

# Plantronics

## Headset Audio 995H

Report No. PLNT0002.1

Report Prepared By



[www.nwemc.com](http://www.nwemc.com)  
1-888-EMI-CERT

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**EMC Test Report**

**Certificate of Test**  
**Last Date of Test: January 29, 2009**  
**Plantronics**  
**Model: Headset - Audio 995H**

<b>Emissions</b>			
<b>Test Description</b>	<b>Specification</b>	<b>Test Method</b>	<b>Pass/Fail</b>
Spurious Radiated Emissions	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	<b>Pass</b>
Occupied Bandwidth	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	<b>Pass</b>
Output Power	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	<b>Pass</b>
Band Edge Compliance	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	<b>Pass</b>
Spurious Conducted Emissions	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	<b>Pass</b>
Power Spectral Density	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	<b>Pass</b>

**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 (Site filing #2834D-1).

**Approved By:**  
  
Don Fecteau, IS 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-Gen, Issue 2 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. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2*)



**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.



**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 (US0017). 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



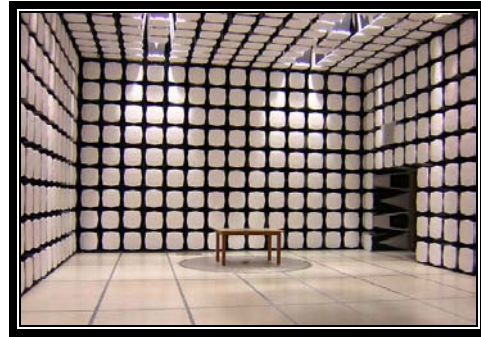
**KCC:** Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157*)



## SCOPE

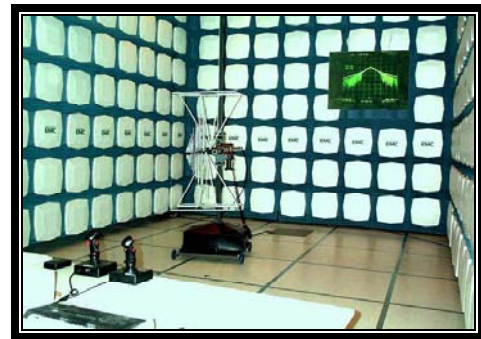
For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/accreditations/>



**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 339<sup>th</sup> Ave. SE Sultan, WA 98294  
(888) 364-2378

**Party Requesting the Test**

<b>Company Name:</b>	Plantronics
<b>Address:</b>	345 Encinal Street
<b>City, State, Zip:</b>	Santa Cruz, CA 95060
<b>Test Requested By:</b>	Alvin Ilarina
<b>Model:</b>	Headset - Audio 995H
<b>First Date of Test:</b>	January 22, 2009
<b>Last Date of Test:</b>	January 29, 2009
<b>Receipt Date of Samples:</b>	January 22, 2009
<b>Equipment Design Stage:</b>	Prototype
<b>Equipment Condition:</b>	No Damage

**Information Provided by the Party Requesting the Test****Functional Description of the EUT (Equipment Under Test):**

DTS device operating in the 2.4 GHz band (2405 - 2477 MHz).

**Testing Objective:**

Seeking TCB certification under 15.247

**EUT Photo**

**CONFIGURATION 1 PLNT0002****Software/Firmware Running during test**

Description	Version
AWAdebug	1.48.1

**EUT**

Description	Manufacturer	Model/Part Number	Serial Number
Headset - Direct Connect	Plantronics	Audio 995 H	#2

**Peripherals in test setup boundary**

Description	Manufacturer	Model/Part Number	Serial Number
Control PC	Dell	Inspiron 6000	DZ88H81

**Remote Equipment Outside of Test Setup Boundary**

Description	Manufacturer	Model/Part Number	Serial Number
USB-SPY Converter	Avnera	Anteater	None

**Cables**

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB Cable	Yes	1.0m	No	USB-SPY Converter	Control PC

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

**CONFIGURATION 2 PLNT0002****Software/Firmware Running during test**

Description	Version
AWAdebug	1.48.1

**EUT**

Description	Manufacturer	Model/Part Number	Serial Number
Headset - Radiated Spurious	Plantronics	Audio 995 H	#3



<b>Equipment modifications</b>					
Item	Date	Test	Modification	Note	Disposition of EUT
1	1/22/2009	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.
2	1/22/2009	Occupied Bandwidth	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	1/22/2009	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.
4	1/22/2009	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.
5	1/23/2009	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.
6	1/29/2009	Spurious Conducted Emissions	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

Tx, Antenna 1 (Diversity Select Low)  
Tx, Antenna 2 (Diversity Select High)

#### MODE USED FOR FINAL DATA

Tx, Antenna 1 (Diversity Select Low)  
Tx, Antenna 2 (Diversity Select High)

#### POWER SETTINGS INVESTIGATED

Battery

#### POWER SETTINGS USED FOR FINAL DATA

Battery

#### FREQUENCY RANGE INVESTIGATED

Start Frequency	30MHz	Stop Frequency	26.5GHz
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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	12/12/2008	13
EV01 Cables		18-26GHz Standard Gain Horn Cable	EVD	12/2/2008	13
EV01 Cables		Standard Gain Horns Cables	EVF	11/13/2008	13
EV01 Cables		Double Ridge Horn Cables	EVB	5/19/2008	13
EV01 Cables		Bilog Cables	EVA	5/19/2008	13
High Pass Filter	Micro-Tronics	HPM50111	HFO	5/21/2008	13
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	12/2/2008	13
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	6/30/2008	13
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	6/30/2008	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	5/19/2008	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	5/19/2008	13
Antenna, Horn	EMCO	3160-09	AHG	NCR	0
Antenna, Horn	ETS	3160-08	AHV	NCR	0
Antenna, Horn	ETS	3160-07	AHU	NCR	0
Antenna, Horn	EMCO	3115	AHC	8/12/2008	24
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 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: Headset - Audio 995H	Work Order: PLNT0002
Serial Number: #3	Date: 01/23/09
Customer: Plantronics	Temperature: 20.75
Attendees: None	Humidity: 25%
Project: None	Barometric Pres.: 30.22
Tested by: Jennifer Herrett	Power: Battery
	Job Site: EV01

TEST SPECIFICATIONS		Test Method	
FCC 15.247 (DTS):2009		ANSI C63.4:2003, KDB No. 558074	

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

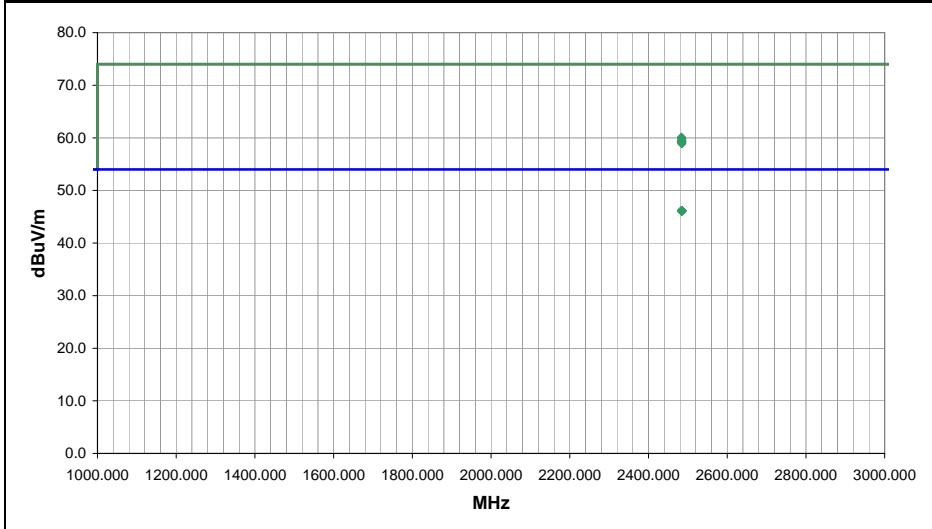
**COMMENTS**  
None

**EUT OPERATING MODES**  
Tx, High Channel, See comments for Antenna (Diversity Select)

**DEVIATIONS FROM TEST STANDARD**

No deviations.

Run #	1	 Signature
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)	Comments
2483.740	23.9	2.2	337.0	1.0	3.0	20.0	H-Horn	AV	0.0	46.1	54.0	-7.9	EUT head strap horizontal, Diversity Select Low
2483.858	23.9	2.2	263.0	3.0	3.0	20.0	H-Horn	AV	0.0	46.1	54.0	-7.9	EUT head strap vertical, Diversity Select High
2483.943	23.9	2.2	0.0	3.0	3.0	20.0	H-Horn	AV	0.0	46.1	54.0	-7.9	EUT headset on side, Diversity Select High
2484.098	23.9	2.2	271.0	3.5	3.0	20.0	V-Horn	AV	0.0	46.1	54.0	-7.9	EUT head strap horizontal, Diversity Select Low
2484.315	23.9	2.2	90.0	3.0	3.0	20.0	H-Horn	AV	0.0	46.1	54.0	-7.9	EUT head strap horizontal, Diversity Select High
2484.428	23.9	2.2	162.0	1.0	3.0	20.0	H-Horn	AV	0.0	46.1	54.0	-7.9	EUT head strap vertical, Diversity Select Low
2484.572	23.9	2.2	104.0	3.5	3.0	20.0	V-Horn	AV	0.0	46.1	54.0	-7.9	EUT head strap horizontal, Diversity Select High
2484.647	23.9	2.2	157.0	2.2	3.0	20.0	H-Horn	AV	0.0	46.1	54.0	-7.9	EUT headset on side, Diversity Select Low
2484.713	23.9	2.2	232.0	3.5	3.0	20.0	V-Horn	AV	0.0	46.1	54.0	-7.9	EUT head strap vertical, Diversity Select High
2484.735	23.9	2.2	328.0	3.5	3.0	20.0	V-Horn	AV	0.0	46.1	54.0	-7.9	EUT headset on side, Diversity Select Low
2484.745	23.9	2.2	154.0	1.0	3.0	20.0	V-Horn	AV	0.0	46.1	54.0	-7.9	EUT head strap vertical, Diversity Select Low
2484.768	23.9	2.2	128.0	3.5	3.0	20.0	V-Horn	AV	0.0	46.1	54.0	-7.9	EUT headset on side, Diversity Select High
2483.892	37.9	2.2	328.0	3.5	3.0	20.0	V-Horn	PK	0.0	60.1	74.0	-13.9	EUT headset on side, Diversity Select Low
2484.315	37.7	2.2	90.0	3.0	3.0	20.0	H-Horn	PK	0.0	59.9	74.0	-14.1	EUT head strap horizontal, Diversity Select High
2484.452	37.6	2.2	157.0	2.2	3.0	20.0	H-Horn	PK	0.0	59.8	74.0	-14.2	EUT headset on side, Diversity Select Low
2483.760	37.2	2.2	162.0	1.0	3.0	20.0	H-Horn	PK	0.0	59.4	74.0	-14.6	EUT head strap vertical, Diversity Select Low
2484.468	37.2	2.2	232.0	3.5	3.0	20.0	V-Horn	PK	0.0	59.4	74.0	-14.6	EUT head strap horizontal, Diversity Select High
2483.940	37.1	2.2	337.0	1.0	3.0	20.0	H-Horn	PK	0.0	59.3	74.0	-14.7	EUT head strap horizontal, Diversity Select Low
2484.107	37.1	2.2	0.0	3.0	3.0	20.0	H-Horn	PK	0.0	59.3	74.0	-14.7	EUT headset on side, Diversity Select High
2483.505	37.0	2.2	104.0	3.5	3.0	20.0	V-Horn	PK	0.0	59.2	74.0	-14.8	EUT head strap horizontal, Diversity Select High

EUT: Headset - Audio 995H	Work Order: PLNT0002
Serial Number: #3	Date: 01/23/09
Customer: Plantronics	Temperature: 20.75
Attendees: None	Humidity: 25%
Project: None	Barometric Pres.: 30.22
Tested by: Jennifer Herrett	Power: Battery
	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2009	ANSI C63.4:2003, KDB No. 558074

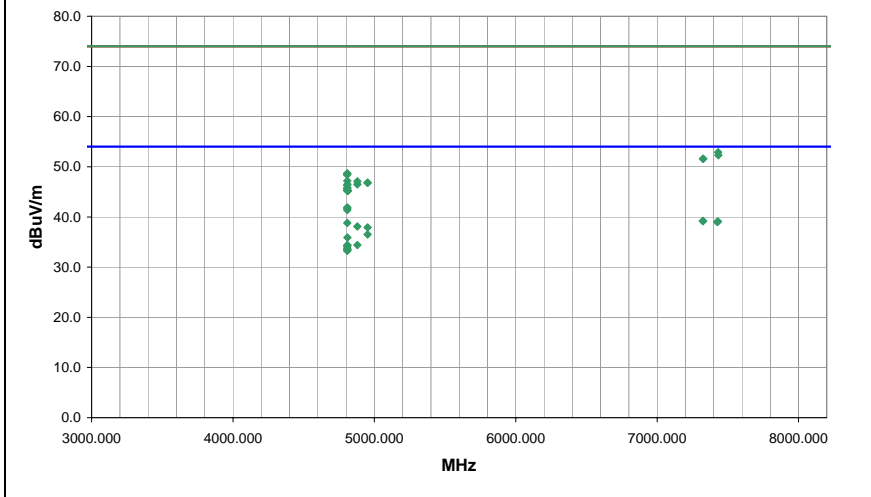
TEST PARAMETERS	
Antenna Height(s) (m) 1 - 4	Test Distance (m) 3

**COMMENTS**  
None

**EUT OPERATING MODES**  
Tx. See comments for Antenna (Diversity Select)

**DEVIATIONS FROM TEST STANDARD**  
No deviations.

Run #	2	 Signature
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)	Comments
4808.000	32.4	9.5	99.0	1.3	3.0	0.0	H-Horn	AV	0.0	41.9	54.0	-12.1	Low Channel, EUT head strap vertical, Diversity Select Low
4807.987	32.2	9.5	77.0	1.4	3.0	0.0	V-Horn	AV	0.0	41.7	54.0	-12.3	Low Channel, EUT head strap horizontal, Diversity Select Low
4808.000	31.9	9.5	83.0	1.1	3.0	0.0	V-Horn	AV	0.0	41.4	54.0	-12.6	Low Channel, EUT head strap horizontal, Diversity Select High
7323.160	23.6	15.6	184.0	1.0	3.0	0.0	H-Horn	AV	0.0	39.2	54.0	-14.8	Mid Channel, EUT head strap vertical, Diversity Select Low
7324.693	23.6	15.6	335.0	2.9	3.0	0.0	V-Horn	AV	0.0	39.2	54.0	-14.8	Mid Channel, EUT head strap horizontal, Diversity Select Low
7430.430	23.3	15.8	3.0	1.4	3.0	0.0	H-Horn	AV	0.0	39.1	54.0	-14.9	High Channel, EUT head strap vertical, Diversity Select Low
7425.053	23.2	15.8	111.0	1.7	3.0	0.0	V-Horn	AV	0.0	39.0	54.0	-15.0	High Channel, EUT head strap horizontal, Diversity Select Low
4807.987	29.3	9.5	105.0	1.2	3.0	0.0	H-Horn	AV	0.0	38.8	54.0	-15.2	Low Channel, EUT head strap vertical, Diversity Select High
4879.987	28.3	9.8	32.0	1.0	3.0	0.0	H-Horn	AV	0.0	38.1	54.0	-15.9	Mid Channel, EUT head strap vertical, Diversity Select Low
4951.973	27.8	10.1	107.0	1.1	3.0	0.0	V-Horn	AV	0.0	37.9	54.0	-16.1	High Channel, EUT head strap horizontal, Diversity Select Low
4952.020	26.4	10.1	344.0	1.0	3.0	0.0	H-Horn	AV	0.0	36.5	54.0	-17.5	High Channel, EUT head strap vertical, Diversity Select Low
4810.000	26.4	9.5	248.0	1.2	3.0	0.0	V-Horn	AV	0.0	35.9	54.0	-18.1	Low Channel, EUT headset on side, Diversity Select High
4809.960	24.9	9.5	220.0	1.4	3.0	0.0	V-Horn	AV	0.0	34.4	54.0	-19.6	Low Channel, EUT headset on side, Diversity Select Low
4879.907	24.6	9.8	37.0	1.5	3.0	0.0	V-Horn	AV	0.0	34.4	54.0	-19.6	Mid Channel, EUT head strap horizontal, Diversity Select Low
4808.027	24.8	9.5	351.0	1.2	3.0	0.0	H-Horn	AV	0.0	34.3	54.0	-19.7	Low Channel, EUT headset on side, Diversity Select High
4808.000	24.6	9.5	286.0	1.3	3.0	0.0	H-Horn	AV	0.0	34.1	54.0	-19.9	Low Channel, EUT head strap horizontal, Diversity Select Low
4808.027	24.2	9.5	255.0	1.2	3.0	0.0	H-Horn	AV	0.0	33.7	54.0	-20.3	Low Channel, EUT head strap horizontal, Diversity Select High
4809.920	24.0	9.5	153.0	1.2	3.0	0.0	H-Horn	AV	0.0	33.5	54.0	-20.5	Low Channel, EUT headset on side, Diversity Select Low
4807.960	23.8	9.5	219.0	1.1	3.0	0.0	V-Horn	AV	0.0	33.3	54.0	-20.7	Low Channel, EUT head strap vertical, Diversity Select High
4807.987	23.8	9.5	195.0	1.4	3.0	0.0	V-Horn	AV	0.0	33.3	54.0	-20.7	Low Channel, EUT head strap vertical, Diversity Select Low

EUT: Headset - Audio 995H	Work Order: PLNT0002
Serial Number: #3	Date: 01/23/09
Customer: Plantronics	Temperature: 20.75
Attendees: None	Humidity: 25%
Project: None	Barometric Pres.: 30.22
Tested by: Jennifer Herrett	Power: Battery
	Job Site: EV01

TEST SPECIFICATIONS	
FCC 15.247 (DTS):2009	ANSI C63.4:2003, KDB No. 558074

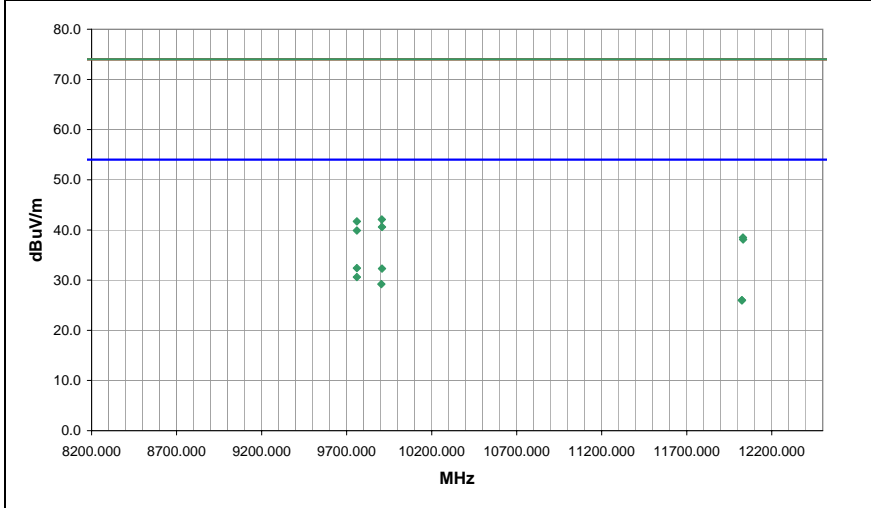
TEST PARAMETERS	
Antenna Height(s) (m)	1 - 4
Test Distance (m)	3

**COMMENTS**  
None

**EUT OPERATING MODES**  
Tx. See comments for Antenna (Diversity Select)

**DEVIATIONS FROM TEST STANDARD**  
No deviations.

Run #	3	 Signature
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)	Comments
9759.980	43.2	-10.8	56.0	1.0	3.0	0.0	V-Horn	AV	0.0	32.4	54.0	-21.6	Mid Channel, EUT head strap horizontal, Diversity Select Low
9908.180	43.0	-10.7	81.0	1.1	3.0	0.0	V-Horn	AV	0.0	32.3	54.0	-21.7	High Channel, EUT head strap horizontal, Diversity Select Low
9759.920	41.4	-10.8	11.0	1.0	3.0	0.0	H-Horn	AV	0.0	30.6	54.0	-23.4	Mid Channel, EUT head strap vertical, Diversity Select Low
9903.920	39.9	-10.7	71.0	1.0	3.0	0.0	H-Horn	AV	0.0	29.2	54.0	-24.8	High Channel, EUT head strap vertical, Diversity Select Low
12023.720	30.1	-4.1	208.0	1.0	3.0	0.0	V-Horn	AV	0.0	26.0	54.0	-28.0	Low Channel, EUT head strap horizontal, Diversity Select Low
12024.450	30.0	-4.0	102.0	1.0	3.0	0.0	H-Horn	AV	0.0	26.0	54.0	-28.0	Low Channel, EUT head strap vertical, Diversity Select Low
9907.100	52.8	-10.7	81.0	1.1	3.0	0.0	V-Horn	PK	0.0	42.1	74.0	-31.9	High Channel, EUT head strap horizontal, Diversity Select Low
9760.350	52.5	-10.8	56.0	1.0	3.0	0.0	V-Horn	PK	0.0	41.7	74.0	-32.3	Mid Channel, EUT head strap horizontal, Diversity Select Low
9907.300	51.3	-10.7	71.0	1.0	3.0	0.0	H-Horn	PK	0.0	40.6	74.0	-33.4	High Channel, EUT head strap vertical, Diversity Select Low
9759.650	50.7	-10.8	11.0	1.0	3.0	0.0	H-Horn	PK	0.0	39.9	74.0	-34.1	Mid Channel, EUT head strap vertical, Diversity Select Low
12030.420	42.6	-4.1	208.0	1.0	3.0	0.0	V-Horn	PK	0.0	38.5	74.0	-35.5	Low Channel, EUT head strap horizontal, Diversity Select Low
12031.480	42.2	-4.1	102.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.1	74.0	-35.9	Low Channel, EUT head strap vertical, Diversity Select Low

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	NXA Com	2082-6148-20 DC-18 GHz	AUG	5/19/2008	13
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13

**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 with the typical modulation.

## EMC

## Occupied Bandwidth

EUT: Headset - Audio 995H	Work Order: PLNT0002
Serial Number: #2	Date: 01/22/09
Customer: Plantronics	Temperature: 22°C
Attendees: Phil Johnson	Humidity: 24%
Project: None	Barometric Pres.: 30.10 Inches
Tested by: Greg Kiemel	Power: Battery
	Job Site: EV06

TEST SPECIFICATIONS		Test Method
FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	

## COMMENTS

Output power taken on 'Diversity Select Low' port

## DEVIATIONS FROM TEST STANDARD

No Deviations

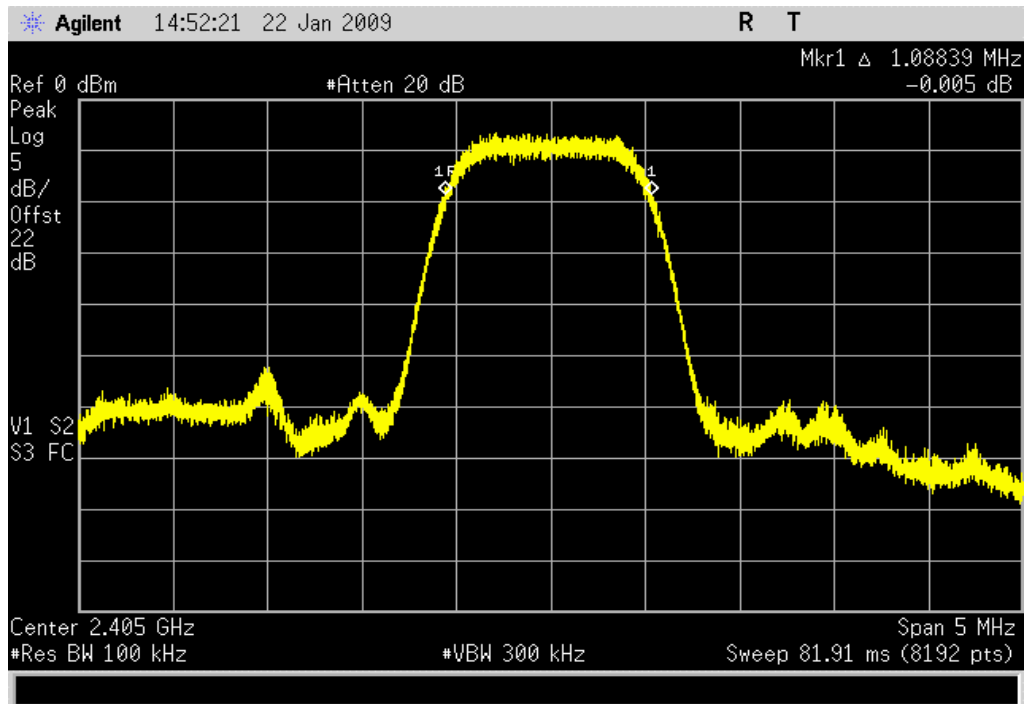
Configuration #	1	Signature 
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	Value	Limit	Results
Low Channel - 2405 MHz	1.088 MHz	≥ 500 kHz	PASS
Mid Channel - 2441 MHz	1.091 MHz	≥ 500 kHz	PASS
High Channel - 2477 MHz	1.085 MHz	≥ 500 kHz	PASS

## Low Channel - 2405 MHz

Result: PASS

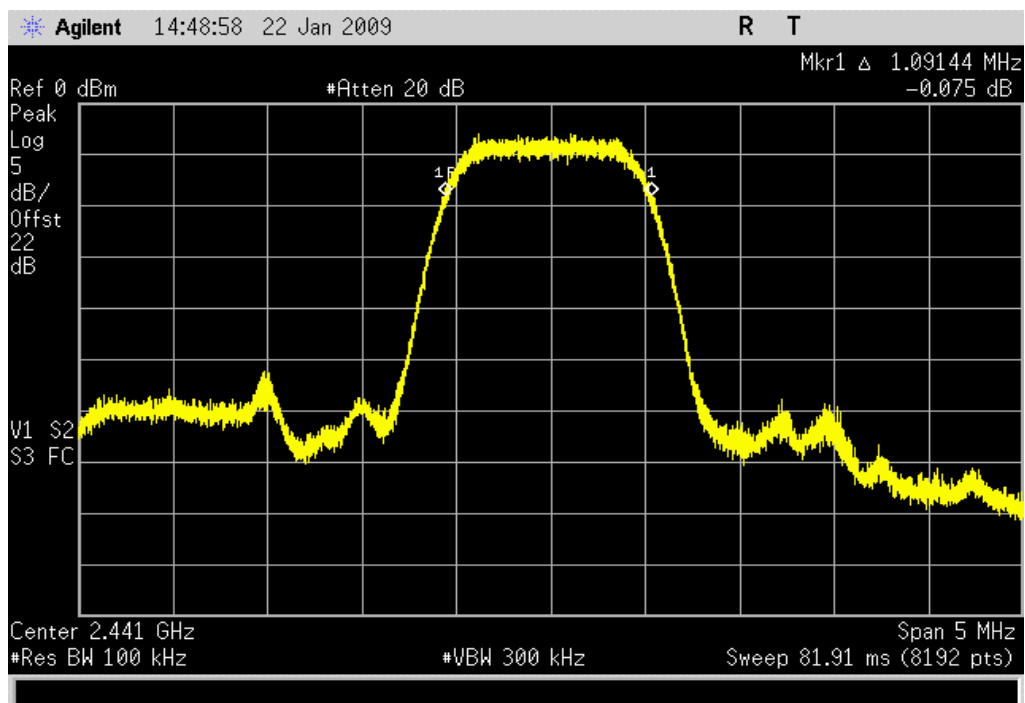
Value: 1.088 MHz

Limit:  $\geq 500$  kHz

## Mid Channel - 2441 MHz

Result: PASS

Value: 1.091 MHz

Limit:  $\geq 500$  kHz



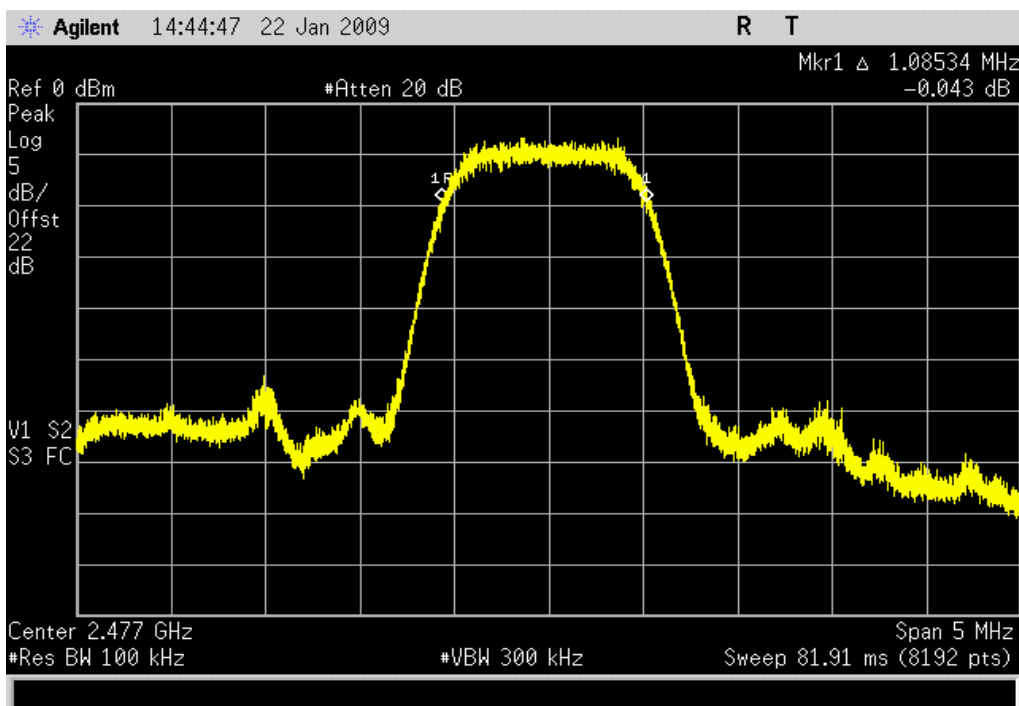
# Occupied Bandwidth

High Channel - 2477 MHz

**Result:** PASS

**Value:** 1.085 MHz

**Limit:**  $\geq 500$  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	NXA Com	2082-6148-20 DC-18 GHz	AUG	5/19/2008	13
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/9/2008	13
Power Sensor	Gigatronics	80701A	SPL	12/10/2008	13
Power Meter	Gigatronics	8651A	SPM	12/10/2008	13

#### 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.

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

## EMC

## Output Power

EUT:	Headset - Audio 995H	Work Order:	PLNT0002
Serial Number:	#2	Date:	01/22/09
Customer:	Plantronics	Temperature:	22°C
Attendees:	Phil Johnson	Humidity:	24%
Project:	None	Barometric Pres.:	30.10 Inches
Tested by:	Greg Kiemel	Power:	Battery
		Job Site:	EV06

TEST SPECIFICATIONS		Test Method	
FCC 15.247 (DTS):2009		ANSI C63.4:2003 KDB No. 558074	

## COMMENTS

Output power taken on 'Diversity Select Low' port

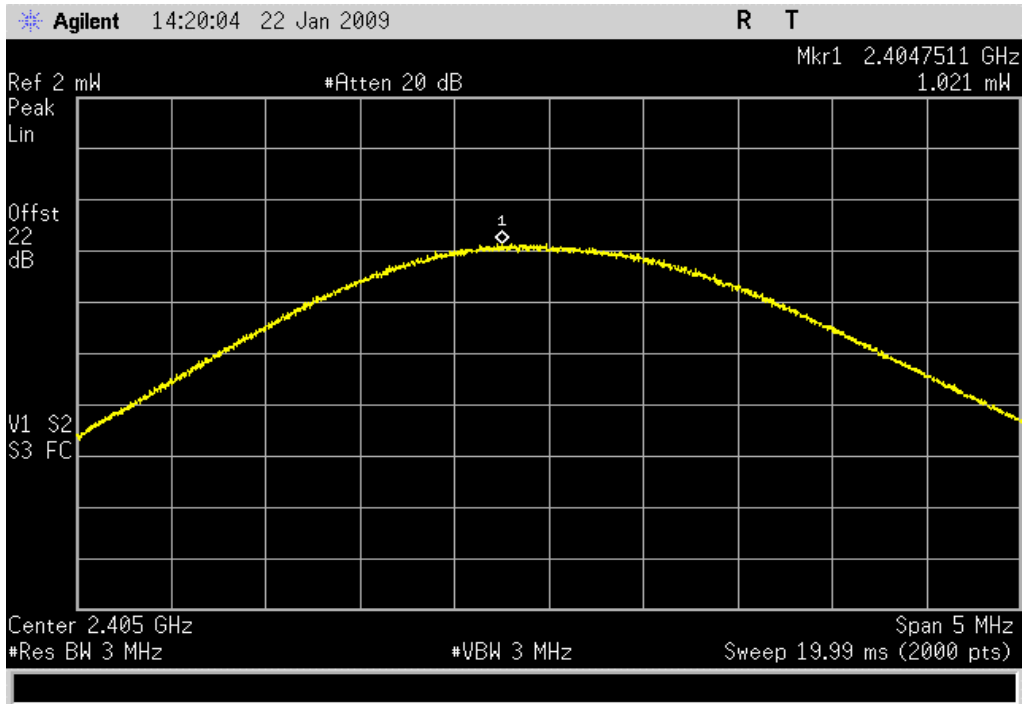
## DEVIATIONS FROM TEST STANDARD

No Deviations

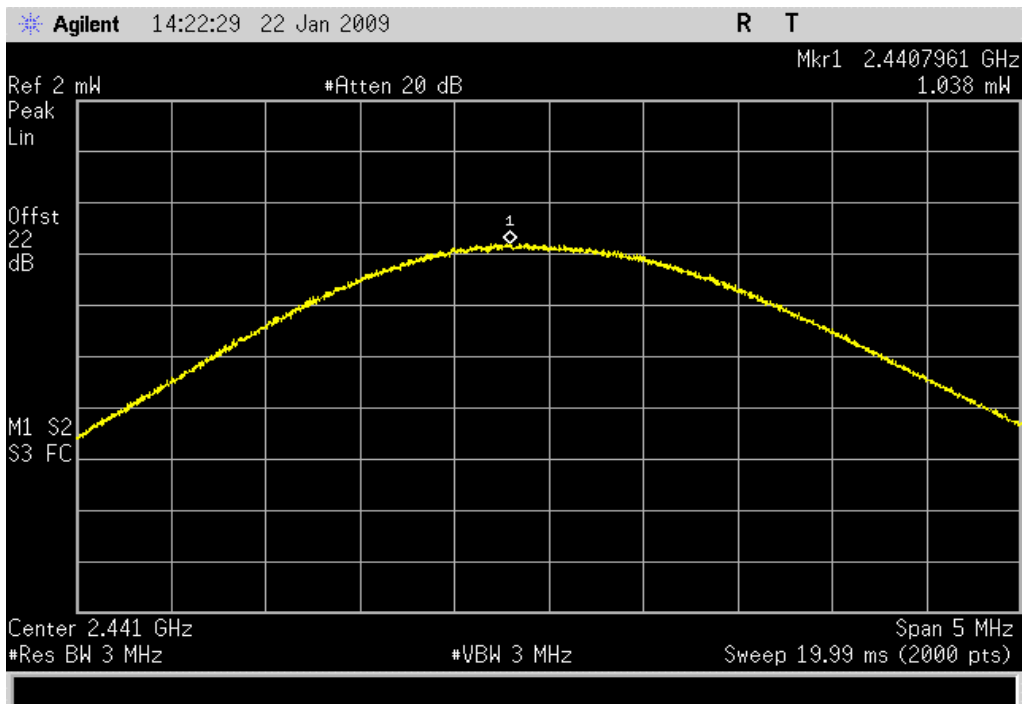
Configuration #	1	Signature 
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	Value	Limit	Results
Low Channel - 2405 MHz	1.021 mW	1 W	PASS
Mid Channel - 2441 MHz	1.038 mW	1 W	PASS
High Channel - 2477 MHz	941.2 uW	1 W	PASS

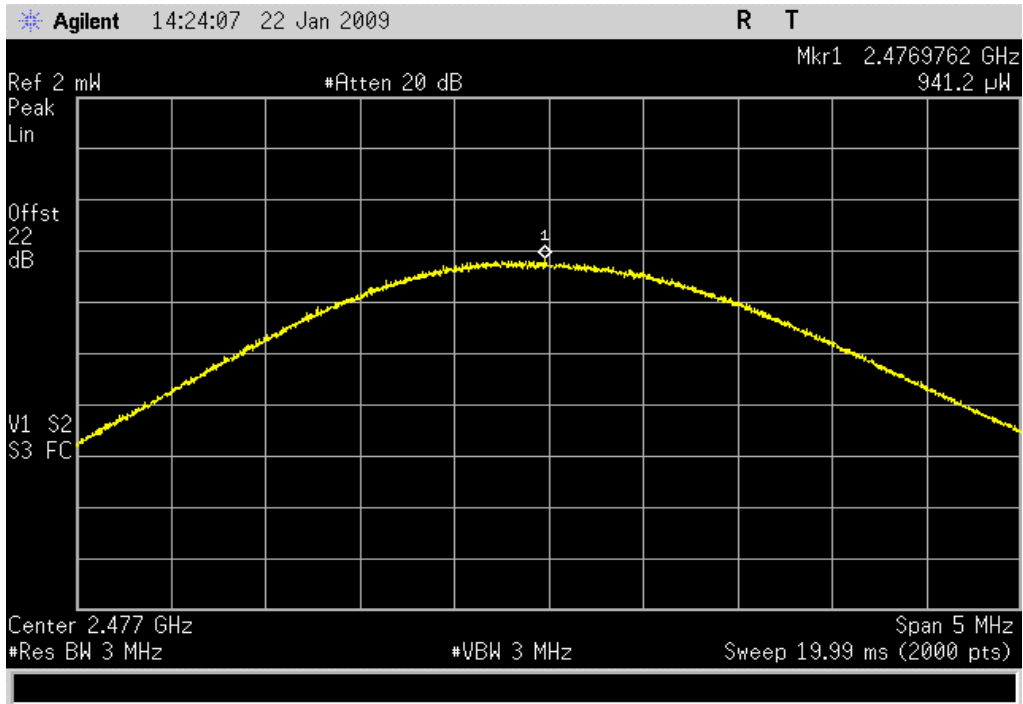
Low Channel - 2405 MHz  
**Result:** PASS      **Value:** 1.021 mW      **Limit:** 1 W



Mid Channel - 2441 MHz  
**Result:** PASS      **Value:** 1.038 mW      **Limit:** 1 W



High Channel - 2477 MHz  
**Result:** PASS      **Value:** 941.2 uW      **Limit:** 1 W



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	NXA Com	2082-6148-20 DC-18 GHz	AUG	5/19/2008	13
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13

#### 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.

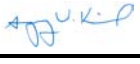
#### TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. 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 available.

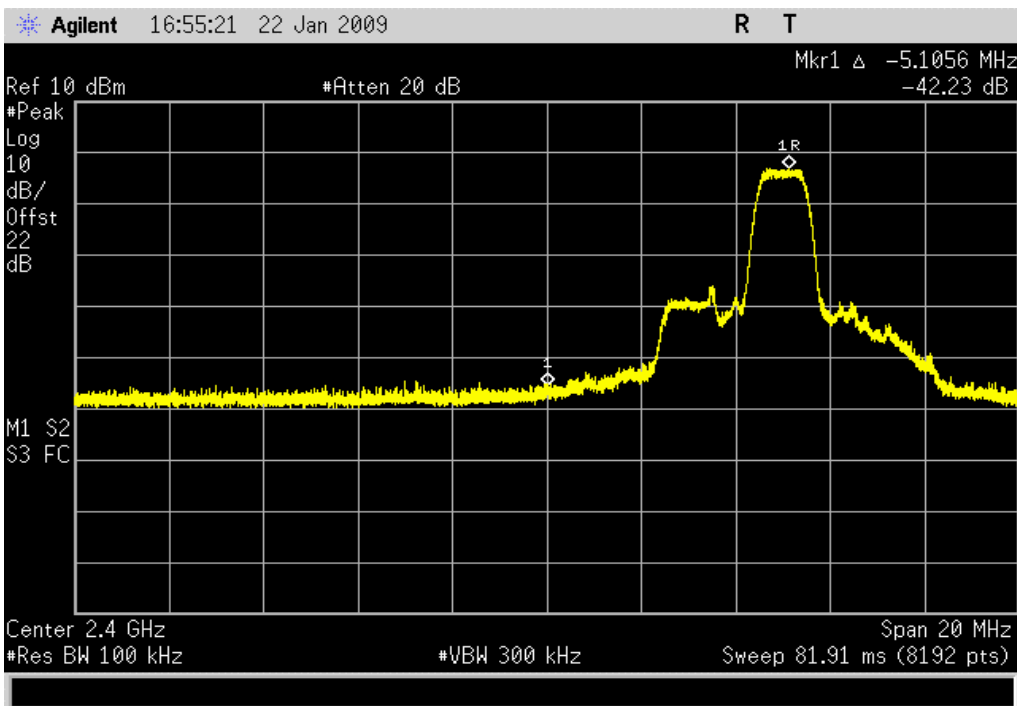
The spectrum was scanned across each band edge from at least 10 MHz below the band edge to 10 MHz above the band edge.

## Band Edge Compliance

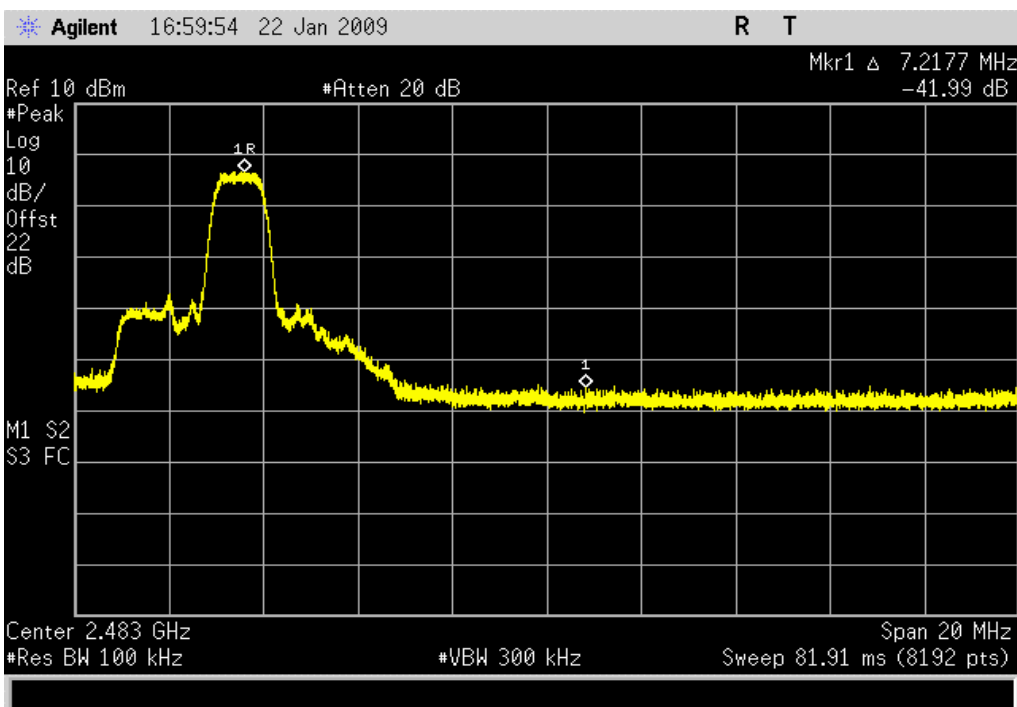
## EMC

EUT: Headset - Audio 995H		Work Order: PLNT0002	
Serial Number: #2		Date: 01/22/09	
Customer: Plantronics		Temperature: 22°C	
Attendees: Phil Johnson		Humidity: 24%	
Project: None		Barometric Pres.: 30.10 Inches	
Tested by: Greg Kiemel		Power: Battery	Job Site: EV06
TEST SPECIFICATIONS		Test Method	
FCC 15.247 (DTS):2009		ANSI C63.4:2003 KDB No. 558074	
<b>COMMENTS</b>			
Output power taken on 'Diversity Select Low' port			
<b>DEVIATIONS FROM TEST STANDARD</b>			
No Deviations			
Configuration #	1	Signature 	
		Value	Limit Results
Low Channel - 2405 MHz		-42.23 dBc	≤ -20 dBc PASS
High Channel - 2477 MHz		-41.99 dBc	≤ -20 dBc PASS

Low Channel - 2405 MHz  
**Result:** PASS      **Value:** -42.23 dBc      **Limit:** ≤ -20 dBc



High Channel - 2477 MHz  
**Result:** PASS      **Value:** -41.99 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	6/27/2008	13
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13

## 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 using direct sequence modulation. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

## Spurious Conducted Emissions

EMC

EUT:	Headset - Audio 995H	Work Order:	PLNT0002
Serial Number:	#2	Date:	01/29/09
Customer:	Plantronics	Temperature:	22°C
Attendees:	Phil Johnson	Humidity:	24%
Project:	None	Barometric Pres.:	30.10 Inches
Tested by:	Greg Kiemel	Power:	Battery
		Job Site:	EV06

TEST SPECIFICATIONS		Test Method	
FCC 15.247 (DTS):2009		ANSI C63.4:2003 KDB No. 558074	

## COMMENTS

Output power taken on 'Diversity Select Low' port

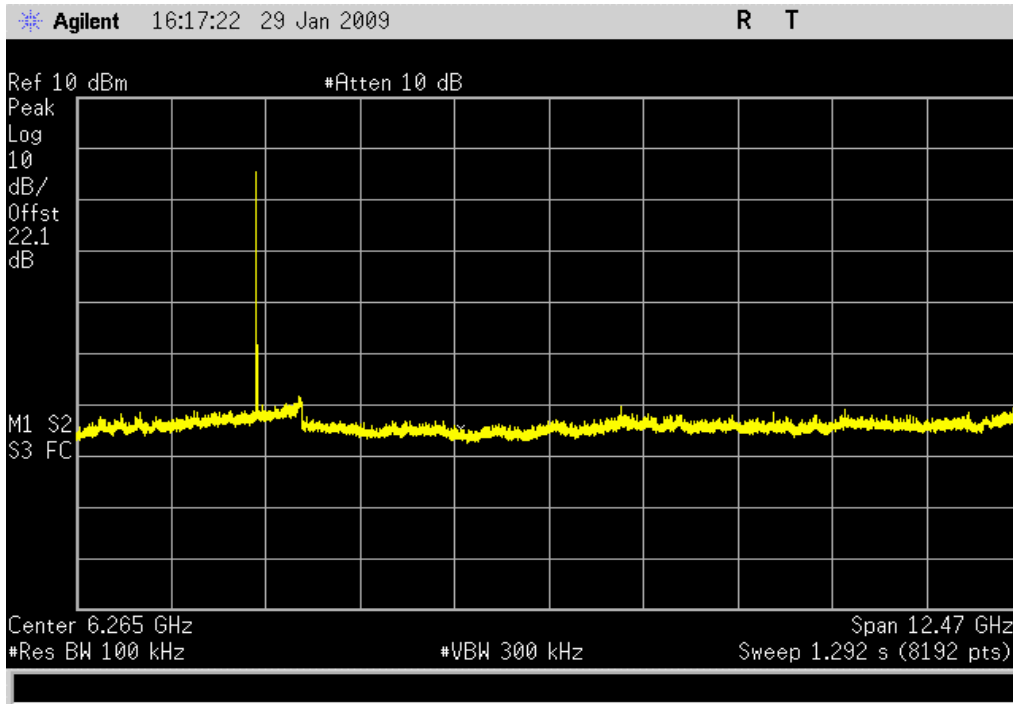
## DEVIATIONS FROM TEST STANDARD

No Deviations

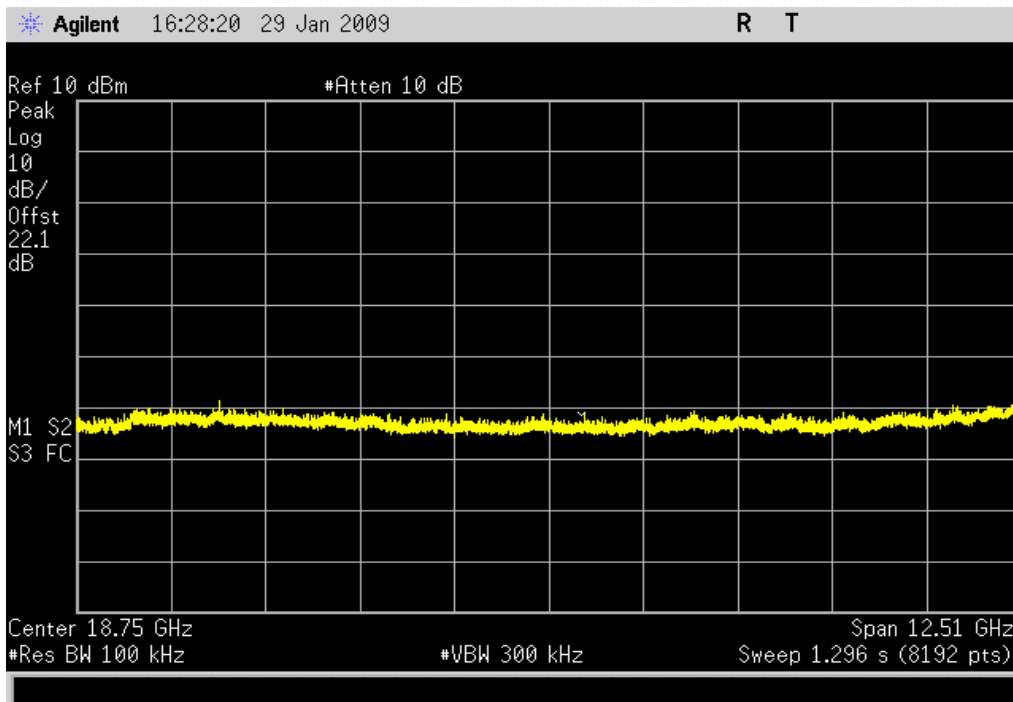
Configuration #	1	Signature	
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		Value	Limit	Results
Low Channel - 2405 MHz				
	30 MHz - 12.5 GHz	< -40 dBc	≤ -20 dBc	PASS
	12.49 GHz - 25 GHz	< -40 dBc	≤ -20 dBc	PASS
Mid Channel - 2441 MHz				
	30 MHz - 12.5 GHz	< -40 dBc	≤ -20 dBc	PASS
	12.49 GHz - 25 GHz	< -40 dBc	≤ -20 dBc	PASS
High Channel - 2477 MHz				
	30 MHz - 12.5 GHz	< -40 dBc	≤ -20 dBc	PASS
	12.49 GHz - 25 GHz	< -40 dBc	≤ -20 dBc	PASS

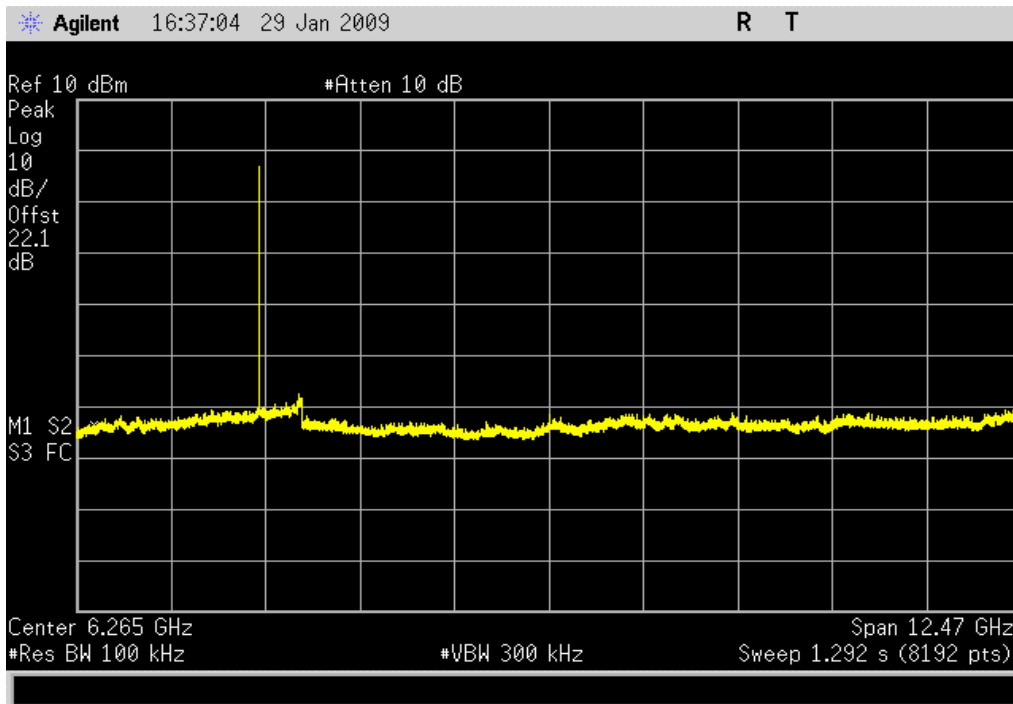
Low Channel - 2405 MHz, 30 MHz - 12.5 GHz  
**Result:** PASS      **Value:** < -40 dBc      **Limit:** ≤ -20 dBc



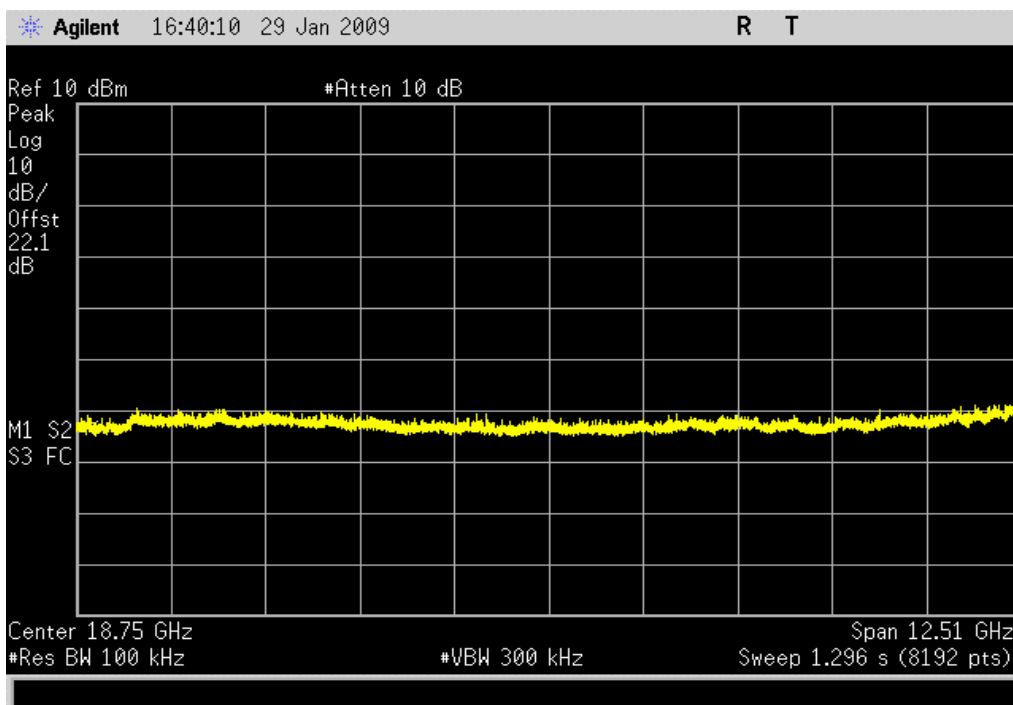
Low Channel - 2405 MHz, 12.49 GHz - 25 GHz  
**Result:** PASS      **Value:** < -40 dBc      **Limit:** ≤ -20 dBc



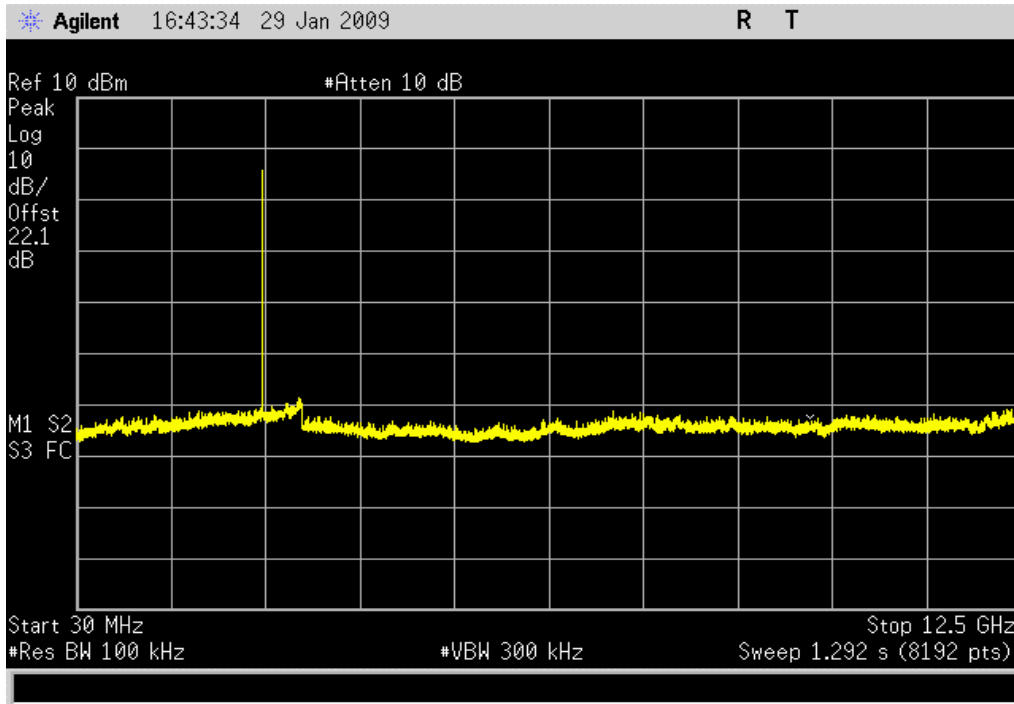
Mid Channel - 2441 MHz, 30 MHz - 12.5 GHz  
**Result:** PASS      **Value:** < -40 dBc      **Limit:** ≤ -20 dBc



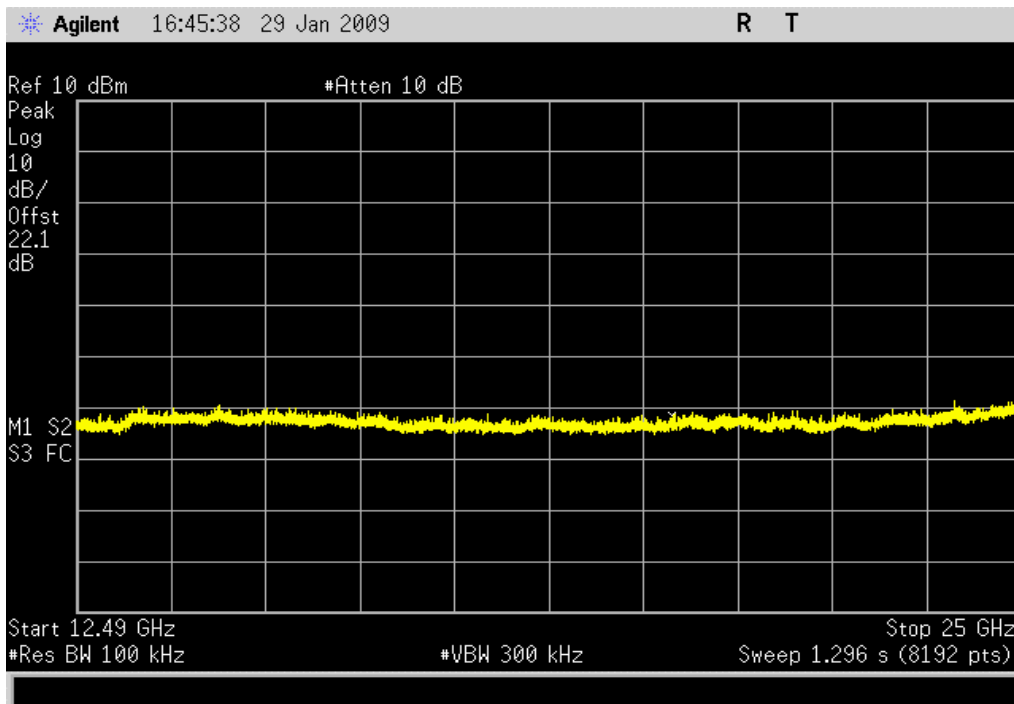
Mid Channel - 2441 MHz, 12.49 GHz - 25 GHz  
**Result:** PASS      **Value:** < -40 dBc      **Limit:** ≤ -20 dBc



High Channel - 2477 MHz, 30 MHz - 12.5 GHz  
**Result:** PASS      **Value:** < -40 dBc      **Limit:** ≤ -20 dBc



High Channel - 2477 MHz, 12.49 GHz - 25 GHz  
**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	NXA Com	2082-6148-20 DC-18 GHz	AUG	5/19/2008	13
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13
Power Sensor	Gigatronics	80701A	SPL	12/10/2008	13
Power Meter	Gigatronics	8651A	SPM	12/10/2008	13

#### 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 for each modulation type available. Per the procedure outlined in FCC KDB 558074, March 23, 2005, 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."*

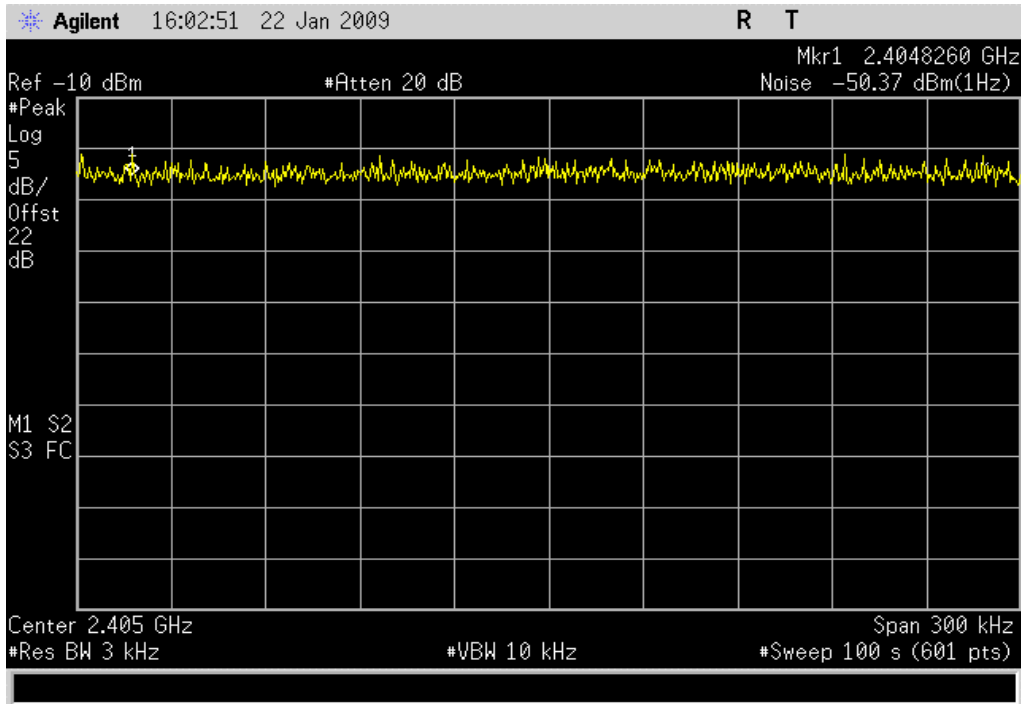
## Power Spectral Density

EMC

EUT:	Headset - Audio 995H		Work Order:	PLNT0002	
Serial Number:	#2		Date:	01/22/09	
Customer:	Plantronics		Temperature:	22°C	
Attendees:	Phil Johnson		Humidity:	24%	
Project:	None		Barometric Pres.:	30.10 Inches	
Tested by:	Greg Kiemel	Power:	Battery	Job Site:	EV06
TEST SPECIFICATIONS			Test Method		
FCC 15.247 (DTS):2009		ANSI C63.4:2003 KDB No. 558074			
<b>COMMENTS</b>					
Output power taken on 'Diversity Select Low' port					
<b>DEVIATIONS FROM TEST STANDARD</b>					
No Deviations					
Configuration #	1	Signature 			
		Value	Limit	Results	
Low Channel - 2405 MHz		-15.37 dBm / 3 kHz	8 dBm / 3 kHz	PASS	
Mid Channel - 2441 MHz		-15.26 dBm / 3 kHz	8 dBm / 3 kHz	PASS	
High Channel - 2477 MHz		-14.96 dBm / 3 kHz	8 dBm / 3 kHz	PASS	

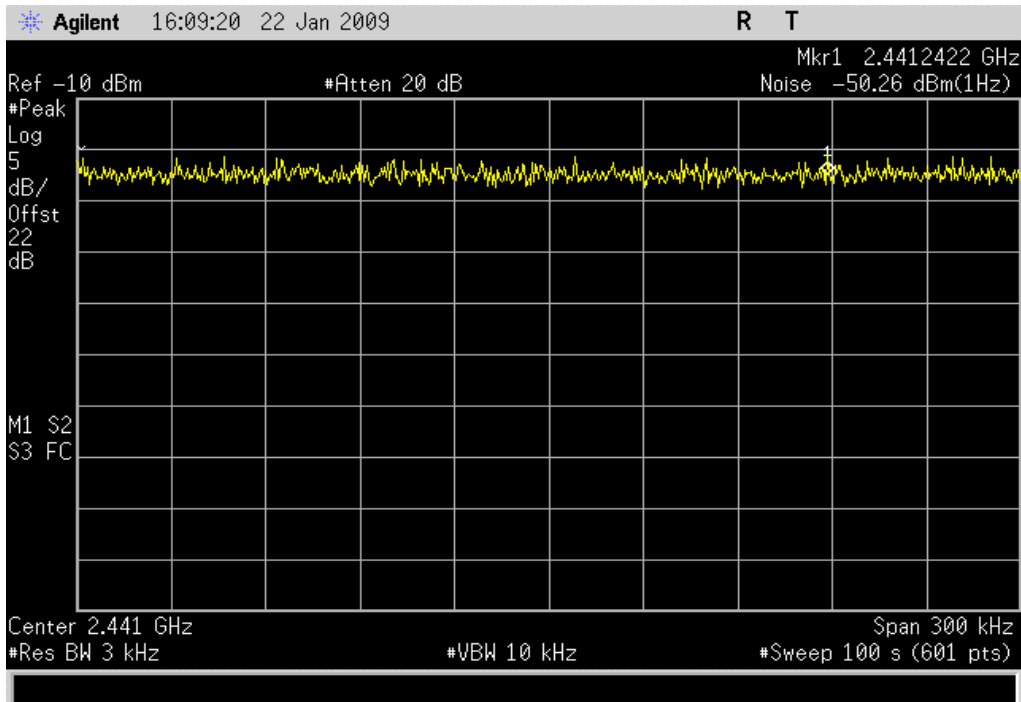
**Low Channel - 2405 MHz**

**Result:** PASS                      **Value:** -15.37 dBm / 3 kHz                      **Limit:** 8 dBm / 3 kHz



**Mid Channel - 2441 MHz**

**Result:** PASS                      **Value:** -15.26 dBm / 3 kHz                      **Limit:** 8 dBm / 3 kHz





# Power Spectral Density

High Channel - 2477 MHz

**Result:** PASS

**Value:** -14.96 dBm / 3 kHz

**Limit:** 8 dBm / 3 kHz

