

## **9 – BAND EDGE TEST**

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### **9.1 Applicable Standards**

According to FCC §2.1049 and §22.917(b), when measuring the emission limits, carrier frequency shall be adjusted as close to the frequency block edges, both upper and lower.

### **9.2 Test Procedure**

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. Adjust the carrier frequency as close to the frequency block edges both upper and lower. Sufficient scans were taken to show any out of band-edge emission.

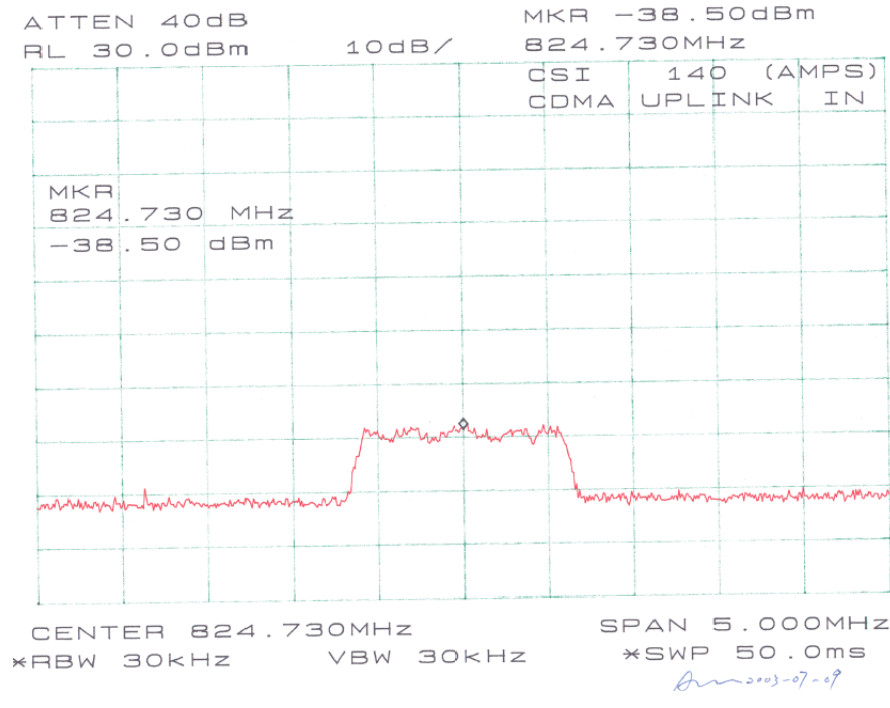
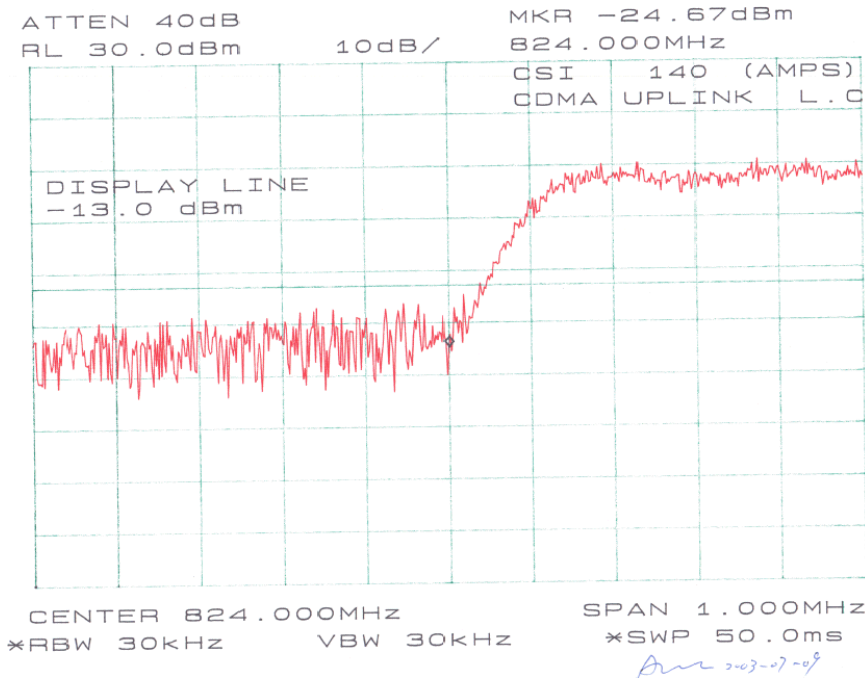
### **9.3 Test Equipment**

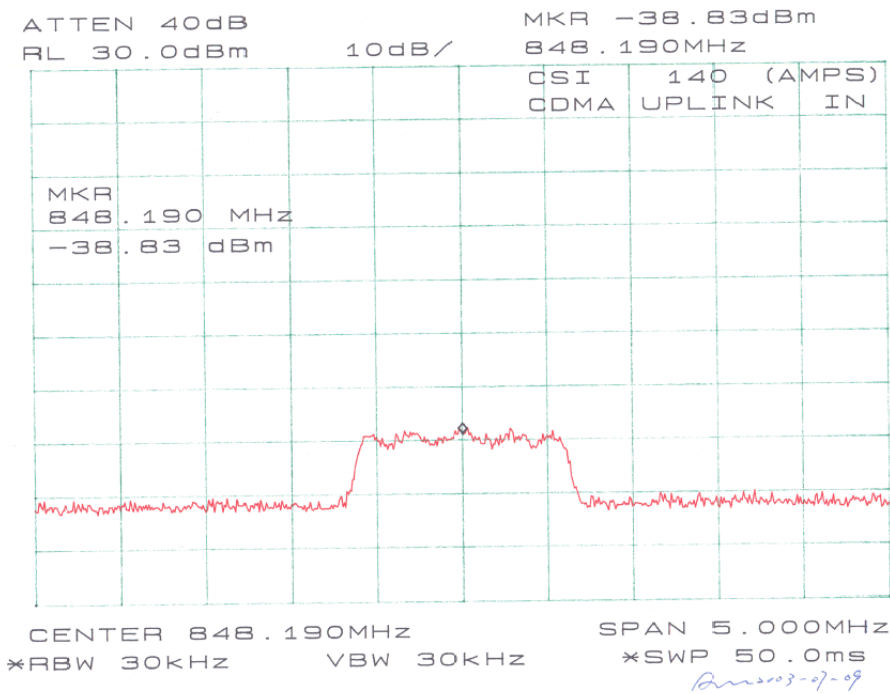
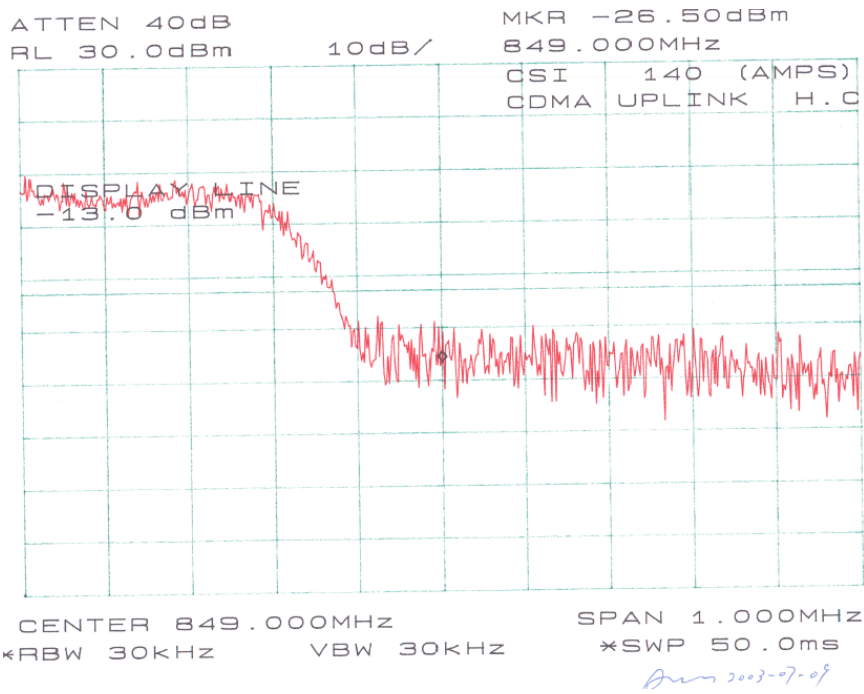
Hewlett Packard HP8566B Spectrum Analyzer  
Hewlett Packard HP 7470A Plotter  
Rohde & Schwarz SMIQ03B Signal Generator  
Rohde & Schwarz AMIQ I/Q Modulation Generator

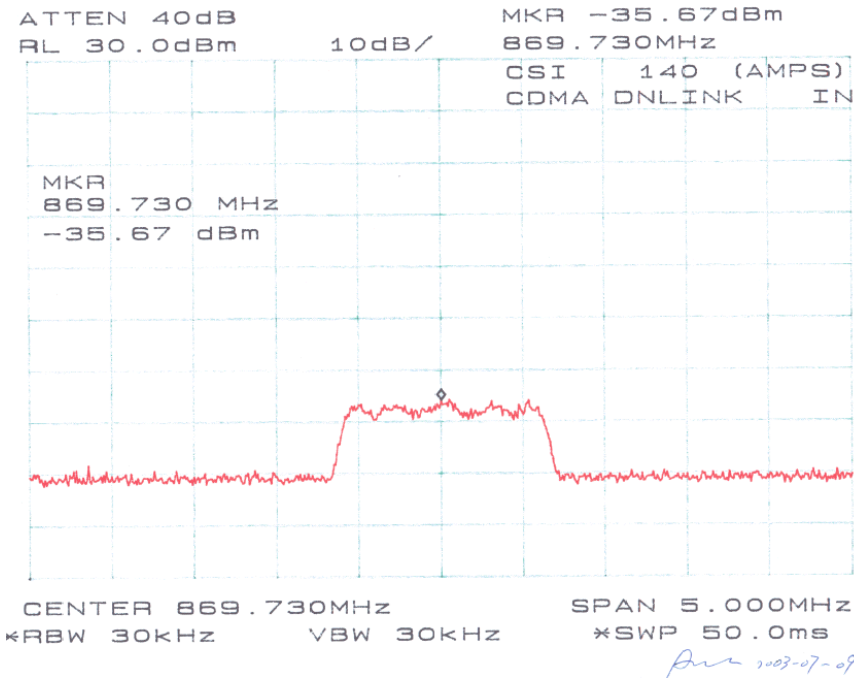
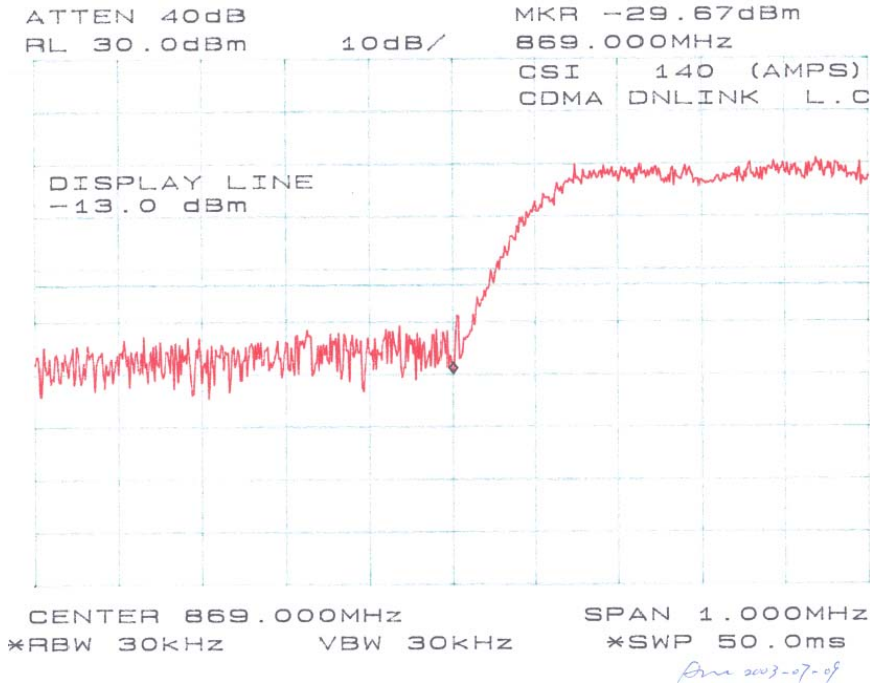
### **9.4 Plots of Out-of-Band-Edge Emissions at Antenna Terminal**

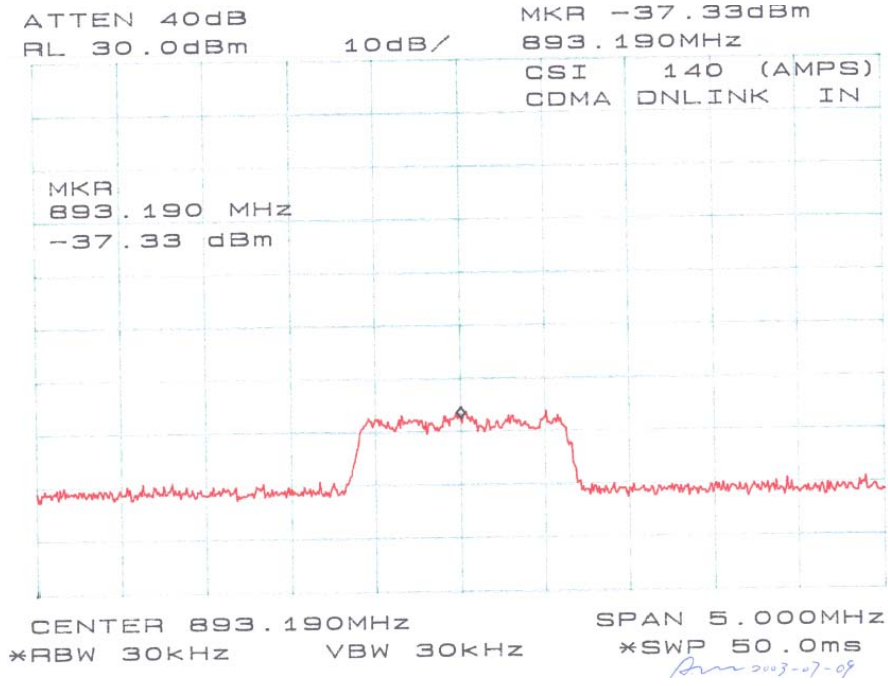
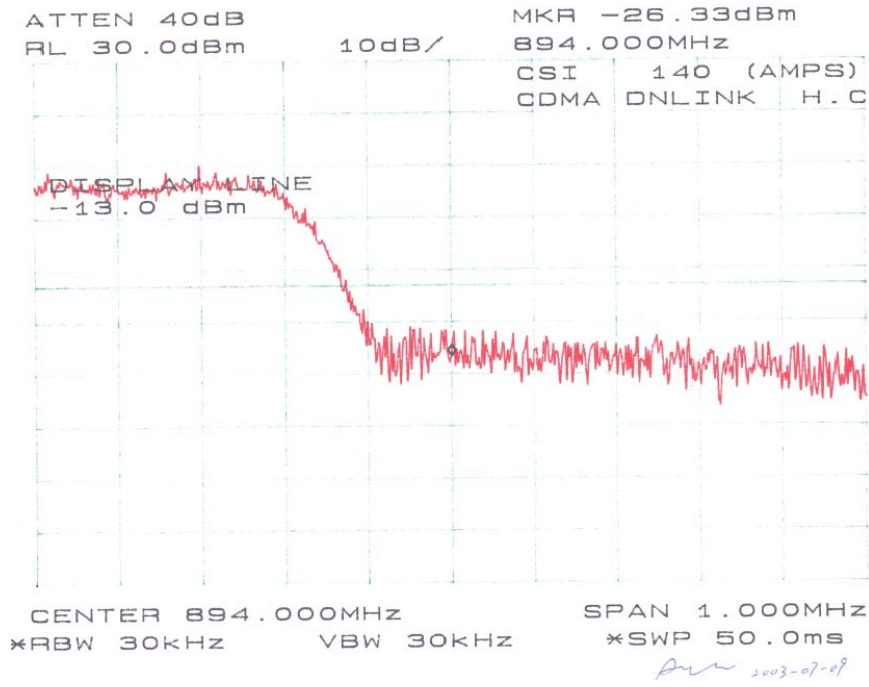
Please refer to plots hereinafter.

**Band Edge Plots for CDMA Modulation**

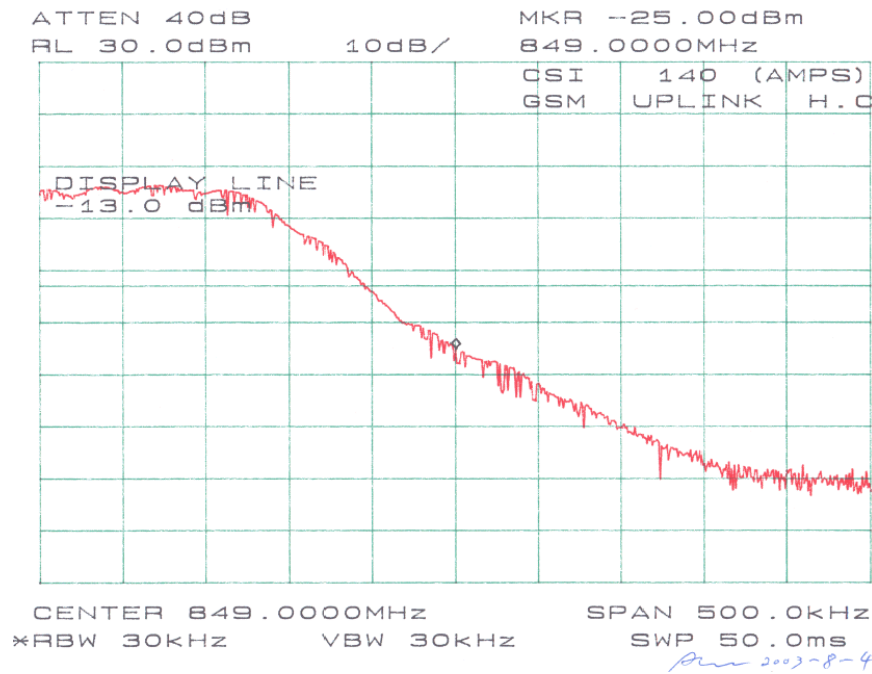
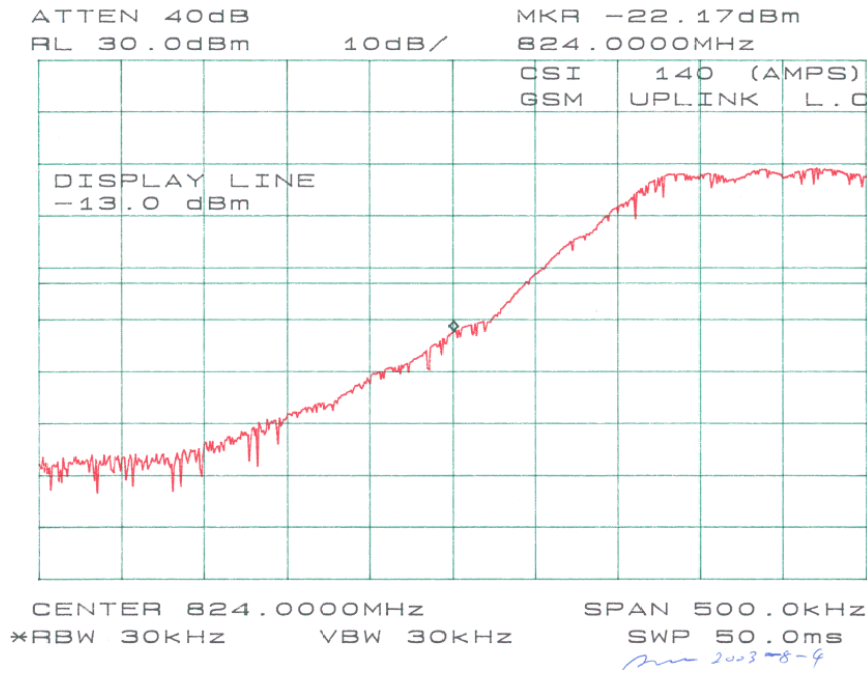


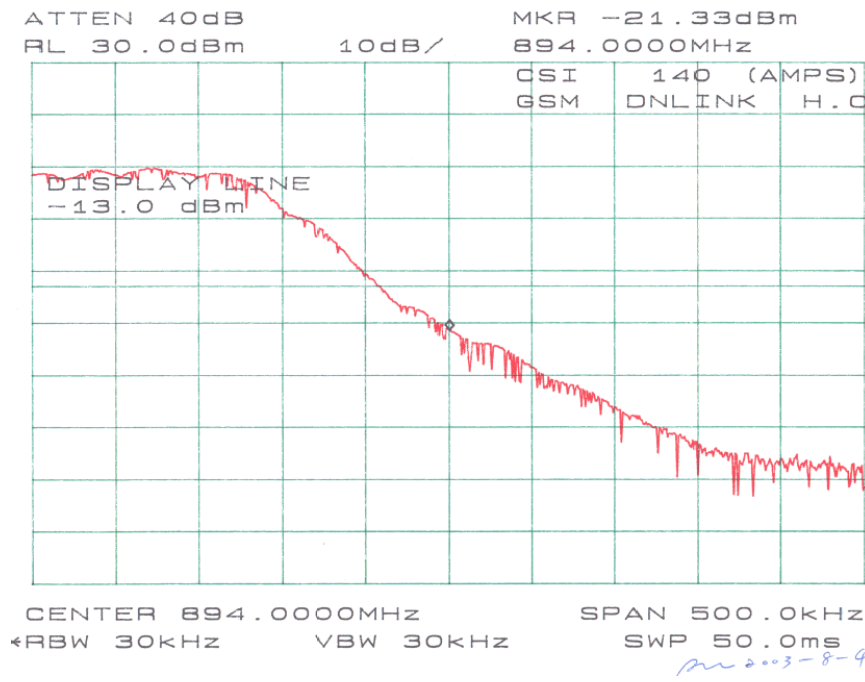
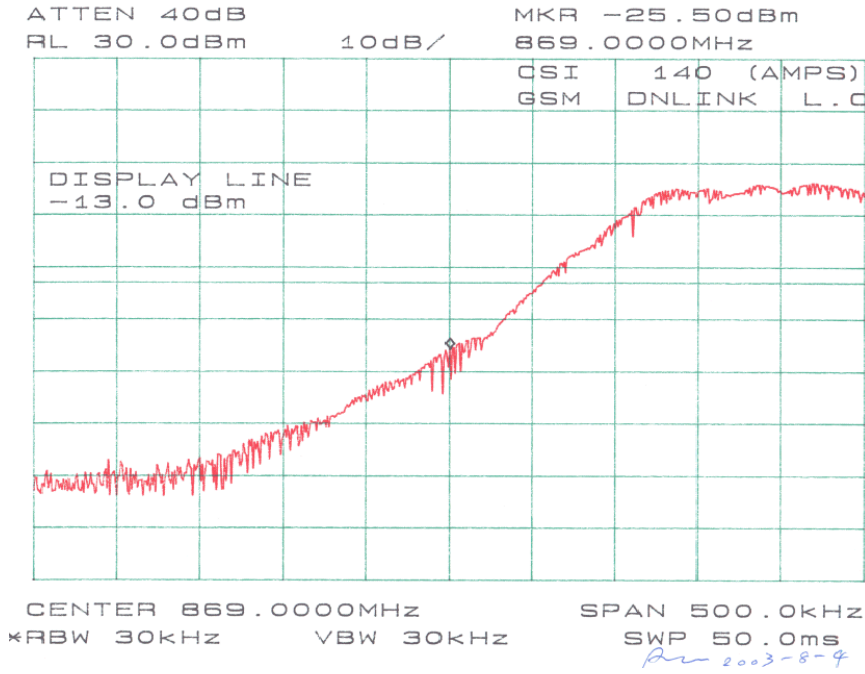




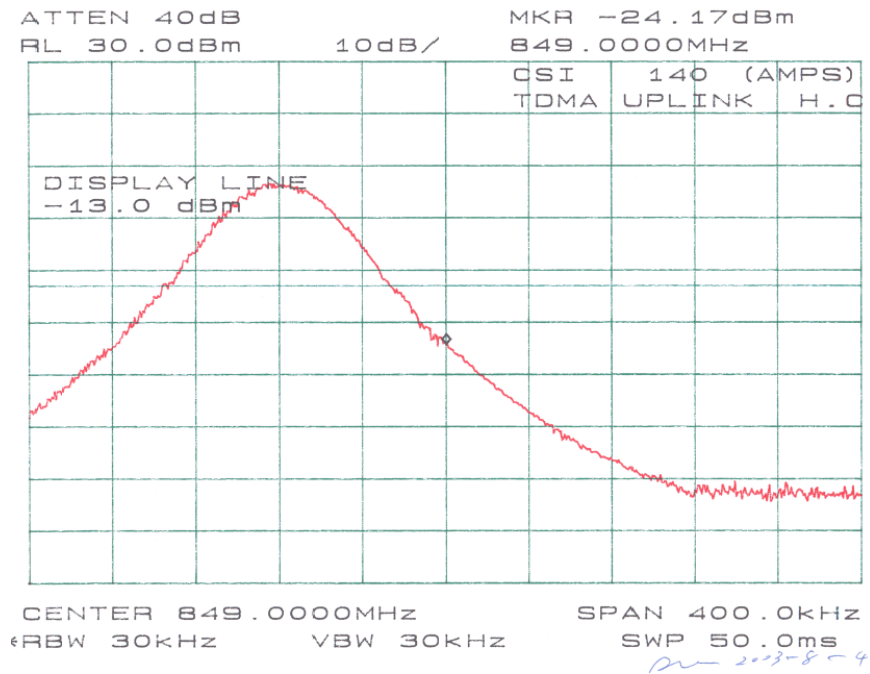
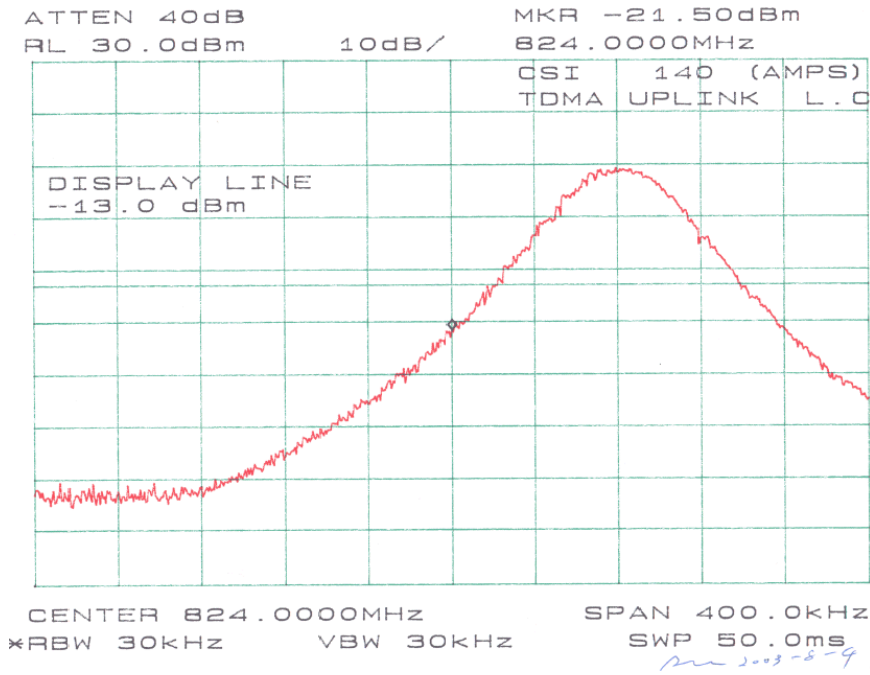


**Band Edge Plots for GSM Modulation**

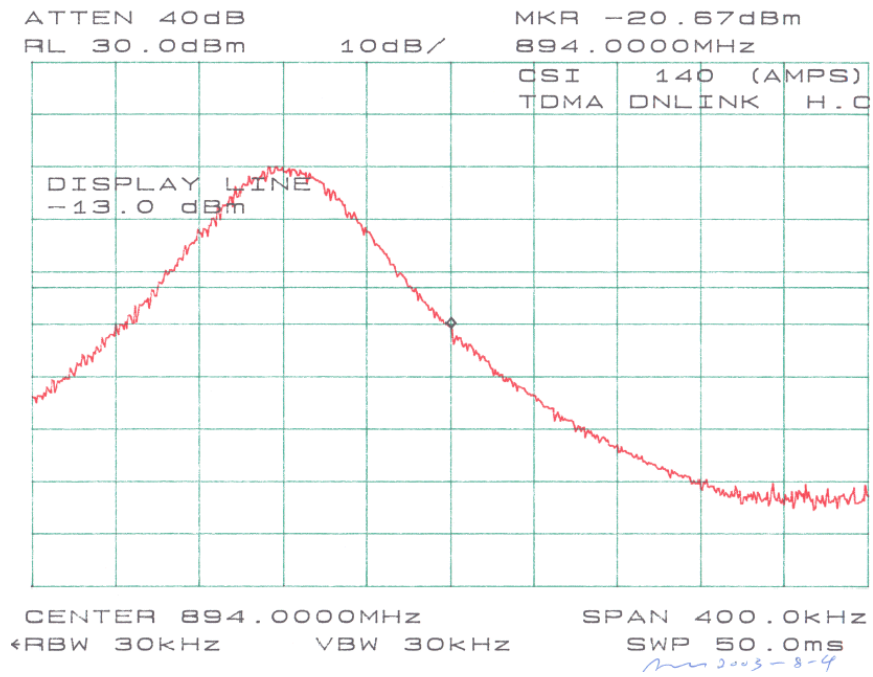
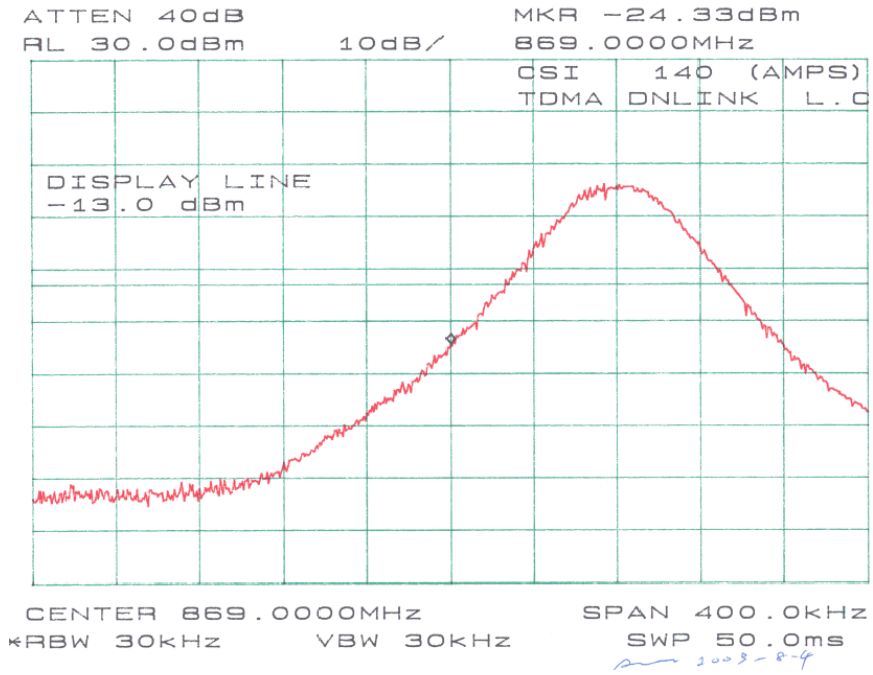




**Band Edge Plots for TDMA Modulation**







## **10 – Modulation Characteristics**

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This EUT only is an amplifier, it is not a transmitter. There is no modulating circuit in the EUT and no modulating characteristics measurement required.

## **11 - FREQUENCY STABILITY**

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This EUT only is an amplifier, it is not a transmitter. There is no oscillator circuit in the EUT, and no frequency stability measurement required.

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## **12 - CONDUCTED EMISSION**

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Not Applicable.

## 13 - RF EXPOSURE

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1093 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for Occupational Population/Controlled Exposure				
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

\* = Plane-wave equivalent power density

### MPE Prediction

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal: 21.4 (dBm)

Maximum peak output power at antenna input terminal: 138.04 (mW)

Indoor Antenna:

Prediction distance: 20 (cm)

Predication frequency: 850 (MHz)

Antenna Gain (typical): 8 (dBi)

antenna gain: 6.31 (numeric)

Power density at predication frequency at 20 cm: 0.173 (mW/cm<sup>2</sup>)

MPE limit for uncontrolled exposure at prediction frequency: 0.57 (mW/cm<sup>2</sup>)

## Outdoor Antenna:

Prediction distance: 120 (cm)  
Predication frequency: 850 (MHz)  
Antenna Gain (typical): 10 (dBi)  
antenna gain: 10 (numeric)

Power density at predication frequency at 120 cm: 0.00763 (mW/cm<sup>2</sup>)

MPE limit for uncontrolled exposure at prediction frequency: 0.57 (mW/cm<sup>2</sup>)

**Test Result**

The EUT is a mobile device. The predicted power density level of indoor antenna at 20 cm is 0.173 mW/cm<sup>2</sup>; and the outdoor antenna at 120 c m is 0.00763. They are below the uncontrolled exposure limit of 0.57 mW/cm<sup>2</sup> at 850 MHz.