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Electromagnetic Emissions Test Report and Application for Grant of Equipment Authorization pursuant to

Industry Canada RSS-Gen Issue 1 / RSS 210 Issue 6
FCC Part 15 Subpart C

on the Griffin Technology Transmitter Model: iTrip Pocket

UPN:	6384A-4042NTRP
FCC ID:	PAV4042
GRANTEE:	Griffin Technology 1619 Elm Hill Pike, Suite C Nashville, TN 37210
TEST SITE:	Elliott Laboratories, Inc. 41039 Boyce Road Fremont, CA 94538
REPORT DATE:	June 5, 2007
FINAL TEST DATE:	May 22, May 24, May 30, 2007
AUTHORIZED SIGNATORY:	Juan Martinez Senior EMC Engineer

2016-01

REVISION HISTORY

Revision #	Date	Comments	Modified By
1	June 15, 2007	Initial Release	David Guidotti

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SCOPE

An electromagnetic emissions test has been performed on the Griffin Technology model iTrip Pocket pursuant to the following rules:

Industry Canada RSS-Gen Issue 1
RSS 210 Issue 6 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15 Subpart C

Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in the following reference standards and as outlined in Elliott Laboratories test procedures:

ANSI C63.4:2003
RSS-212 Issue 1 Test Facilities and Test Methods for Radio Equipment

The intentional radiator above has been tested in a simulated typical installation to demonstrate compliance with the relevant Industry Canada performance and procedural standards.

Final system data was gathered in a mode that tended to maximize emissions by varying orientation of EUT, orientation of power and I/O cabling, antenna search height, and antenna polarization.

Every practical effort was made to perform an impartial test using appropriate test equipment of known calibration. All pertinent factors have been applied to reach the determination of compliance.

The test results recorded herein are based on a single type test of the Griffin Technology model iTrip Pocket and therefore apply only to the tested sample. The sample was selected and prepared by Jeff Altheide of Griffin Technology

OBJECTIVE

The primary objective of the manufacturer is compliance with the regulations outlined in the previous section.

Prior to marketing in the USA, all unlicensed transmitters and transceivers require certification. Receive-only devices operating between 30 MHz and 960 MHz are subject to either certification or a manufacturer's declaration of conformity, with all other receive-only devices exempt from the technical requirements.

Prior to marketing in Canada, Class I transmitters, receivers and transceivers require certification. Class II devices are required to meet the appropriate technical requirements but are exempt from certification requirements.

Certification is a procedure where the manufacturer submits test data and technical information to a certification body and receives a certificate or grant of equipment authorization upon successful completion of the certification body's review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units, which are subsequently manufactured.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

STATEMENT OF COMPLIANCE

The tested sample of Griffin Technology model iTrip Pocket complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 1
RSS 210 Issue 6 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15 Subpart C

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

TEST RESULTS SUMMARY

DEVICES OPERATING UNDER THE GENERAL LIMITS

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.239	RSS 210 A2.8	Transmitter Fundamental Signal Emissions, 88 - 108 MHz	47.2dBµV/m (229.1µV/m) @ 88.139MHz (-0.8dB)	Refer to table in limits section	Complies
15.239	RSS 210 A2.8	Transmitter Radiated Spurious Emissions, 30 - 1000 MHz	40.1dBµV/m (101.2µV/m) @ 176.149MHz (-3.4dB)	Refer to table in limits section	Complies
15.239	RSP 100 RSS 210 A2.8	20-dB Bandwidth	200 kHz	Must be < 200kHz	Complies
15.239	RSP 100 RSS GEN 4.4.1	99% Bandwidth	200 kHz	Information only	N/A

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Permanently attached		Complies
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	Not applicable device is only Tx		N/A
15.207	RSS GEN Table 2	AC Conducted Emissions	Not applicable unit is DC operated	Refer to standard	N/A
	RSS 102	RF Exposure Requirements	Not Applicable	Refer to OET 65, FCC Part 1 and RSS 102	N/A

MEASUREMENT UNCERTAINTIES

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level and were calculated in accordance with UKAS document LAB 34.

Measurement Type	Frequency Range (MHz)	Calculated Uncertainty (dB)
Conducted Emissions	0.15 to 30	± 2.4
Radiated Emissions	0.015 to 30	± 3.0
Radiated Emissions	30 to 1000	± 3.6
Radiated Emissions	1000 to 40000	± 6.0

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The Griffin Technology model iTrip Pocket is a FM transmitter that is designed to transmit audio signals from an iPod to an FM receiver. The EUT would typically be connected to an Apple iPod NANO. Therefore, the EUT was tested with an iPod NANO and treated as hand held. The EUT is powered from the iPod.

The sample was received on May 22, 2007 and tested on May 22, May 24, May 30, 2007. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Griffin	iTrip Pocket	FM Transmitter		PAV4042

OTHER EUT DETAILS

List any items from the test log.

ANTENNA SYSTEM

The antenna system used with the Griffin Technology model iTrip Pocket is integral to the device.

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 4.2 cm wide by 0.7 cm deep by 3 cm high.

MODIFICATIONS

The EUT did not require modifications during testing in order to comply with emissions specifications.

SUPPORT EQUIPMENT

The following equipment was used as local support equipment for emissions testing:

Manufacturer	Model	Description	Serial Number	FCC ID
Apple	iPod NANO	MP3 Player		N/A

No remote support equipment was used during emissions testing.

EUT INTERFACE PORTS

The I/O cabling configuration during emissions testing was as follows:

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
None	-	-	-	-

EUT OPERATION

During emissions testing the EUT was configured to continuously transmit a file (1kHz tone with iPod set to maximum volume). Depending on the test, the EUT was either configured to transmit an unmodulated signal at the specified channel, or a modulated signal at the specified channel.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on May 22, May 24, May 30, 2007at the Elliott Laboratories Open Area Test Site #Chamber 4 located at 41039 Boyce Road, Fremont, California. Pursuant to section 2.948 of the FCC's Rules and section 3.3 of RSP-100, construction, calibration, and equipment data has been filed with the Commission.

ANSI C63.4:2003 recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement with the exception of predictable local TV, radio, and mobile communications traffic. The test site contains separate areas for radiated and conducted emissions testing. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent requirements of ANSI C63.4:2003 and RSS 212.

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions testing is performed in conformance with ANSI C63.4:2003 and RSS 212. Measurements are made with the EUT connected to the public power network through a nominal, standardized RF impedance, which is provided by a line impedance stabilization network, known as a LISN. A LISN is inserted in series with each current-carrying conductor in the EUT power cord.

RADIATED EMISSIONS CONSIDERATIONS

The FCC has determined that radiation measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an open field environment or in a semi-anechoic chamber. The test sites are maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4:2003 guidelines and meet the Normalized Site Attenuation (NSA) requirements of ANSI C63.4:2003 / RSS 212.

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

An EMI receiver as specified in CISPR 16-1 is used for emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 2000 MHz. These receivers allow both ease of measurement and high accuracy to be achieved. The receivers have Peak, Average, and CISPR (Quasi-peak) detectors built into their design so no external adapters are necessary. The receiver automatically sets the required bandwidth for the CISPR detector used during measurements. If the repetition frequency of the signal being measured is below 20Hz, peak measurements are made in lieu of Quasi-Peak measurements.

For measurements above the frequency range of the receivers, a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Average measurements above 1000MHz are performed on the spectrum analyzer using the linear-average method with a resolution bandwidth of 1 MHz and a video bandwidth of 10 Hz, unless the signal is pulsed in which case the average (or video) bandwidth of the measuring instrument is reduced to onset of pulse desensitization and then increased.

INSTRUMENT CONTROL COMPUTER

The receivers utilize either a Rohde & Schwarz EZM Spectrum Monitor/Controller or contain an internal Spectrum Monitor/Controller to view and convert the receiver measurements to the field strength at an antenna or voltage developed at the LISN measurement port, which is then compared directly with the appropriate specification limit. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are printed in a graphic and/or tabular format, as appropriate. A personal computer is used to record all measurements made with the receivers.

The Spectrum Monitor provides a visual display of the signal being measured. In addition, the controller or a personal computer run automated data collection programs which control the receivers. This provides added accuracy since all site correction factors, such as cable loss and antenna factors are added automatically.

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

Line conducted measurements utilize a fifty microhenry Line Impedance Stabilization Network as the monitoring point. The LISN used also contains a 250 uH CISPR adapter. This network provides for calibrated radio frequency noise measurements by the design of the internal low pass and high pass filters on the EUT and measurement ports, respectively.

FILTERS/ATTENUATORS

External filters and precision attenuators are often connected between the receiving antenna or LISN and the receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

ANTENNAS

A loop antenna is used below 30 MHz. For the measurement range 30 MHz to 1000 MHz either a combination of a biconical antenna and a log periodic or a bi-log antenna is used. Above 1000 MHz, horn antennas are used. The antenna calibration factors to convert the received voltage to an electric field strength are included with appropriate cable loss and amplifier gain factors to determine an overall site factor, which is then programmed into the test receivers or incorporated into the test software.

ANTENNA MAST AND EQUIPMENT TURNTABLE

The antennas used to measure the radiated electric field strength are mounted on a non-conductive antenna mast equipped with a motor-drive to vary the antenna height. Measurements below 30 MHz are made with the loop antenna at a fixed height of 1m above the ground plane.

ANSI C63.4:2003 and RSS 212 specify that the test height above ground for table mounted devices shall be 80 centimeters. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor. During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

INSTRUMENT CALIBRATION

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles. An exhibit of this report contains the list of test equipment used and calibration information.

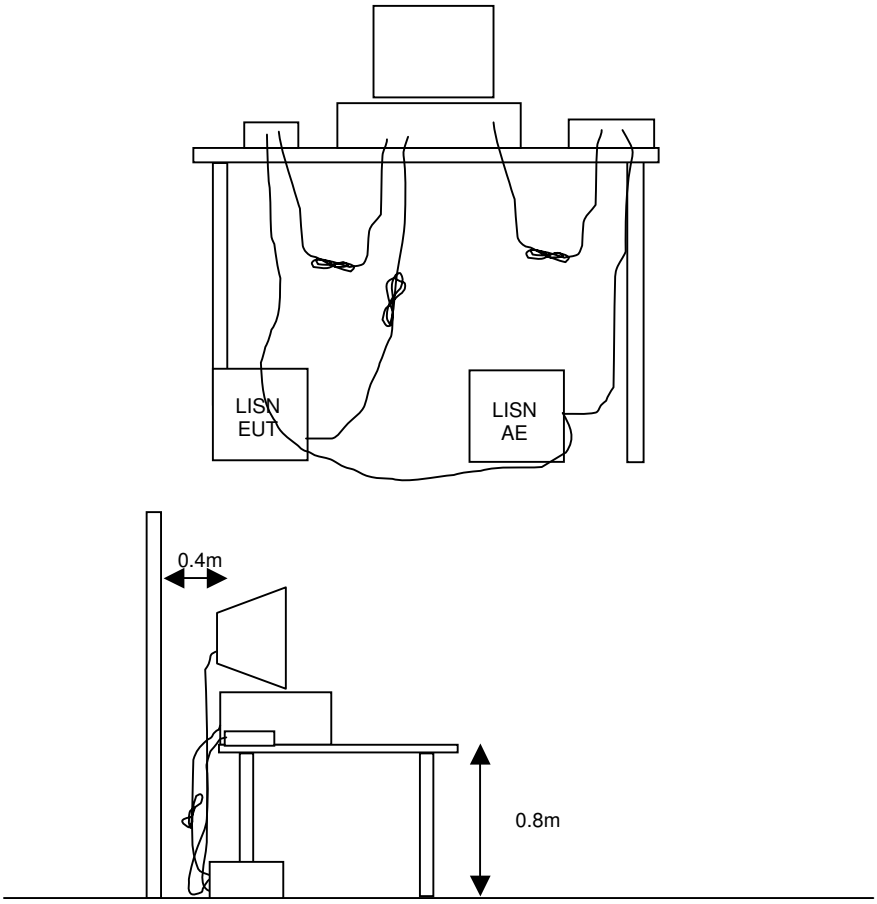
TEST PROCEDURES

EUT AND CABLE PLACEMENT

The regulations require that interconnecting cables be connected to the available ports of the unit and that the placement of the unit and the attached cables simulate the worst case orientation that can be expected from a typical installation, so far as practicable. To this end, the position of the unit and associated cabling is varied within the guidelines of ANSI C63.4:2003, and the worst-case orientation is used for final measurements.

CONDUCTED EMISSIONS

Conducted emissions are measured at the plug end of the power cord supplied with the EUT. Excess power cord length is wrapped in a bundle between 30 and 40 centimeters in length near the center of the cord. Preliminary measurements are made to determine the highest amplitude emission relative to the specification limit for all the modes of operation. Placement of system components and varying of cable positions are performed in each mode. A final peak mode scan is then performed in the position and mode for which the highest emission was noted on all current carrying conductors of the power cord.



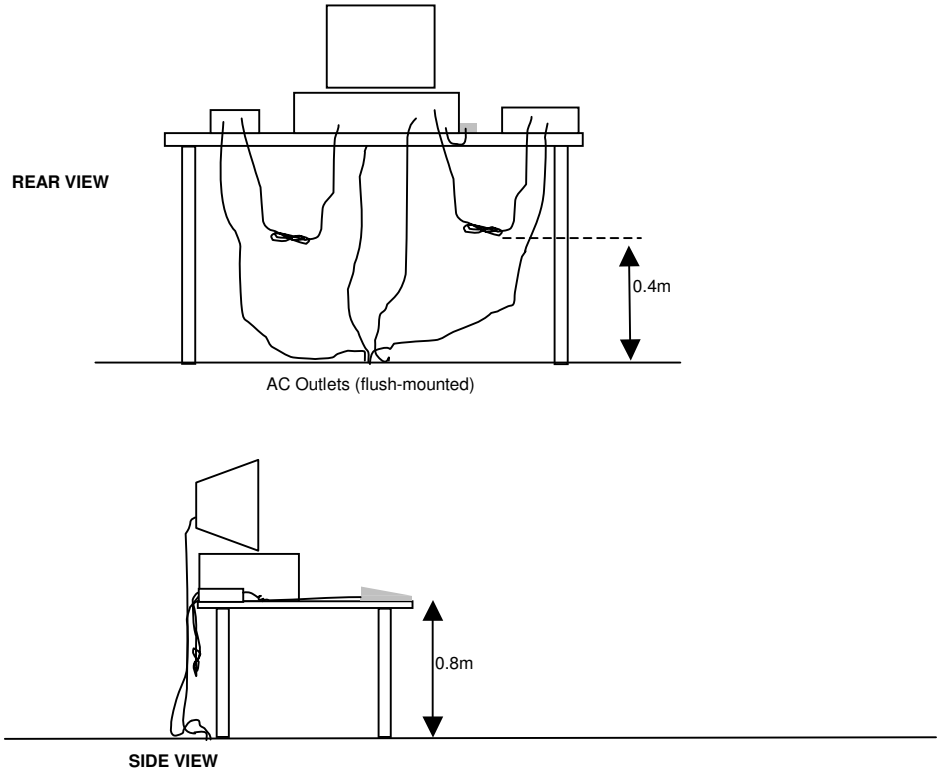
RADIATED EMISSIONS

A preliminary scan of the radiated emissions is performed in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed, one scan for each antenna polarization (horizontal and vertical; loop parallel and perpendicular to the EUT). During the preliminary scans, the EUT is rotated through 360˚, the antenna height is varied (for measurements above 30 MHz) and cable positions are varied to determine the highest emission relative to the limit. Preliminary scans may be performed in a fully anechoic chamber for the purposes of identifying the frequencies of the highest emissions from the EUT.

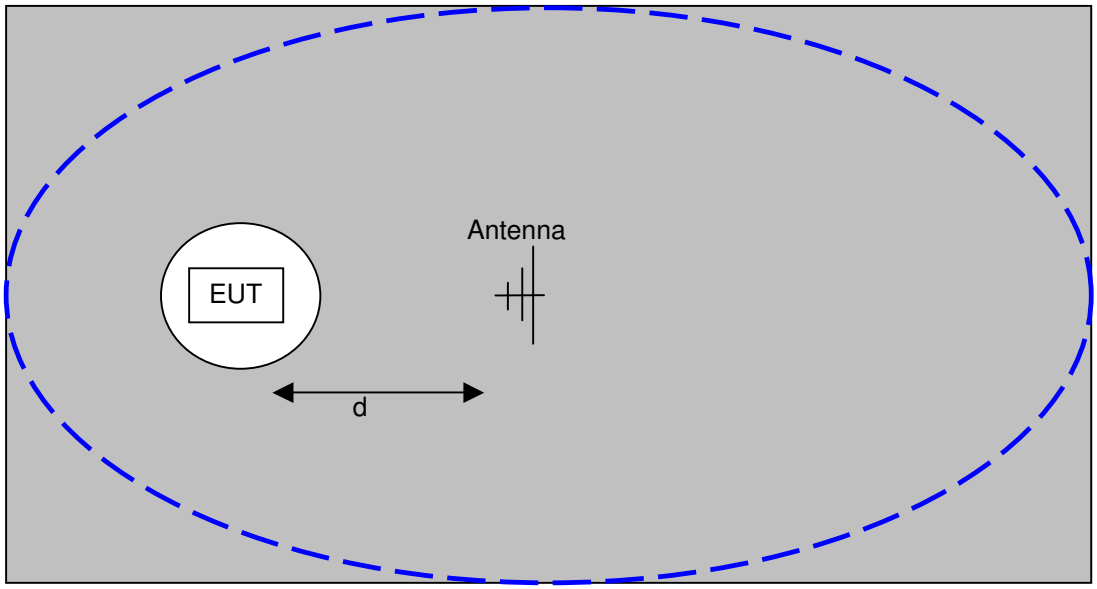
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth, which results in the highest emission is then maintained while varying the antenna height from one to four meters (for measurements above 30 MHz, measurements below 30 MHz are made with the loop antenna at a fixed height of 1m). The result is the identification of the highest amplitude for each of the highest peaks. Each recorded level is corrected in the receiver using appropriate factors for cables, connectors, antennas, and preamplifier gain.

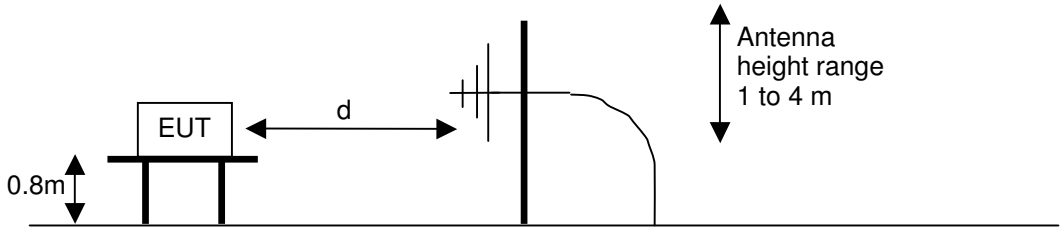
When testing above 18 GHz, the receive antenna is located at 1meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.



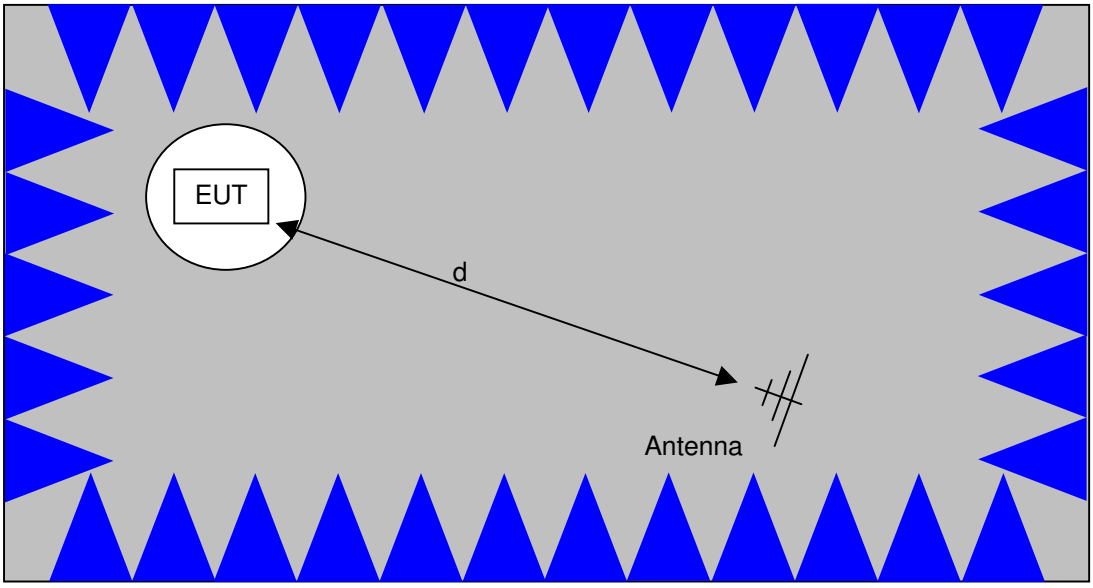
Typical Test Configuration for Radiated Field Strength Measurements



The ground plane extends beyond the ellipse defined in CISPR 16 / CISPR 22 / ANSI C63.4 and is large enough to accommodate test distances (d) of 3m and 10m. Refer to the test data tables for the actual measurement distance.

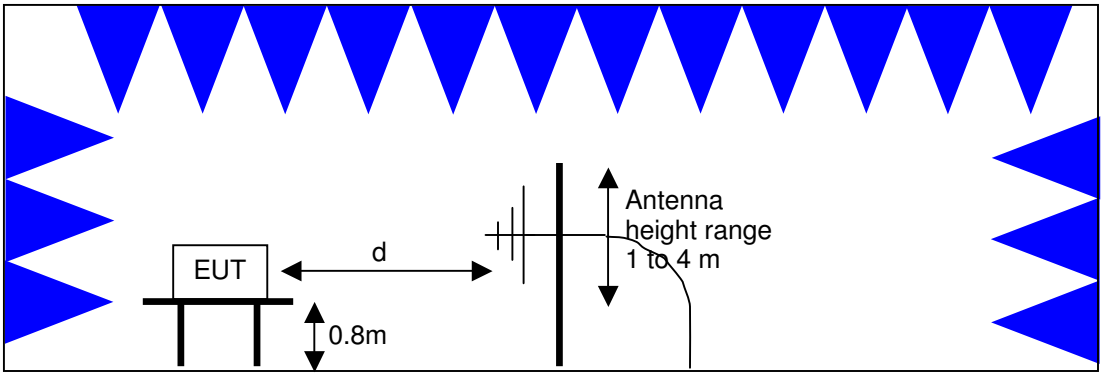


Test Configuration for Radiated Field Strength Measurements
OATS- Plan and Side Views



The anechoic materials on the walls and ceiling ensure compliance with the normalized site attenuation requirements of CISPR 16 / CISPR 22 / ANSI C63.4 for an alternate test site at the measurement distances used.

Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



Test Configuration for Radiated Field Strength Measurements
Semi-Anechoic Chamber, Plan and Side Views

BANDWIDTH MEASUREMENTS

The 6dB, 20dB and/or 26dB signal bandwidth is measured in using the bandwidths recommended by ANSI C63.4. When required, the 99% bandwidth is measured using the methods detailed in RSS GEN.

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

The limits for conducted emissions are given in units of microvolts, and the limits for radiated emissions are given in units of microvolts per meter at a specified test distance. Data is measured in the logarithmic form of decibels relative to one microvolt, or dB microvolts (dBuV). For radiated emissions, the measured data is converted to the field strength at the antenna in dB microvolts per meter (dBuV/m). The results are then converted to the linear forms of uV and uV/m for comparison to published specifications.

For reference, converting the specification limits from linear to decibel form is accomplished by taking the base ten logarithm, then multiplying by 20. These limits in both linear and logarithmic form are as follows:

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands[1] (with the exception of transmitters operating under FCC Part 15 Subpart D and RSS 210 Annex 9), the limits for all emissions from a low power device operating under the general rules of RSS 310 (tables 3 and 4), RSS 210 (table 2) and FCC Part 15 Subpart C section 15.209.

Frequency Range (MHz)	Limit (uV/m)	Limit (dBuV/m @ 3m)
0.009-0.490	$2400/F_{KHz}$ @ 300m	$67.6-20*\log_{10}(F_{KHz})$ @ 300m
0.490-1.705	$24000/F_{KHz}$ @ 30m	$87.6-20*\log_{10}(F_{KHz})$ @ 30m
1.705 to 30	30 @ 30m	29.5 @ 30m
30 to 88	100 @ 3m	40 @ 3m
88 to 216	150 @ 3m	43.5 @ 3m
216 to 960	200 @ 3m	46.0 @ 3m
Above 960	500 @ 3m	54.0 @ 3m

[1] The restricted bands are detailed in FCC 15.203, RSS 210 Table 1 and RSS 310 Table 2

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

Receiver readings are compared directly to the conducted emissions specification limit (decibel form) as follows:

$$R_r - S = M$$

where:

R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

Receiver readings are compared directly to the specification limit (decibel form). The receiver internally corrects for cable loss, preamplifier gain, and antenna factor. The calculations are in the reverse direction of the actual signal flow, thus cable loss is added and the amplifier gain is subtracted. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

A distance factor, when used for electric field measurements above 30MHz, is calculated by using the following formula:

$$F_d = 20*LOG_{10} (D_m/D_s)$$

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

For electric field measurements below 30MHz the extrapolation factor is either determined by making measurements at multiple distances or a theoretical value is calculated using the formula:

$$F_d = 40*LOG_{10} (D_m/D_s)$$

Measurement Distance is the distance at which the measurements were taken and Specification Distance is the distance at which the specification limits are based. The antenna factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

The margin of a given emission peak relative to the limit is calculated as follows:

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

R_r = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_c = Corrected Reading in dBuV/m

L_s = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

Where the radiated electric field strength is expressed in terms of the equivalent isotropic radiated power (eirp), or where a field strength measurement of output power is made in lieu of a direct measurement, the following formula is used to convert between eirp and field strength at a distance of 3m from the equipment under test:

$$E = \frac{1000000 \sqrt{30 P}}{3} \text{ microvolts per meter}$$

where P is the eirp (Watts)

EXHIBIT 1: Test Equipment Calibration Data

1 Page

RE 30-1000 MHz, 20-Mar-07
Engineer: Mark Hill

Manufacturer	Description	Model #	Asset #	Cal Due
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	08-Aug-07
Com-Power Corp.	Pre Amplifier, 30-1000 MHz	PA-103	1633	11-Jul-07
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	1657	21-Apr-07

Radiated Emissions, 30 - 1,000 MHz, 15-Jun-07
Engineer: Administrator

Manufacturer	Description	Model #	Asset #	Cal Due
Elliott Laboratories	Biconical Antenna, 30-300 MHz	EL30.300	54	26-Mar-08
Rohde & Schwarz	Test Receiver, 0.009-2750 MHz	ESN	1332	21-Nov-07
EMCO	Log Periodic Antenna, 0.2-2 GHz	3148	1404	30-Mar-08

EXHIBIT 2: Test Measurement Data

21 Pages

Elliott

EMC Test Data

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	Test-Log Number:	T67149
		Project Manager:	Sheareen
Contact:	Jeff Altheide		
Emissions Spec:	FCC 15.239	Class:	Radio
Immunity Spec:	-	Environment:	-

EMC Test Data

For The

Griffin Technology

Model

iTrip Pocket

Date of Last Test: 6/15/2007

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	Test-Log Number:	T67149
		Project Manager:	Sheareen
Contact:	Jeff Altheide		
Emissions Spec:	FCC 15.239	Class:	Radio
Immunity Spec:	-	Environment:	-

EUT INFORMATION

The following information was collected during the test sessions(s).

General Description

The EUT is a FM transmitter that is designed to transmit audio signals from an iPod to an FM receiver. The EUT would typically be connected to an Apple iPod NANO. Therefore, the EUT was tested with an iPod NANO and treated as hand held. The EUT is powered from the iPod.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Griffin	iTrip Pocket	FM Transmitter	-	PAV4042

EUT Antenna (Intentional Radiators Only)

The antenna is integral to the device.

EUT Enclosure

The EUT enclosure is primarily constructed of plastic. It measures approximately 4.2 cm wide by 0.7 cm deep by 3 cm high.

Modification History

Mod. #	Test	Date	Modification
1	-	-	None
2			
3			

Modifications applied are assumed to be used on subsequent tests unless otherwise stated as a further modification.

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Project Manager:	Sheareen
Contact:	Jeff Altheide		
Emissions Spec:	FCC 15.239	Class:	Radio
Immunity Spec:	-	Environment:	-

Test Configuration #1

The following information was collected during the test sessions(s).

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Apple	iPod NANO	MP3 Player		N/A

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
-	-	-	-	-

Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
None	-	-	-	-

EUT Operation During Emissions Tests

During emissions testing the EUT was configured to continuously transmit a music file. The volume of the iPod was set to maximum.

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	N/A

FCC 15.239 (Operation within Band)

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 7/3/2007
Test Engineer: Mark Hill
Test Location: Environmental Chamber
Config. Used: -
Config Change: -
EUT Voltage: Battery

General Test Configuration

The EUT was connected to the spectrum analyzer. All measurements were made on a single chain.

All measurements have been corrected to allow for the external attenuators used.

Ambient Conditions:

Temperature: 18 °C
Rel. Humidity: 34 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1a	Bandwidth - Low Channel	15.239	Pass	178 kHz
1b	Bandwidth - Mid Channel	15.239	Pass	170 kHz
1c	Bandwidth - High Channel	15.239	Pass	181 kHz

Modifications Made During Testing:

No modifications were made to the EUT during testing

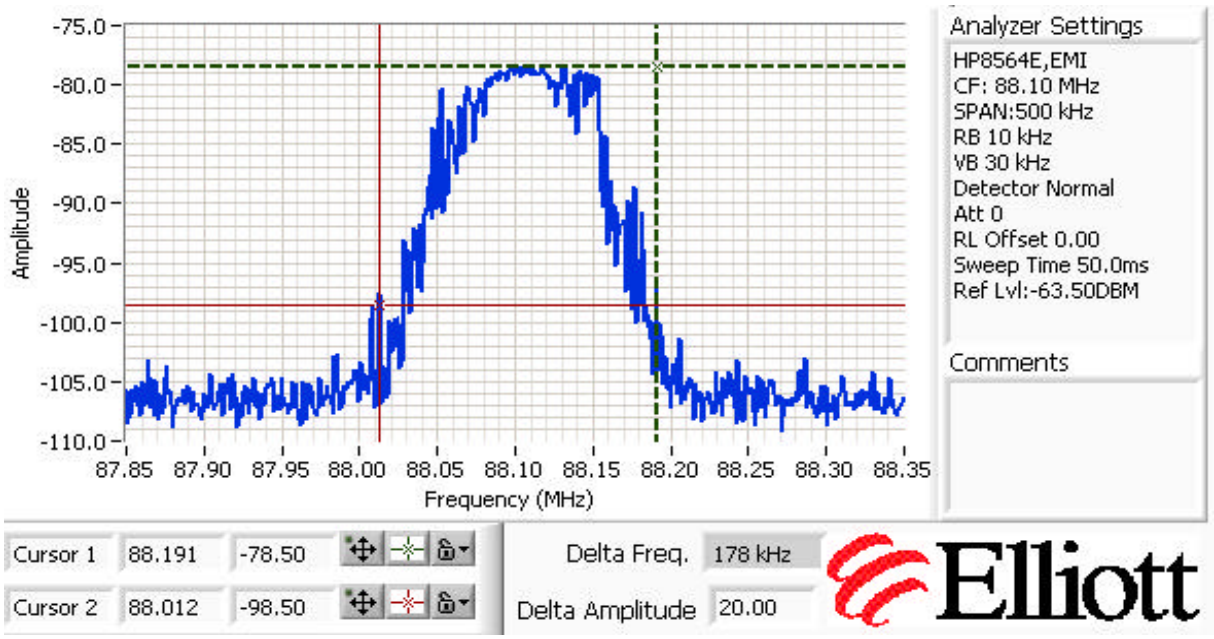
Deviations From The Standard

No deviations were made from the requirements of the standard.

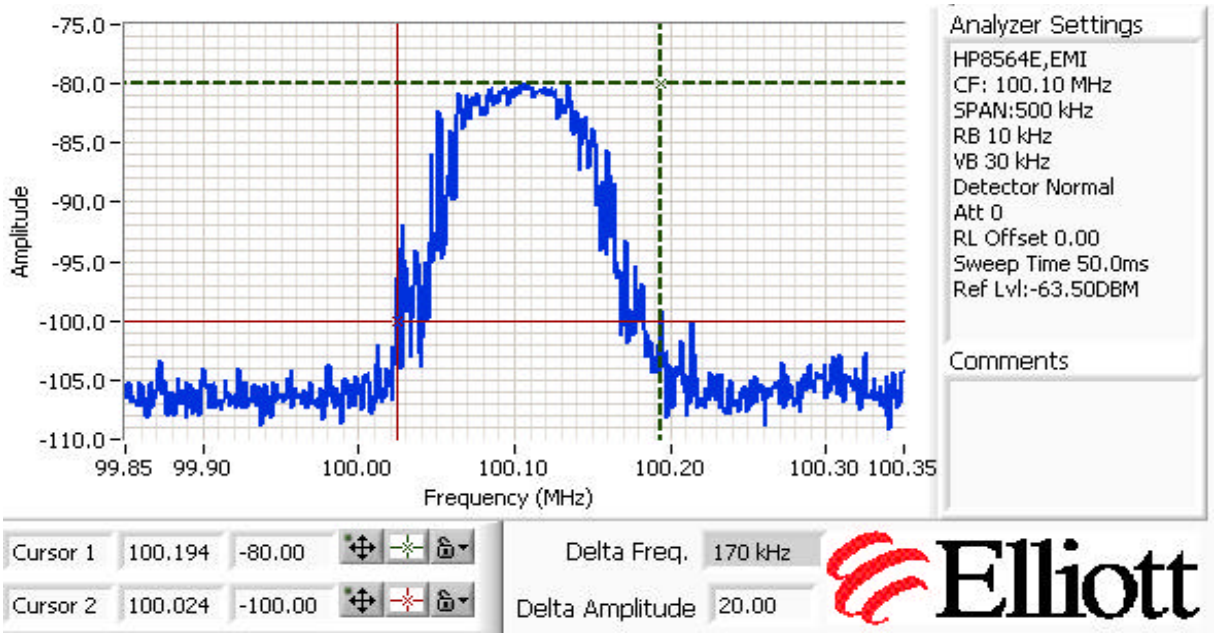
Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	N/A

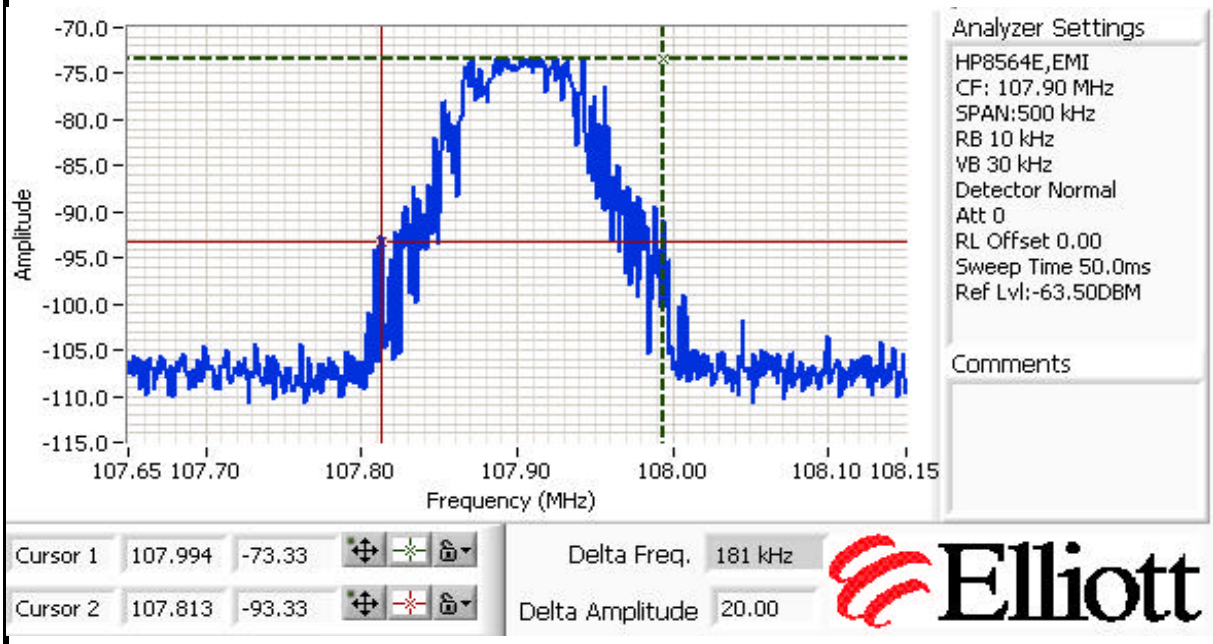
Run #1: Operation within Band

Frequency (MHz)	Resolution Bandwidth (kHz)	20dB Bandwidth (kHz)
88.1	10	178
100.1	10	137
107.9	10	134



Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	N/A





Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Radiated Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specific Details

Objective: The objective of this test session is to perform engineering evaluation testing of the EUT with respect to the specification listed above.

Date of Test: 5/22/2007
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #4
Config. Used: 1
Config Change: None
EUT Voltage: Powered from iPod

General Test Configuration

The EUT and any local support equipment were located on the turntable for radiated emissions testing.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measuremen

Ambient Conditions:

Temperature: 22.6 °C
Rel. Humidity: 36.2 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	RE, Maximized Fundamental Measurements	FCC 15.239	Pass	46.2dBµV/m @ 88.062MHz (-1.8dB)
2	RE, 30-1000 MHz Spurious Emissions	FCC 15.209	Pass	40.0dBµV/m @ 176.381MHz (-3.5dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #1: Maximized Fundamental Measurements

EUT and Test Configuration Details:

FCC Sample, Elliott tag 2007-1191

Preliminary Measurements to determine worse case of Vertical or Horizontal orientation

Measurement taken at 3m, no offset

Frequency	Level	Pol	FCC 15.239		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
88.500	30.3	H	48.0	-17.7	AVG	273	4.0	Flat
88.500	23.2	V	48.0	-24.8	AVG	350	4.0	Flat
88.500	13.0	H	48.0	-35.0	AVG	92	2.30	Upright
88.500	27.1	V	48.0	-20.9	AVG	152	1.5	Upright
88.500	28.0	H	48.0	-20.0	AVG	176	4.00	Side
88.500	20.9	V	48.0	-27.1	AVG	84	4.00	Side

EUT and Test Configuration Details:

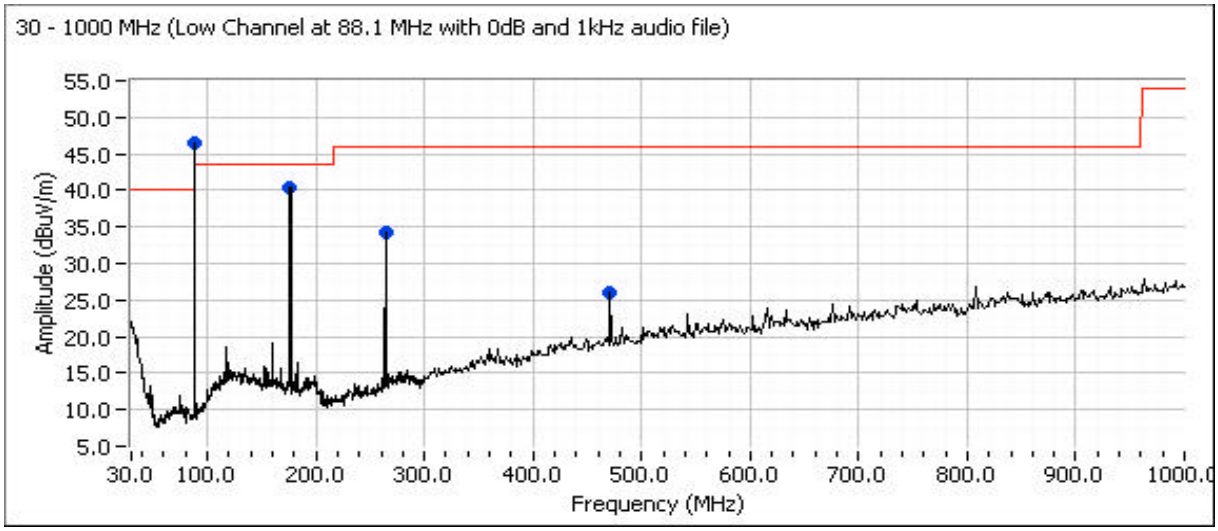
FCC Sample, Elliott tag 2007-1903, EUT #1

Frequency	Level	Pol	FCC 15.239		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
88.062	46.2	H	48.0	-1.8	QP	91	2.5	
98.043	44.6	H	48.0	-3.4	QP	85	3.0	
107.991	45.3	H	48.0	-2.7	QP	82	3.0	

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #2a: 30-1000 MHz, Spurious Emissions
EUT set to 88.1 MHz, Flat orientation

EUT and Test Configuration Details:
FCC Sample, Elliott tag 2007-1903, EUT #1

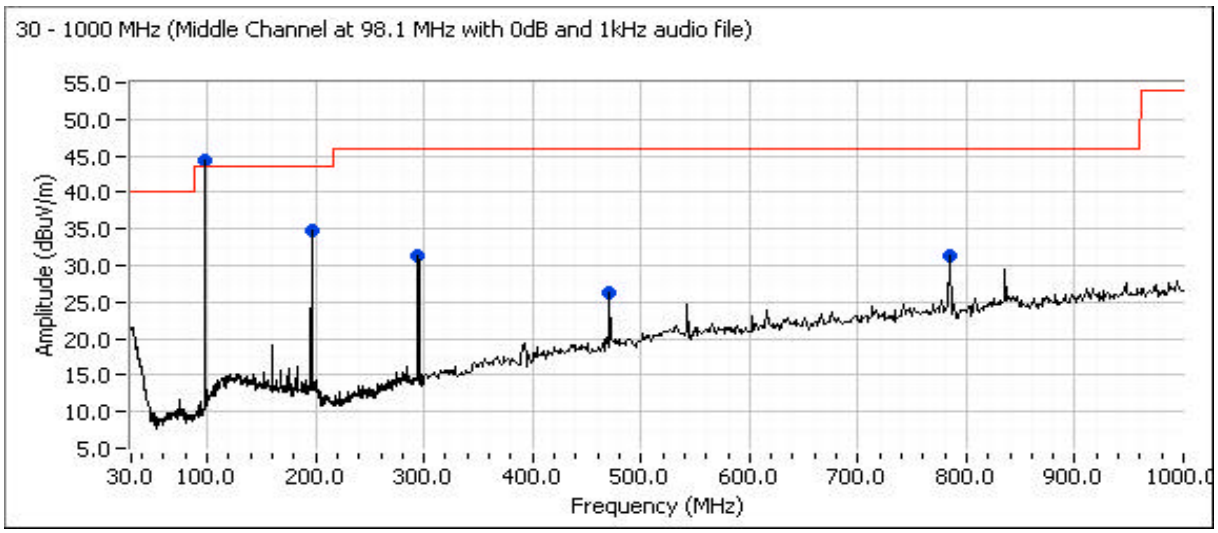


Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
176.381	40.0	H	43.5	-3.5	QP	276	1.5	
264.247	33.9	H	46.0	-12.1	QP	264	1.0	
471.142	26.1	V	46.0	-19.9	Peak	351	2.0	

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #2b: 30-1000 MHz, Spurious Emissions
EUT set to 98.1 MHz, Flat orientation

EUT and Test Configuration Details:
FCC Sample, Elliott tag 2007-1903, EUT #1



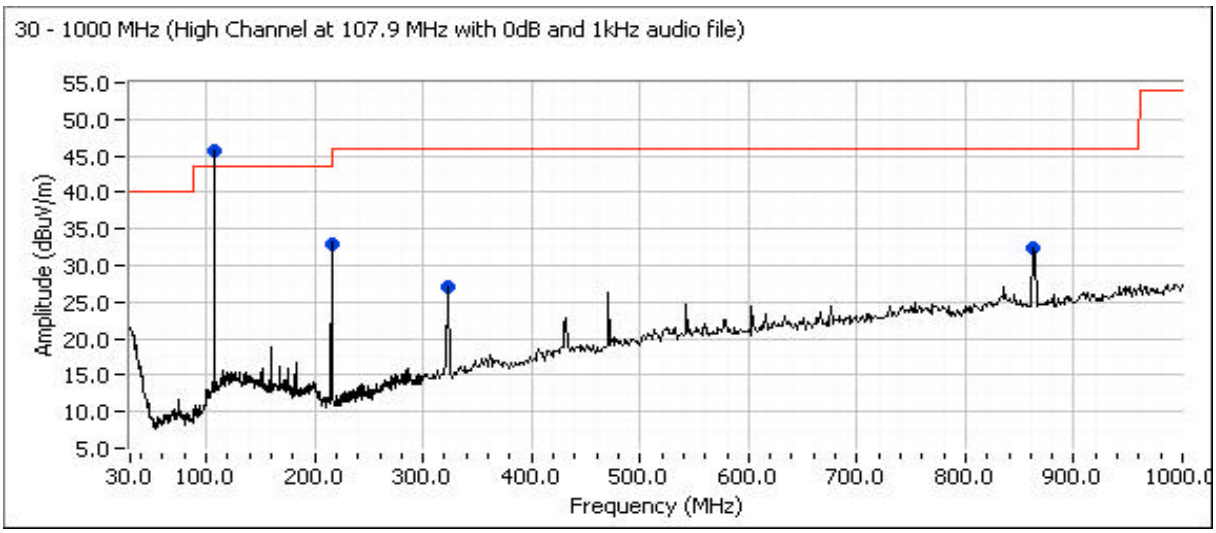
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
196.122	34.7	H	43.5	-8.8	QP	91	1.5	
294.242	31.1	H	46.0	-14.9	QP	263	1.0	
471.142	26.4	V	46.0	-19.6	Peak	220	2.5	
785.371	31.4	H	46.0	-14.6	Peak	293	1.0	

EMC Test Data

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #2c: 30-1000 MHz, Spurious Emissions
EUT set to 107.9 MHz, Flat orientation

EUT and Test Configuration Details:
FCC Sample, Elliott tag 2007-1903, EUT #1



Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
215.724	32.9	H	43.5	-10.6	QP	84	1.5	
323.848	27.2	H	46.0	-18.8	Peak	101	1.0	
862.525	32.3	H	46.0	-13.7	Peak	289	1.0	

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Radiated Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specific Details

Objective: The objective of this test session is to perform engineering evaluation testing of the EUT with respect to the specification listed above.

Date of Test: 5/22/2007
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #4
Config. Used: 1
Config Change: None
EUT Voltage: Powered from iPod

General Test Configuration

The EUT and any local support equipment were located on the turntable for radiated emissions testing.

The test distance and extrapolation factor (if applicable) are detailed under each run description.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measuremen

Ambient Conditions:

Temperature: 22.6 °C
Rel. Humidity: 36.2 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	RE, Maximized Fundamental Measurements	FCC 15.239	Pass	47.2dBµV/m (229.1µV/m) @ 88.139MHz (-0.8dB)
2	RE, 30-1000 MHz Spurious Emissions	FCC 15.209	Pass	39.3dBµV/m @ 176.370MHz (-4.2dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #1: Maximized Fundamental Measurements

EUT and Test Configuration Details:

FCC Sample, Elliott tag 2007-1191

Preliminary Measurements to determine worse case of Vertical or Horizontal orientation

Measurement taken at 3m, no offset

Frequency	Level	Pol	FCC 15.239		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
88.500	30.3	H	48.0	-17.7	AVG	273	4.0	Flat
88.500	23.2	V	48.0	-24.8	AVG	350	4.0	Flat
88.500	13.0	H	48.0	-35.0	AVG	92	2.30	Upright
88.500	27.1	V	48.0	-20.9	AVG	152	1.5	Upright
88.500	28.0	H	48.0	-20.0	AVG	176	4.00	Side
88.500	20.9	V	48.0	-27.1	AVG	84	4.00	Side

EUT and Test Configuration Details:

FCC Sample, Elliott tag 2007-1904, EUT #2

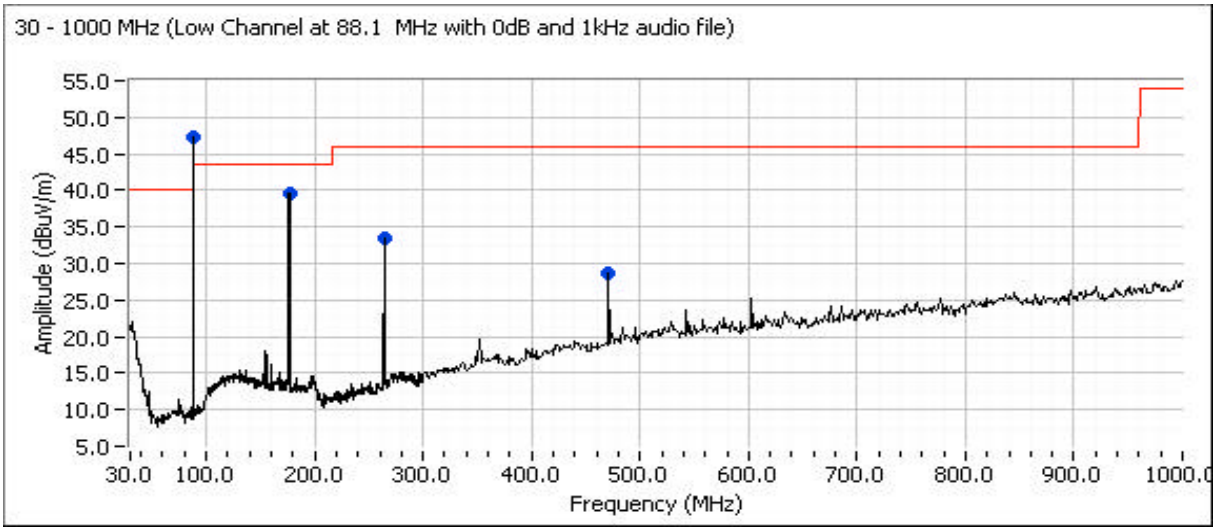
Frequency	Level	Pol	FCC 15.239		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
88.139	47.2	H	48.0	-0.8	QP	93	2.3	
98.127	44.8	H	48.0	-3.2	QP	269	2.9	
107.945	45.0	H	48.0	-3.0	QP	76	2.8	

EMC Test Data

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #2a: 30-1000 MHz, Spurious Emissions
EUT set to 88.1 MHz, Flat orientation

EUT and Test Configuration Details:
FCC Sample, Elliott tag 2007-1904, EUT #2

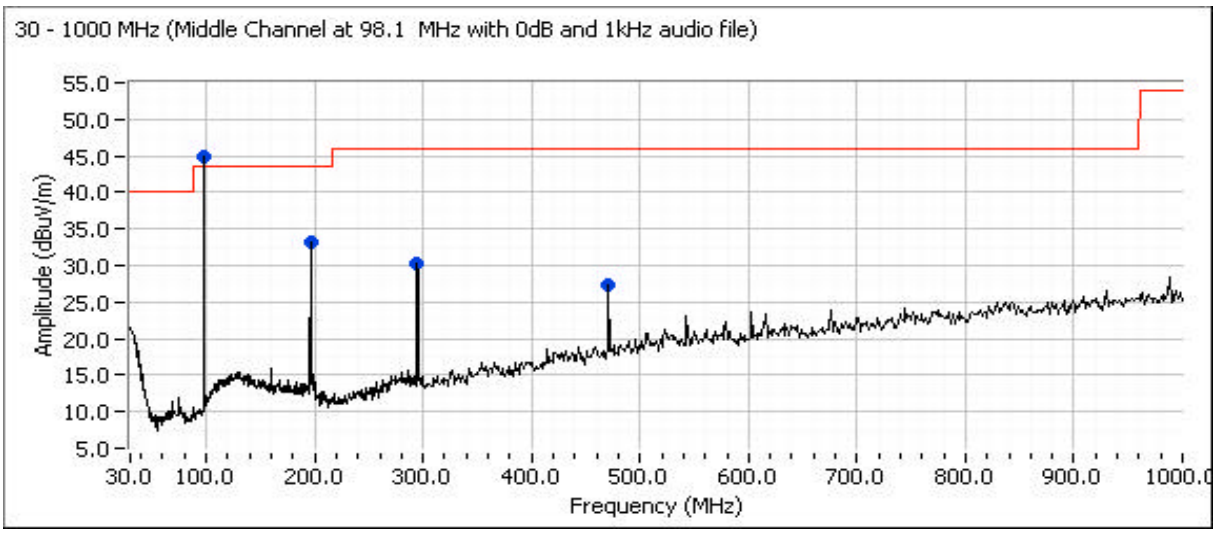


Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
176.370	39.3	H	43.5	-4.2	QP	258	1.5	
264.489	33.1	H	46.0	-12.9	QP	268	1.0	
471.142	28.7	H	46.0	-17.3	Peak	312	1.5	

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #2b: 30-1000 MHz, Spurious Emissions
EUT set to 98.1 MHz, Flat orientation

EUT and Test Configuration Details:
FCC Sample, Elliott tag 2007-1904, EUT #2

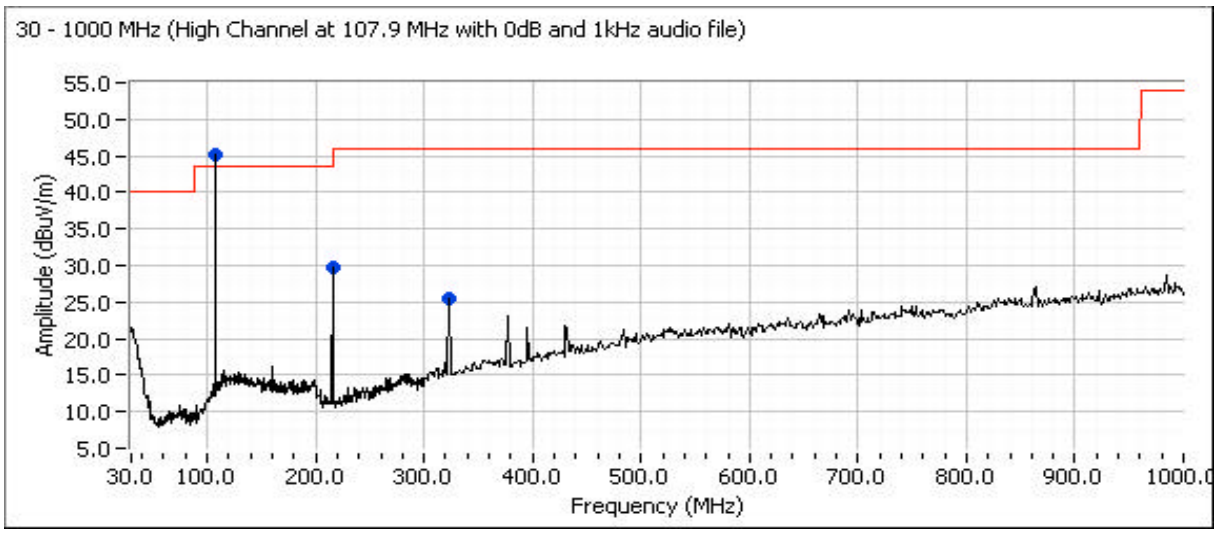


Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
196.349	33.2	H	43.5	-10.3	QP	93	1.5	
294.589	30.3	H	46.0	-15.7	Peak	94	1.0	
471.142	29.1	H	46.0	-16.9	Peak	226	1.0	

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #2c: 30-1000 MHz, Spurious Emissions
EUT set to 107.9 MHz, Flat orientation

EUT and Test Configuration Details:
FCC Sample, Elliott tag 2007-1904, EUT #2



Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
323.848	25.4	H	46.0	-20.6	Peak	260	1.0	
215.921	29.6	H	43.5	-13.9	QP	86	1.5	

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Radiated Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specific Details

Objective: The objective of this test session is to perform engineering evaluation testing of the EUT with respect to the specification listed above.

Date of Test: 5/24/2007
Test Engineer: Rafael Varelas
Test Location: Fremont Chamber #4
Config. Used: 1
Config Change: None
EUT Voltage: Powered from iPod

General Test Configuration

The EUT and any local support equipment were located on the turntable for radiated emissions testing.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measuremen

Ambient Conditions:

Temperature: 23.4 °C
Rel. Humidity: 37.5 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	RE, Maximized Fundamental Measurements	FCC 15.239	Pass	46.6dBµV/m @ 88.114MHz (-1.4dB)
2	RE, 30-1000 MHz Spurious Emissions	FCC 15.209	Pass	40.1dBµV/m (101.2µV/m) @ 176.149MHz (-3.4dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #1: Maximized Fundamental Measurements

EUT and Test Configuration Details:

FCC Sample, Elliott tag 2007-1191

Preliminary Measurements to determine worse case of Vertical or Horizontal orientation

Measurement taken at 3m, no offset

Frequency	Level	Pol	FCC 15.239		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
88.500	30.3	H	48.0	-17.7	AVG	273	4.0	Flat
88.500	23.2	V	48.0	-24.8	AVG	350	4.0	Flat
88.500	13.0	H	48.0	-35.0	AVG	92	2.30	Upright
88.500	27.1	V	48.0	-20.9	AVG	152	1.5	Upright
88.500	28.0	H	48.0	-20.0	AVG	176	4.00	Side
88.500	20.9	V	48.0	-27.1	AVG	84	4.00	Side

EUT and Test Configuration Details:

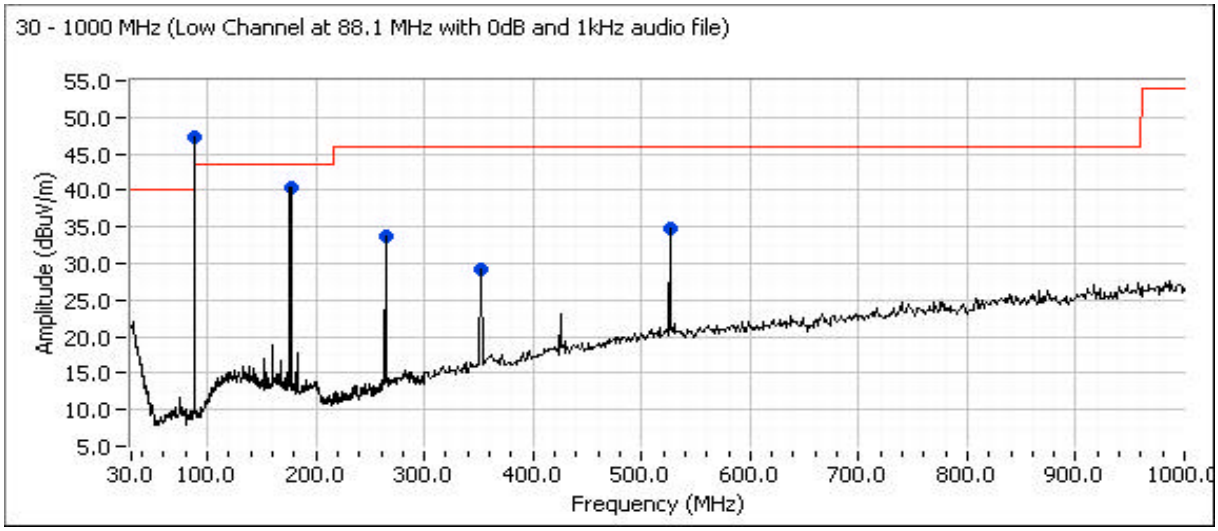
FCC Sample, Elliott tag 2007-1905, EUT #3

Frequency	Level	Pol	FCC 15.239		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
88.114	46.6	H	48.0	-1.4	QP	261	2.5	
98.042	44.8	H	48.0	-3.2	QP	273	3.0	
107.981	45.4	H	48.0	-2.6	QP	260	3.0	

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #2a: 30-1000 MHz, Spurious Emissions
EUT set to 88.1 MHz, Flat orientation

EUT and Test Configuration Details:
FCC Sample, Elliott tag 2007-1905, EUT #3

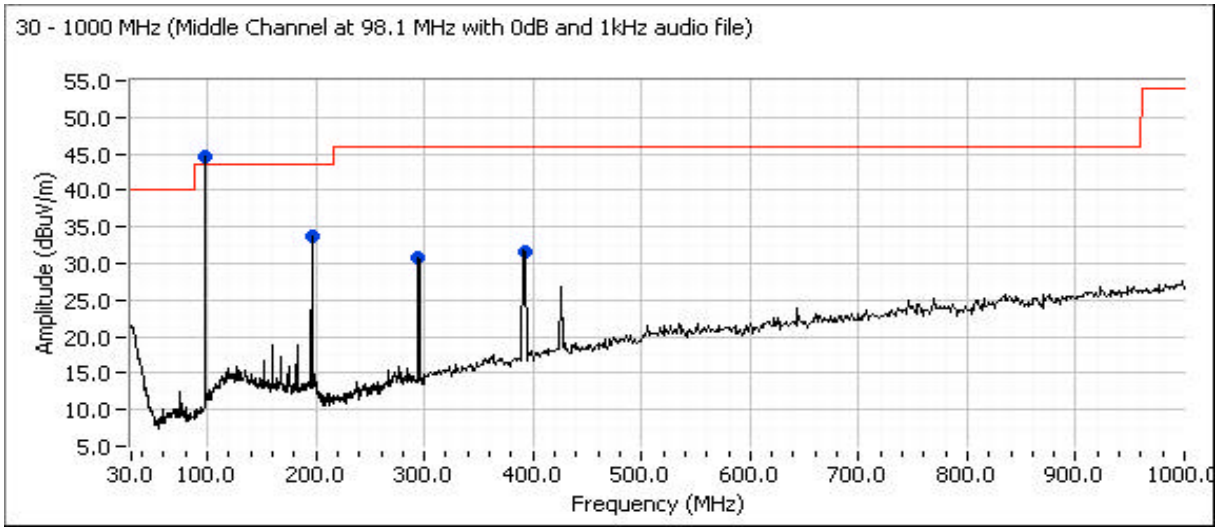


Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
176.149	40.1	H	43.5	-3.4	QP	267	1.5	
264.289	33.8	H	46.0	-12.2	Peak	77	1.0	
351.904	29.1	H	46.0	-16.9	Peak	269	1.0	
525.852	34.7	V	46.0	-11.3	Peak	0	3.0	

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #2b: 30-1000 MHz, Spurious Emissions
EUT set to 98.1 MHz, Flat orientation

EUT and Test Configuration Details:
FCC Sample, Elliott tag 2007-1905, EUT #3



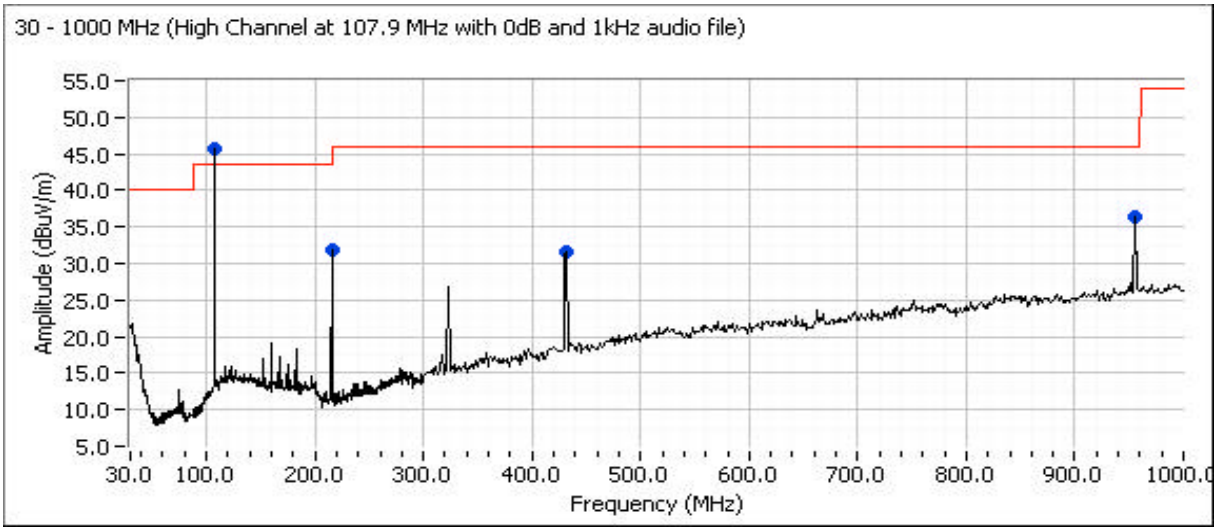
Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	V/H	Limit	Margin	Pk/QP/Avg	degrees	meters	
196.380	33.5	H	43.5	-10.0	QP	260	1.0	
294.589	30.9	H	46.0	-15.1	Peak	274	1.0	
392.585	31.6	H	46.0	-14.4	Peak	265	1.0	

EMC Test Data

Client:	Griffin Technology	Job Number:	J67117
Model:	iTrip Pocket	T-Log Number:	T67149
		Account Manager:	Sheareen
Contact:	Jeff Altheide		
Standard:	FCC 15.239	Class:	Radio

Run #2c: 30-1000 MHz, Spurious Emissions
EUT set to 107.9 MHz, Flat orientation

EUT and Test Configuration Details:
FCC Sample, Elliott tag 2007-1905, EUT #3



Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
216.132	31.9	H	46.0	-14.1	Peak	263	1.5	
431.864	31.7	H	46.0	-14.3	Peak	96	1.0	
955.110	36.4	V	46.0	-9.6	Peak	4	2.0	

EXHIBIT 3: Photographs of Test Configurations

2 Pages

EXHIBIT 4: Proposed FCC ID Label & Label Location

EXHIBIT 5: Detailed Photographs of Griffin Technology Model iTrip PocketConstruction

5 Pages

EXHIBIT 6: Operator's Manual for Griffin Technology Model iTrip Pocket

1 Page

EXHIBIT 7: Block Diagram of Griffin Technology Model iTrip Pocket

1 Page

EXHIBIT 8: Schematic Diagrams for Griffin Technology Model iTrip Pocket

1 Page

EXHIBIT 9: Theory of Operation for Griffin Technology Model iTrip Pocket

1 Page