



## Test Report

Product Name : GPS TRACKER  
Model No : GT-95  
FCC ID : XODTCK950910A

Applicant : eNAVI Technology Corp.  
Address : 2F,NO.70,ZIQUIANG 5TH RD.,ZHUBEI  
CITY,HSINCHU COUNTY,TAIWAN

Date of Receipt : 2009/05/20  
Issued Date : 2009/09/25  
Report No. : 095299R-HPUSP07V01  
Report Version : 1.0

The test results relate only to the samples tested.  
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This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

# Test Report Certification

Issued Date : 2009/09/25

Report No.: 095299R-HPUSP07V01



Accredited by NIST (NVLAP)

NVLAP Lab Code: 200533-0

Product Name :GPS TRACKER

Applicant :eNAVI Technology Corp.

Address : 2F,NO.70,ZIQUIANG 5TH RD.,ZHUBEI CITY,HSINCHU  
: COUNTY,TAIWAN

Manufacturer :eNAVI Technology Corp.

Trade Name :iCAREU

Model No. :GT-95

EUT Rated Voltage :AC 120V/60Hz

EUT Test Voltage :DC 5V

Measurement Standard :FCC CFR Title 47 Part 2 22 24

Measurement Reference :TIA/EIA 603-C

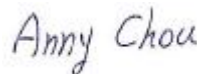
Test Result :Complied

Test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quie Tek Corporation.

This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By :



(Adm. Assistant / Anny Chou)

Tested By :



(Engineer / Vorana Chen)

Approved By :



(Manager / Vincent Lin)

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## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	GPS TRACKER
Model No.	GT-95
Trade Name	iCAREU
IMEI No.	355791-xx-xxxxxx-x
FCC ID.	XODTCK950910A
Antenna Type	Internal
TX Frequency	824MHz~849MHz(GSM 850) 1850MHz ~ 1910MHz(PCS 1900)
Rx Frequency	869MHz~894MHz(GSM 850) 1930MHz ~ 1990MHz(PCS 1900)
Hardware version	V1.3
Software version	V1.5.3

## 1.2. Operational Description

The information contained within this report is intended to show verification of compliance of the 850/1900MHz Notebook to the requirements of 47CFR2, 22 and 24.

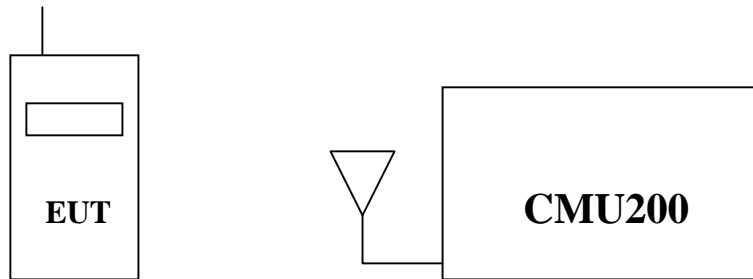
The EUT provide all functions described as above. The EUT is tested with maximum rated TX power via the Base Station simulator.

Quietek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

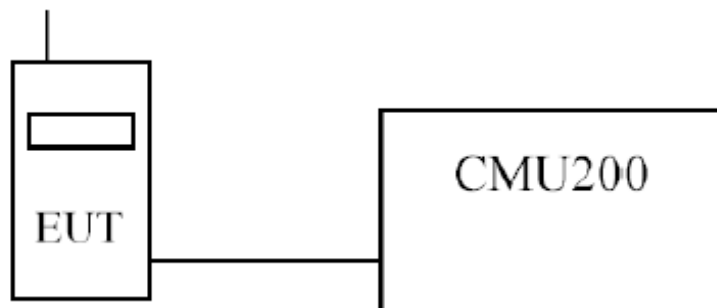
Test Mode:	GSM 850 Voice
	GSM 850 GPRS
	PCS 1900 Voice
	PCS 1900 GPRS

### 1.3. Configuration of tested System

(a) Configuration of Radiated measurement



(b) Configuration of Conducted measurement



### 1.4. EUT Setup Procedures

- (1) Setup the EUT and simulators as shown on 1.3
- (2) Turn on the power of all equipments.
- (3) The EUT was set to communicate with CMU200.
- (4) Repeat the above procedure (3).

## 1.5. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	23
Humidity (%RH)	25-75	52
Barometric pressure (mbar)	860-1060	982

Site Description: File on

Federal Communications Commission  
FCC Engineering Laboratory  
7435 Oakland Mills Road  
Columbia, MD 21046  
FCC Registration Number :92195



July 03, 2001 Accreditation on NVLAP  
NVLAP Lab Code: 200533-0



Site Name: Quie Tek Corporation

Linkou Testing Laboratory:

No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,  
Lin-Kou Shiang, Taipei,  
Taiwan, R.O.C.  
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789  
E-Mail : [service@quietek.com](mailto:service@quietek.com)

FCC Accreditation Number: TW1014



## 1.6. Type of Emission

GSM/GPRS: 300KGXW

## 1.7. DC voltages and DC currents

GSM 850	GSM 850 GPRS
EUT Transmitting (in maximum power) :	EUT Transmitting (in maximum power) :
DC voltage : 3.7V , DC current : 0.48A	DC voltage : 3.7V , DC current : 0.41A
EUT Standby :	EUT Standby :
DC voltage : 3.7V , DC current : 0.08A	DC voltage : 3.7V , DC current : 0.08A
PCS 1900	PCS 1900 GPRS
EUT Transmitting (in maximum power) :	EUT Transmitting (in maximum power) :
DC voltage : 3.7V , DC current : 0.28A	DC voltage : 3.7V , DC current : 0.26A
EUT Standby :	EUT Standby :
DC voltage : 3.7V , DC current : 0.08A	DC voltage : 3.7V , DC current : 0.08A



## 2. Peak Power Output

### 2.1. Test Equipment

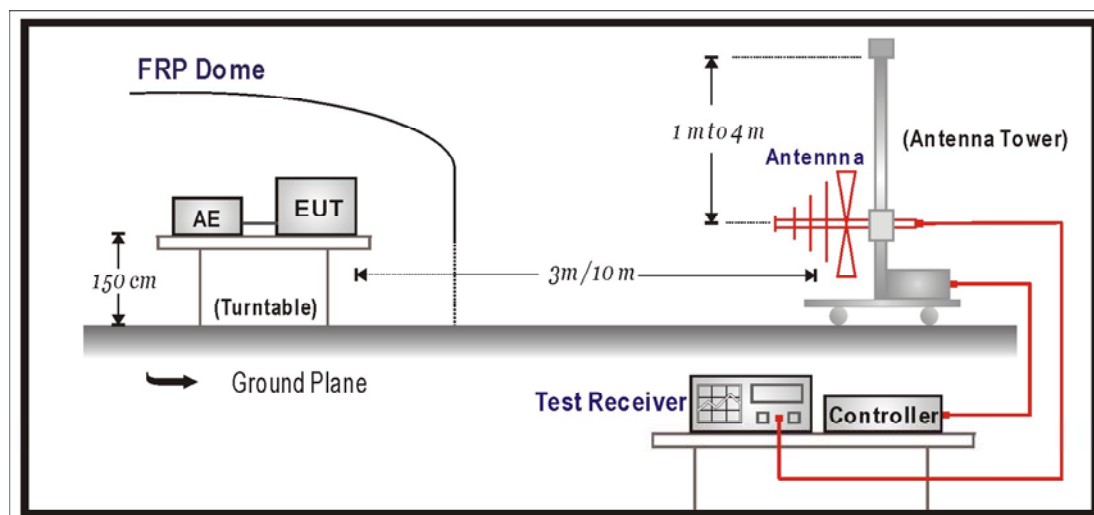
The following test equipments are used during the radiated emission test:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒OATS 1	Test Receiver	R & S	ESCS 30 / 100122	Feb., 2009
	Universal Radio Communication Tester	R & S	CMU200 / 104846	May., 2009
	Spectrum Analyzer	Agilent	E4408B/ MY45102743	Aug., 2009
	Microwave Amplifier (0.5GHZ-26.5GHZ)	Agilent	83017A/ MY39500682	Aug ., 2009
	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May., 2009
	Horn Antenna	ETS	3115 / 0005-6160	Jul., 2009
	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	Jul., 2009

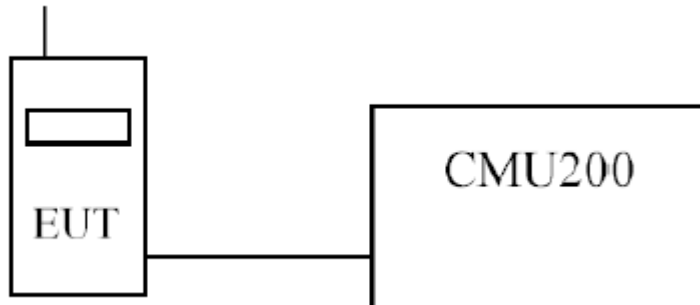
Note: 1. All equipments that need to be calibrated are with calibration period of 1 year.

### 2.2. Test Setup

#### Radiated Power Measurement



## Conducted Power Measurement



### 2.3. Limits

Cellular Band 850	<7W
-------------------	-----

PCS Band 1900	<2W or +33dBm
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### 2.4. Test Procedure

#### ➤RF Out Power (Radiated)

The Spectrum Analyzer was tuned to the test frequency. The device was put into Transmit mode then rotated through 360 degrees until the highest power level was observed in both horizontal and vertical polarization. The device was then replaced with a substitution antenna, which input signal was adjusted until the received level matched that of the previously detected emission.

The EUT is tested with maximum rated TX power via the Base Station simulator.

#### ➤RF Out Power (Conducted)

The EUT is tested with maximum rated TX power via the Base Station simulator, and the output power was measured at the antenna terminals of the EUT.

### 2.5. Test Specification

According to Part 2.1046, 22.913,24.232.

## 2.6. Test Result of Peak Power Output

Product	GPS TRACKER		
Test Mode	RF Output Power (Conducted)		
Date of Test	2009/09/03	Test Site	CTR

GSM 850 Voice				
Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (W)
824.2	32.11	0.4	32.51	1.78
836.4	32.13	0.4	32.53	1.79
848.8	32.46	0.4	32.86	1.93
GSM 850 GPRS				
Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (W)
824.2	31.54	0.4	31.94	1.56
836.4	31.62	0.4	32.02	1.59
848.8	31.94	0.4	32.34	1.71
PCS 1900 Voice				
Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (W)
1850.2	28.13	0.6	28.73	0.75
1880	28.40	0.6	29.00	0.79
1909.8	28.99	0.6	29.59	0.91
PCS 1900 GPRS				
Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (W)
1850.2	27.70	0.6	28.30	0.68
1880	27.99	0.6	28.59	0.72
1909.8	28.56	0.6	29.16	0.82

Product	GPS TRACKER		
Test Mode	RF Output Power (Radiated)		
Date of Test	2009/09/03	Test Site	OATS 1
Test Condition	GSM 850 Voice		

#### Maximum Power-GSM 850 Voice

Frequency (MHz)	Reading Level (dBm)	Substitution Level (dBm)	Substitution Antenna Gain (dBd)	Cable Loss (dB)	Result ERP (dBm)	Result ERP (W)
824.2	14.35	17.19	4.45	0.51	21.13	0.13
836.4	13.94	16.78	4.45	0.51	20.72	0.12
848.8	14.46	17.30	4.45	0.51	21.24	0.13

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 22, Section 22.913(a) for Effective Radiated Power.
2. Receiver setting (Peak Detector) : RBW:3MHz; VBW:3MHz
3. Result ERP = Substitution Level + Substitution Antenna Gain - Cable Loss

Product	GPS TRACKER		
Test Mode	RF Output Power (Radiated)		
Date of Test	2009/09/10	Test Site	OATS 1
Test Condition	GSM 850 GPRS		

#### Maximum Power-GSM 850 GPRS

Frequency (MHz)	Reading Level (dBm)	Substitution Level (dBm)	Substitution Antenna Gain (dBd)	Cable Loss (dB)	Result ERP (dBm)	Result ERP (W)
824.2	14.20	17.04	4.45	0.51	20.98	0.13
836.4	14.02	16.86	4.45	0.51	20.80	0.12
848.8	14.47	17.31	4.45	0.51	21.25	0.13

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 22, Section 22.913(a) for Effective Radiated Power.
2. Receiver setting (Peak Detector) : RBW:3MHz; VBW:3MHz
3. Result ERP = Substitution Level + Substitution Antenna Gain - Cable Loss

Product	GPS TRACKER		
Test Mode	RF Output Power (Radiated)		
Date of Test	2009/09/10	Test Site	OATS 1
Test Condition	PCS 1900 Voice		

#### Maximum Power-PCS 1900 Voice

Frequency (MHz)	Reading Level (dBm)	Substitution Level (dBm)	Substitution Antenna Gain (dBi)	Cable Loss (dB)	Result EIRP (dBm)	Result EIRP (W)
1850.2	-18.060	13.322	10.4	1.02	22.702	0.19
1880.0	-17.030	14.721	10.4	1.02	24.101	0.26
1909.8	-16.010	15.985	10.4	1.02	25.365	0.34

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 24, Section 24.232(b) for Effective Isotropically Radiated Power.
2. Receiver setting (Peak Detector) : RBW:3MHz; VBW:3MHz
3. Result EIRP = Substitution Level + Substitution Antenna Gain - Cable Loss

Product	GPS TRACKER		
Test Mode	RF Output Power (Radiated)		
Date of Test	2009/09/10	Test Site	OATS 1
Test Condition	PCS 1900 GPRS		

#### Maximum Power-PCS 1900 GPRS

Frequency (MHz)	Reading Level (dBm)	Substitution Level (dBm)	Substitution Antenna Gain (dBi)	Cable Loss (dB)	Result EIRP (dBm)	Result EIRP (W)
1850.2	-17.930	13.452	10.4	1.02	22.832	0.19
1880.0	-16.940	14.811	10.4	1.02	24.191	0.26
1909.8	-15.800	16.195	10.4	1.02	25.575	0.36

#### Note:

1. The EUT meets the requirements of FCC CFR 47: Part 24, Section 24.232(b) for Effective Isotropically Radiated Power.
2. Receiver setting (Peak Detector) : RBW:3MHz; VBW:3MHz
3. Result EIRP = Substitution Level + Substitution Antenna Gain - Cable Loss

### 3. Occupied Bandwidth

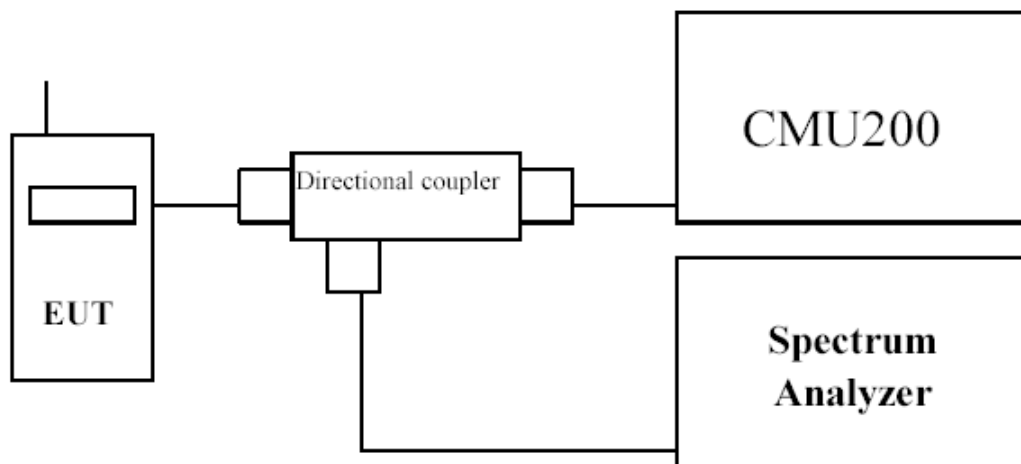
#### 3.1. Test Equipment

The following test equipments are used during the occupied bandwidth tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Spectrum Analyzer	Agilent	E4408B/ MY45102743	Aug., 2009
Universal Radio Communication Tester	R & S	CMU200 / 104846	May., 2009
Directional coupler	Agilent	87300C / MY44300353	Aug., 2009
Directional coupler	Agilent	778D-012/ 50550	Aug., 2009

Note: All equipments upon which need to be calibrated are with calibration period of 1 year.

#### 3.2. Test Setup



#### 3.3. Test Procedure

The EUT is tested with maximum rated TX power via the Base Station simulator, and the occupied bandwidth was measured at the antenna terminals of the EUT.

The Resolution BW of the analyzer is set to 1 % of the emission bandwidth. The EUT's occupied bandwidth is measured as the width of the signal between two points, one below the carrier center frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The plots below show the resultant display from the Spectrum Analyzer.



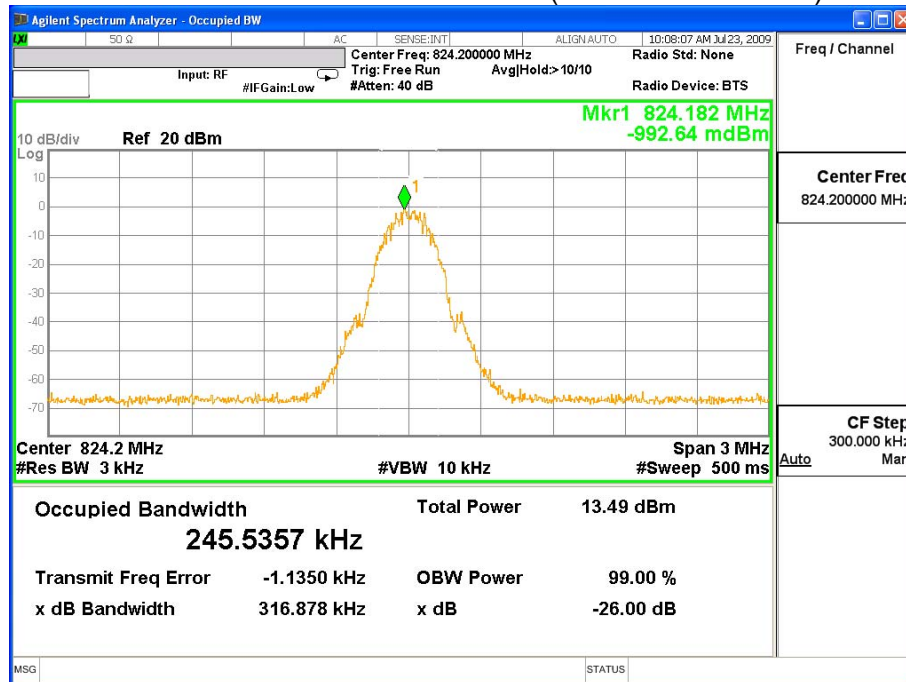
### **3.4. Test Specification**

According to Part 2.1049, 22.917(b), 24.238(b).

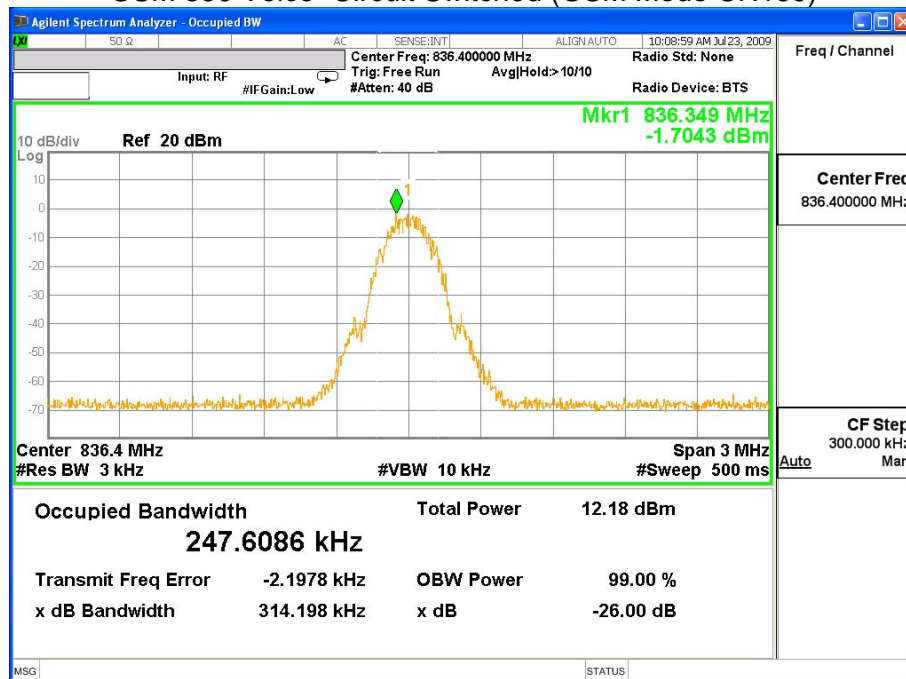
### 3.5. Test Result of Occupied Bandwidth

Product	GPS TRACKER		
Test Mode	Occupied Bandwidth		
Date of Test	2009/09/03	Test Site	CTR

GSM 850 Voice- Circuit Switched (GSM Mode CH 128)

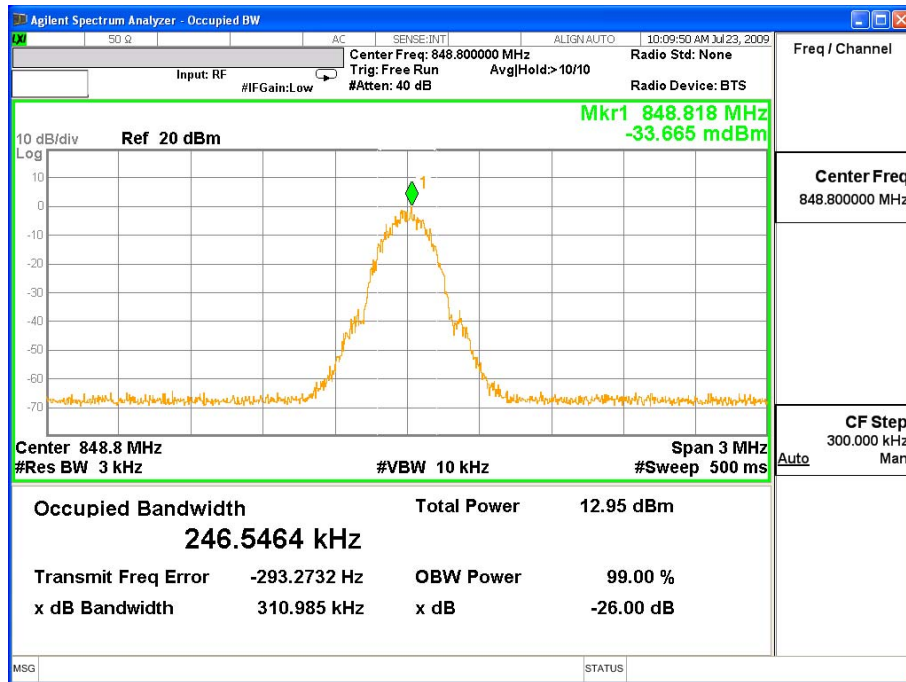


GSM 850 Voice- Circuit Switched (GSM Mode CH189)



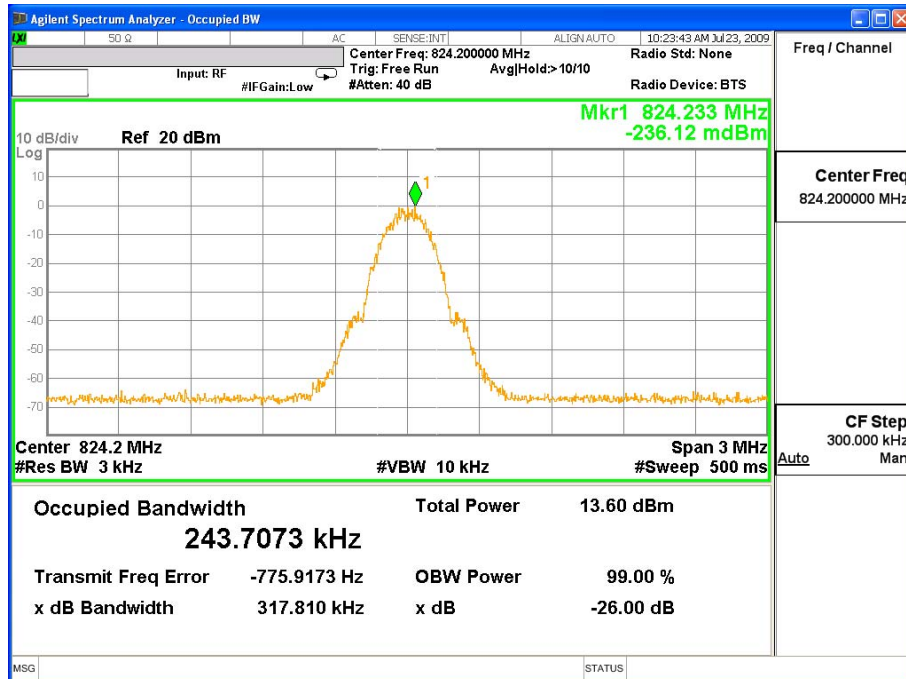
Product	GPS TRACKER		
Test Mode	Occupied Bandwidth		
Date of Test	2009/09/03	Test Site	CTR
Test Condition	GSM 850 Voice		

GSM 850 Voice- Circuit Switched (GSM Mode CH 251)

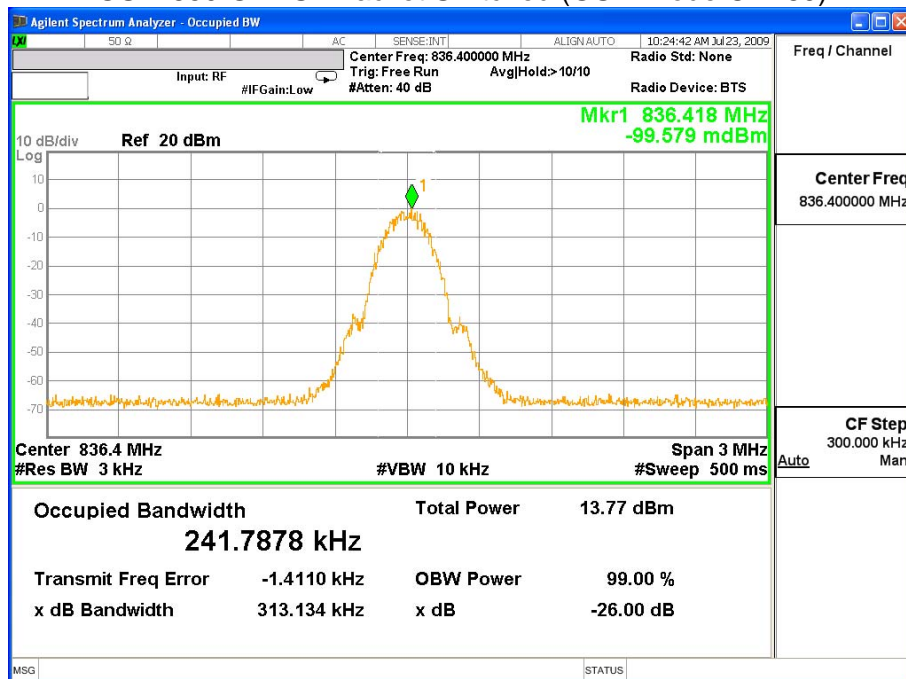


Product	GPS TRACKER		
Test Mode	Occupied Bandwidth		
Date of Test	2009/09/03	Test Site	CTR
Test Condition	GSM 850 GPRS		

### GSM 850 GPRS - Packet Switched (GSM Mode CH 128)

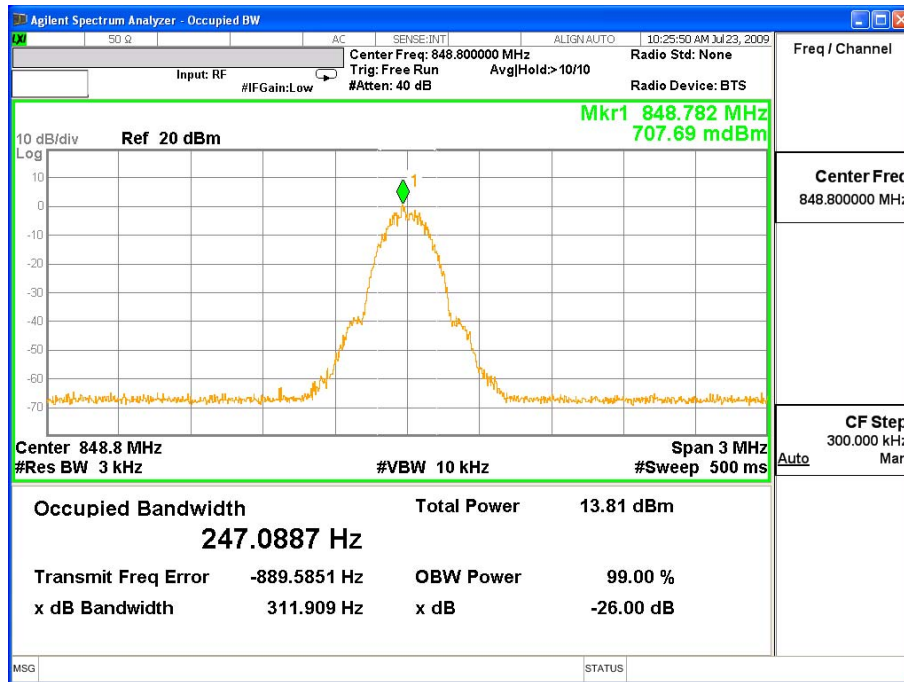


### GSM 850 GPRS - Packet Switched (GSM Mode CH189)



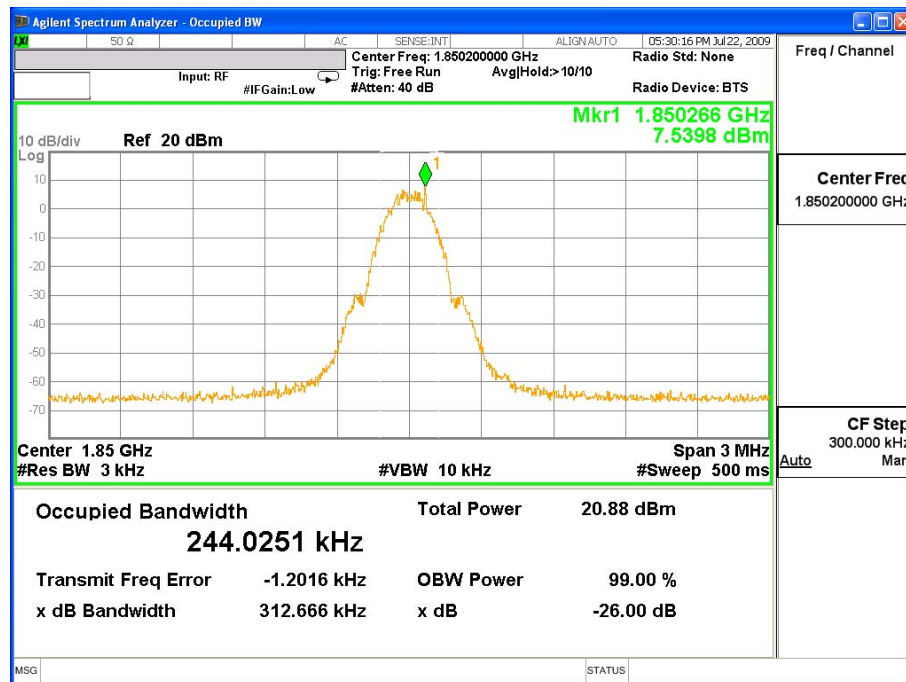
Product	GPS TRACKER		
Test Mode	Occupied Bandwidth		
Date of Test	2009/09/03	Test Site	CTR
Test Condition	GSM 850 GPRS		

GSM 850 GPRS - Packet Switched (GSM Mode CH 251)

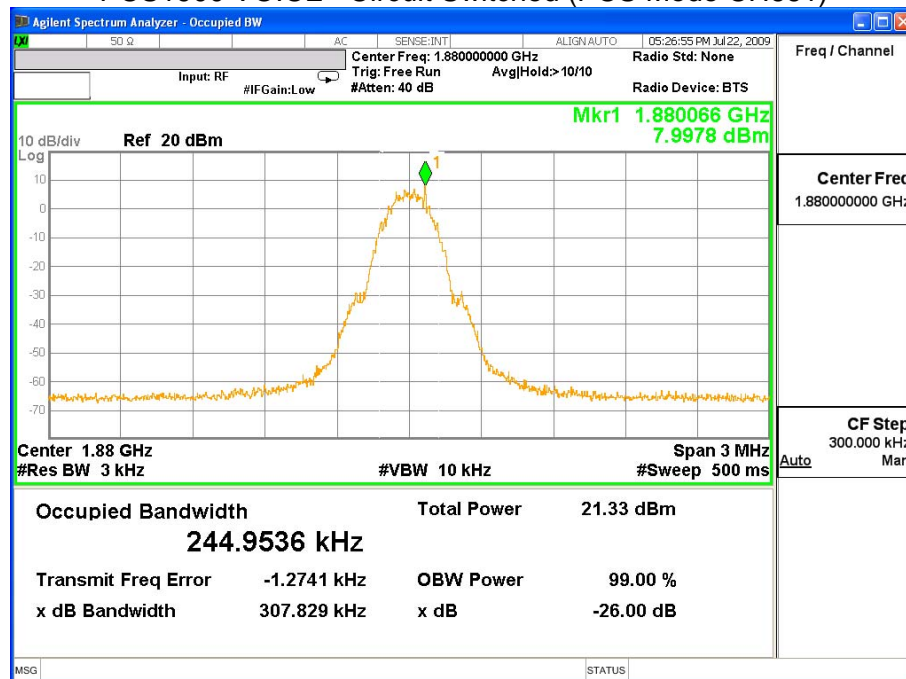


Product	GPS TRACKER		
Test Mode	Occupied Bandwidth		
Date of Test	2009/09/03	Test Site	CTR
Test Condition	PCS1900		

PCS1900 VOICE - Circuit Switched (PCS Mode CH 512)

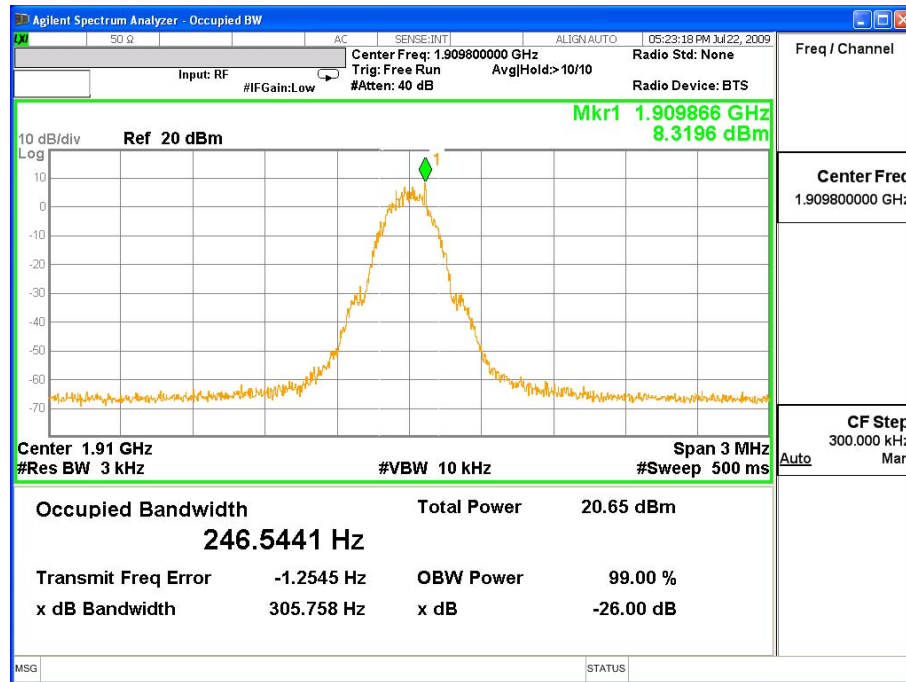


PCS1900 VOICE - Circuit Switched (PCS Mode CH661)



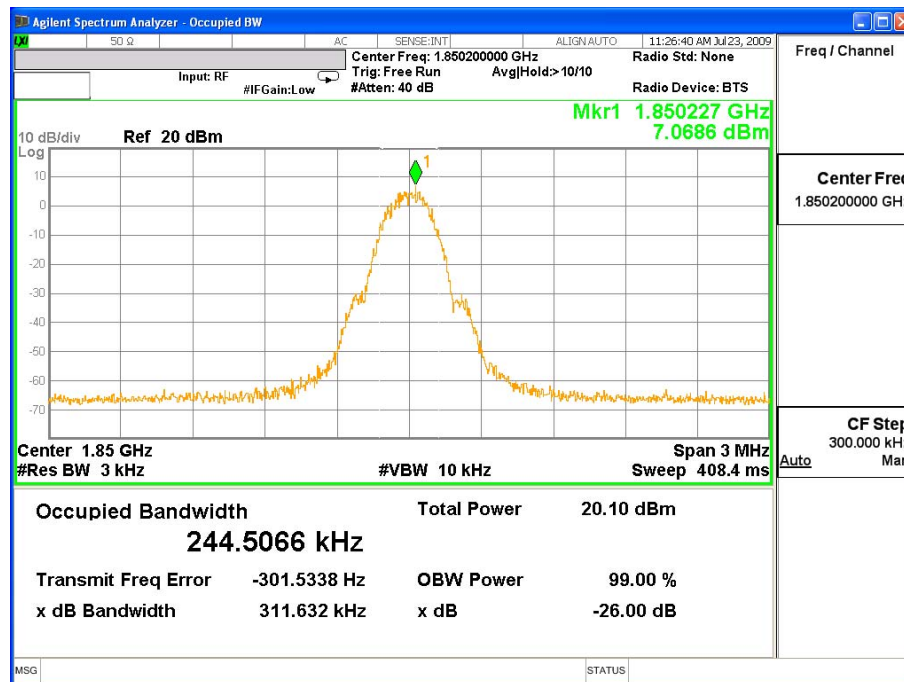
Product	GPS TRACKER		
Test Mode	Occupied Bandwidth		
Date of Test	2009/09/03	Test Site	CTR
Test Condition	PCS1900		

PCS1900 VOICE - Circuit Switched (PCS Mode CH 810)

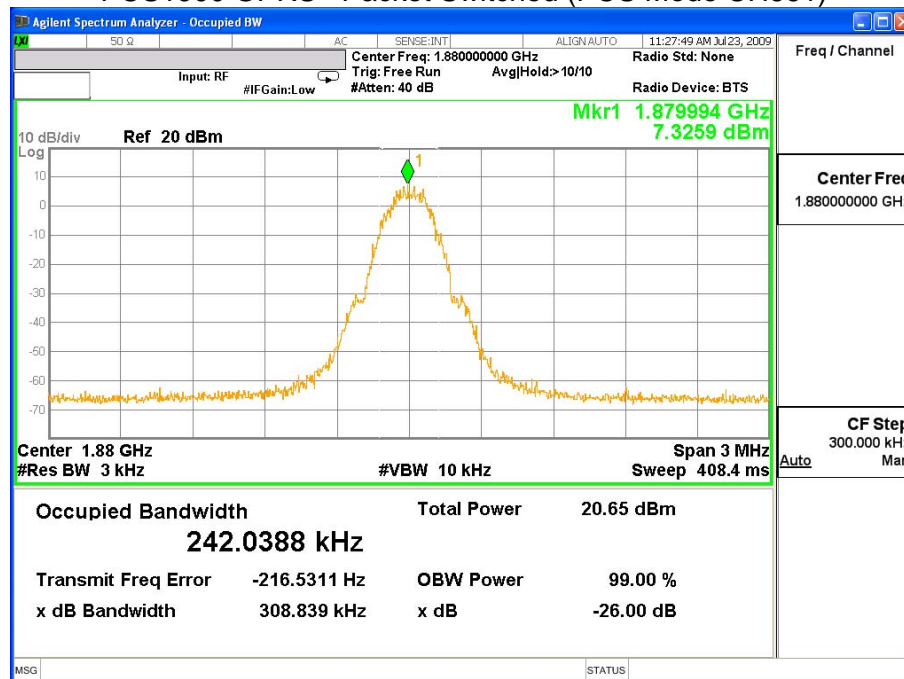


Product	GPS TRACKER		
Test Mode	Occupied Bandwidth		
Date of Test	2009/09/03	Test Site	CTR
Test Condition	PCS1900 GPRS		

### PCS1900 GPRS - Packet Switched (PCS Mode CH 512)



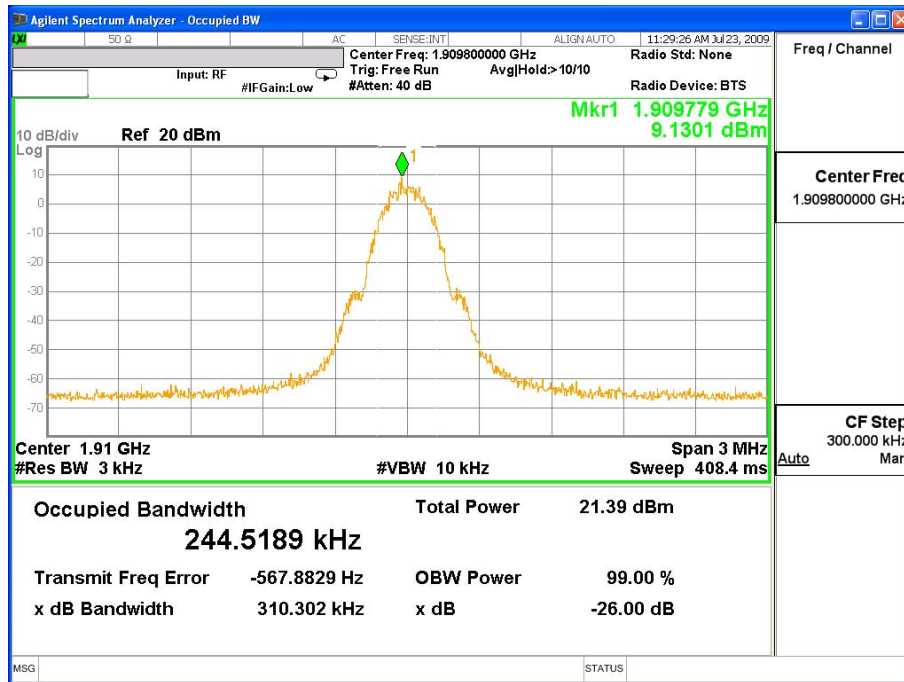
### PCS1900 GPRS - Packet Switched (PCS Mode CH661)





Product	GPS TRACKER		
Test Mode	Occupied Bandwidth		
Date of Test	2009/09/03	Test Site	CTR
Test Condition	PCS1900 GPRS		

PCS1900 GPRS - Packet Switched (PCS Mode CH 810)



#### 4. Spurious Emission At Antenna Terminals (+/-1MHz)

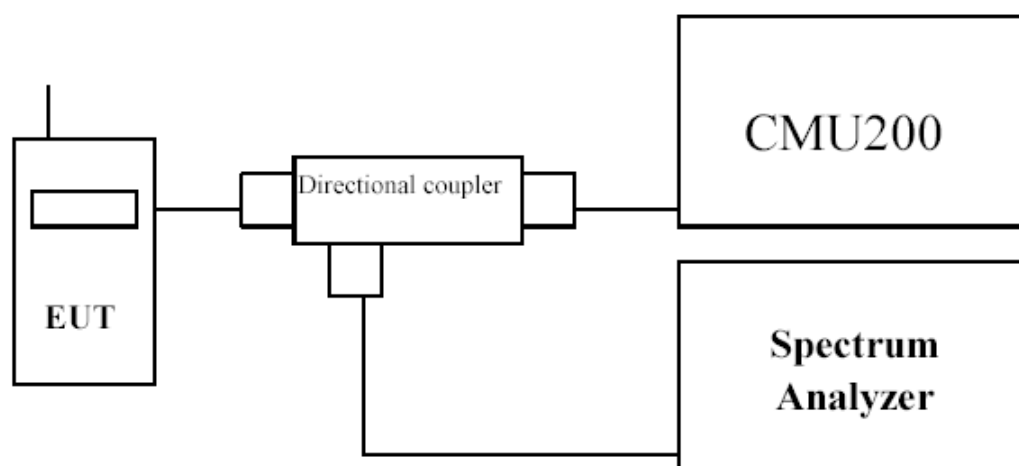
##### 4.1. Test Equipment

The following test equipments are used during the spurious emission test

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Spectrum Analyzer	Agilent	E4408B/ MY45102743	Aug., 2009
Universal Radio Communication Tester	R & S	CMU200 / 104846	May., 2009
Directional coupler	Agilent	87300C / MY44300353	Aug., 2008
Directional coupler	Agilent	778D-012/ 50550	Aug., 2008

Note: All equipments upon which need to be calibrated are with calibration period of 1 year.

##### 4.2. Setup



### 4.3. Limits

Cellular Band Transmitter limits for narrowband spurious emission

<b>Lower Block Edge Test Frequencies</b>	<b>Upper Block Edge Test Frequencies</b>
Block A Channel : 128 Frequency : 824.2 MHz	Block B Channel : 251 Frequency : 848.8 MHz

PCS Band Transmitter limits for narrowband spurious emission

<b>Lower Block Edge Test Channels/Frequencies</b>	<b>Upper Block Edge Test Channels/Frequencies</b>
Block A Channel : 512 Frequency : 1850.2 MHz	Block C Channel : 810 Frequency : 1909.8 MHz

### 4.4. Test Procedure

In accordance with Part 22.917 and 24.238, at least 1% of the emission bandwidth was used for the resolution and video bandwidths up to 1MHz away from the Block Edge. At greater than 1MHz, the resolution and video bandwidth were increased to 1MHz.

The reference power and path losses of all channels used for testing in each frequency block were measured.

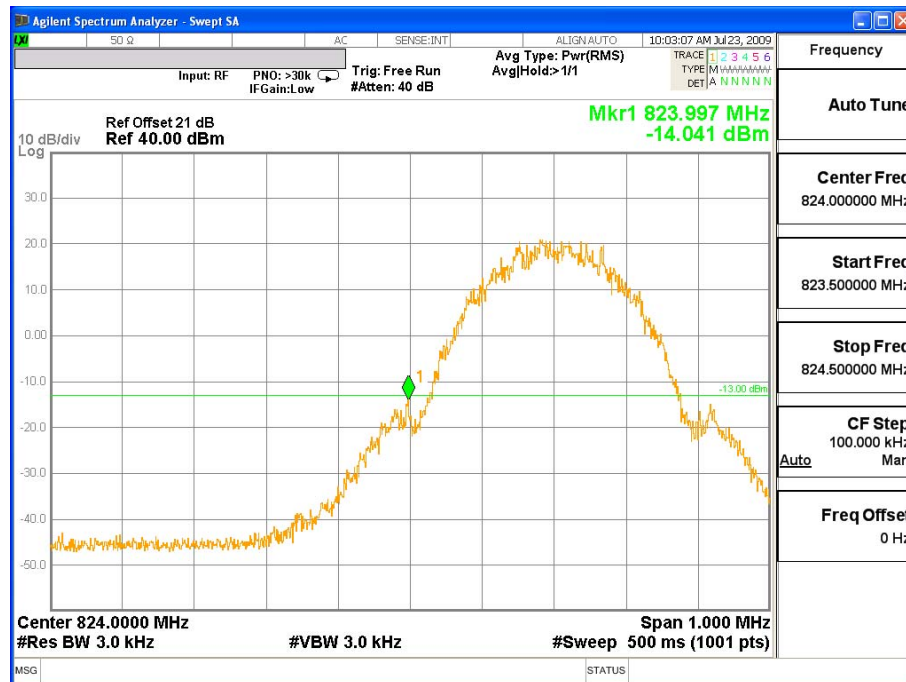
### 4.5. Test Specification

According to Part 2.1049, 22.917,24.238.

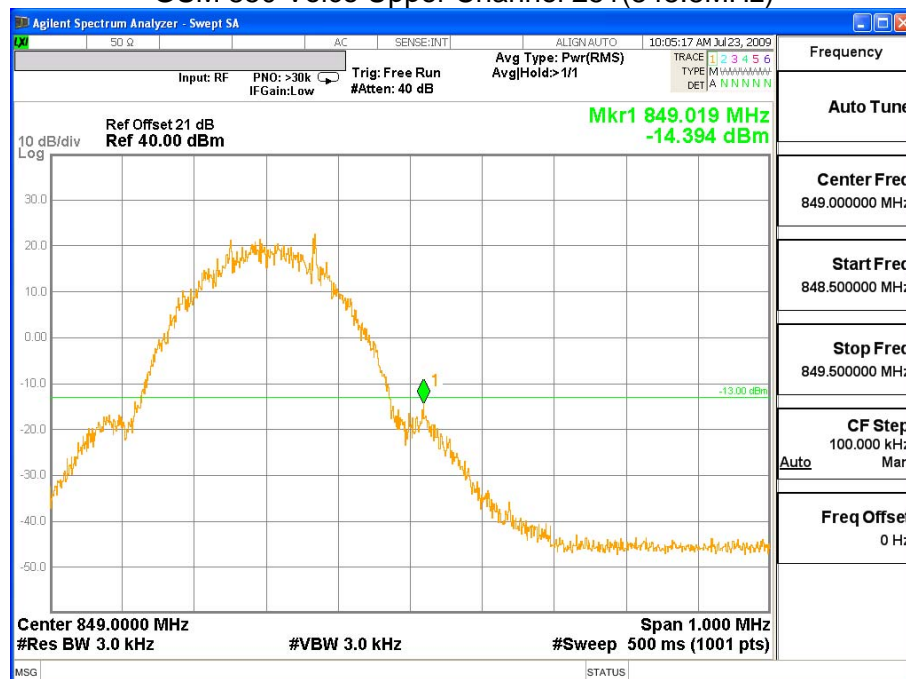
#### 4.6. Test Result of Spurious Emission At Antenna Terminals (+/-1MHz)

Product	GPS TRACKER		
Test Mode	Spurious Emission At Antenna Terminals (+/-1MHz)		
Date of Test	2009/09/03	Test Site	CTR
Test Condition	Block Edge Test (GSM 850 Voice)		

##### GSM 850 Voice Lower Channel 128 (824.2MHz)

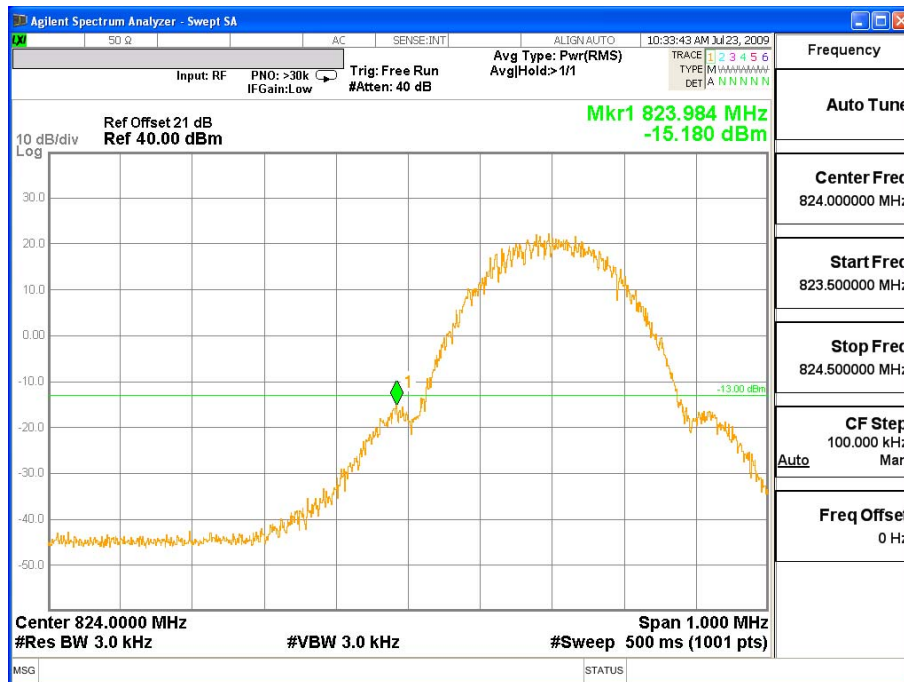


##### GSM 850 Voice Upper Channel 251 (848.8MHz)

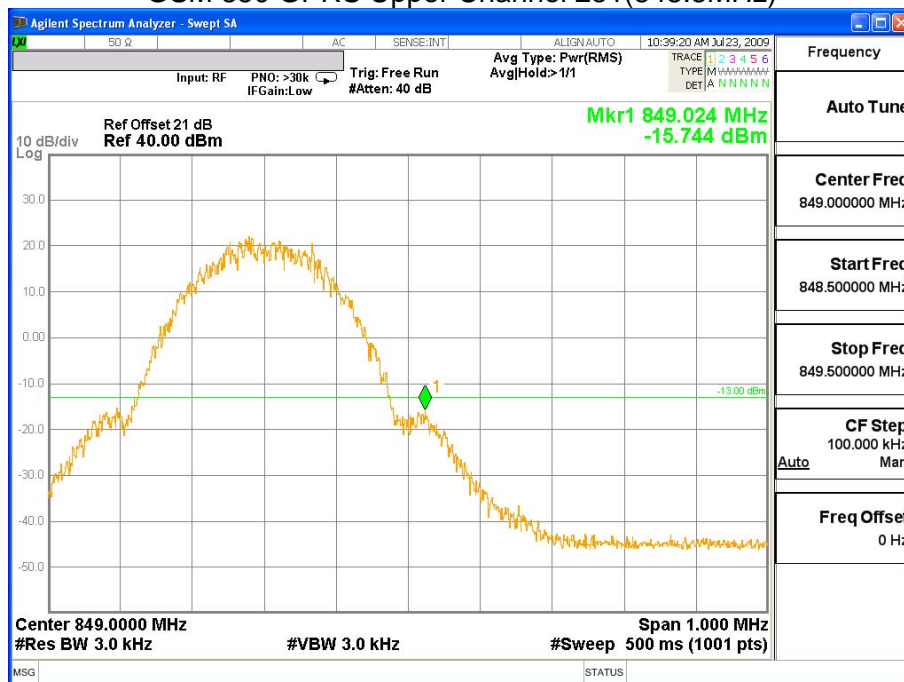


Product	GPS TRACKER		
Test Mode	Spurious Emission At Antenna Terminals (+/-1MHz)		
Date of Test	2009/09/03	Test Site	CTR
Test Condition	Block Edge Test (GSM 850 GPRS)		

### GSM 850 GPRS Lower Channel 128 (824.2MHz)

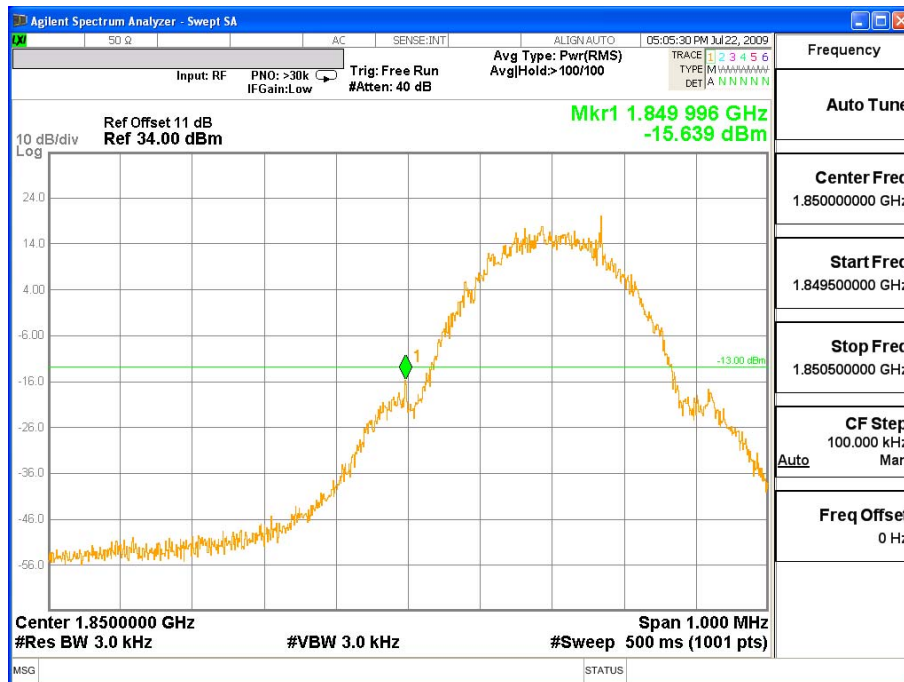


### GSM 850 GPRS Upper Channel 251(848.8MHz)

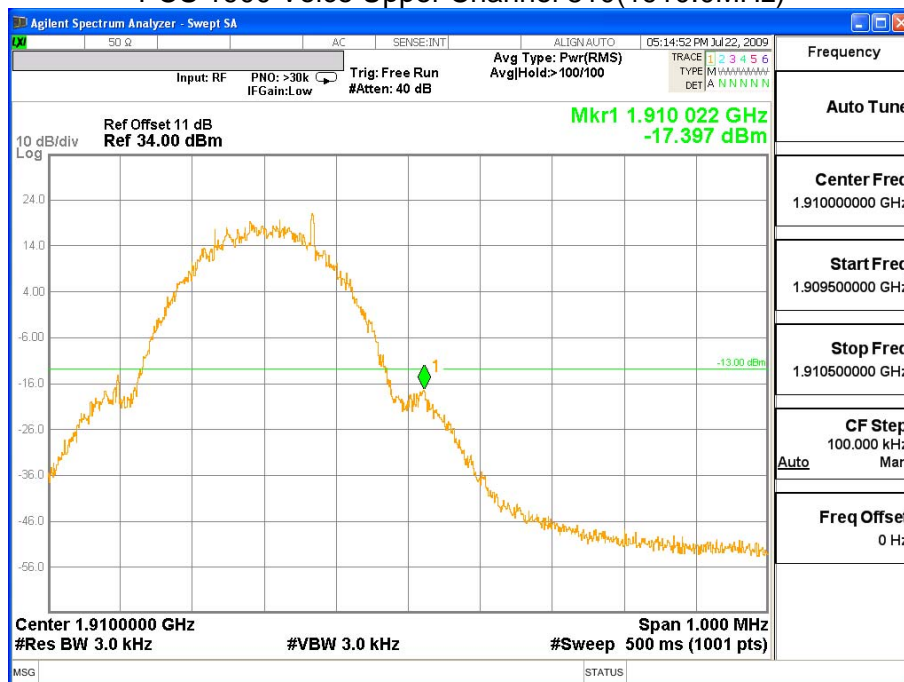


Product	GPS TRACKER		
Test Mode	Spurious Emission At Antenna Terminals (+/-1MHz)		
Date of Test	2009/09/03	Test Site	CTR
Test Condition	Block Edge Test (PCS 1900 Voice)		

PCS 1900 Voice Lower Channel 512 (1850.2MHz)

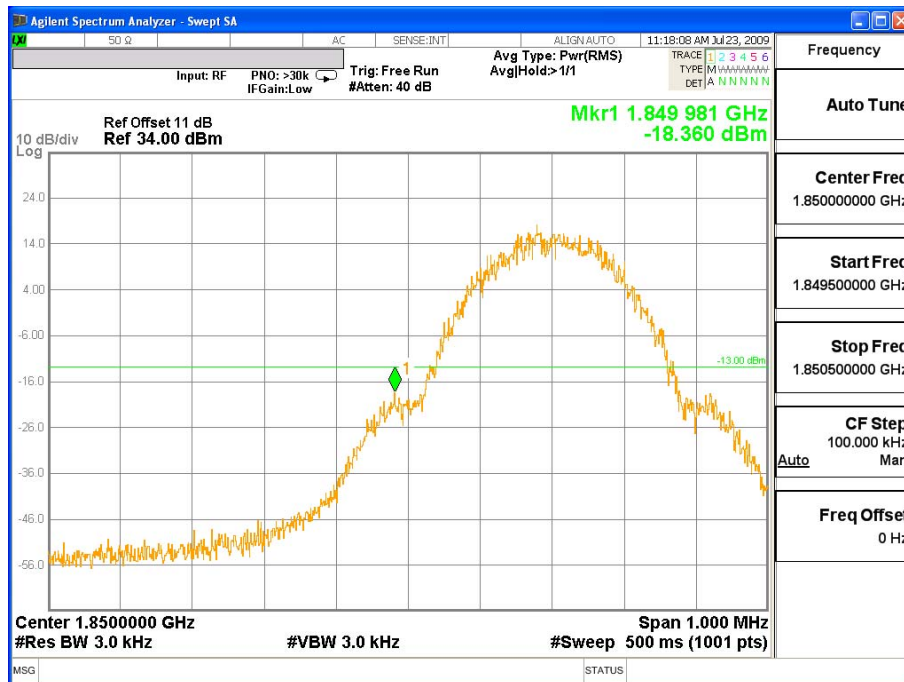


PCS 1900 Voice Upper Channel 810(1910.0MHz)

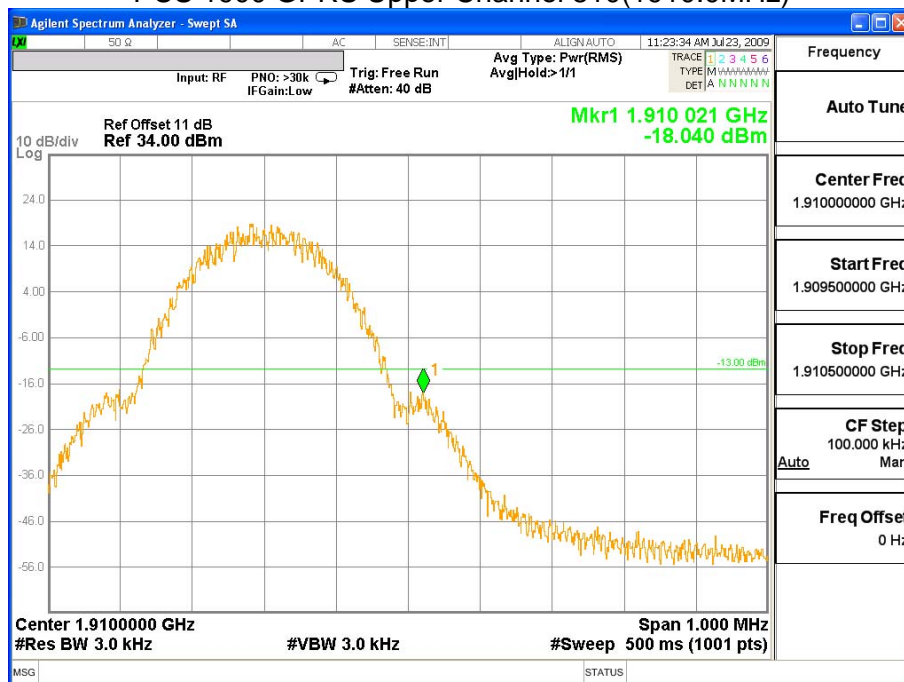


Product	GPS TRACKER		
Test Mode	Spurious Emission At Antenna Terminals (+/-1MHz)		
Date of Test	2009/09/03	Test Site	CTR
Test Condition	Block Edge Test (PCS 1900 GPRS)		

PCS 1900 GPRS Lower Channel 512 (1850.2MHz)



PCS 1900 GPRS Upper Channel 810(1910.0MHz)



## 5. Spurious Emission

### 5.1. Test Equipment

The following test equipments are used during the radiated emission test:

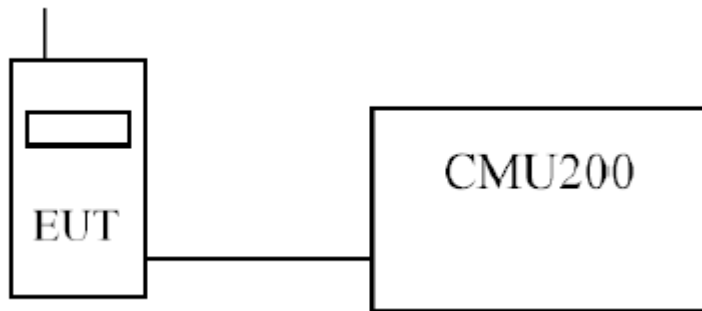
Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
<input checked="" type="checkbox"/> CTR	Spectrum Analyzer	Agilent	E4408B/ MY45102743	Aug., 2009
	Dual Directional couple	Agilent	778D-012/50550	Aug , 2009
	Directional coupler	Agilent	87300C/ MY44300353	Aug ., 2009
<input checked="" type="checkbox"/> SITE1	Test Receiver	R & S	ESCS 30 / 100122	Feb., 2009
	Universal Radio Communication Tester	R & S	CMU200 / 104846	May., 2009
	Spectrum Analyzer	Agilent	E4408B/ MY45102743	Aug., 2009
	Microwave Amplifier (0.5GHZ-26.5GHZ)	Agilent	83017A/ MY39500682	Aug ., 2009
	Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May., 2009
	Horn Antenna	ETS	3115 / 0005-6160	Jul., 2009
	Pre-Amplifier	QTK	QTK-AMP-01 / 0001	Jul., 2009

Note: 1. All equipments that need to be calibrated are with calibration period of 1 year.

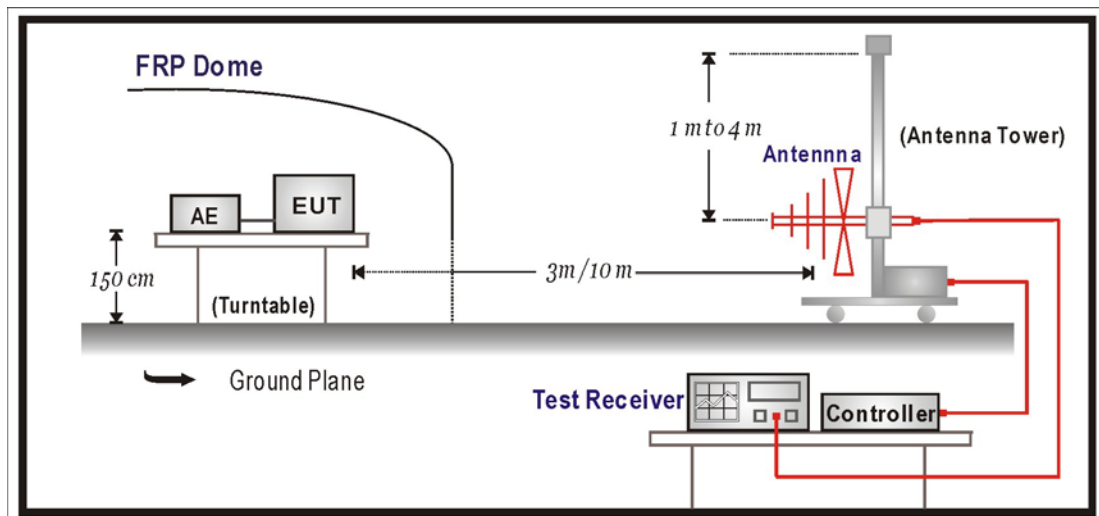


## 5.2. Test Setup

### 5.2.1.1 Spurious emissions at antenna terminals.



### 5.2.1.2 Field strength of spurious radiation.



## 5.3. Limits

Limit	$<-13\text{dBm}$
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$43 + 10\text{Log}(P)$  down on the carrier where P is the power in Watts.

#### **5.4. Test Procedure**

In accordance with Part 2.1051, the spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using a combination of filters and attenuators and the frequency spectrum investigated from 30MHz to 20GHz. The EUT was set to transmit on full power. The EUT was tested on Low, middle and High channels for both power levels. The resolution and video bandwidth was set to 3MHz in accordance with Part 22.917&24.238. The spectrum analyzer detector was set to Max Hold.

In addition, measurements were made up to the 10<sup>th</sup> harmonic of the fundamental.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to TIA/EIA 603-C on radiated measurement.

#### **5.5. Test Specification**

According to Part 2.1051, 2.1053, 22.917(a), 24.238(b).