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 :
Bellwave Co.,Ltd.
6th FL. Kamco Yangjae Tower 949-3, Dogok-Dong,
Kangnam-Gu Seoul, Korea, (Post code : 135-270)

Dates of Issue : July, 07, 2005
Test Report No. : NK2FR127
Test Site : Nemko Korea Co., Ltd.

FCC ID	*SY6BCL862S*
Brand Name	**Bellwave**
CONTACT PERSON	**Bellwave Co., Ltd.** **6th FL, Kamco Yangjae Tower 949-3, Dogok-Dong,** **Kangnam-Gu Seoul Korea (135-270)** **Mr. Tae-Hyoung Ko** **Telephone No. : +82 2 3460-9701**

Applied Standard: FCC 47 CFR Part 22, part 2
Test Procedure: ANCI C63.4 , TIA/EIA 603
Equipment Class: Public Mobile Services
EUT Type: Single Mode 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 :	Bellwave Co.,Ltd.
Contact Person :	Mr. Tae-Hyoung Ko Tel No. : +82 2 3460-9701
Manufacturer :	SHIN-OH Electronics Co.,Ltd. 729-5 Bon Oh-Dong, Sangrok-Gu, Ansan-City, Kyounggi-Do, 426-180 Korea (730-2 : 2'nd FA)

- FCC ID: SY6BCL862S
- Model: BCL862S
- Brand Name: Bellwave
- EUT Type: Single Mode CDMA Mobile Phone
- Electric Rating: DC3.9V, 950mA
- Equipment Class: Intentional Radiators
- Classification: Licensed Portable Transmitter Held to Ear (PCE)
- Applied Standard: FCC 47 CFR Part 22 , Part2
- Test Procedure(s): ANSI C63.4 (2003), TIA/EIA603
- Dates of Test: Jun 28, 2005 to July 07, 2005
- Place of Tests: Nemko Korea Co., Ltd.
- Test Report No.: NK2FR127

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 **Bellwave Co.,Ltd.**
FCC ID : **SY6BCL862S**

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.

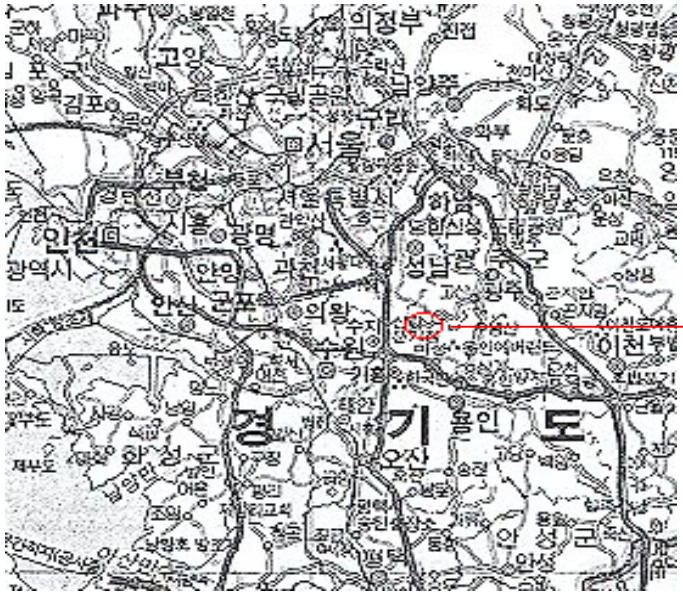

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Fig. 1. The map above shows the Seoul in Korea vicinity area.
The map also shows Nemko Korea Corporation Ltd. and Incheon Airport.

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 24.3dBm 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	0.27W (24.3dBm)
Emission Designator	1M23F9W
Modulation Method	OQPSK
Transmit power amplifier(IC)	CX77105
Number of channels	20CH
Antenna Type	Monopole Antenna
Antenna Position	Right Antenna : GPS / Left Antenna : CDMA
Dimensions(L X W X H)	82.0mm X 49.8mm X 18.0mm
Weight	60.5g(with Battery)
Operating Conditions	Storage : -30℃ ~ +70℃
DC Input Voltage	+3.9Vdc , 950mAh

Support Equipment

Equipment	Manufacturer	Model Name	Serial Number
Laptop	Samsung	SENS640	668391AR311176

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	N/A
Effective Radiated Power	2.1046 22.912(d)	Complies
Conducted Output Power	2.1046 22.913(a)	Complies
Occupied Bandwidth / 26dB Emission Bandwidth	2.1049 22.917 22.905	Complies
Spurious Emission at antenna Terminals	2.1051 22.917	Complies
Field Strength of spurious Radiation	2.1053	Complies
Frequency Stability / Temperature Variation	2.1055 22.355	Complies
Band Edge	22.917	Complies

6. TEST EQUIPMENT LIST

No.	Instrument	Manufacturer	Model	Calibration Date
1	Test Receiver	R & S	ESCS 30	2004.08
2	Test Receiver	R & S	ESCS 30	2004.12
3	*Amplifier	HP	8449B	2005.03
4	Amplifier	HP	8447F	2004.07
5	Amplifier	HP	8447F	2005.01
6	Spectrum Analyzer	HP	8566B	2005.03
7	*Spectrum Analyzer	HP	8568B	2004.10
8	*Spectrum Analyzer	HP	8593E	2004.10
9	*VSA Series Transmmitter Tester	Agilent	E4406A	2004.08
10	Logbicon Super Antenna	Schwarzbeck	VULB9166	2005.05
11	*Horn Antenna	Schwarzbeck	BBHA 9120 A	2004.08
12	*Horn Antenna	Schwarzbeck	BBHA 9120 D	2005.04
13	* Dipole Antenna	R & S	VHA9103	2004.07
14	*Dipole Antenna	R & S	UHA9105	2005.05
15	Biconical Log Antenna	ARA	LPB-2520/A	2005.01
16	*Signal Generater	R & S	SMP02	2004.07
17	*Signal Generater	HP	E4436B	2005.01
18	LISN	R & S	ESH3-Z5	2004.10
19	LISN	Kyoritsu	KNW-407	2005.03
20	CDN	FCC	NCD-T4	2005.05
21	*Tunable Band Reject Filter	K&h Microwave Incorporated	3TNF-5001 1000-N1N	2005.07
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	2004.08
33	*Temp./Humi. Chamber	Kyun Poong	FX1077B	2004.12

***) 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.

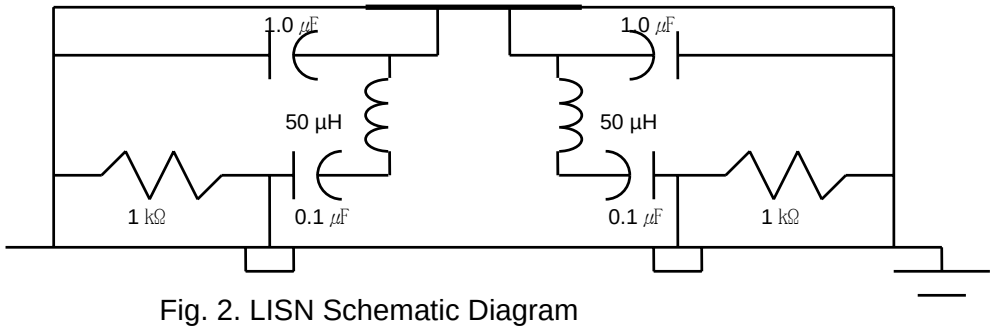


Fig. 2. LISN Schematic Diagram

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.

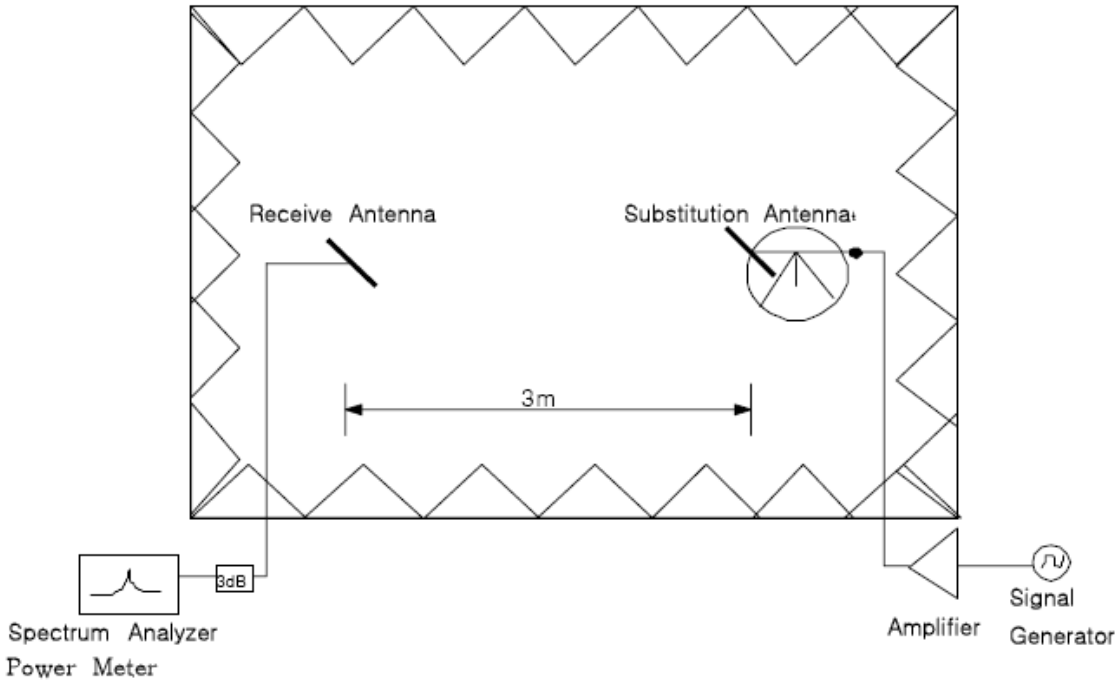


Figure 4. Diagram of ERP/EIRP test Set-up

The EUT was placed on a Non-conducted turntable 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer.
For CDMA signals, an average detector is used, with RBW=VBW=3MHz.
A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of dipole is measured. The ERP is 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.

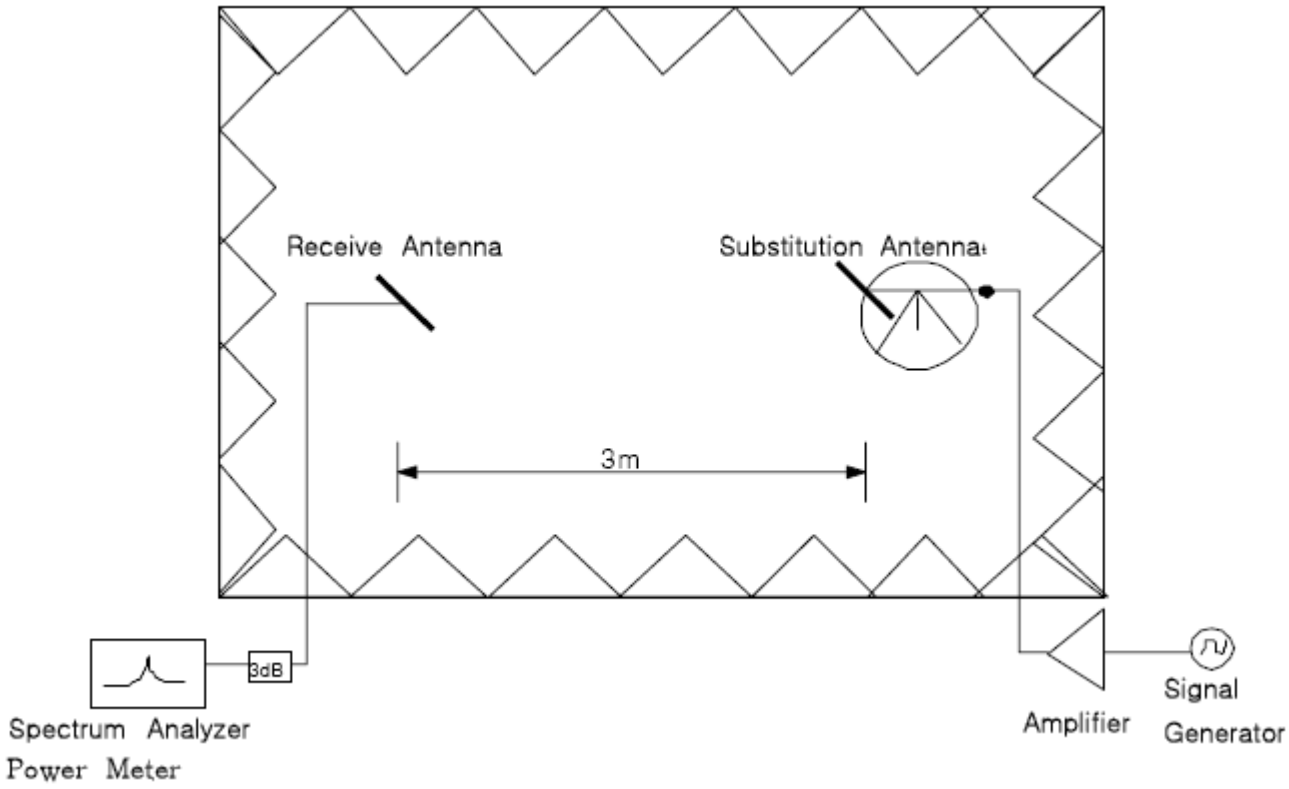


Figure 5. Diagram of Radiated Spurious & Harmonic test Set-up

The EUT was placed on a Non-conducted turntable 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. The Spectrum was investigated from 30MHz to the 10th Harmonic of the fundamental. A peak detector is used, with RBW=VBW=1MHz.
The value that we could measure was only reported A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

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 over half-wave dipole
$L_{Cable\ [dB]}$	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 licensee'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(Tx)
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 (0.270 W) = 37.31 dB
24.3 dBm – 37.31 dB = -13 dBm

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 10GHz.
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 -30°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 -30°C without any power applied.
3. After the overnight “soak” at -30°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 -30°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.

8. TEST DATA

8.1 Effective Radiated Power

Modulation : CDMA

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

Results :

Frequency	Pol. (H/V)	P_{EUT} (dBm)	P_{TX} (dBm)	P_{RX} (dBm)	$G_{antenna}$ (dBd)	L_{Cable} (dBm)	ERP (dBm)	Limit (dBm)
824.70MHz	H	-18.96	10	-30.12	1.00	-3.20	18.96	38.4
	V	-21.53	10	-30.47	1.00	-3.20	16.74	
835.89MHz	H	-19.25	10	-28.62	1.29	-3.07	17.59	38.4
	V	-20.25	10	-28.94	1.29	-3.07	16.91	
848.31MHz	H	-19.58	10	-28.59	1.61	-3.18	17.44	38.4
	V	-19.76	10	-28.71	1.61	-3.18	17.38	

Table 8. Radiated Measurements at 3meters

*** Radiated measurements at 3 meters by Substitution Method**

8.2 Conducted Output Power

Modulation : CDMA

Test Mode : Set to Lowest channel and Middle channel and Highest channel

Results

Channel	Frequency (MHz)	Measurement Power (dBm)
1013	824.70	24.17
363	835.89	24.09
777	848.31	24.22

- End of page -

8.3 Occupied Bandwidth / 26dB Emission Bandwidth

Modulation : CDMA

Test Mode : Set to Lowest channel and Middle channel and Highest channel

Results

Channel	Frequency (MHz)	Occupied BW (MHz)	26dB Emission BW (MHz)
1013	824.70	1.265	1.42
363	835.89	1.270	1.43
777	848.31	1.275	1.44

- End of page -

8.4 Radiated Spurious & Harmonic Emission

Modulation : CDMA

Test Mode : Set to Lowest channel and Middle channel and Highest channel

Results

CH1013 (824.70MHz)

Freq. (MHz)	Pol. (H/V)	P_{EUT} (dBm)	P_{TX} (dBm)	P_{RX} (dBm)	$G_{antenna}$ (dBd)	L_{Cable} (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1649.4	H	-55.57	10	-19.65	7.63	-4.56	-22.85	-13.0	-9.85
2474.1	H	-69.12	10	-10.89	8.35	-5.89	-45.77	-13.0	-32.77
3298.8	H	-	10	-	-	-	-	-	-
1649.4	V	-59.87	10	-19.30	7.63	-4.56	-27.50	-13.0	-14.50
2474.1	V	-64.79	10	-12.83	8.35	-5.89	-39.50	-13.0	-26.50
3298.8	V	-	10	-	-	-	-	-	-

CH363 (835.89MHz)

Freq. (MHz)	Pol. (H/V)	P_{EUT} (dBm)	P_{TX} (dBm)	P_{RX} (dBm)	$G_{antenna}$ (dBd)	L_{Cable} (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1671.7	H	-53.22	10	-19.43	7.79	-4.84	-20.84	-13.0	-7.84
2507.6	H	-53.07	10	-17.13	8.46	-6.16	-23.64	-13.0	-10.64
3343.5	H	-	10	-	-	-	-	-	-
1671.7	V	-58.88	10	-19.50	7.79	-4.84	-26.43	-13.0	-13.43
2507.6	V	-65.66	10	-18.95	8.46	-6.16	-34.41	-13.0	-21.41
3343.5	V	-	10	-	-	-	-	-	-

CH777 (848.31MHz)

Freq. (MHz)	Pol. (H/V)	P_{EUT} (dBm)	P_{TX} (dBm)	P_{RX} (dBm)	$G_{antenna}$ (dBd)	L_{Cable} (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1696.6	H	-61.65	10	-12.49	7.96	-4.81	-36.01	-13.0	-23.01
2544.9	H	-65.29	10	-2.12	8.53	-6.21	-50.85	-13.0	-37.85
3393.2	H	-	10	-	-	-	-	-	-
1696.6	V	-56.42	10	-12.77	7.96	-4.81	-30.50	-13.0	-17.50
2544.9	V	-58.73	10	-3.51	8.53	-6.21	-42.90	-13.0	-29.90
3393.2	V	-	10	-	-	-	-	-	-

8.5 Frequency Stability / Temperature Variation

Modulation : CDMA

Test Mode : Set to Middle channel (835.89MHz)

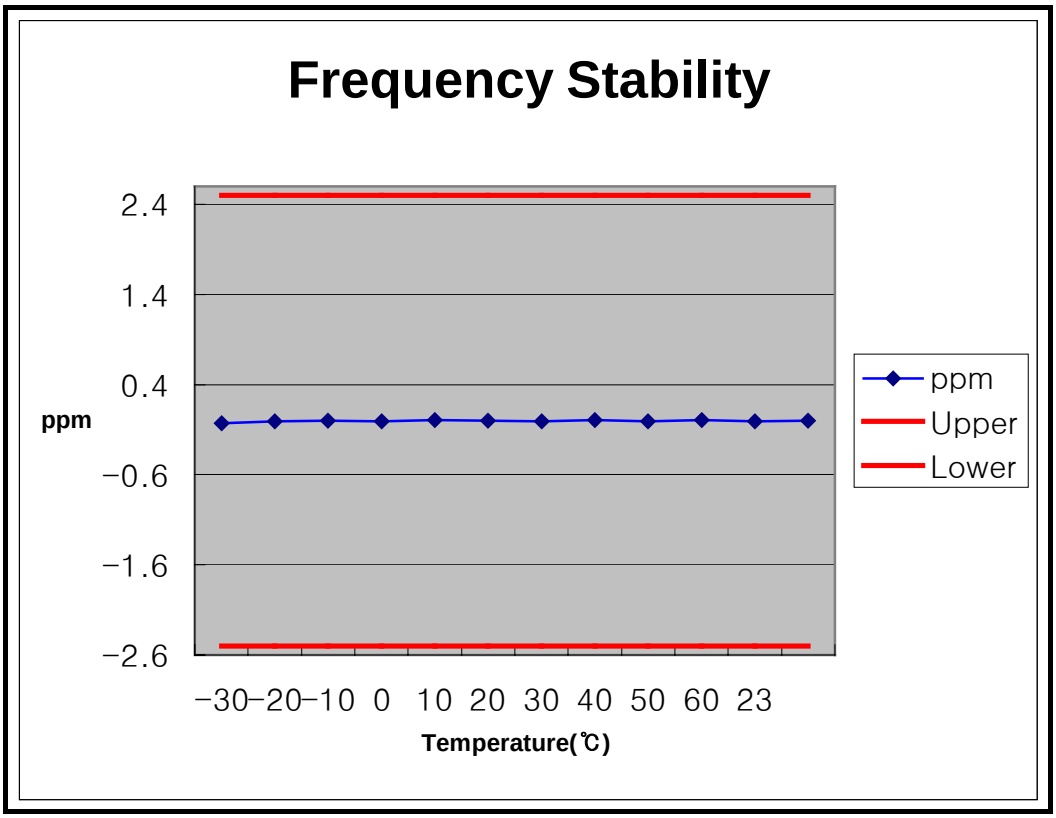
Deviation Limit : ±2.5ppm

Results

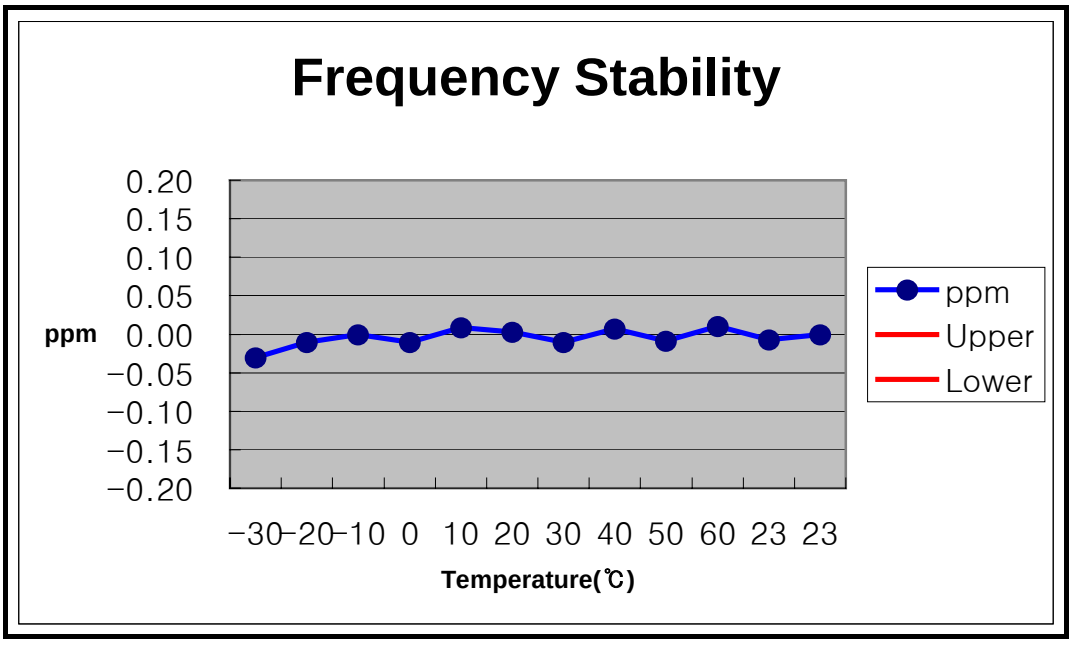
Voltage (%)	Power (Vdc)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	ppm
100%	3.9	+23(Ref.)	835,890,006	6	0.007
100%		-30	835,889,973	-27	-0.030
100%		-20	835,889,985	-15	-0.010
100%		-10	835,890,009	9	0.000
100%		0	835,889,987	-13	-0.010
100%		+10	835,890,008	8	0.009
100%		+20	835,890,003	3	0.003
100%		+30	835,889,990	-10	-0.010
100%		+40	835,890,006	6	0.007
100%		+50	835,889,992	-8	-0.009
100%		+60	835,890,013	13	0.010
85%	3.31	+23	835,889,994	-6	-0.007
115%	4.48	+23	835,890,000	0	0.000

***The temperature is varied from -30°C to +60°C using an environmental chamber.**

8.5.1 CDMA Frequency Stability Graph



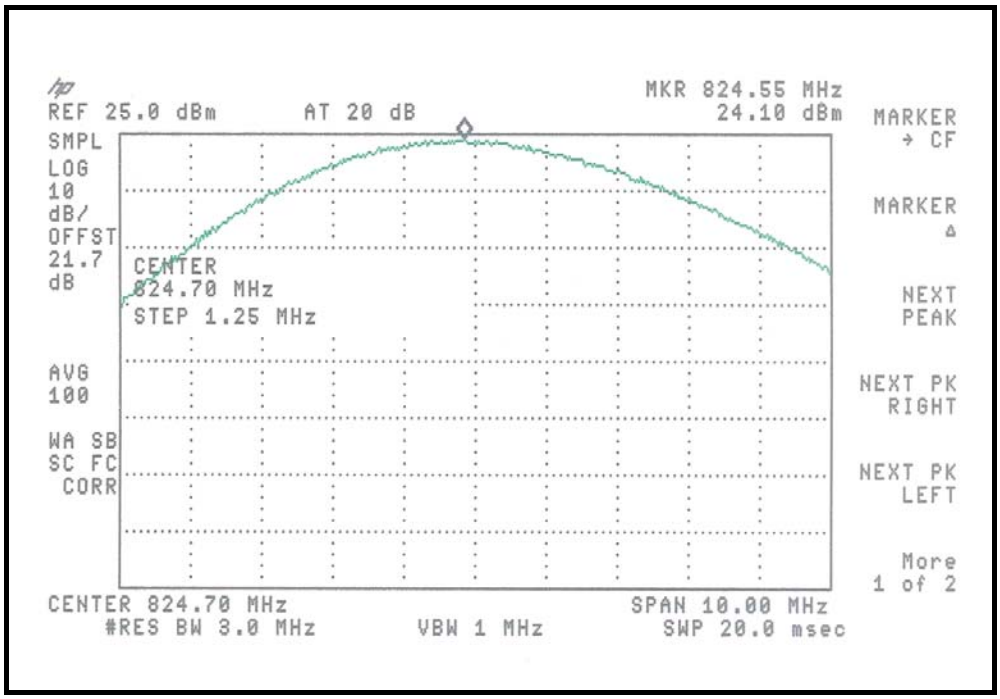
Zoom In



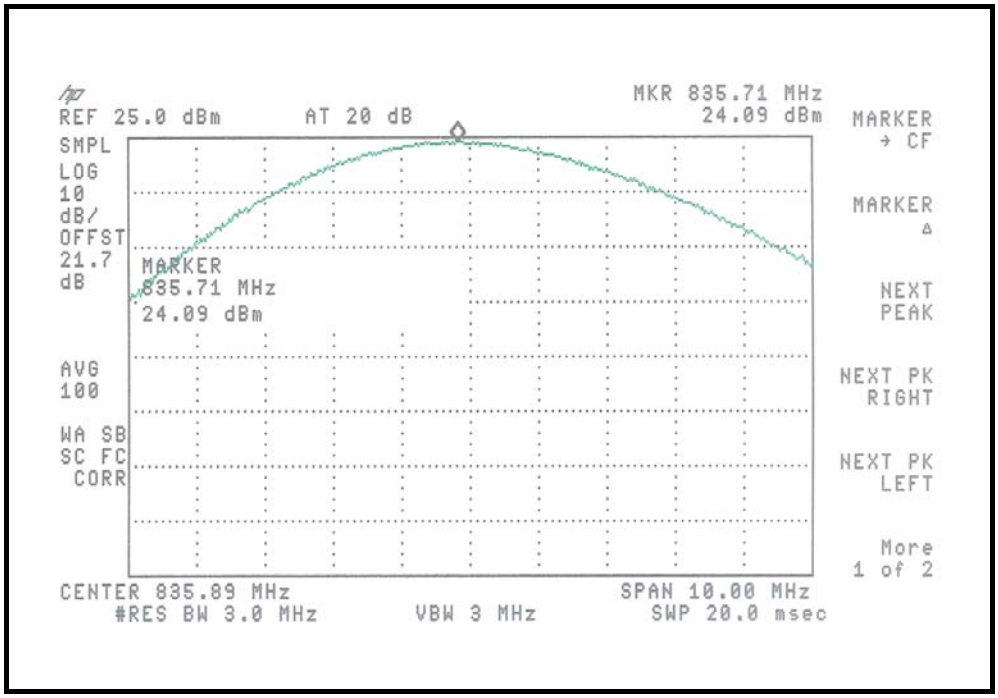
9. TEST PLOTS

● **Conducted Output Power**

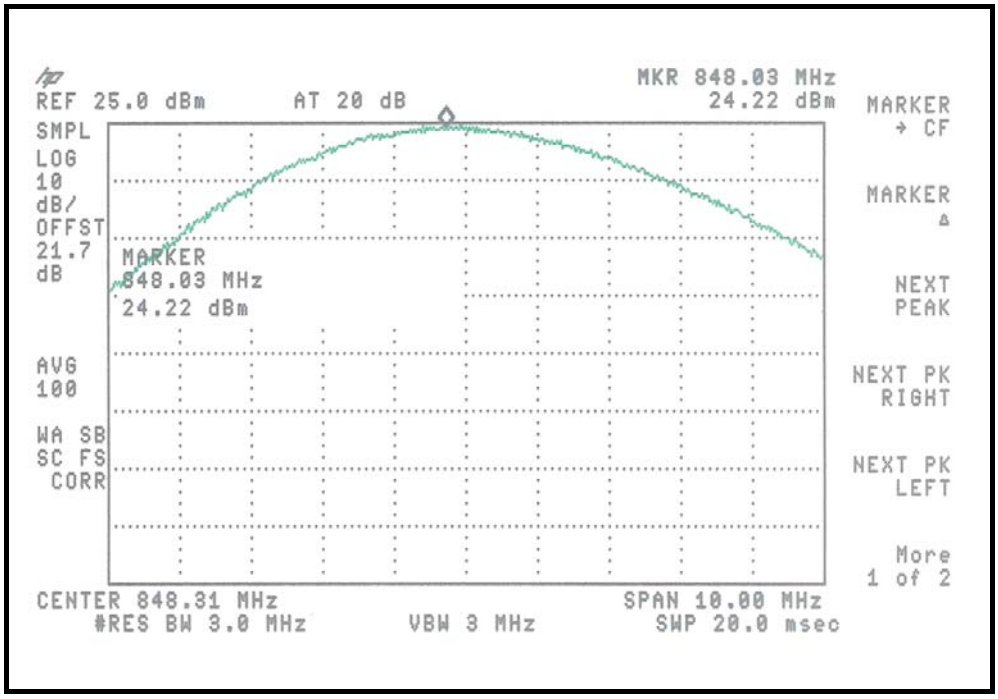
Low Channel



Middle Channel

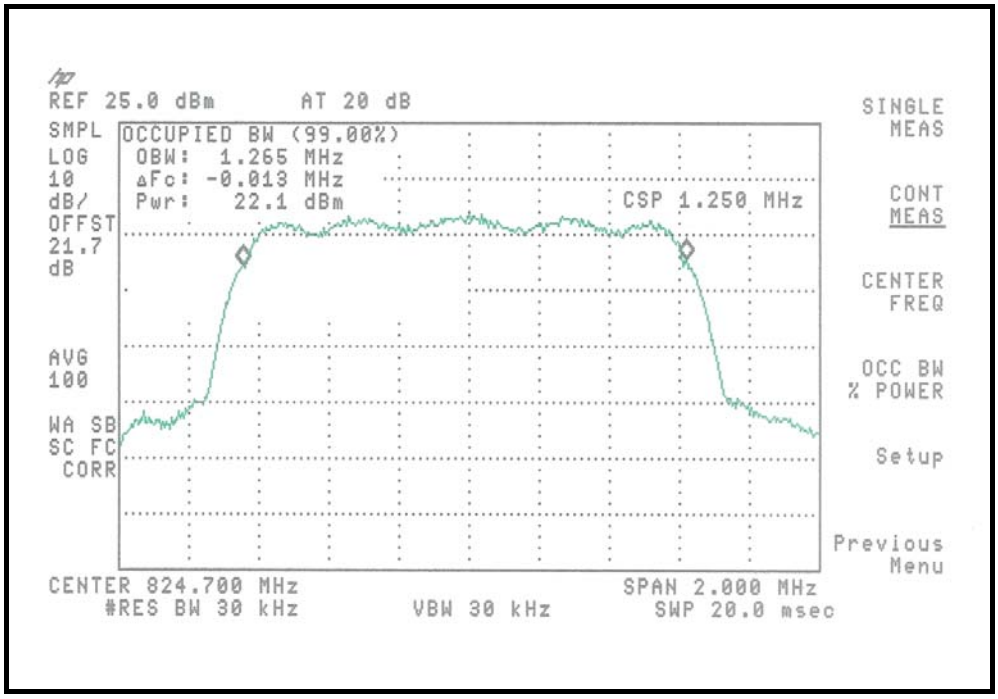


High Channel

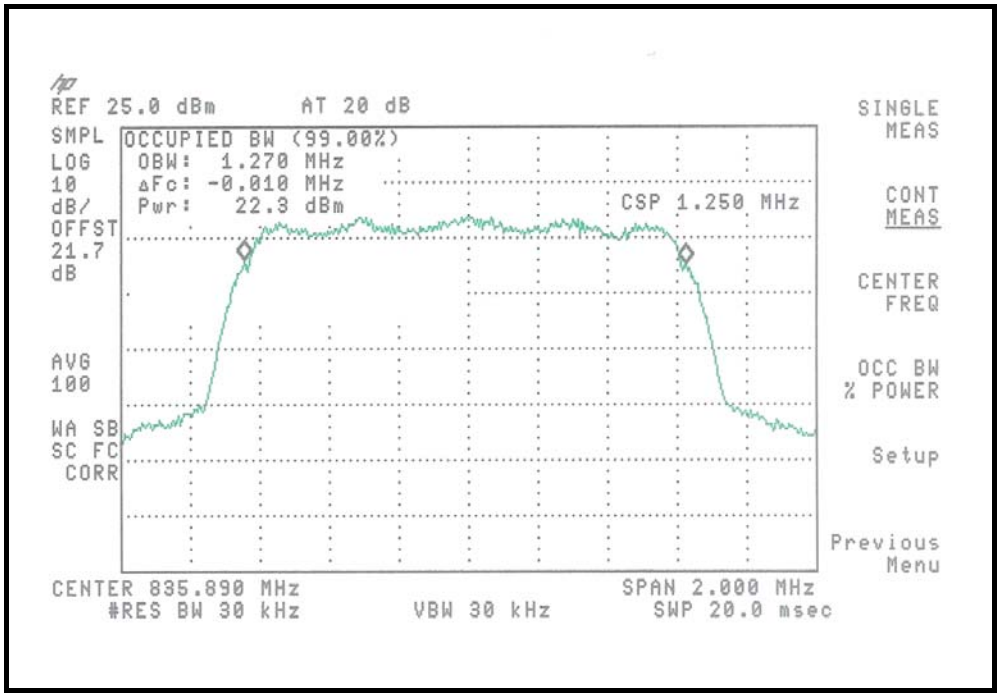


● **Occupied Bandwidth**

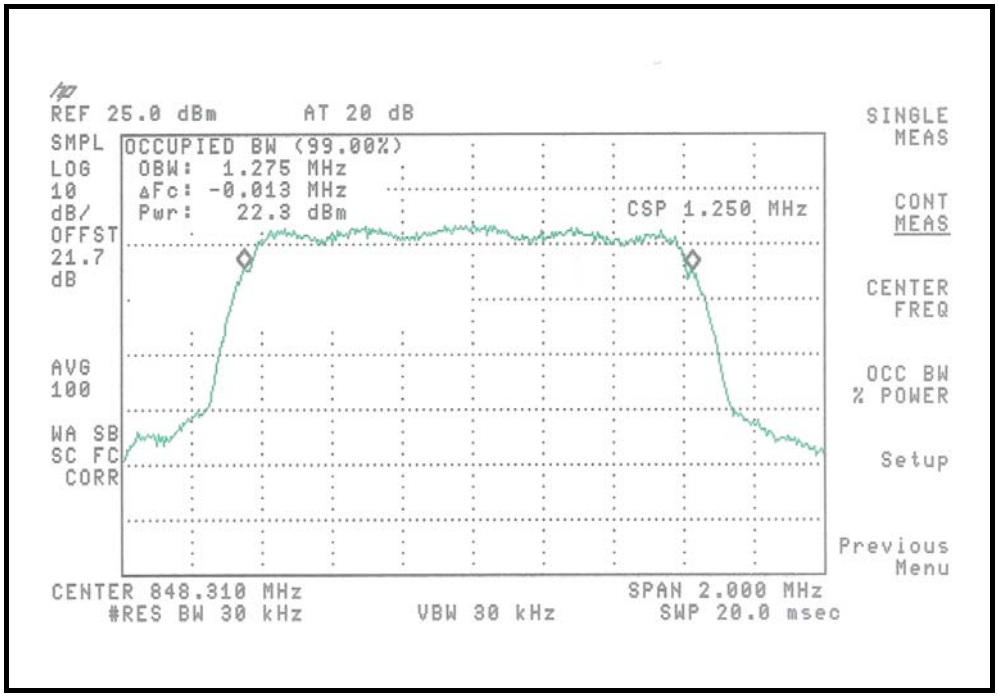
Low Channel



Middle Channel

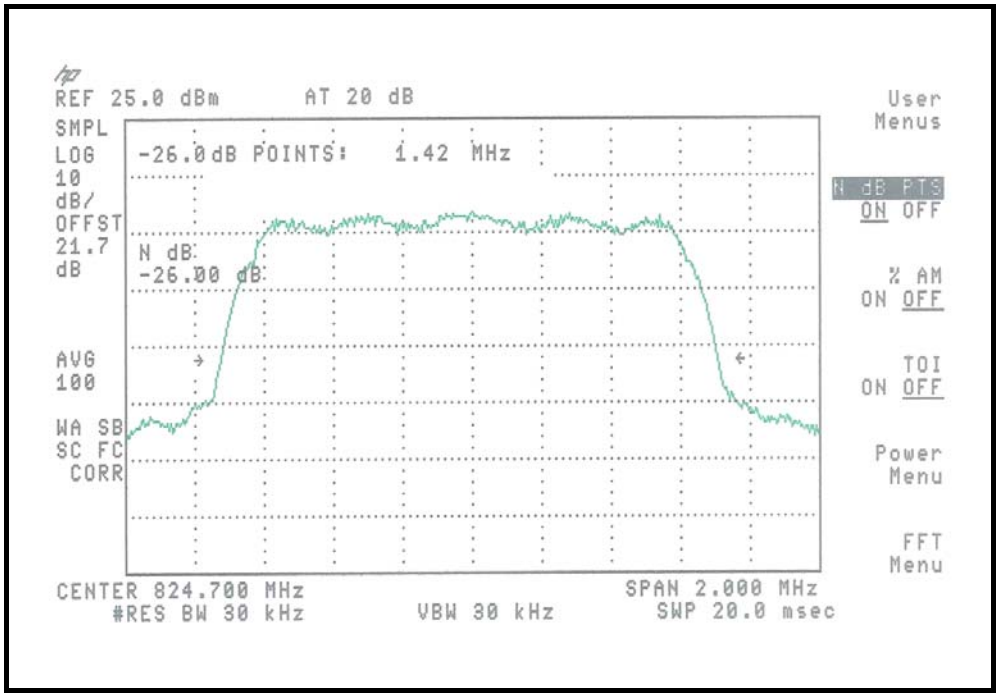


High Channel

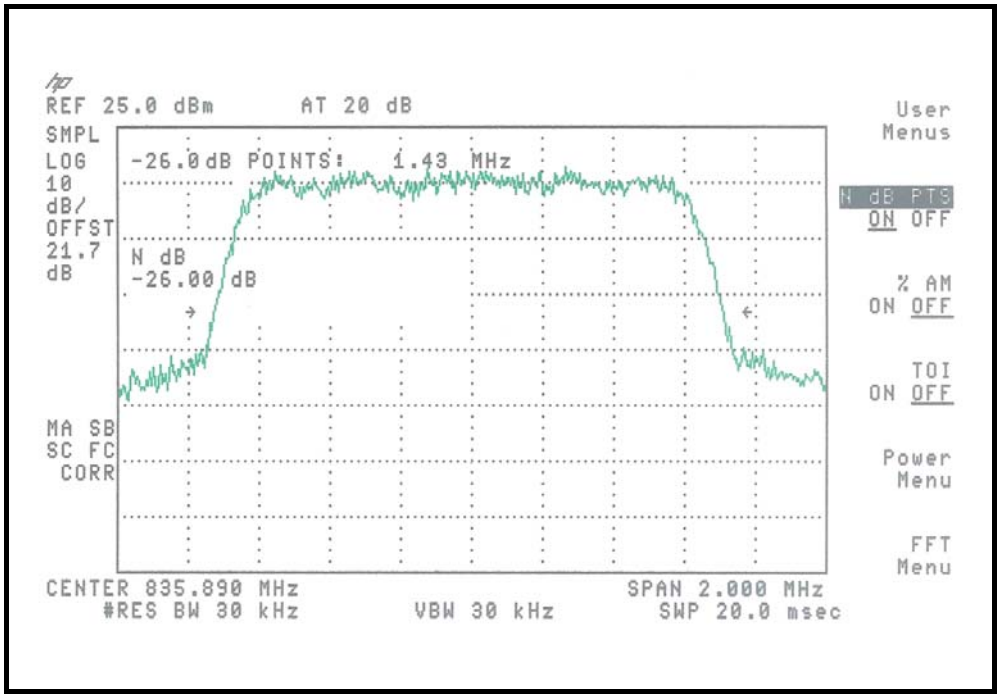


● **26dB Emission Bandwidth**

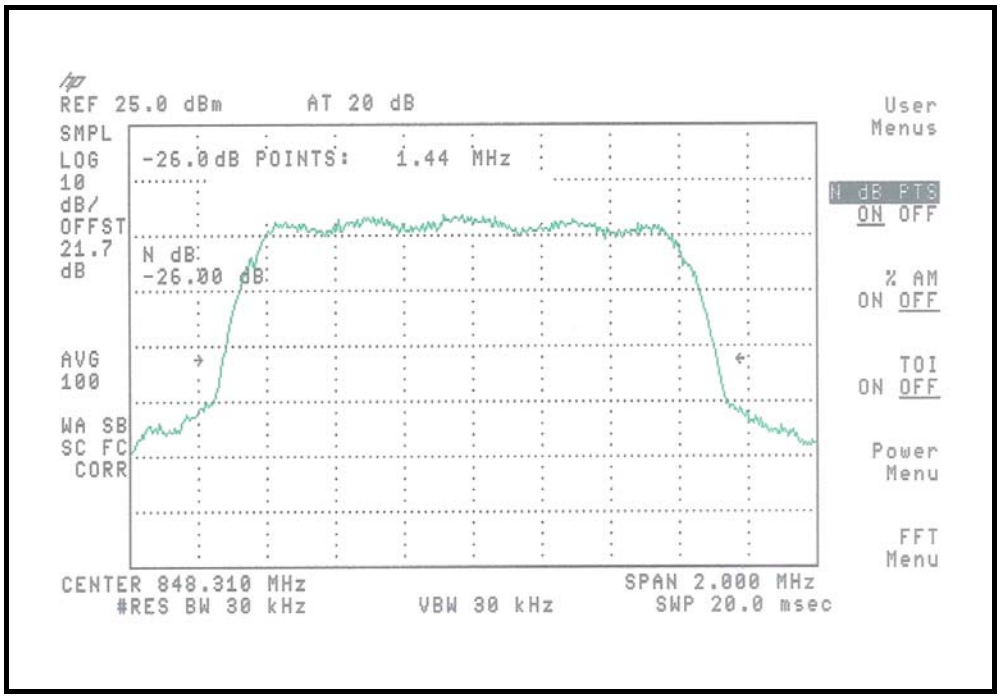
Low Channel



Middle Channel

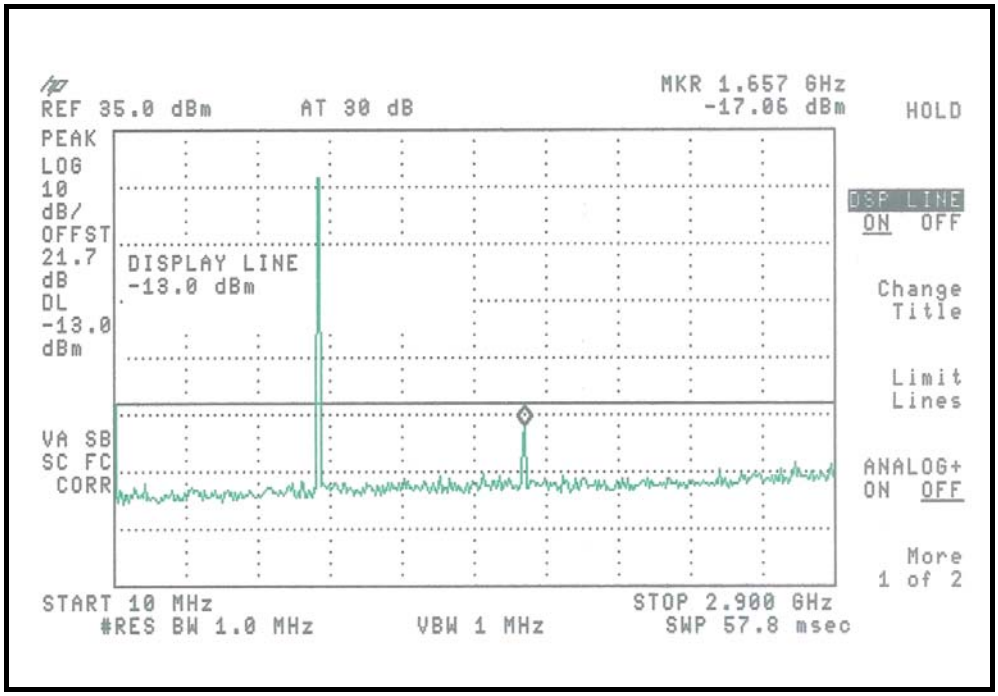


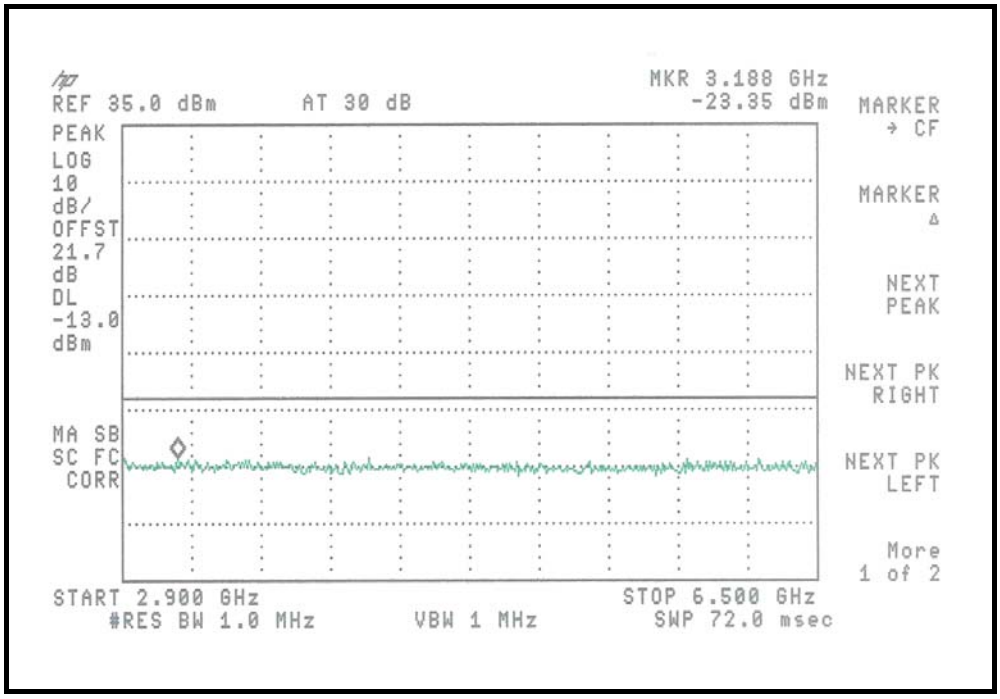
High Channel

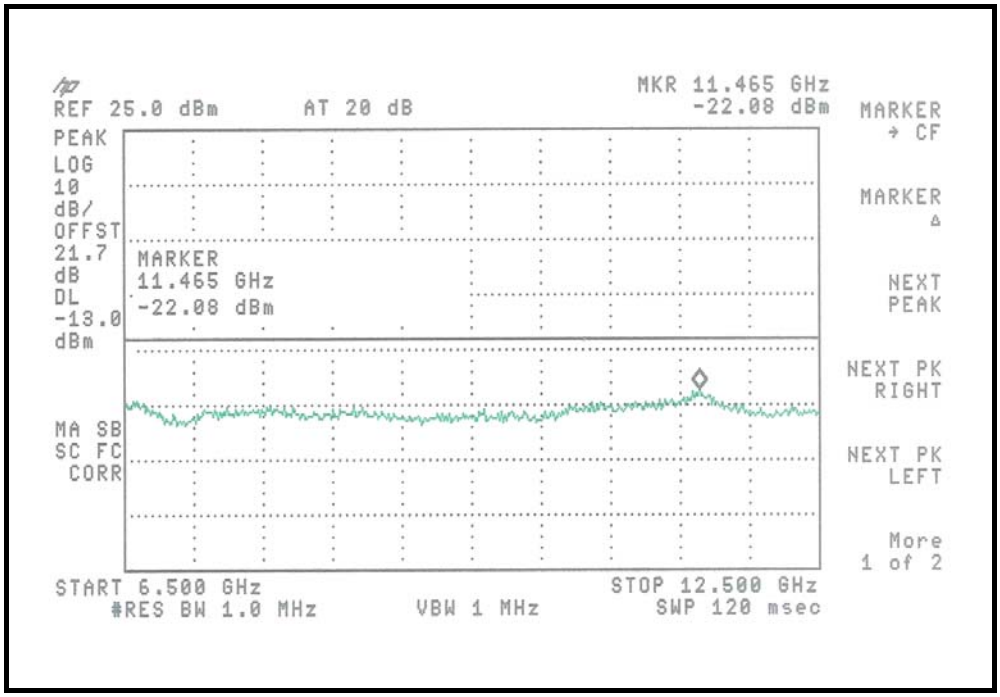


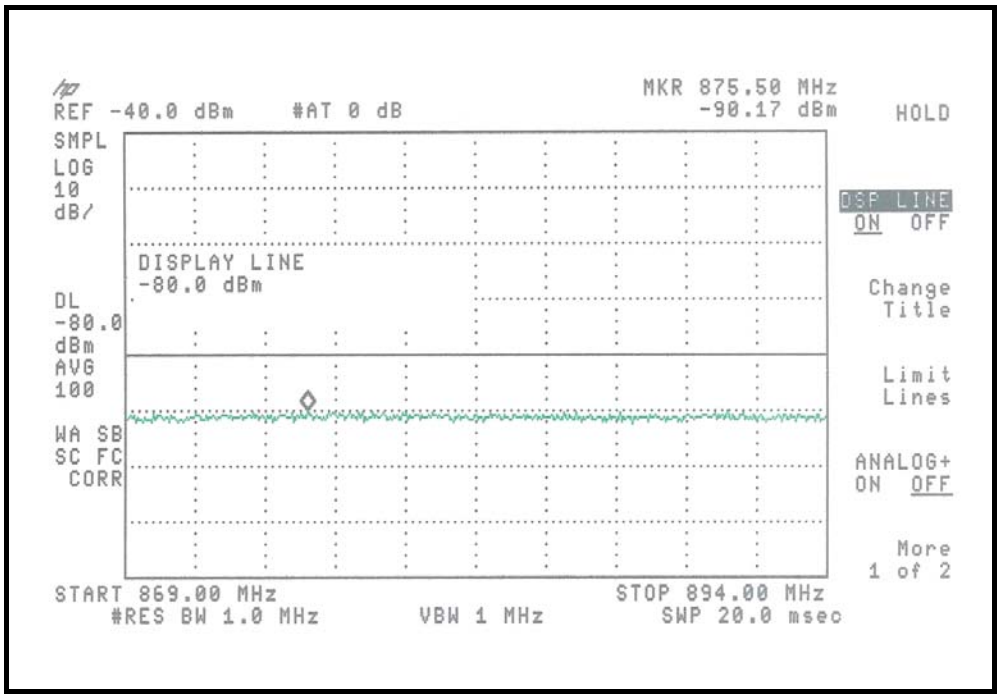
● **Spurious Emission at antenna Terminals**

Low Channel

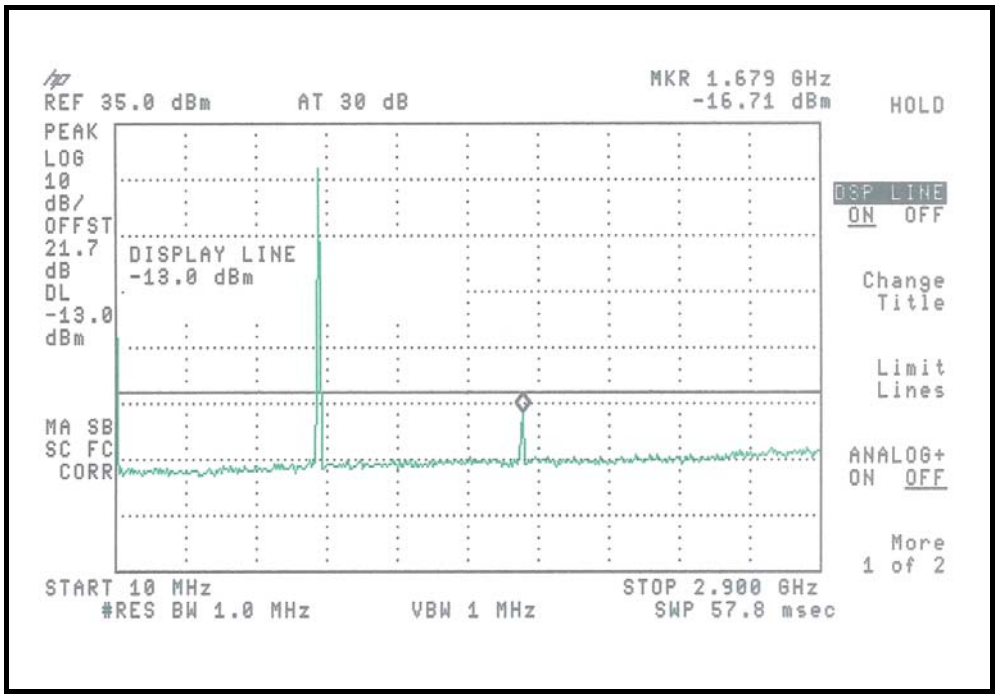


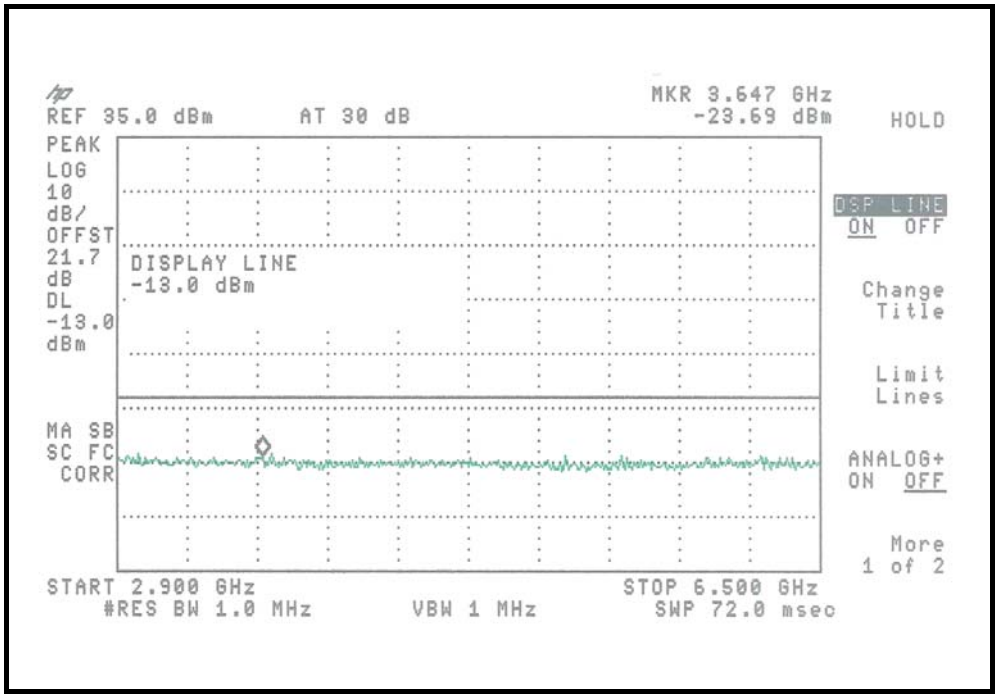


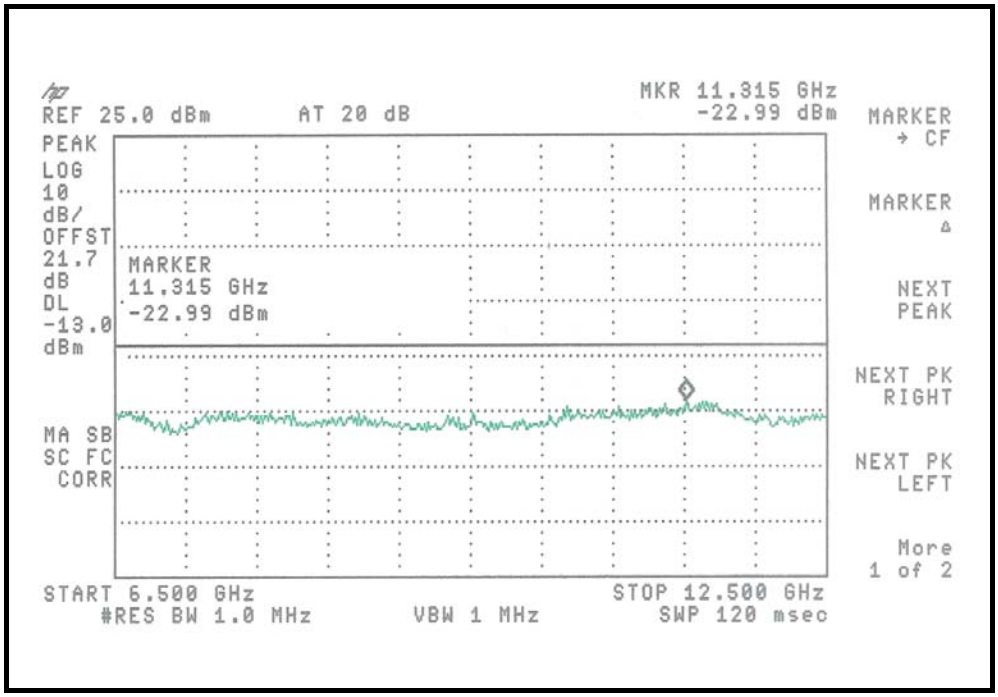

REF 25.0 dBm
AT 20 dB
MKR 11.465 GHz
-22.08 dBm
PEAK
LOG
10
dB/
OFFST
21.7
dB
DL
-13.0
dBm
MARKER
11.465 GHz
-22.08 dBm
MA SB
SC FC
CORR
MARKER
→ CF
MARKER
Δ
NEXT
PEAK
NEXT PK
RIGHT
NEXT PK
LEFT
More
1 of 2
START 6.500 GHz
#RES BW 1.0 MHz
VBW 1 MHz
STOP 12.500 GHz
SWP 120 msec

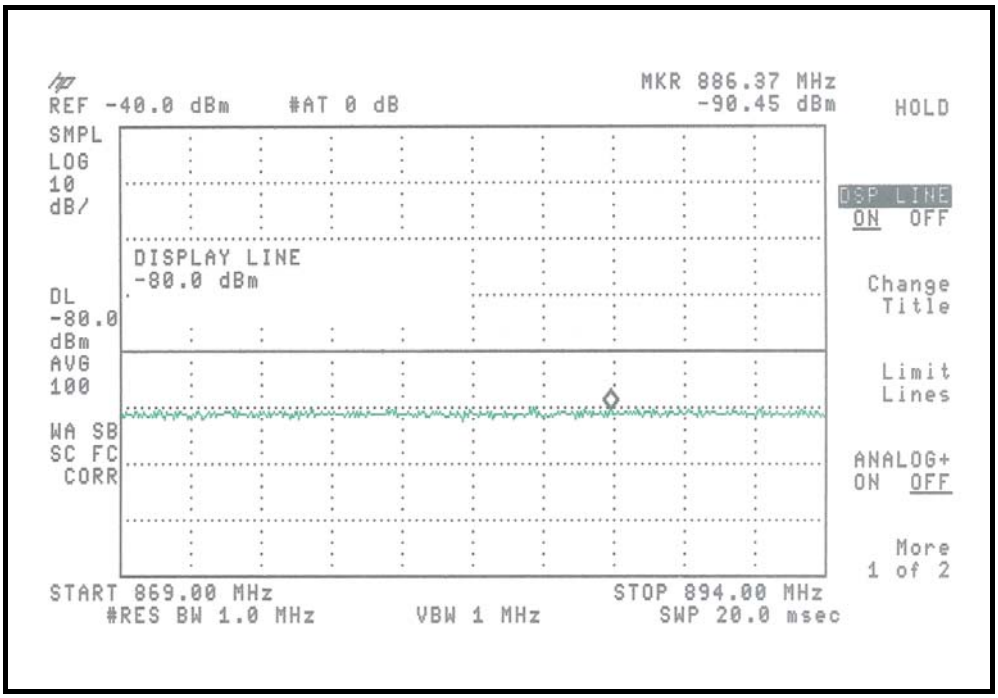

REF -40.0 dBm
#AT 0 dB
MKR 875.50 MHz
-90.17 dBm
HOLD
SMPL
LOG
10
dB/
DISPLAY LINE
-80.0 dBm
DL
-80.0
dBm
AVG
100
WA SB
SC FC
CORR
DSP LINE
ON OFF
Change
Title
Limit
Lines
ANALOG+
ON OFF
More
1 of 2
START 869.00 MHz
#RES BW 1.0 MHz
VBW 1 MHz
STOP 894.00 MHz
SWP 20.0 msec

Middle Channel

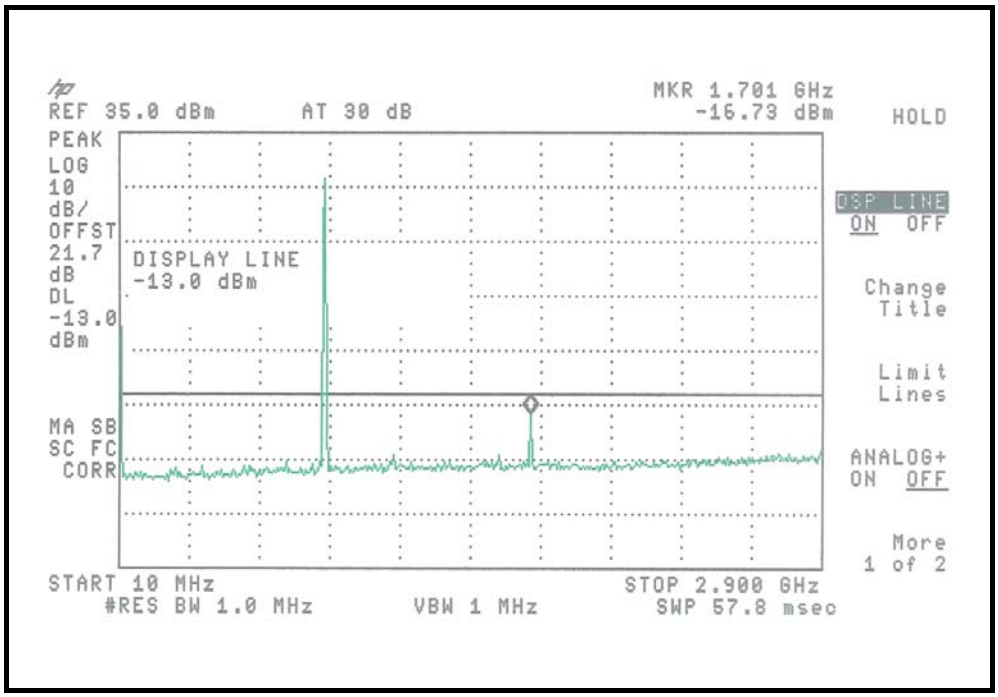


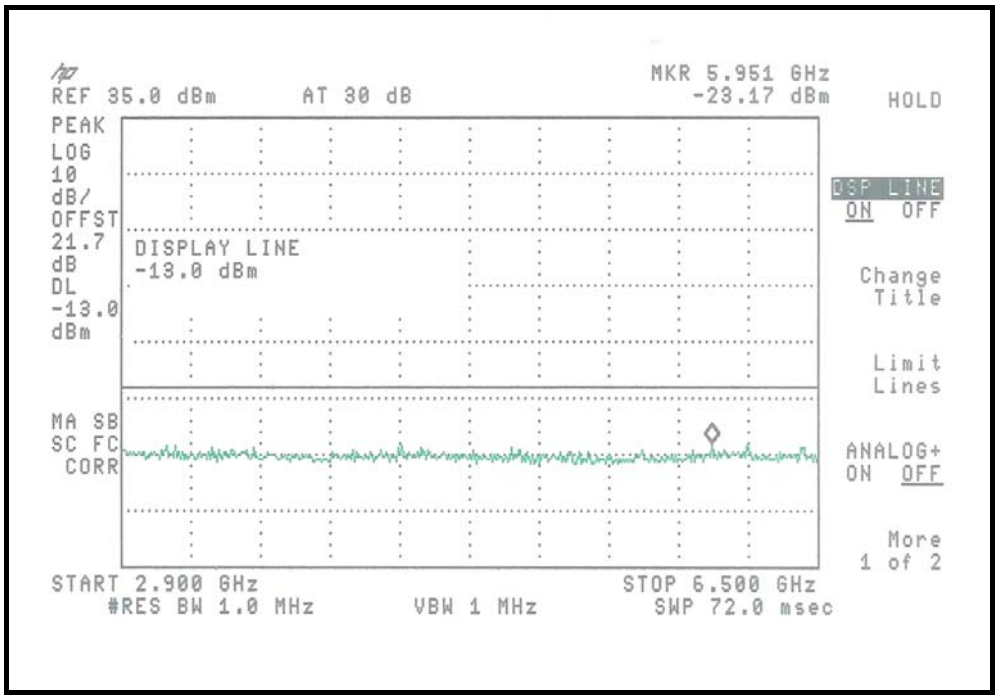


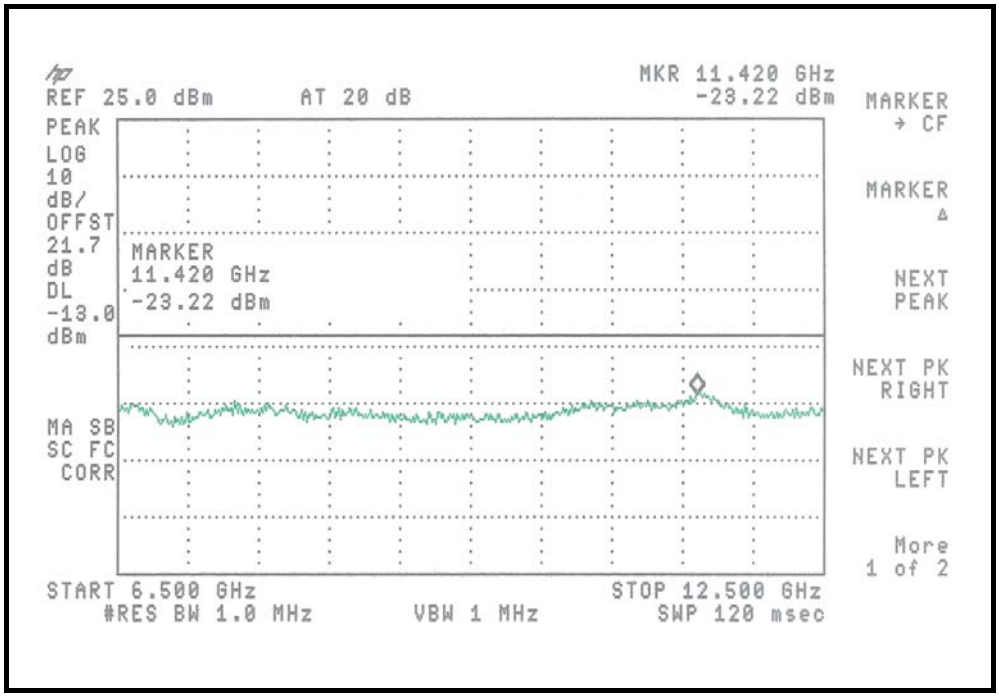

MKR 11.315 GHz
REF 25.0 dBm
AT 20 dB
-22.99 dBm
MARKER
→ CF
PEAK
LOG
10
dB/
OFFST
21.7
dB
DL
-13.0
dBm
MARKER
11.315 GHz
-22.99 dBm
MARKER
Δ
NEXT
PEAK
NEXT PK
RIGHT
MA SB
SC FC
CORR
NEXT PK
LEFT
More
1 of 2
START 6.500 GHz
#RES BW 1.0 MHz
VBW 1 MHz
STOP 12.500 GHz
SWP 120 msec

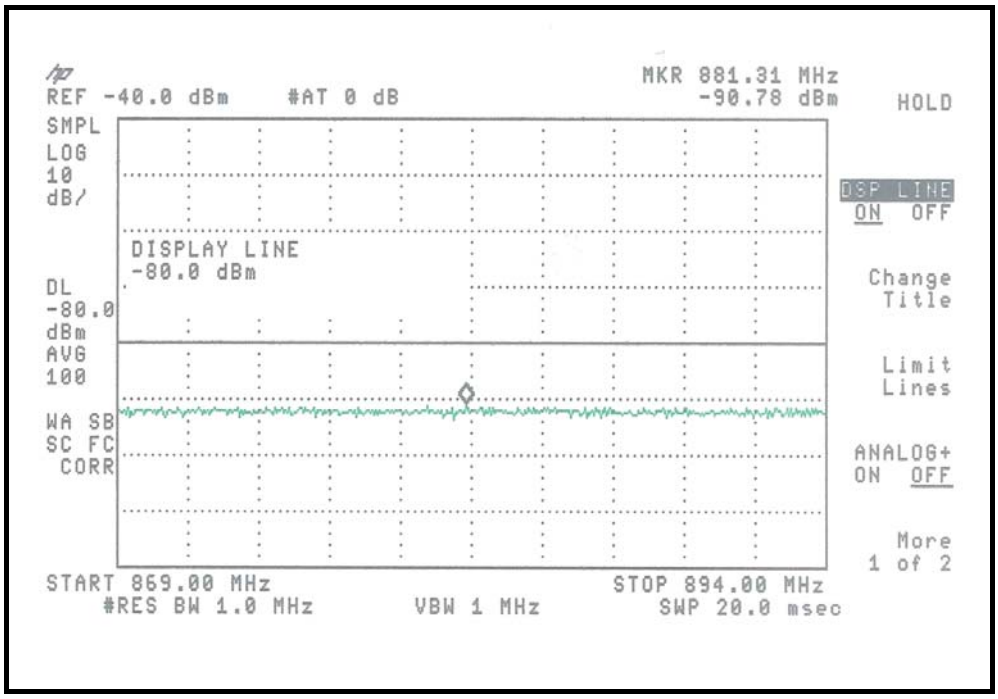

MKR 886.37 MHz
REF -40.0 dBm
#AT 0 dB
-90.45 dBm
HOLD
SMPL
LOG
10
dB/
DSP LINE
ON OFF
DISPLAY LINE
-80.0 dBm
Change
Title
DL
-80.0
dBm
AVG
100
Limit
Lines
WA SB
SC FC
CORR
ANALOG+
ON OFF
More
1 of 2
START 869.00 MHz
#RES BW 1.0 MHz
VBW 1 MHz
STOP 894.00 MHz
SWP 20.0 msec

High Channel



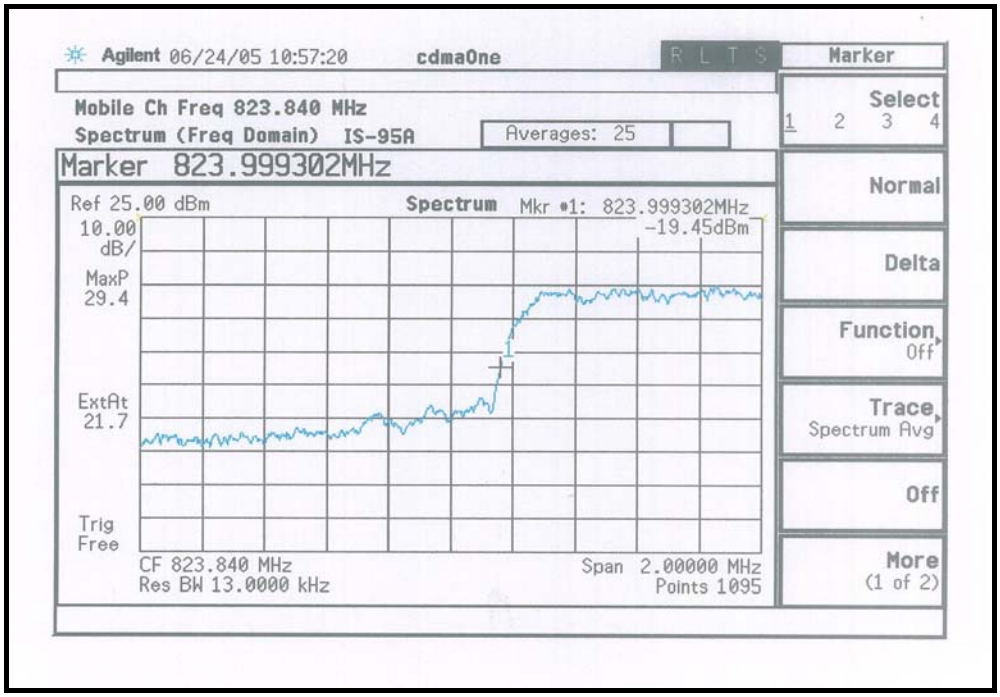


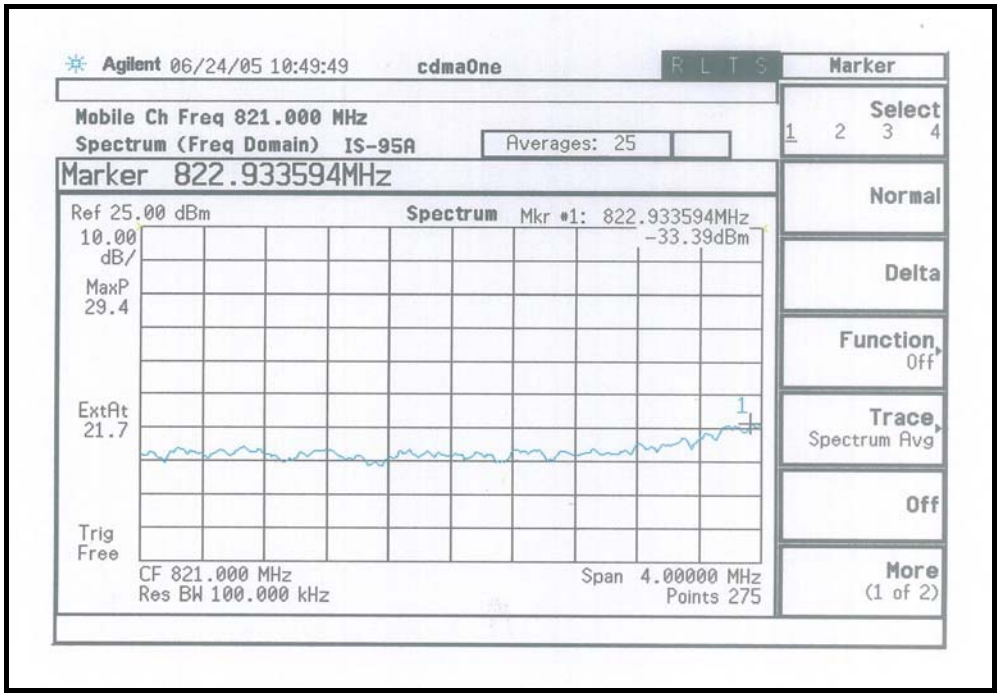

MKR 11.420 GHz
REF 25.0 dBm
AT 20 dB
-23.22 dBm
MARKER
→ CF
PEAK
LOG
10
dB/
OFFST
21.7
dB
DL
-13.0
dBm
MARKER
11.420 GHz
-23.22 dBm
MARKER
Δ
NEXT
PEAK
NEXT PK
RIGHT
MA SB
SC FC
CORR
NEXT PK
LEFT
More
1 of 2
START 6.500 GHz
#RES BW 1.0 MHz
VBW 1 MHz
STOP 12.500 GHz
SWP 120 msec


MKR 881.31 MHz
REF -40.0 dBm
#AT 0 dB
-90.78 dBm
HOLD
SMPL
LOG
10
dB/
DSP LINE
ON OFF
DISPLAY LINE
-80.0 dBm
DL
-80.0
dBm
Change
Title
AVG
100
Limit
Lines
WA SB
SC FC
CORR
ANALOG+
ON OFF
More
1 of 2
START 869.00 MHz
#RES BW 1.0 MHz
VBW 1 MHz
STOP 894.00 MHz
SWP 20.0 msec

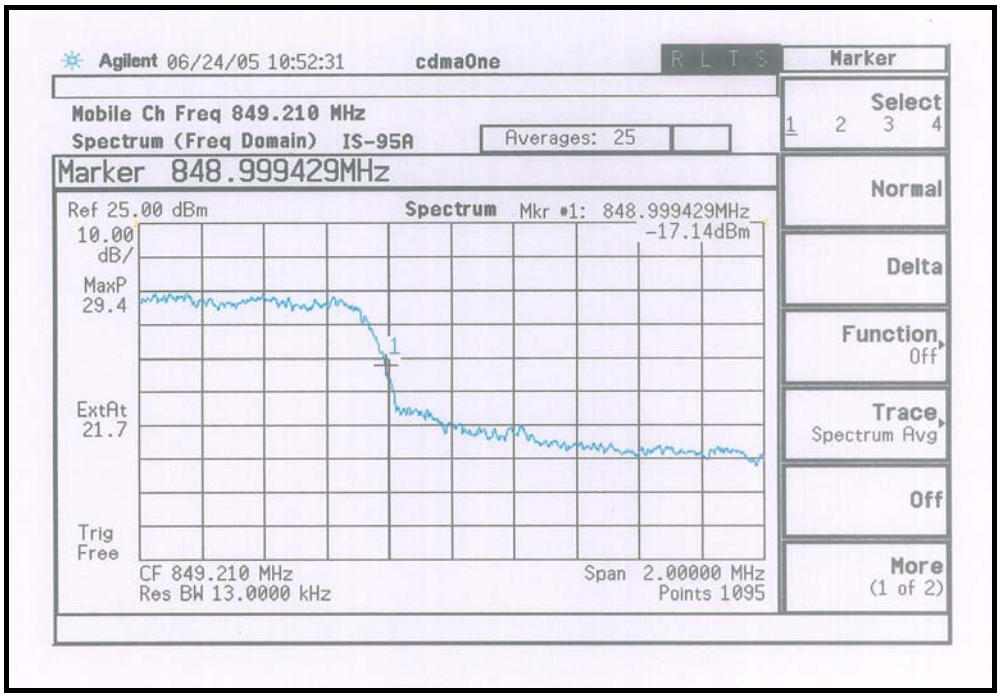
● **Band Edge**

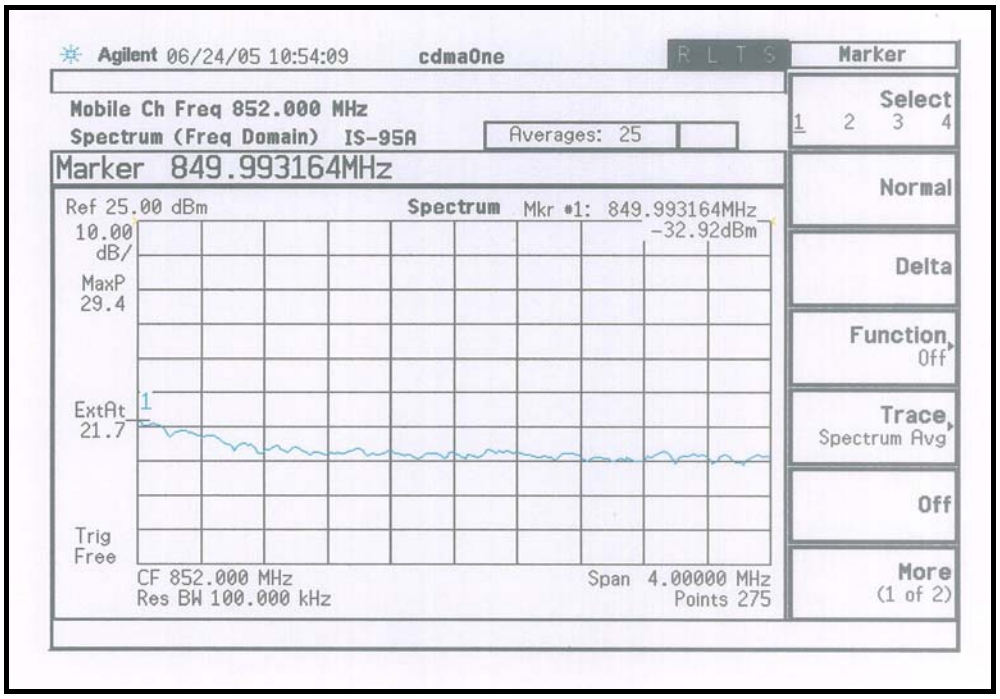
Low Channel





High Channel





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