

MEASUREMENT AND TECHNICAL REPORT

PLANTRONICS
345 Encinal Street
Santa Cruz, CA 95060

DATE: 11 May 2005

This Report Concerns:	Original Grant: <input checked="" type="checkbox"/>	Class II Change: <input type="checkbox"/>
Equipment Type:	Explorer Wireless Bluetooth Headset, Model 320	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?	Yes: <input type="checkbox"/> Defer until: <input type="text"/>	No: <input checked="" type="checkbox"/>
Company Name agrees to notify the Commission by:	<input type="text" value="N/A"/>	
of the intended date of announcement of the product so that the grant can be issued on that date.		
Transition Rules Request per 15.37?	Yes: <input type="checkbox"/>	No: <input checked="" type="checkbox"/>
(*) FCC Part 15, Paragraph(s) 15.109(a), 15.209(a), 15.247(a), 15.247(b), and 15.247(c); RSS210		
Report Prepared by:	TÜV AMERICA, INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 Fax: 858 546 0364	

TABLE OF CONTENTS

	Pages
1.0 GENERAL INFORMATION	<u>3 - 4</u>
1.1 Product Description	<u>3</u>
1.2 Related Submittal Grant	<u>3</u>
1.3 Tested System Details	<u>3</u>
1.4 Test Methodology	<u>3</u>
1.5 Test Facility	<u>4</u>
2.0 SYSTEM TEST CONFIGURATION	<u>5</u>
2.1 Justification	<u>5</u>
2.2 EUT Exercise Software	<u>5</u>
2.3 Special Accessories	<u>5</u>
2.4 Equipment Modifications	<u>5</u>
2.5 Configuration of Test System	<u>5</u>
3.0 CHANNEL SEPARATION EQUIPMENT/DATA	
NUMBER OF HOPPING FREQUENCIES EQUIPMENT/DATA	
TIME OF OCCUPANCY EQUIPMENT/DATA	
BANDWIDTH EQUIPMENT/DATA	
PEAK OUTPUT POWER EQUIPMENT/DATA	
BAND EDGE EQUIPMENT/DATA	
CONDUCTED SPURIOUS EQUIPMENT/DATA	
RADIATED SPURIOUS EQUIPMENT/DATA	
CONDUCTED EMISSIONS EQUIPMENT/DATA	<u>6-51</u>
4.0 ATTESTATION STATEMENT	<u>52</u>

1.0 GENERAL INFORMATION

1.1 Product Description

None

1.2 Related Submittal Grant

None

1.3 Tested System Details

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system are:

None

1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the following tests.

Test Summary					
Test Description	Paragraph Number	Summary of Results			Pass/Fail
		Low Channel	Mid Channel	High Channel	
Bandwidth	15.247(a)	750 kHz	870 kHz	710 kHz	Pass
Channel Separation	15.247(a)	--	983 kHz	--	Pass
Time of Occupancy	15.247(a)	--	0.139343 Sec	--	Pass
Number of Hopping Channels	15.247(a)	--	79	--	Pass
Peak Output Power	15.247(b)	0.001726 W 2.37 dBm	0.00178 W 2.51 dBm	0.00188 W 2.74 dBm	Pass
Band Edge	15.247(c)	No emissions detected	No emissions detected	No emissions detected	Pass
RF Conducted Spurious	15.247(c)	>20 dBc	>20 dBc	>20 dBc	Pass
Radiated Spurious Emissions – Restricted Bands (1GHz to 25GHz) (peak)	15.247(c) 15.209(a)	62.61 dB μ V/m @ 4804 MHz	53.55 dB μ V/m @ 4882 MHz	50.58 dB μ V/m @ 4960 MHz	Pass
Receiver Spurious Emissions (peak)	15.109(a)	43.55 dB μ V/m @ 2316.25 MHz	42.03 dB μ V/m @ 2354.85 MHz	43.1 dB μ V/m @ 2391.75 MHz	Pass

Testing was performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8-M1983. ;

1.5 Test Facility

The open area test site and conducted measurement data were tested by:

TÜV AMERICA, INC
10040 Mesa Rim Road
San Diego, CA 92121-2912
Phone: 858 678 1400
Fax: 858 546 0364

The Test Site Data and performance comply with ANSI C63.4 and are registered with the FCC, 7435 Oakland Mills Road, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.

2.0 SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was initially tested for FCC emissions in the following configuration:

See Test Setup Photos Exhibit

2.2 EUT Exercise Software

None

2.3 Special Accessories

None

2.4 Equipment Modifications

None

2.5 Configuration of Test System

See Test Setup Photos Exhibit

**3.0 CHANNEL SEPARATION EQUIPMENT/DATA
 NUMBER OF HOPPING FREQUENCIES EQUIPMENT/DATA
 TIME OF OCCUPANCY EQUIPMENT/DATA
 BANDWIDTH EQUIPMENT/DATA
 PEAK OUTPUT POWER EQUIPMENT/DATA
 BAND EDGE EQUIPMENT/DATA
 CONDUCTED SPURIOUS EQUIPMENT/DATA
 RADIATED SPURIOUS EQUIPMENT/DATA**

**Test Conditions: CHANNEL SEPARATION EQUIPMENT/DATA: FCC Part 15.247(a)
 NUMBER OF HOPPING FREQUENCIES EQUIPMENT/DATA: FCC Part 15.247(a)
 TIME OF OCCUPANCY EQUIPMENT/DATA: FCC Part 15.247(a)
 BANDWIDTH EQUIPMENT/DATA: FCC Part 15.247(a)
 PEAK OUTPUT POWER EQUIPMENT/DATA: FCC Part 15.247(b)
 BAND EDGE EQUIPMENT/DATA: FCC Part 15.247(c)
 CONDUCTED SPURIOUS EQUIPMENT/DATA: FCC Part 15.247(c)
 RADIATED SPURIOUS EQUIPMENT/DATA: FCC Parts 15.109(a), 15.209(a), 15.247(c)
 CONDUCTED EMISSIONS DATA: EN 55022, Class B**

The following measurements were performed at the San Diego Testing Facility:

- Test not applicable

- - SR 3, Shielded Room, 12' x 20' x 8', Metal Chamber
- - SR-5, Shielded Room, 16' x 28' x 15', Metal, Semi-Anechoic Chamber
- - Roof (Small Open Area Test Site)

Test Equipment Used:

Model No.	Prop. No.	Description	Manufacturer	Serial No.	Date Cal'ed
E4446A	6823	Spectrum Analyzer	Agilent	US44300486	04/05
8566B	6488	Spectrum Analyzer	Hewlett Packard	2618A02913	02/05
AMF-5D-010180-35-10P	719	Preamplifier	Miteq	549460	VBU*
T30RC	6225	Environmental Chamber	Tenney Environmental	27244-02	05/05
FF6549-2	781	High Pass Filter	Sage	006	VBU*
FF6549-2	782	High Pass Filter	Sage	007	VBU*
3110B	491	Biconical Antenna	EMCO	9508-2134	VBU*
3115	251	Double Ridge Guide Antenna	EMCO	2495	VBU*
E3612A	6456	DC Power Supply	Hewlett Packard	KR83006892	VBU*
8900D	6794	Digital Peak Power Meter	Hewlett Packard	3607U00653	08/04
84811A	6793	Peak Power Sensor	Hewlett Packard	3318A05185	08/04
ESHS20	6528	EMI Testing Receiver	Rohde & Schwarz	837055/001	03/05
FCC-LISN-50-25-2	552	LISN	Fischer Custom Comm	--	VBU*
CAT-20	615	20 dB Attenuator	Mini-Circuits	--	VBU*

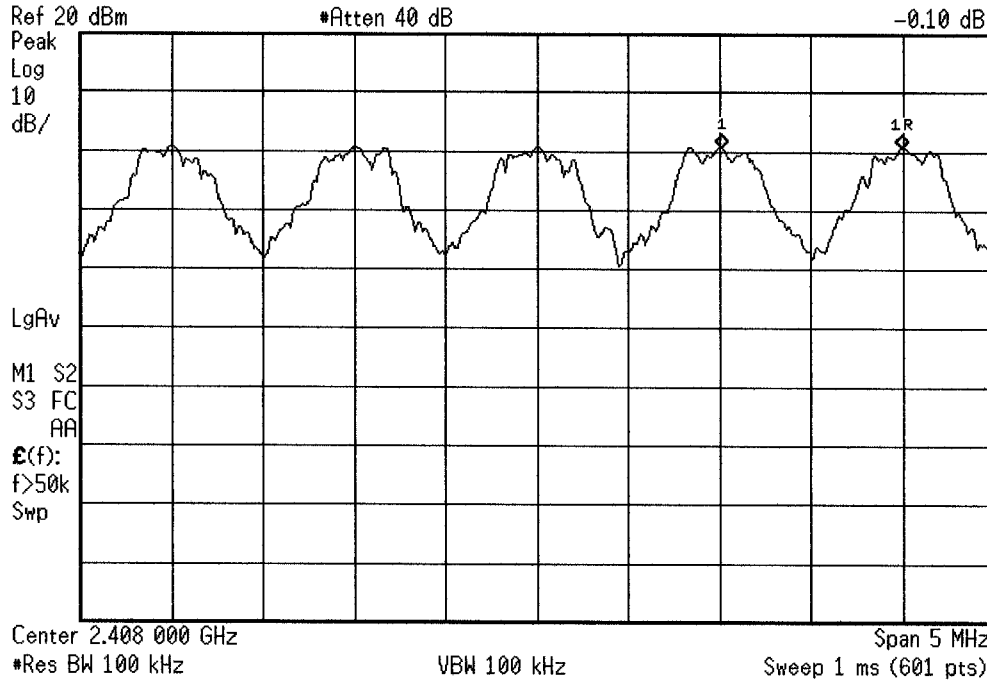
Remarks: One year calibration cycle for all test equipment and sites. (*) Verified Before Use.

FCC Part 15.247(a) - Channel Separation

* Agilent 16:35:51

SC501933

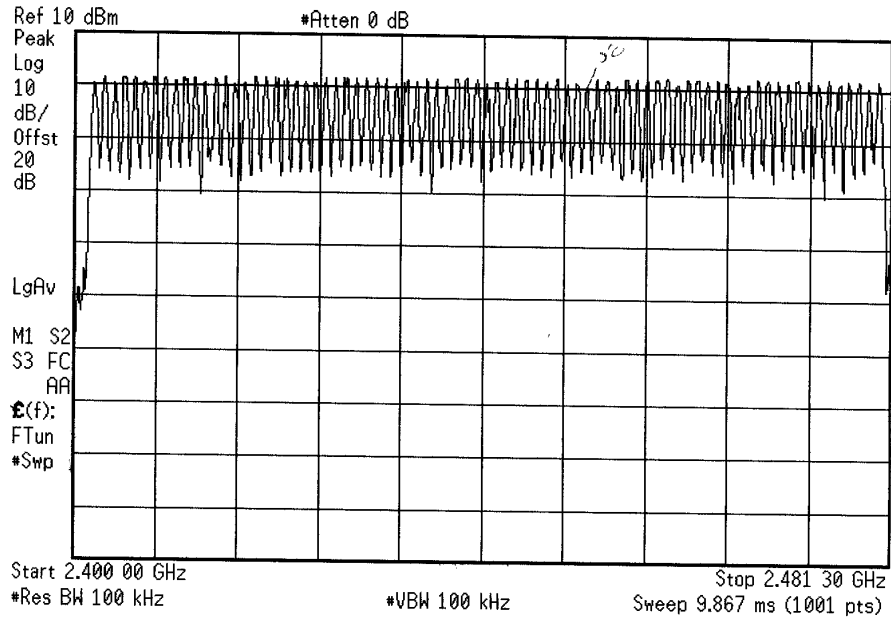
▲ Mkr1 -983 kHz
-0.10 dB



FCC Part 15.247(a) - Number of Hopping Frequencies

* Agilent 20:33:54

SC501933



79 Hops

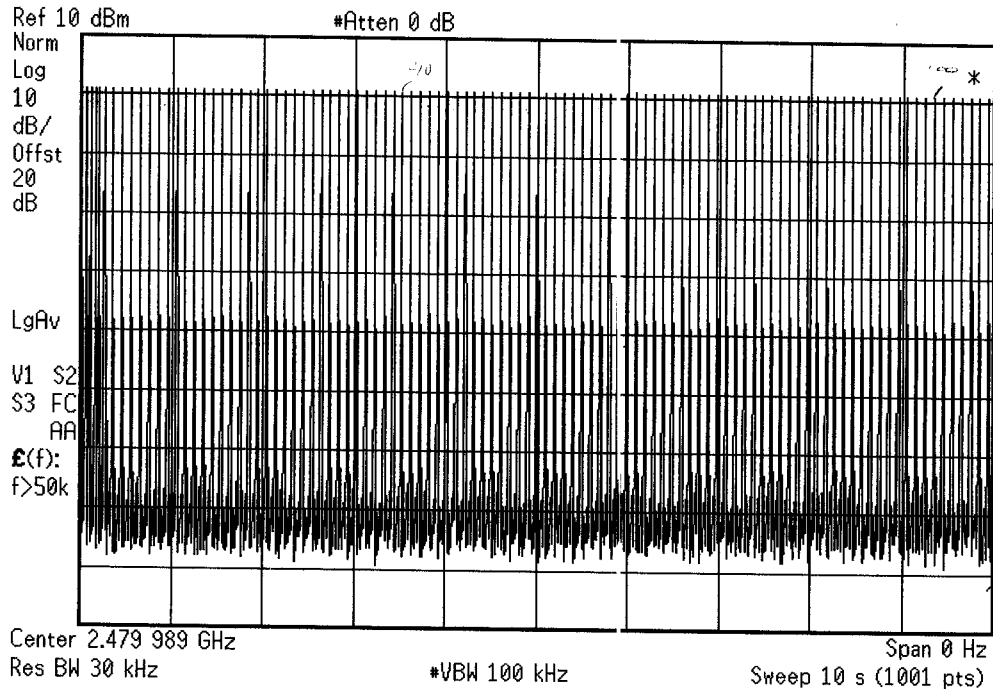
.123%

RBW used was $\geq 1\%$ span.
 Evaluation using different
 bandwidth/span combinations were
 evaluated with same results.
 Representation of plot is accurate.
 Lower bandwidth used to provide full
 range and defined representation.

FCC Part 15.247(a) - Time of Occupancy

* Agilent 20:57:42

SC501933



Compliance determined by extrapolation of worst-case.
15.247(a)(1)(iii)
= 106

A = 106 Counts
B = 416 μS pulse width
A X B = 0.044 Sec

Therefore: 20 sec = 0.0882 sec
30 sec = 0.1323 sec
79 hopping channels
79 x 0.4 sec = 31.6 sec
31.6 sec = 0.139343 sec

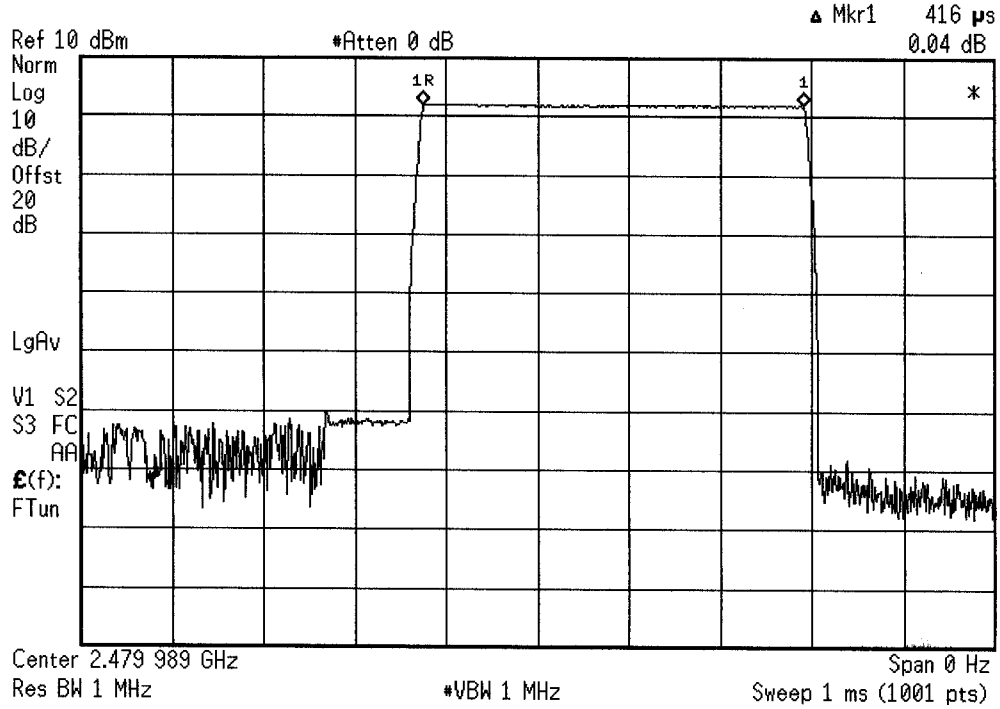
Limit = 0.4 sec @ 30 sec

Lower bandwidth setting used in order to count number of occurrences of activities in channel for measurement.

FCC Part 15.247(a) - Time of Occupancy

Agilent 20:40:49

SC501933



SC 501933

FCC Part 15.247(a) - Bandwidth Channel 2 (Mid)

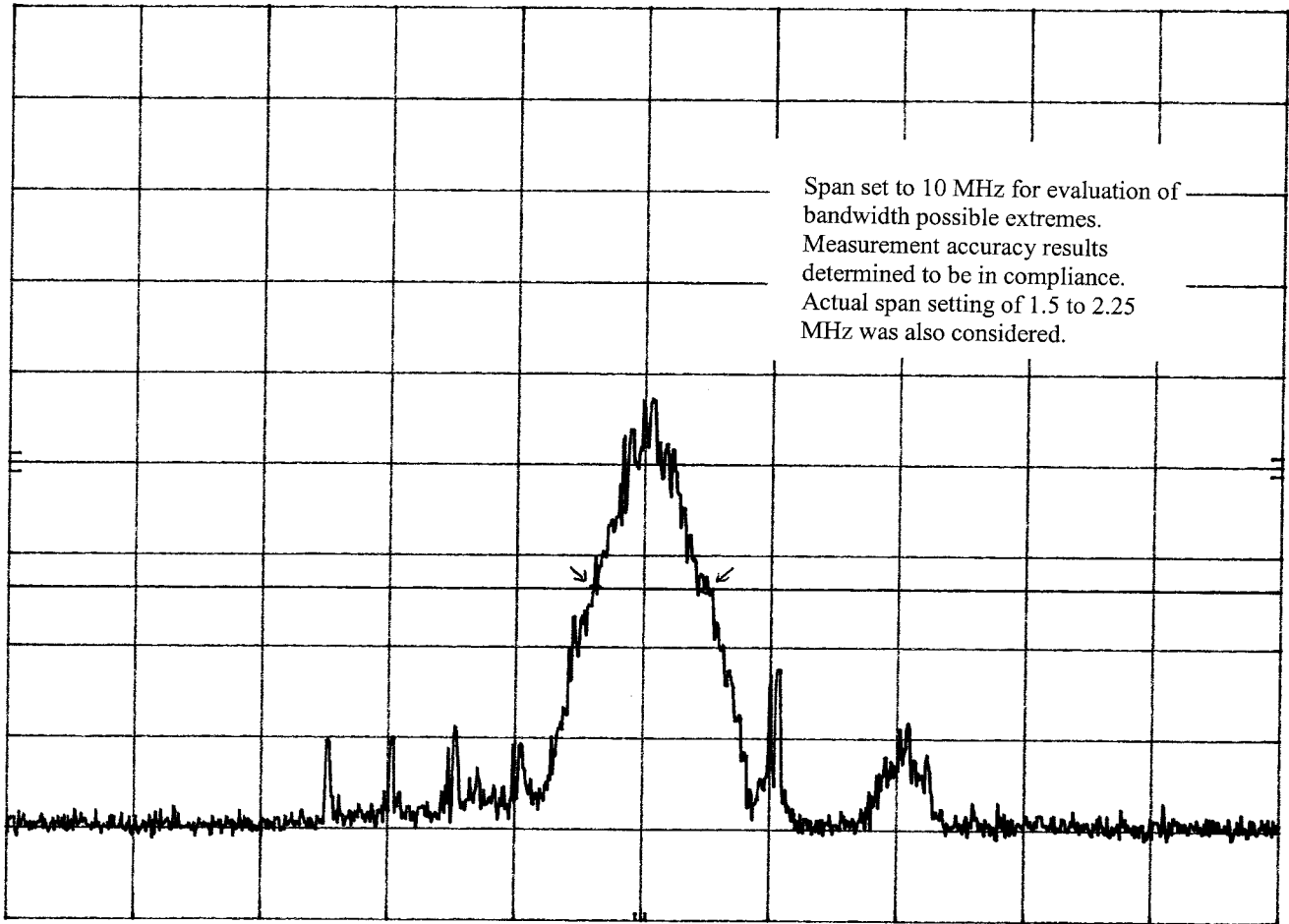
MKR Δ 870 kHz
-0.30 dB

HP REF 137.0 dB μ V ATTEN 40 dB

10 dB/
POS PK

DL
73.3
dB μ V

Span set to 10 MHz for evaluation of
bandwidth possible extremes.
Measurement accuracy results
determined to be in compliance.
Actual span setting of 1.5 to 2.25
MHz was also considered.



CENTER 2.441 0 GHz RES BW 10 KHz (i) VBW 100 KHz SWP 750 msec SPAN 10.0 MHz

Chan 2 (Mid) Mod



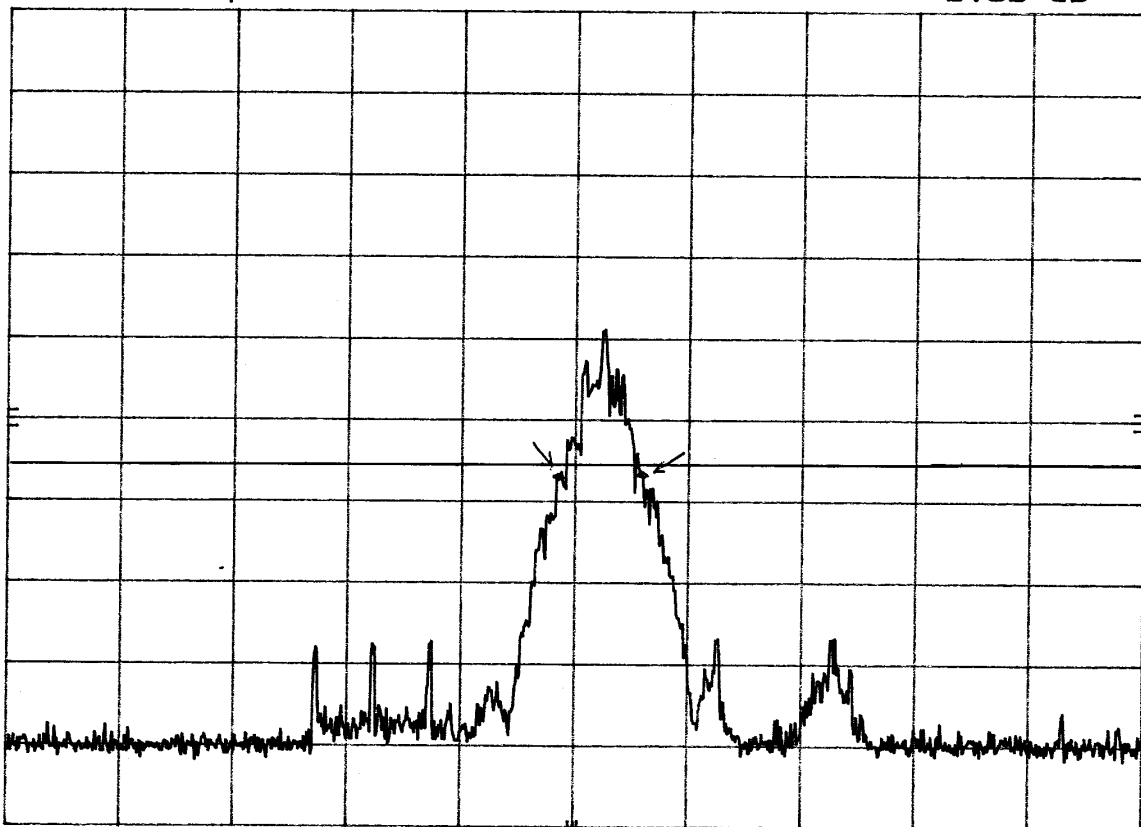
SC501933

MKR Δ 750 kHz
0.30 dB

FCC Part 15.247(a) - Bandwidth Channel 1 (Low)

hp REF 117.0 dB μ V ATTEN 20 dB

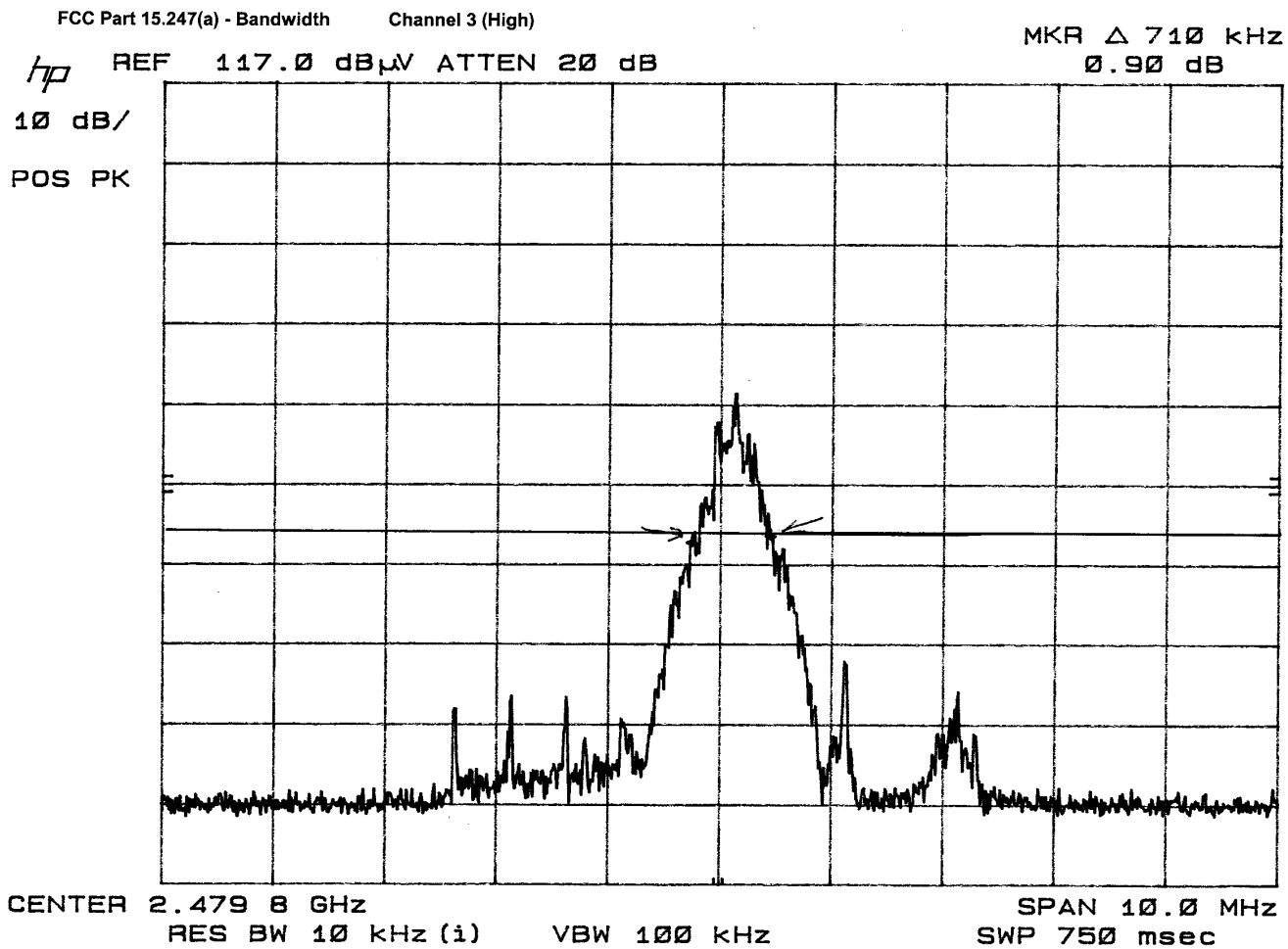
10 dB/
POS PK



CENTER 2.4018 GHz SPAN 10.0 MHz
RES BW 10 kHz (i) VBW 100 kHz SWP 750 msec

chan 1 (low) Mod

SC501933



channel 3 (High) Mod

FCC Part 15.247(b) - Peak Output Power

SC501933

Plantronics

Explorer Wireless Bluetooth Headset, Model 320

Channel 1 1.726 mW = 2.37 dBm

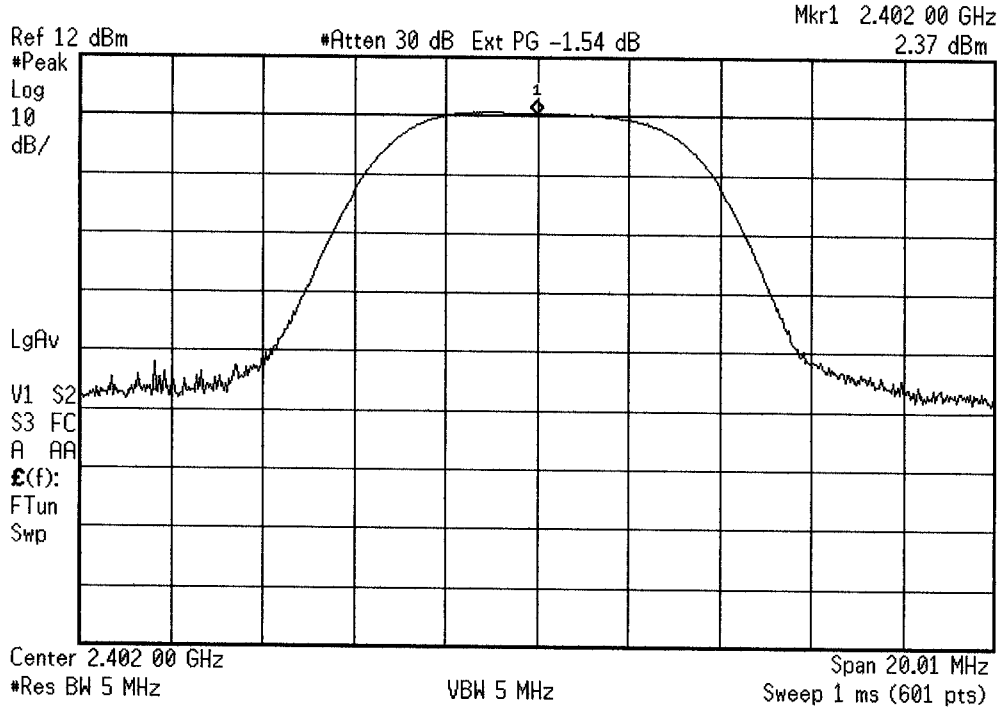
Channel 2 1.782 mW = 2.51 dBm

Channel 3 1.879 mW = 2.74 dBm

FCC PART 15.247(b) - PEAK OUTPUT POWER

SC501933

* Agilent 18:47:43 May 12, 2005

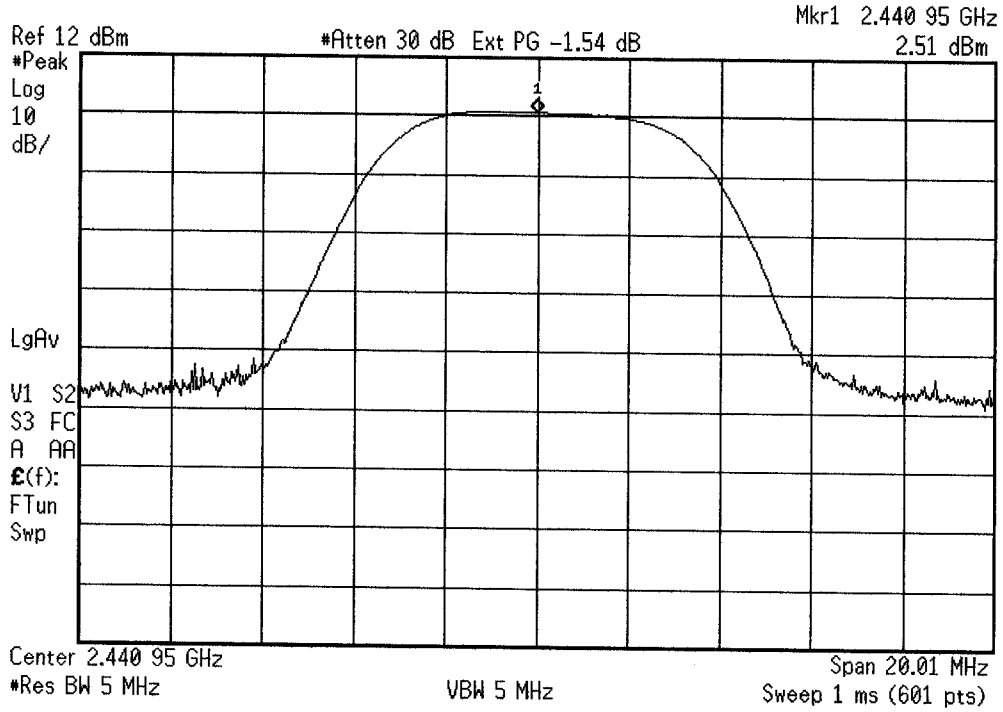


no chca

FCC PART 15.247(b) - PEAK OUTPUT POWER

SC501933

* Agilent 17:42:37 May 12, 2005

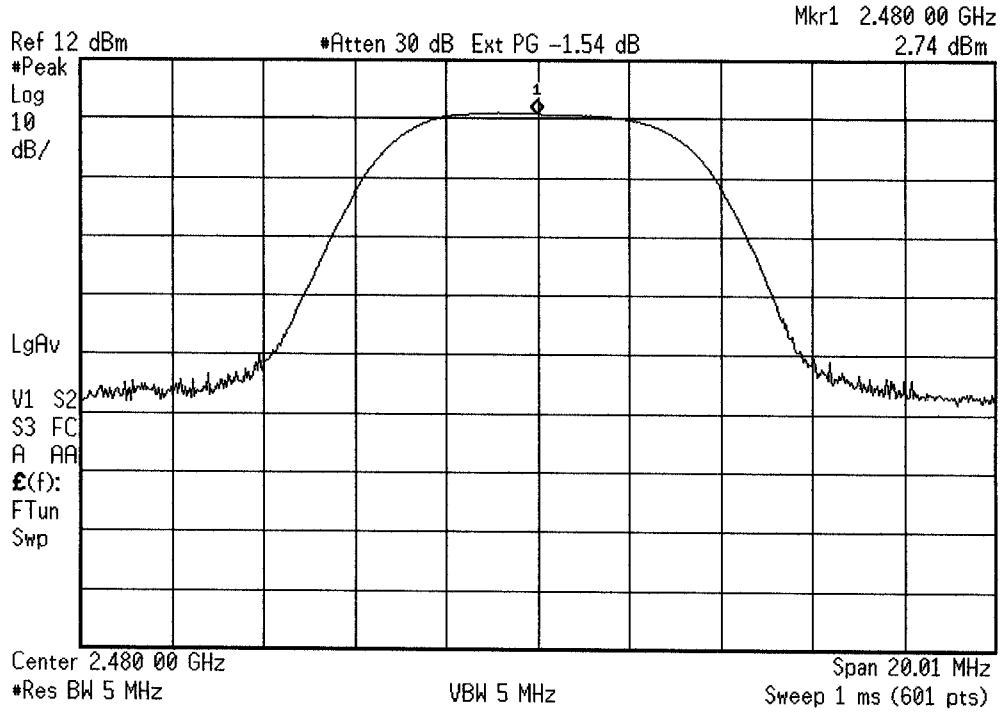


Mid Chan

FCC PART 15.247 (b) - PEAK OUTPUT POWER

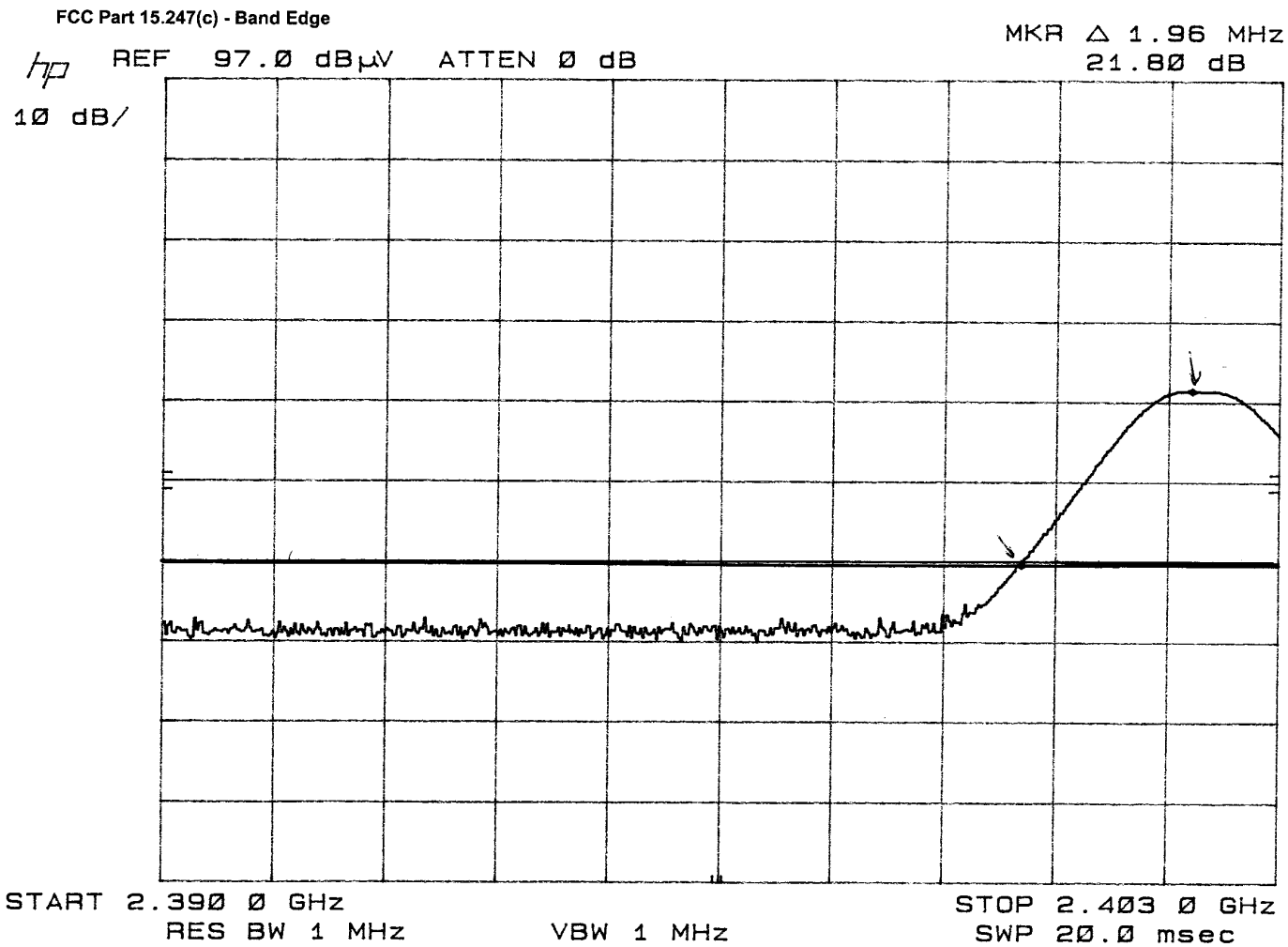
SC501933

* Agilent 18:50:06 May 12, 2005



hi chow

SC501933



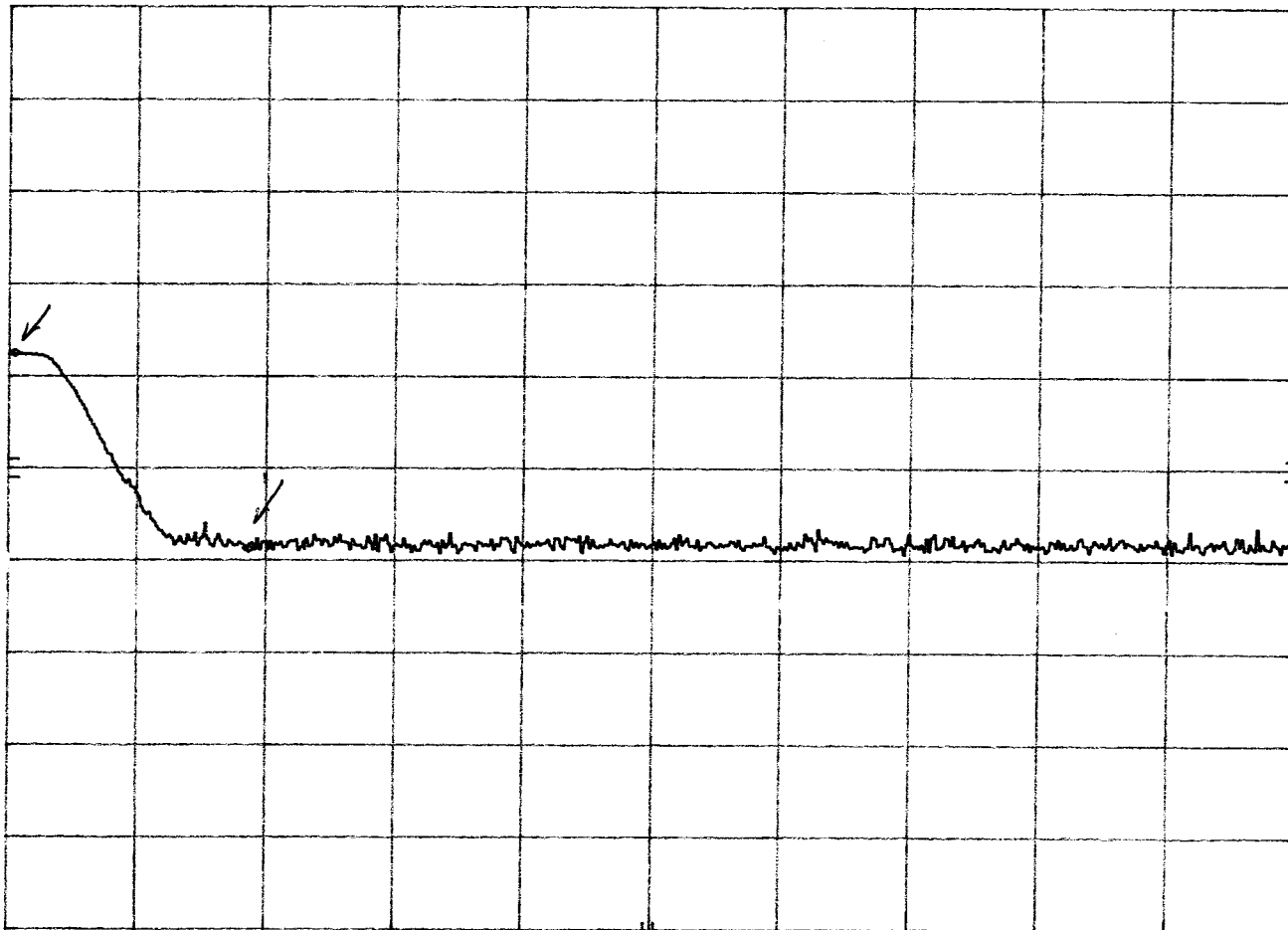
Chom 1 (Mod)

SC501933

FCC Part 15.247(c) Band Edge BAND EDGE OF 2dB TO BE ADDED

MKR Δ 3.69 MHz
-21.30 dB

hp REF 97.0 dB μ V ATTEN 10 dB
10 dB/



START 2.479 7 GHz

RES BW 1 MHz

VBW 1 MHz

STOP 2.500 0 GHz

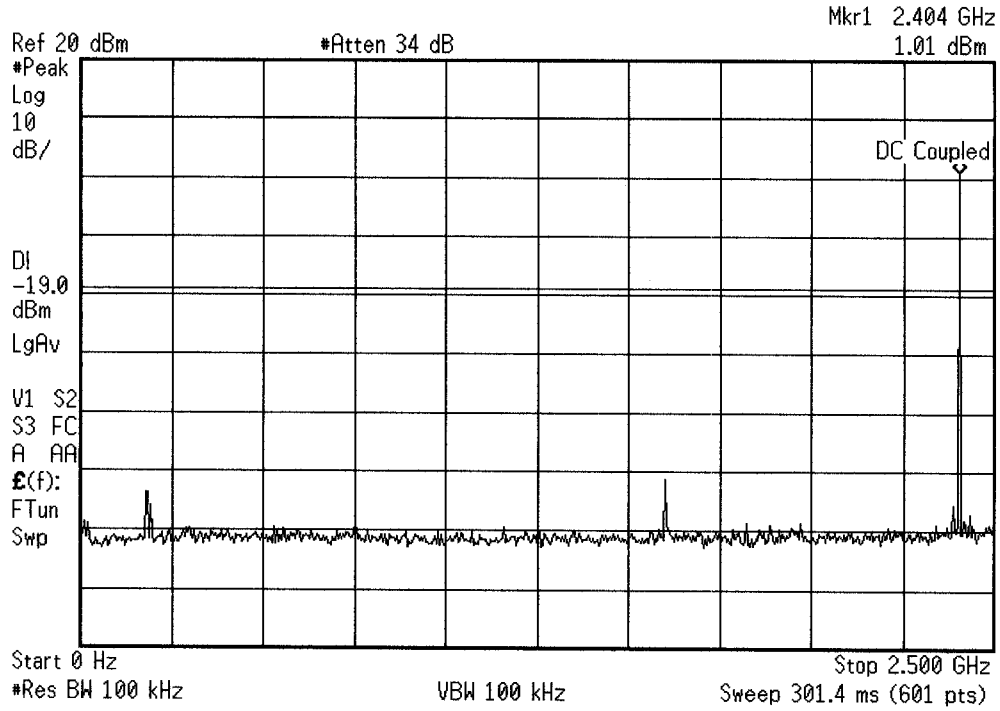
SWP 20.0 msec

check 3 mod

FCC Part 15.247(c) - Conducted Spurious Channel 1

SC 501933

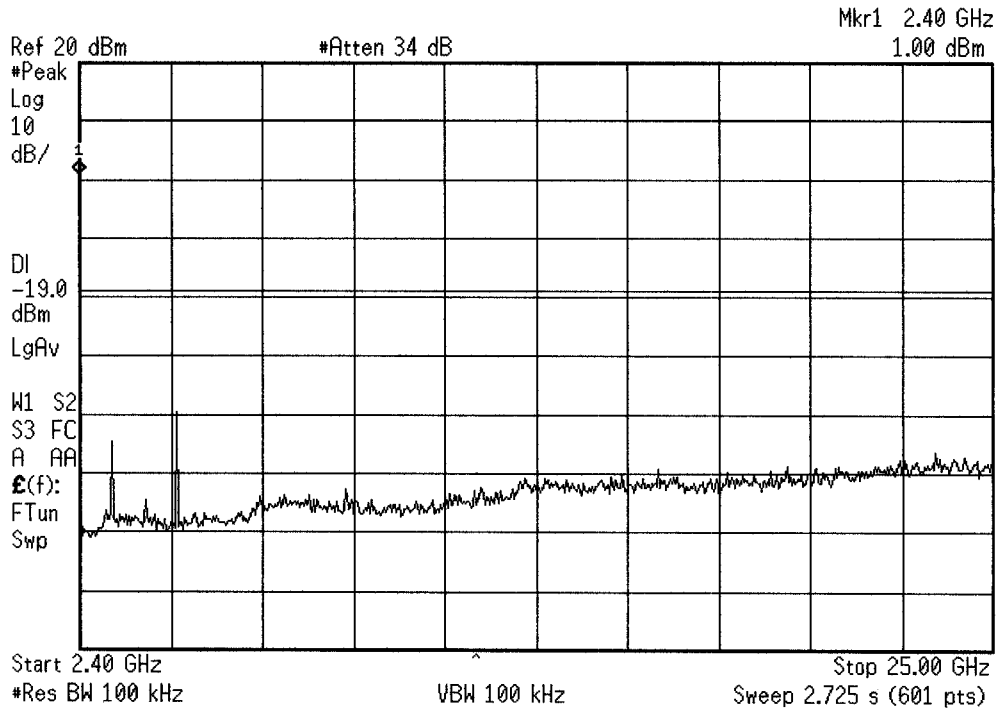
* Agilent 15:36:30



FCC Part 15.247(c) - Conducted Spurious Channel 1

SC501933

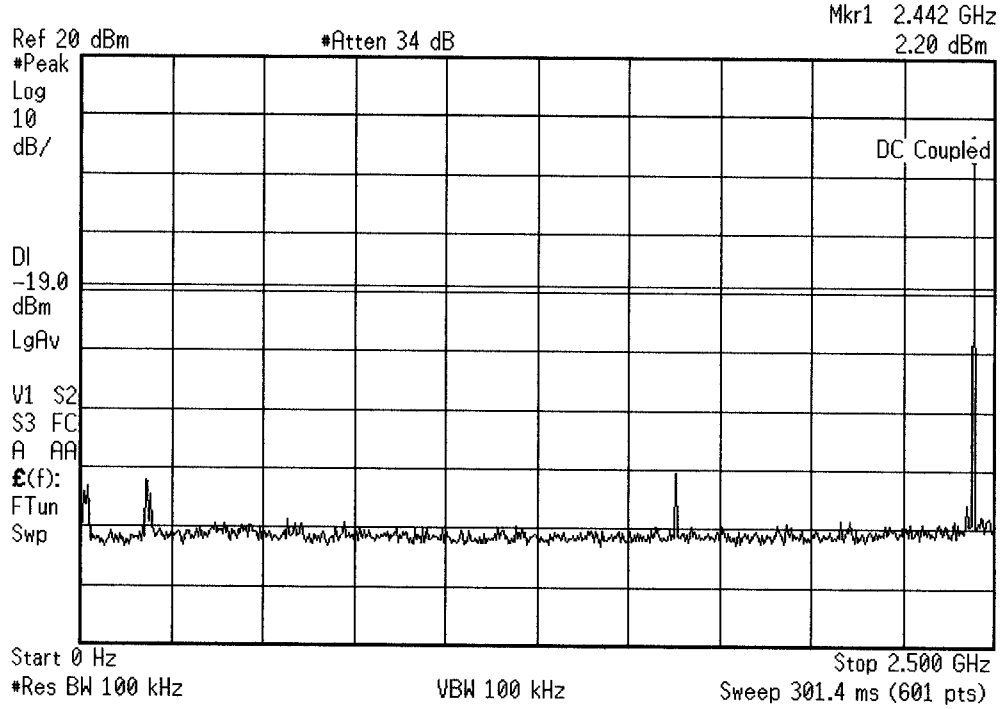
* Agilent 15:31:46



FCC Part 15.247(c) - Conducted Spurious Channel 2

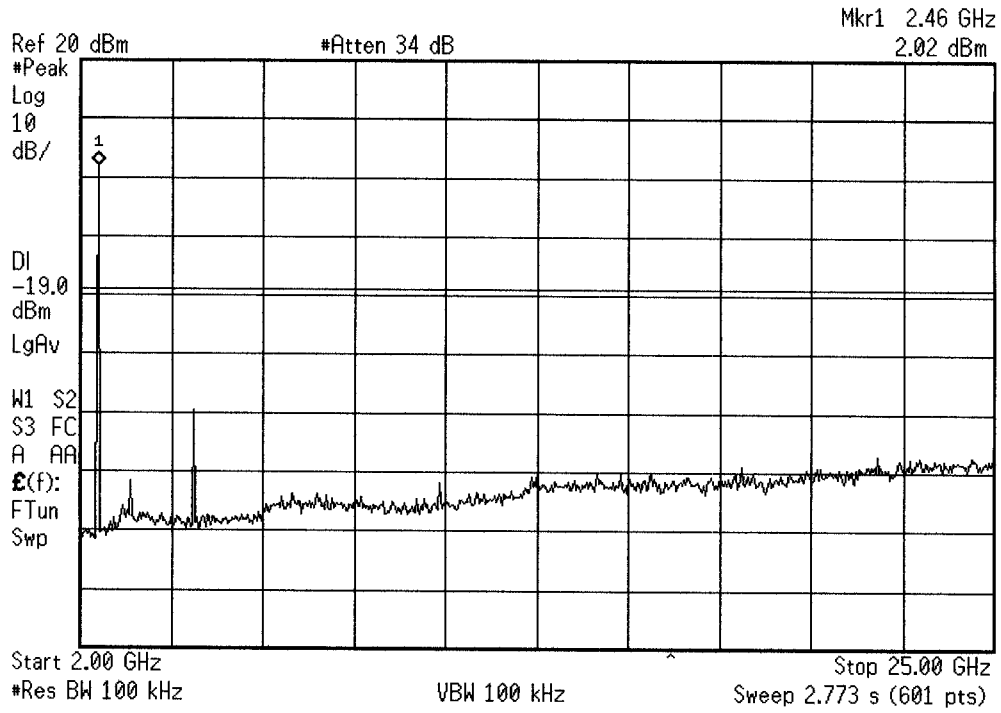
SC501933

* Agilent 15:57:55



FCC Part 15.247(c) - Conducted Spurious Channel 2

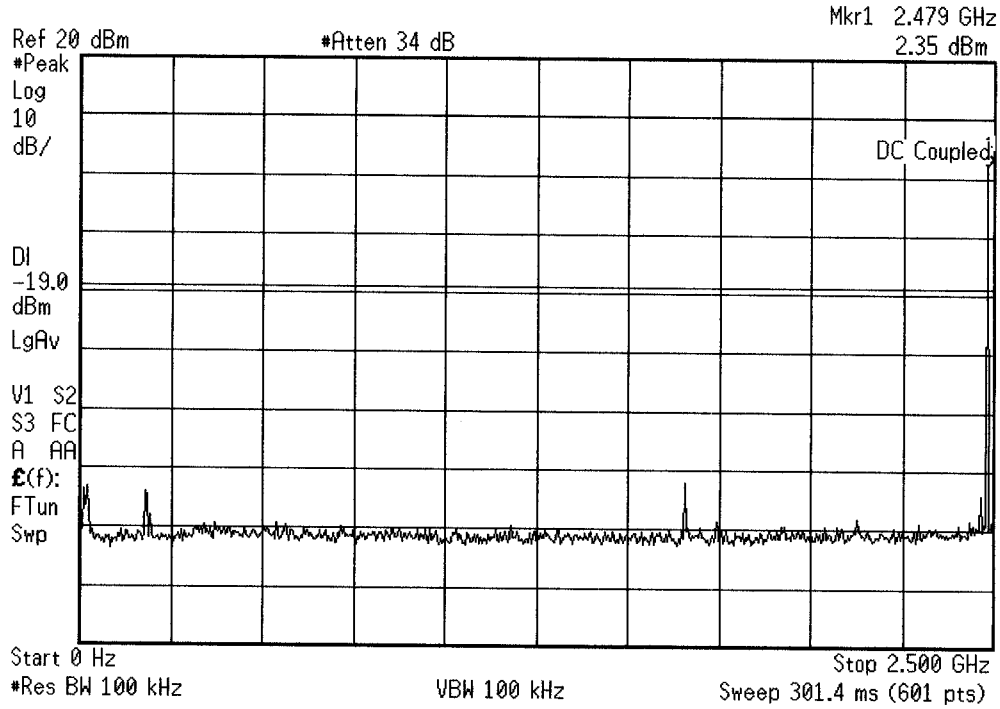
Agilent 16:02:43



FCC Part 15.247(c) - Conducted Spurious Channel 3

SC501933

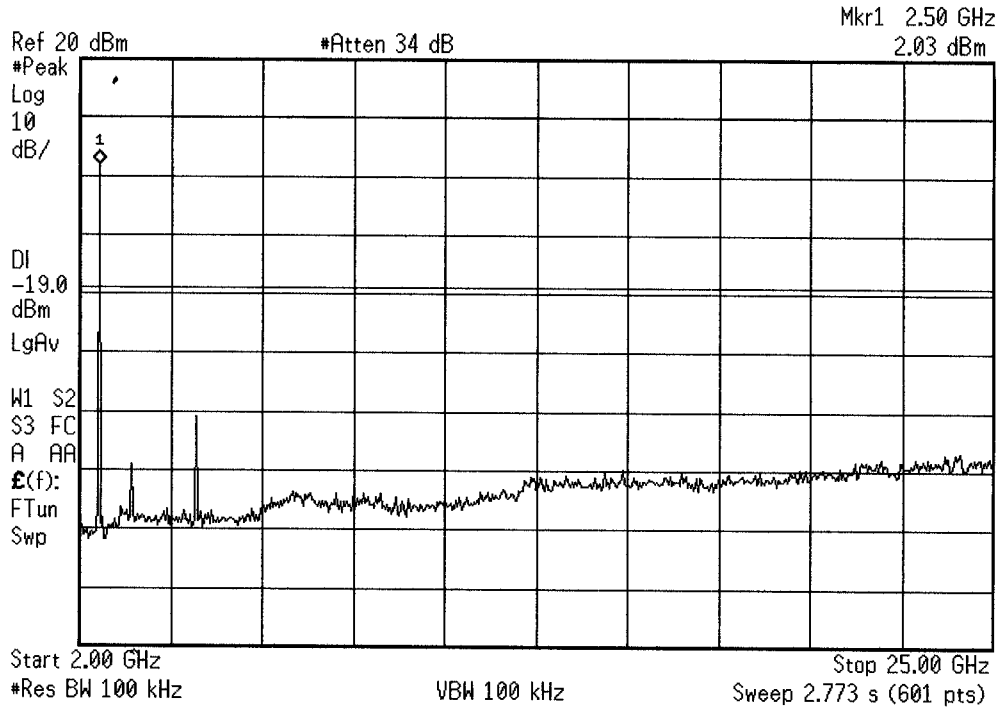
* Agilent 16:00:35



FCC Part 15.247(c) - Conducted Spurious Channel 3

SC501933

* Agilent 16:01:43



Bandedge at 2483.5 MHz evaluated. No recordable emissions found.



REPORT No: sc501933 TESTER: Frank Harkins SPEC: FCC Part 15 para 15.209(a)

CUSTOMER: Plantronics TEST DIST: 3 Meters

E U T: fixed headset #59 TEST SITE: Roof

EUT MODE: transmit BICONICAL: 451

DATE: April 27, 2005 LOG: 244

NOTES: **No detectable emissions from 30MHz to 2400MHz** OTHER: 251
 above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG
 below 1GHz: RBW & VBW 100 kHz for Pk; RBW 100kHz and VBW 10Hz for AVG
 CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

FREQ (MHz)	VERTICAL (dBuv)		HORIZONTAL (dBuv)		CF (dB/m)	MAX LEVEL (dBuV/m)		SPEC LIMIT (dBuV/m)		MARGIN (dB)		EUT Rotation	Antenna Height	Notes
	pk	av	pk	av		pk	av	pk	av	pk	av			
2402	58.3	57.4	47.1	43.9	35.3688	93.67	92.8					350	1.5	fundamental
4804	53.6	50.1	63	52.2	-0.388	62.61	51.8	74	54	-11.4	-2.19	350	1.5	
7206	41.6	31.3	41.3	31.3	7.6356	49.24	38.9	74	54	-24.8	-15.1			noise floor
9608	48.1	34.9	44	33.5	9.408	57.51	44.3	74	54	-16.5	-9.69	350	1.5	
12010	41.1	30.9	41.6	31	12.644	54.24	43.6	74	54	-19.8	-10.4			noisr floor
14412	42.9	33.4	43.9	33.5	15.7416	59.64	49.2	74	54	-14.4	-4.76			noise floor
16814	43.2	28	43.8	28	18.428	62.23	46.4	74	54	-11.8	-7.57			noise floor
2441	54.1	53.3	57.4	55.5	35.5404	92.94	91					350	1.5	fundamental
4882	53.7	50	52.1	47.5	-0.154	53.55	49.8	74	54	-20.5	-4.15	350	1.5	
7323	44.4	35.2	45	35.3	7.9398	52.94	43.2	74	54	-21.1	-10.8			noise floor
9764	45.8	35.8	45	35.7	9.564	55.36	45.4	74	54	-18.6	-8.64			noise floor
12205	44.2	34	45.4	34	13.502	58.9	47.5	74	54	-15.1	-6.5			noise floor
14646	38.6	28.3	39.9	28.3	17.0096	56.91	45.3	74	54	-17.1	-8.69			noise floor
2480	44.1	38.4	55	53.6	35.712	90.71	89.3					350	1.5	fundamental
4960	48.1	42.7	50.5	47.1	0.08	50.58	47.2	74	54	-23.4	-6.82	350	1.5	
7440	47.3	35.4	45.3	35.5	8.244	55.54	43.7	74	54	-18.5	-10.3			noise floor
9920	45.4	35.3	46.1	35.3	9.72	55.82	45	74	54	-18.2	-8.98			noise floor
12400	45.2	34.6	44.9	34.5	14.36	59.56	49	74	54	-14.4	-5.04			noise floor
14880	39.8	28.7	39.1	28.1	18.788	58.59	47.5	74	54	-15.4	-6.51			noise floor

REPORT No: SC501933 TESTER: Frank Harkins SPEC: FCC Part 15 para 15.109(a)

CUSTOMER: Plantronics TEST DIST: 3 Meters

E U T: Fixed Headset # 59 TEST SITE: Roof

EUT MODE: RX Chan 1,2,3. BICONICAL: 451

DATE: April 2, 2005 LOG: 244

NOTES: **No detected emissions from 30 to 2300MHz** OTHER: 251
 above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG
 below 1GHz: RBW & VBW 100 kHz for Pk; RBW 100kHz and VBW 10Hz for AVG
 CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

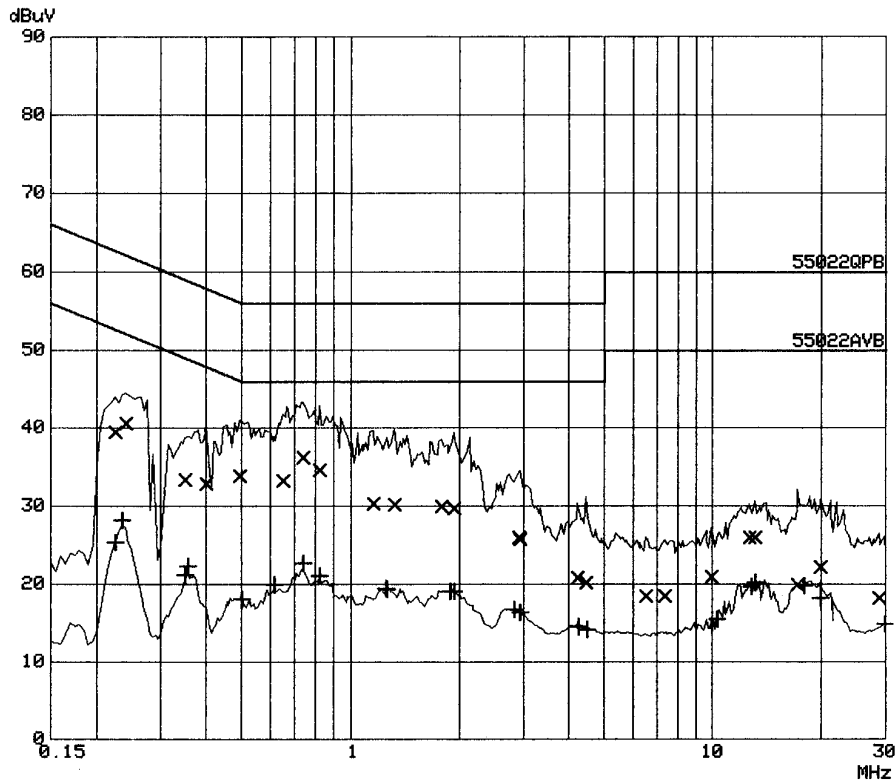
FREQ (MHz)	VERTICAL (dBuv)		HORIZONTAL (dBuv)		CF (dB/m)	MAX LEVEL (dBuV/m)		SPEC LIMIT (dBuV/m)		MARGIN (dB)		EUT Rotation	Antenna Height	Notes
	av	pk	pk	av		pk	av	pk	av	av	pk			
2316.25	48.8	35.3	48	34.3	-5.24525	43.55	30.1	74	54	-30.4	-23.9			Low chan
4632.5	44	33.4	43.4	33.3	-0.729	43.27	32.7	74	54	-30.7	-21.3			noise floor
6948.75	42	30.7	43.3	32.9	7.00525	50.31	39.9	74	54	-23.7	-14.1			noise floor
9265	44.1	32.8	43.1	32.1	10.199	54.3	43	74	54	-19.7	-11			noise floor
11581.25	39.8	29.2	39.7	29.2	13.135	52.94	42.3	74	54	-21.1	-11.7			noise floor
2354.85	47.1	31.3	46.6	32.2	-5.06769	42.03	27.1	74	54	-32	-26.9			mid chan
7064.55	42.6	32.2	42.8	33	7.36783	50.17	40.4	74	54	-23.8	-13.6			noise floor
4709.7	44.4	34	46.4	33.8	-0.51284	45.89	33.5	74	54	-28.1	-20.5			noise floor
9419.4	44.4	33.2	44.2	33.2	9.67404	54.07	42.9	74	54	-19.9	-11.1			noise floor
11774.25	42	31.2	41.8	31.2	12.9806	54.98	44.2	74	54	-19	-9.82			noise floor
2391.75	47.8	33.5	48	33.5	-4.89795	43.1	28.6	74	54	-30.9	-25.4			high chan
4783.5	42.8	33.3	42.9	32.5	-0.3062	42.59	33	74	54	-31.4	-21			noise floor
7175.25	45.1	34	44.4	33	7.65565	52.76	41.7	74	54	-21.2	-12.3			noise floor
9567	45.1	32.8	47	31.9	9.467	56.47	42.3	74	54	-17.5	-11.7			noise floor
11958.75	42.1	31	44.5	29.9	12.833	57.33	43.8	74	54	-16.7	-10.2			noise floor

TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: TRANSMIT Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 115VAC 60Hz Line 1
 SC501933
 Date: 03. May 05 14:14

Scan Settings (1 Range)
 |----- Frequencies -----| |----- Receiver Settings -----|
 Start Stop Step IF BW Detector M-Time Atten Preamp OpRge
 150k 30M 5k 10k PK+AV 20ms AUTO LN OFF 60dB

Transducer No. Start Stop Name
 1 10k 30M 20dB LISN

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 35dB



TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: TRANSMIT Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 115VAC 60Hz Line 1
 SC501933
 Date: 03. May 05 14:14

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.22500	39.5	62.7
0.24000	40.6	62.1
0.35000	33.4	59.0
0.40000	32.9	57.8
0.49500	33.9	56.1
0.65000	33.4	56.0
0.74000	36.3	56.0
0.82000	34.6	56.0
1.15000	30.4	56.0
1.31500	30.2	56.0
1.78000	30.0	56.0
1.92500	29.8	56.0
2.91000	26.0	56.0
2.92500	25.7	56.0
4.22500	20.8	56.0
4.46500	20.2	56.0
6.52000	18.5	60.0
7.35000	18.5	60.0
9.95000	21.0	60.0
12.67500	26.0	60.0
13.15000	26.0	60.0
17.19000	20.0	60.0
19.90500	22.2	60.0
28.79500	18.3	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.22500	25.4	52.7
0.23500	28.2	52.3
0.35000	21.2	49.0
0.35500	22.3	48.8
0.50000	18.1	46.0
0.61500	20.0	46.0
0.74000	22.6	46.0
0.82000	21.0	46.0
1.24500	19.5	46.0
1.25500	19.3	46.0
1.87500	19.1	46.0
1.92500	19.1	46.0
2.82000	16.7	46.0
2.92500	16.4	46.0

Date: 03. May 05 14:14

4.24500	14.5	46.0
4.50000	14.1	46.0
10.31000	15.5	50.0
12.79500	19.8	50.0
13.15000	20.2	50.0
17.88500	19.8	50.0
19.89500	18.2	50.0
29.95000	14.9	50.0

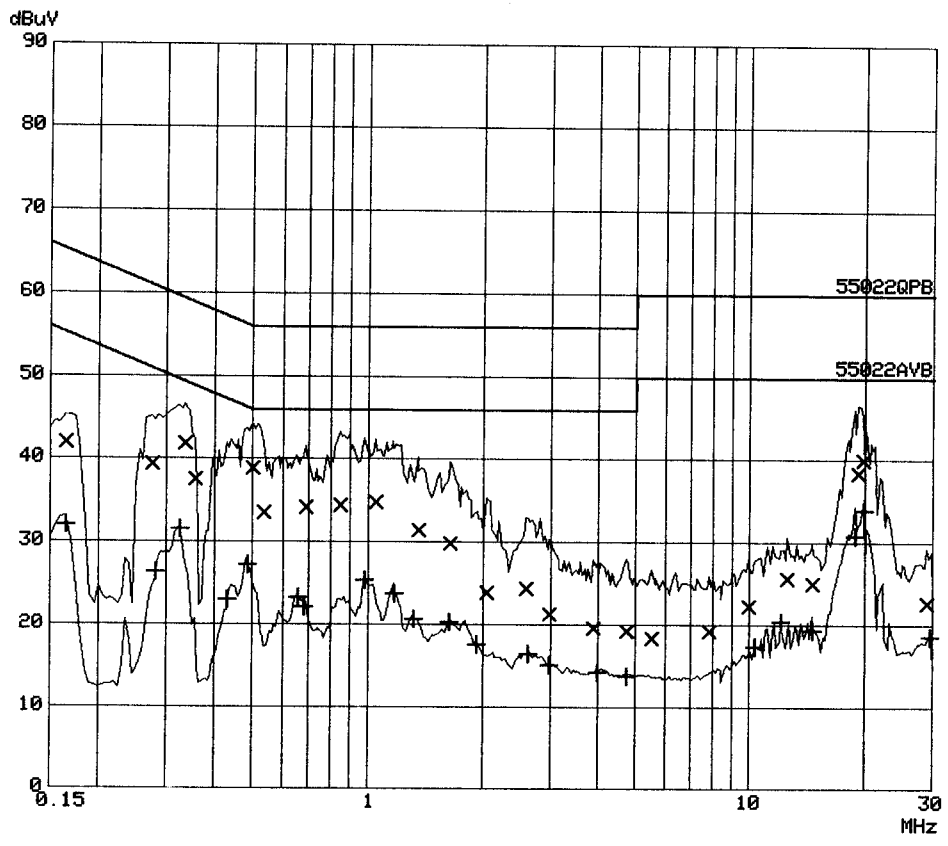
* limit exceeded

TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: TRANSMIT Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 115VAC 60Hz Line 2
 SC501933
 Date: 03. May 05 14:38

Scan Settings (1 Range)
 |----- Frequencies -----| |----- Receiver Settings -----|
 Start Stop Step IF BW Detector M-Time Atten Preamp OpRge
 150k 30M 5k 10k PK+AV 20ms AUTO LN OFF 60dB

Transducer No. Start Stop Name
 1 10k 30M 20dB LISN

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 35dB



TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: TRANSMIT Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 115VAC 60Hz Line 2
 SC501933
 Date: 03. May 05 14:38

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.16500	41.9	65.2
0.27500	39.4	61.0
0.33500	41.8	59.4
0.35500	37.5	58.8
0.50000	38.8	56.0
0.53500	33.6	56.0
0.68500	34.2	56.0
0.84500	34.5	56.0
1.04500	34.8	56.0
1.35000	31.5	56.0
1.63000	29.8	56.0
2.03000	23.9	56.0
2.58500	24.4	56.0
2.97000	21.3	56.0
3.88500	19.5	56.0
4.73500	19.2	56.0
5.52000	18.4	60.0
7.80500	19.2	60.0
9.93000	22.3	60.0
12.54500	25.7	60.0
14.55500	25.1	60.0
19.17000	38.4	60.0
19.76500	40.0	60.0
29.00000	22.7	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.16500	32.1	55.2
0.28000	26.3	50.8
0.32500	31.6	49.6
0.43000	23.0	47.3
0.48500	27.3	46.3
0.65500	23.3	46.0
0.68000	22.2	46.0
0.98000	25.4	46.0
1.16500	23.7	46.0
1.31000	20.7	46.0
1.62500	20.3	46.0
1.91500	17.6	46.0
2.60500	16.5	46.0
2.96000	15.2	46.0

Date: 03. May 05 14:38

3.98000	14.2	46.0
4.73500	13.7	46.0
10.28500	17.3	50.0
12.07000	20.5	50.0
14.55500	19.4	50.0
18.82000	30.8	50.0
19.88500	34.0	50.0
29.59000	18.6	50.0

* limit exceeded

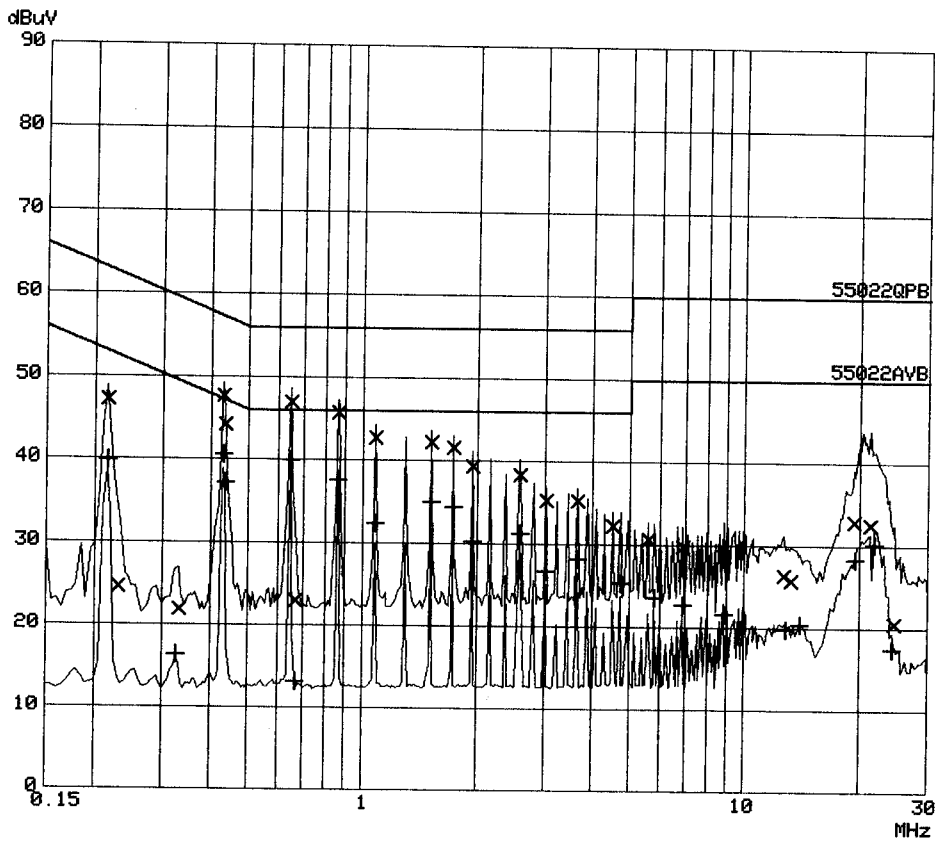
TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: Transmit Chan 2
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 230VAC 50Hz Line 1
 SC501933
 Date: 04. May 05 08:20

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	20ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
1	10k	30M	20dBLISN

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 35dB



TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: Transmit Chan 2
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 230VAC 50Hz Line 1
 SC501933
 Date: 04. May 05 08:20

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.21500	47.2	63.0
0.23000	24.7	62.4
0.33000	22.0	59.5
0.43000	47.7	57.3
0.43500	44.2	57.2
0.64500	46.9	56.0
0.66500	23.0	56.0
0.86000	45.7	56.0
1.07500	42.7	56.0
1.51000	42.2	56.0
1.72500	41.7	56.0
1.94000	39.3	56.0
2.58500	38.3	56.0
3.01500	35.3	56.0
3.66000	35.4	56.0
4.52000	32.3	56.0
5.59500	30.7	60.0
6.88500	29.9	60.0
8.82000	28.8	60.0
12.66000	26.4	60.0
13.25000	25.8	60.0
19.28500	33.0	60.0
21.30500	32.6	60.0
24.62000	20.5	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.21500	39.9	53.0
0.32500	16.3	49.6
0.43000	40.7	47.3
0.43500	37.3	47.2
0.64500	40.1	46.0
0.66500	13.1	46.0
0.86000	37.7	46.0
1.07500	32.4	46.0
1.51000	35.1	46.0
1.72500	34.5	46.0
1.94000	30.4	46.0
2.58500	31.4	46.0
3.01500	26.7	46.0
3.66000	28.2	46.0

Date: 04. May 05 08:20

4.73500	25.4	46.0
5.81000	23.7	50.0
6.88500	22.7	50.0
8.82000	21.7	50.0
12.78000	19.8	50.0
13.96000	20.5	50.0
19.40500	28.4	50.0
21.77000	30.2	50.0
24.37000	17.4	50.0

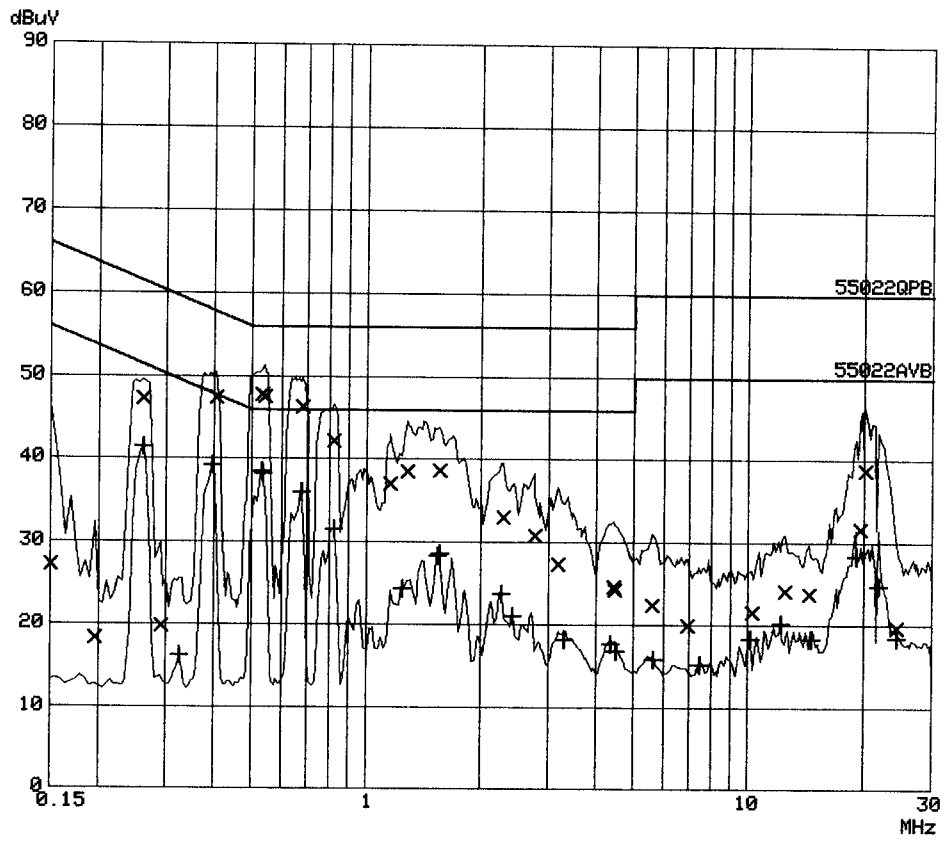
* limit exceeded

TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: Transmit Chan 2
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 230VAC 50Hz Line 2
 SC501933
 Date: 04. May 05 08:51

Scan Settings (1 Range)
 |----- Frequencies -----| |----- Receiver Settings -----|
 Start Stop Step IF BW Detector M-Time Atten Preamp OpRge
 150k 30M 5k 10k PK+AV 20ms AUTO LN OFF 60dB

Transducer No. Start Stop Name
 1 10k 30M 20dB LISN

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 35dB



TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: Transmit Chan 2
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 230VAC 50Hz Line 2
 SC501933
 Date: 04. May 05 08:51

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15000	27.3	66.0
0.19500	18.4	63.9
0.26000	47.3	61.4
0.29000	19.9	60.6
0.40500	47.4	57.8
0.53000	47.8	56.0
0.54000	47.6	56.0
0.68000	46.3	56.0
0.82000	42.2	56.0
1.15500	37.1	56.0
1.28000	38.5	56.0
1.55000	38.7	56.0
2.28500	33.0	56.0
2.75500	30.8	56.0
3.16500	27.4	56.0
4.44500	24.6	56.0
4.47500	24.3	56.0
5.60000	22.5	60.0
6.93000	20.0	60.0
10.20000	21.6	60.0
12.45000	24.2	60.0
14.35000	23.7	60.0
19.57500	31.7	60.0
20.16000	38.8	60.0
24.30500	19.6	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.26000	41.5	51.4
0.32500	16.3	49.6
0.39500	39.2	47.9
0.53000	38.5	46.0
0.53500	38.2	46.0
0.67500	36.1	46.0
0.82000	31.6	46.0
1.24000	24.5	46.0
1.54000	28.3	46.0
1.55500	28.6	46.0
2.26000	23.8	46.0
2.41000	21.0	46.0
3.29500	18.2	46.0

Date: 04. May 05 08:51

4.35500	17.7	46.0
4.49500	16.8	46.0
5.63500	15.9	50.0
7.47000	15.2	50.0

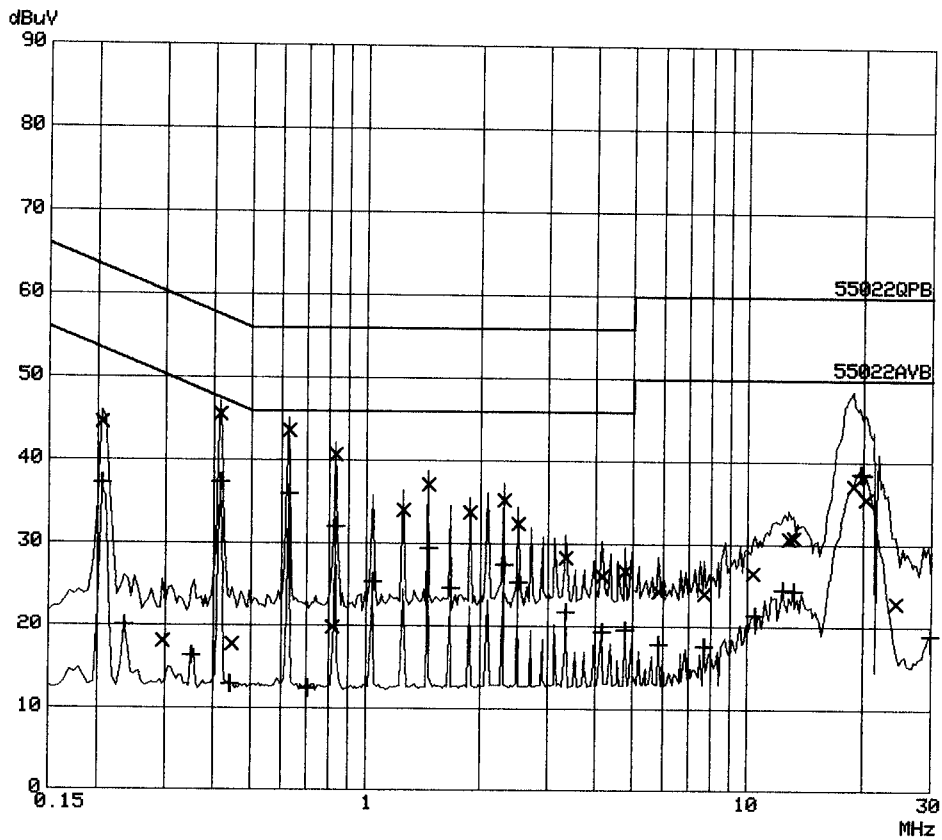
TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: RECEIVE Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 115VAC 60Hz Line 1
 SC501933
 Date: 03. May 05 15:15

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	20ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
1	10k	30M	20dBLISN

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 35dB



TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: RECEIVE Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 115VAC 60Hz Line 1
 SC501933
 Date: 03. May 05 15:15

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.20500	44.6	63.4
0.29500	18.1	60.3
0.41500	45.5	57.6
0.44500	17.7	56.9
0.62500	43.6	56.0
0.81500	19.8	56.0
0.83000	40.8	56.0
1.24500	34.1	56.0
1.45500	37.1	56.0
1.87000	33.8	56.0
2.29000	35.3	56.0
2.49500	32.5	56.0
3.33000	28.4	56.0
4.16000	26.1	56.0
4.78500	26.8	56.0
5.82500	24.3	60.0
7.70000	24.0	60.0
10.27000	26.5	60.0
12.75000	30.7	60.0
13.10500	30.8	60.0
18.78500	37.2	60.0
20.20500	35.6	60.0
24.33500	22.9	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.20500	37.3	53.4
0.23500	20.0	52.3
0.35000	16.4	49.0
0.41500	37.4	47.6
0.44000	12.9	47.0
0.62500	36.0	46.0
0.70500	12.4	46.0
0.83000	32.1	46.0
1.04000	25.4	46.0
1.45500	29.4	46.0
1.66500	24.7	46.0
2.29000	27.5	46.0
2.49500	25.3	46.0
3.33000	21.8	46.0
4.16000	19.4	46.0

Date: 03. May 05 15:15

4.78500	19.6	46.0
5.82500	17.9	50.0
7.69500	17.6	50.0
10.39000	21.5	50.0
12.28000	24.5	50.0
13.10500	24.4	50.0
19.60000	38.6	50.0
19.83500	38.5	50.0
29.99000	19.0	50.0

* limit exceeded

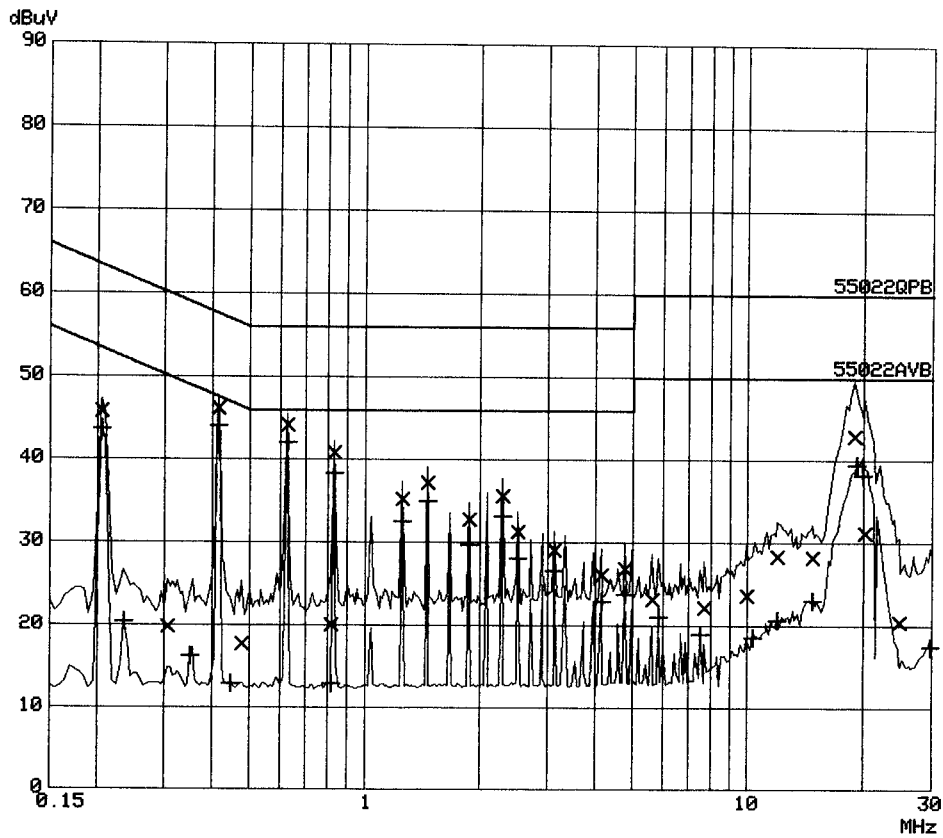
TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: RECEIVE Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 115VAC 60Hz Line 2
 SC501933
 Date: 03. May 05 14:59

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	20ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
1	10k	30M	20dBLISN

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 35dB



TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: RECEIVE Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 115VAC 60Hz Line 2
 SC501933
 Date: 03. May 05 14:59

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.20500	45.8	63.4
0.30500	19.8	60.1
0.41500	46.2	57.6
0.47500	17.8	56.4
0.62500	44.2	56.0
0.81500	20.1	56.0
0.83000	40.9	56.0
1.24500	35.3	56.0
1.45500	37.3	56.0
1.87000	32.9	56.0
2.28500	35.7	56.0
2.49500	31.3	56.0
3.12000	29.2	56.0
4.16000	26.1	56.0
4.78500	26.9	56.0
5.62000	23.1	60.0
7.69500	22.2	60.0
9.92500	23.6	60.0
11.93500	28.3	60.0
14.77000	28.3	60.0
18.91000	43.0	60.0
20.12500	31.2	60.0
24.69500	20.5	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.20500	43.7	53.4
0.23500	20.5	52.3
0.35000	16.3	49.0
0.41500	44.1	47.6
0.44500	12.9	46.9
0.62500	42.1	46.0
0.81500	12.9	46.0
0.83000	38.4	46.0
1.24500	32.6	46.0
1.45500	35.0	46.0
1.87000	29.7	46.0
2.28500	33.1	46.0
2.49500	28.1	46.0
3.12000	26.6	46.0
4.16000	22.9	46.0

Date: 03. May 05 14:59

4.78500	23.8	46.0
5.82500	21.0	50.0
7.49000	19.0	50.0
10.28000	18.6	50.0
11.93500	20.7	50.0
14.77000	23.0	50.0
19.14000	39.5	50.0
19.85000	38.3	50.0
29.77000	17.5	50.0

* limit exceeded

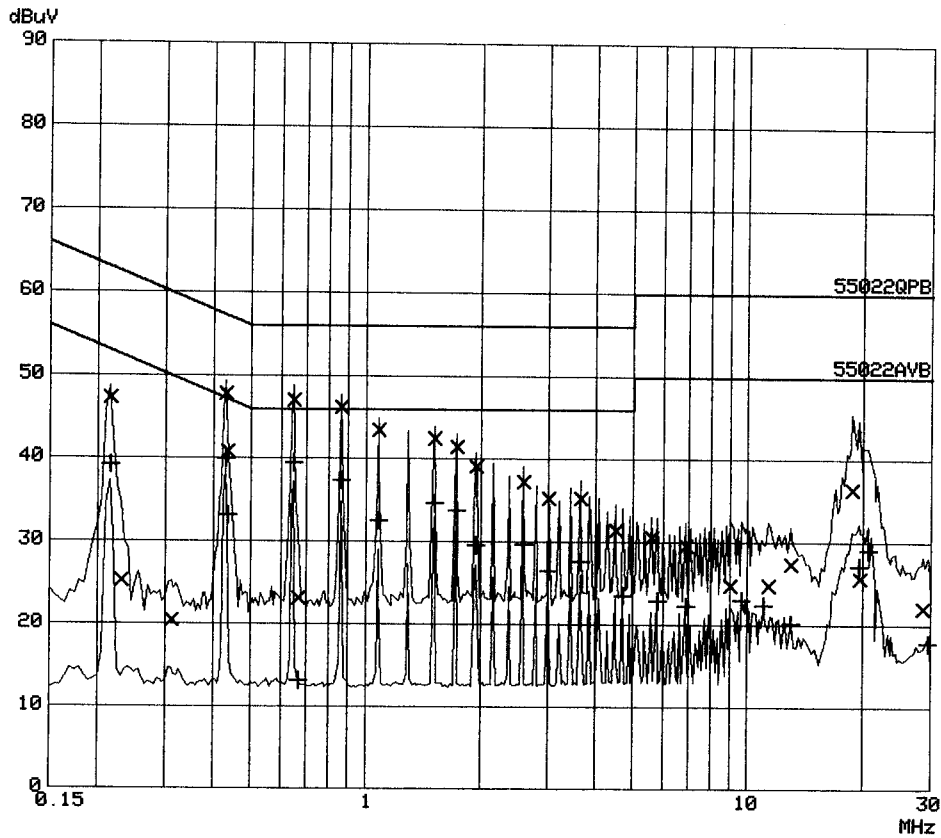
TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: RECEIVE Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 230VAC 50Hz Line 1
 SC501933
 Date: 03. May 05 15:31

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	20ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
1	10k	30M	20dBLISN

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 35dB



TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: RECEIVE Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 230VAC 50Hz Line 1
 SC501933
 Date: 03. May 05 15:31

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.21500	47.3	63.0
0.23000	25.3	62.4
0.31000	20.5	60.0
0.43000	47.8	57.3
0.43500	40.9	57.2
0.64500	47.1	56.0
0.66500	23.1	56.0
0.86000	46.1	56.0
1.07500	43.5	56.0
1.50500	42.4	56.0
1.72000	41.5	56.0
1.93500	39.1	56.0
2.58000	37.3	56.0
3.00500	35.3	56.0
3.65000	35.3	56.0
4.51000	31.5	56.0
5.58000	30.6	60.0
6.86500	29.6	60.0
9.01000	24.7	60.0
11.36000	24.8	60.0
13.01000	27.4	60.0
18.69000	36.4	60.0
19.66000	25.6	60.0
28.63500	22.0	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.21500	39.3	53.0
0.43000	40.0	47.3
0.43500	33.2	47.2
0.64500	39.5	46.0
0.66500	13.2	46.0
0.86000	37.4	46.0
1.07500	32.6	46.0
1.50500	34.7	46.0
1.72000	33.8	46.0
1.93500	29.7	46.0
2.58000	29.7	46.0
3.00500	26.6	46.0
3.65000	27.7	46.0
4.72500	23.5	46.0

Date: 03. May 05 15:31

5.79500	22.9	50.0
6.86500	22.3	50.0
9.65000	23.0	50.0
11.00000	22.4	50.0
13.01000	20.2	50.0
19.52500	27.1	50.0
20.59000	29.1	50.0
29.58500	17.9	50.0

* limit exceeded

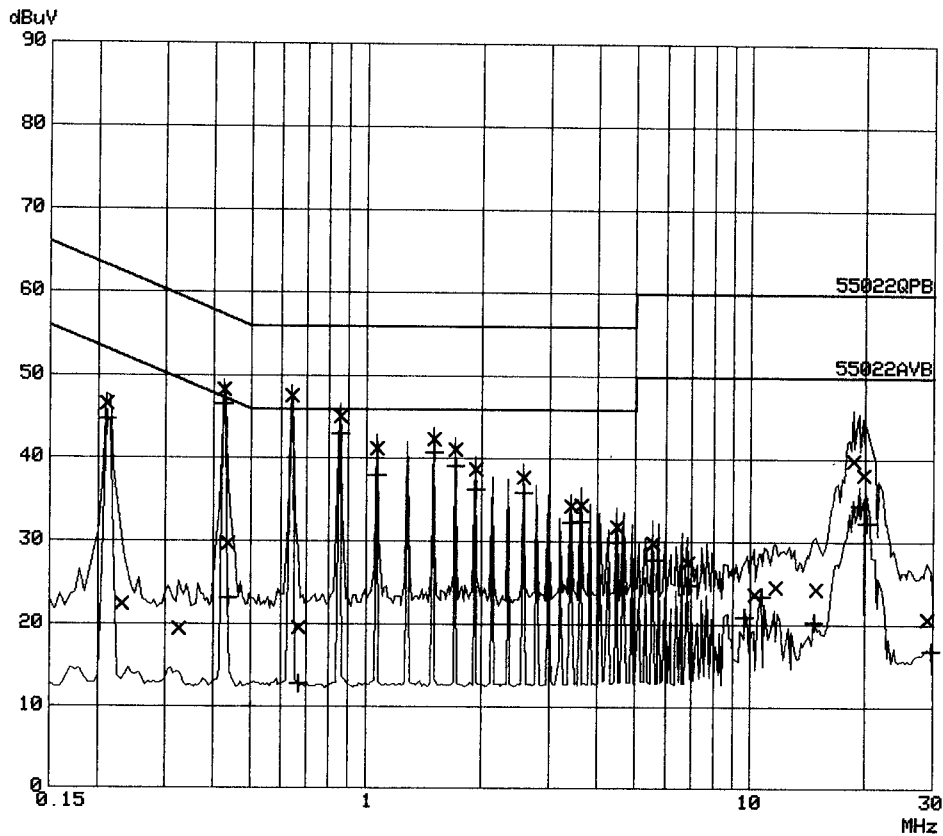
TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: RECEIVE Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 230VAC 50Hz Line 2
 SC501933
 Date: 03. May 05 15:46

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	30M	5k	10k	PK+AV	20ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
1	10k	30M	20dB LISN

Final Measurement: x QP / + AV
 Meas Time: 1 s
 Subranges: 25
 Acc Margin: 35dB



TUV America
 Conducted Emissions
 EUT: Fixed Head Set 59
 Manuf: Plantronics
 Op Cond: RECEIVE Channel 1
 Operator: Frank Harkins
 Test Spec: EN55022 Class B
 Comment: 230VAC 50Hz Line 2
 SC501933
 Date: 03. May 05 15:46

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.21000	46.6	63.2
0.23000	22.4	62.4
0.32500	19.4	59.6
0.42500	48.3	57.4
0.43500	29.8	57.2
0.64000	47.6	56.0
0.66500	19.6	56.0
0.85500	45.1	56.0
1.06500	41.3	56.0
1.49500	42.4	56.0
1.70500	41.1	56.0
1.92000	38.8	56.0
2.56000	37.7	56.0
3.41500	34.3	56.0
3.63000	34.4	56.0
4.48000	31.8	56.0
5.55000	29.9	60.0
6.83000	27.5	60.0
10.24000	23.6	60.0
11.60000	24.5	60.0
14.79500	24.3	60.0
18.59000	39.8	60.0
19.77500	38.1	60.0
29.01500	20.7	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.21000	44.7	53.2
0.42500	46.6	47.4
0.43500	23.1	47.2
0.64000	45.9	46.0
0.66500	12.7	46.0
0.85500	43.0	46.0
1.06500	38.0	46.0
1.49500	40.8	46.0
1.70500	39.2	46.0
1.92000	36.3	46.0
2.56000	35.9	46.0
3.41500	32.4	46.0
3.63000	32.4	46.0
4.48000	29.9	46.0

Date: 03. May 05 15:46

5.55000	27.8	50.0
6.83000	24.7	50.0
9.60500	21.0	50.0
10.67000	23.4	50.0
14.68000	20.4	50.0
19.30000	34.4	50.0
20.13000	32.3	50.0
29.72000	16.8	50.0

* limit exceeded

4.0 ATTESTATION STATEMENT

GENERAL REMARKS:

The EUT name on the radiated and conducted data records, Fixed Headset, is a Plantronics in-house name for the Explorer 320.

SUMMARY:

All tests were performed per CFR 47, Part(s) 15.109(a), 15.209(a), 15.247(a), 15.247(b), and 15.247(c)

■ - Performed

The Equipment Under Test

■ - **Fulfills** the requirements of CFR 47, Part(s) 15.109(a), 15.209(a), 15.247(a), 15.247(b), and 15.247(c)

Testing Start Date: 02 April 2005

Testing End Date: 04 May 2005

- TÜV AMERICA, INC. -

Review Engineer:



David Gray
(Engineer in Charge)

Responsible Engineer:



Frank Harkins
(EMC Engineer)