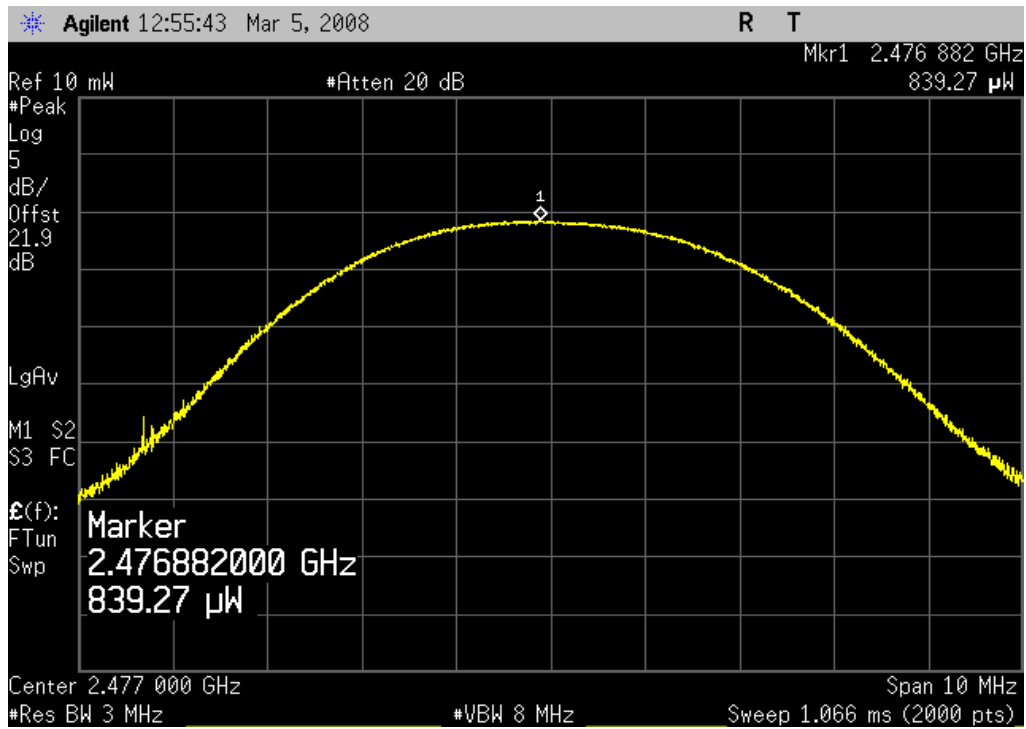
Peak Output Power

Headset, M/N: A-00006, Low diversity antenna, pi/4-DQPSK, High channel, Ch. 38, 2477MHz

Result: Pass

Value: 0.839 mW

Limit: 0.125 Watts



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to low and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode. The channels closest to the band edges were selected. The spectrum was scanned across each band edge from 5 MHz below the band edge to 5 MHz above the band edge.

Band Edge Compliance

EMC

EUT:	ClearChat PC Wireless Headset, M/N: A-00006	Work Order:	LABT0296
Serial Number:	210-000226-008	Date:	03/04/08
Customer:	Logitech, Inc.	Temperature:	23°C
Attendees:	None	Humidity:	25%
Project:	None	Barometric Pres.:	1010.8mb
Tested by:	Holly Ashkannejhad	Power:	3.7VDC
		Job Site:	EV06

TEST SPECIFICATIONS		Test Method	
FCC 15.247 (DTS):2007		ANSI C63.4:2003 KDB No. 558074	

COMMENTS

Modified board: C39 installed (9pF, C35 pin1 to C37 pin 1)

DEVIATIONS FROM TEST STANDARD

No Deviations

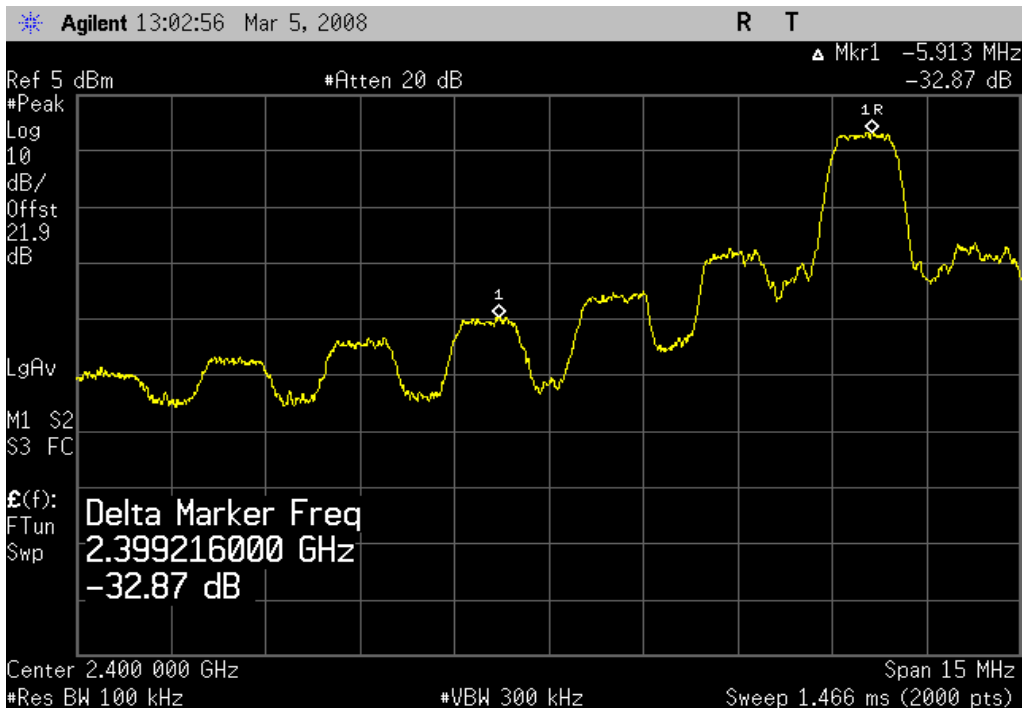
Configuration #	5	Signature <i>Holly Ashkannejhad</i>
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	Value	Limit	Results
Transmit mode, Headset, M/N: A-00006			
pi/4-DQPSK			
Low channel, Ch. 2, 2405 MHz	≤ - 30 dBc	≤ - 20 dBc	Pass
High channel, Ch. 38, 2477MHz	≤ - 40 dBc	≤ - 20 dBc	Pass

Band Edge Compliance

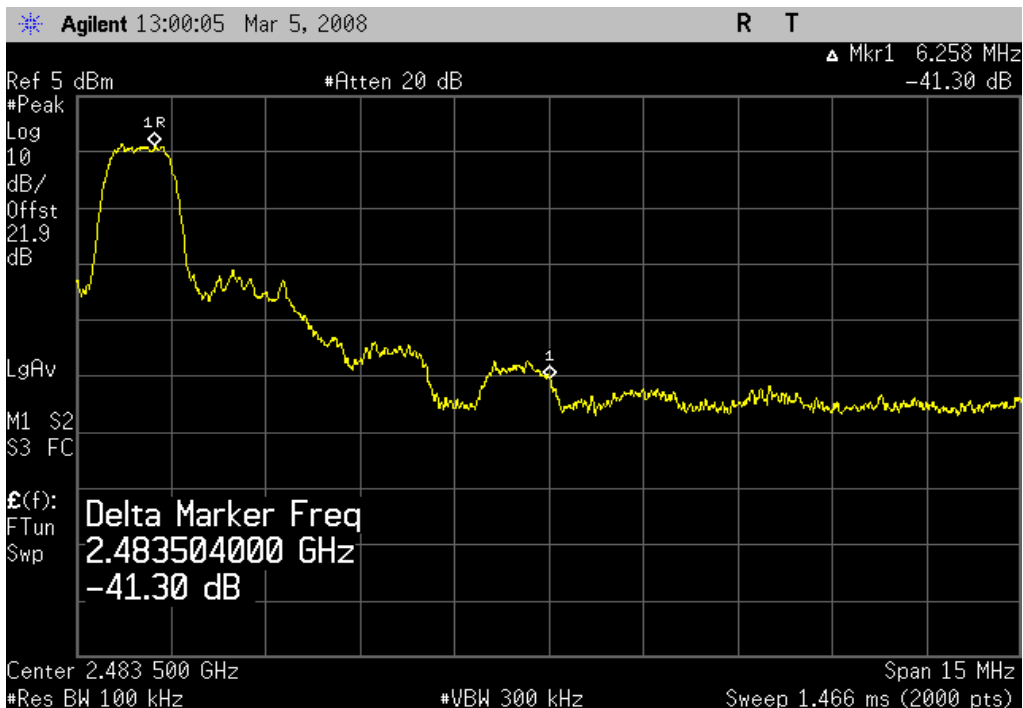
Transmit mode, Headset, M/N: A-00006, pi/4-DQPSK, Low channel, Ch. 2, 2405 MHz

Result: Pass **Value:** ≤ -30 dBc **Limit:** ≤ -20 dBc



Transmit mode, Headset, M/N: A-00006, pi/4-DQPSK, High channel, Ch. 38, 2477MHz

Result: Pass **Value:** ≤ -40 dBc **Limit:** ≤ -20 dBc



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set to low, medium, and high transmit frequencies. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode. For each transmit frequency, the spectrum was scanned throughout the specified frequency.

EMC

Spurious Conducted Emissions

EUT:	ClearChat PC Wireless Headset, M/N: A-00006	Work Order:	LABT0296
Serial Number:	210-000226-0808	Date:	03/04/08
Customer:	Logitech, Inc.	Temperature:	23°C
Attendees:	None	Humidity:	25%
Project:	None	Barometric Pres.:	1010.8mb
Tested by:	Holly Ashkannejhad	Power:	3.7VDC
		Job Site:	EV06

TEST SPECIFICATIONS		Test Method
FCC 15.247 (DTS):2007		ANSI C63.4:2003 KDB No. 558074

COMMENTS
C39 installed: 9pF cap. C36 pin1 to C37 pin1.

DEVIATIONS FROM TEST STANDARD
No Deviations

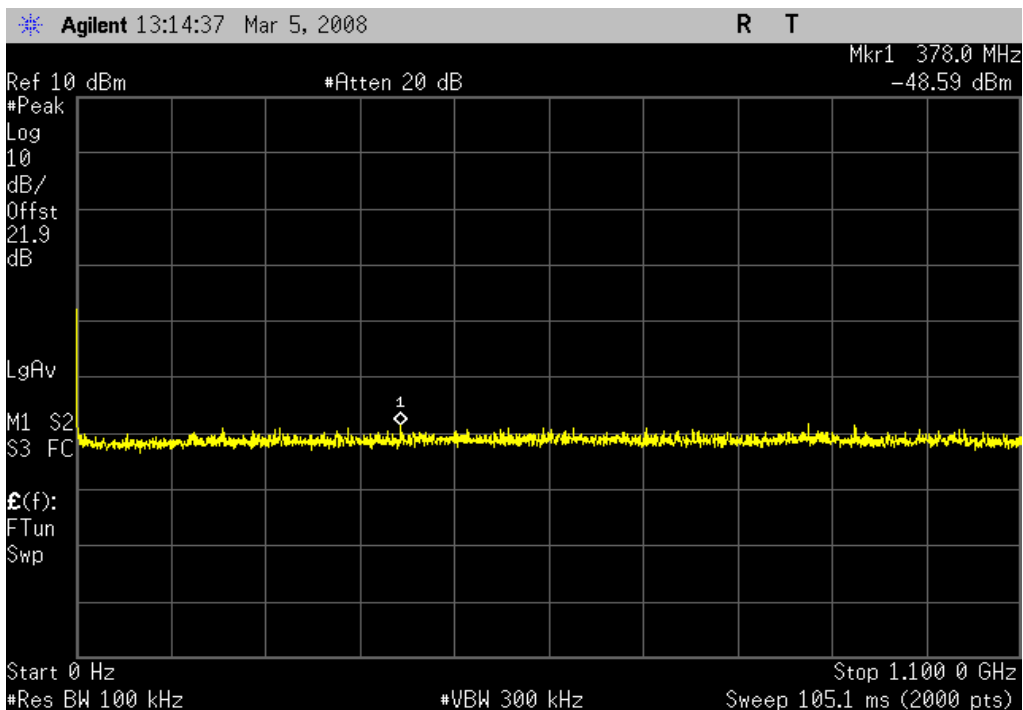
Configuration #	5	Signature <i>Holly Ashkannejhad</i>
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	Value	Limit	Results
Transmit mode, no hop, pi/4-DQPSK modulation			
Low channel, 2405MHz			
0 Hz - 1.1 GHz	≤ - 40 dBc	≤ - 20 dBc	Pass
1 GHz - 6.6 GHz	≤ - 40 dBc	≤ - 20 dBc	Pass
6.5 GHz - 16.1 GHz	≤ - 30 dBc	≤ - 20 dBc	Pass
16 GHz - 26 GHz	≤ - 30 dBc	≤ - 20 dBc	Pass
Mid channel, 2441MHz			
0 Hz - 1.1 GHz	≤ - 40 dBc	≤ - 20 dBc	Pass
1 GHz - 6.6 GHz	≤ - 30 dBc	≤ - 20 dBc	Pass
6.5 GHz - 16.1 GHz	≤ - 30 dBc	≤ - 20 dBc	Pass
16 GHz - 26 GHz	≤ - 30 dBc	≤ - 20 dBc	Pass
High channel, 2477MHz			
0 Hz - 1.1 GHz	≤ - 40 dBc	≤ - 20 dBc	Pass
1 GHz - 6.6 GHz	≤ - 30 dBc	≤ - 20 dBc	Pass
6.5 GHz - 16.1 GHz	≤ - 30 dBc	≤ - 20 dBc	Pass
16 GHz - 26 GHz	≤ - 30 dBc	≤ - 20 dBc	Pass

Spurious Conducted Emissions

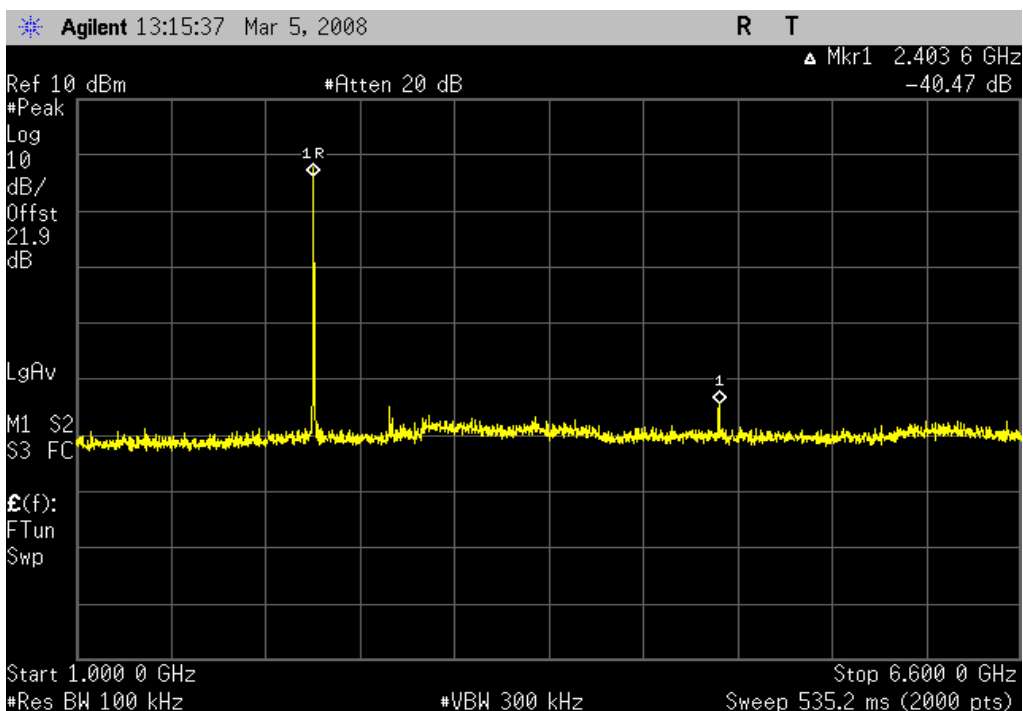
Transmit mode, pi/4-DQPSK modulation, Low channel, 2405MHz, 0 Hz - 1.1 GHz

Result: Pass **Value:** ≤ -40 dBc **Limit:** ≤ -20 dBc



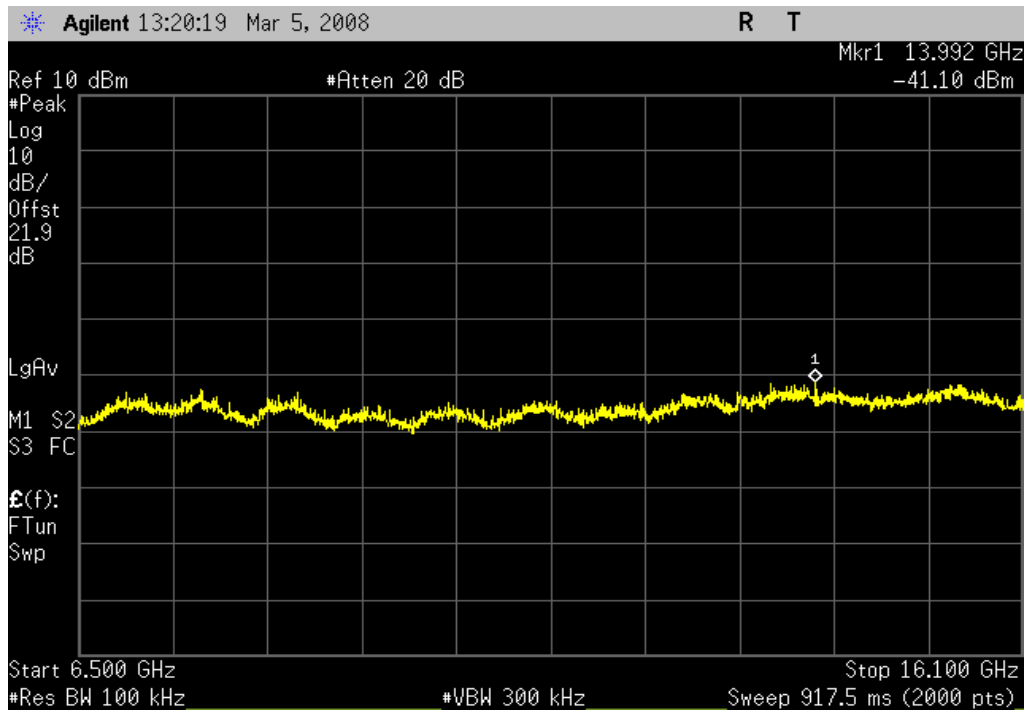
Transmit mode, pi/4-DQPSK modulation, Low channel, 2405MHz, 1 GHz - 6.6 GHz

Result: Pass **Value:** ≤ -40 dBc **Limit:** ≤ -20 dBc



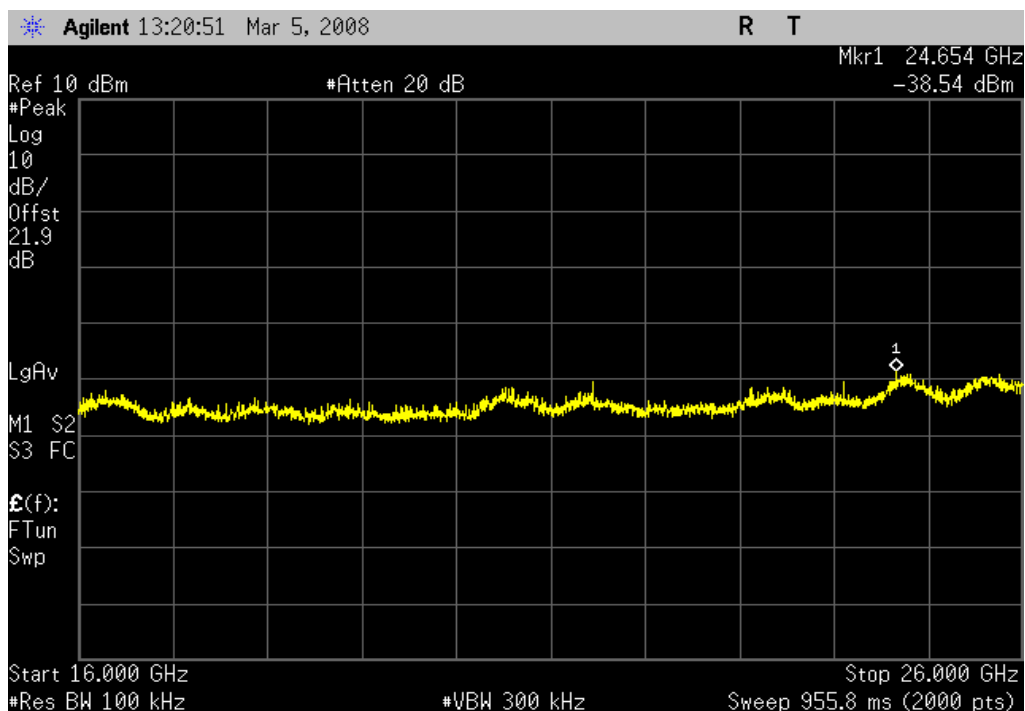
Transmit mode, pi/4-DQPSK modulation, Low channel, 2405MHz, 6.5 GHz - 16.1 GHz

Result: Pass	Value: ≤ -30 dBc	Limit: ≤ -20 dBc
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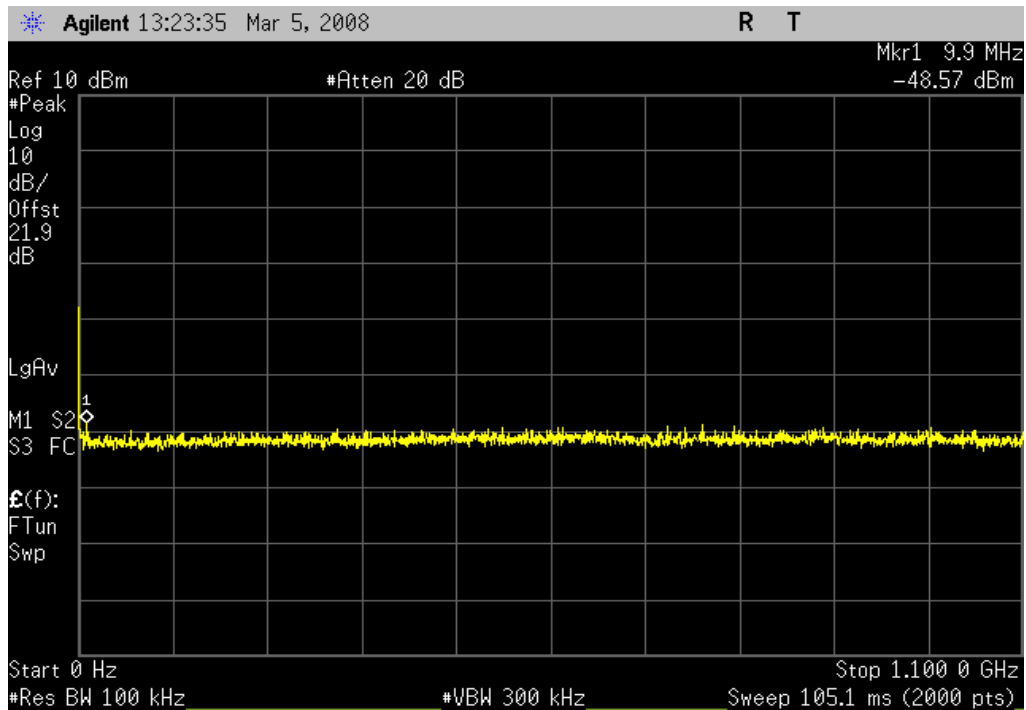
Transmit mode, pi/4-DQPSK modulation, Low channel, 2405MHz, 16 GHz - 26 GHz

Result: Pass	Value: ≤ -30 dBc	Limit: ≤ -20 dBc
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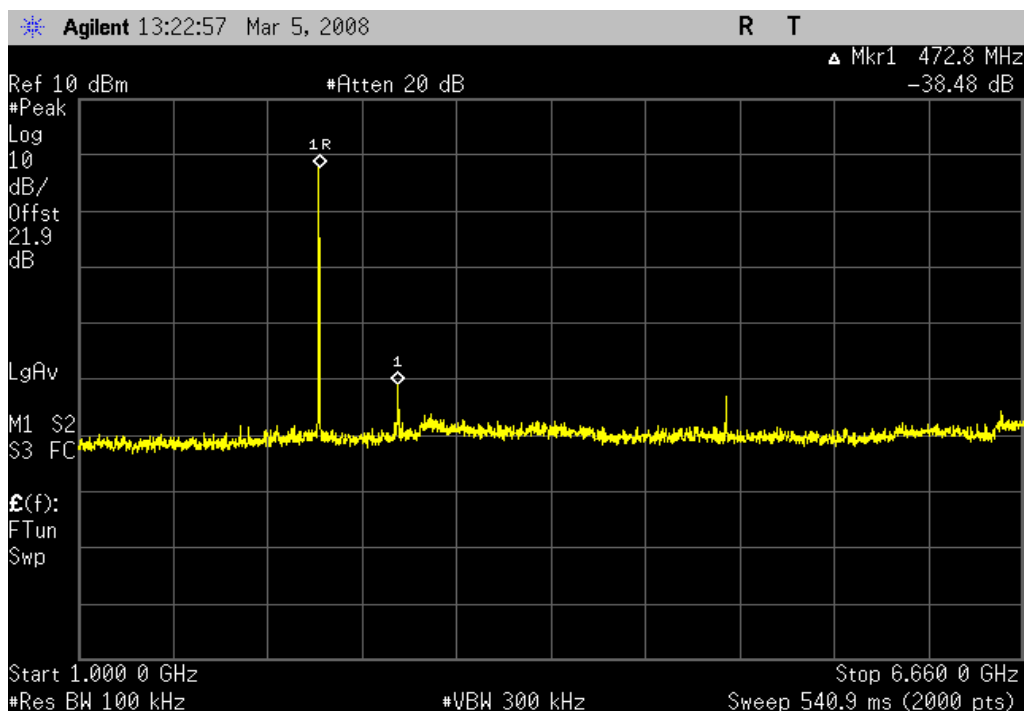
Transmit mode, pi/4-DQPSK modulation, Mid channel, 2441MHz, 0 Hz - 1.1 GHz

Result: Pass **Value:** ≤ - 40 dBc **Limit:** ≤ - 20 dBc



Transmit mode, pi/4-DQPSK modulation, Mid channel, 2441MHz, 1 GHz - 6.6 GHz

Result: Pass **Value:** ≤ - 30 dBc **Limit:** ≤ - 20 dBc

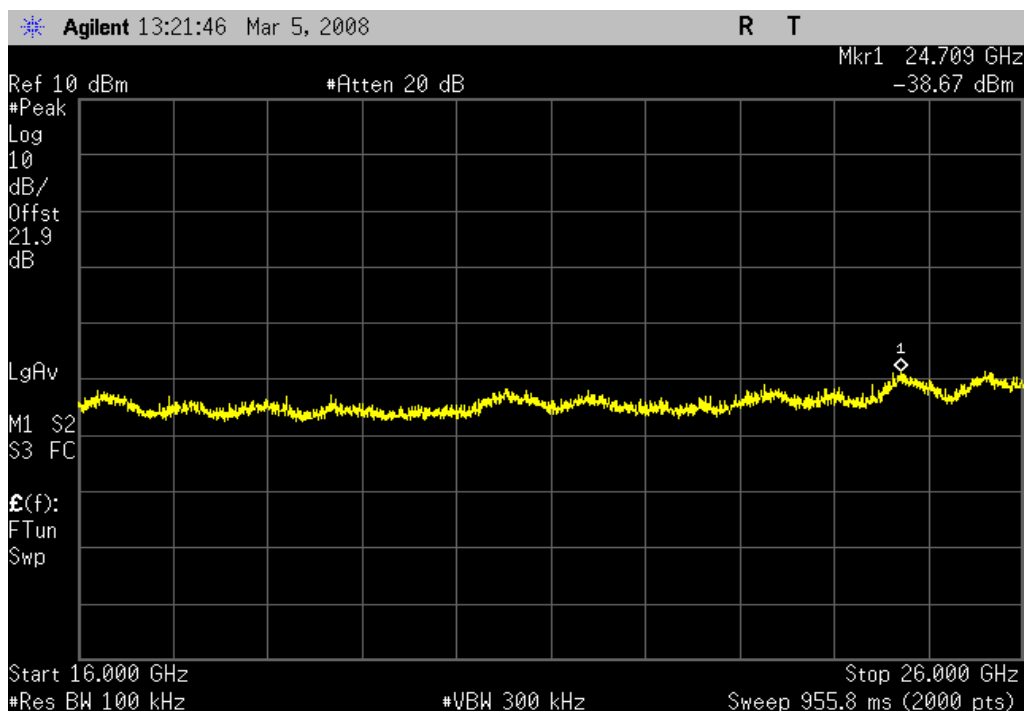


Spurious Conducted Emissions

Transmit mode, pi/4-DQPSK modulation, Mid channel, 2441MHz, 6.5 GHz - 16.1 GHz
Result: Pass **Value:** ≤ - 30 dBc **Limit:** ≤ - 20 dBc

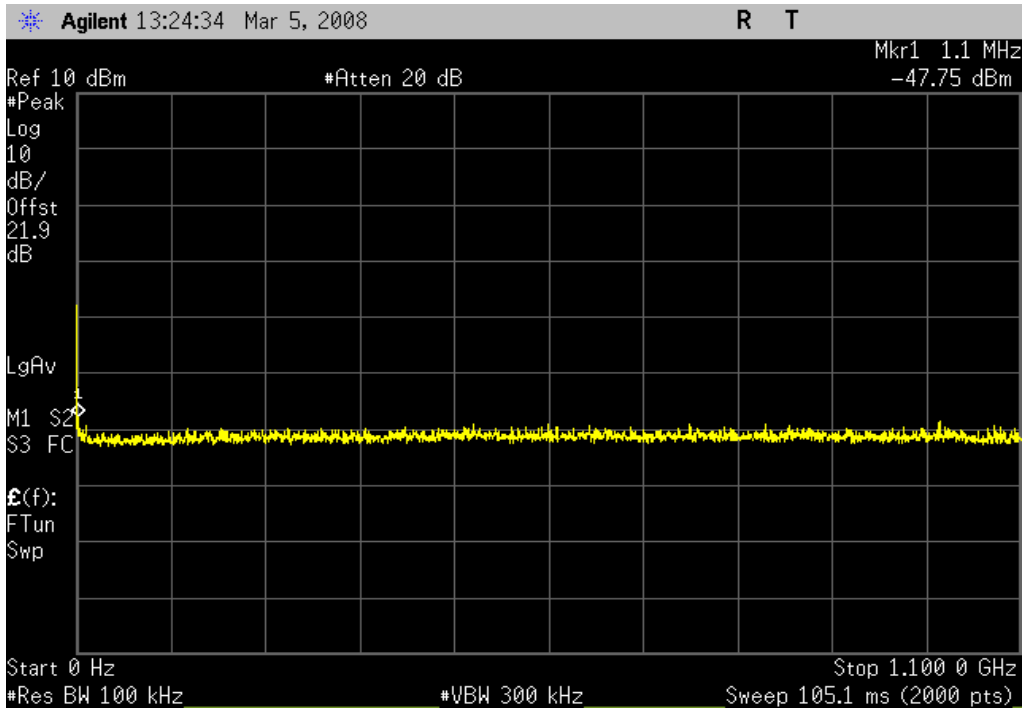


Transmit mode, pi/4-DQPSK modulation, Mid channel, 2441MHz, 16 GHz - 26 GHz
Result: Pass **Value:** ≤ - 30 dBc **Limit:** ≤ - 20 dBc

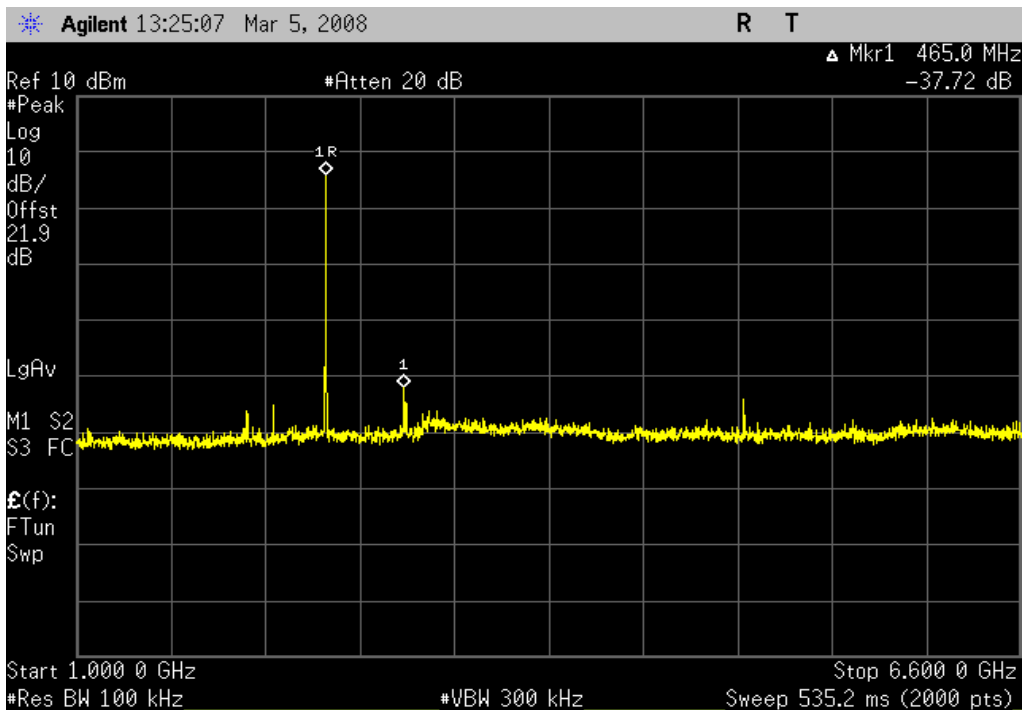


Spurious Conducted Emissions

Transmit mode, pi/4-DQPSK modulation, High channel, 2477MHz, 0 Hz - 1.1 GHz
Result: Pass **Value:** ≤ - 40 dBc **Limit:** ≤ - 20 dBc



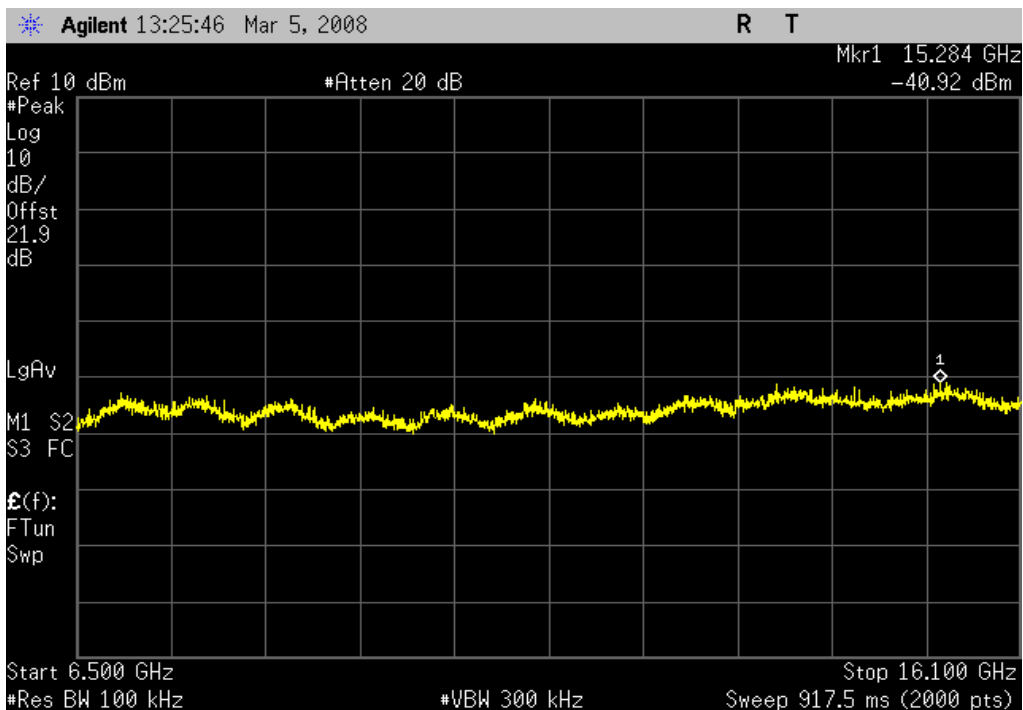
Transmit mode, pi/4-DQPSK modulation, High channel, 2477MHz, 1 GHz - 6.6 GHz
Result: Pass **Value:** ≤ - 30 dBc **Limit:** ≤ - 20 dBc



Spurious Conducted Emissions

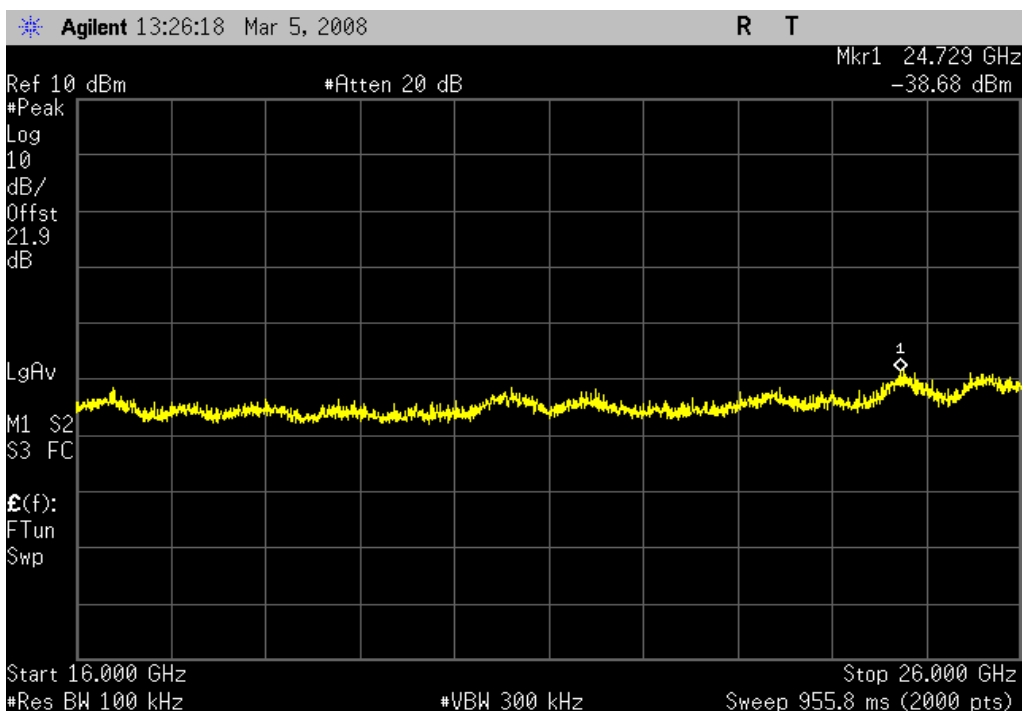
Transmit mode, pi/4-DQPSK modulation, High channel, 2477MHz, 6.5 GHz - 16.1 GHz

Result: Pass **Value:** ≤ -30 dBc **Limit:** ≤ -20 dBc



Transmit mode, pi/4-DQPSK modulation, High channel, 2477MHz, 16 GHz - 26 GHz

Result: Pass **Value:** ≤ -30 dBc **Limit:** ≤ -20 dBc



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/8/2007	13
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The peak power spectral density measurements were measured with the EUT set to low, mid, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate. Per the procedure outlined in FCC 97-114, the spectrum analyzer was used as follows:

The emission peak(s) were located and zoom in on within the passband. The resolution bandwidth was set to 3 kHz, the video bandwidth was set to greater than or equal to the resolution bandwidth. The sweep speed was set equal to the span divided by 3 kHz (sweep = (SPAN/3 kHz)). For example, given a span of 1.5 MHz, the sweep should be $1.5 \times 10^6 \div 3 \times 10^3 = 500$ seconds. External attenuation was used and added to the reading. The following FCC procedure was used for modifying the power spectral density measurements:

"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 35 dB for correction to 3 kHz."

Power Spectral Density

EMC

EUT:	ClearChat PC Wireless Headset, M/N: A-00006	Work Order:	LABT0296
Serial Number:	210-000226-008	Date:	03/04/08
Customer:	Logitech, Inc.	Temperature:	23°C
Attendees:	None	Humidity:	25%
Project:	None	Barometric Pres.:	1010.8mb
Tested by:	Holly Ashkannejhad	Power:	3.7VDC
		Job Site:	EV06

TEST SPECIFICATIONS		Test Method	
FCC 15.247 (DTS):2007		ANSI C63.4:2003 KDB No. 558074	

COMMENTS

C39 installed (9 pF cap. C36 pin1 to C37 pin1).

DEVIATIONS FROM TEST STANDARD

No Deviations

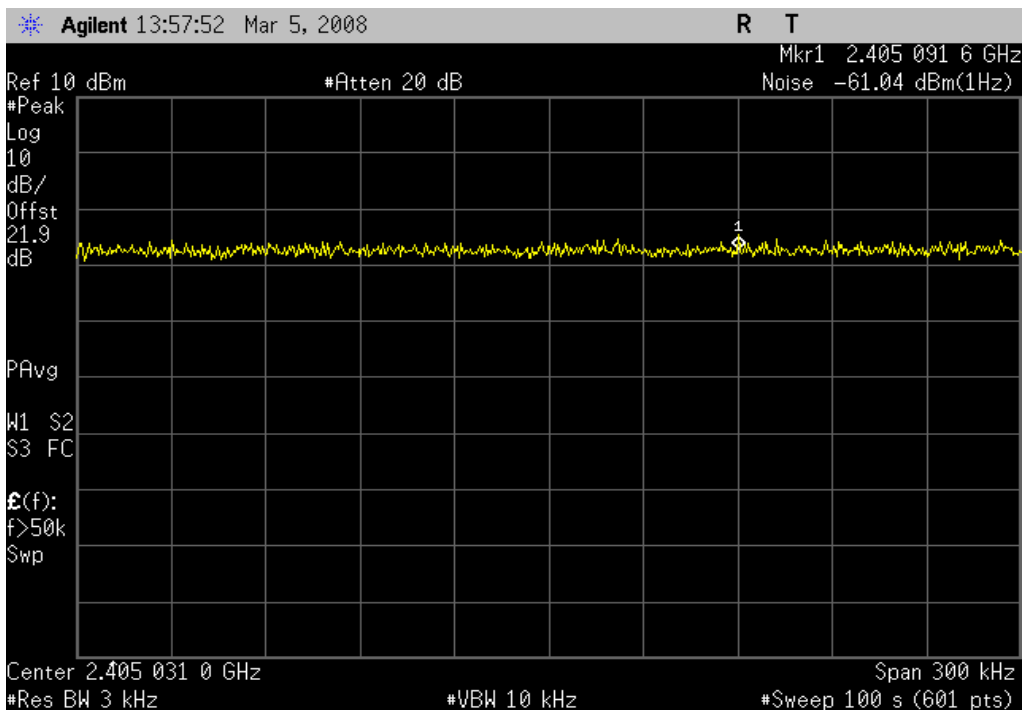
Configuration #	5	Signature <i>Holly Ashkannejhad</i>
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	Value	Limit	Results
Transmitting with pi/4-DQPSK modulation			
Low channel, 2405MHz	-26.04 dBm / 3 kHz	8 dBm / 3 kHz	Pass
Mid channel, 2441MHz	-26.94 dBm / 3 kHz	8 dBm / 3 kHz	Pass
High channel, 2477MHz	-27.29 dBm / 3 kHz	8 dBm / 3 kHz	Pass

Power Spectral Density

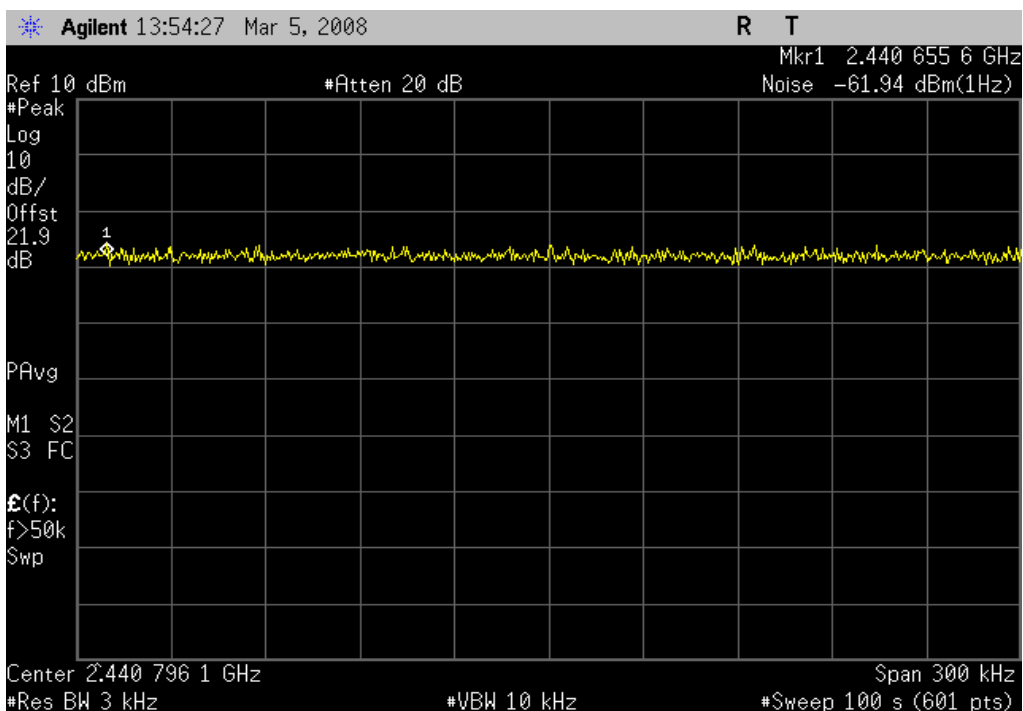
Transmitting with pi/4-DQPSK modulatio, Low channel, 2405MHz

Result: Pass **Value:** -26.04 dBm / 3 kHz **Limit:** 8 dBm / 3 kHz



Transmitting with pi/4-DQPSK modulatio, Mid channel, 2441MHz

Result: Pass **Value:** -26.94 dBm / 3 kHz **Limit:** 8 dBm / 3 kHz



Power Spectral Density

Transmitting with pi/4-DQPSK modulated, High channel, 2477MHz

Result: Pass **Value:** -27.29 dBm / 3 kHz **Limit:** 8 dBm / 3 kHz

