Logitech, Inc.

ClearChat PC Wireless Dongle M/N: A-00007

March 11, 2008

Report No. LABT0296

Report Prepared By

NORTHWEST EMC

www.nwemc.com
1-888-EMI-CERT

EMC Test Report

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Issue Date: March 11, 2008
Logitech, Inc.
Model: ClearChat PC Wireless Dongle M/N: A-00007

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

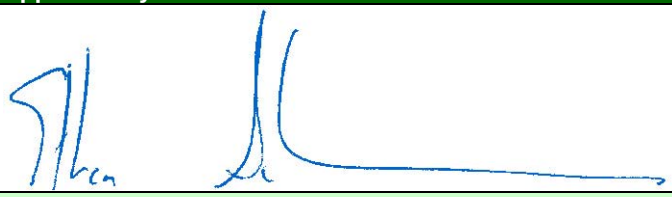
The measurement facility used to collect the data is located at:

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 TUV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TUV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TUV's current Listing of CARAT Laboratories, available from TUV. A certificate was issued to represent that this laboratory continues to meet TUV'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).*

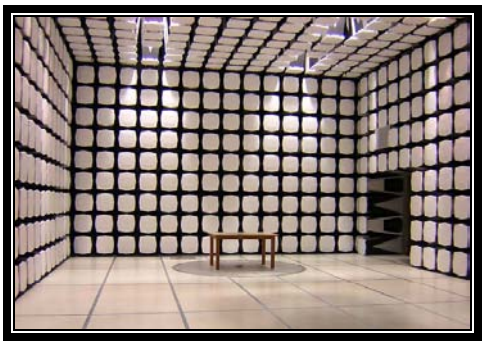
BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement. License No.SL2-IN-E-1017.

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)*

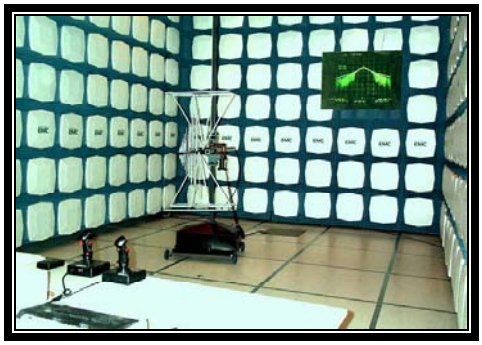
SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/scope.asp



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 Dongle M/N: A-00007
First Date of Test:	February 22, 2008
Last Date of Test:	March 6, 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 Dongle (A-00007) transmit/receives in pi/4-DQPSK modulation only. It has one antenna. 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 2 LABT0296

Software/Firmware Running during test	
Description	**Version**
AWAdeveloper	1.0.076

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
ClearChat PC Wireless Dongle	Logitech, Inc.	A-00007	Unknown

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
USB cradle	Logitech, Inc.	Unknown	Unknown

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	PP20L	Unknown

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
USB	Yes	1.6m	No	USB Cradle	Laptop
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 3 LABT0296

Software/Firmware Running during test	
Description	**Version**
AWAdeveloper	1.0.076

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
ClearChat PC Wireless Dongle	Logitech, Inc.	A-00007	Unknown

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	PP20L	Unknown

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	2/22/2008	Spurious Radiated Emissions of Receiver	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	2/25/2007	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.
3	3/27/2007	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.
4	2/28/2008	Peak Output Power	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	2/28/2008	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.
6	2/28/2008	Occupied Band Width	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	2/29/2008	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.
8	2/29/2008	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.
9	3/6/2008	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

RADIATED EMISSIONS

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

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 (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, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level will be detected. This requires the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search is utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT.

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

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2007.7.24

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:	None			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

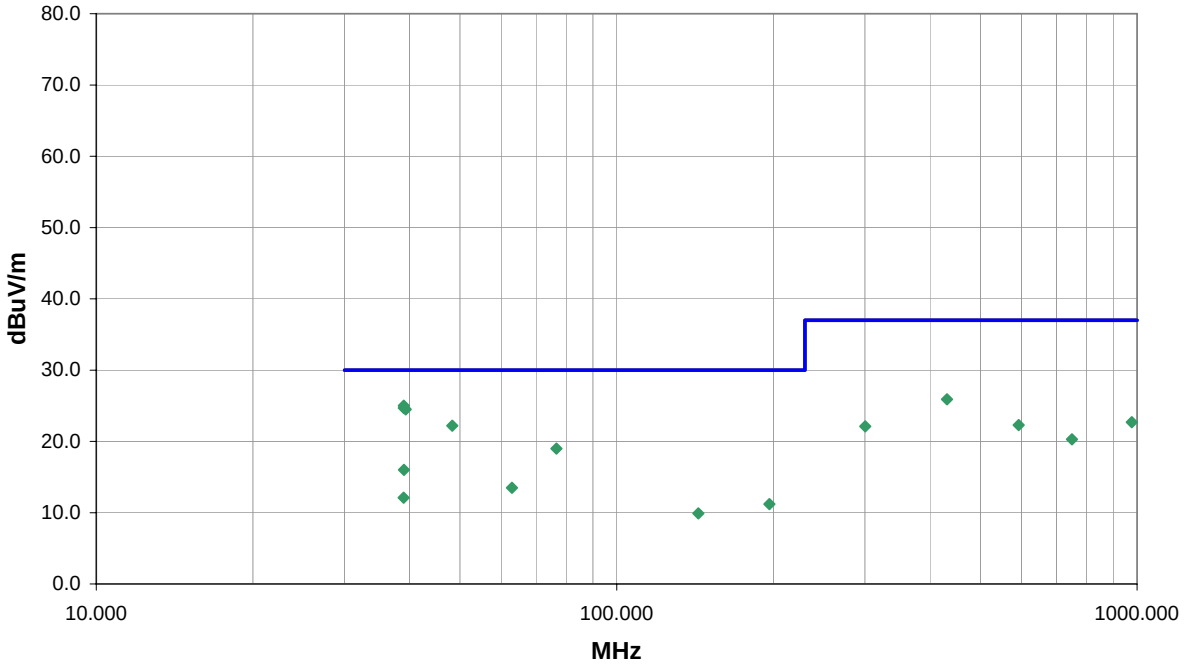
Pink Noise playing at 50% volume level. Running NWEMC H pattern.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	1
Configuration #	2
Results	Pass

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)
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

CONDUCTED EMISSIONS

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

2 - Dongle - SRE

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
EV07 Cables		Conducted Cables	EVG	4/17/2007	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
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.

NORTHWEST

EMC

CONDUCTED EMISSIONS

Version 2007.8.27
PSA-ESCI 2008.01.03

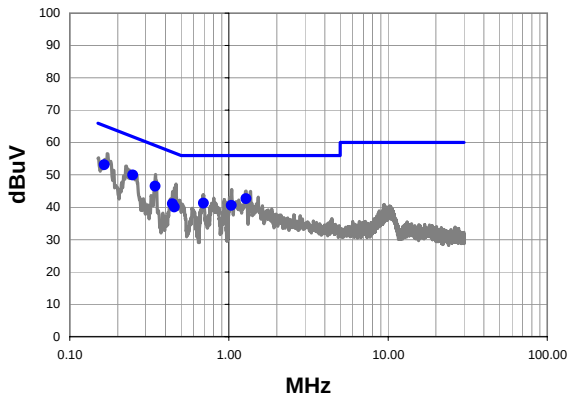
Work Order:	LABT0296	**Date:**	02/27/08		
Project:	None	**Temperature:**	22		
Job Site:	EV07	**Humidity:**	26		
Serial Number:	Unknown	**Barometric Pres.:**	1016.9	**Tested by:**	David DiVergigelis

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007
Configuration:	2 - Dongle - SRE
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

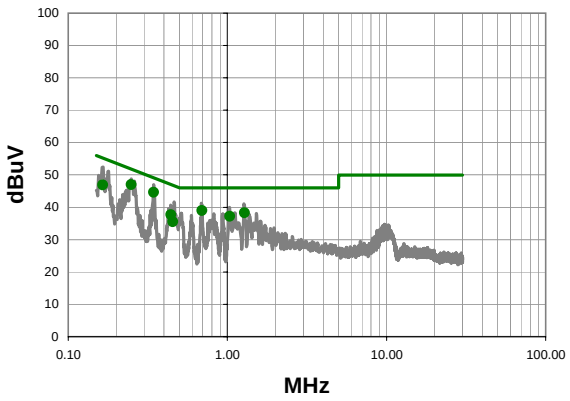
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	1	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

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)
0.249	29.0	21.0	50.0	61.8	-11.8
0.165	31.4	21.7	53.1	65.2	-12.1
0.344	25.6	20.9	46.5	59.1	-12.6
1.280	22.1	20.5	42.6	56.0	-13.4
0.691	20.6	20.7	41.3	56.0	-14.7
1.036	20.1	20.5	40.6	56.0	-15.4
0.441	20.2	20.8	41.0	57.0	-16.0
0.455	19.2	20.8	40.0	56.8	-16.7

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.344	23.7	20.9	44.6	49.1	-4.5
0.249	26.0	21.0	47.0	51.8	-4.8
0.691	18.3	20.7	39.0	46.0	-7.0
1.280	17.8	20.5	38.3	46.0	-7.7
0.165	25.2	21.7	46.9	55.2	-8.3
1.036	16.7	20.5	37.2	46.0	-8.8
0.441	16.8	20.8	37.6	47.0	-9.4
0.455	14.7	20.8	35.5	46.8	-11.2

NORTHWEST

EMC

CONDUCTED EMISSIONS

Version 2007.8.27
PSA-ESCI 2008.01.03

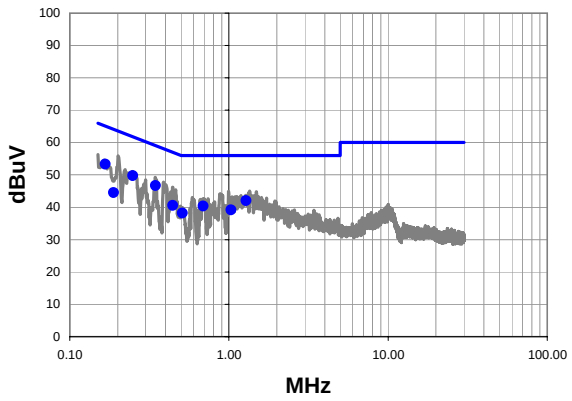
Work Order:	LABT0296	**Date:**	02/27/08		
Project:	None	**Temperature:**	22		
Job Site:	EV07	**Humidity:**	26		
Serial Number:	Unknown	**Barometric Pres.:**	1016.9	**Tested by:**	David DiVergigelis

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007
Configuration:	2 - Dongle - SRE
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

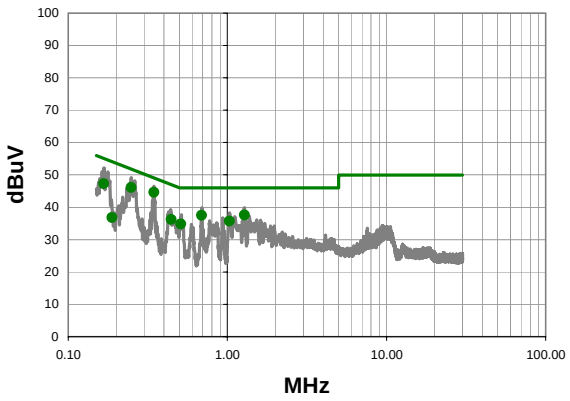
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	2	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

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)
0.167	31.7	21.7	53.4	65.1	-11.7
0.249	28.8	21.0	49.8	61.8	-12.0
0.346	25.8	20.9	46.7	59.1	-12.3
1.280	21.5	20.5	42.0	56.0	-14.0
0.688	19.7	20.7	40.4	56.0	-15.6
0.445	19.7	20.8	40.5	57.0	-16.4
1.032	18.7	20.5	39.2	56.0	-16.8
0.510	17.4	20.8	38.2	56.0	-17.8
0.189	23.3	21.2	44.5	64.1	-19.6

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.346	23.7	20.9	44.6	49.1	-4.4
0.249	25.1	21.0	46.1	51.8	-5.7
0.167	25.6	21.7	47.3	55.1	-7.8
1.280	17.1	20.5	37.6	46.0	-8.4
0.688	16.8	20.7	37.5	46.0	-8.5
1.032	15.2	20.5	35.7	46.0	-10.3
0.445	15.4	20.8	36.2	47.0	-10.7
0.510	14.0	20.8	34.8	46.0	-11.2
0.189	15.6	21.2	36.8	54.1	-17.3

NORTHWEST

EMC

CONDUCTED EMISSIONS

Version 2007.8.27
PSA-ESCI 2008.01.03

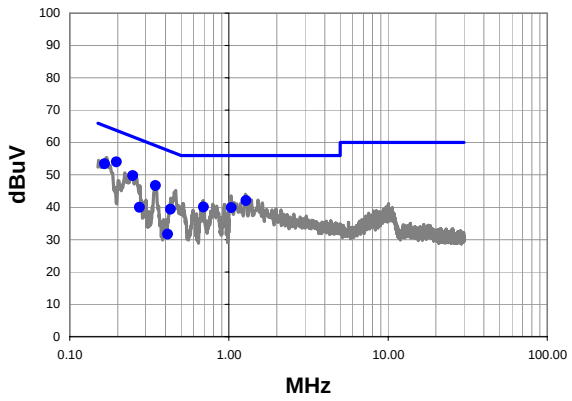
Work Order:	LABT0296	**Date:**	02/27/08		
Project:	None	**Temperature:**	22		
Job Site:	EV07	**Humidity:**	26		
Serial Number:	Unknown	**Barometric Pres.:**	1016.9	**Tested by:**	David DiVergigelis

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007
Configuration:	2 - Dongle - SRE
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

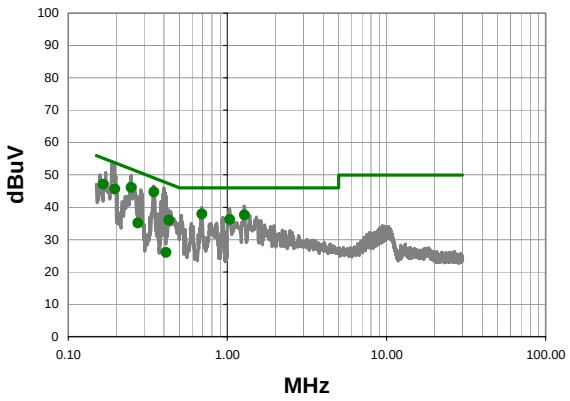
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	3	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

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)
0.197	32.9	21.1	54.0	63.7	-9.8
0.166	31.7	21.7	53.4	65.2	-11.8
0.249	28.8	21.0	49.8	61.8	-12.0
0.346	25.8	20.9	46.7	59.1	-12.3
1.280	21.5	20.5	42.0	56.0	-14.0
0.691	19.4	20.7	40.1	56.0	-15.9
1.036	19.4	20.5	39.9	56.0	-16.1
0.429	18.5	20.9	39.4	57.3	-17.9
0.274	19.0	21.0	40.0	61.0	-21.0
0.412	10.8	20.9	31.7	57.6	-25.9

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.346	23.8	20.9	44.7	49.1	-4.3
0.249	25.1	21.0	46.1	51.8	-5.7
0.166	25.4	21.7	47.1	55.2	-8.1
0.691	17.2	20.7	37.9	46.0	-8.1
0.197	24.5	21.1	45.6	53.7	-8.2
1.280	17.1	20.5	37.6	46.0	-8.4
1.036	15.7	20.5	36.2	46.0	-9.8
0.429	15.1	20.9	36.0	47.3	-11.3
0.274	14.2	21.0	35.2	51.0	-15.8
0.412	5.1	20.9	26.0	47.6	-21.6

NORTHWEST

EMC

CONDUCTED EMISSIONS

Version 2007.8.27
PSA-ESCI 2008.01.03

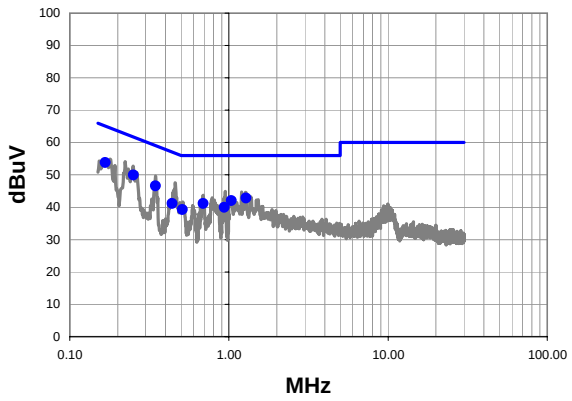
Work Order:	LABT0296	**Date:**	02/27/08		
Project:	None	**Temperature:**	22		
Job Site:	EV07	**Humidity:**	26		
Serial Number:	Unknown	**Barometric Pres.:**	1016.9	**Tested by:**	David DiVergigelis

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007
Configuration:	2 - Dongle - SRE
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

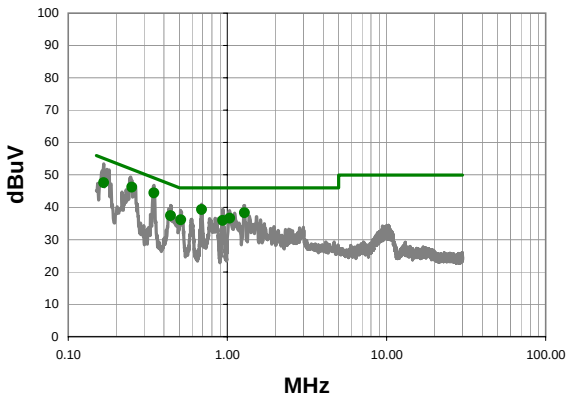
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	4	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

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)
0.167	32.1	21.7	53.8	65.1	-11.3
0.251	29.0	21.0	50.0	61.7	-11.8
0.346	25.7	20.9	46.6	59.1	-12.4
1.280	22.3	20.5	42.8	56.0	-13.2
1.036	21.5	20.5	42.0	56.0	-14.0
0.689	20.5	20.7	41.2	56.0	-14.8
0.439	20.3	20.9	41.2	57.1	-15.9
0.937	19.4	20.5	39.9	56.0	-16.1
0.511	18.5	20.8	39.3	56.0	-16.7

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.346	23.5	20.9	44.4	49.1	-4.6
0.251	25.2	21.0	46.2	51.7	-5.6
0.689	18.6	20.7	39.3	46.0	-6.7
0.167	25.9	21.7	47.6	55.1	-7.5
1.280	17.8	20.5	38.3	46.0	-7.7
1.036	16.1	20.5	36.6	46.0	-9.4
0.439	16.5	20.9	37.4	47.1	-9.7
0.511	15.3	20.8	36.1	46.0	-9.9
0.937	15.4	20.5	35.9	46.0	-10.1

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CONDUCTED EMISSIONS

Version 2007.8.27
PSA-ESCI 2008.01.03

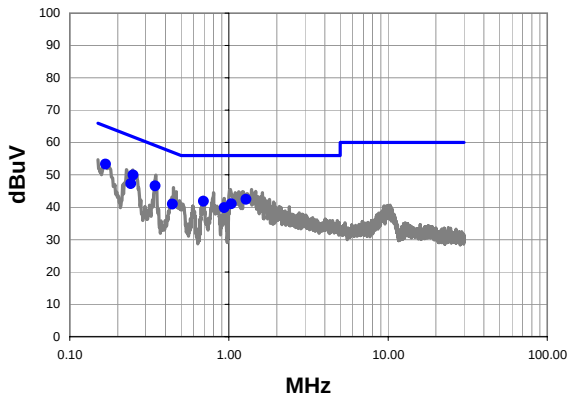
Work Order:	LABT0296	**Date:**	02/27/08		
Project:	None	**Temperature:**	22		
Job Site:	EV07	**Humidity:**	26		
Serial Number:	Unknown	**Barometric Pres.:**	1016.9	**Tested by:**	David DiVergigelis

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007
Configuration:	2 - Dongle - SRE
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

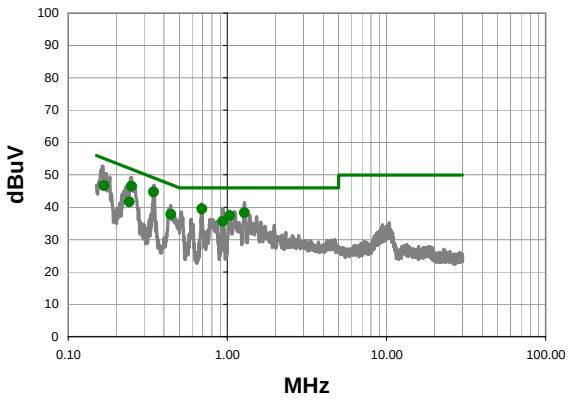
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	5	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

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)
0.168	31.7	21.6	53.3	65.1	-11.7
0.250	29.0	21.0	50.0	61.8	-11.8
0.344	25.7	20.9	46.6	59.1	-12.5
1.280	21.9	20.5	42.4	56.0	-13.6
0.691	21.1	20.7	41.8	56.0	-14.2
0.242	26.3	21.0	47.3	62.0	-14.8
1.036	20.5	20.5	41.0	56.0	-15.0
0.441	20.1	20.8	40.9	57.0	-16.1
0.935	19.3	20.5	39.8	56.0	-16.2

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.344	23.8	20.9	44.7	49.1	-4.4
0.250	25.5	21.0	46.5	51.8	-5.3
0.691	18.8	20.7	39.5	46.0	-6.5
1.280	17.8	20.5	38.3	46.0	-7.7
0.168	25.0	21.6	46.6	55.1	-8.4
1.036	16.9	20.5	37.4	46.0	-8.6
0.441	16.9	20.8	37.7	47.0	-9.3
0.242	20.7	21.0	41.7	52.0	-10.4
0.935	15.1	20.5	35.6	46.0	-10.4

NORTHWEST

EMC

CONDUCTED EMISSIONS

Version 2007.8.27
PSA-ESCI 2008.01.03

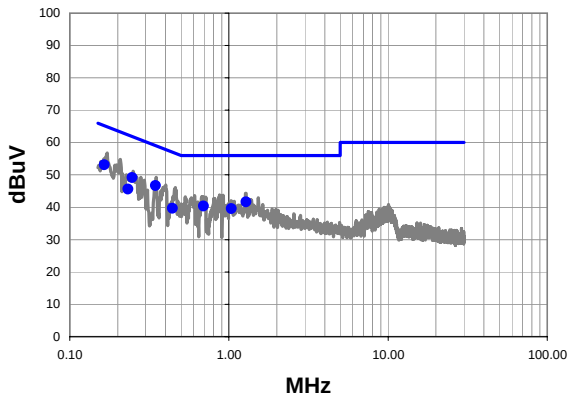
Work Order:	LABT0296	**Date:**	02/27/08		
Project:	None	**Temperature:**	22		
Job Site:	EV07	**Humidity:**	26		
Serial Number:	Unknown	**Barometric Pres.:**	1016.9	**Tested by:**	David DiVergigelis

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007
Configuration:	2 - Dongle - SRE
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

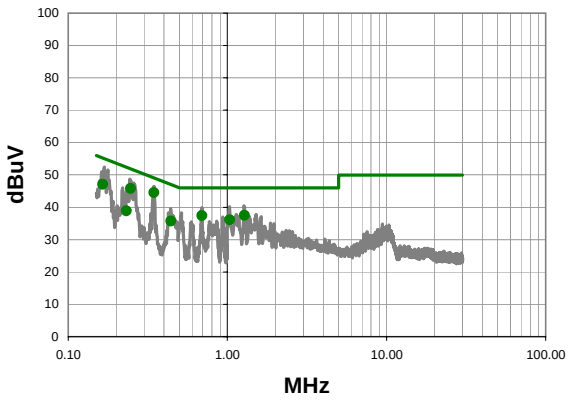
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	6	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

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)
0.165	31.4	21.7	53.1	65.2	-12.1
0.346	25.8	20.9	46.7	59.1	-12.3
0.247	28.2	21.0	49.2	61.9	-12.7
1.280	21.1	20.5	41.6	56.0	-14.4
0.692	19.7	20.7	40.4	56.0	-15.6
1.036	19.1	20.5	39.6	56.0	-16.4
0.232	24.6	21.0	45.6	62.4	-16.8
0.443	18.8	20.8	39.6	57.0	-17.4

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.346	23.6	20.9	44.5	49.1	-4.5
0.247	24.8	21.0	45.8	51.9	-6.1
0.165	25.4	21.7	47.1	55.2	-8.1
1.280	17.0	20.5	37.5	46.0	-8.5
0.692	16.7	20.7	37.4	46.0	-8.6
1.036	15.6	20.5	36.1	46.0	-9.9
0.443	14.9	20.8	35.7	47.0	-11.3
0.232	17.9	21.0	38.9	52.4	-13.5

NORTHWEST

EMC

CONDUCTED EMISSIONS

Version 2007.8.27
PSA-ESCI 2008.01.03

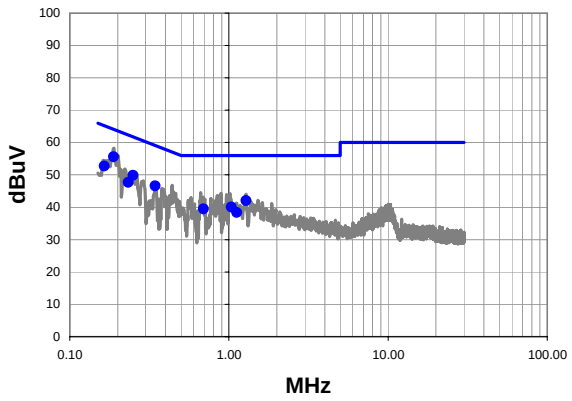
Work Order:	LABT0296	**Date:**	02/27/08		
Project:	None	**Temperature:**	22		
Job Site:	EV07	**Humidity:**	26		
Serial Number:	Unknown	**Barometric Pres.:**	1016.9	**Tested by:**	David DiVergigelis

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007
Configuration:	2 - Dongle - SRE
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

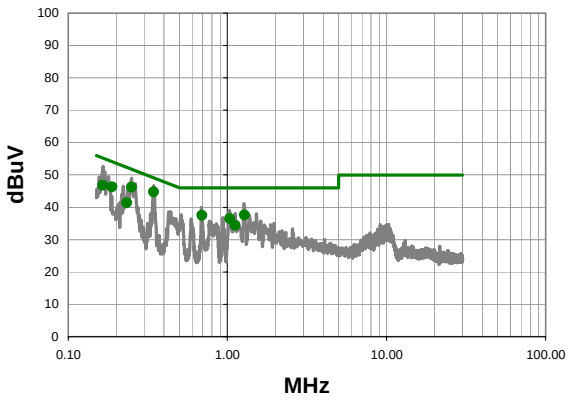
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	7	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

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)
0.189	34.4	21.2	55.6	64.1	-8.5
0.250	28.9	21.0	49.9	61.8	-11.9
0.344	25.7	20.9	46.6	59.1	-12.5
0.165	31.0	21.7	52.7	65.2	-12.5
1.280	21.5	20.5	42.0	56.0	-14.0
0.233	26.7	21.0	47.7	62.3	-14.7
1.036	19.6	20.5	40.1	56.0	-15.9
0.691	18.8	20.7	39.5	56.0	-16.5
1.120	17.9	20.5	38.4	56.0	-17.6

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.344	23.8	20.9	44.7	49.1	-4.4
0.250	25.2	21.0	46.2	51.8	-5.6
0.189	25.1	21.2	46.3	54.1	-7.8
1.280	17.1	20.5	37.6	46.0	-8.4
0.165	25.1	21.7	46.8	55.2	-8.4
0.691	16.8	20.7	37.5	46.0	-8.5
1.036	16.0	20.5	36.5	46.0	-9.5
0.233	20.4	21.0	41.4	52.3	-11.0
1.120	13.9	20.5	34.4	46.0	-11.6

NORTHWEST

EMC

CONDUCTED EMISSIONS

Version 2007.8.27
PSA-ESCI 2008.01.03

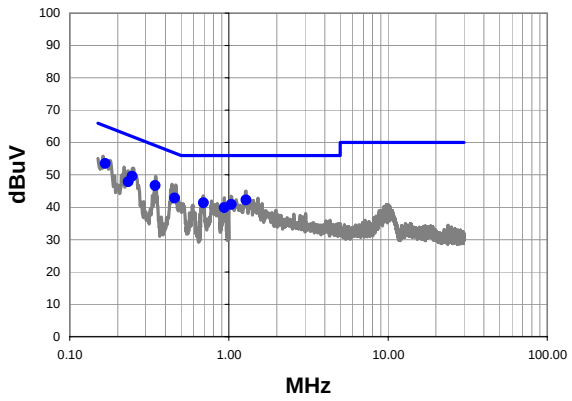
Work Order:	LABT0296	**Date:**	02/27/08		
Project:	None	**Temperature:**	22		
Job Site:	EV07	**Humidity:**	26		
Serial Number:	Unknown	**Barometric Pres.:**	1016.9	**Tested by:**	David DiVergigelis

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007
Configuration:	2 - Dongle - SRE
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

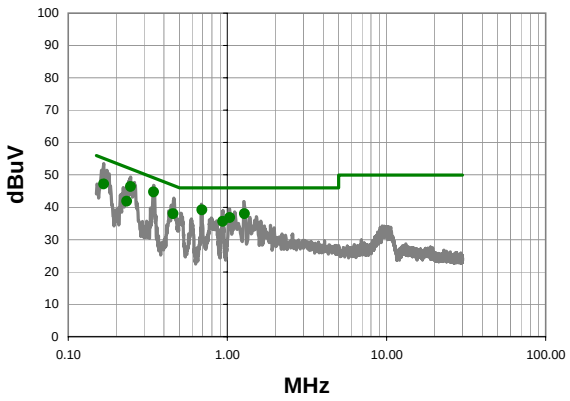
Test Specifications	**Class B**	**Test Method**
FCC 15.207:2007		ANSI C63.4:2003

Run #	8	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

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)
0.167	31.9	21.7	53.6	65.1	-11.5
0.247	28.6	21.0	49.6	61.9	-12.3
0.344	25.8	20.9	46.7	59.1	-12.4
1.280	21.7	20.5	42.2	56.0	-13.8
0.457	22.0	20.8	42.8	56.7	-13.9
0.233	26.9	21.0	47.9	62.3	-14.5
0.691	20.7	20.7	41.4	56.0	-14.6
1.036	20.4	20.5	40.9	56.0	-15.1
0.935	19.3	20.5	39.8	56.0	-16.2

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.344	23.8	20.9	44.7	49.1	-4.4
0.247	25.4	21.0	46.4	51.9	-5.5
0.691	18.5	20.7	39.2	46.0	-6.8
0.167	25.5	21.7	47.2	55.1	-7.9
1.280	17.5	20.5	38.0	46.0	-8.0
0.457	17.1	20.8	37.9	46.7	-8.8
1.036	16.3	20.5	36.8	46.0	-9.2
0.935	15.1	20.5	35.6	46.0	-10.4
0.233	20.9	21.0	41.9	52.3	-10.5

RECEIVER SPURIOUS EMISSIONS

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

POWER SETTINGS INVESTIGATED

USB

FREQUENCY RANGE INVESTIGATED

Start Frequency	30MHz	Stop Frequency	8200MHz

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
EV01 Cables		Double Ridge Horn Cables	EVB	1/3/2008	13
EV01 Cables		Bilog Cables	EVA	10/23/2007	13
Spectrum Analyzer	Agilent	E4446A	AAT	12/7/2007	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	1/3/2008	13
Antenna, Horn	EMCO	3115	AHC	8/24/2006	24
Pre-Amplifier	Miteq	AM-1616-1000	AOL	12/29/2006	16
Antenna, Biconilog	EMCO	3141	AXE	1/15/2008	24

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.

NORTHWEST EMC

RECEIVER SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007			Work Order:	LABT0296
Serial Number:	Unknown			Date:	02/22/08
Customer:	Logitech, Inc.			Temperature:	22
Attendees:	None			Humidity:	26%
Project:	None			Barometric Pres.:	1016.9
Tested by:	David DiVergigelis	Power:	USB	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

USB to remote PC

EUT OPERATING MODES

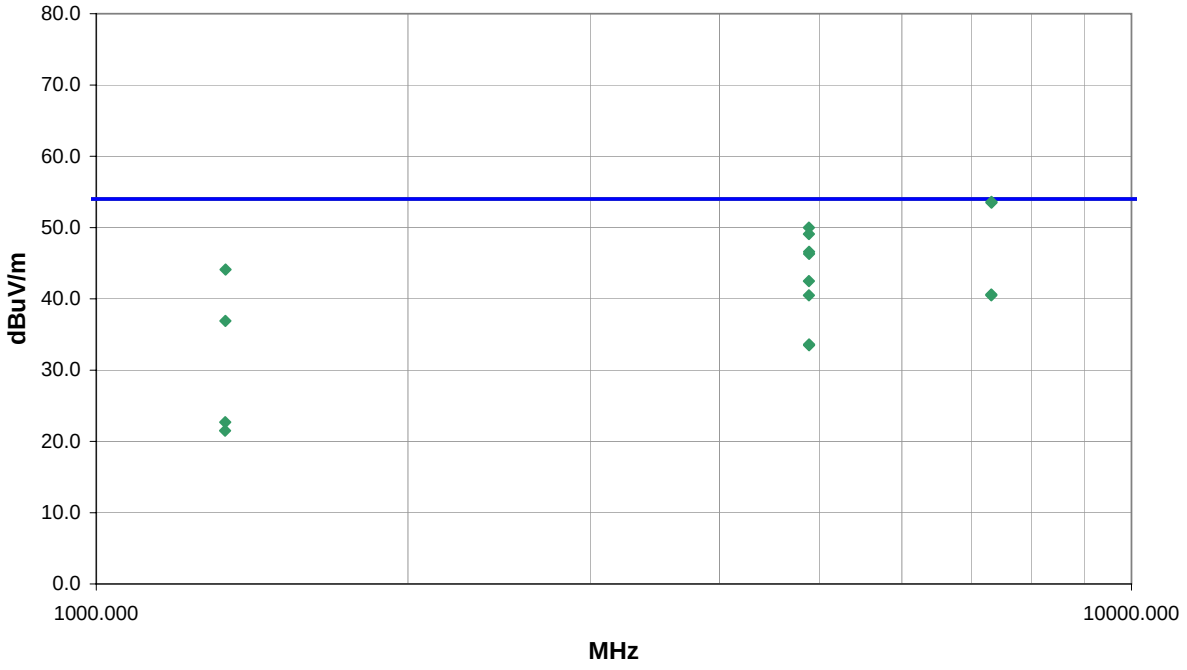
Receive mode mid channel 20, low diversity antenna

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	1
Configuration #	2
Results	Pass

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)
7323.032	36.5	17.1	170.0	1.0	3.0	0.0	H-Horn	PK	0.0	53.6	54.0	-0.4
7323.645	36.4	17.1	142.0	3.4	3.0	0.0	V-Horn	PK	0.0	53.5	54.0	-0.5
4880.118	39.5	10.5	357.0	1.0	3.0	0.0	H-Horn	PK	0.0	50.0	54.0	-4.0
4880.042	38.6	10.5	169.0	1.0	3.0	0.0	V-Horn	PK	0.0	49.1	54.0	-4.9
4882.060	36.1	10.5	240.0	1.4	3.0	0.0	V-Horn	PK	0.0	46.6	54.0	-7.4
4881.300	35.8	10.5	284.0	1.0	3.0	0.0	H-Horn	PK	0.0	46.3	54.0	-7.7
1332.978	47.3	-3.2	259.0	1.4	3.0	0.0	V-Horn	PK	0.0	44.1	54.0	-9.9
4880.060	32.0	10.5	357.0	1.0	3.0	0.0	H-Horn	AV	0.0	42.5	54.0	-11.5
7322.655	23.5	17.1	170.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.6	54.0	-13.4
4880.057	30.0	10.5	169.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.5	54.0	-13.5
7322.026	23.4	17.1	142.0	3.4	3.0	0.0	V-Horn	AV	0.0	40.5	54.0	-13.5
1332.626	40.1	-3.2	227.0	1.0	3.0	0.0	H-Horn	PK	0.0	36.9	54.0	-17.1
4880.766	23.1	10.5	240.0	1.4	3.0	0.0	V-Horn	AV	0.0	33.6	54.0	-20.4
4881.876	23.0	10.5	284.0	1.0	3.0	0.0	H-Horn	AV	0.0	33.5	54.0	-20.5
1332.359	25.9	-3.2	259.0	1.4	3.0	0.0	V-Horn	AV	0.0	22.7	54.0	-31.3
1331.926	24.7	-3.2	227.0	1.0	3.0	0.0	H-Horn	AV	0.0	21.5	54.0	-32.5

RADIATED SPURIOUS EMISSIONS

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
Transmitting low channel, low diversity antenna
Transmitting mid channel, low diversity antenna
Transmitting high channel, low diversity antenna

POWER SETTINGS INVESTIGATED
USB

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	25 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
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
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 (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 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.

NORTHWEST EMC

RADIATED SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007	Work Order:	LABT0296
Serial Number:	Unknown	Date:	02/22/08
Customer:	Logitech, Inc.	Temperature:	22
Attendees:	None	Humidity:	26%
Project:	None	Barometric Pres.:	1016.9
Tested by:	David Divergigelis	Power: USB	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

USB to remote PC

EUT OPERATING MODES

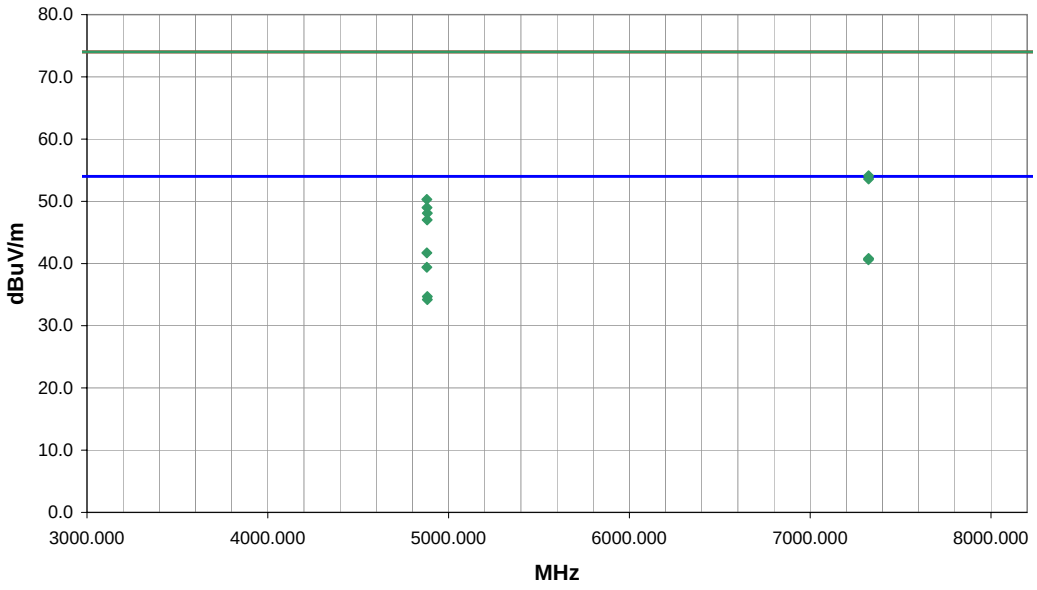
Transmitting mid channel 20, low diversity antenna

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	6
Configuration #	2
Results	Pass

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
4880.048	31.2	10.5	-1.0	1.5	3.0	0.0	H-Horn	AV	0.0	41.7	54.0	-12.3	Dongle vertical
7322.588	23.7	17.1	114.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.8	54.0	-13.2	Dongle vertical
7322.275	23.5	17.1	124.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.6	54.0	-13.4	Dongle vertical
4880.050	28.9	10.5	216.0	1.0	3.0	0.0	V-Horn	AV	0.0	39.4	54.0	-14.6	Dongle vertical
4882.062	24.2	10.5	138.0	1.0	3.0	0.0	V-Horn	AV	0.0	34.7	54.0	-19.3	Dongle vertical
4882.105	23.7	10.5	48.0	1.0	3.0	0.0	H-Horn	AV	0.0	34.2	54.0	-19.8	Dongle vertical
7323.280	37.0	17.1	124.0	1.0	3.0	0.0	H-Horn	PK	0.0	54.1	74.0	-19.9	Dongle vertical
7323.355	36.5	17.1	114.0	1.0	3.0	0.0	V-Horn	PK	0.0	53.6	74.0	-20.4	Dongle vertical
4879.935	39.8	10.5	-1.0	1.5	3.0	0.0	H-Horn	PK	0.0	50.3	74.0	-23.7	Dongle vertical
4880.162	38.5	10.5	216.0	1.0	3.0	0.0	V-Horn	PK	0.0	49.0	74.0	-25.0	Dongle vertical
4882.120	37.6	10.5	138.0	1.0	3.0	0.0	V-Horn	PK	0.0	48.1	74.0	-25.9	Dongle vertical
4881.550	36.5	10.5	48.0	1.0	3.0	0.0	H-Horn	PK	0.0	47.0	74.0	-27.0	Dongle vertical

NORTHWEST EMC

RADIATED SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007	Work Order:	LABT0296
Serial Number:	Unknown	Date:	02/22/08
Customer:	Logitech, Inc.	Temperature:	22
Attendees:	None	Humidity:	26%
Project:	None	Barometric Pres.:	1016.9
Tested by:	David DiVergigelis	Power: USB	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

USB to remote PC

EUT OPERATING MODES

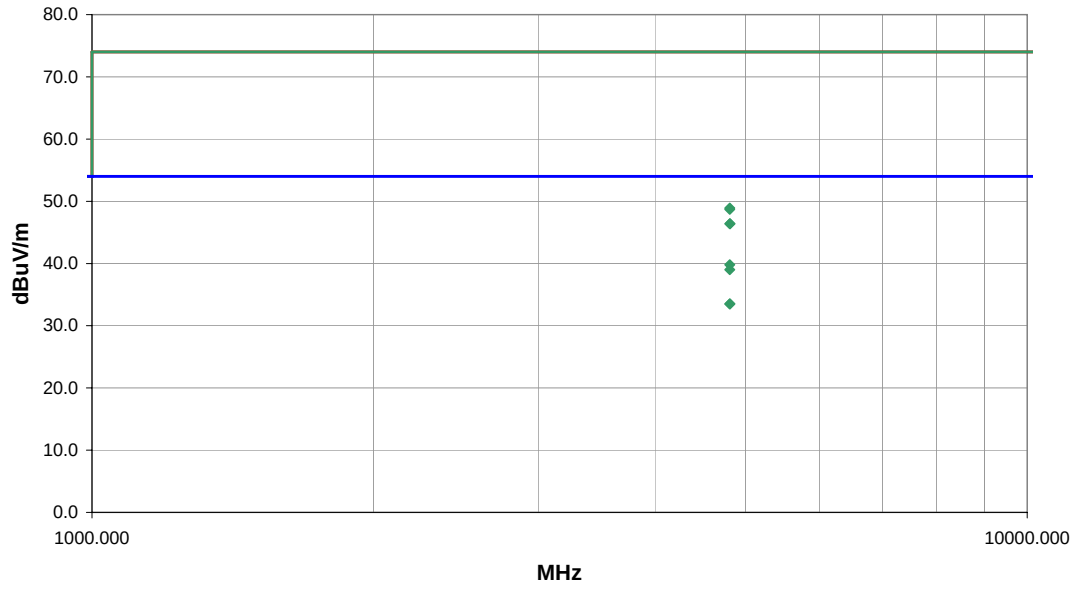
Transmitting low channel 2, low diversity antenna

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	7
Configuration #	2
Results	Pass

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
4808.034	29.7	10.1	-1.0	1.5	3.0	0.0	H-Horn	AV	0.0	39.8	54.0	-14.2	Dongle vertical
4807.985	28.9	10.1	207.0	1.0	3.0	0.0	V-Horn	AV	0.0	39.0	54.0	-15.0	Dongle vertical
4808.524	23.4	10.1	319.0	3.3	3.0	0.0	H-Horn	AV	0.0	33.5	54.0	-20.5	Dongle vertical
4809.542	23.4	10.1	222.0	1.0	3.0	0.0	V-Horn	AV	0.0	33.5	54.0	-20.5	Dongle vertical
4807.920	38.8	10.1	207.0	1.0	3.0	0.0	V-Horn	PK	0.0	48.9	74.0	-25.1	Dongle vertical
4808.012	38.6	10.1	-1.0	1.5	3.0	0.0	H-Horn	PK	0.0	48.7	74.0	-25.3	Dongle vertical
4809.985	36.3	10.1	222.0	1.0	3.0	0.0	V-Horn	PK	0.0	46.4	74.0	-27.6	Dongle vertical
4810.328	36.3	10.1	319.0	3.3	3.0	0.0	H-Horn	PK	0.0	46.4	74.0	-27.6	Dongle vertical

NORTHWEST EMC

RADIATED SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007	Work Order:	LABT0296
Serial Number:	Unknown	Date:	02/22/08
Customer:	Logitech, Inc.	Temperature:	22
Attendees:	None	Humidity:	26%
Project:	None	Barometric Pres.:	1016.9
Tested by:	David DiVergigelis	Power: USB	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

USB to remote PC

EUT OPERATING MODES

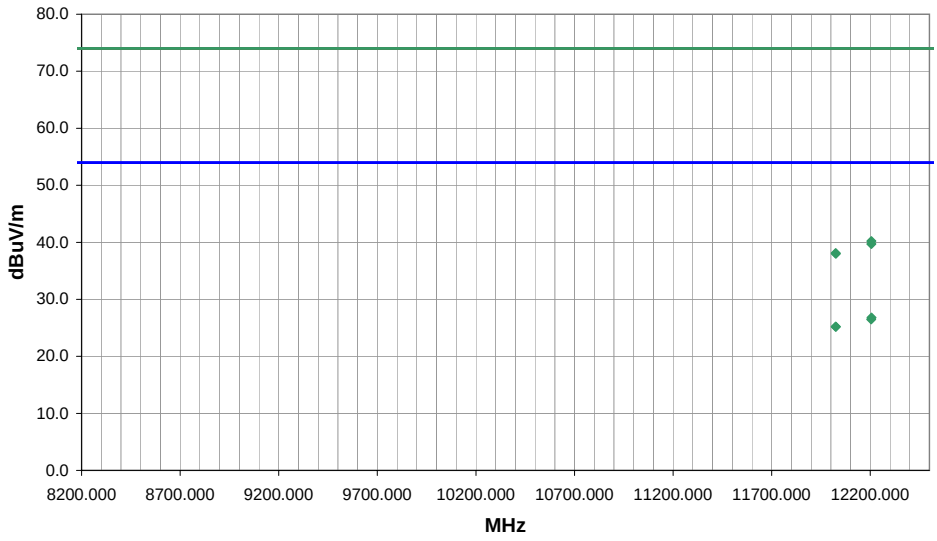
Transmitting, low diversity antenna.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	8
Configuration #	2
Results	Pass

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
12206.180	31.5	-4.7	316.0	3.2	3.0	0.0	H-Horn	AV	0.0	26.8	54.0	-27.2	TX mid channel, dongle vertical
12204.590	31.2	-4.7	44.0	1.0	3.0	0.0	V-Horn	AV	0.0	26.5	54.0	-27.5	TX mid channel, dongle vertical
12024.640	31.2	-6.0	268.0	1.0	3.0	0.0	V-Horn	AV	0.0	25.2	54.0	-28.8	TX low channel, dongle vertical
12024.930	31.3	-6.1	219.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.2	54.0	-28.8	TX low channel, dongle vertical
12205.490	44.9	-4.7	316.0	3.2	3.0	0.0	H-Horn	PK	0.0	40.2	74.0	-33.8	TX mid channel, dongle vertical
12205.640	44.4	-4.7	44.0	1.0	3.0	0.0	V-Horn	PK	0.0	39.7	74.0	-34.3	TX mid channel, dongle vertical
12024.500	44.1	-6.0	219.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.1	74.0	-35.9	TX low channel, dongle vertical
12025.640	44.0	-6.0	268.0	1.0	3.0	0.0	V-Horn	PK	0.0	38.0	74.0	-36.0	TX low channel, dongle vertical

NORTHWEST EMC

RADIATED SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007	Work Order:	LABT0296
Serial Number:	Unknown	Date:	03/06/08
Customer:	Logitech, Inc.	Temperature:	22
Attendees:	None	Humidity:	26%
Project:	None	Barometric Pres.:	1016.9
Tested by:	Rod Peloquin	Power: USB	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

USB to remote PC

EUT OPERATING MODES

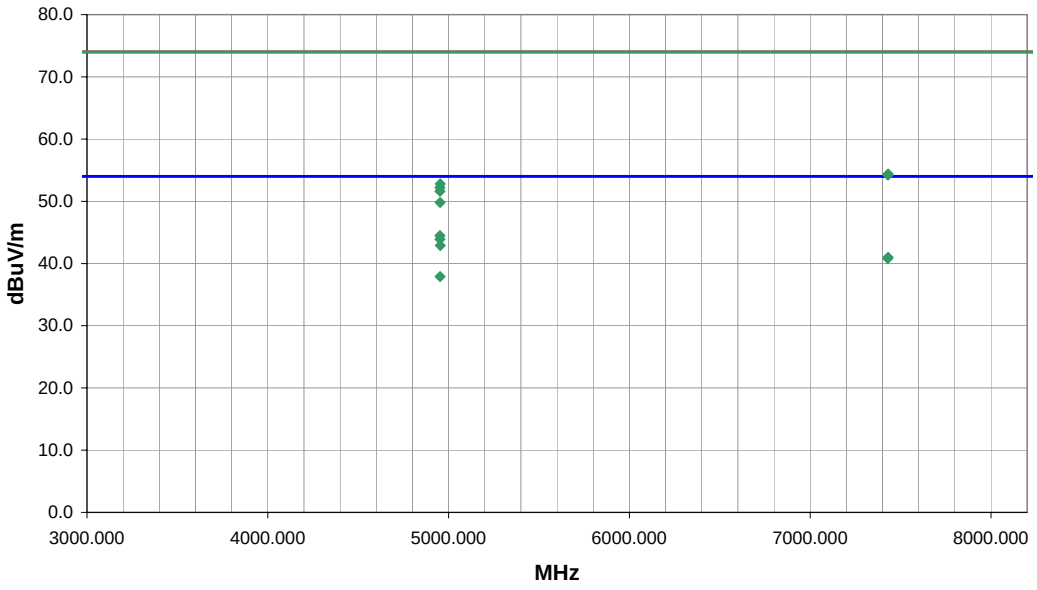
Transmitting high channel, low diversity antenna

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	22
Configuration #	2
Results	Pass

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
4952.070	33.5	11.0	35.0	1.2	3.0	0.0	H-Horn	AV	0.0	44.5	54.0	-9.5	Dongle vertical
4952.052	32.9	11.0	346.0	1.2	3.0	0.0	V-Horn	AV	0.0	43.9	54.0	-10.1	Dongle vertical
4954.042	31.9	11.0	183.0	1.1	3.0	0.0	V-Horn	AV	0.0	42.9	54.0	-11.1	Dongle vertical
7430.704	23.4	17.6	306.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.0	54.0	-13.0	Dongle vertical
7429.258	23.2	17.6	108.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.8	54.0	-13.2	Dongle vertical
4952.698	26.9	11.0	14.0	1.5	3.0	0.0	H-Horn	AV	0.0	37.9	54.0	-16.1	Dongle vertical
7430.558	36.8	17.6	306.0	1.0	3.0	0.0	V-Horn	PK	0.0	54.4	74.0	-19.6	Dongle vertical
7430.396	36.6	17.6	108.0	1.0	3.0	0.0	H-Horn	PK	0.0	54.2	74.0	-19.8	Dongle vertical
4953.872	41.8	11.0	183.0	1.1	3.0	0.0	V-Horn	PK	0.0	52.8	74.0	-21.2	Dongle vertical
4952.170	41.2	11.0	35.0	1.2	3.0	0.0	H-Horn	PK	0.0	52.2	74.0	-21.8	Dongle vertical
4952.058	40.6	11.0	346.0	1.2	3.0	0.0	V-Horn	PK	0.0	51.6	74.0	-22.4	Dongle vertical
4953.372	38.8	11.0	14.0	1.5	3.0	0.0	H-Horn	PK	0.0	49.8	74.0	-24.2	Dongle vertical

NORTHWEST EMC

RADIATED SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007	Work Order:	LABT0296
Serial Number:	Unknown	Date:	03/06/08
Customer:	Logitech, Inc.	Temperature:	22
Attendees:	None	Humidity:	26%
Project:	None	Barometric Pres.:	1016.9
Tested by:	Rod Peloquin	Power: USB	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

USB to remote PC

EUT OPERATING MODES

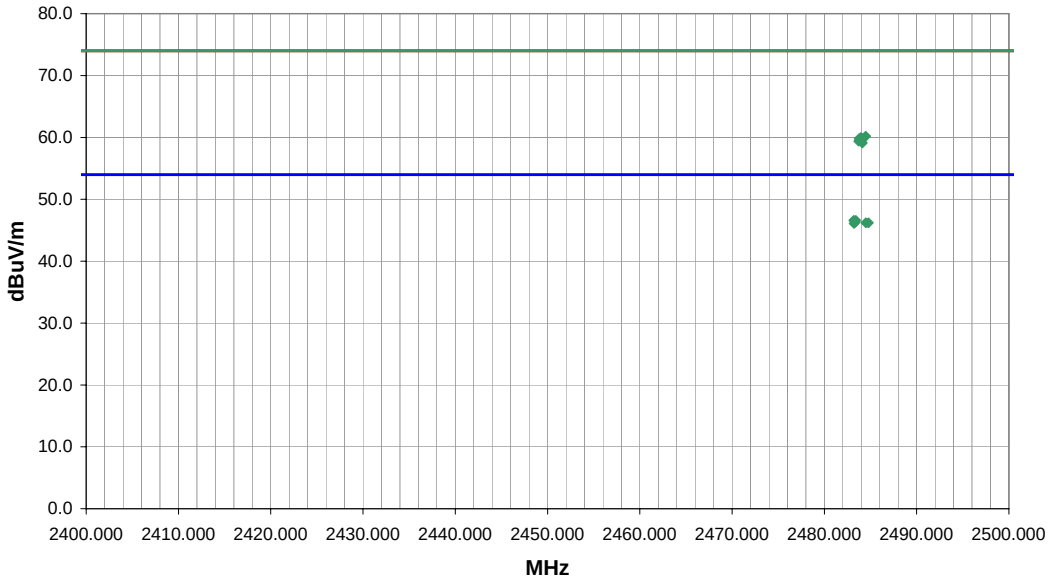
Transmitting high channel, low diversity antenna

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	23
Configuration #	2
Results	Pass

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
2483.172	24.4	2.2	244.0	1.1	3.0	20.0	H-Horn	AV	0.0	46.6	54.0	-7.4	Dongle on side
2483.410	24.4	2.2	148.0	1.0	3.0	20.0	H-Horn	AV	0.0	46.6	54.0	-7.4	Dongle horizontal
2483.351	24.1	2.2	171.0	1.0	3.0	20.0	V-Horn	AV	0.0	46.3	54.0	-7.7	Dongle vertical
2484.500	24.0	2.2	120.0	1.0	3.0	20.0	V-Horn	AV	0.0	46.2	54.0	-7.8	Dongle horizontal
2484.767	24.0	2.2	234.0	1.0	3.0	20.0	H-Horn	AV	0.0	46.2	54.0	-7.8	Dongle vertical
2483.213	23.9	2.2	45.0	1.0	3.0	20.0	V-Horn	AV	0.0	46.1	54.0	-7.9	Dongle on side
2484.480	38.0	2.2	148.0	1.0	3.0	20.0	H-Horn	PK	0.0	60.2	74.0	-13.8	Dongle horizontal
2483.952	37.8	2.2	45.0	1.0	3.0	20.0	V-Horn	PK	0.0	60.0	74.0	-14.0	Dongle on side
2483.773	37.6	2.2	244.0	1.1	3.0	20.0	H-Horn	PK	0.0	59.8	74.0	-14.2	Dongle on side
2484.158	37.6	2.2	234.0	1.0	3.0	20.0	H-Horn	PK	0.0	59.8	74.0	-14.2	Dongle vertical
2483.722	37.2	2.2	171.0	1.0	3.0	20.0	V-Horn	PK	0.0	59.4	74.0	-14.6	Dongle vertical
2484.110	36.9	2.2	120.0	1.0	3.0	20.0	V-Horn	PK	0.0	59.1	74.0	-14.9	Dongle horizontal

NORTHWEST EMC

RADIATED SPURIOUS EMISSIONS

PSA 2007.05.07
EMI 2006.11.29

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007			Work Order:	LABT0296
Serial Number:	Unknown			Date:	03/06/08
Customer:	Logitech, Inc.			Temperature:	22
Attendees:	None			Humidity:	26%
Project:	None			Barometric Pres.:	1016.9
Tested by:	Rod Peloquin	Power:	USB	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

USB to remote PC

EUT OPERATING MODES

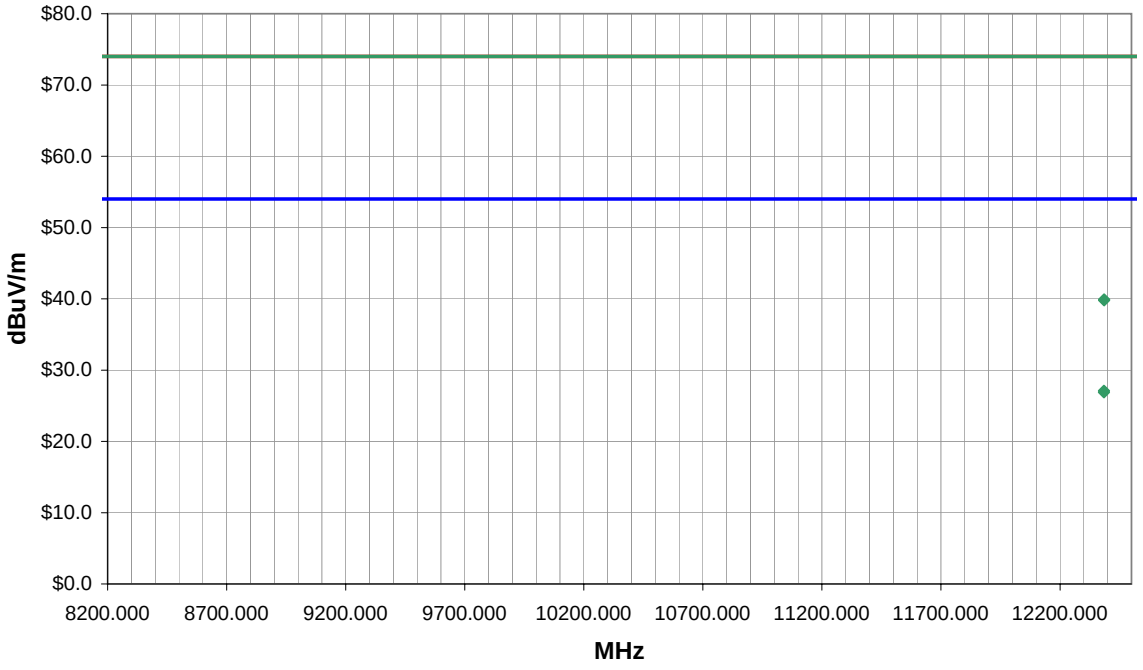
Transmitting high channel, low diversity antenna

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	24
Configuration #	2
Results	Pass

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)
12384.270	30.4	-3.3	194.0	1.0	3.0	0.0	V-Horn	AV	0.0	27.1	54.0	-26.9
12384.090	30.2	-3.3	211.0	1.0	3.0	0.0	H-Horn	AV	0.0	26.9	54.0	-27.1
12385.290	43.2	-3.3	211.0	1.0	3.0	0.0	H-Horn	PK	0.0	39.9	74.0	-34.1
12385.310	43.1	-3.3	194.0	1.0	3.0	0.0	V-Horn	PK	0.0	39.8	74.0	-34.2

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.

NORTHWEST EMC

Occupied Bandwidth

XMit 2007.06.13

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007			Work Order:	LABT0296
Serial Number:	Unknown			Date:	02/28/08
Customer:	Logitech, Inc.			Temperature:	22°C
Attendees:	None			Humidity:	28%
Project:	None			Barometric Pres.:	1023.3mb
Tested by:	Holly Ashkannejhad	Power:	USB	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

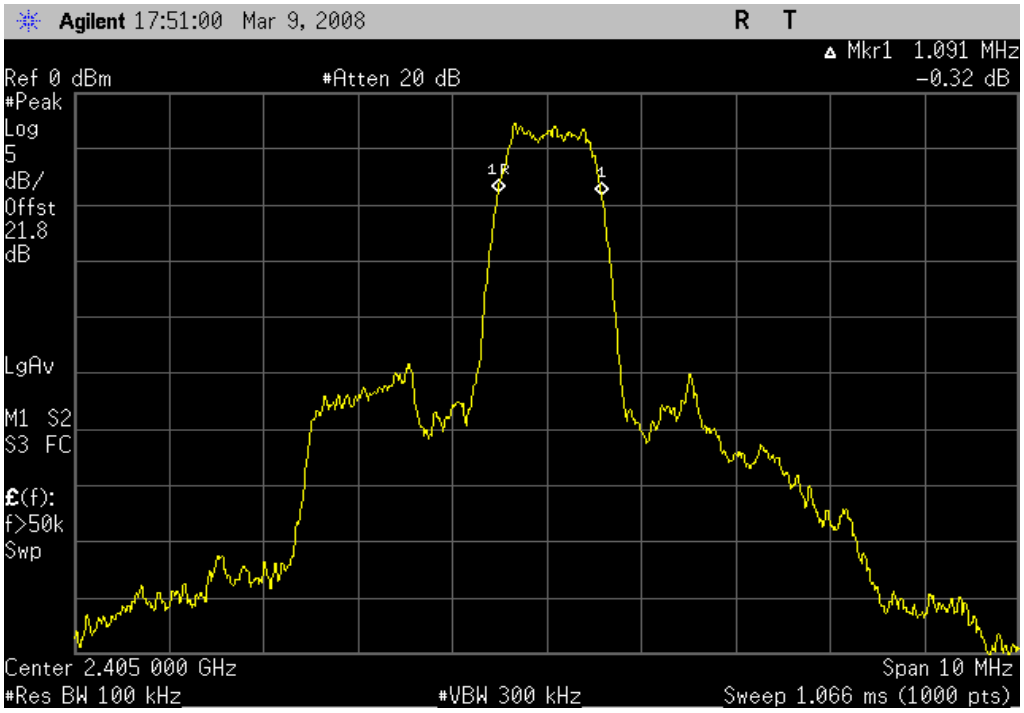
DEVIATIONS FROM TEST STANDARD

No deviations

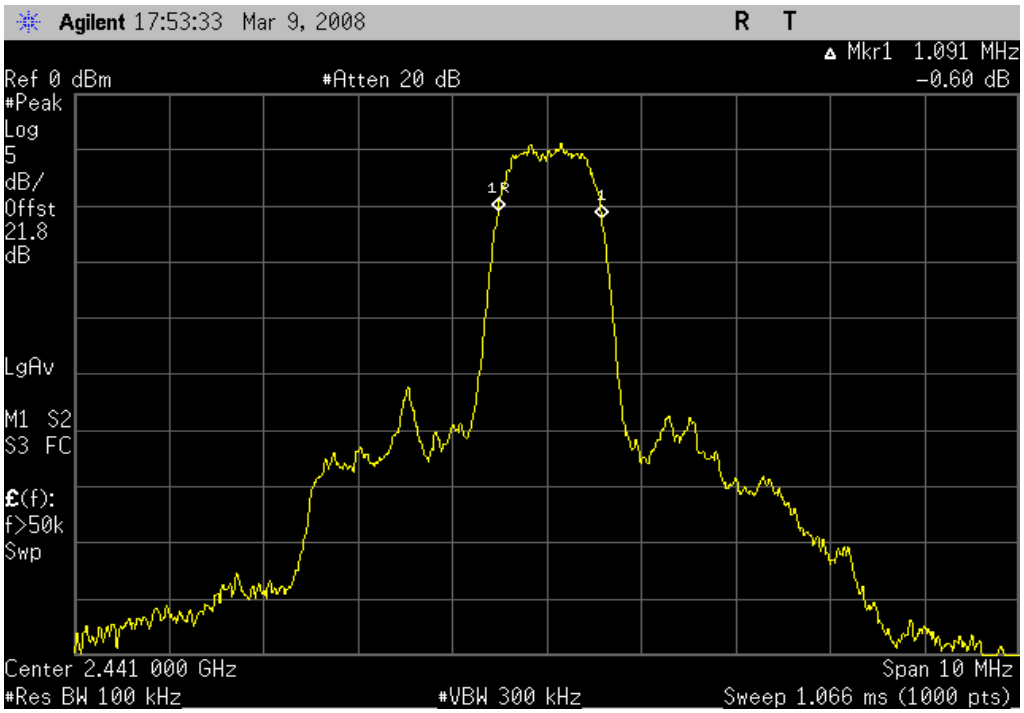
Configuration #	3	Signature

	Value	Limit	Results
Transmit mode, Dongle, M/N: A-00007			
pi/4-DQPSK			
Low channel, Ch. 2, 2405MHz	1.091 MHz	≥ 500 kHz	Pass
Mid channel, Ch. 20, 2441MHz	1.091 MHz	≥ 500 kHz	Pass
High channel, Ch. 38, 2477MHz	1.121 MHz	≥ 500 kHz	Pass

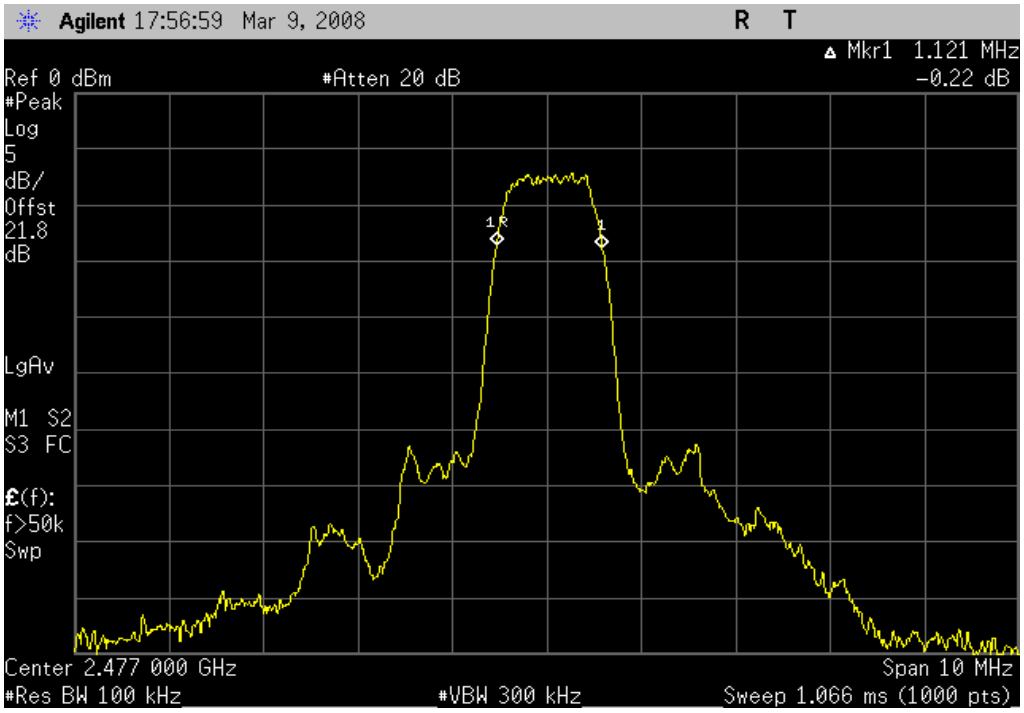
Transmit mode, Dongle, M/N: A-00007, pi/4-DQPSK, Low channel, Ch. 2, 2405MHz					
Result:	Pass	**Value:**	1.091 MHz	**Limit:**	≥ 500 kHz



Transmit mode, Dongle, M/N: A-00007, pi/4-DQPSK, Mid channel, Ch. 20, 2441MHz					
Result:	Pass	**Value:**	1.091 MHz	**Limit:**	≥ 500 kHz



Transmit mode, Dongle, M/N: A-00007, 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	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 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.

NORTHWEST EMC

Peak Output Power

XMit 2007.06.13

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007			**Work Order:**	LABT0296
Serial Number:	Unknown			**Date:**	02/28/08
Customer:	Logitech, Inc.			**Temperature:**	22°C
Attendees:	None			**Humidity:**	28%
Project:	None			**Barometric Pres.:**	1023.3mb
Tested by:	Holly Ashkannejhad	**Power:**	USB	**Job Site:**	EV06

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

COMMENTS

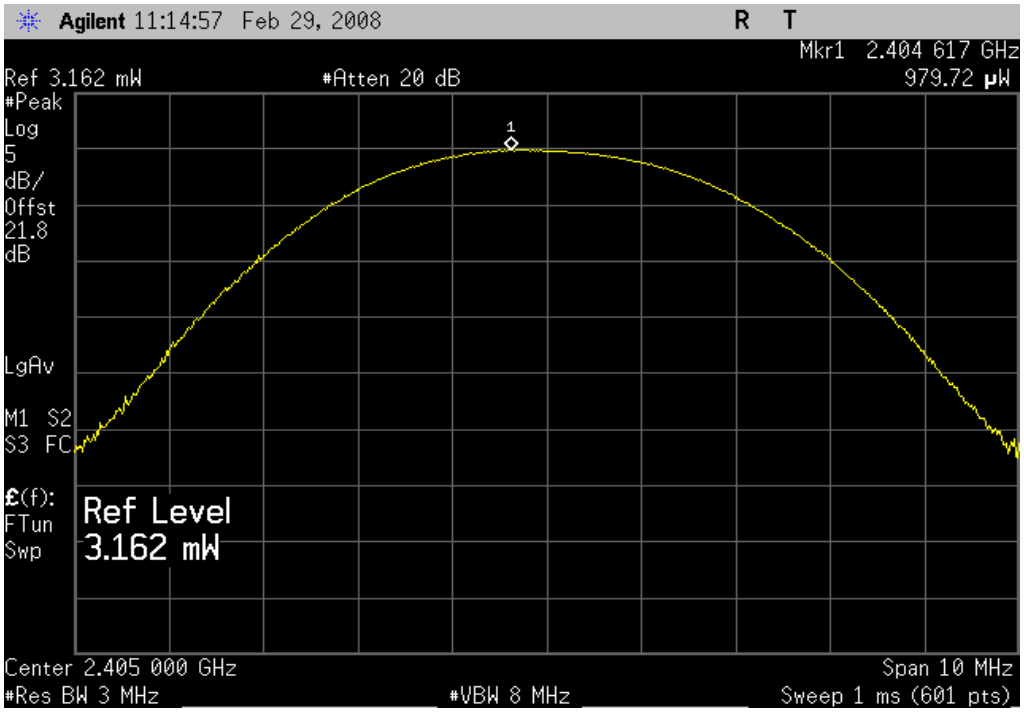
DEVIATIONS FROM TEST STANDARD

No Deviations

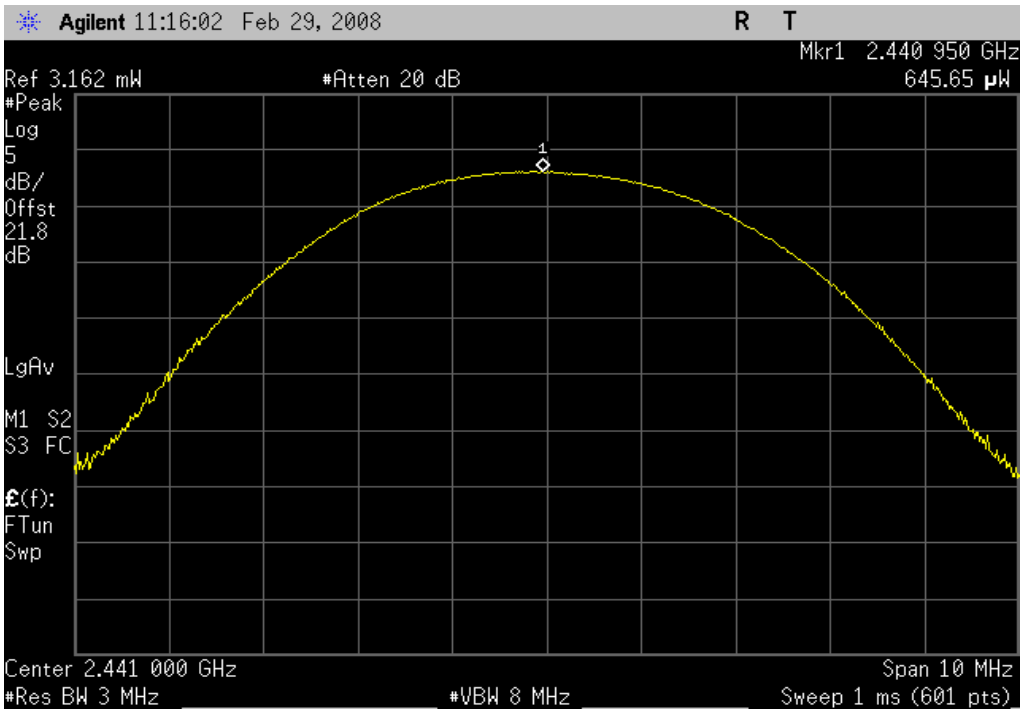
Configuration #	3	Signature

		Value	Limit	Results
Dongle, M/N: A-00007, Low diversity antenna				
	pi/4-DQPSK			
	Low channel, Ch. 2, 2405MHz	0.980 mW	0.125 Watts	Pass
	Mid channel, Ch. 20, 2441MHz	0.646 mW	0.125 Watts	Pass
	High channel, Ch. 38, 2477MHz	0.365 mW	0.125 Watts	Pass

Dongle, M/N: A-00007, Low diversity antenna, pi/4-DQPSK, Low channel, Ch. 2, 2405MHz					
Result:	Pass	**Value:**	0.980 mW	**Limit:**	0.125 Watts

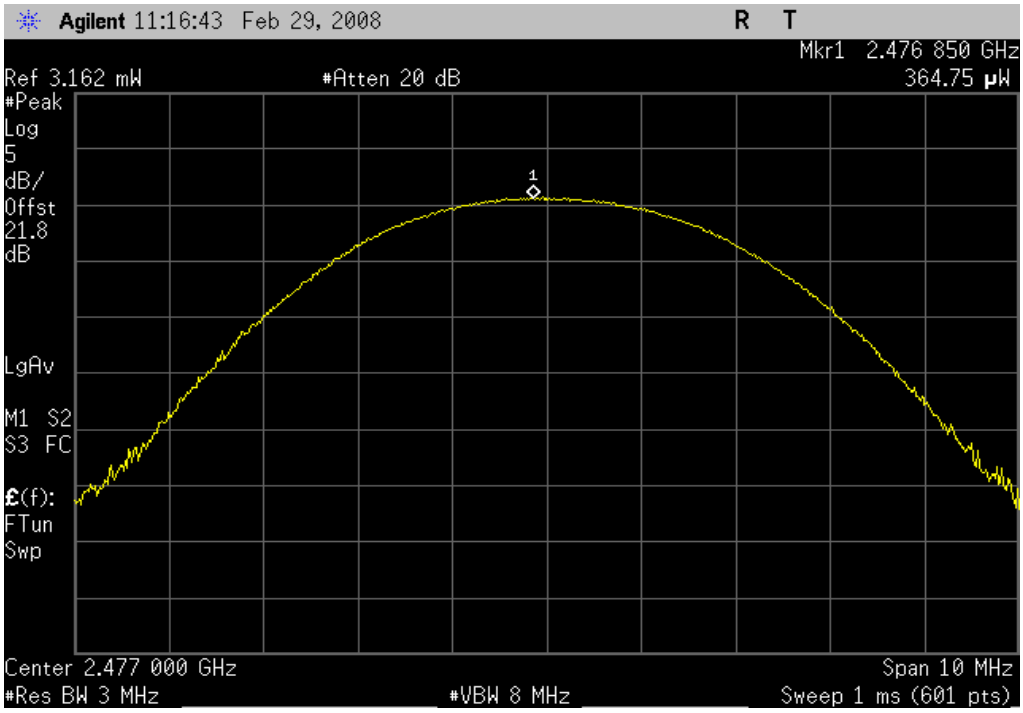


Dongle, M/N: A-00007, Low diversity antenna, pi/4-DQPSK, Mid channel, Ch. 20, 2441MHz					
Result:	Pass	**Value:**	0.646 mW	**Limit:**	0.125 Watts



Peak Output Power

Dongle, M/N: A-00007, Low diversity antenna, pi/4-DQPSK, High channel, Ch. 38, 2477MHz					
Result:	Pass	**Value:**	0.365 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.

NORTHWEST EMC

Bandedge Compliance

XMit 2007.06.13

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007			**Work Order:**	LABT0296
Serial Number:	Unknown			**Date:**	02/28/08
Customer:	Logitech, Inc.			**Temperature:**	22°C
Attendees:	None			**Humidity:**	28%
Project:	None			**Barometric Pres.:**	1023.3mb
Tested by:	Holly Ashkannejhad	**Power:**	USB	**Job Site:**	EV06

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

COMMENTS

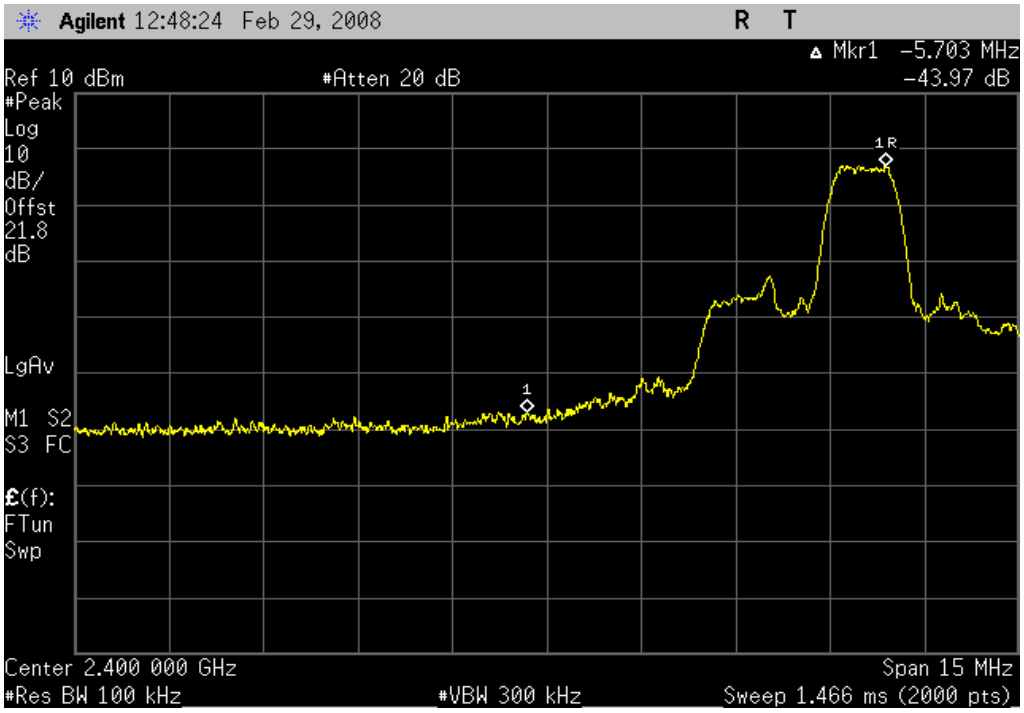
DEVIATIONS FROM TEST STANDARD

No Deviations

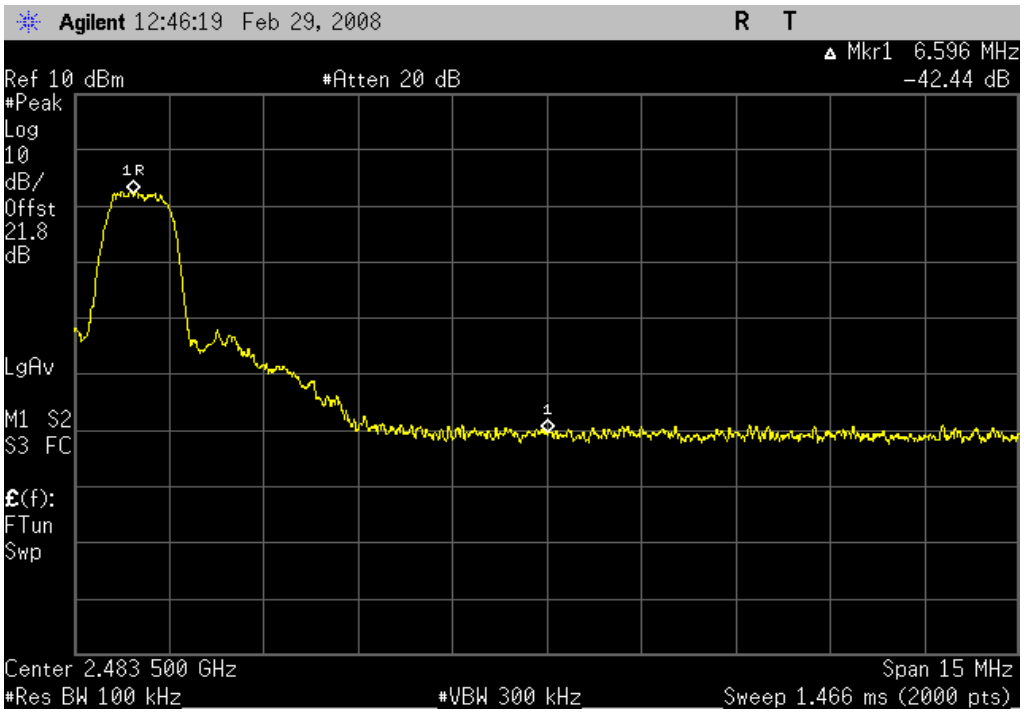
Configuration #	**3**	*Signature* Holly Ashkannejhad

		Value	**Limit**	**Results**
Transmit mode, Dongle, M/N: A-00007				
	pi/4-DQPSK			
	Low channel, Ch. 2, 2405 MHz	≤ - 40 dBc	≤ - 20 dBc	Pass
	High channel, Ch. 38, 2477MHz	≤ - 40 dBc	≤ - 20 dBc	Pass

Transmit mode, Dongle, M/N: A-00007, pi/4-DQPSK, Low channel, Ch. 2, 2405 MHz					
Result:	Pass	**Value:**	≤ - 40 dBc	**Limit:**	≤ - 20 dBc



Transmit mode, Dongle, M/N: A-00007, pi/4-DQPSK, High channel, Ch. 38, 2477MHz					
Result:	Pass	**Value:**	≤ - 40 dBc	**Limit:**	≤ - 20 dBc



Spurious Conducted Emissions

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.

NORTHWEST EMC

Spurious Conducted Emissions

XMit 2007.06.13

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007			Work Order:	LABT0296
Serial Number:	Unknown			Date:	02/29/08
Customer:	Logitech, Inc.			Temperature:	22°C
Attendees:	None			Humidity:	30%
Project:	None			Barometric Pres.:	1011.8mb
Tested by:	Holly Ashkannejhad	Power:	USB	Job Site:	EV06

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

COMMENTS

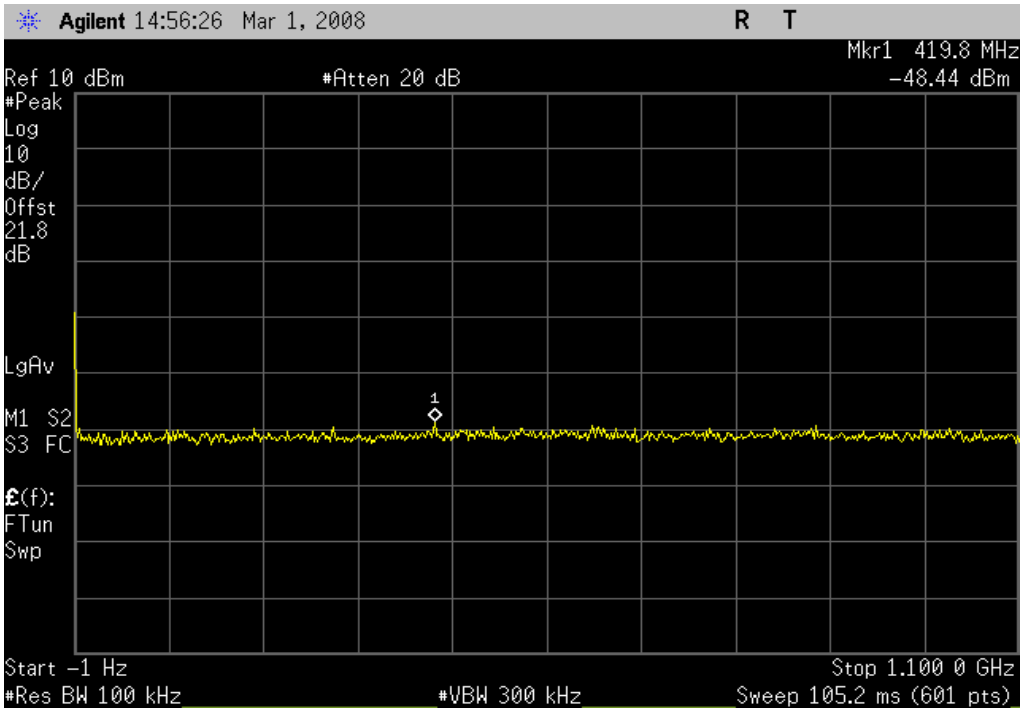
DEVIATIONS FROM TEST STANDARD

No Deviations

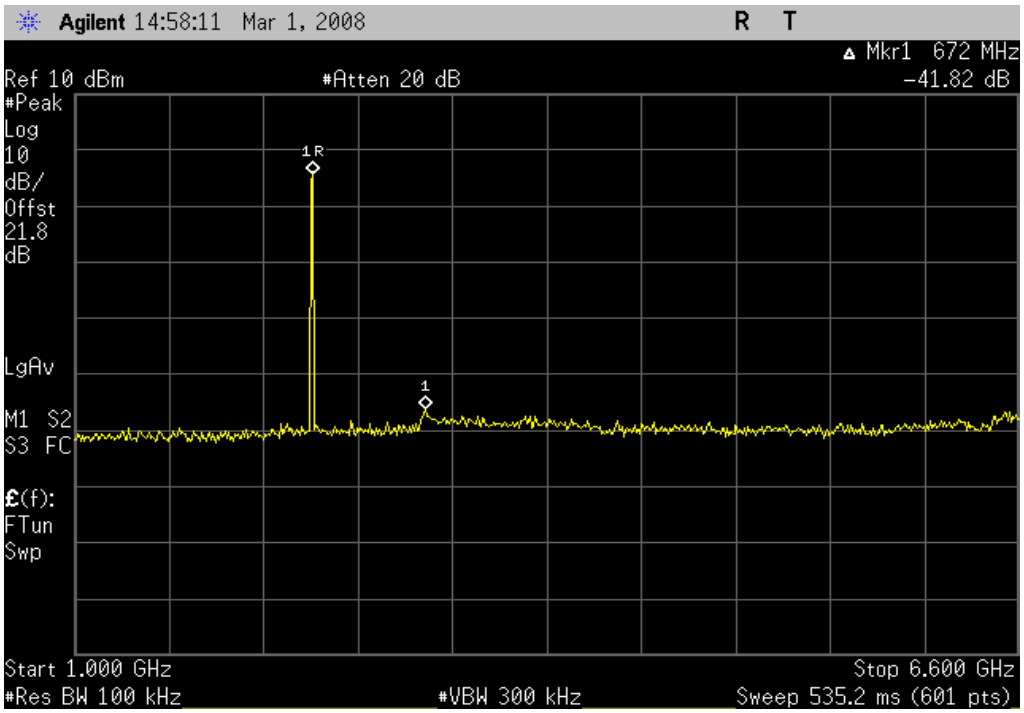
Configuration #	3	Signature Holly Ashkannejhad

	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	≤ - 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
High channel, 2477MHz			
0 Hz - 1.1 GHz	≤ - 30 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

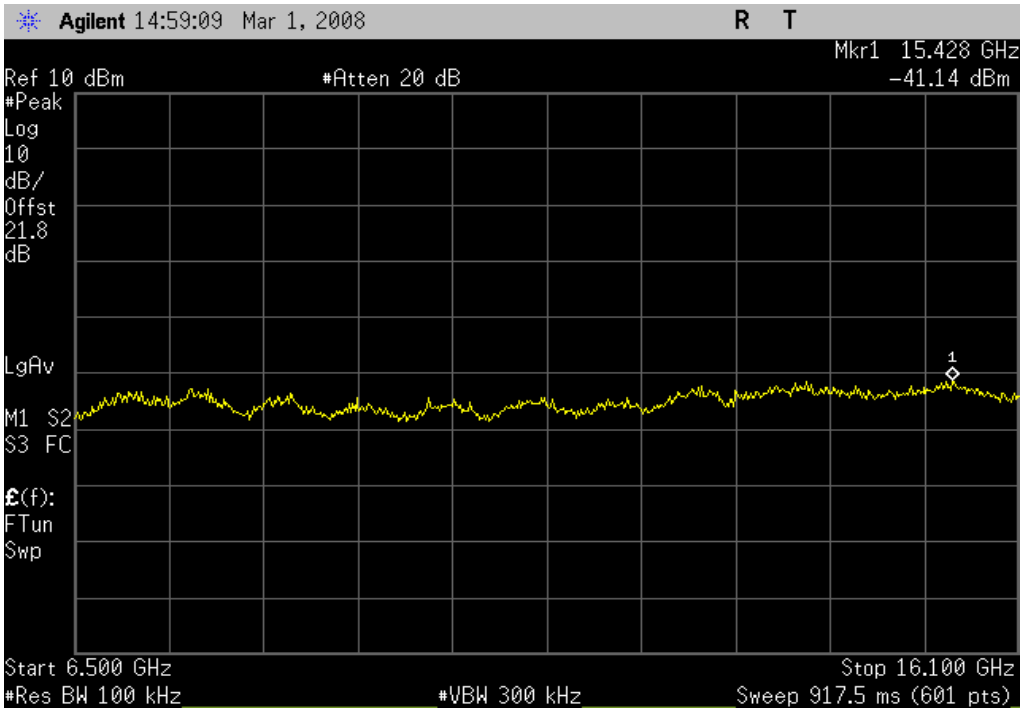
Transmit mode, pi/4-DQPSK modulation, Low channel, 2405MHz, 0 Hz - 1.1 GHz					
Result:	Pass	**Value:**	≤ - 40 dBc	**Limit:**	≤ - 20 dBc



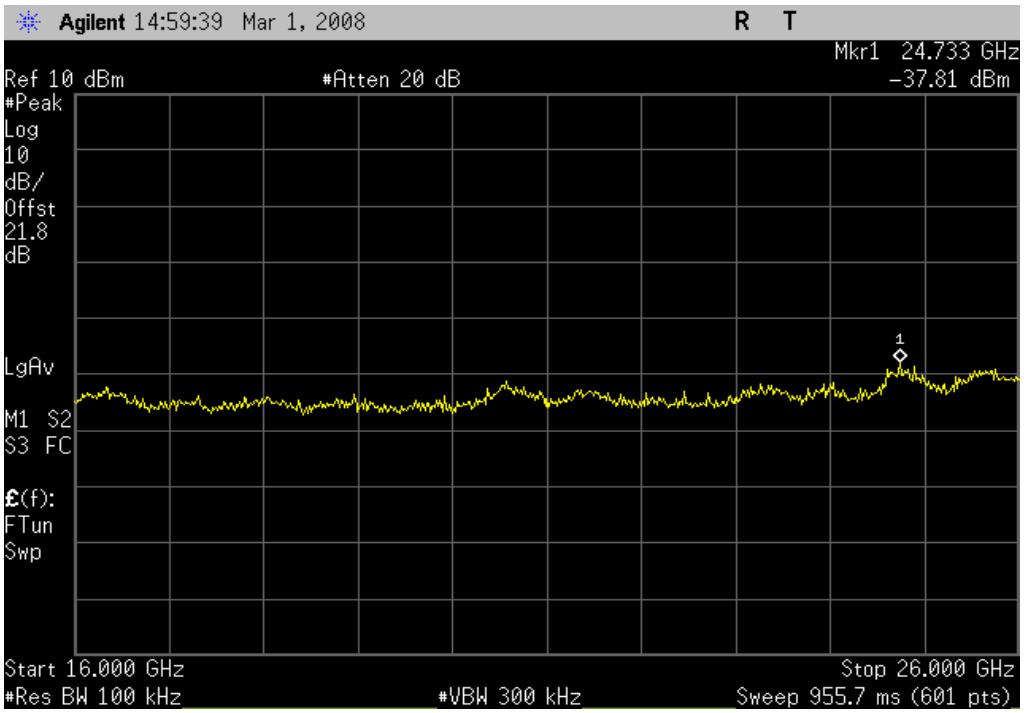
Transmit mode, pi/4-DQPSK modulation, Low channel, 2405MHz, 1 GHz - 6.6 GHz					
Result:	Pass	**Value:**	≤ - 40 dBc	**Limit:**	≤ - 20 dBc



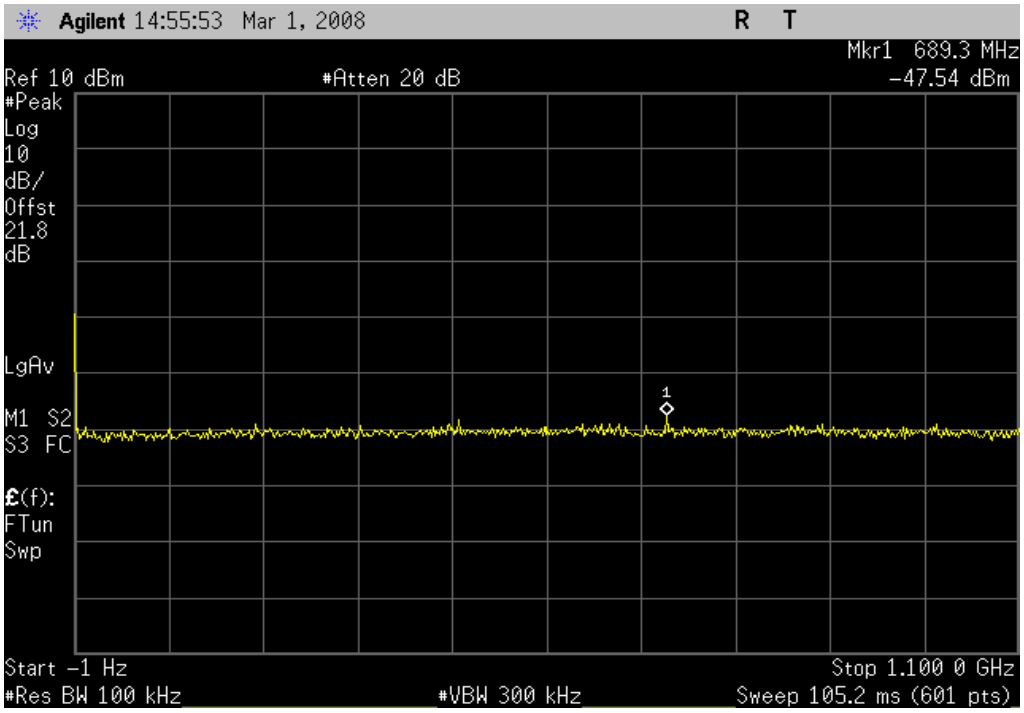
Transmit mode, pi/4-DQPSK modulation, Low channel, 2405MHz, 6.5 GHz - 16.1 GHz					
Result:	Pass	**Value:**	≤ - 30 dBc	**Limit:**	≤ - 20 dBc



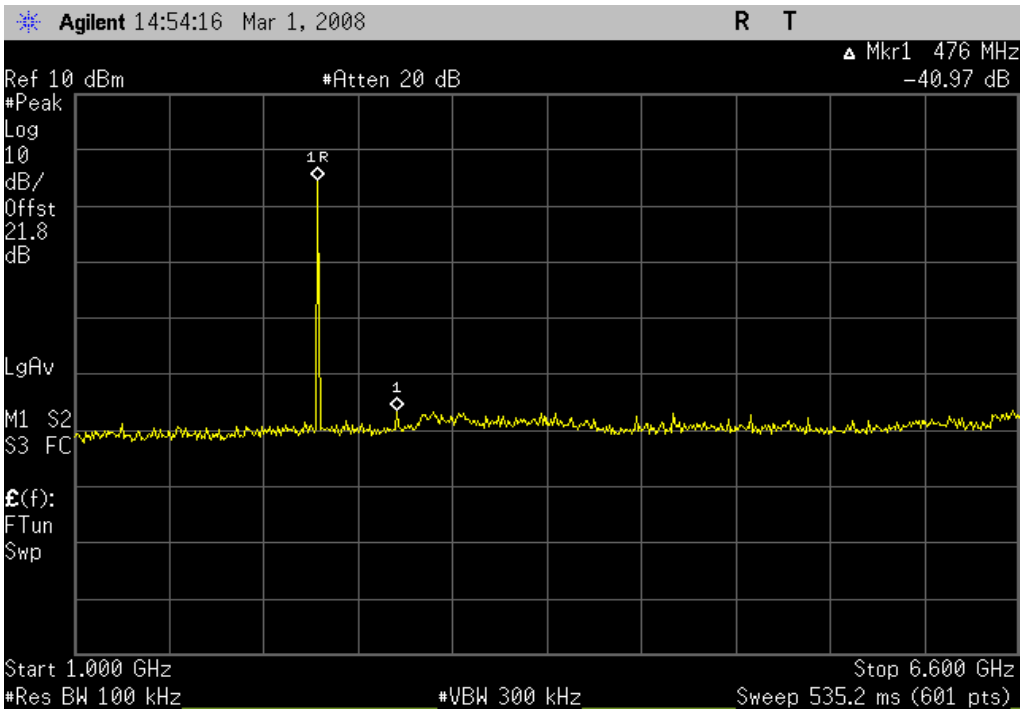
Transmit mode, pi/4-DQPSK modulation, Low channel, 2405MHz, 16 GHz - 26 GHz					
Result:	Pass	**Value:**	≤ - 30 dBc	**Limit:**	≤ - 20 dBc



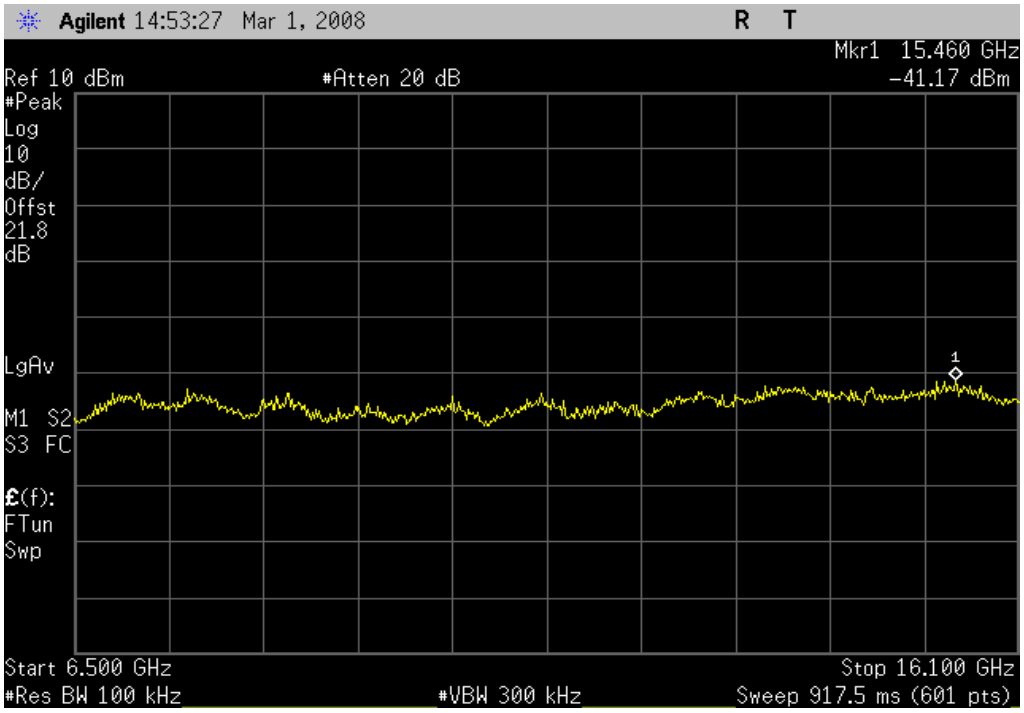
Transmit mode, pi/4-DQPSK modulation, Mid channel, 2441MHz, 0 Hz - 1.1 GHz					
Result:	Pass	**Value:**	≤ - 40 dBc	**Limit:**	≤ - 20 dBc



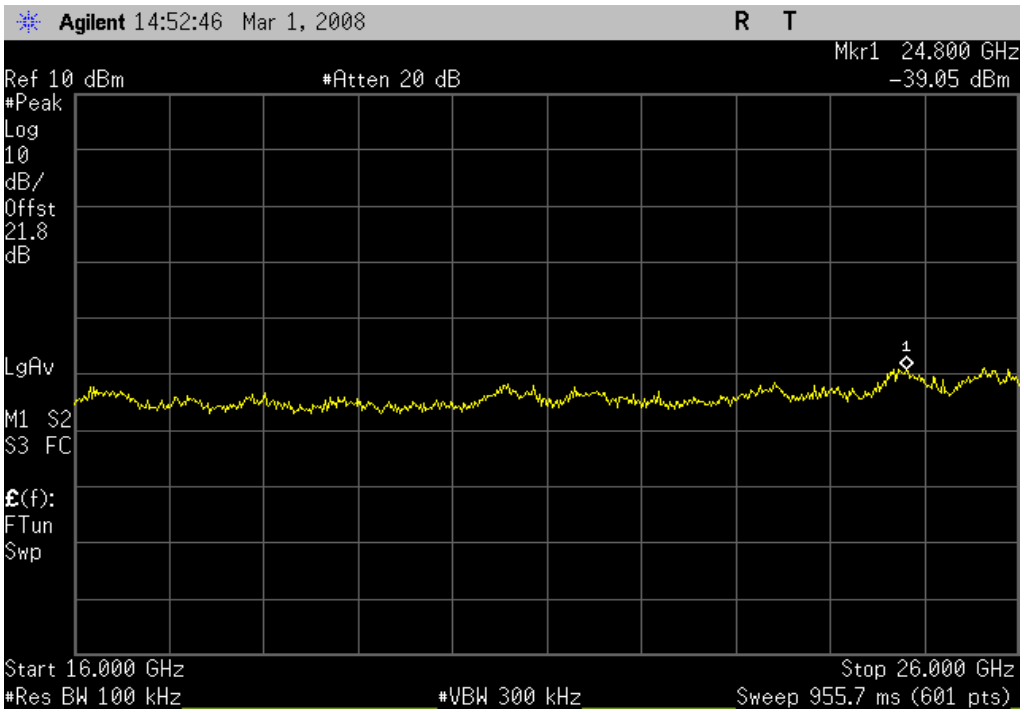
Transmit mode, pi/4-DQPSK modulation, Mid channel, 2441MHz, 1 GHz - 6.6 GHz					
Result:	Pass	**Value:**	≤ - 40 dBc	**Limit:**	≤ - 20 dBc



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

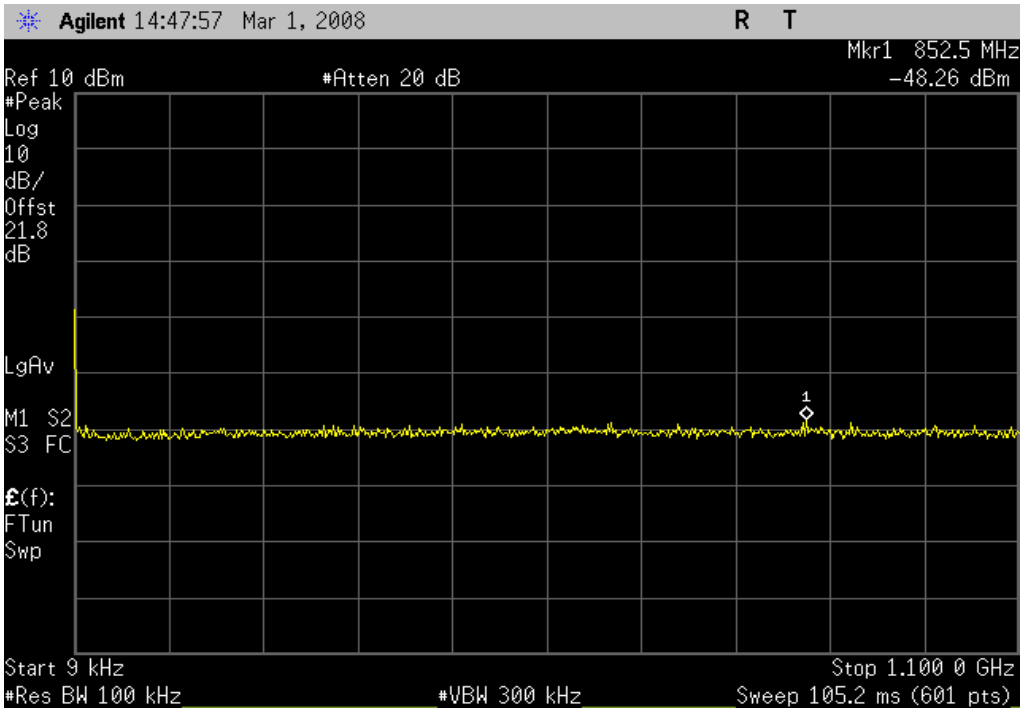


Transmit mode, pi/4-DQPSK modulation, Mid channel, 2441MHz, 16 GHz - 26 GHz					
Result:	Pass	**Value:**	≤ - 30 dBc	**Limit:**	≤ - 20 dBc

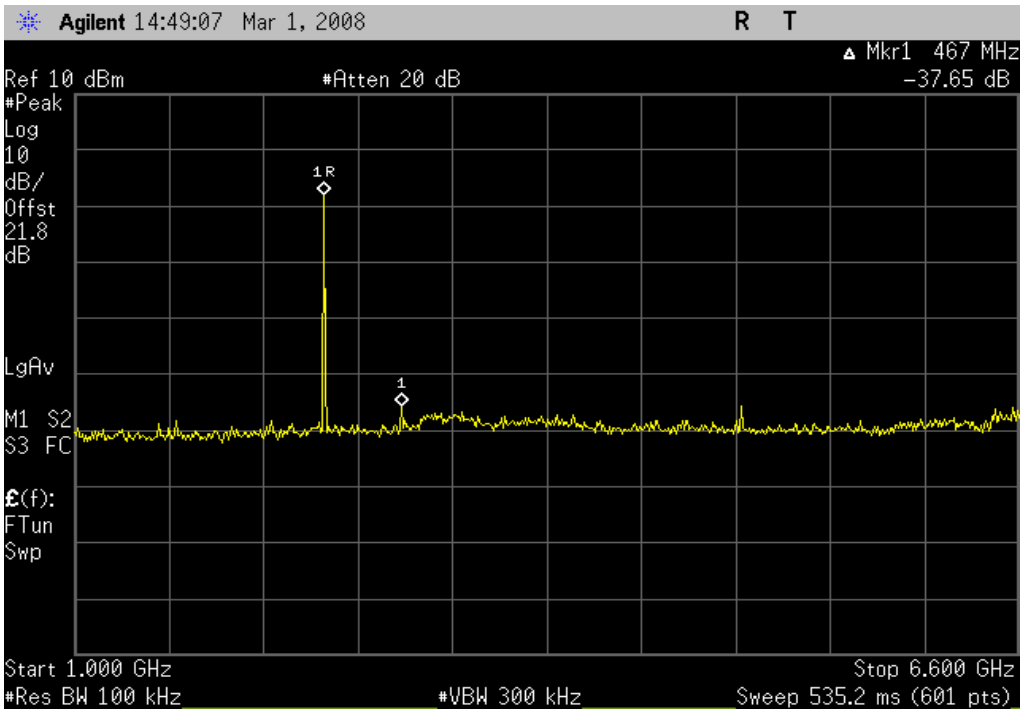


Spurious Conducted Emissions

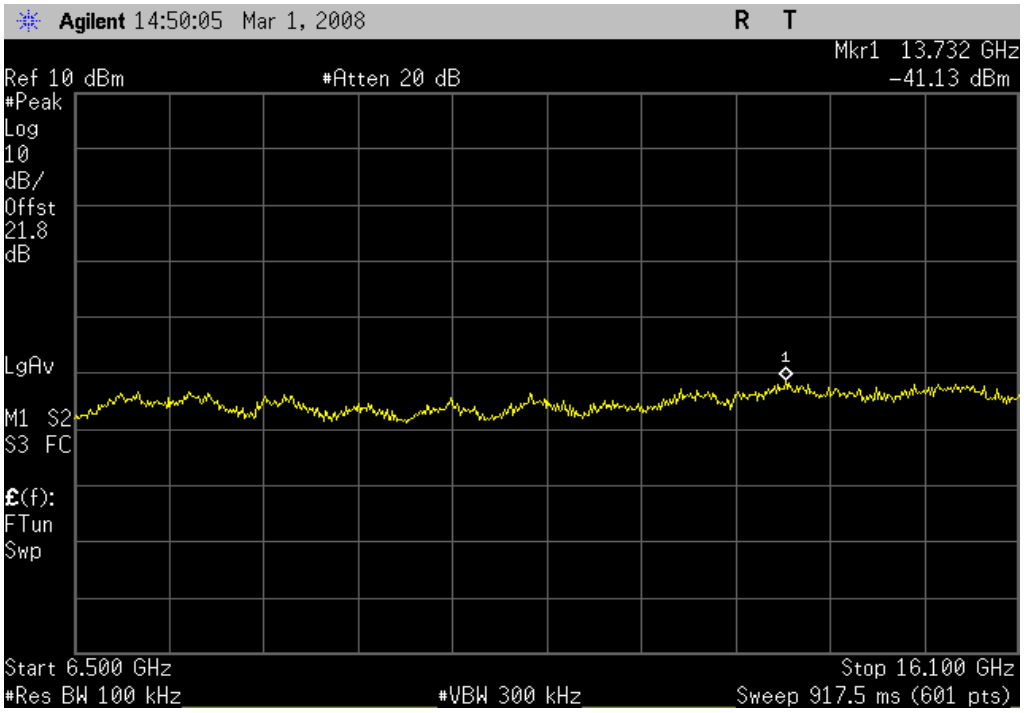
Transmit mode, pi/4-DQPSK modulation, High channel, 2477MHz, 0 Hz - 1.1 GHz					
Result:	Pass	**Value:**	≤ - 30 dBc	**Limit:**	≤ - 20 dBc



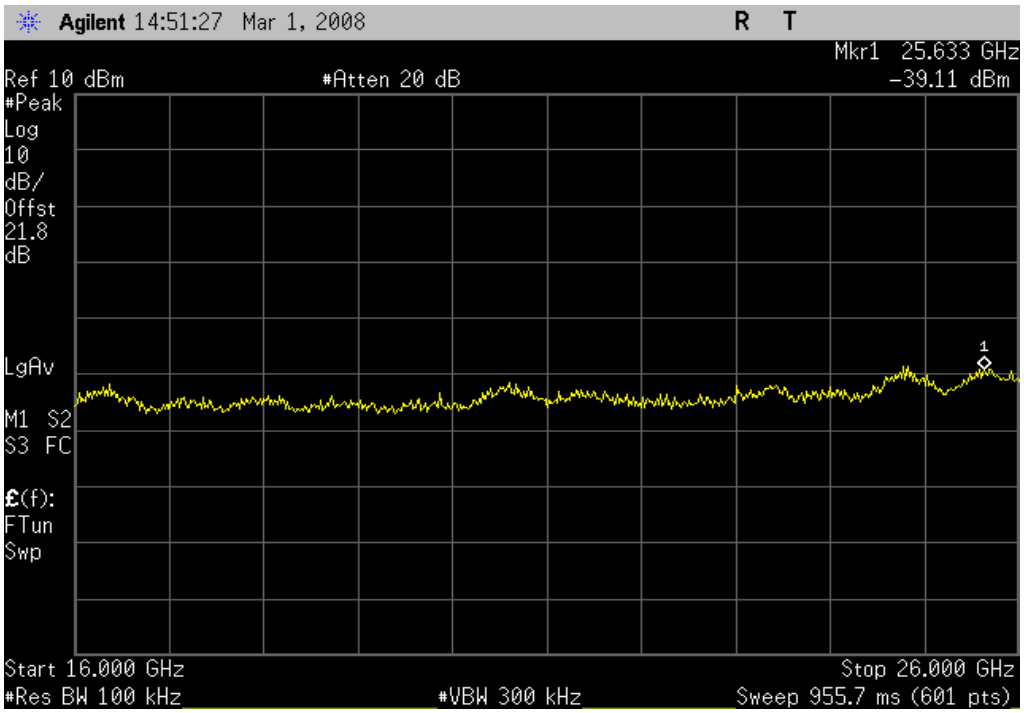
Transmit mode, pi/4-DQPSK modulation, High channel, 2477MHz, 1 GHz - 6.6 GHz					
Result:	Pass	**Value:**	≤ - 30 dBc	**Limit:**	≤ - 20 dBc



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



Power Spectral Density

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 x 10^6 ÷ 3 x 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."

NORTHWEST EMC

Power Spectral Density

XMit 2007.06.13

EUT:	ClearChat PC Wireless Dongle, M/N: A-00007			**Work Order:**	LABT0296
Serial Number:	Unknown			**Date:**	02/29/08
Customer:	Logitech, Inc.			**Temperature:**	22°C
Attendees:	None			**Humidity:**	30%
Project:	None			**Barometric Pres.:**	1011.8mb
Tested by:	Holly Ashkannejhad	**Power:**	USB	**Job Site:**	EV06

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

COMMENTS

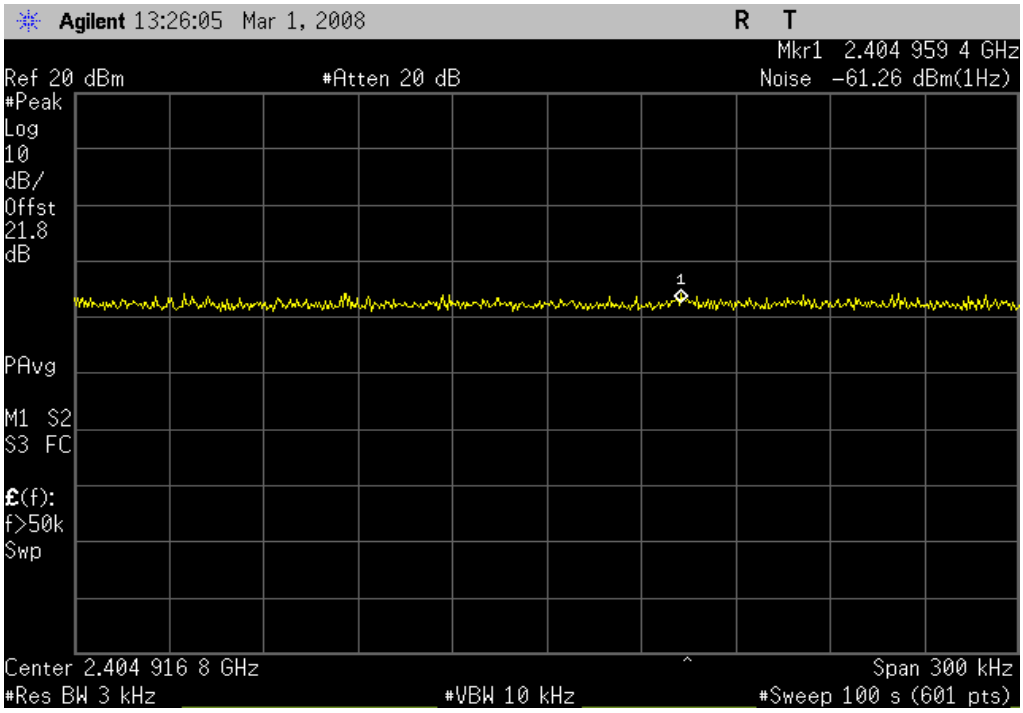
DEVIATIONS FROM TEST STANDARD

No Deviations

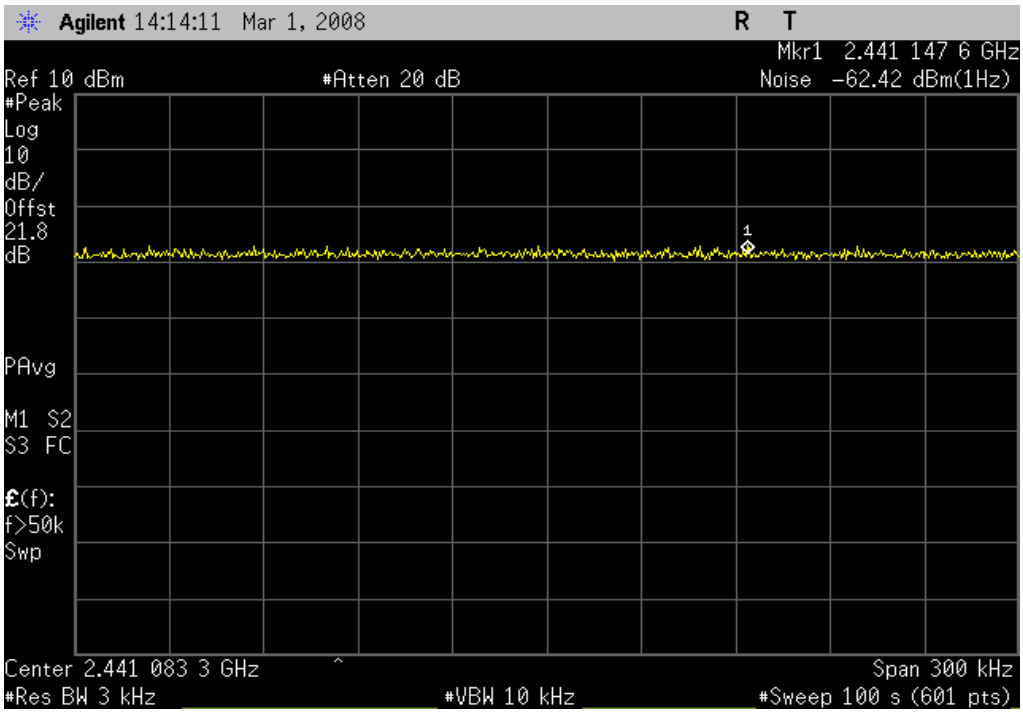
Configuration #	**3**	*Signature* Holly Ashkannejhad

	Value	**Limit**	**Results**
Transmitting with pi/4-DQPSK modulatio			
Low channel, 2405MHz	-26.26 dBm / 3 kHz	8 dBm / 3 kHz	Pass
Mid channel, 2441MHz	-27.52 dBm / 3 kHz	8 dBm / 3 kHz	Pass
High channel, 2477MHz	-30.28 dBm / 3 kHz	8 dBm / 3 kHz	Pass

Transmitting with pi/4-DQPSK modulatio, Low channel, 2405MHz					
Result:	Pass	**Value:**	-26.26 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



Transmitting with pi/4-DQPSK modulatio, Mid channel, 2441MHz					
Result:	Pass	**Value:**	-27.52 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



Transmitting with pi/4-DQPSK modulatio, High channel, 2477MHz					
Result:	Pass	**Value:**	-30.28 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz