ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR TNB LICENSED TRANSMITTER

Test Report No.	**: E09NR-036**
AGR No.	**: A09OA-153**
Applicant	**: SOLiD Technologies, Inc.**
Address	**: 18th Floor, KINS Tower, 25-1 Jeongja-Dong, Bundang-Gu, Seongnam-Si, Gyeonggi-Do 463-811, Korea**
Manufacturer	**: SOLiD Technologies, Inc.**
Address	**: 18th Floor, KINS Tower, 25-1 Jeongja-Dong, Bundang-Gu, Seongnam-Si, Gyeonggi-Do 463-811, Korea**
Type of Equipment	**: RDU MODULE(VHF/UHF)**
FCC ID.	**: W6U150V450U**
Model Name	**: RDU VHF+UHF**
Serial number	**: N/A**
Total page of Report	**: 273 pages (including this page)**
Date of Incoming	**: November 03, 2009**
Date of issue	**: November 17, 2009**

SUMMARY

The equipment complies with the regulation; **FCC 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:

Young-Min, Choi / Asst. Chief Engineer
EMC/RF Center
ONETECH Corp.

Reviewed by:

Y. K. Kwon / Managing Director
EMC/RF Center
ONETECH Corp.

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)

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

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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 : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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 : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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
E09NR-036	November 17, 2009	Initial Issue	All

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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	: 18th Floor, KINS Tower, 25-1 Jeongja-Dong, Bundang-Gu, Seongnam-Si, Gyeonggi-Do 463-811, Korea
CONTACT PERSON	: Mr. Kangyeob, Bae / Director
TELEPHONE NO	: +82-31-784-8668
FCC ID	: W6U150V450U
MODEL NAME	: RDU VHF+UHF
SERIAL NUMBER	: N/A
DATE	: November 17, 2009

EQUIPMENT CLASS	TNB – Licensed Non-Broadcast Station Transmitter
KIND OF EQUIPMENT	SIGNAL BOOSTER
EQUIPMENT DESCRIPTION	RDU MODULE(VHF/UHF)
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.4: 2003, EIA/TIA-603C :2004
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	PART 90 Subpart I
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 m(s) 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 : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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), 90.205, & 90.219	RF Power Output at Antenna Terminals	Met the Limit / PASS
2.1047	Modulation Characteristics	PASS (See Note 1)
2.1049, 90.210, & 90.219	Occupied Bandwidth, Bandwidth Limitation	Met the Limit / PASS
90.210, & 90.219	Emission Mask	Met the Limit / PASS
2.1051, 90.210, & 90.219	Spurious Emissions at Antenna Terminals	Met the Limit / PASS
2.1053, 90.210, & 90.219	Field strength of Spurious Radiation	Met the Limit / PASS
2.1055, 90.213	Frequency Stability with Temperature variation	Met the requirement / PASS
2.1055, 90.213	Frequency stability with primary voltage variation	Met the requirement / PASS
2.1093	RF Exposure	See Note 2

Note1: The Equipment under Test (EUT) is a signal booster which reproduces the modulated input signal, which was received by optic cable, so the EUT meets the requirement.,

Note2: 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

Conducted emission testing was performed according to the procedures in ANSI C63.4: 2003 and additionally required testing was performed according to the procedure in EIA/TIA 603C and radiating test was performed at 3 m from the EUT to the receiving antenna.

2.6 Test Facility

The open area test site and conducted measurement facilities are located on at 307-51 Daessangryung-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 : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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., Model RDU VHF+UHF (referred to as the EUT in this report) is a RDU MODULE(VHF/UHF) that shall be plugged in ROU (Remote Optic Unit). The ROU can be equipped with up to 3 RDUs (Remote Drive Unit), a RPSU (Remote Power Supply Unit), a RCPU (Remote Central Processor Unit), a R-Optic (Remote Optic), a SIU (System Interface Unit) and a Multiplexer. The System, Model No: SMDR-NH124 consists of ROU, BIU (BTS Interface Unit), ODU (Optic Distribution Unit), and OEU (Optic Expansion Unit). Except for ROU, the RF output ports of other units are connected to coaxial cable each other. ROU receives TX optical signals from ODU or OEU and converts them into RF signals. The converted RF signals are amplified through High Power Amp in a corresponding RDU, combined with multiplexer module 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 RDU 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. ROU can be equipped with up to three RDUs (Remote Drive Unit) and the module is composed of maximal Dual Band, but this report only covers RDU VHF+UHF, FCC ID: W6U15V450U. The product specification described herein was obtained from product data sheet or user's manual.

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

DEVICE TYPE		RDU MODULE(VHF/UHF)
LIST OF EACH OSC. or CRY. FREQ.(FREQ.>=1 MHz)		14.74 MHz
EMISSION DESIGNATOR		VHF: F1D, F3E, UHF: F1D, F1E, F3E
OPERATING FREQUENCY	VHF	136 MHz ~ 174 MHz
	UHF-B1	396 MHz ~ 450 MHz
	UHF-B2	450 MHz ~ 512 MHz
SYSTEM GAIN	VHF	42 dB
	UHF	38 dB
RF OUTPUT POWER		24 dBm (251.2 mW)
DECLARED ANTENNA GAIN		Less than 2 dBi
DC VOLTAGE & CURRENT INTO FINAL AMPLIFIER		VHF: 27 V, 1 A, UHF-B1/-B2: 27 V, 1 A
ELECTRICAL RATING		AC 120 V, 3.5 A and DC - 48 V, 5.5 A
NUMBER OF LAYERS		4 Layer
OPERATING TEMPERATURE		-10 °C ~ 50 °C

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

-. None

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

3.3 Peripheral equipment

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

Model	Manufacturer	FCC ID	Description	Connected to
RDU VHF+UHF	SOLiD Technologies, Inc.	W6U150V450U	RDU MODULE(VHF/UHF) (EUT)	-
SMJ100A	Rohde & Schwarz	N/A	Vector Signal Generator	EUT
SMDR-NH124	SOLiD Technologies, Inc.	N/A	ODU (Optic Distribution Unit)	EUT
SMDR-NH124	SOLiD Technologies, Inc.	N/A	BIU (BTS Interface Unit)	EUT
105-10ST	Dong Yang	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 frequency band, VHF and UHF were configured for maximum signal gain and bandwidth. 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.

4. EUT MODIFICATIONS

-. None

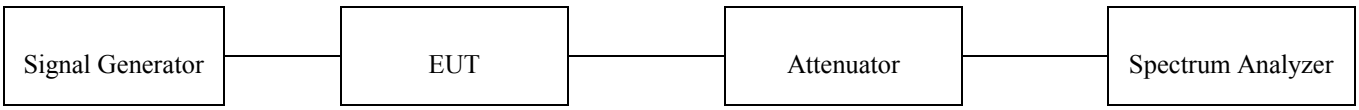
HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea. (TEL: +82-31-765-8289, FAX: +82-31-766-2904)

5. RF POWER OUTPUT at ANTENNA TERMINAL

5.1 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.



5.2 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	E4432B	HP	Signal Generator	US38440950	June 15, 2009
■ -	SMJ100A	R/S	Signal Generator	101038	Feb. 04, 2009
■ -	FSP	R/S	Spectrum Analyzer	100017	Mar. 11, 2009
□ -	8564E	HP	Spectrum Analyzer	3650A00756	June 15, 2009

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

5.3 Test data

5.3.1 Test Result for VHF

-. Test Date : November 09, 2009

-. Temperature : 24 °C

-. Relative humidity : 47 % R.H.

-. Test Result : Pass

-. Modulation : FM with 2.5 kHz sine wave signal

Channel Spacing (kHz)	Modulation (kHz)	Channel	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
25	2.5	Low	136.000 0	- 17.83	24.00	0.251	5.0
		Middle	155.000 0	- 17.92	24.00		
		High	174.000 0	- 17.85	24.00		
12.5	2.5	Low	136.000 0	- 17.90	24.00	0.251	
		Middle	155.000 0	- 17.90	24.00		
		High	174.000 0	- 17.85	24.00		

-. Modulation : FM with an external 9600 b/s random data source

Channel Spacing (kHz)	Modulation (b/s)	Channel	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
25	9 600	Low	136.000 0	- 17.92	24.00	0.251	5.0
		Middle	155.000 0	- 17.88	24.00		
		High	174.000 0	- 17.90	24.00		
12.5	9 600	Low	136.000 0	- 17.83	24.00	0.251	
		Middle	155.000 0	- 17.90	24.00		
		High	174.000 0	- 17.83	24.00		

Tested by: Ki-Hong, Nam / Project Engineer

5.3.2 Test Result for UHF-B1

-. Test Date : November 03, 2009

-. Temperature : 22 °C

-. Relative humidity : 45 % R.H.

-. Test Result : Pass

-. Modulation : FM with 2.5 kHz sine wave signal

Channel Spacing (kHz)	Modulation (kHz)	Channel	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
25	2.5	Low	396.000 0	- 13.93	24.00	0.251	5.0
		Middle	423.000 0	- 13.83	24.00		
		High	450.000 0	- 13.95	24.00		
12.5	2.5	Low	396.000 0	- 13.90	24.00	0.251	
		Middle	423.000 0	- 13.89	24.00		
		High	450.000 0	- 13.83	24.00		
6.25	0.8	Low	396.000 0	- 13.95	24.00	0.251	
		Middle	423.000 0	- 13.90	24.00		
		High	450.000 0	- 13.93	24.00		

-. Modulation : FM with an external 9600 b/s random data source

Channel Spacing (kHz)	Modulation (b/s)	Channel	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
25	9 600	Low	396.000 0	- 13.85	24.00	0.251	5.0
		Middle	423.000 0	- 13.90	24.00		
		High	450.000 0	- 13.90	24.00		
12.5	9 600	Low	396.000 0	- 13.87	24.00	0.251	
		Middle	423.000 0	- 13.92	24.00		
		High	450.000 0	- 13.90	24.00		
6.25	4 800	Low	396.000 0	- 13.95	24.00	0.251	
		Middle	423.000 0	- 13.88	24.00		
		High	450.000 0	- 13.91	24.00		

Tested by: Ki-Hong, Nam / Project Engineer

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)

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)

5.3.3 Test Result for UHF-B2

-. Test Date : November 05, 2009

-. Temperature : 23 °C

-. Relative humidity : 45 % R.H.

-. Test Result : Pass

-. Modulation : FM with 2.5 kHz sine wave signal

Channel Spacing (kHz)	Modulation (kHz)	Channel	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
25	2.5	Low	450.000 0	- 13.80	24.00	0.251	5.0
		Middle	481.000 0	- 13.90	24.00		
		High	512.000 0	- 13.84	24.00		
12.5	2.5	Low	450.000 0	- 13.90	24.00	0.251	
		Middle	481.000 0	- 13.92	24.00		
		High	512.000 0	- 13.85	24.00		
6.25	2.5	Low	450.000 0	- 13.95	24.00	0.251	
		Middle	481.000 0	- 13.87	24.00		
		High	512.000 0	- 13.90	24.00		

-. Modulation : FM with an external 9600 b/s random data source

Channel Spacing (kHz)	Modulation (b/s)	Channel	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Output Power (W)	Limit (W)
25	9 600	Low	450.000 0	- 13.88	24.00	0.251	5.0
		Middle	481.000 0	- 13.92	24.00		
		High	512.000 0	- 13.95	24.00		
12.5	9 600	Low	450.000 0	- 13.90	24.00	0.251	
		Middle	481.000 0	- 13.98	24.00		
		High	512.000 0	- 13.88	24.00		
6.25	9 600	Low	450.000 0	- 13.92	24.00	0.251	
		Middle	481.000 0	- 13.94	24.00		
		High	512.000 0	- 13.88	24.00		

Tested by: Ki-Hong, Nam / Project Engineer

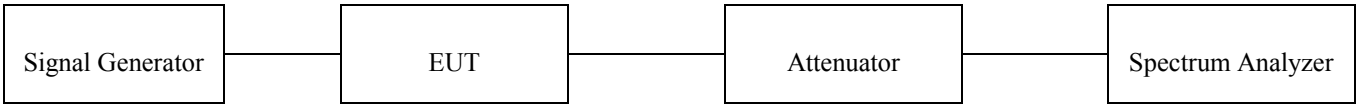
HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea. (TEL: +82-31-765-8289, FAX: +82-31-766-2904)

6. OCCUPIED BANDWIDTH AND EMISSION MASK

6.1 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.



6.2 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	E4432B	HP	Signal Generator	US38440950	June 15, 2009
■ -	SMJ100A	R/S	Signal Generator	101038	Feb. 04, 2009
■ -	8564E	HP	Spectrum Analyzer	3650A00756	June 15, 2009
□ -	FSP	R/S	Spectrum Analyzer	100017	Mar. 11, 2009

All test equipment used is calibrated on a regular basis.

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

6.3 Test data for Occupied Bandwidth

6.3.1 Test Result for VHF

-. Test Date : November 09, 2009

-. Temperature : 24 °C

-. Relative humidity : 47 % R.H.

-. Test Result : Pass

-. Modulation : FM with 2.5 kHz sine wave signal

Channel Spacing (kHz)	Modulation (kHz)	Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)	Limit (kHz)
25	2.5	Low	136.000 0	15.250	20.00
		Middle	155.000 0	15.250	
		High	174.000 0	15.250	
12.5	2.5	Low	136.000 0	10.170	11.25
		Middle	155.000 0	10.170	
		High	174.000 0	10.170	

-. Modulation : FM with an external 9 600 b/s random data source

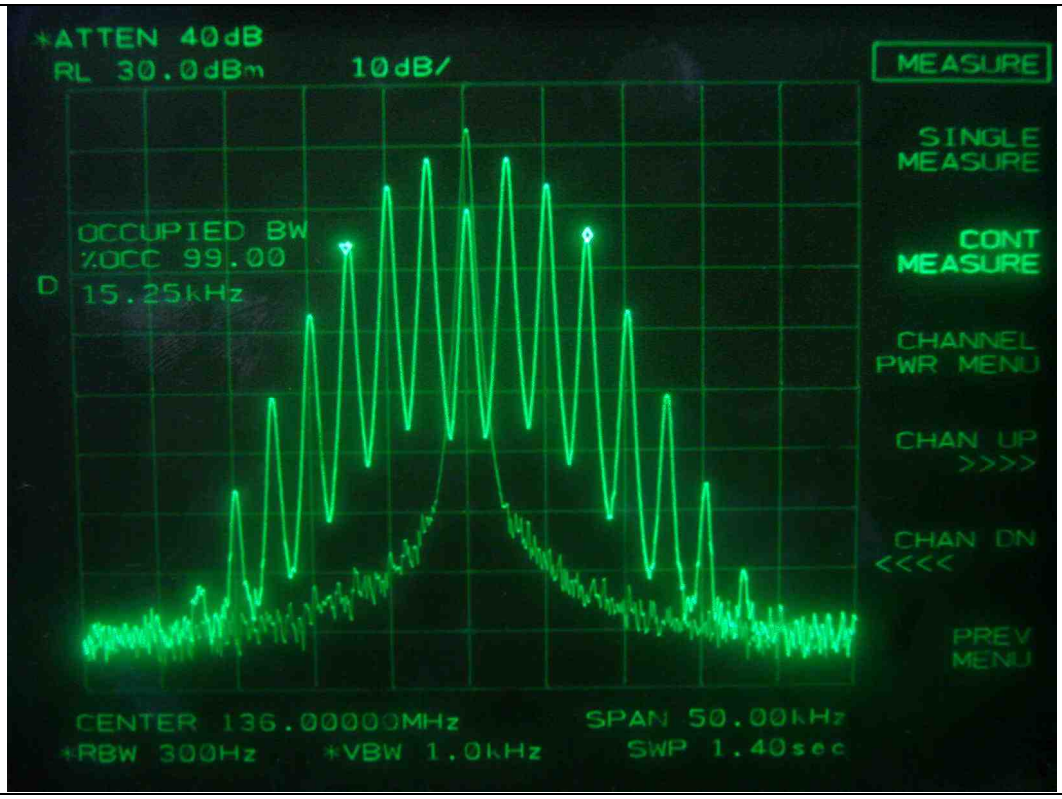
Channel Spacing (kHz)	Modulation (b/s)	Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)	Limit (kHz)
25	9 600	Low	136.000 0	16.500	20.00
		Middle	155.000 0	16.330	
		High	174.000 0	16.500	
12.5	9 600	Low	136.000 0	9.917	11.25
		Middle	155.000 0	10.000	
		High	174.000 0	9.917	

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

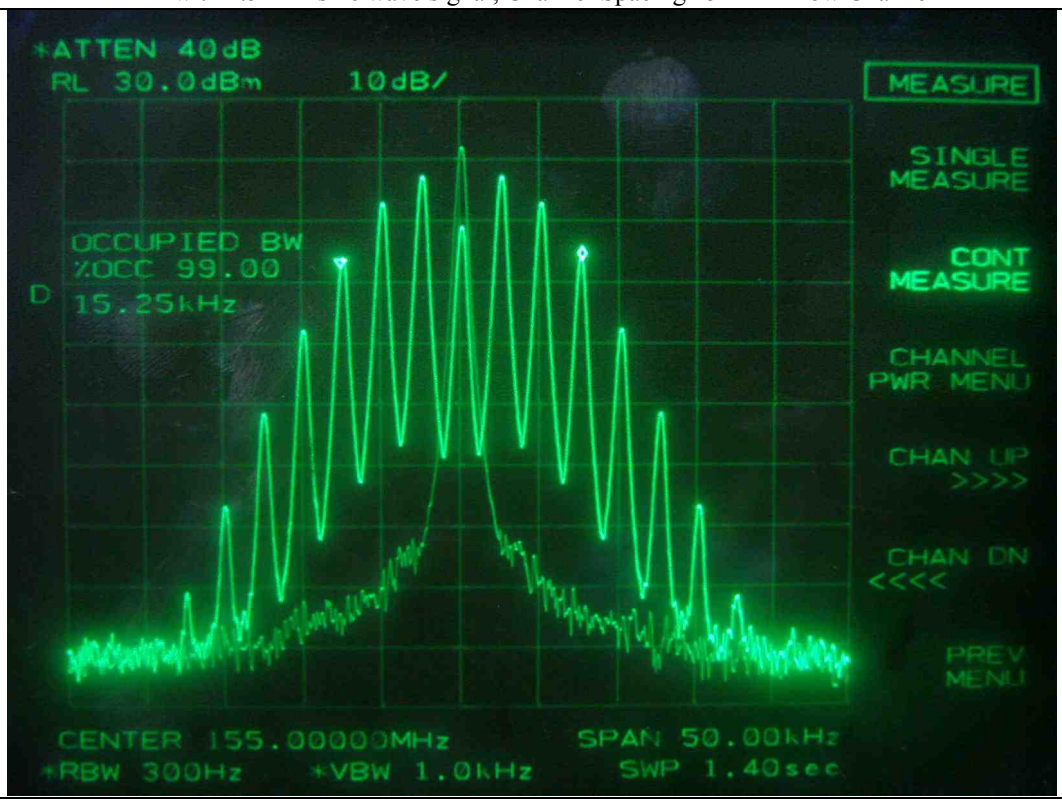
Tested by: Ki-Hong, Nam / Project Engineer

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)

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)

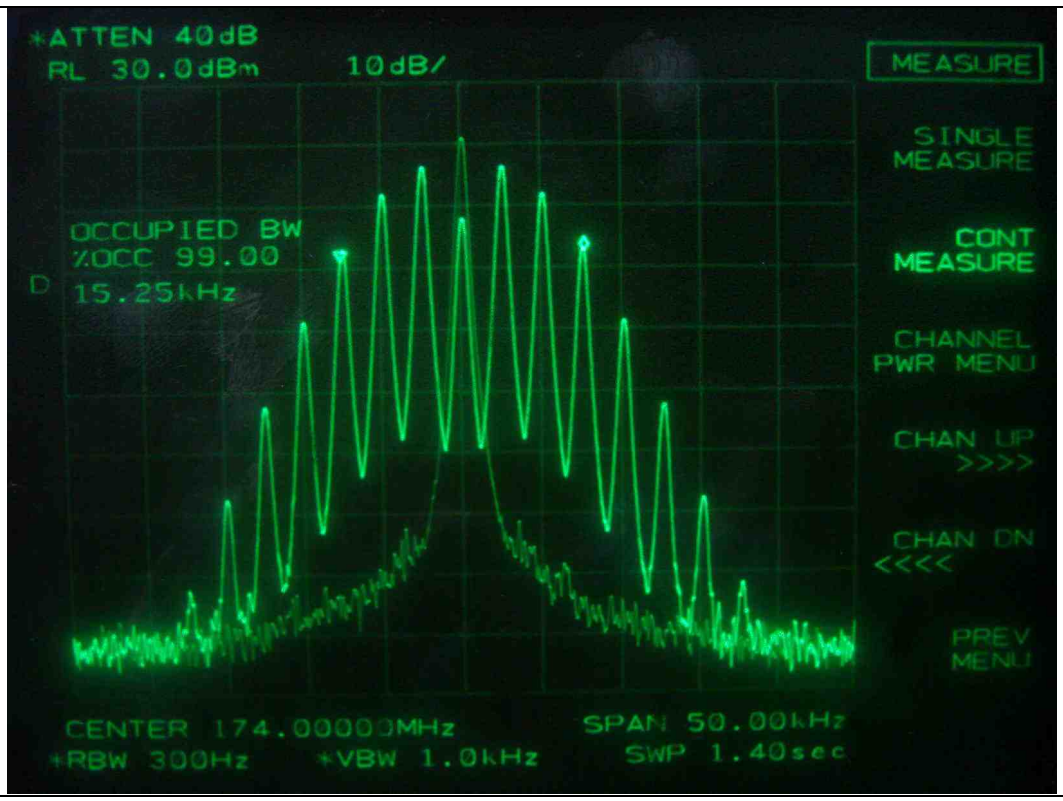


FM with 2.5 kHz sine wave signal, Channel Spacing 25 kHz - Low Channel



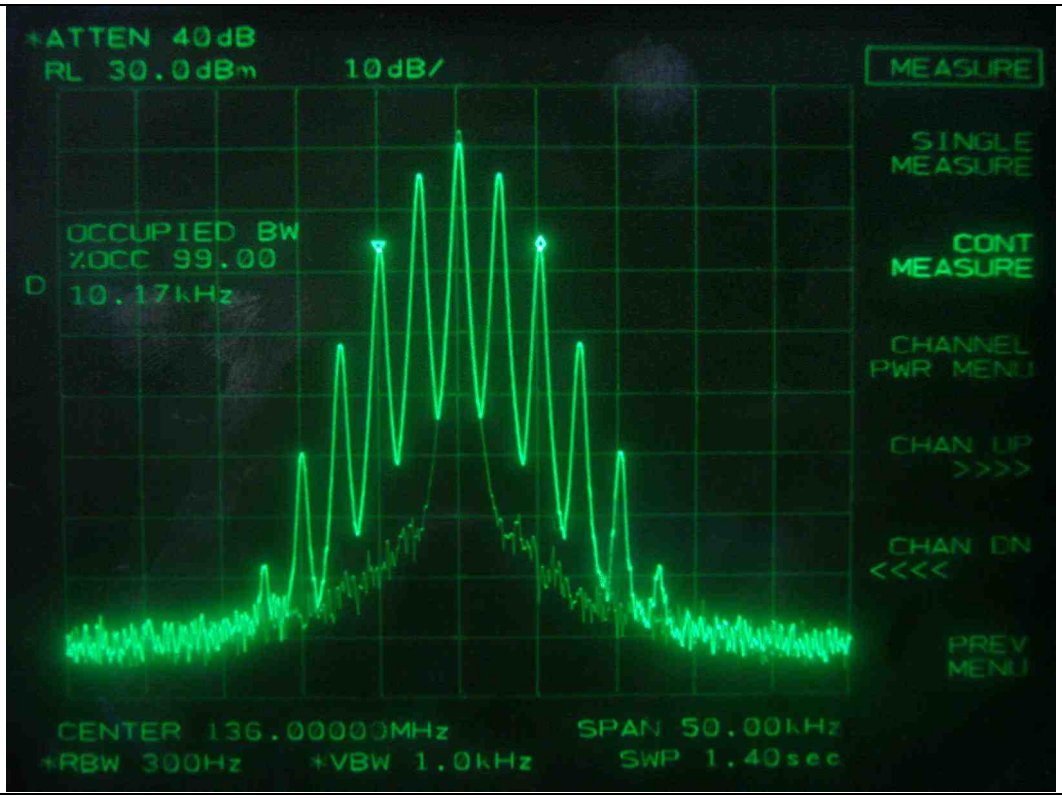
FM with 2.5 kHz sine wave signal, Channel Spacing 25 kHz - Middle Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

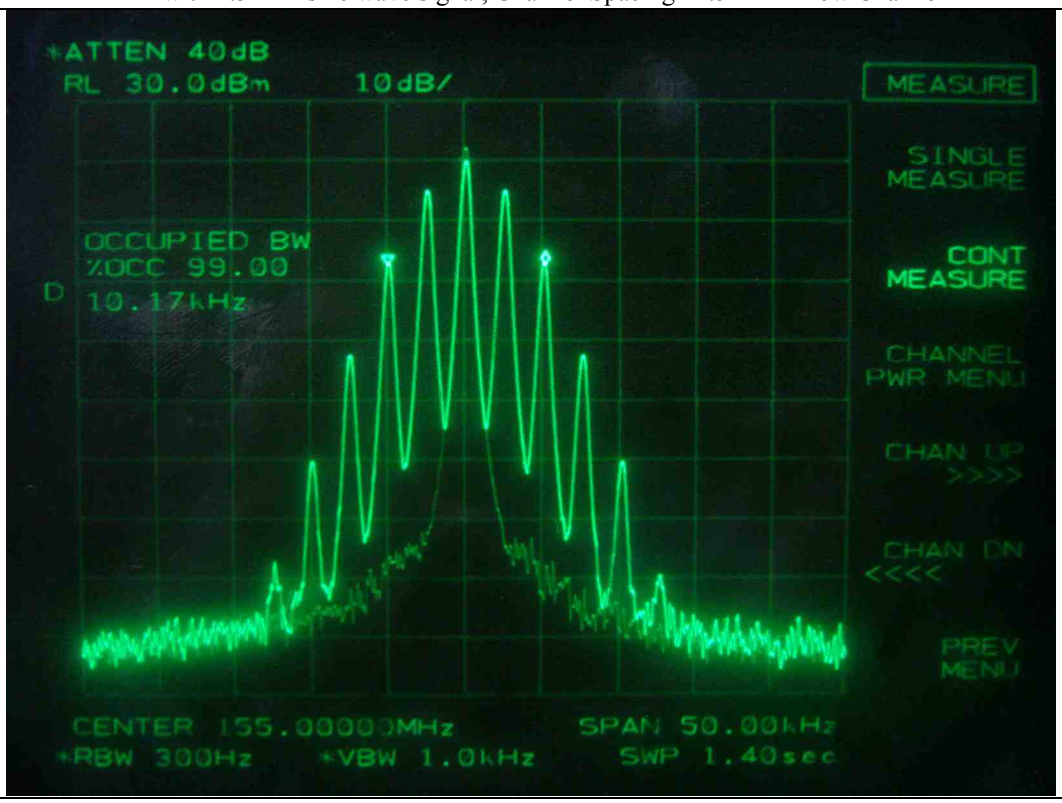


FM with 2.5 kHz sine wave signal, Channel Spacing 25 kHz - High Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

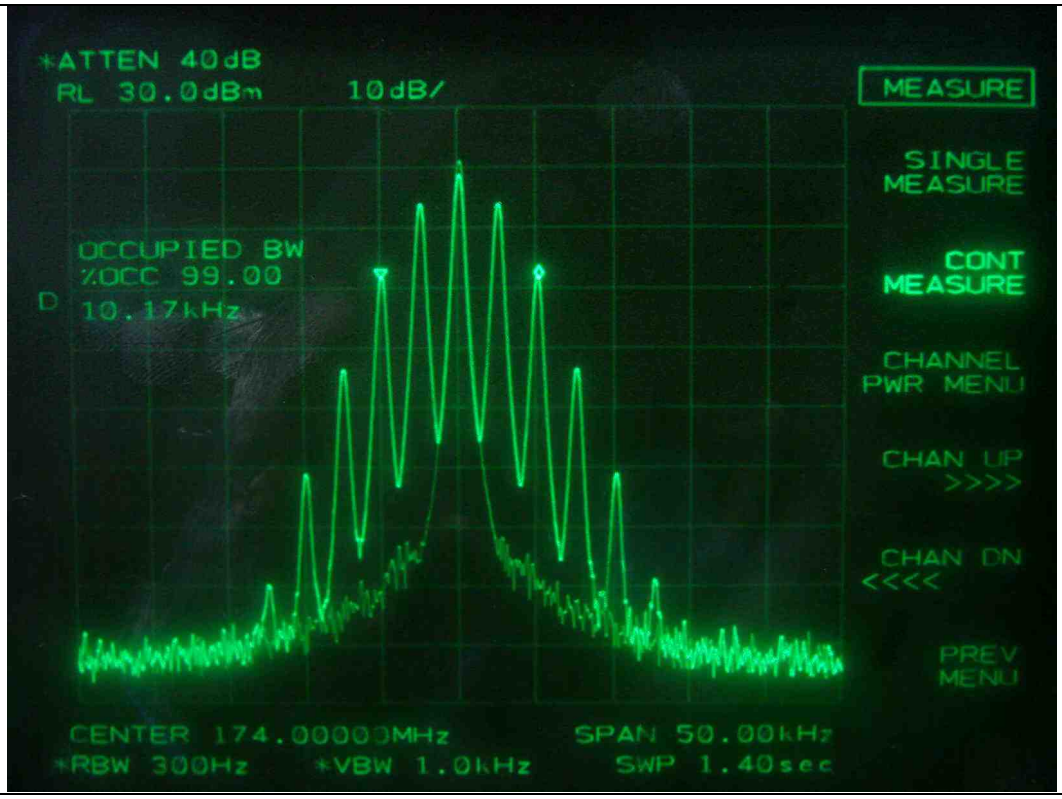


FM with 2.5 kHz sine wave signal, Channel Spacing 12.5 kHz - Low Channel



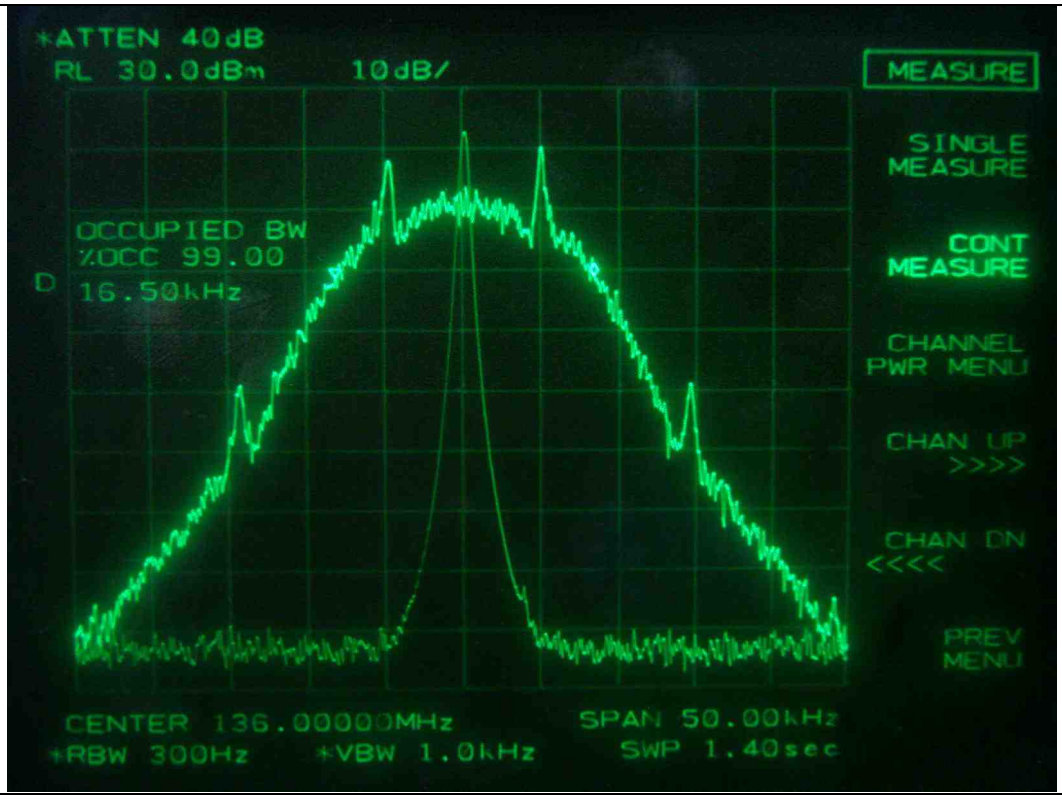
FM with 2.5 kHz sine wave signal, Channel Spacing 12.5 kHz - Middle Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

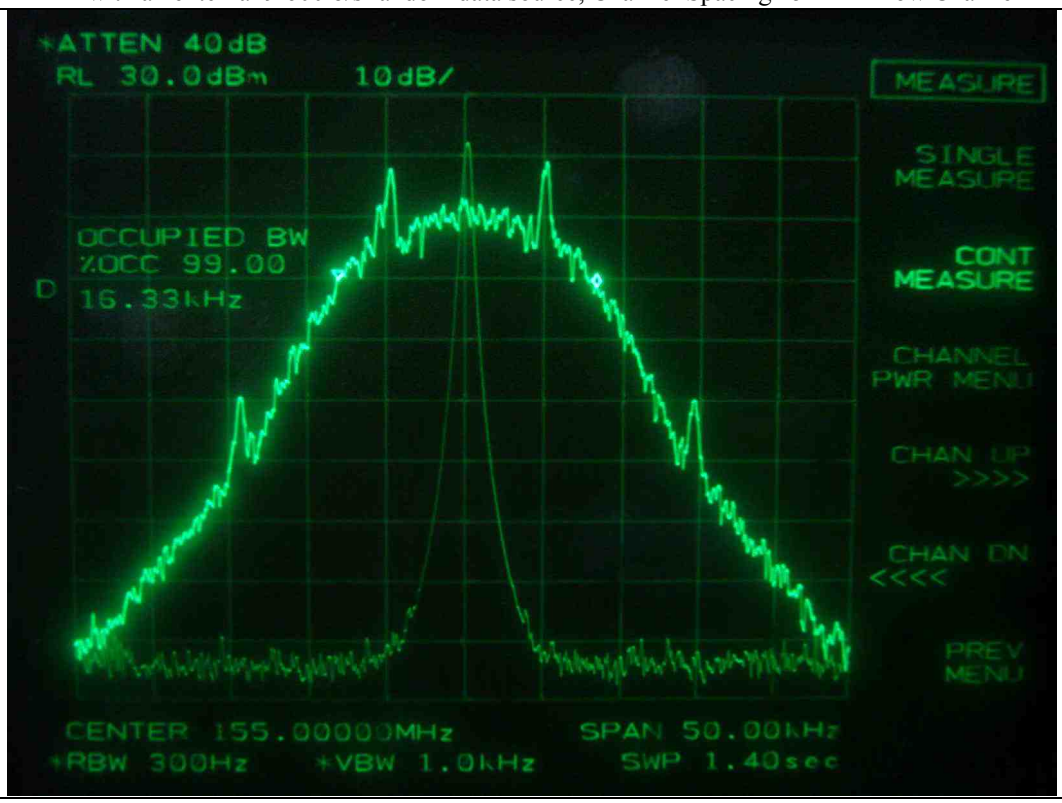


FM with 2.5 kHz sine wave signal, Channel Spacing 12.5 kHz - High Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

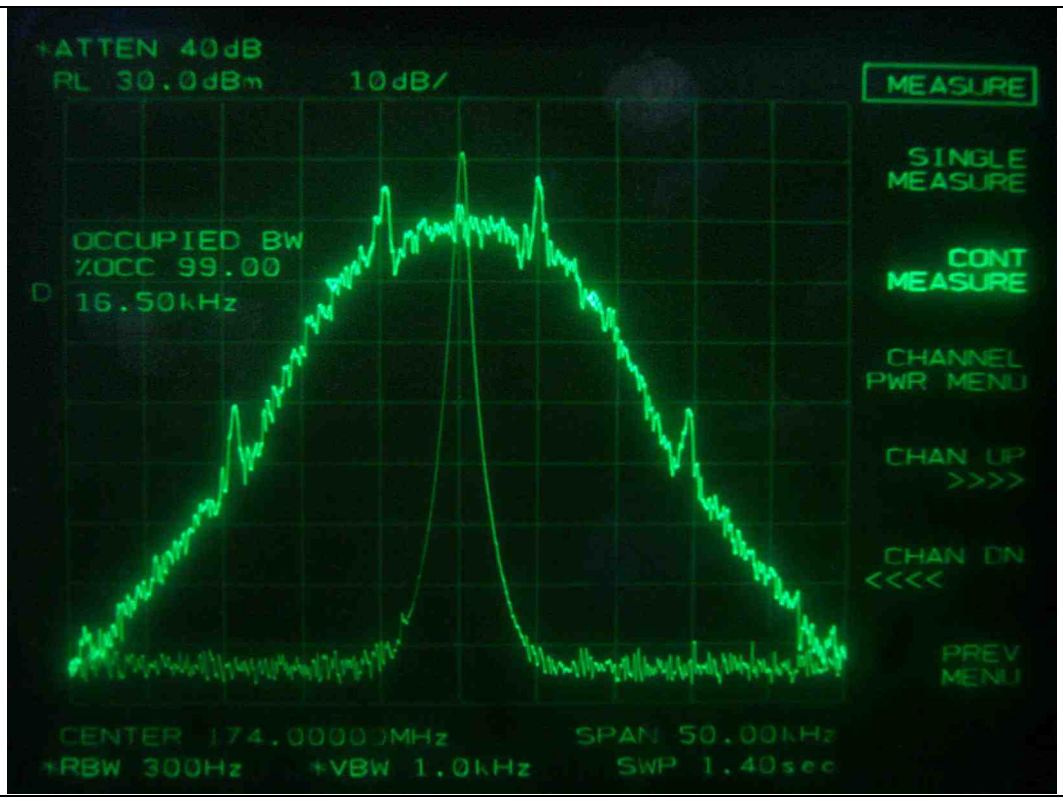


FM with an external 9 600 b/s random data source, Channel Spacing 25 kHz - Low Channel



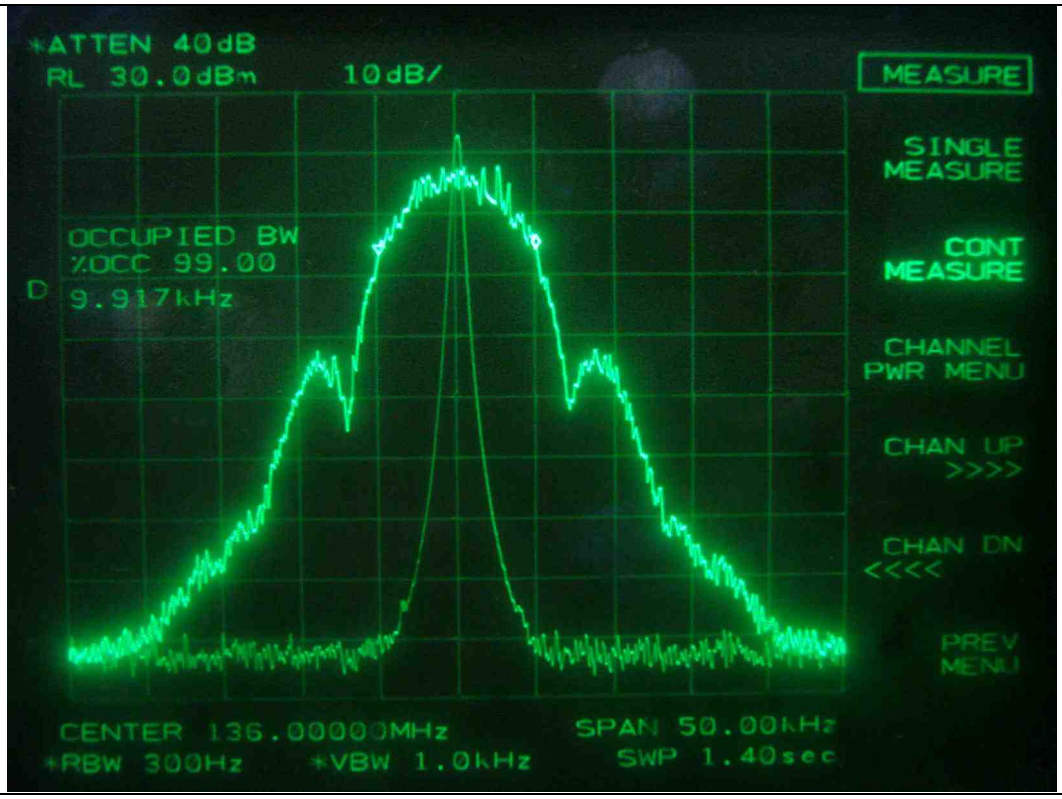
FM with an external 9 600 b/s random data source, Channel Spacing 25 kHz - Middle Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

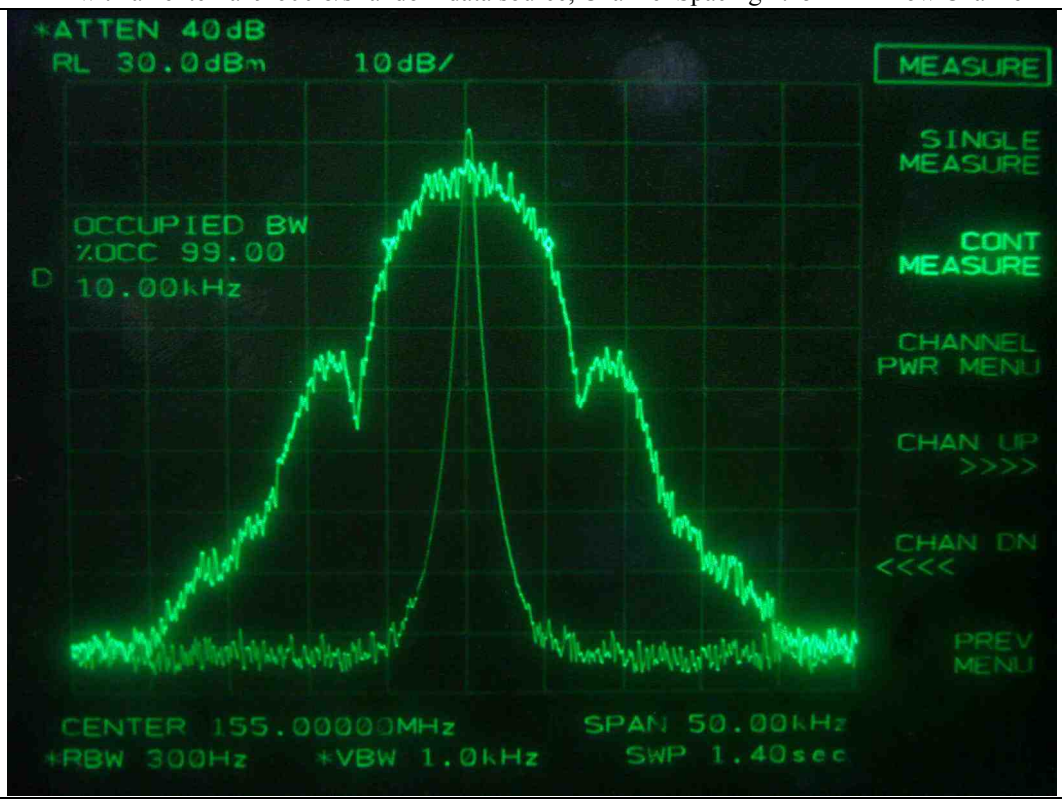


FM with an external 9 600 b/s random data source, Channel Spacing 25 kHz - High Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

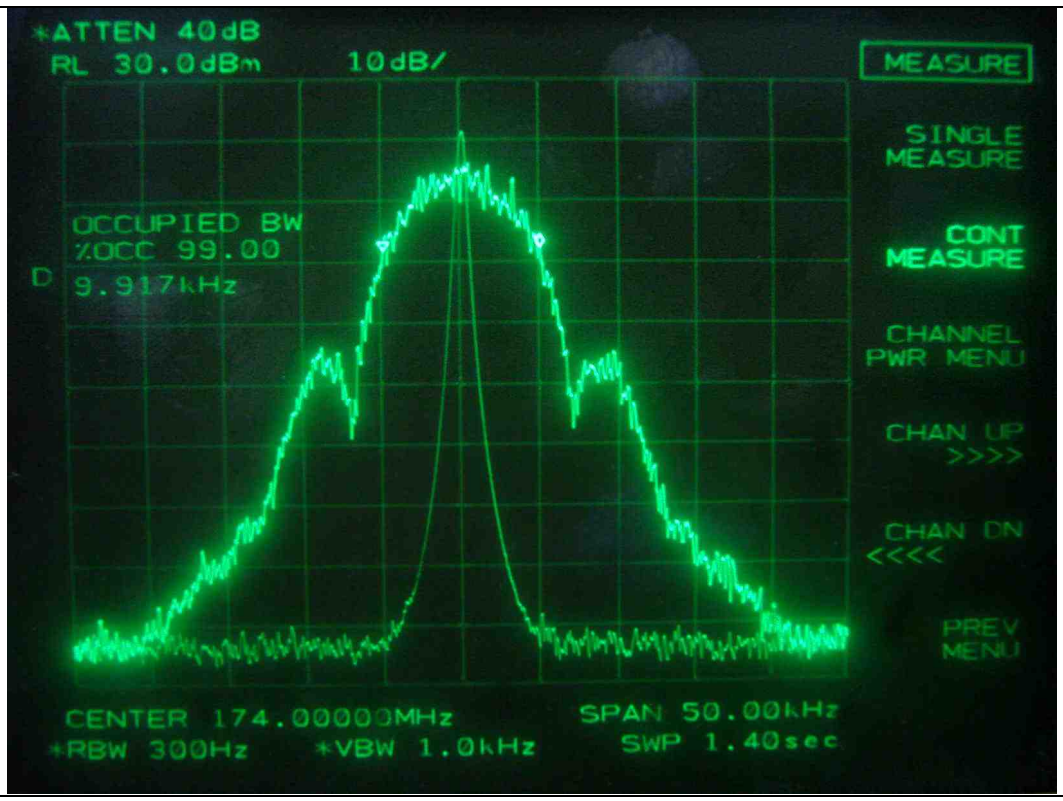


FM with an external 9 600 b/s random data source, Channel Spacing 1.25 kHz - Low Channel



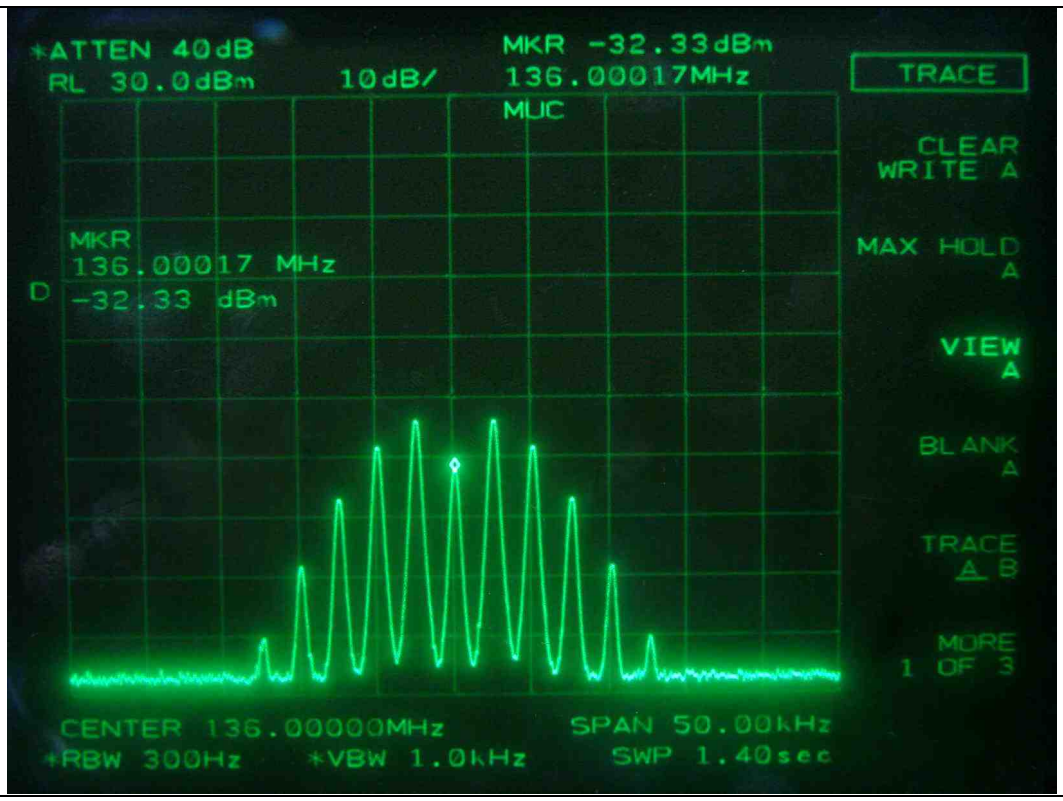
FM with an external 9 600 b/s random data source, Channel Spacing 1.25 kHz - Middle Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

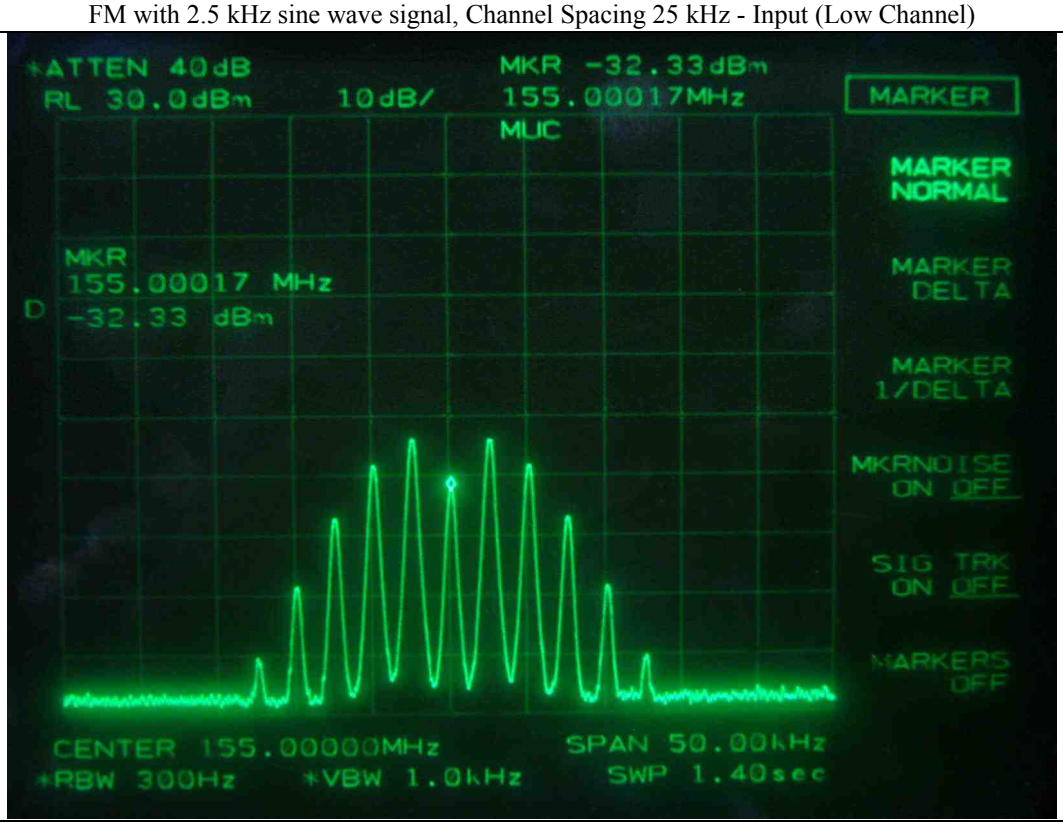


FM with an external 9 600 b/s random data source, Channel Spacing 1.25 kHz - High Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

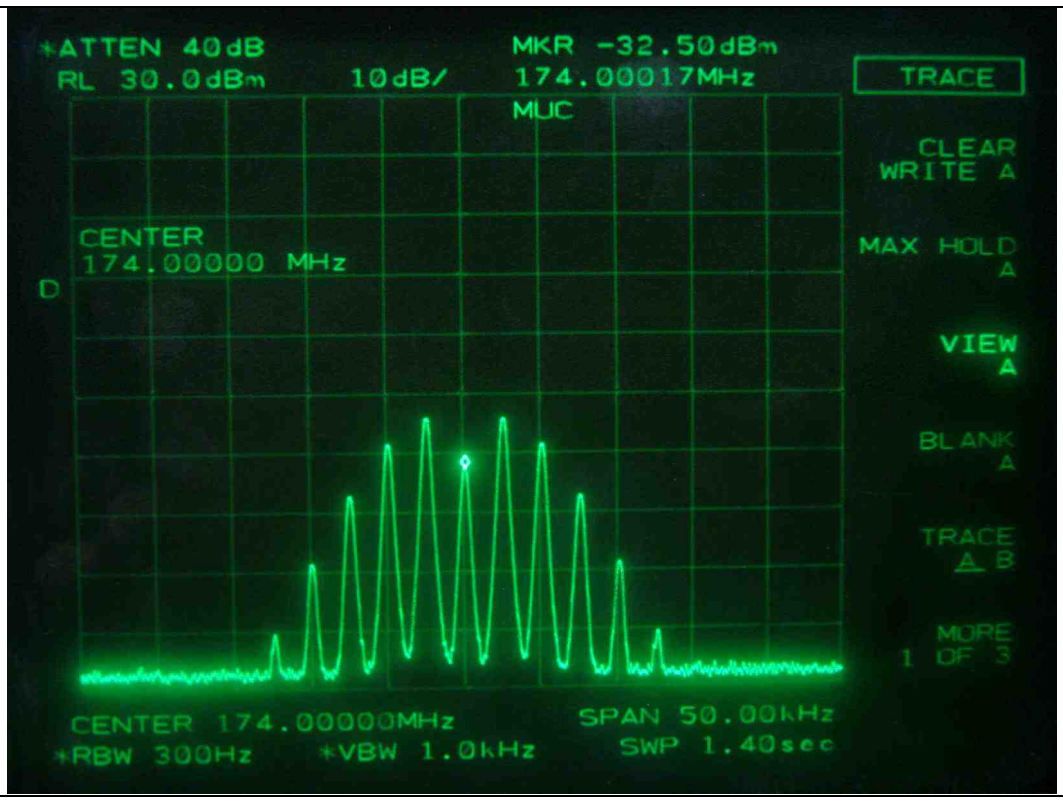


FM with 2.5 kHz sine wave signal, Channel Spacing 25 kHz - Input (Low Channel)



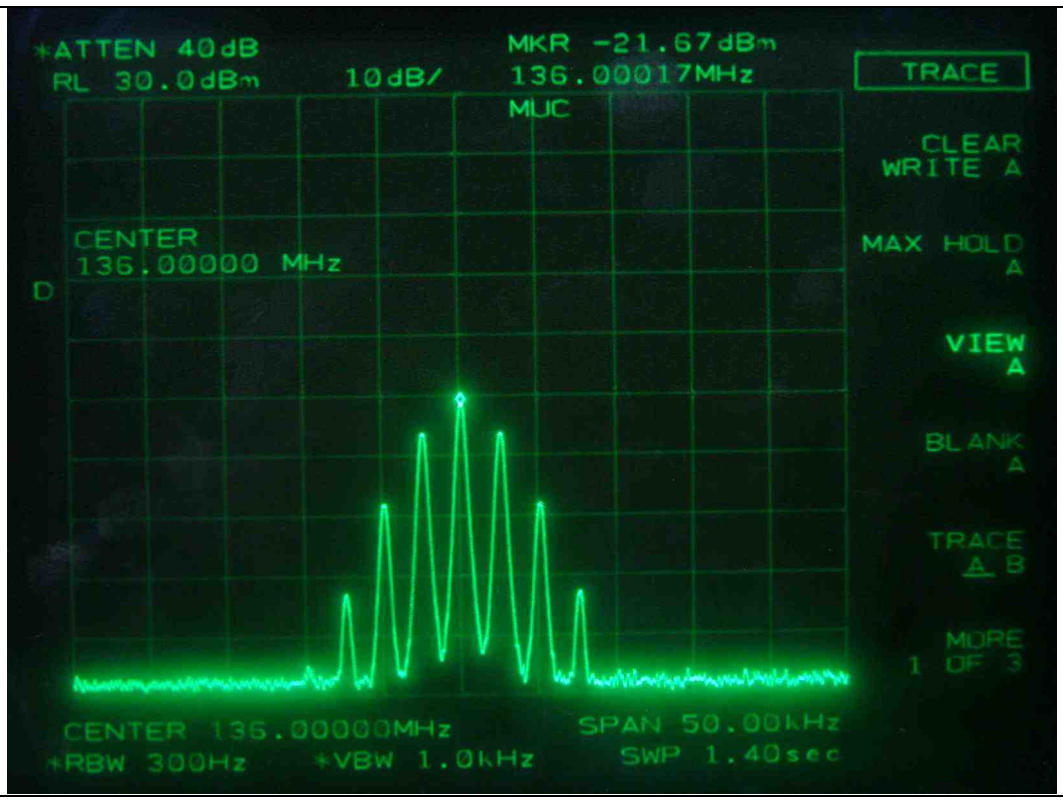
FM with 2.5 kHz sine wave signal, Channel Spacing 25 kHz - Input (Middle Channel)

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

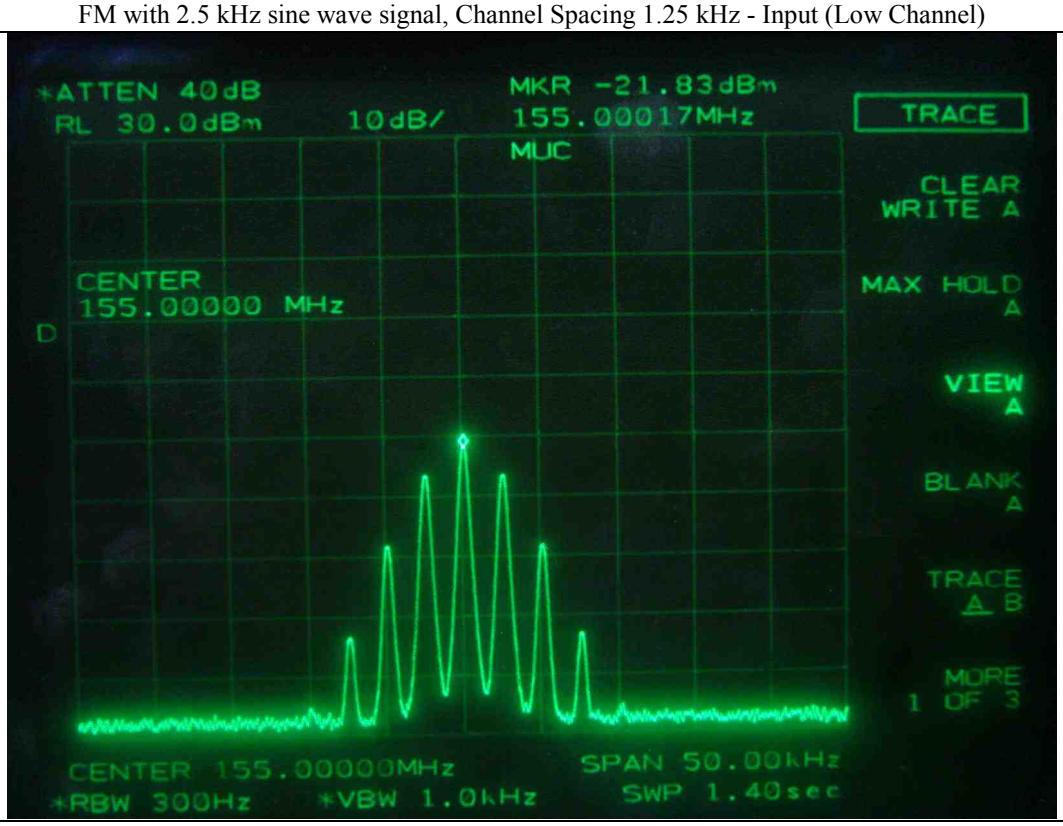


FM with 2.5 kHz sine wave signal, Channel Spacing 25 kHz - Input (High Channel)

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

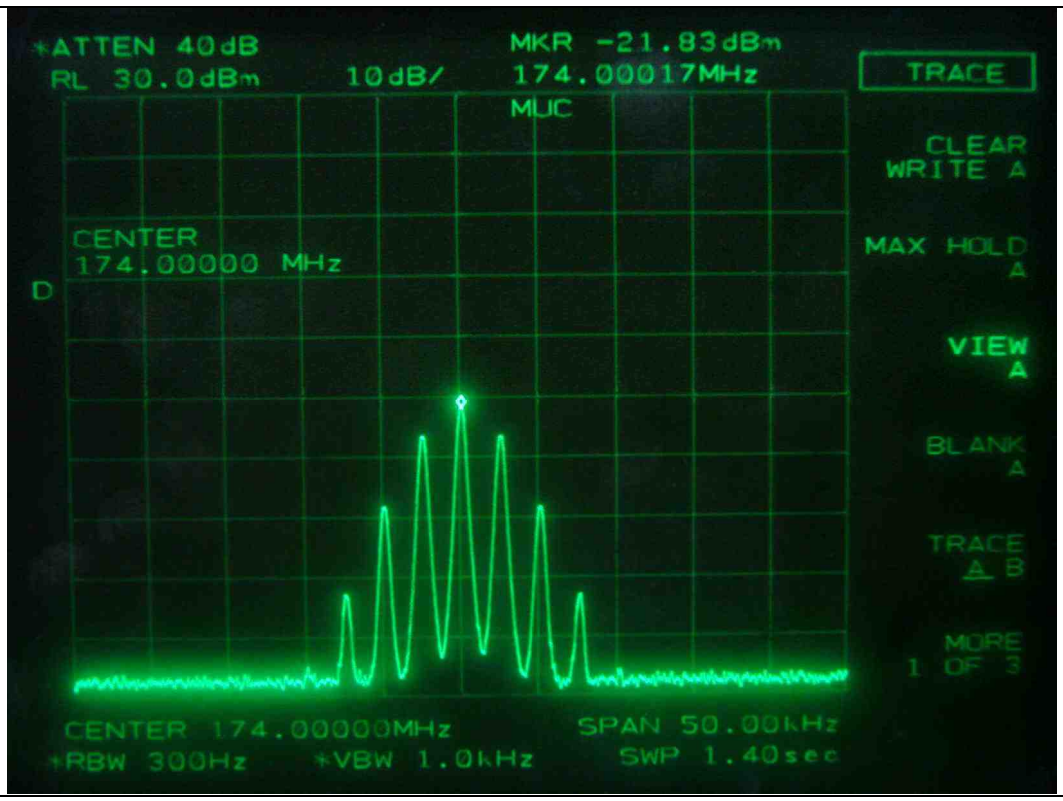


FM with 2.5 kHz sine wave signal, Channel Spacing 1.25 kHz - Input (Low Channel)



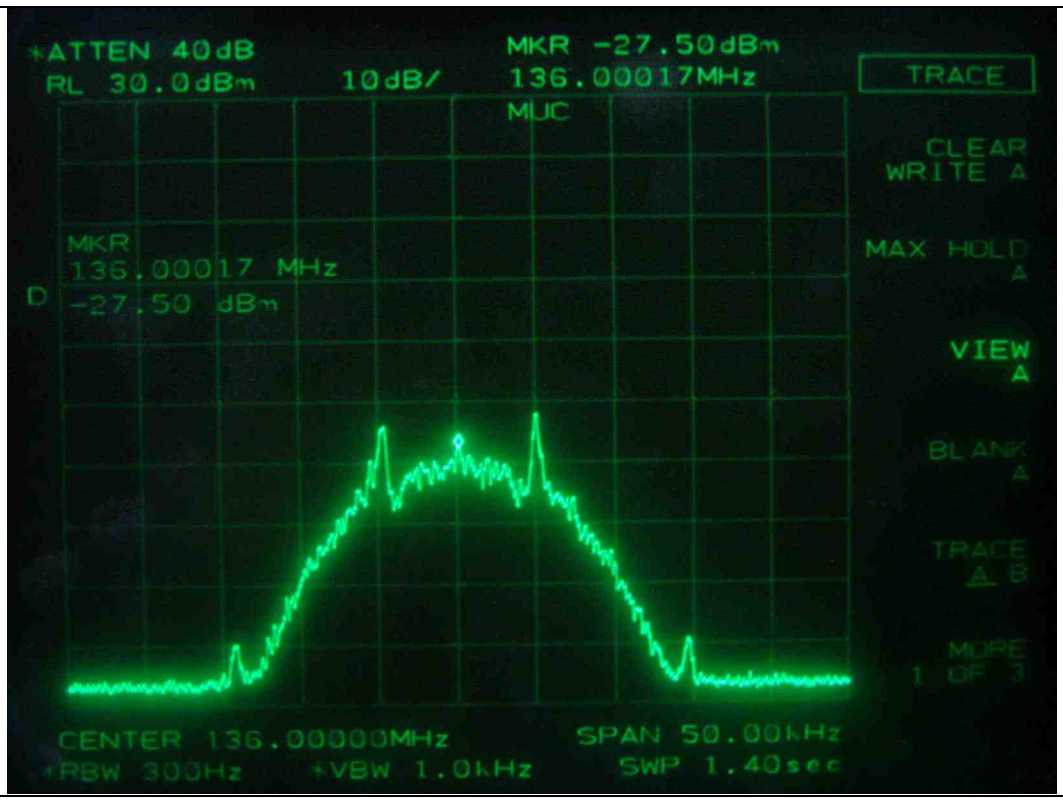
FM with 2.5 kHz sine wave signal, Channel Spacing 1.25 kHz - Input (Middle Channel)

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

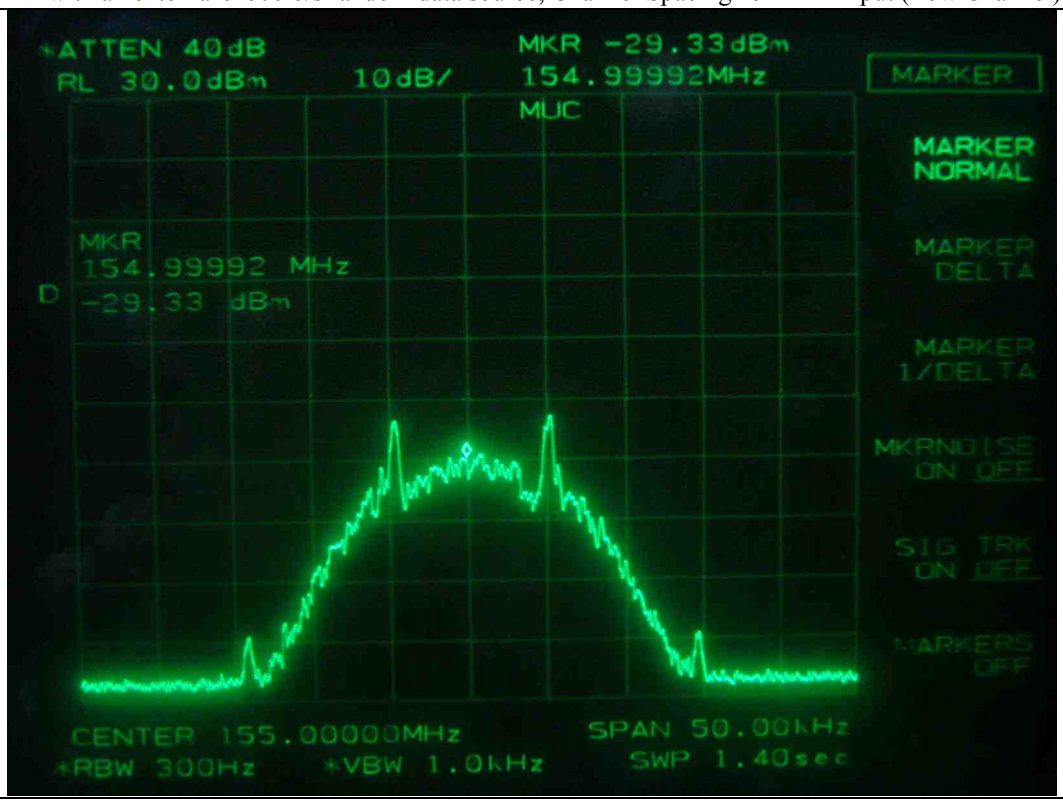


FM with 2.5 kHz sine wave signal, Channel Spacing 1.25 kHz - Input (High Channel)

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

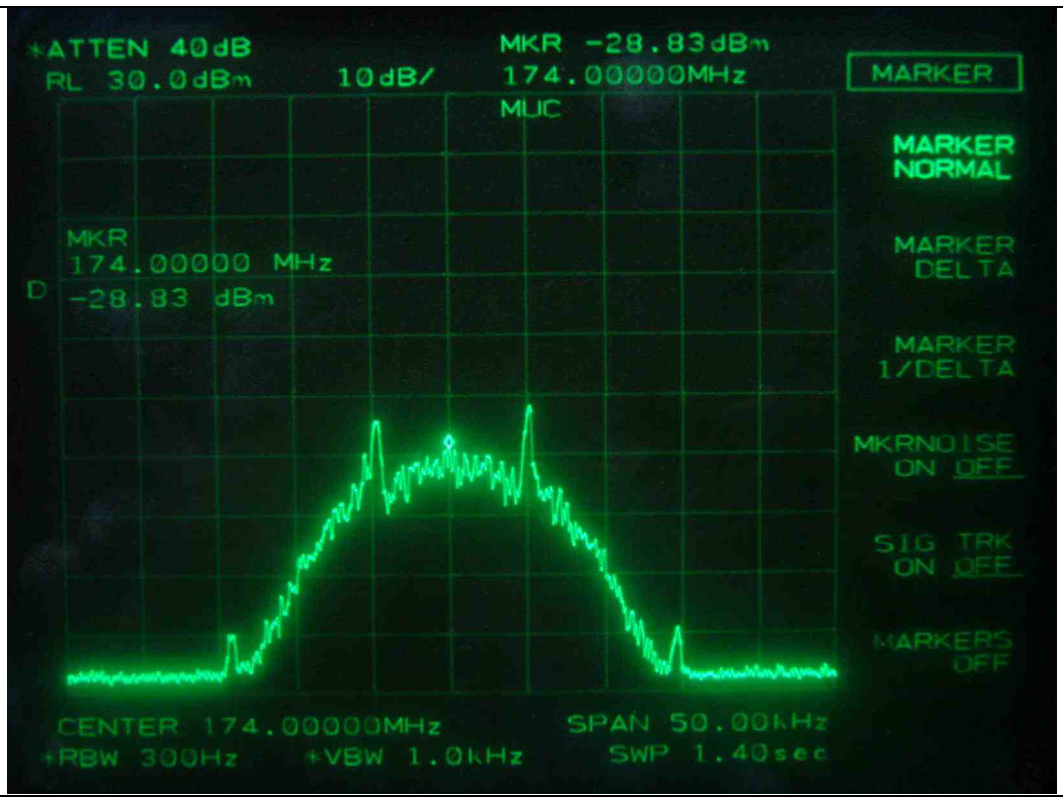


FM with an external 9 600 b/s random data source, Channel Spacing 25 kHz - Input (Low Channel)



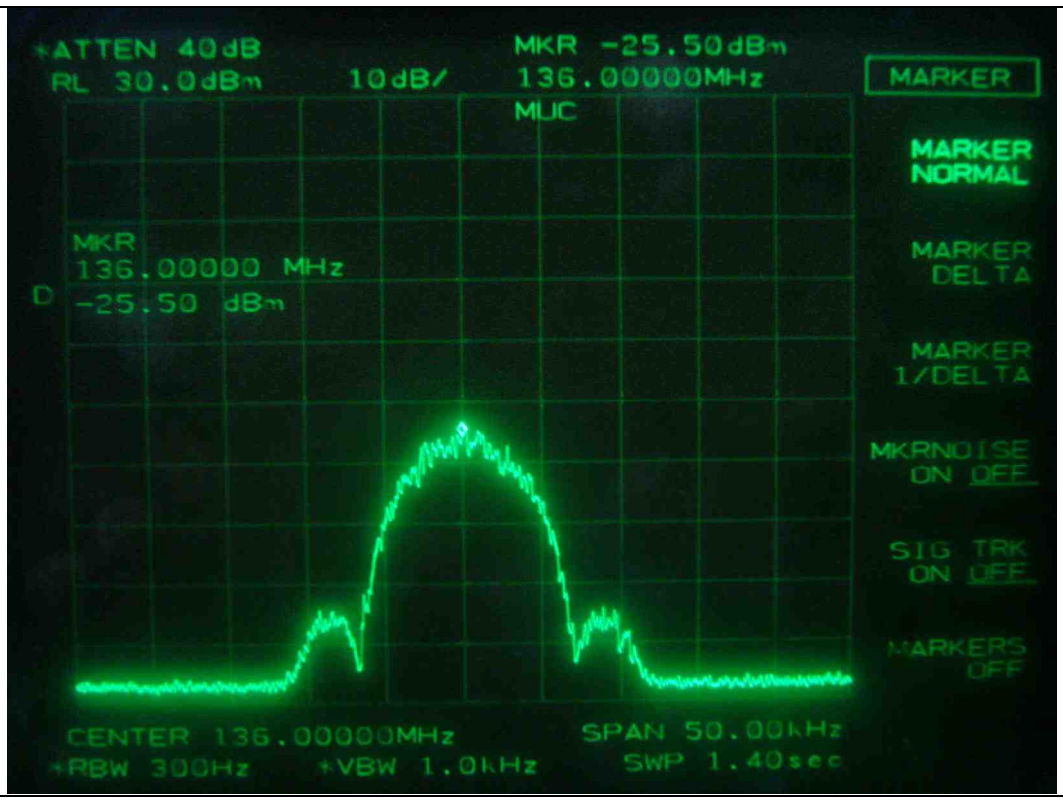
FM with an external 9 600 b/s random data source, Channel Spacing 25 kHz - Input (Middle Channel)

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

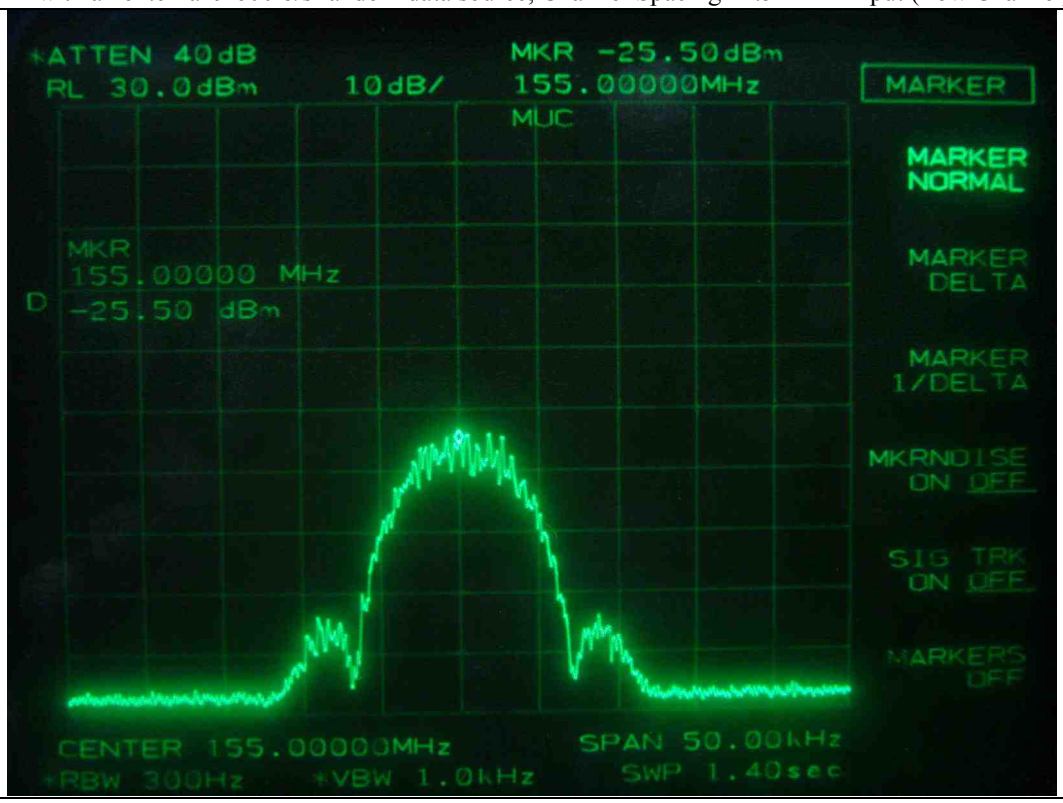


FM with an external 9 600 b/s random data source, Channel Spacing 25 kHz - Input (High Channel)

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

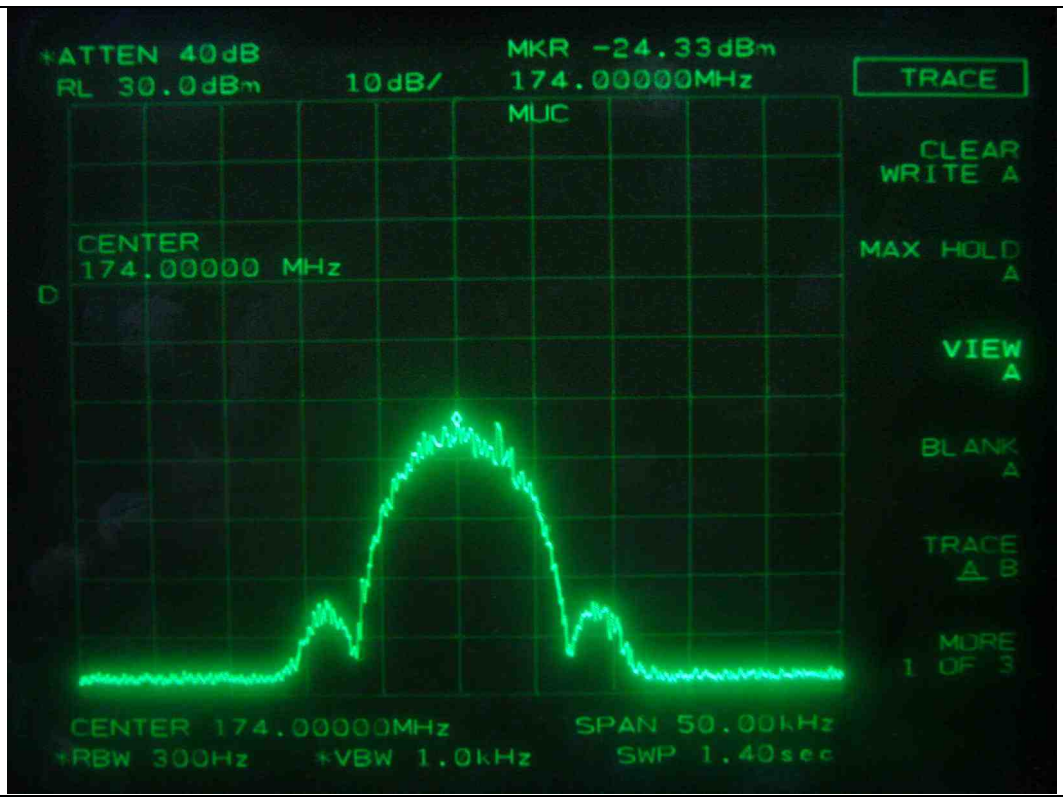


FM with an external 9 600 b/s random data source, Channel Spacing 12.5 kHz - Input (Low Channel)



FM with an external 9 600 b/s random data source, Channel Spacing 12.5 kHz- Input (Middle Channel)

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)



FM with an external 9 600 b/s random data source, Channel Spacing 12.5 kHz - Input (High Channel)

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

6.3.2 Test Result for UHF-B1

-. Test Date : November 03, 2009

-. Temperature : 24 °C

-. Relative humidity : 47 % R.H.

-. Test Result : Pass

-. Modulation : FM with 2.5 kHz sine wave signal

Channel Spacing (kHz)	Modulation (kHz)	Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)	Limit (kHz)
25	2.5	Low	396.000 0	15.250	20.00
		Middle	423.000 0	15.250	
		High	450.000 0	15.250	
12.5	2.5	Low	396.000 0	10.170	11.25
		Middle	423.000 0	10.080	
		High	450.000 0	10.170	
6.25	0.8	Low	396.000 0	2.725	6.00
		Middle	423.000 0	2.700	
		High	450.000 0	2.725	

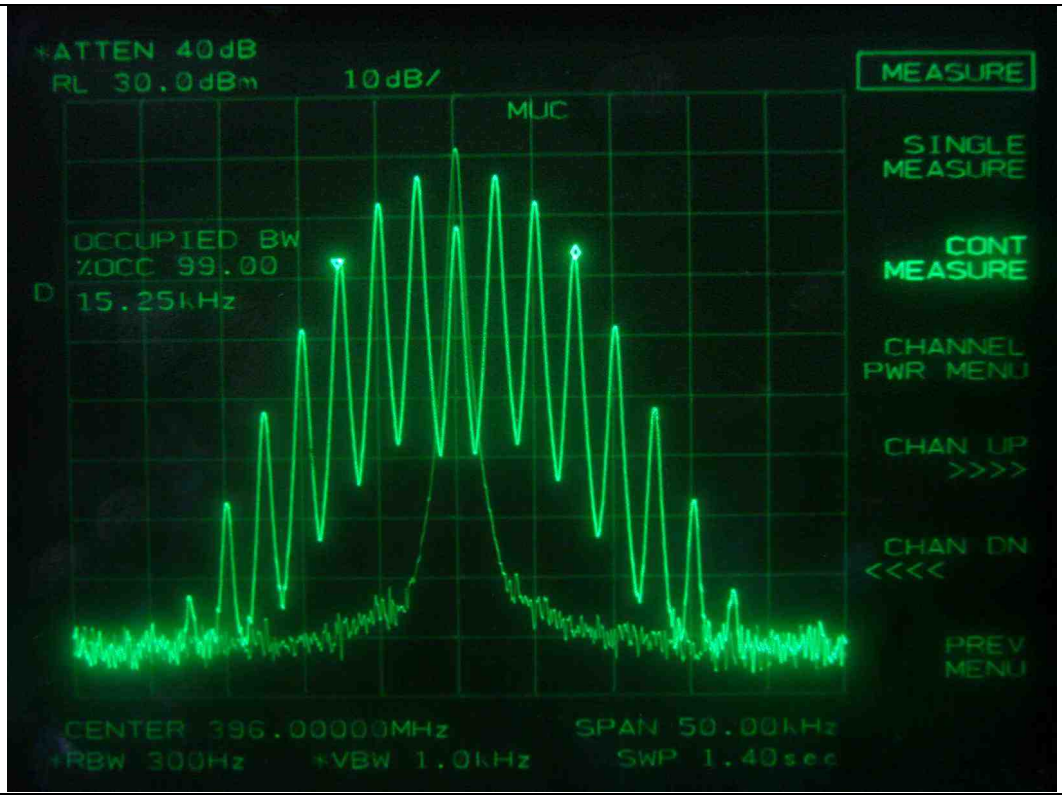
-. Modulation : FM with an external 9 600 b/s random data source

Channel Spacing (kHz)	Modulation (b/s)	Channel	Frequency (MHz)	99 % Occupied Bandwidth (kHz)	Limit (kHz)
25	9 600	Low	396.000 0	16.670	20.00
		Middle	423.000 0	16.330	
		High	450.000 0	16.580	
12.5	9 600	Low	396.000 0	9.917	11.25
		Middle	423.000 0	10.000	
		High	450.000 0	10.080	
6.25	4 800	Low	396.000 0	3.775	6.00
		Middle	423.000 0	3.775	
		High	450.000 0	3.775	

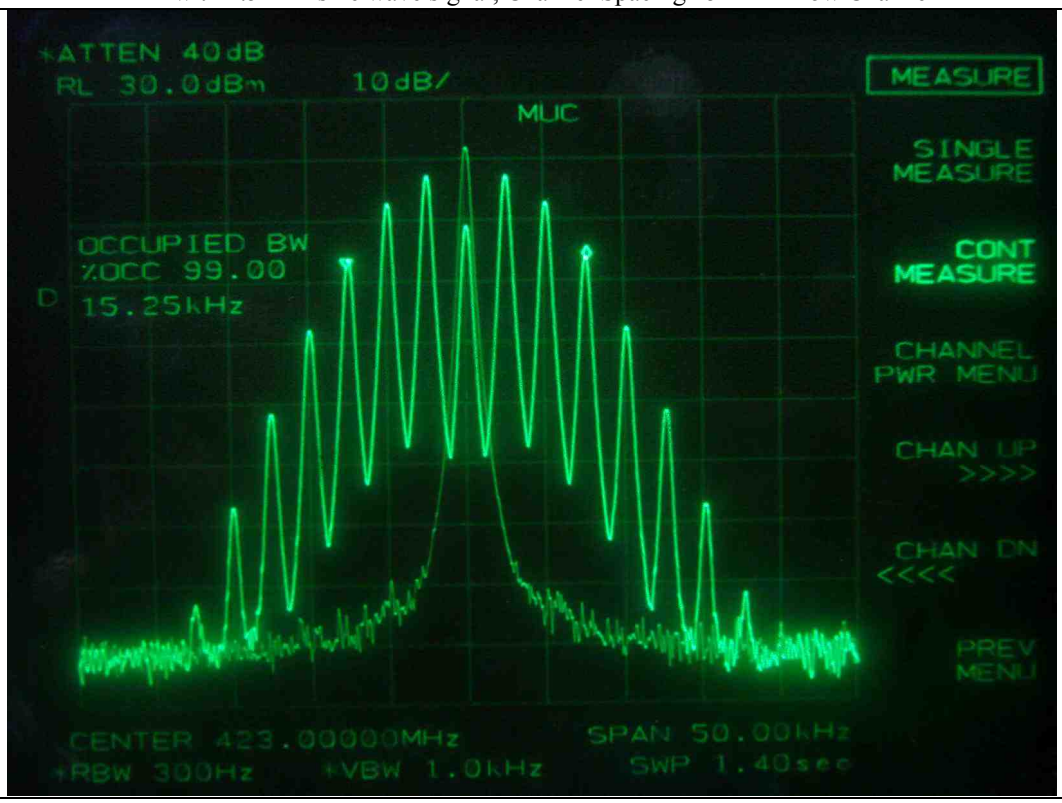
Remark: According to above result, the carrier frequency shall be within the frequency block edges.

Tested by: Ki-Hong, Nam / Project Engineer

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

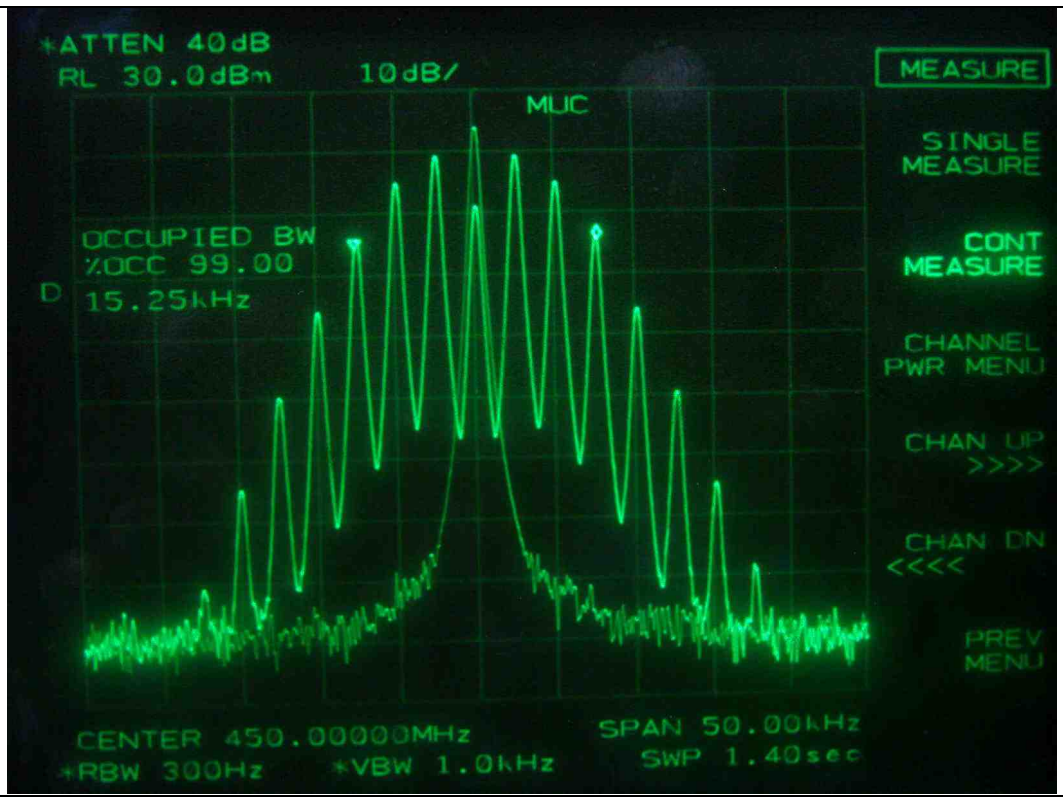


FM with 2.5 kHz sine wave signal, Channel Spacing 25 kHz - Low Channel



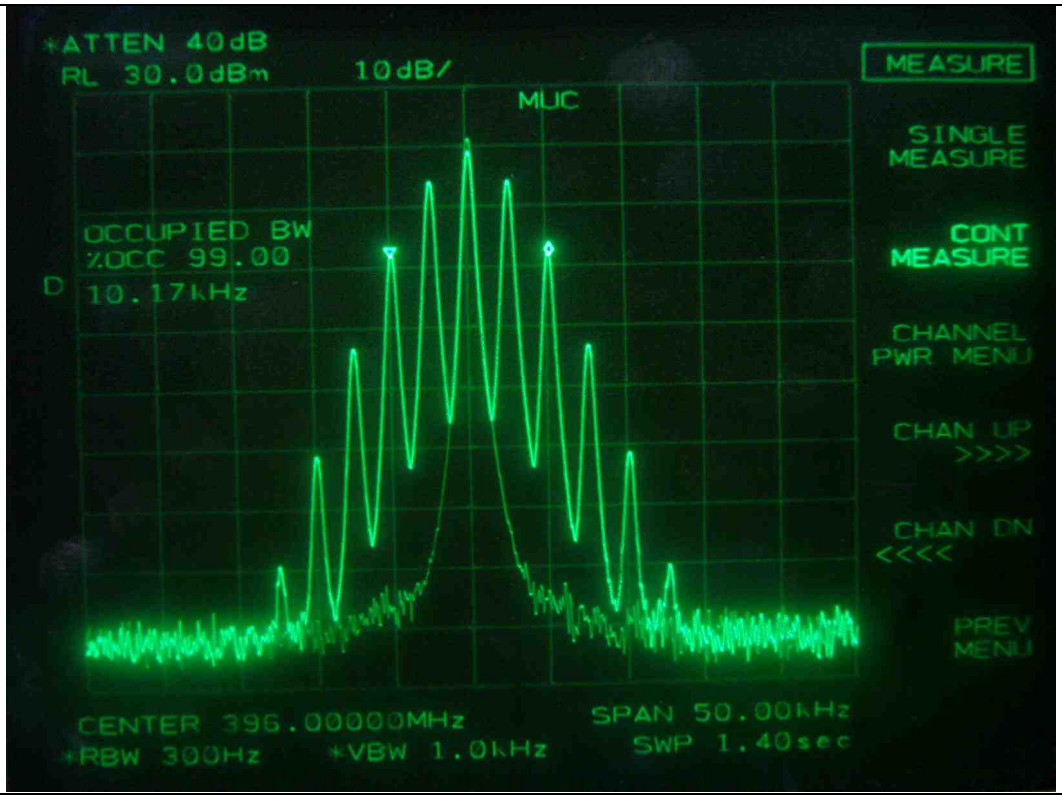
FM with 2.5 kHz sine wave signal, Channel Spacing 25 kHz - Middle Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

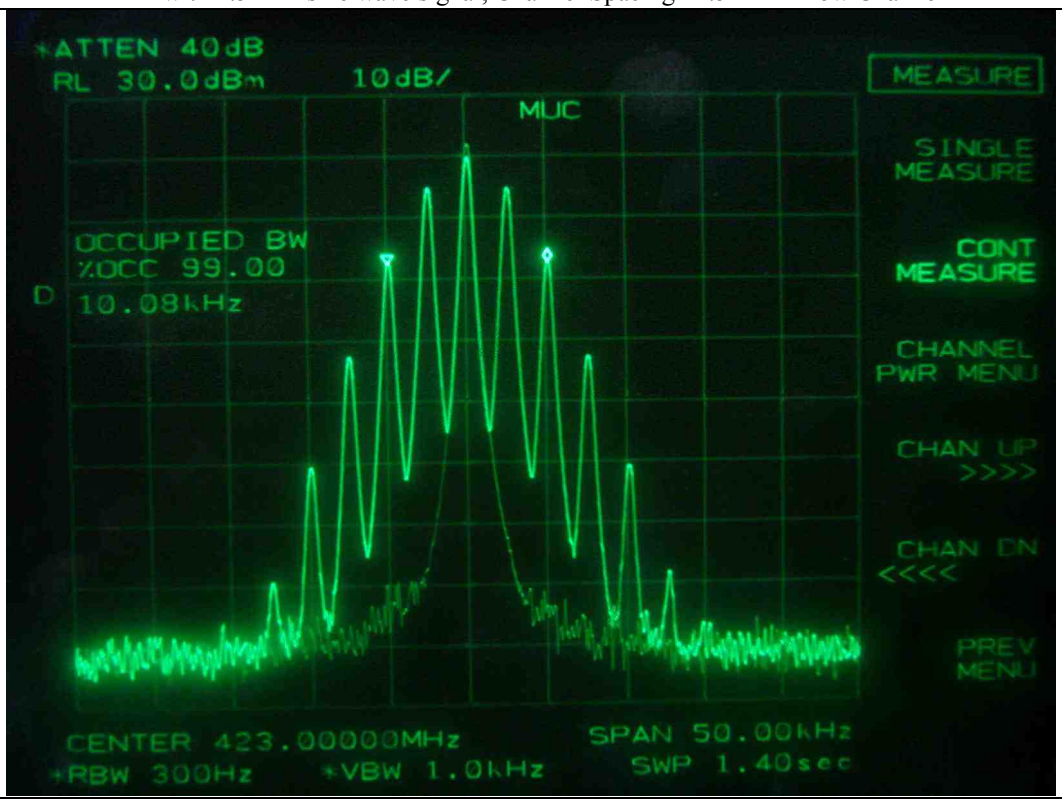


FM with 2.5 kHz sine wave signal, Channel Spacing 25 kHz - High Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

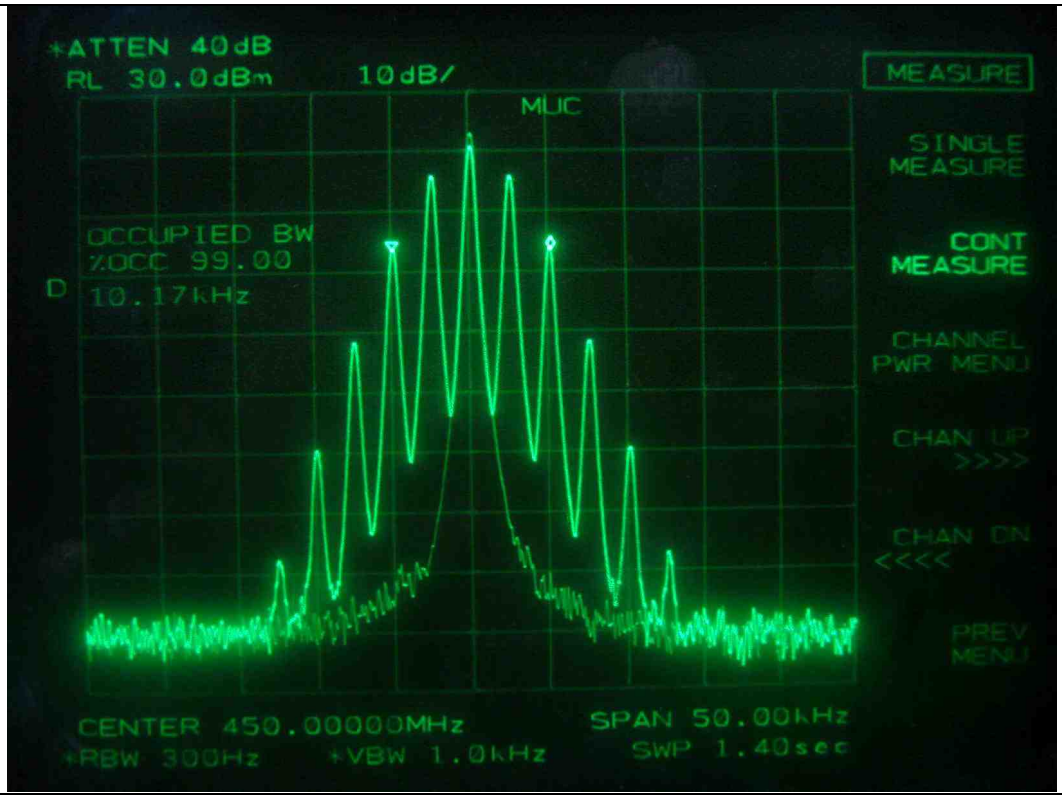


FM with 2.5 kHz sine wave signal, Channel Spacing 12.5 kHz - Low Channel



FM with 2.5 kHz sine wave signal, Channel Spacing 12.5 kHz - Middle Channel

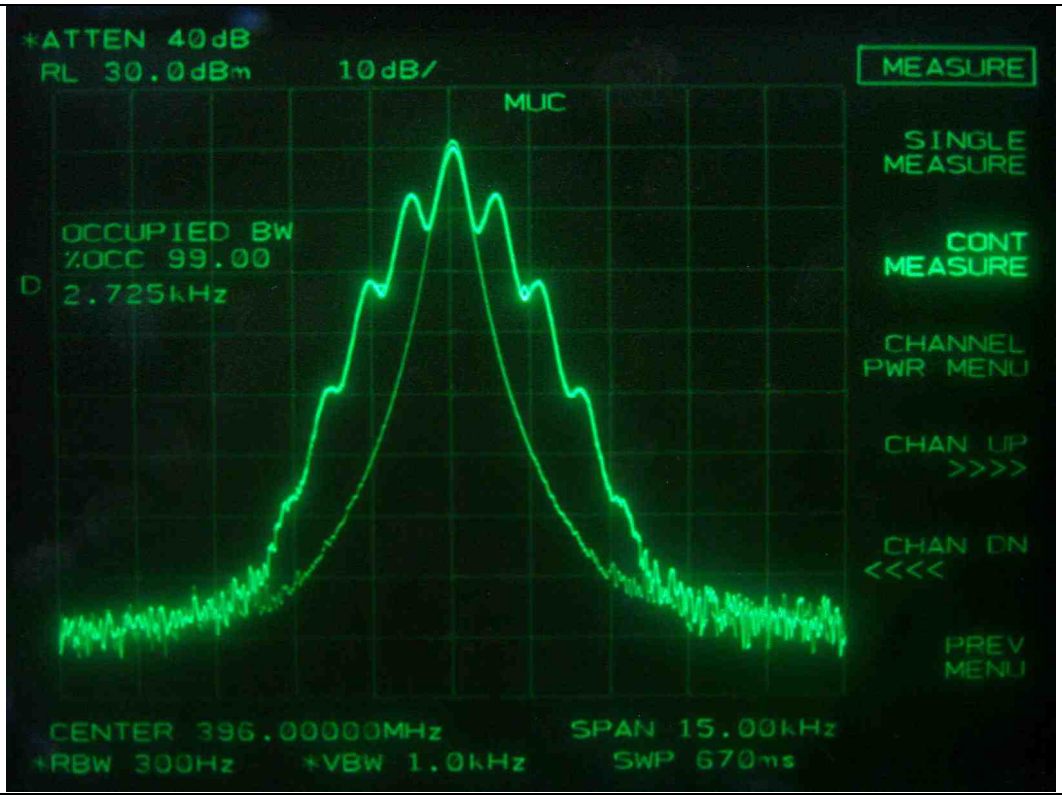
HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea. (TEL: +82-31-765-8289, FAX: +82-31-766-2904)



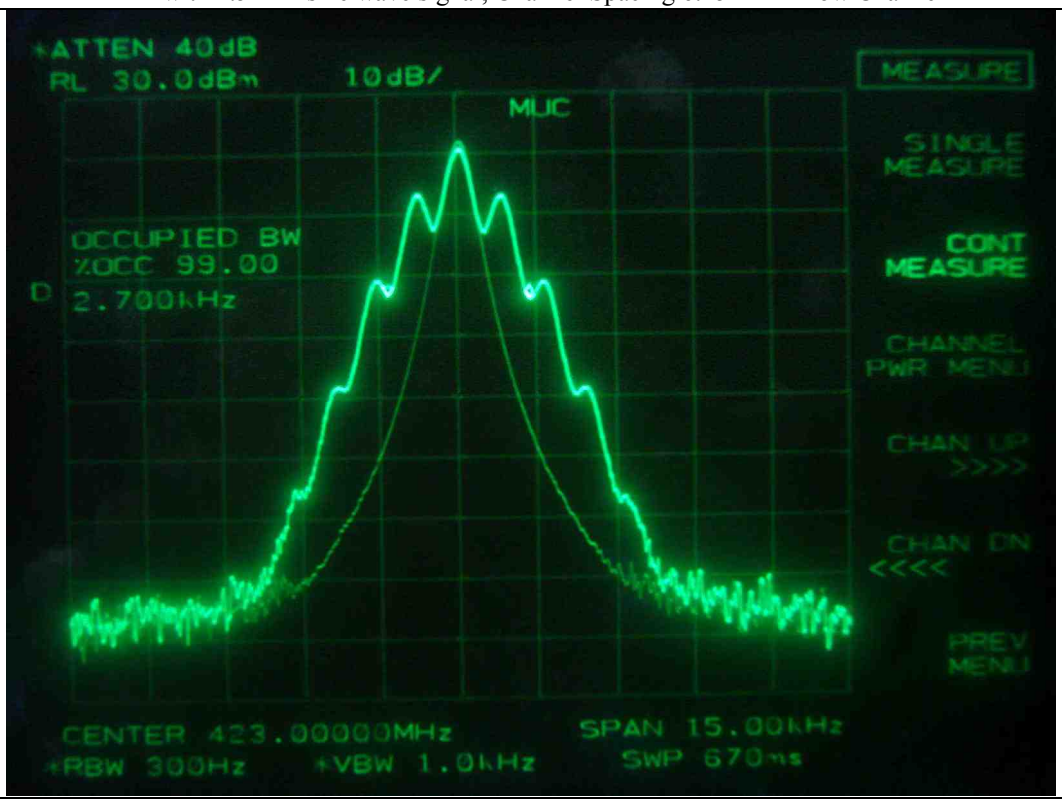
FM with 2.5 kHz sine wave signal, Channel Spacing 12.5 kHz - High Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)

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)

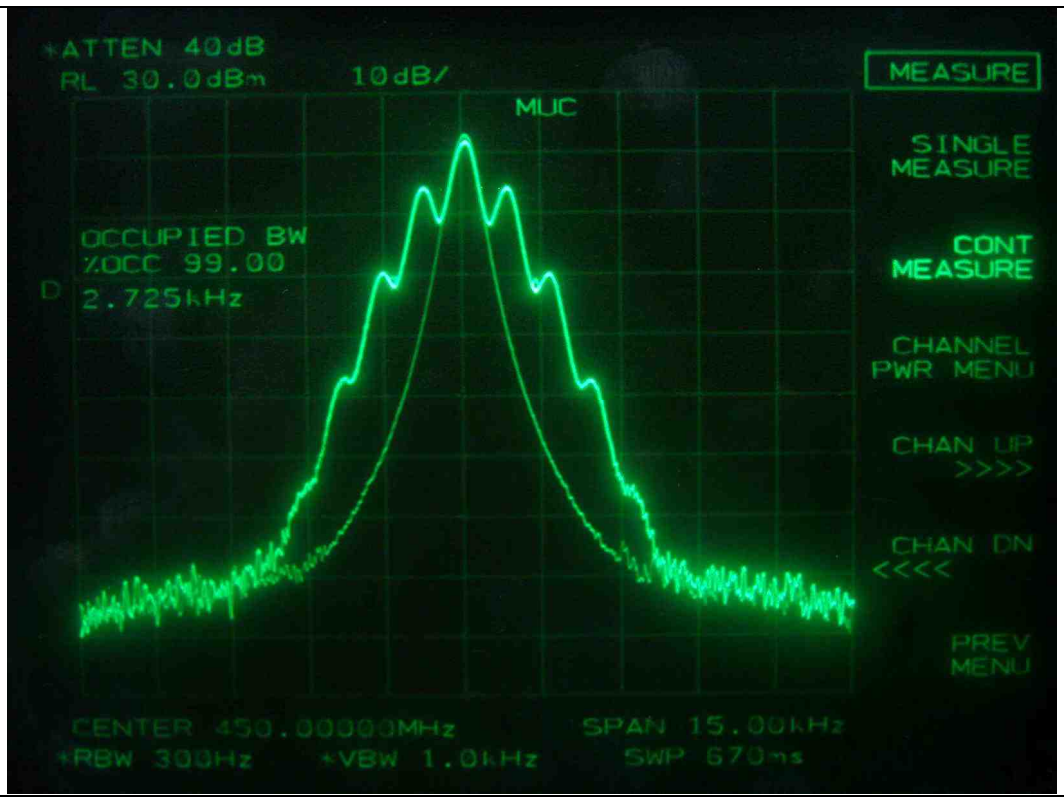


FM with 2.5 kHz sine wave signal, Channel Spacing 6.25 kHz - Low Channel



FM with 2.5 kHz sine wave signal, Channel Spacing 6.25 kHz - Middle Channel

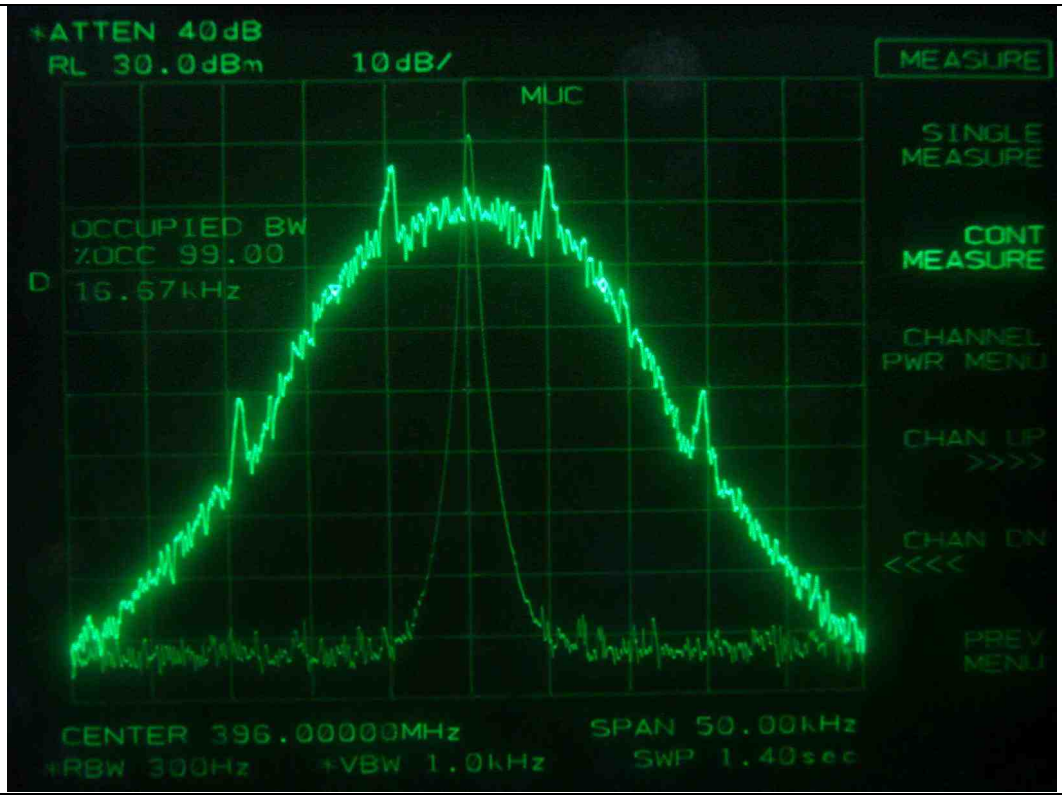
HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea. (TEL: +82-31-765-8289, FAX: +82-31-766-2904)



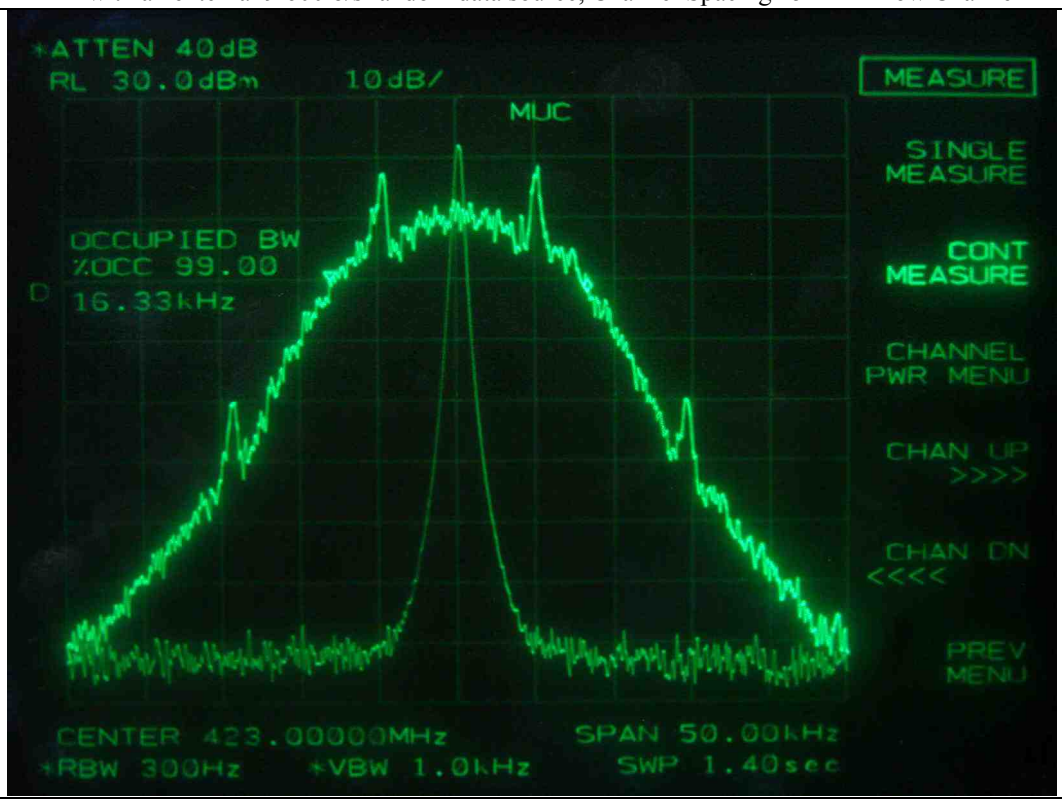
FM with 2.5 kHz sine wave signal, Channel Spacing 6.25 kHz - High Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)

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)

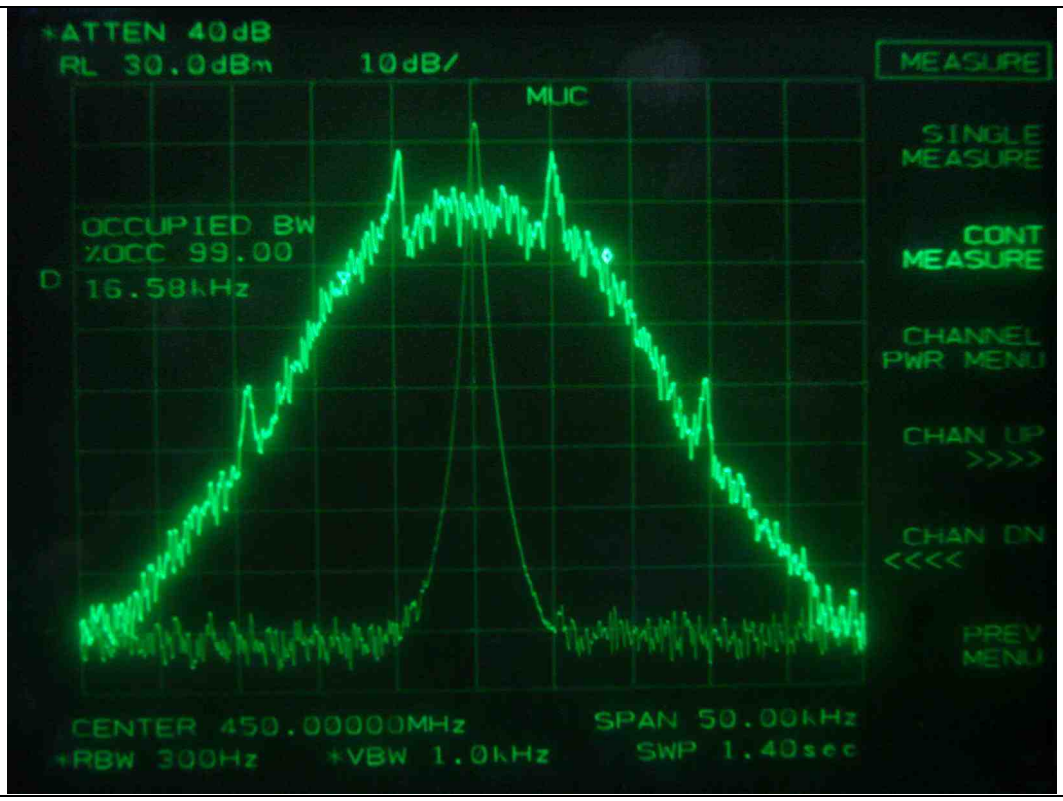


FM with an external 9 600 b/s random data source, Channel Spacing 25 kHz - Low Channel



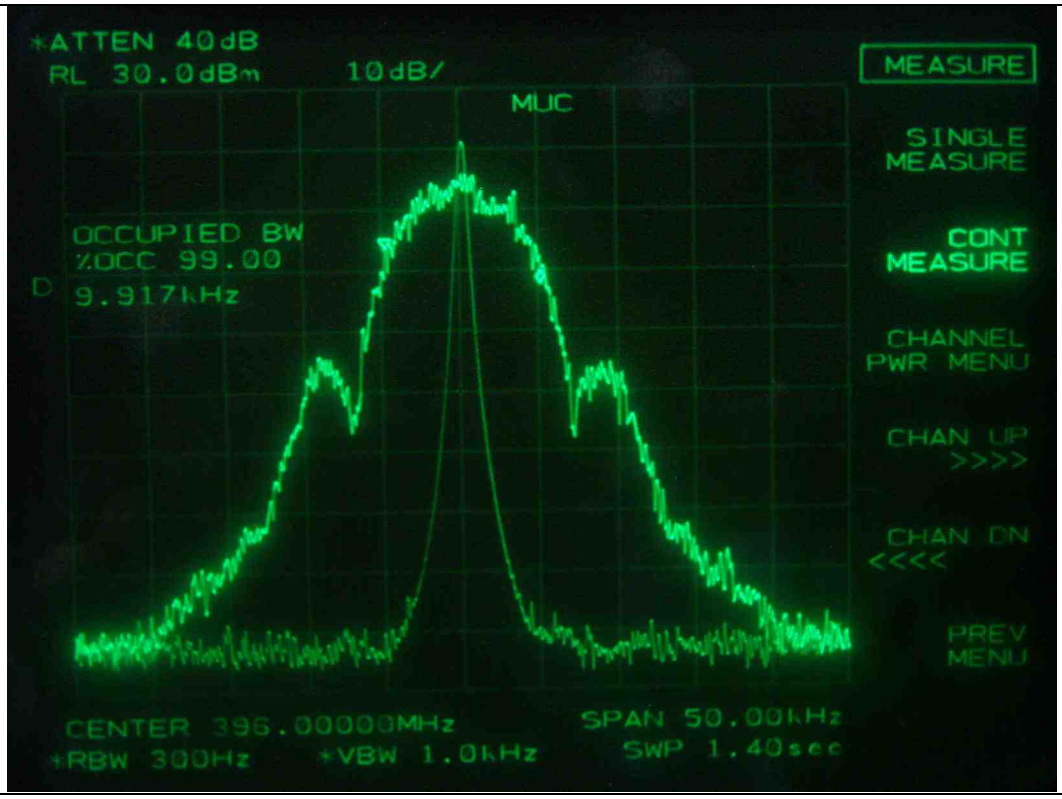
FM with an external 9 600 b/s random data source, Channel Spacing 25 kHz - Middle Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

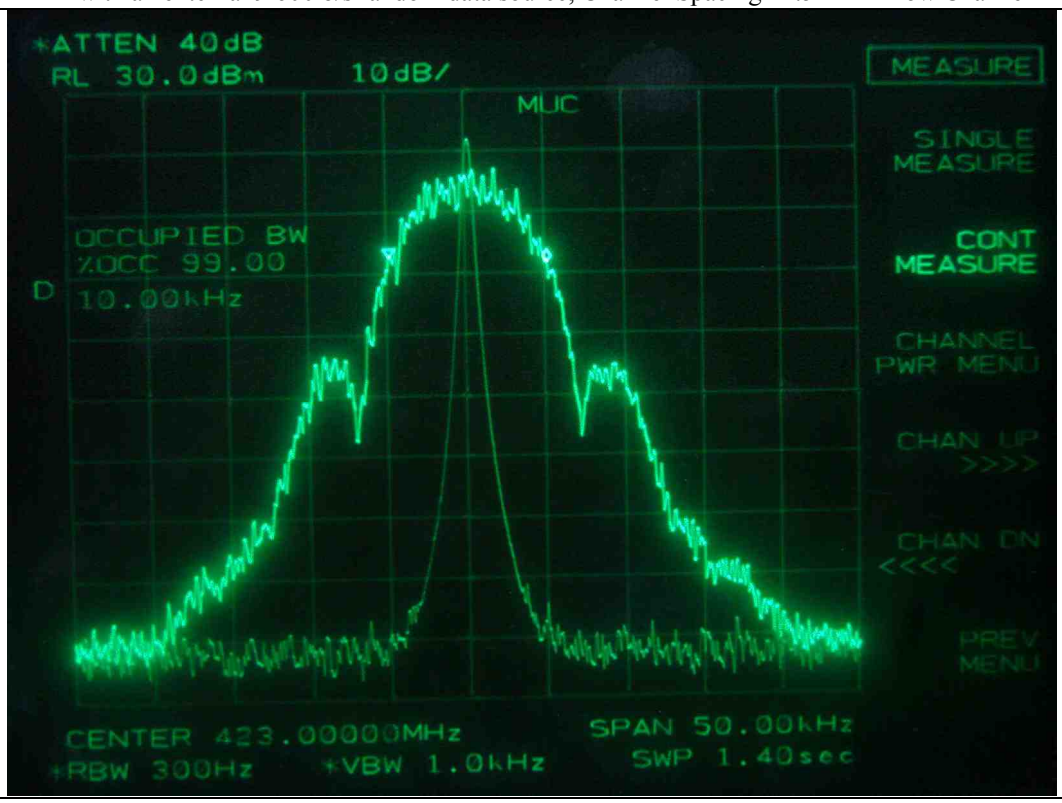


FM with an external 9 600 b/s random data source, Channel Spacing 25 kHz - High Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

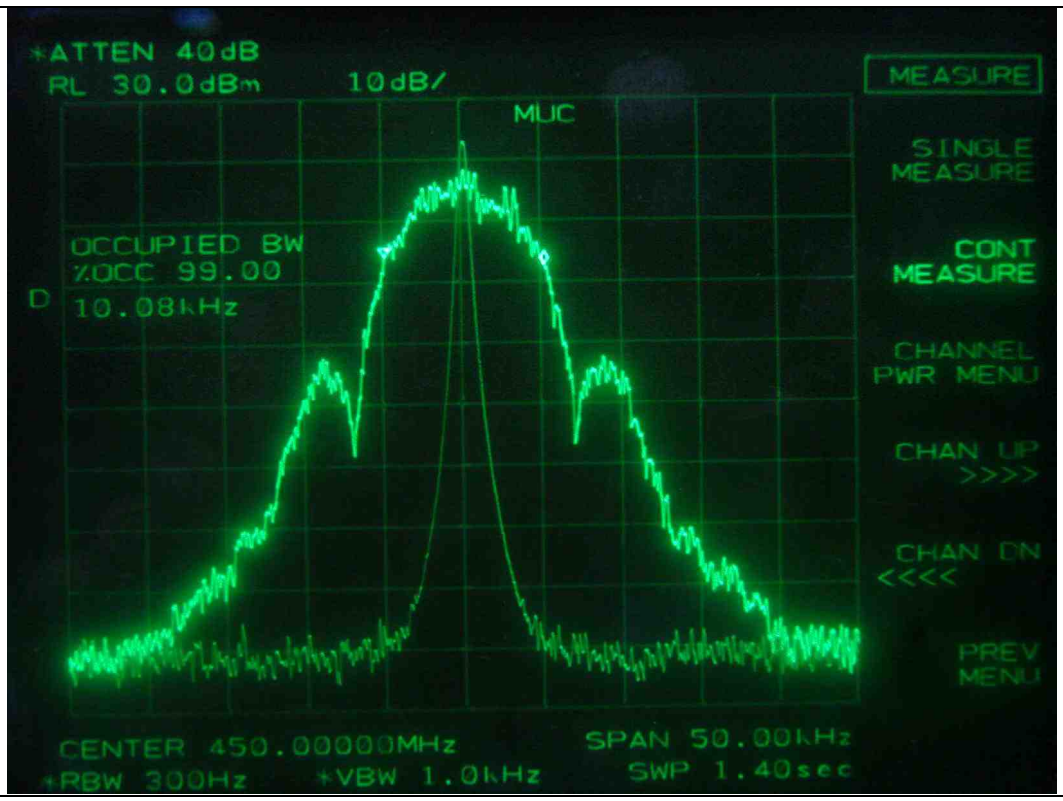


FM with an external 9 600 b/s random data source, Channel Spacing 12.5 kHz - Low Channel



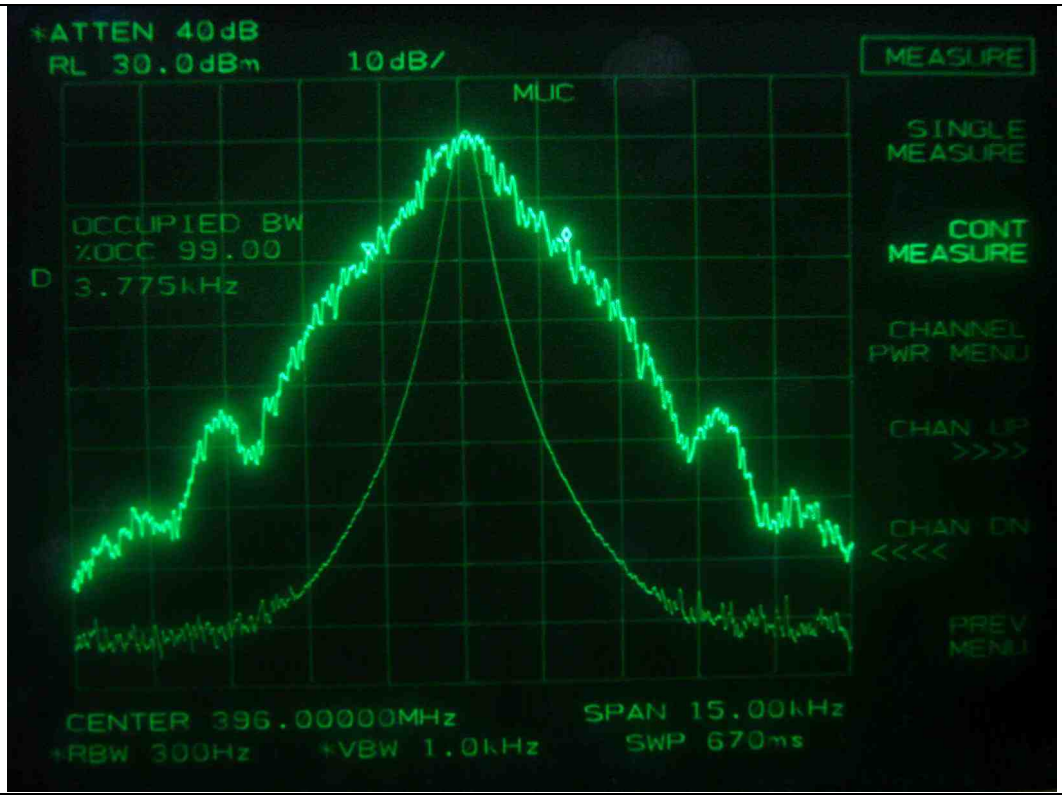
FM with an external 9 600 b/s random data source, Channel Spacing 12.5 kHz - Middle Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

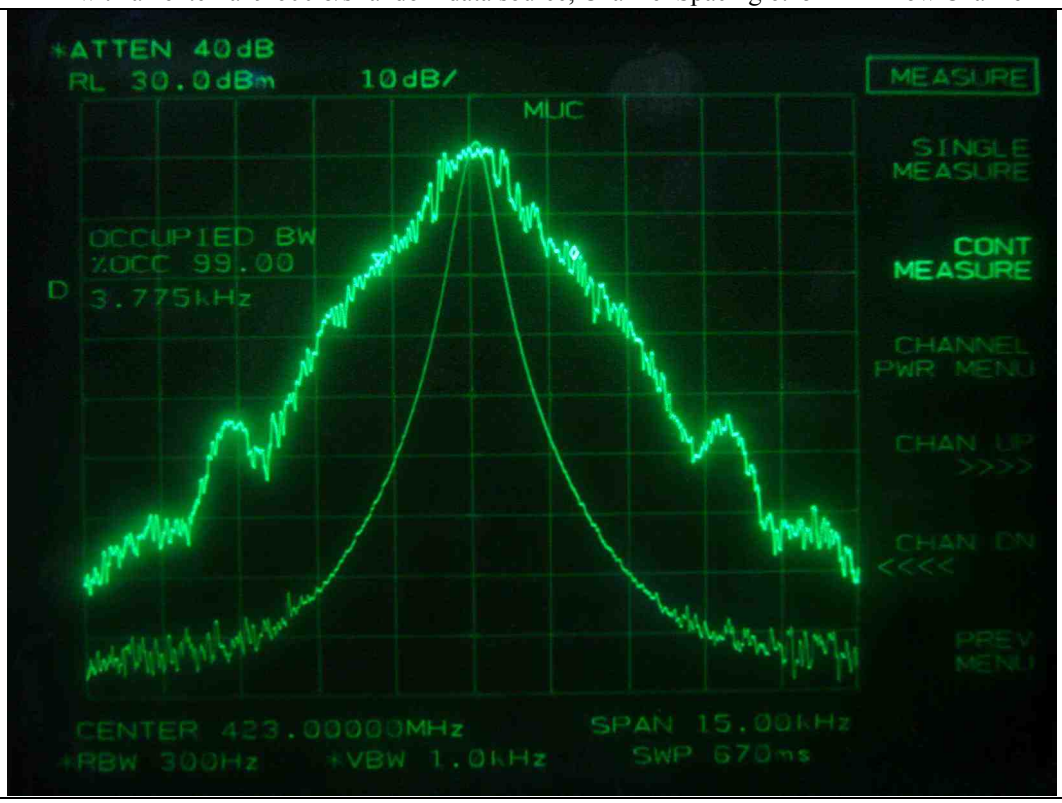


FM with an external 9 600 b/s random data source, Channel Spacing 12.5 kHz- High Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

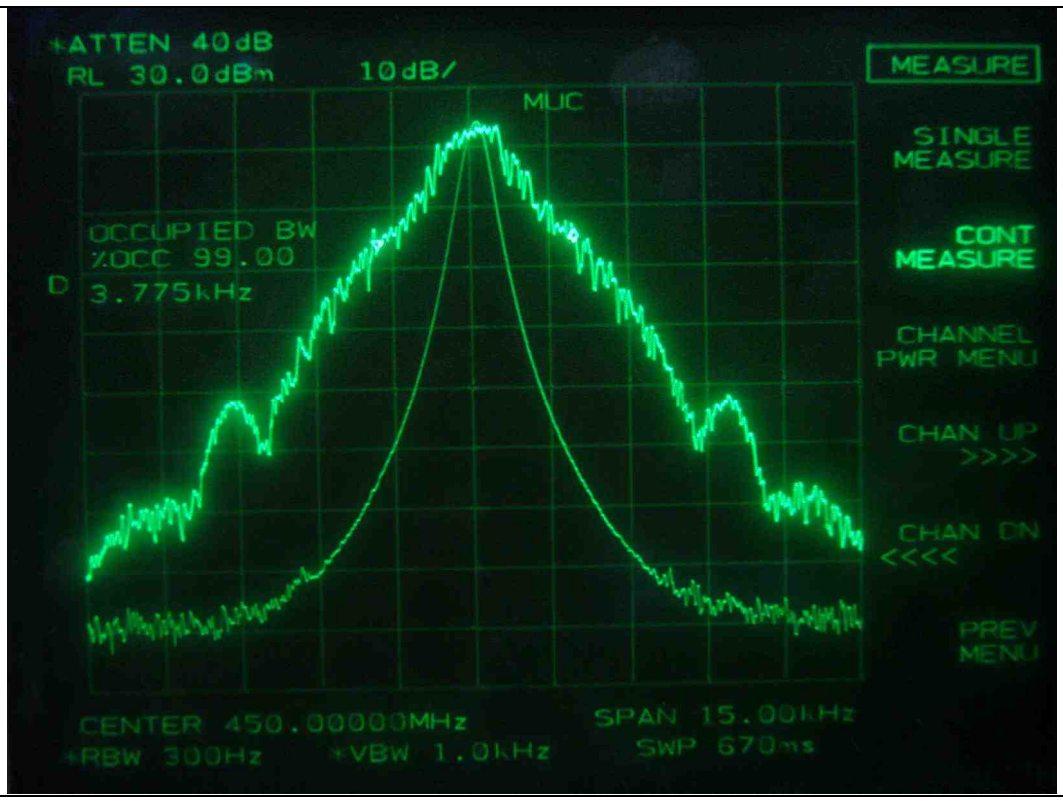


FM with an external 9 600 b/s random data source, Channel Spacing 6.25 kHz - Low Channel



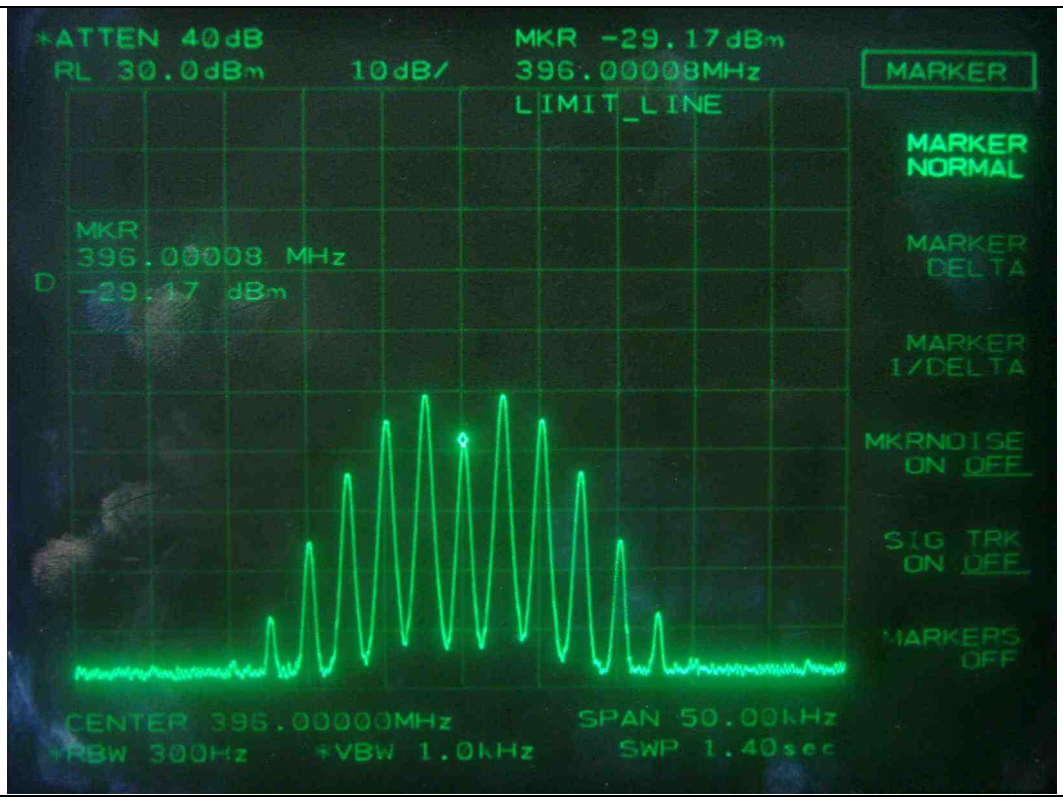
FM with an external 9 600 b/s random data source, Channel Spacing 6.25 kHz - Middle Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)

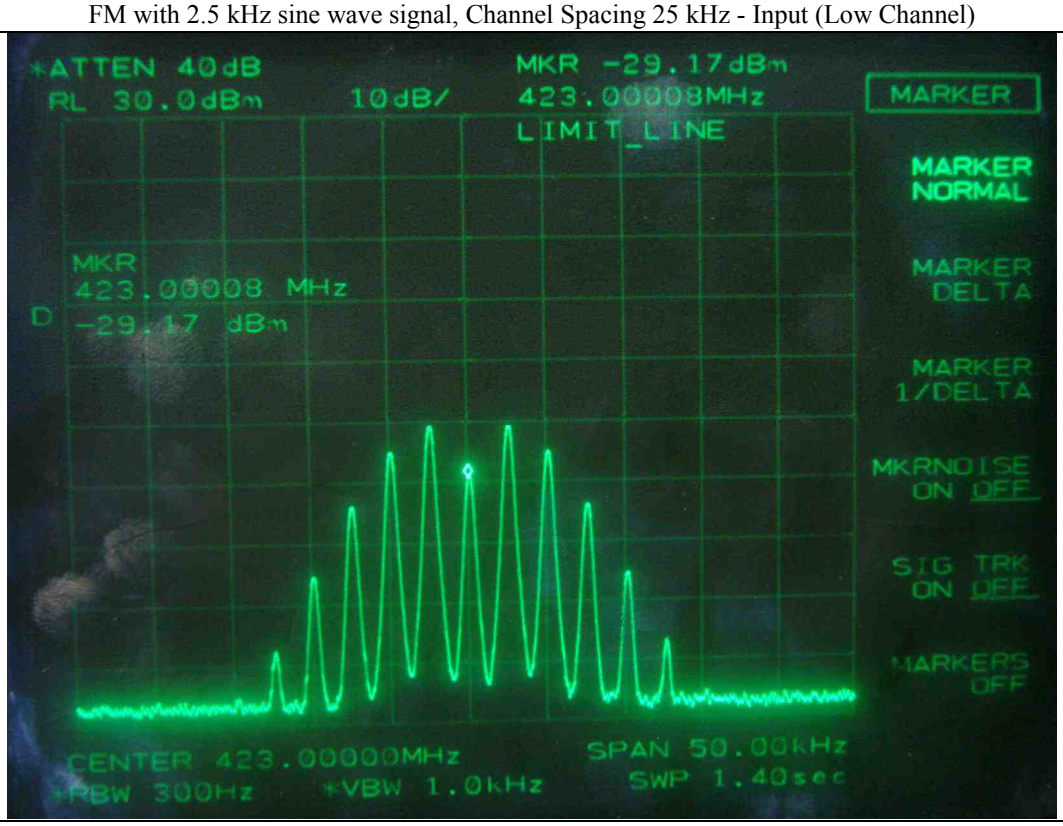


FM with an external 9 600 b/s random data source, Channel Spacing 6.25 kHz - High Channel

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)



FM with 2.5 kHz sine wave signal, Channel Spacing 25 kHz - Input (Low Channel)



FM with 2.5 kHz sine wave signal, Channel Spacing 25 kHz - Input (Middle Channel)

HEAD OFFICE : #505 SK Apt. Factory 223-28, Sangdaewon1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do 462-705 Korea (TEL: +82-31-746-8500, FAX: +82-31-746-8700)
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)