Nemko Korea CO., Ltd.

300-2, Osan-Ri, Mohyun-Myun, Yongin-City, Gyunggi-Do, KOREA
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FCC EVALUATION REPORT FOR CERTIFICATION

Applicant :
Vitelcom Mobile Technology,U.S.A. Inc.
2480 Irvine Boulevard #172
Tustin,CA 92782 U.S.A

Dates of Issue : December, 27, 2005
Test Report No. : NK2FR245
Test Site : Nemko Korea Co., Ltd.

FCC ID	*SELTSM401*
Brand Name	**Sacar** **Bellwave Co., Ltd.**
CONTACT PERSON	**2480 Irvine Boulevard #172** **Tustine,CA 92782 U.S.A** **Mr. Monika Hormaza** **Telephone No. :714-389-1169**

Applied Standard: FCC 47 CFR Part 22H & Part 2
Test Procedure: ANSI C63.4 , TIA/EIA 603
Equipment Class: Public Mobile Services
EUT Type: Single Band CDMA Mobile Phone

The device bearing the brand name and FCC ID specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2003.
I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Tested By : S. Lee
Engineer

Reviewed By : H.H. Kim
Manager & Chief Engineer

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1. SCOPE

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission under FCC Part 22.

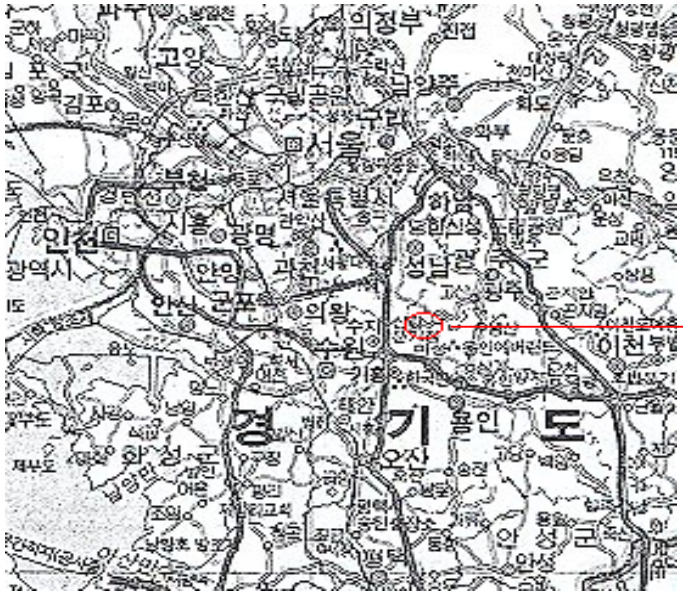
Responsible Party :	Vitelcom Mobile Technology,U.S.A. Inc..
Contact Person :	Mr. Monika Hormaza Tel : 714-389-1169
Manufacturer :	Vitelcom Mobile Technology SA. Avenida Tuan Lopez Penalver #7 Malaga,Spain,29590

- FCC ID: SELTSM401
- Model: CV340_VTL401
- Brand Name: Sacar
- EUT Type: Single Band CDMA Mobile Phone
- Electric Rating: DC3.7V, 650mA
- Equipment Class: Intentional Radiators
- Classification: Licensed Portable Transmitter Held to Ear (PCE)
- Applied Standard: FCC 47 CFR Part 22H & Part2
- Test Procedure(s): ANSI C63.4 (2003), TIA/EIA603
- Dates of Test: December 17, 2005 to December 26, 2005
- Place of Tests: Nemko Korea Co., Ltd.
- Test Report No.: NK2FR245

2. INTRODUCTION

The measurement procedure described in American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz (ANSI C63.4-2003) was used in determining radiated and conducted emissions emanating from **Vitelcom Mobile Technology,U.S.A. Inc.**
FCC ID : **SELTSM401**

These measurement tests were conducted at ***Nemko Korea Co., Ltd.***
The site address is 300-2, Osan-Ri, Mohyun-Myun, Yongin-City, GyungGi-Do, KOREA
The area of Nemko Korea Corporation Ltd. Test Site is located in a mountain area at 80 kilometers (48 miles) southeast and Incheon International Airport (Incheon Airport), 30 kilometers (18miles) south-southeast from central Seoul.
It is located in the valley surrounded by mountains in all directions where ambient radio signal conditions are quiet and a favorable area to measure the radio frequency interference on open field test site for the computing and ISM devices manufactures.
The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4 2003.



Nemko Korea Co., Ltd.
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Fig. 1. The map above shows the Seoul in Korea vicinity area.
The map also shows Nemko Korea Corporation Ltd. and Incheon Airport.

3. TEST CONDITIONS & EUT INFORMATION

Operating During Test

The EUT was tested at the lowest channel, middle channel and the highest channel with the maximum RF Power and all data recorded in the report.

Environmental Conditions

Temperature	20℃ ~ 25℃
Relative Humidity	35% ~ 55%

Description of EUT

Frequency Range	Tx : 824.70MHz ~ 848.31MHz Rx : 869.70MHz ~ 893.31MHz
Output Power	0.49W ERP (26.93dBm)
Emission Designator	1M25F9W
Modulation	CDMA
Frequency Tolerance	±0.00025%(2.5ppm)
Antenna Type	Internal
Dimensions (L X W X H)	100.0mm X 44.0mm X 16.4mm
Weight	68g(with Battery)
Operating Conditions	Storage : -20℃ ~ +60℃
DC Input Voltage	+3.7Vdc , 650mA

Support Equipment

Equipment	Manufacturer	Model Name	Serial Number

4. MEASURING INSTRUMENT CALIBRATION

All measurements were made with instruments calibrated according to the recommendation by manufacturer. Measurement of radiated emissions and conducted emissions were made with instruments conforming to American National Standards Institute, ANSI C63.4-2003.
The calibration of measuring instrument, including any accessories that may affect test results, were performed according to the recommendation by manufacturer.

- End of page -

5. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specification:

Description of Test	FCC Rule	Result
Modulation Characteristics	§2.1047	Complies
ERP Measurement	§2.1046 §22.913	Complies
Conducted Output Power	§2.1046(a) §22.913(a)	Complies
Occupied Bandwidth	§2.1049(h)	Complies
Spurious Emission at antenna Terminals	§2.1051 §22.917(a)	Complies
Field Strength of spurious Radiations	§2.1053 §22.917	Complies
Frequency Stability / Temperature Variation	§2.1055 §22.355	Complies
Band Edge	§22.917(a)	Complies
AC Power Line Conducted Emission	§15.207	Complies

6. TEST EQUIPMENT LIST

No.	Instrument	Manufacturer	Model	Calibration Date
1	Test Receiver	R & S	ESCS 30	2005.08
2	Test Receiver	R & S	ESCS 30	2005.12
3	*Amplifier	HP	8449B	2005.03
4	Amplifier	HP	8447F	2005.07
5	*Wireless Communications Test Set	Agilent Tech.	8960 Series 10	2005.06
6	*Spectrum Analyzer	HP	8566B	2005.03
7	*Spectrum Analyzer	HP	8568B	2005.10
8	Spectrum Analyzer	HP	8593E	2005.10
9	*Spectrum Analyzer	Anritsu Corp.	MS2668C	2005.12
10	VSA Series Transmmitter Tester	Agilent Tech.	E4406A	2005.08
11	Logbicon Super Antenna	Schwarzbeck	VULB9166	2005.05
12	*Horn Antenna	Schwarzbeck	BBHA 9120 D	2005.06
13	*Horn Antenna	Schwarzbeck	BBHA 9120 D	2005.04
14	Dipole Antenna	R & S	VHA9103	2005.05
15	*Dipole Antenna	R & S	UHA9105	2005.05
16	*Biconical Log Antenna	ARA	LPB-2520/A	2005.01
17	*Signal Generater	R & S	SMP02	2005.08
18	*Signal Generater	HP	E4436B	2005.12
19	*LISN	R & S	ESH3-Z5	2005.10
20	LISN	Kyoritsu	KNW-407	2005.03
21	CDN	FCC	NCD-T4	2005.05
22	Position Controller	EM Eng.	N/A	N/A
23	Turn Table	EM Eng.	N/A	N/A
24	Antenna Mast	EM Eng.	N/A	N/A
25	Anechoic Chamber	EM Eng.	N/A	N/A
26	Shielded Room	EM Eng.	N/A	N/A
27	*Position Controller	Seo-Young EMC	N/A	N/A
28	*Turn Table	Seo-Young EMC	N/A	N/A
29	*Antenna Mast	Seo-Young EMC	N/A	N/A
30	*Anechoic Chamber	Seo-Young EMC	N/A	N/A
31	* Shielded Room	Seo-Young EMC	N/A	N/A
32	*System DC Power Supply	Agilent Tech.	6653A	2005.08
33	*Temp./Humi. Chamber	Kyun Poong	FX1077B	2005.12

***) Test equipment used during the test**

7. DESCRIPTION OF TESTS

7.1 Conducted Emissions

The Line conducted emission test facility is located inside a 4 X 7 X 2.5 meter shielded enclosure.

It is manufactured by EM engineering. The shielding effectiveness of the shielded room is in accordance with MIL-STD-285 or NSA 65-6.

A 1m X 1.5m wooden table 0.8m height is placed 0.4m away from the vertical wall and 1.5m away from the side of wall of the shielded room

Rohde & Schwarz (ESH3-Z5) and Kyoritsu (KNW-407) of the 50ohm/50uH Line Impedance Stabilization Network(LISN) are bonded to the shielded room.

The EUT is powered from the Rohde & Schwarz LISN and the support equipment is powered from the Kyoritsu LISN. Power to the LISN s are filtered by high-current high insertion loss Power line filters. The purpose of filter is to attenuate ambient signal interference and this filter is also bonded to shielded enclosure. All electrical cables are shielded by tinned copper zipper tubing with inner diameter of 1/2".

If DC power device, power will be derived from the source power supply it normally will be powered from and this supply lines will be connected to the LISNs,

All interconnecting cables more than 1 meter were shortened by non inductive bundling (serpentine fashion) to a 1 meter length.

Sufficient time for EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer to determine the frequency producing the maximum EME from the EUT.

The spectrum was scanned from 150kHz to 30MHz with 20msec sweep time.

The frequency producing the maximum level was re-examined using the EMI test receiver. (Rohde & Schwarz ESCS30).

The detector function were set to CISPR quasi-peak mode & average mode.

The bandwidth of receiver was set to 9KHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each EME emission.

Each emission was maximized by; switching power lines; varying the mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and of support equipment, and powering the monitor from the floor mounted outlet box and computer aux AC outlet, if applicable; which ever determined the worst case emission.

Each EME reported was calibrated using the R&S signal generator.

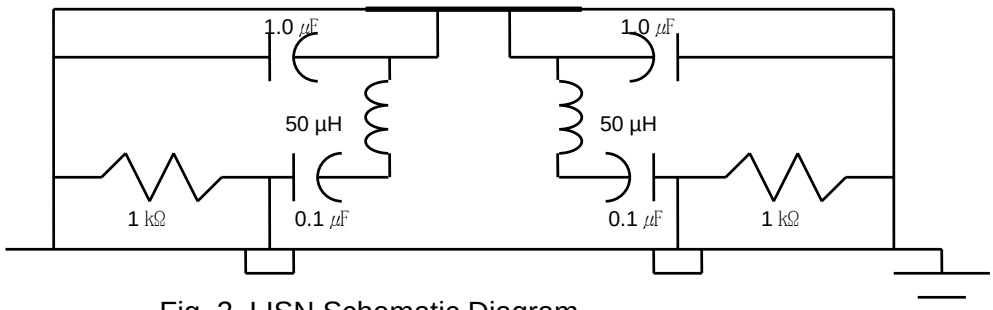


Fig. 2. LISN Schematic Diagram

7.2 Radiated Emissions

Preliminary measurement were made indoors at 3 meter using broad band antennas, broadband amplifier, and spectrum analyzer to determine the frequency producing the maximum EME. Appropriate precaution was taken to ensure that all EME from the EUT were maximized and investigated. The Technology configuration, clock speed, mode of operation or video resolution, turntable azimuth with respect to the antenna was note for each frequency found. The spectrum was scanned from 30 to 1000MHz using Biconical log Antenna(ARA, LPB-2520/A).
Final Measurements were made outdoors at 3 or 10m test range using Logbicon Super Antenna(Schwarzbeck, VULB 9166).
The test equipment was placed on a wooden table.
Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition.
Each frequency found during pre-scan measurements was reexamined and investigated using EMI test receiver.(ESCS30)
The detector function were set to CISPR quasi-peak and peak mode and the bandwidth of the receiver were set to 120KHz and 1MHz depending on the frequency or type of signal.
The half wave dipole antenna was tuned to the frequency found during preliminary radiated measurements.
The EUT support equipment and interconnecting cables were re configured to the setup producing the maximum emission for the frequency and were placed on top of a 0.8m high non- metallic 1.0X 1.5 meter table.
The EUT, support equipment and interconnecting cables were re-arranged and manipulated to maximize each EME emission.
The turn table containing the Technology was rotated; the antenna height was varied 1 to 4meter and stopped at the azimuth or height producing the maximum emission. Each emission was maximized by : switching power lines; varying the mode of operation or resolution; clock or data exchange speed; scrolling H pattern to the EUT and of support equipment, and powering the monitor from the floor mounted outlet box and computer aux AC outlet, if applicable; which ever determined the worst case emission.
Each EME reported was calibrated using the R/S signal generator.

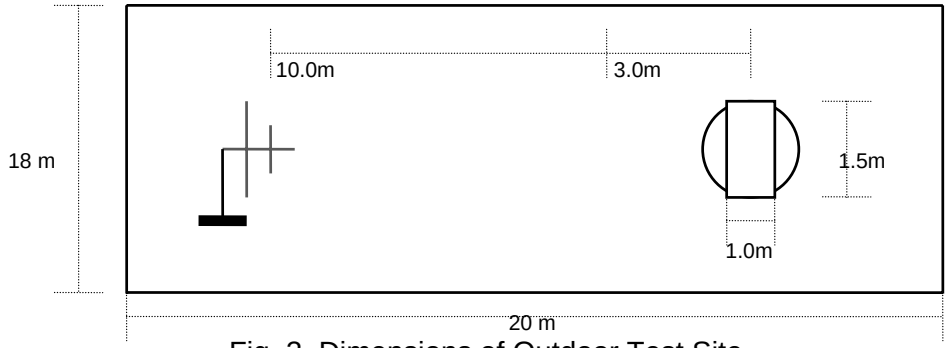


Fig. 3. Dimensions of Outdoor Test Site

7.3 Effective Radiated Power / Equivalent Isotropic Radiated Power

Test Set-up

Effective Radiated Power Output and Equivalent Isotropic Radiated Power output Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2003.

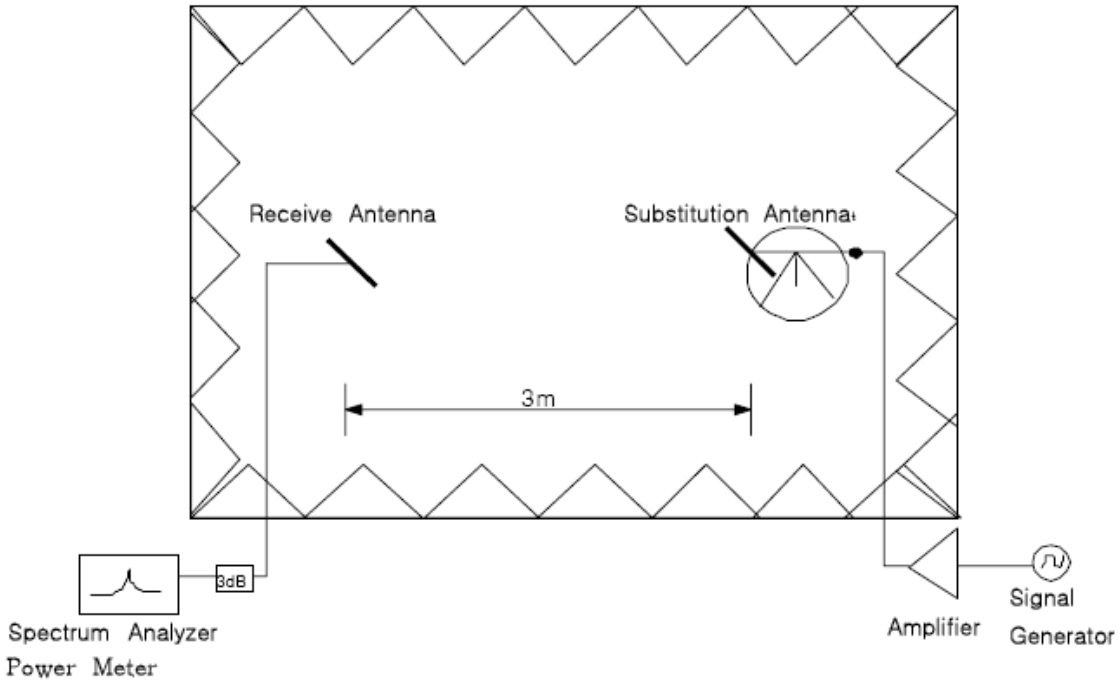


Figure 4. Diagram of ERP/EIRP test Set-up

The EUT was set on a non-conductive turntable in a semi anechoic chamber. In the corner of the chamber there was a communication antenna, which was connected to the BS simulator located outside the chamber. The radiated power from the EUT was measured with an antenna fixed to a antenna tower.
The tower and turn table were remotely controlled to turn the EUT and change the antenna polarization. The measured signal was routed from the measuring antenna to the spectrum analyzer. The BS simulator was used to set the TX channel and power level and modulate the TX signal with different bit patterns.

Test Method

a) The maximum power level was searched by moving the turn table and measuring antenna and manipulating the EUT. This level (P_{EUT}) was recorded.
b) The EUT was replaced with a substituting antenna.
c) The substituting antenna was fed with the power (P_{Subst_TX}) giving a convenient reading on the spectrum analyzer. That reading (P_{Subst_RX}) on spectrum analyzer was recorded.

7.4 Radiated Spurious & Harmonic Emission

Test Set-up

Effective Radiated Power Output and Equivalent Isotropic Radiated Power output Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2003.

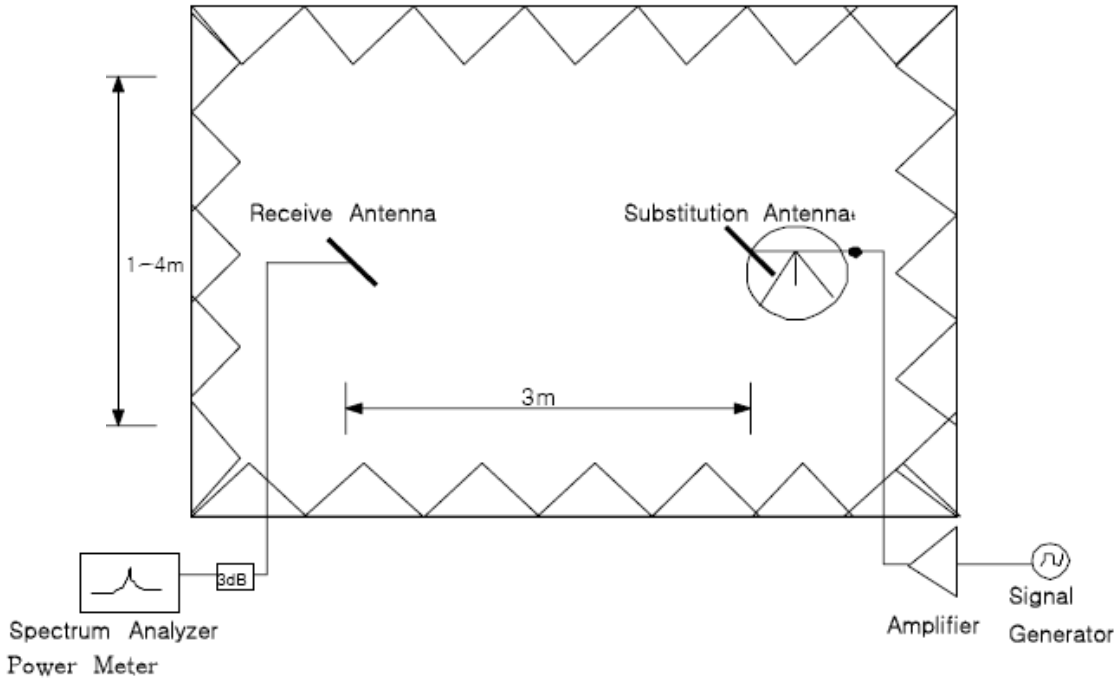


Figure 5. Diagram of Radiated Spurious & Harmonic test Set-up

The EUT was set on a non-conductive turntable in a semi anechoic chamber.
In the corner of the chamber there was a communication antenna, which was connected to the BS simulator located outside the chamber. The radiated power from the EUT was measured with an antenna fixed to a antenna tower.
The tower and turn table were remotely controlled to turn the EUT and change the antenna polarization. The measured signal was routed from the measuring antenna to the spectrum analyzer. The BS simulator was used to set the TX channel and power level and modulate the TX signal with different bit patterns.

Test Method

a) The maximum power level was searched by moving the turn table and measuring antenna and manipulating the EUT. This level (P_{EUT}) was recorded.
b) The EUT was replaced with a substituting antenna.
c) The substituting antenna was fed with the power (P_{Subst_TX}) giving a convenient reading on the spectrum analyzer. That reading (P_{Subst_RX}) on spectrum analyzer was recorded.

CALCULATION

The formula below was used to calculate the ERP of the EUT.
$P_{subst\_TX[dBm]}$, $P_{subst\_RX[dBm]}$, $L_{Cable[dB]}$ and $G_{substitute\_antenna[dBd]}$ factors are combined in one correction factor.

$$P_{ERP[W]} = \frac{10^{(P_{sust\_Tx[dBm]}+P_{EUT[dBm]}-P_{subst\_Rx[dBm]})+G_{subst\_antenna[dBd]}-L_{cable[dB]})/10}}{1000}$$

where the variables are as follows:

$P_{EUT\ [dBm]}$	Measured power level from the EUT
$P_{Subst\_TX\ [dBm]}$	Power fed to the substituting antenna
$P_{Subst\_RX\ [dBm]}$	Power received with the spectrum analyzer
$G_{Substitute\_antenna\ [dBd]}$	Gain of the substitutive antenna over dipole (dBi – 2.15dB)
$L_{Cable\ [dB]}$	Loss of the cable between signal generator and the substituting antenna

7.5 Occupied Bandwidth / 26dB Emission Bandwidth

Occupied Bandwidth

The EUT was setup to maximum output power at its lowest channel.
The occupied bandwidth was measured using a spectrum analyzer.
The measurements are repeated for the highest and a middle channel.
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 26dB below the transmitter power.
Plots of the EUT's occupied bandwidth are shown.

26dB Emission Bandwidth

The transmitter output is connected to the spectrum analyzer.
The RBW of spectrum analyzer is set to approximately 1% of the emission bandwidth And peak detection is used.
The emission bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 26dB.

7.6 Spurious and Harmonic Emissions at Antenna Terminal

7.6.1 Occupied Bandwidth Emission Limits

(a) On any frequency outside a license's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB.

(b) Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater.
However, in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed.
The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

(c) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(d) The measurement of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

BLOCK	Frequency Range (MHz) Transmitter (Tx)	Frequency Range (MHz) Receiver (Rx)
A* Low +A	824 ~ 835	869 ~ 880
B	835 ~ 845	880 ~ 890
A* High	845 ~ 846.5	890 ~ 891.5
B*	846.5 ~ 849	891.5 ~ 894

Table 1. Cellular Service Frequency Blocks

7.6.2 Conducted Spurious Emission

Minimum standard:

On any frequency outside a license frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43+10log (P)dB. Limit equivalent to –13dBm, calculation shown below.
43 + 10log (0.493 W) = 39.93 dB
26.93 dBm – 39.93 dB = -13 dBm

Compliance with the out-of-band emissions requirement is based on test being performed with an analyzer resolution bandwidth of 1MHz. However in the 1MHz band immediately outside and adjacent to the frequency block a resolution bandwidth of at least 1% of the fundamental emissions bandwidth may be employed.

Test Procedure:

The EUT was setup to maximum output power at its lowest channel.
The Resolution BW of the analyzer is set to 1% of the emission bandwidth to show compliance with the -13dBm limit, in the 1MHz bands immediately outside and adjacent to the edge of the frequency block.
The measurements are repeated for the EUT's highest channel. For the Out-of-Band measurements a 1MHz RBW was used to scan from 10MHz to 20GHz.
A display line was placed at -13dBm to show compliance. The high, lowest and a middle channel were tested for out of band measurements.
Plots are shown.

7.7 Frequency Stability / Temperature Variation

The frequency stability of the transmitter is measured by:

a.) Temperature: The temperature is carried from -20°C to +60°C using an environmental chamber.
b.) Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Specification : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

Time Period and Procedure:
1. The carrier frequency of the transmitter and the individual oscillators is measured at room temperature(20°C to 25°C to provide a reference).
2. The equipment is subjected to an overnight “soak” at -20°C without any power applied.
3. After the overnight “soak” at -20°C (Usually 14~16 hours), the equipment is turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter and the individual oscillators is made within a three minute interval after applying to the transmitter.
4. Frequency measurements are made at 10°C interval up to room temperature. At least a period of one and one half-hour is provided to allow stabilization of the equipment at each temperature level.
5. Again the transmitter carrier frequency and the individual oscillators is measured at room temperature to begin measurement of the upper temperature levels.
6. Frequency measurements are at 10 intervals starting at -20°C up to +60°C allowing at least two hours at each temperature for stabilization. In all measurements the frequency is measured within three minutes after re-applying power to the transmitter.
7. The artificial load is mounted external to the temperature chamber.

Note : The EUT is tested down to the battery endpoint.

8. TEST DATA

8.1 Effective Radiated Power (ERP)

EUT Mode : CDMA

Measurement Result :

Frequency (MHz)	EUT *Pol.	Antenna Pol.	P_{EUT} (dBm)	P_{TX} (dBm)	P_{RX} (dBm)	$G_{antenna}$ (dBd)	L_{Cable} (dBm)	ERP (dBm)	Limit (dBm)
824.70	H	H	-25.98	0	-37.72	3.15	1.10	13.79	38.45
		V	-15.90	0	-37.65	3.15	1.10	23.80	
	E1	H	-15.36	0	-37.72	3.15	1.10	24.41	
		V	-20.91	0	-37.65	3.15	1.10	18.79	
	E2	H	-16.12	0	-37.72	3.15	1.10	23.65	
		V	-25.54	0	-37.65	3.15	1.10	14.16	
835.89	H	H	-25.83	0	-37.57	3.44	1.10	14.08	38.45
		V	-12.90	0	-37.49	3.44	1.10	26.93	
	E1	H	-13.98	0	-37.57	3.44	1.10	25.93	
		V	-17.68	0	-37.49	3.44	1.10	22.15	
	E2	H	-14.06	0	-37.57	3.44	1.10	25.85	
		V	-22.11	0	-37.49	3.44	1.10	17.72	
848.31	H	H	-24.92	0	-35.47	3.76	1.17	13.14	38.45
		V	-12.62	0	-35.53	3.76	1.17	25.50	
	E1	H	-12.99	0	-35.47	3.76	1.17	25.07	
		V	-17.20	0	-35.53	3.76	1.17	20.92	
	E2	H	-14.02	0	-35.47	3.76	1.17	24.04	
		V	-21.49	0	-35.53	3.76	1.17	16.63	

Table 8. Radiated Measurements at 3meters

Note : Radiated measurements at 3 meters by Substitution Method

" * "Please see the Appendix B.

8.2 Conducted Output Power

Measurement Result :

Modulation	Channel	Frequency (MHz)	Measurement Power (dBm)
CDMA	1013	824.70	21.65
	363	835.89	22.56
	777	848.31	23.23

8.3 Occupied Bandwidth / 26dB Emission Bandwidth

Measurement Result :

Modulation	Channel	Frequency (MHz)	Occupied BW (MHz)	26dB Emission BW (MHz)
CDMA	1013	824.70	1.27	1.43
	363	835.89	1.28	1.44
	777	848.31	1.28	1.44

Note : Please see the test graph at page 31 ~ 35.

- End of page -

8.4 Radiated Spurious & Harmonic Emission

Measurement Result :

CH1013 (824.70MHz)

Freq. (MHz)	*EUT Pol.	Ant. Pol.	P_{EUT} (dBm)	P_{TX} (dBm)	P_{RX} (dBm)	$G_{antenna}$ (dBd)	L_{Cable} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1649.4	E2	H	-65.77	0	-2.18	7.63	1.90	-54.06	-13	41.06
1649.4	E2	V	-65.89	0	-1.88	7.63	1.90	-54.48	-13	41.48
2474.1	E2	H	-66.95	0	-4.16	8.35	2.39	-52.05	-13	39.05
2474.1	E2	V	-67.32	0	-4.26	8.35	2.39	-52.32	-13	39.32
3298.8	E2	H	-68.61	0	-4.98	10.62	2.82	-50.19	-13	37.19
3298.8	E2	V	-65.58	0	-5.10	10.62	2.82	-47.04	-13	34.04

CH363 (835.89MHz)

Freq. (MHz)	*EUT Pol.	Ant. Pol.	P_{EUT} (dBm)	P_{TX} (dBm)	P_{RX} (dBm)	$G_{antenna}$ (dBd)	L_{Cable} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1671.78	H	H	-64.90	0	-2.10	7.79	1.96	-56.97	-13	43.97
1671.78	H	V	-63.28	0	-1.04	7.79	1.96	-56.41	-13	43.41
2507.67	H	H	-65.34	0	-4.28	8.46	2.28	-54.88	-13	41.88
2506.67	H	V	-67.01	0	-4.14	8.46	2.28	-56.69	-13	43.69
3343.56	H	H	-65.18	0	-4.83	10.71	2.85	-52.49	-13	39.49
3343.56	H	V	-67.64	0	-5.00	10.71	2.85	-54.78	-13	41.78

CH777 (848.31MHz)

Freq. (MHz)	*EUT Pol.	Ant. Pol.	P_{EUT} (dBm)	P_{TX} (dBm)	P_{RX} (dBm)	$G_{antenna}$ (dBd)	L_{Cable} (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1696.62	E1	H	-63.89	0	-0.85	7.96	1.67	-56.75	-13	43.75
1696.62	H	V	-63.83	0	-0.46	7.96	1.67	-57.08	-13	44.08
2544.93	E2	H	-67.77	0	-4.60	8.53	2.28	-56.92	-13	43.92
2544.93	H	V	-67.47	0	-4.50	8.53	2.28	-56.72	-13	43.72
3393.24	H	H	-63.40	0	-5.21	10.80	2.80	-50.19	-13	37.19
3393.24	E2	V	-64.74	0	-5.38	10.80	2.80	-51.36	-13	38.36

Note: " * "**Please see the Appendix B.**

The test data show the worst emission level from the three-azimuth.

- End of page -

8.5 Frequency Stability / Temperature Variation

Test Mode : Set to Middle channel (835.89MHz)

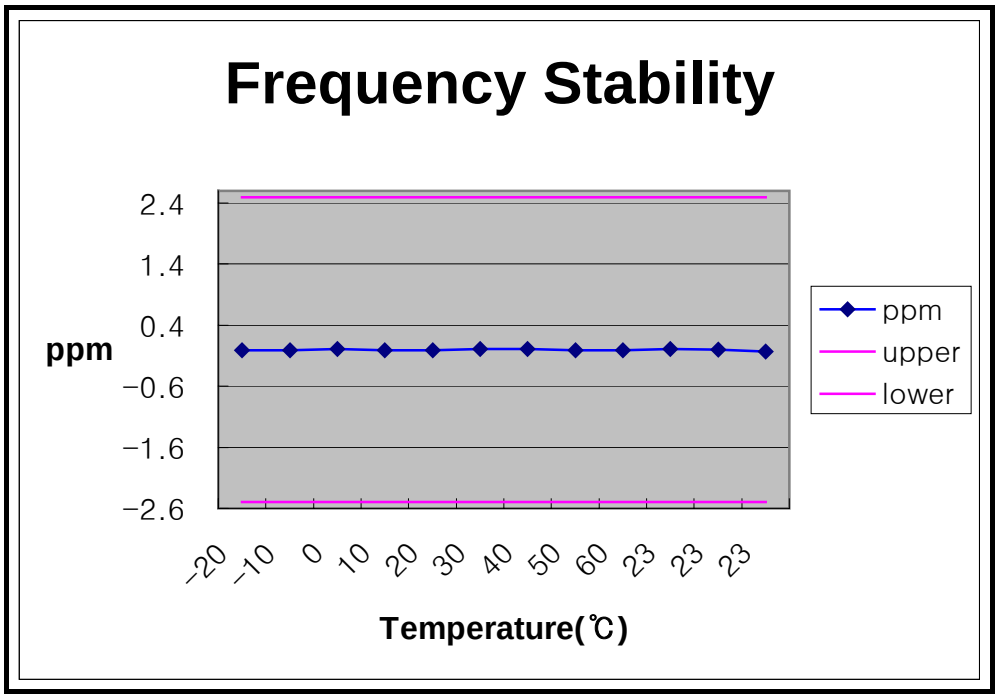
Deviation Limit : ±2.5ppm

Measurement Result :

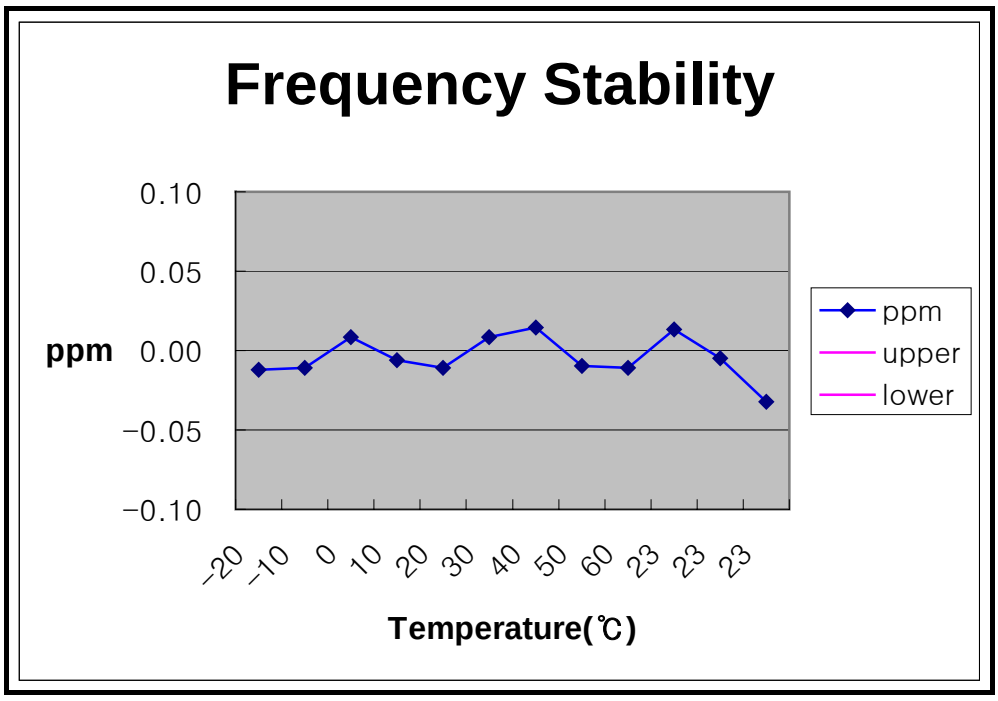
Voltage (%)	Power (Vdc)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	ppm
100%	3.70	+23(Ref.)	835,890,006	6	0.007
100%		-20	835,889,990	-10	-0.012
100%		-10	835,889,991	-9	-0.011
100%		0	835,890,007	7	0.008
100%		+10	835,889,995	-5	-0.006
100%		+20	835,889,991	-9	-0.011
100%		+30	835,890,007	7	0.008
100%		+40	835,890,012	12	0.014
100%		+50	835,889,992	-8	-0.010
100%		+60	835,889,991	-9	-0.011
85%	3.14	+23	835,890,011	11	0.013
115%	4.25	+23	835,889,996	-4	-0.005
Battery End point	3.08	+23	835,889,973	-27	-0.032

***The temperature is varied from -20°C to +60°C using an environmental chamber.**

8.5.1 Frequency Stability Graph



Zoom In



8.6 AC Power LINE Conducted Emission

Measurement Result :

▶Idle mode

Frequency	Level(dBμV)		Line	Limit(dBμV)		Margin(dB)	
(MHz)	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
0.17	57.8	45.0	N	65.0	55.0	7.2	10.0
0.21	54.8	40.4	N	63.2	53.2	8.4	12.8
0.25	48.5	36.4	N	61.8	51.8	13.3	15.4
0.29	46.8	31.2	N	60.5	50.5	13.7	19.3
0.38	49.7	37.3	N	58.3	48.3	8.6	11.0
0.42	49.1	38.5	N	57.4	47.4	8.3	8.9

▶TCH mode

Frequency	Level(dBμV)		Line	Limit(dBμV)		Margin(dB)	
(MHz)	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
0.16	57.8	44.8	N	65.5	55.5	7.7	10.7
0.20	54.8	41.6	N	63.6	53.6	8.8	12.0
0.24	49.4	37.2	N	62.1	52.1	12.7	14.9
0.37	49.2	36.7	N	58.5	48.5	9.3	11.8
0.41	48.8	38.0	N	57.6	47.6	8.8	9.6
0.49	48.5	38.0	N	56.2	46.2	7.7	8.2

NOTES:

1. Measurements using CISPR quasi-peak mode & average mode.

2. All modes of operation were investigated and the worst -case emission are reported. See attached Plots.

3. LINE : L =Line , N = Neutral

4. The limit for Class B device is on the FCC Part section 15.107(a).

- ***Conducted Emission at the Mains port (Idle Mode, Line)***

NEMKO KOREA (NK-2F-R-245) 20 Dec 2005 09:07

Conducted Emissions

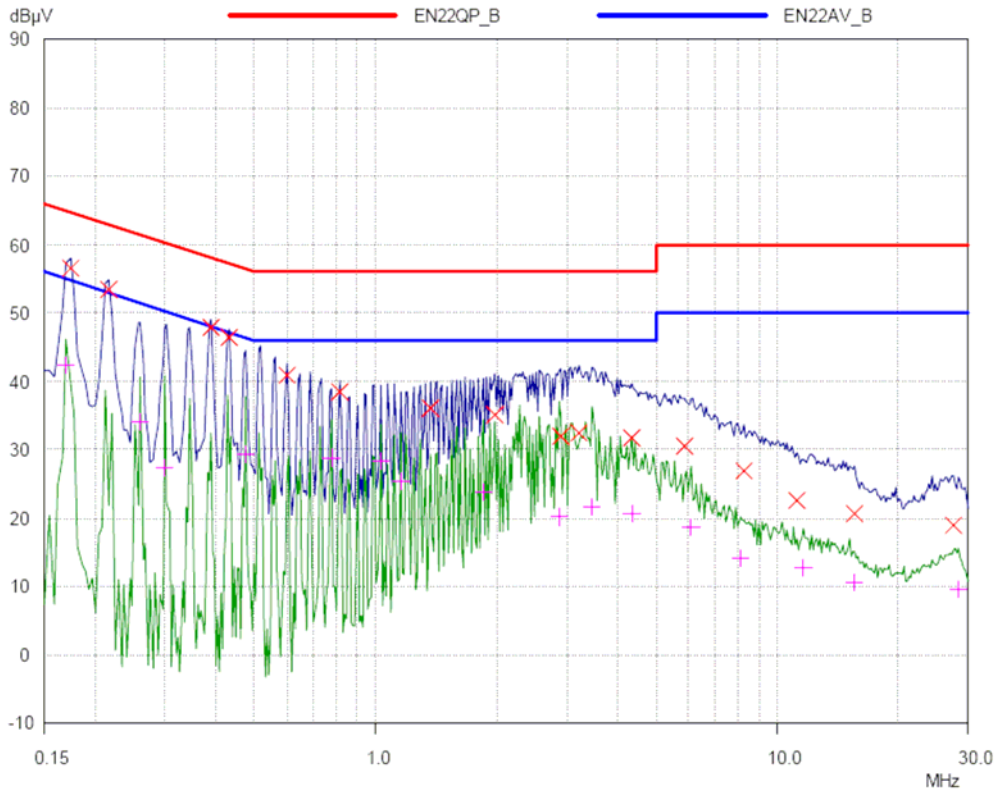
EUT:	Single band CDMA Mobile Phone
Manuf:	Vitelcom Mobile Technology, U.S.A. Inc.
Op Cond:	AC 120V / 60Hz (Idle Mode)
Operator:	Lee, Sub
Test Spec:	CISPR 22 Class B
Comment:	MODEL : CV340_VTL401
	LINE : LINE-PE
Result File:	r245l1.dat : CV340_VTL401 (Idle Mode)

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	20msec	10 dB	OFF	60dB

Transducer	No.	Start	Stop	Name
	1	150kHz	30MHz	CE_LINE

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Subranges: 16
Acc Margin: 60 dB



- ***Conducted Emission at the Mains port (Idle Mode, Neutral)***

NEMKO KOREA (NK-2F-R-245) 20 Dec 2005 08:51

Conducted Emissions

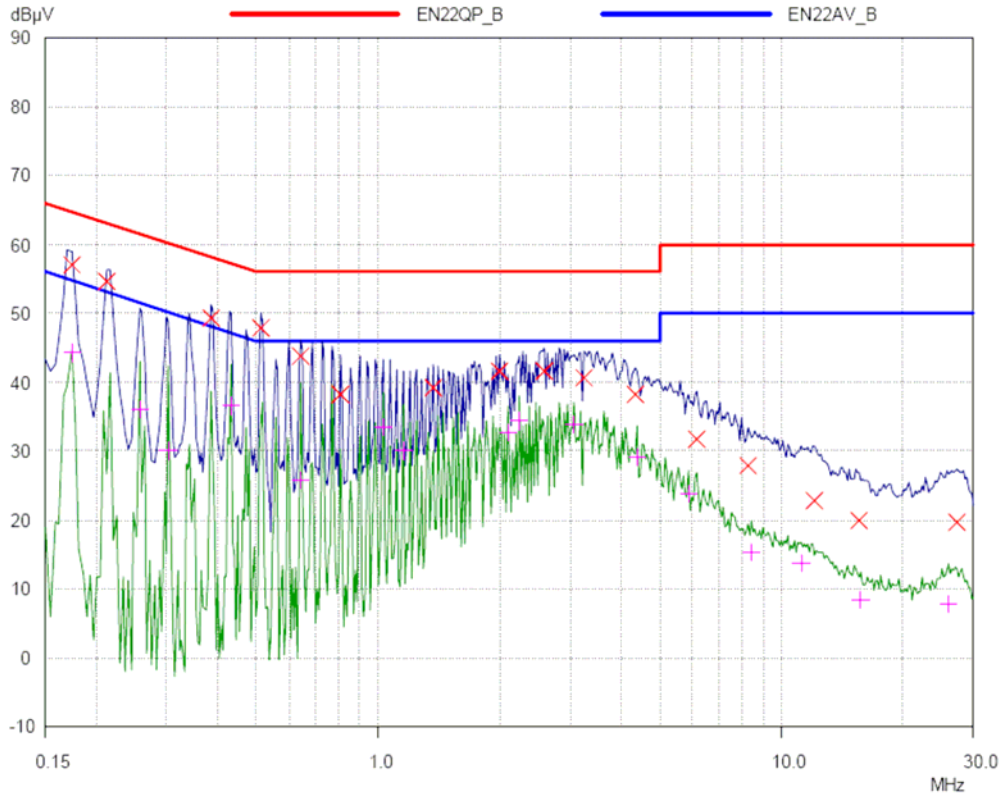
EUT:	Single band CDMA Mobile Phone
Manuf:	Vitelcom Mobile Technology, U.S.A. Inc.
Op Cond:	AC 120V / 60Hz (Idle Mode)
Operator:	Lee, Sub
Test Spec:	CISPR 22 Class B
Comment:	MODEL : CV340_VTL401
	LINE : NEUTRAL-PE
Result File:	r245n1.dat : CV340_VTL401 (Idle Mode)

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	20msec	10 dB	OFF	60dB

Transducer	No.	Start	Stop	Name
	1	150kHz	30MHz	CE_LINE

Final Measurement:		
	Detectors:	X QP / + AV
	Meas Time:	1sec
	Subranges:	16
	Acc Margin:	60 dB



- ***Conducted Emission at the Mains port (TCH Mode, Line)***

NEMKO KOREA (NK-2F-R-245) 20 Dec 2005 09:23

Conducted Emissions

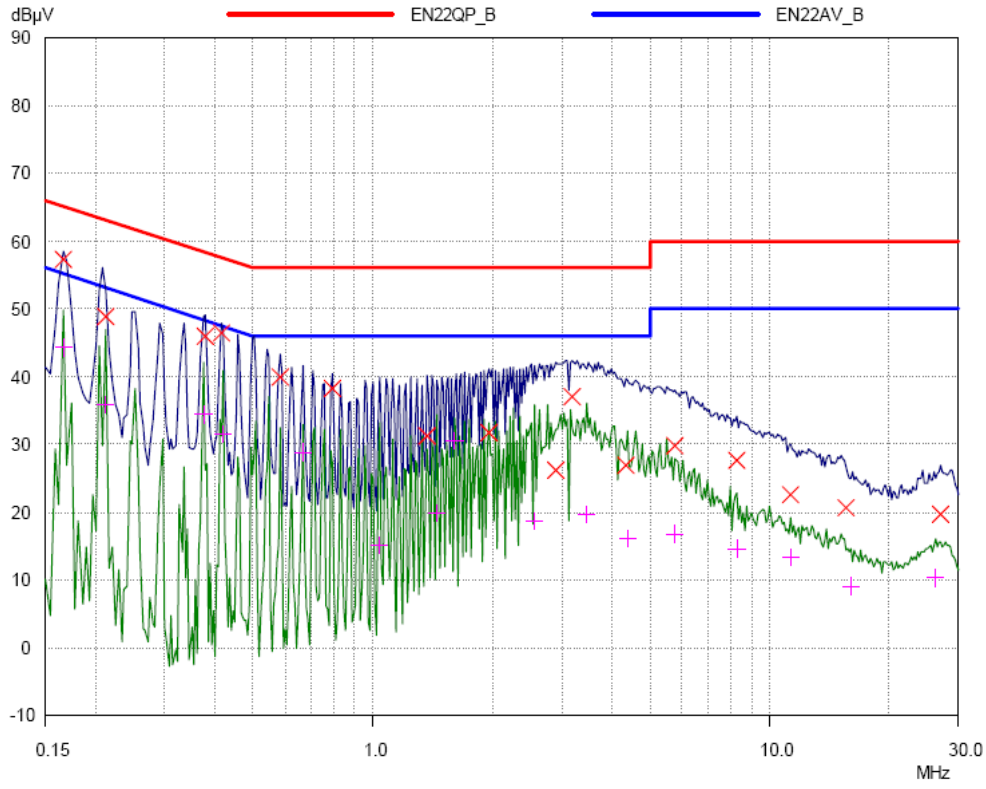
EUT:	Single band CDMA Mobile Phone
Manuf:	Vitelcom Mobile Technology, U.S.A. Inc.
Op Cond:	AC 120V / 60Hz (TCH Mode)
Operator:	Lee, Sub
Test Spec:	CISPR 22 Class B
Comment:	MODEL : CV340_VTL401 LINE : LINE-PE
Result File:	r245l2.dat : CV340_VTL401 (TCH Mode)

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	20msec	10 dB	OFF	60dB

Transducer	No.	Start	Stop	Name
	1	150kHz	30MHz	CE_LINE

Final Measurement:		
	Detectors:	X QP / + AV
	Meas Time:	1sec
	Subranges:	16
	Acc Margin:	60 dB



- ***Conducted Emission at the Mains port (TCH Mode, Neutral)***

NEMKO KOREA (NK-2F-R-245) 20 Dec 2005 09:46

Conducted Emissions

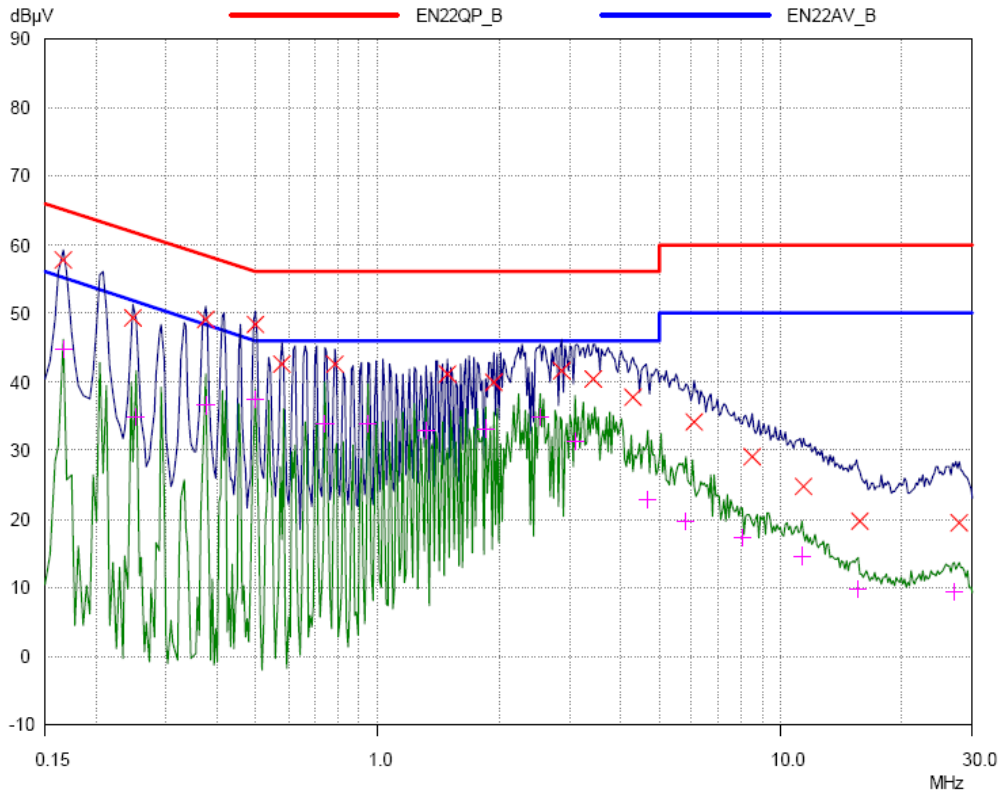
EUT:	Single band CDMA Mobile Phone
Manuf:	Vitelcom Mobile Technology, U.S.A. Inc.
Op Cond:	AC 120V / 60Hz (TCH Mode)
Operator:	Lee, Sub
Test Spec:	CISPR 22 Class B
Comment:	MODEL : CV340_VTL401 LINE : NEUTRAL-PE
Result File:	r245n2.dat : CV340_VTL401 (TCH Mode)

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	3.9063kHz	9kHz	PK+AV	20msec	10 dB	OFF	60dB

Transducer	No.	Start	Stop	Name
	1	150kHz	30MHz	CE_LINE

Final Measurement:		
	Detectors:	X QP / + AV
	Meas Time:	1sec
	Subranges:	16
	Acc Margin:	60 dB



9. SAMPLE CALCULATION

Emission Designator

Emission Designator = 1M25F9W

Calculation : 2M + 2DK
CDMA BW = 1.25MHz
F = Frequency Modulation
9 = Composite Digital Info
W = Combination(Audio/Data)

- End of page -

10. CONCLUSION

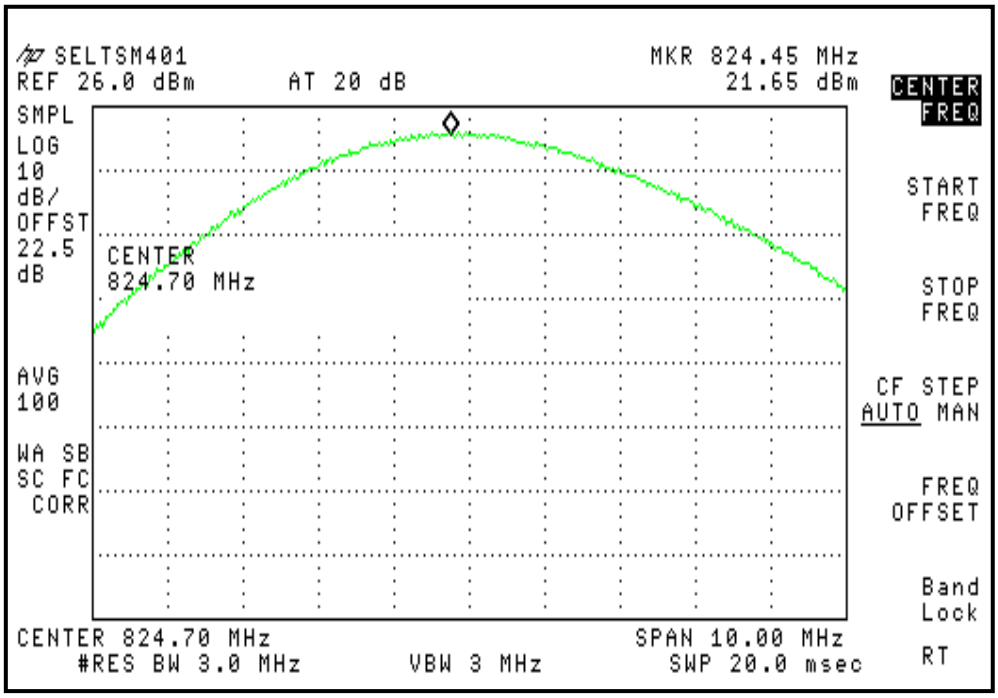
The data collected shows that the Vitelcom Mobile Technology U.S.A. Inc Single Band CDMA Mobile Phone.
FCC ID : SELTSM401 complies with all the requirements of Parts 2 & 22 of the FCC Rules.

- End of page -

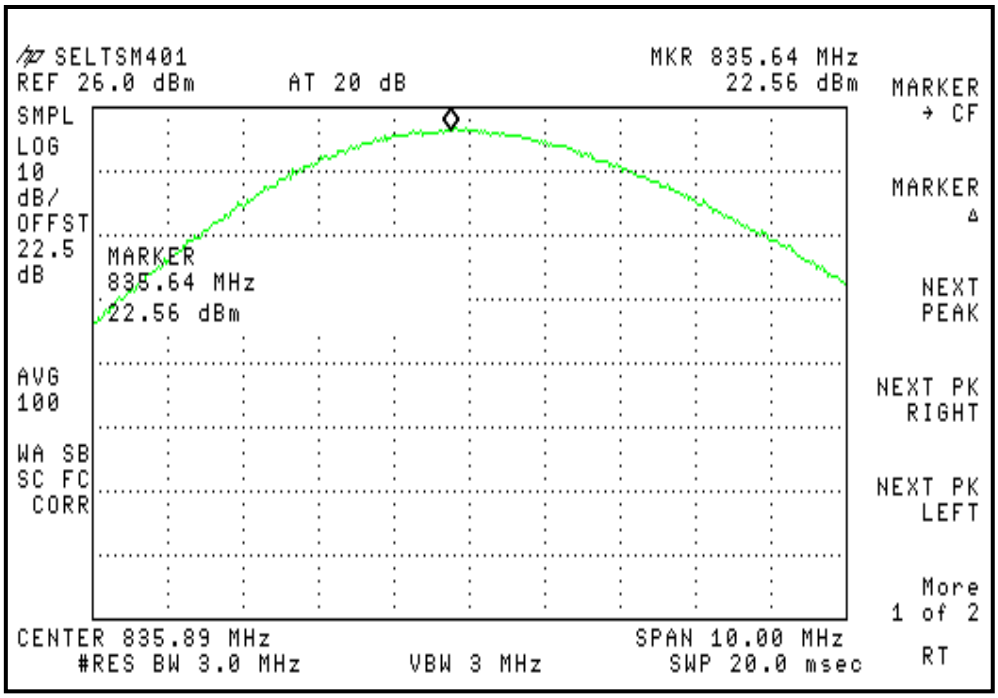
11. TEST PLOTS

● **Conducted Output Power**

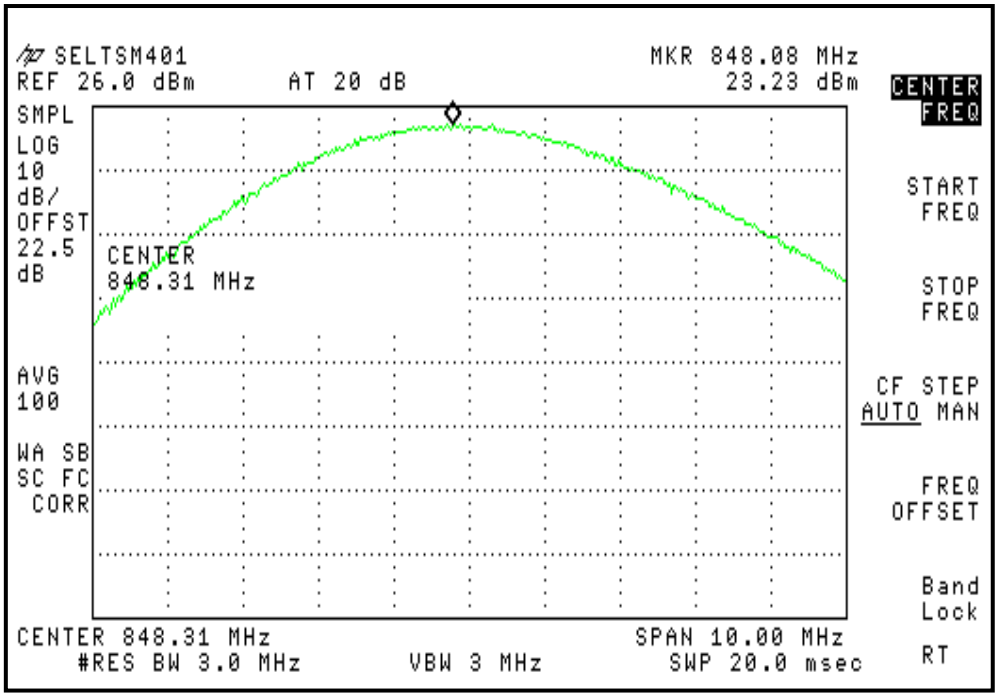
Channel 1013



Channel 363

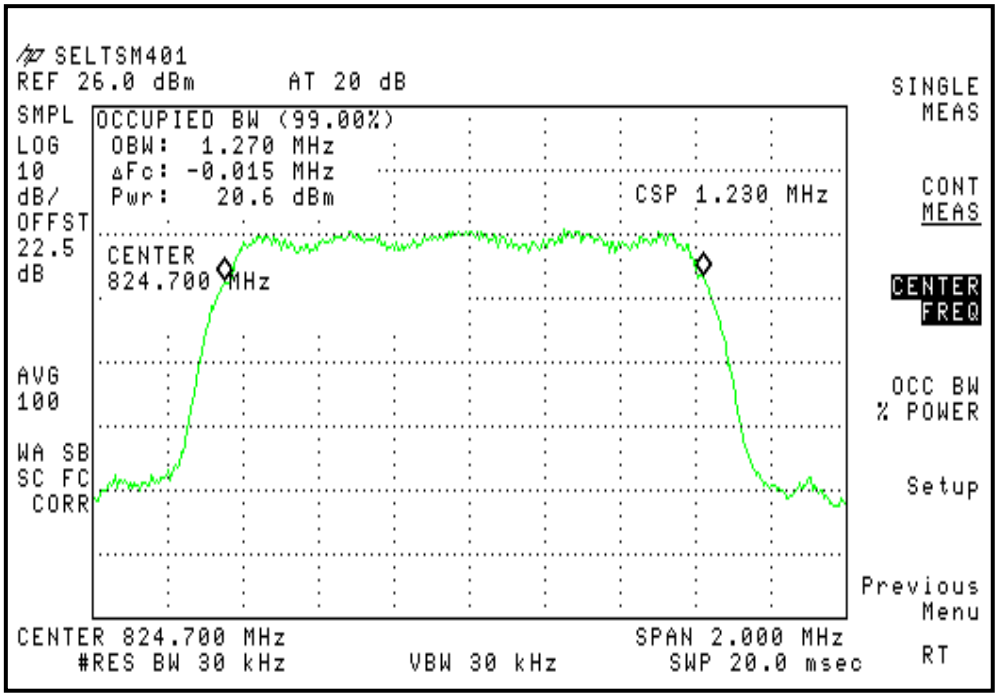


Channel 777

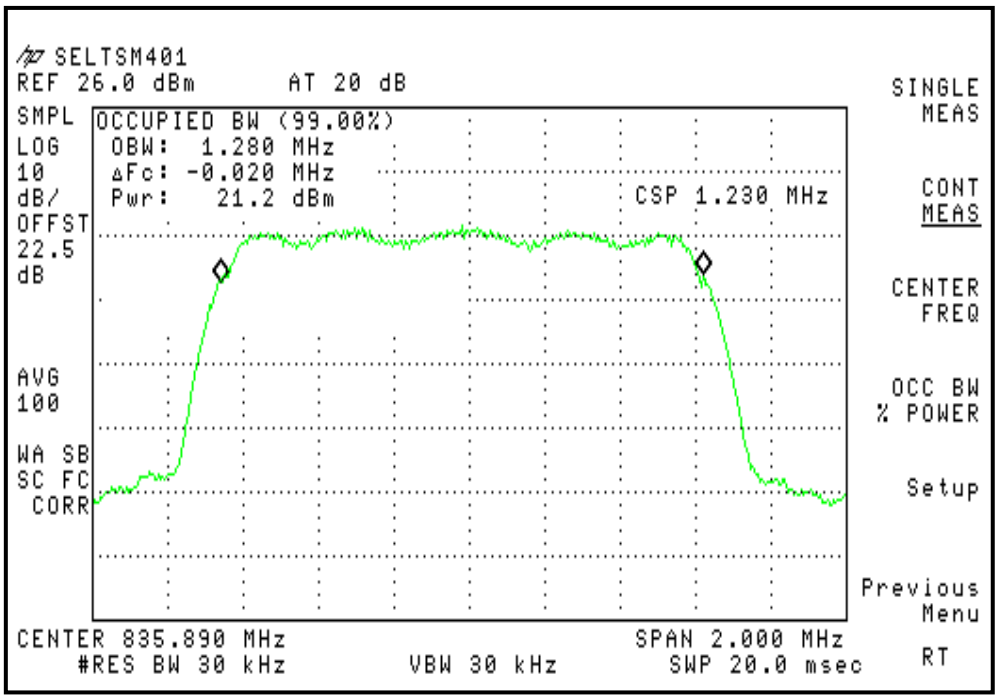


● **Occupied Bandwidth**

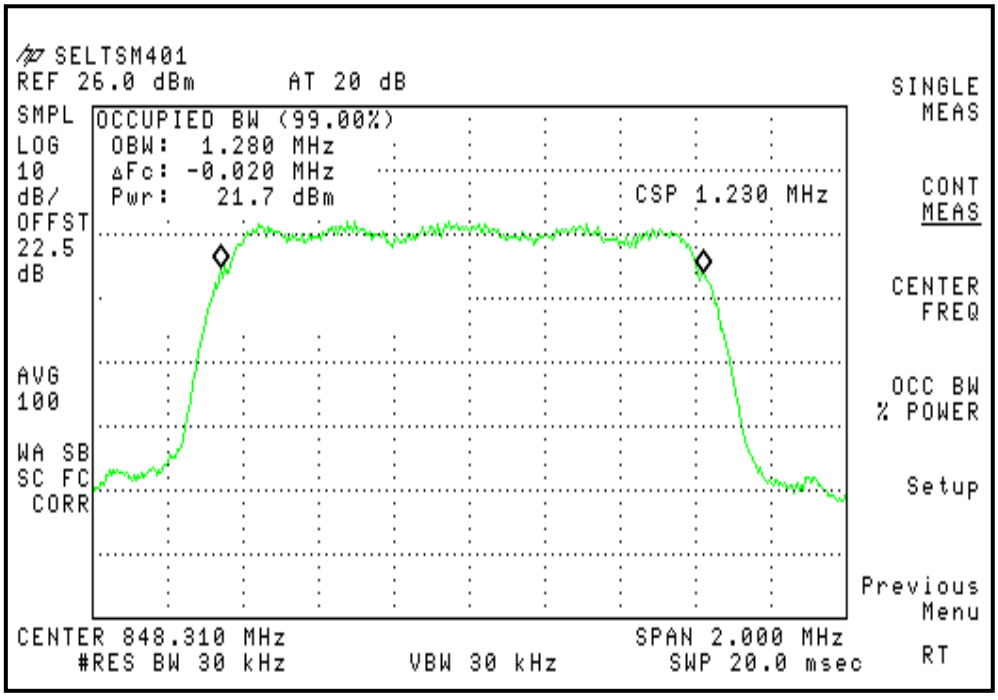
Channel 1013



Channel 363

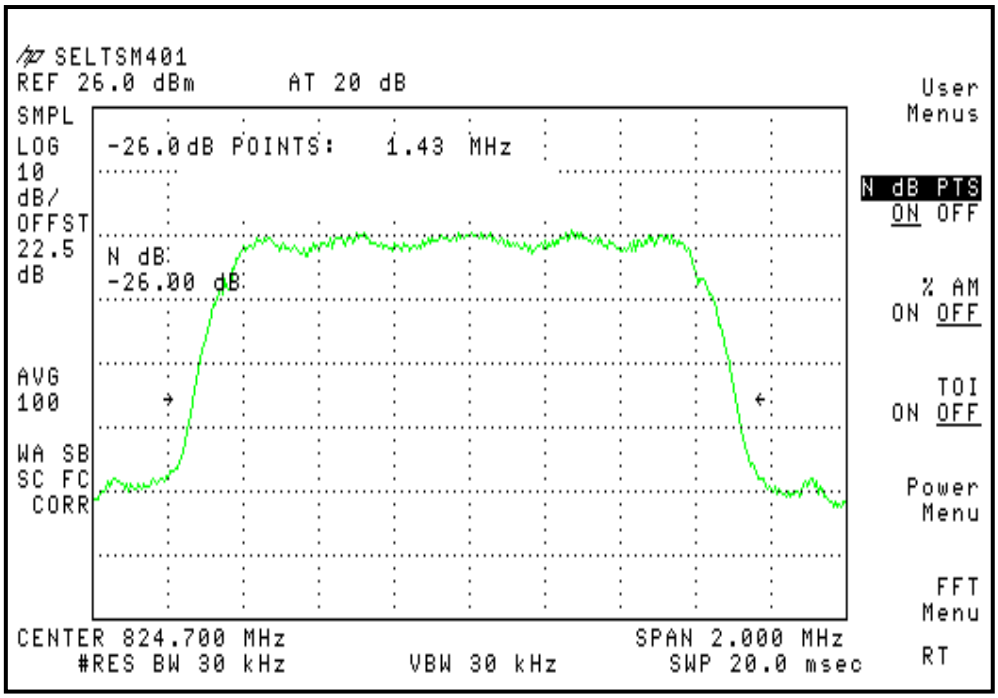


Channel 777

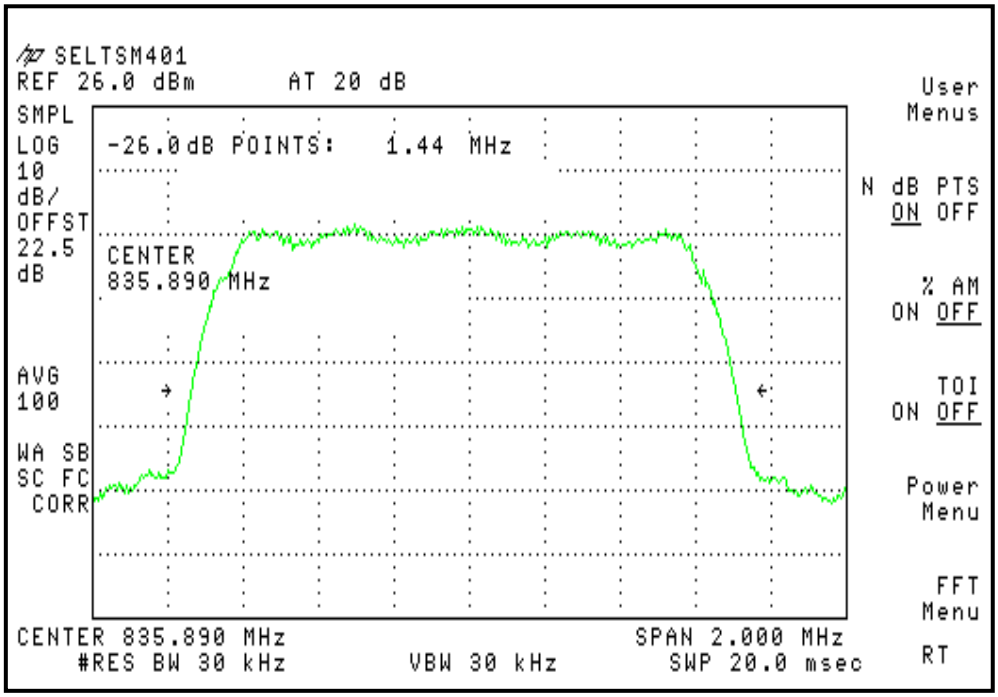


● **26dB Emission Bandwidth**

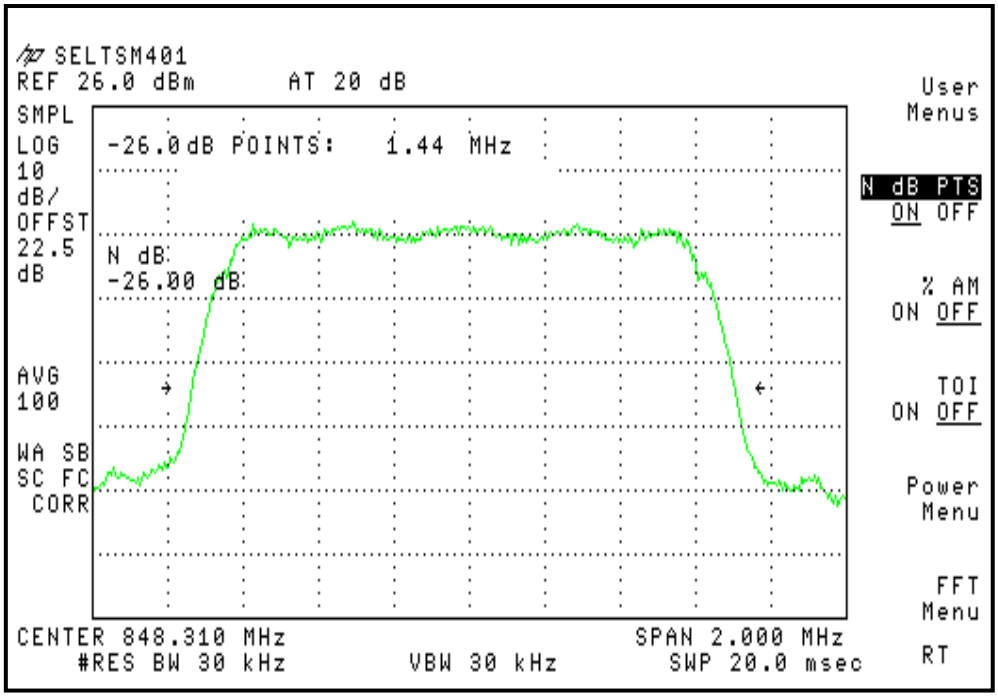
Channel 1013



Channel 363

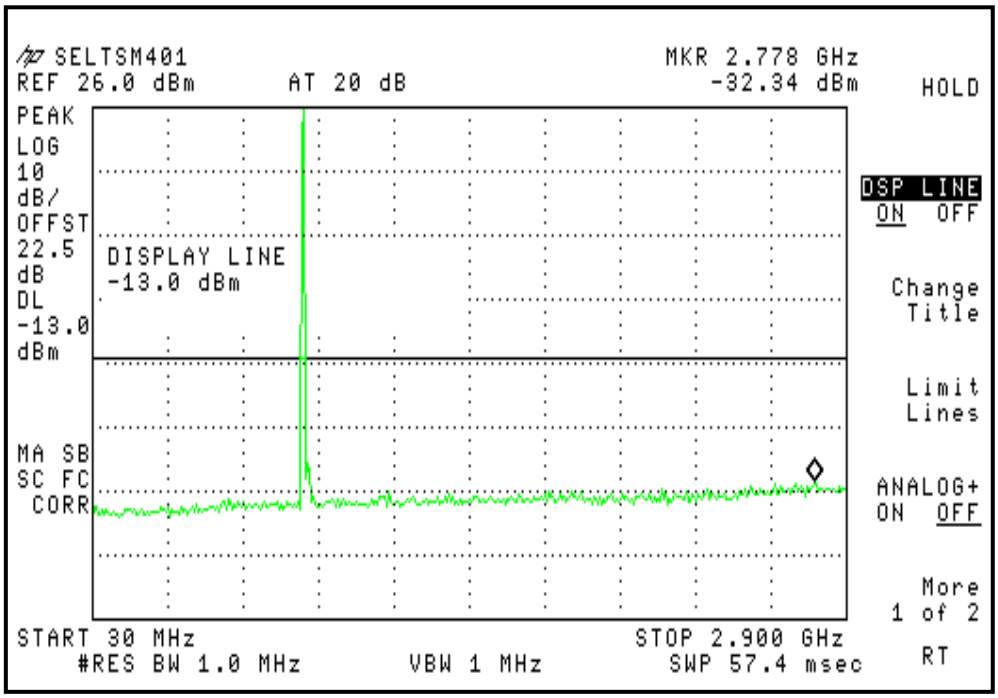


Channel 777

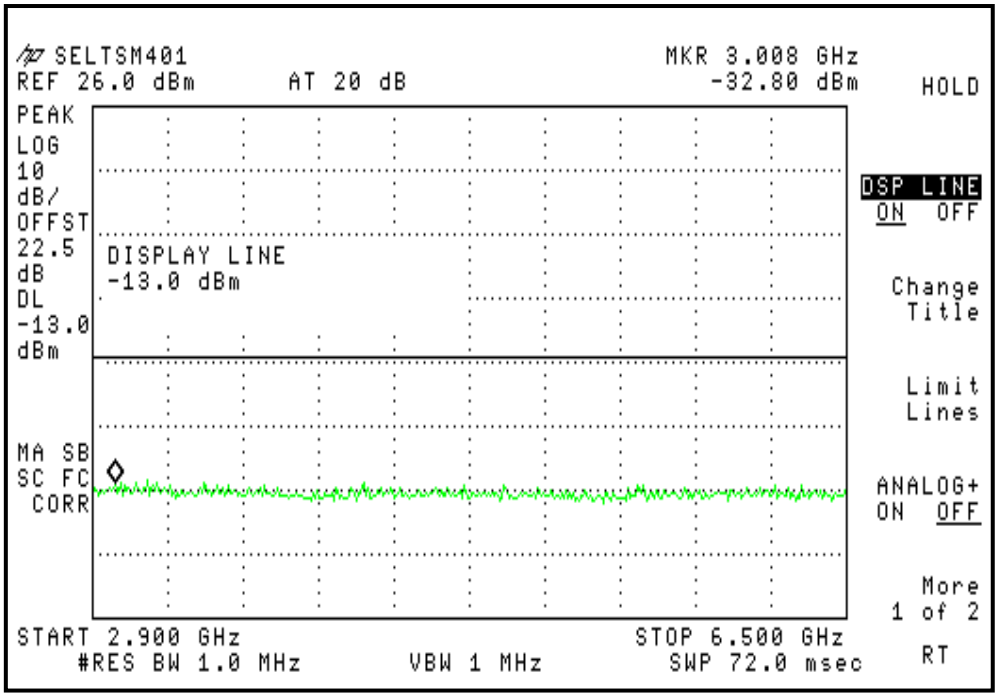


● **Spurious Emission at antenna Terminals**

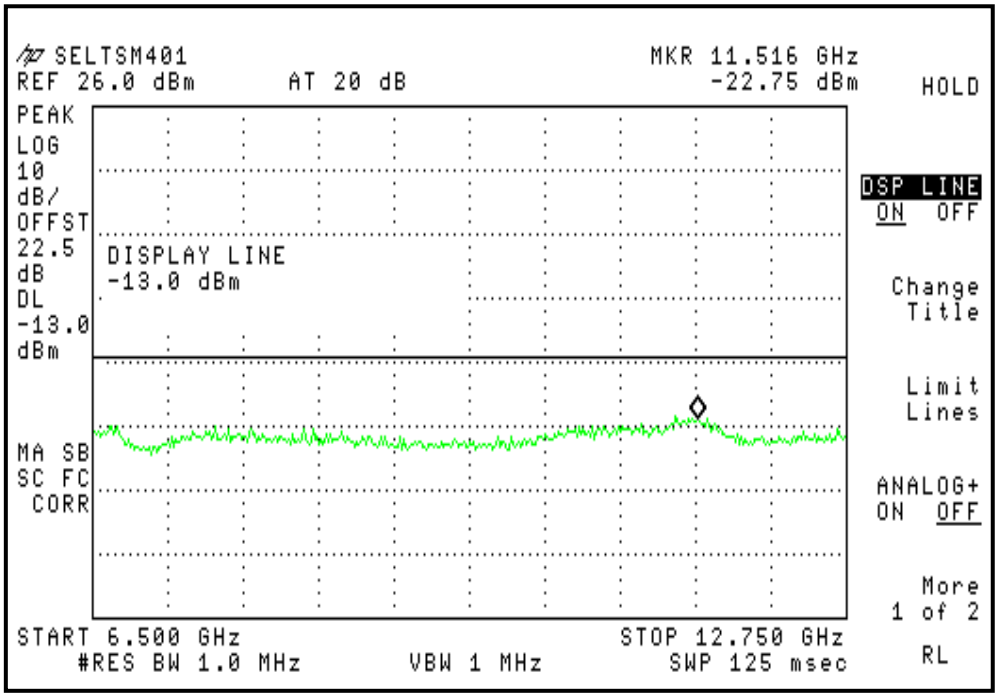
Channel 1013 (30MHz ~ 2.9GHz)



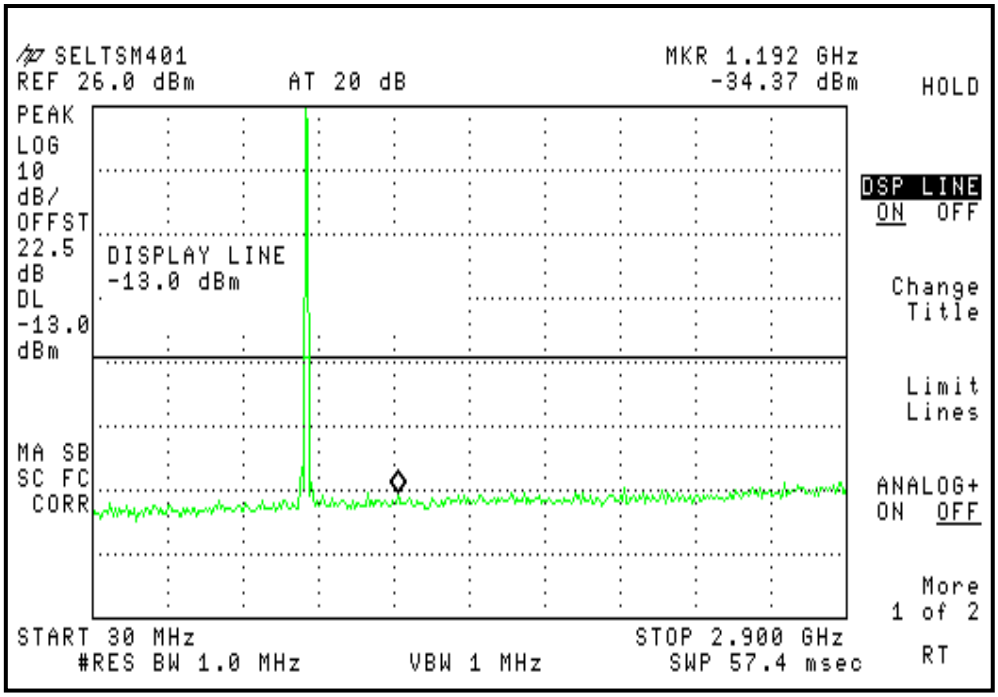
Channel 1013 (2.9GHz ~ 6.5GHz)



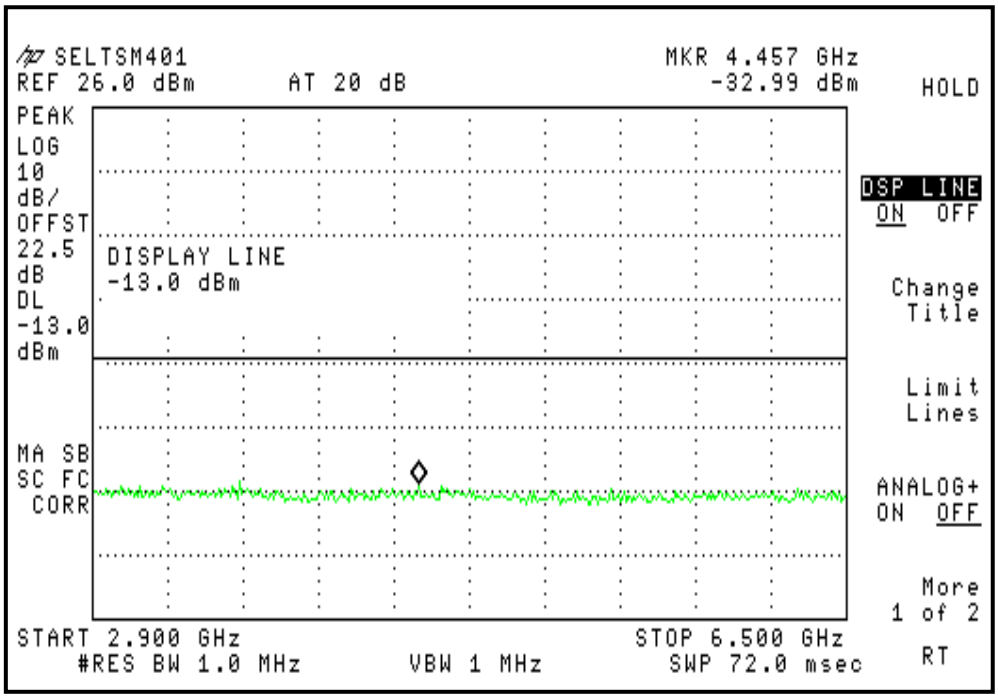
Channel 1013 (6.5GHz ~ 12.75GHz)



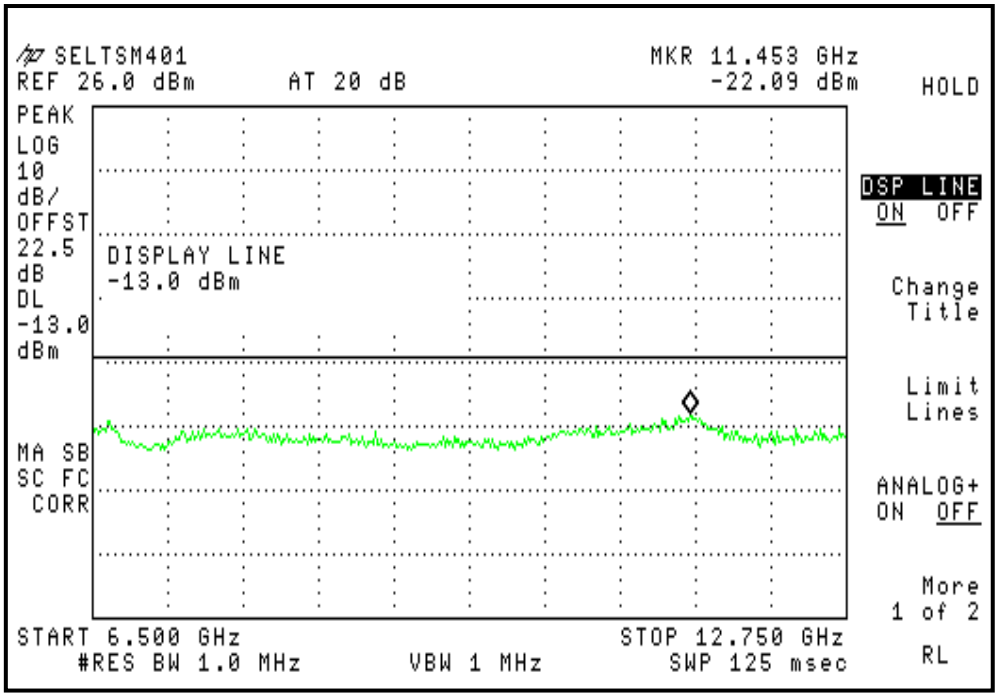
Channel 363 (30MHz ~ 2.9GHz)



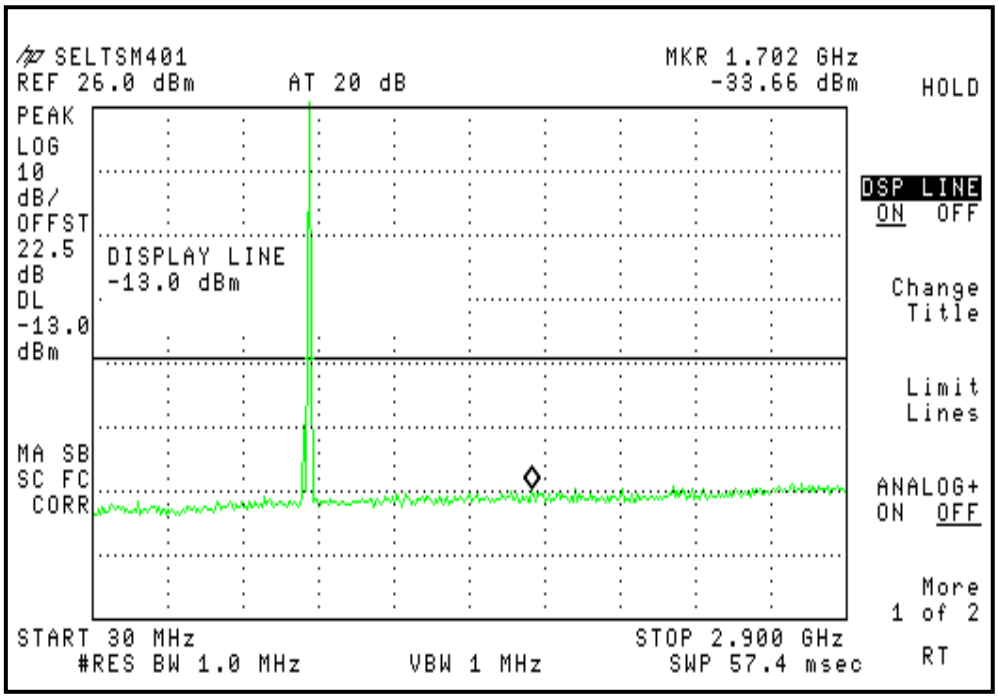
Channel 363 (2.9GHz ~ 6.5GHz)



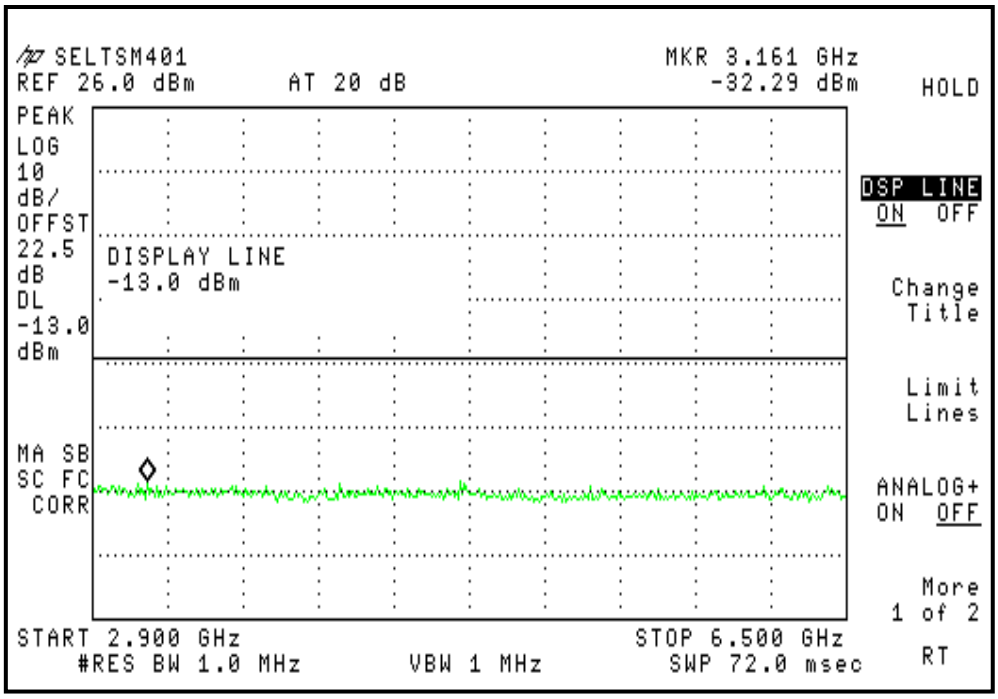
Channel 363 (6.5GHz ~ 12.75GHz)



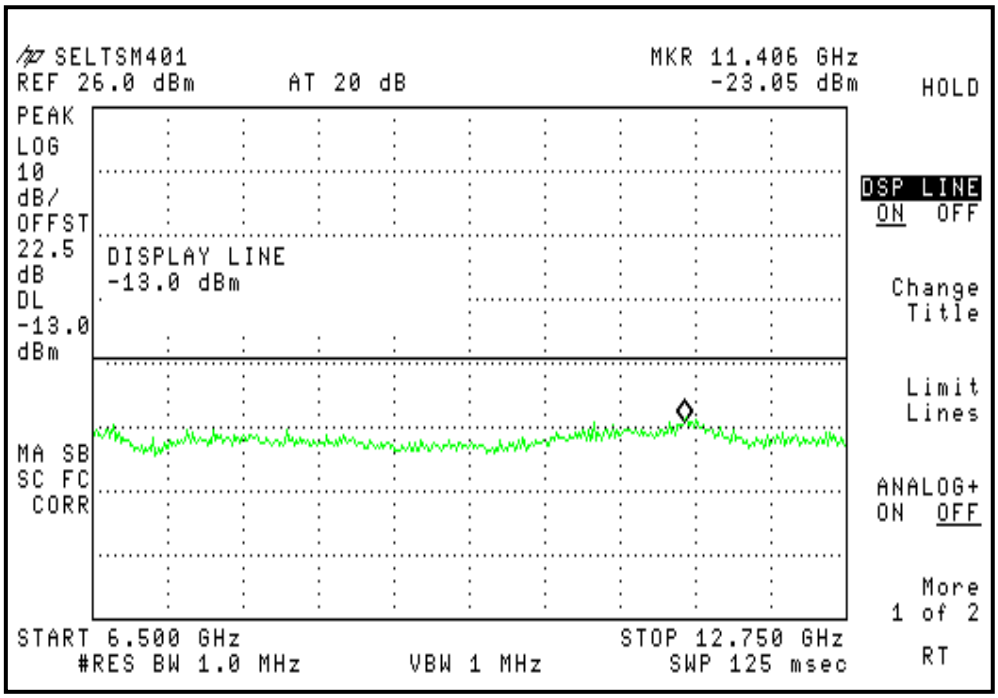
Channel 777 (30MHz ~ 2.9GHz)



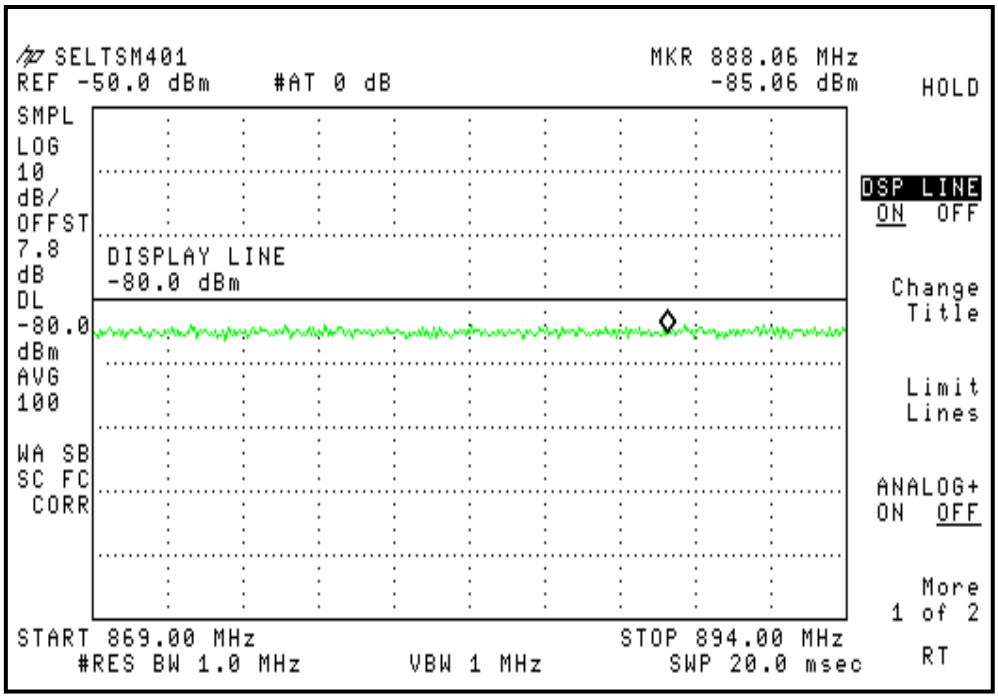
Channel 777 (2.9GHz ~ 6.5GHz)



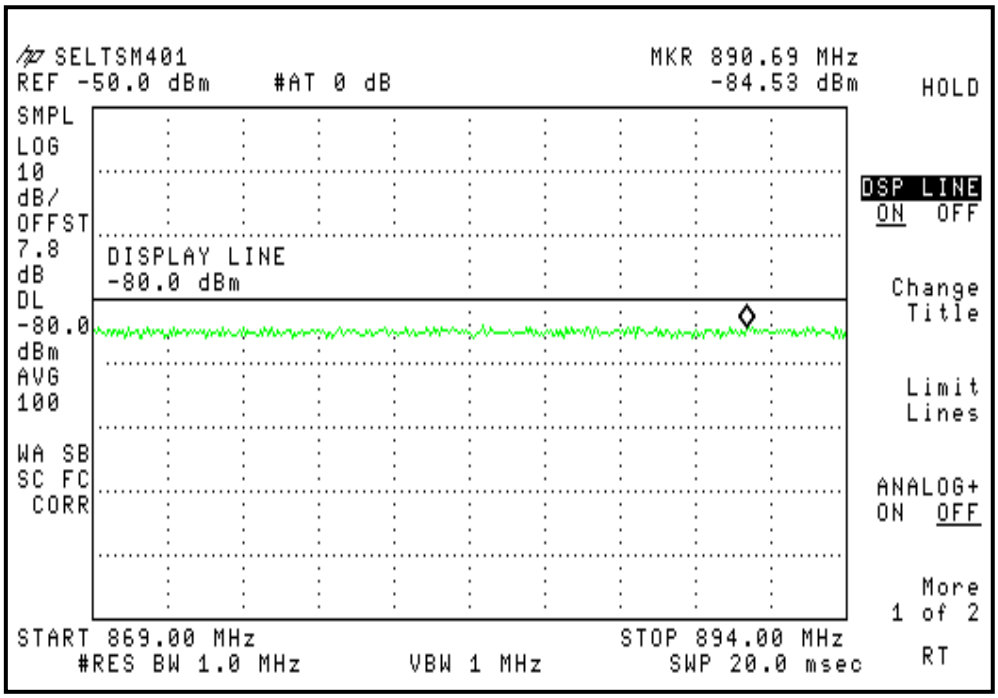
Channel 777 (6.5GHz ~ 12.75GHz)



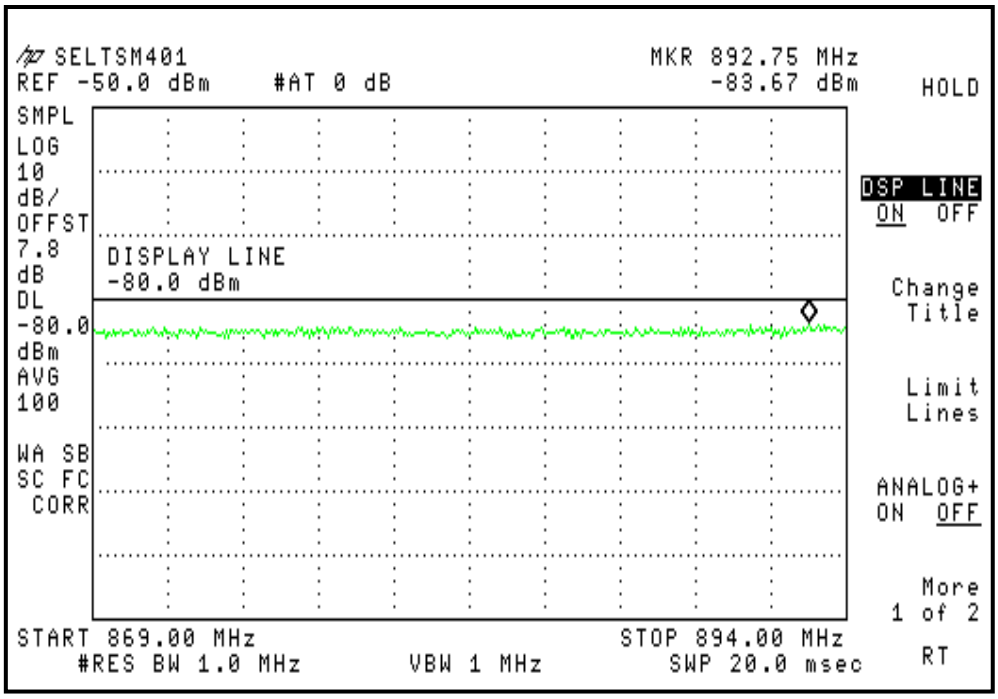
Channel 1013 (869MHz ~ 894MHz)



Channel 363 (869MHz ~ 894MHz)

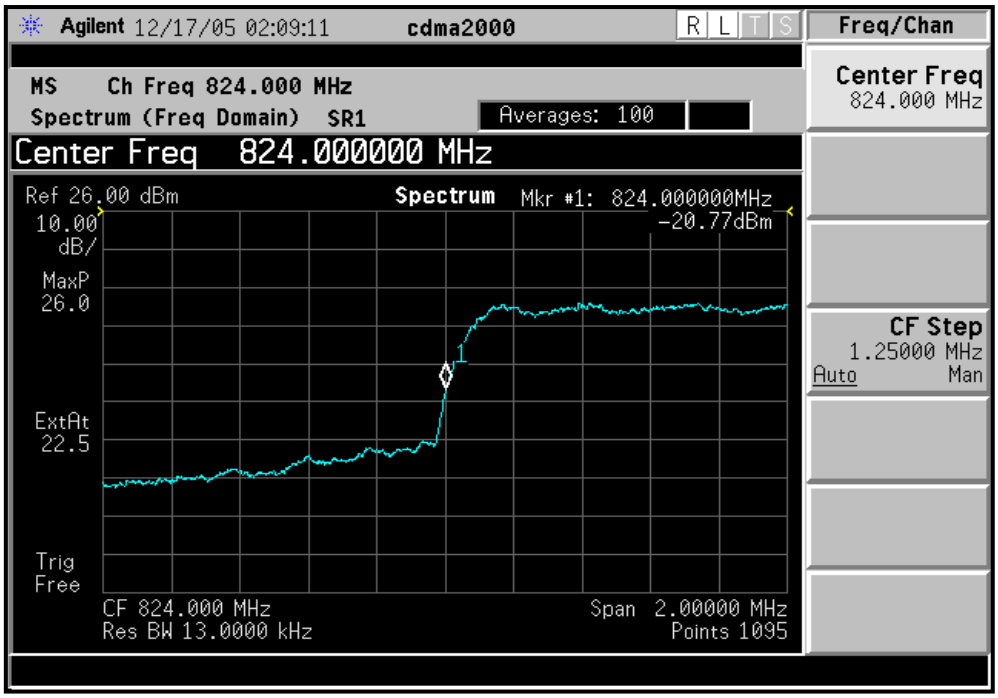


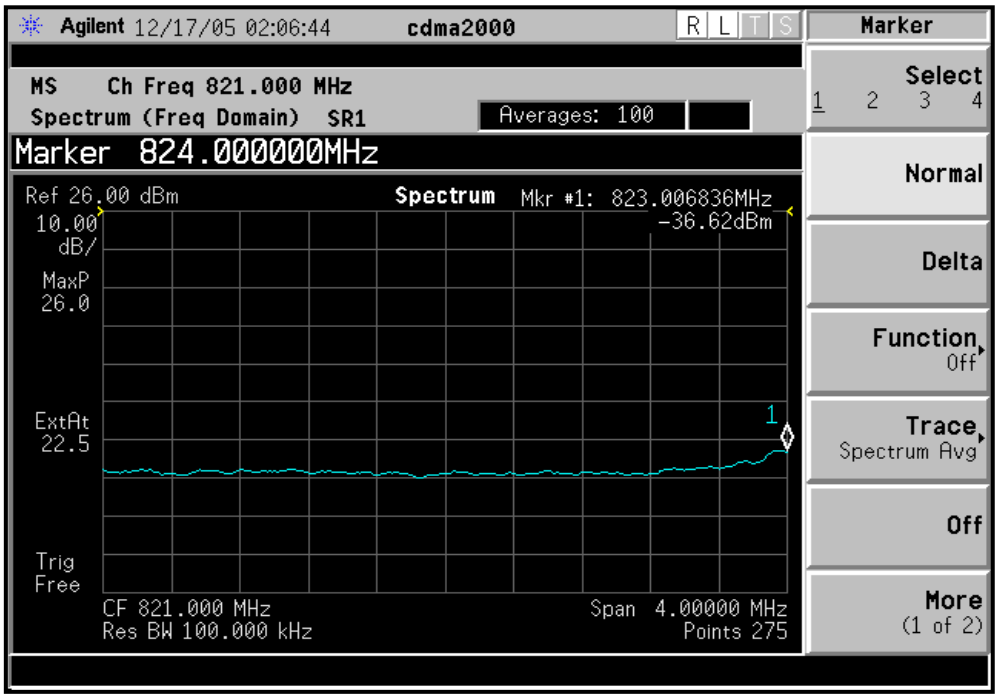
Channel 777 (869MHz ~ 894MHz)



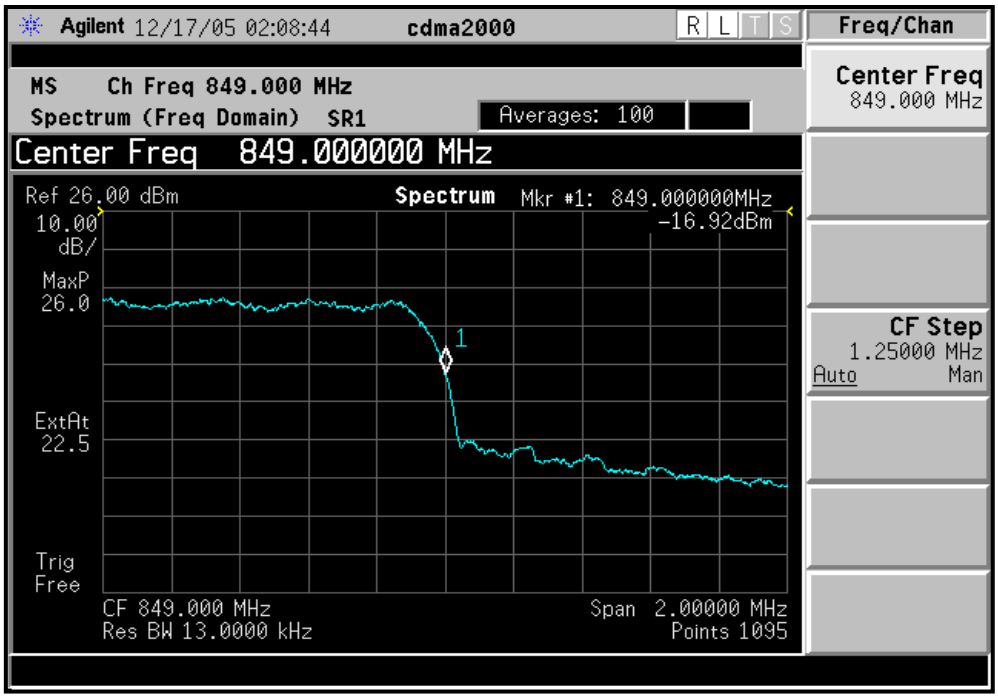
● **Band Edge**

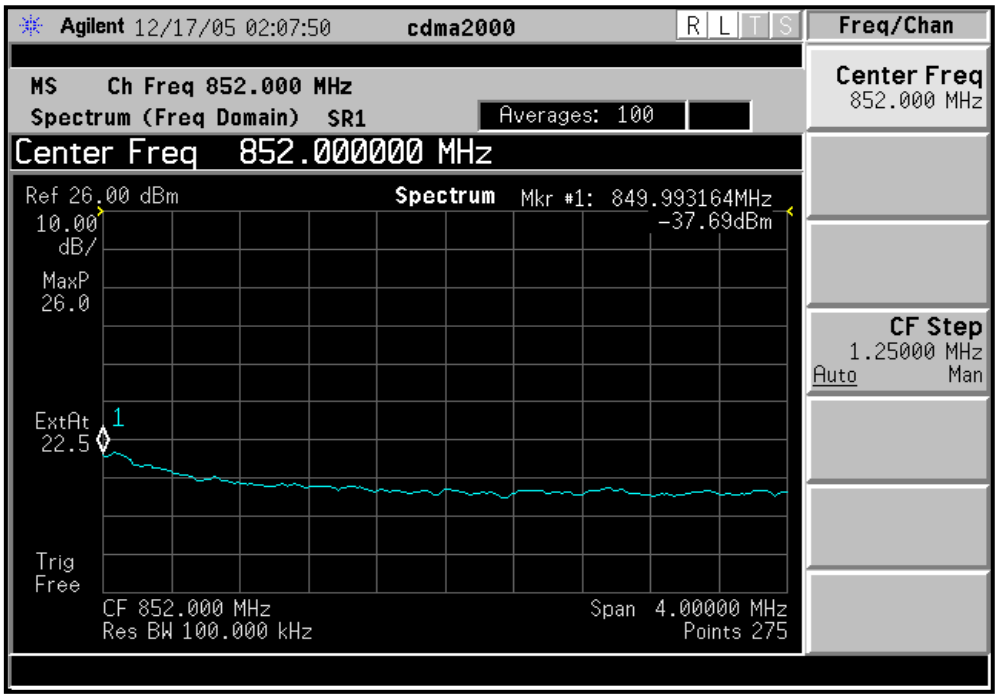
Channel 1013





Channel 777


Agilent 12/17/05 02:08:44
cdma2000
R L T S
Freq/Chan
MS Ch Freq 849.000 MHz
Spectrum (Freq Domain) SR1
Averages: 100
Center Freq 849.000 MHz
Ref 26.00 dBm
Spectrum
Mkr #1: 849.000000MHz
-16.92dBm
10.00 dB/
MaxP 26.0
ExtAt 22.5
Trig Free
CF 849.000 MHz
Res BW 13.0000 kHz
Span 2.00000 MHz
Points 1095
Center Freq 849.000 MHz
CF Step 1.25000 MHz
Auto Man


Agilent 12/17/05 02:07:50
cdma2000
R L T S
Freq/Chan
MS Ch Freq 852.000 MHz
Spectrum (Freq Domain) SR1
Averages: 100
Center Freq 852.000 MHz
Ref 26.00 dBm
Spectrum
Mkr #1: 849.993164MHz
-37.69dBm
10.00 dB/
MaxP 26.0
ExtAt 22.5
Trig Free
CF 852.000 MHz
Res BW 100.000 kHz
Span 4.00000 MHz
Points 275
Center Freq 852.000 MHz
CF Step 1.25000 MHz
Auto Man

APPENDIX A - Labelling Requirement

APPENDIX B – PHOTOGRAPHS OF TEST SET-UP

APPENDIX C – EUT PHOTOGRAPHS

APPENDIX D – SCHEMATIC DIAGRAM

APPENDIX E – BLOCK DIAGRAM

APPENDIX F – USER'S MANUAL

APPENDIX G – OPERATIONAL DESCRIPTION

APPENDIX H – TUNE UP PROCEDURE