EMI Test Report

Research In Motion Limited

REPORT NO.: RIM-0041-0305-03

PRODUCT MODEL NO: R6230GN
TYPE NAME: BlackBerry Wireless Handheld
FCC ID: L6AR6230GN
IC: 2503A-R6230GN

Date: 11 June 2003

Declaration

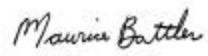
Statement of Performance:

The BlackBerry Wireless Handheld, model R6230GN ASY-06471-001 tested with the following accessories: Travel Charger model number PSM05R-050Q part number ASY-04078-001, Audio Headset part number HDW-03458-001 and USB Data Cable HDW-04162-001 when configured and operated per RIM's operation instructions, performs within the requirements of the test standards.

Declaration:

We hereby certify that:
The test data reported herein is an accurate record of the performance of the sample(s) tested.
The test equipment used was suitable for the tests performed and within the manufacturers published specifications and operating parameters.
The test methods were consistent with the methods described in the relevant standards.

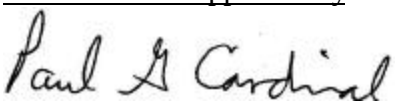
Tested by



Maurice Battler
Compliance Specialist Date: 11 June 2003

Masud S. Attayi, P.Eng.
Senior Compliance Engineer Date: 12 June 2003

Reviewed and Approved by:



Paul G. Cardinal, Ph.D.
Manager, Compliance and Certification Date: 13 June 2003

Table of Contents

A) **Scope**

This report details the results of compliance tests which were performed in accordance to the requirements of:

FCC CFR 47 Part 2, Oct. 1, 2000
FCC CFR 47 Part 22, Subpart H, Cellular Radiotelephone Services, Oct. 1, 2000
FCC CFR 47 Part 24 Subpart E, Broadband PCS, Oct 1. 2000
Industry Canada, RSS-128 Issue 2, Rev 1, Nov. 6/99, 800 MHz Dual-Mode TDMA Cellular Telephones
Industry Canada, RSS-133 Issue 2, Rev. 1 Nov. 6/1999, 2.0 GHz Personal Communications Services

B) **Product Identification**

The equipment under test (EUT) was tested at the Research In Motion (RIM) EMI test facility, located at:

305 Phillip Street
Waterloo, Ontario
Canada, N2L 3W8
Phone: 519 888 7465
Fax: 519 888 6906
Web Site: www.rim.net

The testing began on May 26, 2003 and completed on June 10, 2003. The sample equipment under test (EUT) included:

1a) BlackBerry Wireless Handheld, model number R6230GN, ASY-06471-001, RF PCB version 004, PIN 20036A96, IMEI 001020.00.027694.0, FCC ID L6AR6230GN, IC: 2503A-R6230GN.
1b) BlackBerry Wireless Handheld, model number R6230GN, ASY-06471-001, RF PCB version 004, PIN 20038237, IMEI 001020.00.027868.0, FCC ID L6AR6230GN, IC: 2503A-R6230GN.
2) Travel Charger, model number PSM05R-050Q, part number ASY-04078-001 with an output voltage of 5.0 volts dc.
3) USB data cable, model number HDW-04162-001, 1.45 metres long.
4) Headset, model number HDW-03458-001. The lead length was 1.25 metres long.

The transmit frequency bands for the Handheld are: GSM 824 to 849 MHz, DCS 1710 to 1785 MHz and PCS 1850 to 1910 MHz. Only the GSM band and PCS band emission results are presented here.

C) Support Equipment Used for the Testing of the EUT

1) Rohde & Schwarz, Universal Radio Communication Tester, model number CMU 200, serial number 100249
2) Rohde & Schwarz, Universal Radio Communication Tester, model number CMU 200, serial number 837493/073
3) DC Power Supply, H/P, model 6632B, serial number US37472179

D) Test Voltage

The ac input voltage was 120 volts, 60 Hz. This configuration was per RIM's specifications.

E) Test Results Chart

SPECIFICATION	Test Type	MEETS REQUIREMENTS	Performed By
FCC CFR 47 Part 22, Subpart H IC RSS-128	Radiated Spurious/harmonic Emissions, ERP	Yes	Masud Attayi
FCC CFR 47 Part 22, Subpart H IC RSS-128	Conducted Emissions, Occupied Bandwidth, Frequency Stability	Yes	Maurice Battler
FCC CFR 47 Part 24, Subpart E IC RSS-133	Radiated Spurious/harmonic Emissions, EIRP	Yes	Masud Attayi
FCC CFR 47 Part 24, Subpart E IC RSS-133	Conducted Emissions, Occupied Bandwidth, Frequency Stability	Yes	Maurice Battler

F) Modifications to EUT

No modifications were required to the EUT.

G) **Summary of Results**

1) The EUT passed the Conducted Spurious Emissions requirements in the GSM850 band as per 47 CFR 22.917, CFR 22.901(d). The EUT was measured on the low, middle and high channels. The frequency range investigated was from 10 MHz to 10 GHz.
See APPENDIX 1 for the test data.

2) The EUT passed the Conducted Spurious Emissions requirements in the PCS band as per 47 CFR 2.1057, CFR 24.238 and RSS-133. The EUT was measured on the low, middle and high channels. The frequency range investigated was from 10 MHz to 20 GHz.
See APPENDIX 1 for the test data.

3) The EUT passed the Occupied Bandwidth and channel mask requirements in the GSM band as per 47 CFR 2.202, CFR 22.917 and RSS-128. The channels measured were low, middle and high.
See APPENDIX 1 for the test data.

4) The EUT passed the Occupied Bandwidth and channel mask requirements in the PCS band as per 47 CFR 2.202, CFR 24.238 and RSS-133. The channels measured were low, middle and high.
See APPENDIX 1 for the test data.

5) The EUT passed the Conducted RF Output Power requirements for both the GSM850 and PCS bands. The channels measured were low, middle and high.
See APPENDIX 2 for the test data.

6) The EUT passed the Frequency Stability vs. Temperature and Voltage requirements for GSM850 band as per 22.917 and RSS-128.
The maximum frequency error measured was less than 0.1 ppm.
The temperature range was from -30°C to +60°C in 10° temperature steps. The EUT was measured on low, middle and high channels at each temperature step. The EUT was measured at low (3.5 volts), nominal (3.8 volts) and high (4.1 volts) dc input voltage at each temperature step and channel at maximum output power.
See APPENDIX 3 for the test data.

7) The EUT passed the Frequency Stability vs. Temperature and Voltage requirements for the PCS band as per 24.235 and RSS-133. The maximum frequency error measured was less than 0.1 ppm.
The temperature range was from -30°C to +60°C in 10 degree temperature steps. The EUT was measured on low, middle and high channels at each temperature step. The EUT was measured at low (3.5 volts), nominal (3.8 volts) and high (4.1 volts) dc input voltage at each temperature step and channel at maximum output power.
See APPENDIX 3 for the test data.

8) The radiated spurious emissions/harmonics and ERP/EIRP were measured for both GSM850 and PCS bands. The results are within the limits. The EUT was placed on a nonconductive wooden table, 80 cm high that was positioned on a remotely rotatable turntable The test distance used between the EUT and the receiving antenna was three metres. At this point the emissions were maximized by elevating the antenna in the range of 1 to 4 metres. The turntable was rotated to determine the azimuth of the peak emissions. The maximum emissions level was recorded. The measurements were performed in a semi-anechoic chamber. The semi-anechoic chamber FCC registration number is **778487** and the Industry Canada file number is **IC4240**. The EUT was measured on the low, middle and high channels.

The highest ERP in the GSM850 band measured was 24.1 dBm at 848.8 MHz (channel 251).
The highest EIRP in the PCS band measured was 30.6 dBm at 1880.0 MHz (channel 661).
To view the test data see APPENDIX 4.

The radiated carrier harmonics were measured up to the 10^{th} harmonic for low, middle and high channels in the GSM850 band and PCS band.
The worst test margin for GSM850 band measured was 18.5 dB below the limit at 1675 MHz.
The worst test margin for PCS band measured was 31.6 dB below the limit at 3760 MHz.
To view the test data see APPENDIX 4.

Sample Calculation:

Field Strength (dBµV/M) is calculated as follows:
FS = Measured Level (dBµV) + A.F. (dB/m) + Cable Loss (dB) - Preamp (dB) + Filter Loss (dB)

Measurement Uncertainty ±4.0 dB

H) **Compliance Test Equipment Used**

UNIT	MANUFACTURER	MODEL / SERIAL NUMBER		CAL DUE DATE (YY MO DD)	USE
Preamplifier system	TDK RF Solutions	PA-02	080010	03-10-02	Radiated Emissions
Preamplifier	Sonoma	310N/11909A	185831	03-10-02	Radiated Emissions
EMC Analyzer	Agilent	E7405A	US40240226	03-09-21	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	837493/073	04-04-05	Radiated Emissions
Horn Antenna	TDK	HRN-0118	130092	03-08-14	Radiated Emissions
Horn Antenna	TDK	HRN-0118	030201	03-12-11	Radiated Emissions
Hybrid Log Antenna	TDK	HLP-3003C	017301	03-12-11	Radiated Emissions
Dipole Antenna	Schwarzbeck	VHAP	1006	03-09-12	Radiated Emissions
Dipole Antenna	Schwarzbeck	VHAP	1007	03-09-12	Radiated Emissions
Synthesized Sweeper	Agilent	83630B	3844A00927	04-04-30	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	100249	04-04-05	Conducted Emissions
Spectrum Analyzer	HP	8563E	3745A08112	03-07-31	Conducted Emissions
DC Power Supply	HP	6632B	US37472170	03-07-31	Conducted Emissions
Temperature Probe	Hart Scientific	61161-302	21352860	03-09-10	Conducted Emissions
Environmental Chamber	ESPEC Corp.	SH-240S1	91005607	N/R	Conducted Emissions

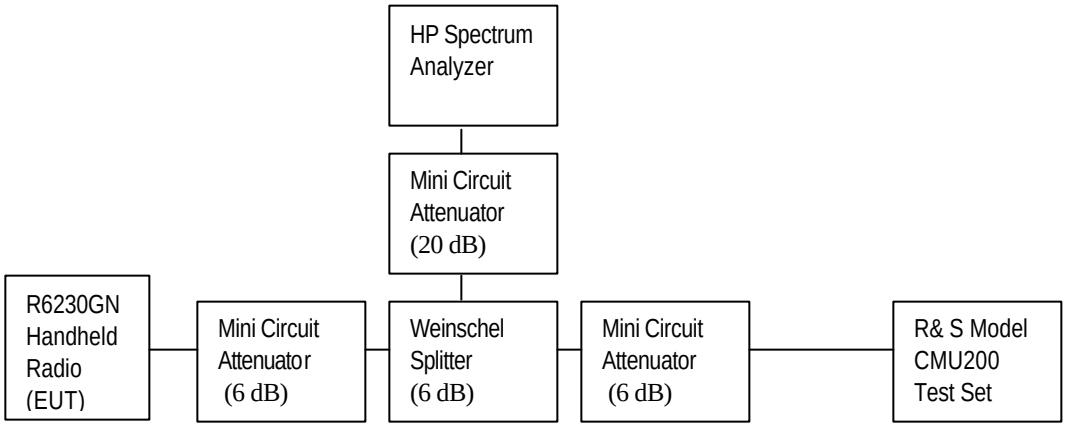
APPENDIX 1

CONDUCTED EMISSIONS TEST DATA/PLOTS

Conducted Emission Test Results

This appendix contains measurement data pertaining to conducted spurious emissions, –26 dBc bandwidth, 99% power bandwidth and the channel mask.

Test Setup Diagram



Test Equipment List

Test Instruments	Manufacturer	Model No.	Serial No.	Frequency Range
Spectrum Analyzer	HP	8563E	374A08112	30 Hz – 26.5 GHz
Splitter	Weinschel	1515	ME092	DC – 18 GHz
Attenuator	Mini Circuit	MCL BW-S20W2	--	DC – 18 GHz
Attenuator	Mini Circuit	MCL BW-S6W2	--	DC – 18 GHz
Attenuator	Mini Circuit	MCL BW-S6W2	--	DC – 18 GHz
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	100249	--

Conducted Emission Test Data Con't

The conducted spurious emissions – As per 47 CFR 2.202, 47 CFR 2.1057, 47 CFR 24.238, RSS-133, CFR 22 Subpart H and RSS-128 were measured from 10 MHz to 20 GHz. The EUT has a test margin of greater than 20 dB.
See figures 1 to 12 for the plots of the conducted spurious emissions.

–26 dBc Bandwidth and Occupied Bandwidth (99%)

For each carrier frequency of low, middle and high, the modulation spectrum were measured by both methods of 99% power bandwidth and –26 dBc bandwidth.
The resolution bandwidth required for out-of-band emissions in the 1 MHz bands immediately outside and adjacent to the frequency block, was determined to be at least 1% of the emission bandwidth.
The worst case emission bandwidth for the three GSM850 channels was measured to be 278.0 kHz, and for the three PCS channels was measured to be 272 kHz as shown below, which results in 30 kHz resolution bandwidth.
On any frequency outside the frequency block and outside the adjacent 1 MHz bands, a resolution bandwidth of at least 1 MHz was employed.

Test Data for GSM850 and PCS selected Frequencies

GSM Frequency (MHz)	-26dBc Bandwidth (kHz)	-99% Occupied Bandwidth (kHz)
824.2	270	250.0
837.6	278	248.3
848.8	272	246.7

PCS Frequency (MHz)	-26dBc Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
1850.2	270	246.7
1880.0	268	243.3
1909.8	272	245.0

Measurement Plots for GSM850 and PCS
Refer to the following measurement plots for more detail.

See Figures 1 to 12 for plots of the Spurious Emission results
See Figures 13 to 24 for the plots of the –26dBc Bandwidth and 99% Occupied Bandwidth.
See Figures 25 to 28 for plots of the channel mask results.

The RF power output was at maximum for all the recorded measurements shown below.

Conducted Emission Test Results con't

Figure 1: GSM 850, Spurious Conducted Emissions, Low channel

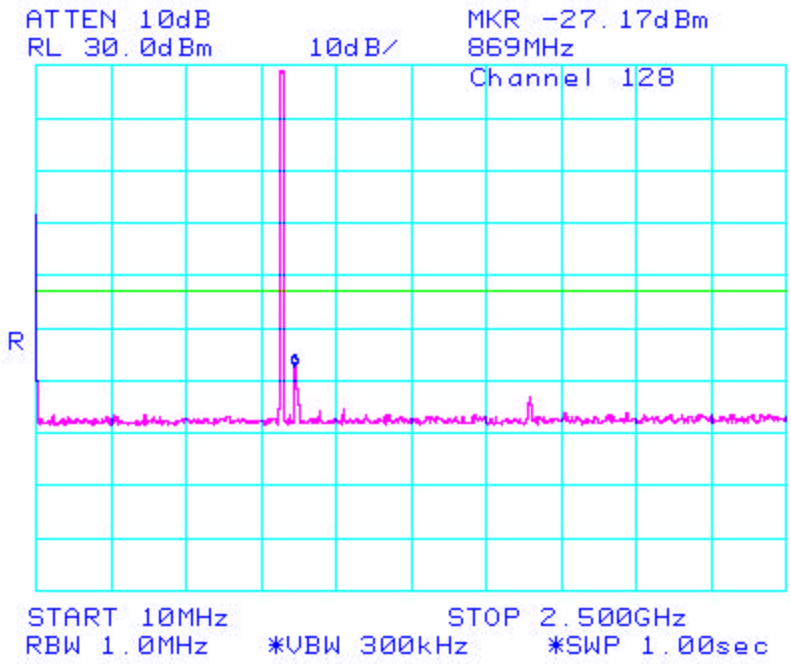
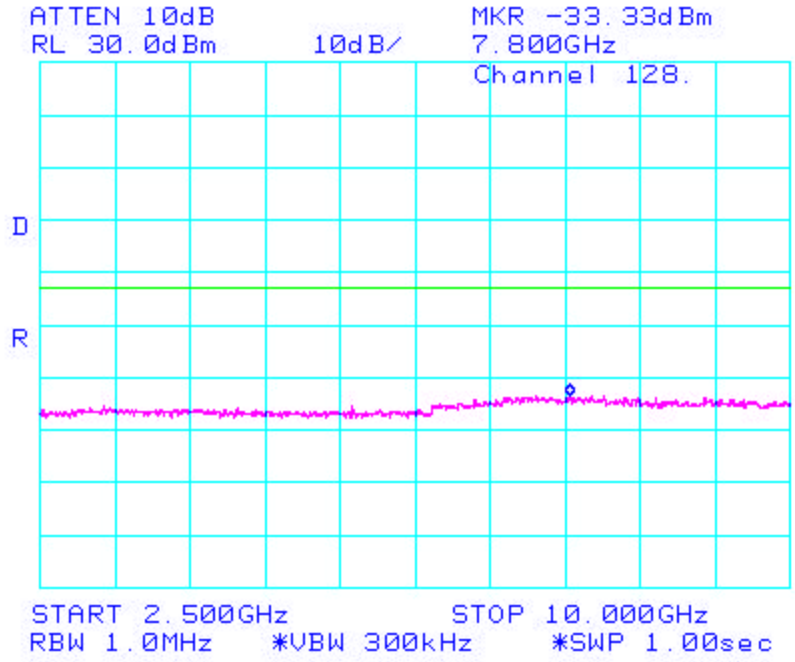


Figure 2: GSM 850, Spurious Conducted Emissions, Low channel



Conducted Emission Test Results Con't

Figure 3: GSM 850, Spurious Conducted Emissions, Middle Channel

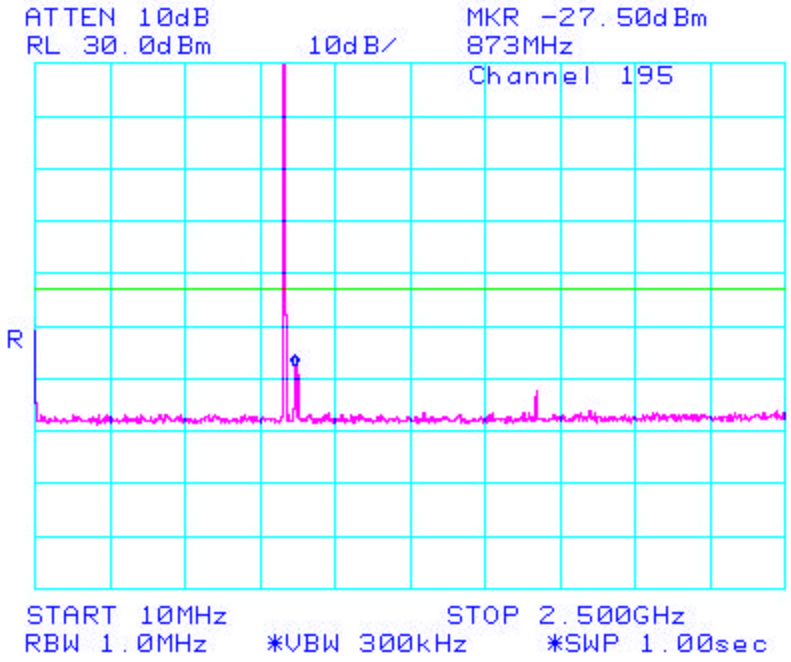
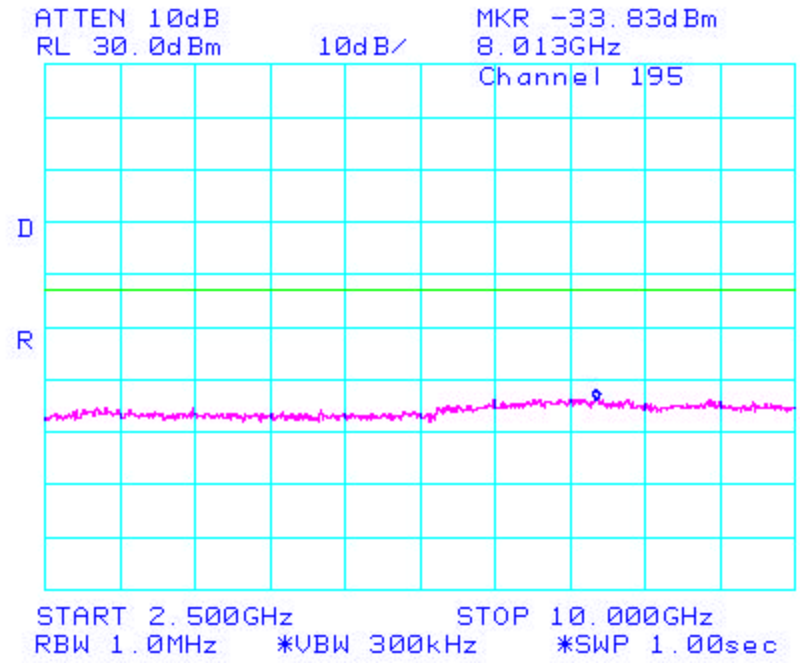


Figure 4: GSM 850, Spurious Conducted Emissions, Middle Channel



Conducted Emission Test Results Con't

Figure 5: GSM 850, Spurious Conducted Emissions, High Channel

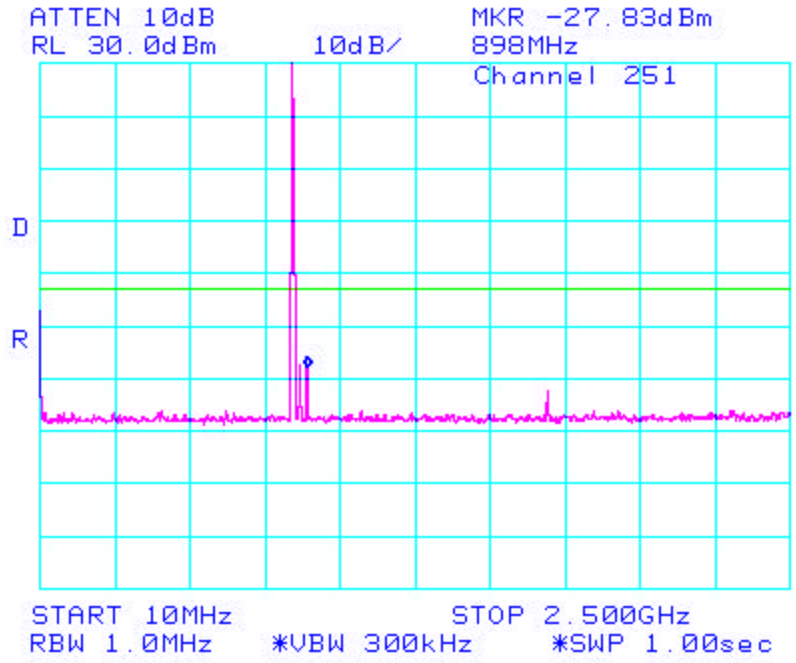
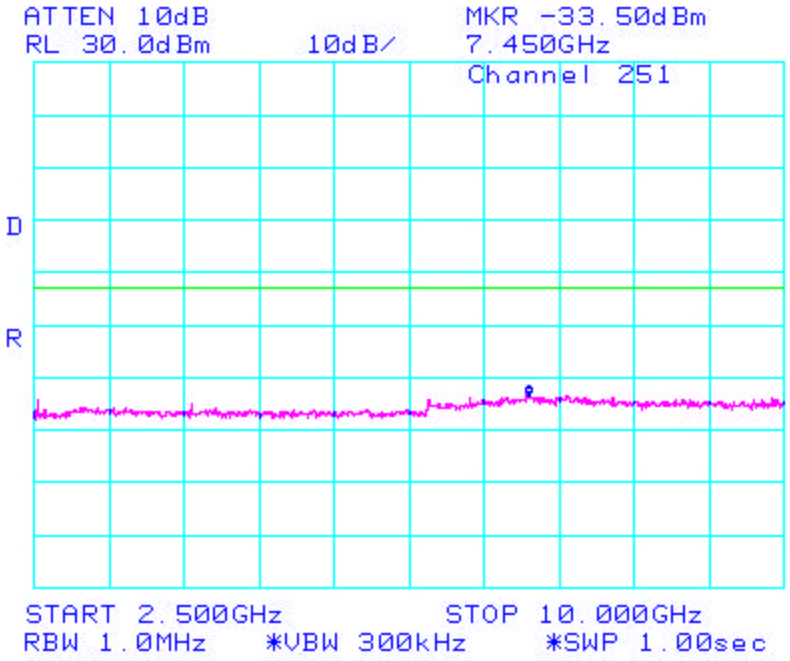


Figure 6: GSM 850, Spurious Conducted Emissions, High Channel



Conducted Emission Test Results Con't

Figure 7: PCS, Spurious Conducted Emissions, Low Channel

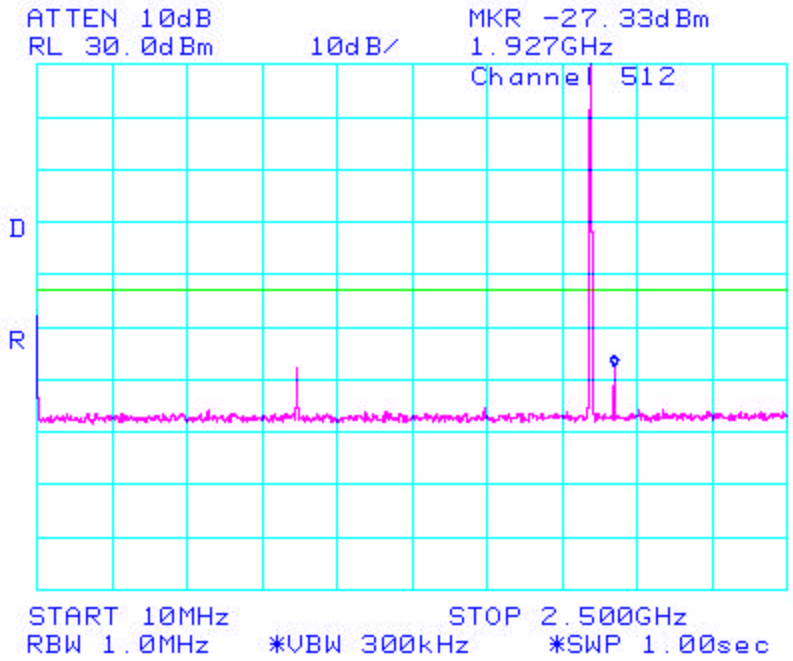
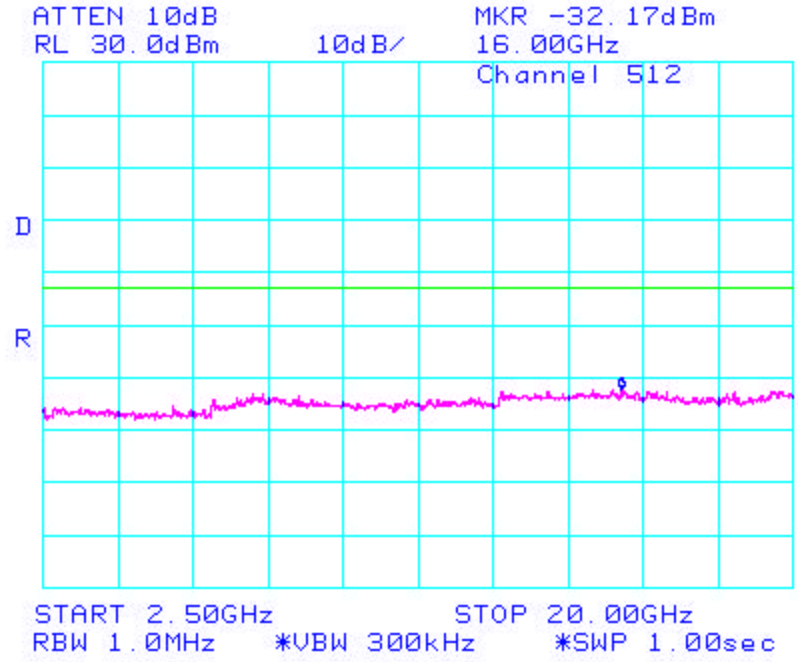


Figure 8: PCS, Spurious Conducted Emissions, Low Channel



Conducted Emission Test Results Con't

Figure 9: PCS, Spurious Conducted Emissions, Middle Channel

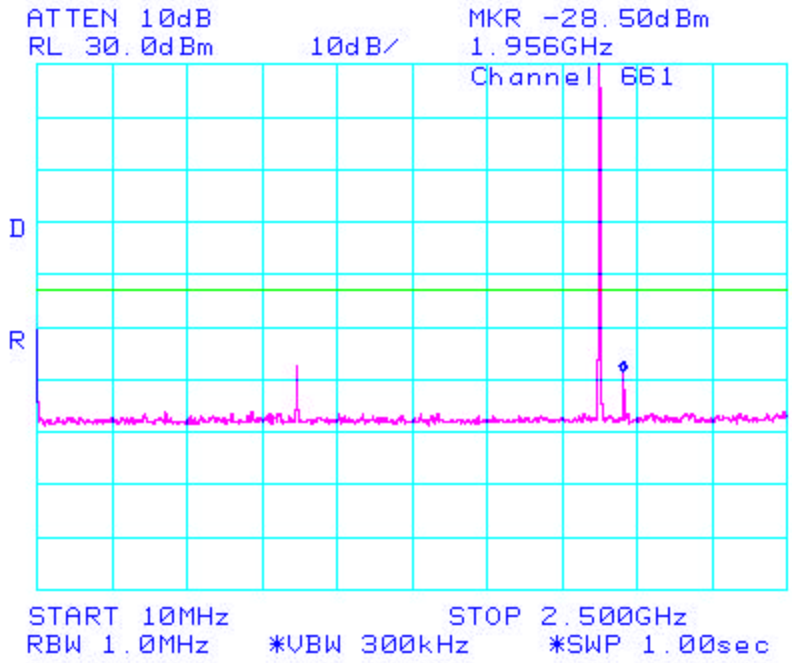
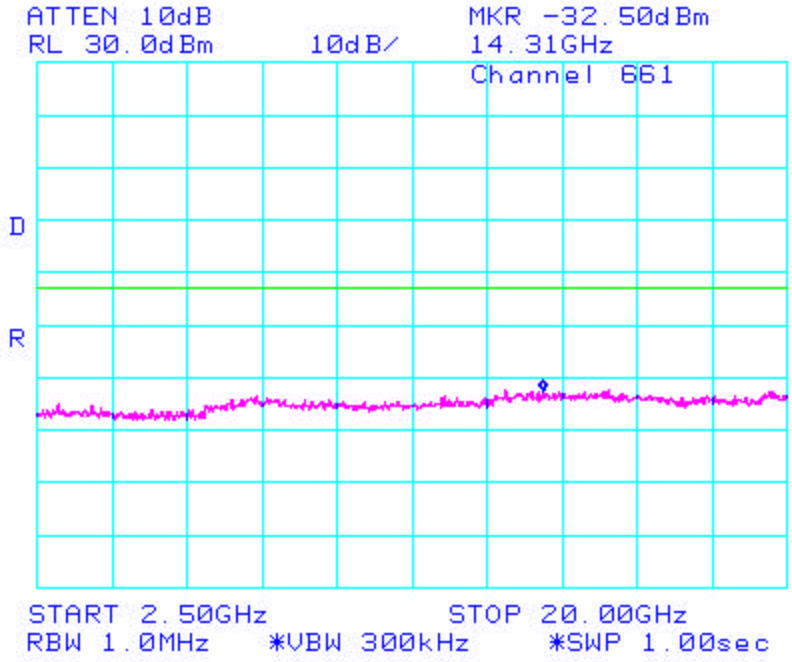


Figure 10: PCS, Spurious Conducted Emissions, Middle Channel



Conducted Emission Test Results Con't

Figure 11: PCS, Spurious Conducted Emissions, High Channel

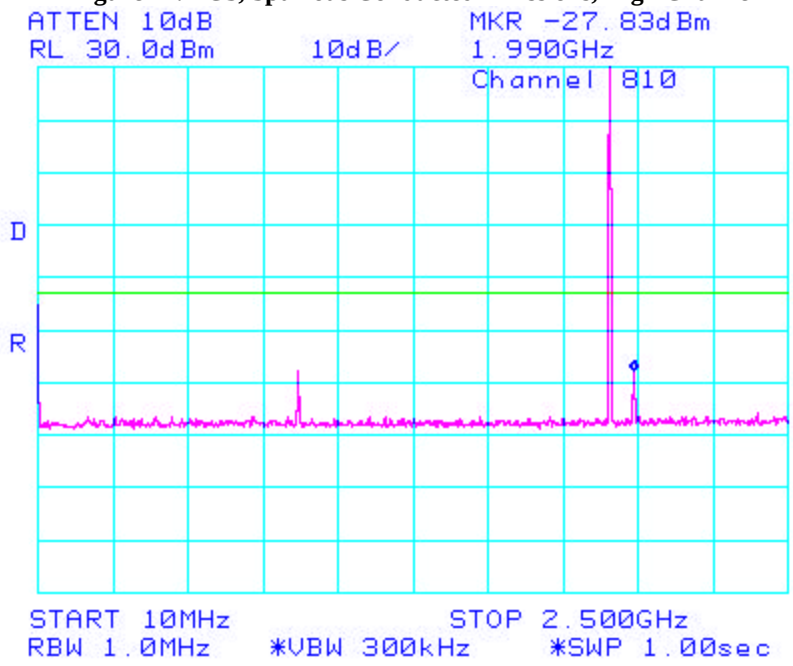
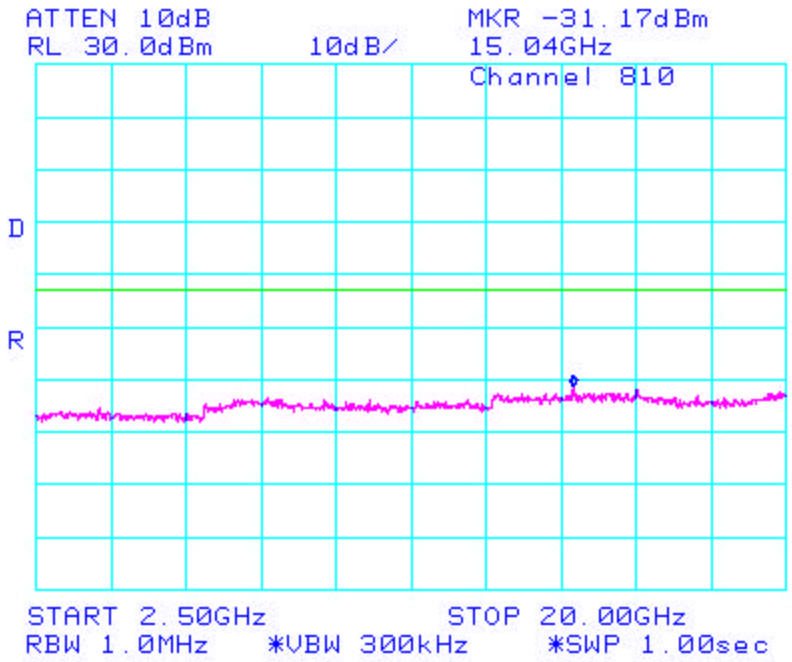


Figure 12: PCS, Spurious Conducted Emissions, High Channel



Conducted Emission Test Results Con't

Figure 13: -26dBc bandwidth, GSM 850 Low Channel

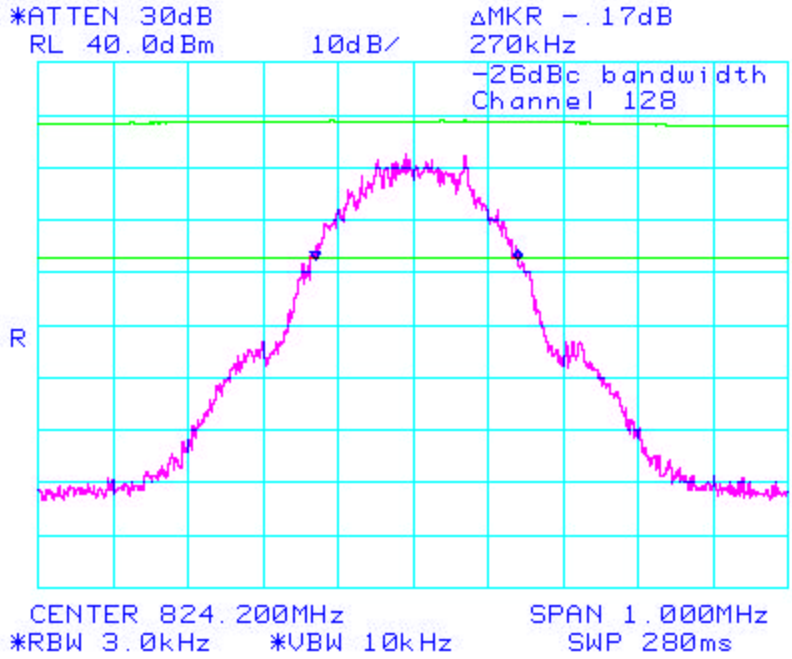
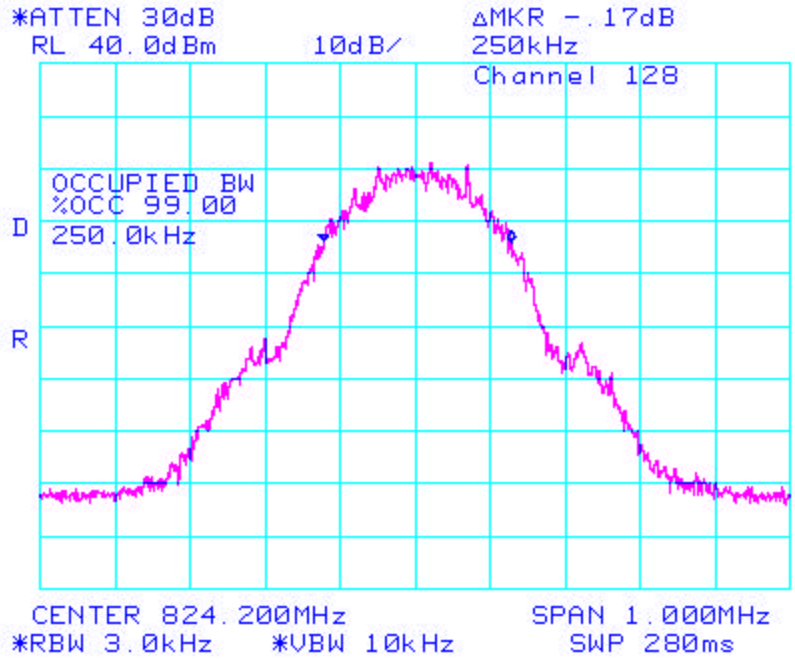


Figure 14: Occupied Bandwidth, GSM 850 Low Channel



Conducted Emission Test Results Con't

Figure 15: -26dBc bandwidth, GSM 850 Middle Channel

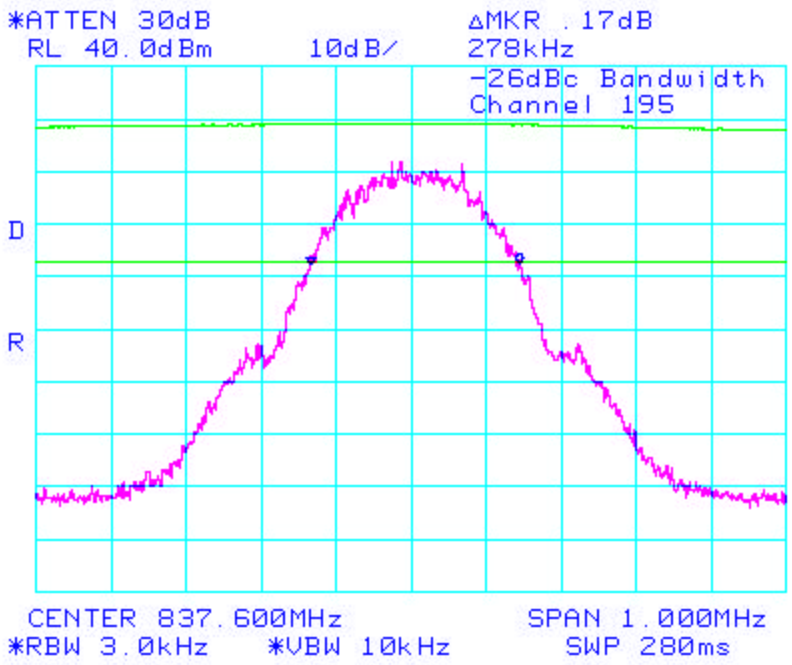
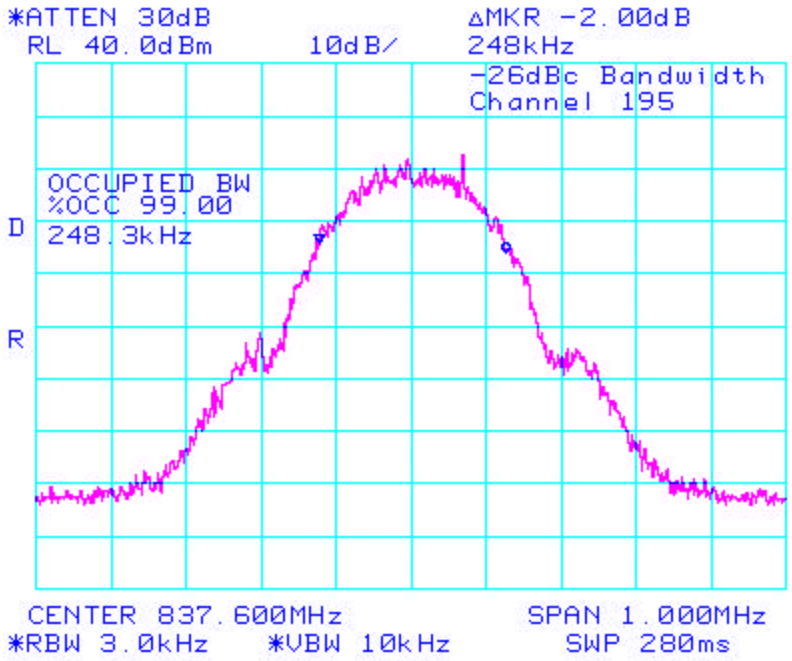


Figure 16: Occupied Bandwidth, GSM 850 Middle Channel



Conducted Emission Test Results Con't

Figure 17: -26dBc bandwidth, GSM 850 High Channel

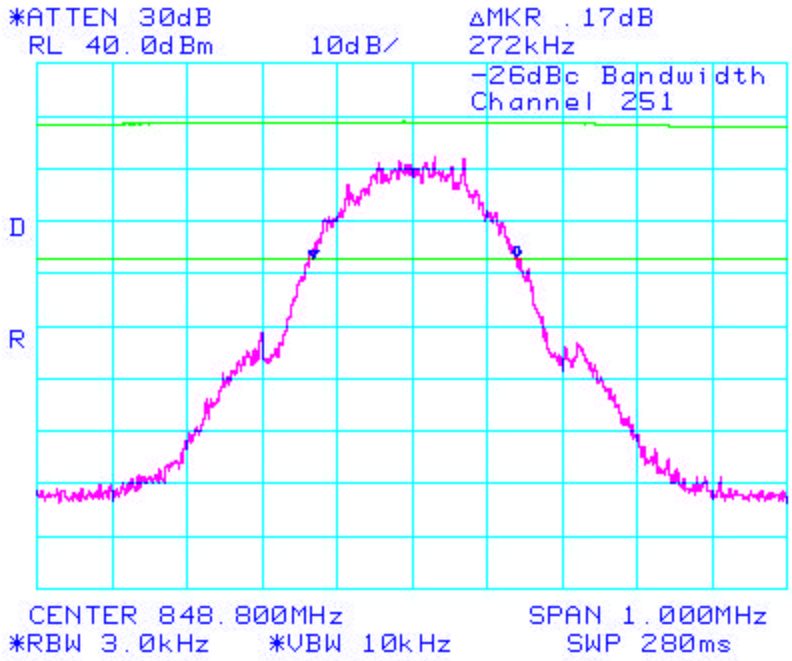
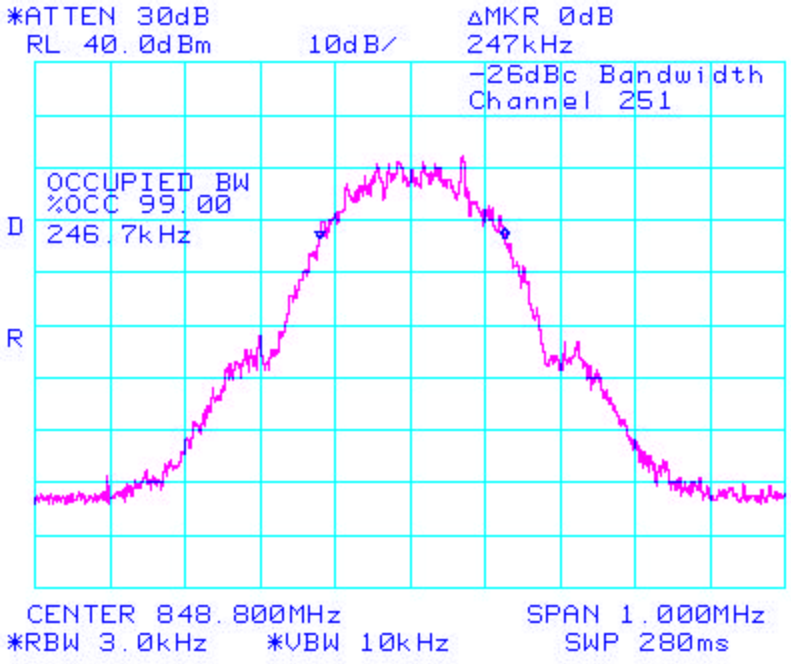


Figure 18: Occupied Bandwidth, GSM 850 High Channel



Conducted Emission Test Results Con't

Figure 19: -26dBc bandwidth, PCS Low Channel

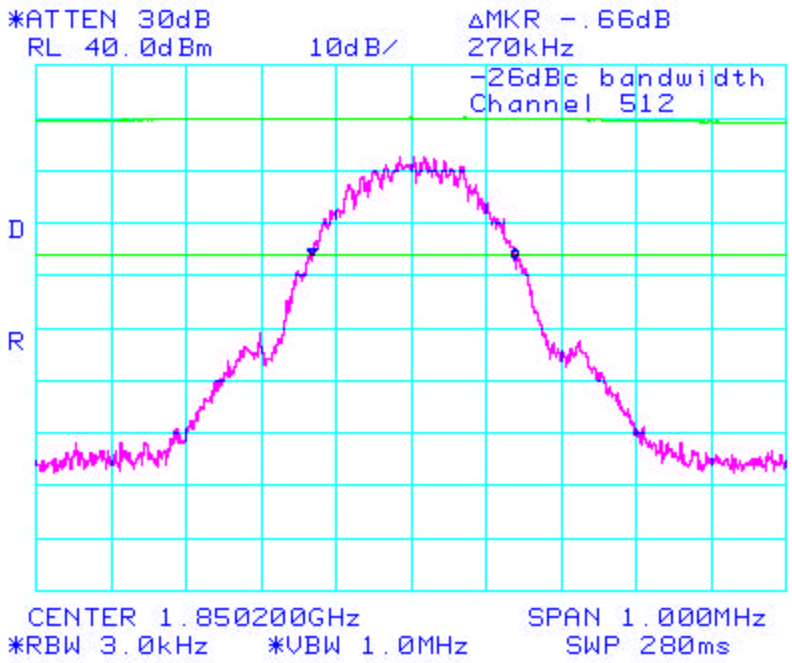
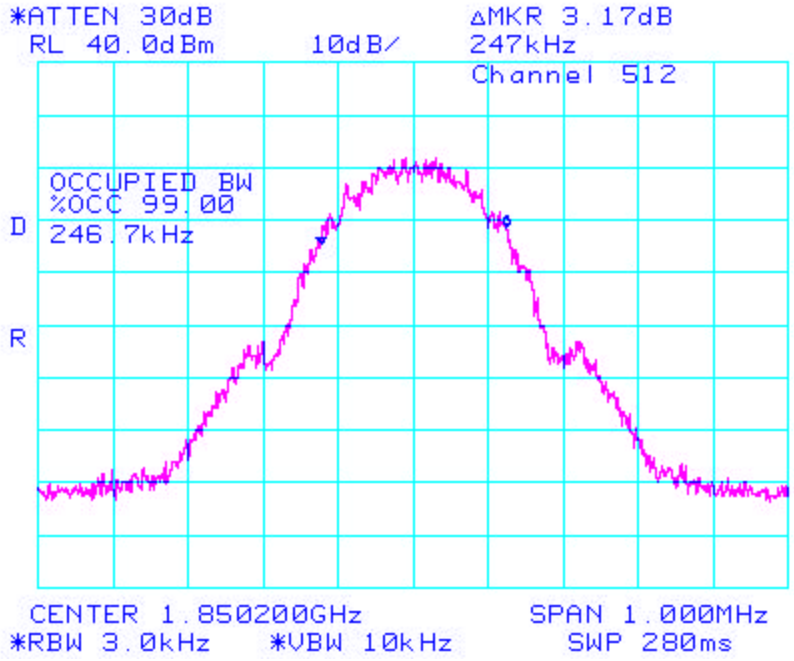


Figure 20: Occupied Bandwidth, PCS Low Channel



Conducted Emission Test Results Con't

Figure 21: -26dBc bandwidth, PCS Middle Channel

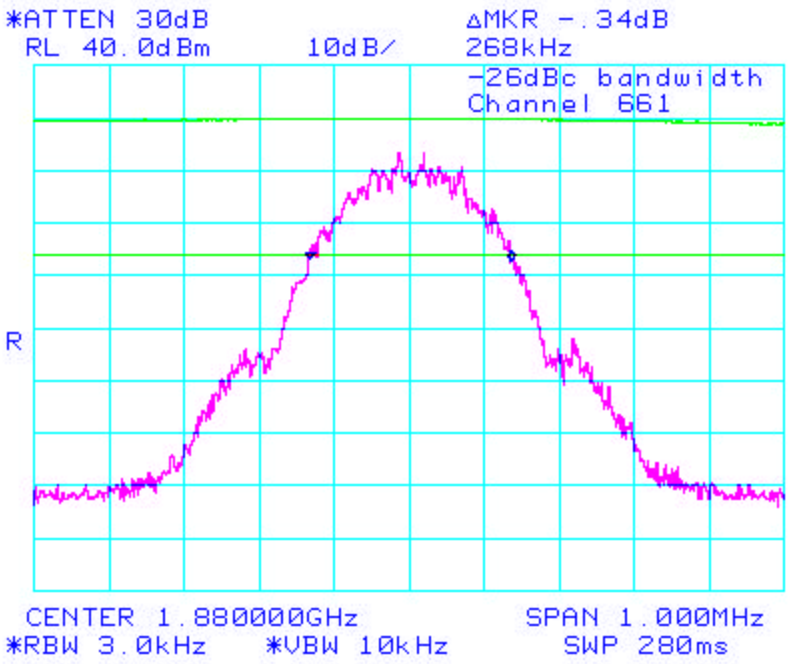
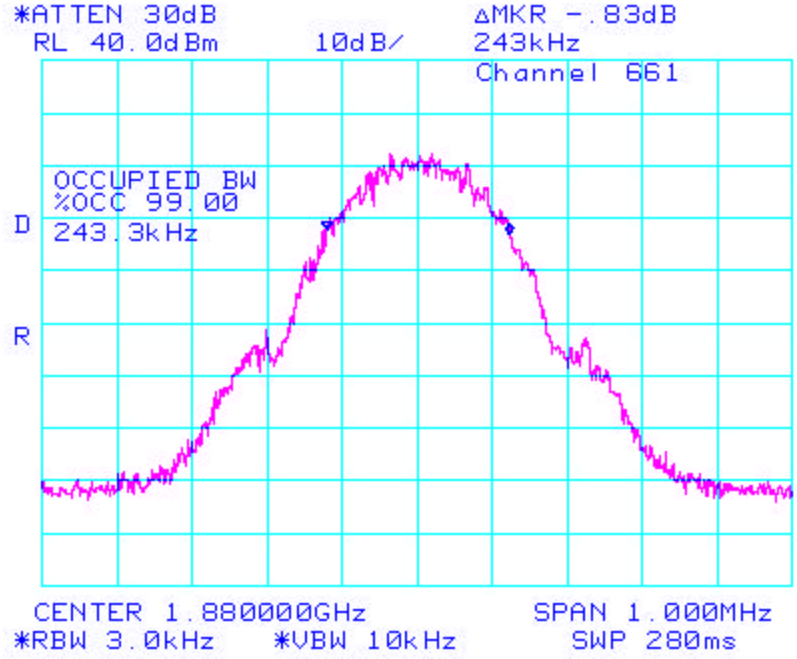


Figure 22: Occupied Bandwidth, PCS Middle Channel



Conducted Emission Test Results Con't

Figure 23: -26dBc bandwidth, PCS High Channel

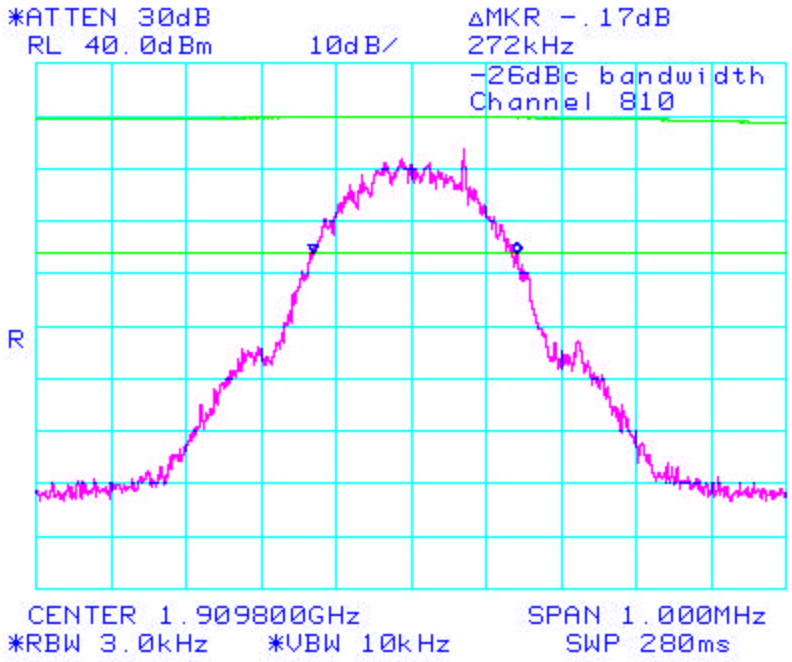
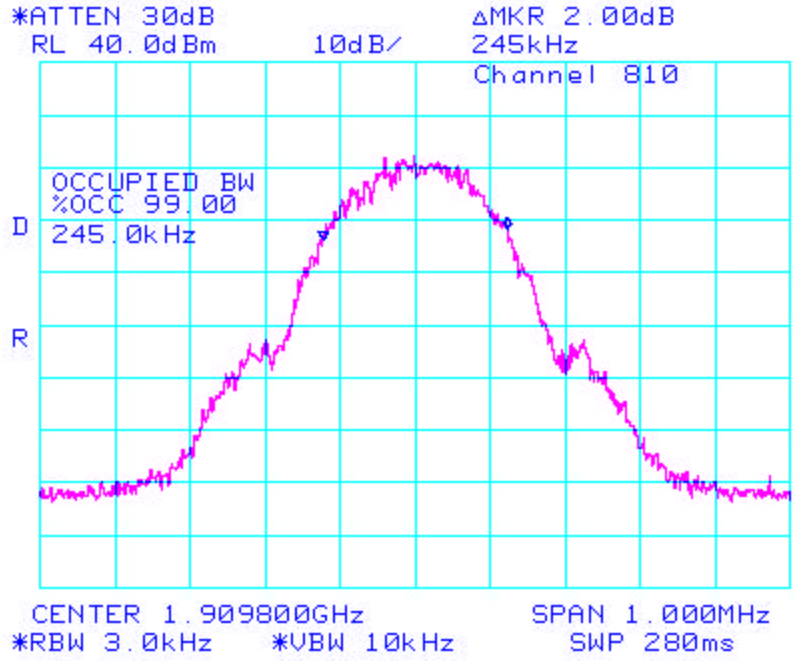


Figure 24: Occupied Bandwidth, PCS High Channel



Conducted Emission Test Results Con't

Figure 25: GSM 850, Low Channel Mask

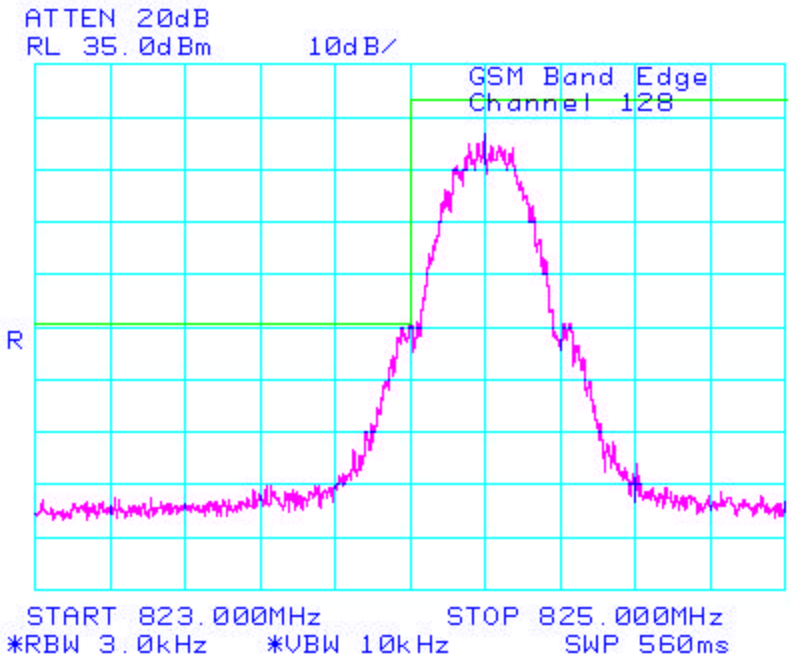
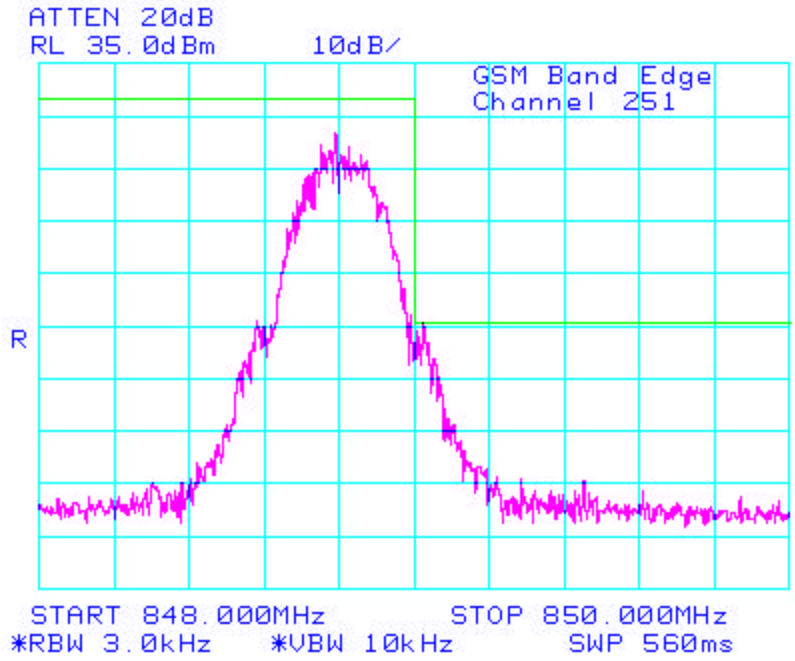


Figure 26: GSM 850 High Channel Mask



Conducted Emission Test Results Con't

Figure27: PCS, Low Channel Mask

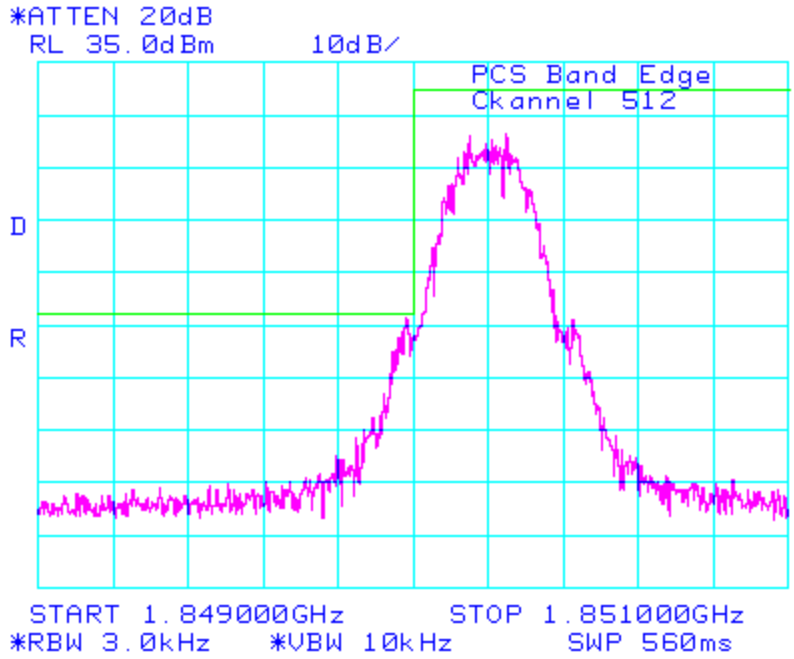
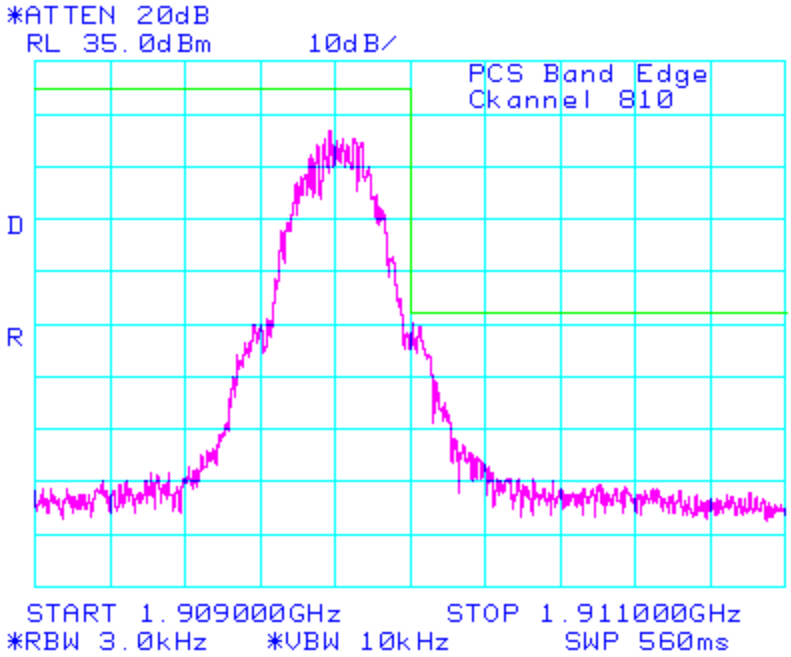
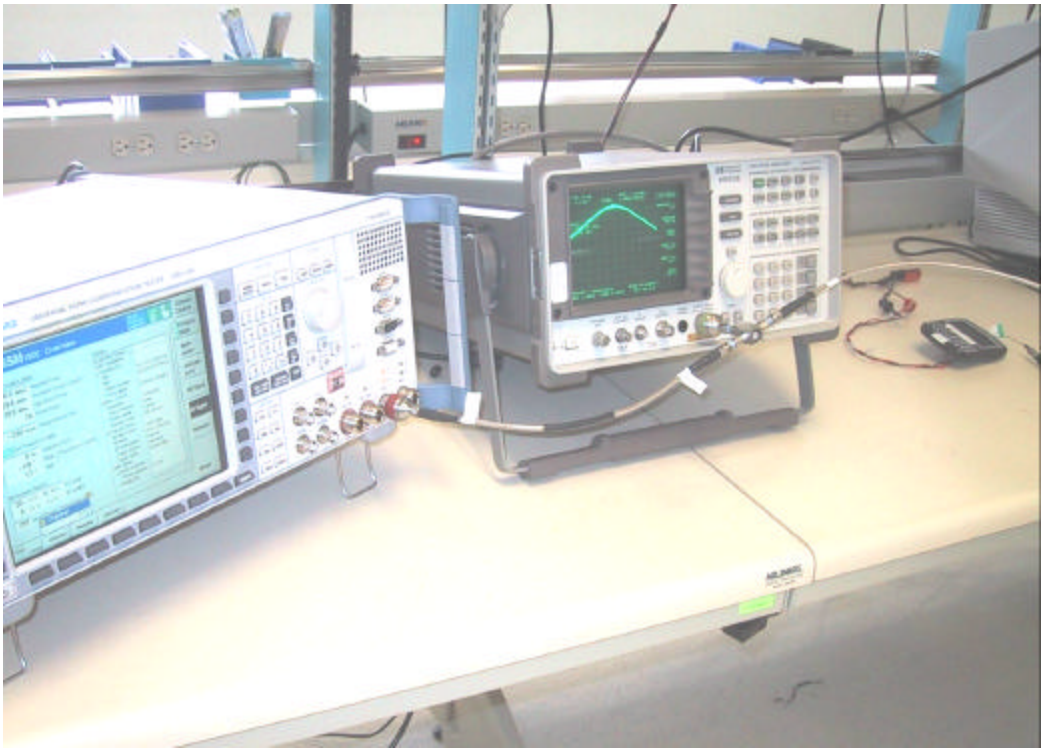


Figure28: PCS, High Channel Mask



Conducted Emission Test-Setup Photo

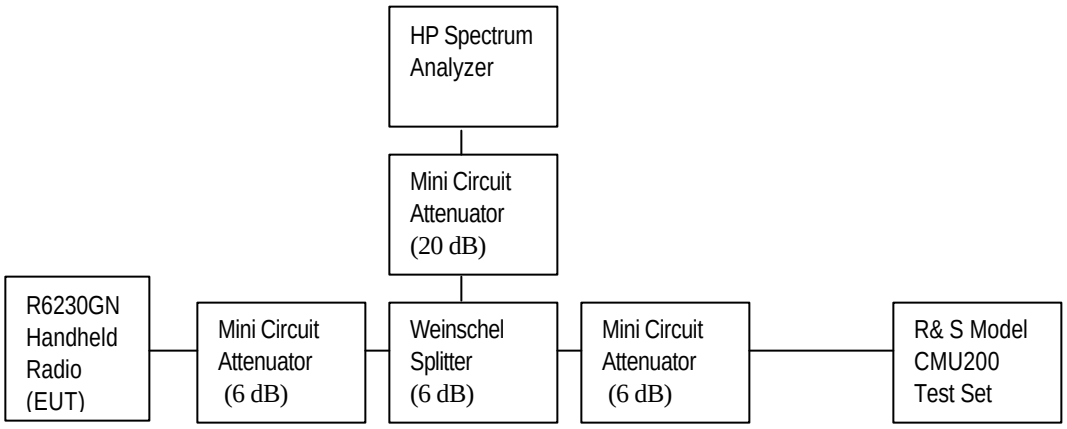
FCC CFR 47 Part 24, Subpart E, RSS-133



APPENDIX 2

CONDUCTED RF OUTPUT POWER TEST DATA

Conducted RF Output Power Test Data



Test Equipment List

Test Instruments	Manufacturer	Model No.	Serial No.	Frequency Range
Spectrum Analyzer	HP	8563E	374A08112	30 Hz – 26.5 GHz
Splitter	Weinschel	1515	ME092	DC – 18 GHz
Attenuator	Mini Circuit	MCL BW-S20W2	--	DC – 18 GHz
Attenuator	Mini Circuit	MCL BW-S6W2	--	DC – 18 GHz
Attenuator	Mini Circuit	MCL BW-S6W2	--	DC – 18 GHz
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	100249	--

Power Output for GSM850 and PCS

At three transmit frequencies the maximum radio output power level was measured using the Spectrum Analyzer. The calibrated insertion loss measured for the attenuator and cable assembly was added to the power measurements which produced the following results.

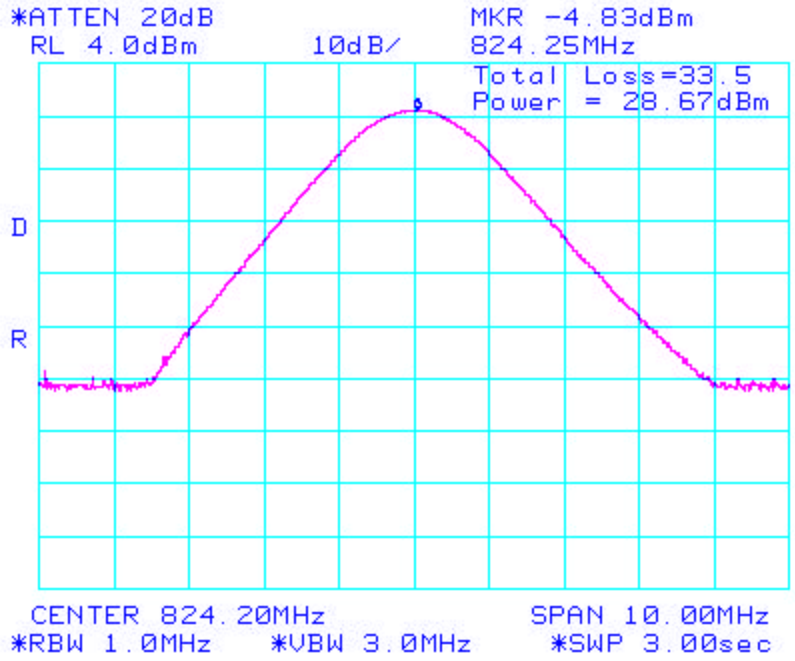
Test Data

Peak nominal output power is 29 dBm for GSM850 and 30 dBm for PCS.

Channel	GSM850 Frequency (MHz)	Measured Peak Conducted Power (dBm)	Total Correction Factor (dB)	Corrected Peak Conducted Power (dBm)
128	824.2	-4.83	33.5	28.67
195	837.6	-4.33	33.5	29.17
251	848.8	-4.17	33.5	29.33

Channel	PCS Frequency (MHz)	Measured Peak Conducted Power (dBm)	Total Correction Factor (dB)	Corrected Peak Conducted Power (dBm)
512	1850.2	-3.20	33.6	30.40
661	1880.0	-3.20	33.6	30.40
810	1909.8	-3.20	33.6	30.40

Figure28: GSM 850, Low Channel Peak Power



Conducted RF Output Power Test Data con't

Figure29: GSM 850, Middle Channel Peak Power

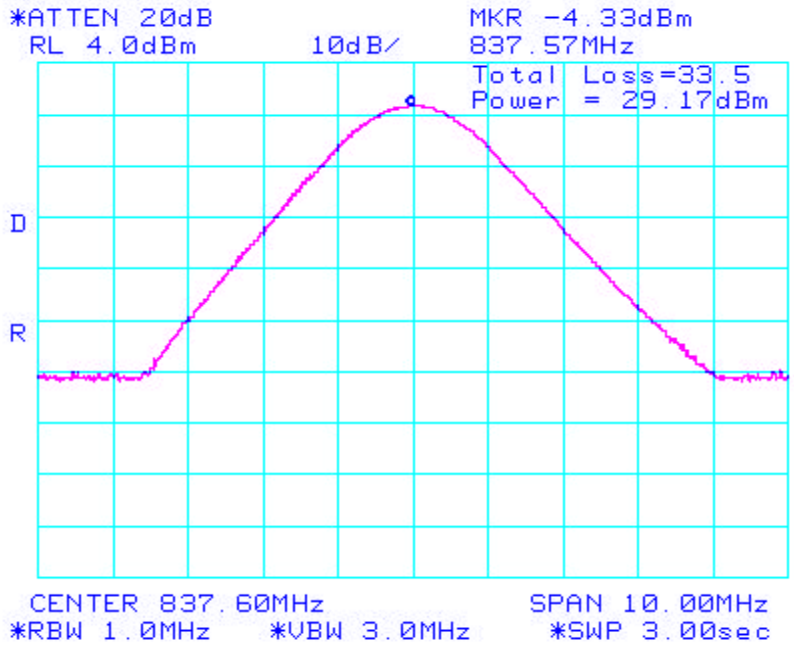
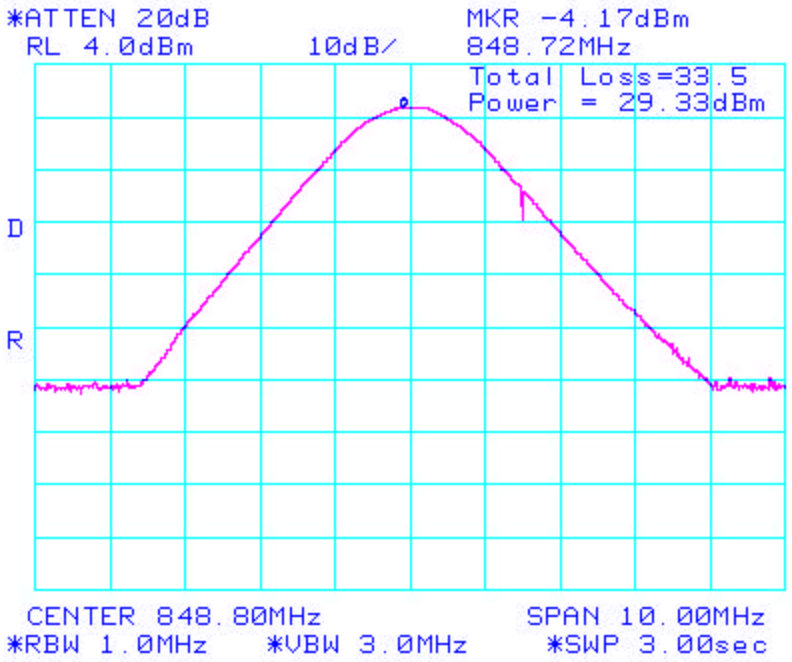


Figure30: GSM 850, High Channel Peak Power



Conducted RF Output Power Test Data con't

Figure31: PCS, Low Channel Peak Power

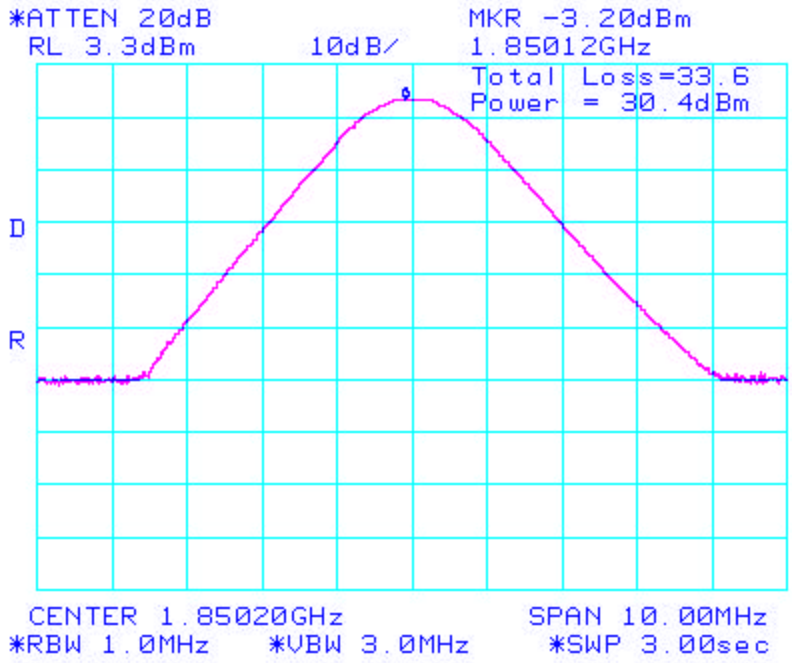
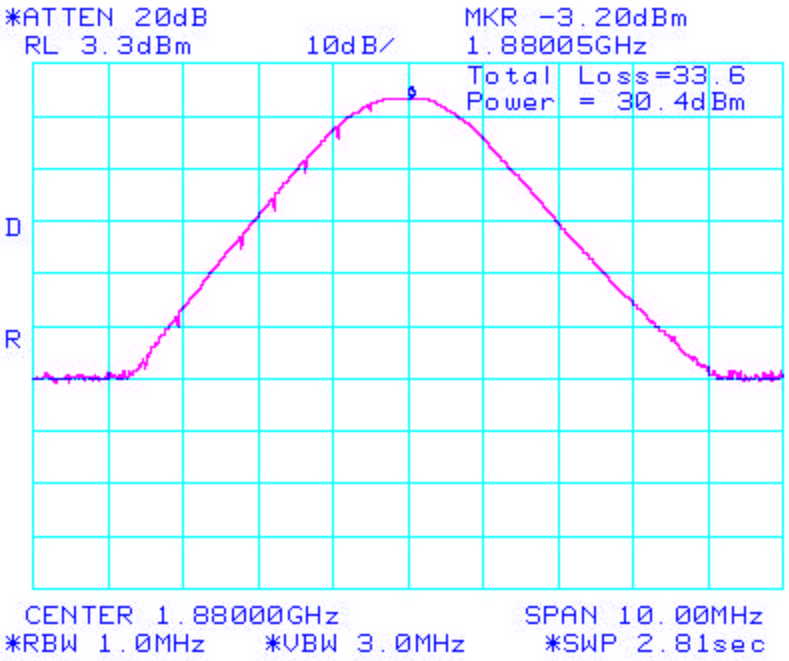
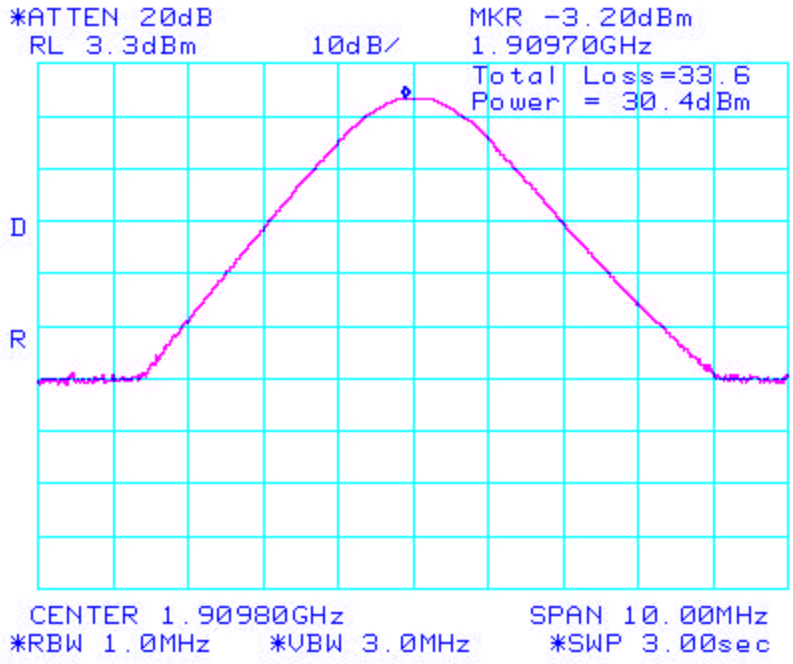


Figure32: PCS, Middle Channel Peak Power

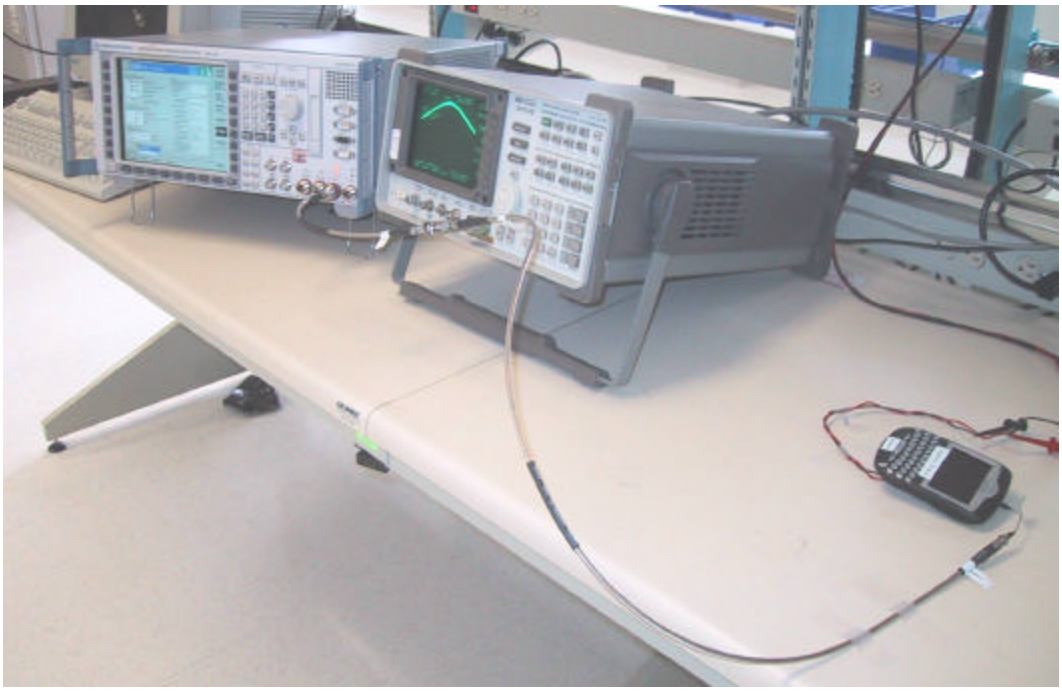


Conducted RF Output Power Test Data con't

Figure33: PCS, High Channel Peak Power



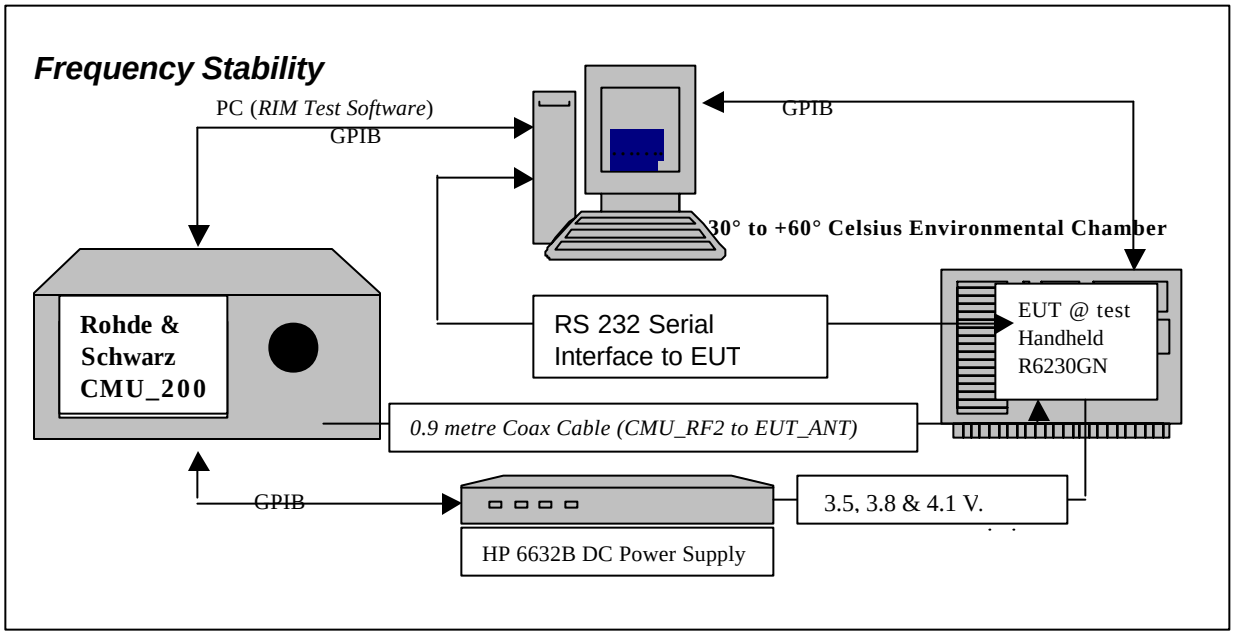
Conducted RF Output Power Test Data Photo



APPENDIX 3

FREQUENCY STABILITY TEST DATA

Frequency Stability Test Data



SYSTEM	*Model*	*Serial Number*	*Calibration Due Date.*
R & S Universal Radio Communication Test Set	CMU200	100249	04-April-2004
HP System DC Power Supply	6632B	US37472170	31-July-2003
Network Analyzer	HP 8753D	20A80400806	12-Aug-2003
Calibration Kit	HP85033D	3423A02787	28-Sept-2003
Espec Environmental Chamber	SH240S1	91005607	N/A
Hart Temperature Probe	61161-302	21352860	10-Sept-2003

CFR 47 Chapter 1 - Federal Communications Commission Rules

Part 2 Required Measurements
2.995 Frequency Stability - Procedures
(a,b) Frequency Stability - Temperature Variation
(d) Frequency Stability - Voltage Variation

24.235 *Frequency Stability.*

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

The R6230GN handheld, (referred as EUT herein and after) transmitted frequencies are less than 0.1 ppm of the received frequency from the Rhode & Schwarz CMU 200 Universal Radio Communication Test Set. *The EUT meets the requirements as stated in CFR 47 chapter 1, Section 24.235, RSS-133, CFR 47 chapter 1, Section 22.917 and RSS-128 Frequency Stability.*

Frequency Stability measurement devices were configured as presented in the block diagram recording frequency, power, data, temperatures, and stepped voltages controlled via a GPIB interface linked to the Environmental chamber, a DC power supply, and the Communications Test Set. A 1.9-meter coax cable was calibrated to characterize the insertion loss for the transmitted frequencies between the RF input/output of the CMU 200 and the EUT antenna port; located inside the environmental chamber.

Calibration for the Cable Loss was performed in the RF Laboratory on 30 May 2003.

Procedure:
Full_ Two port Calibration of 8720D using the 85033D was completed.

The cable assembly from the RF input to the RF output was measured at the following Frequencies:

PCS Frequency (MHz)	Cable loss (dB)
1850.2	*2.67*
1880.0	*2.67*
1909.8	*2.67*

GSM 850 Frequency (MHz)	Cable loss (dB)
824.2	*1.80*
836.4	*1.80*
848.6	*1.80*

Procedure:

The EUT was placed in the Temperature chamber and connected to CMU 200 outside as shown in the figure above. Dry air was pumped inside the temperature chamber to maintain a backpressure during the test. The EUT was kept in the off condition at all times except when the measurements were to be made.

The chamber was switched on and the temperature was set to -30°C.
After the chamber stabilized at -30 °C there was a soak period of one hour to alleviate moisture in the chamber, the EUT voltage was enabled.
The system software recorded the frequency, power, and associated measurements.

A Computer system controlled the automated software. This application was given the command of activating all machines intrinsic to the temperature and voltage tests controlling the CMU 200 via the GPIB Bus. The Environmental Chamber was instructed through an RS-232 serial line. The EUT dialogue was passed through a serial connection.

The EUT repetitively transmitted 100 bursts for each set of programmed parameters recording temperature, voltage settings, and systematically selected frequencies. The power supply was cycled from minimum voltage 3.5 volts, to 3.8 volts to 4.1 volts nominal voltage.
The frequency error was measured at a maximum output power and recorded by the automated system test software.

The EUT output power and frequency was measured at 3.5 volts, 3.8 volts and 4.1 volts. The transmit frequency was varied in 3 steps consisting of 824.2, 836.4, and 848.6 MHz for the GSM850 band and 1850.2, 1880.0 and 1909.8 MHz for the PCS band. This frequency was recorded in MHz and deviation from nominal, in Parts Per Million.

After the initial one-hour soak at the beginning of the start of the measurement tests, a period of thirty minutes soak was initialized between each ascending temperature step, before proceeding to the next measurement test cycle.

PROCEDURE:

The test system software for commencing the Frequency Stability Tests carried through the following cycle.

1. Switch on the HP 6632B power supply; CMU 200 Communications test Set, and Environmental Chamber.
2. Start test program
3. Set the Temperature to –30 degrees Celsius and maintain a period of one- hour soak time, with the EUT supply voltage disabled.
4. Set power supply voltage to 3.5 Volts.
5. Set up CMU 200 Radio Communication Tester.
6. Command the CMU 200 to switch to the low channel.
7. Enable the voltage to the EUT, and connect a link to the CMU 200 test set.
8. EUT is commanded to Transmit 100 Bursts.
9. Software logs the following data from the CMU 200, power supply and temperature chamber: Traffic Channel Number, Traffic Channel Frequency, Power Level, Chamber Temperature, Supply Voltage, Power, Frequency Error.
10. The CMU 200 commands the EUT to change frequency to the middle channel and high channel and repeats steps 7 to 9.
11. Repeat steps 5 to 10 changing the supply voltage to 3.8 Volts
12. Increase temperature by 10?C and soak for 1/2 hour.
13. Repeat steps 4 - 12 for temperatures –30 degrees to 60 degrees Celsius.
14. Repeat steps 5 to 10 changing the supply voltage to 4.1 Volts

Procedure 5 to 10 was repeated at room temperature (20?C) with the power supply voltage set to 3.5, 3.8 and 4.1 Volts.

GSM 850 Channel results: channels 128, 189 and 250 @ 20°C maximum transmitted power

Traffic Channel Number	*GSM 850 Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
128	824.2	29.23	3.5	20	-42.42	-0.0515
189	836.4	29.75	3.5	20	-27.96	-0.0334
250	848.6	30.23	3.5	20	-39.97	-0.0471

Traffic Channel Number	*GSM 850 Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
128	824.2	29.31	3.8	20	-44.23	-0.0537
189	836.4	29.86	3.8	20	-23.31	-0.0279
250	848.6	30.40	3.8	20	-45.46	-0.0536

Traffic Channel Number	*GSM 850 Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
128	824.2	29.39	4.1	20	-51.59	-0.0626
189	836.4	29.94	4.1	20	-22.99	-0.0275
250	848.6	30.54	4.1	20	-30.93	-0.0364

PCS Channel results: channels 512, 661, & 810 @ 20°C maximum transmitted power

Traffic Channel Number	*PCS Frequency (MHz*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
512	1850.2	30.67	3.5	20	35.51	0.0192
661	1880.0	30.70	3.5	20	41.91	0.0223
810	1909.8	30.66	3.5	20	41.65	0.0218

Traffic Channel Number	*PCS Frequency (MHz*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
512	1850.2	31.13	3.8	20	33.96	0.0184
661	1880.0	31.04	3.8	20	42.04	0.0224
810	1909.8	31.03	3.8	20	42.36	0.0222

Traffic Channel Number	*PCS Frequency (MHz*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
512	1850.2	31.41	4.1	20	36.87	0.0199
661	1880.0	31.33	4.1	20	37.77	0.0201
810	1909.8	31.03	4.1	20	40.49	0.0212

GSM850 Results: channel 128 @ maximum transmitted power

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
128	824.2	28.78	3.5	-30	-41.58	-0.0504
128	824.2	28.90	3.5	-20	-54.11	-0.0657
128	824.2	28.98	3.5	-10	-79.94	-0.0970
128	824.2	29.12	3.5	0	-56.18	-0.0682
128	824.2	29.20	3.5	10	-37.77	-0.0458
128	824.2	29.23	3.5	20	-42.42	-0.0515
128	824.2	29.29	3.5	30	-48.95	-0.0594
128	824.2	29.33	3.5	40	-63.93	-0.0776
128	824.2	29.45	3.5	50	-26.93	-0.0327
128	824.2	29.30	3.5	60	-40.62	-0.0493

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
128	824.2	28.83	3.8	-30	-51.66	-0.0627
128	824.2	28.94	3.8	-20	-54.69	-0.0664
128	824.2	29.08	3.8	-10	-76.45	-0.0928
128	824.2	29.19	3.8	0	-63.22	-0.0767
128	824.2	29.28	3.8	10	-34.42	-0.0418
128	824.2	29.31	3.8	20	-44.23	-0.0537
128	824.2	29.39	3.8	30	-41.00	-0.0497
128	824.2	29.43	3.8	40	-49.72	-0.0603
128	824.2	29.54	3.8	50	-27.89	-0.0338
128	824.2	29.39	3.8	60	-32.16	-0.0390

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
128	824.2	28.91	4.1	-30	-50.75	-0.0616
128	824.2	29.01	4.1	-20	-51.72	-0.0628
128	824.2	29.15	4.1	-10	-71.55	-0.0868
128	824.2	29.26	4.1	0	-59.08	-0.0717
128	824.2	29.35	4.1	10	-32.48	-0.0394
128	824.2	29.39	4.1	20	-51.59	-0.0626
128	824.2	29.48	4.1	30	-39.65	-0.0481
128	824.2	29.51	4.1	40	-56.44	-0.0685
128	824.2	29.63	4.1	50	-27.77	-0.0337
128	824.2	29.49	4.1	60	-36.68	-0.0445

GSM850 Results: channel 189 @ maximum transmitted power

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
189	836.4	29.41	3.5	-30	-71.42	-0.0854
189	836.4	29.52	3.5	-20	-25.83	-0.0309
189	836.4	29.59	3.5	-10	-54.43	-0.0651
189	836.4	29.69	3.5	0	-56.11	-0.0671
189	836.4	29.76	3.5	10	-27.83	-0.0333
189	836.4	29.75	3.5	20	-27.96	-0.0334
189	836.4	29.80	3.5	30	-22.41	-0.0268
189	836.4	29.82	3.5	40	-45.91	-0.0549
189	836.4	29.93	3.5	50	-31.38	-0.0375
189	836.4	29.75	3.5	60	-39.32	-0.0470

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
189	836.4	29.47	3.8	-30	-65.09	-0.0778
189	836.4	29.56	3.8	-20	-28.80	-0.0344
189	836.4	29.68	3.8	-10	-61.08	-0.0730
189	836.4	29.79	3.8	0	-46.17	-0.0552
189	836.4	29.86	3.8	10	-22.34	-0.0267
189	836.4	29.86	3.8	20	-23.31	-0.0279
189	836.4	29.93	3.8	30	-23.18	-0.0277
189	836.4	29.96	3.8	40	-51.53	-0.0616
189	836.4	30.07	3.8	50	-27.12	-0.0324
189	836.4	29.89	3.8	60	-37.84	-0.0452

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
189	836.4	29.53	4.1	-30	-56.95	-0.0681
189	836.4	29.65	4.1	-20	-26.67	-0.0319
189	836.4	29.78	4.1	-10	-55.53	-0.0664
189	836.4	29.86	4.1	0	-48.30	-0.0577
189	836.4	29.95	4.1	10	-23.57	-0.0282
189	836.4	29.94	4.1	20	-22.99	-0.0275
189	836.4	30.02	4.1	30	-27.96	-0.0334
189	836.4	30.06	4.1	40	-52.43	-0.0627
189	836.4	30.18	4.1	50	-24.92	-0.0298
189	836.4	30.03	4.1	60	-42.29	-0.0506

GSM850 Results: channel 250 @ maximum transmitted power

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
250	848.6	30.07	3.5	-30	-44.23	-0.0521
250	848.6	30.13	3.5	-20	-66.06	-0.0778
250	848.6	30.19	3.5	-10	-43.07	-0.0508
250	848.6	30.24	3.5	0	-28.73	-0.0339
250	848.6	30.27	3.5	10	-33.84	-0.0399
250	848.6	30.23	3.5	20	-39.97	-0.0471
250	848.6	30.26	3.5	30	-22.60	-0.0266
250	848.6	30.27	3.5	40	-52.56	-0.0619
250	848.6	30.34	3.5	50	-30.28	-0.0357
250	848.6	30.17	3.5	60	-31.25	-0.0368

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
250	848.6	30.20	3.8	-30	-50.30	-0.0593
250	848.6	30.24	3.8	-20	-58.05	-0.0684
250	848.6	30.34	3.8	-10	-51.01	-0.0601
250	848.6	30.41	3.8	0	-16.47	-0.0194
250	848.6	30.44	3.8	10	-36.61	-0.0431
250	848.6	30.40	3.8	20	-45.46	-0.0536
250	848.6	30.47	3.8	30	-28.41	-0.0335
250	848.6	30.46	3.8	40	-56.63	-0.0667
250	848.6	30.56	3.8	50	-31.96	-0.0377
250	848.6	30.39	3.8	60	-37.06	-0.0437

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
250	848.6	30.31	4.1	-30	-43.78	-0.0516
250	848.6	30.37	4.1	-20	-62.18	-0.0733
250	848.6	30.45	4.1	-10	-44.23	-0.0521
250	848.6	30.54	4.1	0	-17.76	-0.0209
250	848.6	30.56	4.1	10	-32.29	-0.0381
250	848.6	30.54	4.1	20	-30.93	-0.0364
250	848.6	30.61	4.1	30	-30.41	-0.0358
250	848.6	30.61	4.1	40	-42.62	-0.0502
250	848.6	30.71	4.1	50	-26.02	-0.0307
250	848.6	30.54	4.1	60	-31.32	-0.0369

PCS 1900 Results: channel 512 @ maximum transmitted power

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
512	1850.2	31.28	3.5	-30	39.32	0.0213
512	1850.2	31.30	3.5	-20	30.15	0.0163
512	1850.2	31.18	3.5	-10	25.83	0.0140
512	1850.2	31.05	3.5	0	30.15	0.0163
512	1850.2	30.89	3.5	10	31.06	0.0168
512	1850.2	30.67	3.5	20	35.51	0.0192
512	1850.2	30.59	3.5	30	24.47	0.0132
512	1850.2	30.32	3.5	40	-71.80	-0.0388
512	1850.2	30.12	3.5	50	23.50	0.0127
512	1850.2	29.81	3.5	60	-53.40	-0.0289

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
512	1850.2	31.71	3.8	-30	32.48	0.0176
512	1850.2	31.71	3.8	-20	37.84	0.0205
512	1850.2	31.62	3.8	-10	39.13	0.0211
512	1850.2	31.45	3.8	0	22.54	0.0122
512	1850.2	31.28	3.8	10	43.59	0.0236
512	1850.2	31.12	3.8	20	33.96	0.0184
512	1850.2	30.96	3.8	30	20.47	0.0111
512	1850.2	30.74	3.8	40	-92.98	-0.0503
512	1850.2	30.42	3.8	50	-17.69	-0.0096
512	1850.2	30.15	3.8	60	-58.63	-0.0317

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
512	1850.2	31.94	4.1	-30	-24.28	-0.0131
512	1850.2	32.01	4.1	-20	36.87	0.0199
512	1850.2	31.91	4.1	-10	39.91	0.0216
512	1850.2	31.75	4.1	0	27.89	0.0151
512	1850.2	31.59	4.1	10	27.25	0.0147
512	1850.2	31.41	4.1	20	34.87	0.0188
512	1850.2	31.24	4.1	30	28.28	0.0153
512	1850.2	30.98	4.1	40	-88.14	-0.0476
512	1850.2	30.72	4.1	50	18.27	0.0099
512	1850.2	30.41	4.1	60	-52.88	-0.0286

PCS 1900 Results: channel 661 @ maximum transmitted power

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
661	1880.0	31.22	3.5	-30	33.19	0.0177
661	1880.0	31.21	3.5	-20	55.92	0.0297
661	1880.0	31.13	3.5	-10	45.59	0.0243
661	1880.0	31.00	3.5	0	40.03	0.0213
661	1880.0	30.84	3.5	10	34.74	0.0185
661	1880.0	30.70	3.5	20	41.91	0.0223
661	1880.0	30.52	3.5	30	16.66	0.0089
661	1880.0	30.28	3.5	40	-86.01	-0.0458
661	1880.0	30.07	3.5	50	21.24	0.0113
661	1880.0	29.75	3.5	60	-51.79	-0.0275

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
661	1880.0	31.63	3.8	-30	28.86	0.0154
661	1880.0	31.61	3.8	-20	50.11	0.0278
661	1880.0	31.48	3.8	-10	52.24	0.0154
661	1880.0	31.37	3.8	0	36.81	0.0267
661	1880.0	31.21	3.8	10	51.98	0.0276
661	1880.0	31.04	3.8	20	42.04	0.0224
661	1880.0	30.85	3.8	30	21.11	0.0112
661	1880.0	30.65	3.8	40	-75.87	-0.0404
661	1880.0	30.38	3.8	50	27.70	0.0147
661	1880.0	30.04	3.8	60	-55.08	-0.0293

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
661	1880.0	31.85	4.1	-30	29.77	0.0158
661	1880.0	31.89	4.1	-20	45.07	0.0240
661	1880.0	31.78	4.1	-10	49.40	0.0263
661	1880.0	31.62	4.1	0	39.13	0.0208
661	1880.0	31.44	4.1	10	42.29	0.0225
661	1880.0	31.33	4.1	20	37.77	0.0201
661	1880.0	31.10	4.1	30	31.38	0.0167
661	1880.0	30.85	4.1	40	-78.33	-0.0417
661	1880.0	30.60	4.1	50	24.92	0.0133
661	1880.0	30.22	4.1	60	43.20	0.0230

PCS 1900 Results: channel 810 @ maximum transmitted power

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
810	1909.8	31.18	3.5	-30	46.04	0.0241
810	1909.8	31.16	3.5	-20	61.54	0.0322
810	1909.8	31.10	3.5	-10	61.54	0.0322
810	1909.8	30.96	3.5	0	42.75	0.0224
810	1909.8	30.79	3.5	10	32.87	0.0172
810	1909.8	30.66	3.5	20	41.65	0.0218
810	1909.8	30.52	3.5	30	21.44	0.0112
810	1909.8	30.26	3.5	40	-66.19	-0.0347
810	1909.8	30.02	3.5	50	25.76	0.0135
810	1909.8	29.77	3.5	60	-52.56	-0.0275

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
810	1909.8	31.56	3.8	-30	24.41	0.0128
810	1909.8	31.56	3.8	-20	69.22	0.0362
810	1909.8	31.49	3.8	-10	51.46	0.0269
810	1909.8	31.34	3.8	0	49.78	0.0261
810	1909.8	31.21	3.8	10	52.11	0.0273
810	1909.8	31.03	3.8	20	42.36	0.0222
810	1909.8	30.83	3.8	30	22.21	0.0116
810	1909.8	30.63	3.8	40	-78.20	-0.0409
810	1909.8	30.36	3.8	50	36.48	0.0191
810	1909.8	29.97	3.8	60	-49.85	-0.0261

Traffic Channel Number	*Frequency (MHz)*	*Transmit Power (dBm)*	*Voltage (Volts)*	*Temperature (Celsius)*	*Frequency Error (Hz)*	*PPM*
810	1909.8	31.86	4.1	-30	19.05	0.0100
810	1909.8	31.86	4.1	-20	47.01	0.0246
810	1909.8	31.80	4.1	-10	49.72	0.0260
810	1909.8	31.59	4.1	0	53.53	0.0280
810	1909.8	31.48	4.1	10	39.97	0.0209
810	1909.8	31.32	4.1	20	40.49	0.0212
810	1909.8	31.11	4.1	30	35.39	0.0185
810	1909.8	30.86	4.1	40	-73.74	-0.0386
810	1909.8	30.56	4.1	50	23.83	0.0125
810	1909.8	30.27	4.1	60	-41.97	-0.0220

APPENDIX 4

RADIATED EMISSIONS TEST DATA

Radiated Emissions Test Data Results

Test distance is 3.0 metres

EUT				Rx Antenna		Spectrum Analyzer			Substitution Method Tracking Generator				
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Corrected Reading (dBuV)	Max (V,H)	Reading (dBm)	Corrected Reading (relative to dipole)	Pol.	Limit	Diff to Limit (dB)
GSM850 Band (ERP)													
Handheld Standalone													
F0	128	824.20	850	Dipole	V	81.1	81.1	81.1	5.8	21.75	VV	27.78	-6.03
F0	128	824.20	850	Dipole	H	73.5	73.5		4.2		HH		
F0	195	837.60	850	Dipole	V	81.7	81.7	81.7	7.5	23.45	VV	27.78	-4.33
F0	195	837.60	850	Dipole	H	73.3	73.3		6.1		HH		
F0	251	848.80	850	Dipole	V	82.0	82.0	82.0	7.8	23.75	VV	27.78	-4.03
F0	251	848.80	850	Dipole	H	75.3	75.3		6.2		HH		
With Headset													
F0	128	824.20	850	Dipole	V	79.6	79.6	79.6	4.3	20.25	VV	27.78	-7.53
F0	128	824.20	850	Dipole	H	77.7	77.7		2.7		HH		
F0	195	837.60	850	Dipole	V	80.4	80.4	80.4	6.2	22.15	VV	27.78	-5.63
F0	195	837.60	850	Dipole	H	78.2	78.2		4.9		HH		
F0	251	848.80	850	Dipole	V	82.2	82.2	82.2	8.1	24.05	VV	27.78	-3.73
F0	251	848.80	850	Dipole	H	79.6	79.6		6.5		HH		
With Travel Charger and Headset													
F0	128	824.20	850	Dipole	V	80.4	80.4	80.4	5.1	21.05	VV	27.78	-6.73
F0	128	824.20	850	Dipole	H	78.6	78.6		3.5		HH		
F0	195	837.60	850	Dipole	V	81.3	81.3	81.3	7.1	23.05	VV	27.78	-4.73
F0	195	837.60	850	Dipole	H	77.7	77.7		5.8		HH		
F0	251	848.80	850	Dipole	V	82.0	82.0	82.0	7.8	23.75	VV	27.78	-4.03
F0	251	848.80	850	Dipole	H	79.1	79.1		6.2		HH		

Radiated Emissions Test Data Results con't

Test distance is 3.0 metres

EUT					Rx Antenna		Spectrum Analyzer		Substitution Method Tracking Generator				
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Corrected Reading (dBuV)	Max (V,H)	Reading (dBm)	Corrected Reading (relative to dipole)	Pol.	Limit	Diff to Limit (dB)
GSM850 Band (Harmonics)													
Handheld Standalone, upright position													
Low Channel													
2nd	128	1648.4	850	Horn	V	47.0	47.0	47.0	-34.5	-31.7	VV	-13	-18.7
2nd	128	1648.4	850	Horn	H	44.5	44.5		-39.5		HH		
The harmonics were investigated up to the 10th harmonic. No emissions above the 2nd harmonic could be seen.													
Middle Channel													
2nd	195	1675.2	850	Horn	V	45.9	45.9	45.9	-34.3	-31.5	VV	-13	-18.5
2nd	195	1675.2	850	Horn	H	41.7	41.7		-41.6		HH		
The harmonics were investigated up to the 10th harmonic. No emissions above the 2nd harmonic could be seen.													
High Channel													
2nd	251	1697.6	850	2nd	2nd	45.2	45.2	45.2	-35.3	-32.5	VV	-13	-19.5
2nd	251	1697.6	850	2nd	2nd	40.4	40.4		-42.8		HH		
The harmonics were investigated up to the 10th harmonic. No emissions above the 2nd harmonic could be seen.													

Radiated Emissions Test Data Results con't

Test distance is 3.0 metres

EUT				Receive Antenna		Spectrum Analyzer			Substitution Method Tracking Generator				
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Corrected Reading (dBuV)	Max (V,H)	Reading (dBm)	Corrected Reading (relative to dipole)	Pol.	Limit	Diff to Limit (dB)
PCS Band (EIRP)													
Handheld Standalone, upright position													
FO	512	1850.2	1900	Horn	V	92.9	92.9	92.9	9.6	28.88	VV	33	-4.12
FO	512	1850.2	1900	Horn	H	87.5	87.5		10.6		HH		
FO	661	1880.0	1900	Horn	V	92.1	92.1	92.1	10.8	29.88	VV	33	-3.12
FO	661	1880.0	1900	Horn	H	85.5	85.5		11.6		HH		
FO	810	1909.8	1900	Horn	V	90.8	90.8	90.8	8.6	27.78	VV	33	-5.22
FO	810	1909.8	1900	Horn	H	86.6	86.6		9.5		HH		
Handheld in upright position with Headset													
FO	512	1850.2	1900	Horn	V	92.9	92.9	92.9	9.6	28.88	VV	33	-4.12
FO	512	1850.2	1900	Horn	H	87.7	87.7		10.6		HH		
FO	661	1880.0	1900	Horn	V	92.1	92.1	92.1	10.8	29.88	VV	33	-3.12
FO	661	1880.0	1900	Horn	H	86.1	86.1		11.6		HH		
FO	810	1909.8	1900	Horn	V	91.2	91.2	91.2	9.0	28.18	VV	33	-4.82
FO	810	1909.8	1900	Horn	H	86.8	86.8		9.9		HH		
Handheld in upright position with Travel Charger and Headset													
FO	512	1850.2	1900	Horn	V	92.1	92.1	92.1	8.8	28.08	VV	33	-4.92
FO	512	1850.2	1900	Horn	H	87.4	87.4		9.8		HH		
FO	661	1880.0	1900	Horn	V	92.8	92.8	92.8	11.5	30.58	VV	33	-2.42
FO	661	1880.0	1900	Horn	H	86.6	86.6		12.3		HH		
FO	810	1909.8	1900	Horn	V	91.9	91.9	91.9	9.7	28.88	VV	33	-4.12
FO	810	1909.8	1900	Horn	H	84.5	84.5		10.6		HH		

Radiated Emissions Test Data Results con't

Test distance is 3.0 metres

EUT				Receive Antenna		Spectrum Analyzer			Substitution Method Tracking Generator				
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Corrected Reading (dBuV)	Max (V,H)	Reading (dBm)	Corrected Reading (relative to dipole)	Pol.	Limit	Diff to Limit (dB)
PCS Band (Harmonics) Handheld in upright position connected to Travel Charger and Headset. **Low Channel**													
2nd	512	3700.4	1900	Horn	V	35.5	35.5	37.4	-49.4	-45.8	VV	-13	-32.8
2nd	512	3700.4	1900	Horn	H	37.4	37.4		-49.5		HH		
The harmonics were investigated up to the 10th harmonic. No emissions above the 2nd harmonic could be seen. **Middle Channel**													
2nd	661	3760.0	1900	Horn	V	34.9	34.9	36.4	-48.2	-44.6	VV	-13	-31.6
2nd	661	3760.0	1900	Horn	H	36.4	36.4		-49.2		HH		
The harmonics were investigated up to the 10th harmonic. No emissions above the 2nd harmonic could be seen. **High Channel**													
2nd	881	3819.6	1900	Horn	V	34.8	34.8	36.6	-48.8	-45.2	VV	-13	-32.2
2nd	881	3819.6	1900	Horn	H	36.6	36.6		-51.8		HH		
The harmonics were investigated up to the 10th harmonic. No emissions above the 2nd harmonic could be seen.													

Radiated Emissions Test Photos con't

Radiated Emissions at 3.0 metres