

## TEST REPORT

Report Number: 3168976ATL-003

January 30, 2009

**Product Designation: QT 500**

Standard: FCC 15.219 Operation in the band 510 - 1705 kHz  
RSS 210 Low Power Licence-exempt Radiocommunication devices

Tested by:

Intertek Testing Services NA Inc.  
1950 Evergreen Blvd., Suite 100  
Duluth, GA 30096

Client:

Q-Track Corp  
515 Sparkman Drive  
Huntsville, AL 35816  
Contact: Hans Schantz  
Phone: 256.337.3012

Tests performed by:



Richard C. Bianco  
EMC Project Engineer

Report reviewed by:



David J. Schramm  
Assistant Chief Engineer-EMC

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## 1.0 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 3.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested complies with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested.

## 2.0 Test Summary

Section	Test Full Name	Test Date	Result
4.0	System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)	01/06/2009	
5.0	Overview of EUT (Low Power Transmitters) (FCC 15C - EUT Overview)	01/06/2009	
6.0	Conducted emissions on AC power lines (Conducted Emissions)	01/06/2009	PASS
7.0	Total input power and total length of the transmission line (FCC 15C - 15.219(a) & (b))	01/06/2009	PASS
8.0	Emissions below 510 kHz or above 1705 kHz (FCC 15C - 15.219(c))	01/06/2009	PASS
9.0	Radiated emissions (E-field) (Radiated Emissions)	01/06/2009	PASS
10.0	Radiated emissions (E-field) - RSS-210 Annex A2.2(b) (Radiated Emissions)	01/06/2009	PASS

### 3.0 Description of Equipment Under Test

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Tracking Tag	Q-Track	QT 500	NA

EUT receive date:	01/06/2009
EUT receive condition:	Good

Description of EUT provided by Client:

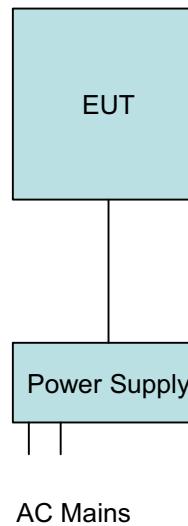
The QT 500 tag is used to track people or assets with update rates of up to 10Hz. It uses an AM frequency range and positioned receivers to detect the location of the tag. The tag runs on 4-AA batteries and includes a built in battery charger.

Description of EUT exercising:

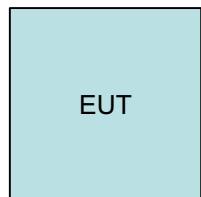
The Device was placed in a continuous transmit state during testing. Normal modulation was applied at all times.

**4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)****Method:**

Record the details of EUTcabling, document the support equipment, and show the interconnections in a block diagram.

**Drawing:**

System Block Diagram - Conducted Emissions

**4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)****Drawing:**

System Block Diagram - Radiated Emissions

**4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)****Data:**

EUT Cabling						
ID	Description	Length	Shielding	Ferrites	Connection	
					From	To
A	Power Cord	1.6m	No	No	EUT	Power Supply

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
Power Supply	CUI	NA	NA

## 5.0 Overview of EUT (Low Power Transmitters) (FCC 15C - EUT Overview)

**Method:**

Complete the overview spreadsheet.

Related Submittal(s) Grants: This report is for use with an application for certification of a low power transmitter. One transmitter is included in the application.

**Data:**

Applicant	Q-Track Corporation 515 Sparkman Dr. Huntsvilee AL 35816
Trade Name & Model No.	QT 500
FCC Identifier	
Frequency Range (MHz)	0.530-1.710
Antenna Type (15.203)	Permenently Attached
Manufacturer name & address	Q-Track Corporation 515 Sparkman Dr. Huntsvilee AL 35816

Related Submittals and Grants:	This report is for use with an application for certification of a low power transmitter. One transmitter is included in the application.
Additions, deviations and exclusions from standards	None

## 6.0 Conducted emissions on AC power lines (Conducted Emissions)

### Method:

Equipment setup for conducted disturbance tests shall follow the guidelines of ANSI C63.4:2003, RSS-GEN and RSS-210.

Measurements in the frequency range of 150kHz to 30 MHz shall be performed with a quasi-peak or average detector instrument that meets the requirements of Section One of CISPR 16. An AMN shall be used to provide a defined impedance at high frequencies across the power feed at the point of measurement of terminal voltage and also to provide isolation of the circuit under test from the ambient noise on the power lines. An AMN defined in CISPR 16 shall be used.

In the frequency range of 150 kHz to 30 MHz, a resolution/video bandwidth of 9kHz/30kHz or greater shall be used.

The EUT shall be located so that the distance between the boundary of the EUT and the closest surface of the AMN is 0.8m.

If a flexible mains cord is provided by the manufacturer that is in excess of 1m, the excess cable shall be folded back and forth as far as possible to form a bundle not exceeding 0.4m in length.

The EUT shall be arranged and connected with cables terminated in accordance with the product specification.

Conducted disturbance shall be measured between each current carrying conductor and the reference ground. Each measured values shall be reported.

If EUT is intended for tabletop use, the EUT shall be placed on a table whose top is 0.8m above the ground plane. A vertical, metal reference plane is to be placed 0.4m from the EUT. The vertical metal reference-plane is at least 2m by 2m. The EUT shall be kept at least 0.8m from any other metal surface or other ground plane not being part of the EUT. The table shall be constructed of non-conductive materials. Its dimensions are at least 1m by 1.5m, but may be extended for larger EUT.

If EUT is floor standing, the floor standing EUT shall be placed on a horizontal metal ground plane and isolated from the ground plane by up to 12 mm of insulating material. The metal ground plane shall extend at least 0.5m beyond the boundaries of the EUT and had minimum dimensions of 2m by 2m.

### TEST SITE

The test site for conducted emissions is located at 1950 Evergreen Blvd, Suite 100, Duluth, Georgia 30096.

A2LA: 1455.01

IC: 2077-1

### MEASUREMENT UNCERTAINTY

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes. The values given are the measurement uncertainty values with an expanded uncertainty of k=2.

150 kHz to 30 MHz: +/- 2.8 dB

### Test Equipment Used:

Description:	Manufacturer:	Model:	Asset Number:	Cal Date:	Cal Due:
Cable TT1, 6ft, N(Male) to N(Male)	Mini-Circuits	CBL-6FT-NMNM	TT1	05/05/2008	05/05/2009
Cable TT4	Andrews	Cable TT4	TT4 211404	05/05/2008	05/05/2009
EMI Receiver	Hewlett Packard	8546A	213109	09/29/2008	09/29/2009
EMI Receiver, Preselector section	Hewlett Packard	85460A	213108	09/29/2008	09/29/2009
Excel spreadsheet for conducted emissions tests	Software	Excel - CE Worksh	SW002	12/08/2008	12/08/2009
LISN (TT4)	Fischer Custom Comm	FCC-LISN-50-50-M	211406	10/18/2008	10/18/2009
Spectrum Analyzer, 20Hz-40GHz	Rohde & Schwarz	FSEK30	200062	10/11/2008	10/11/2009
Tile - software profile for radiated and conducted emissions testing.	Software	Tile - Emissions	SW006	12/08/2008	12/08/2009
Transient Limiter	Hewlett Packard	11947A	213100	08/05/2008	08/05/2009

**Results: The sample tested was found to Comply.**

## 6.0 Conducted emissions on AC power lines (Conducted Emissions)

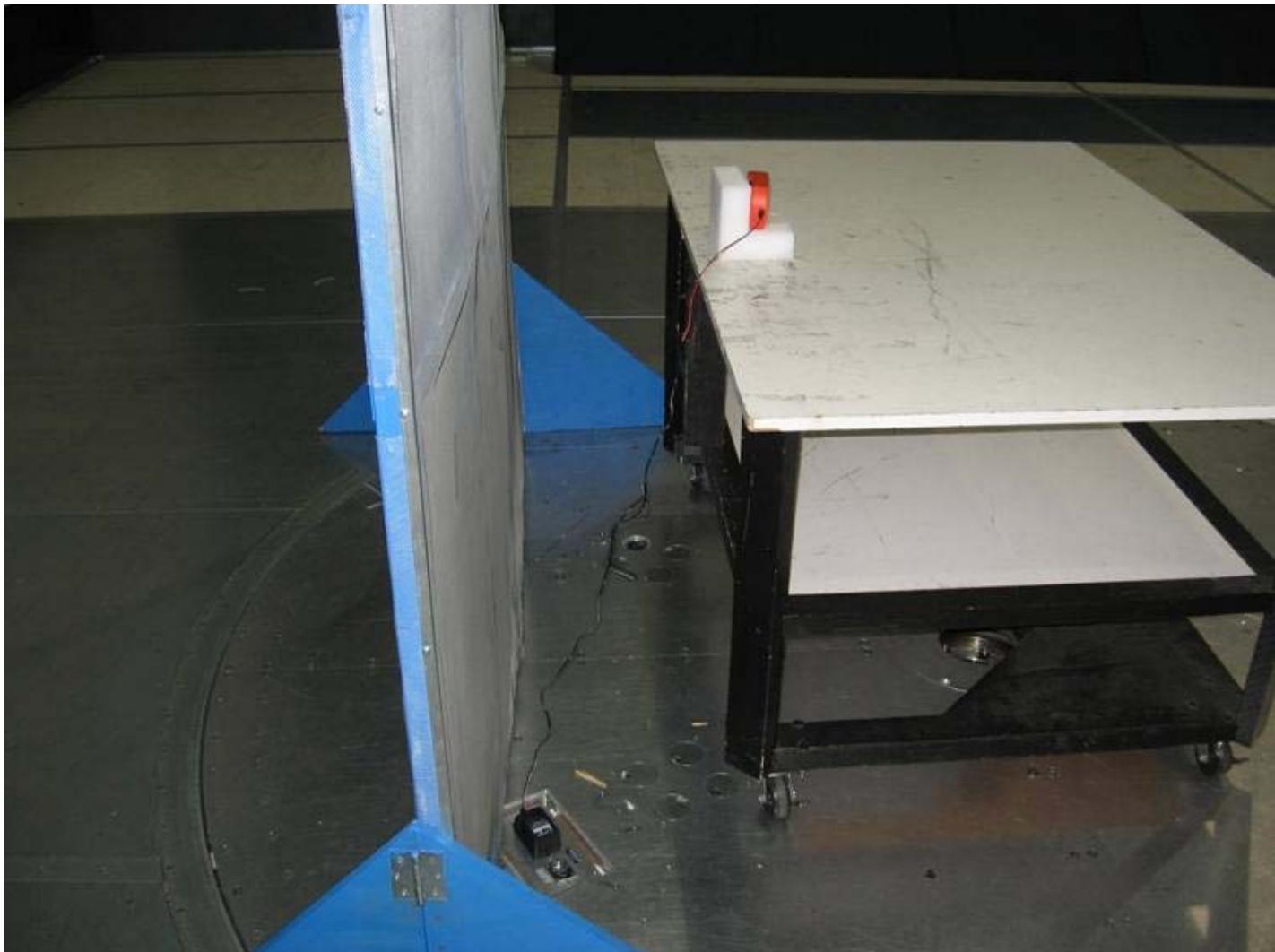
**Photo:**



Test Setup - Front View

## 6.0 Conducted emissions on AC power lines (Conducted Emissions)

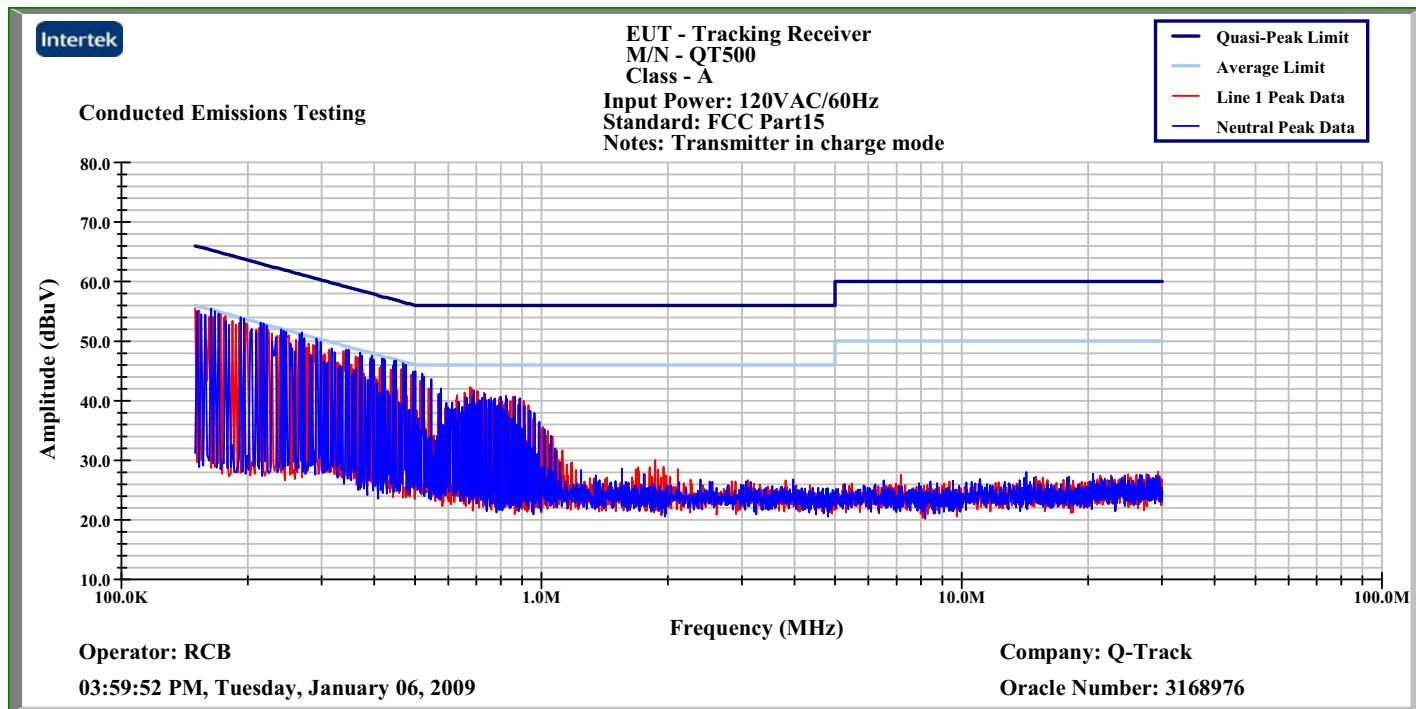
**Photo:**



Test Setup - Rear View

## 6.0 Conducted emissions on AC power lines (Conducted Emissions)

Plot:



Conducted Emissions 0.15-30MHz @ 120VAC/60Hz

**6.0 Conducted emissions on AC power lines (Conducted Emissions)****Data:**

Conducted Emissions Summary			
Rule Part	Limit	Input Voltage	Result
FCC Part 15.107	CISPR Class B	120 Vac / 60 Hz	Pass

Note: EUT does not transmit while charging.

## 6.0 Conducted emissions on AC power lines (Conducted Emissions)

## Data:

Frequency Range (MHz): .150-30

Input power: 120VAC/60Hz

Limit: CISPR Class B

Modifications for compliance (y/n): n

A	B	C	D	E	F	G	H	I
LISN Number 1,2	Detector (P,QP, A)	Frequency MHz	Reading dBuV	Cable Loss dB	LISN Ins. Loss dB	Net dBuV	Limit dBuV	Margin dB
1	QP	0.150	38.7	0.3	6.4	45.4	66.0	-20.7
1	A	0.150	5.8	0.3	6.4	12.5	56.0	-43.6
1	QP	0.158	38.4	0.3	6.4	45.1	65.7	-20.7
1	A	0.158	5.4	0.3	6.4	12.1	55.7	-43.7
1	QP	0.192	36.9	0.3	6.2	43.4	64.0	-20.7
1	A	0.192	4.0	0.3	6.2	10.5	54.0	-43.6
1	QP	0.265	33.7	0.3	6.0	40.0	61.3	-21.4
1	A	0.265	1.0	0.3	6.0	7.3	51.3	-44.1
1	QP	0.295	32.4	0.3	6.0	38.7	60.4	-21.8
1	A	0.295	1.0	0.3	6.0	7.3	50.4	-43.2
1	QP	0.457	27.1	0.3	6.0	33.4	56.8	-23.5
1	A	0.457	1.0	0.3	6.0	7.3	46.8	-39.6
2	QP	0.150	39.0	0.3	6.3	45.6	66.0	-20.5
2	A	0.150	6.1	0.3	6.3	12.7	56.0	-43.4
2	QP	0.158	38.6	0.3	6.3	45.2	65.7	-20.6
2	A	0.158	5.6	0.3	6.3	12.2	55.7	-43.6
2	QP	0.192	37.1	0.3	6.3	43.7	64.0	-20.4
2	A	0.192	4.1	0.3	6.3	10.7	54.0	-43.4
2	QP	0.265	33.9	0.3	6.1	40.3	61.3	-21.1
2	A	0.265	1.0	0.3	6.1	7.4	51.3	-44.0
2	QP	0.295	32.5	0.3	6.1	38.9	60.4	-21.6
2	A	0.295	1.0	0.3	6.1	7.4	50.4	-43.1
2	QP	0.457	27.7	0.3	5.9	33.9	56.8	-23.0
2	A	0.457	1.0	0.3	5.9	7.2	46.8	-39.7
<b>Calculations</b>		$G=D+E+F$		$I=G-H$				

Conducted Emissions 0.15-30MHz @ 120VAC/60Hz

**7.0 Total input power and total length of the transmission line (FCC 15C - 15.219(a) & (b))****Method:**

- a) The total input power to the final radio frequency stage (exclusive of filament or heater power) shall not exceed 100 milliwatts.
- (b) The total length of the transmission line, antenna and ground lead (if used) shall not exceed 3 meters.

**Results: The sample tested was found to Comply.****Data:**

Measured Input Power, mW	Input Power Limit, mW
99	100

Length of Transmission Line <3m:	yes
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Power monitored internally and reported by client software.

## 8.0 Emissions below 510 kHz or above 1705 kHz (FCC 15C - 15.219(c))

### Method:

In the frequency range of 9 kHz to 30 MHz, magnetic field measurements may be performed. A calibrated loop antenna shall be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground.

Measurements in the frequency range of 30 MHz to 1000 MHz shall be performed with a quasi-peak detector instrument that meets the requirements of Section One of CISPR 16. Above 1000 MHz, a peak detector shall be used. Peak values converted to average by applying the duty cycle correction factor, when applicable. When an average detector is used, it shall meet the requirements of Section One of CISPR 16. The measuring antenna shall correlate to a balanced dipole. The antenna shall be adjusted between 1m and 4m in height above the ground plane for maximum meter reading at each test frequency. The antenna-to-EUT polarization (horizontal and vertical) shall be varied during the measurements to find the maximum field-strength readings.

#### Bandwidths:

9 kHz to 30 MHz: 9 kHz RBW and 30 kHz VBW  
 30 MHz to 1000 MHz: 120 kHz RBW and 1 MHz VBW  
 Above 1000 MHz: 1 MHz RBW and 3 MHz VBW

Measurements of the radiated field are made with the antenna located at a distance of 3 or 10 meters from the EUT. The limit applied to the measurement shall be appropriate for the test distance. The test distance shall be indicated in the results section.

The EUT shall be arranged and connected with cables terminated in accordance with the product specification.

Exploratory tests should be carried out while varying the cable positions to determine the maximum or near-maximum emission level. During manipulation, cables shall not be placed under or on top of the system test components unless such placement is required by the inherent equipment design.

### GENERAL REQUIREMENTS

The antenna-to-EUT azimuth shall be varied during the measurement to find the maximum field-strength readings.

If the EUT is intended for tabletop use, it shall be placed on a table whose top is 0.8m above the ground plane. The table shall be constructed of non-conductive materials. Its dimensions are at least 1m by 1.5m, but may be extended for larger EUT.

If EUT is floor standing, the EUT was placed on a horizontal metal ground plane and isolated from the ground plane by up to 12 mm of insulating material.

Equipment setup for radiated disturbance tests shall follow the guidelines of  
 ANSI C63.4:2003

### TEST SITE

The test site for radiated emissions is located at 1950 Evergreen Blvd, Suite 100, Duluth, Georgia 30096. It is a 10 meter semi-anechoic chamber manufactured by Panashield. Embedded in the floor is a 3 meter diameter turntable.

A2LA: 1455.01  
 IC: 2077-1

### Test Equipment Used:

Description:	Manufacturer:	Model:	Asset Number:	Cal Date:	Cal Due:
Antenna, Active Loop (1kHz to 30 MHz)	EMCO	6507	213071	02/04/2008	02/04/2009
Cable E201, 18 GHz, N, 3m	Megaphase	TM18 NKNK 118	E201	01/16/2008	01/16/2009
Cable MP3, 18 GHz, N, 10m	Megaphase	G919-NKNK-394	MP3	05/05/2008	05/05/2009
Cable ST1, 7m, N-N, 18 GHz	Storm Products Co.	PR90-206-7MTR	ST1	01/16/2008	01/16/2009
EMI Receiver	Hewlett Packard	8546A	213109	09/29/2008	09/29/2009
EMI Receiver, Preselector section	Hewlett Packard	85460A	213108	09/29/2008	09/29/2009
Excel spreadsheet for radiated emissions	Software	Excel - RE Worksh	SW004	12/08/2008	12/08/2009
Spectrum Analyzer, 20Hz-40GHz	Rohde & Schwarz	FSEK30	200062	10/11/2008	10/11/2009
Tile - software profile for Belcore GR 1089 Section 3 emissions testing.	Software	Tile - Bellcore EMI	SW010	12/08/2008	12/08/2009

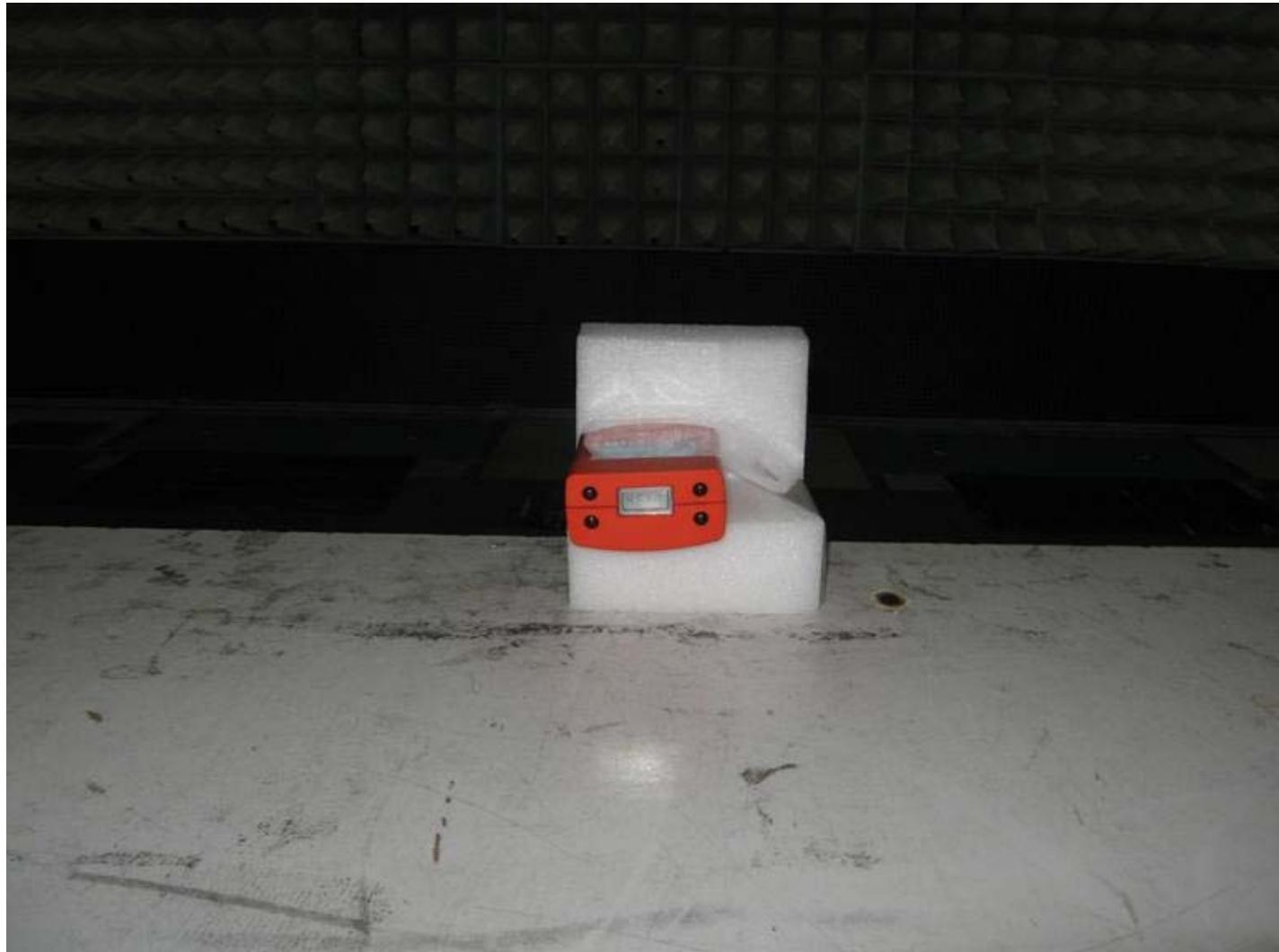
**Results: The sample tested was found to Comply.**

**8.0 Emissions below 510 kHz or above 1705 kHz (FCC 15C - 15.219(c))****Photo:**

Test Setup - X-Axis

**8.0 Emissions below 510 kHz or above 1705 kHz (FCC 15C - 15.219(c))**

**Photo:**



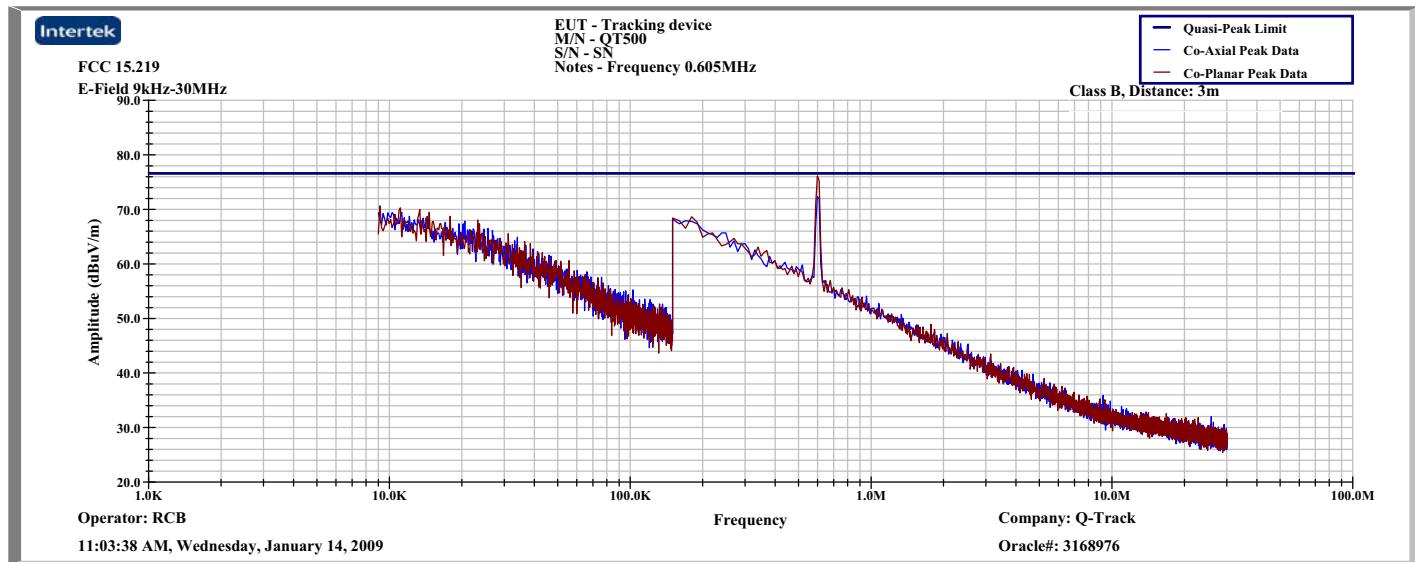
Test Setup - Y-Axis

**8.0 Emissions below 510 kHz or above 1705 kHz (FCC 15C - 15.219(c))****Photo:**

Test Setup - Z-Axis

## 8.0 Emissions below 510 kHz or above 1705 kHz (FCC 15C - 15.219(c))

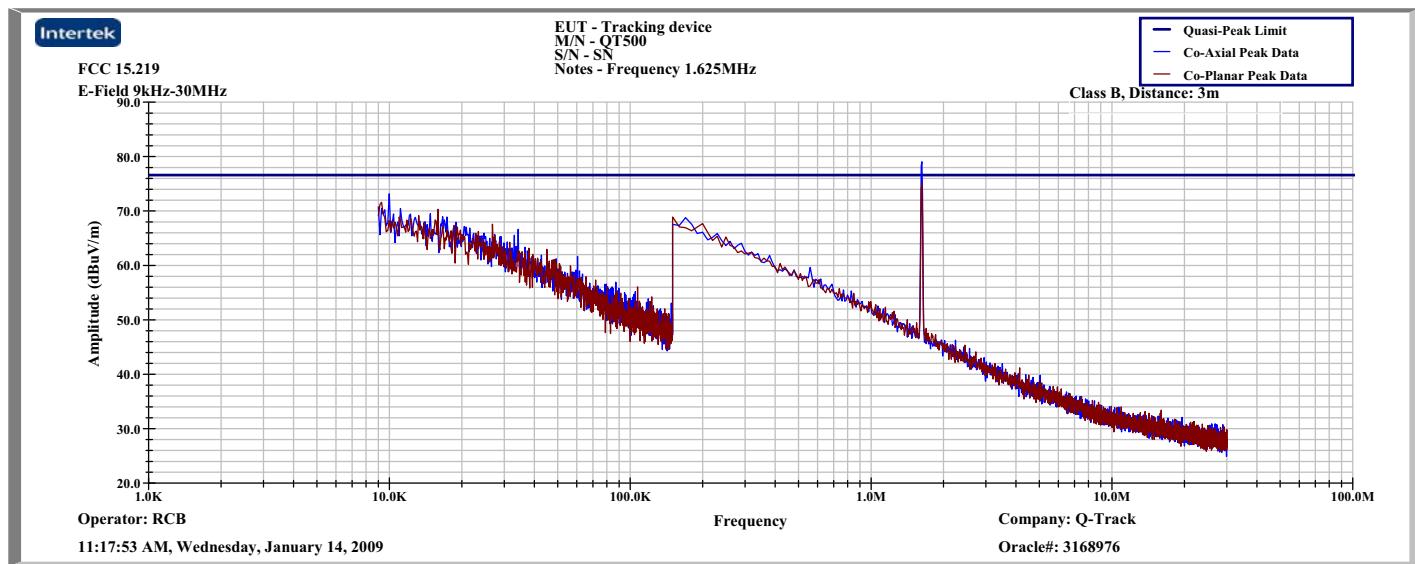
Plot:



LF Scan from 9kHz to 30MHz @ 605kHz

## 8.0 Emissions below 510 kHz or above 1705 kHz (FCC 15C - 15.219(c))

Plot:



LF Scan from 9kHz to 30MHz @ 1625kHz

## 8.0 Emissions below 510 kHz or above 1705 kHz (FCC 15C - 15.219(c))

## Data:

Frequency Range (MHz): .009-30

Test Distance (m): 3

Input power: Battery

Limit: 15\_219 10k\_30M-3m

Modifications for compliance (y/n): n

A	B	C	D	E	F	G	H	I	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Detectors / Bandwidths Det/RBW/VBW
<b>Low Channel 605kHz</b>									
V	0.0094	26.7	27.3	0.3	0.0	54.2	56.6	-2.4	QP/9k/30k
V	0.0147	28.3	25.4	0.3	0.0	53.9	56.6	-2.7	QP/9k/30k
V	0.1791	34.8	18.7	0.3	0.0	53.9	56.6	-2.7	QP/9k/30k
<b>High Channel 1625kHz</b>									
V	0.0099	26.9	26.8	0.3	0.0	54.0	56.6	-2.6	QP/9k/30k
V	0.0159	28.6	25.0	0.3	0.0	53.9	56.6	-2.7	QP/9k/30k
V	0.1699	35.3	18.7	0.3	0.0	54.3	56.6	-2.3	QP/9k/30k
<b>Calculations</b>	G=C+D+E-F			I=G-H					

Field Strength from 9kHz - 30MHz

## 9.0 Radiated emissions (E-field) (Radiated Emissions)

### Method:

Measurements in the frequency range of 30 MHz to 1000 MHz shall be performed with a quasi-peak detector instrument that meets the requirements of Section One of CISPR 16. Above 1000 MHz, a peak detector shall be used. Peak values converted to average by applying the duty cycle correction factor, when applicable. When an average detector is used, it shall meet the requirements of Section One of CISPR 16. The measuring antenna shall correlate to a balanced dipole.

#### Bandwidths:

30 MHz to 1000 MHz: 120 kHz RBW and 1 MHz VBW  
Above 1000 MHz: 1 MHz RBW and 3 MHz VBW

Measurements of the radiated field are made with the antenna located at a distance of 3 or 10 meters from the EUT. The limit applied to the measurement shall be appropriate for the test distance. The test distance shall be indicated in the results section.

The EUT shall be arranged and connected with cables terminated in accordance with the product specification.

Exploratory tests should be carried out while varying the cable positions to determine the maximum or near-maximum emission level. During manipulation, cables shall not be placed under or on top of the system test components unless such placement is required by the inherent equipment design.

The antenna shall be adjusted between 1m and 4m in height above the ground plane for maximum meter reading at each test frequency. For 9kHz to 30 MHz, the center of the loop shall be 1 m above the ground.

The antenna-to-EUT azimuth shall be varied during the measurement to find the maximum field-strength readings.

The antenna-to-EUT polarization (horizontal and vertical) shall be varied during the measurements to find the maximum field-strength readings.

If the EUT is intended for tabletop use, it shall be placed on a table whose top is 0.8m above the ground plane. The table shall be constructed of non-conductive materials. Its dimensions are at least 1m by 1.5m, but may be extended for larger EUT.

If EUT is floor standing, the EUT was placed on a horizontal metal ground plane and isolated from the ground plane by up to 12 mm of insulating material.

Equipment setup for radiated disturbance tests shall follow the guidelines of  
ANSI C63.4:2003.

### TEST SITE

The test site for radiated emissions is located at 1950 Evergreen Blvd, Suite 100, Duluth, Georgia 30096. It is a 10 meter semi-anechoic chamber manufactured by Panashield. Embedded in the floor is a 3 meter diameter turntable.

A2LA: 1455.01  
IC: 2077-1

### MEASUREMENT UNCERTAINTY

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes. The values given are the measurement uncertainty values with an expanded uncertainty of k=2.

30 MHz to 1000 MHz at 3 meters: +/- 3.9 dB

30 MHz to 1000 MHz at 10 meters: +/- 3.6 dB

1 GHz to 18 GHz at 3 meters: +/- 4.2 dB

### Test Equipment Used:

Description:	Manufacturer:	Model:	Asset Number:	Cal Date:	Cal Due:
Antenna, BiLog, 20-2000MHz	Chase	CBL6112B	211386	09/26/2008	09/26/2009
Cable E01, <18GHz	Pasternack	RG214/U	E01	05/05/2008	05/05/2009
Cable E05, <18GHz	Huber-Suhner	Sucoflex 104PEA	E05	05/05/2008	05/05/2009
Cable MP3, 18 GHz, N, 10m	Megaphase	G919-NKNK-394	MP3	05/05/2008	05/05/2009
EMI Receiver	Hewlett Packard	8546A	213109	09/29/2008	09/29/2009
EMI Receiver, Preselector section	Hewlett Packard	85460A	213108	09/29/2008	09/29/2009
Excel spreadsheet for radiated emissions	Software	Excel - RE Worksh	SW004	12/08/2008	12/08/2009
Preamplifier, 10 MHz to 2000 MHz, 30 dB gain	Mini-Circuits	ZKL-2	200069	09/22/2008	09/22/2009
Spectrum Analyzer, 20Hz-40GHz	Rohde & Schwarz	FSEK30	200062	10/11/2008	10/11/2009
Tile - software profile for radiated and conducted emissions testing.	Software	Tile - Emissions	SW006	12/08/2008	12/08/2009

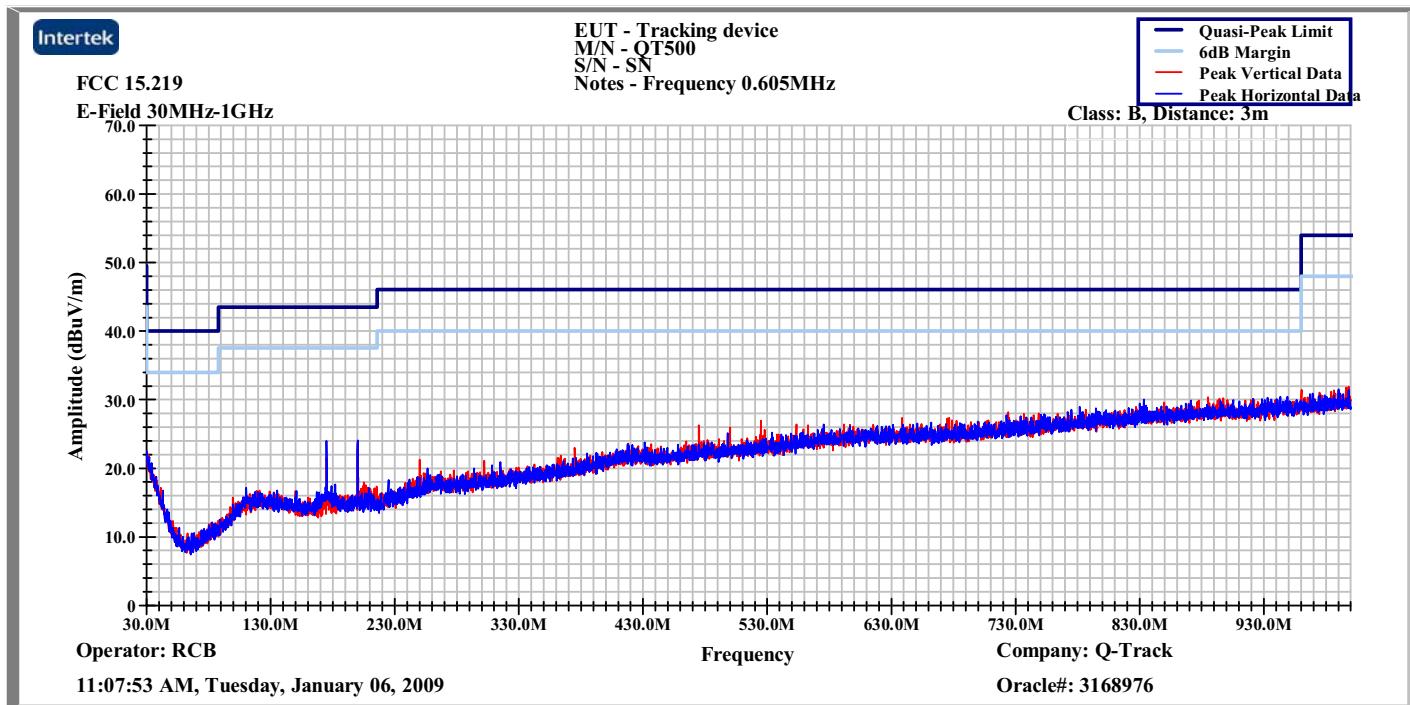
**Results: The sample tested was found to Comply.**

**9.0 Radiated emissions (E-field) (Radiated Emissions)****Photo:**

Test Setup - Front View

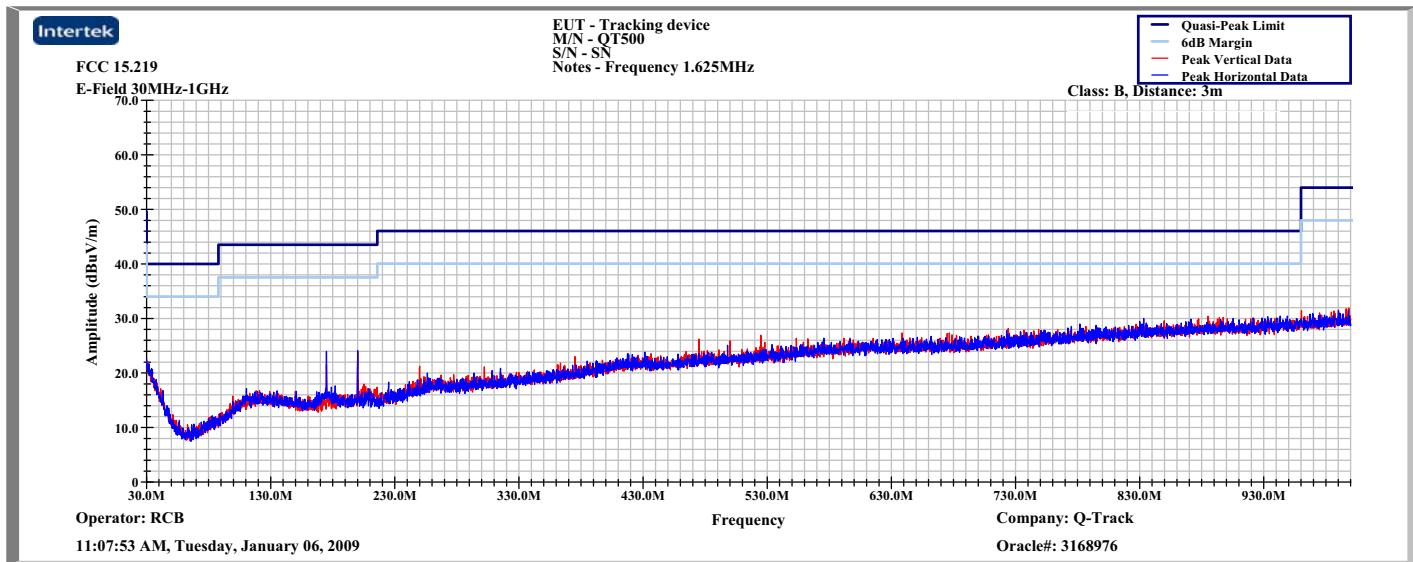
## 9.0 Radiated emissions (E-field) (Radiated Emissions)

Plot:



## 9.0 Radiated emissions (E-field) (Radiated Emissions)

Plot:



MF Scan from 30MHz to 1000MHz @ 1625kHz

## 9.0 Radiated emissions (E-field) (Radiated Emissions)

## Data:

Frequency Range (MHz): 30-1000

Test Distance (m): 3

Input power: Battery

Limit: 15\_209a-3m

Modifications for compliance (y/n): n

A	B	C	D	E	F	G	H	I	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Detectors / Bandwidths Det/RBW/VBW
<b>Low Channel 605kHz</b>									
H	175.000	42.1	11.5	2.7	27.8	28.4	43.5	-15.1	Pk/120k/300k
H	200.000	40.6	11.4	2.9	27.8	27.1	43.5	-16.4	Pk/120k/300k
<b>High Channel 1625kHz</b>									
H	175.000	43.2	11.5	2.7	27.8	29.5	43.5	-14.0	Pk/120k/300k
H	200.000	40.9	11.4	2.9	27.8	27.4	43.5	-16.1	Pk/120k/300k
<b>Calculations</b>	G=C+D+E-F			I=G-H					

Field Strength from 30MHz - 1000MHz

## 10.0 Radiated emissions (E-field) - RSS-210 Annex A2.2(b) (Radiated Emissions)

### Method:

In the frequency range of 9 kHz to 30 MHz, magnetic field measurements may be performed. A calibrated loop antenna shall be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground.

#### Bandwidths:

9 kHz to 30 MHz: 9 kHz RBW and 30 kHz VBW

Measurements of the radiated field are made with the antenna located at a distance of 3 or 10 meters from the EUT. The limit applied to the measurement shall be appropriate for the test distance. The test distance shall be indicated in the results section.

The EUT shall be arranged and connected with cables terminated in accordance with the product specification.

Exploratory tests should be carried out while varying the cable positions to determine the maximum or near-maximum emission level. During manipulation, cables shall not be placed under or on top of the system test components unless such placement is required by the inherent equipment design.

The antenna-to-EUT azimuth shall be varied during the measurement to find the maximum field-strength readings.

If the EUT is intended for tabletop use, it shall be placed on a table whose top is 0.8m above the ground plane. The table shall be constructed of non-conductive materials. Its dimensions are at least 1m by 1.5m, but may be extended for larger EUT.

If EUT is floor standing, the EUT was placed on a horizontal metal ground plane and isolated from the ground plane by up to 12 mm of insulating material.

Equipment setup for radiated disturbance tests shall follow the guidelines of  
ANSI C63.4:2003

### TEST SITE

The test site for radiated emissions is located at 1950 Evergreen Blvd, Suite 100, Duluth, Georgia 30096. It is a 10 meter semi-anechoic chamber manufactured by Panashield. Embedded in the floor is a 3 meter diameter turntable.

A2LA: 1455.01

IC: 2077-1

### Test Equipment Used:

Description:	Manufacturer:	Model:	Asset Number:	Cal Date:	Cal Due:
Antenna, Active Loop (1kHz to 30 MHz)	EMCO	6507	213071	02/04/2008	02/04/2009
Cable E01, <18GHz	Pasternack	RG214/U	E01	05/05/2008	05/05/2009
Cable MP3, 18 GHz, N, 10m	Megaphase	G919-NKNK-394	MP3	05/05/2008	05/05/2009
Cable TT1, 6ft, N(Male) to N(Male)	Mini-Circuits	CBL-6FT-NMNM	TT1	05/05/2008	05/05/2009
EMI Receiver	Hewlett Packard	8546A	213109	09/29/2008	09/29/2009
EMI Receiver, Preselector section	Hewlett Packard	85460A	213108	09/29/2008	09/29/2009

**Results: The sample tested was found to Comply.**

## 10.0 Radiated emissions (E-field) - RSS-210 Annex A2.2(b) (Radiated Emissions)

## Data:

Date: 01/06/2009

Test Distance (m): 3

Frequency Range (MHz): .009-30

Limit: RSS-210

Input power: Internal Battery

Modifications for compliance (y/n): n

A	B	C	D	E	F	G	H	I	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Detectors / Bandwidths Det/RBW/VBW
V	1.625	52.2	18.2	0.5	0.0	70.8	88.0	-17.2	QP/9k/30k
H	1.625	57.8	18.2	0.5	0.0	76.4	88.0	-11.6	QP/9k/30k
V	1.625	50.8	18.2	0.5	0.0	69.4	88.0	-18.6	QP/9k/30k
H	1.625	55.1	18.2	0.5	0.0	73.8	88.0	-14.2	QP/9k/30k
V	1.625	50.8	18.2	0.5	0.0	69.4	88.0	-18.6	QP/9k/30k
H	1.625	55.0	18.2	0.5	0.0	73.6	88.0	-14.4	QP/9k/30k
V	0.605	55.1	18.3	0.4	0.0	73.8	88.0	-14.2	QP/9k/30k
H	0.605	57.9	18.3	0.4	0.0	76.6	88.0	-11.4	QP/9k/30k
V	0.605	49.6	18.3	0.4	0.0	68.3	88.0	-19.7	QP/9k/30k
H	0.605	45.6	18.3	0.4	0.0	64.3	88.0	-23.7	QP/9k/30k
V	0.605	46.1	18.3	0.4	0.0	64.8	88.0	-23.2	QP/9k/30k
H	0.605	48.9	18.3	0.4	0.0	67.6	88.0	-20.4	QP/9k/30k
<b>Calculations</b>		G=C+D+E-F			I=G-H				