ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LICENSED TRANSMITTER

Test Report No.	**: E11DR-017**
AGR No.	**: A11NA-047R**
Applicant	**: SOLiD Technologies, Inc.**
Address	**: 10,9th Floor, SOLiD Space, Pangyoyeok-ro 220, Bundang-gu, Seongnam-si, Gyeonggi-do, 463-400, Korea**
Manufacturer	**: SOLiD Technologies, Inc.**
Address	**: 10,9th Floor, SOLiD Space, Pangyoyeok-ro 220, Bundang-gu, Seongnam-si, Gyeonggi-do, 463-400, Korea**
Type of Equipment	**: REPEATER**
FCC ID.	**: W6U19P8OI90I**
Model Name	**: SC-MRU1900P-AC, SC-MRU1900P-DC and SC-ARU800I900I-AC, SC-ARU800I900I-DC**
Serial number	**: N/A**
Total page of Report	**: 208 pages (including this page)**
Date of Incoming	**: November 08, 2011**
Date of issue	**: December 07, 2011**

SUMMARY

The equipment complies with the regulation; **FCC Part 24 Subpart E and Part 90 Subpart I.**

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

Prepared by: Ki-Hong, Nam / Senior Engineer
EMC/RF Center
ONETECH Corp.

Approved by: Y. K. Kwon / Exe. Managing Director
EMC/RF Center
ONETECH Corp.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

CONTENTS

PAGE

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
E11DR-017	December 07, 2011	Initial Issue	All

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

1. VERIFICATION OF COMPLIANCE

APPLICANT	: SOLiD Technologies, Inc.
ADDRESS	: 10,9th Floor, SOLiD Space, Pangyoyeok-ro 220, Bundang-gu, Seongnam-si, Gyeonggi-do, 463-400, Korea
CONTACT PERSON	: Mr. Yong-Chul, Kim / Researcher
TELEPHONE NO	: +82-31-627-6292
FCC ID	: W6U19P8OI90I
MODEL NAME	: SC-MRU1900P-AC, SC-MRU1900P-DC and SC-ARU800I900I-AC, SC-ARU800I900I-DC
SERIAL NUMBER	: N/A
DATE	: December 07, 2011

EQUIPMENT CLASS	PCB - PCS Licensed Transmitter
EQUIPMENT DESCRIPTION	REPEATER
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.4: 2009, EIA/TIA-603-C
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC Part 24 Subpart E and Part 90 Subpart I
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 m open area test site

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
2.1046(a), 24.232, 90.205	RF Power Output at Antenna Terminals	Met the Limit / PASS
2.1047	Modulation Characteristics	PASS (See Note 1)
2.1049, 24.238, 90.210	Occupied Bandwidth, Bandwidth Limitation	Met the Limit / PASS
2.1049	Band Edge	Met the Limit / PASS
2.1051, 24.238(a), 90.210	Spurious Emissions at Antenna Terminals	Met the Limit / PASS
2.1053, 24.238(a), 90.210, 90.669, 90.691	Field strength of Spurious Radiation	Met the Limit / PASS
2.1055, 24.235, 90.213	Frequency Stability with Temperature variation	Met the requirement / PASS
2.1055, 24.235, 90.213	Frequency stability with primary voltage variation	Met the requirement / PASS
2.1093	RF Exposure	See Note 2

Note 1: The Equipment under Test (EUT) is a repeater which reproduces the modulated input signal, so the EUT meets the requirement

Note 2: End users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance, because the applicant does not provide an antenna for sale with the EUT

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original Grant

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in section 2.1.

2.5 Test Methodology

Radiated testing was performed according to the procedures in ANSI C63.4: 2009 & EIA/TIA-603-C: 2004 and was performed at a distance of 10 m and 3 m from EUT to the antenna.

2.6 Test Facility

The open area test site and conducted measurement facilities are located on at 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do, 464-862, Korea. Description details of test facilities were submitted to the Commission on August 21, 2008. (Registration Number: 340658)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

3. GENERAL INFORMATION

3.1 Product Description

The SOLiD Technologies, Inc., Models SC-MRU1900P-AC, SC-MRU1900P-DC and SC-ARU800I900I-AC, SC-ARU800I900I-DC (referred to as the EUT in this report) are REPEATER. The Model: SC-MRU1900P-AC and SC-MRU1900P-DC is called as MRU (Main Remote Unit) and the Model: SC-ARU800I900I-AC and SC-ARU800I900I-DC called ARU (Add on Remote Unit). The coverage frequency band for MRU is 1900P and ARU covers 800iDEN and 900iDEN band. The combination of MRU and ARU is called as ROU (Remote Optic Unit), and MRU and ARU connected with cable each other, but the RF output antenna port is located on MRU.

MRU receives TX optical signals from ODU(Optic Distribution Unit) or OEU(Optic Expansion Unit) and converts them into RF signals. The converted RF signals are amplified through High Power Amp in a corresponding Remote Unit, combined with Multiplexer and then radiated to the antenna port.

When receiving RX signals through the antenna port, this unit filters out-of-band signals in a corresponding Remote Unit and sends the results to Remote Optic Module to make electronic-optical conversion of them. After converted, the signals are sent to an upper device of ODU or OEU. MRU and ARU are composed of maximal dual band. The most difference of MRU and ARU is whether existence of optical module and RF antenna port is in it or not

The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE			REPEATER
LIST OF EACH OSC. or CRY. FREQ.(FREQ. >= 1 MHz)			8 MHz
EMISSION DESIGNATOR			F9W(CDMA, EVDO, WCDMA), DXW(TDMA), G7W(GSM, EDGE), GXW(iDEN), D7W(LTE)
OPERATING FREQUENCY	MRU	1900P	1 930 MHz ~ 1 995 MHz
	ARU	800iDEN	851 MHz ~ 869 MHz
		900iDEN	935 MHz ~ 940 MHz
CHANNEL SEPARATION			TDMA(30 kHz), GSM(200 kHz), EDGE(200 kHz), CDMA(1.25 MHz) EVDO(1.25 MHz), WCDMA(5 MHz), iDEN(25 kHz), LTE(5 MHz)
RF OUTPUT POWER			26 dBm (800iDEN and 900iDEN), 31 dBm (1900P)
DC VOLTAGE & CURRENT INTO FINAL AMPLIFIER	MRU	1900P	25 V, 0.76 A
	ARU	800iDEN	25 V, 0.56 A
		900iDEN	25 V, 0.56 A
ELECTRICAL RATING			AC 120 V and DC -48 V
OPERATING TEMPERATURE			-10 °C ~ 50 °C

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

3.2 Alternative type(s)/model(s); also covered by this test report.

-. None

3.3 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	FCC ID	Description	Connected to
SC-MRU1900P-AC, SC-MRU1900P-DC and SC-ARU800I900I-AC, SC-ARU800I900I-DC	SOLiD Technologies	W6U19P8OI90I	REPEATER (EUT)	Signal Generator
SMJ100A	Rohde & Schwarz	N/A	Vector Signal Generator	EUT
PAS60-12	KIKUSUI	N/A	DC Power Supply	EUT
PAD60-35LA	KIKUSUI	N/A	DC Power Supply	EUT

3.4 Mode of operation during the test

The EUT was received signal form signal generator and then each modulation was configured for maximum signal gain and bandwidth. Also the EUT supports dual band, Cellular, PCS and LTE band, so the EUT was tested at each band. The EUT was operated in a manner representative of the typical usage of the equipment. During all testing, system components were manipulated within the confines of typical usage to maximize each emission. The applicant does not supply antenna(s) with the system, so the dummy loads were connected to the RF output ports on the EUT for radiated spurious emission testing.

For the above testing, following frequencies per channel were selected for each modulation.

1. Model No: MRU(1900P)

Modulation	Channel	Frequency	Modulation	Channel	Frequency	Modulation	Channel	Frequency
TDMA	Low	1 930.03	GSM/ EDGD	Low	1 930.20	CDMA/ 1xEVDO	Low	1 931.25
	Middle	1 962.50		Middle	1 962.60		Middle	1 967.50
	High	1 994.97		High	1 994.80		High	1 993.75
WCDMA	Low	1 932.40	LTE	Low	1 932.50	N/A		
	Middle	1 962.40		Middle	1 962.50			
	High	1 992.60		High	1 992.50			

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

2. Model No: ARU(800 iDEN)

Modulation	Channel	Frequency	Modulation	Channel	Frequency
iDEN	Low	851.025 0	LTE	Low	853.500 0
	Middle	860.000 0		Middle	860.000 0
	High	868.975 0		High	866.500 0

3. Model No: ARU(900 iDEN)

Modulation	Channel	Frequency	Modulation	Channel	Frequency
iDEN	Low	935.0250	LTE	1 Channel	937.5000
	Middle	937.5000			
	High	939.9750			

4. EUT MODIFICATIONS

-. None

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

5. RF POWER OUTPUT at ANTENNA TERMINAL

5.1 Operating environment

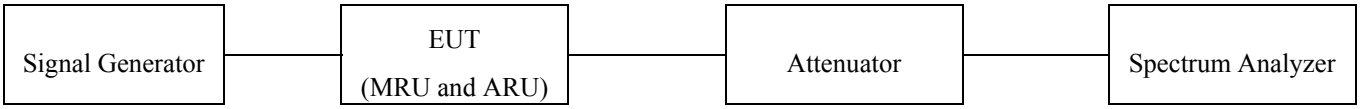
Temperature : (23 ~ 25) °C

Relative humidity : (49 ~ 50) % R.H.

5.2 Test set-up

The RF signal from the signal generator(s) was injected to the EUT and the amplified RF signal at the output of the EUT was connected to the power meter or spectrum analyzer. The test was performed at three frequencies (low, middle, and high channels) at each band using all applicable modulation.

RF output power was measured by channel power measurement function of the spectrum analyzer with rms detector mode.



5.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	E4432B	HP	Signal Generator	US38440950	June 10, 2011 (1Y)
■ -	SMJ100A	R/S	Signal Generator	101038	Feb. 01, 2011 (1Y)
■ -	FSP	R/S	Spectrum Analyzer	100017	Mar. 15, 2011 (1Y)
□ -	8564E	HP	Spectrum Analyzer	3650A00756	Jun. 10, 2011 (1Y)

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

5.4 Test data

5.4.1 Test Result for Part 24 E (1900P)

-. Test Date : November 14, 2011

-. Measurement Function : Channel Power

-. Detector Mode : RMS detector

-. Test Result : Pass

Modulation	Channel	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
TDMA	Low	1 930.03	-19.70	31.00	1.258 925	500.00
	Middle	1 962.50	-19.60	31.00		
	High	1 994.97	-19.70	31.00		
GSM	Low	1 930.20	-19.50	31.00	1.258 925	
	Middle	1 962.60	-19.70	31.00		
	High	1 994.80	-19.60	31.00		
EDGE	Low	1 930.20	-19.80	31.00	1.258 925	
	Middle	1 962.60	-19.70	31.00		
	High	1 994.80	-19.70	31.00		
CDMA	Low	1 931.25	-19.70	31.00	1.258 925	
	Middle	1 967.50	-19.90	31.00		
	High	1 993.75	-19.80	31.00		
1xEVDO	Low	1 931.25	-19.70	31.00	1.258 925	
	Middle	1 967.50	-19.50	31.00		
	High	1 993.75	-19.50	31.00		
WCDMA	Low	1 932.40	-19.80	31.00	1.258 925	
	Middle	1 962.40	-19.60	31.00		
	High	1 992.60	-19.50	31.00		
LTE	Low	1 932.50	-19.70	31.00	1.258 925	500.00
	Middle	1 962.50	-19.50	31.00		
	High	1 992.50	-19.80	31.00		

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

5.4.2 Test Result for Part 90 I (800iDEN)

-. Test Date : November 08, 2011

-. Measurement Function : Channel Power

-. Detector Mode : RMS detector

-. Test Result : Pass

Modulation	Channel	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
iDEN	Low	851.025 0	-19.80	26.00	0.398 107	100.00
	Middle	860.000 0	-19.60	26.00		
	High	868.975 0	-19.50	26.00		
LTE	Low	853.500 0	-19.70	26.00	0.398 107	
	Middle	860.000 0	-19.80	26.00		
	High	866.500 0	-19.80	26.00		

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

5.4.3 Test Result for Part 90 I (900iDEN)

-. Test Date : November 10, 2011

-. Measurement Function : Channel Power

-. Detector Mode : RMS detector

-. Test Result : Pass

Modulation	Channel	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
iDEN	Low	935.0250	-19.50	26.00	0.398 107	100.00
	Middle	937.5000	-19.60	26.00		
	High	939.9750	-19.50	26.00		
LTE		937.5000	-19.60	26.00	0.398 107	

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

6. OCCUPIED BANDWIDTH

6.1 Operating environment

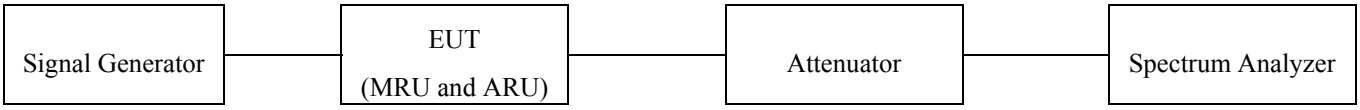
Temperature : (23 ~ 25) °C

Relative humidity : (49 ~ 50) % R.H.

6.2 Test set-up

The RF signal from the signal generator(s) was injected to the EUT and the amplified RF signal at the output of the EUT was connected to the power meter or spectrum analyzer. The test was performed at three frequencies (low, middle, and high channels) at each band using all applicable modulation.

For the testing, the RBW was set to 1 % to 3 % of the - 26 dB bandwidth. The VBW is set to 3 times the RBW and sweep time is coupled.



6.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	8564E	HP	Spectrum Analyzer	3650A00756	Jun. 10, 2011 (1Y)
■ -	E4432B	HP	Signal Generator	US38440950	Jun. 10, 2011 (1Y)
■ -	SMJ100A	R/S	Signal Generator	101038	Feb. 01, 2011 (1Y)
□ -	FSP	R/S	Spectrum Analyzer	100017	Mar. 15, 2011 (1Y)

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

6.4 Test data

6.4.1 Test Result for Part 24 E (1900P)

-. Test Date : November 14, 2011

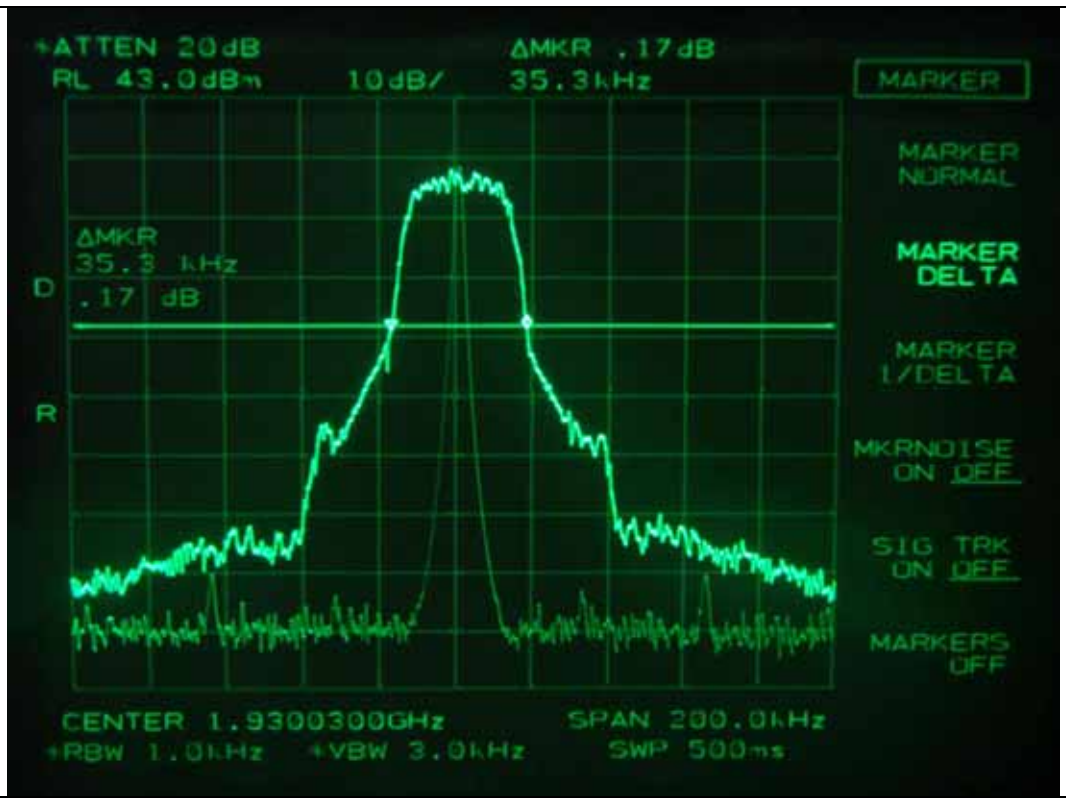
-. Test Result : Pass

Modulation	Channel	26 dB Bandwidth (kHz)	99 % Occupied Bandwidth (kHz)
TDMA	Low	35.30	29.33
	Middle	35.30	29.33
	High	35.30	29.00
GSM	Low	348.00	255.00
	Middle	348.00	255.00
	High	348.00	255.00
EDGE	Low	335.00	255.00
	Middle	335.00	255.00
	High	335.00	255.00
CDMA	Low	1 592.00	1 342.00
	Middle	1 592.00	1 342.00
	High	1 592.00	1 342.00
1xEVDO	Low	1 592.00	1 342.00
	Middle	1 592.00	1 342.00
	High	1 592.00	1 333.00
WCDMA	Low	4 700.00	4 150.00
	Middle	4 700.00	4 200.00
	High	4 700.00	4 167.00
	Low	5 020.00	4 533.00
	Middle	5 020.00	4 533.00
	High	5 020.00	4 517.00

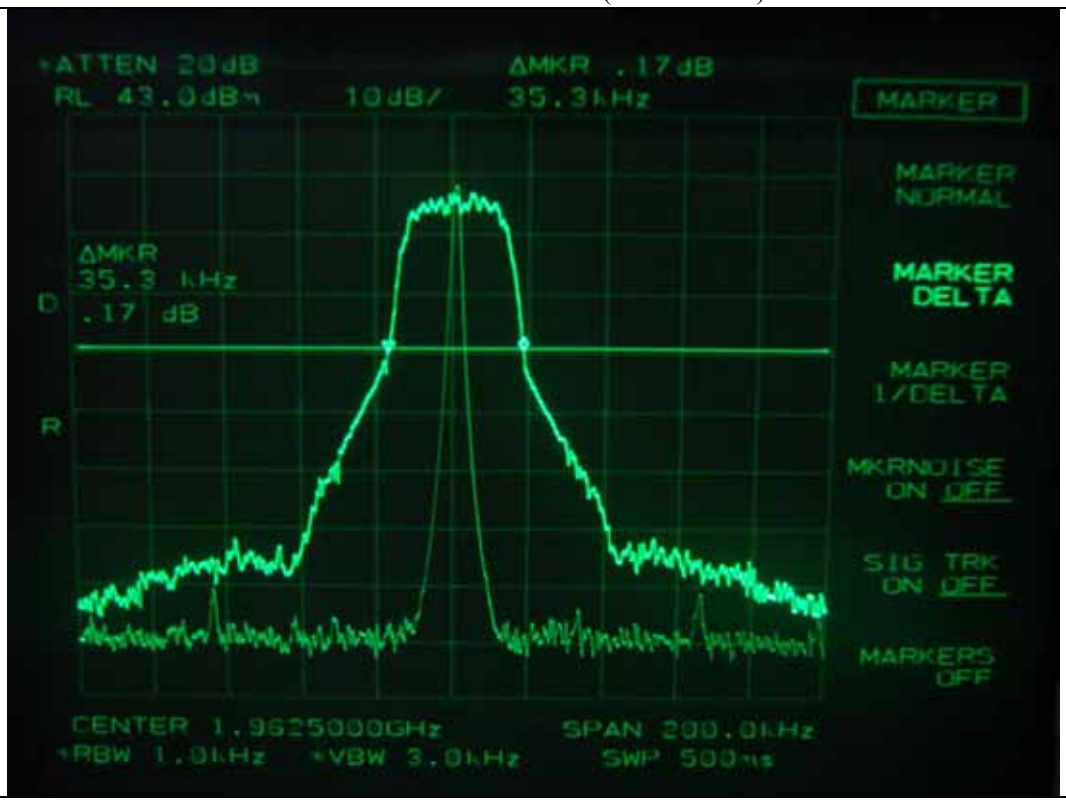
Remark: According to above result, the carrier frequency shall be within the frequency block edges.

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

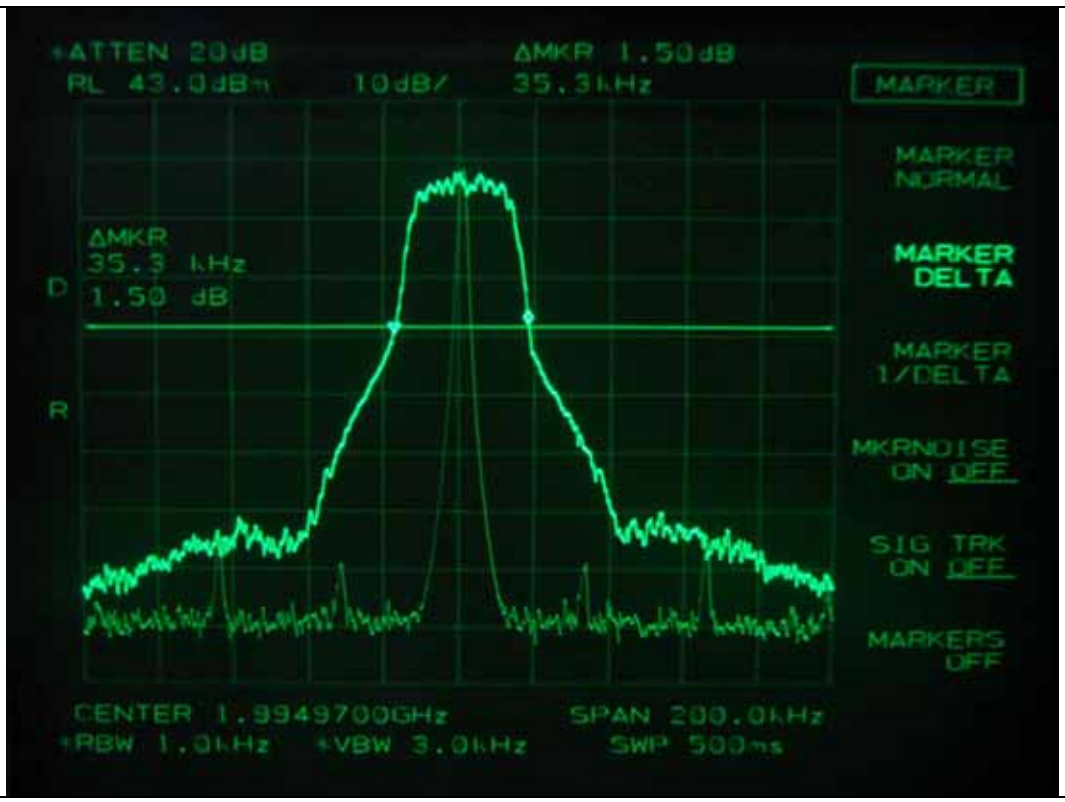


TDMA – 26 dB Bandwidth (Low Channel)



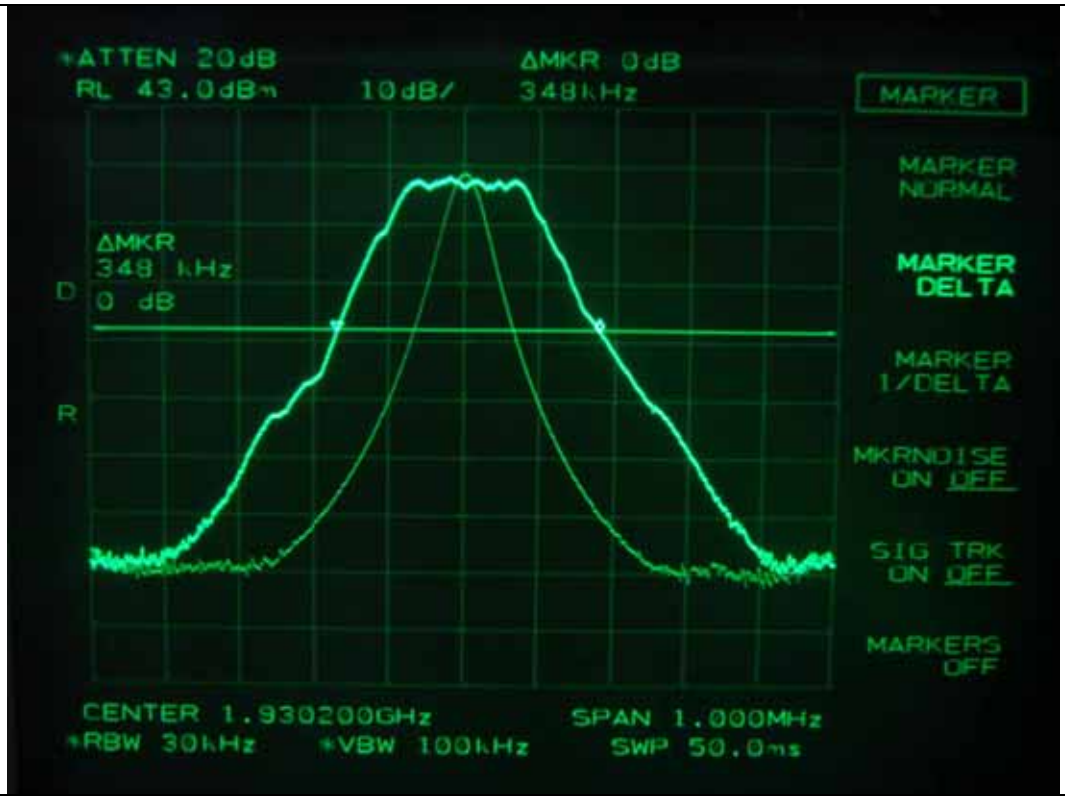
TDMA – 26 dB Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

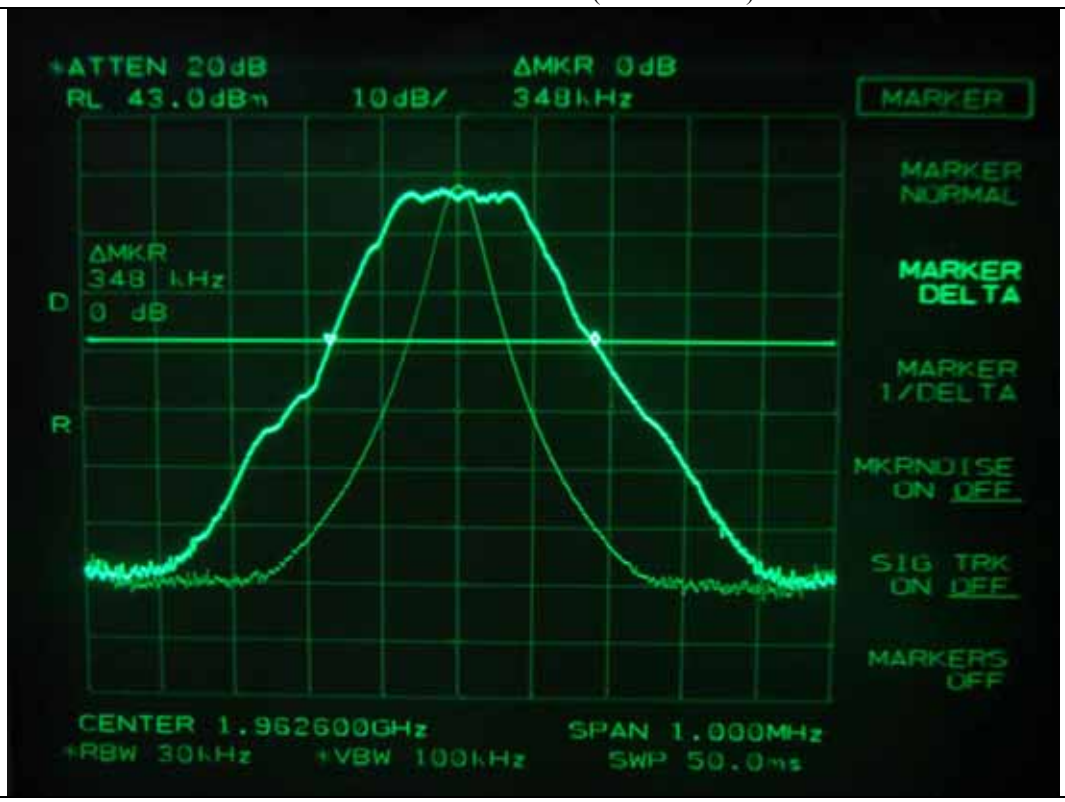


TDMA – 26 dB Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

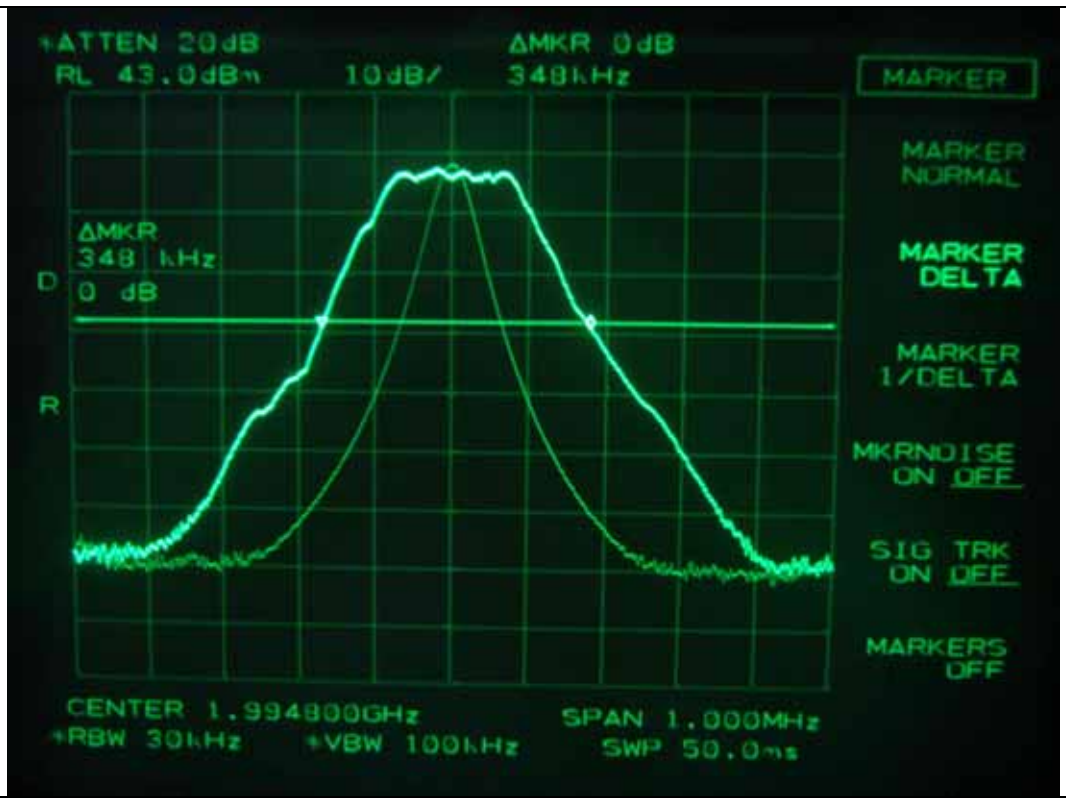


GSM – 26 dB Bandwidth (Low Channel)



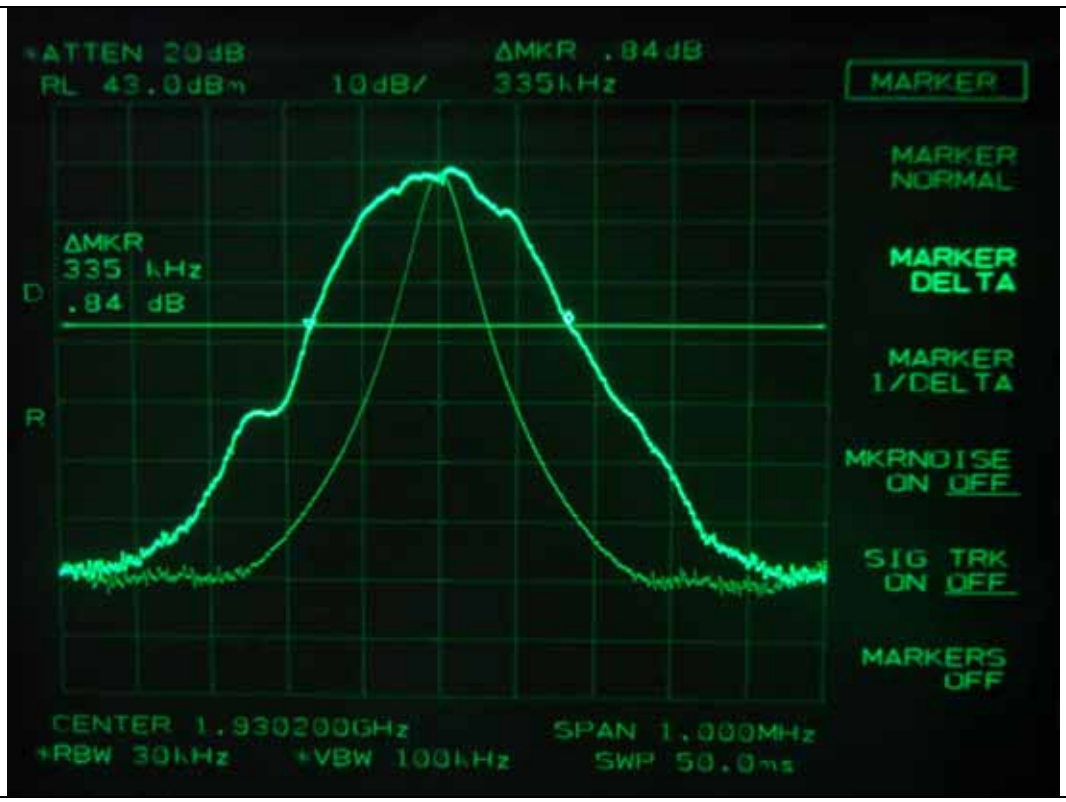
GSM – 26 dB Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

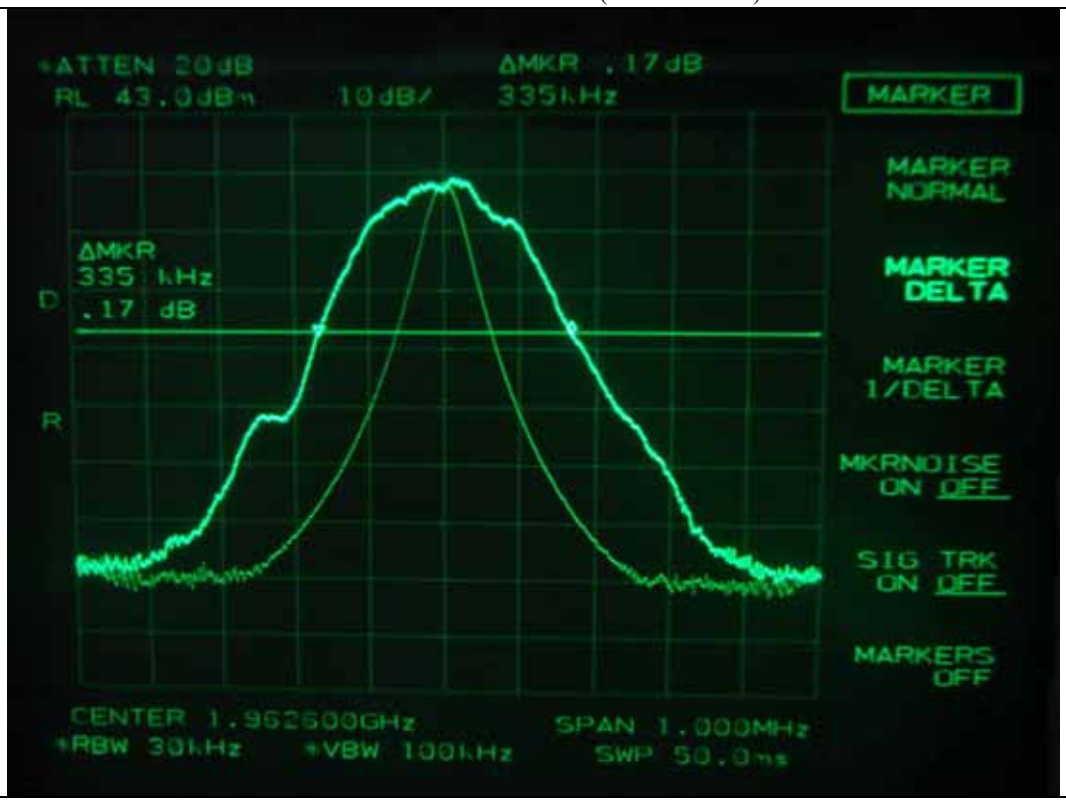


GSM – 26 dB Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

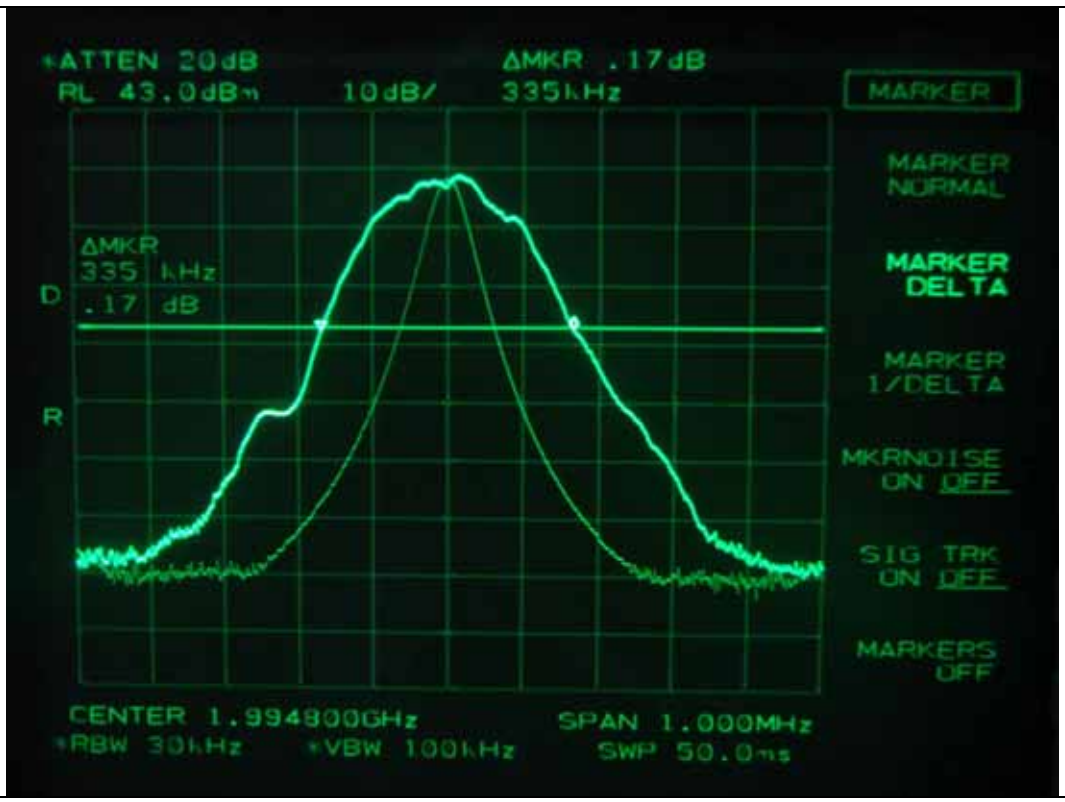


EDGE – 26 dB Bandwidth (Low Channel)



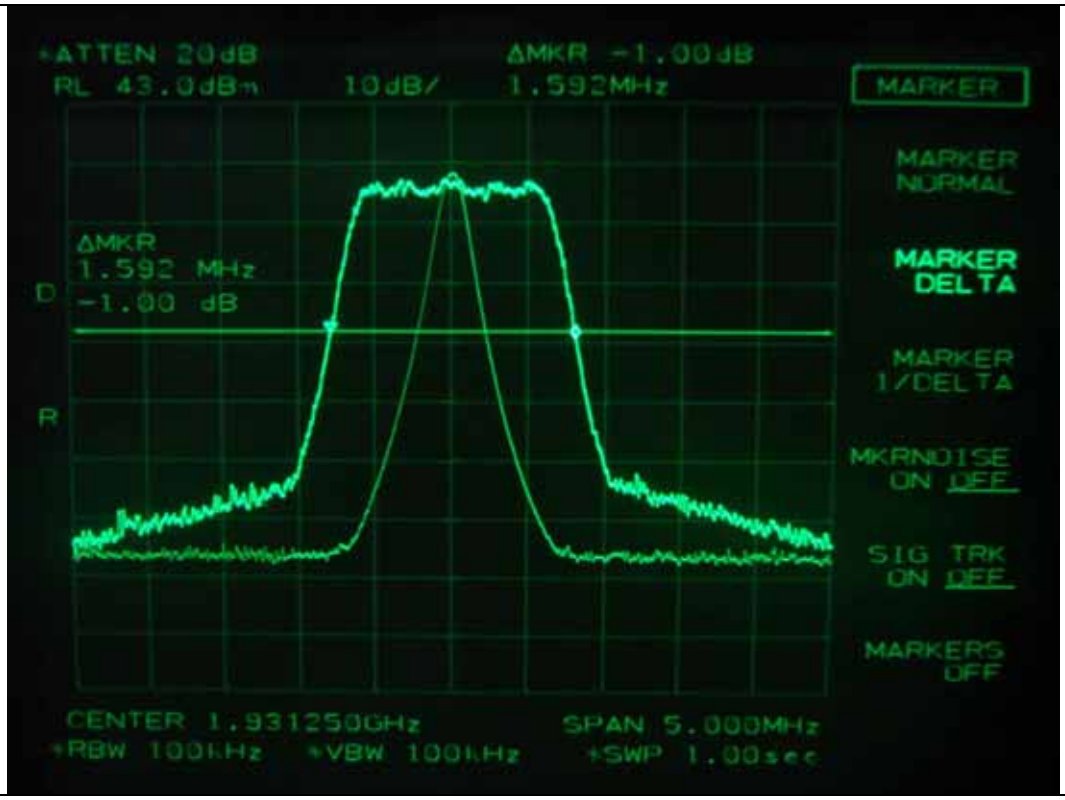
EDGE – 26 dB Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

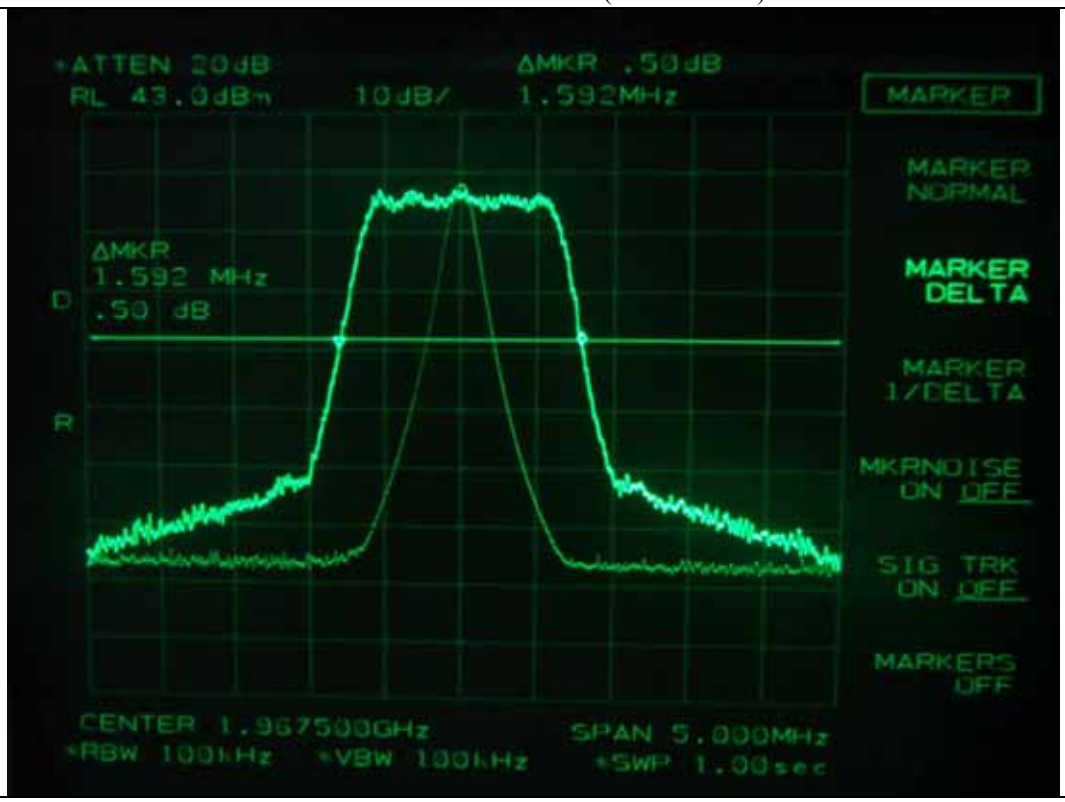


EDGE – 26 dB Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

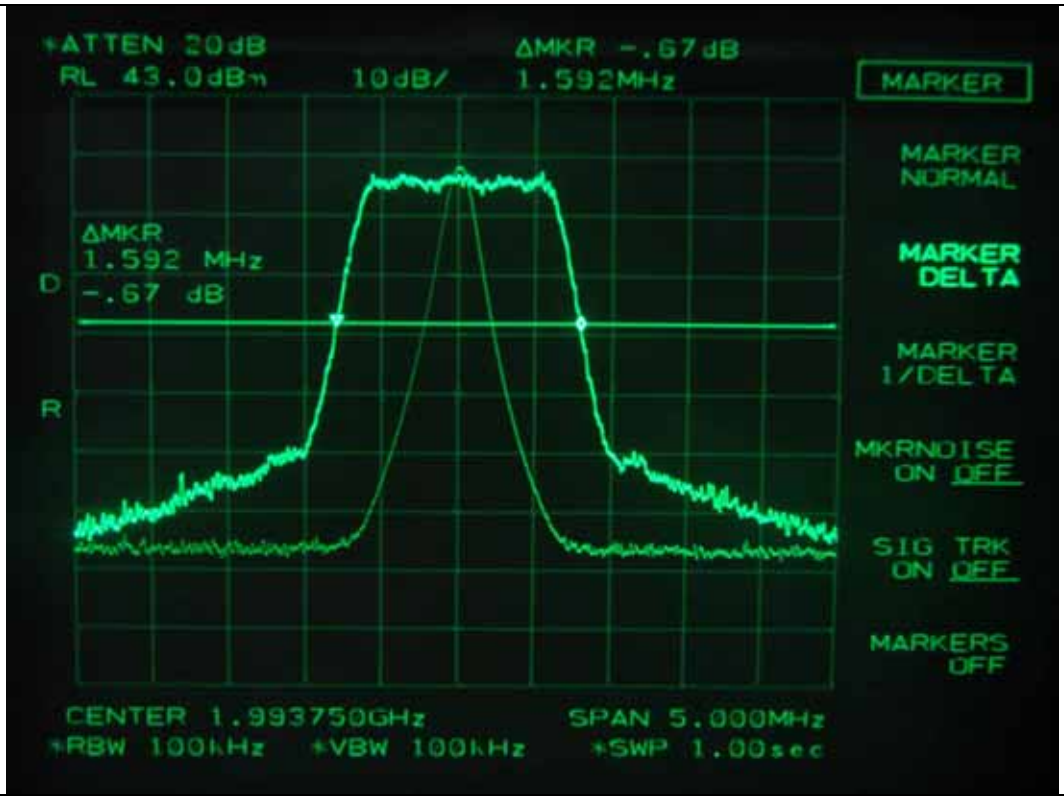


CDMA – 26 dB Bandwidth (Low Channel)



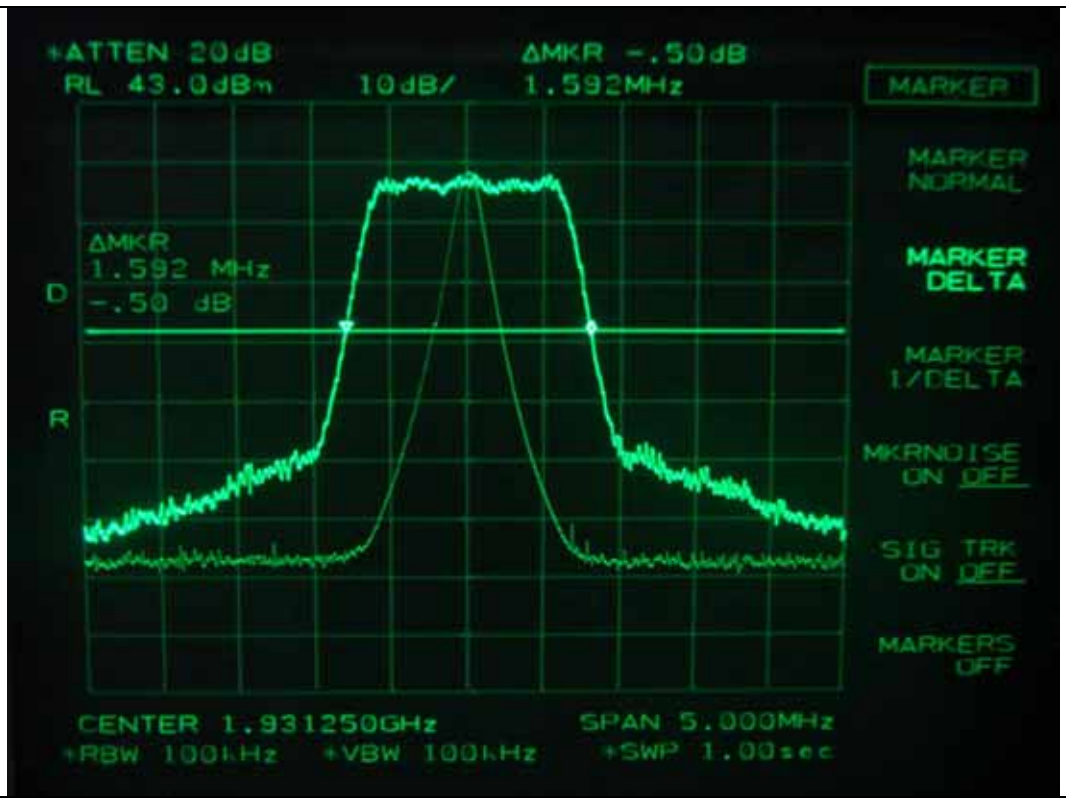
CDMA – 26 dB Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

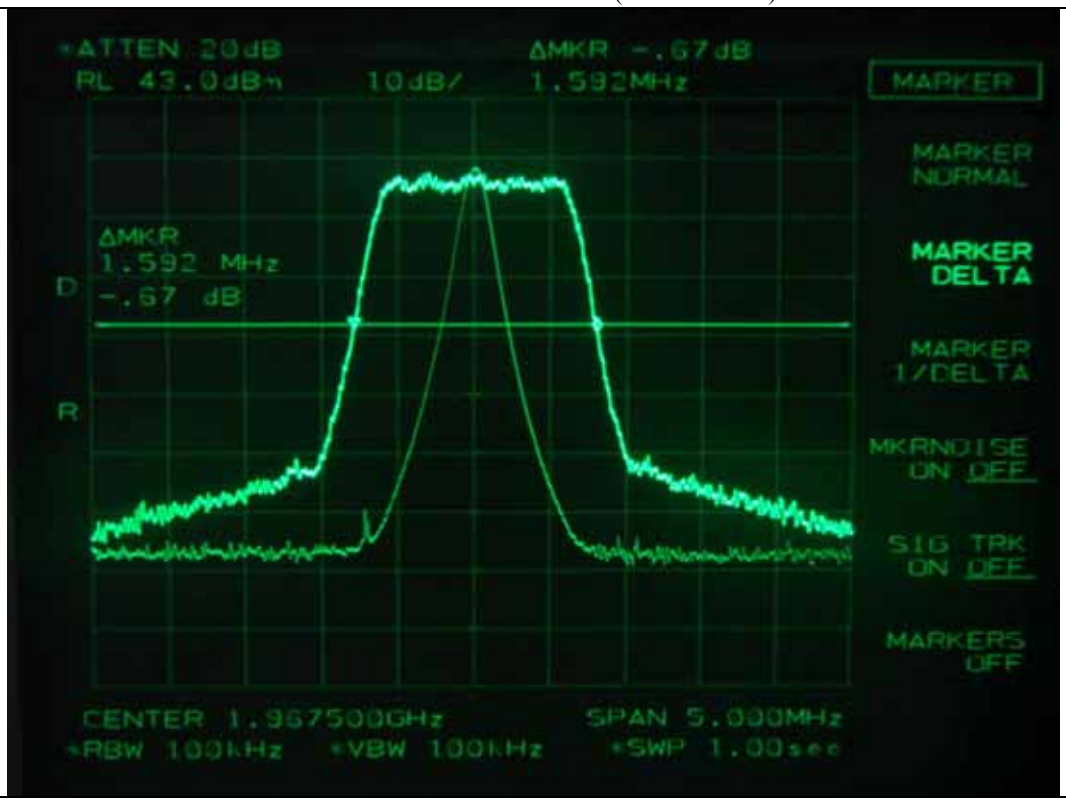


CDMA – 26 dB Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

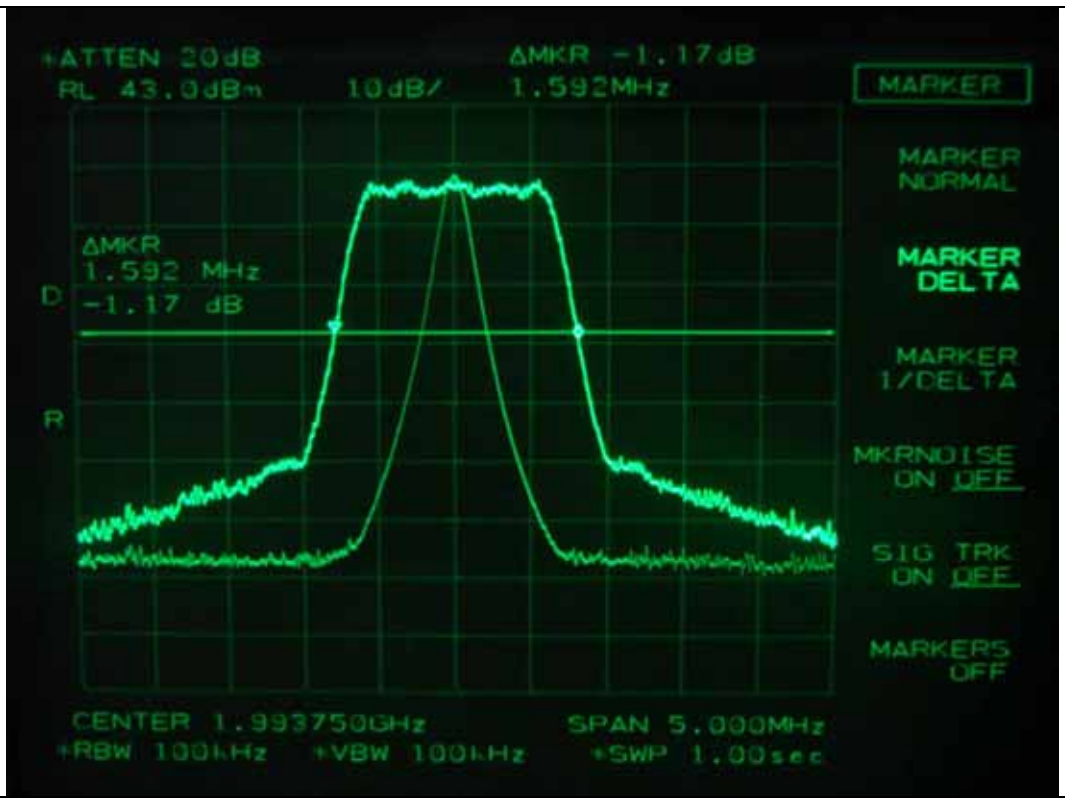


1xEVDO – 26 dB Bandwidth (Low Channel)



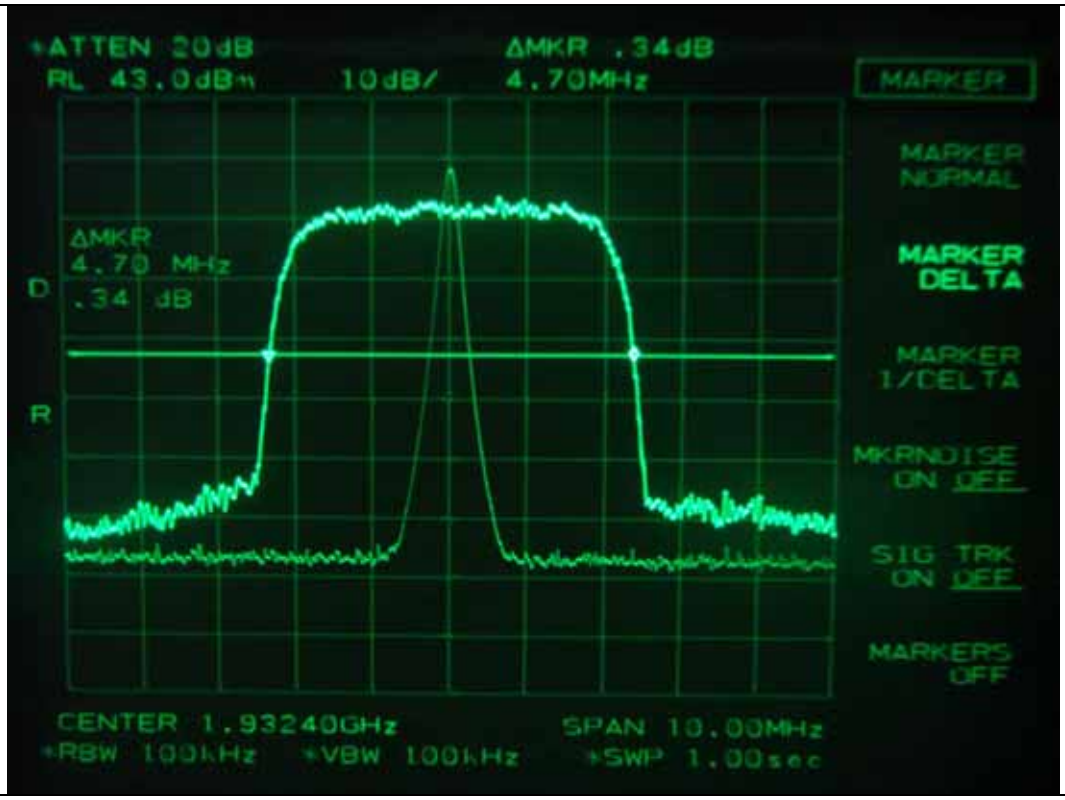
1xEVDO – 26 dB Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

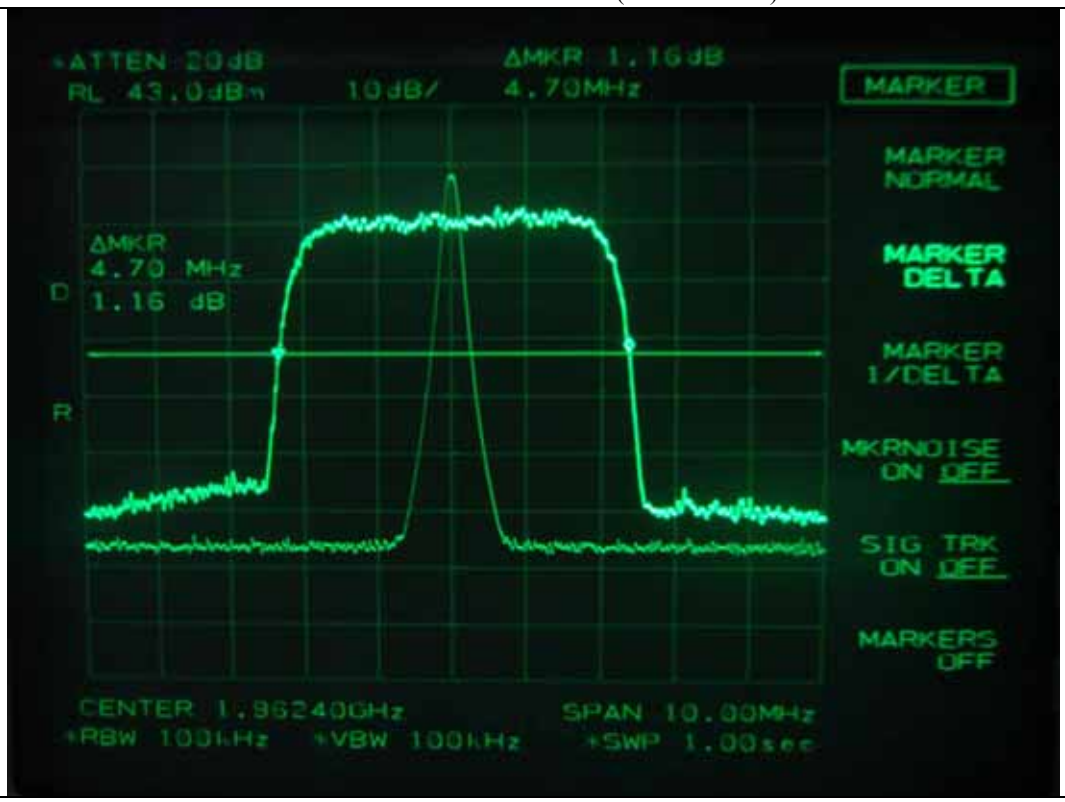


1xEVDO – 26 dB Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

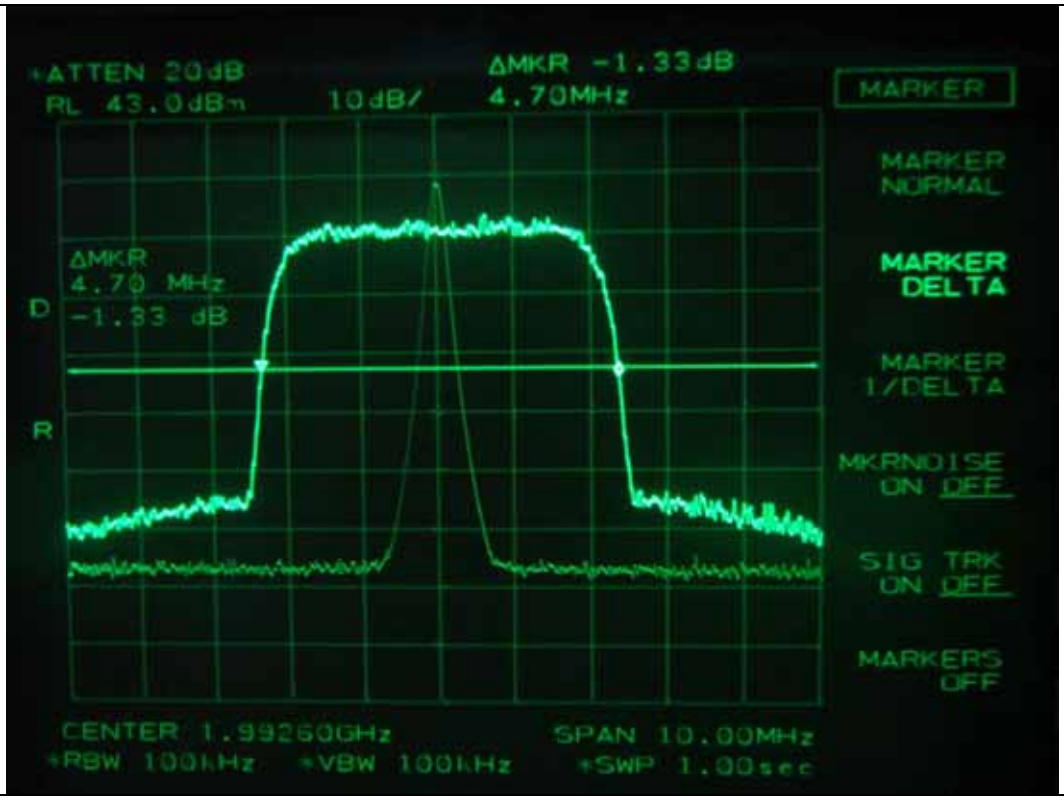


WCDMA – 26 dB Bandwidth (Low Channel)



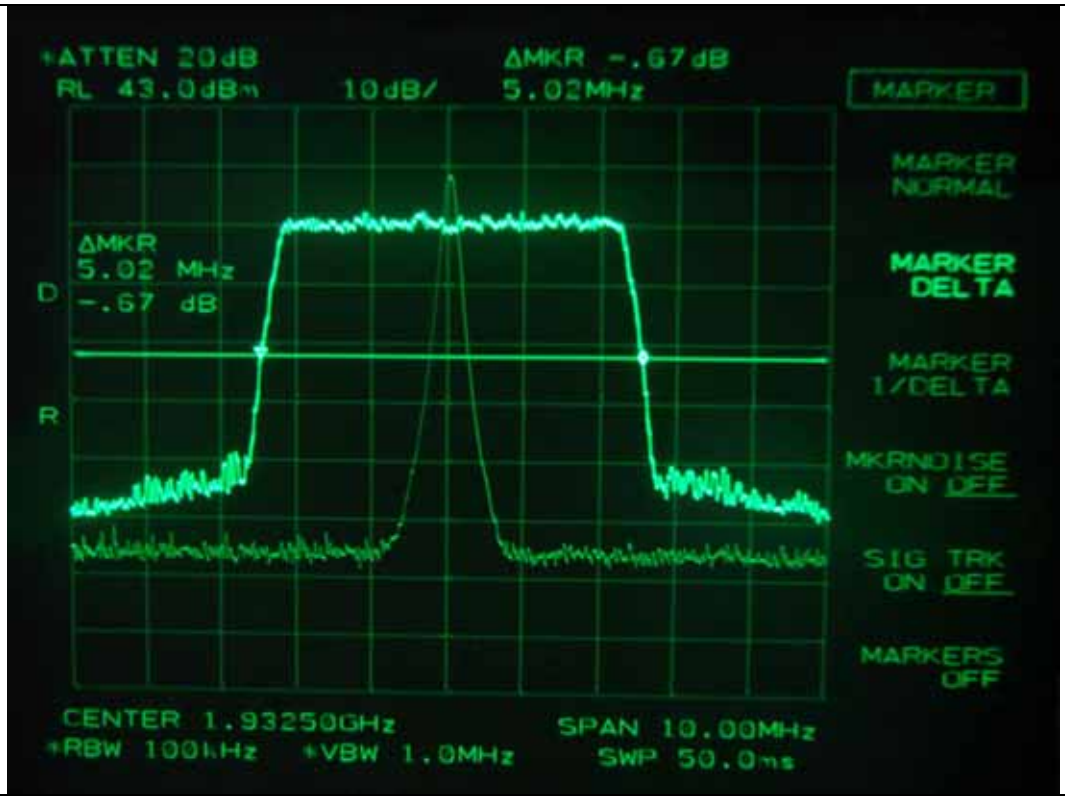
WCDMA – 26 dB Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

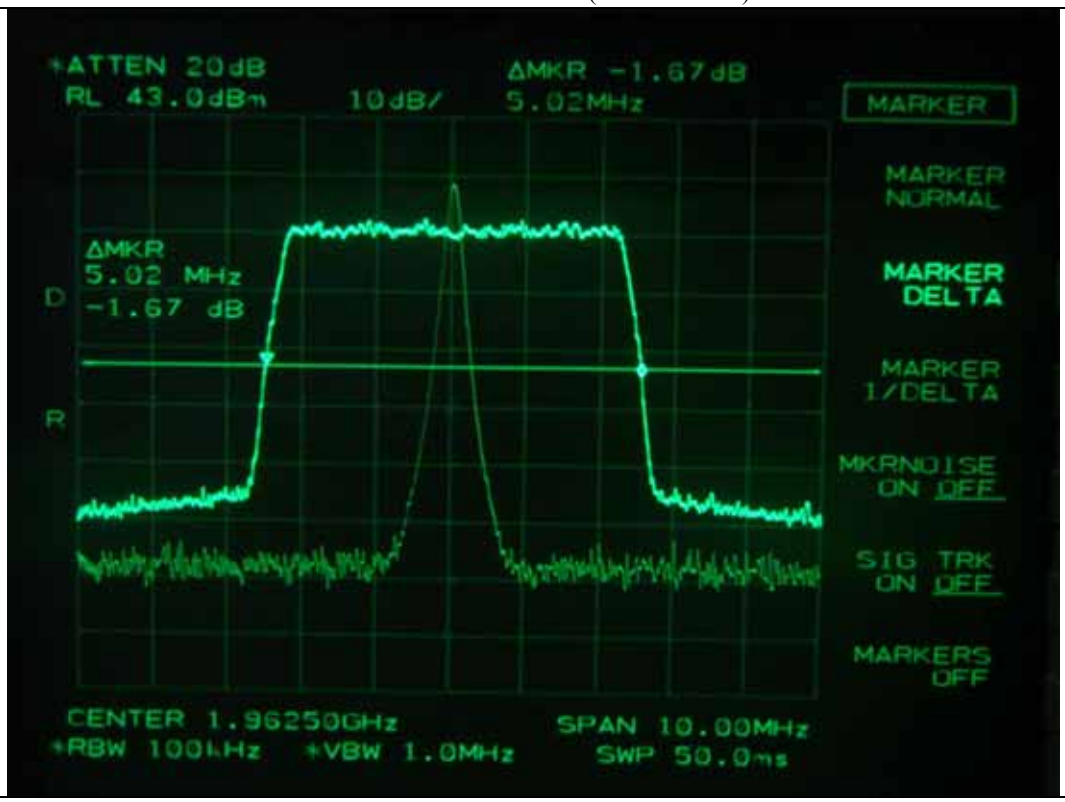


WCDMA – 26 dB Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

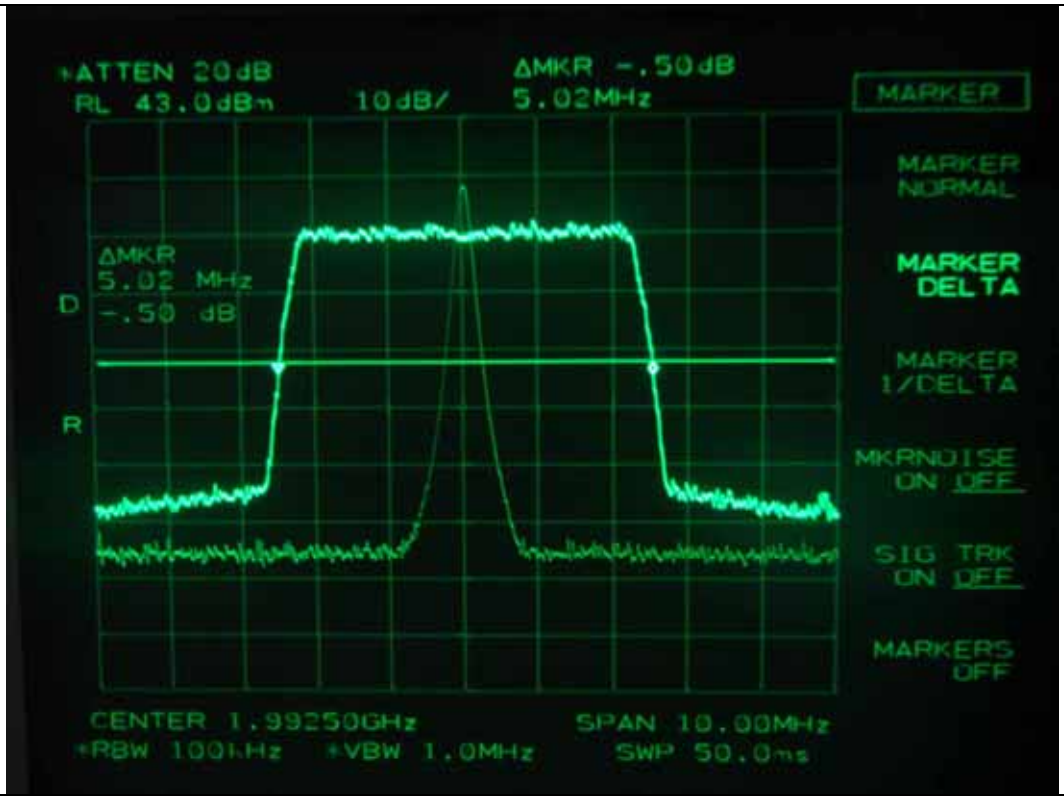


LTE – 26 dB Bandwidth (Low Channel)



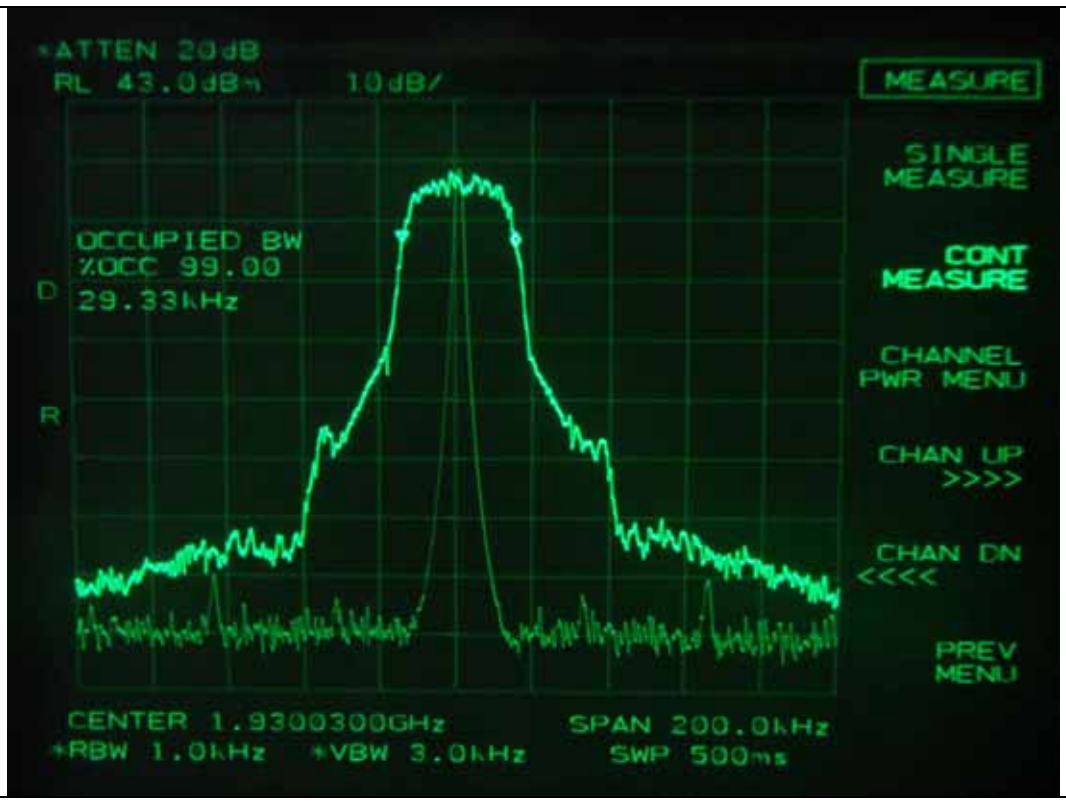
LTE – 26 dB Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

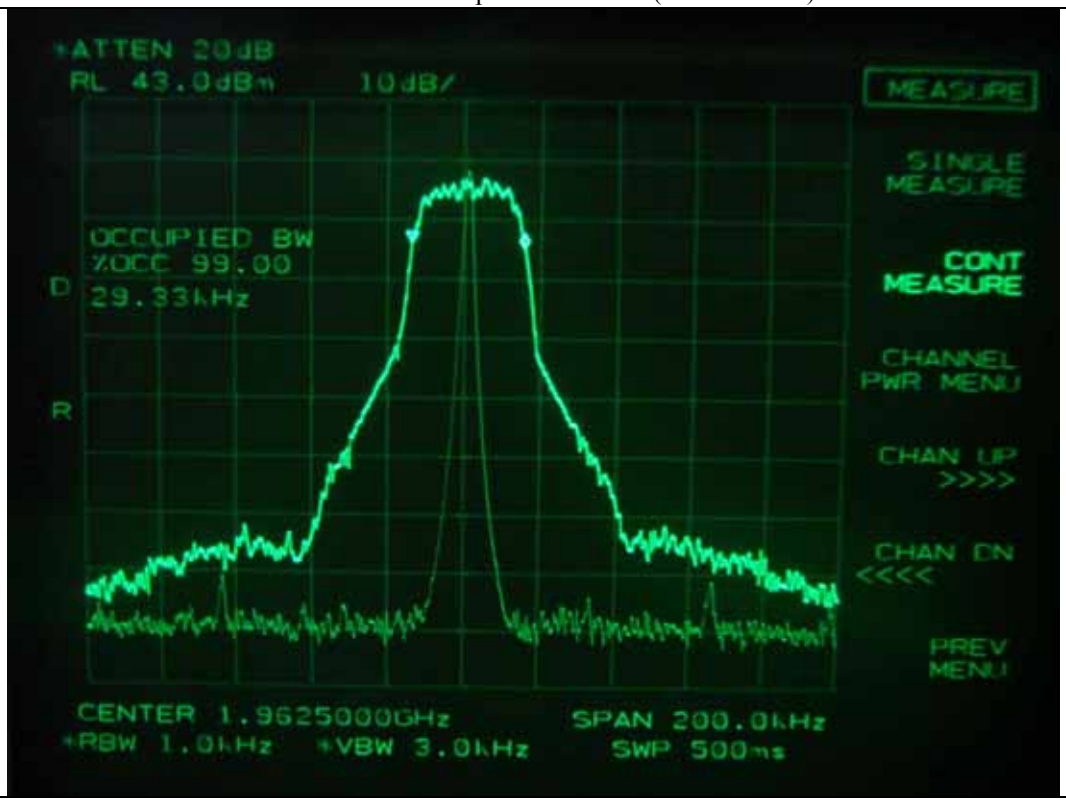


LTE – 26 dB Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

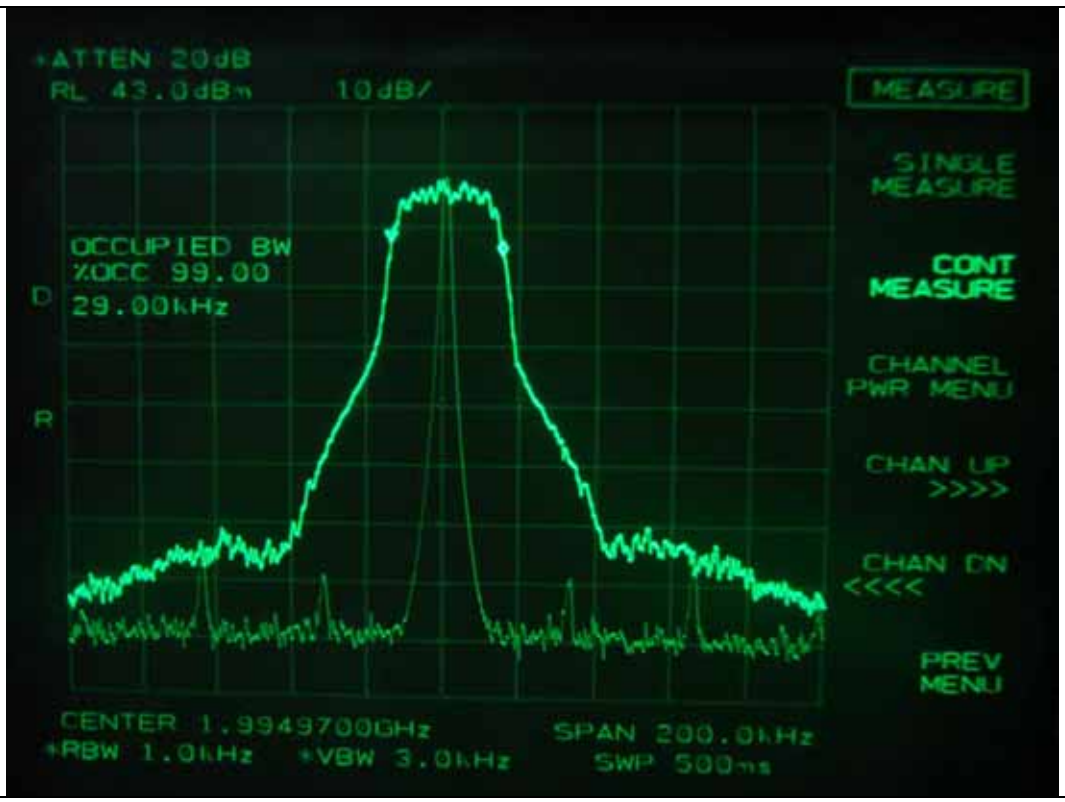


TDMA – 99 % Occupied Bandwidth (Low Channel)



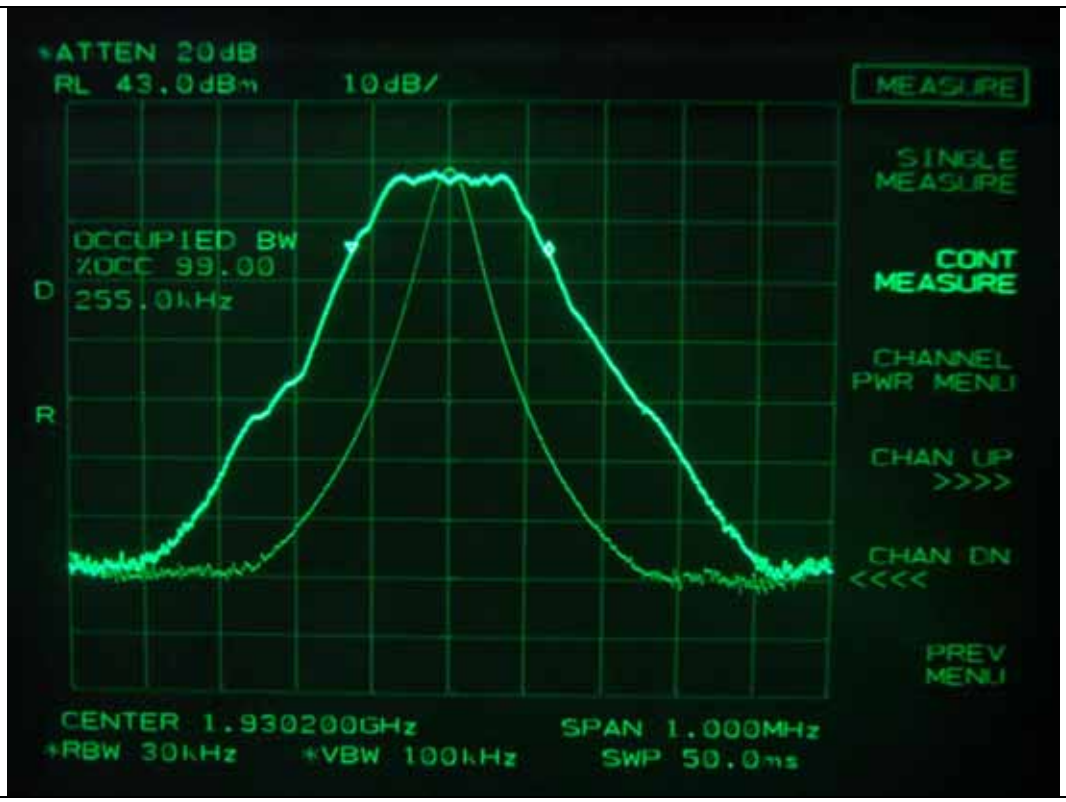
TDMA – 99 % Occupied Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

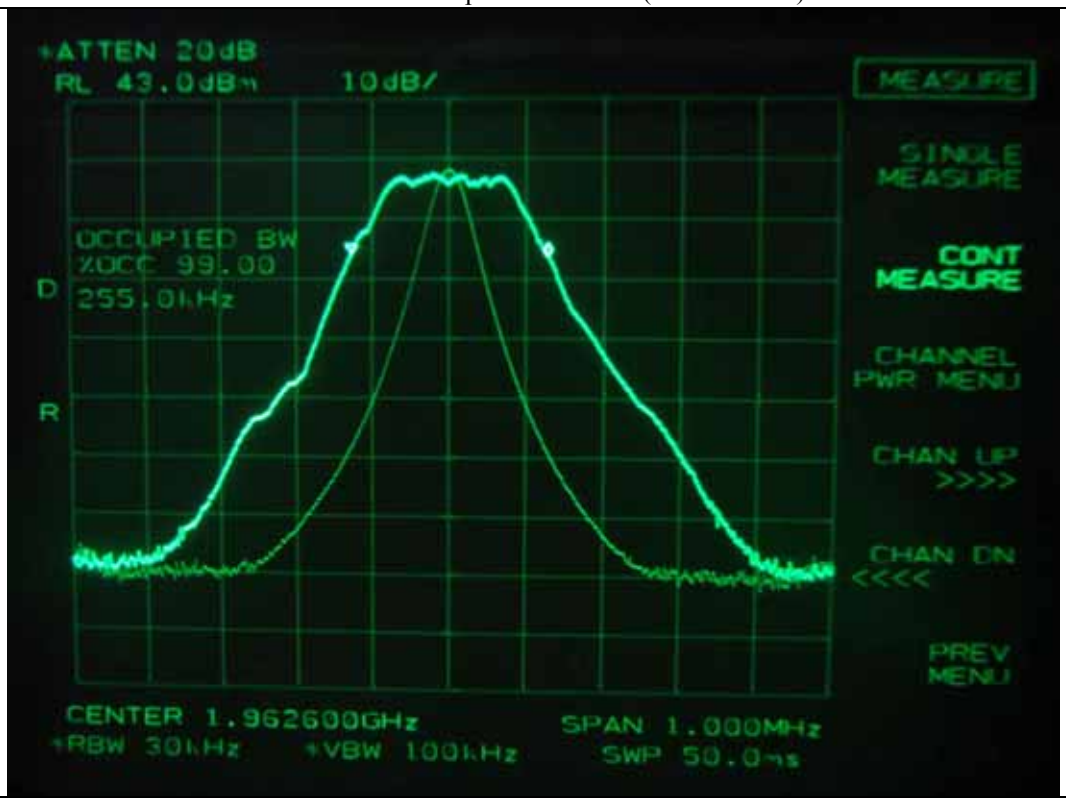


TDMA – 99 % Occupied Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

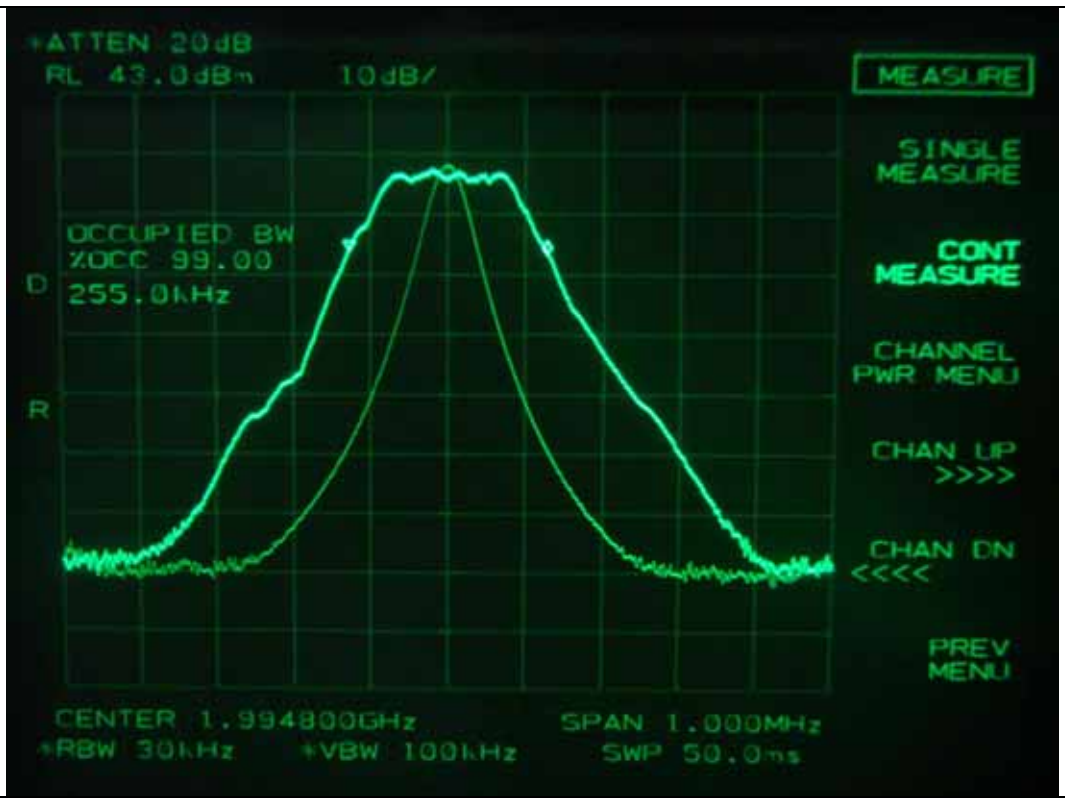


GSM – 99 % Occupied Bandwidth (Low Channel)



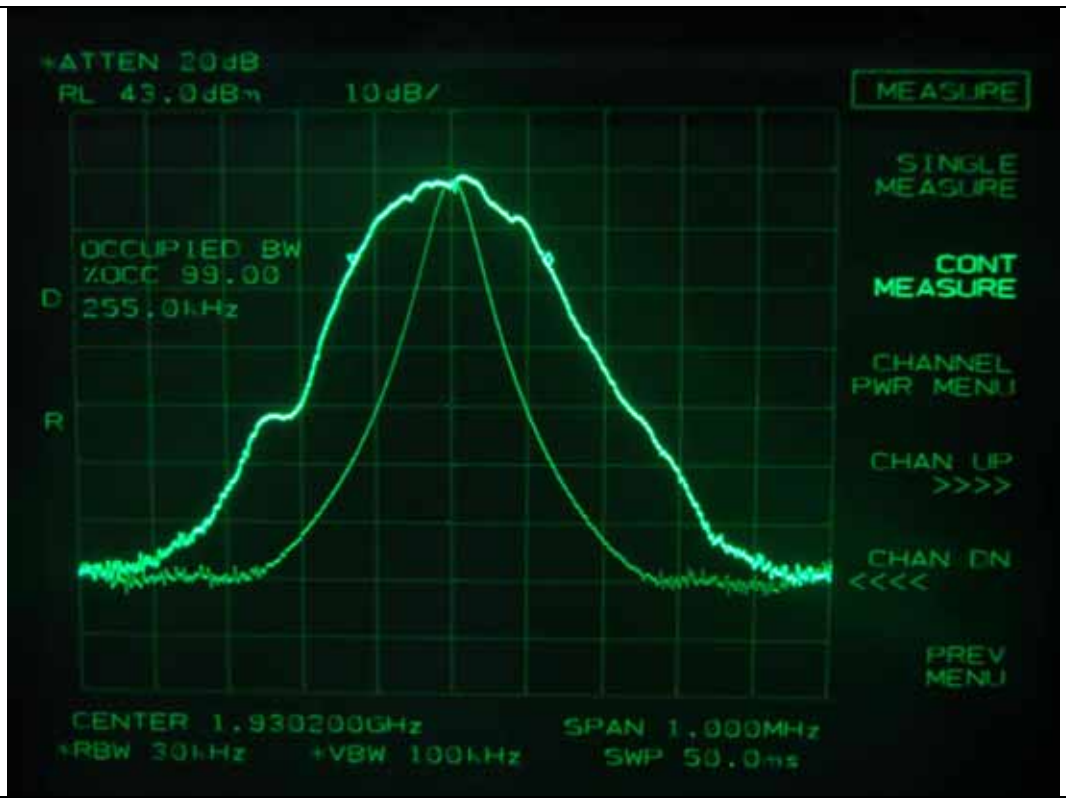
GSM – 99 % Occupied Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

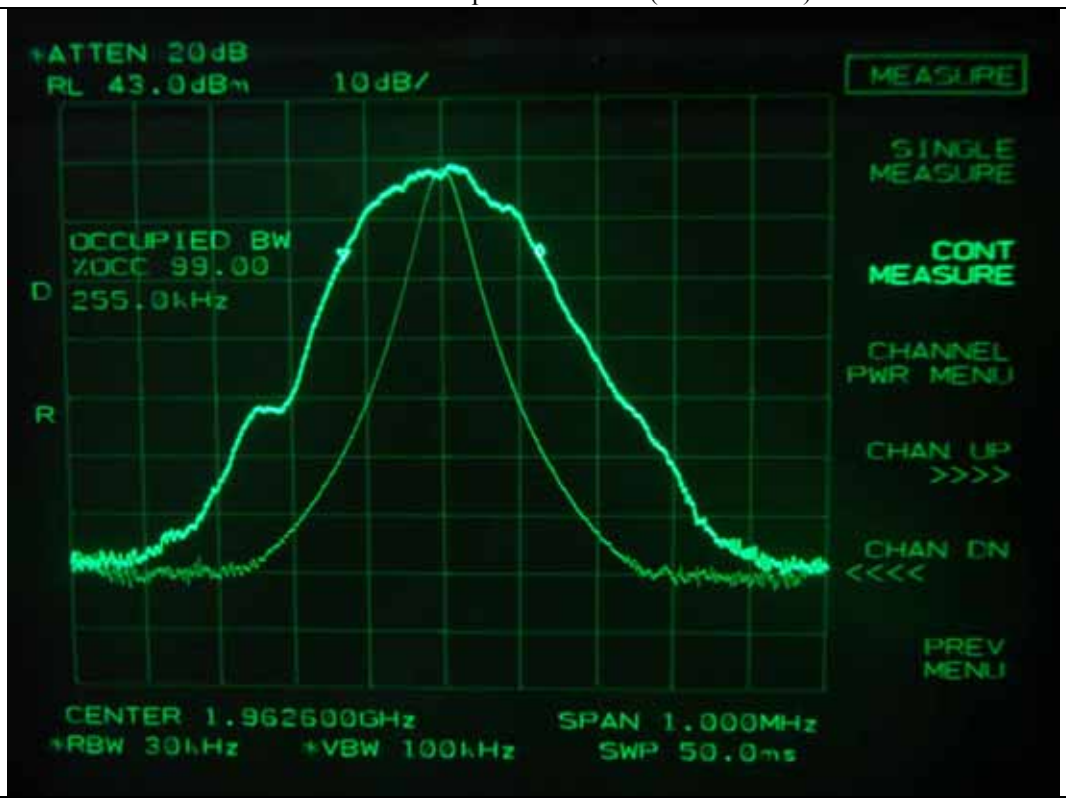


GSM – 99 % Occupied Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

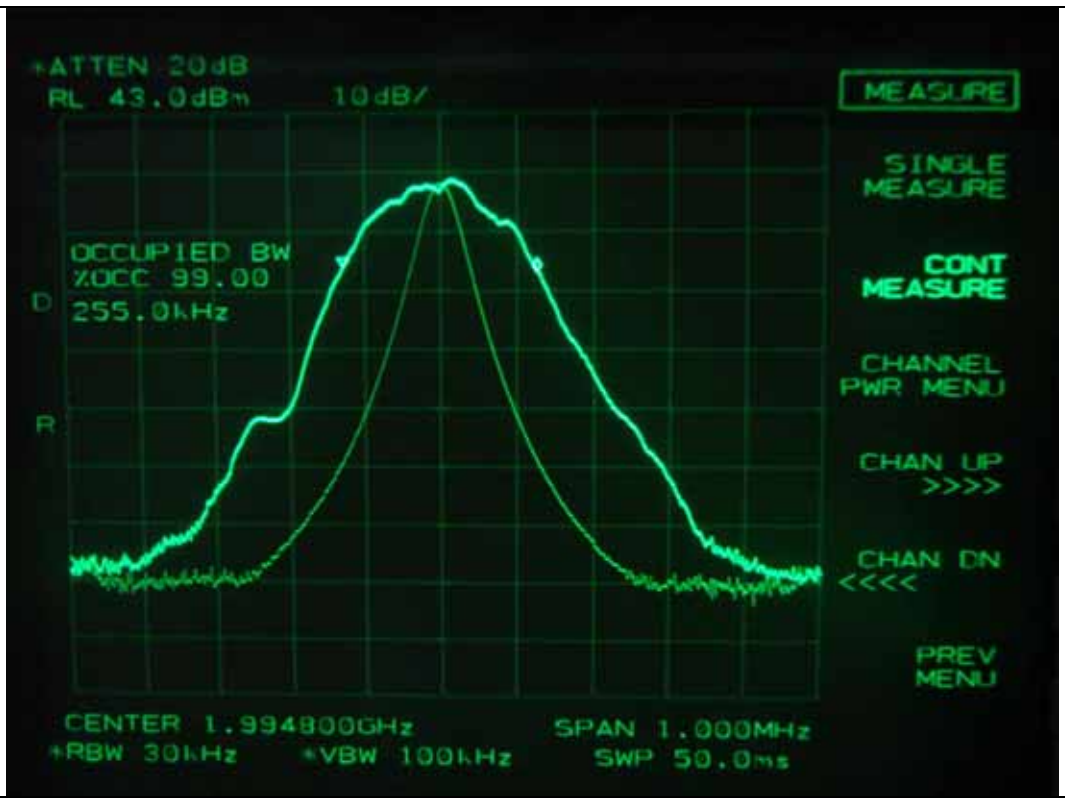


EDGE – 99 % Occupied Bandwidth (Low Channel)



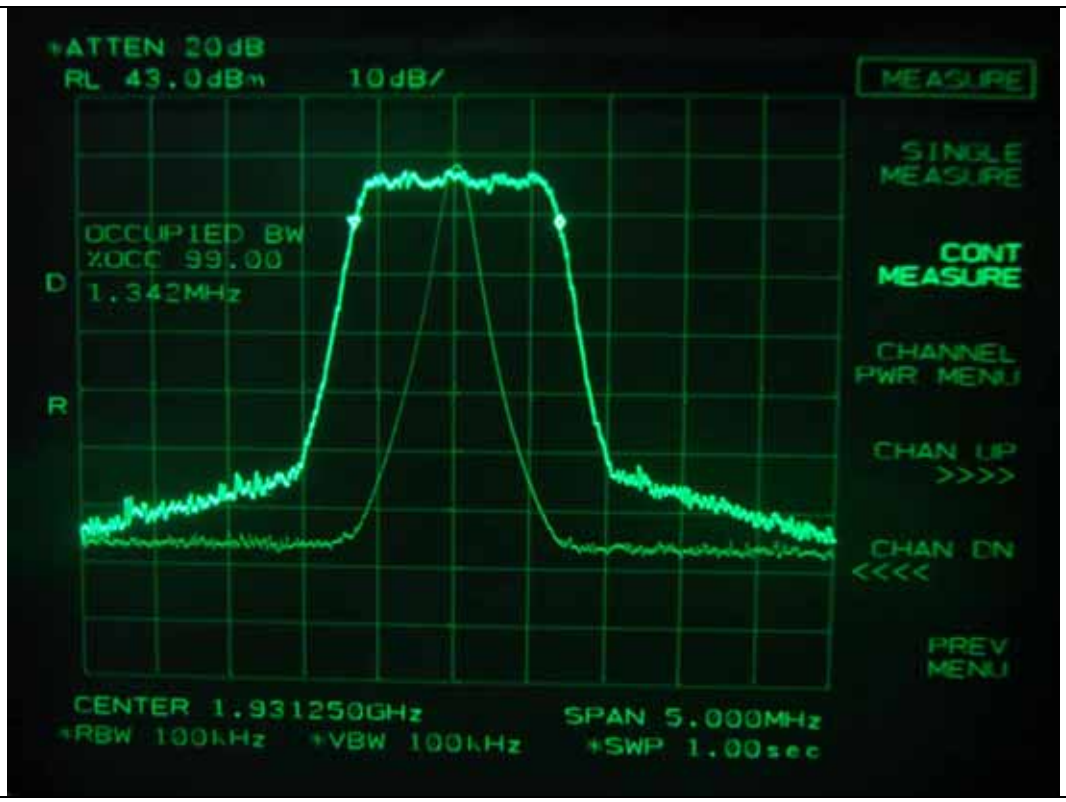
EDGE – 99 % Occupied Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

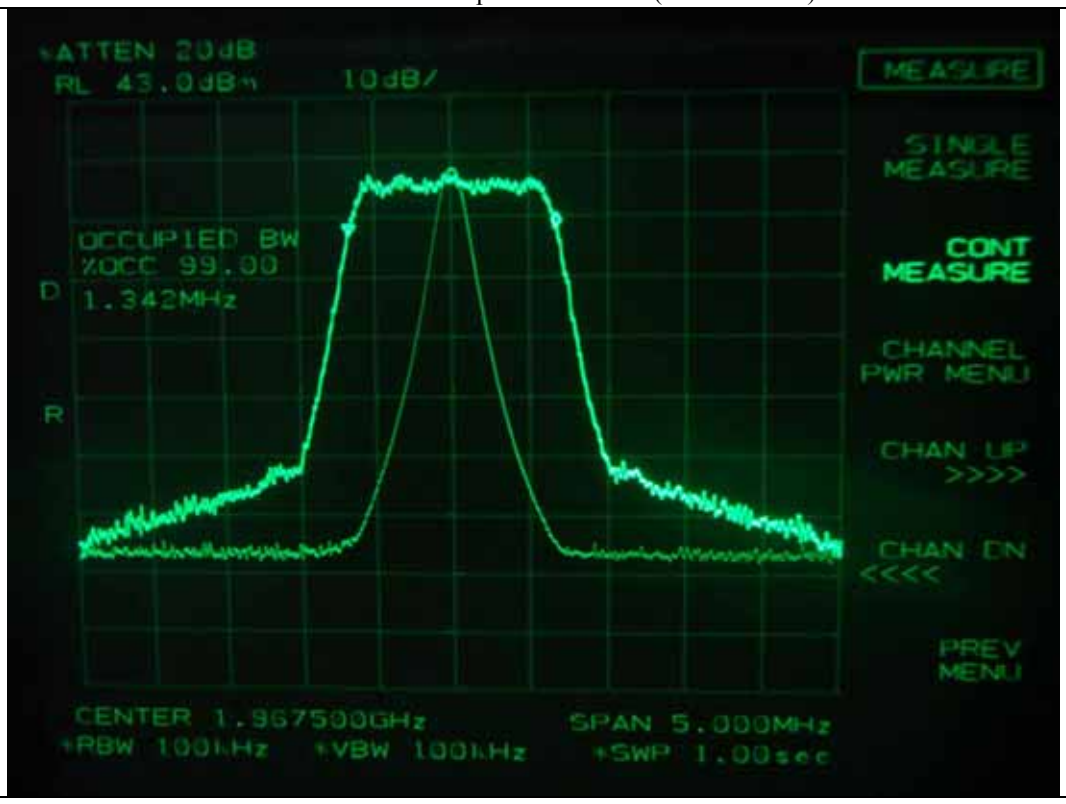


EDGE – 99 % Occupied Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

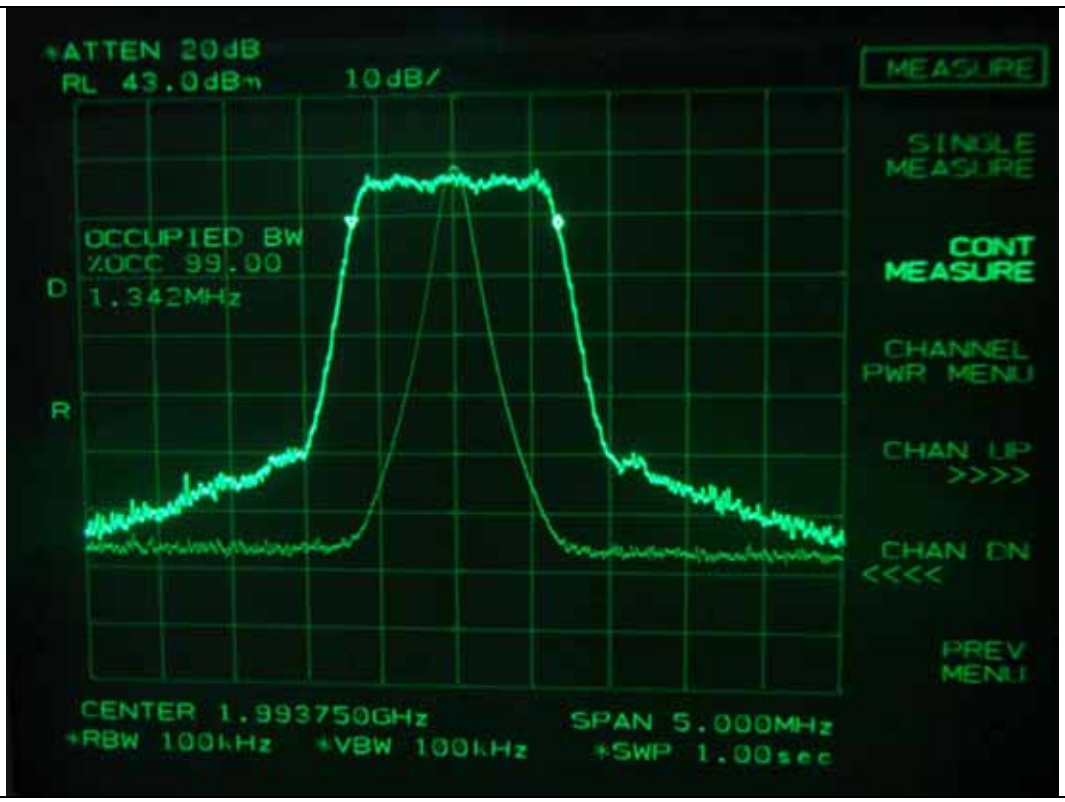


CDMA – 99 % Occupied Bandwidth (Low Channel)



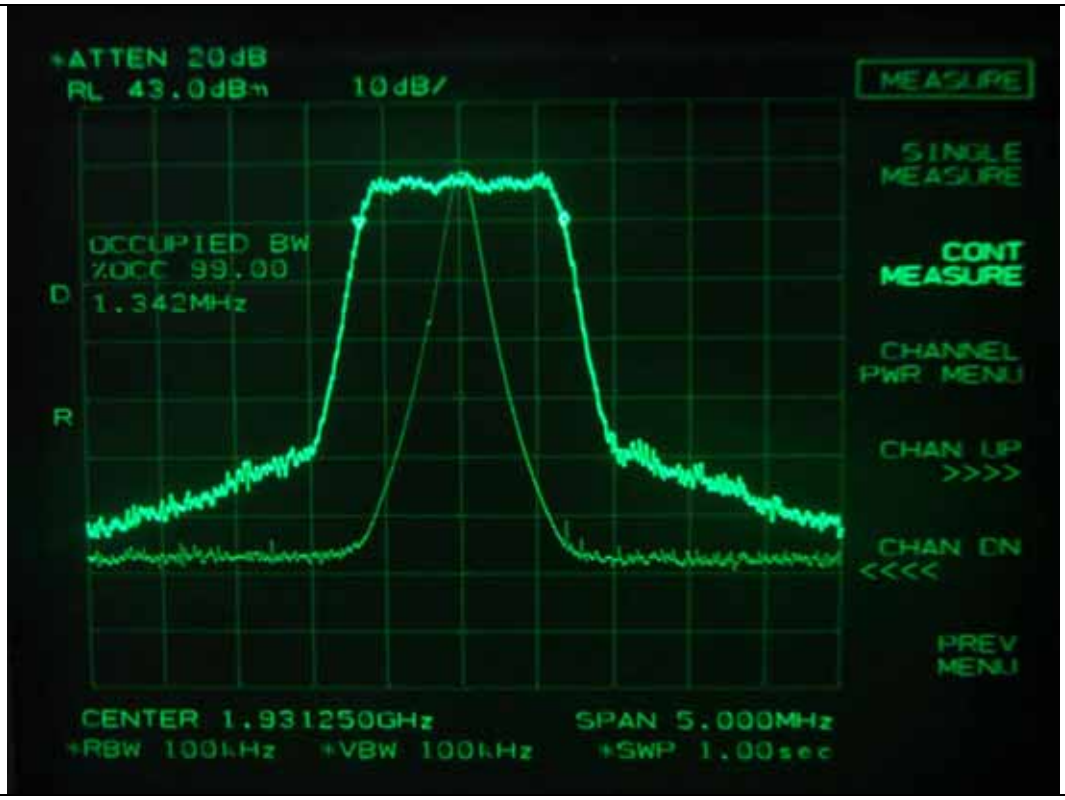
CDMA – 99 % Occupied Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

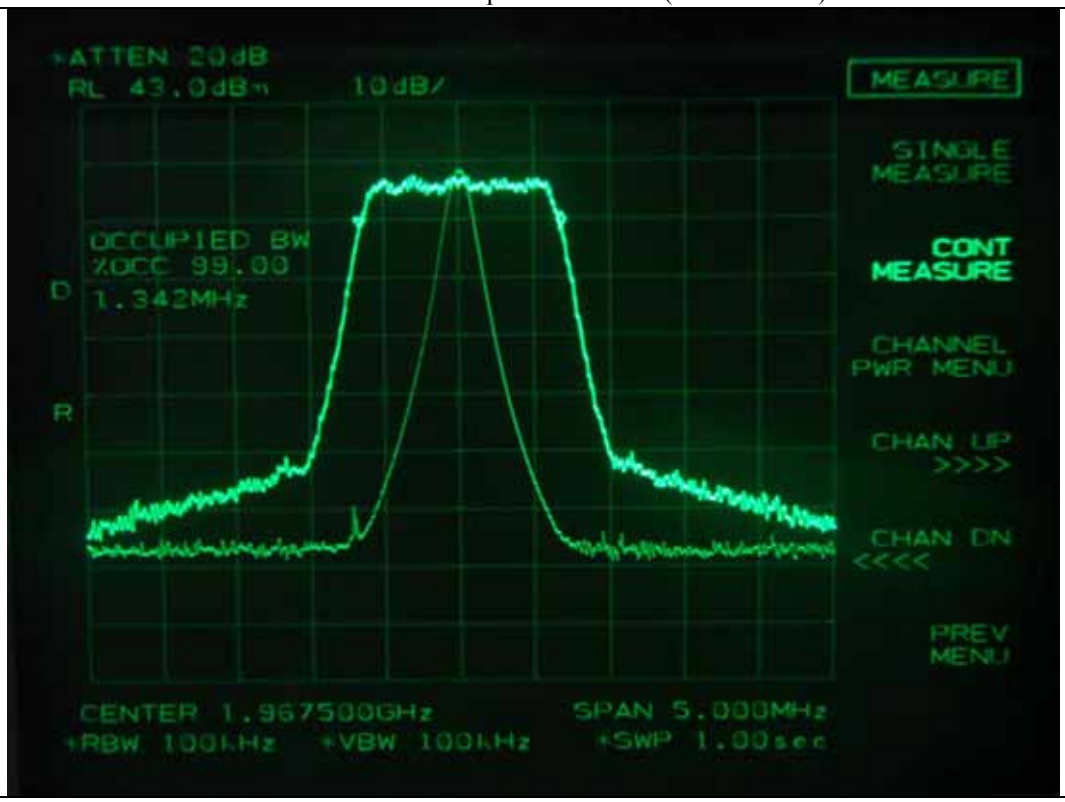


CDMA – 99 % Occupied Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

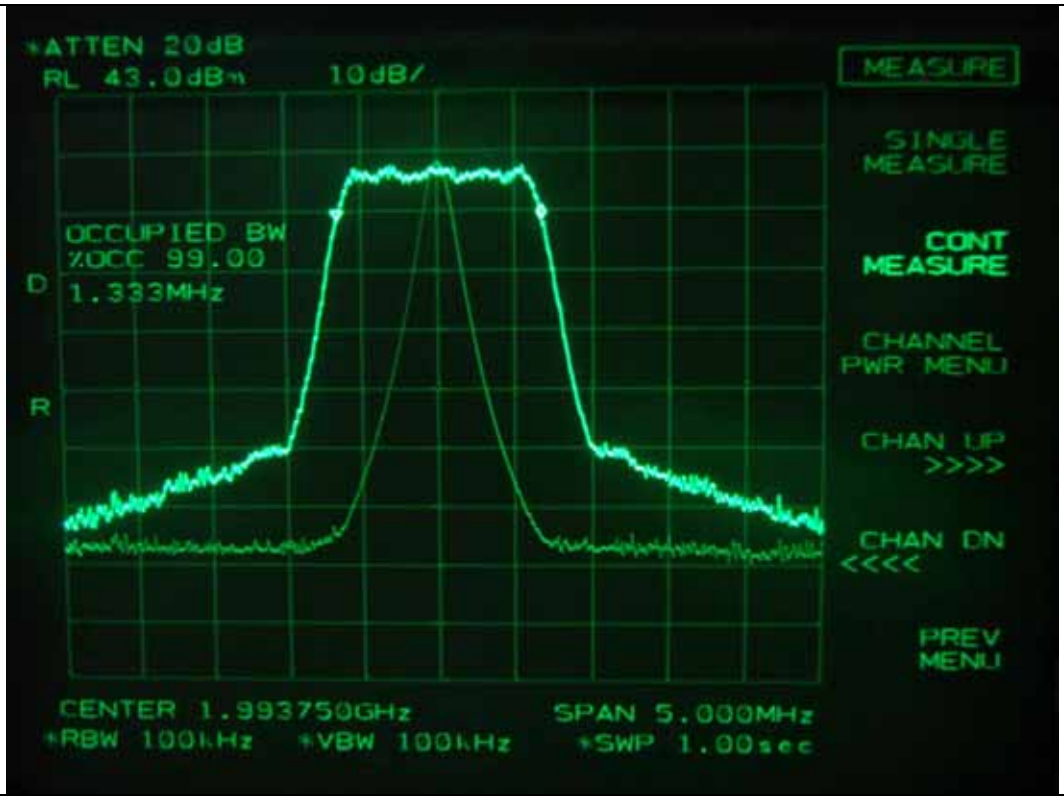


1xEVDO – 99 % Occupied Bandwidth (Low Channel)



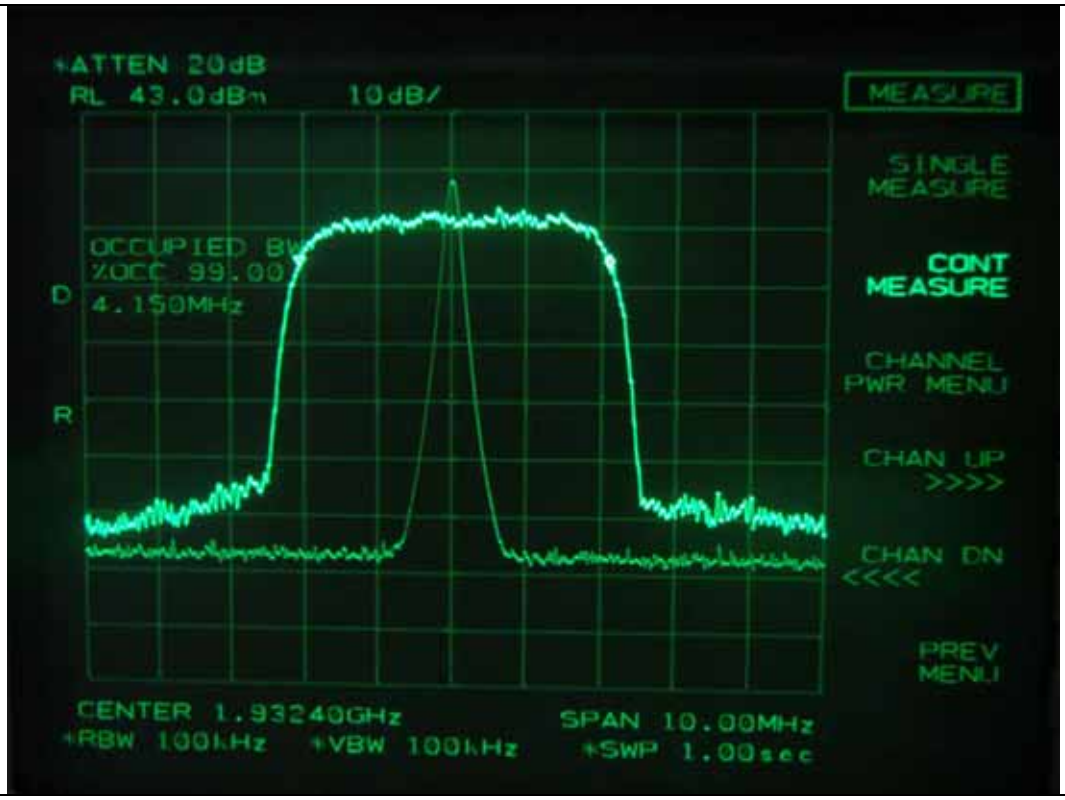
1xEVDO – 99 % Occupied Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

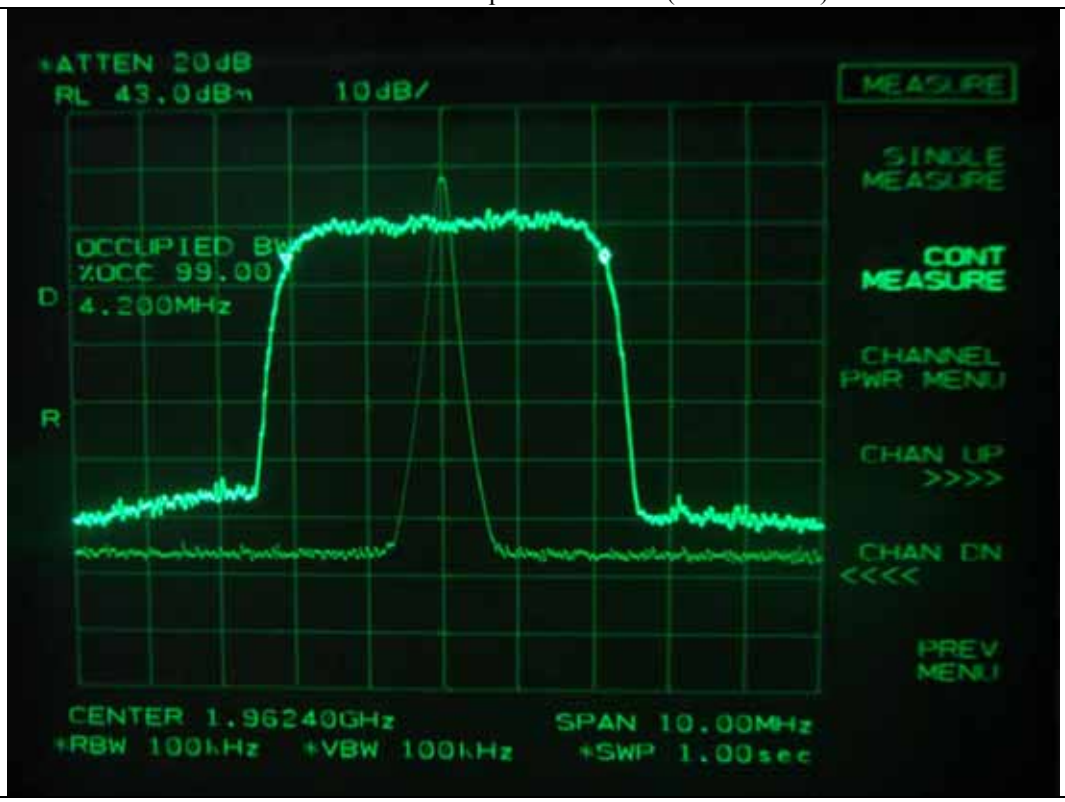


1xEVDO – 99 % Occupied Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

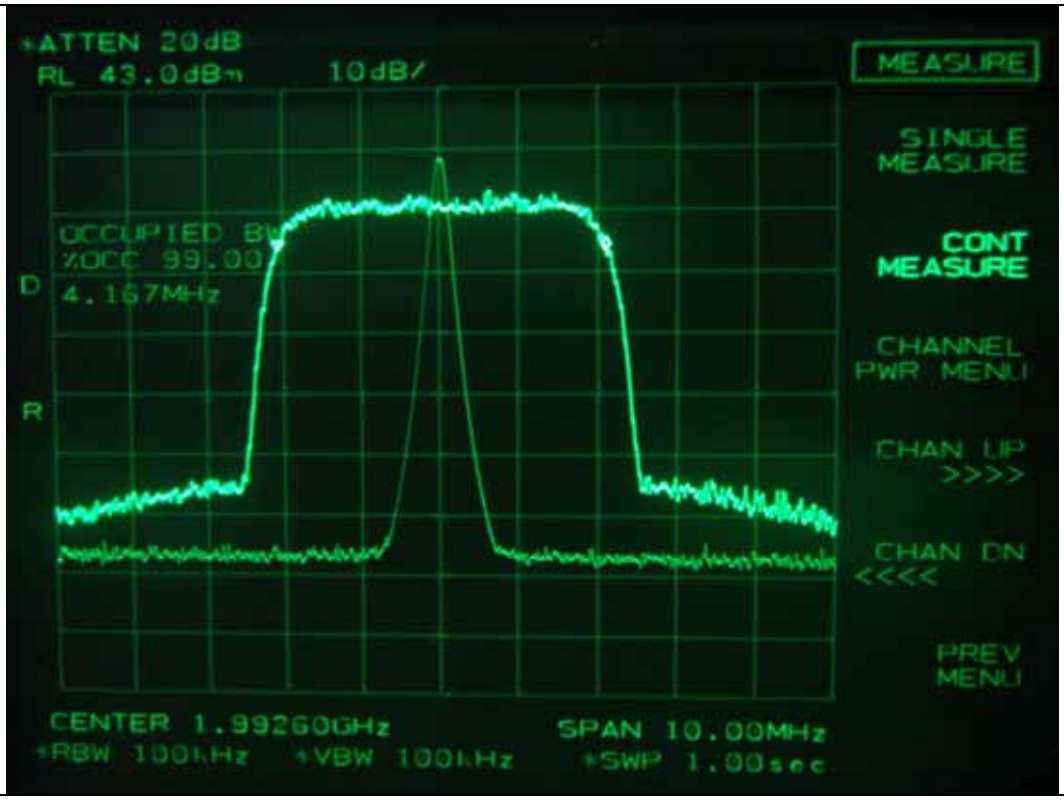


WCDMA – 99 % Occupied Bandwidth (Low Channel)



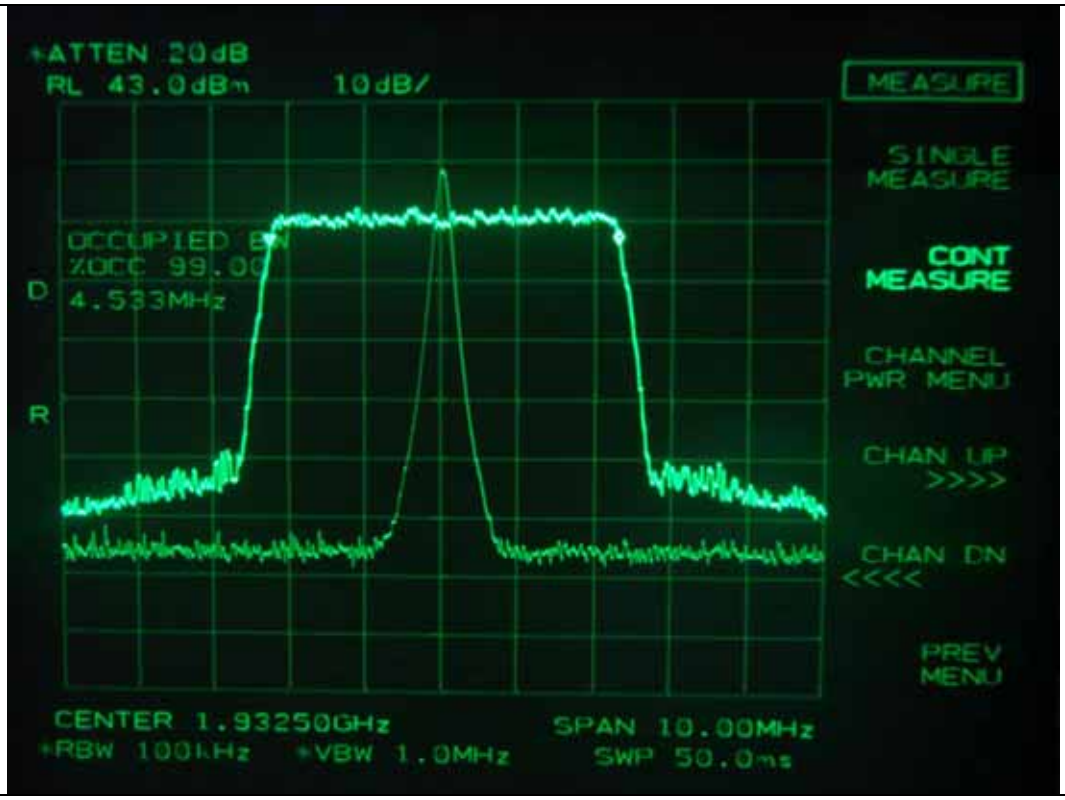
WCDMA – 99 % Occupied Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

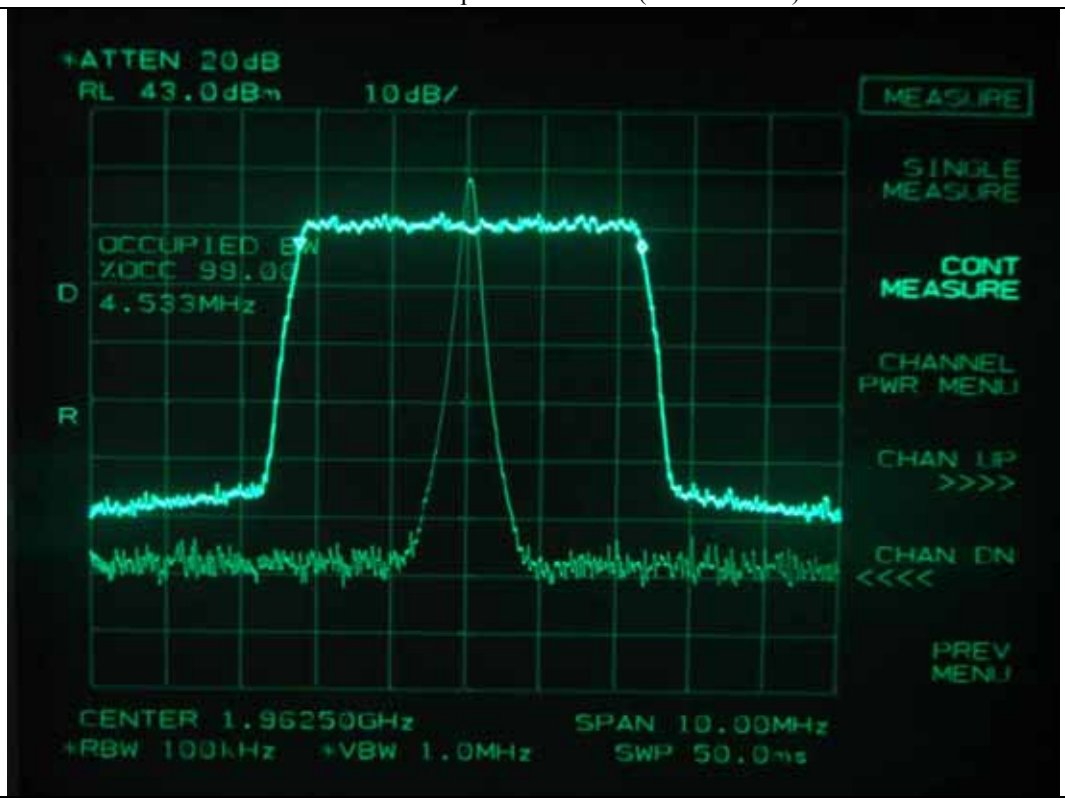


WCDMA – 99 % Occupied Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

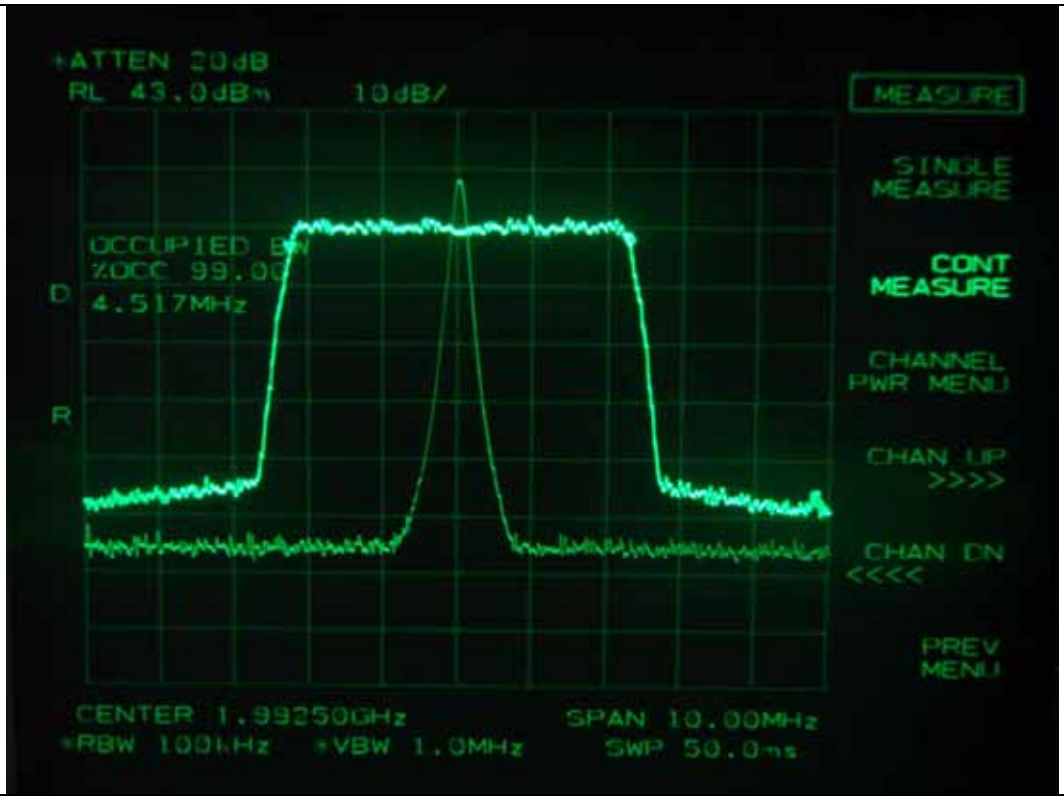


LTE – 99 % Occupied Bandwidth (Low Channel)



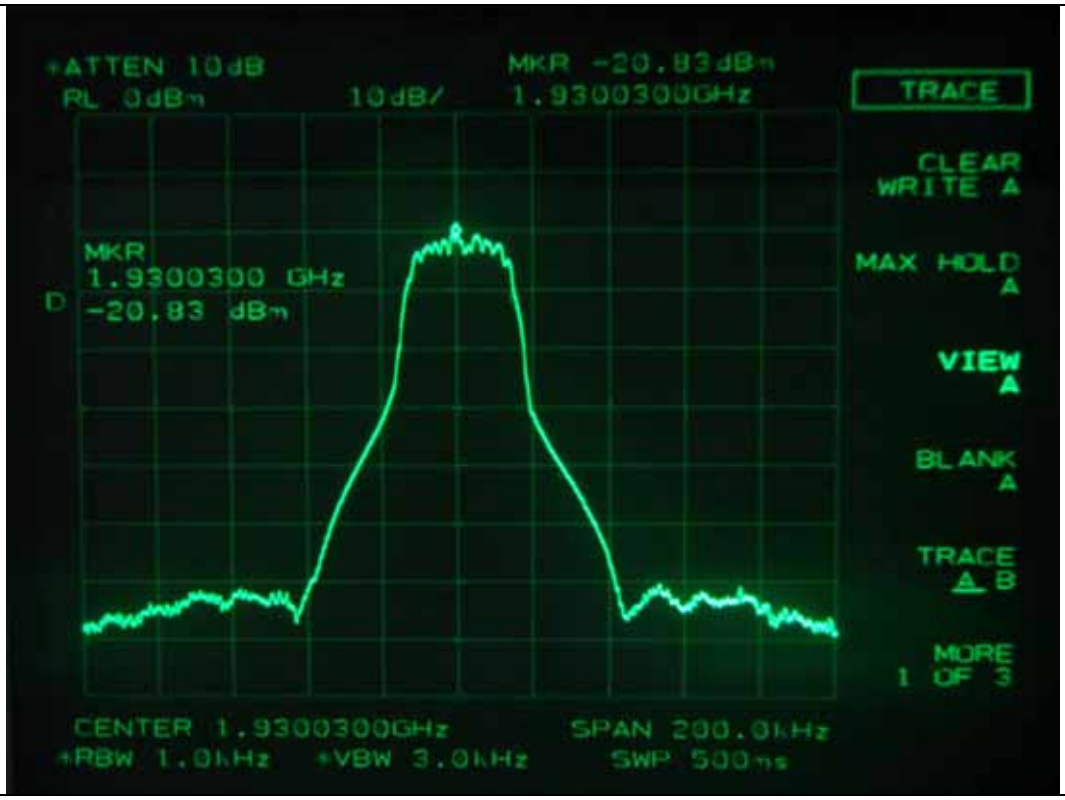
LTE – 99 % Occupied Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

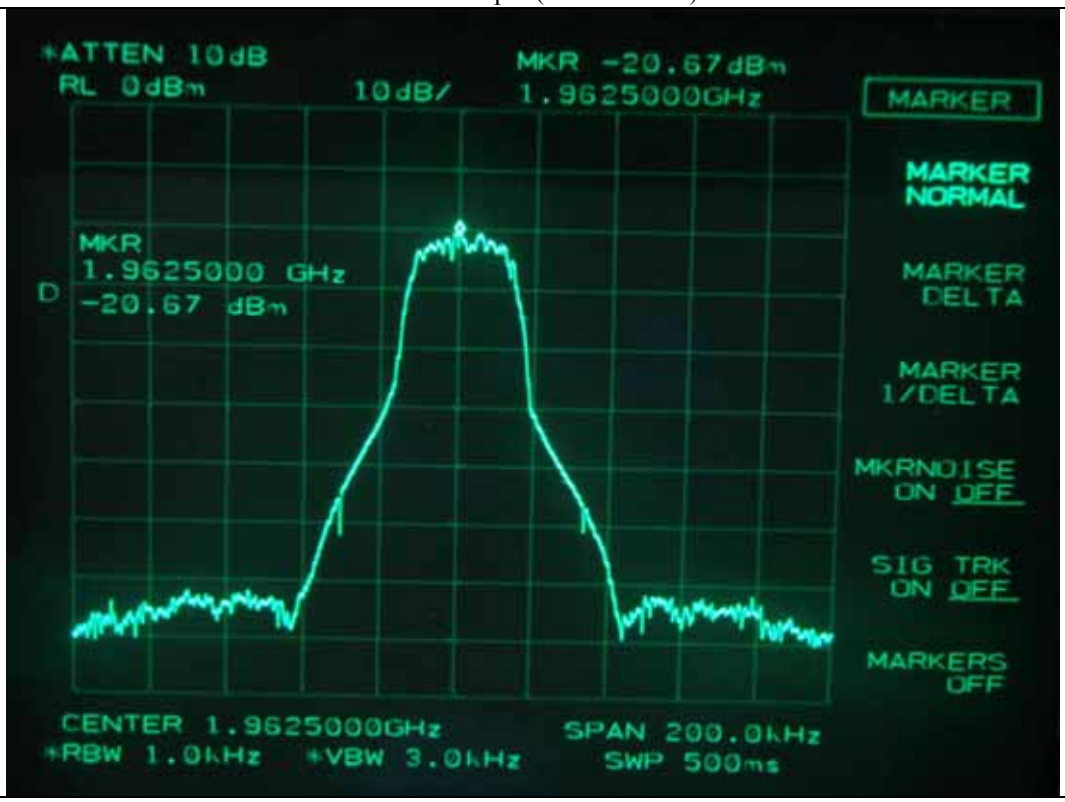


LTE – 99 % Occupied Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

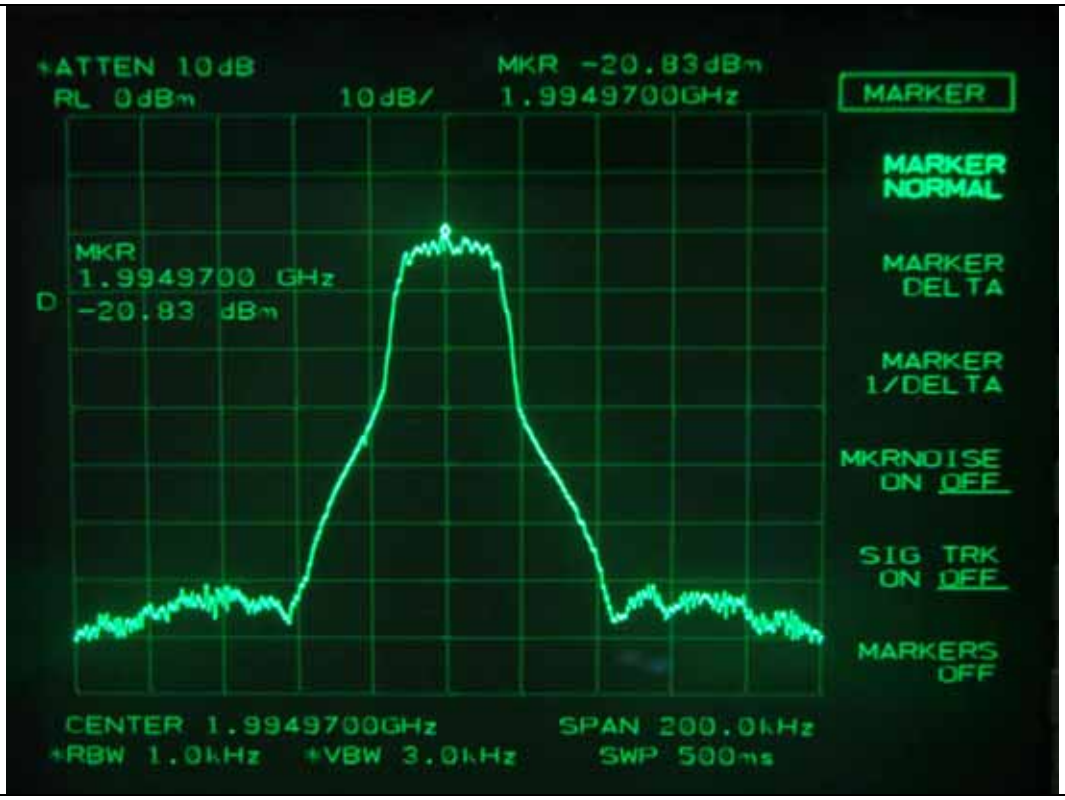


TDMA – Input (Low Channel)



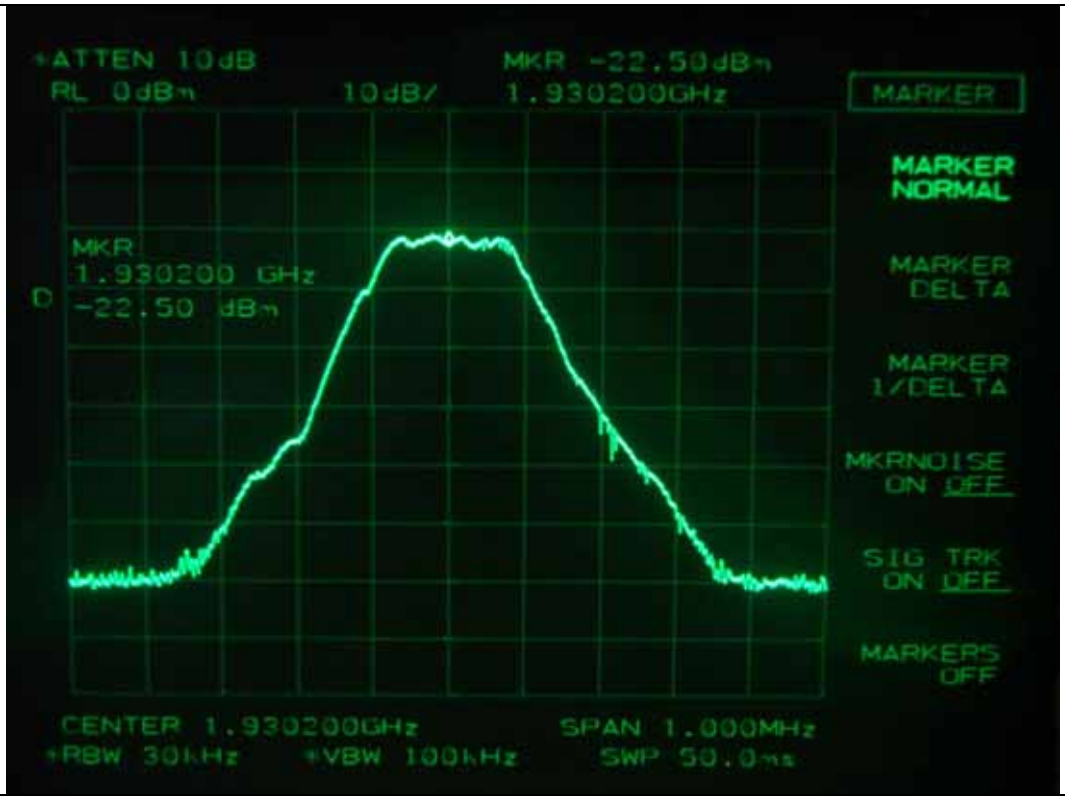
TDMA – Input (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

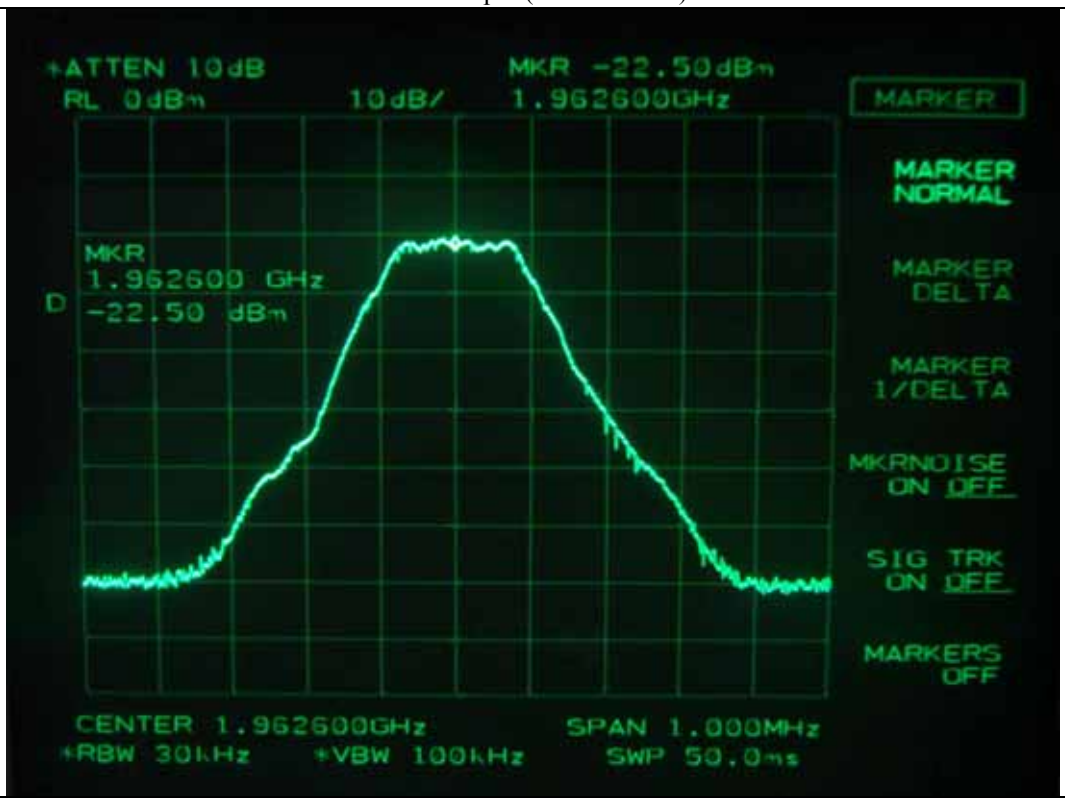


TDMA – Input (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

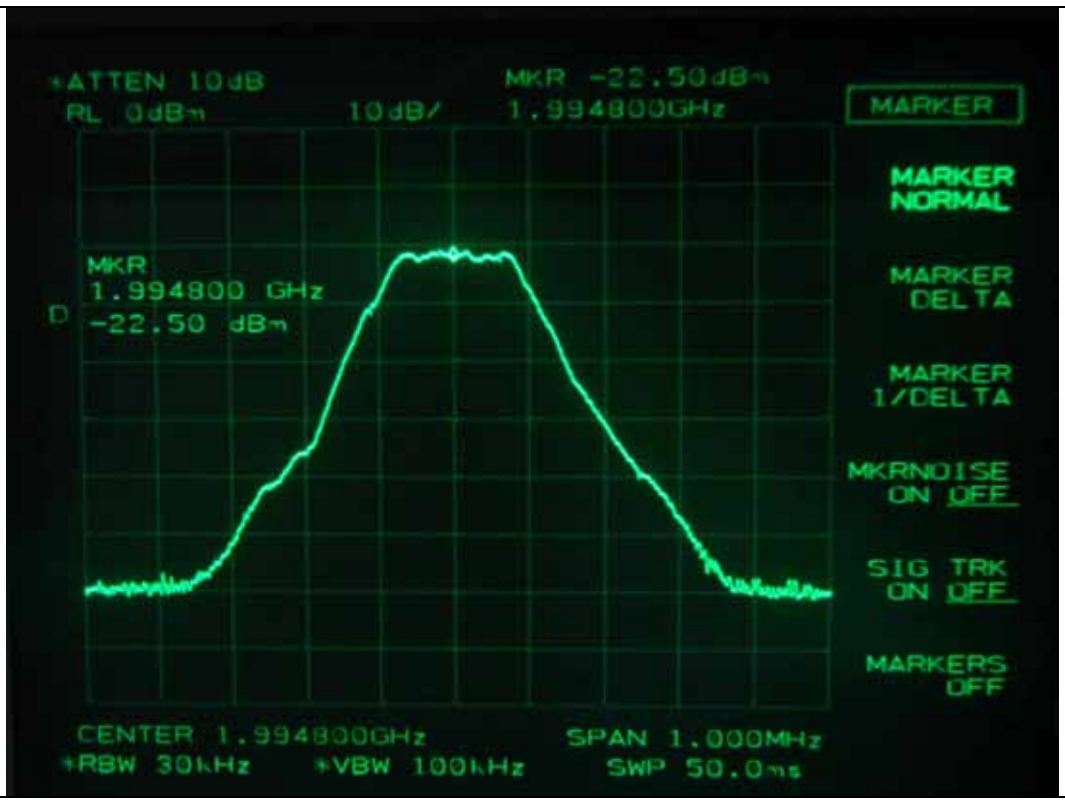


GSM – Input (Low Channel)



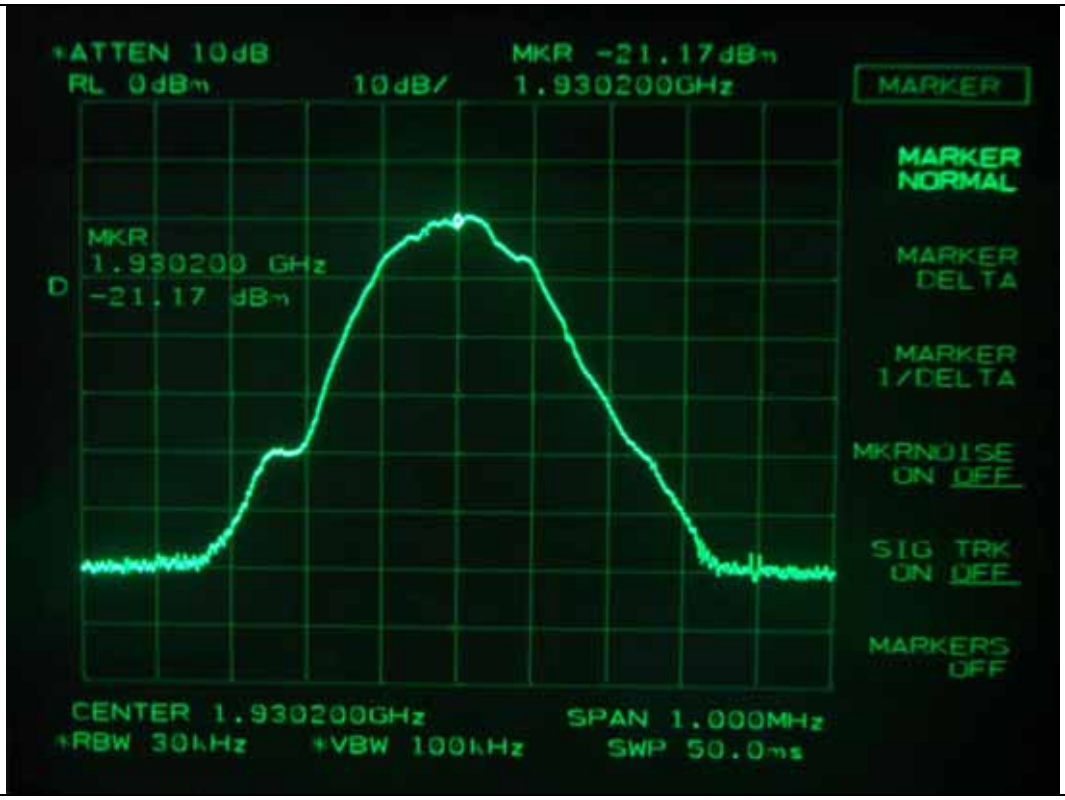
GSM – Input (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

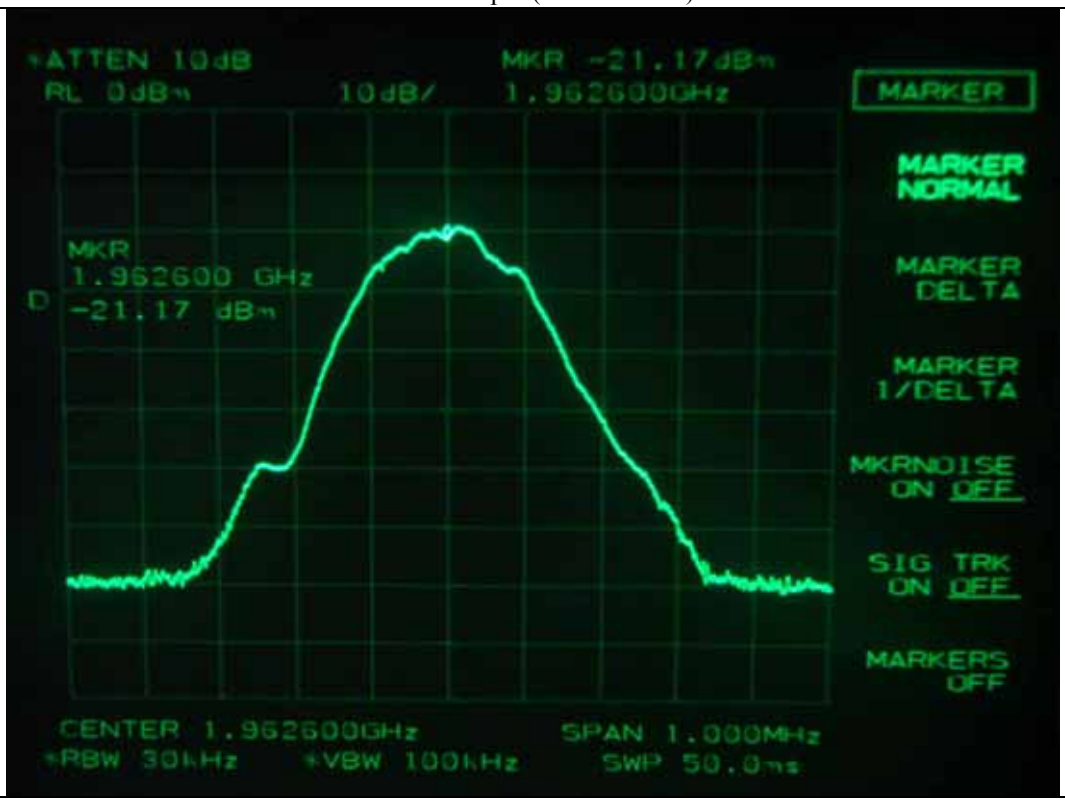


GSM – Input (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

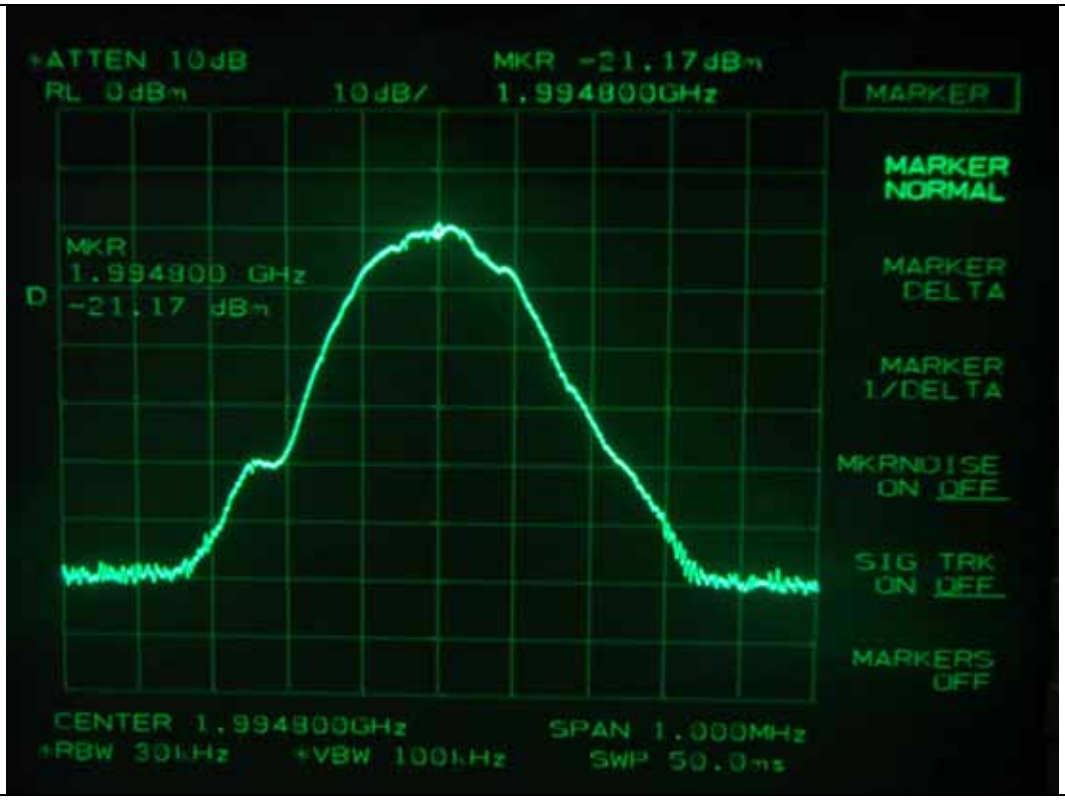


EDGE – Input (Low Channel)



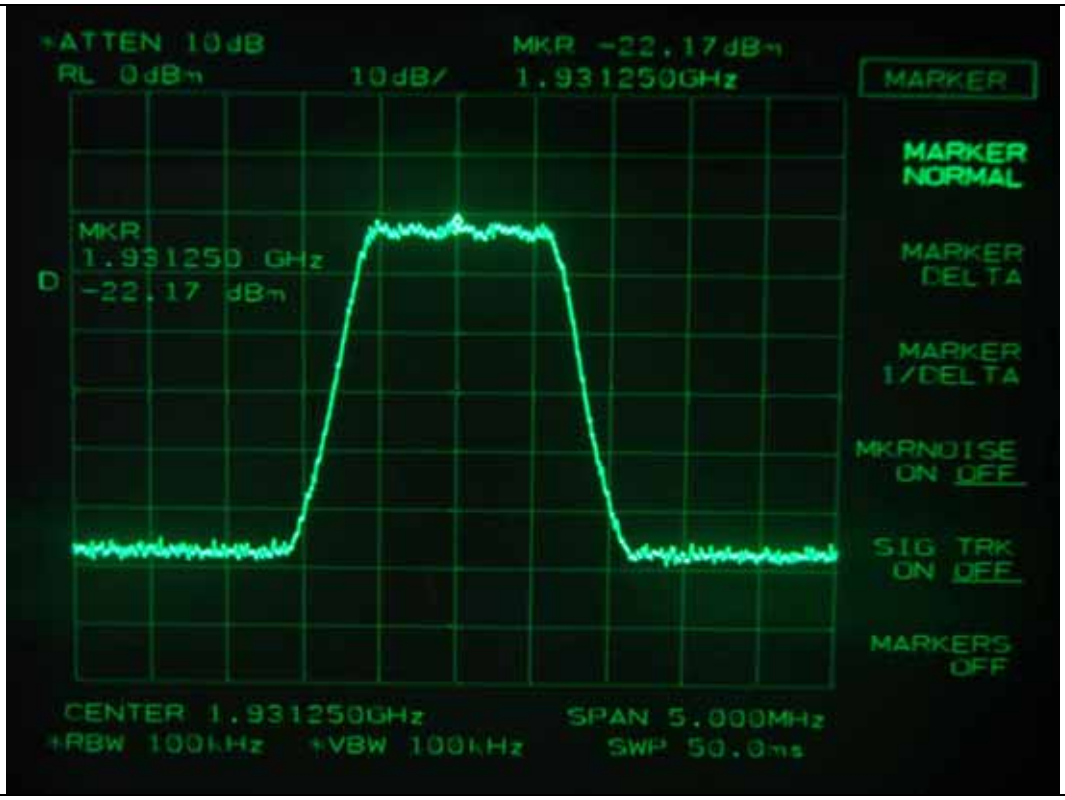
EDGE – Input (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

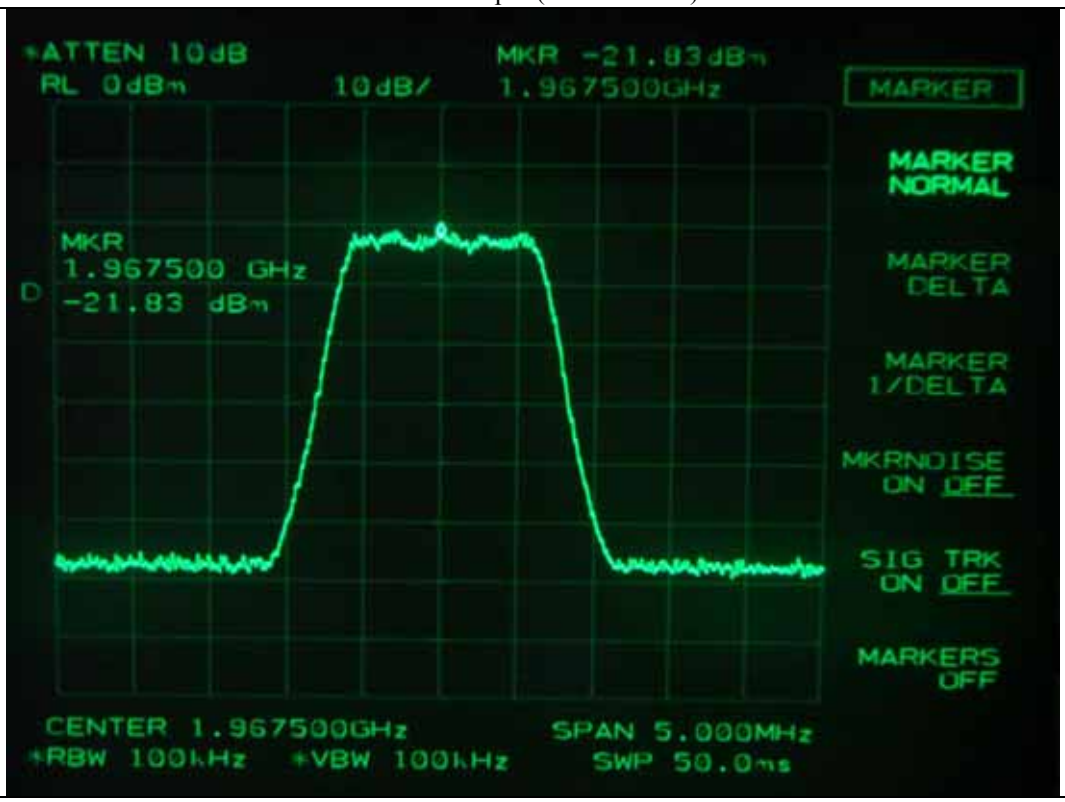


EDGE – Input (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

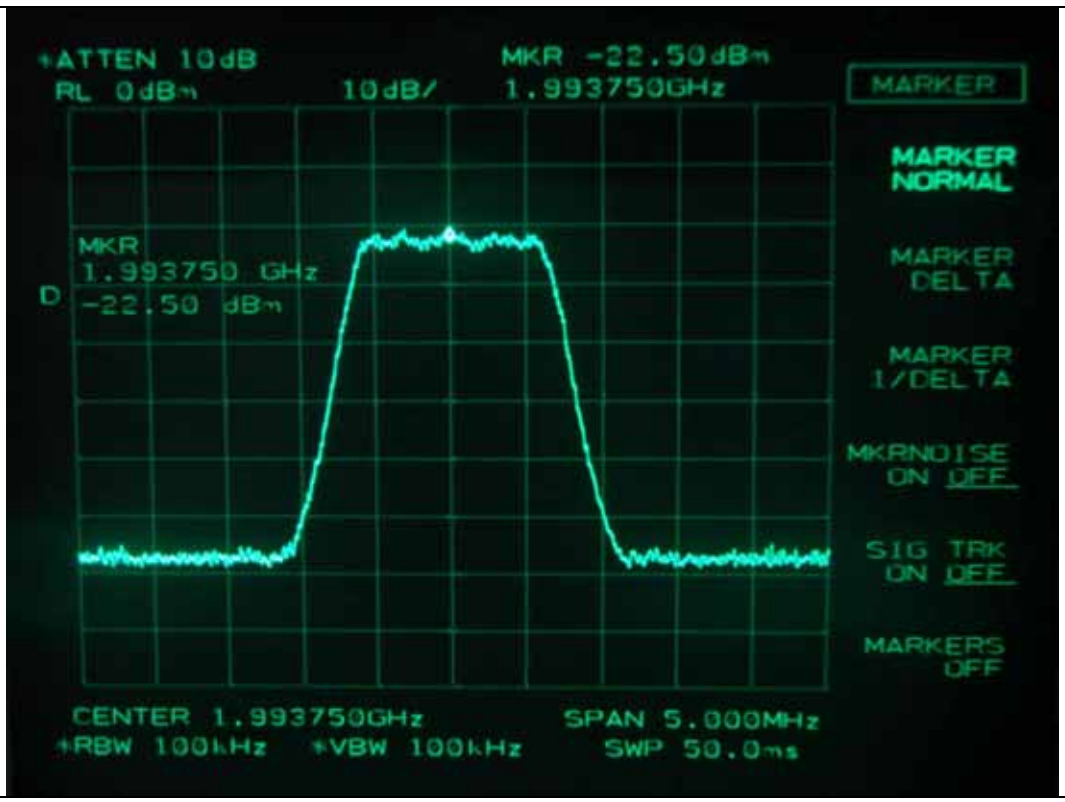


CDMA – Input (Low Channel)



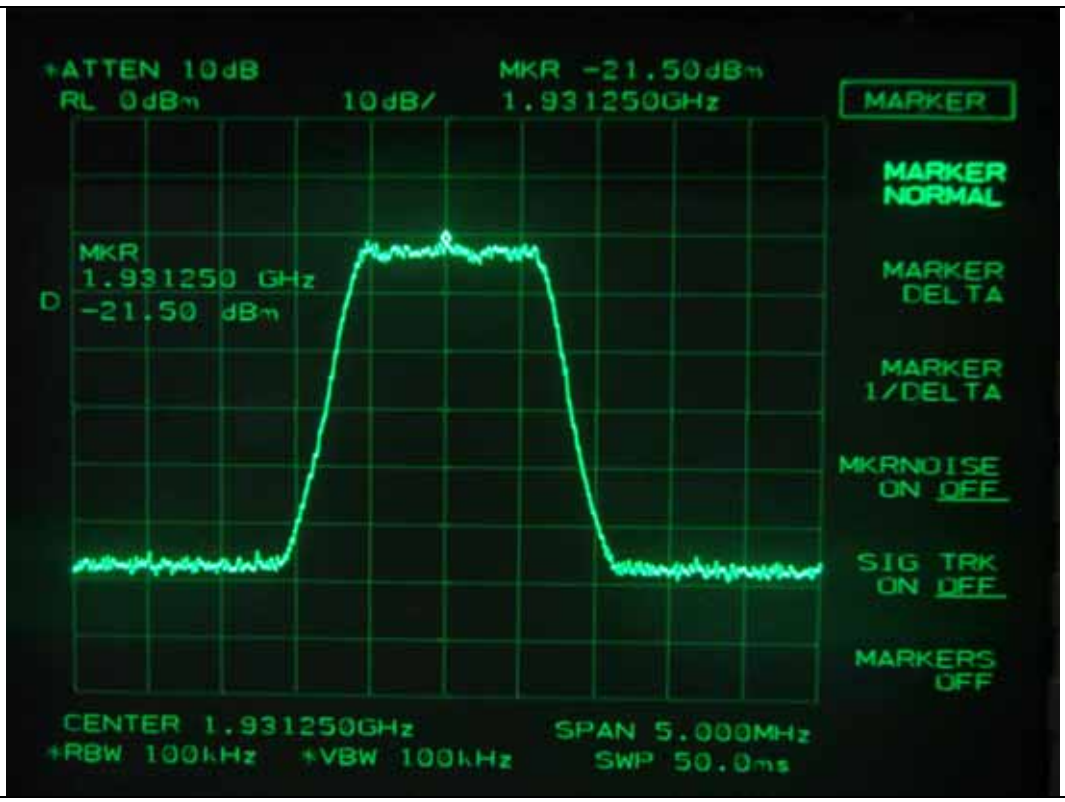
CDMA – Input (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

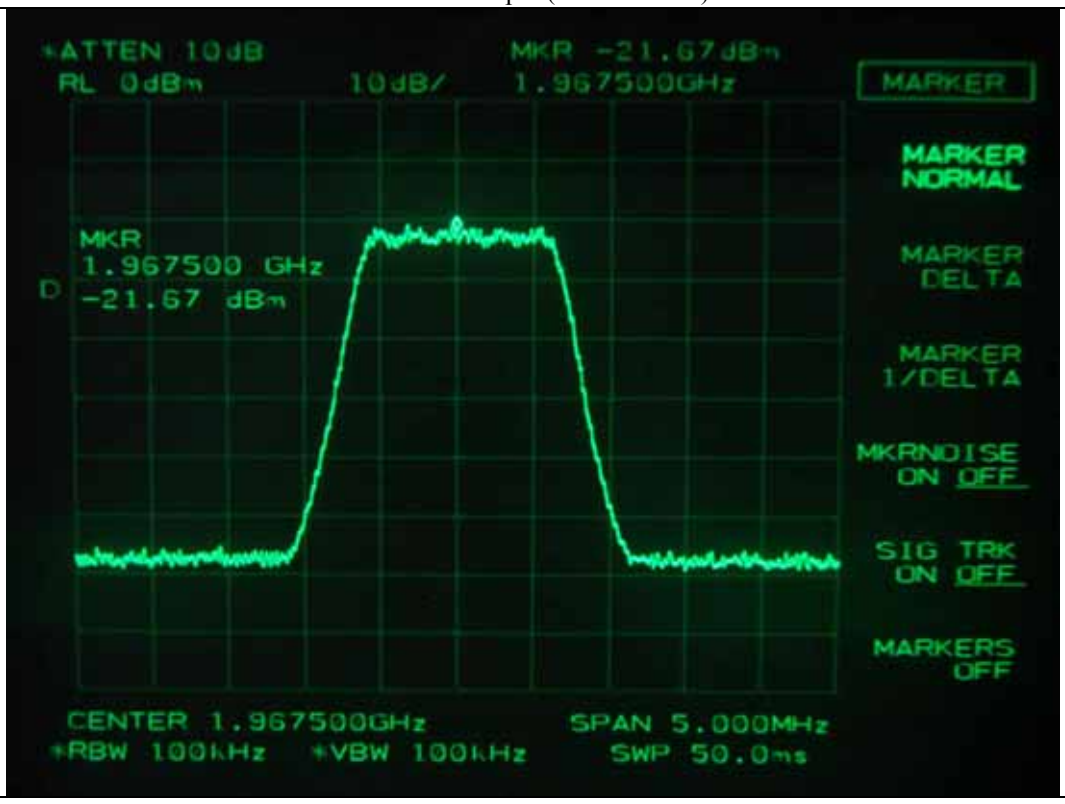


CDMA – Input (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

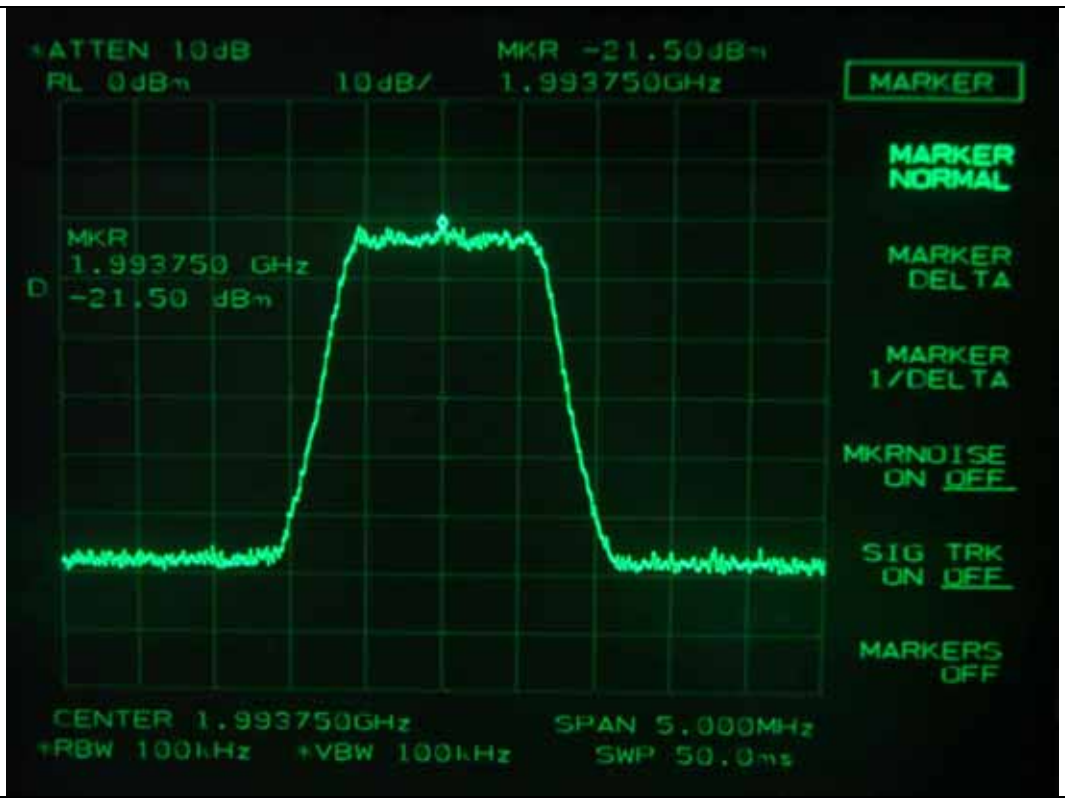


1xEVDO – Input (Low Channel)



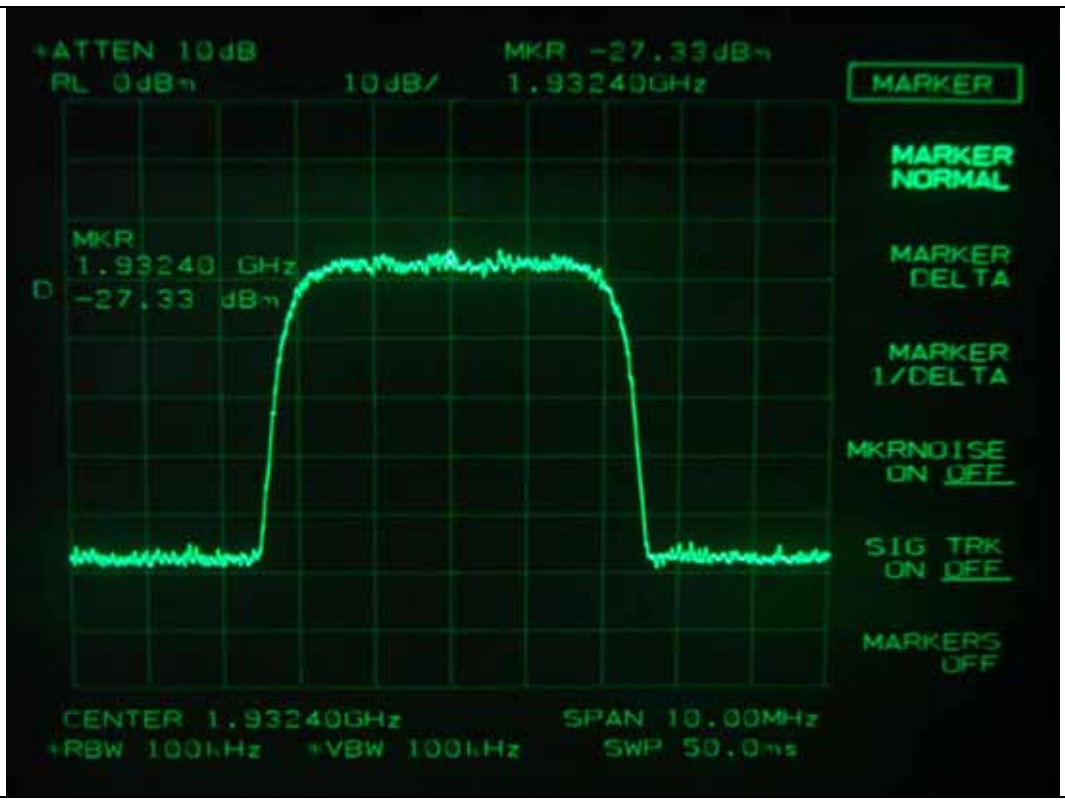
1xEVDO – Input (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

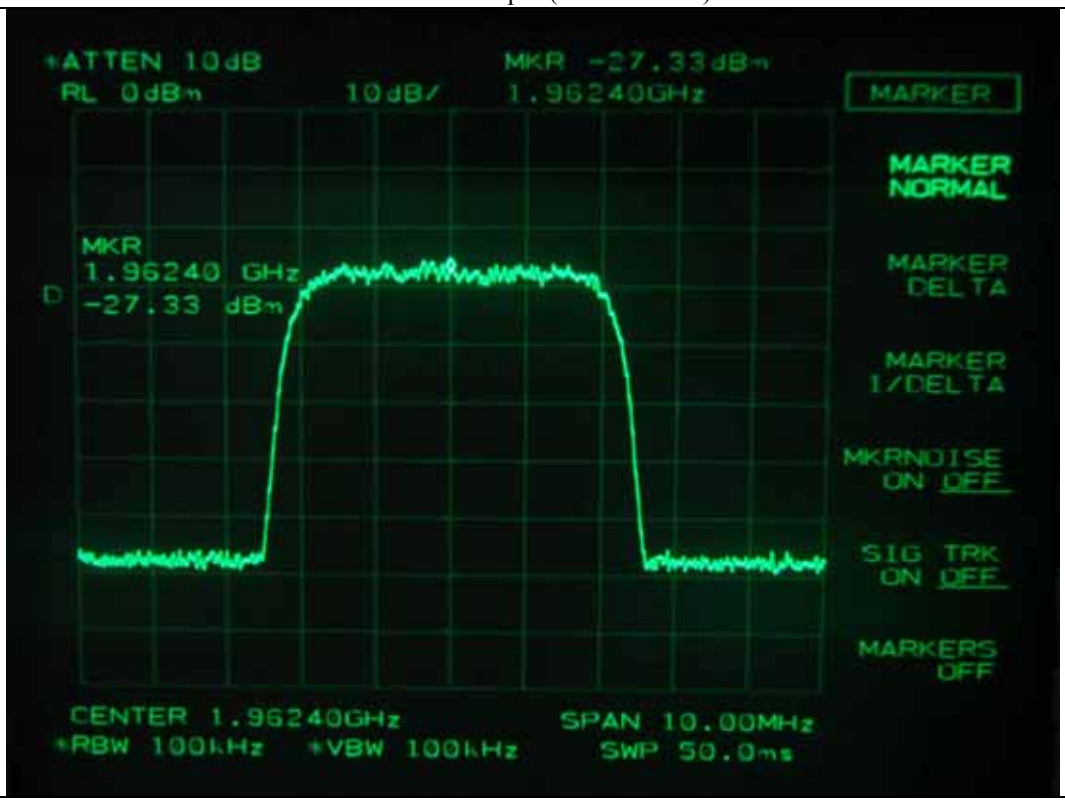


1xEVDO – Input (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

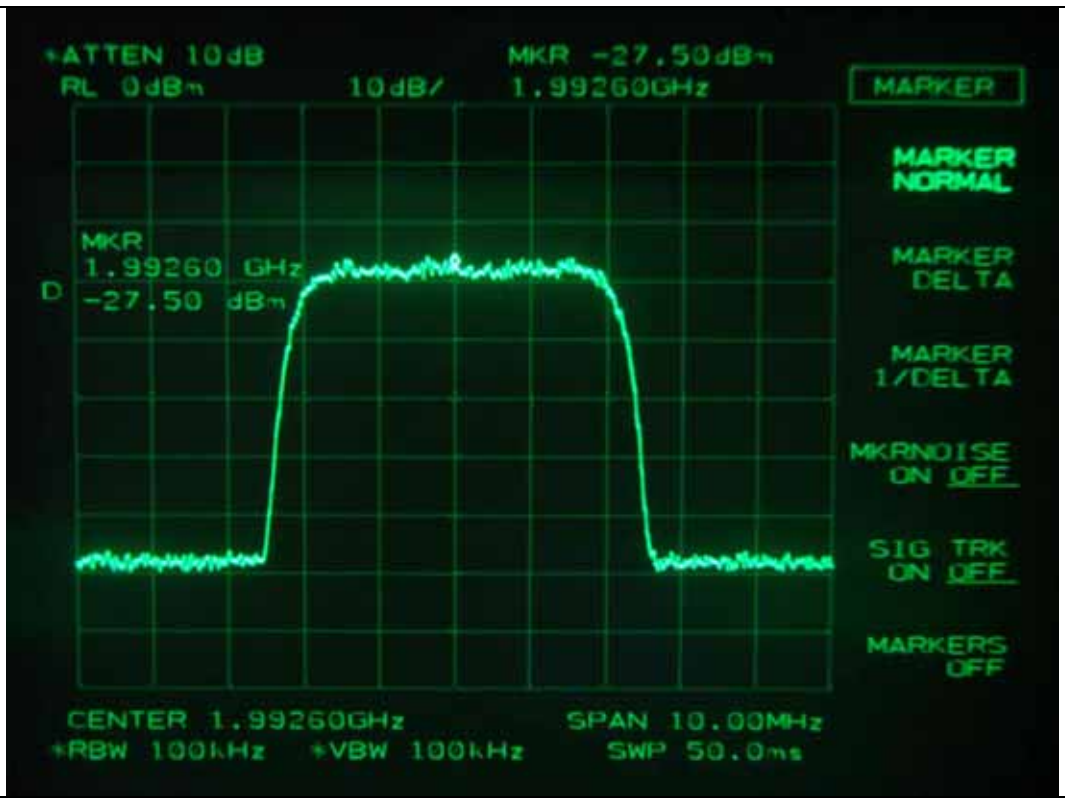


WCDMA – Input (Low Channel)



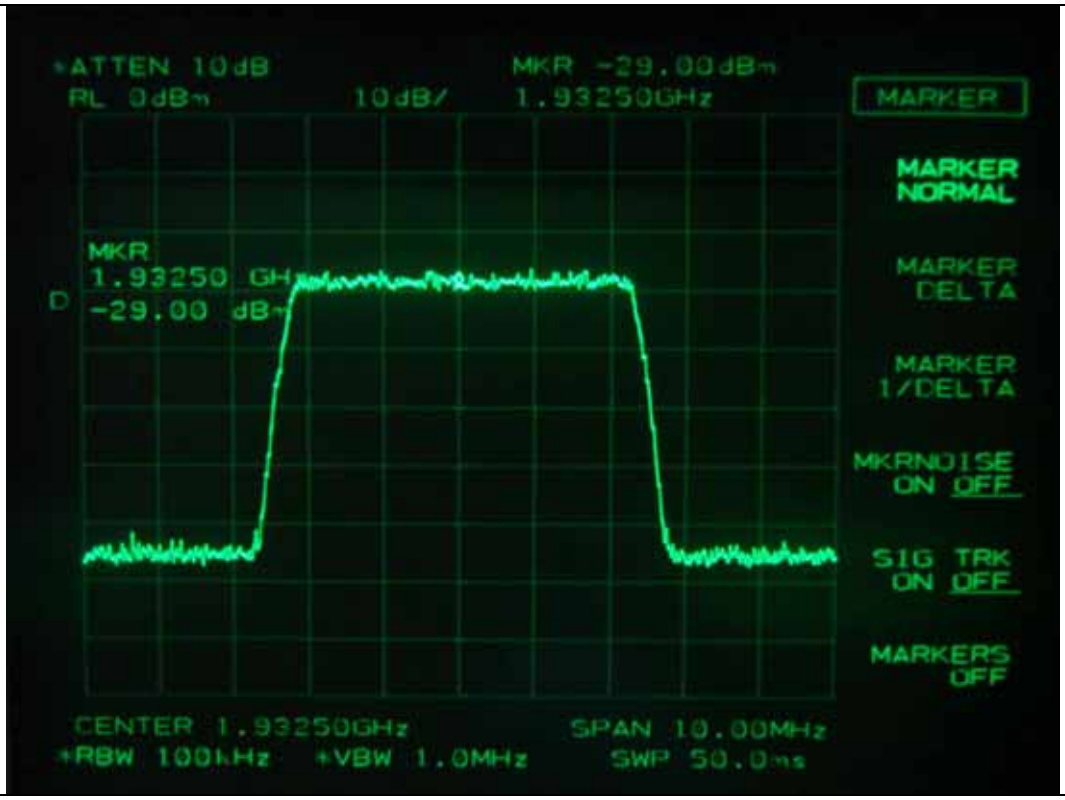
WCDMA – Input (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

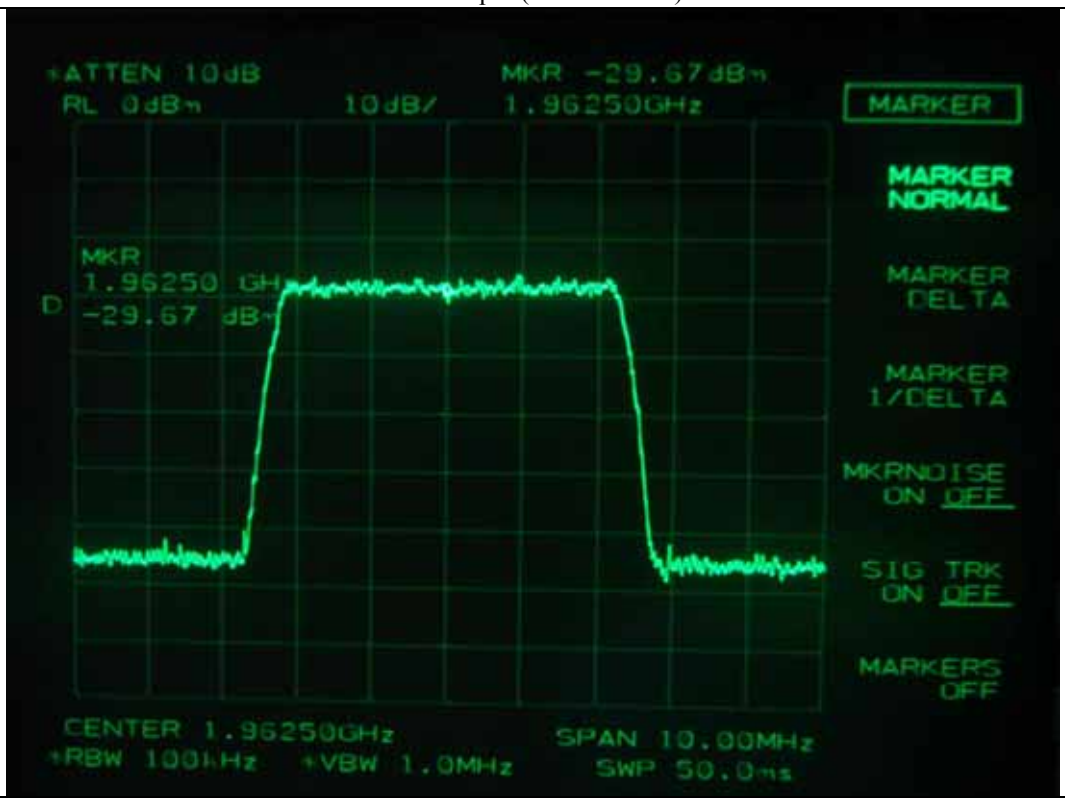


WCDMA – Input (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



LTE – Input (Low Channel)



LTE – Input (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

LTE – Input (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

6.4.2 Test Result for Part 90 I (800iDEN)

-. Test Date : November 08, 2011

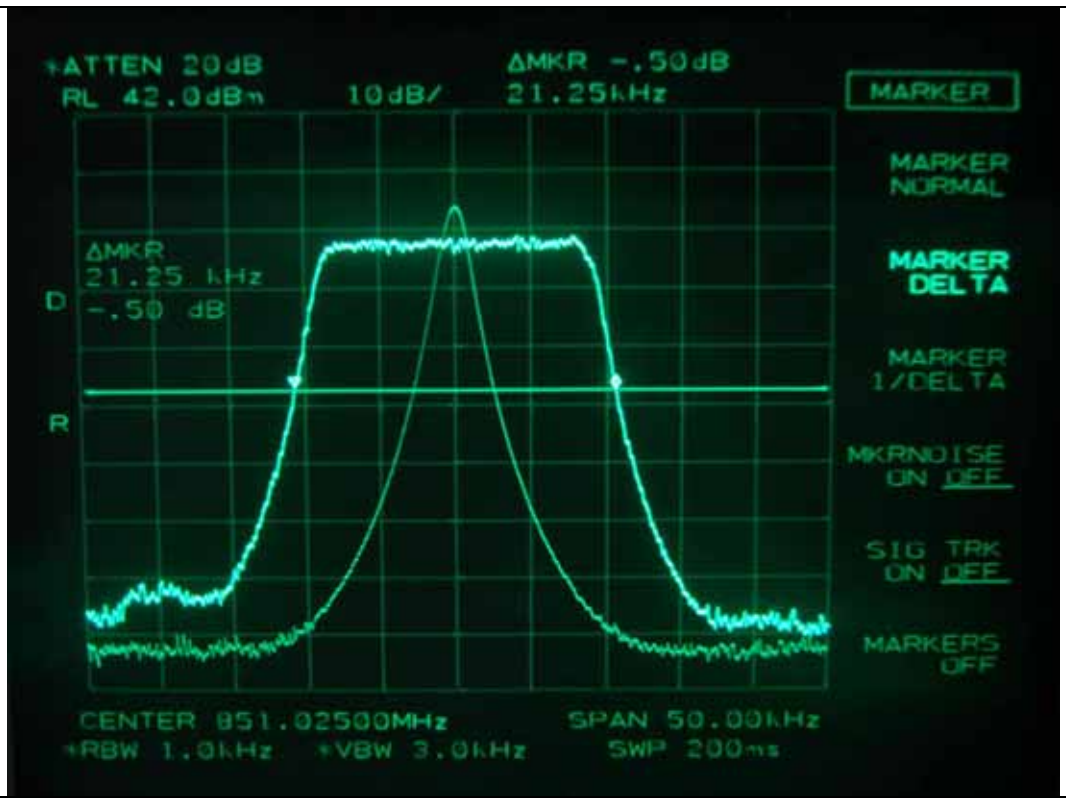
-. Test Result : Pass

Modulation	Channel	26 dB Bandwidth (kHz)	99 % Occupied Bandwidth (kHz)
iDEN	Low	21.25	18.42
	Middle	21.25	18.33
	High	21.25	18.42
LTE	Low	5 020.00	4 517.00
	Middle	5 020.00	4 517.00
	High	5 020.00	4 517.00

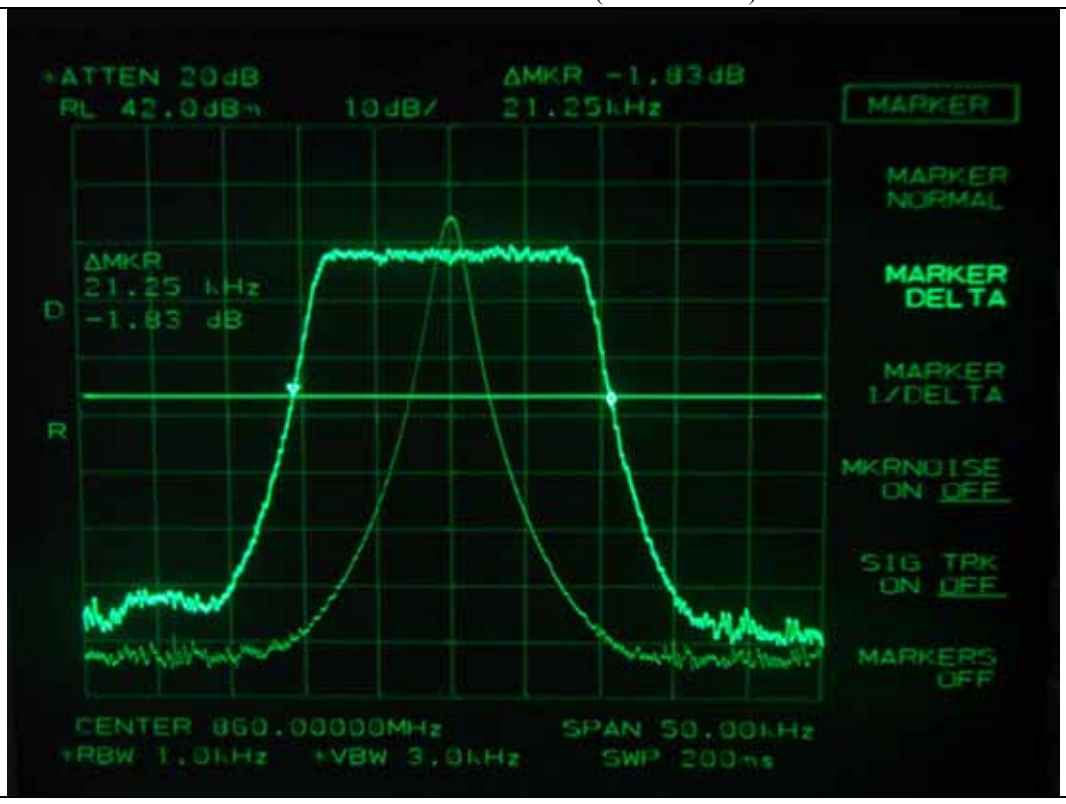
Remark: According to above result, the carrier frequency shall be within the frequency block edges.

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

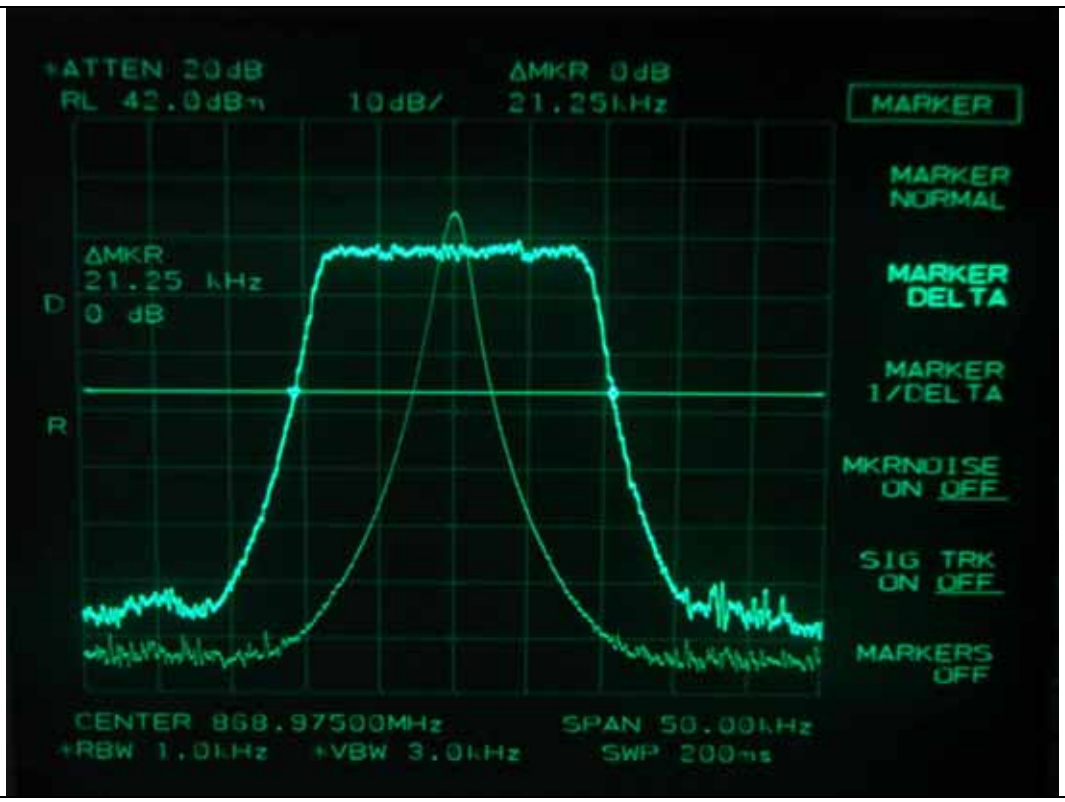


iDEN – 26 dB Bandwidth (Low Channel)



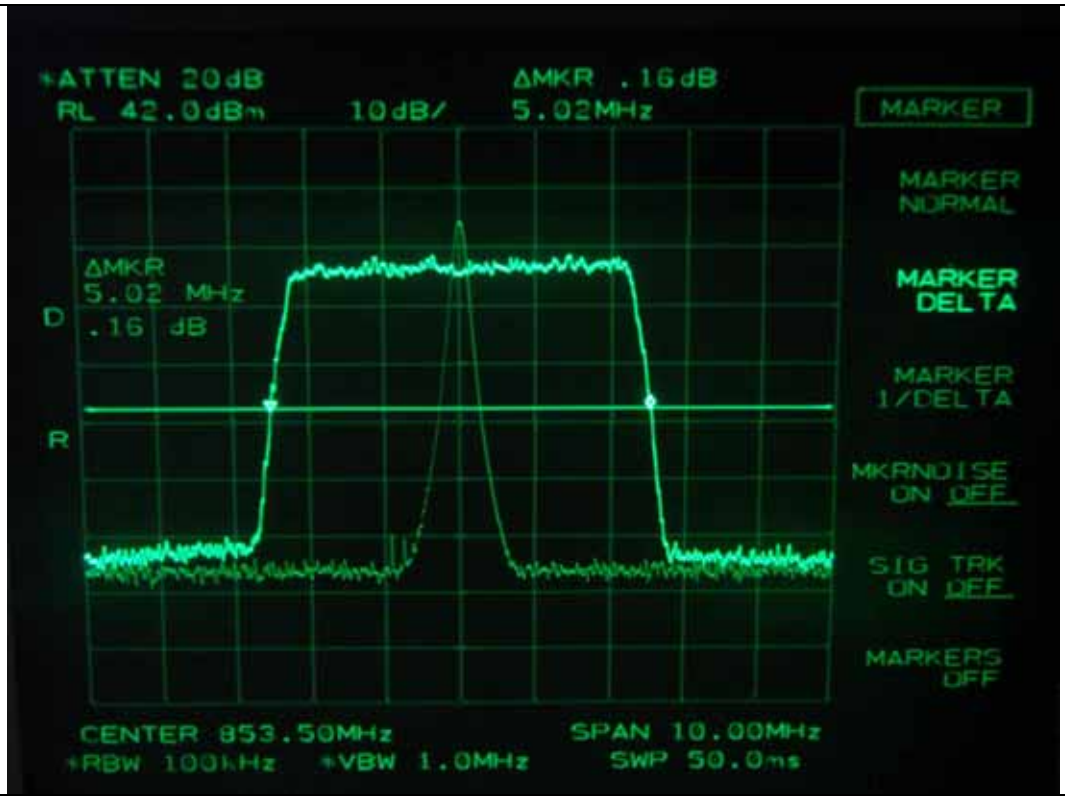
iDEN – 26 dB Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

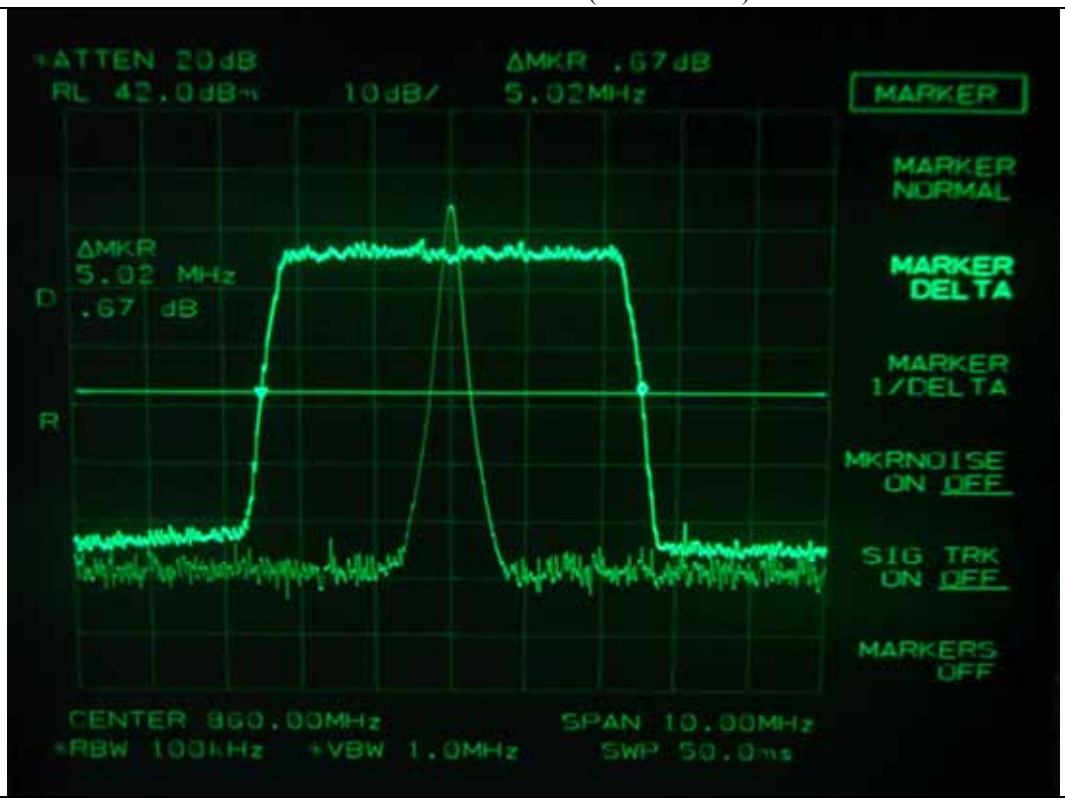


iDEN – 26 dB Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

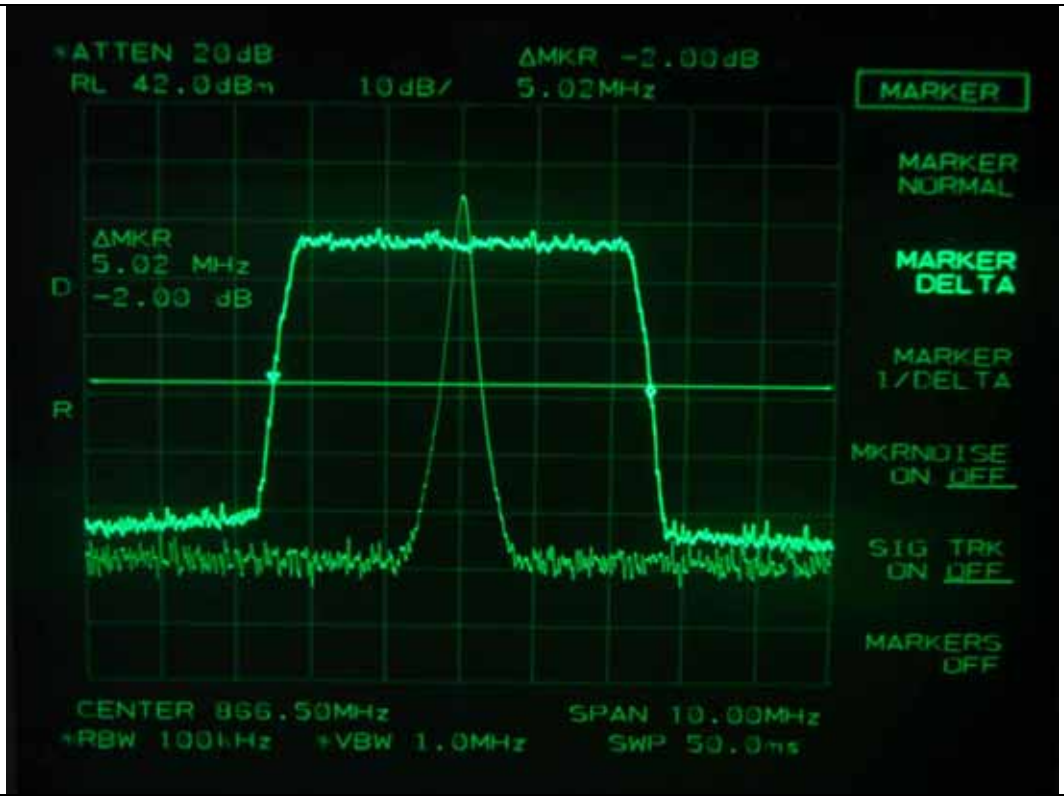


LTE – 26 dB Bandwidth (Low Channel)



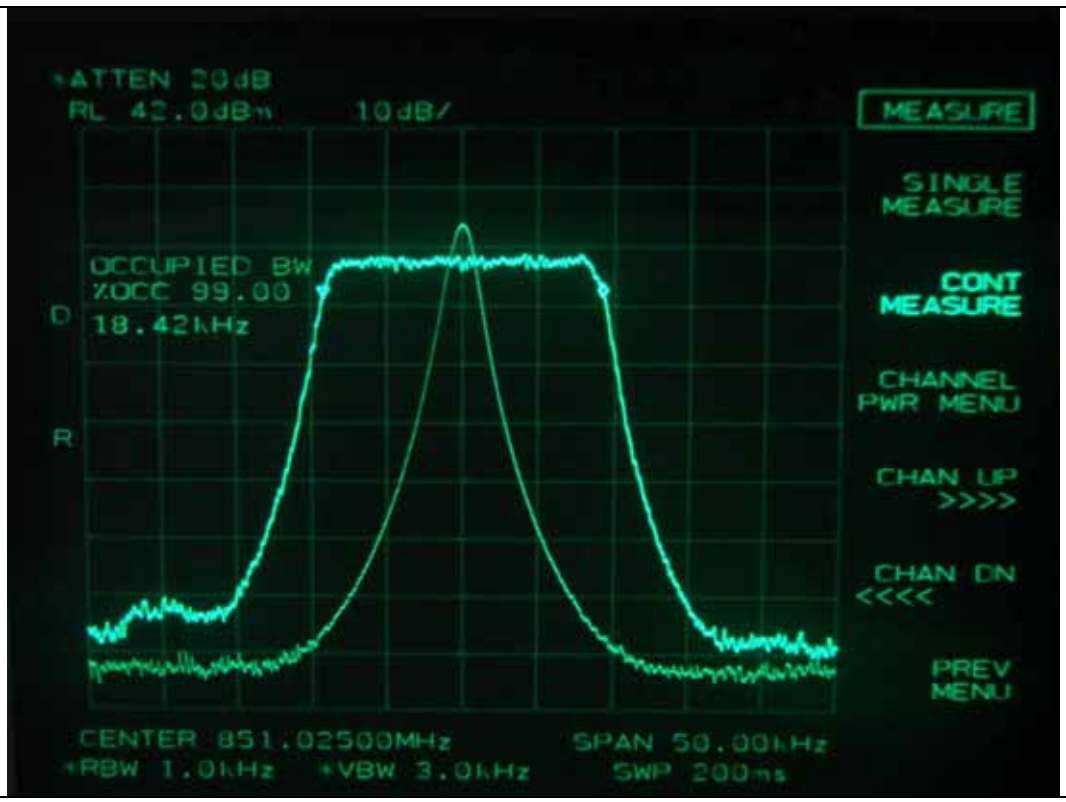
LTE – 26 dB Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

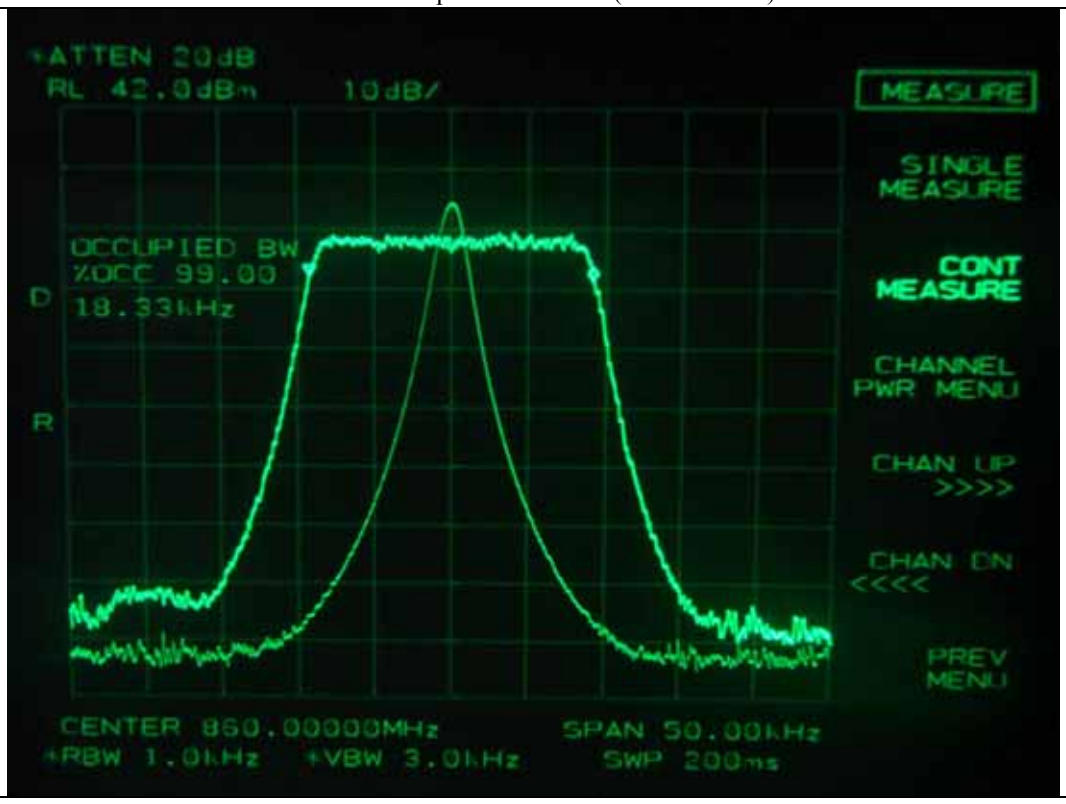


LTE – 26 dB Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

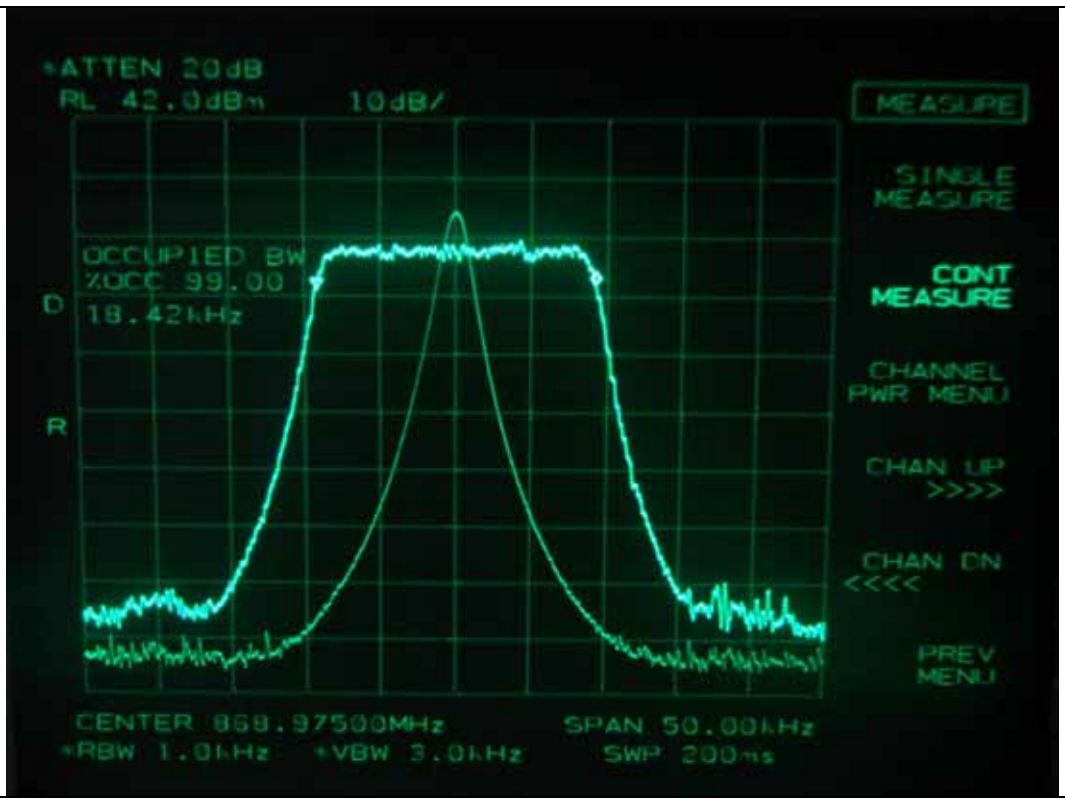


iDEN – Occupied Bandwidth (Low Channel)



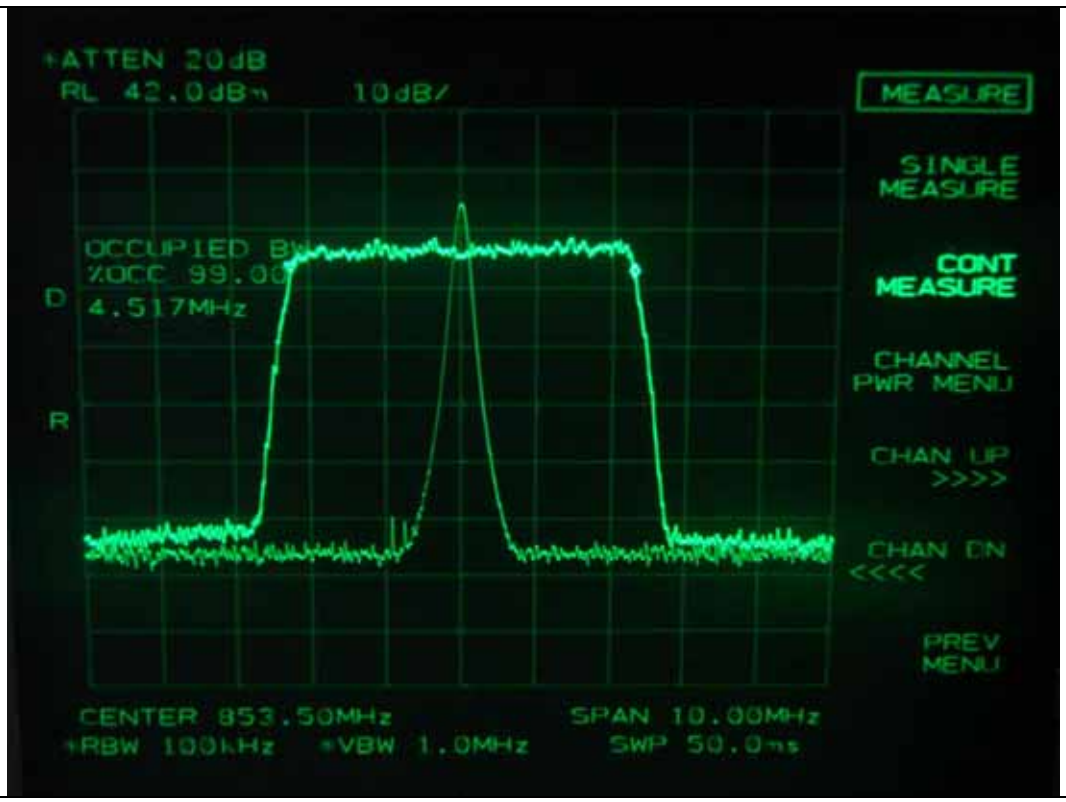
iDEN – Occupied Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

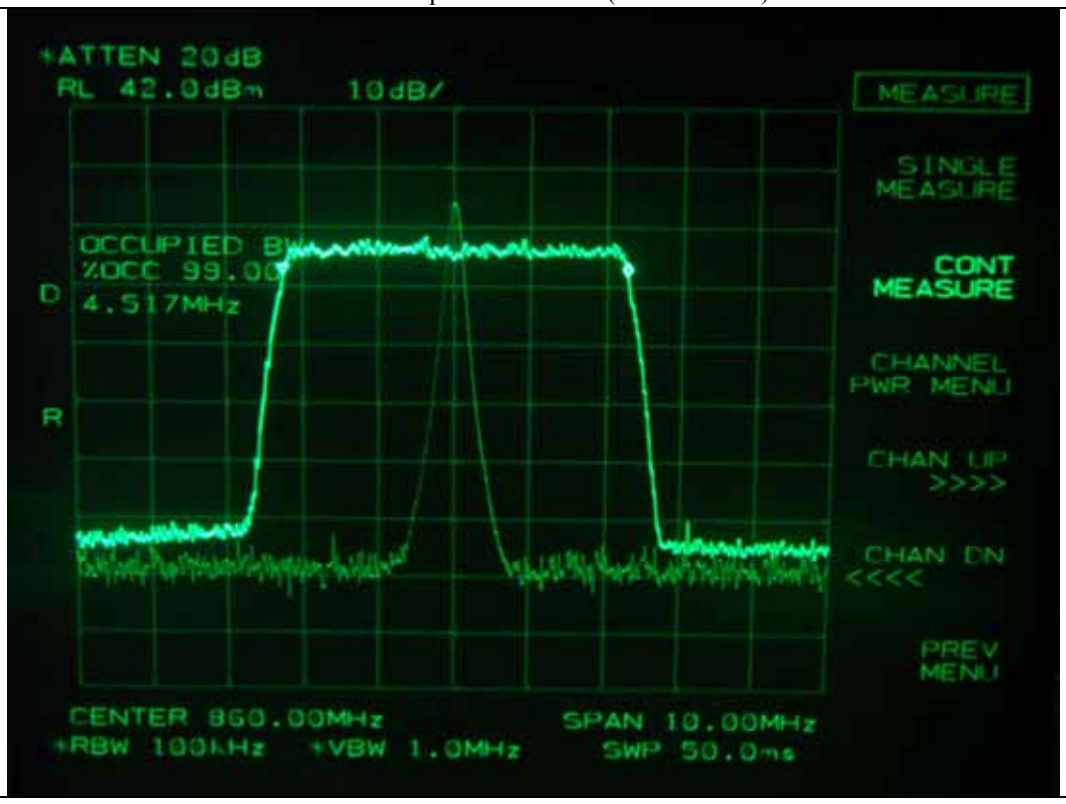


iDEN – Occupied Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

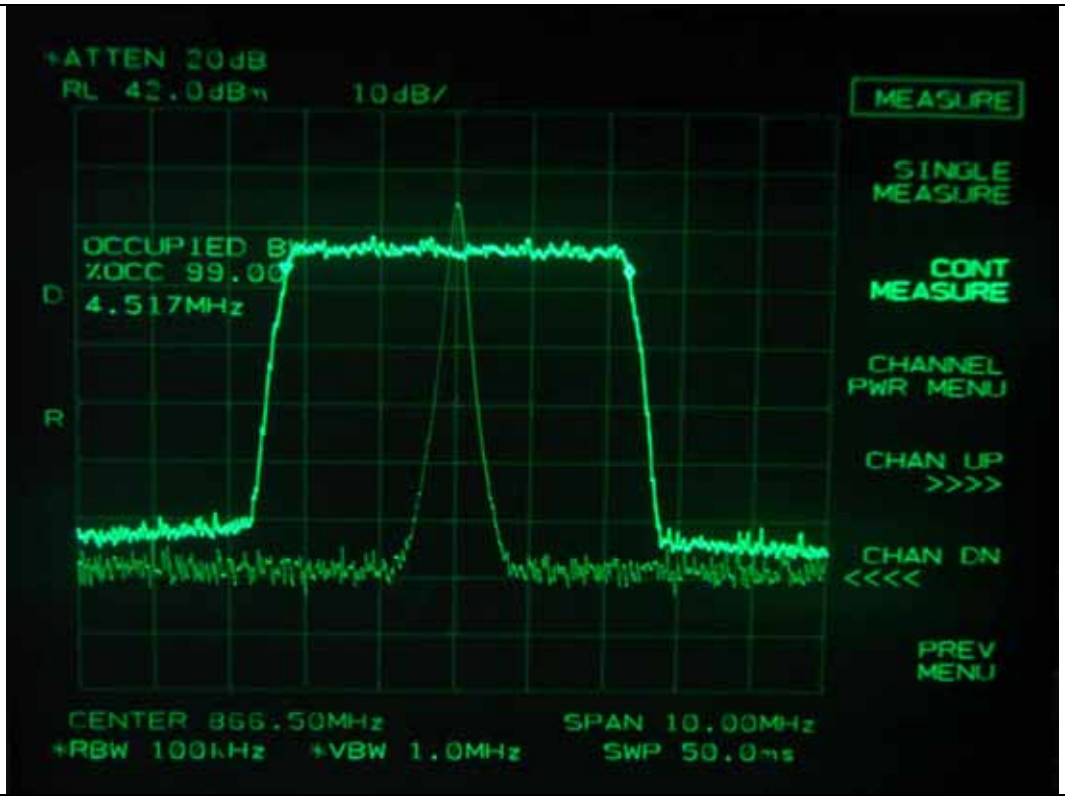


LTE – Occupied Bandwidth (Low Channel)



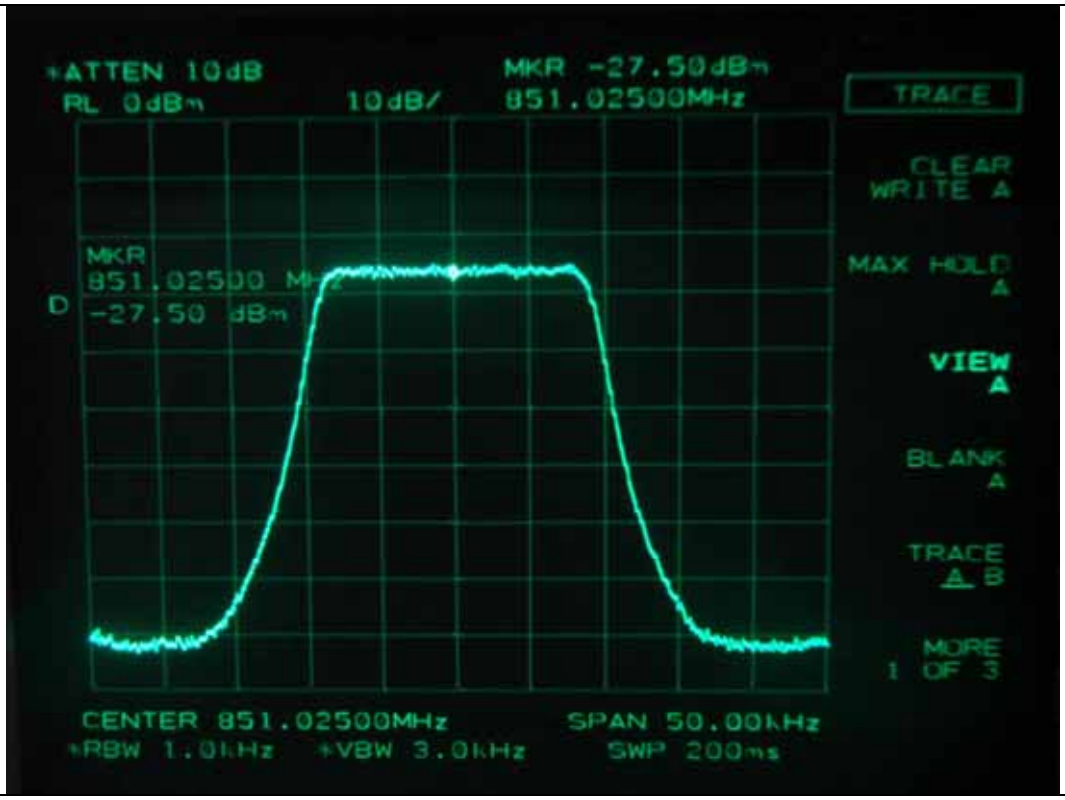
LTE – Occupied Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

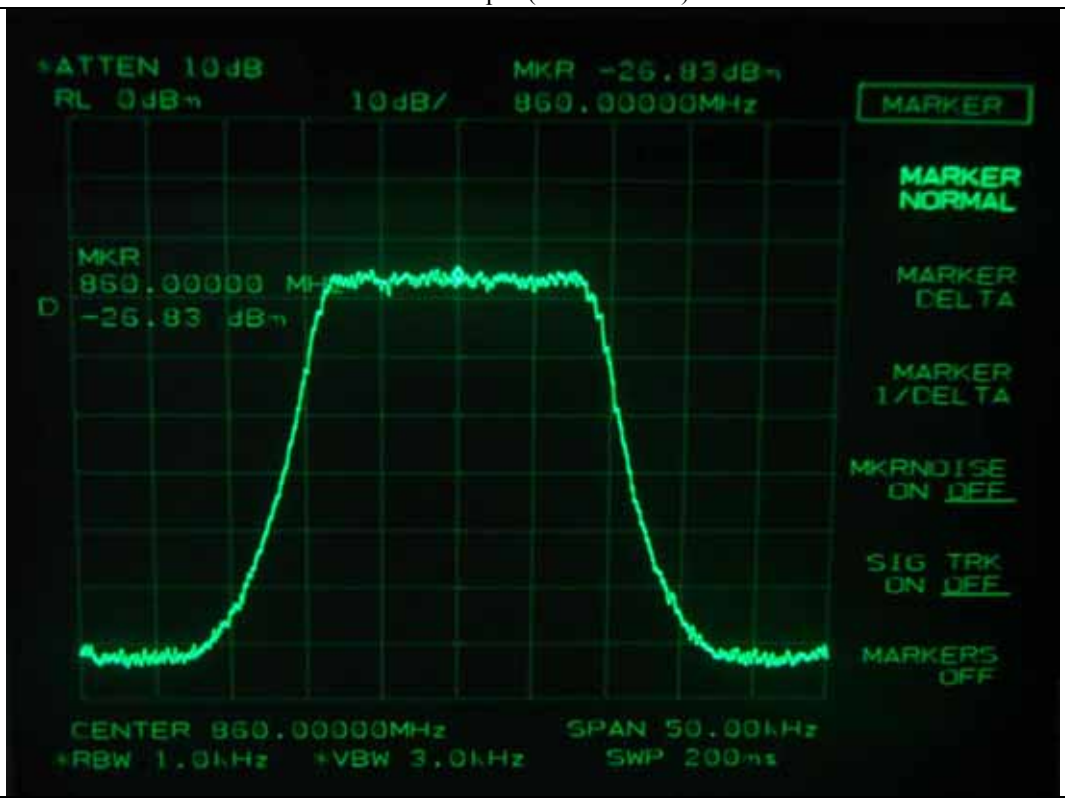


LTE – Occupied Bandwidth (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

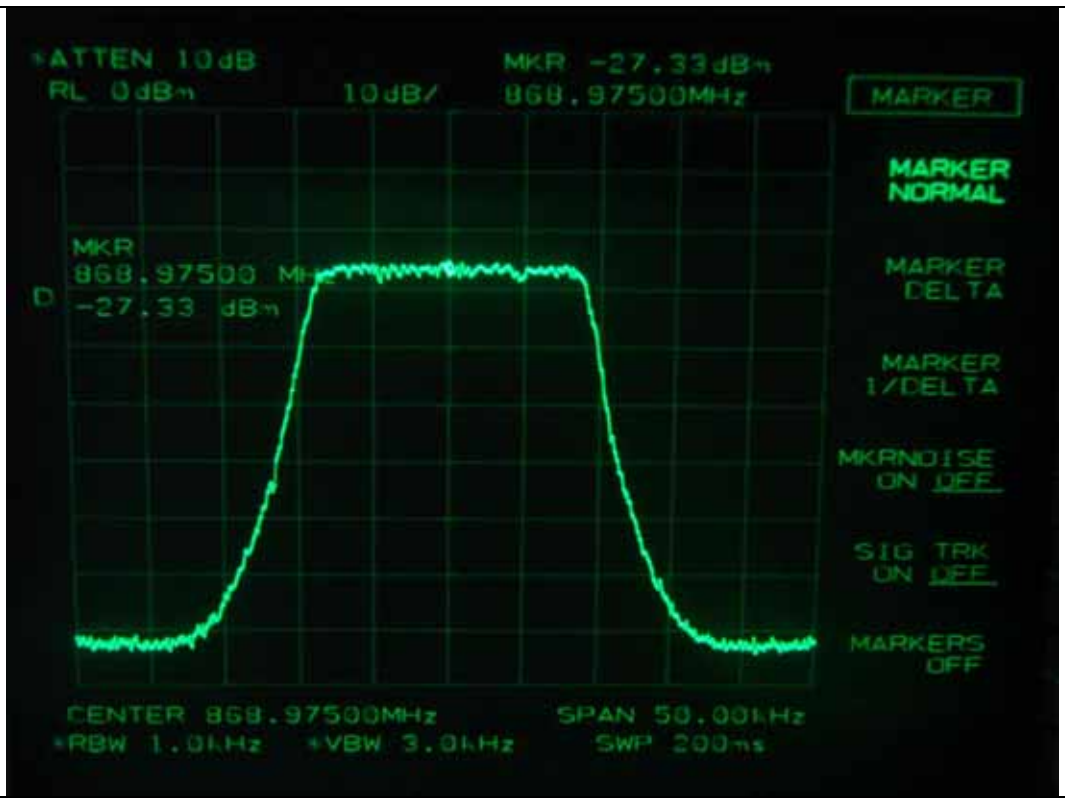


iDEN – Input (Low Channel)



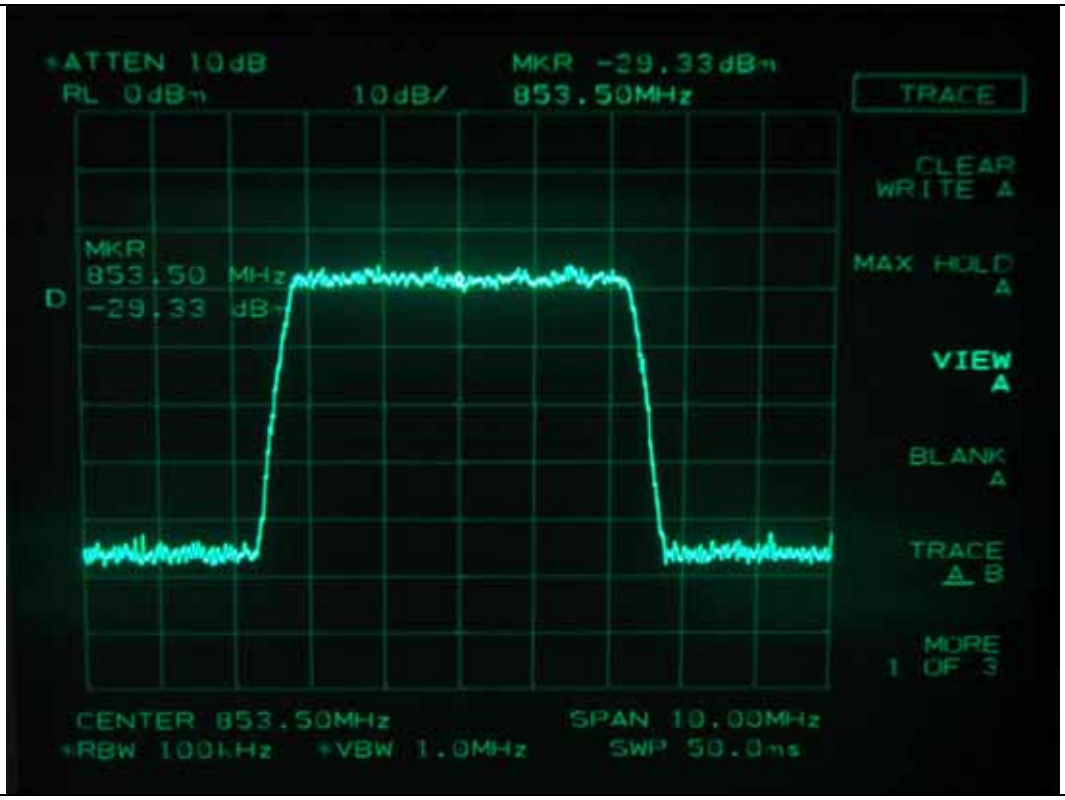
iDEN – Input (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

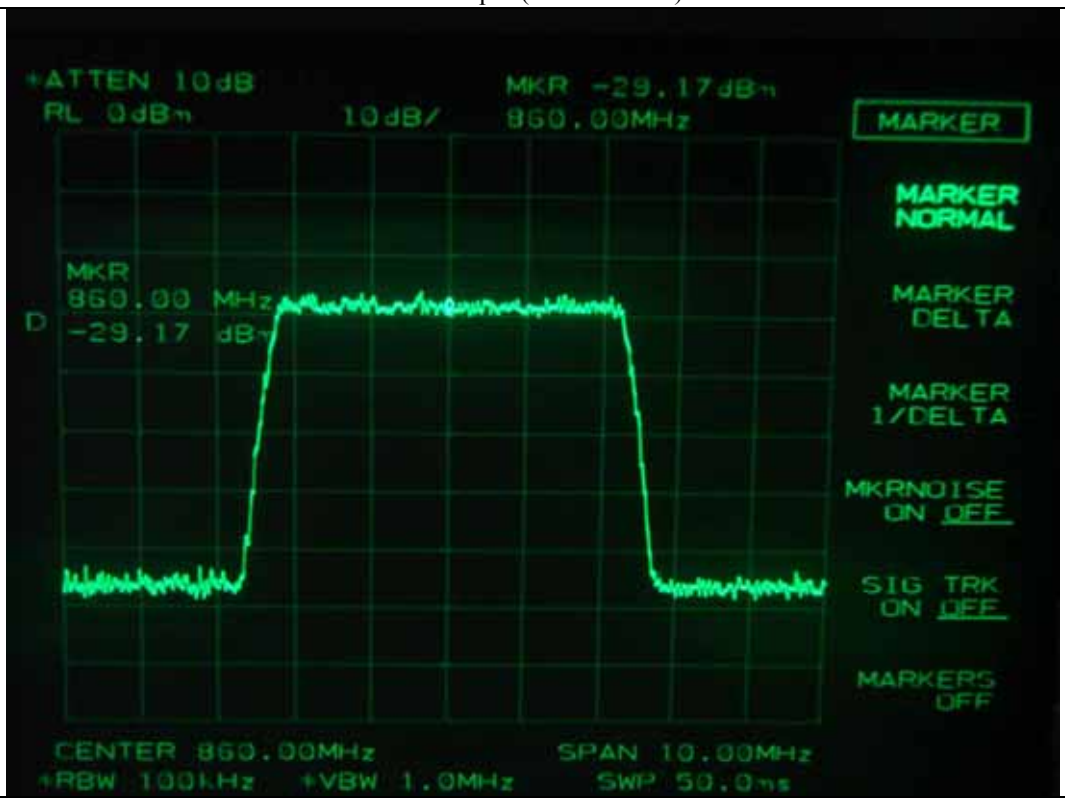


iDEN – Input (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

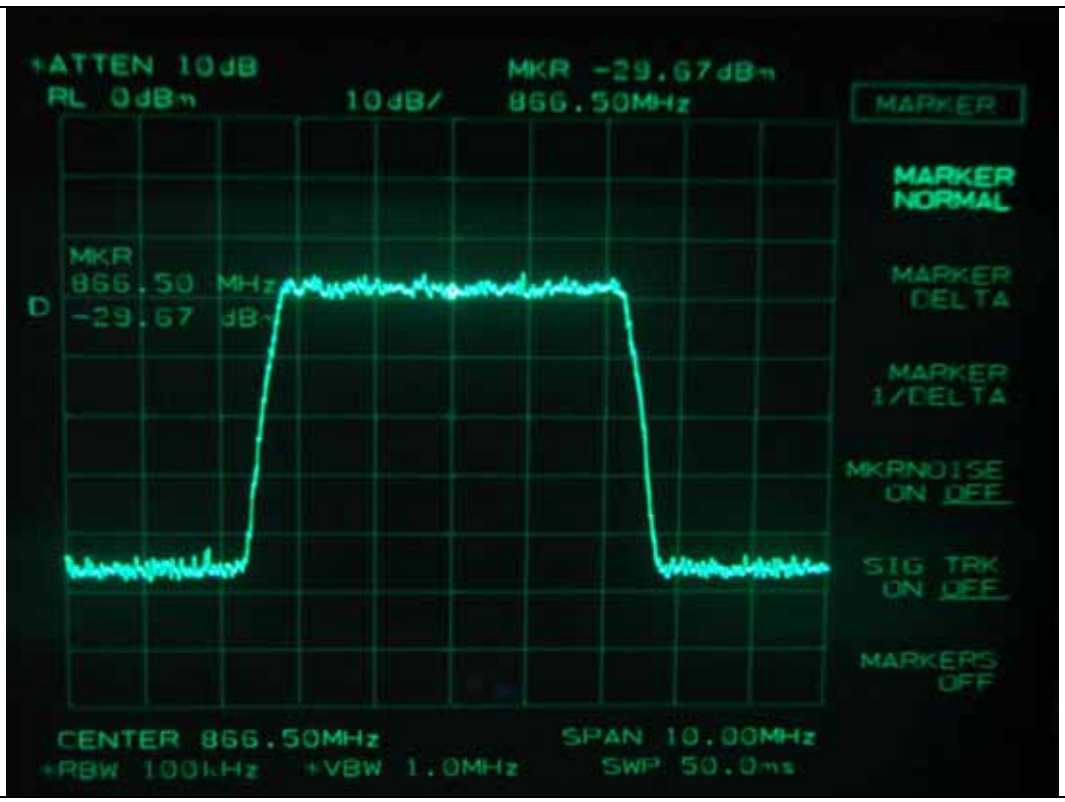


LTE – Input (Low Channel)



LTE – Input (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



LTE – Input (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

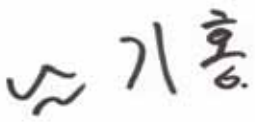
6.4.3 Test Result for Part 90 I (900iDEN)

-. Test Date : November 10, 2011

-. Test Result : Pass

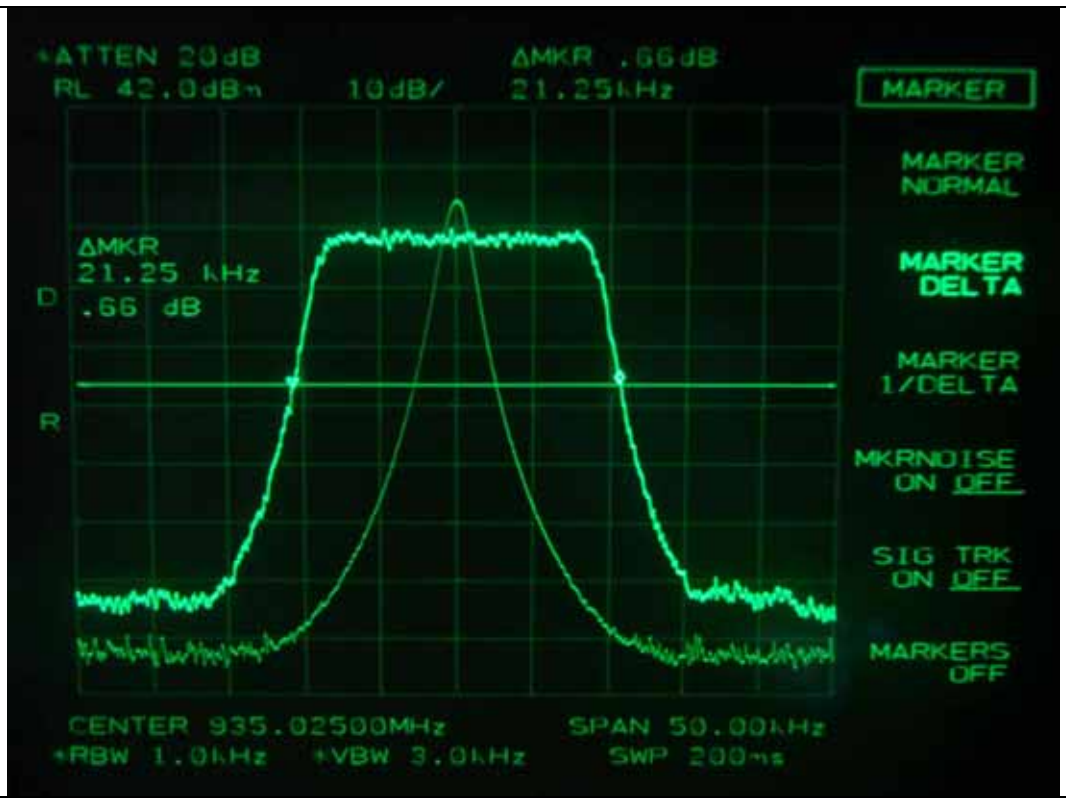
Modulation	Channel	26 dB Bandwidth (kHz)	99 % Occupied Bandwidth (kHz)
iDEN	Low	21.25	18.42
	Middle	21.25	18.33
	High	21.25	18.33
LTE		5 020.00	4 500.00

Remark: According to above result, the carrier frequency shall be within the frequency block edges.

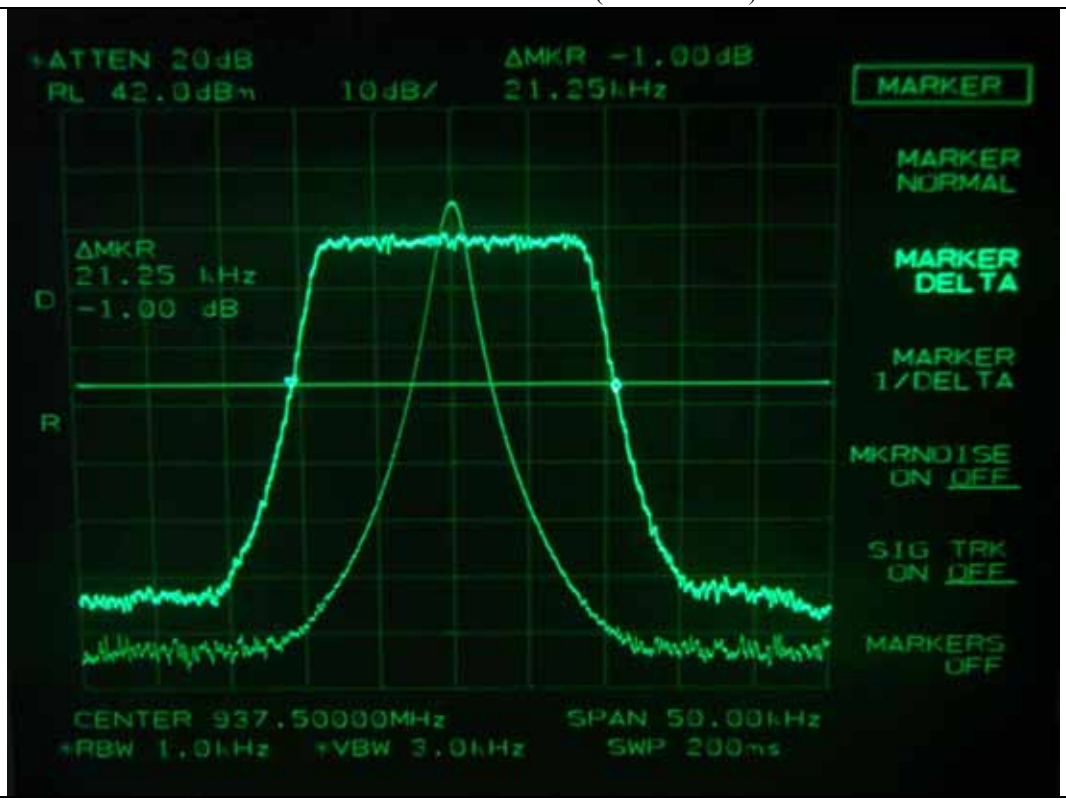


Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

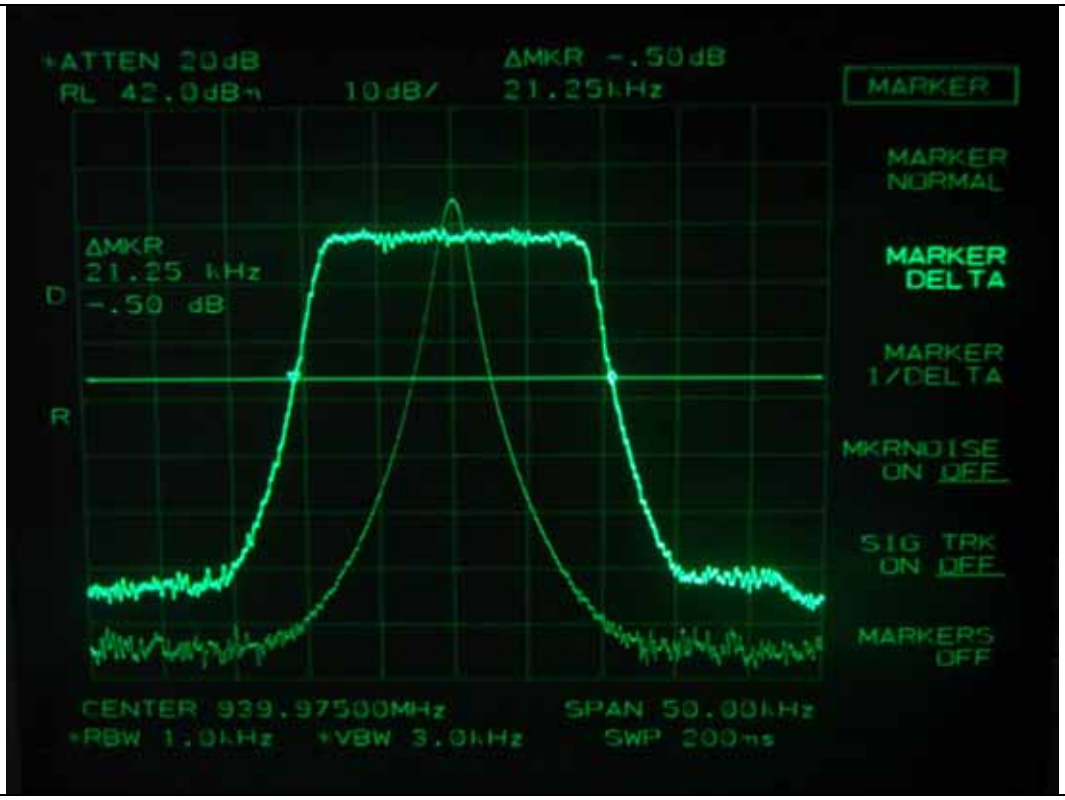


iDEN – 26 dB Bandwidth (Low Channel)

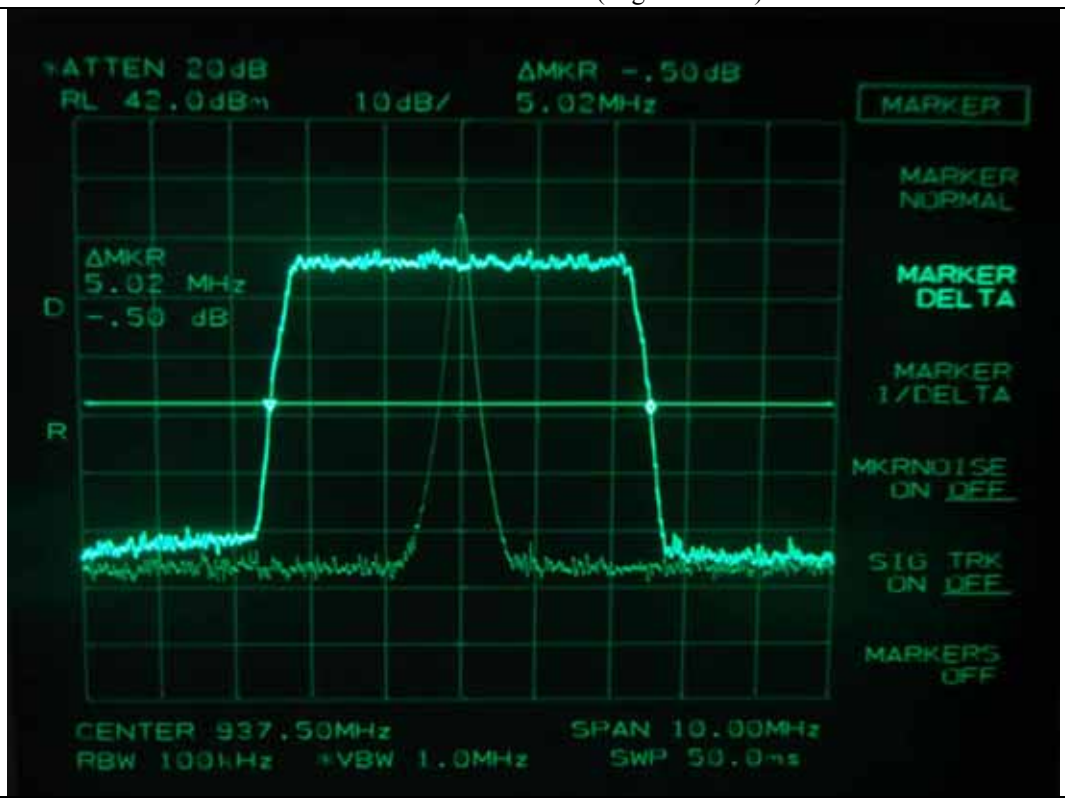


iDEN – 26 dB Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

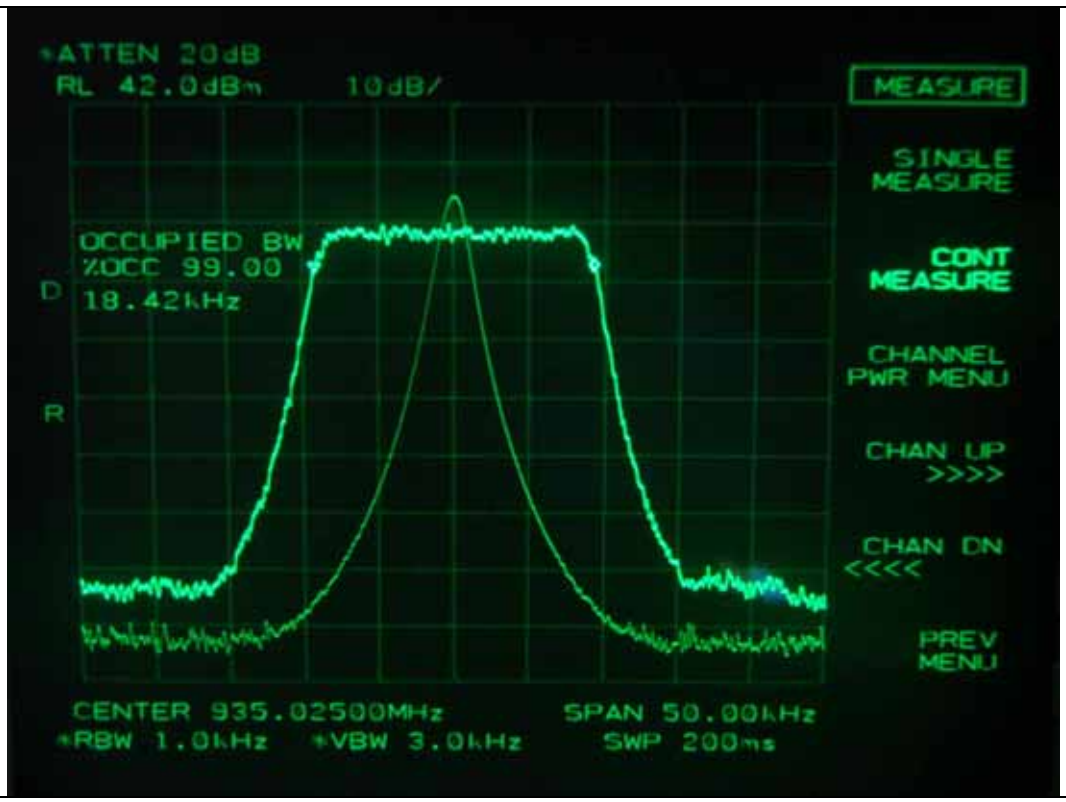


iDEN – 26 dB Bandwidth (High Channel)

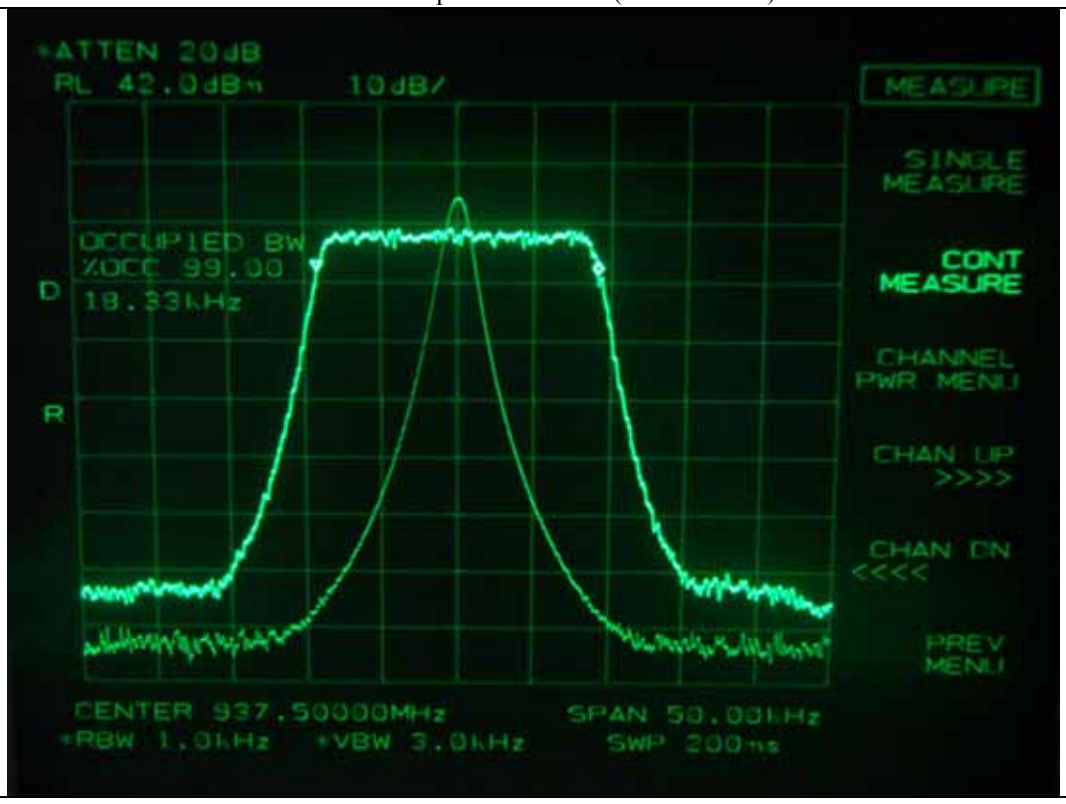


LTE – 26 dB Bandwidth

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

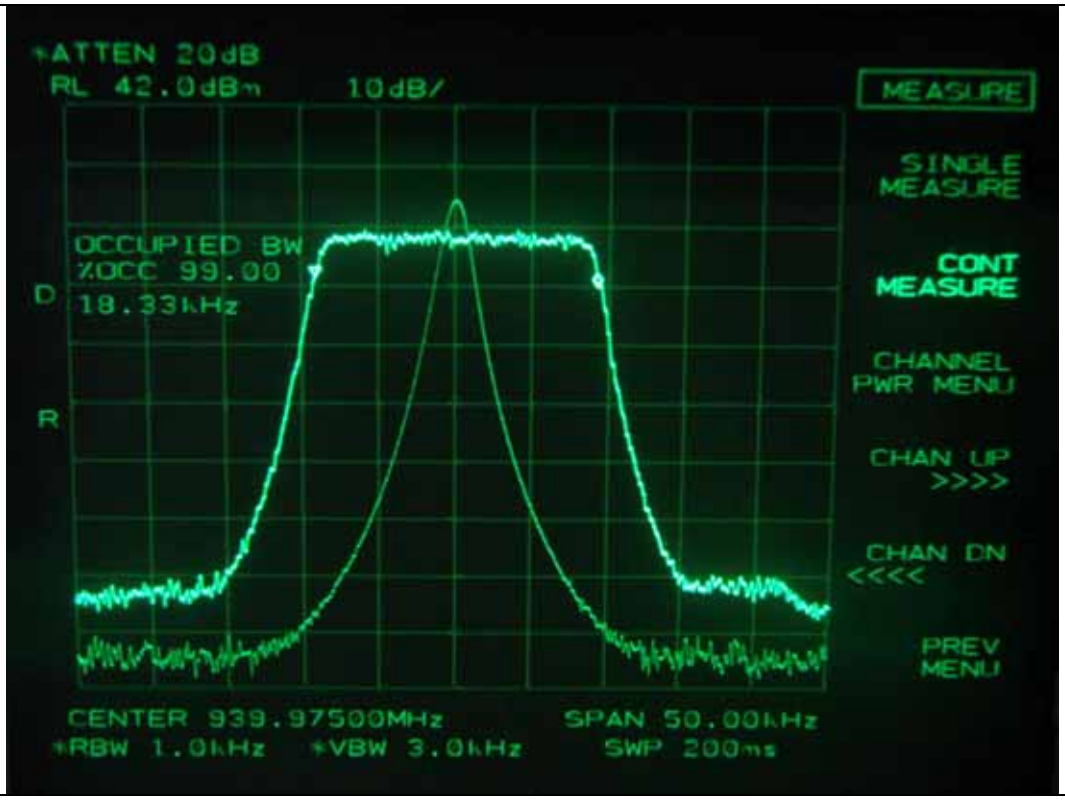


iDEN – Occupied Bandwidth (Low Channel)

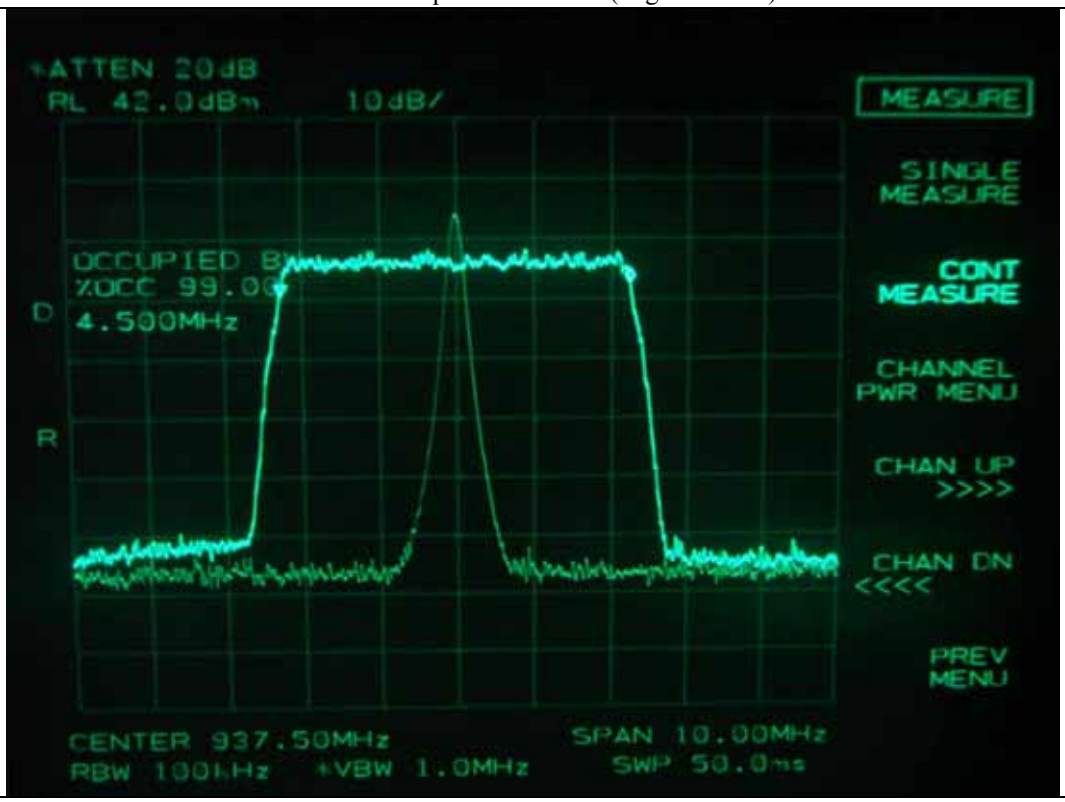


iDEN – Occupied Bandwidth (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

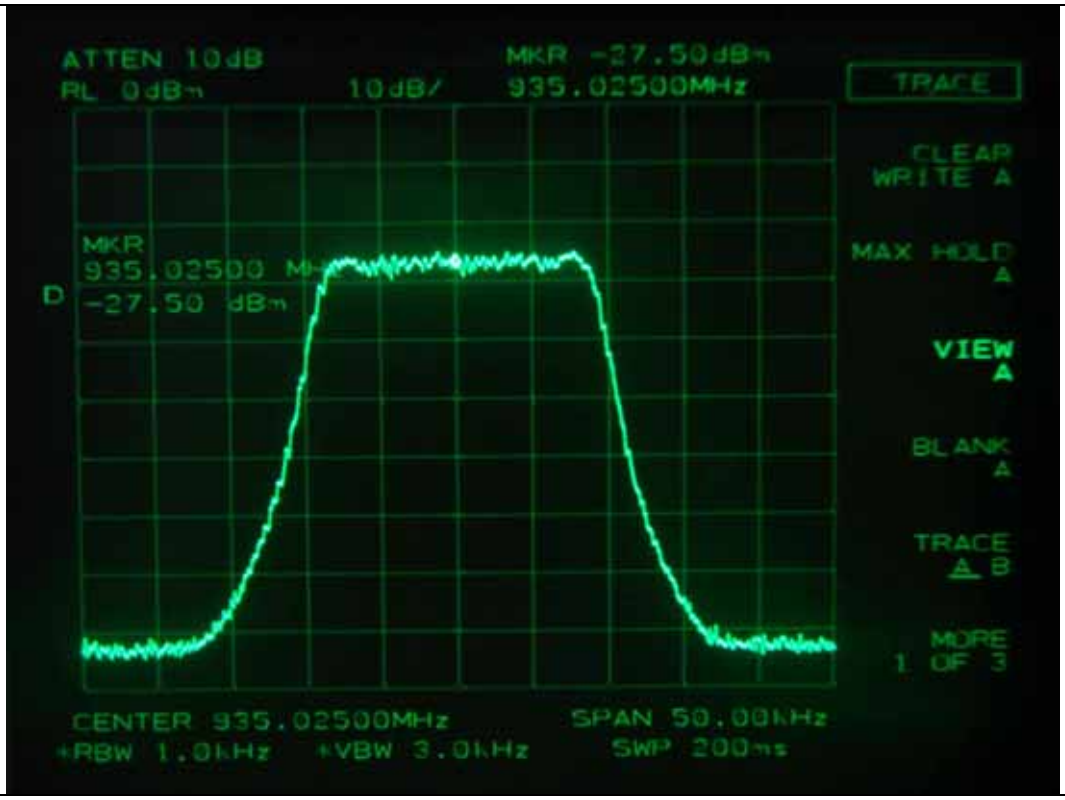


iDEN – Occupied Bandwidth (High Channel)

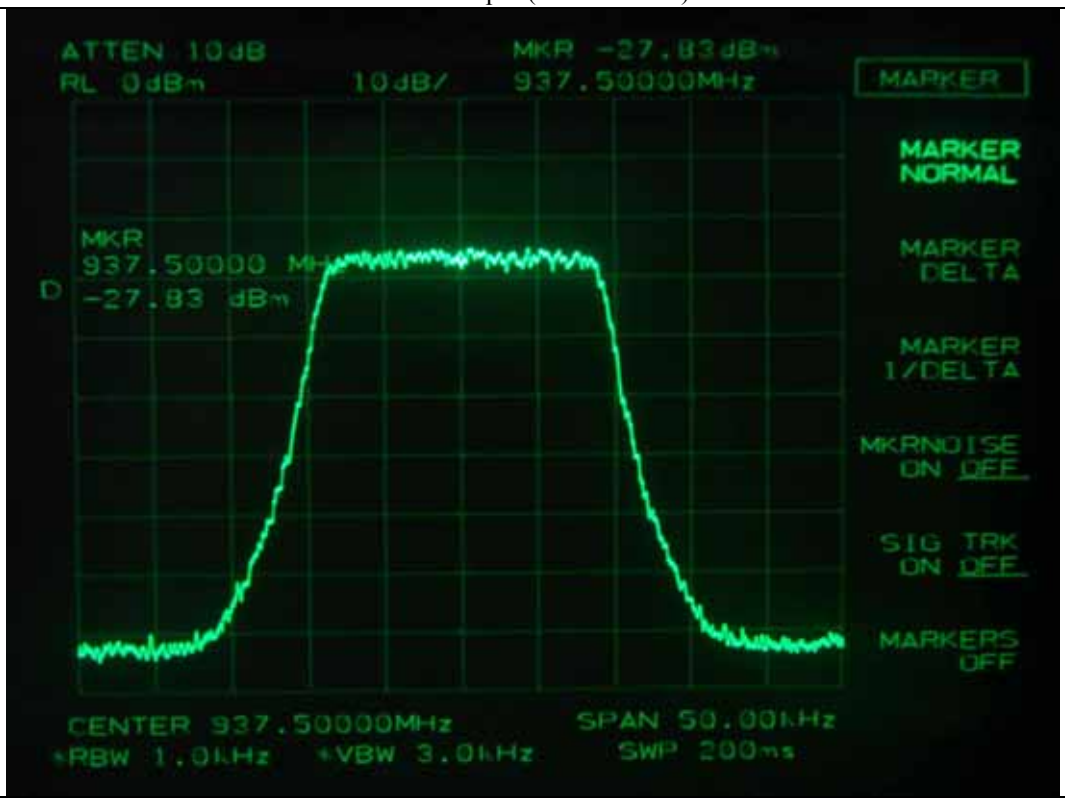


LTE – Occupied Bandwidth

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

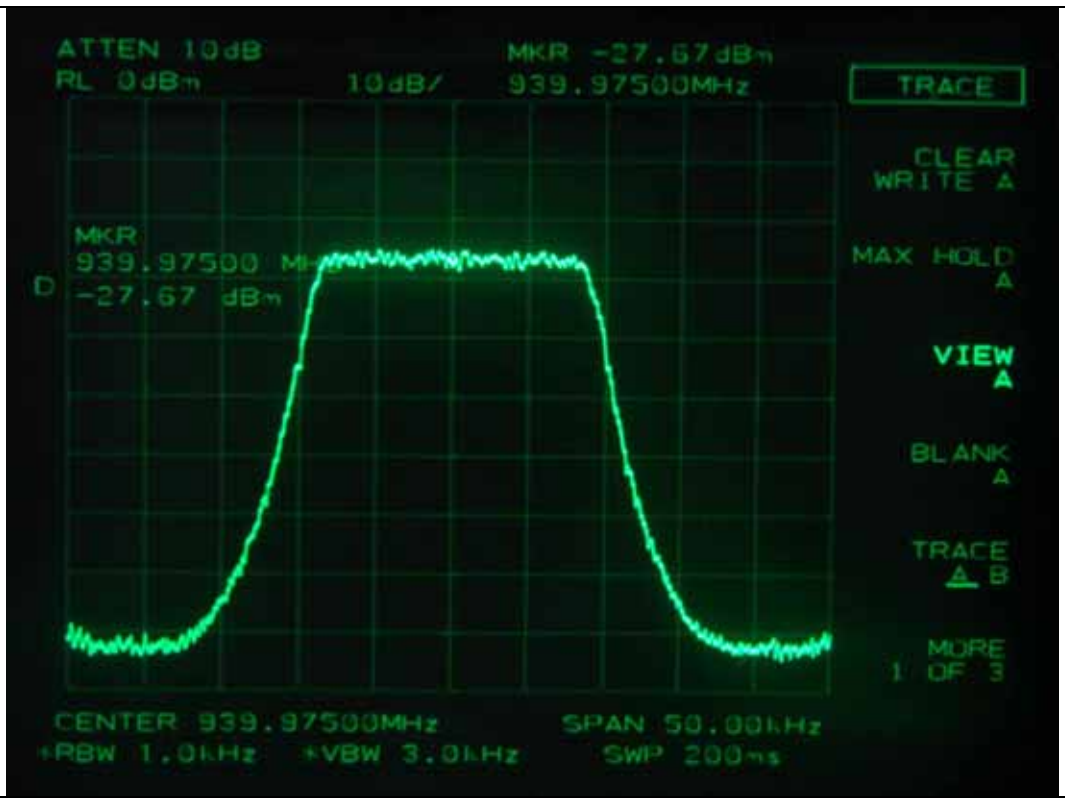


iDEN – Input (Low Channel)

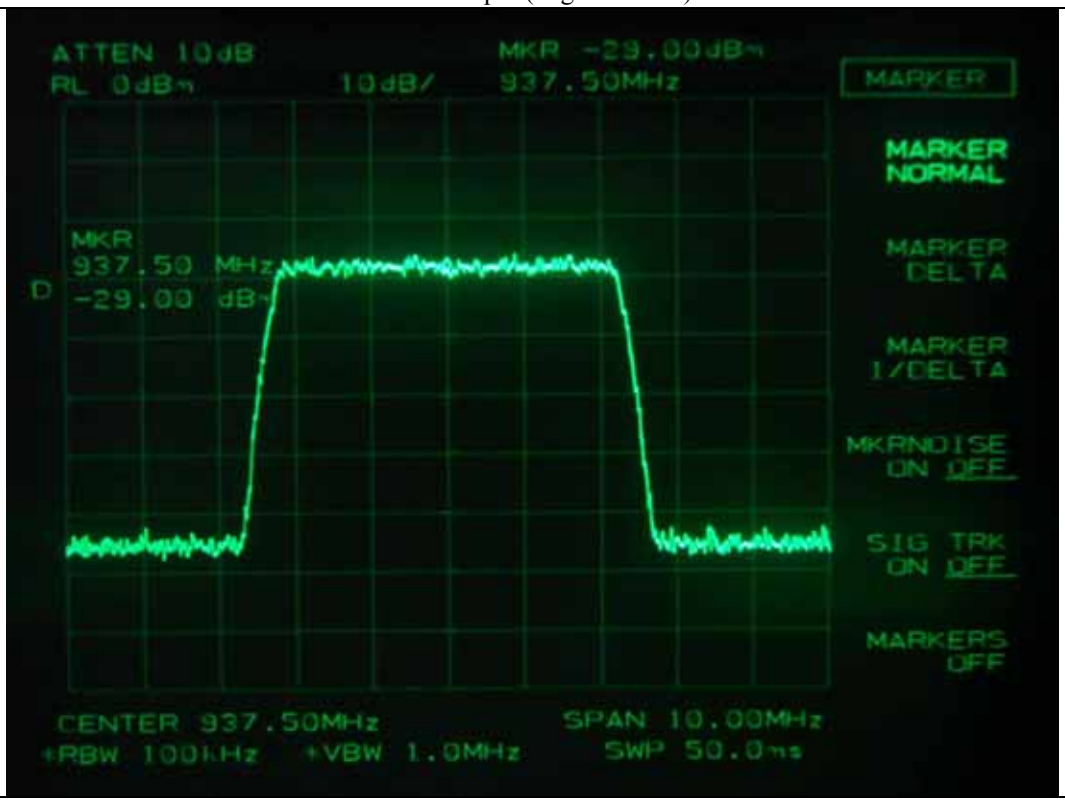


iDEN – Input (Middle Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



iDEN – Input (High Channel)



LTE – Input

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

7. SPURIOUS EMISSION AT ANTENNA TERMINAL

7.1 Operating environment

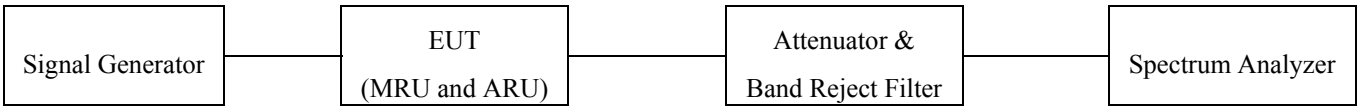
Temperature : (23 ~ 25) °C

Relative humidity : (49 ~ 50) % R.H.

7.2 Test set-up for conducted measurement

The RF signal from the signal generator(s) was injected to the EUT and the amplified RF signal at the output of the EUT was connected to the power meter or spectrum analyzer. The test was performed at three frequencies (low, middle, and high channels) at each band using all applicable modulation.

The resolution bandwidth and video bandwidth of the spectrum analyzer was set at 1 MHz and sufficient scans were taken to show any out of band emissions up to 20 GHz.



7.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	8564E	HP	Spectrum Analyzer	3650A00756	Jun. 10, 2011 (1Y)
■ -	E4432B	HP	Signal Generator	US38440950	Jun. 10, 2011 (1Y)
■ -	SMJ100A	R/S	Signal Generator	101038	Feb. 01, 2011 (1Y)
□ -	FSP	R/S	Spectrum Analyzer	100017	Mar. 15, 2011 (1Y)
■ -	WRCT 1850/2170 -5/40-10SSK	Wainwright Instruments GmbH	Tunable Band Reject Filter	20	Oct. 21, 2011 (1Y)

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

7.4 Test data

7.4.1 Test Result for Part 24 E (1900P)

-. Test Date : November 14, 2011

-. Frequency range : 30 MHz ~ 26.5 GHz

-. Result : PASSED BY –23.50 dB at CDMA Mode

Modulation	Harmonic Frequency (MHz)		Measured Value (dBm)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
TDMA	Low	382.40	-65.67	0.50	-65.17	-13.00	-52.17
		2 4720.00	-46.67	8.50	-38.17		-25.17
	Middle	550.60	-65.00	0.50	-64.50		-51.50
		2 4720.00	-46.00	8.50	-37.50		-24.50
	High	435.80	-65.83	0.50	-65.33		-52.33
		2 4720.00	-47.00	8.50	-38.50		-25.50
GSM	Low	476.20	-66.17	0.50	-65.67	-13.00	-52.67
		2 4720.00	-47.17	8.50	-38.67		-25.67
	Middle	489.10	-66.67	0.50	-66.17		-53.17
		2 4720.00	-46.83	8.50	-38.33		-25.33
	High	498.80	-65.83	0.50	-65.33		-52.33
		2 4720.00	-47.00	8.50	-38.50		-25.50
EDGE	Low	532.80	-65.50	0.67	-64.83	-13.00	-51.83
		2 4720.00	-47.67	8.50	-39.17		-26.17
	Middle	497.20	-66.00	0.67	-65.33		-52.33
		2 4720.00	-47.00	8.50	-38.50		-25.50
	High	558.70	-65.50	0.67	-64.83		-51.83
		2 4720.00	-46.50	8.50	-38.00		-25.00
CDMA	Low	773.70	-64.50	0.67	-63.83	-13.00	-50.83
		2 4720.00	-45.00	8.50	-36.50		-23.50
	Middle	608.80	-66.17	0.67	-65.50		-52.50
		2 4720.00	-47.00	8.50	-38.50		-25.50
	High	641.10	-65.17	0.67	-64.50		-51.50
		2 4720.00	-46.33	8.50	-37.83		-24.83

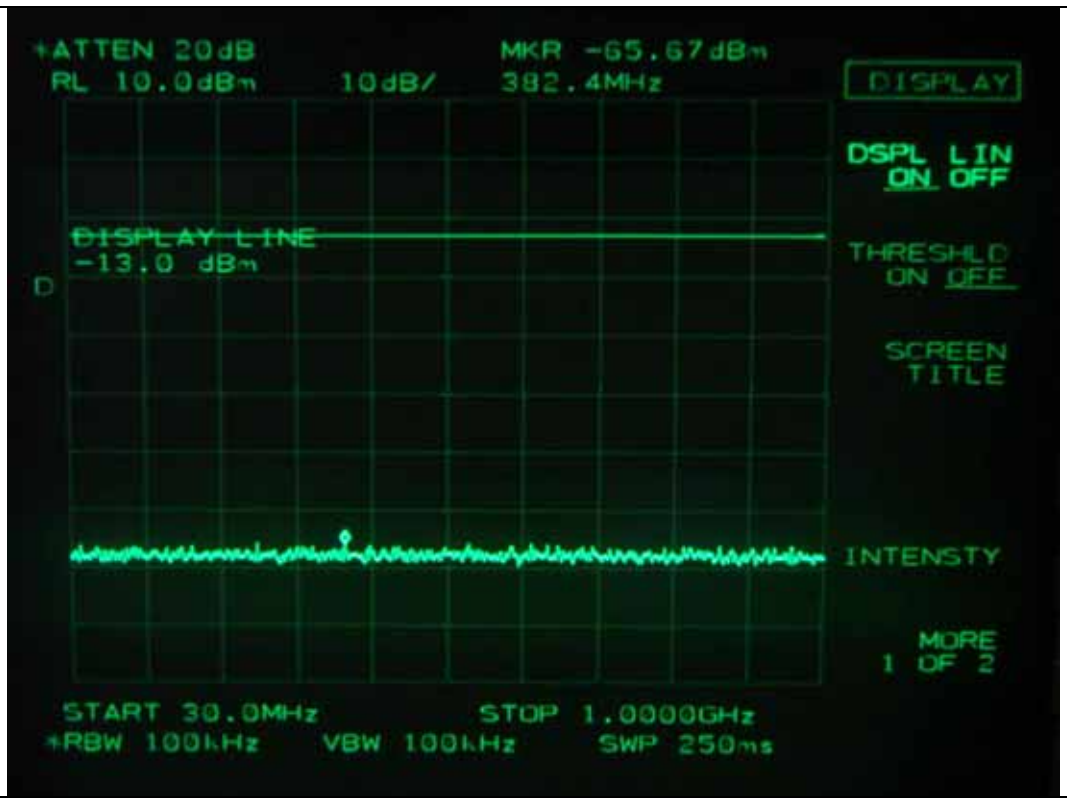
HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

Modulation	Harmonic Frequency (MHz)		Measured Value (dBm)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
1xEVDO	Low	600.70	-65.67	0.67	-65.00	-13.00	-52.00
		2 4720.00	-46.67	8.50	-38.17		-25.17
	Middle	536.00	-65.00	0.67	-64.33		-51.33
		2 4720.00	-47.50	8.50	-39.00		-26.00
	High	518.20	-66.00	0.67	-65.33		-52.33
		2 4720.00	-46.83	8.50	-38.33		-25.33
WCDMA	Low	490.80	-66.00	0.50	-65.50	-13.00	-52.50
		2 4720.00	-46.83	8.50	-38.33		-25.33
	Middle	545.70	-66.00	0.50	-65.50		-52.50
		2 4720.00	-47.00	8.50	-38.50		-25.50
	High	582.90	-66.50	0.50	-66.00		-53.00
		2 4720.00	-46.67	8.50	-38.17		-25.17
LTE	Low	550.60	-66.17	0.67	-65.50	-13.00	-52.50
		2 4720.00	-46.50	8.50	-38.00		-25.00
	Middle	608.80	-66.00	0.67	-65.33		-52.33
		2 4720.00	-47.33	8.50	-38.83		-25.83
	High	430.90	-64.67	0.67	-64.00		-51.00
		2 4720.00	-47.50	8.50	-39.00		-26.00
Other frequencies up to 15 GHz have margin more than 20 dB.							

According to Part 24E, out of band emission shall be attenuated by 43 + 10 log (P) dBc, equates to -13.0 dBm.

Tested by: Ki-Hong, Nam / Senior Engineer

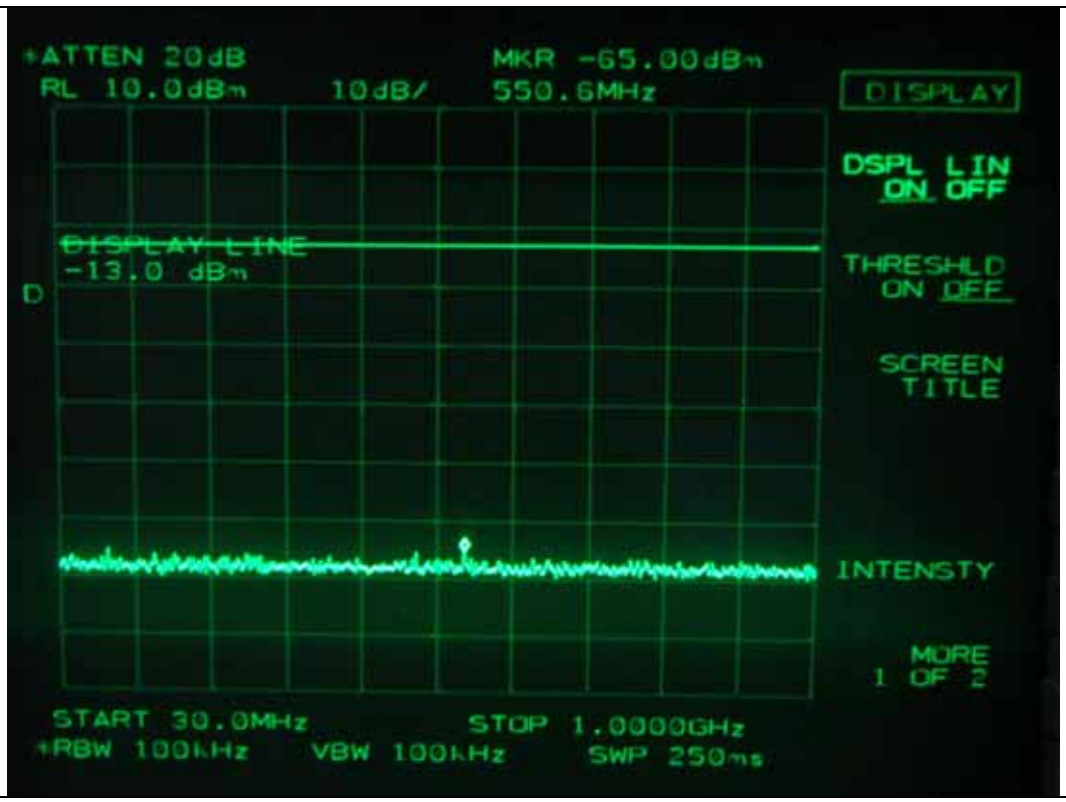
HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



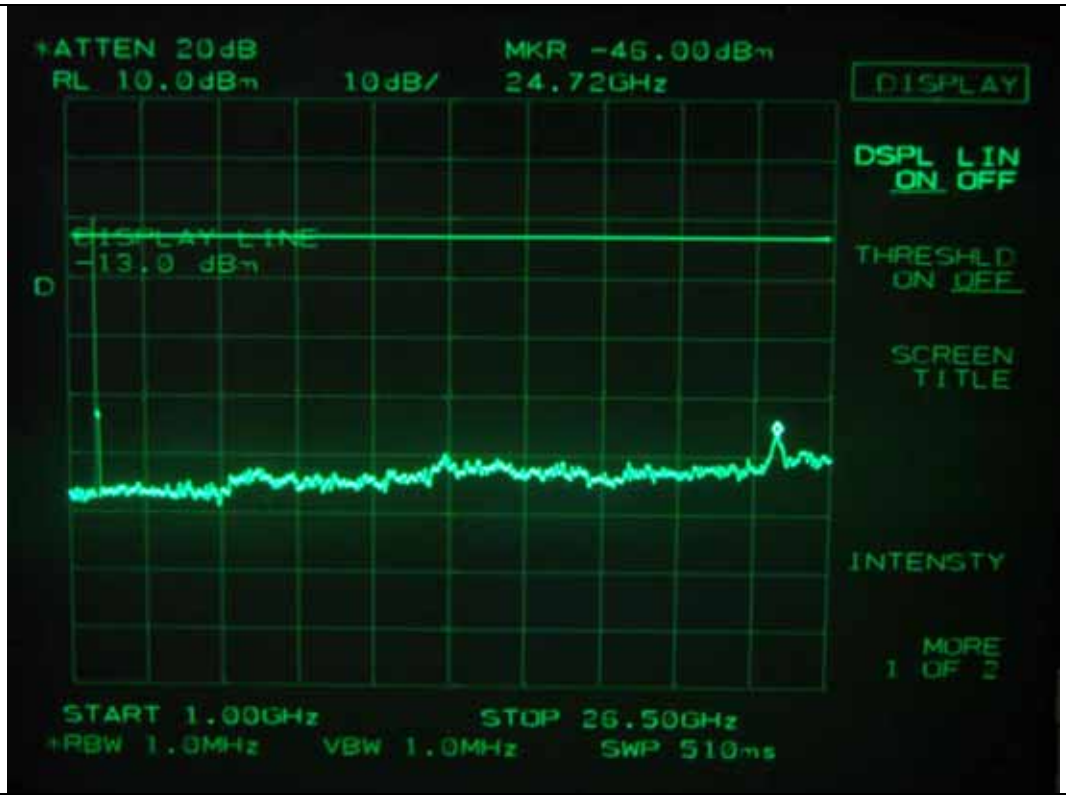
TDMA – Low Channel

TDMA – Low Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

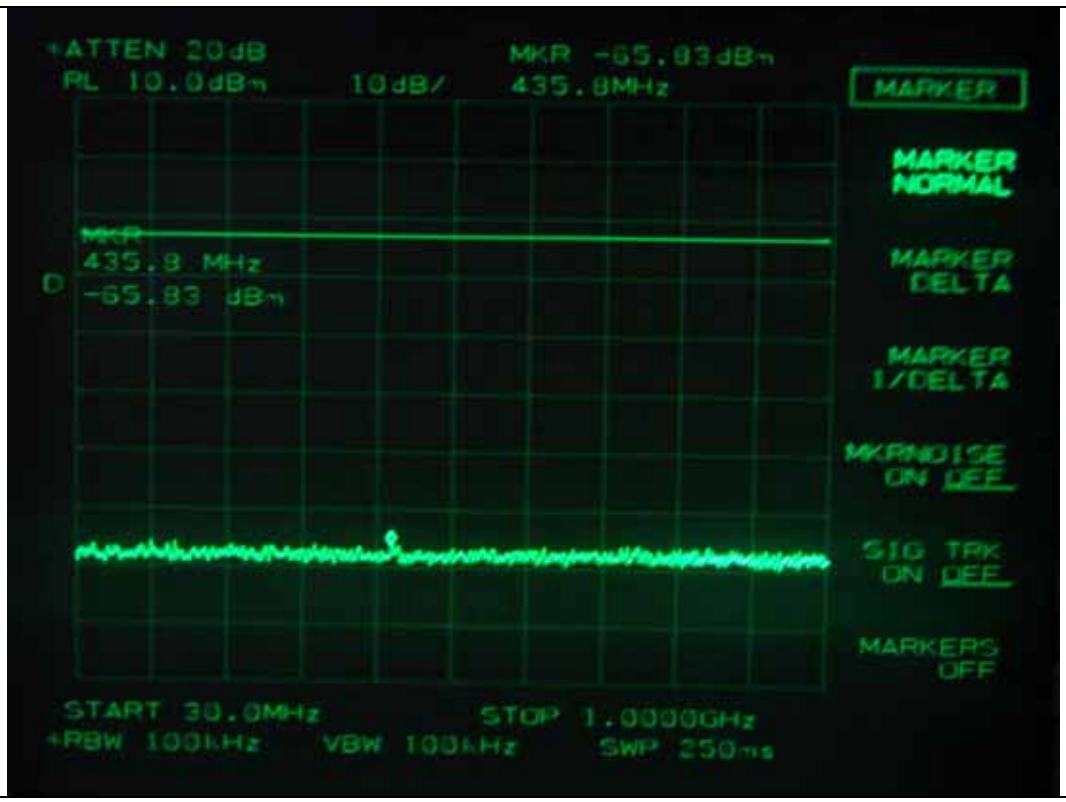


TDMA – Middle Channel

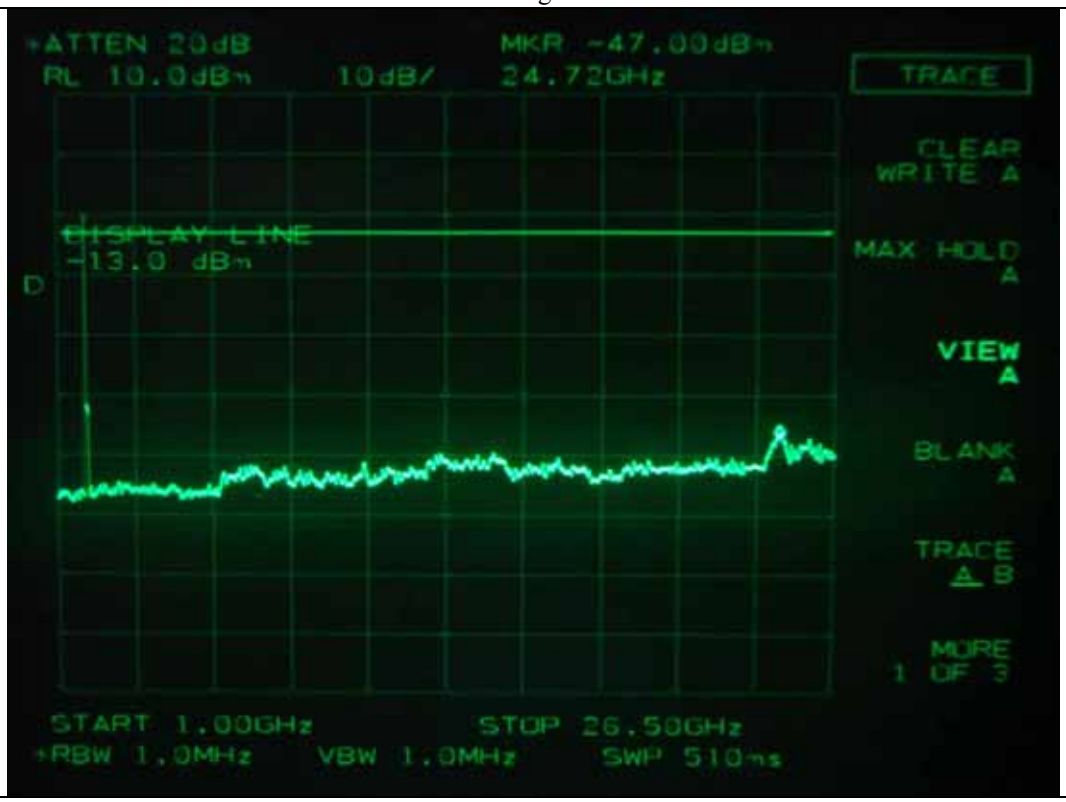


TDMA – Middle Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

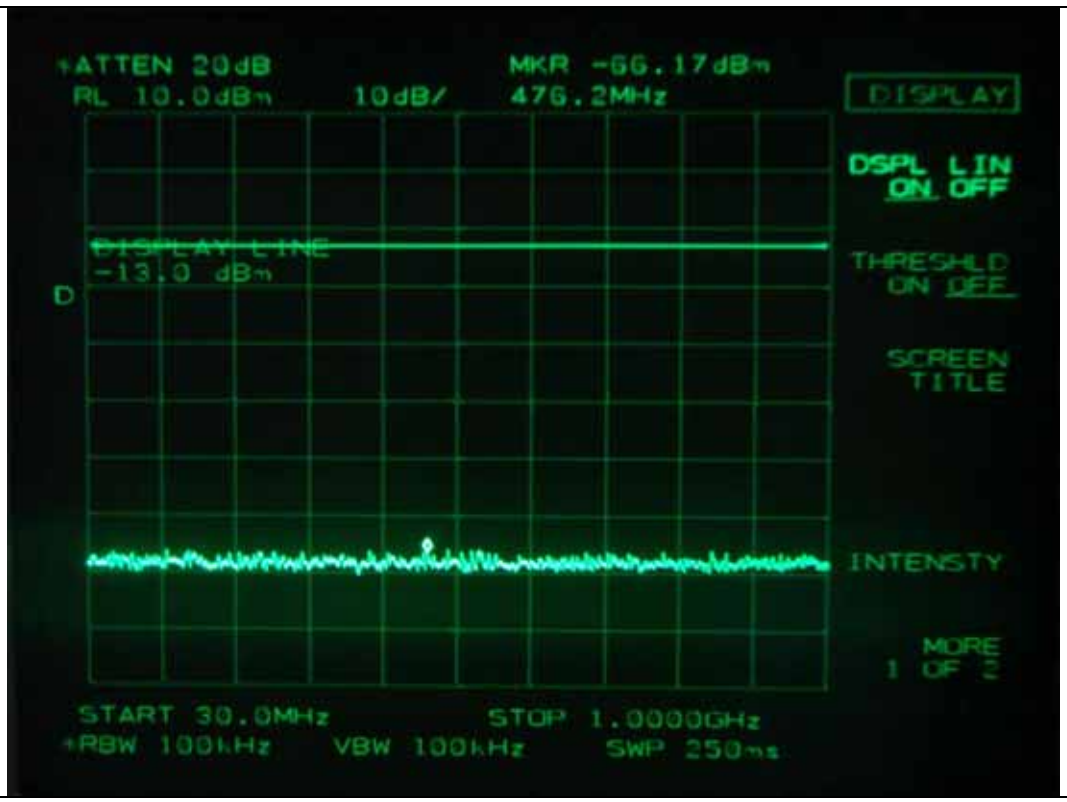


TDMA – High Channel

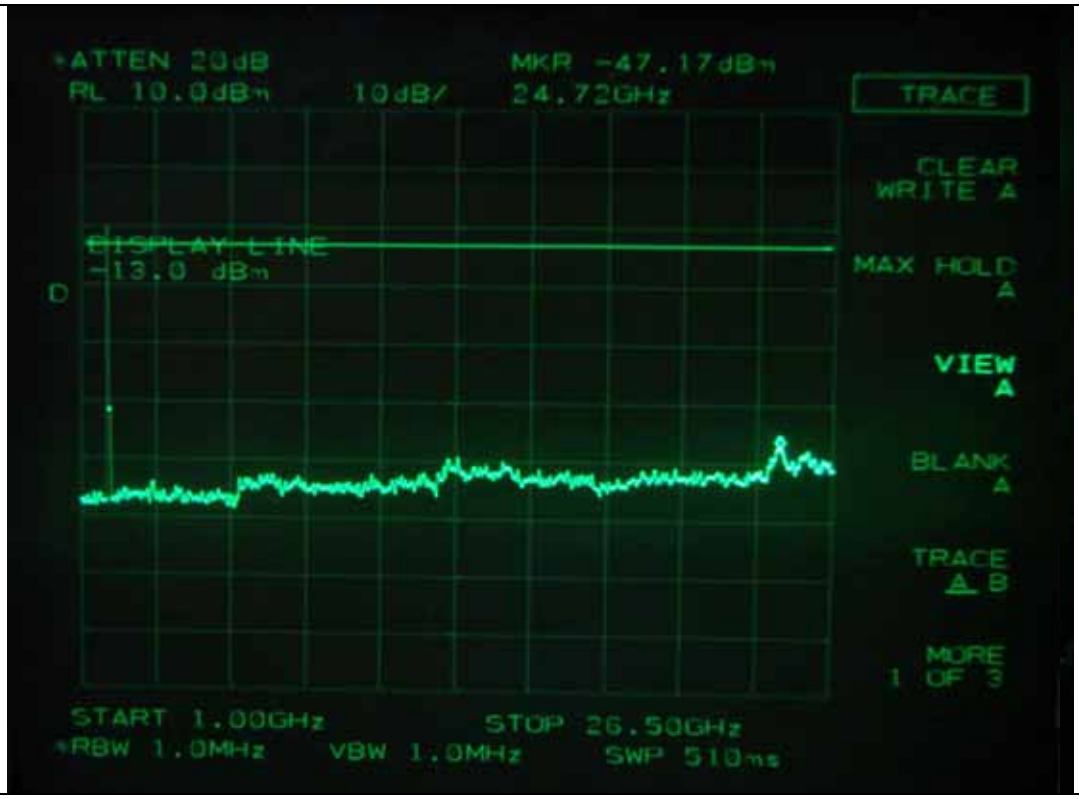


TDMA – High Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

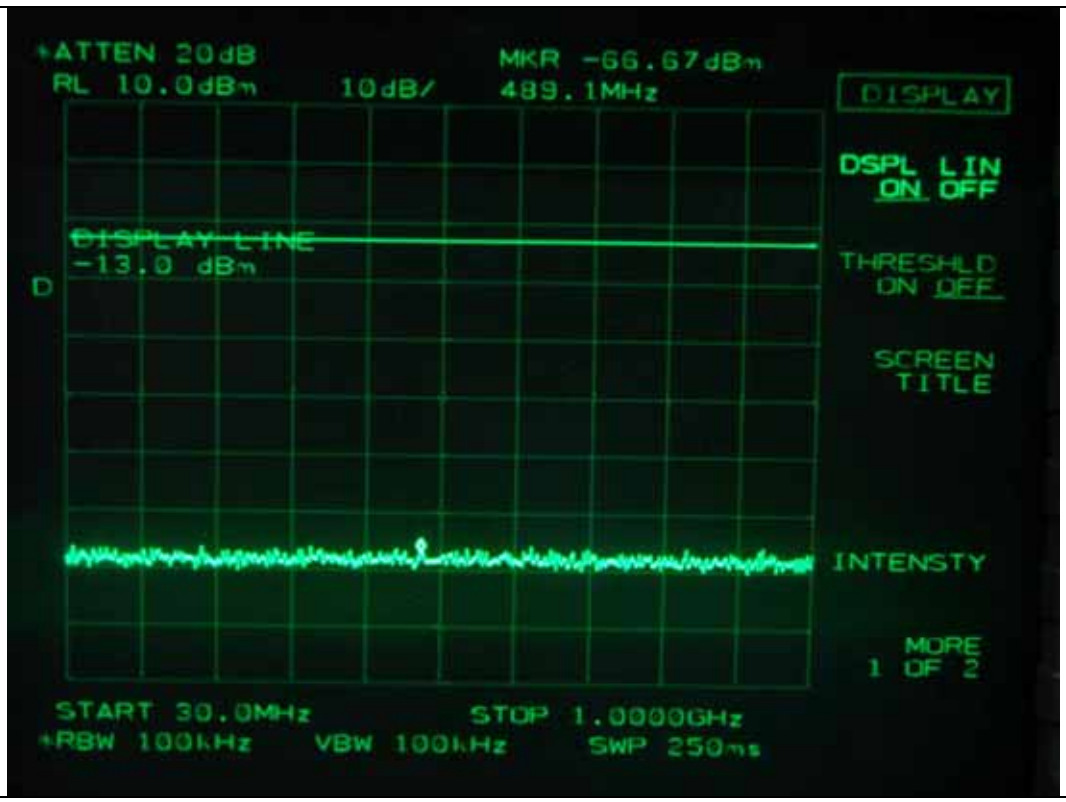


GSM – Low Channel

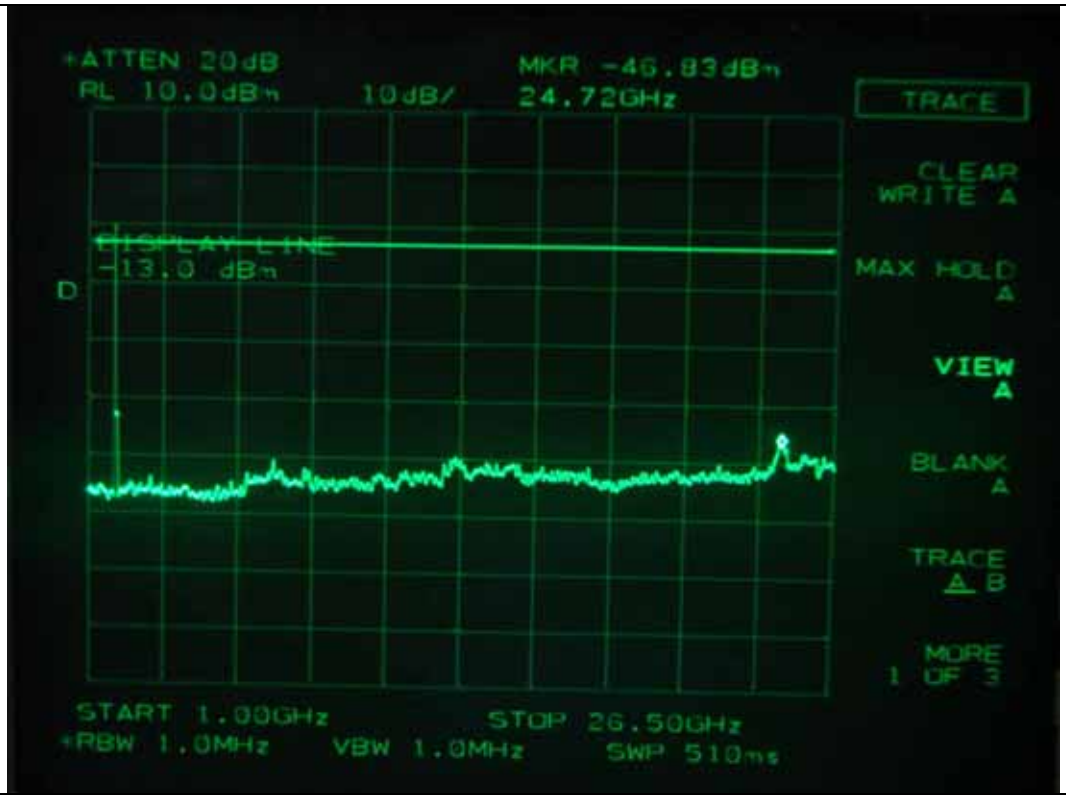


GSM – Low Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

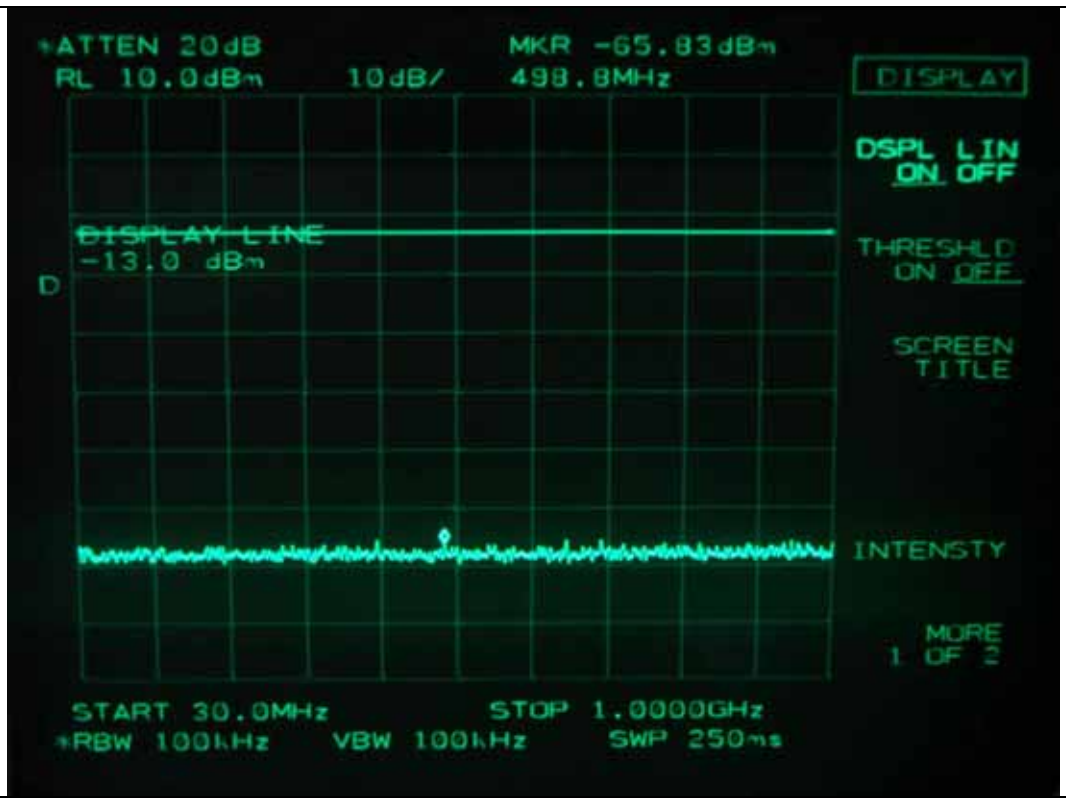


GSM – Middle Channel

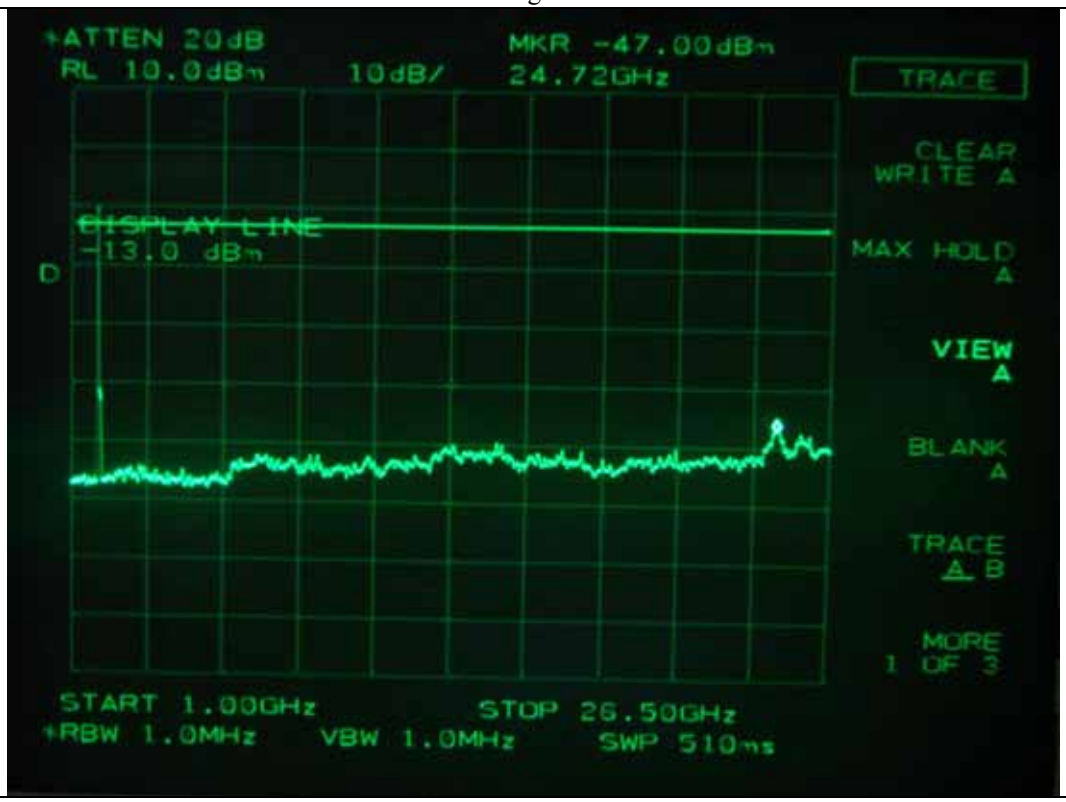


GSM – Middle Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



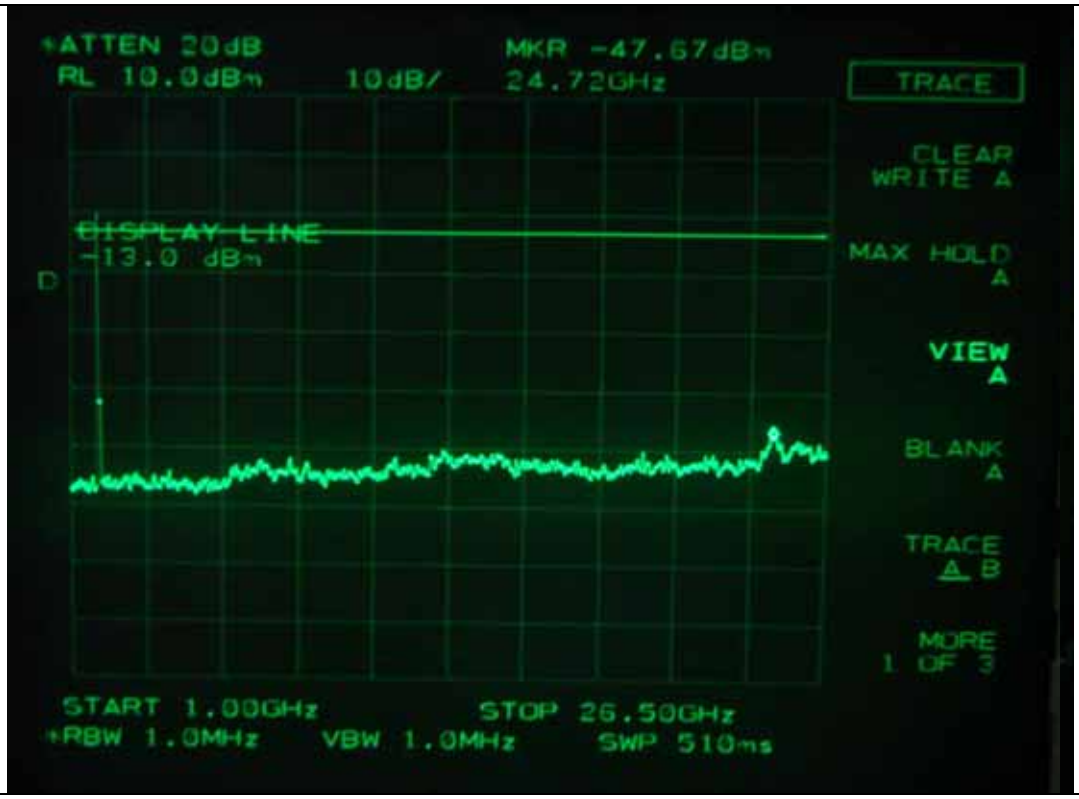
GSM – High Channel



GSM – High Channel

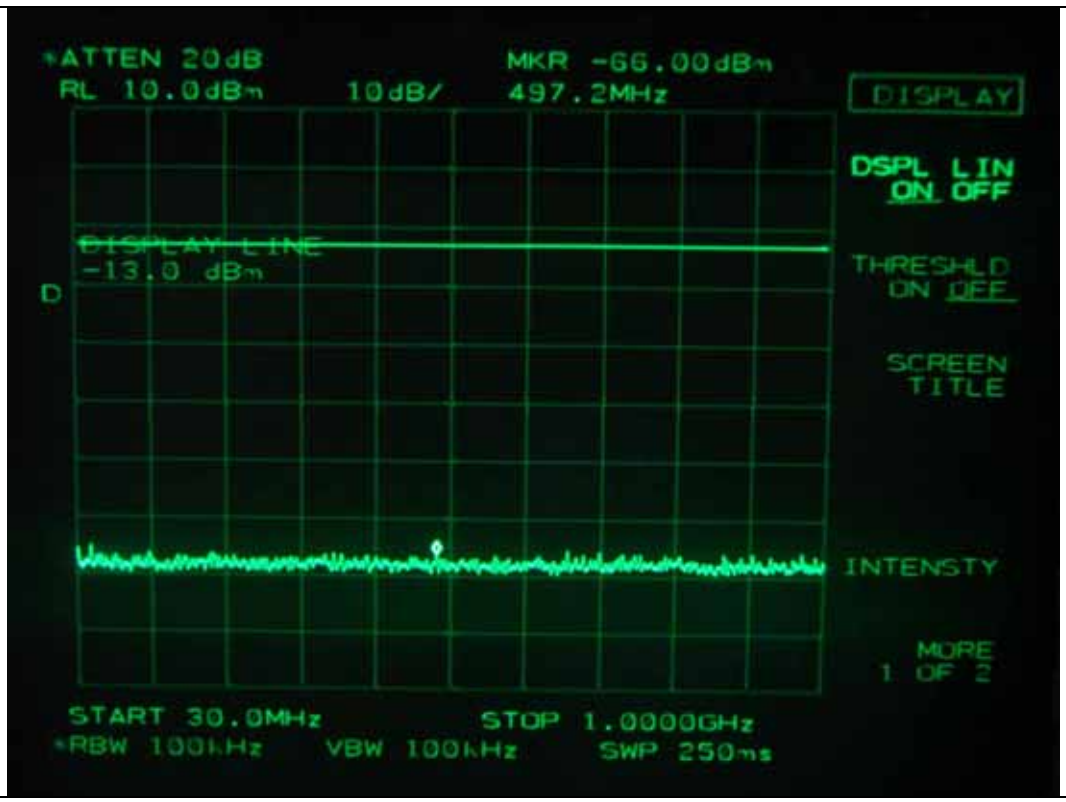
HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

EDGE – Low Channel

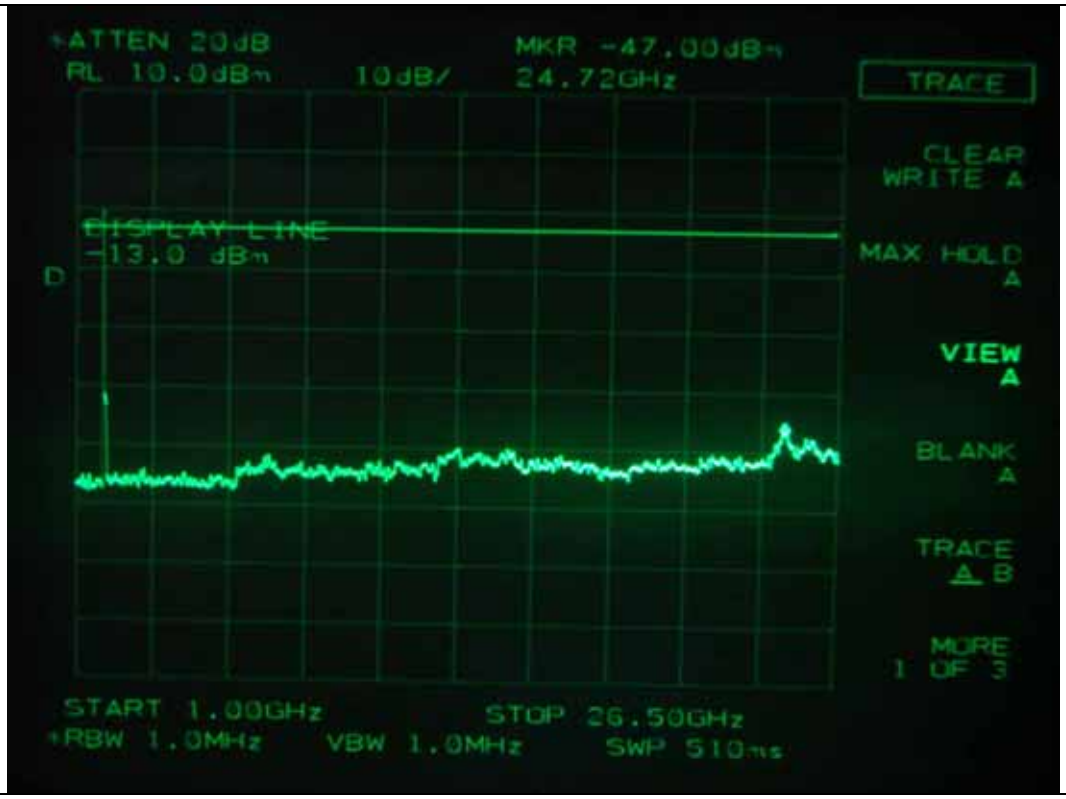


EDGE – Low Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

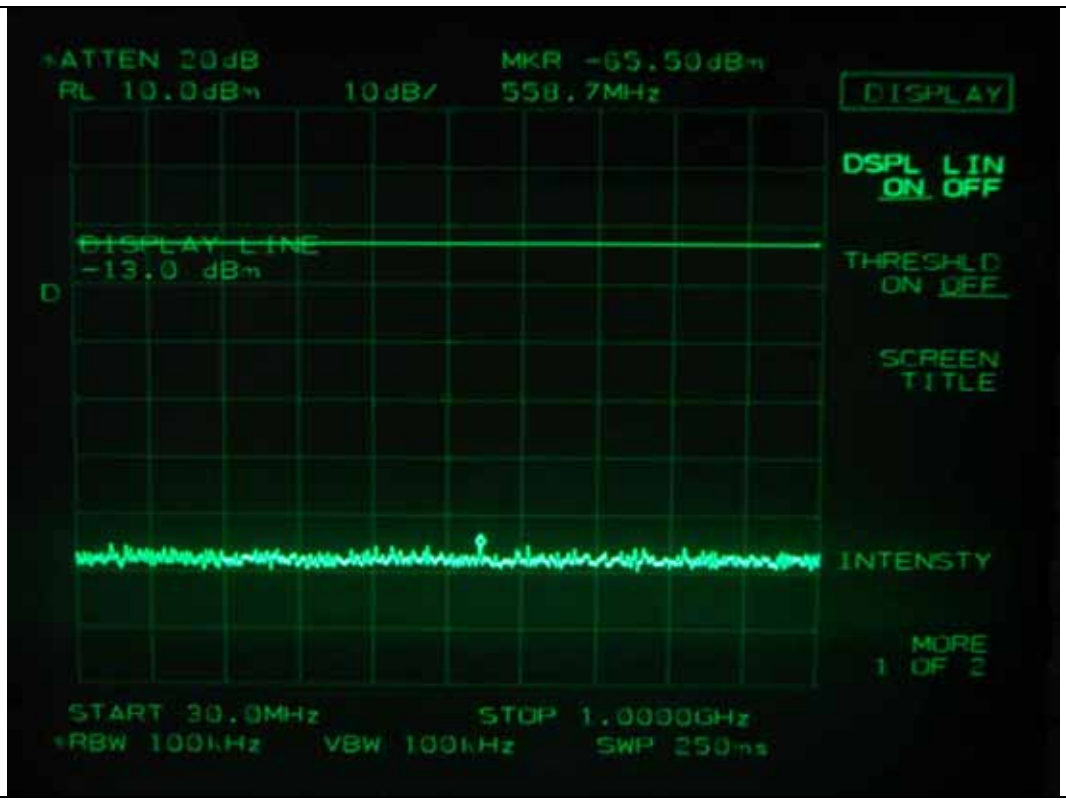


EDGE – Middle Channel

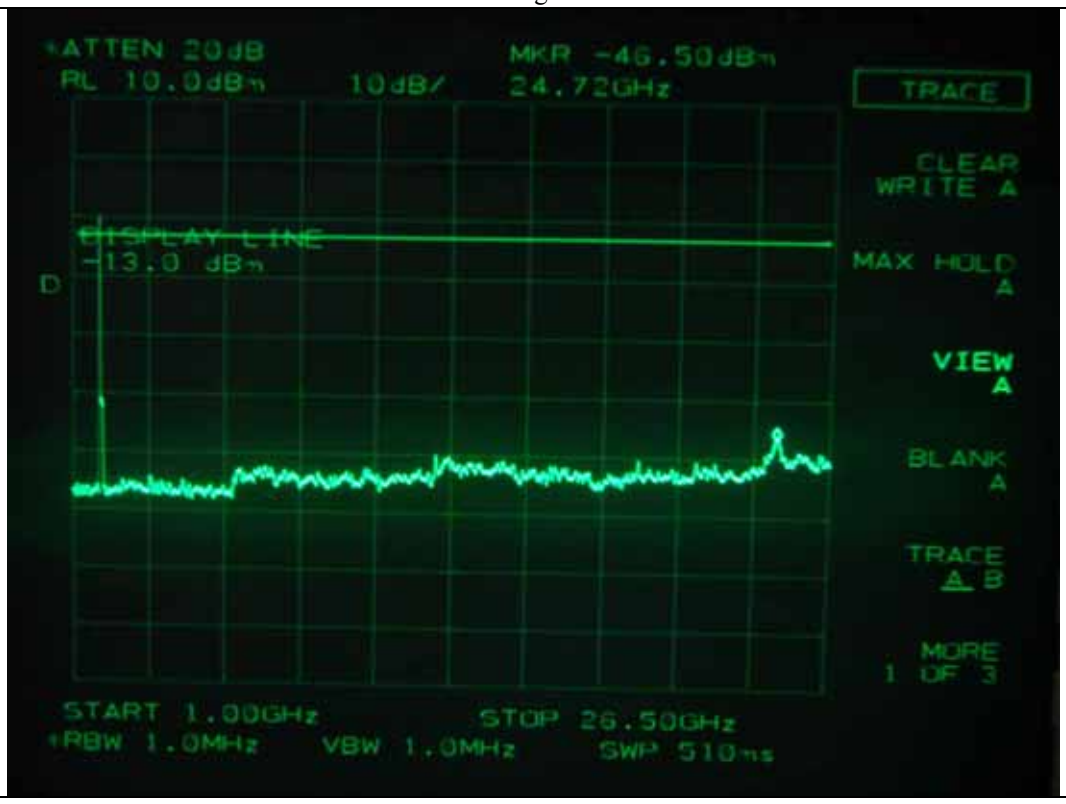


EDGE – Middle Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

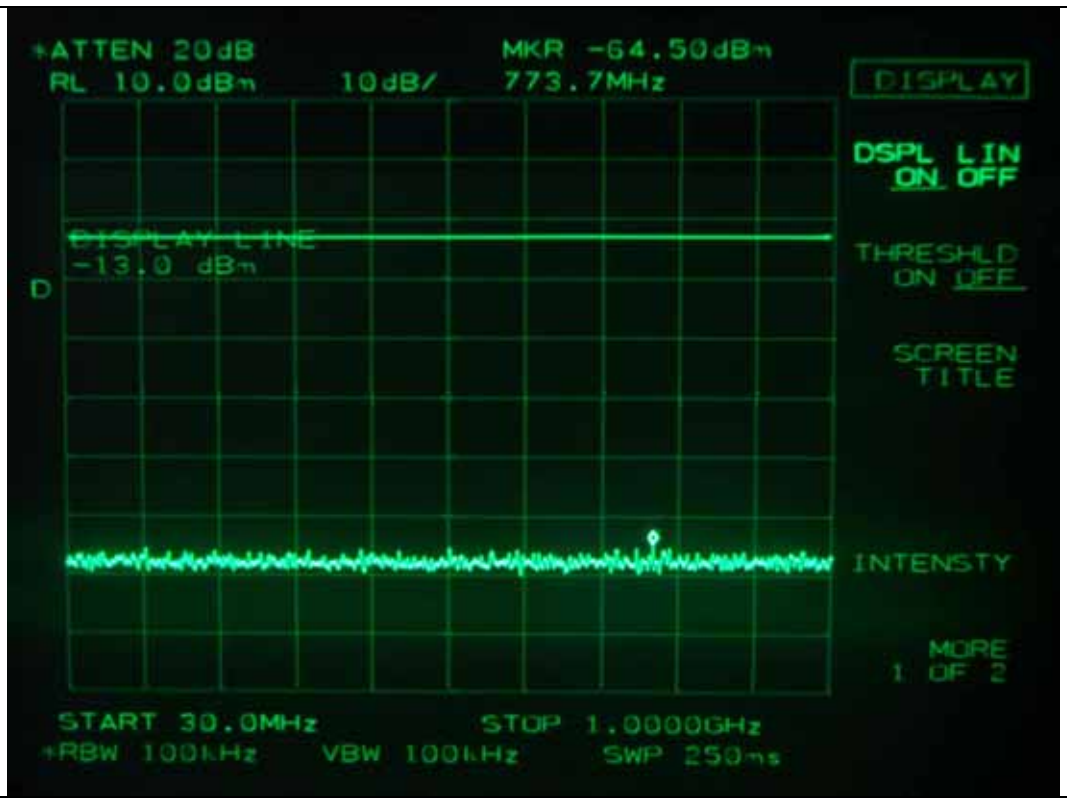


EDGE – High Channel

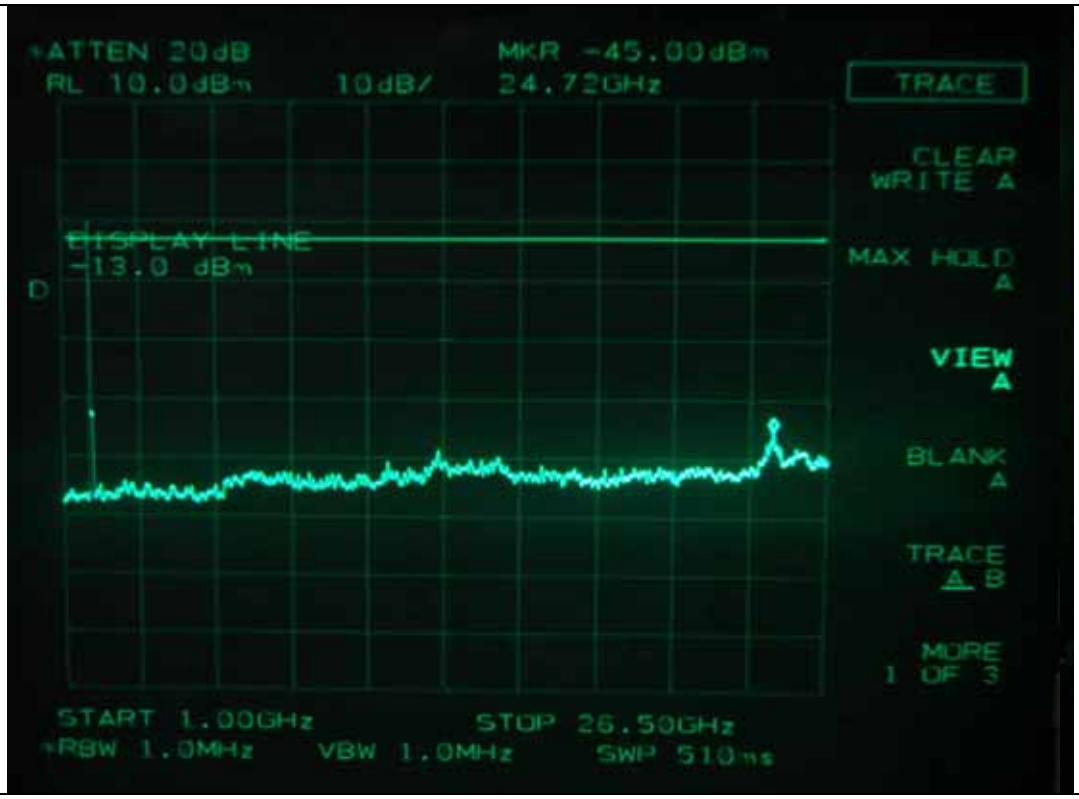


EDGE – High Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

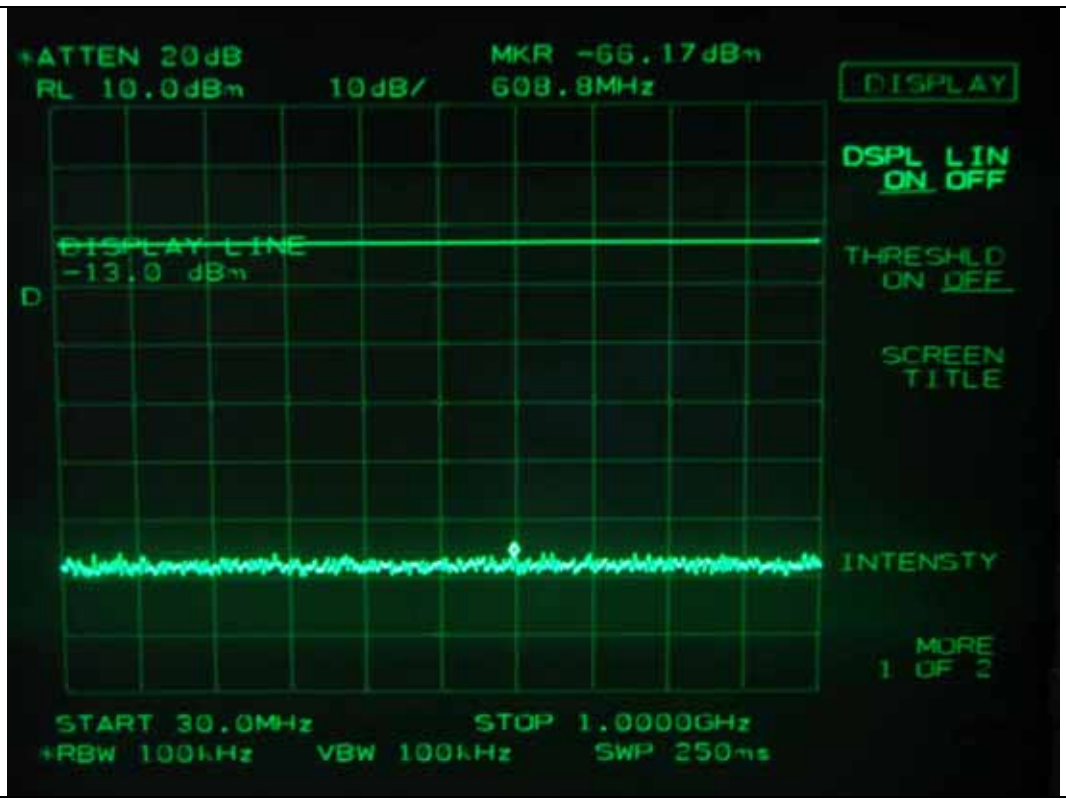


CDMA – Low Channel

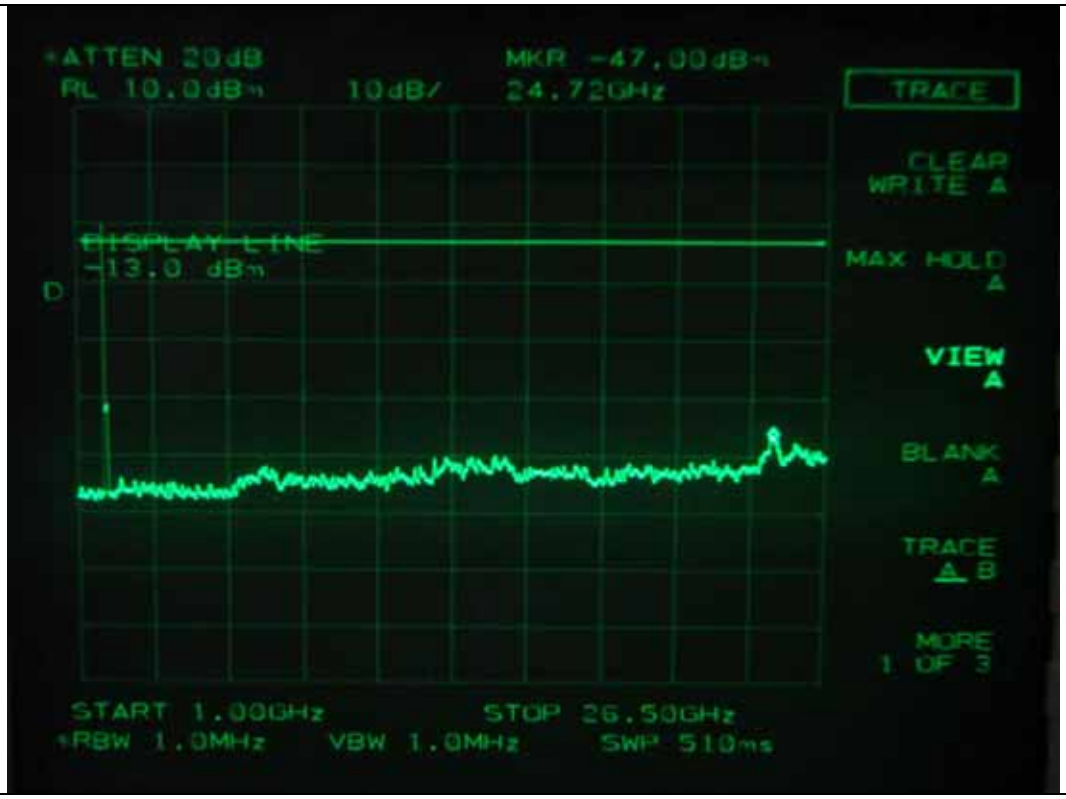


CDMA – Low Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

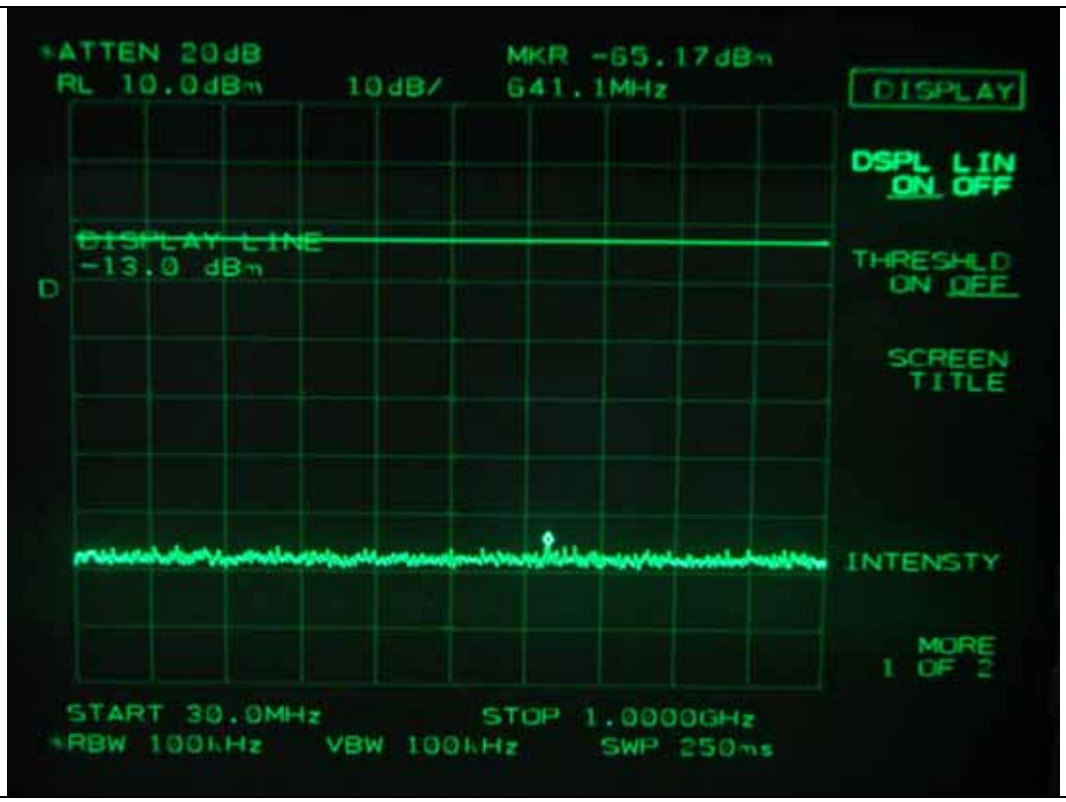


CDMA – Middle Channel

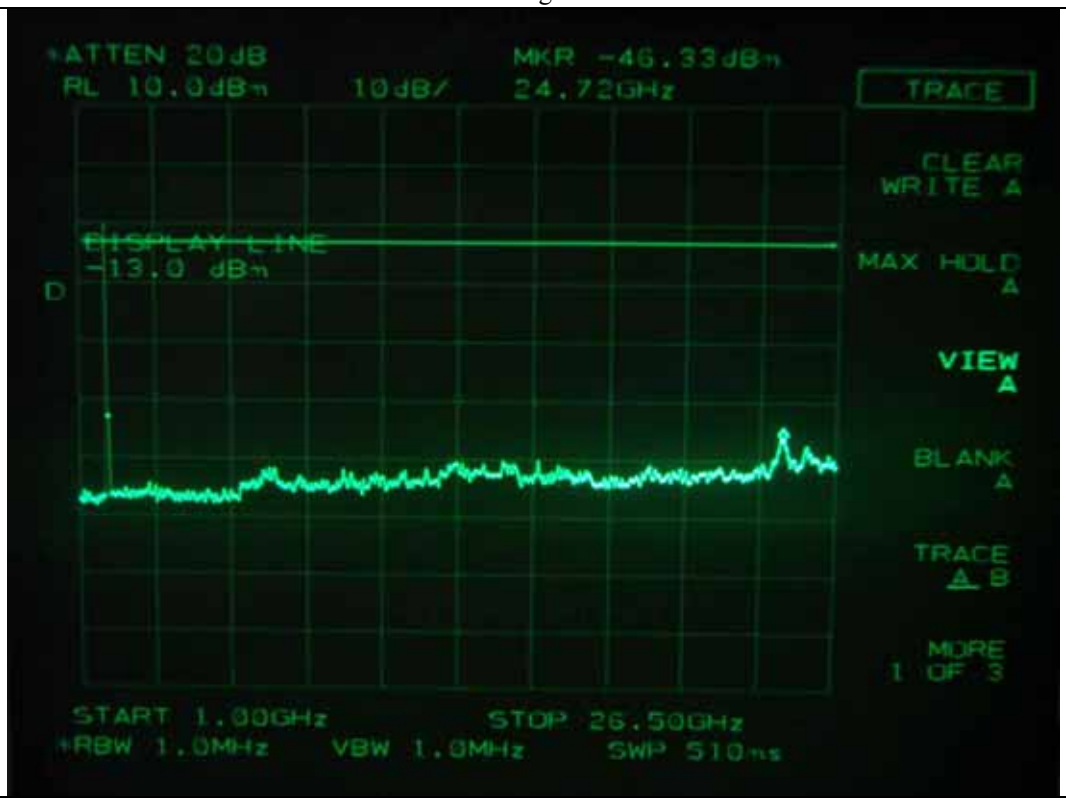


CDMA – Middle Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

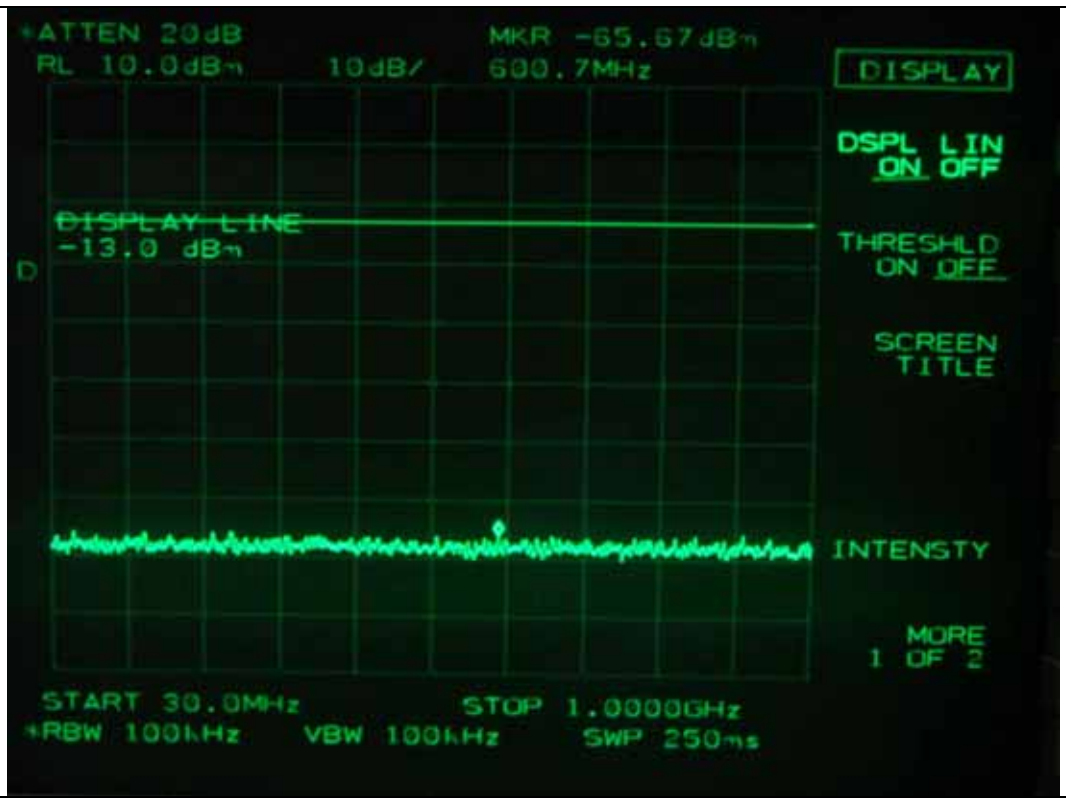


CDMA – High Channel

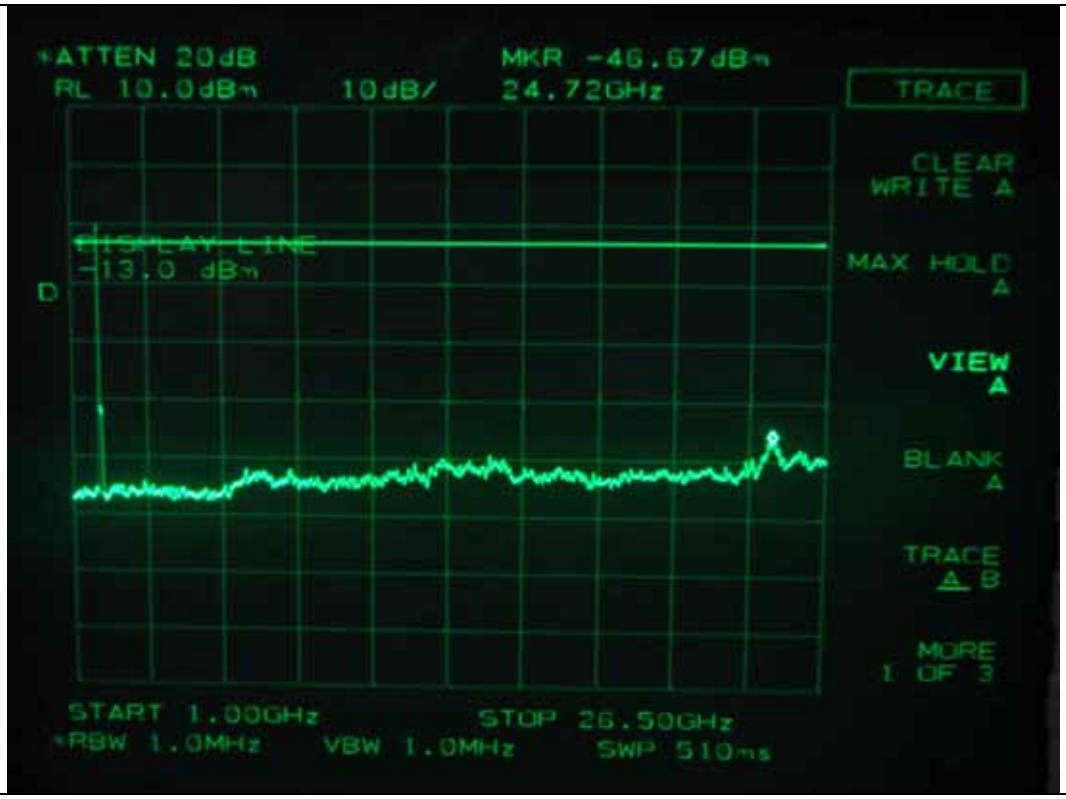


CDMA – High Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

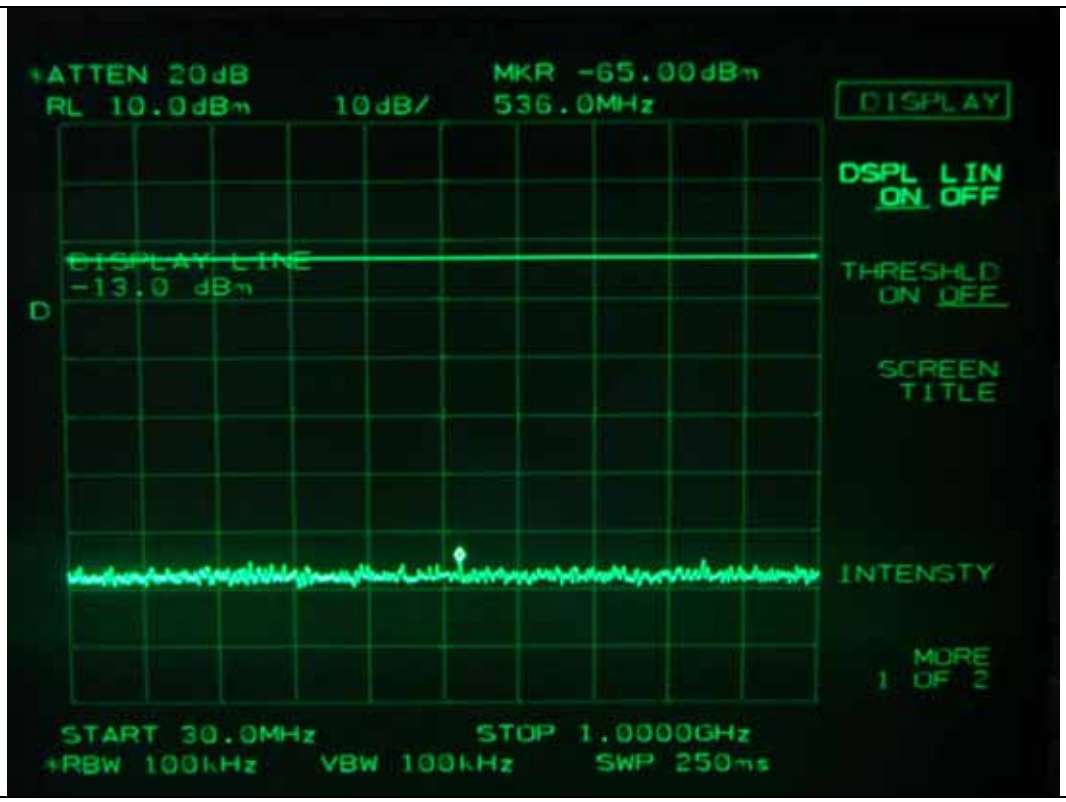


1xEVDO – Low Channel

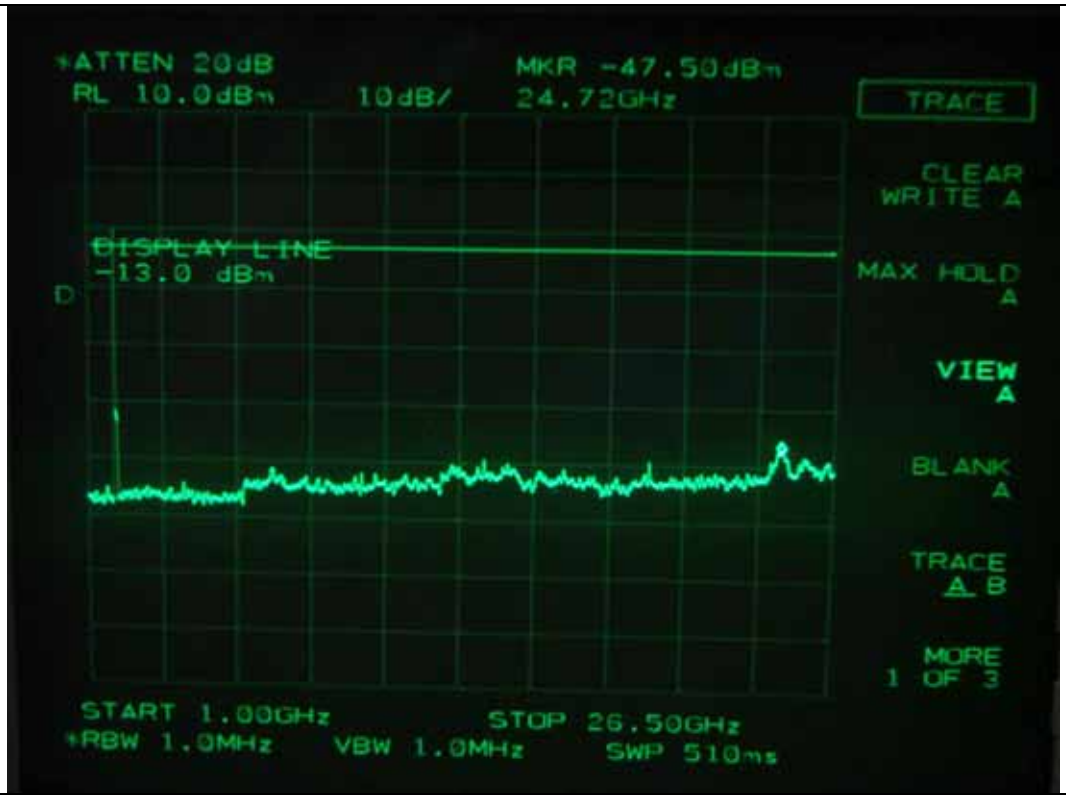


1xEVDO – Low Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

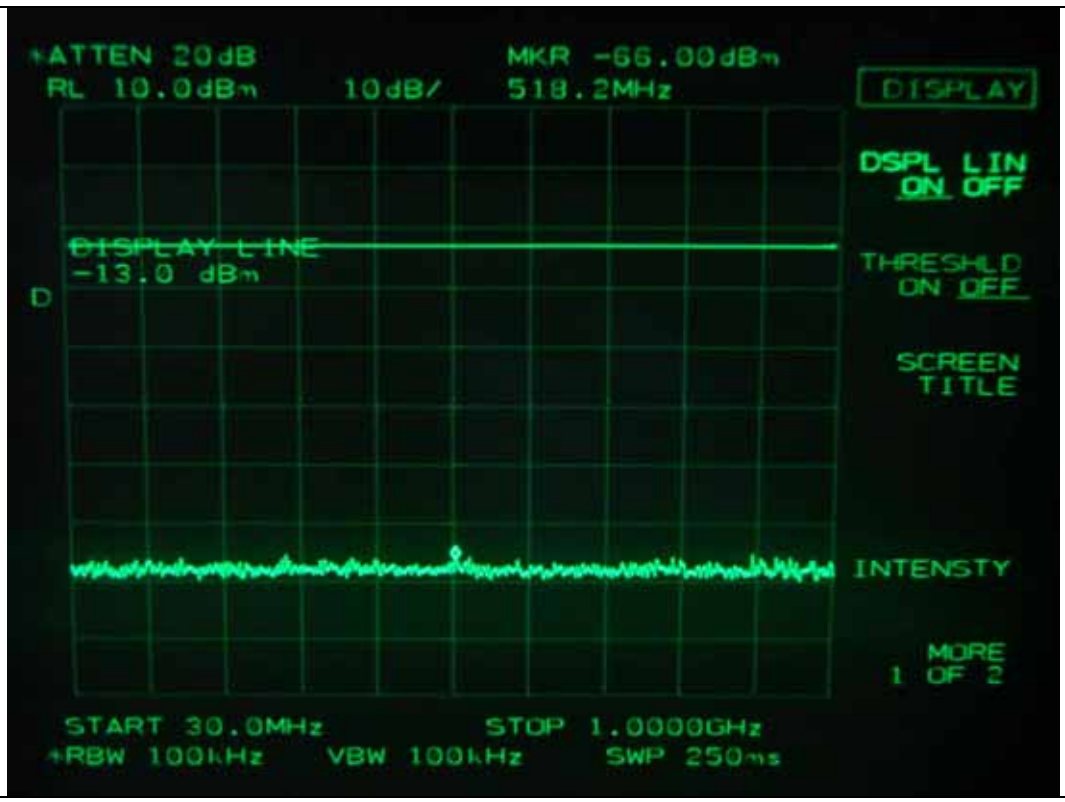


1xEVDO – Middle Channel

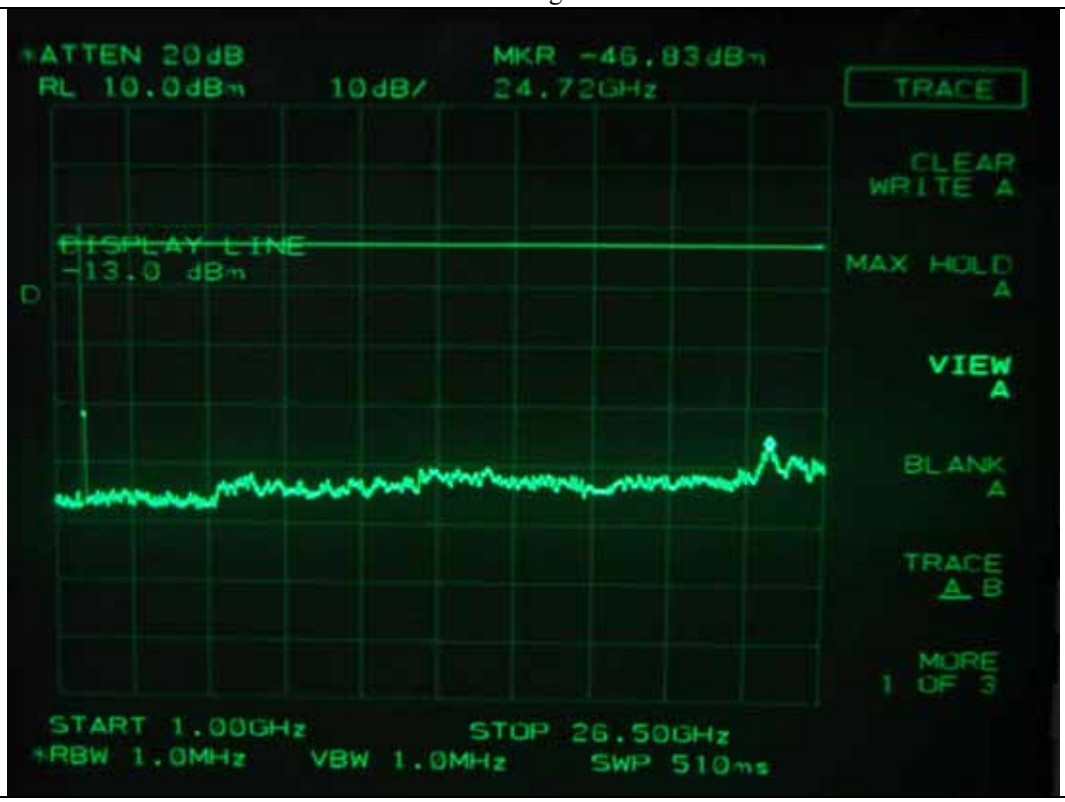


1xEVDO – Middle Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

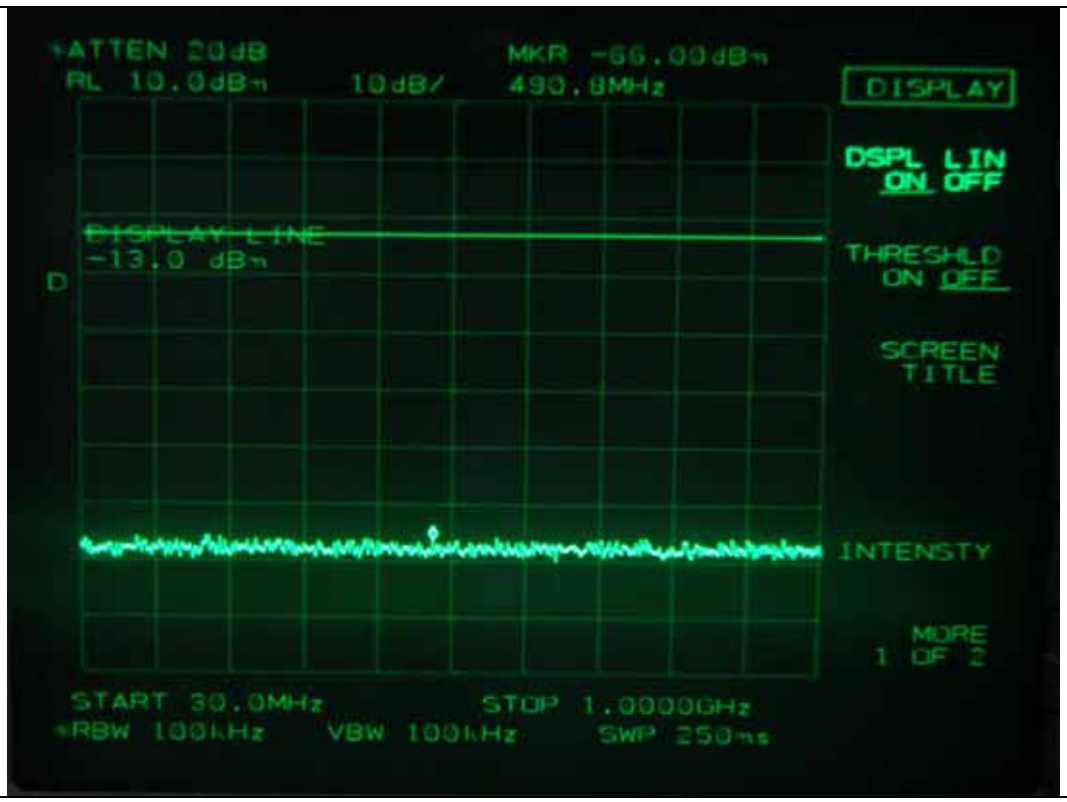


1xEVDO – High Channel

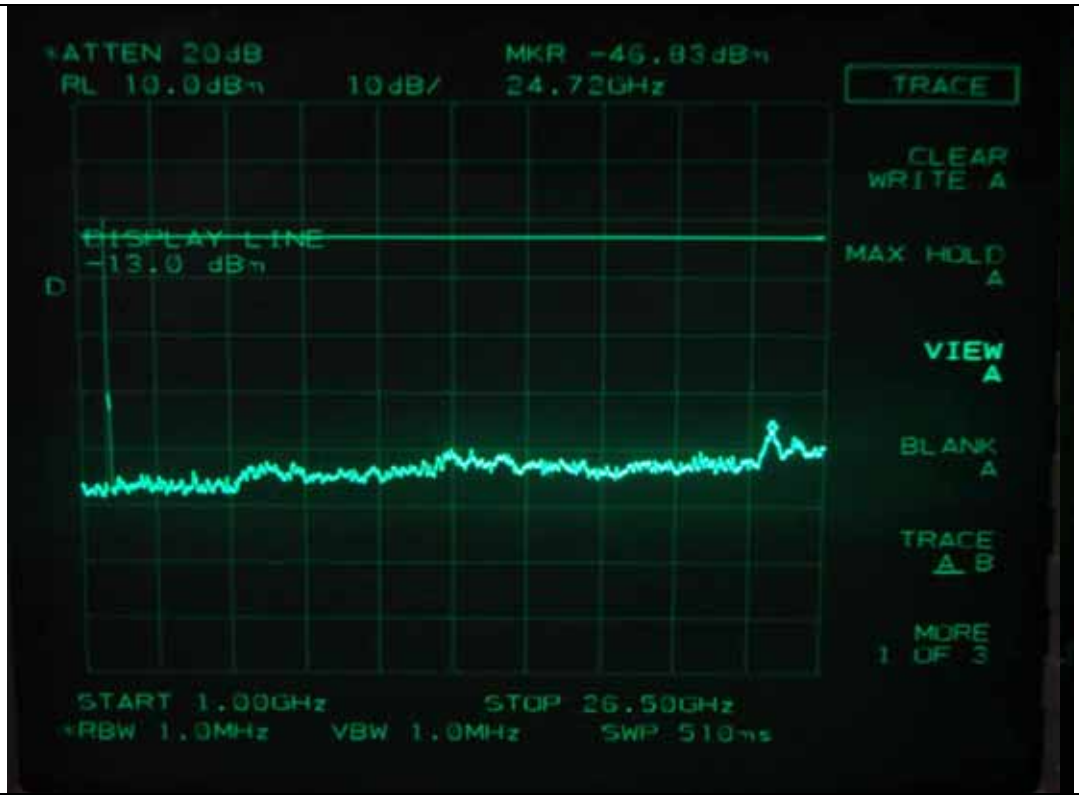


1xEVDO – High Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

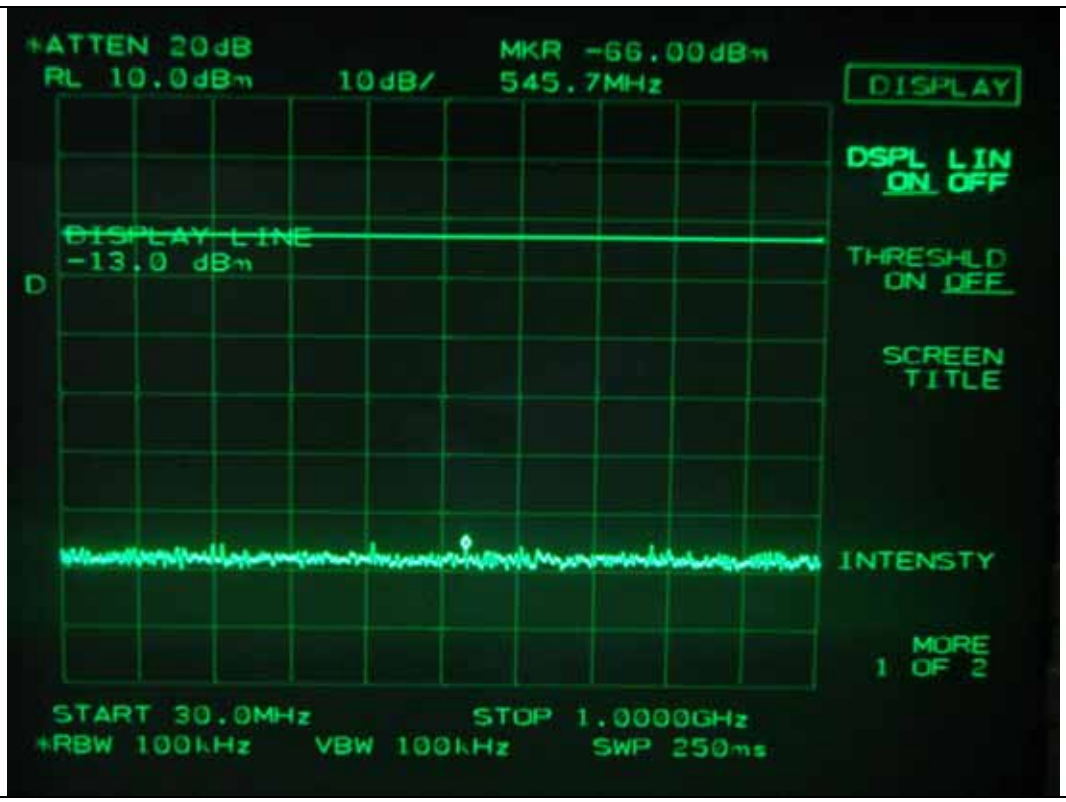


WCDMA – Low Channel

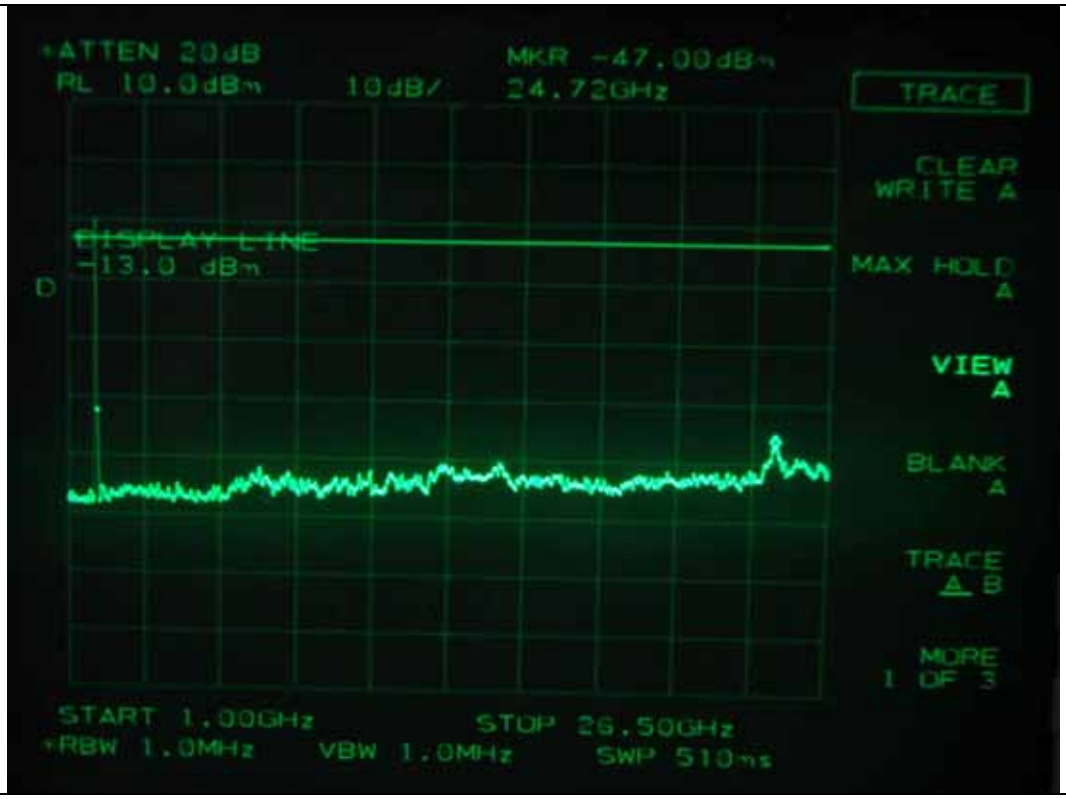


WCDMA – Low Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

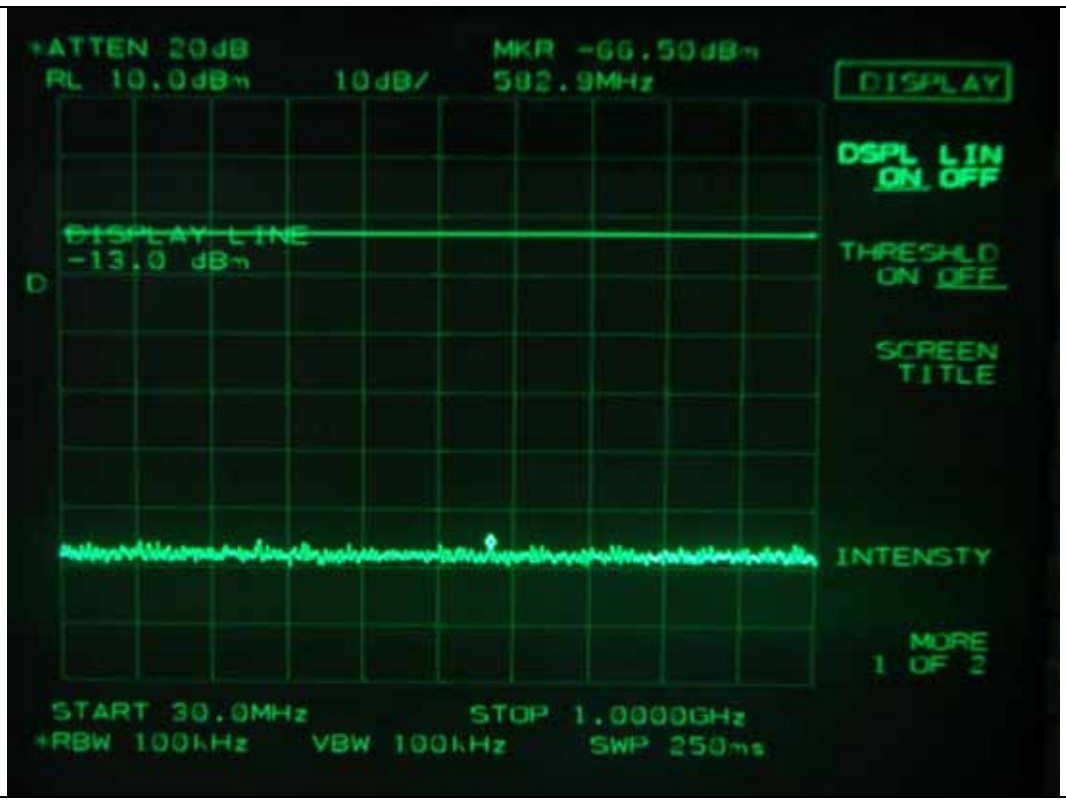


WCDMA – Middle Channel

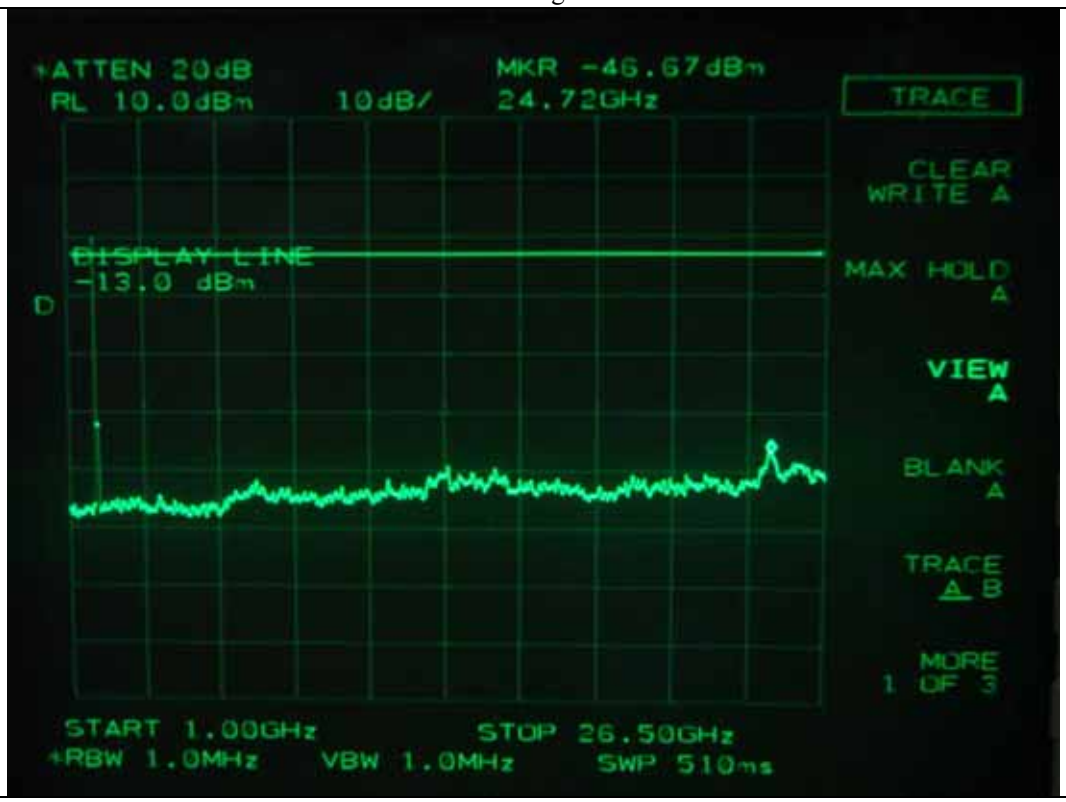


WCDMA – Middle Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

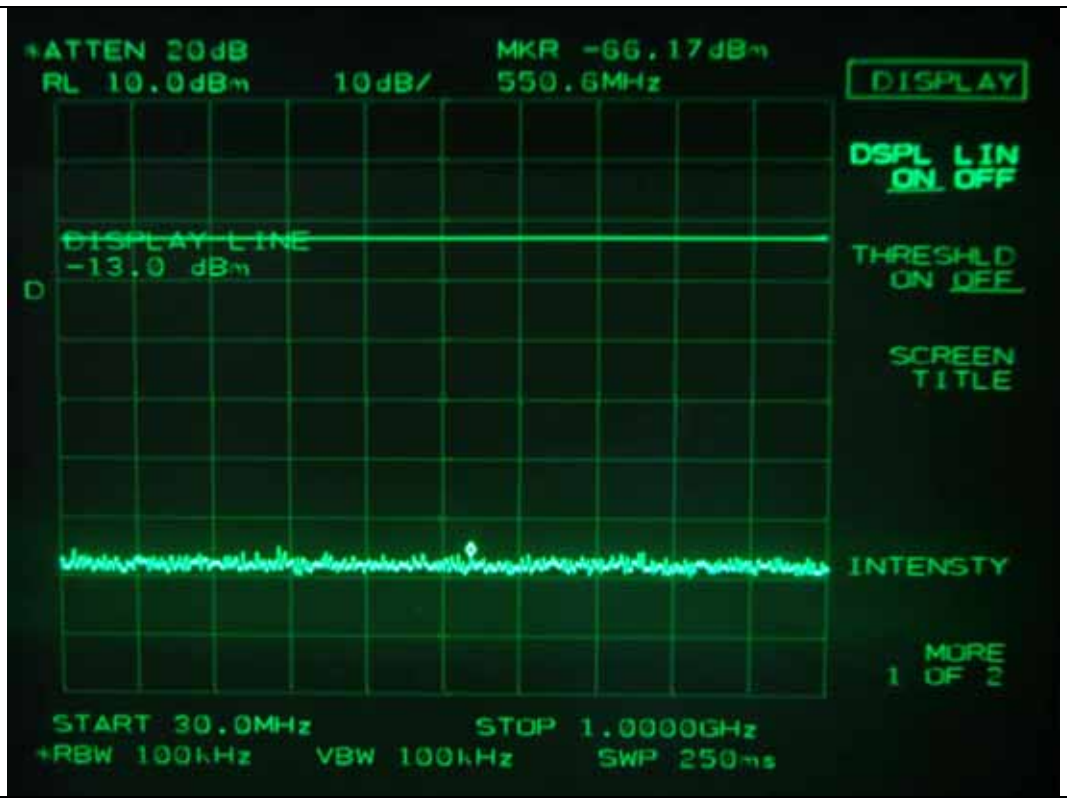


WCDMA – High Channel

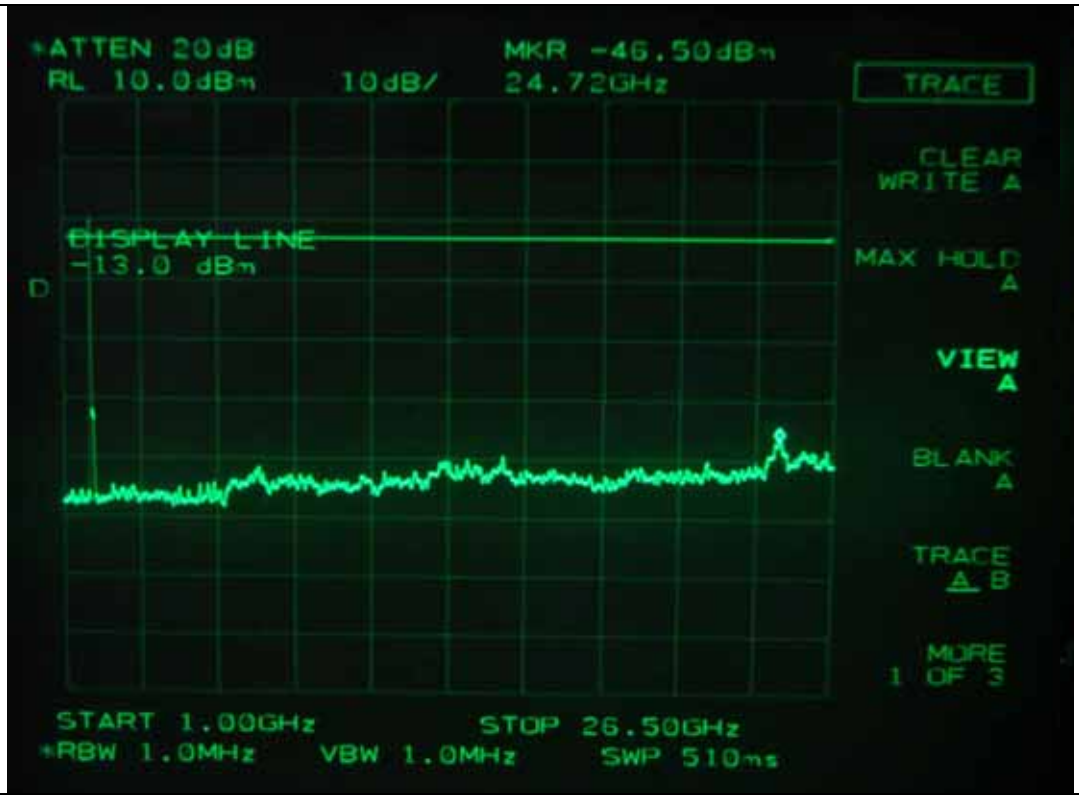


WCDMA – High Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

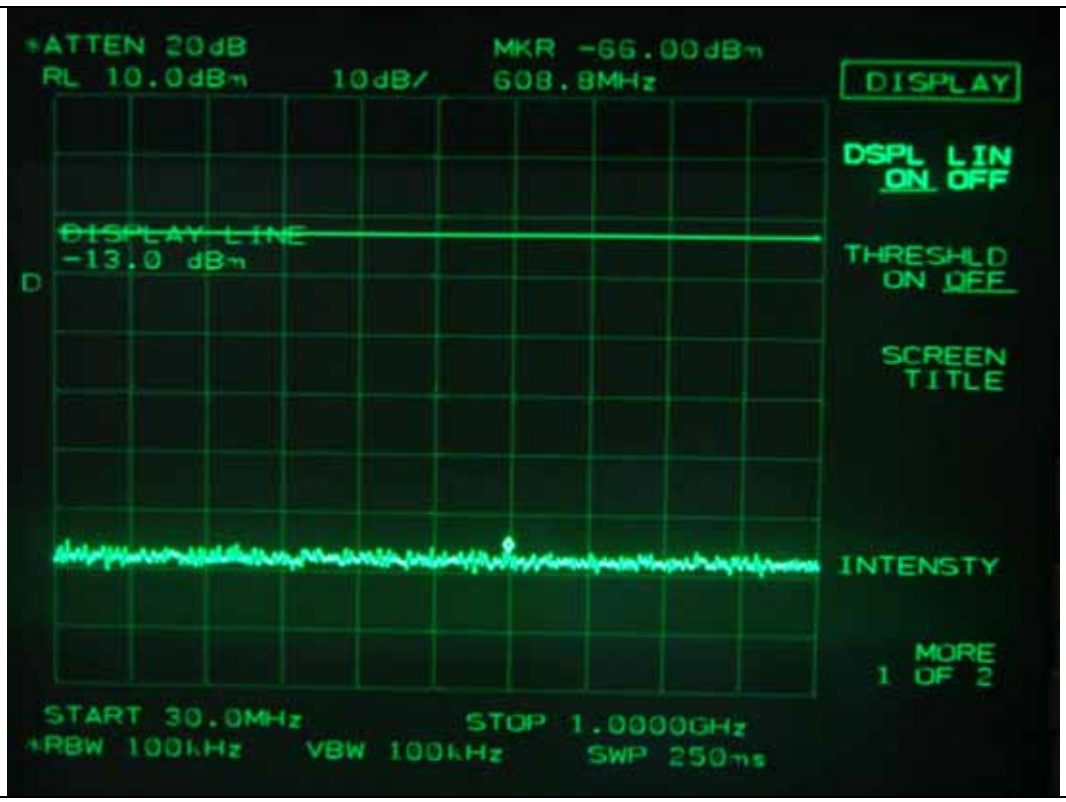


LTE – Low Channel

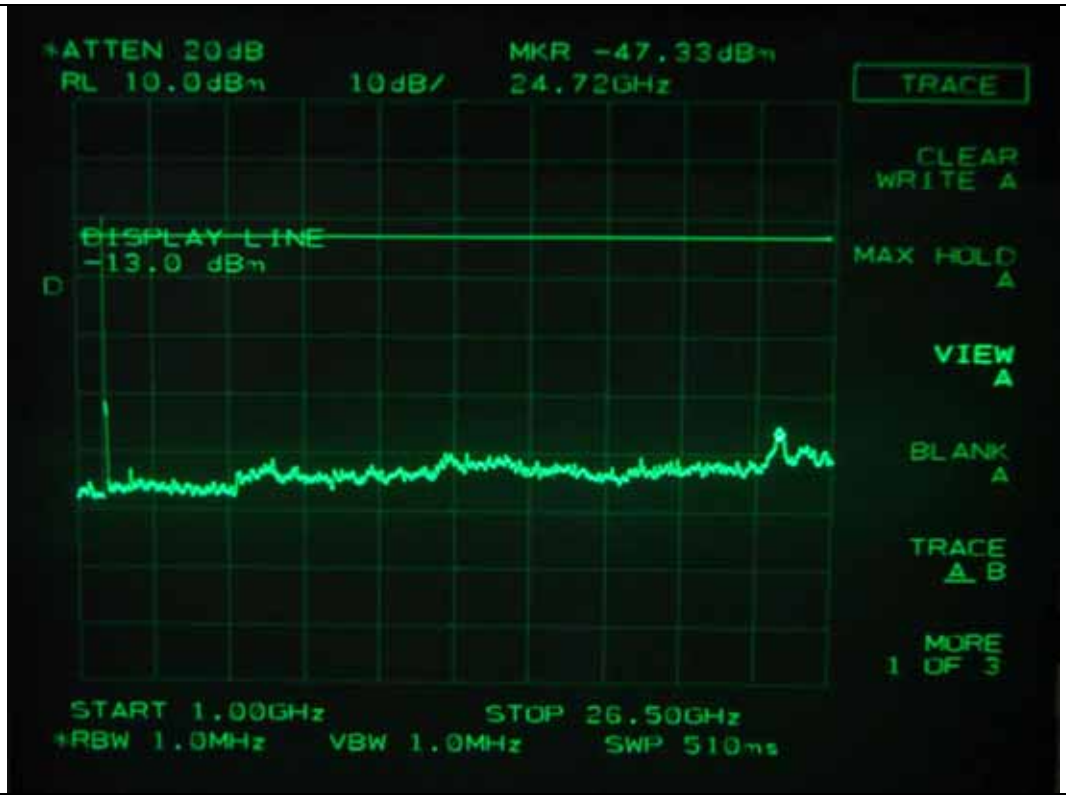


LTE – Low Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

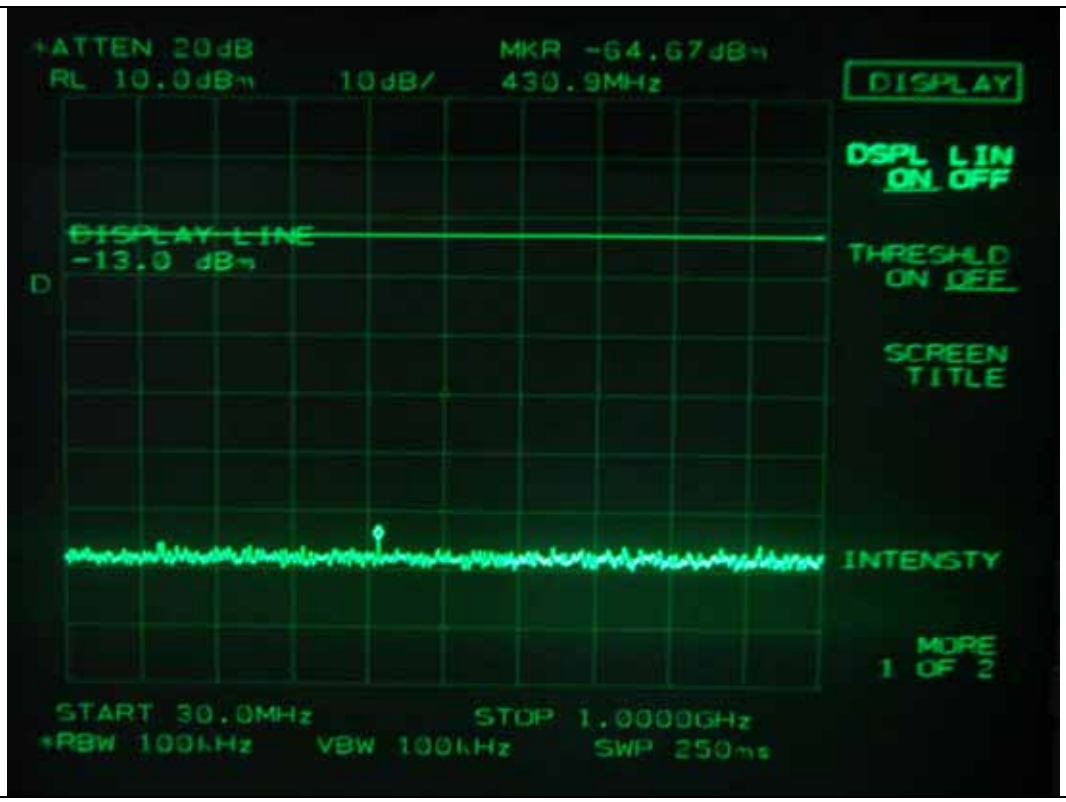


LTE – Middle Channel

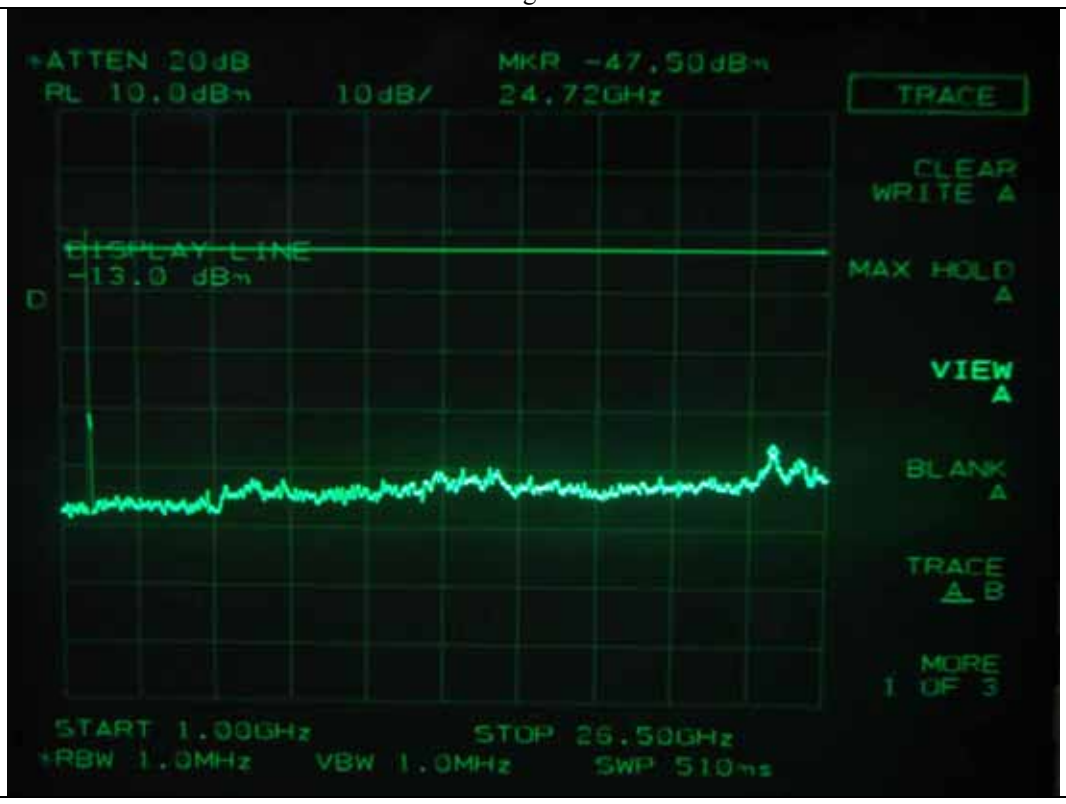


LTE – Middle Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



LTE – High Channel



LTE – High Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

7.4.2 Test data for Part 90 I (800iDEN)

-. Test Date : November 08, 2011

-. Frequency range : 30 MHz ~ 20 GHz

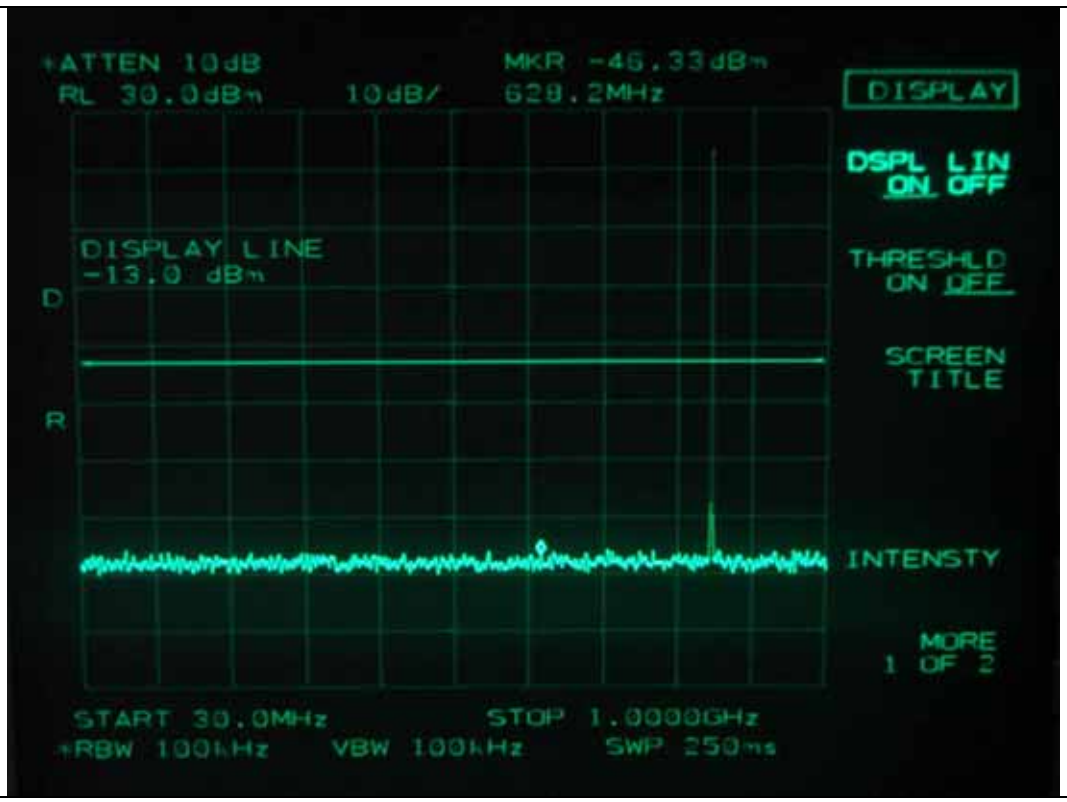
-. Result : PASSED BY -15.33 dB at middle channel of iDEN mode

Modulation	Harmonic Frequency (MHz)		Measured Value (dBm)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
iDEN	Low	628.20	-46.33	0.67	-45.66	-13.00	-32.66
		7 465.00	-32.67	3.00	-29.67		-16.67
	Middle	631.40	-45.00	0.67	-44.33		-31.33
		7 360.00	-31.33	3.00	-28.33		-15.33
	High	607.20	-46.00	0.67	-45.33		-32.33
		7 330.00	-31.67	3.00	-28.67		-15.67
LTE	Low	746.20	-45.33	0.67	-44.66	-13.00	-31.66
		7 345.00	-31.83	3.00	-28.83		-15.83
	Middle	751.00	-47.00	0.67	-46.33		-33.33
		7 360.00	-32.83	3.00	-29.83		-16.83
	High	726.80	-46.17	0.67	-45.50		-32.50
		7 600.00	-32.17	3.00	-29.17		-16.17

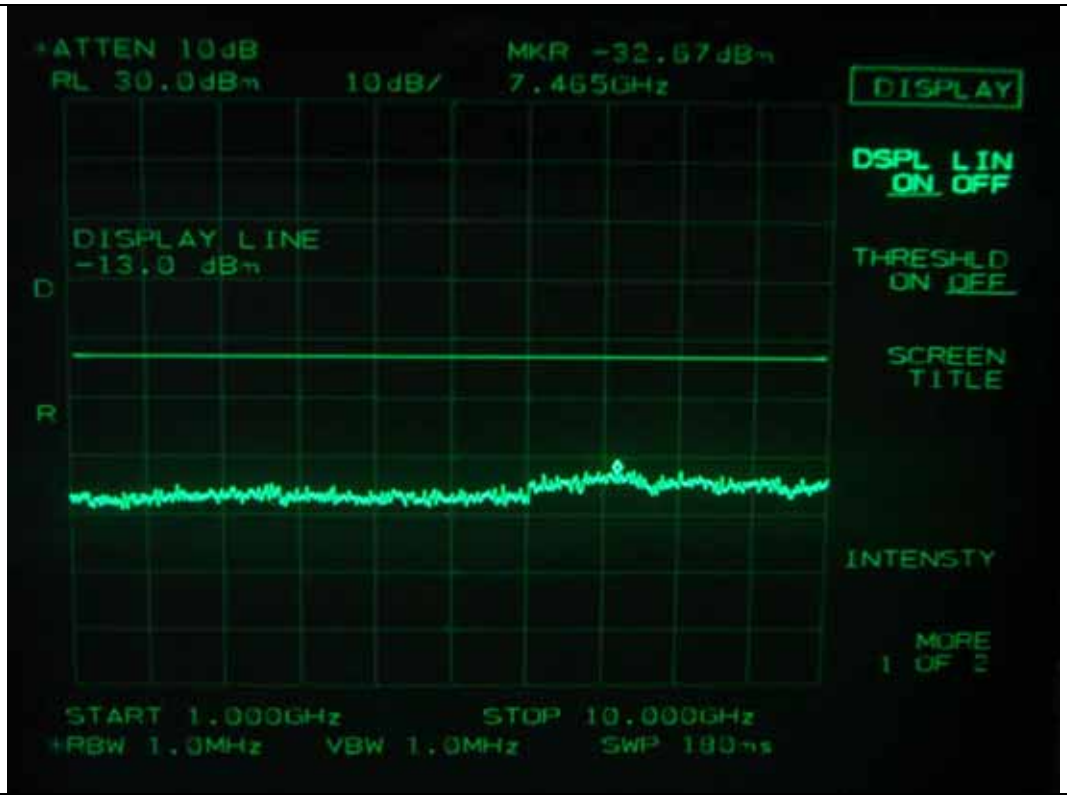
According to Part 90I, out of band emission shall be attenuated by 43 + 10 log (P) dBc, equates to -13.0 dBm.

Tested by: Ki-Hong, Nam / Project Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

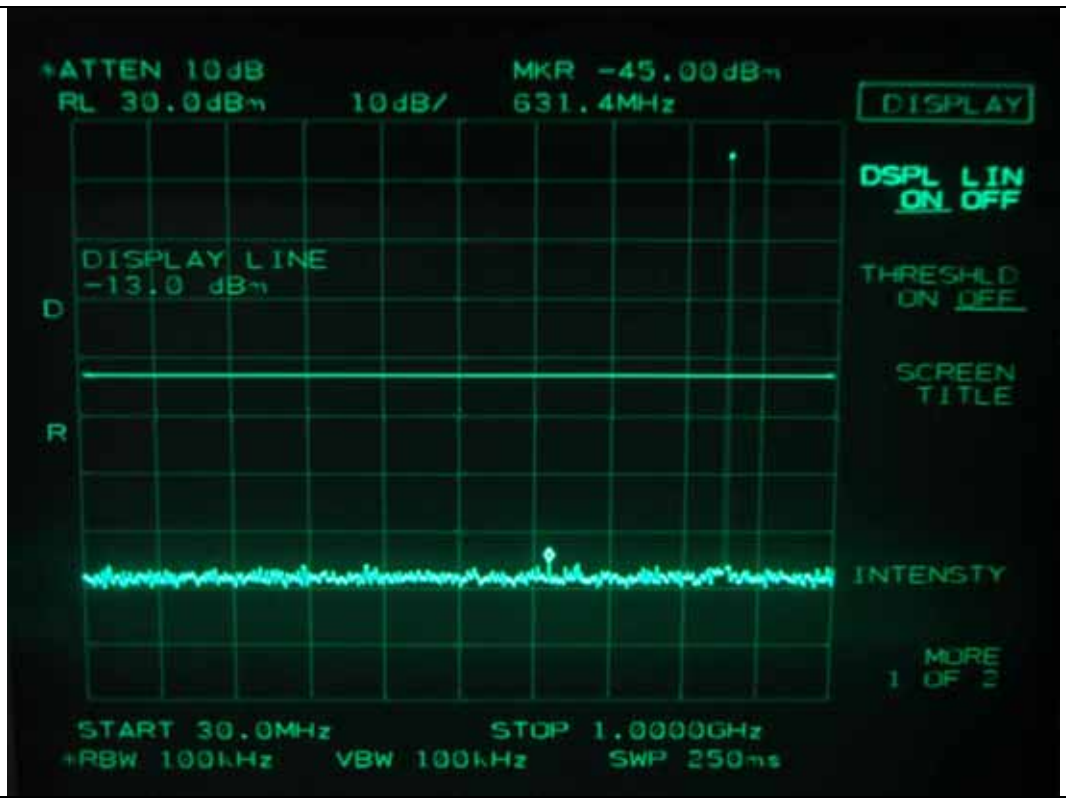


iDEN – Low Channel

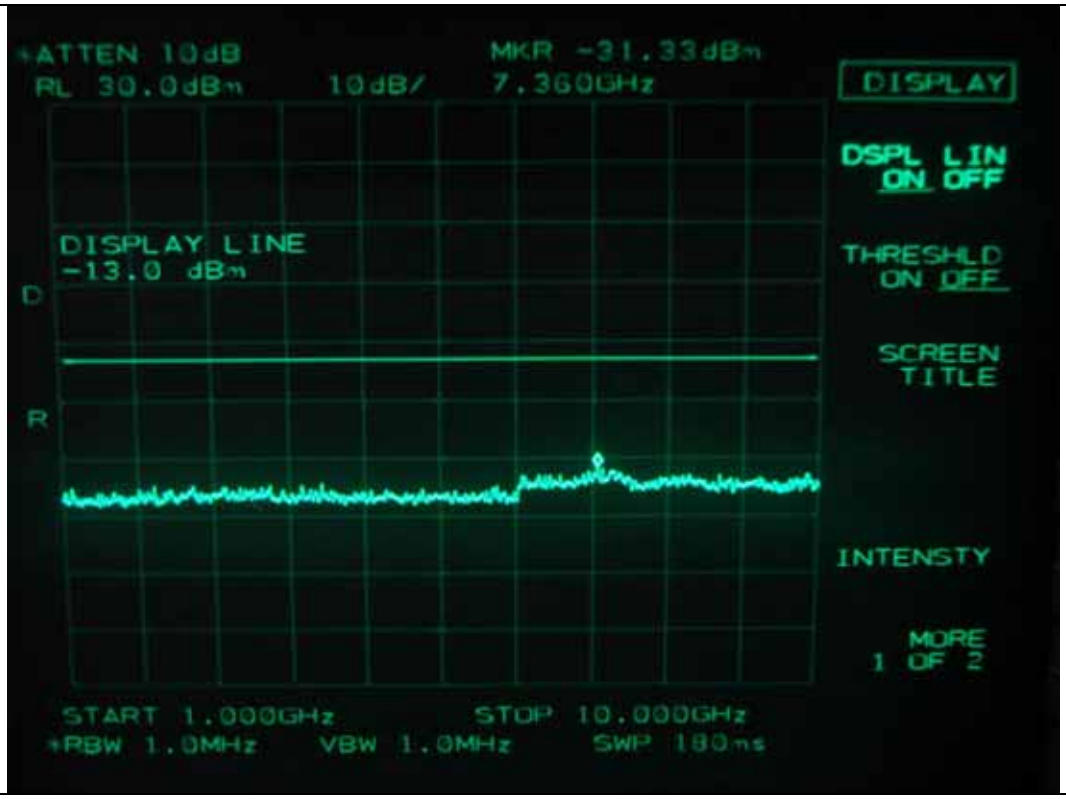


iDEN – Low Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



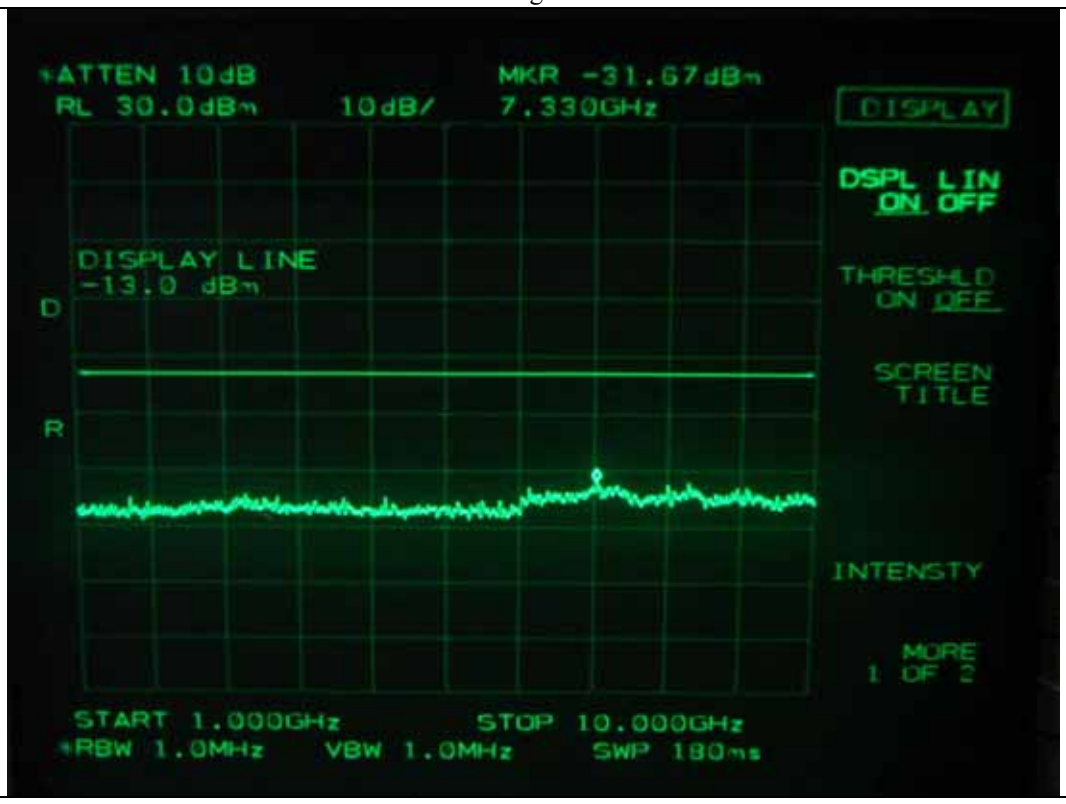
iDEN – Middle Channel



iDEN – Middle Channel

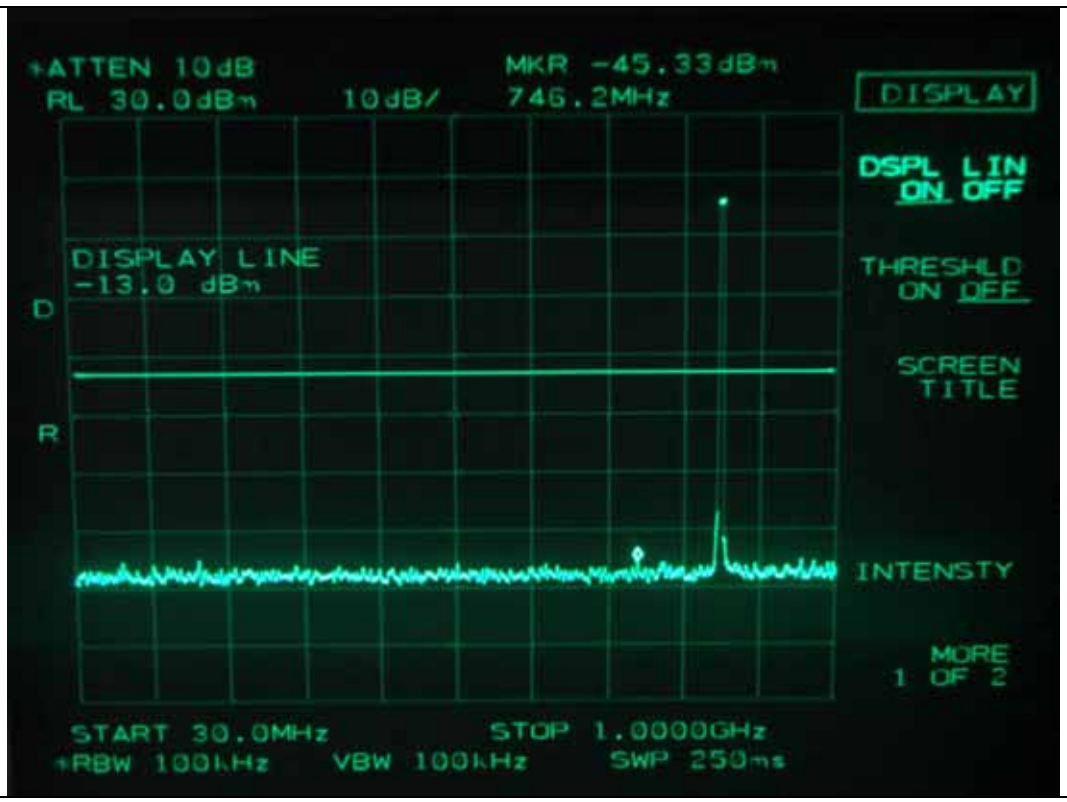
HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

iDEN – High Channel

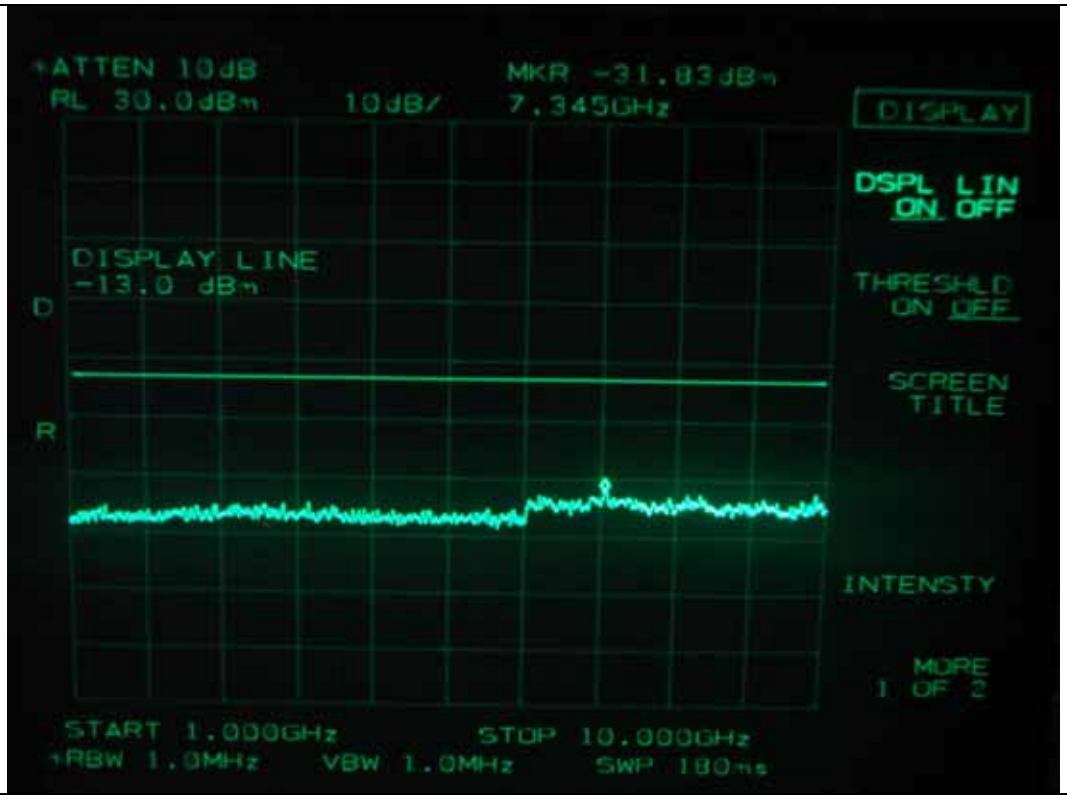


iDEN – High Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

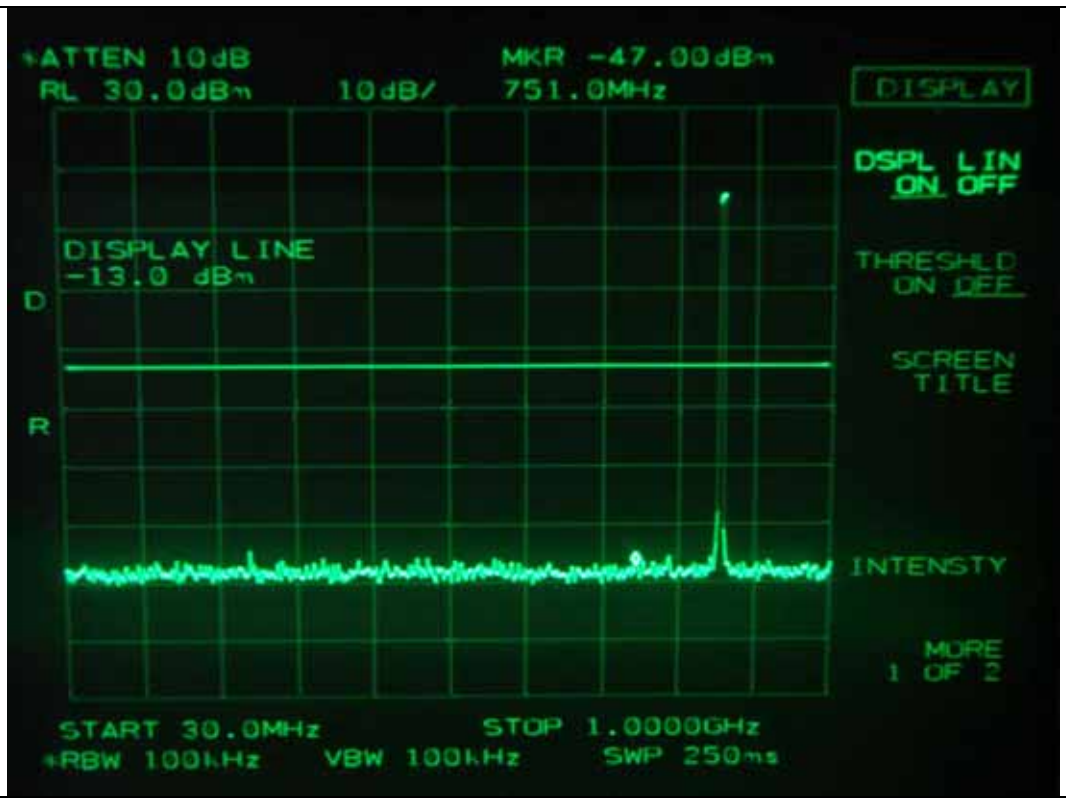


LET – Low Channel

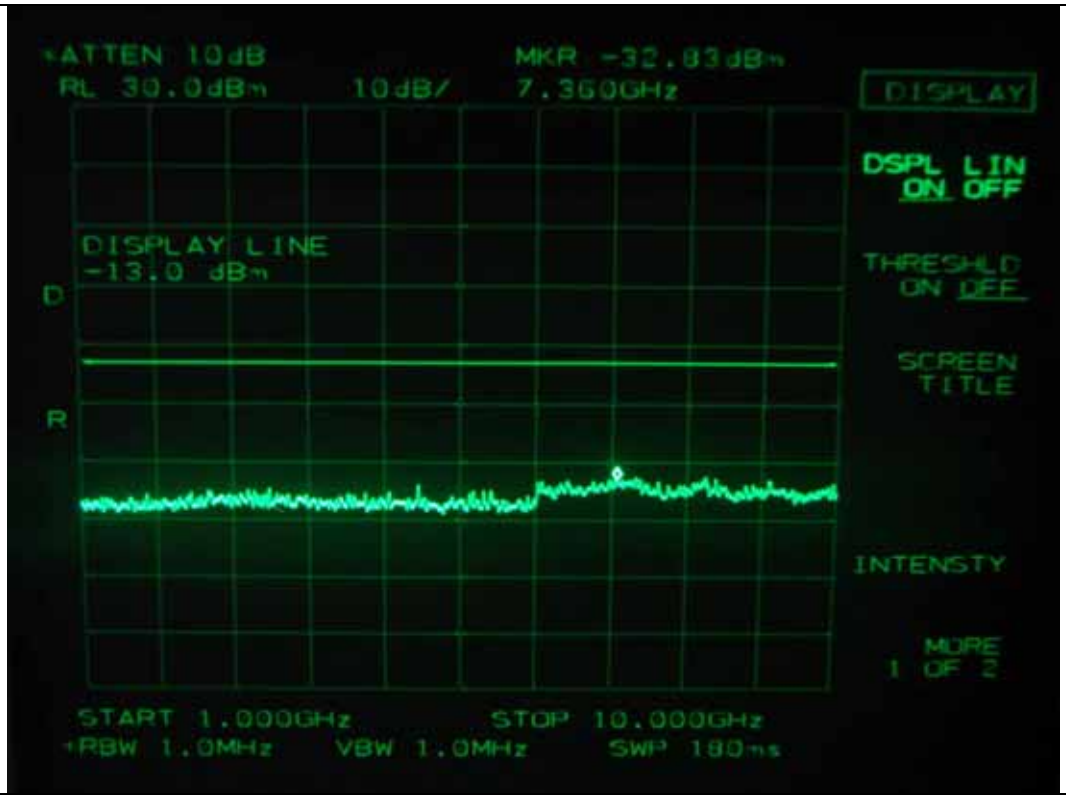


LTE – Low Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



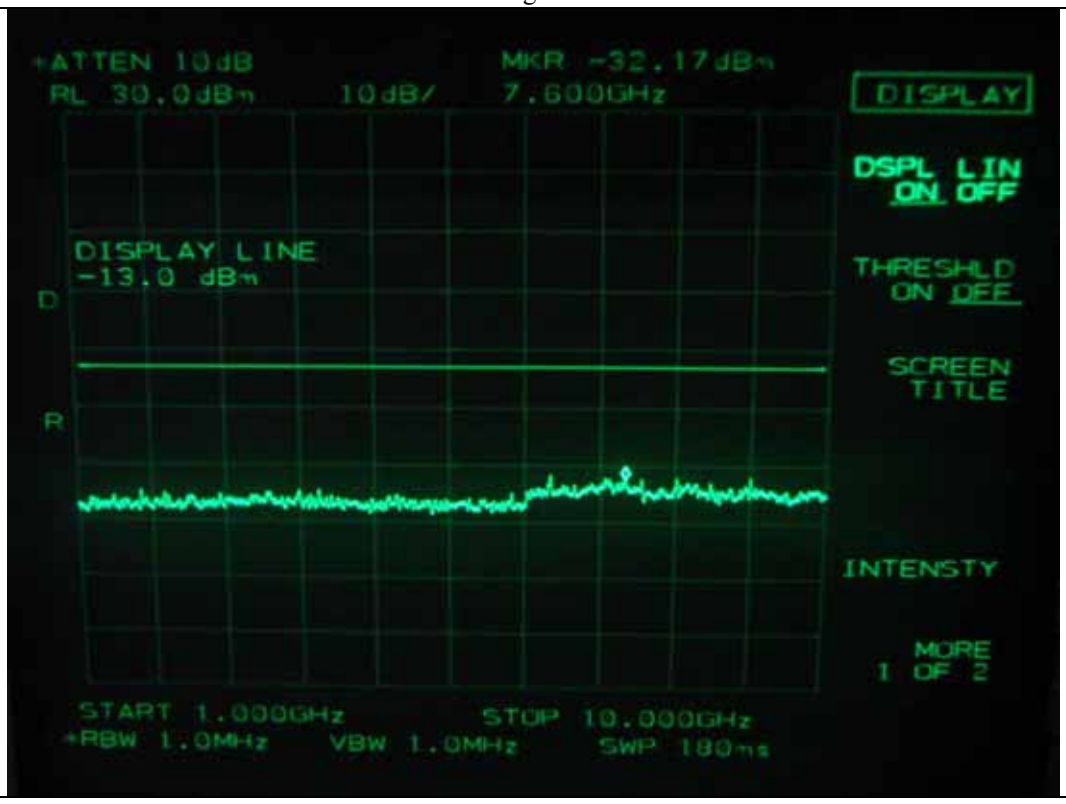
LTE – Middle Channel



LTE – Middle Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

LTE – High Channel



LTE – High Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

7.4.3 Test data for Part 90 I (900iDEN)

-. Test Date : November 10, 2011

-. Frequency range : 30 MHz ~ 20 GHz

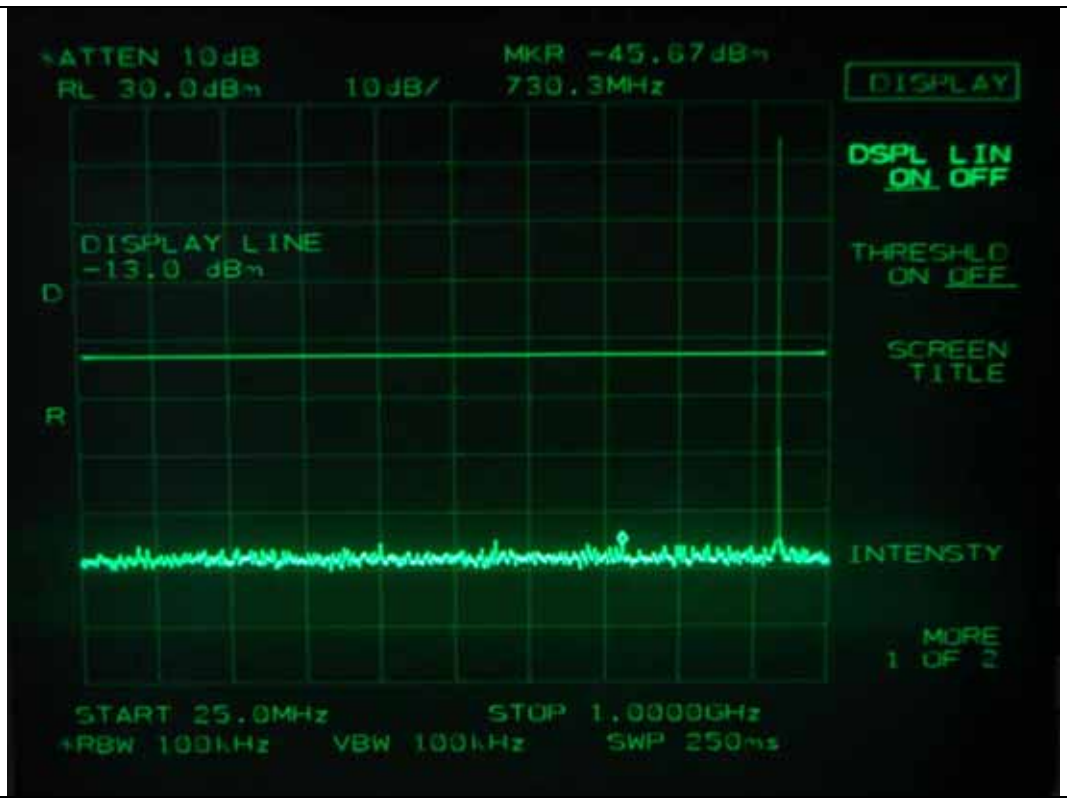
-. Result : PASSED BY -16.00 dB at LET mode

Modulation	Harmonic Frequency (MHz)		Measured Value (dBm)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
iDEN	Low	730.30	-45.67	0.67	-45.00	-13.00	-32.00
		7 450.00	-33.17	3.00	-30.17		-17.17
	Middle	712.40	-46.17	0.67	-45.50		-32.50
		7 645.00	-33.00	3.00	-30.00		-17.00
	High	805.00	-46.33	0.67	-45.66		-32.66
		7 540.00	-32.17	3.00	-29.17		-16.17
LTE		749.80	-46.17	0.67	-45.50	-13.00	-32.50
		7 615.00	-32.00	3.00	-29.00		-16.00

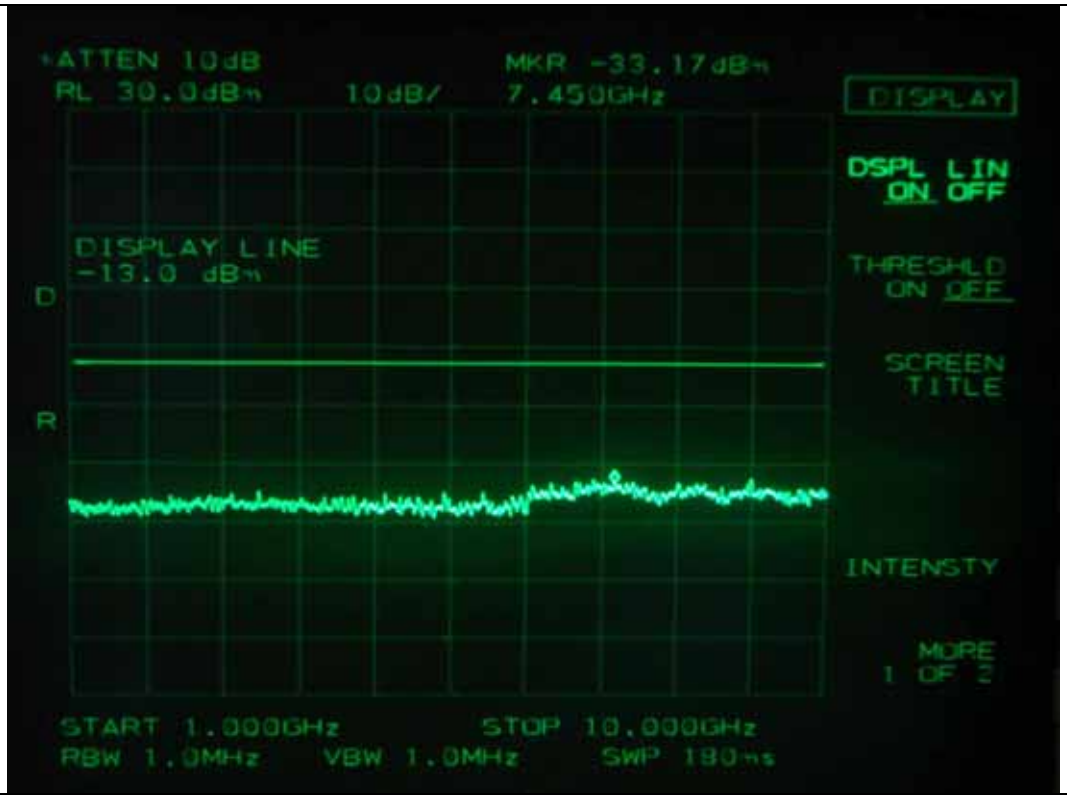
According to Part 90I, out of band emission shall be attenuated by 43 + 10 log (P) dBc, equates to -13.0 dBm.

Tested by: Ki-Hong, Nam / Project Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

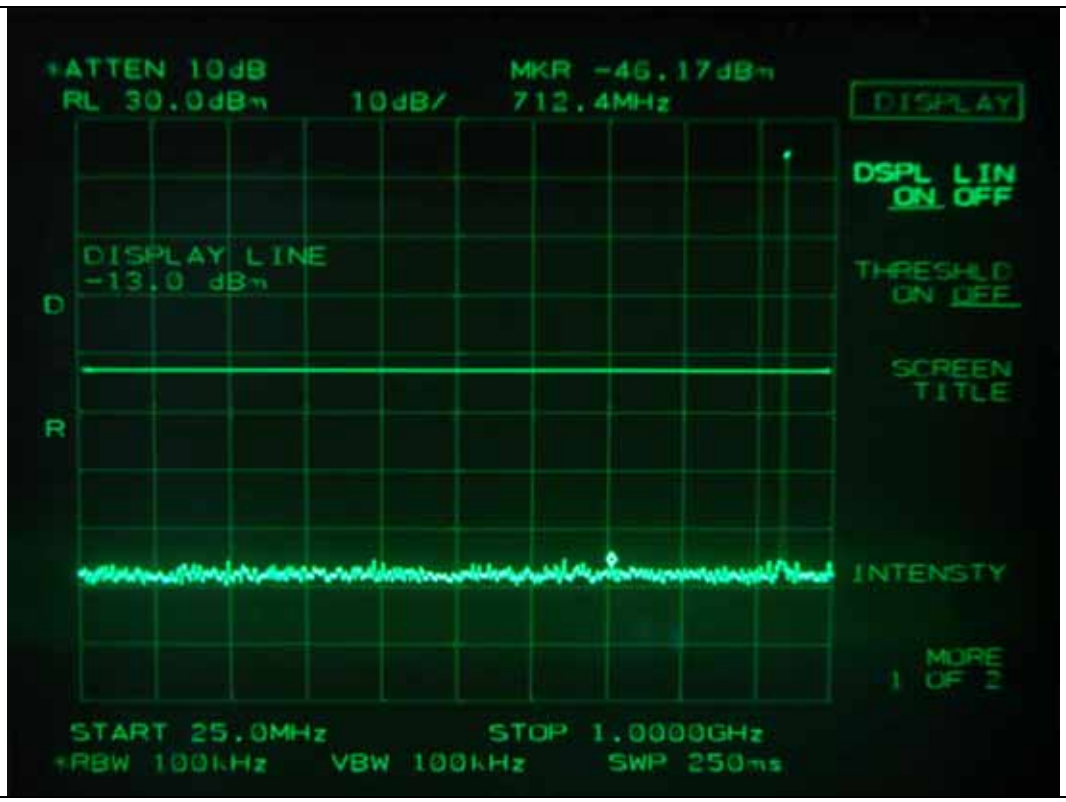


iDEN – Low Channel

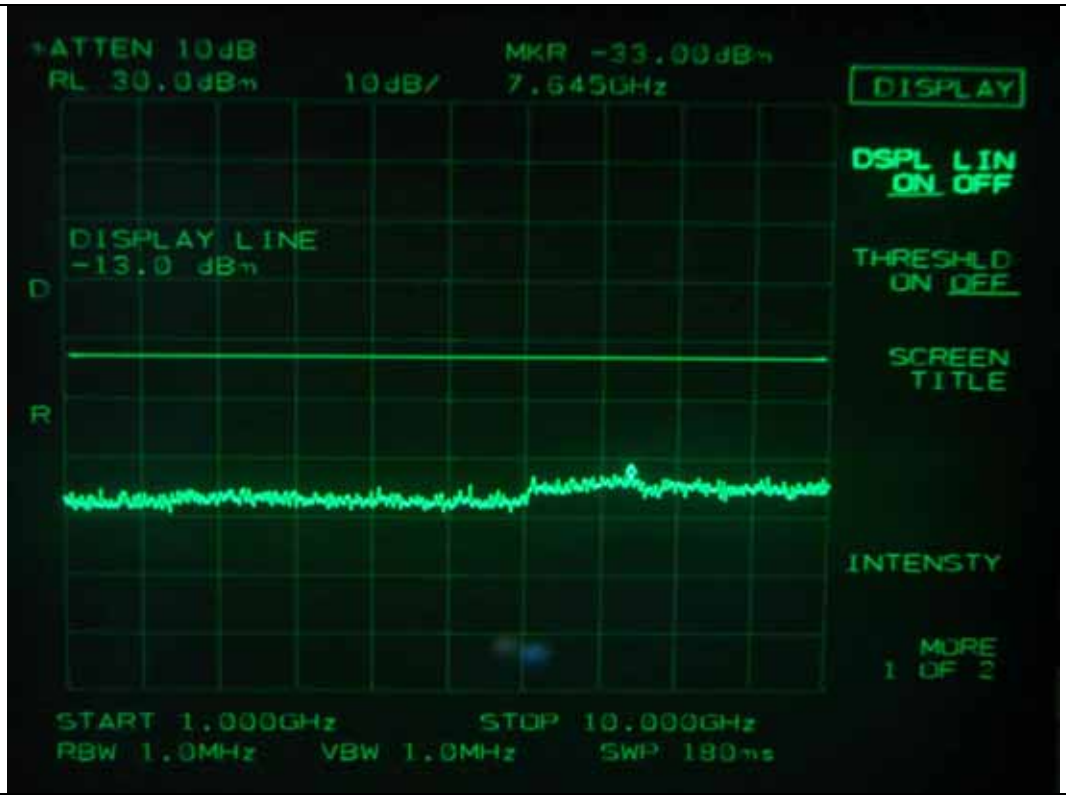


iDEN – Low Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

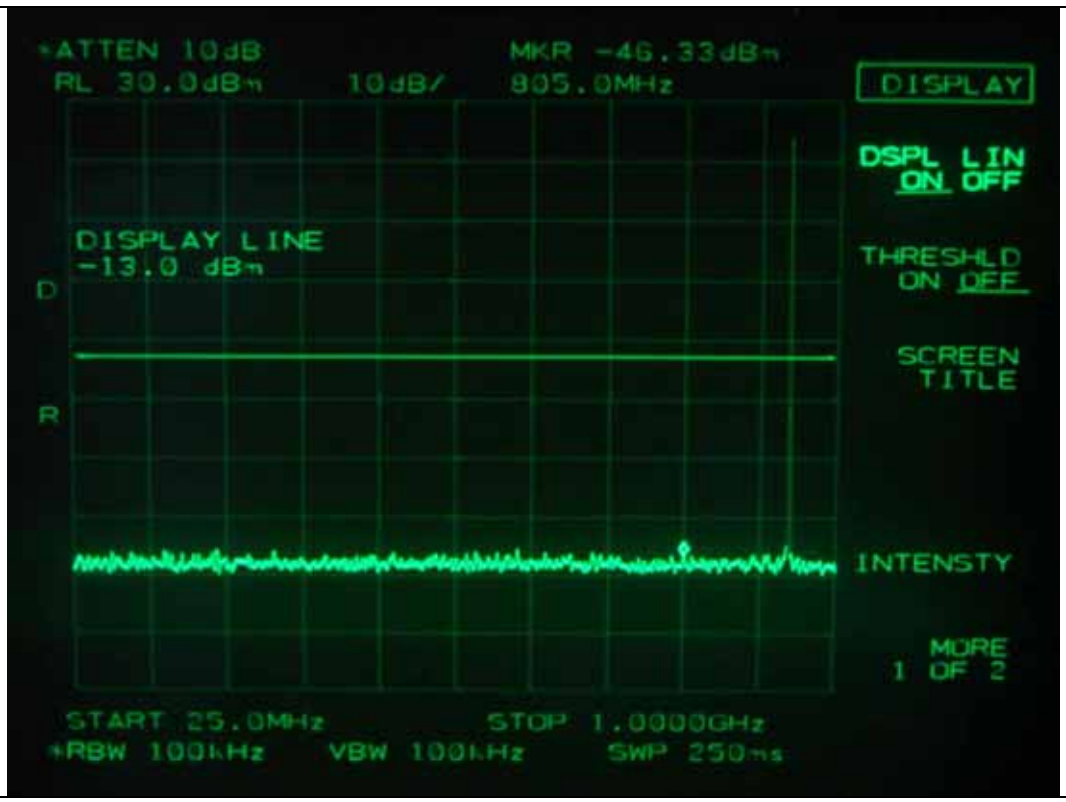


iDEN – Middle Channel

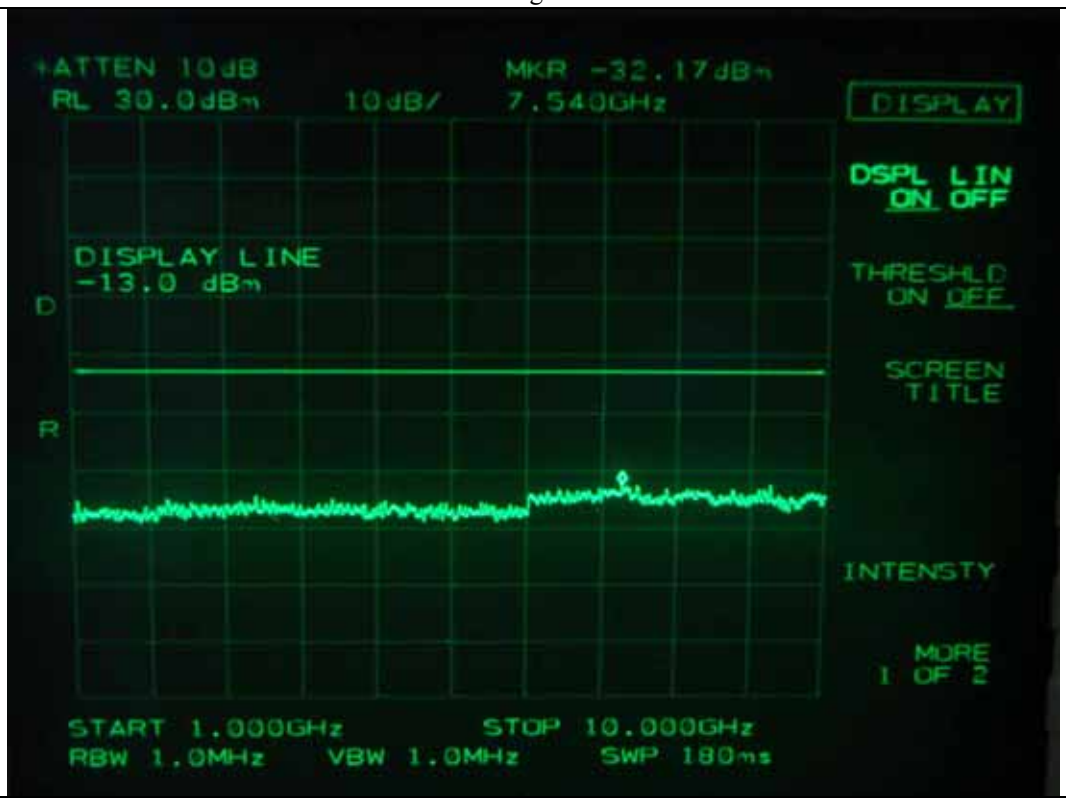


iDEN – Middle Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

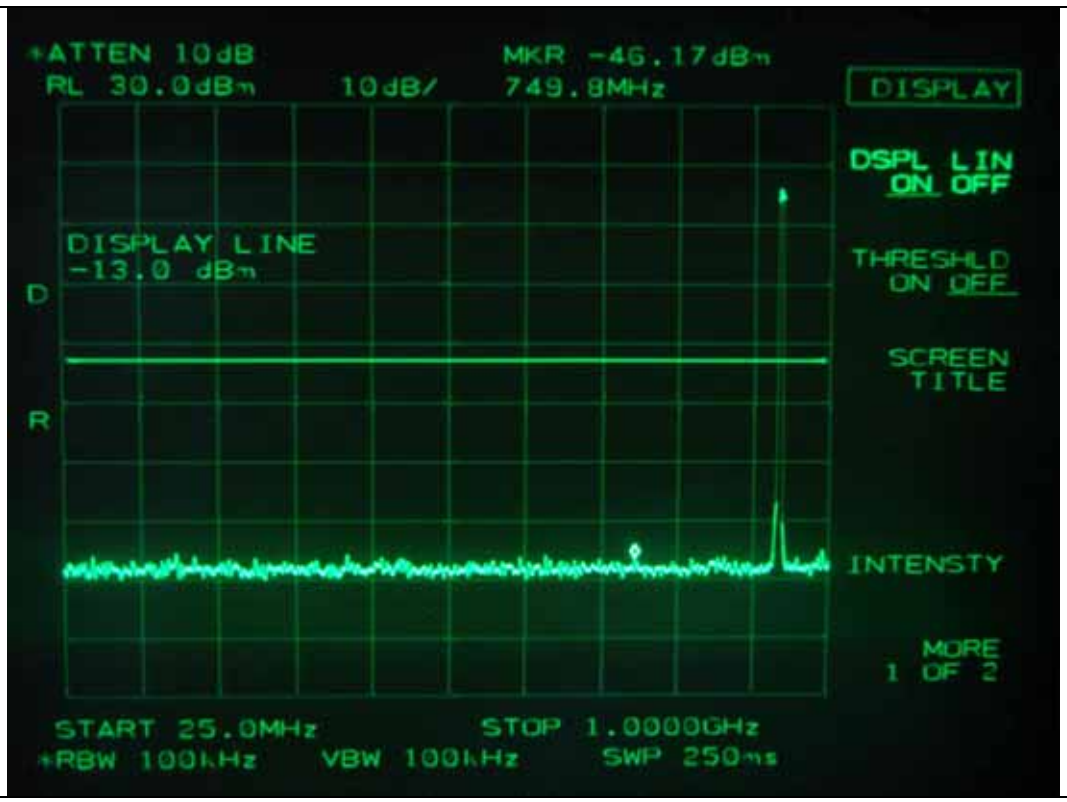


iDEN – High Channel

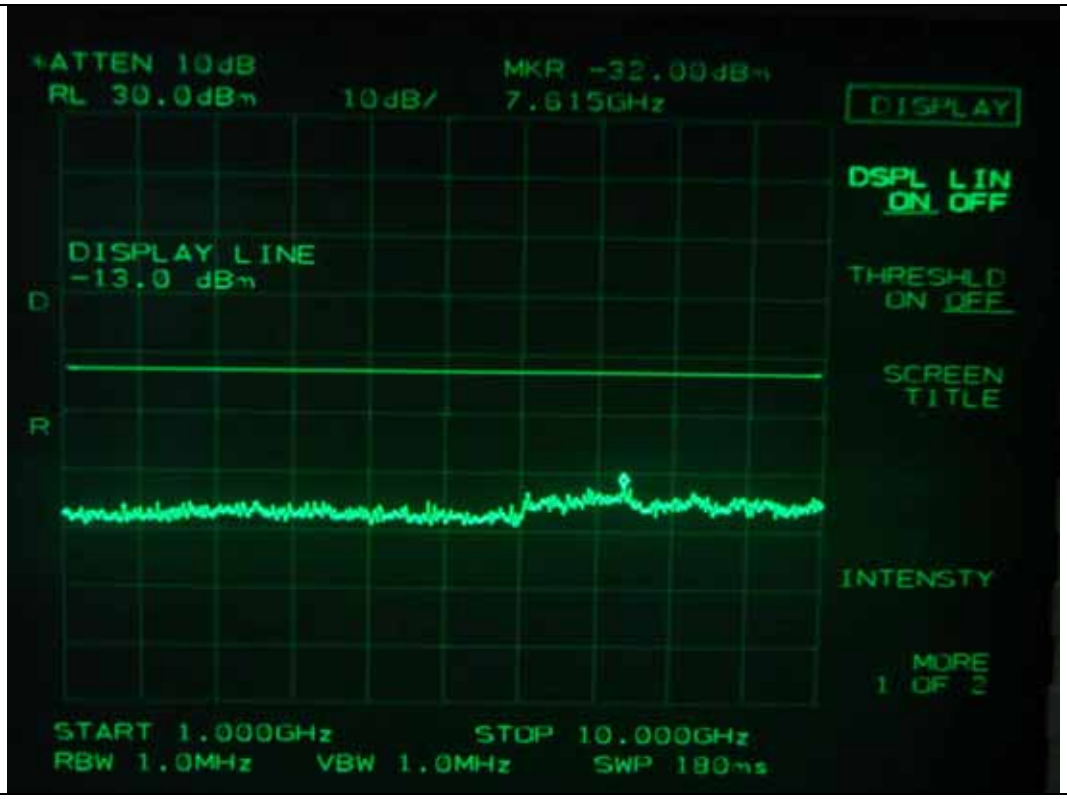


iDEN – High Channel

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



LTE



LTE

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

8. BAND EDGE MEASUREMENT

8.1 Operating environment

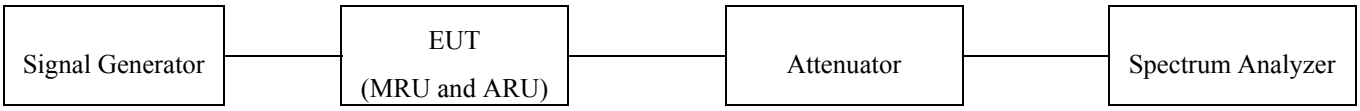
Temperature : (23 ~ 25) °C

Relative humidity : (49 ~ 50) % R.H.

8.2 Test set-up for conducted measurement

The RF signal from the signal generator(s) was injected to the EUT and the amplified RF signal at the output of the EUT was connected to the power meter or spectrum analyzer. The test was performed at three frequencies (low, middle, and high channels) at each band using all applicable modulation.

The resolution bandwidth and video bandwidth of the spectrum analyzer was set according to the regulation and sufficient scans were taken to show any out of band emissions.



8.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
☐ -	8564E	HP	Spectrum Analyzer	3650A00756	Jun. 10, 2011 (1Y)
■ -	E4432B	HP	Signal Generator	US38440950	Jun. 10, 2011 (1Y)
■ -	SMJ100A	R/S	Signal Generator	101038	Feb. 01, 2011 (1Y)
■ -	FSP	R/S	Spectrum Analyzer	100017	Mar. 15, 2011 (1Y)

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

8.4 Test data

8.4.1 Test Result for Part 24 E (1900P)

-. Test Date : November 14, 2011

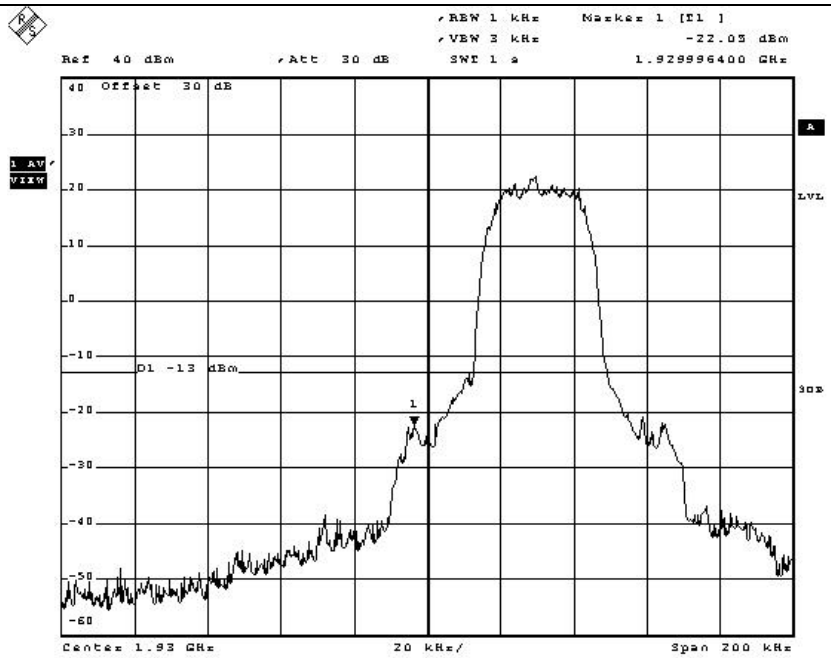
-. Result : PASSED BY -6.80 dB at TDMA Mode

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)	Margin (dB)
TDMA	Low	1 929.996	-22.05	-13.00	-9.05
	High	1 995.000	-19.08		-6.08
GSM	Low	1 930.000	-26.20		-13.20
	High	1 995.028	-24.16		-11.16
EDGE	Low	1 929.966	-29.74		-16.74
	High	1 995.000	-26.38		-13.38
CDMA	Low	1 930.000	-34.89		-21.89
	High	1 995.000	-31.65		-18.65
1xEVDO	Low	1 930.000	-34.74		-21.74
	High	1 995.000	-31.62		-18.62
WCDMA	Low	1 930.000	-23.13		-10.13
	High	1 995.000	-21.18		-8.18
LTE	Low	1 930.000	-27.58		-14.58
	High	1 995.000	-25.71		-12.71

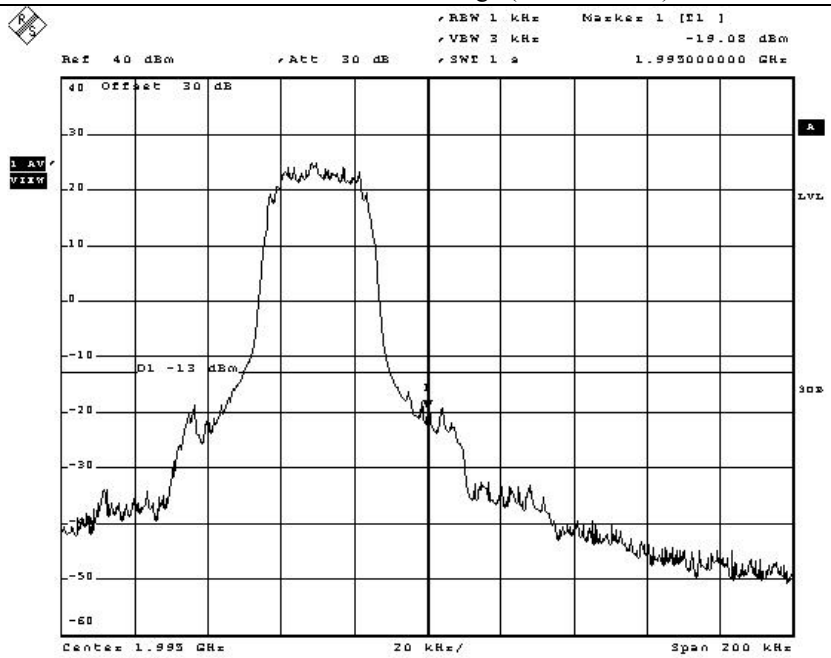
According to Part 24E, out of band emission shall be attenuated by 43 + 10 log (P) dBc, equates to -13.0dBm.

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

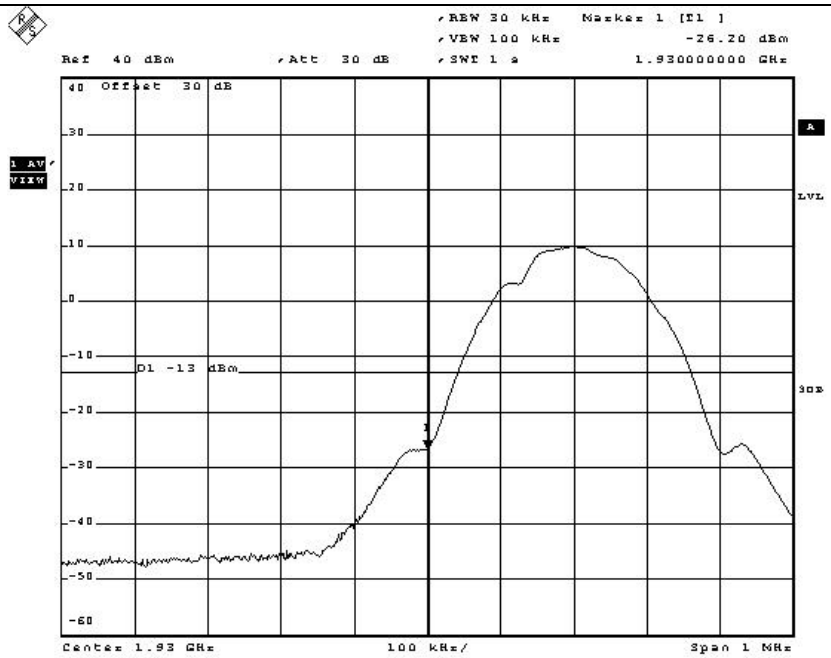


TDMA – Band Edge (Low Channel)

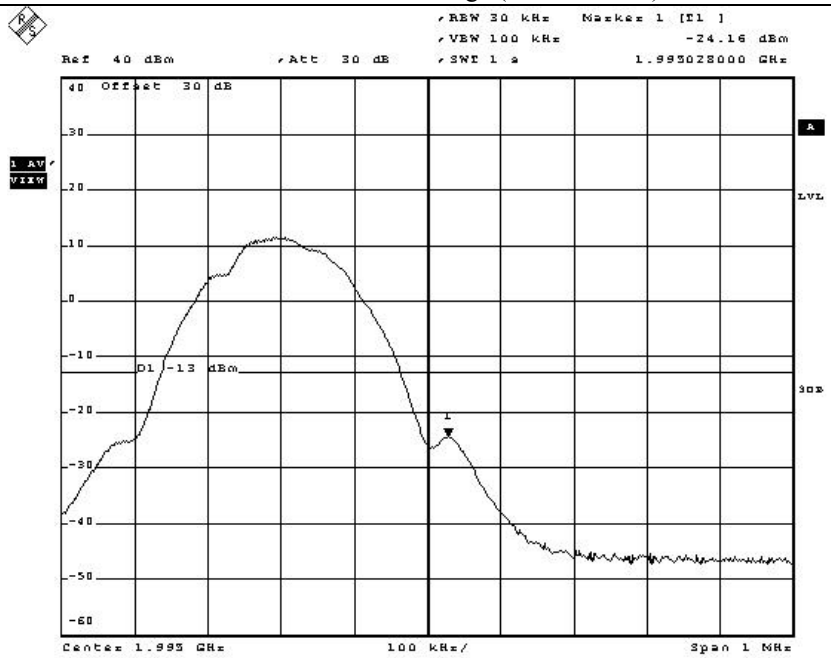


TDMA – Band Edge (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

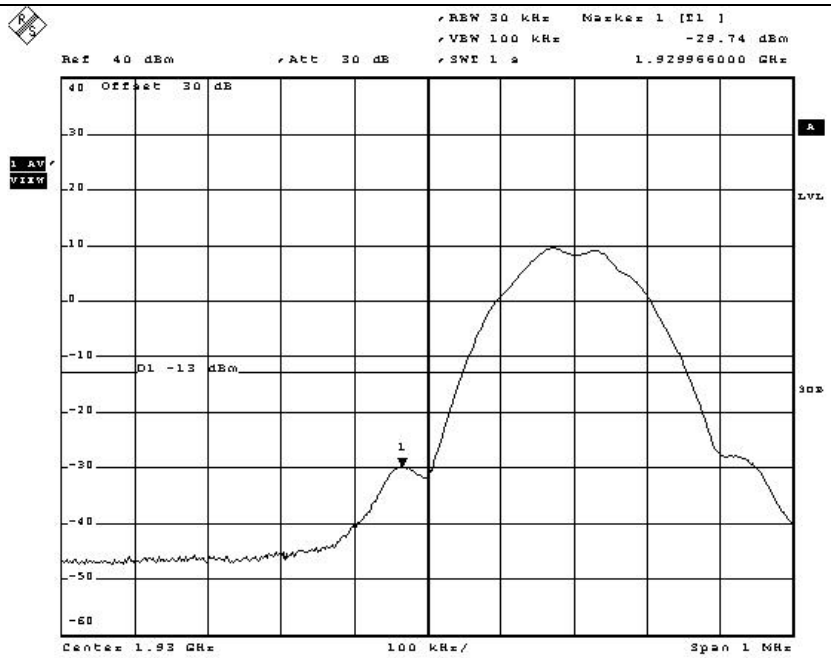


GSM – Band Edge (Low Channel)

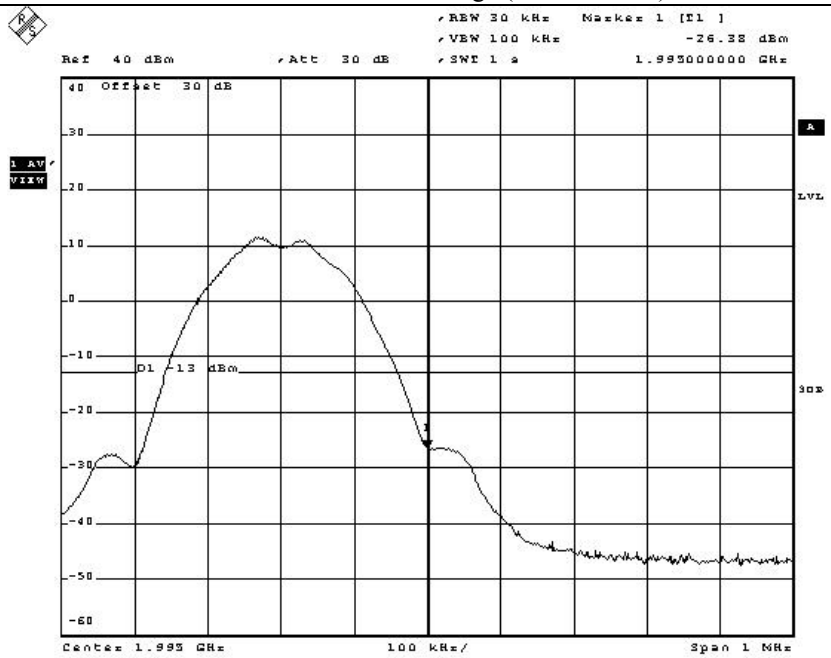


GSM – Band Edge (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

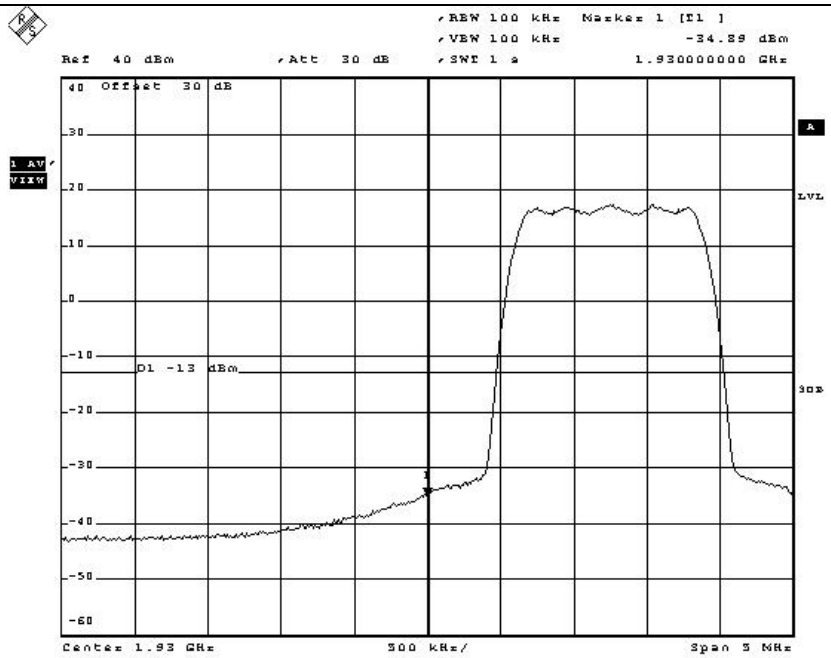


EDGE – Band Edge (Low Channel)

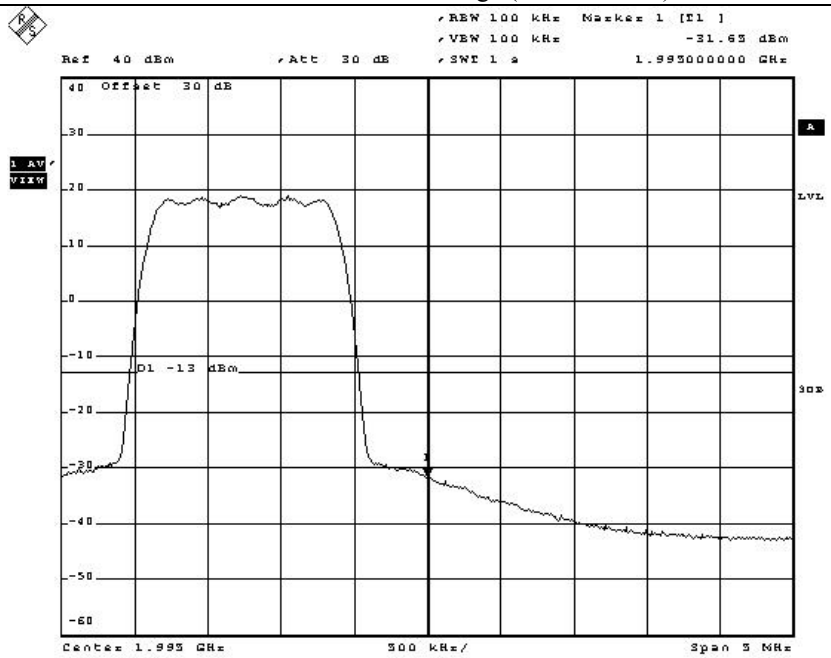


EDGE – Band Edge (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

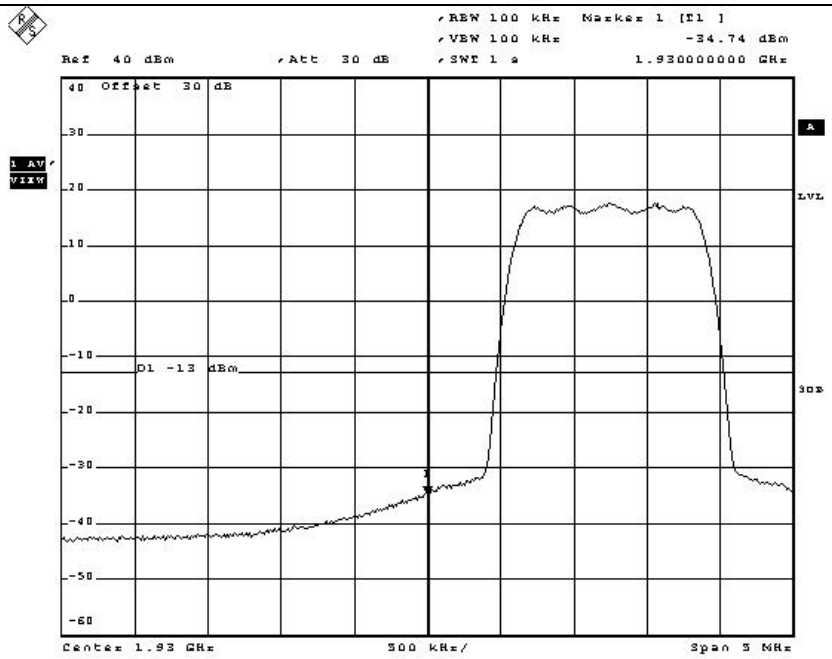


CDMA – Band Edge (Low Channel)

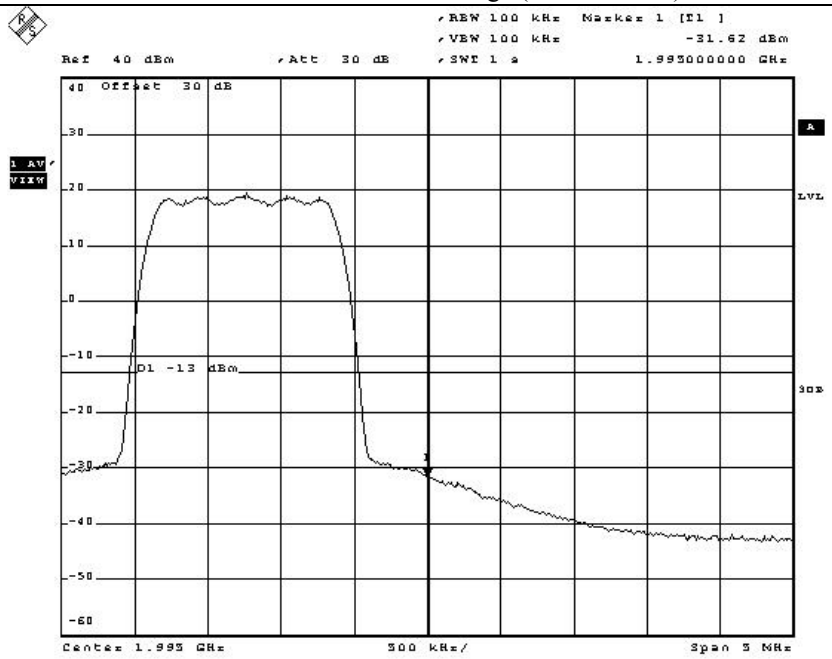


CDMA – Band Edge (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

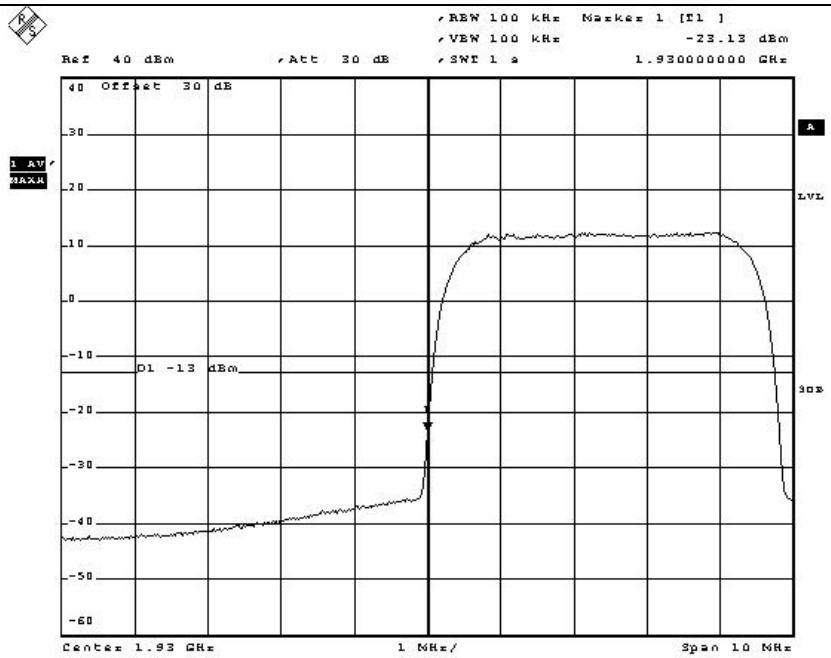


1xEVDO – Band Edge (Low Channel)

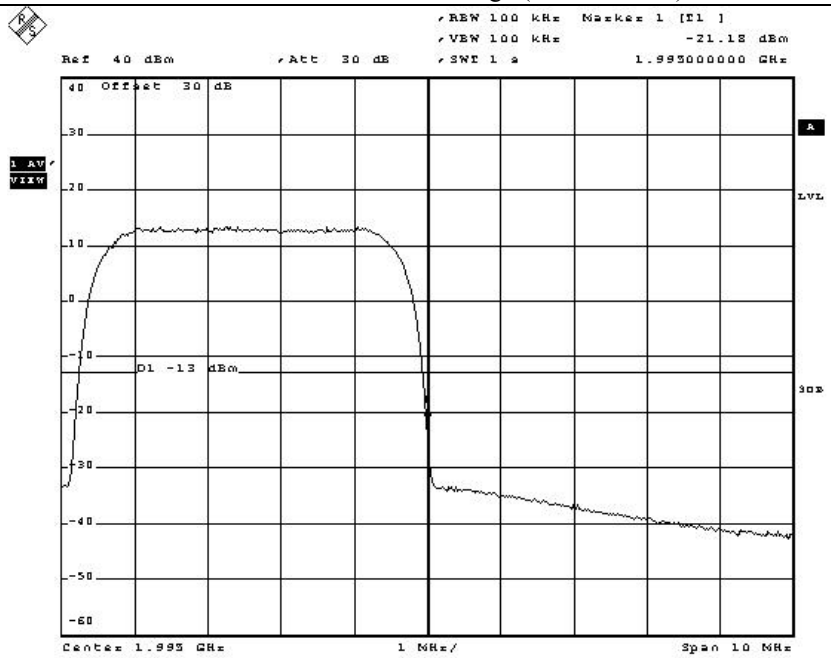


1xEVDO – Band Edge (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

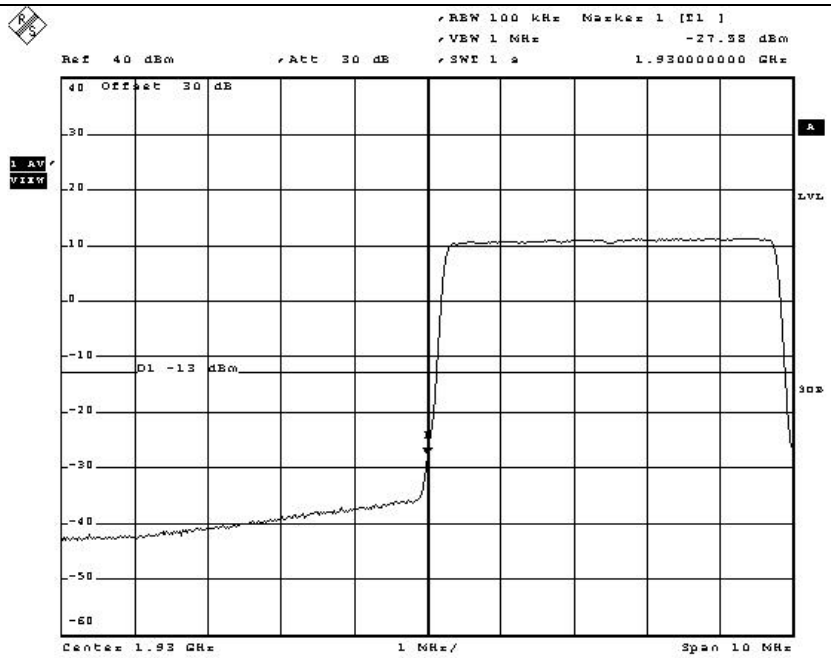


WCDMA – Band Edge (Low Channel)

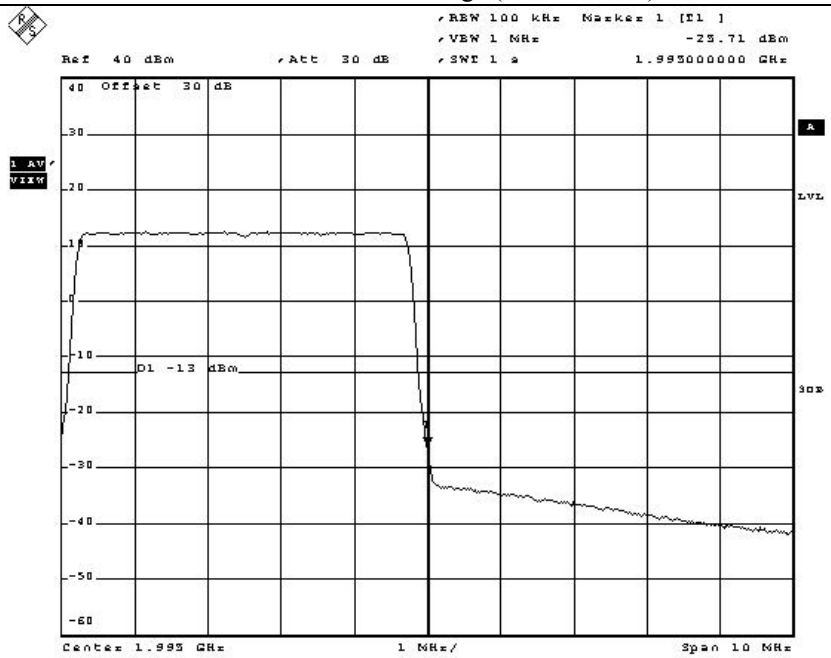


WCDMA – Band Edge (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



LTE – Band Edge (Low Channel)



LTE – Band Edge (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

8.4.2 Test Result for Part 90 I (800iDEN)

-. Test Date : November 08, 2011

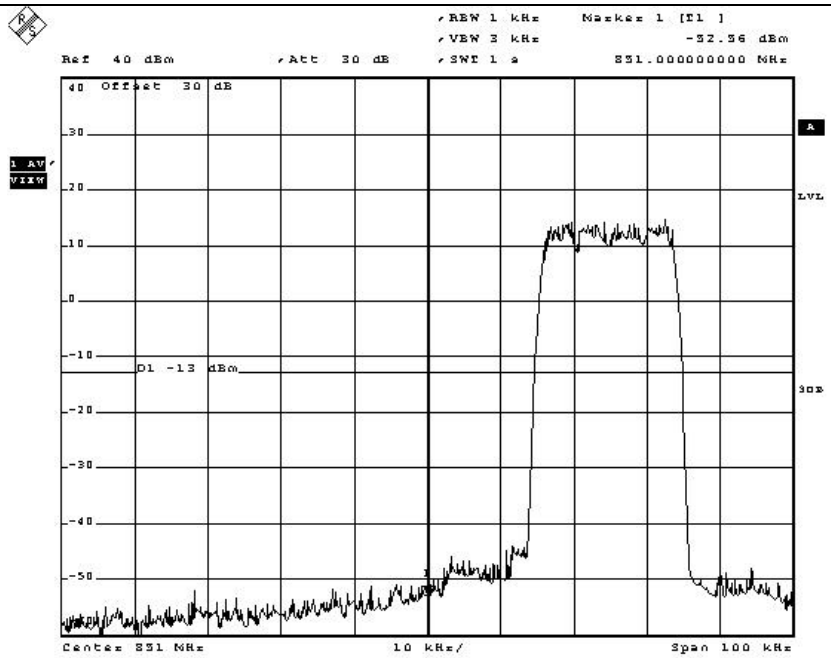
-. Result : PASSED BY -19.84 dB at high channel of LTE mode

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)	Margin (dB)
iDEN	Low	851.000	-52.56	-13.00	-39.56
	High	869.000	-54.91		-41.91
LTE	Low	851.000	-33.45		-20.45
	High	869.000	-32.84		-19.84

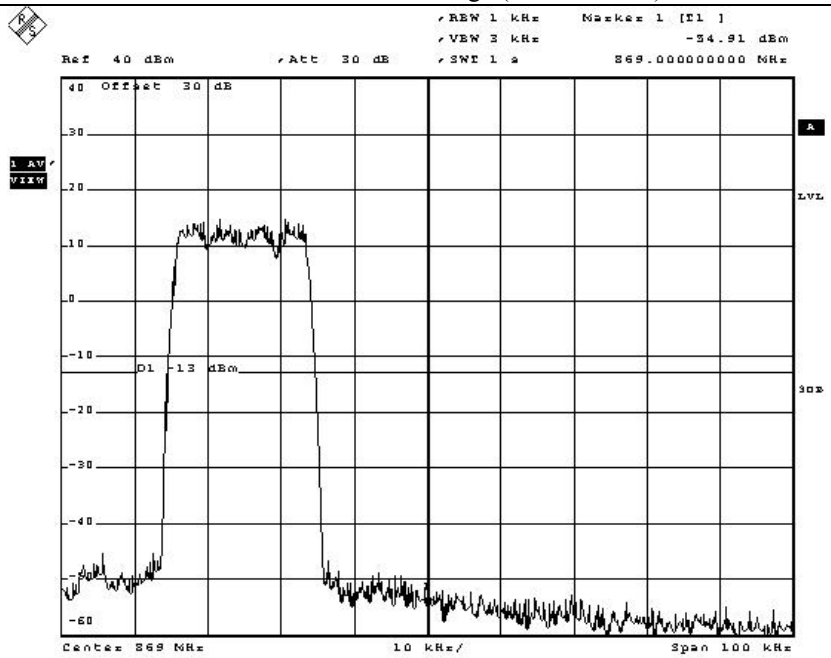
According to Part 90I, out of band emission shall be attenuated by 43 + 10 log (P) dBc, equates to -13.0dBm.

Tested by: Ki-Hong, Nam / Project Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

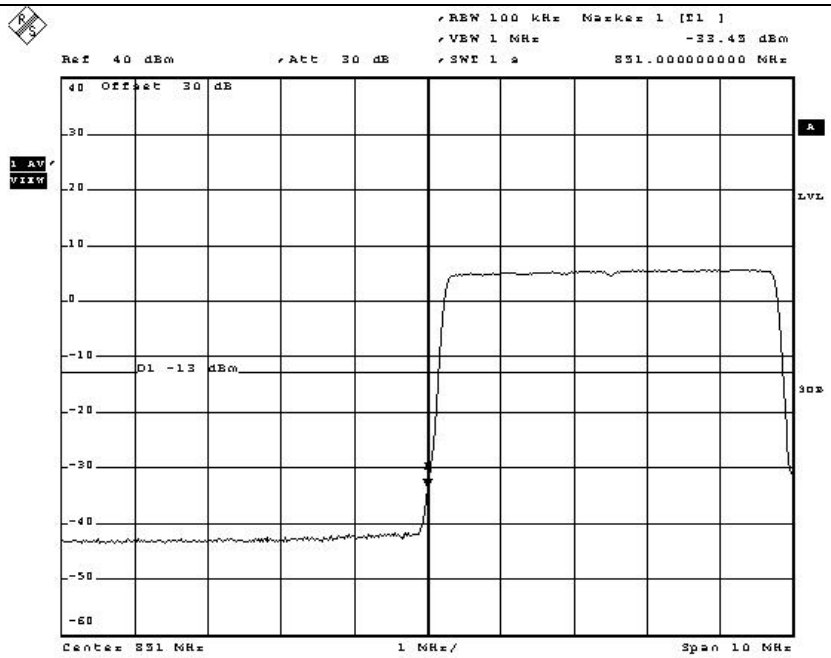


iDEN – Band Edge (Low Channel)

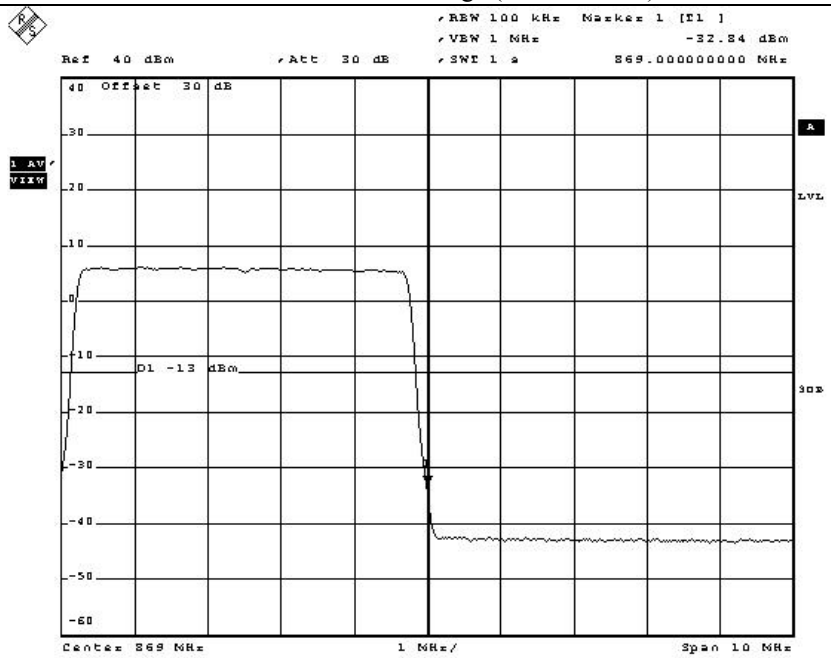


iDEN – Band Edge (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



LTE – Band Edge (Low Channel)



LTE – Band Edge (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

8.4.3 Test Result for Part 90 I (900iDEN)

-. Test Date : November 10, 2011

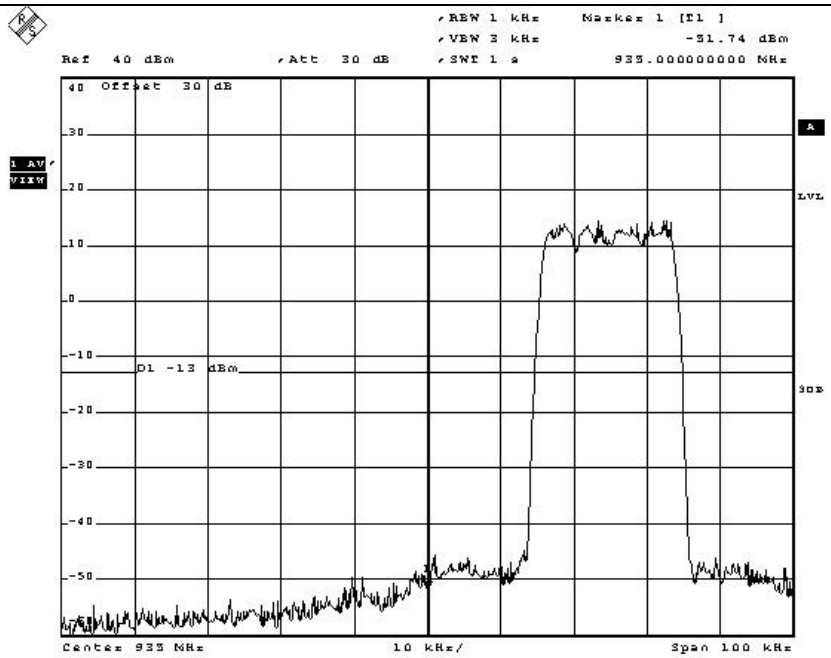
-. Result : PASSED BY -19.40 dB at low channel of LTE mode

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)	Margin (dB)
iDEN	Low	935.000	-51.74	-13.00	-38.74
	High	940.000	-52.84		-39.84
LTE	Low	935.000	-32.40		-19.40
	High	940.000	-33.34		-20.34

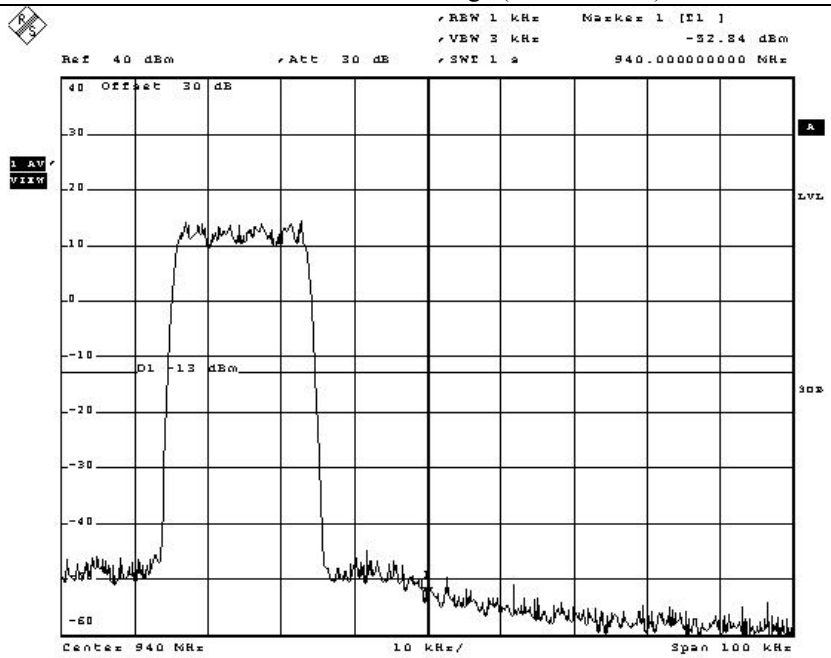
According to Part 90I, out of band emission shall be attenuated by 43 + 10 log (P) dBc, equates to -13.0dBm.

Tested by: Ki-Hong, Nam / Project Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

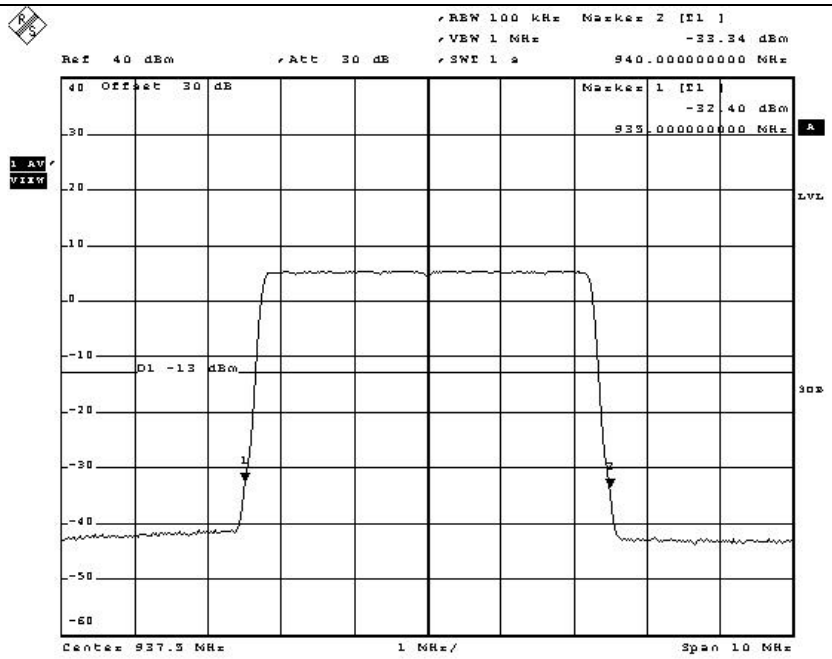


iDEN – Band Edge (Low Channel)



iDEN – Band Edge (High Channel)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



LTE – Band Edge

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

9. INTERMODULATION TEST

9.1 Operating environment

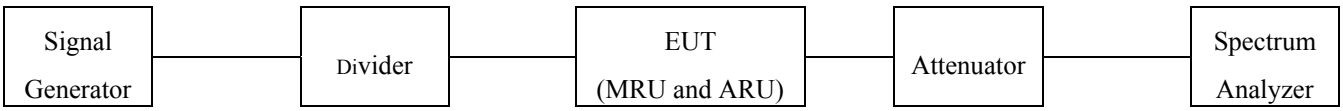
Temperature : (23 ~ 25) °C

Relative humidity : (49 ~ 50) % R.H.

9.2 Test set-up

The RF signal from the signal generator(s) was injected to the EUT and the amplified RF signal at the output of the EUT was connected to the power meter or spectrum analyzer. The test was performed at three frequencies (low, middle, and high channels) at each band using all applicable modulation.

Two input signals are equal in level and were sent to the input of the EUT.



9.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	8564E	HP	Spectrum Analyzer	3650A00756	Jun. 10, 2011 (1Y)
■ -	E4432B	HP	Signal Generator	US38440950	Jun. 10, 2011 (1Y)
■ -	SMJ100A	R/S	Signal Generator	101038	Feb. 01, 2011 (1Y)
■ -	83650L	HP	Swept CW Generator	3844A00415	Jun. 10, 2011 (1Y)
□ -	FSP	R/S	Spectrum Analyzer	100017	Mar. 15, 2011 (1Y)

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

9.4 Test data

9.4.1 Test Result for Part 24 E (1900P)

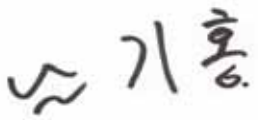
9.4.1.1 Test Result for peak power

-. Test Date : November 14, 2011

-. Test Result : Pass

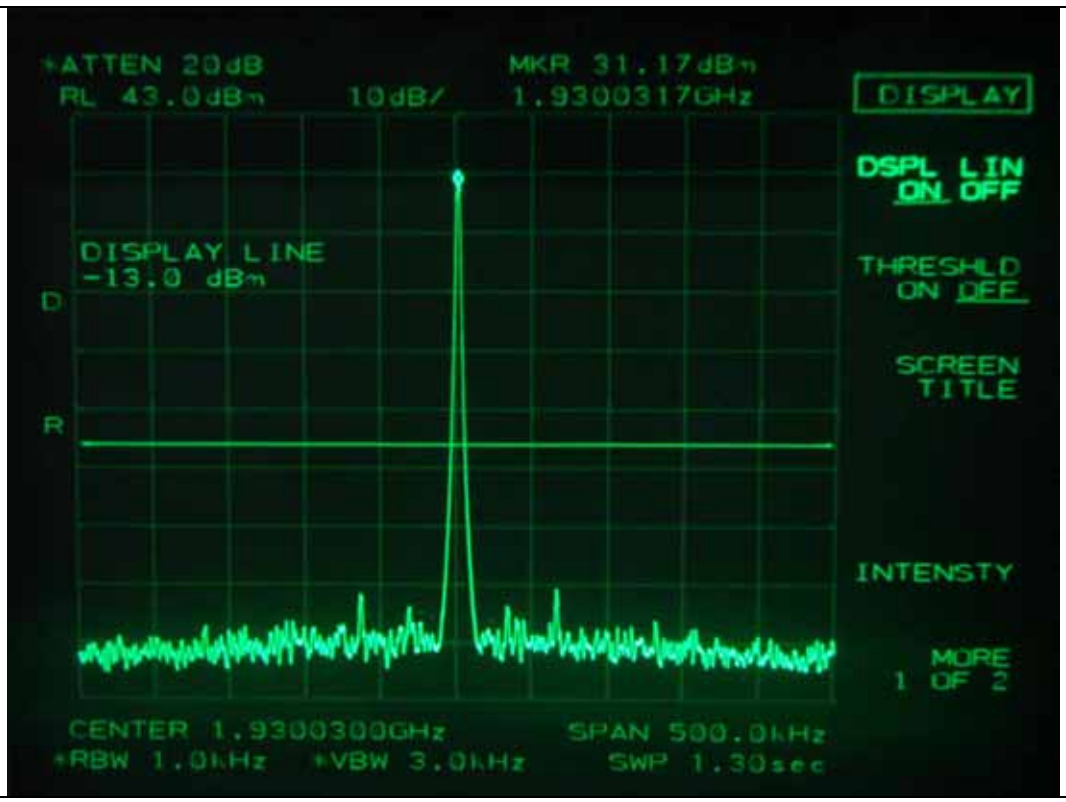
-. Modulation : No-Modulation

Frequency (MHz)	Number of Input Channel	Input Power (dBm)	Output Power (dBm)
1 930.030	1	-19.80	31.17
1 930.030 & 1 930.055	2	-19.70	31.17
1 930.030 & 1 930.055 & 1 930.075	3	-19.70	31.33
1 994.970	1	-19.70	31.17
1 994.970 & 1 994.945	2	-19.70	31.17
1 994.970 & 1 994.945 & 1 994.920	3	-19.80	31.00

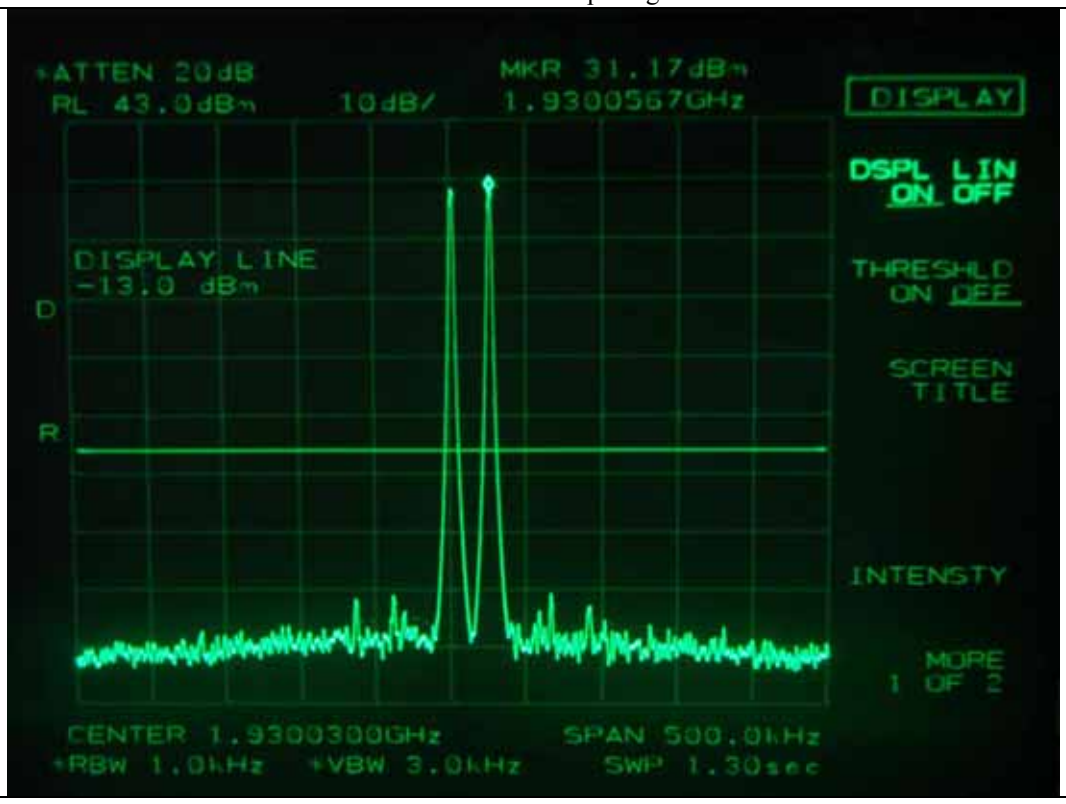


Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

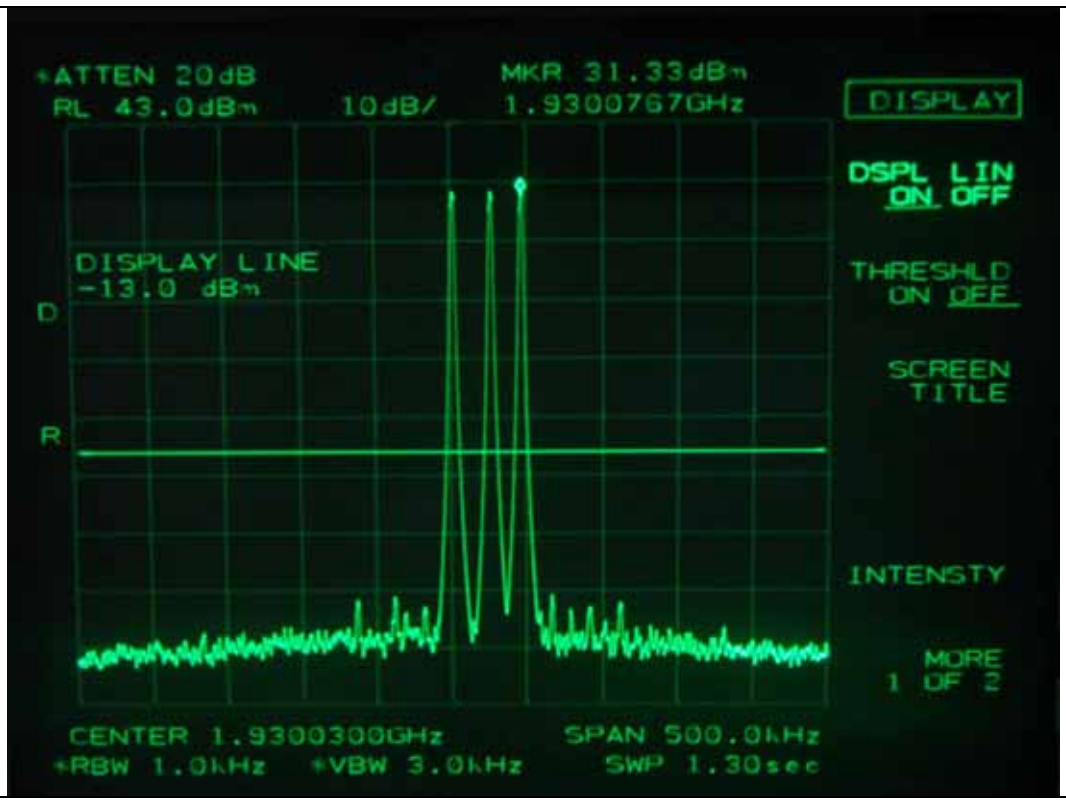


Low Channel – 1 input signal

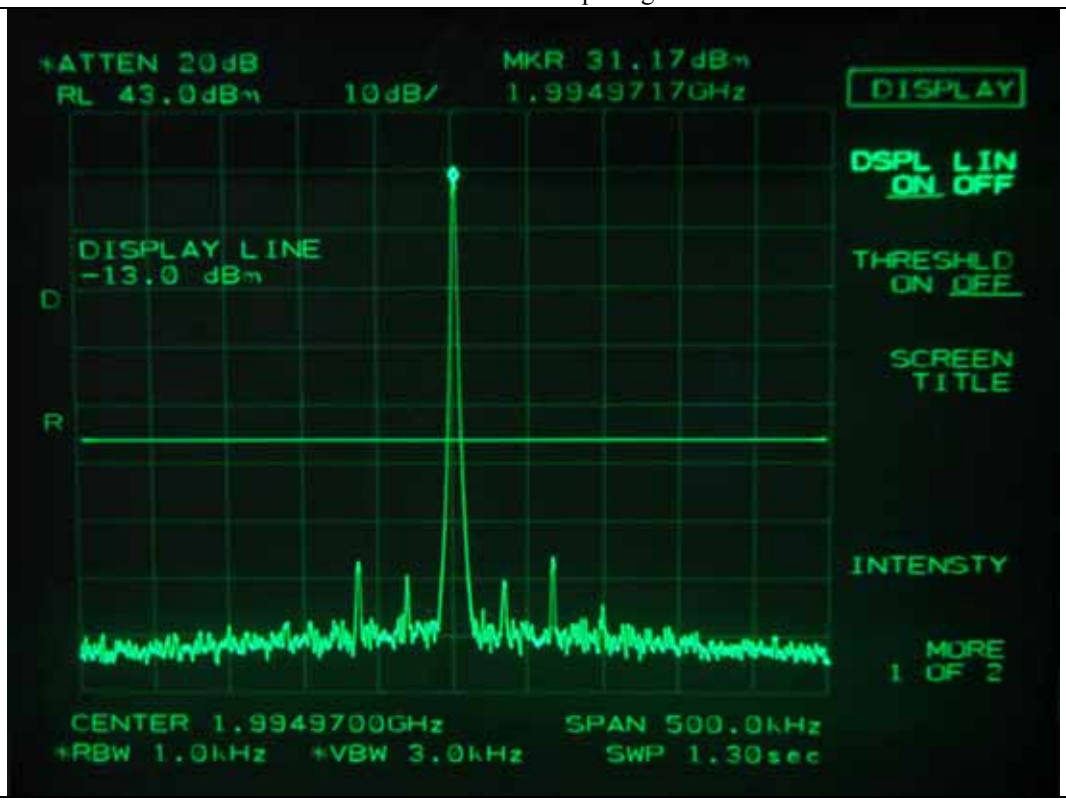


Low Channel – 2 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

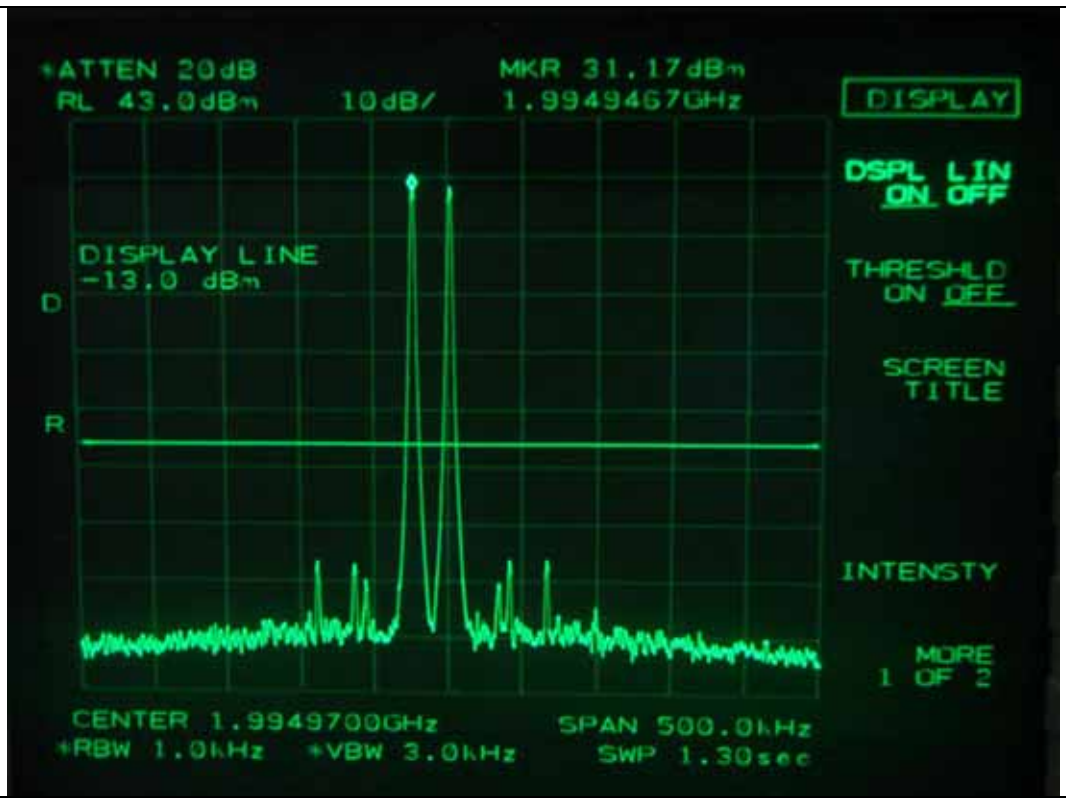


Low Channel – 3 input signals

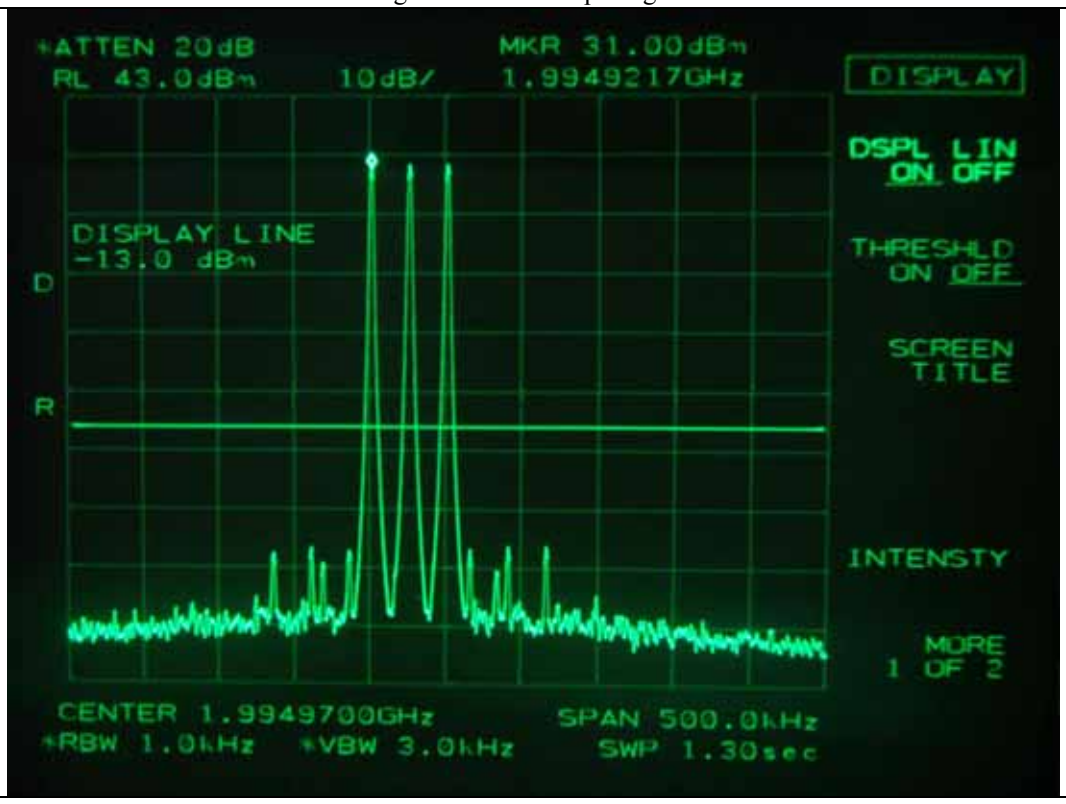


High Channel – 1 input signal

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



High Channel – 2 input signals



High Channel – 3 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

9.4.1.2 Test Result for Spurious emission

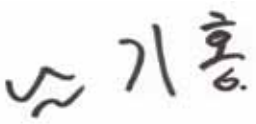
-. Test Date : November 14, 2011

-. Test Result : Pass

-. Modulation : No-Modulation

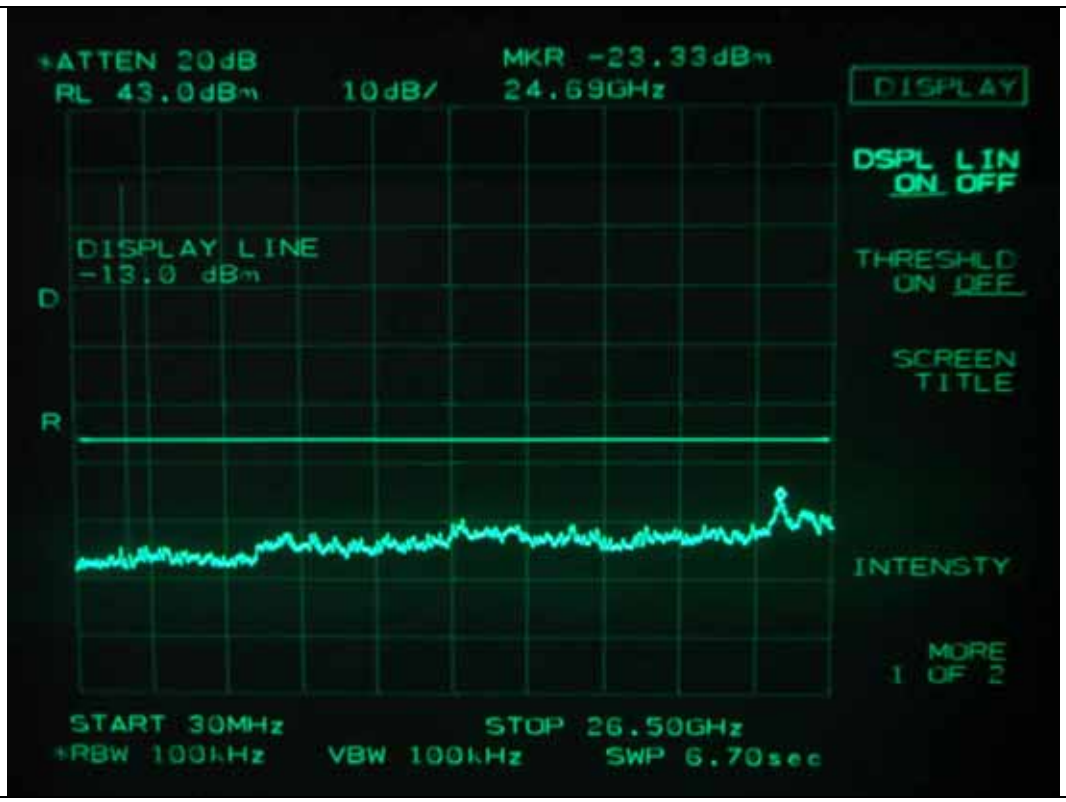
Frequency (MHz)	Number of Input Channel	Measured Value	Result
1 930.030	1	< -13 dBm	Pass
1 930.030 & 1 930.055	2		
1 930.030 & 1 930.055 & 1 930.075	3		
1 994.970	1	< -13 dBm	Pass
1 994.970 & 1 994.945	2		
1 994.970 & 1 994.945 & 1 994.920	3		

Remark: Intermodulation products must be attenuated below the rated power of the EUT at least 43 + 10log (Pw), equivalent to -13 dBm. Please refer to test data hereinafter.

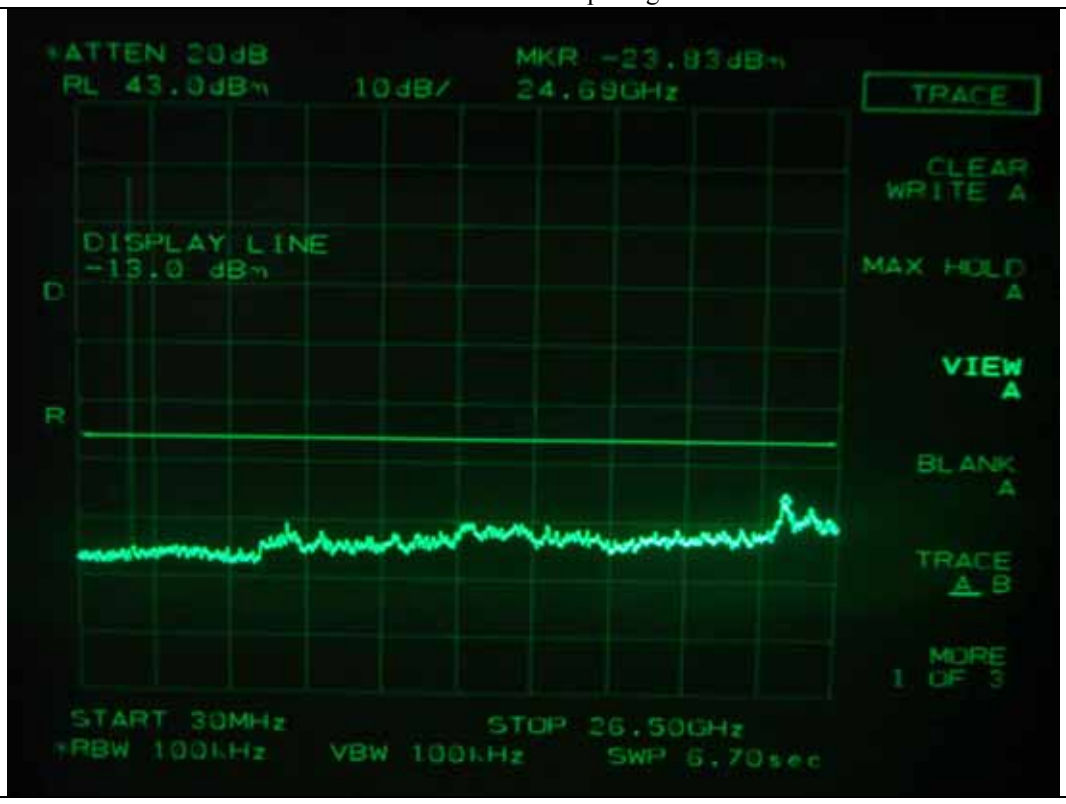


Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

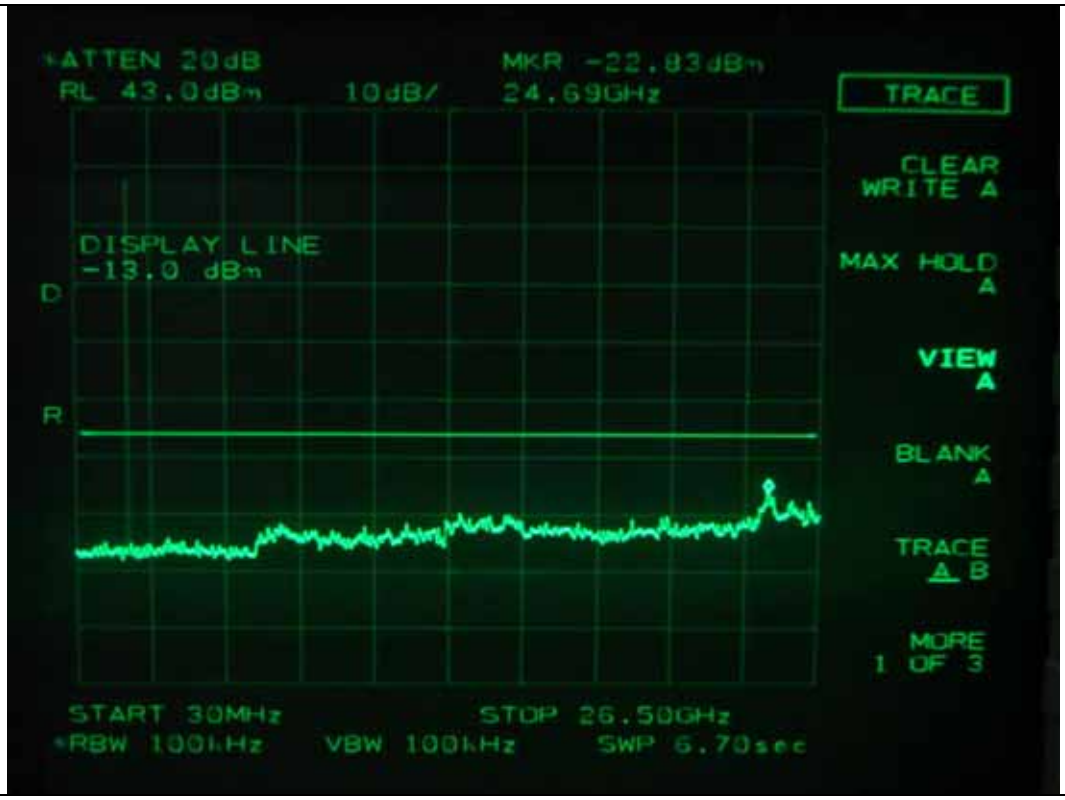


Low Channel – 1 input signal

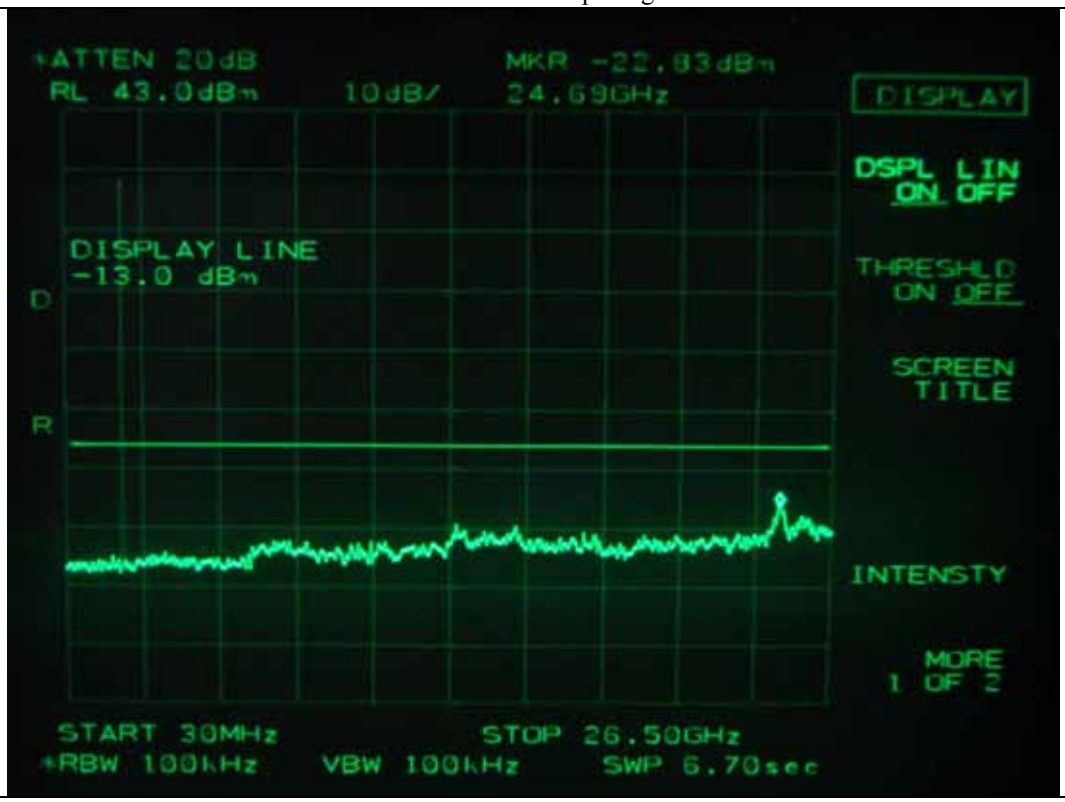


Low Channel – 2 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

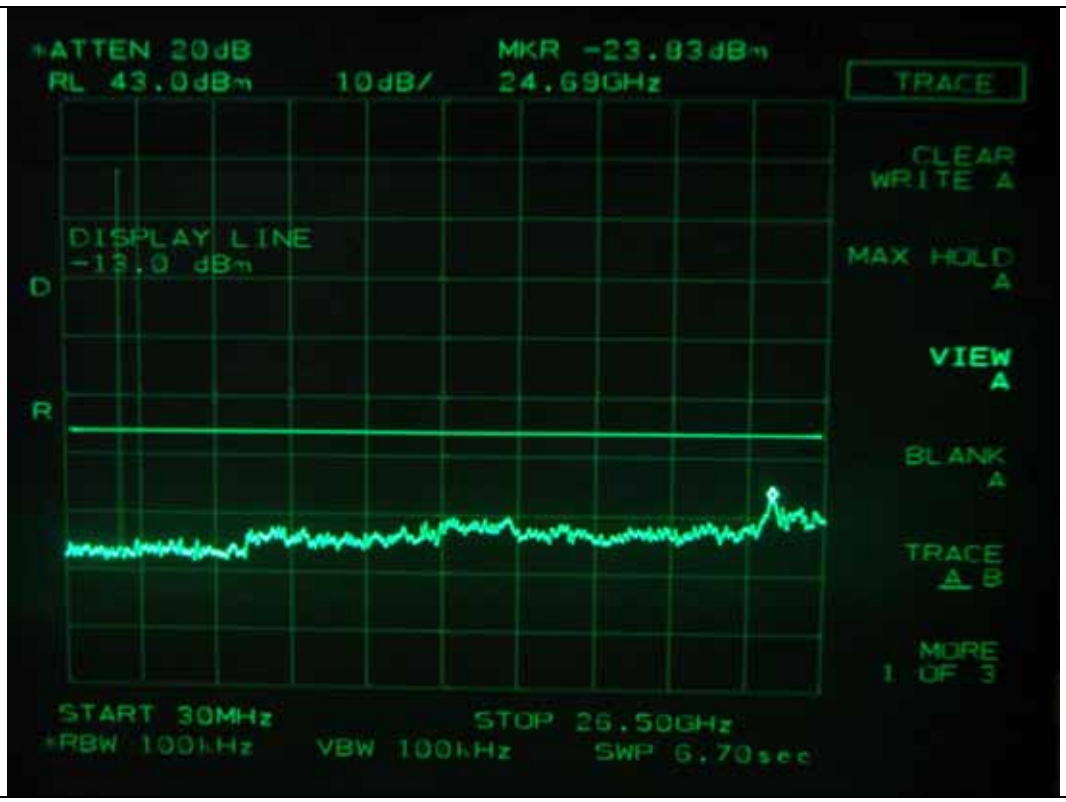


Low Channel – 3 input signals

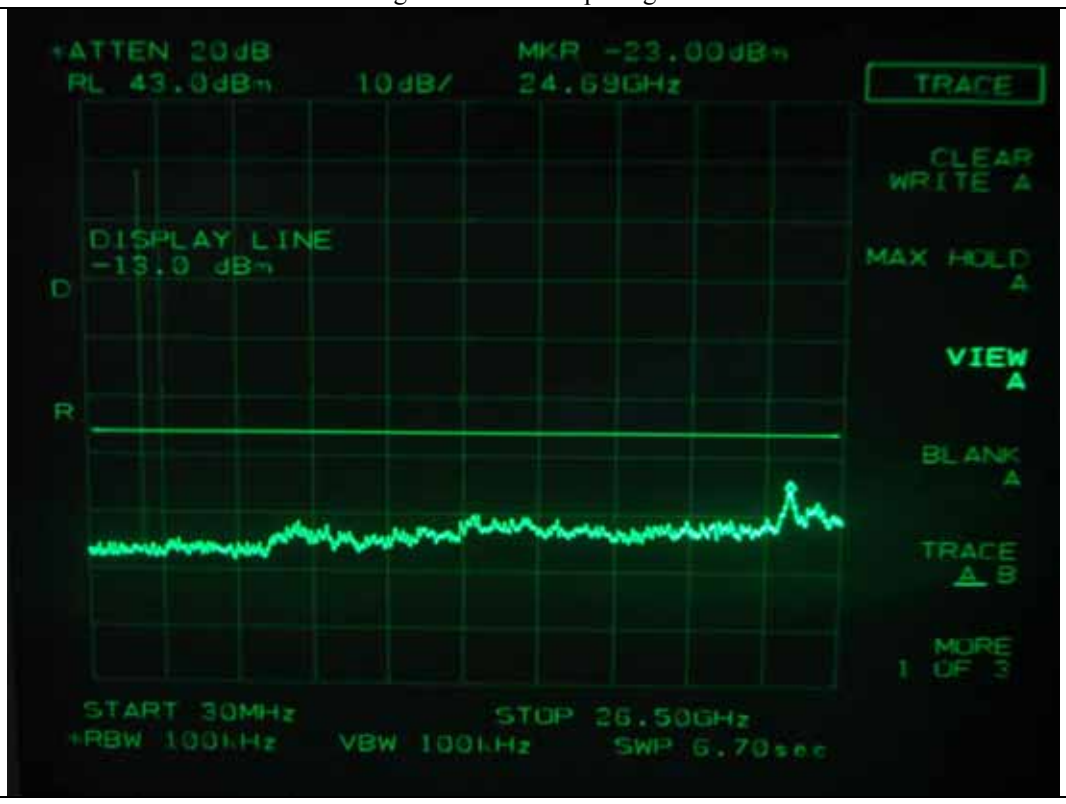


High Channel – 1 input signal

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



High Channel – 2 input signals



High Channel – 3 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

9.4.2 Test Result for Part 90 I (800iDEN)

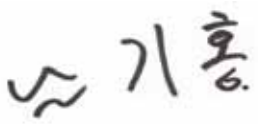
9.4.2.1 Test Result for peak power

-. Test Date : November 08, 2011

-. Test Result : Pass

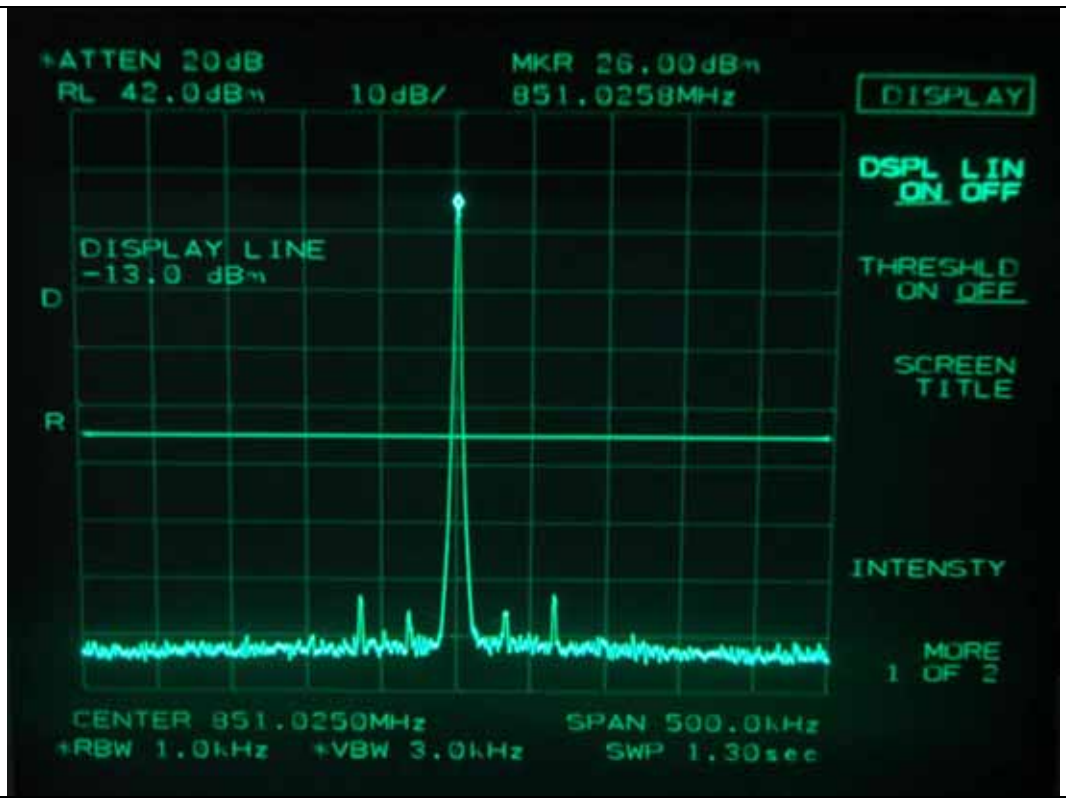
-. Modulation : No-Modulation

Frequency (MHz)	Number of Input Channel	Input Power (dBm)	Output Power (dBm)
851.025	1	-19.70	26.00
851.025 & 851.050	2	-19.80	26.00
851.025 & 851.050 & 851.075	3	-19.60	26.00
868.975	1	-19.80	26.00
868.975 & 868.95	2	-19.70	26.00
868.975 & 868.95 & 868.925	3	-19.70	26.00

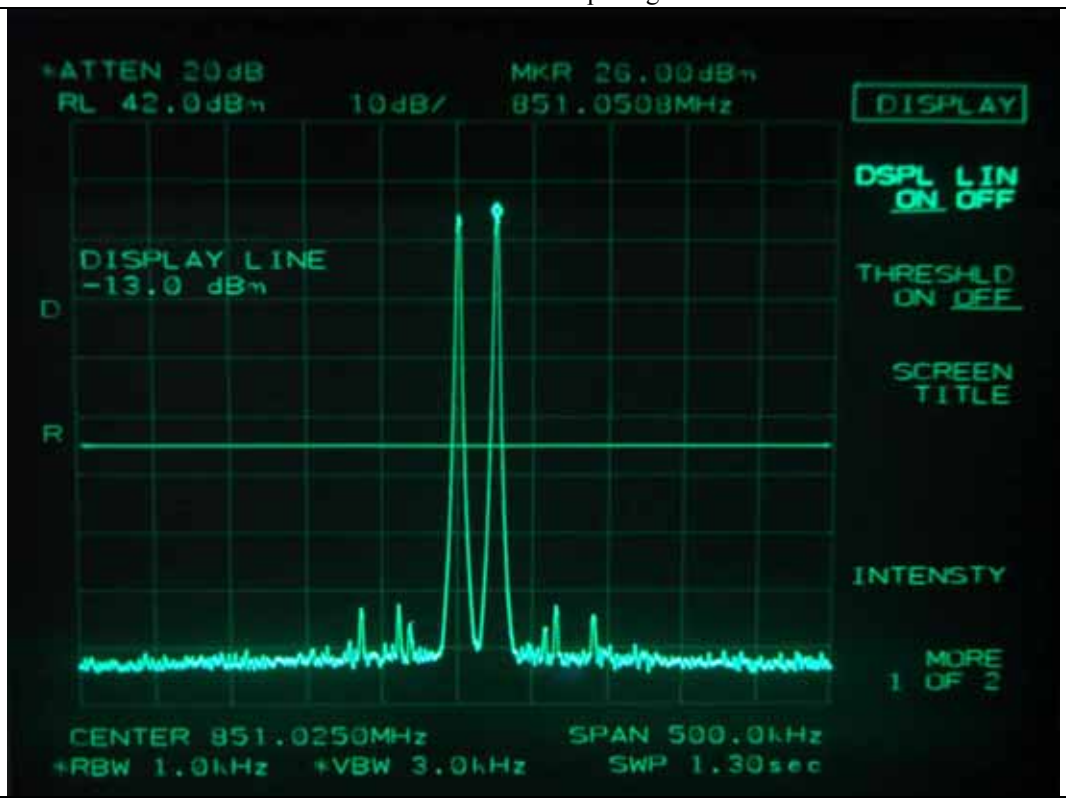


Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

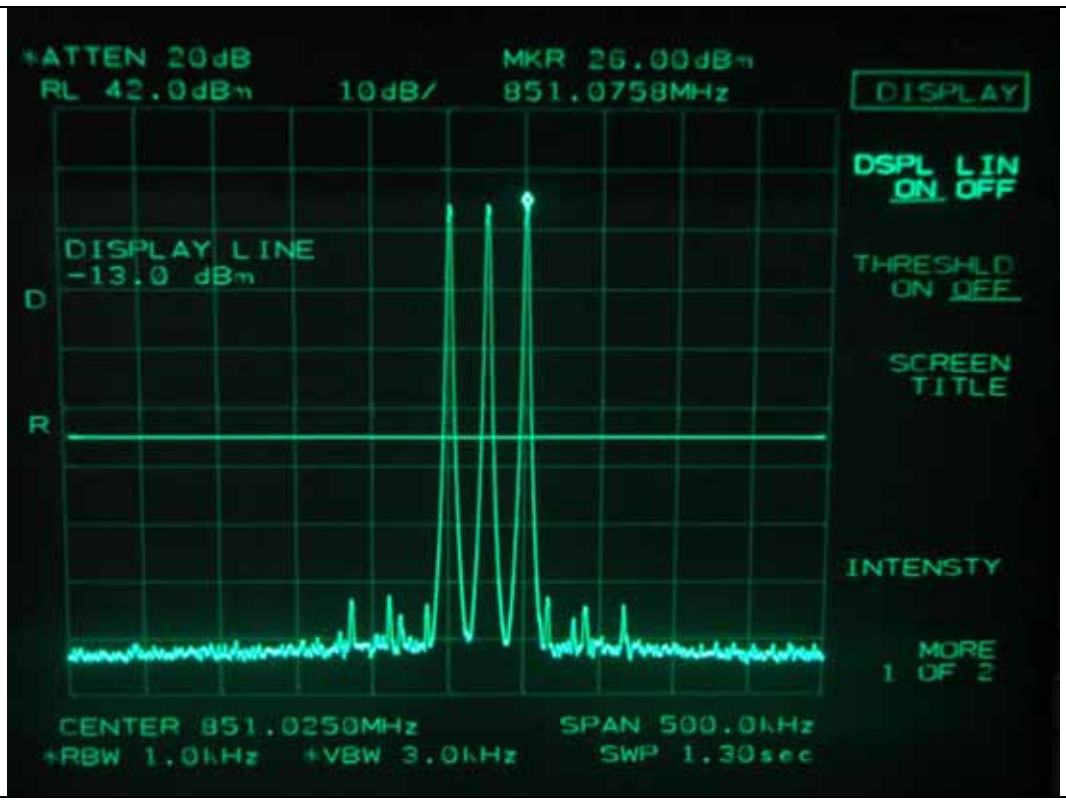


Low Channel – 1 input signal

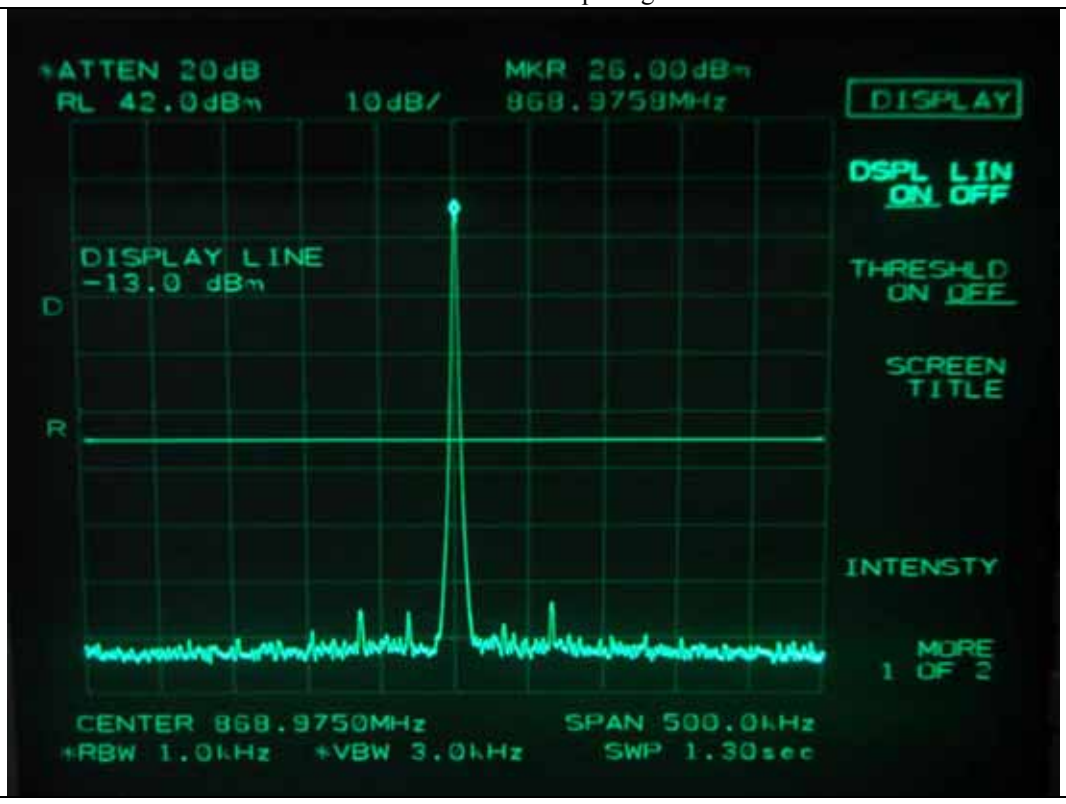


Low Channel – 2 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

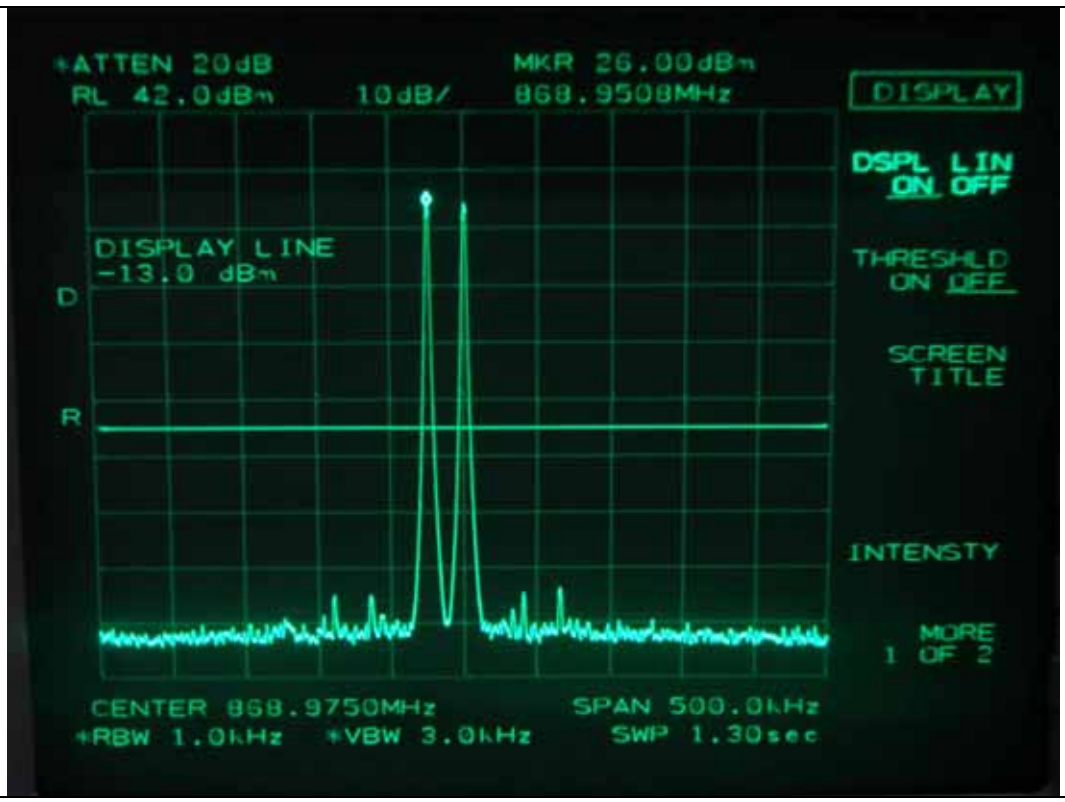


Low Channel – 3 input signals

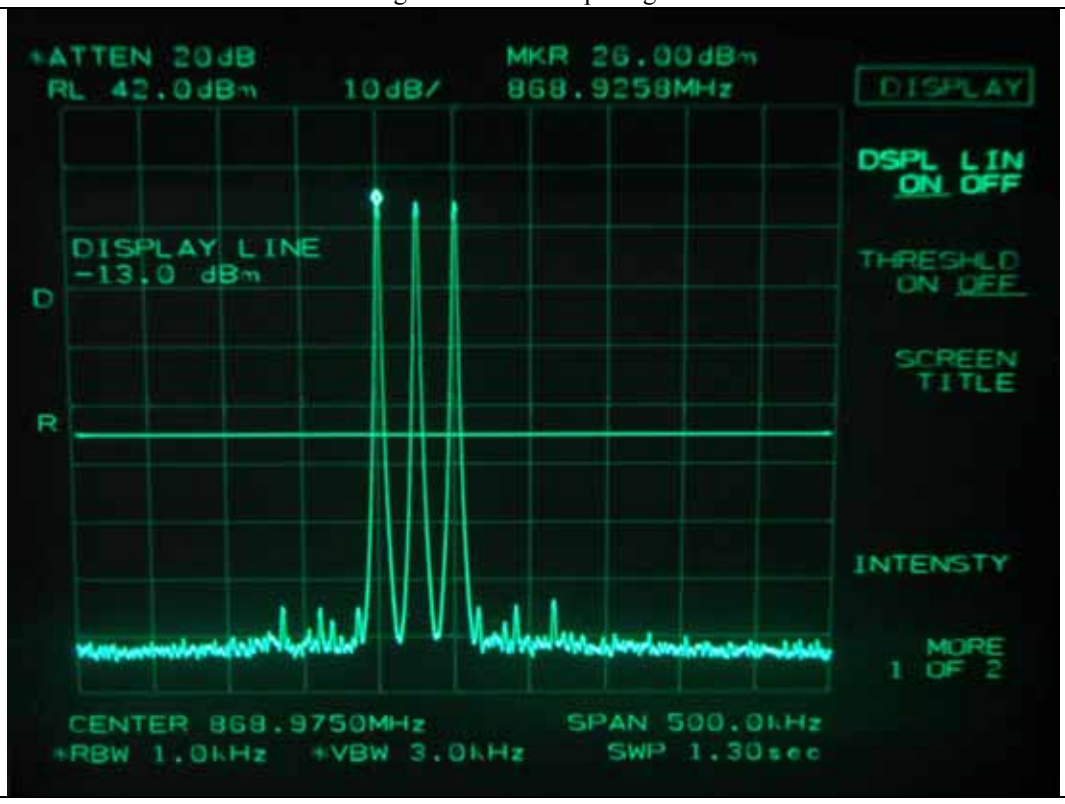


High Channel – 1 input signal

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



High Channel – 2 input signals



High Channel – 3 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

9.4.2.2 Test Result for Spurious emission

-. Test Date : November 08, 2011

-. Test Result : Pass

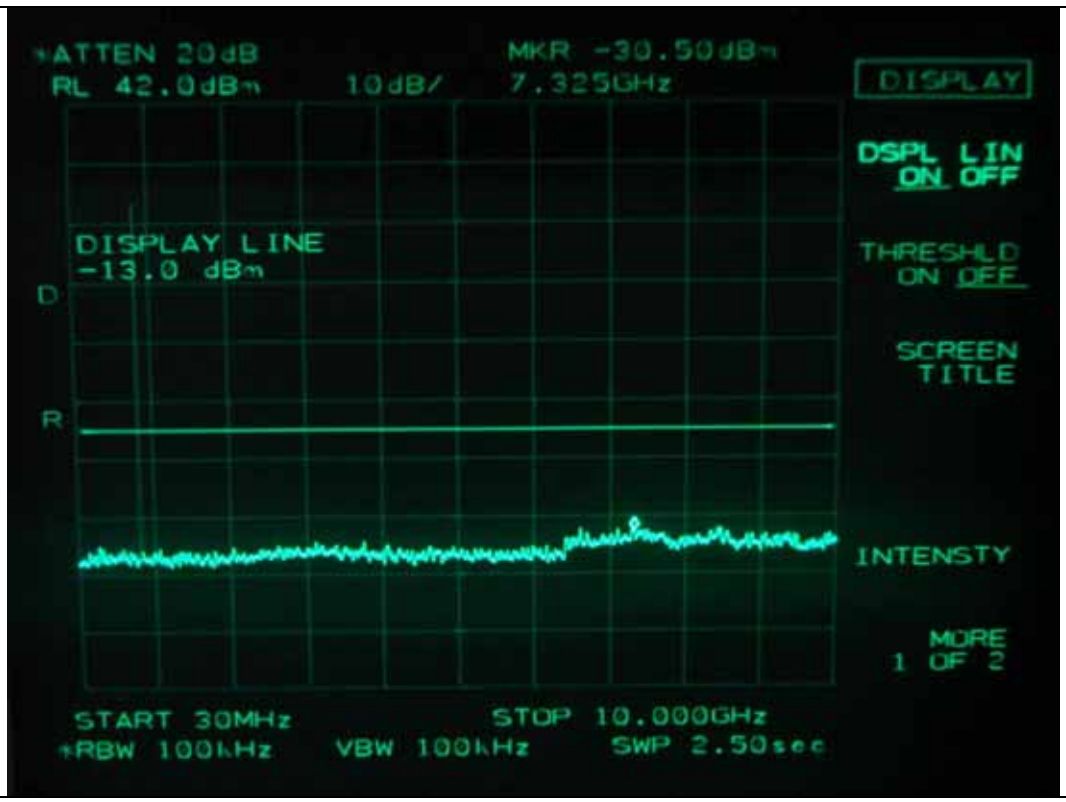
-. Modulation : No-Modulation

Frequency (MHz)	Number of Input Channel	Measured Value	Result
851.025	1	< -13 dBm	Pass
851.025 & 851.050	2		
851.025 & 851.050 & 851.075	3		
868.975	1	< -13 dBm	Pass
868.975 & 868.95	2		
868.975 & 868.95 & 868.925	3		

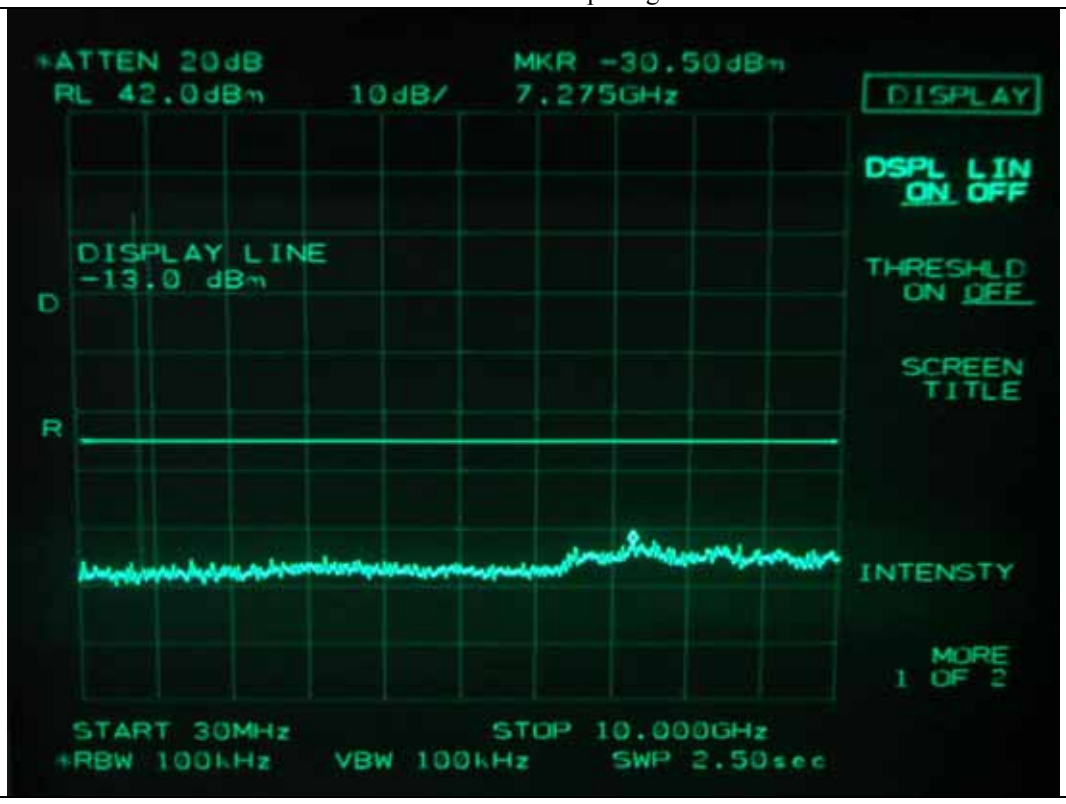
Remark: Intermodulation products must be attenuated below the rated power of the EUT at least 43 + 10log (Pw), equivalent to -13 dBm. Please refer to test data hereinafter.

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

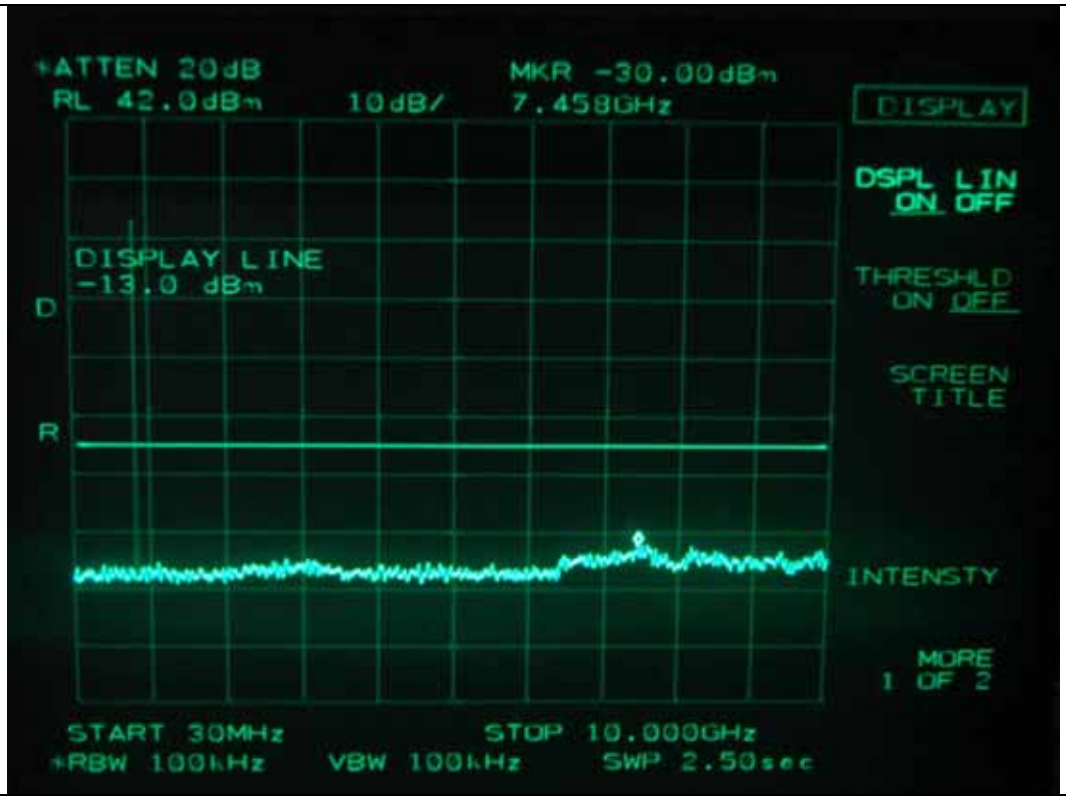


Low Channel – 1 input signal

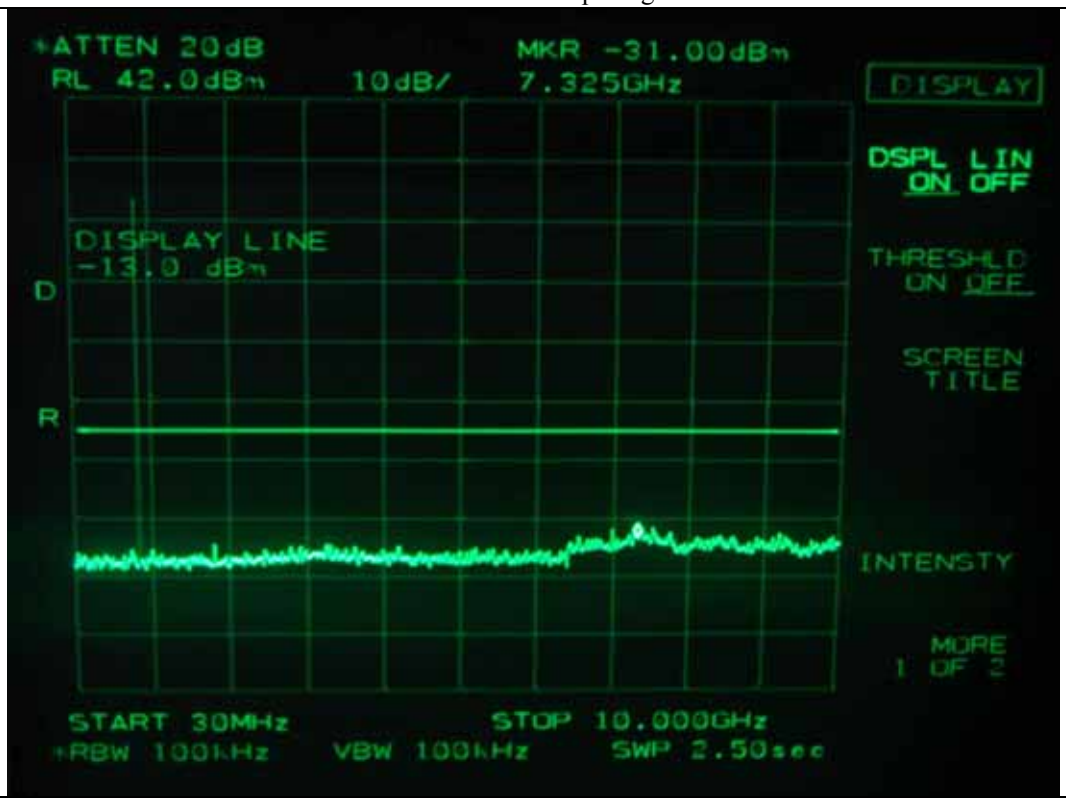


Low Channel – 2 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

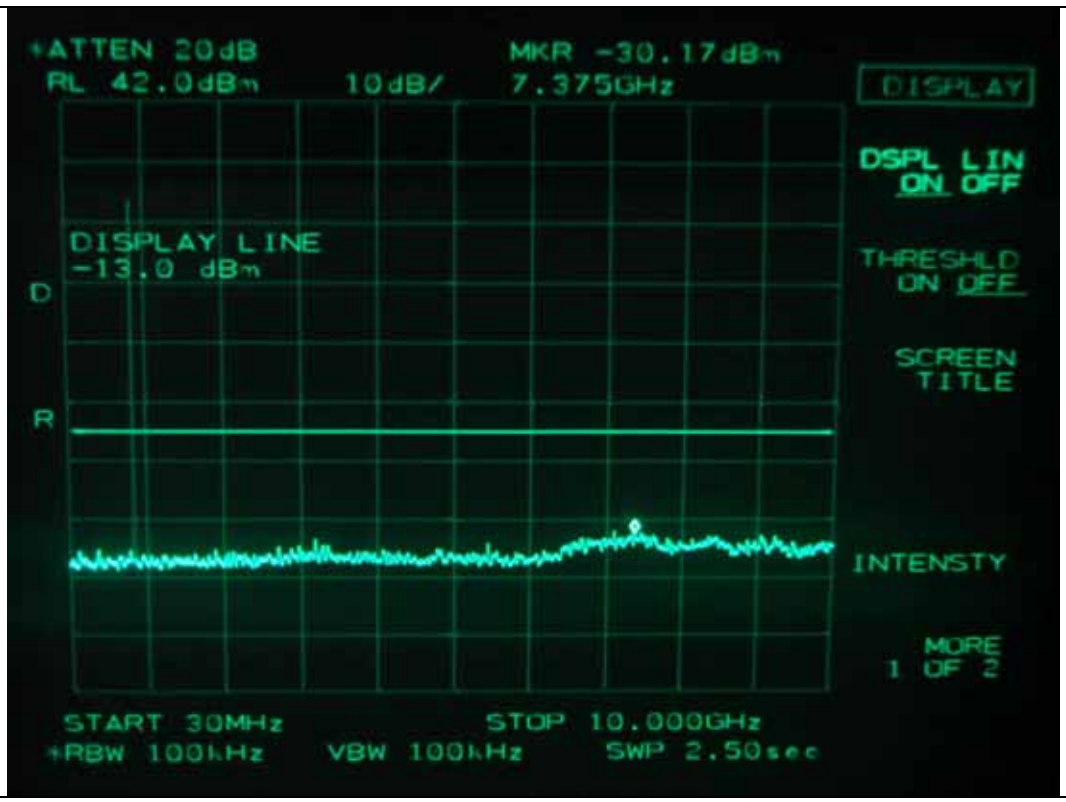


Low Channel – 3 input signals

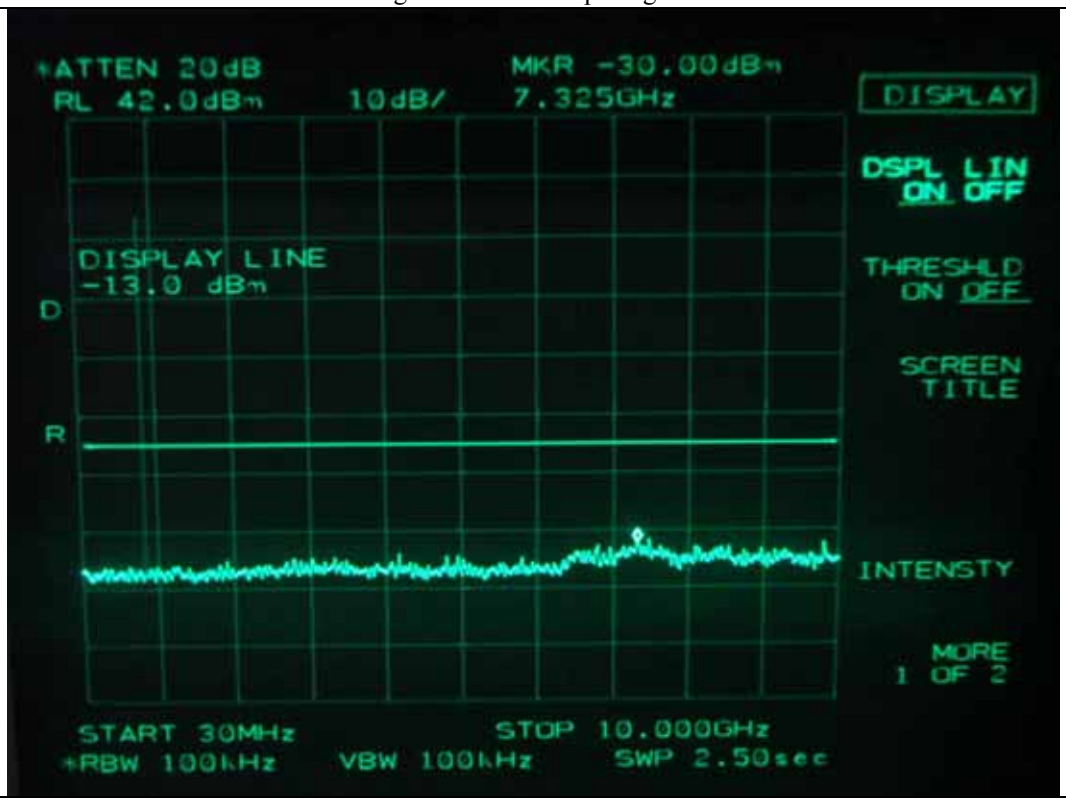


High Channel – 1 input signal

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



High Channel – 2 input signals



High Channel – 3 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

9.4.3 Test Result for Part 90 I (900iDEN)

9.4.3.1 Test Result for peak power

-. Test Date : November 10, 2011

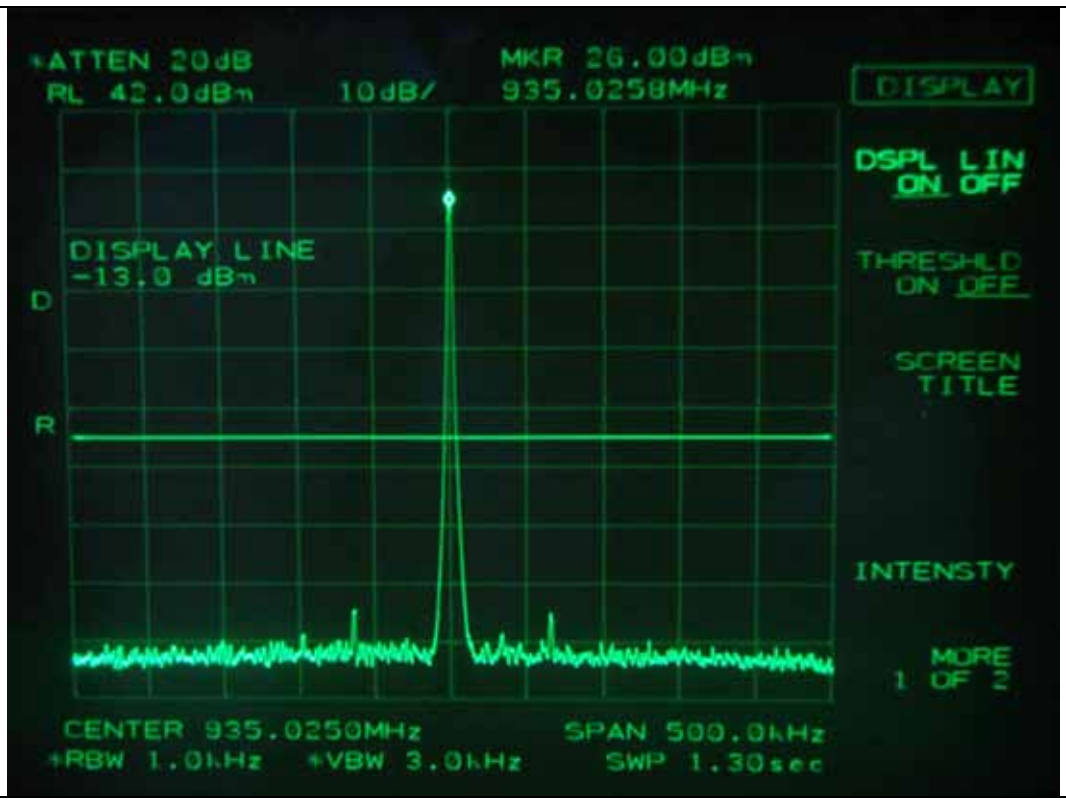
-. Test Result : Pass

-. Modulation : No-Modulation

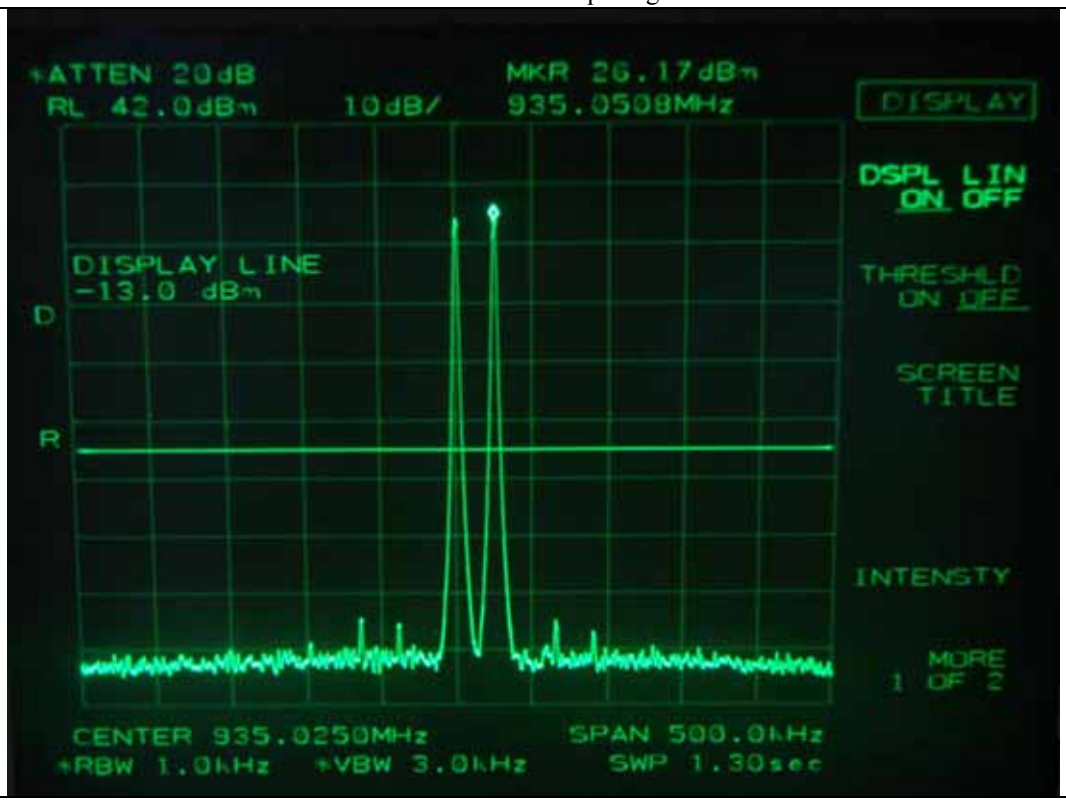
Frequency (MHz)	Number of Input Channel	Input Power (dBm)	Output Power (dBm)
935.025	1	-19.50	26.00
935.025 & 935.050	2	-19.60	26.17
935.025 & 935.050 & 935.075	3	-19.60	26.17
939.975	1	-19.60	26.00
939.975 & 939.95	2	-19.70	26.00
939.975 & 939.95 & 939.925	3	-19.50	26.00

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

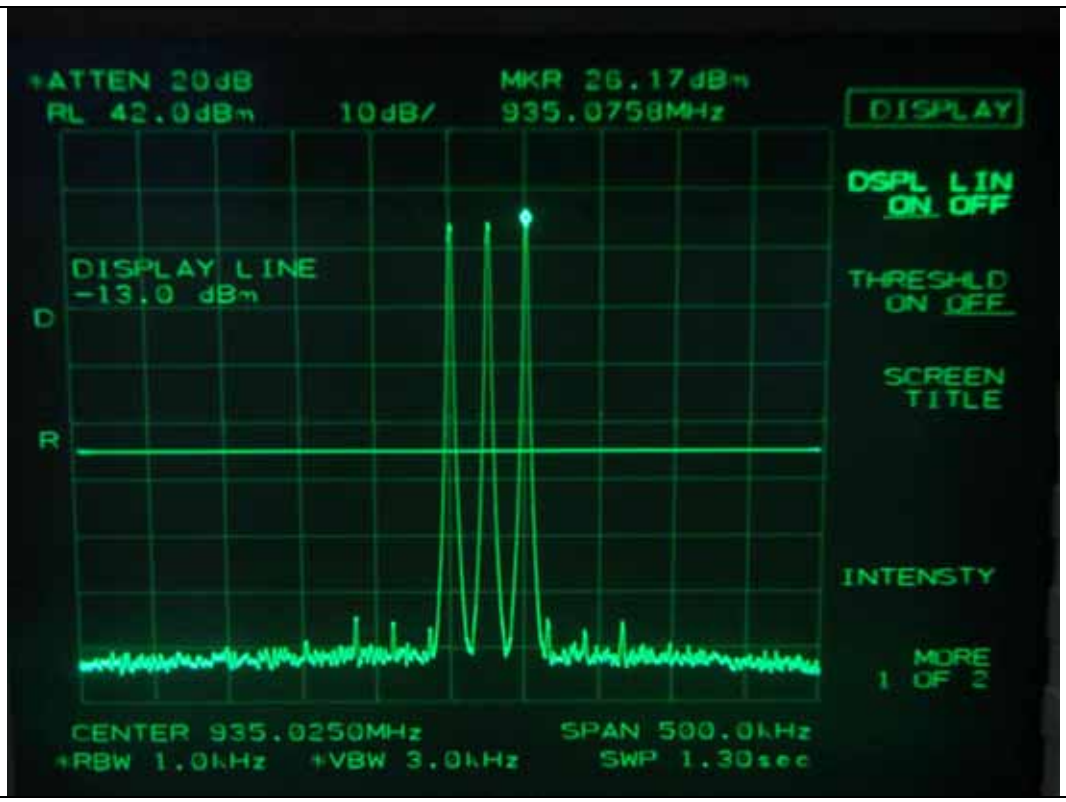


Low Channel – 1 input signal

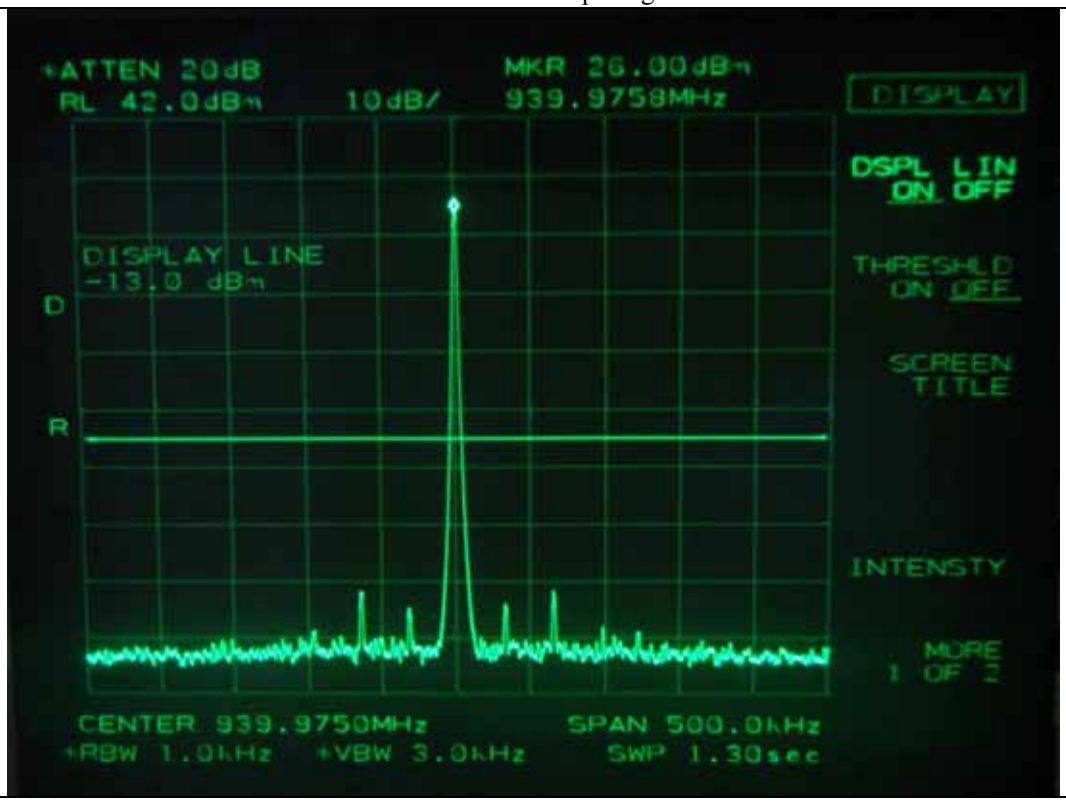


Low Channel – 2 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

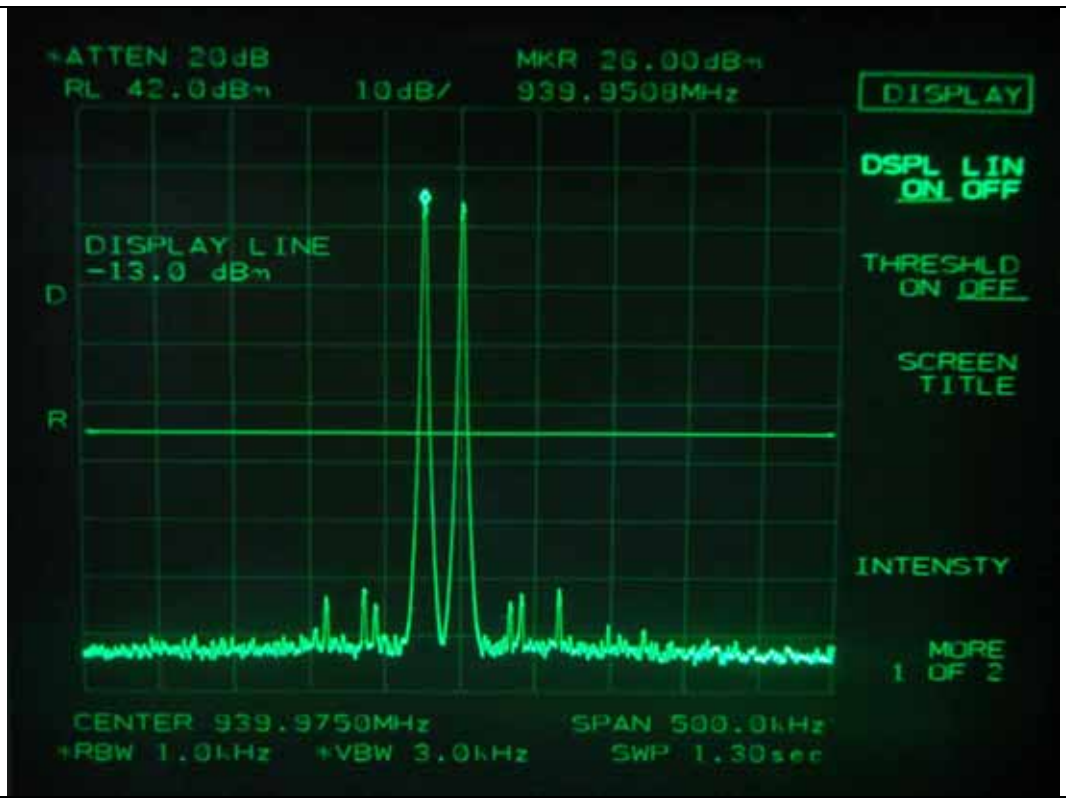


Low Channel – 3 input signals

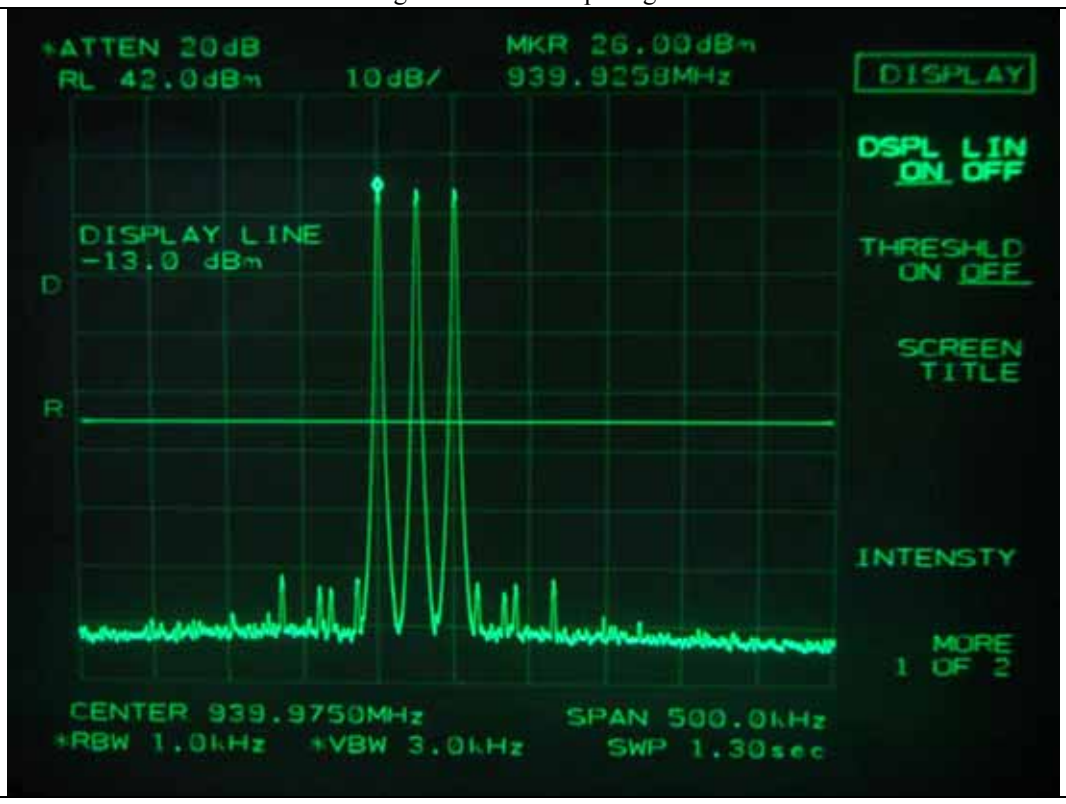


High Channel – 1 input signal

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



High Channel – 2 input signals



High Channel – 3 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

9.4.3.2 Test Result for Spurious emission

-. Test Date : November 10, 2011

-. Test Result : Pass

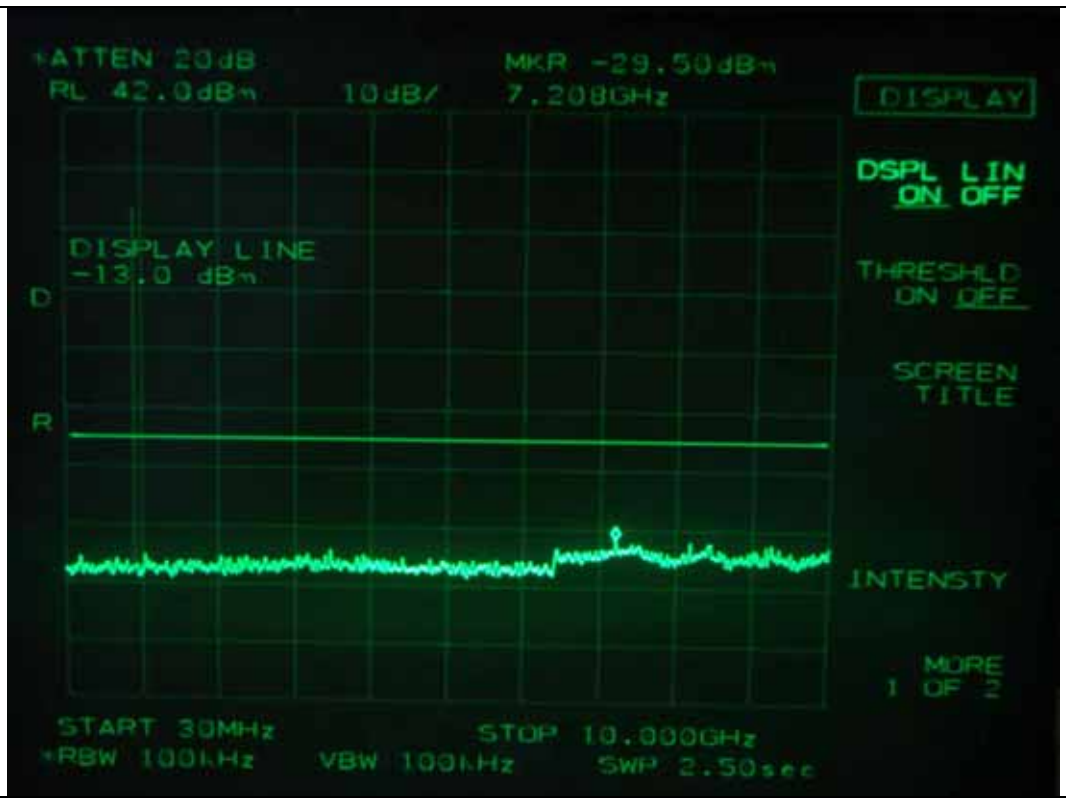
-. Modulation : No-Modulation

Frequency (MHz)	Number of Input Channel	Measured Value	Result
935.025	1	< -13 dBm	Pass
935.025 & 935.050	2		
935.025 & 935.050 & 935.075	3		
939.975	1	< -13 dBm	Pass
939.975 & 939.95	2		
939.975 & 939.95 & 939.925	3		

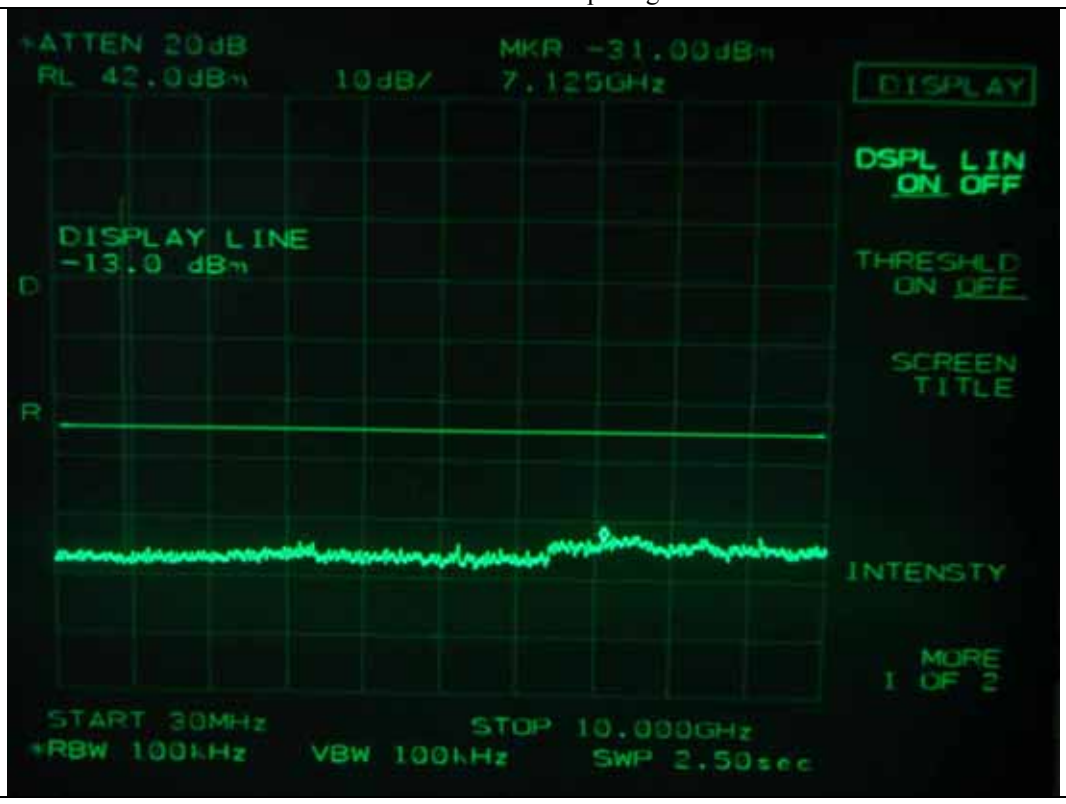
Remark: Intermodulation products must be attenuated below the rated power of the EUT at least 43 + 10log (Pw), equivalent to -13 dBm. Please refer to test data hereinafter.

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

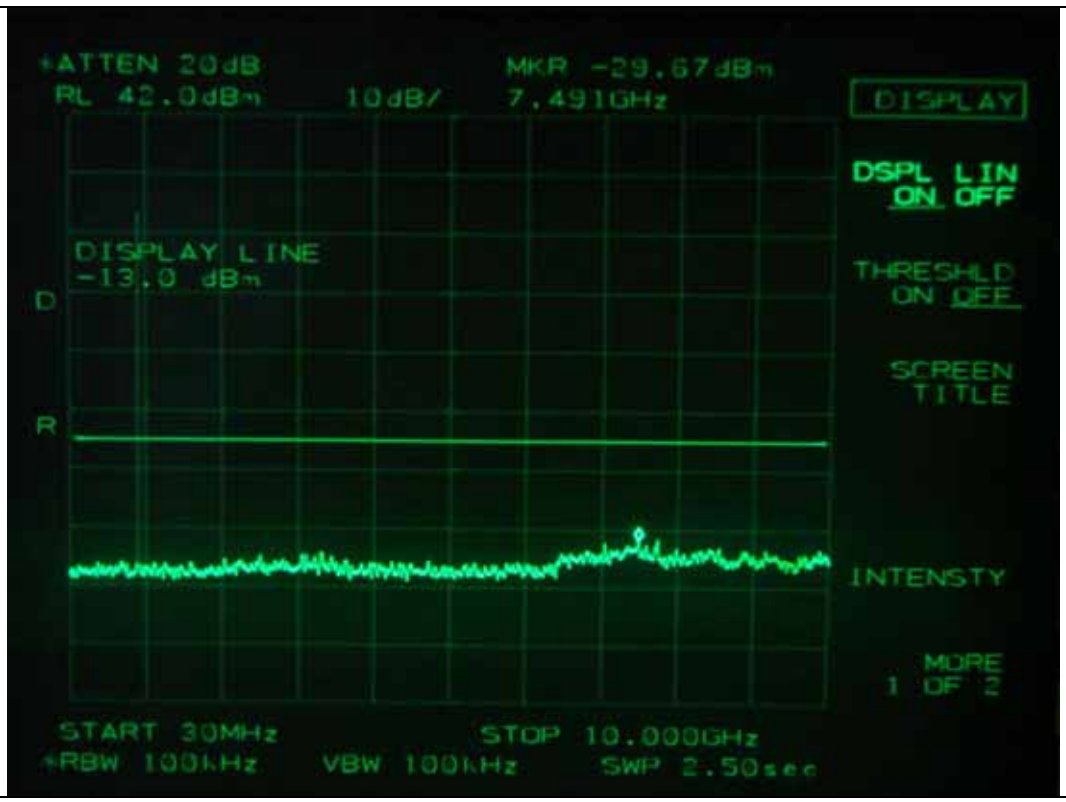


Low Channel – 1 input signal

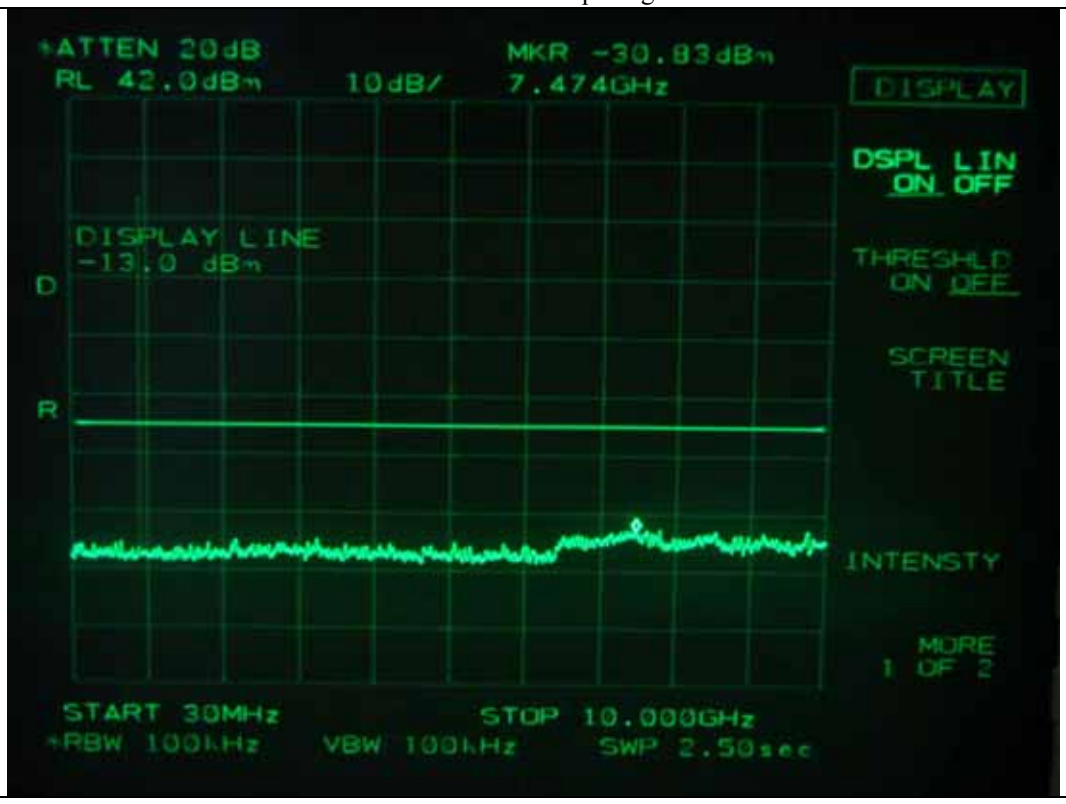


Low Channel – 2 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

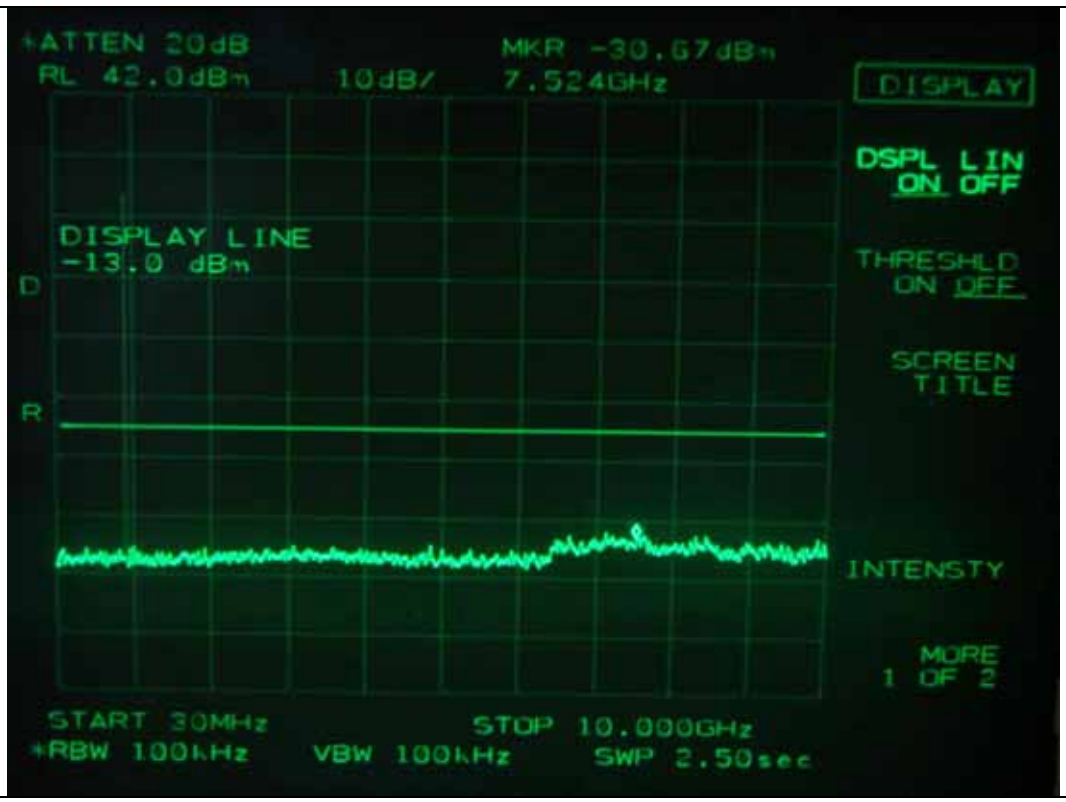


Low Channel – 3 input signals

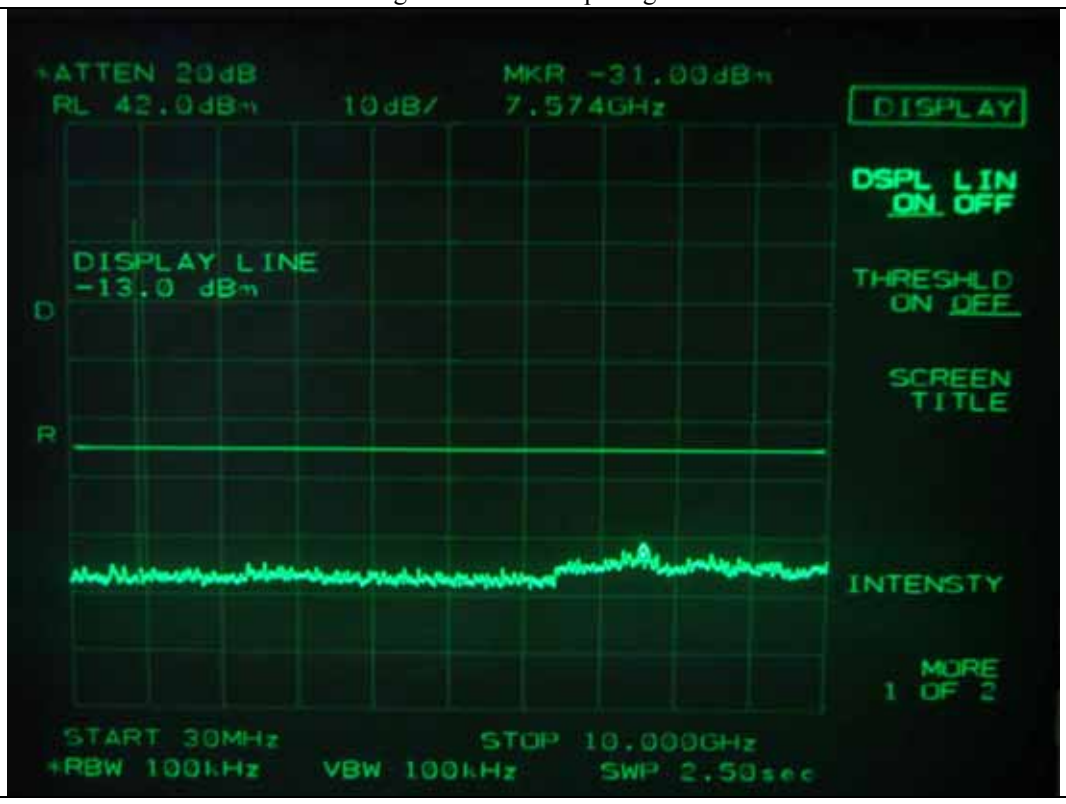


High Channel – 1 input signal

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



High Channel – 2 input signals



High Channel – 3 input signals

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10. FIELD STRENGTH OF SPURIOUS RADIATION

10.1 Operating environment

Temperature : 14 °C

Relative humidity : 52 % R.H.

10.2 Test set-up

The radiated emissions measurements were on the 3 m, open-field test site. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 MHz to up to 10th harmonic of the fundamental frequency was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. The test was performed by placing the EUT on 3-orthogonal axis. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

The maximum radiated emission was recorded and used as reference for the effective radiated power measurement. The EUT was then replaced by a tuned dipole antenna or Horn antenna and was oriented for vertical polarization and then the length was adjusted to correspond to the frequency of the transmitter. The substitution antenna was connected to a signal generator with a coaxial cable. The receiving antenna height was raised and lowered again through the specified range of height until maximum signal level is detected by the measuring receiver. The signal to the substitution antenna was adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the EUT radiated power measured, corrected for the change of input attenuation setting of the measuring receiver. The signal generator level was recorded and corrected by the power loss in the cable between the signal generator and substitution antenna and further corrected for the gain of the dipole antenna or horn antenna used relative to an ideal tuned dipole antenna. The measurement was repeated with the test antenna and the substitution antenna oriented for horizontal polarization. The measure of the effective radiated power is the larger of the two levels recorded.

10.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	ESVD	Rohde & Schwarz	EMI Test Receiver	838453/018	Oct. 20, 2011 (1Y)
■ -	8564E	Hewlett-Packard	Spectrum Analyzer	3650A00756	Jun. 10, 2011 (1Y)
■ -	83051A	Agilent	Preamplifier	3950M00201	Jun. 11, 2011 (1Y)
■ -	E4432B	Hewlett-Packard	Signal Generator	US38440950	Jun. 10, 2011 (1Y)
■ -	83650L	Hewlett-Packard	Signal Generator	3844A00415	Jun. 10, 2011 (1Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D294	Aug. 23, 2011 (2Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D295	Aug. 23, 2011 (2Y)
■ -	SMJ100A	R/S	Signal Generator	101038	Feb. 01, 2011 (1Y)
■ -	FSP	R/S	Spectrum Analyzer	100017	Mar. 16, 2011 (1Y)

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4 Test data for radiated emission

10.4.1 Test Result for Part 24 E (1900P) with AC 120 V Power Supply

10.4.1.1 Operating Mode: TDMA

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.50 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 930.03	50.67	-11.16	10.02	H	4.12	-5.26	-	-
	52.50	-8.81		V		-2.91	-	-
Test Data for Middle Channel								
1 962.50	50.83	-10.67	10.16	H	4.06	-4.57	-	-
	52.92	-8.41		V		-2.31	-	-
Test Data for High Channel								
1 994.97	50.00	-11.75	10.30	H	4.01	-5.46	-	-
	52.50	-9.00		V		-2.71	-	-
73.600 0	32.57	-52.23	1.90	V	0.17	-50.50	-13.00	-37.50
114.400 0	25.50	-61.68	1.69	V	0.34	-59.65	-13.00	-46.65
161.800 0	21.33	-65.17	1.22	V	0.34	-63.61	-13.00	-50.61
184.100 0	26.16	-59.00	1.23	V	0.50	-57.27	-13.00	-44.27
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.3.2 Operating Mode: GSM

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY –37.57 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 930.20	50.50	-11.33	10.03	H	4.12	-5.42	-	-
	52.67	-8.64		V		-2.73	-	-
Test Data for Middle Channel								
1 962.60	50.67	-10.83	10.16	H	4.06	-4.73	-	-
	52.83	-8.50		V		-2.40	-	-
Test Data for High Channel								
1 994.80	50.17	-11.58	10.30	H	4.01	-5.29	-	-
	52.67	-8.83		V		-2.54	-	-
73.6000	32.50	-52.30	1.90	V	0.17	-50.57	-13.00	-37.57
114.4000	25.67	-61.51	1.69	V	0.34	-60.16	-13.00	-47.16
161.8000	21.17	-65.33	1.22	V	0.34	-64.45	-13.00	-51.45
184.1000	26.50	-58.66	1.23	V	0.50	-57.93	-13.00	-44.93
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.3.3 Operating Mode: EDGE

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.74 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 930.20	50.67	-11.16	10.03	H	4.12	-5.25	-	-
	52.83	-8.48		V		-2.57	-	-
Test Data for Middle Channel								
1 962.60	50.83	-10.67	10.16	H	4.06	-4.57	-	-
	52.67	-8.66		V		-2.56	-	-
Test Data for High Channel								
1 994.80	50.25	-11.50	10.30	H	4.01	-5.21	-	-
	52.43	-9.07		V		-2.78	-	-
73.600 0	32.33	-52.47	1.90	V	0.17	-50.74	-13.00	-37.74
114.400 0	25.50	-61.68	1.69	H	0.34	-60.33	-13.00	-47.33
161.800 0	21.00	-65.50	1.22	H	0.34	-64.62	-13.00	-51.62
184.100 0	26.83	-58.33	1.23	V	0.50	-57.60	-13.00	-44.60
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.3.4 Operating Mode: CDMA

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.90 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 931.25	50.92	-10.91	10.03	H	4.12	-5.00	-	-
	52.78	-8.53		V		-2.62	-	-
Test Data for Middle Channel								
1 967.50	50.55	-10.95	10.18	H	4.06	-4.83	-	-
	52.67	-8.66		V		-2.54	-	-
Test Data for High Channel								
1 993.75	50.70	-11.05	10.29	H	4.01	-4.77	-	-
	52.83	-8.67		V		-2.39	-	-
73.6000	32.17	-52.63	1.90	V	0.17	-50.90	-13.00	-37.90
114.4000	25.83	-61.35	1.69	H	0.34	-60.00	-13.00	-47.00
161.8000	21.33	-65.17	1.22	H	0.34	-64.29	-13.00	-51.29
184.1000	27.00	-58.16	1.23	V	0.50	-57.43	-13.00	-44.43
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.3.5 Operating Mode: 1xEVDO

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.57 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 931.25	50.33	-11.50	10.03	H	4.12	-5.59	-	-
	52.67	-8.64		V		-2.73	-	-
Test Data for Middle Channel								
1 967.50	50.83	-10.67	10.18	H	4.06	-4.55	-	-
	52.33	-9.00		V		-2.88	-	-
Test Data for High Channel								
1 993.75	50.17	-11.58	10.29	H	4.01	-5.30	-	-
	52.85	-8.65		V		-2.37	-	-
73.600 0	32.50	-52.30	1.90	V	0.17	-50.57	-13.00	-37.57
114.400 0	25.67	-61.51	1.69	H	0.34	-60.16	-13.00	-47.16
161.800 0	21.50	-65.00	1.22	H	0.34	-64.12	-13.00	-51.12
184.100 0	26.75	-58.41	1.23	V	0.50	-57.68	-13.00	-44.68
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.3.6 Operating Mode: WCDMA

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.57 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 932.40	50.67	-11.16	10.03	H	4.12	-5.25	-	-
	52.83	-8.48		V		-2.57	-	-
Test Data for Middle Channel								
1 962.40	50.17	-11.33	10.16	H	4.06	-5.23	-	-
	52.90	-8.43		V		-2.33	-	-
Test Data for High Channel								
1 992.60	50.43	-11.32	10.29	H	4.01	-5.04	-	-
	52.67	-8.83		V		-2.55	-	-
73.600 0	32.50	-52.30	1.90	V	0.17	-50.57	-13.00	-37.57
114.400 0	25.83	-61.35	1.69	H	0.34	-60.00	-13.00	-47.00
161.800 0	21.17	-65.33	1.22	H	0.34	-64.45	-13.00	-51.45
184.100 0	26.50	-58.66	1.23	V	0.50	-57.93	-13.00	-44.93
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.3.7 Operating Mode: LTE

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.74 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 932.40	50.25	-11.58	10.03	H	4.12	-5.67	-	-
	52.67	-8.64		V		-2.73	-	-
Test Data for Middle Channel								
1 962.40	50.67	-10.83	10.16	H	4.06	-4.73	-	-
	52.83	-8.50		V		-2.40	-	-
Test Data for High Channel								
1 992.60	50.33	-11.42	10.29	H	4.01	-5.14	-	-
	52.33	-9.17		V		-2.89	-	-
73.600 0	32.33	-52.47	1.90	V	0.17	-50.74	-13.00	-37.74
114.400 0	25.50	-61.68	1.69	H	0.34	-60.33	-13.00	-47.33
161.800 0	21.67	-64.83	1.22	H	0.34	-63.95	-13.00	-50.95
184.100 0	26.33	-58.83	1.23	V	0.50	-58.10	-13.00	-45.10
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.4 Test Result for Part 24 E (1900P) with DC - 48 V Power Supply

10.4.4.1 Operating Mode: TDMA

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY-37.24 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 930.03	50.70	-11.13	10.02	H	4.12	-5.23	-	-
	52.67	-8.64		V		-2.74	-	-
Test Data for Middle Channel								
1 962.50	50.42	-11.08	10.16	H	4.06	-4.98	-	-
	52.83	-8.50		V		-2.40	-	-
Test Data for High Channel								
1 994.97	50.27	-11.48	10.30	H	4.01	-5.19	-	-
	52.10	-9.40		V		-3.11	-	-
73.600 0	32.67	-52.13	2.39	V	0.50	-50.24	-13.00	-37.24
114.400 0	25.83	-61.35	1.72	H	0.84	-60.47	-13.00	-47.47
161.800 0	21.33	-65.17	1.65	H	1.33	-64.85	-13.00	-51.85
184.100 0	26.17	-58.99	1.76	V	1.34	-58.57	-13.00	-45.57
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.4.2 Operating Mode: GSM

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY 37.41 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 930.20	50.90	-10.93	10.03	H	4.12	-5.02	-	-
	52.83	-8.48		V		-2.57	-	-
Test Data for Middle Channel								
1 962.60	50.25	-11.25	10.16	H	4.06	-5.15	-	-
	52.67	-8.66		V		-2.56	-	-
Test Data for High Channel								
1 994.80	50.70	-11.05	10.30	H	4.01	-4.76	-	-
	52.83	-8.67		V		-2.38	-	-
73.6000	32.50	-52.30	2.39	V	0.50	-50.41	-13.00	-37.41
114.4000	25.45	-61.73	1.72	H	0.84	-60.85	-13.00	-47.85
161.8000	21.17	-65.33	1.65	H	1.33	-65.01	-13.00	-52.01
184.1000	26.50	-58.66	1.76	V	1.34	-58.24	-13.00	-45.24
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.4.3 Operating Mode: EDGE

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.08 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 930.20	50.50	-11.33	10.03	H	4.12	-5.42	-	-
	52.83	-8.48		V		-2.57	-	-
Test Data for Middle Channel								
1 962.60	50.93	-10.57	10.16	H	4.06	-4.47	-	-
	52.90	-8.43		V		-2.33	-	-
Test Data for High Channel								
1 994.80	50.42	-11.33	10.30	H	4.01	-5.04	-	-
	52.67	-8.83		V		-2.54	-	-
73.600 0	32.83	-51.97	2.39	V	0.50	-50.08	-13.00	-37.08
114.400 0	25.50	-61.68	1.72	H	0.84	-60.80	-13.00	-47.80
161.800 0	21.45	-65.05	1.65	H	1.33	-64.73	-13.00	-51.73
184.100 0	26.50	-58.66	1.76	V	1.34	-58.24	-13.00	-45.24
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.4.4 Operating Mode: CDMA

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.24 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 931.25	50.62	-11.21	10.03	H	4.12	-5.30	-	-
	52.55	-8.76		V		-2.85	-	-
Test Data for Middle Channel								
1 967.50	50.83	-10.67	10.18	H	4.06	-4.55	-	-
	52.50	-8.83		V		-2.71	-	-
Test Data for High Channel								
1 993.75	50.50	-11.25	10.29	H	4.01	-4.97	-	-
	52.95	-8.55		V		-2.27	-	-
73.600 0	32.67	-52.13	2.39	V	0.50	-50.24	-13.00	-37.24
114.400 0	25.83	-61.35	1.72	H	0.84	-60.47	-13.00	-47.47
161.800 0	21.00	-65.50	1.65	H	1.33	-65.18	-13.00	-52.18
184.100 0	26.67	-58.49	1.76	V	1.34	-58.07	-13.00	-45.07
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.4.5 Operating Mode: 1xEVDO

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.41 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 931.25	50.85	-10.98	10.03	H	4.12	-5.07	-	-
	52.78	-8.53		V		-2.62	-	-
Test Data for Middle Channel								
1 967.50	50.67	-10.83	10.18	H	4.06	-4.71	-	-
	52.67	-8.66		V		-2.54	-	-
Test Data for High Channel								
1 993.75	50.33	-11.42	10.29	H	4.01	-5.14	-	-
	52.50	-9.00		V		-2.72	-	-
73.600 0	32.50	-52.30	2.39	V	0.50	-50.41	-13.00	-37.41
114.400 0	25.67	-61.51	1.72	H	0.84	-60.63	-13.00	-47.63
161.800 0	21.33	-65.17	1.65	H	1.33	-64.85	-13.00	-51.85
184.100 0	26.83	-58.33	1.76	V	1.34	-57.91	-13.00	-44.91
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.4.6 Operating Mode: WCDMA

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.24 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 932.40	50.50	-11.33	-10.03	H	4.12	-5.42	-	-
	52.67	-8.64		V		-2.73	-	-
Test Data for Middle Channel								
1 962.40	50.25	-11.25	10.16	H	4.06	-5.15	-	-
	52.33	-9.00		V		-2.90	-	-
Test Data for High Channel								
1 992.60	50.67	-11.08	10.29	H	4.01	-4.80	-	-
	52.95	-8.55		V		-2.27	-	-
73.600 0	32.67	-52.13	2.39	V	0.50	-50.24	-13.00	-37.24
114.400 0	25.33	-61.85	1.72	H	0.84	-60.97	-13.00	-47.97
161.800 0	21.17	-65.33	1.65	H	1.33	-65.01	-13.00	-52.01
184.100 0	26.50	-58.66	1.76	V	1.34	-58.24	-13.00	-45.24
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.4.7 Operating Mode: LTE

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.16 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
1 932.40	50.50	-11.33	-10.03	H	4.12	-5.42	-	-
	52.67	-8.64		V		-2.73	-	-
Test Data for Middle Channel								
1 962.40	50.17	-11.33	10.16	H	4.06	-5.23	-	-
	52.33	-9.00		V		-2.90	-	-
Test Data for High Channel								
1 992.60	50.83	-10.92	10.29	H	4.01	-4.64	-	-
	52.45	-9.05		V		-2.77	-	-
73.600 0	32.75	-52.05	2.39	V	0.50	-50.16	-13.00	-37.16
114.400 0	25.25	-61.93	1.72	H	0.84	-61.05	-13.00	-48.05
161.800 0	21.33	-65.17	1.65	H	1.33	-64.85	-13.00	-51.85
184.100 0	26.80	-58.36	1.76	V	1.34	-57.94	-13.00	-44.94
Other frequencies have margin more than 40 dB.								

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.5 Test Result for Part 90 I (800iDEN) with AC 120 V Power Supply

10.4.5.1 Operating Mode: iDEN

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.70 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
851.025 0	64.17	-1.71	0.07	H	1.59	-3.23	-	-
	64.45	-0.40		V		-1.92	-	-
Test Data for Middle Channel								
860.000 0	63.52	-2.05	0.01	H	1.60	-3.64	-	-
	63.70	-1.15		V		-2.74	-	-
Test Data for High Channel								
868.975 0	63.50	-2.10	-0.18	H	1.62	-3.90	-	-
	63.80	-1.20		V		-3.00	-	-
73.6000	32.50	-52.50	1.90	V	0.17	-50.77	-13.00	-37.77
114.4000	25.40	-61.78	1.69	V	0.34	-59.75	-13.00	-46.75
161.8000	21.00	-65.50	1.22	V	0.34	-63.94	-13.00	-50.94
184.1000	25.83	-59.33	1.23	V	0.50	-57.60	-13.00	-44.60

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.5.2 Operating Mode: LTE

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.60 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
853.500 0	62.50	-3.38	-1.29	H	0.76	-5.43	-	-
	62.83	-2.02		V		-4.07	-	-
Test Data for Middle Channel								
860.000 0	62.17	-3.40	-1.32	H	0.77	-5.49	-	-
	62.45	-2.40		V		-4.49	-	-
Test Data for High Channel								
866.500 0	62.33	-3.27	-1.35	H	0.78	-5.40	-	-
	62.67	-2.33		V		-4.46	-	-
73.6000	32.67	-52.33	1.90	V	0.17	-50.60	-13.00	-37.60
114.4000	25.00	-62.18	1.69	H	0.34	-60.15	-13.00	-47.15
161.8000	21.33	-65.17	1.22	H	0.34	-63.61	-13.00	-50.61
184.1000	25.50	-59.66	1.23	V	0.50	-57.93	-13.00	-44.93

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.6 Test Result for Part 90 I (800iDEN) with DC - 48 V Power Supply

10.4.6.1 Operating Mode: iDEN

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.97 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
851.025 0	64.17	-1.71	0.07	H	1.59	-3.23	-	-
	64.50	-0.35		V		-1.87	-	-
Test Data for Middle Channel								
860.000 0	63.83	-1.74	0.01	H	1.60	-3.33	-	-
	64.00	-0.85		V		-2.44	-	-
Test Data for High Channel								
868.975 0	63.75	-1.85	-0.18	H	1.62	-3.65	-	-
	63.90	-1.10		V		-2.90	-	-
73.600 0	32.30	-52.70	1.90	V	0.17	-50.97	-13.00	-37.97
114.400 0	25.50	-61.68	1.69	H	0.34	-60.33	-13.00	-47.33
161.800 0	21.17	-65.33	1.22	H	0.34	-64.45	-13.00	-51.45
184.100 0	26.00	-59.16	1.23	V	0.50	-58.43	-13.00	-45.43

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.6.2 Operating Mode: LTE

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.94 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
853.500 0	62.33	-3.55	-1.29	H	0.76	-5.60	-	-
	62.67	-2.18		V		-4.23	-	-
Test Data for Middle Channel								
860.000 0	62.00	-3.57	-1.32	H	0.77	-5.66	-	-
	62.33	-2.52		V		-4.61	-	-
Test Data for High Channel								
866.500 0	62.17	-3.43	-1.35	H	0.78	-5.56	-	-
	62.45	-2.55		V		-4.68	-	-
73.600 0	32.33	-52.67	1.90	V	0.17	-50.94	-13.00	-37.94
114.400 0	25.50	-61.68	1.69	H	0.34	-60.33	-13.00	-47.33
161.800 0	21.00	-65.50	1.22	H	0.34	-64.62	-13.00	-51.62
184.100 0	25.67	-59.49	1.23	V	0.50	-58.76	-13.00	-45.76

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.7 Test Result for Part 90 I (900iDEN) with AC 120 V Power Supply

10.4.7.1 Operating Mode: iDEN

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.94 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
935.025 0	63.83	-1.84	-0.51	H	1.67	-4.02	-	-
	62.83	-2.17		V		-4.35	-	-
Test Data for Middle Channel								
937.500 0	63.50	-2.16	-0.50	H	1.67	-4.33	-	-
	62.33	-2.50		V		-4.67	-	-
Test Data for High Channel								
939.975 0	63.25	-2.33	-0.49	H	1.67	-4.49	-	-
	62.00	-2.83		V		-4.99	-	-
73.600 0	32.33	-52.67	1.90	V	0.17	-50.94	-13.00	-37.94
114.400 0	25.15	-62.03	1.69	H	0.34	-60.68	-13.00	-47.68
161.800 0	20.83	-65.67	1.22	H	0.34	-64.79	-13.00	-51.79
184.100 0	25.67	-59.49	1.23	V	0.50	-58.76	-13.00	-45.76

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.7.2 Operating Mode: LTE

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

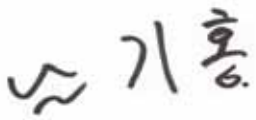
-. Measurement distance : 3 m

-. Result : PASSED BY -37.60 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data								
937.500 0	64.17	-1.50	-0.50	H	1.67	-3.67	-	-
	62.67	-2.33		V		-4.50	-	-
73.600 0	32.67	-52.33	1.90	V	0.17	-50.60	-13.00	-37.60
114.400 0	25.50	-61.68	1.69	V	0.34	-59.65	-13.00	-46.65
161.800 0	21.00	-65.50	1.22	V	0.34	-63.94	-13.00	-50.94
184.100 0	26.00	-59.16	1.23	V	0.50	-57.43	-13.00	-44.43

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical



Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.8 Test Result for Part 90 I (900iDEN) with DC - 48 V Power Supply

10.4.8.1 Operating Mode: iDEN

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.60 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data for Low Channel								
935.025 0	63.50	-2.17	-0.51	H	1.67	-4.35	-	-
	62.67	-2.33		V		-4.51	-	-
Test Data for Middle Channel								
937.500 0	63.67	-1.99	-0.50	H	1.67	-4.16	-	-
	62.50	-2.33		V		-4.50	-	-
Test Data for High Channel								
939.975 0	63.33	-2.25	-0.49	H	1.67	-4.41	-	-
	62.17	-2.66		V		-4.82	-	-
73.600 0	32.67	-52.33	1.90	V	0.17	-50.60	-13.00	-37.60
114.400 0	25.33	-61.85	1.69	H	0.34	-60.50	-13.00	-47.50
161.800 0	21.33	-65.17	1.22	H	0.34	-64.29	-13.00	-51.29
184.100 0	25.83	-59.33	1.23	V	0.50	-58.60	-13.00	-45.60

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

10.4.8.2 Operating Mode: LTE

-. Test Date : November 18, 2011

-. Resolution bandwidth : 120 kHz (below 1 GHz), 1 MHz (above 1 GHz)

-. Video bandwidth : 300 kHz (below 1 GHz), 3 MHz (above 1 GHz)

-. Frequency range : 30 MHz ~ 20 GHz

-. Measurement distance : 3 m

-. Result : PASSED BY -37.44 dB at 73.60 MHz

Frequency (MHz)	Spectrum Reading (dBμV)	Generator Reading (dBm)	Ant. Gain (dBi)	Ant. Pol. (H/V)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
Test Data								
937.500 0	64.00	-1.67	-0.50	H	1.67	-3.84	-	-
	62.50	-2.50		V		-4.67	-	-
73.600 0	32.83	-52.17	1.90	V	0.17	-50.44	-13.00	-37.44
114.400 0	25.67	-61.51	1.69	V	0.34	-60.16	-13.00	-47.16
161.800 0	21.50	-65.00	1.22	V	0.34	-64.12	-13.00	-51.12
184.100 0	25.50	-59.66	1.23	V	0.50	-58.93	-13.00	-45.93

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

11. FREQUENCY STABILITY WITH TEMPERATURE VARIATION

11.1 Operating environment

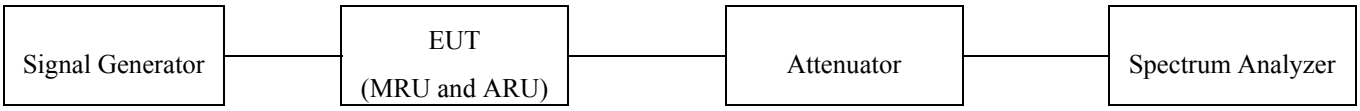
Temperature : (23 ~ 25) °C

Relative humidity : (49 ~ 50) % R.H.

11.2 Test set-up

The RF signal from the signal generator(s) was injected to the EUT and the amplified RF signal at the output of the EUT was connected to the power meter or spectrum analyzer. The test was performed at three frequencies (low, middle, and high channels) at each band using all applicable modulation.

Turn EUT off and set chamber temperature to -30 °C and then allow sufficient time (approximately 20 min to 30 min after chamber reach the assigned temperature) for EUT to stabilize. Turn on the EUT and measure the EUT operating frequency and then turn off the EUT after the measurement. The temperature in the chamber was raised 10 °C step from -30 °C to +50 °C. Repeat above method for frequency measurements every 10 °C step and then record all measured frequencies on each temperature step.



11.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	8564E	HP	Spectrum Analyzer	3650A00756	Jun. 10, 2011 (1Y)
■ -	53152A	HP	Frequency Counter	US39270295	Dec. 01, 2010 (1Y)
■ -	SSE-43CI-A	Samkun	Chamber	060712	Jun. 11, 2011 (1Y)
■ -	SMJ100A	R/S	Signal Generator	101038	Feb. 01, 2011 (1Y)
■ -	FSP	R/S	Spectrum Analyzer	100017	Mar. 16, 2011 (1Y)

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

11.4 Test data

11.4.1 Test Result for Part 24 E (1900P) with AC 120 V Power Supply

-. Test Date : November 14 ~ 15, 2011

-. Result : PASSED

Temperature (˚C)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
-30	1 962 500 000	1 962 500 001	0.000 5	Within the Authorized Frequency block
-20		1 962 500 001	0.000 5	
-10		1 962 500 000	0.000 0	
0		1 962 500 000	0.000 0	
10		1 962 500 001	0.000 5	
20		1 962 500 001	0.000 5	
30		1 962 500 001	0.000 5	
40		1 962 500 000	0.000 0	
50		1 962 500 000	0.000 0	

Tested by: Ki-Hong, Nam / Senior Engineer

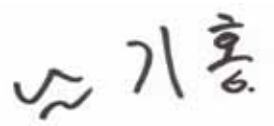
HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

11.4.2 Test Result for Part 24 E (1900P) with DC -48 V Power Supply

-. Test Date : November 14 ~ 15, 2011

-. Result : PASSED

Temperature (˚C)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
-30	1 962 500 000	1 962 500 001	0.000 5	Within the Authorized Frequency block
-20		1 962 500 000	0.000 0	
-10		1 962 500 000	0.000 0	
0		1 962 500 001	0.000 5	
10		1 962 500 001	0.000 5	
20		1 962 500 000	0.000 0	
30		1 962 500 000	0.000 0	
40		1 962 500 001	0.000 5	
50		1 962 500 001	0.000 5	



Tested by: Ki-Hong, Nam / Senior Engineer

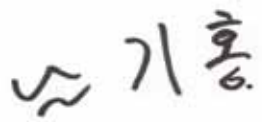
HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

11.4.3 Test Result for Part 90 I (800iDEN) with AC 120 V Power Supply

-. Test Date : November 08 ~ 09, 2011

-. Result : PASSED

Temperature (˚C)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
-30	860 000 000	860 000 001	0.001 2	Within the Authorized Frequency block
-20		860 000 000	0.000 0	
-10		860 000 001	0.001 2	
0		860 000 000	0.000 0	
10		860 000 000	0.000 0	
20		860 000 001	0.001 2	
30		860 000 001	0.001 2	
40		860 000 000	0.000 0	
50		860 000 001	0.001 2	



Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

11.4.4 Test Result for Part 90 I (800iDEN) with DC -48 V Power Supply

-. Test Date : November 08 ~ 09, 2011

-. Result : PASSED

Temperature (˚C)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
-30	860 000 000	860 000 000	0.000 0	Within the Authorized Frequency block
-20		860 000 000	0.000 0	
-10		860 000 001	0.001 2	
0		860 000 001	0.001 2	
10		860 000 000	0.000 0	
20		860 000 000	0.000 0	
30		860 000 001	0.001 2	
40		860 000 001	0.001 2	
50		860 000 000	0.000 0	

Tested by: Ki-Hong, Nam / Senior Engineer

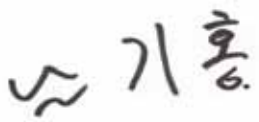
HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

11.4.5 Test Result for Part 90 I (900iDEN) with AC 120 V Power Supply

-. Test Date : November 10 ~ 11, 2011

-. Result : PASSED

Temperature (˚C)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
-30	937 500 000	937 500 001	0.001 1	Within the Authorized Frequency block
-20		937 500 001	0.001 1	
-10		937 500 000	0.000 0	
0		937 500 001	0.001 1	
10		937 500 000	0.000 0	
20		937 500 001	0.001 1	
30		937 500 000	0.000 0	
40		937 500 001	0.001 1	
50		937 500 001	0.001 1	



Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

11.4.6 Test Result for 90 I (900iDEN) with DC -48 V Power Supply

-. Test Date : November 10 ~ 11, 2011

-. Result : PASSED

Temperature (˚C)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
-30	937 500 000	937 500 000	0.000 0	Within the Authorized Frequency block
-20		937 500 001	0.001 1	
-10		937 500 001	0.001 1	
0		937 500 001	0.001 1	
10		937 500 000	0.000 0	
20		937 500 000	0.000 0	
30		937 500 000	0.000 0	
40		937 500 001	0.001 1	
50		937 500 001	0.001 1	

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

12. FREQUENCY STABILITY WITH VOLTAGE VARIATION

12.1 Operating environment

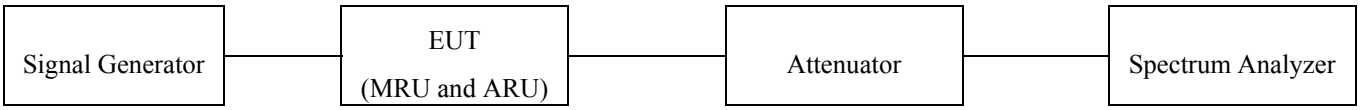
Temperature : (23 ~ 25) °C

Relative humidity : (49 ~ 50) % R.H.

12.2 Test set-up

The RF signal from the signal generator(s) was injected to the EUT and the amplified RF signal at the output of the EUT was connected to the power meter or spectrum analyzer. The test was performed at three frequencies (low, middle, and high channels) at each band using all applicable modulation.

The RF output port of the EUT was connected to the input of the spectrum analyzer. The signal generator was set to center frequency for each band with an un-modulated signal. The voltage of EUT set to 115 % of the nominal value and then was reduced to 85 % of nominal voltage. The output frequency was recorded at each step.



12.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	8564E	HP	Spectrum Analyzer	3650A00756	Jun. 10, 2011 (1Y)
■ -	53152A	HP	Frequency Counter	US39270295	Dec. 01, 2010 (1Y)
■ -	2350A	HP	30 dB Attenuator Assembly	2350A03133	Jun. 10, 2011 (1Y)
■ -	SMJ100A	R/S	Signal Generator	101038	Feb. 01, 2011 (1Y)
■ -	FSP	R/S	Spectrum Analyzer	100017	Mar. 16, 2011 (1Y)

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

12.4 Test data

12.4.1 Test Result for 24 E (1900P) with AC 120 V Power Supply

-. Test Date : November 14 ~ 15, 2011

-. Result : PASSED

Voltage (Vac)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
138 (115 %)	1 962 500 000	1 962 500 001	0.000 5	Within the Authorized Frequency block
120 (100 %)		1 962 500 000	0.000 0	
102 (85 %)		1 962 500 001	0.000 5	

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

12.4.2 Test Result for 24 E (1900P) with DC -48 V Power Supply

-. Test Date : November 14 ~ 15, 2011

-. Result : PASSED

Voltage (Vdc)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
- 55.2 (115 %)	1 962 500 000	1 962 500 000	0.000 0	Within the Authorized Frequency block
- 48 (100 %)		1 962 500 001	0.000 5	
- 40.8 (85 %)		1 962 500 001	0.000 5	

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

12.4.3 Test Result for Part 90 I (800iDEN) with AC 120 V Power Supply

-. Test Date : November 08 ~ 09, 2011

-. Result : PASSED

Voltage (Vac)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
138 (115 %)	860 000 000	860 000 001	0.001 2	Within the Authorized Frequency block
120 (100 %)		860 000 001	0.001 2	
102 (85 %)		860 000 001	0.001 2	

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

12.4.4 Test Result for Part 90 I (800iDEN) with DC -48 V Power Supply

-. Test Date : November 08 ~ 09, 2011

-. Result : PASSED

Voltage (Vdc)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
- 55.2 (115 %)	860 000 000	860 000 000	0.000 0	Within the Authorized Frequency block
- 48 (100 %)		860 000 001	0.001 2	
- 40.8 (85 %)		860 000 001	0.001 2	

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

12.4.5 Test Result for Part 90 I (900iDEN) with AC 120 V Power Supply

-. Test Date : November 10 ~ 11, 2011

-. Result : PASSED

Voltage (Vac)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
138 (115 %)	937 500 000	937 500 001	0.001 1	Within the Authorized Frequency block
120 (100 %)		937 500 000	0.000 0	
102 (85 %)		937 500 000	0.000 0	

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

12.4.6 Test Result for Part 90 I (900iDEN) with DC -48 V Power Supply

-. Test Date : November 10 ~ 11, 2011

-. Result : PASSED

Voltage (Vdc)	Input Freq. (Hz)	Measured Freq. (Hz)	Result (PPM)	Limit
- 55.2 (115 %)	937 500 000	937 500 000	0.000 0	Within the Authorized Frequency block
- 48 (100 %)		937 500 001	0.001 1	
- 40.8 (85 %)		937 500 000	0.000 0	

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

13. RADIATED EMISSION TEST

13.1 Operating environment

Temperature : 16 °C

Relative humidity : 50 % R.H.

13.2 Test set-up

The radiated emissions measurements were on the 10 m, open-field test site. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 MHz to 1 000 MHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

13.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	ESVD	Rohde & Schwarz	Test Receiver	8384537018	Oct. 20, 2011(1Y)
■ -	8568B	HP	Spectrum Analyzer	3001A04955	Jun. 11, 2011(1Y)
■ -	8447D	Hewlett Packard	Amplifier	2727A04987	Jun. 11, 2011(1Y)
■ -	MA240	HD GmbH	Antenna Master	N/A	N/A
■ -	HD100	HD GmbH	Position Controller	N/A	N/A
■ -	DS420S	HD GmbH	Turn Table	N/A	N/A
□ -	VHA9103	Schwarzbeck	Biconical Antenna	91031852	Mar. 30, 2010(2Y)
□ -	9108-A(494)	Schwarzbeck	Log Periodic Antenna	62281001	Mar. 30, 2010(2Y)
■ -	VULB9163	Schwarzbeck	TRILOG Broadband Antenna	VULB9163-202	May 27, 2010(2Y)

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

13.4 Test data

13.4.1 Test Result for Part 24 E (1900P) with AC 120 V Power Supply

-. Test Date : November 17, 2011

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

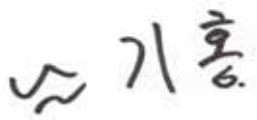
-. Measurement distance : 10 m

-. Result : Passed

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)
34.00	8.50	V	1.00	180.00	16.73	1.08	26.31	39.08	-12.77
73.60	12.17	V	2.00	210.00	6.53	2.07	20.77	39.08	-18.31
114.40	15.50	V	1.50	180.00	12.70	2.49	30.69	43.52	-12.83
161.80	10.83	V	1.00	270.00	15.42	2.96	29.21	43.52	-14.31
184.10	15.00	V	1.20	180.00	16.46	3.16	34.62	43.52	-8.90
200.50	9.00	V	1.00	230.00	17.06	3.10	29.16	43.52	-14.36

Tabulated test data for Radiated Electromagnetic Field

Remark: “H”: Horizontal, “V”: Vertical



Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

13.4.2 Test Result for Part 24 E (1900P) with DC -48 V Power Supply

-. Test Date : November 17, 2011

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

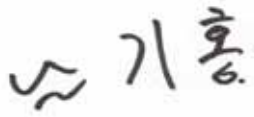
-. Measurement distance : 10 m

-. Result : Passed

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)
37.00	12.33	V	1.00	90.00	15.80	1.18	29.31	39.08	-9.77
73.60	22.50	V	2.00	210.00	6.53	2.07	31.10	39.08	-7.98
114.40	17.17	V	1.50	180.00	12.70	2.49	32.36	43.52	-11.16
161.80	12.00	V	1.00	270.00	15.42	2.96	30.38	43.52	-13.14
184.10	15.33	V	1.20	180.00	16.46	3.16	34.95	43.52	-8.57
220.00	5.00	V	1.00	270.00	17.19	3.26	25.45	46.44	-20.99

Tabulated test data for Radiated Electromagnetic Field

Remark: “H”: Horizontal, “V”: Vertical



Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

13.4.3 Test Result for Part 90 I (800iDEN) with AC 120 V Power Supply

-. Test Date : November 17, 2011

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

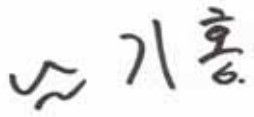
-. Measurement distance : 10 m

-. Result : Passed

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)
34.00	8.20	V	1.00	180.00	16.73	1.08	26.01	39.08	-13.07
73.60	22.50	V	2.00	210.00	6.53	2.07	31.10	39.08	-7.98
114.40	15.40	V	1.50	180.00	12.70	2.49	30.59	43.52	-12.93
161.80	11.00	V	1.00	270.00	15.42	2.96	29.38	43.52	-14.14
184.10	15.83	V	1.20	180.00	16.46	3.16	35.45	43.52	-8.07
200.50	8.50	V	1.00	230.00	17.06	3.10	28.66	43.52	-14.86

Tabulated test data for Radiated Electromagnetic Field

Remark: “H”: Horizontal, “V”: Vertical



Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

13.4.4 Test Result for Part 90 I (800iDEN) with DC -48 V Power Supply

-. Test Date : November 17, 2011

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

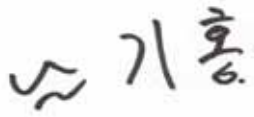
-. Measurement distance : 10 m

-. Result : Passed

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)
37.00	12.50	V	1.00	90.00	15.80	1.18	29.48	39.08	-9.60
73.60	22.00	V	2.00	210.00	6.53	2.07	30.60	39.08	-8.48
114.40	17.00	V	1.50	180.00	12.70	2.49	32.19	43.52	-11.33
161.80	11.50	V	1.00	270.00	15.42	2.96	29.88	43.52	-13.64
184.10	15.50	V	1.20	180.00	16.46	3.16	35.12	43.52	-8.40
220.00	15.50	V	1.00	270.00	17.19	3.26	35.95	46.44	-10.49

Tabulated test data for Radiated Electromagnetic Field

Remark: “H”: Horizontal, “V”: Vertical



Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

13.4.5 Test Result for Part 90 I (900iDEN) with AC 120 V Power Supply

-. Test Date : November 17, 2011

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

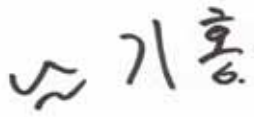
-. Measurement distance : 10 m

-. Result : Passed

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)
34.00	8.50	V	1.00	180.00	16.73	1.08	26.31	39.08	-12.77
73.60	22.33	V	2.00	210.00	6.53	2.07	30.93	39.08	-8.15
114.40	15.50	V	1.50	180.00	12.70	2.49	30.69	43.52	-12.83
161.80	11.20	V	1.00	270.00	15.42	2.96	29.58	43.52	-13.94
184.10	16.00	V	1.20	180.00	16.46	3.16	35.62	43.52	-7.90
200.50	8.33	V	1.00	230.00	17.06	3.10	28.49	43.52	-15.03

Tabulated test data for Radiated Electromagnetic Field

Remark: “H”: Horizontal, “V”: Vertical



Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

13.4.6 Test Result for Part 90 I (900iDEN) with DC -48 V Power Supply

-. Test Date : November 17, 2011

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

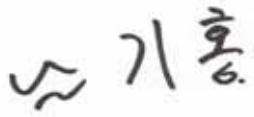
-. Measurement distance : 10 m

-. Result : Passed

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)
37.00	12.30	V	1.00	90.00	15.80	1.18	29.28	39.08	-9.80
73.60	22.17	V	2.00	210.00	6.53	2.07	30.77	39.08	-8.31
114.40	17.33	V	1.50	180.00	12.70	2.49	32.52	43.52	-11.00
161.80	11.67	V	1.00	270.00	15.42	2.96	30.05	43.52	-13.47
184.10	15.83	V	1.20	180.00	16.46	3.16	35.45	43.52	-8.07
220.00	5.83	V	1.00	270.00	17.19	3.26	26.28	46.44	-20.16

Tabulated test data for Radiated Electromagnetic Field

Remark: “H”: Horizontal, “V”: Vertical



Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

14. CONDUCTED EMISSION TEST

14.1 Operating environment

Temperature : 23 °C

Relative humidity : 45 % R.H.

14.2 Test set-up

The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a 50 Ω / 50 μH + 5 Ω Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

14.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	ESHS10	Rohde & Schwarz	EMI Test Receiver	834467/007	Jun. 13, 2011 (1Y)
■ -	NSLK 8128	Schwarzbeck	AMN	8128-216	Jun. 10, 2011 (1Y)
☐ -	3825/2	EMCO	AMN	9109-1867	Jun. 10, 20101 (1Y)

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

14.4 Test data

14.4.2 Test Result for Part 24 E (1900P)

-. Test Date : October 31, 2011

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Test Result : Passed by -21.39 dB at 10.91 MHz

Frequency (MHz)	Line	Peak (dBμV)		Margin (dB)
		Emission level	Q.P Limits	
0.19	H	56.39	79.00	-22.61
6.58	N	46.97	73.00	-26.03
6.61	H	48.31	73.00	-24.69
10.91	H	51.61	73.00	-21.39
14.44	N	50.91	73.00	-22.09
19.90	H	47.67	73.00	-25.33
Frequency (MHz)	**Line**	**Average (dBμV)**		**Margin (dB)**
		Emission level	**Limits**	
-				
-				

Line Conducted Emissions Tabulated Data

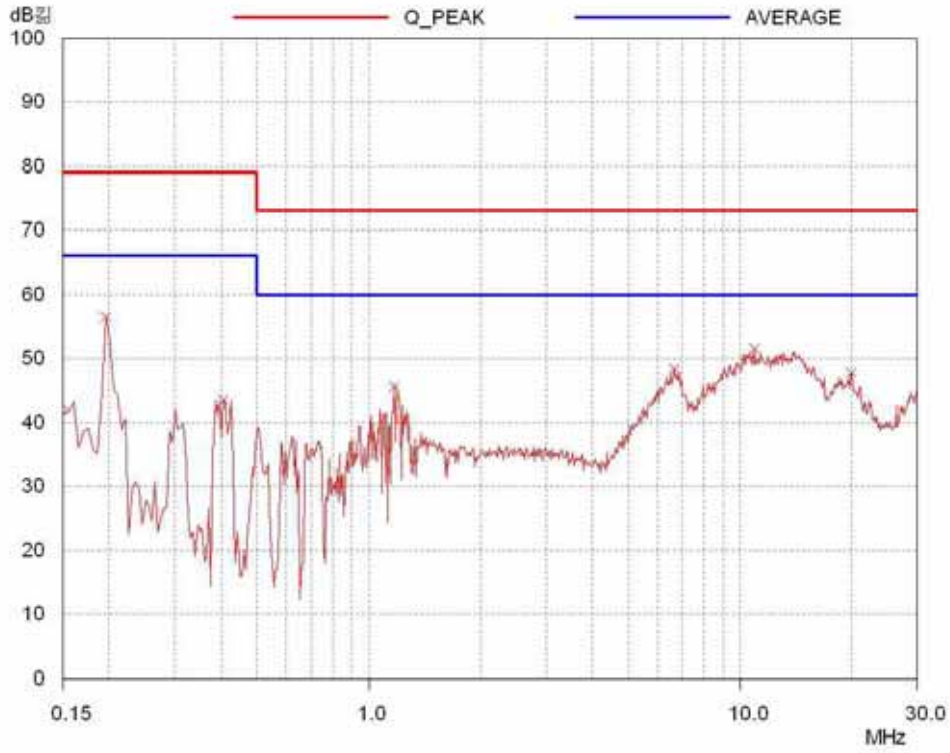
Remark : "H": Hot Line, "N": Neutral Line

Average mode was not measured, because peak values were under the average limit.

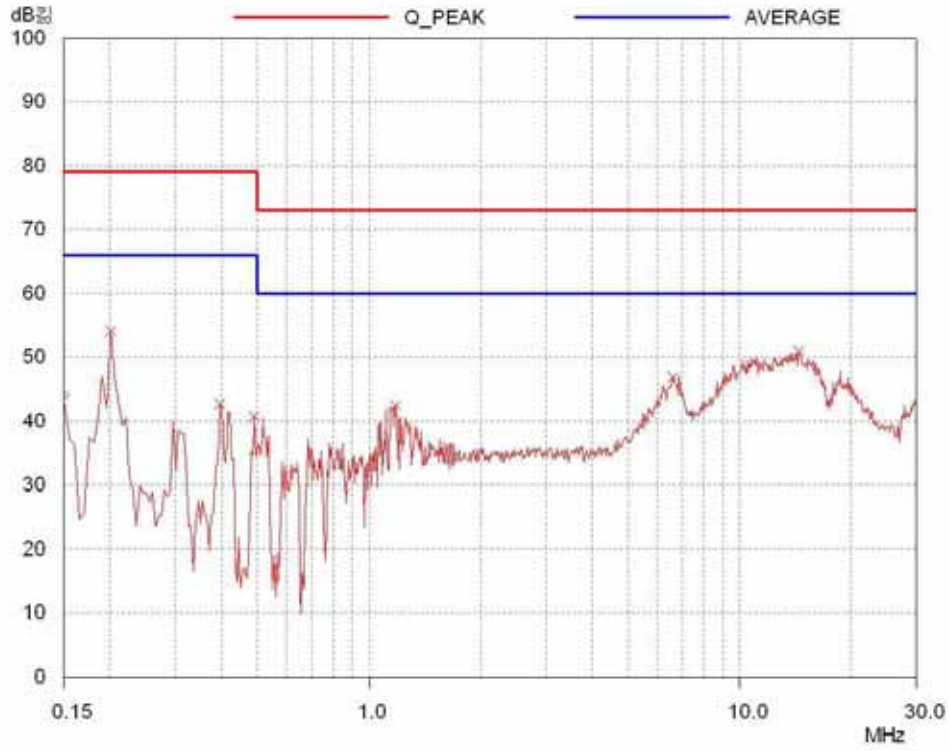
See next page for an overview sweep performed with peak detector modes.

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



HOT LINE



NEUTRAL LINE

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

14.4.3 Test Result for Part 90 I (800iDEN)

-. Test Date : October 31, 2011

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Test Result : Passed by -23.73 dB at 0.19 MHz

Frequency (MHz)	Line	Peak (dBμV)		Margin (dB)
		Emission level	Q.P Limits	
0.15	N	53.50	79.00	-25.50
0.19	N	55.27	79.00	-23.73
0.20	H	52.22	79.00	-26.78
6.70	N	44.11	73.00	-28.89
12.58	N	47.58	73.00	-25.42
13.30	H	47.98	73.00	-25.02
Frequency (MHz)	**Line**	**Average (dBμV)**		**Margin (dB)**
		Emission level	**Limits**	
-				
-				

Line Conducted Emissions Tabulated Data

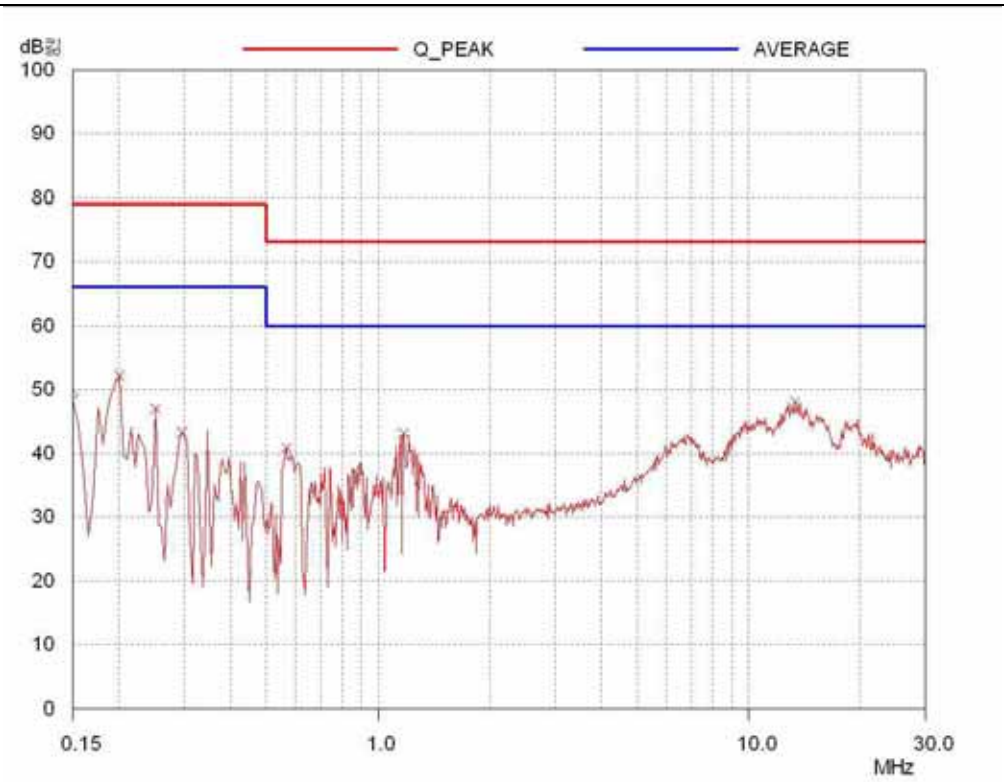
Remark : "H": Hot Line, "N": Neutral Line

Average mode was not measured, because peak values were under the average limit.

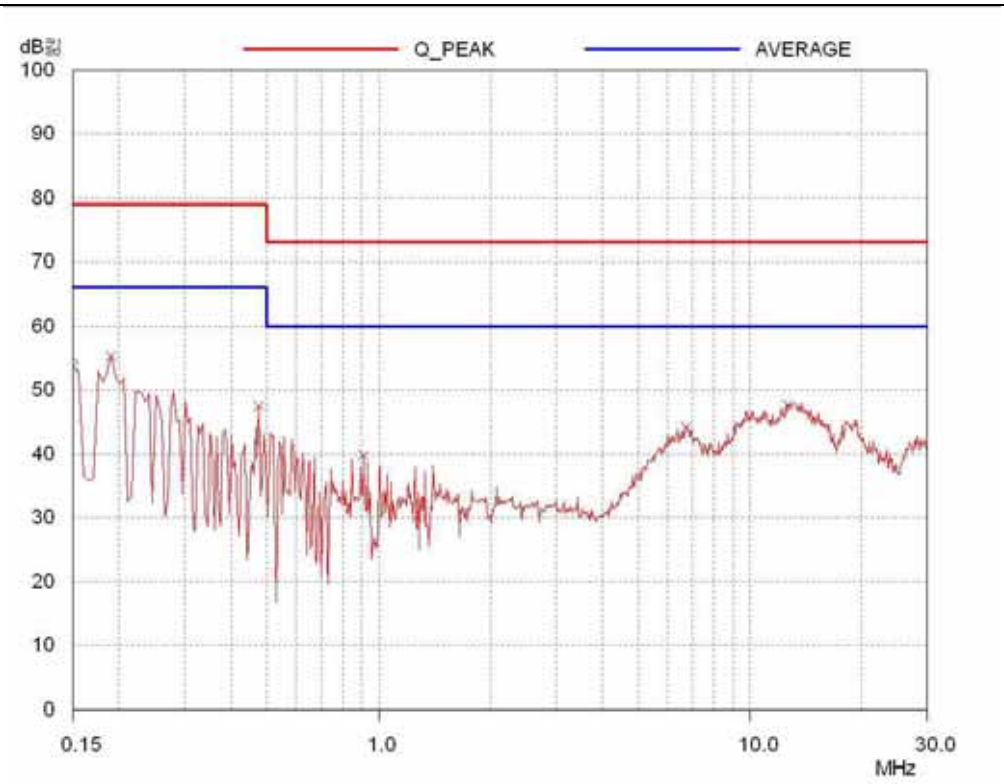
See next page for an overview sweep performed with peak detector modes.

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



HOT LINE



NEUTRAL LINE

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

14.4.4 Test Result for Part 90 I (900iDEN)

-. Test Date : October 31, 2011

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Test Result : Passed by -23.21 dB at 13.19 MHz

Frequency (MHz)	Line	Peak (dBμV)		Margin (dB)
		Emission level	Q.P Limits	
0.18	H	53.22	79.00	-25.78
0.20	H	52.44	79.00	-26.56
0.56	H	40.98	73.00	-32.02
1.20	H	43.07	73.00	-29.93
6.98	N	44.35	73.00	-28.65
13.19	N	49.79	73.00	-23.21
Frequency (MHz)	**Line**	**Average (dBμV)**		**Margin (dB)**
		Emission level	**Limits**	
-				
-				

Line Conducted Emissions Tabulated Data

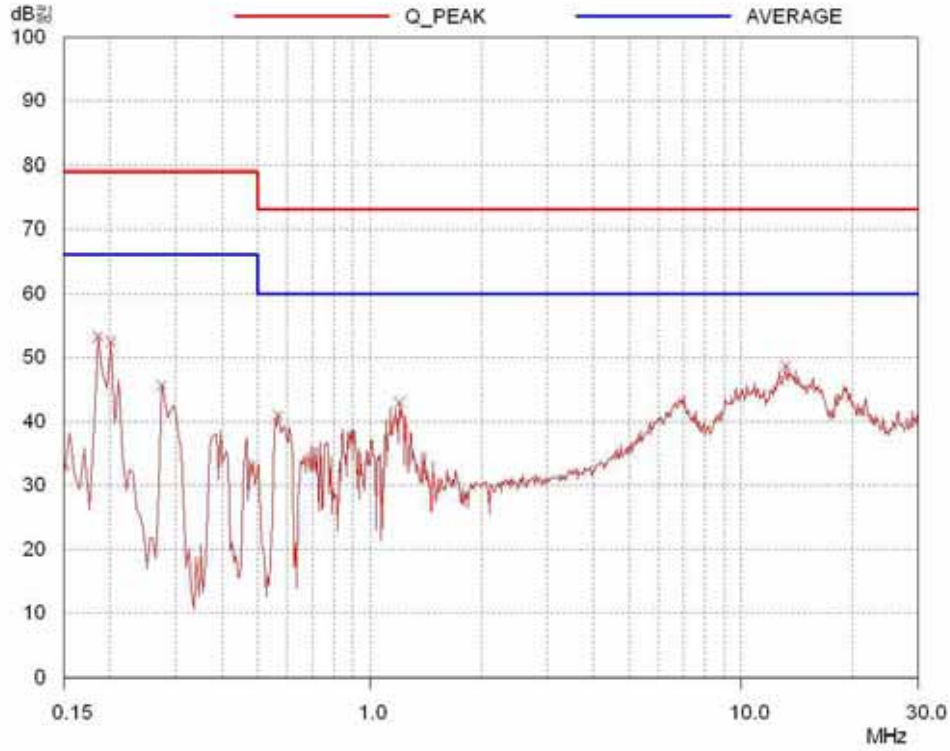
Remark : "H": Hot Line, "N": Neutral Line

Average mode was not measured, because peak values were under the average limit.

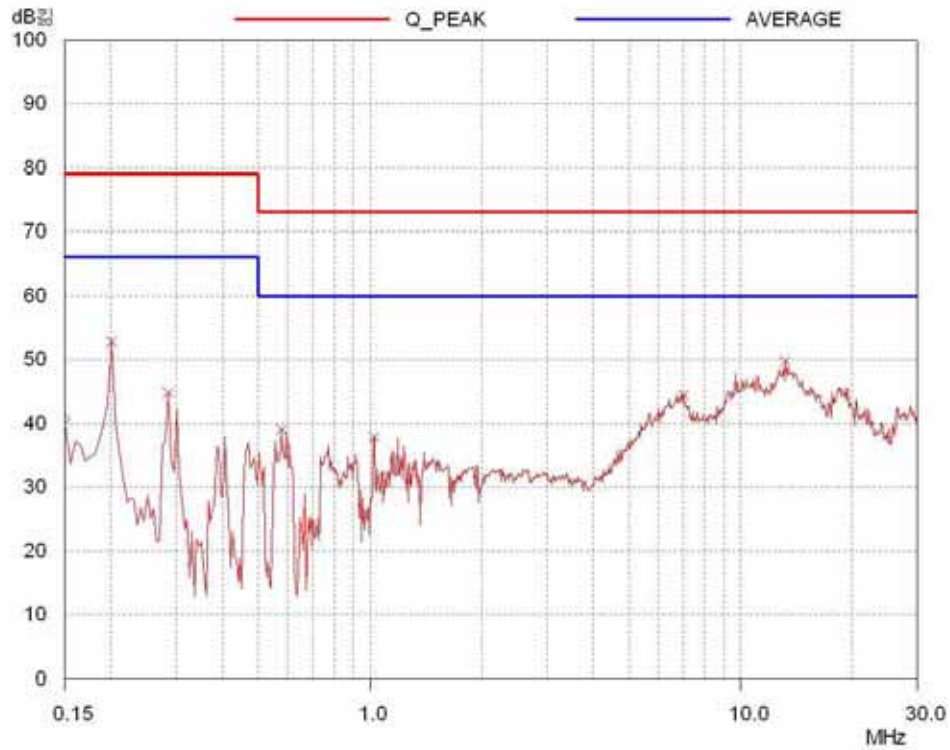
See next page for an overview sweep performed with peak detector modes.

Tested by: Ki-Hong, Nam / Senior Engineer

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



HOT LINE



NEUTRAL LINE

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

15. MAXIMUM PERMISSIBLE EXPOSURE

15.1 RF Exposure Calculation

According to the FCC rule 1.1310 table 1B, the limit for the maximum permissible RF exposure for an uncontrolled environment are f/1500 mW/cm² the frequency range between 300 MHz and 1 500 MHz and 1.0 mW/cm² the frequency range between 1 500 MHz and 100 000 MHz.

The electric field generated for a 1 mW/cm² exposure is calculated as follows:

$E = \sqrt{(30 * P * G)} / d$, and $S = E^2 / Z = E^2 / 377$, because 1 mW/cm² = 10 W/m²

Where

S = Power density in mW/cm², Z = Impedance of free space, 377 Ω

E = Electric filed strength in V/m, G = Numeric antenna gain, and d = distance in meter

Combing equations and rearranging the terms to express the distance as a function of the remaining variable

$d = \sqrt{(30 * P * G) / (377 * S)}$

Changing to units of mW and cm, using P (mW) = P (W) / 1 000, d (cm) = 100 * d (m)

$d = 0.282 * \sqrt{(P * G) / S}$

Where

d = distance in cm, P = Power in mW, G = Numeric antenna gain, and S = Power density in mW/cm²

15.2 Calculated MPE Safe Distance

15.2.1 For Part 24 E (1900P)

According to above equation, the following result was obtained.

Peak Output Power		Antenna Gain (dBi)		Safe Distance	Power Density (mW/cm²)	FCC Limit
(dBm)	(mW)	Log	Linear	(cm)	@ 20 cm Separation	(mW/cm²)
31.0	1 258.9	2.0	1.58	12.577	0.396	1

According to above table, safe distance, $D = 0.282 * \sqrt{1\,258.9 * 1.58} = 12.577$ cm.

For getting power density at 20 cm separation in above table, following formula was used.

$S = P * G / (4\pi * R^2) = 1\,258.9 * 1.58 / (4 * 3.14 * 20\text{^}2) = 0.396$

Where:

S = Power Density,
P = Power input to the external antenna (Output power from the EUT antenna port (dBm) – cable loss (dB)),
G = Gain of Transmit Antenna (linear gain), R = Distance from Transmitting Antenna

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)

15.2.2 For Part 90 I (800iDEN) and Part 90 I (900iDEN)

According to above equation, the following result was obtained.

Peak Output Power		Antenna Gain (dBi)		Safe Distance	Power Density (mW/cm²)	FCC Limit
(dBm)	(mW)	Log	Linear	(cm)	@ 20 cm Separation	(mW/cm²)
26.0	398.11	2.0	1.58	7.07	0.125	0.574

According to above table, safe distance, $D = 0.282 * \sqrt{398.11 * 1.58} = 7.07$ cm.

For getting power density at 20 cm separation in above table, following formula was used.

$S = P * G / (4\pi * R^2) = 398.11 * 1.58 / (4 * 3.14 * 20^2) = 0.125$

Where:

S = Power Density,
P = Power input to the external antenna (Output power from the EUT antenna port (dBm) – cable loss (dB)),
G = Gain of Transmit Antenna (linear gain), R = Distance from Transmitting Antenna

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)