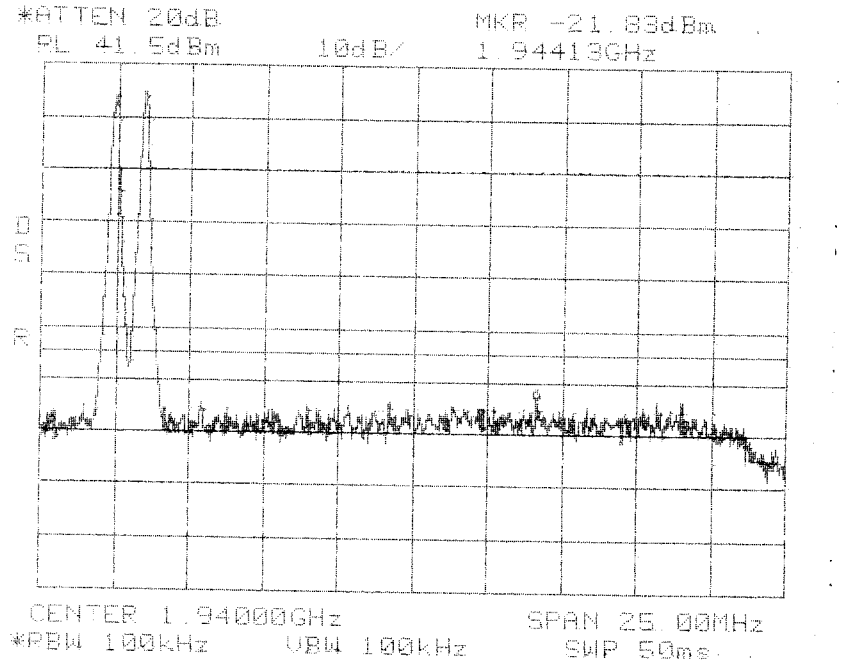
Inter-Modulation Test for ADC Inc
Digivance â Street Coverage Solution
Model Number DGVC-431X0000100SYS, DGVC-441X0000100SYS, DGVC-451X0000100SYS, and DGVC-461X0000100SYS

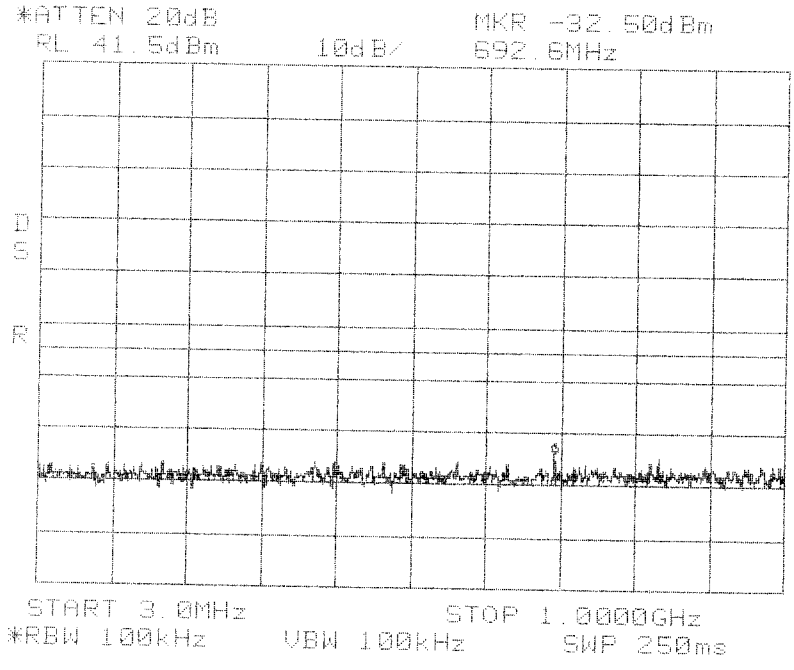
The inter-modulation products test was performed for the EUT. Three tests were preformed with the modulation type. Test 1 was with 2 signals input to the EUT at lower end channels. Test 2 was with 2 signals input to the EUT at upper end channels. Test 3 was with 2 signals input to the EUT at upper and lower end channels. The modulation types tested were TDMA, GSM, and CDMA. An investigation was made from 30 MHz to the 10^{th} Harmonic of the highest fundamental frequency (~20 GHz). The following plots show the results.

Results:
(See Plots)

Center: 1940.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



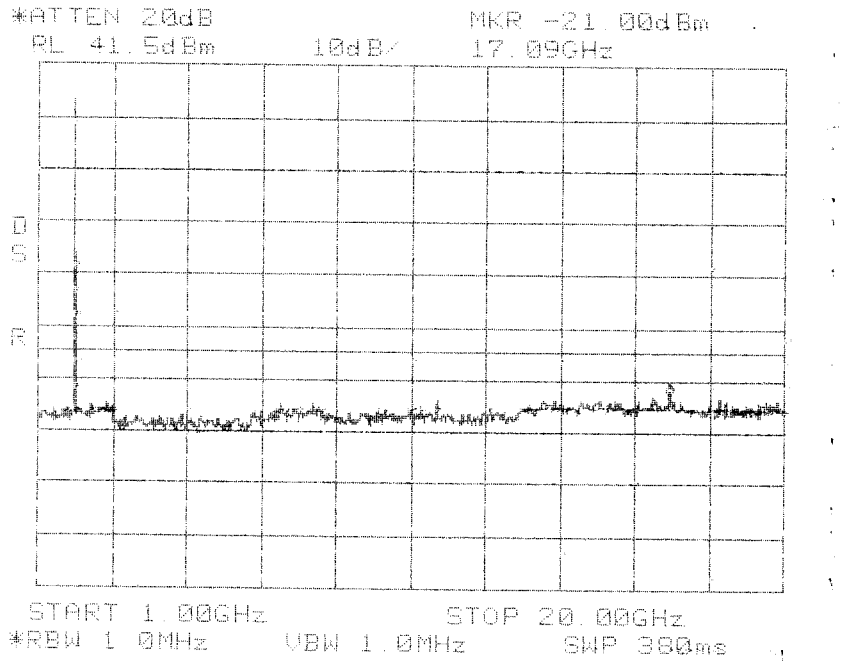
Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
AD Band



Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
AD Band

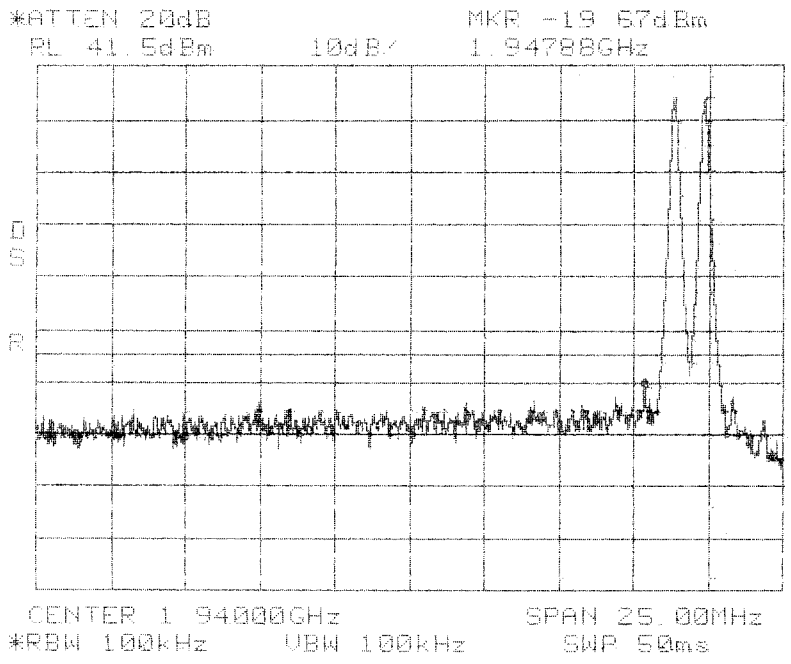
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

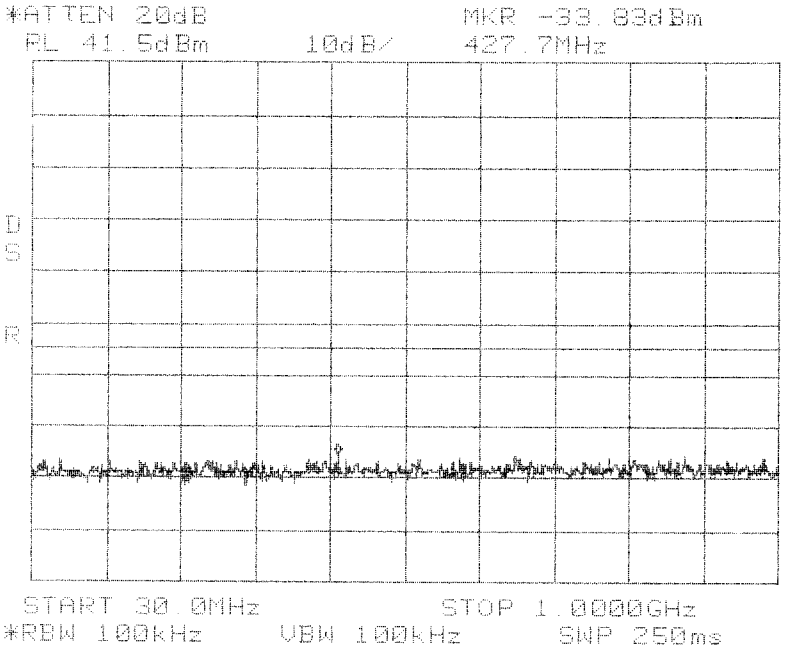


Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
AD Band

Center: 1940.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



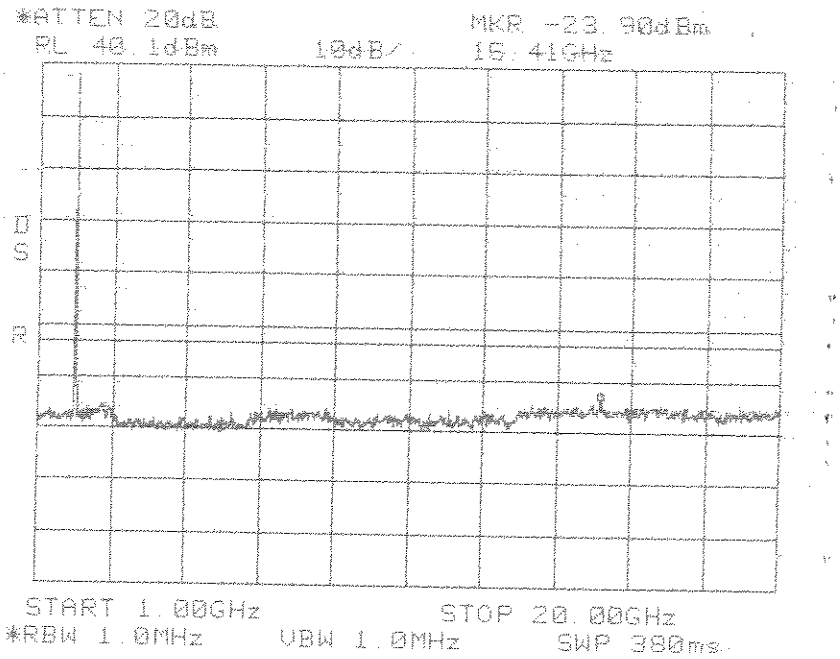
Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
AD Band



Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
AD Band

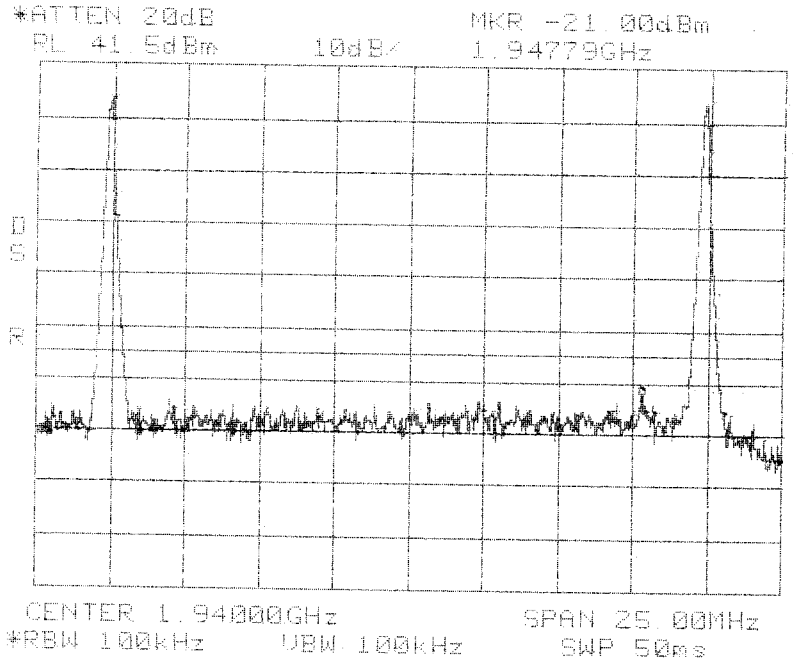
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

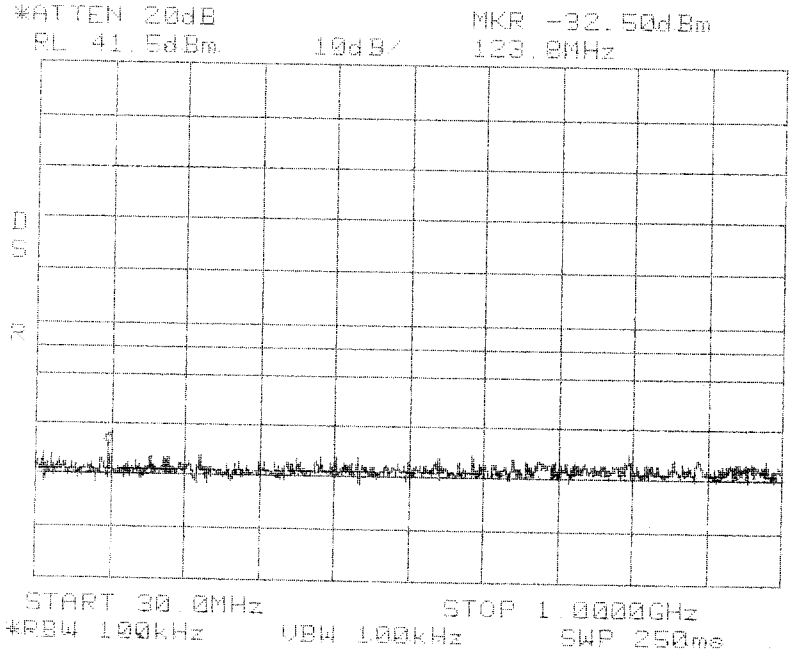


Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
AD Band

Center: 1940.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



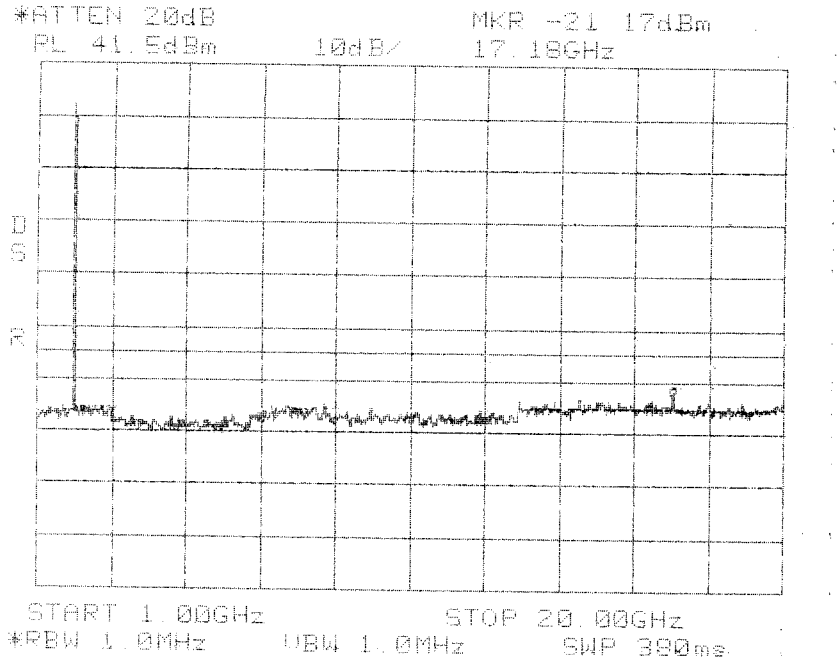
Intermodulation
Apart
TDMA
PCS 1900 MHz
AD Band



Intermodulation
Apart
TDMA
PCS 1900 MHz
AD Band

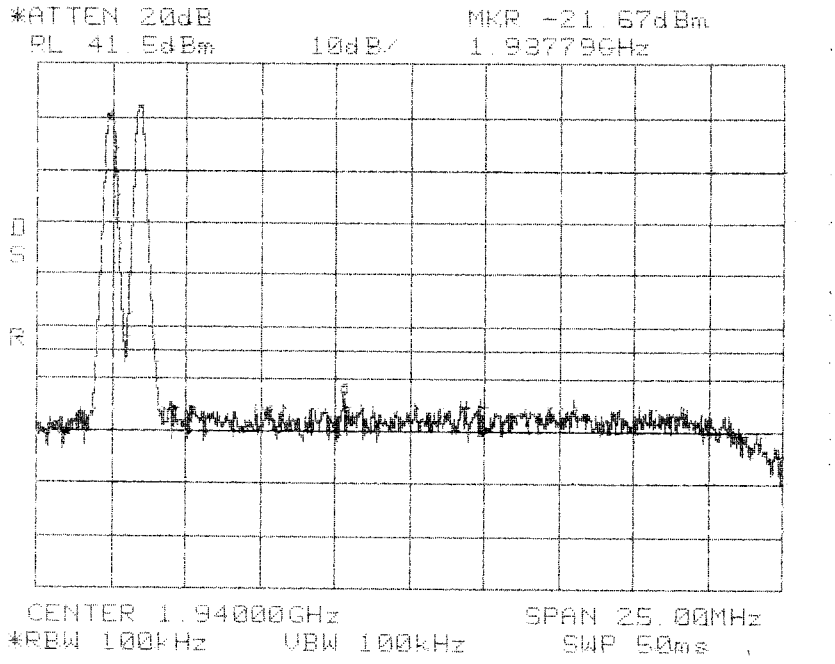
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

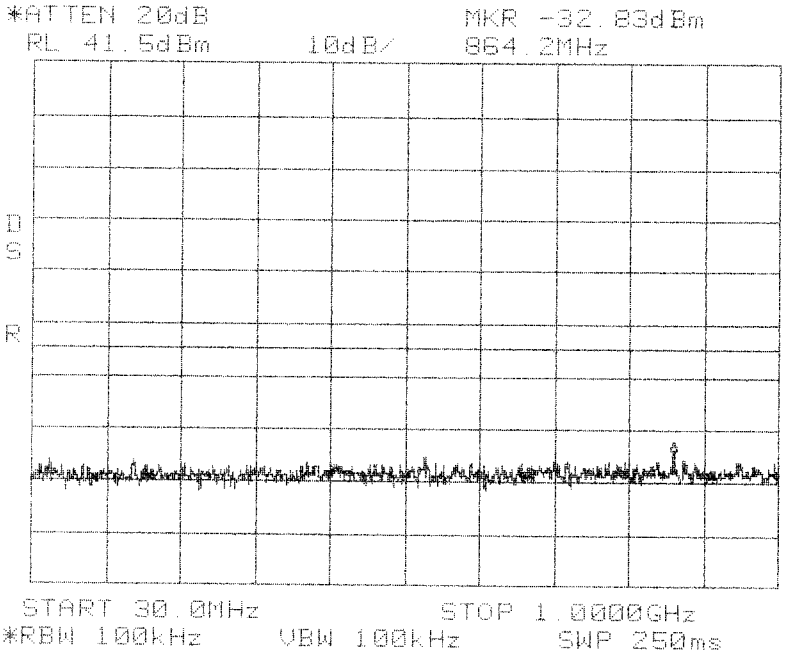


Intermodulation
Apart
TDMA
PCS 1900 MHz
AD Band

Center: 1940.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



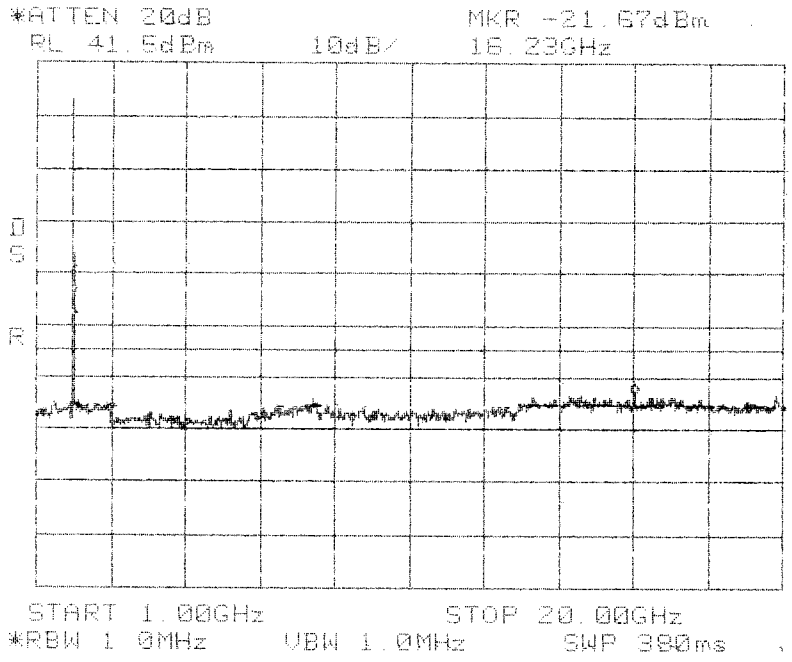
Intermodulation
Close
Lower
GSM
PCS 1900 MHz
AD Band



Intermodulation
Close
Lower
GSM
PCS 1900 MHz
AD Band

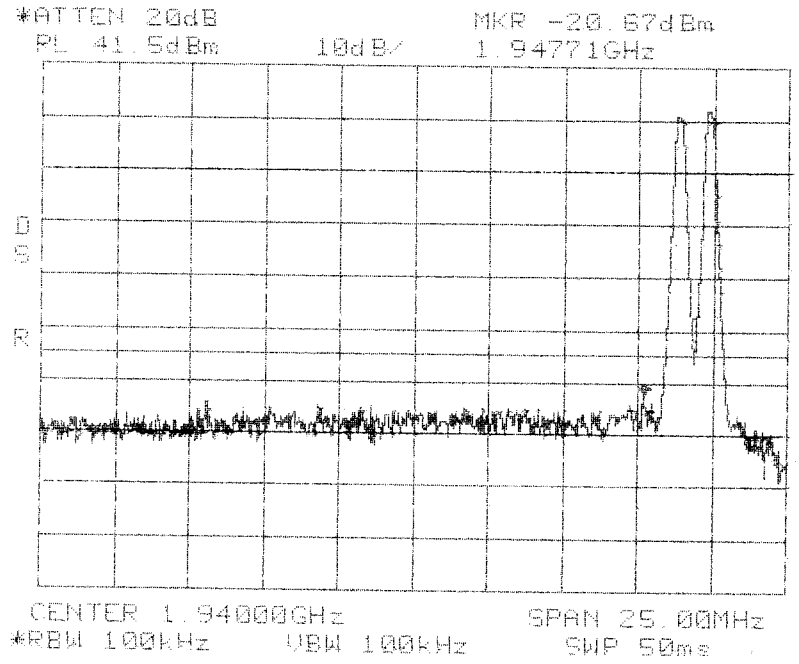
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

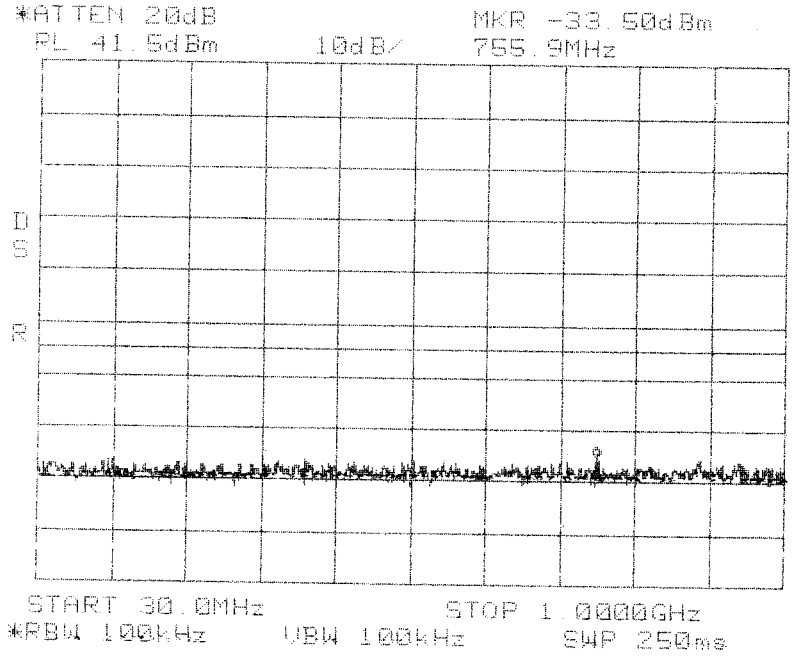


Intermodulation
Close
Lower
GSM
PCS 1900 MHz
AD Band

Center: 1940.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



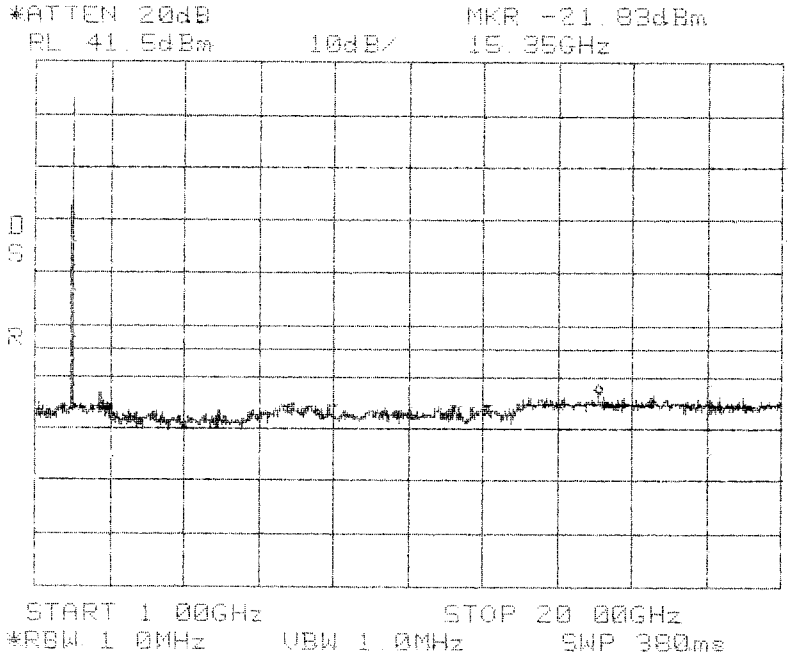
Intermodulation
Close
Upper
GSM
PCS 1900 MHz
AD Band



Intermodulation
Close
Upper
GSM
PCS 1900 MHz
AD Band

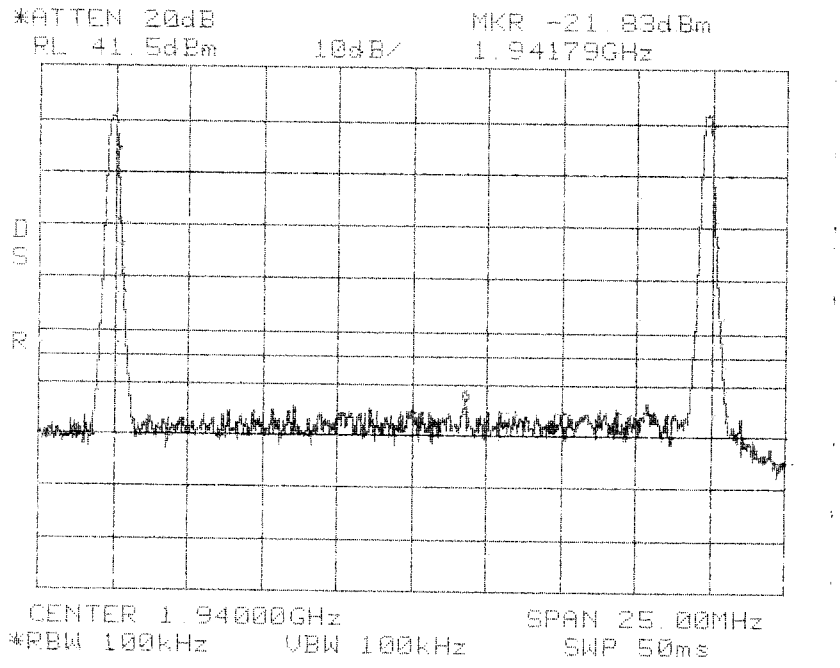
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

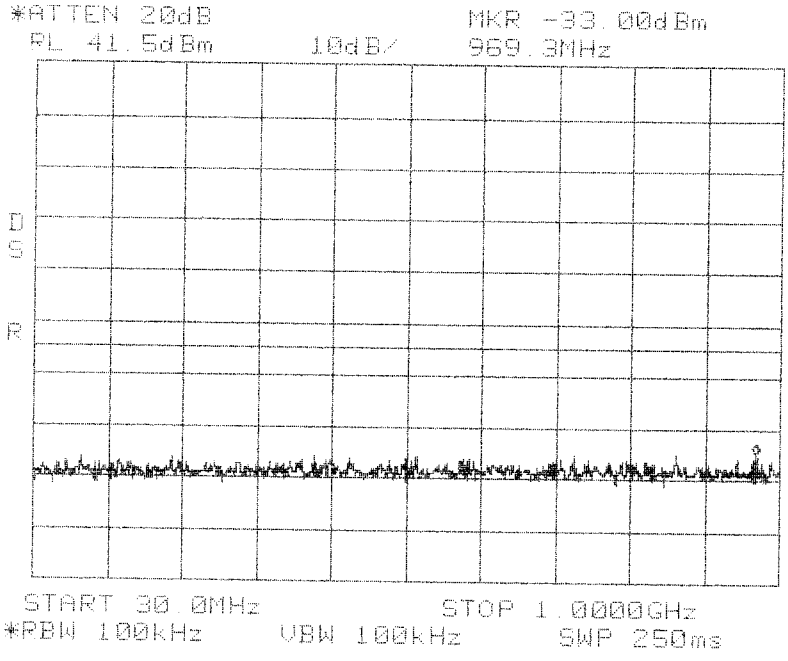


Intermodulation
Close
Upper
GSM
PCS 1900 MHz
AD Band

Center: 1940.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



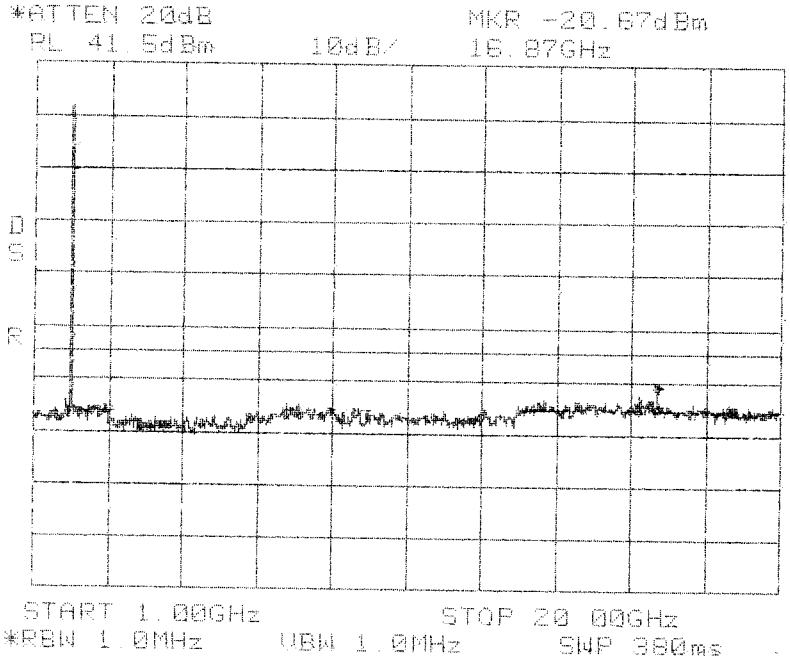
Intermodulation
Apart
GSM
PCS 1900 MHz
AD Band



Intermodulation
Apart
GSM
PCS 1900 MHz
AD Band

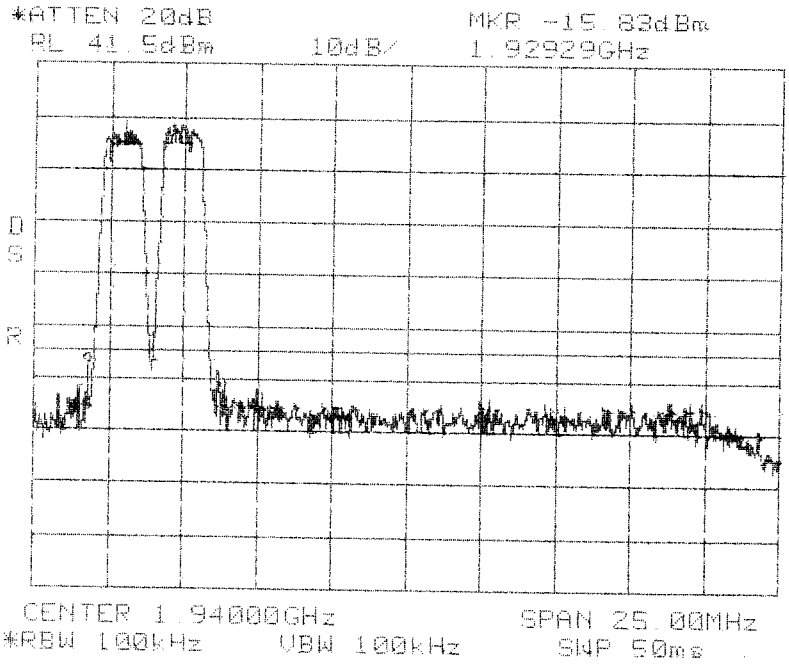
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

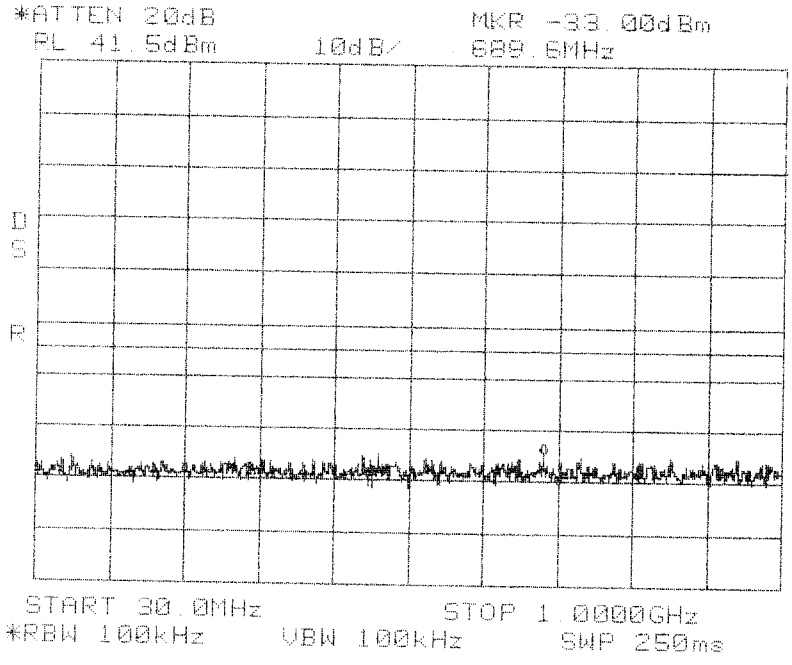


Intermodulation
Apart
GSM
PCS 1900 MHz
AD Band

Center: 1940.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
AD Band

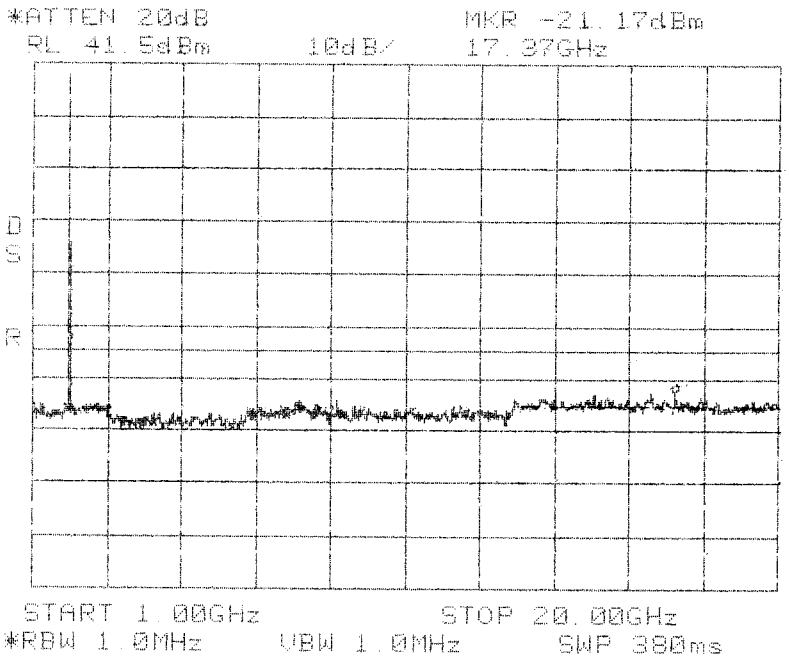


Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
AD Band

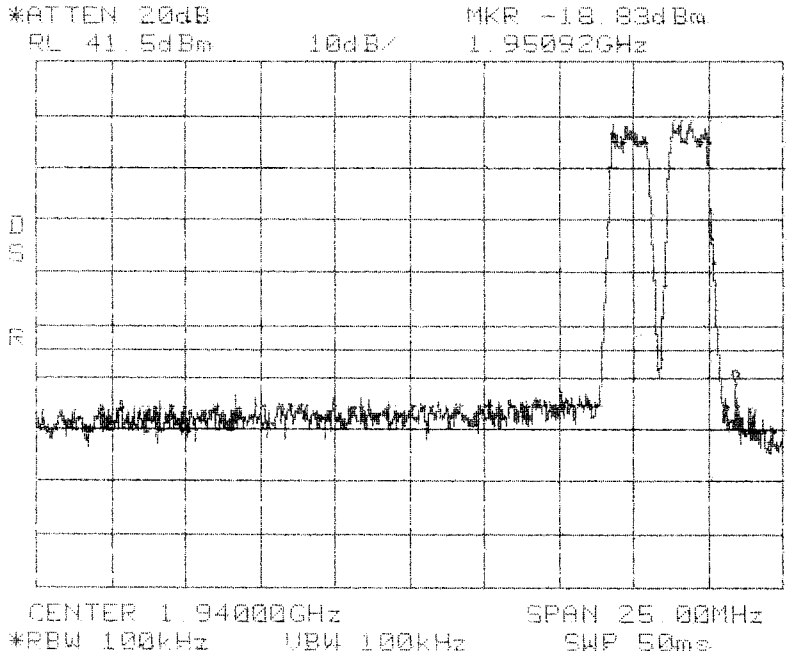
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

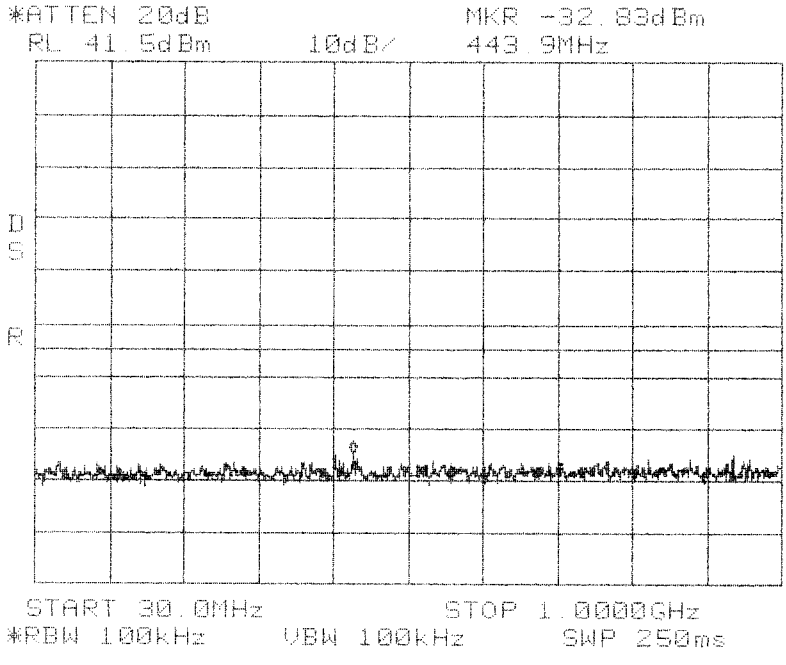
Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
AD Band



Center: 1940.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



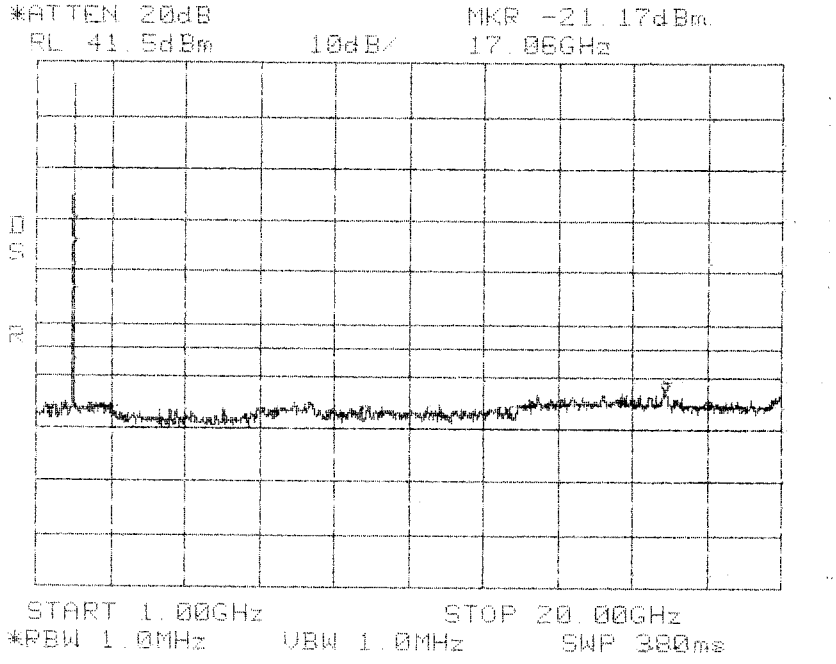
Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
AD Band



Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
AD Band

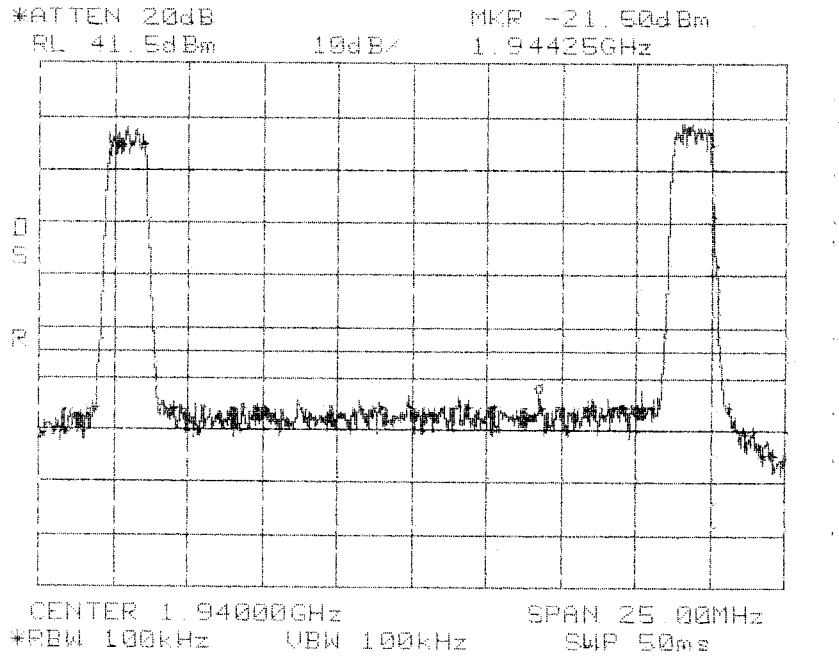
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

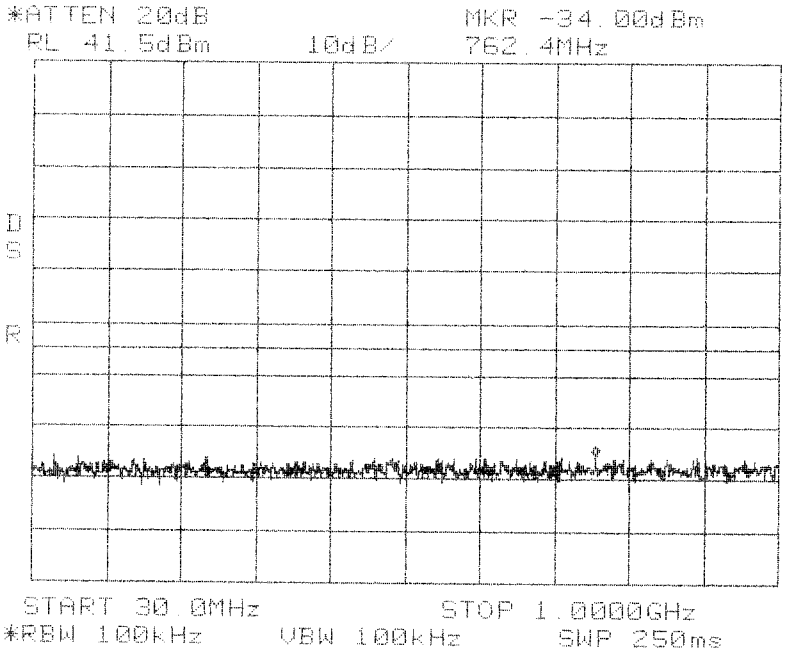


Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
AD Band

Center: 1940.0 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



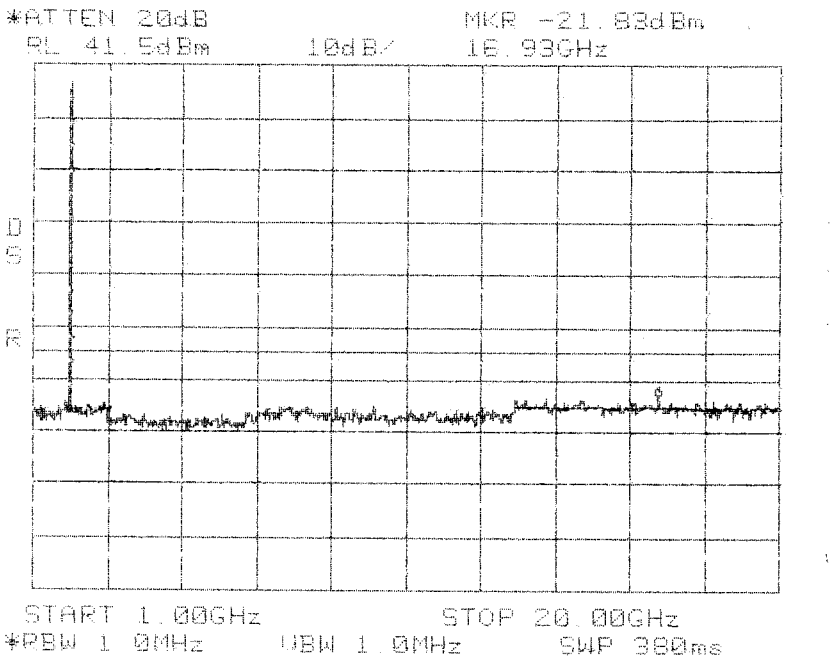
Intermodulation
Apart
CDMA
PCS 1900 MHz
AD Band



Intermodulation
Apart
CDMA
PCS 1900 MHz
AD Band

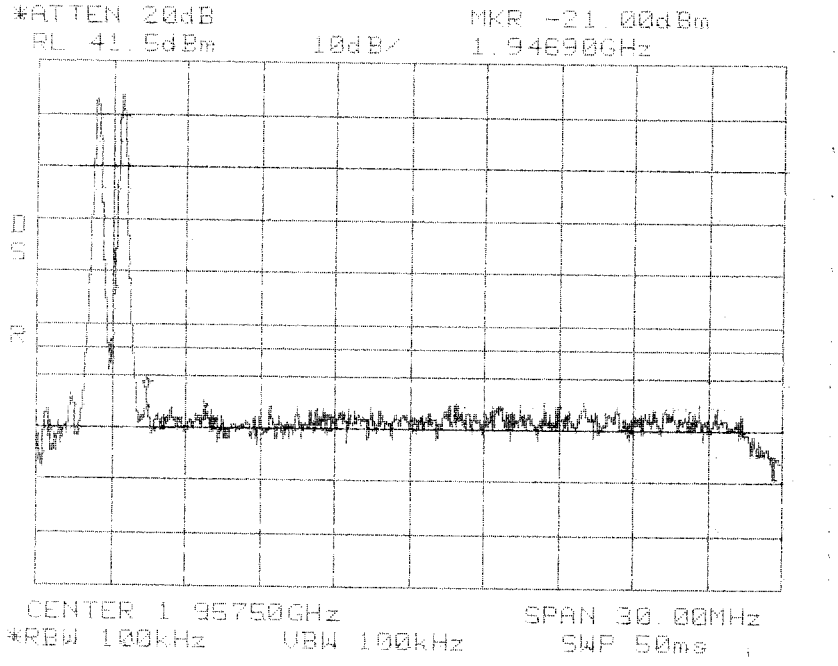
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

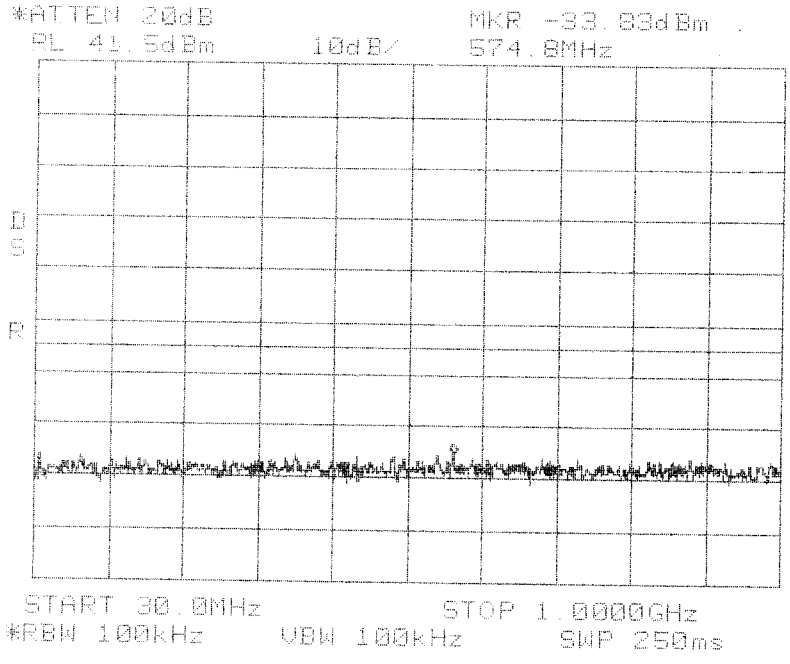


Intermodulation
Apart
CDMA
PCS 1900 MHz
AD Band

Center: 1957.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



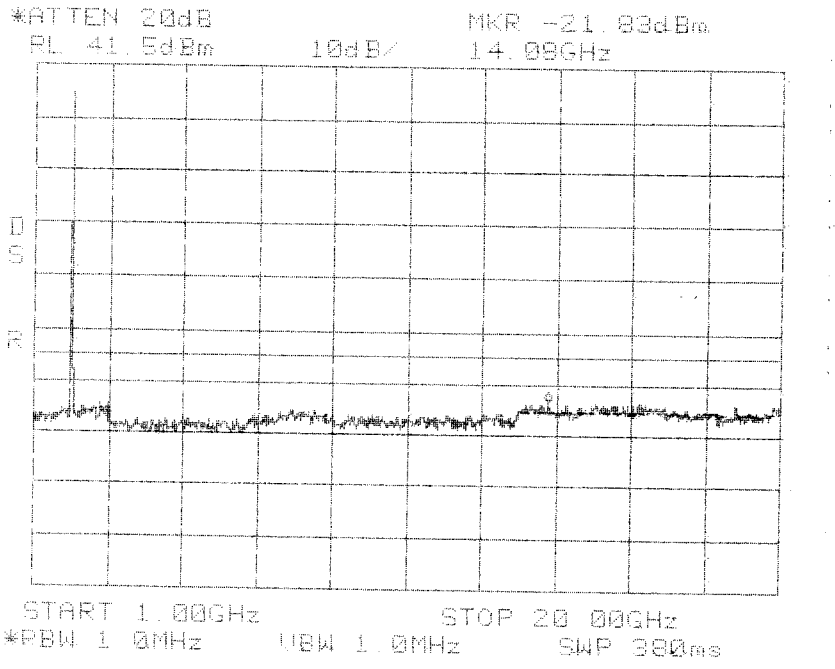
Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
DBE Band



Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
DBE Band

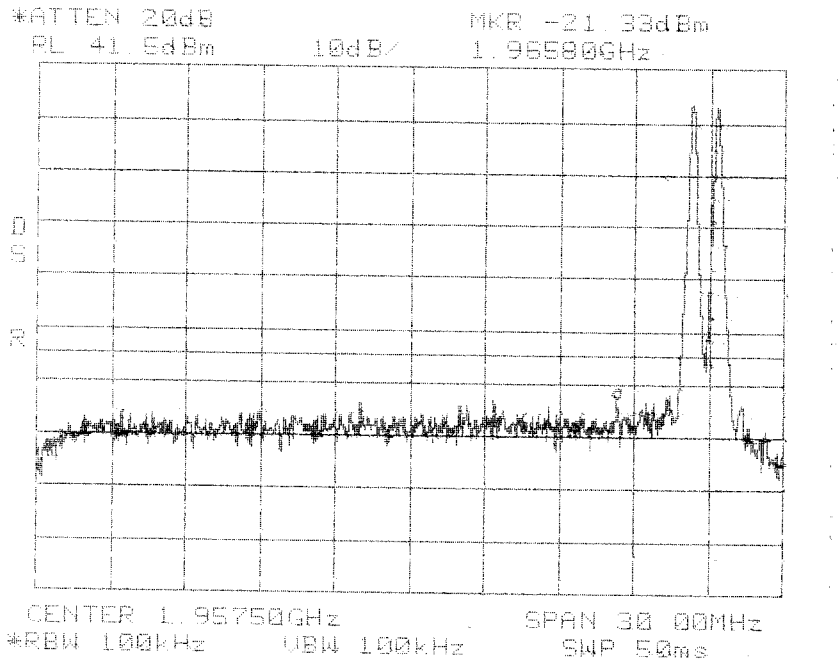
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

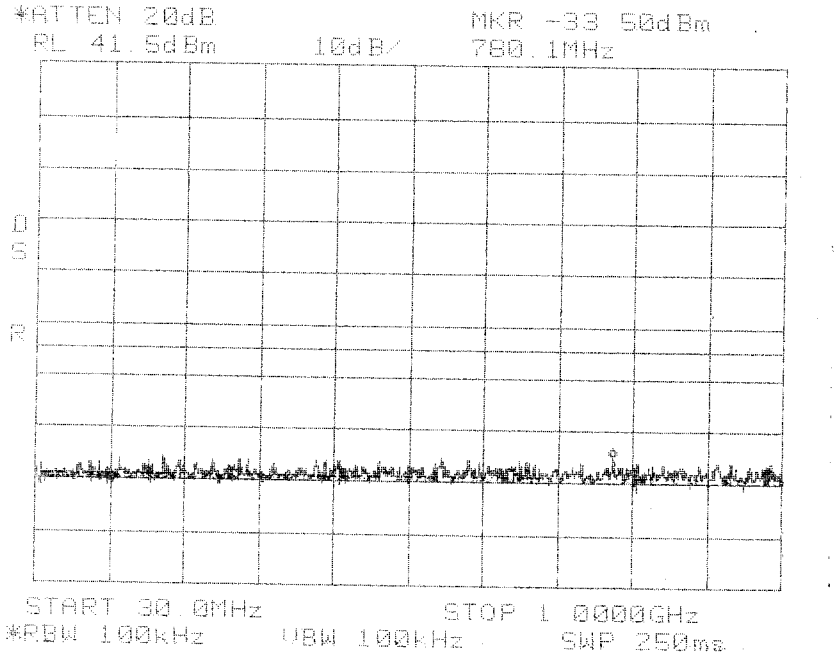


Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
DBE Band

Center: 1957.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



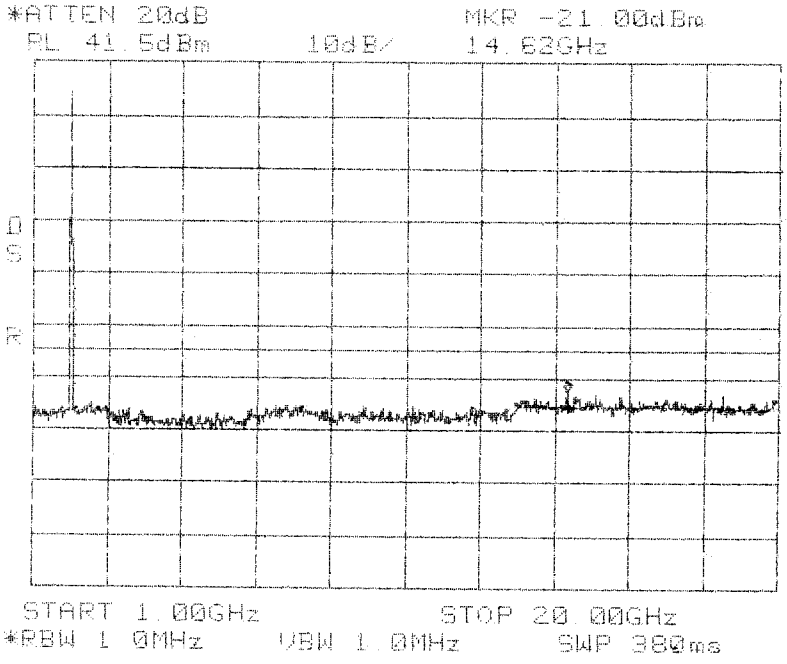
Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
DBE Band



Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
DBE Band

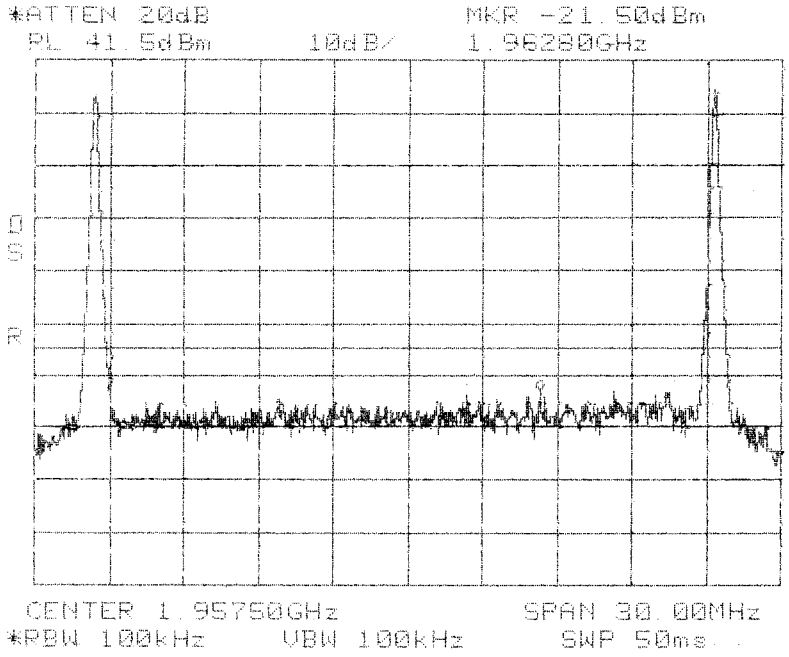
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

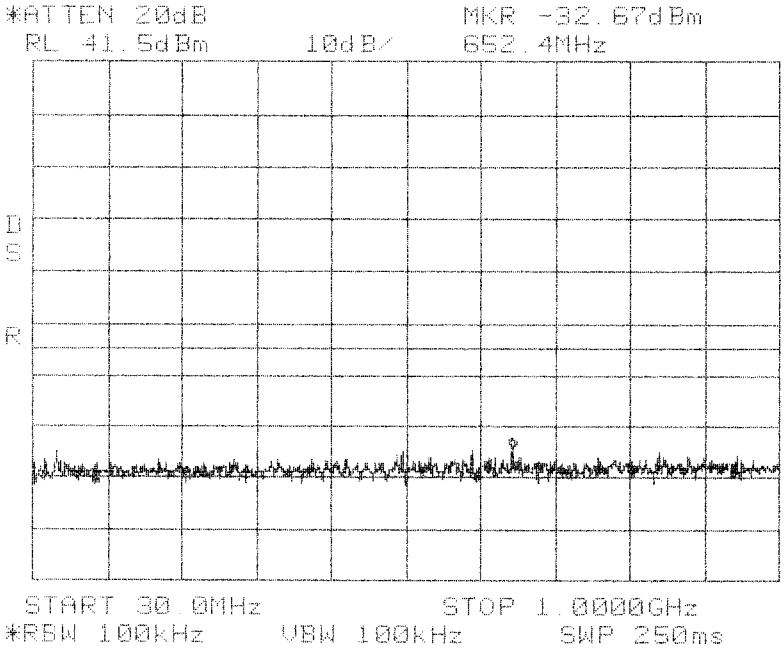


Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
DBE Band

Center: 1957.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



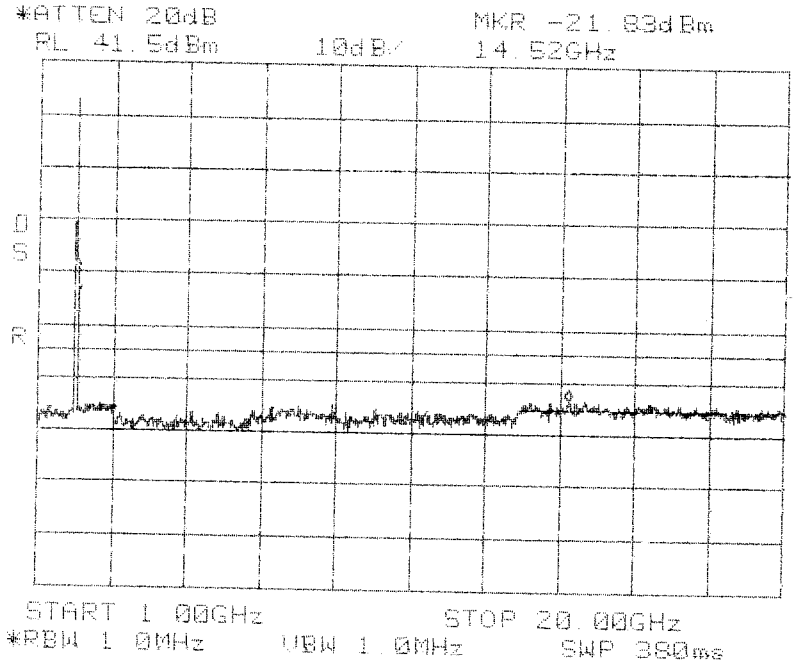
Intermodulation
Apart
TDMA
PCS 1900 MHz
DBE Band



Intermodulation
Apart
TDMA
PCS 1900 MHz
DBE Band

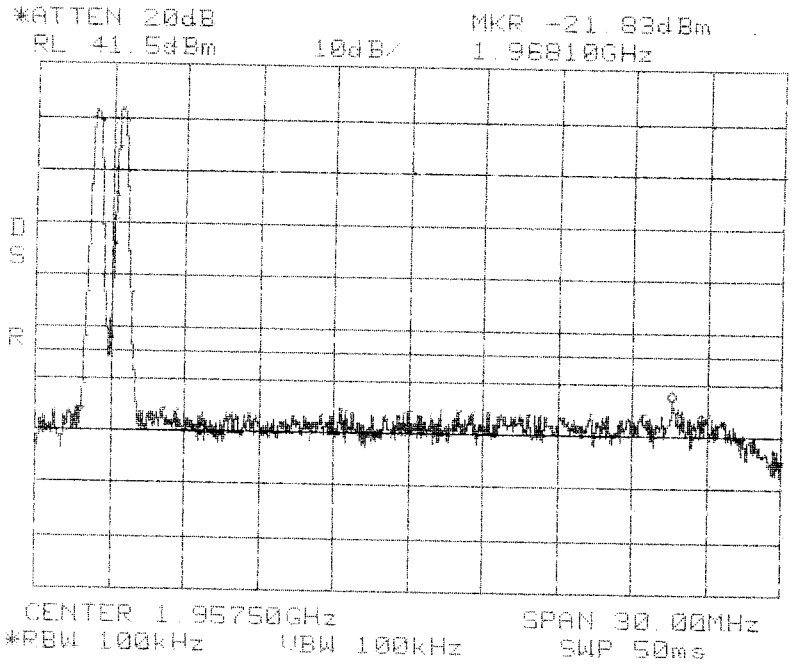
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

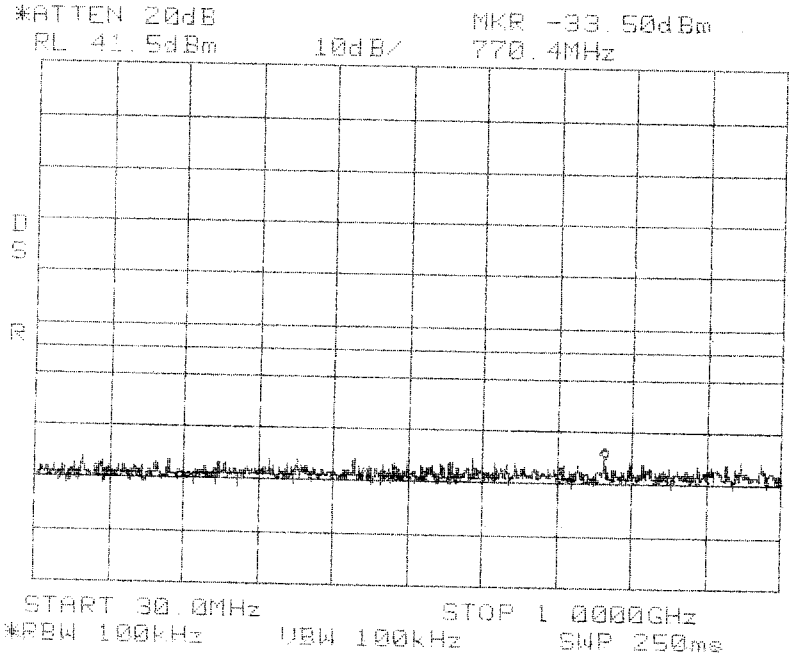


Intermodulation
Apart
TDMA
PCS 1900 MHz
DBE Band

Center: 1957.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



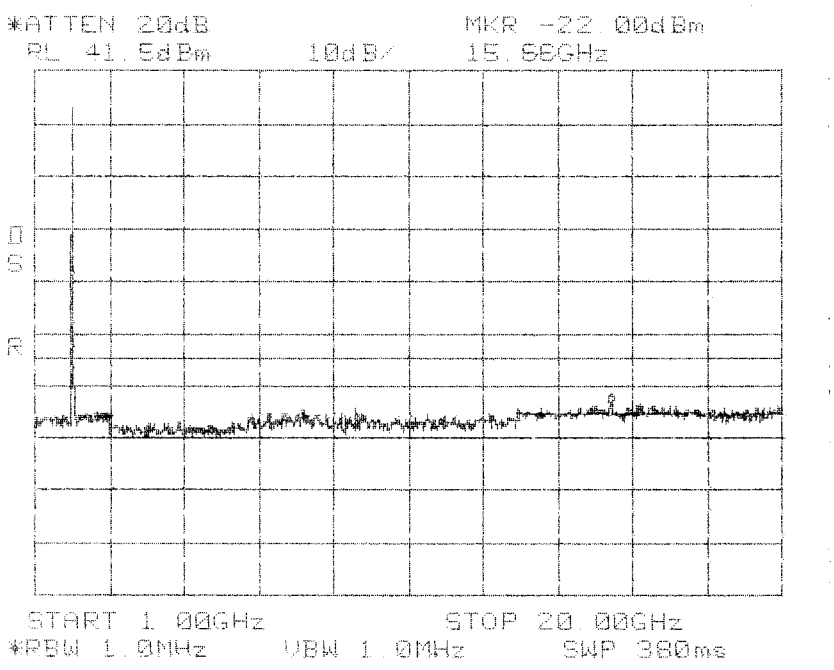
Intermodulation
Close
Lower
GSM
PCS 1900 MHz
DBE Band



Intermodulation
Close
Lower
GSM
PCS 1900 MHz
DBE Band

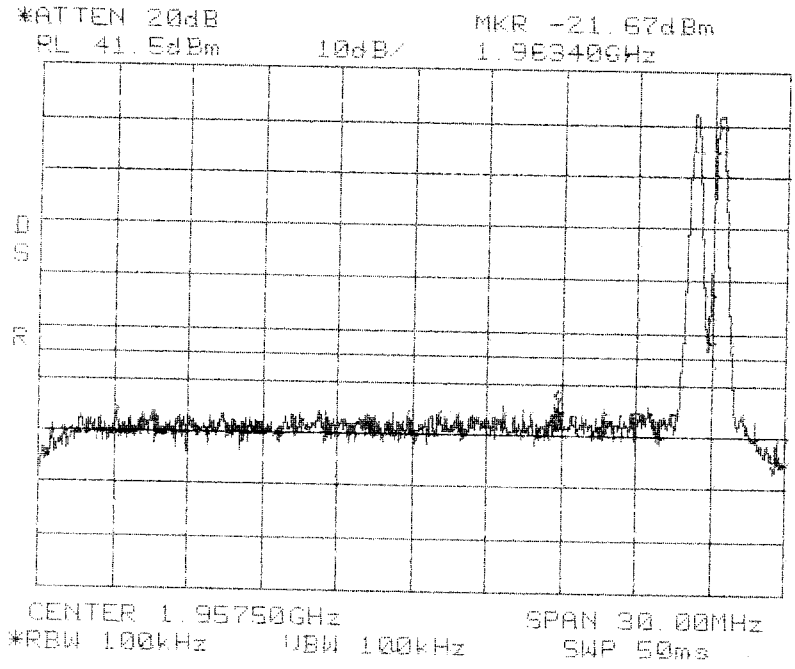
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

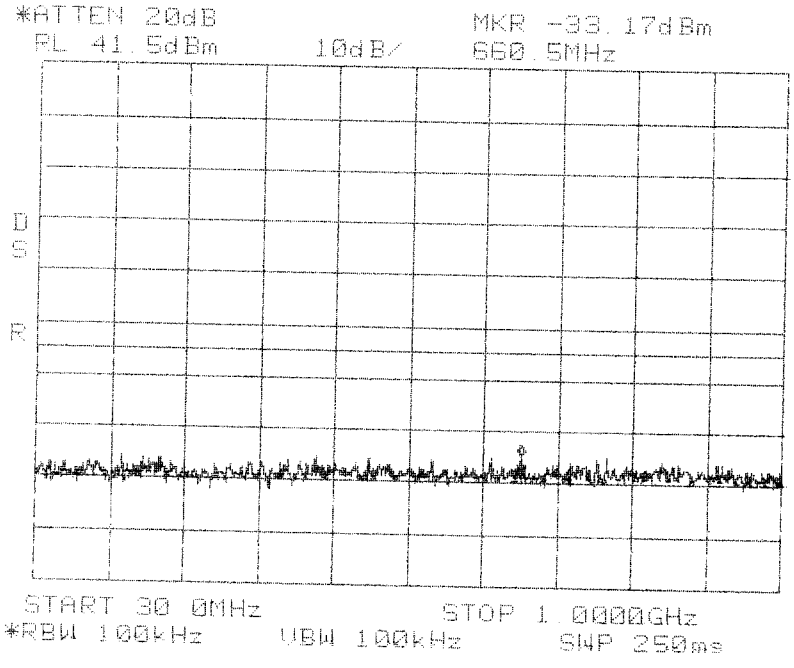


Intermodulation
Close
Lower
GSM
PCS 1900 MHz
DBE Band

Center: 1957.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



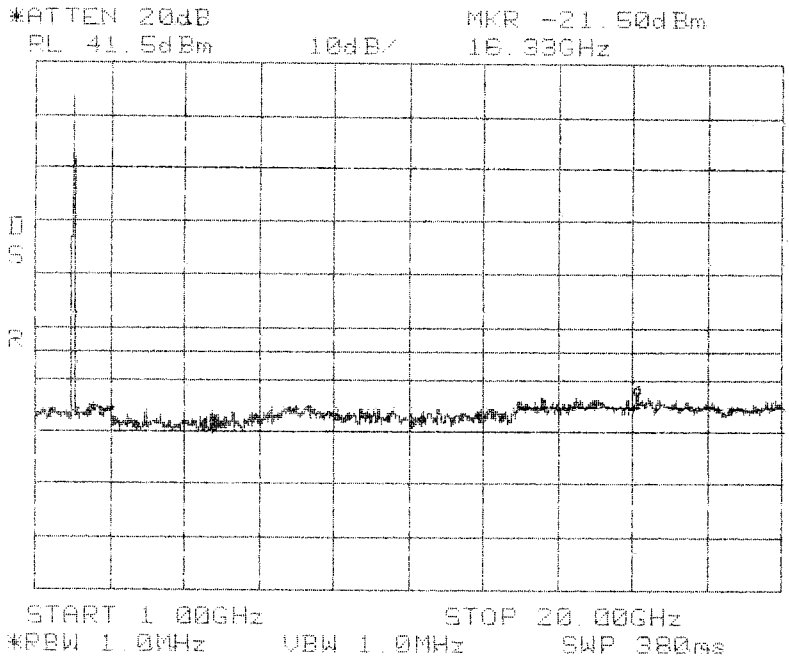
Intermodulation
Close
Upper
GSM
PCS 1900 MHz
DBE Band



Intermodulation
Close
Upper
GSM
PCS 1900 MHz
DBE Band

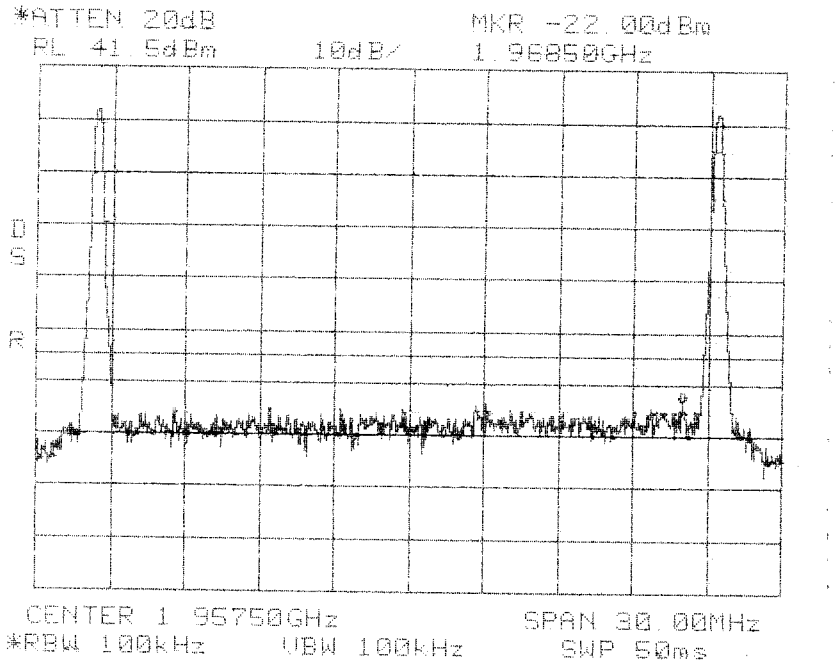
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

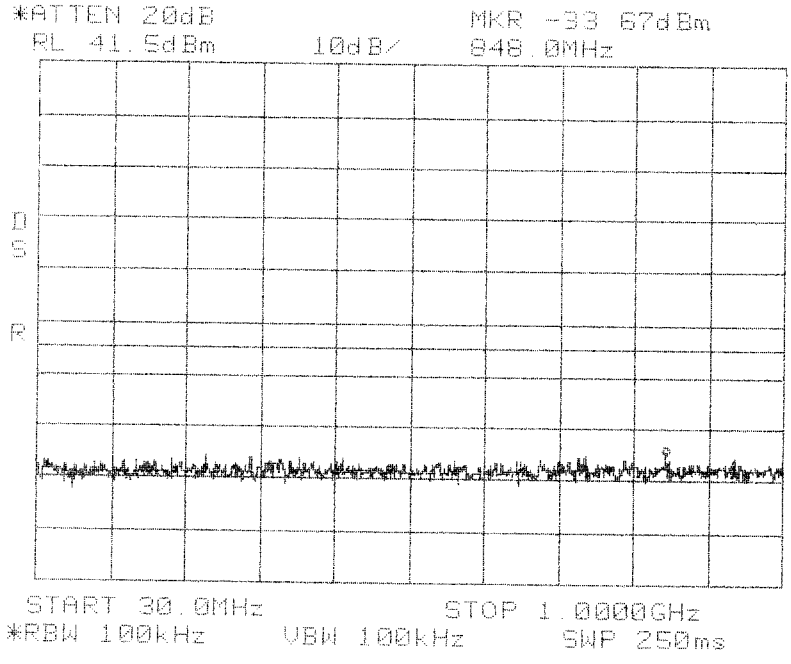


Intermodulation
Close
Upper
GSM
PCS 1900 MHz
DBE Band

Center: 1957.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



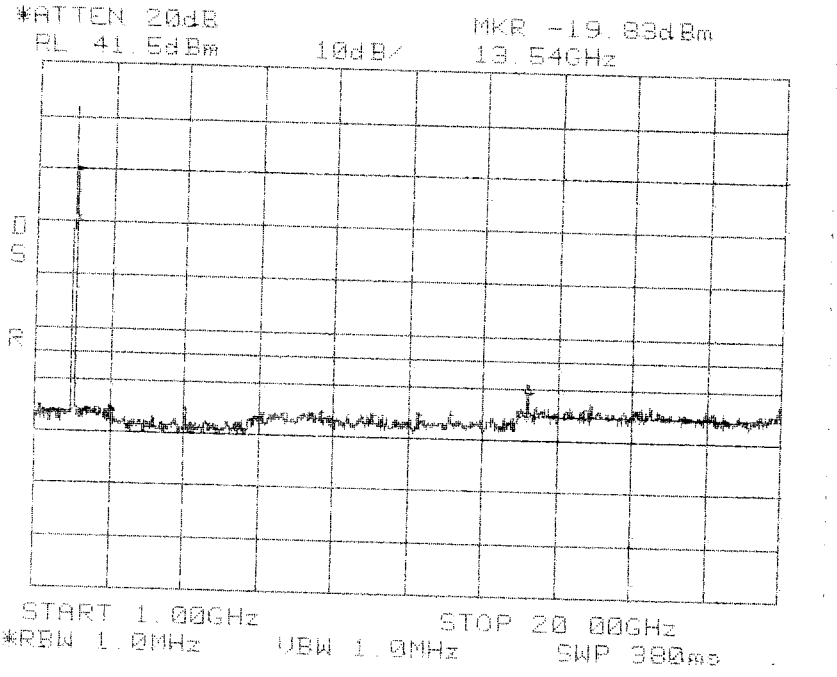
Intermodulation
Apart
GSM
PCS 1900 MHz
DBE Band



Intermodulation
Apart
GSM
PCS 1900 MHz
DBE Band

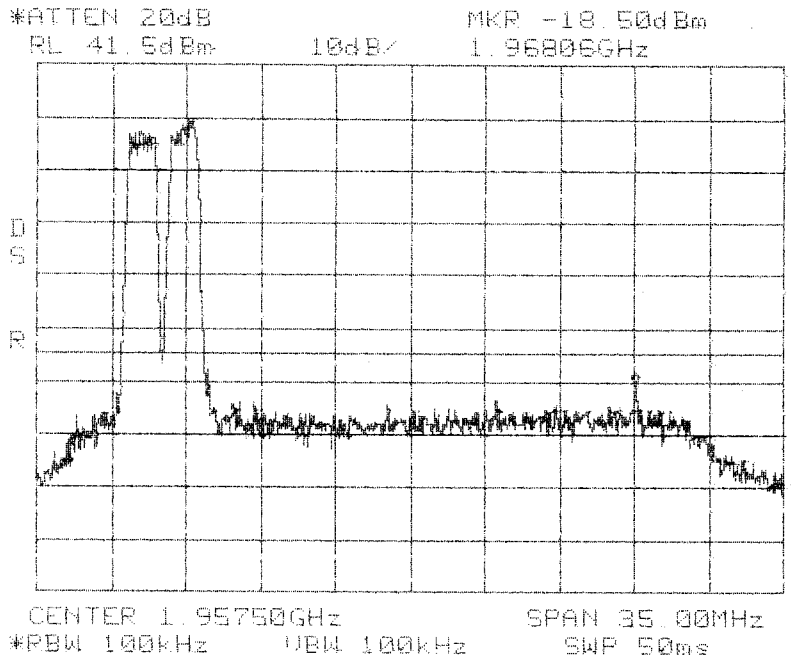
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

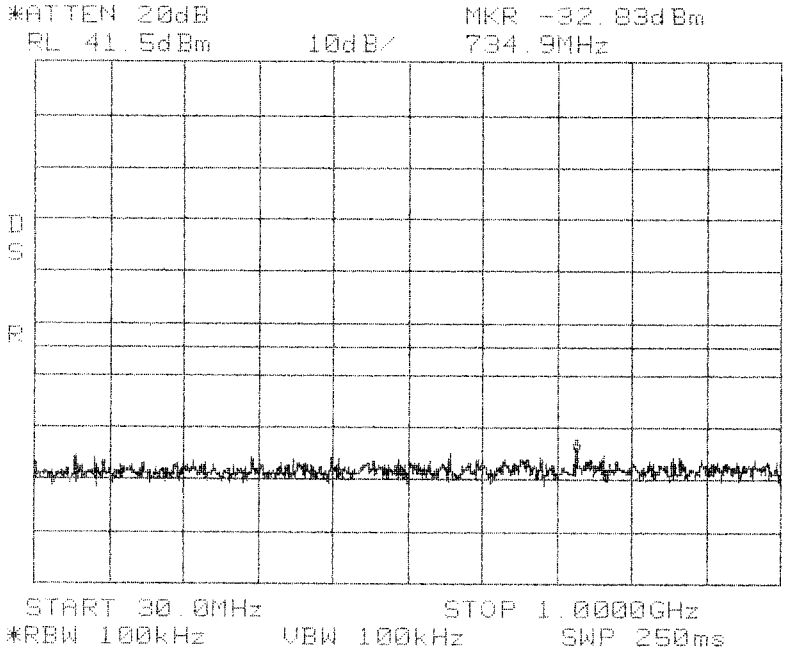


Intermodulation
Apart
GSM
PCS 1900 MHz
DBE Band

Center: 1957.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



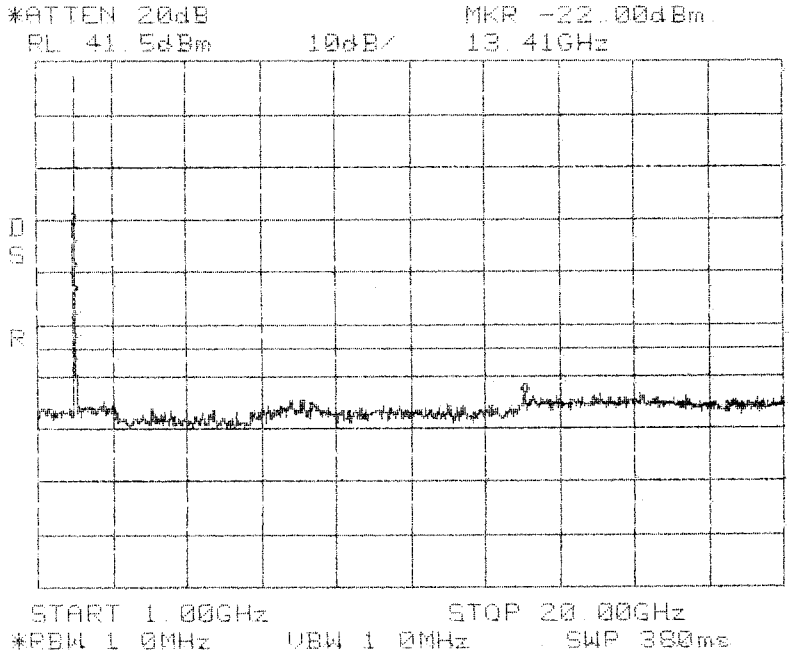
Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
DBE Band



Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
DBE Band

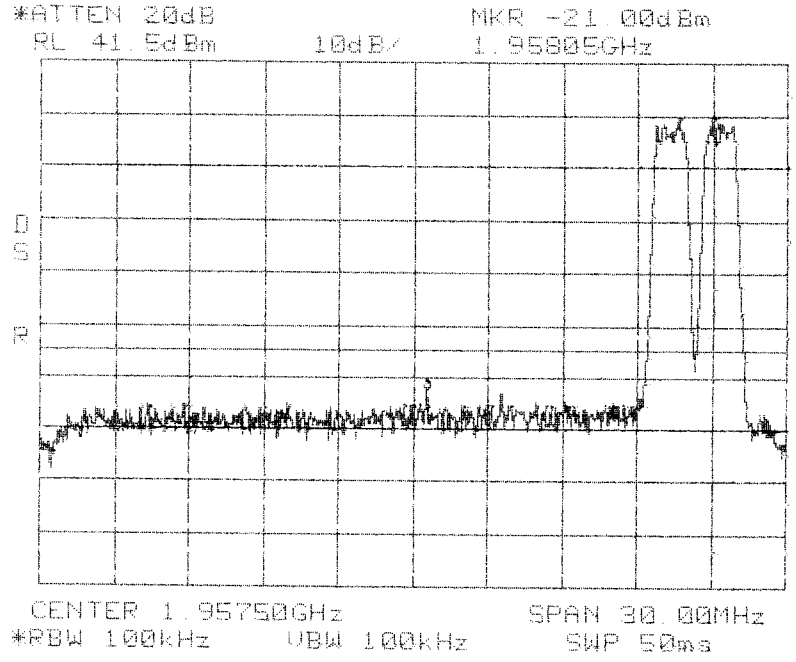
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

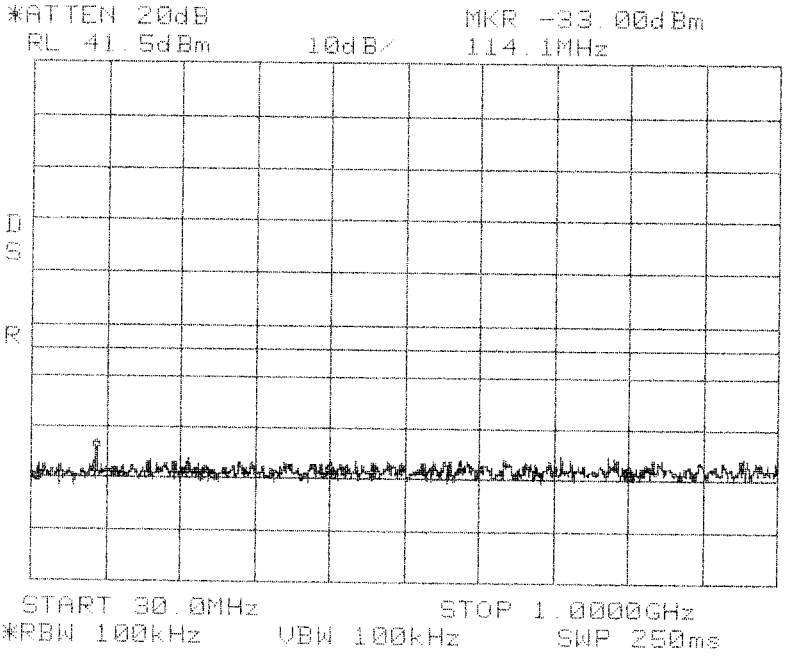


Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
DBE Band

Center: 1957.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



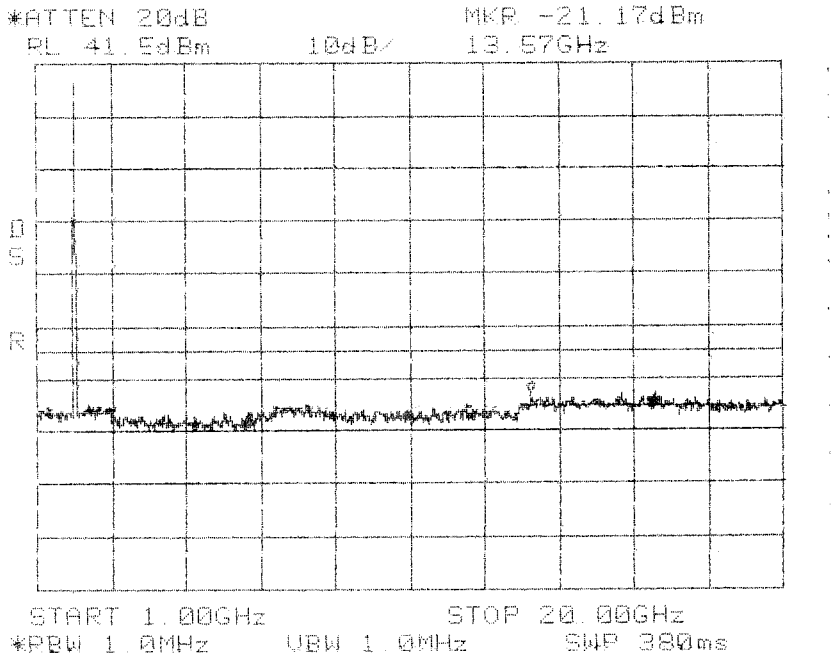
Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
DBE Band



Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
DBE Band

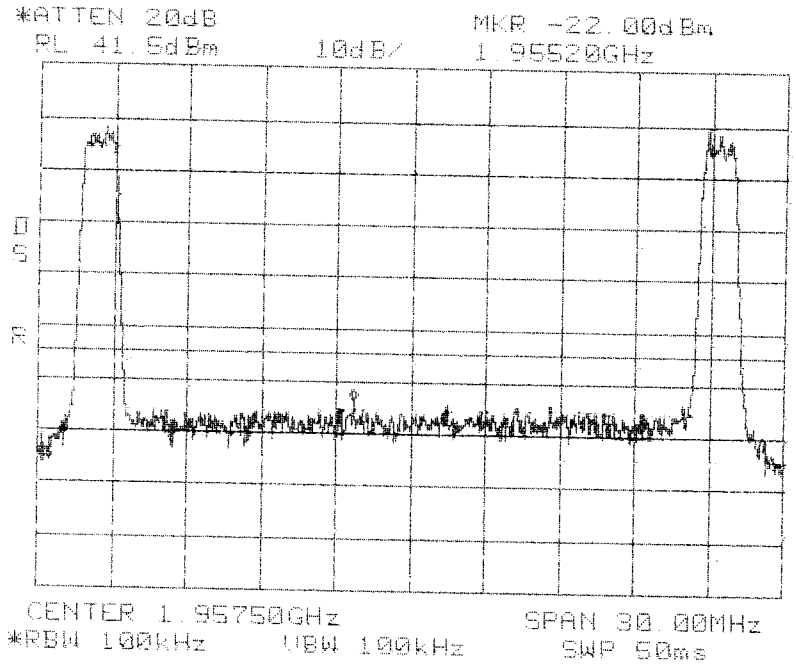
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

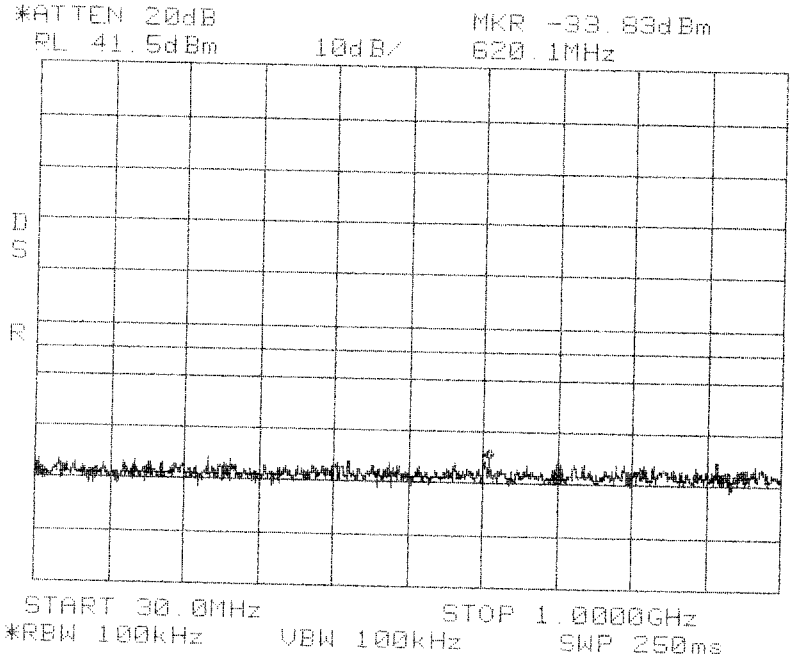


Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
DBE Band

Center: 1957.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



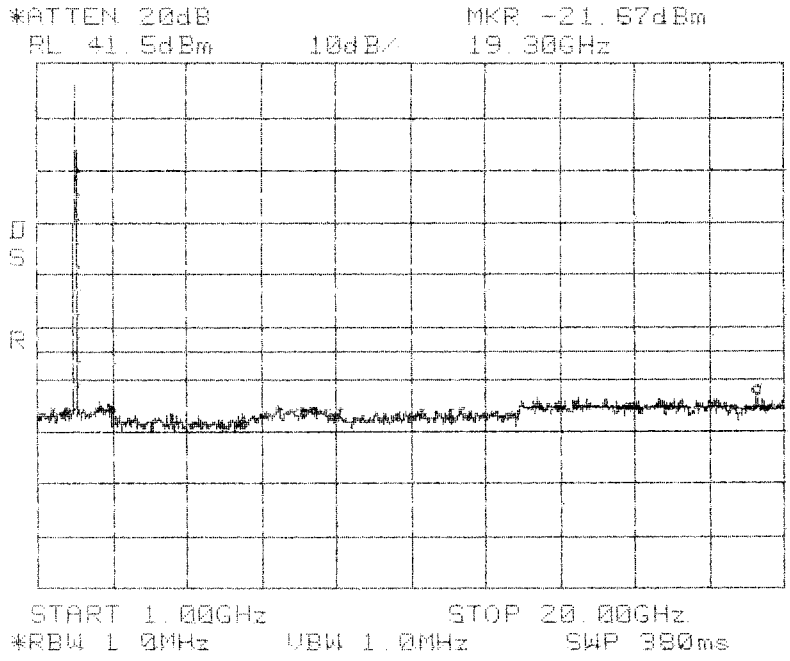
Intermodulation
Apart
CDMA
PCS 1900 MHz
DBE Band



Intermodulation
Apart
CDMA
PCS 1900 MHz
DBE Band

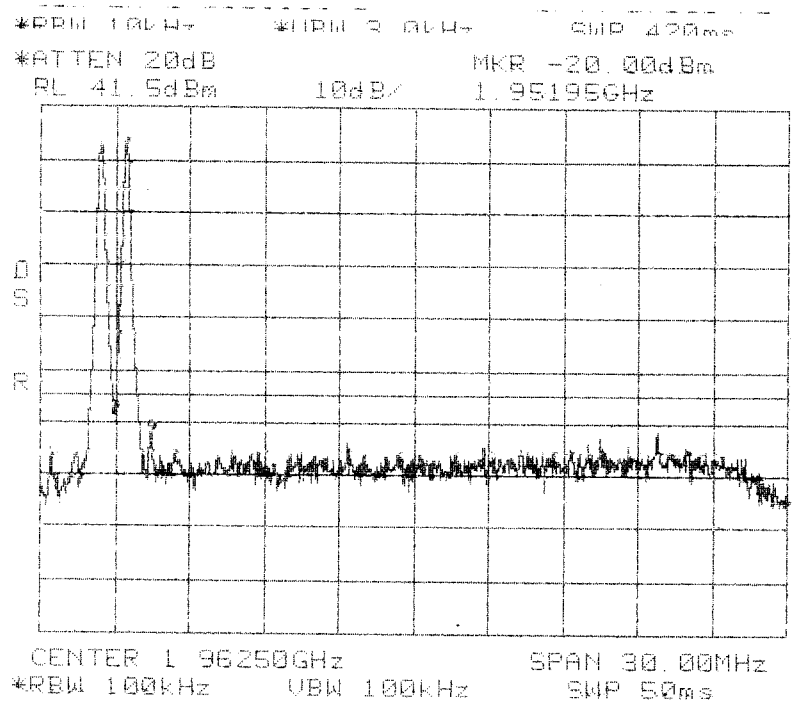
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

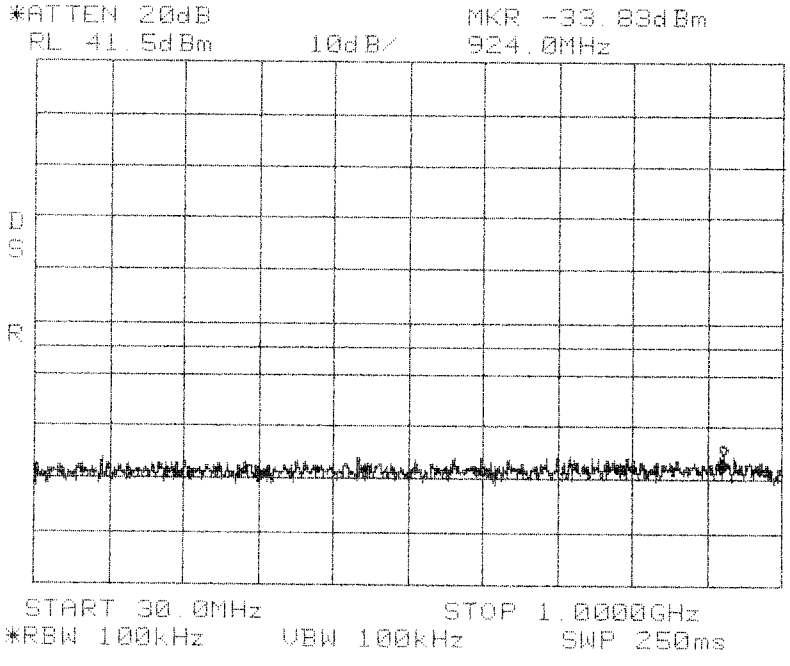


Intermodulation
Apart
CDMA
PCS 1900 MHz
DBE Band

Center: 1962.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



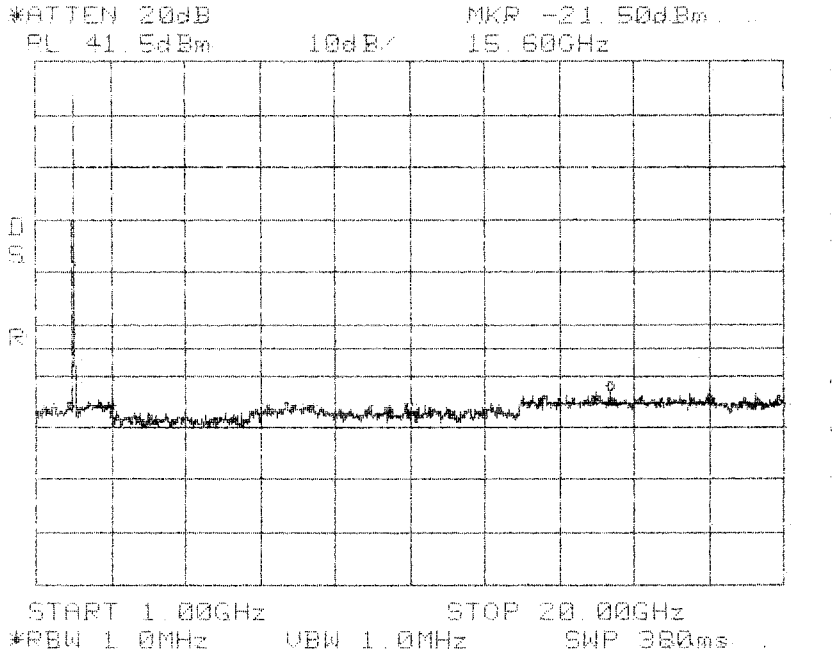
Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
BEF Band



Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
BEF Band

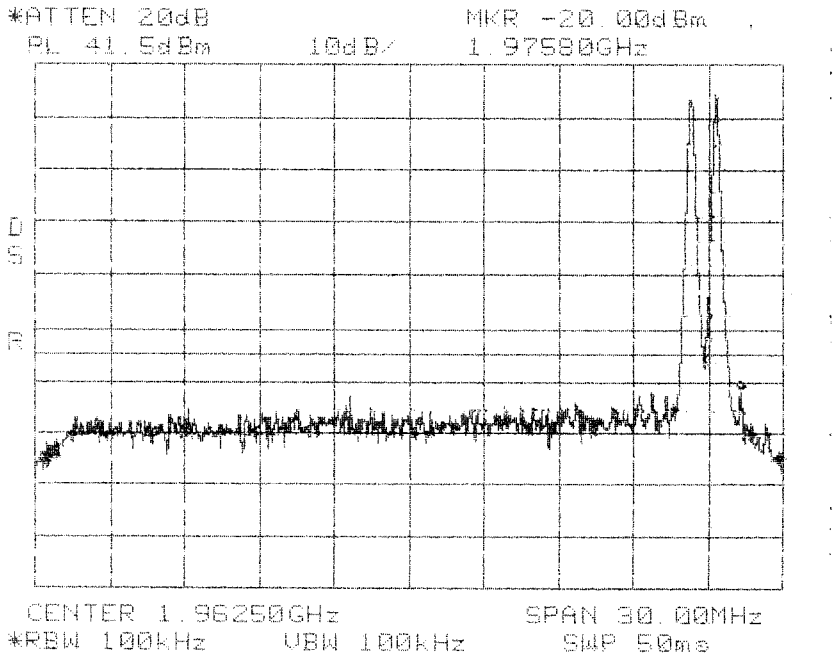
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

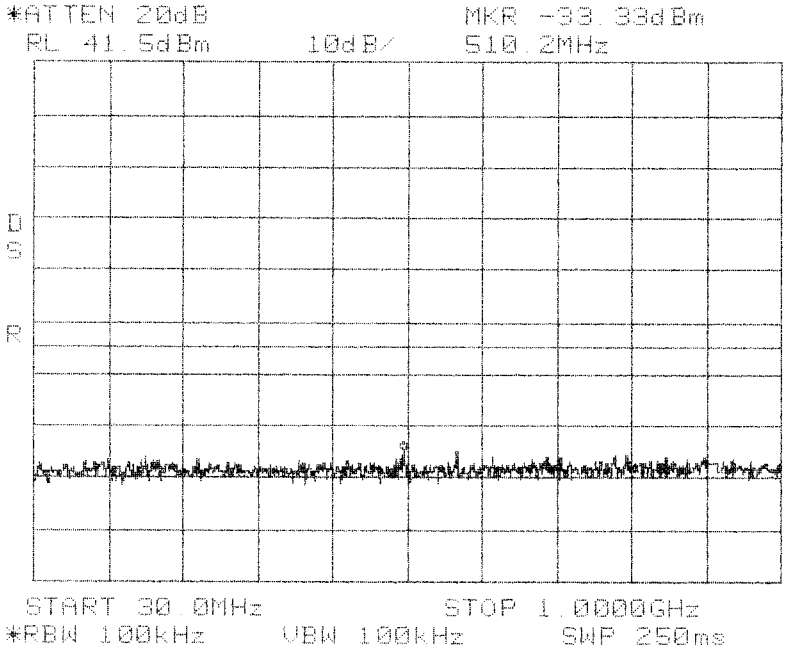


Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
BEF Band

Center: 1962.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



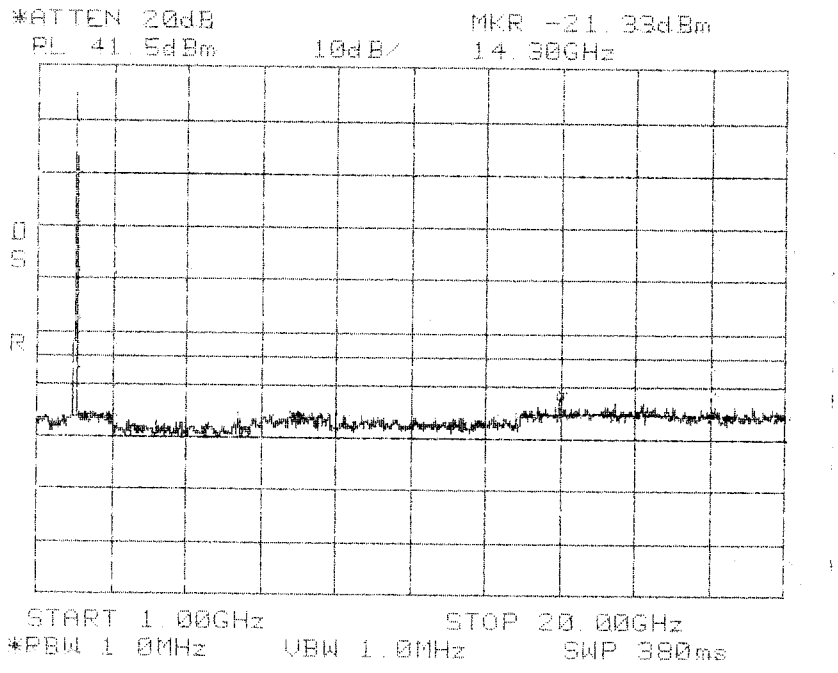
Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
BEF Band



Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
BEF Band

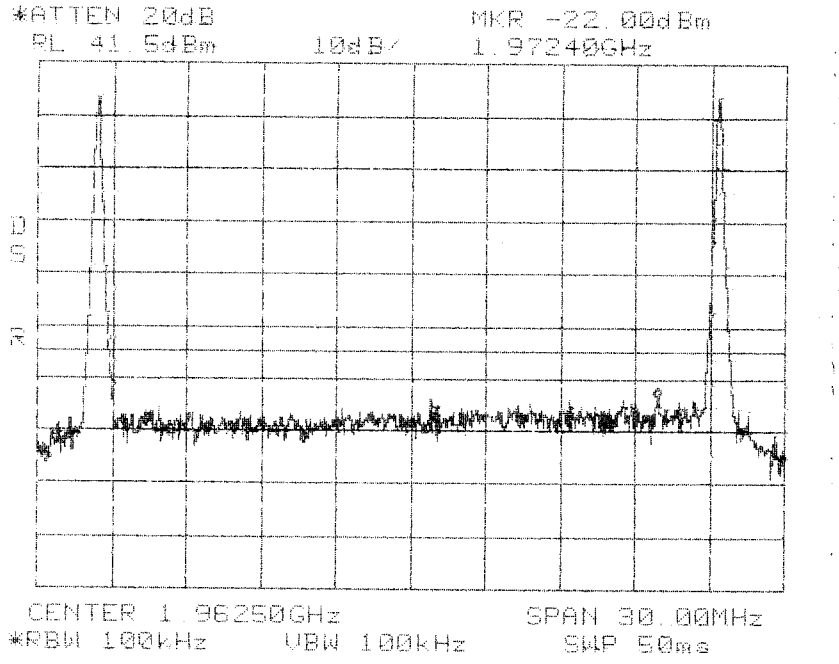
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

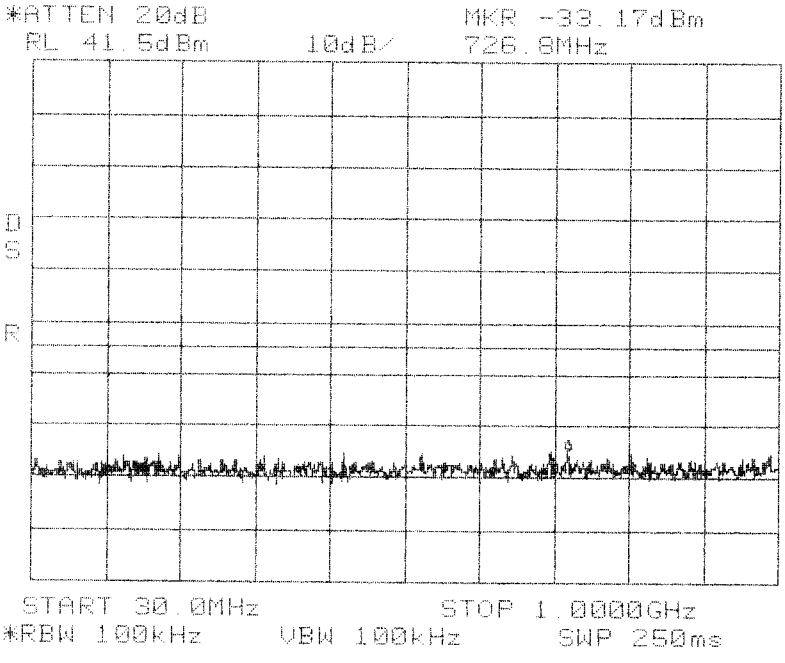


Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
BEF Band

Center: 1962.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



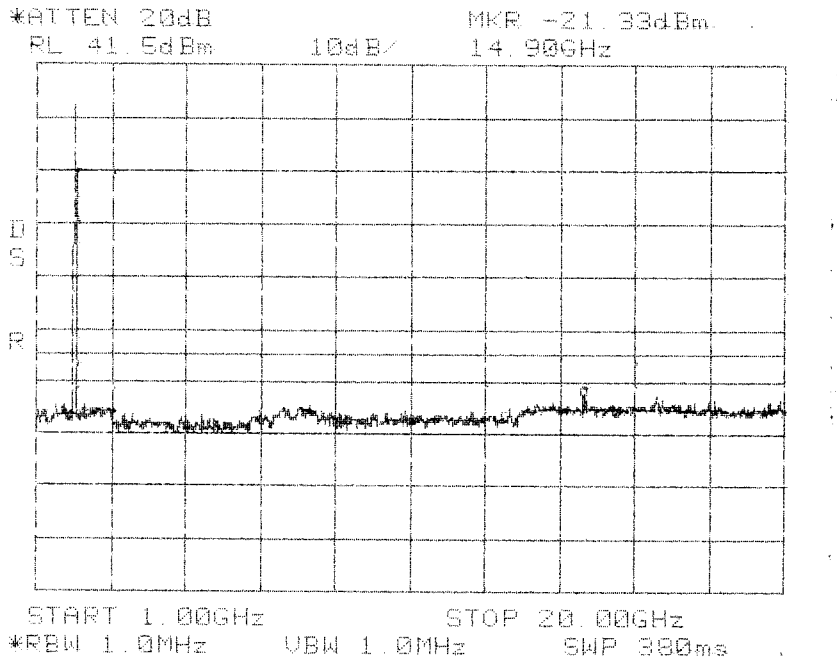
Intermodulation
Apart
TDMA
PCS 1900 MHz
BEF Band



Intermodulation
Apart
TDMA
PCS 1900 MHz
BEF Band

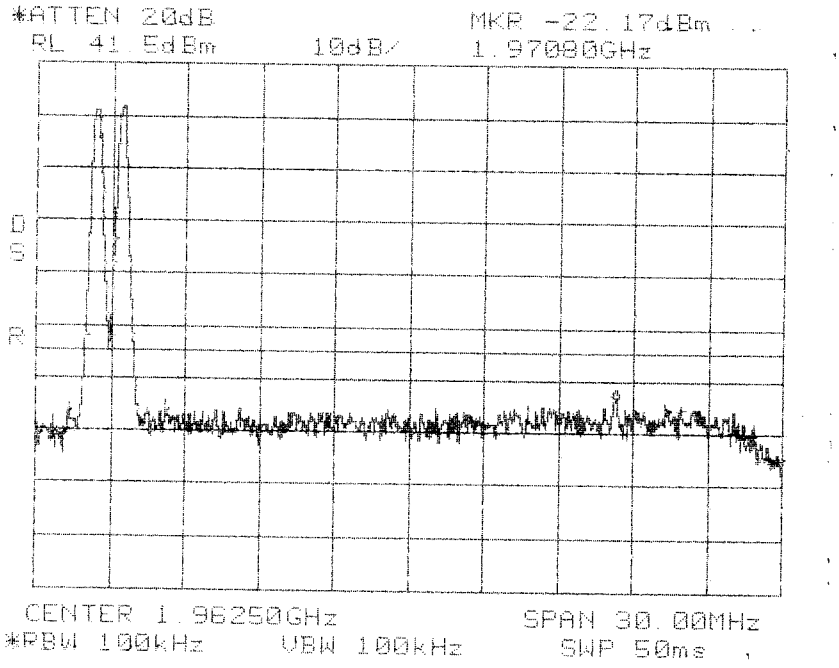
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

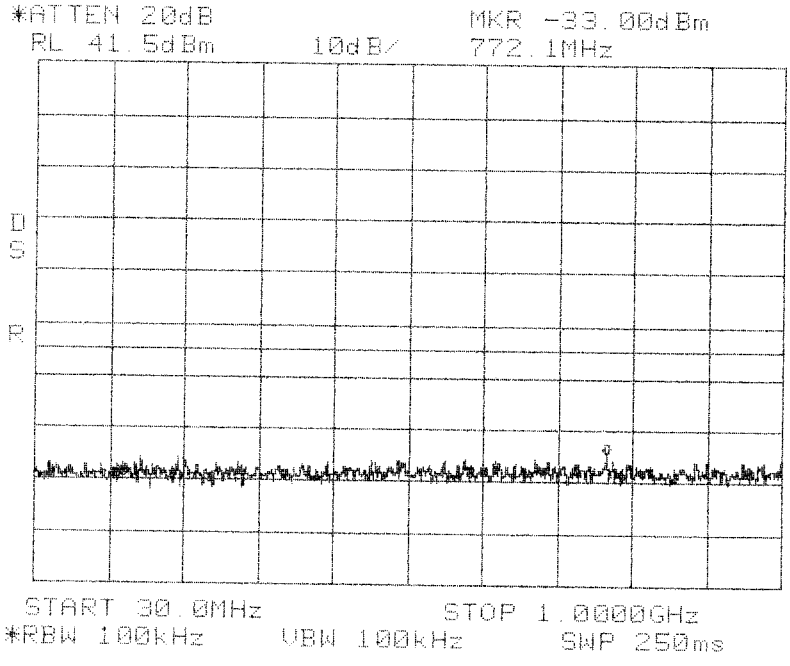


Intermodulation
Apart
TDMA
PCS 1900 MHz
BEF Band

Center: 1962.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



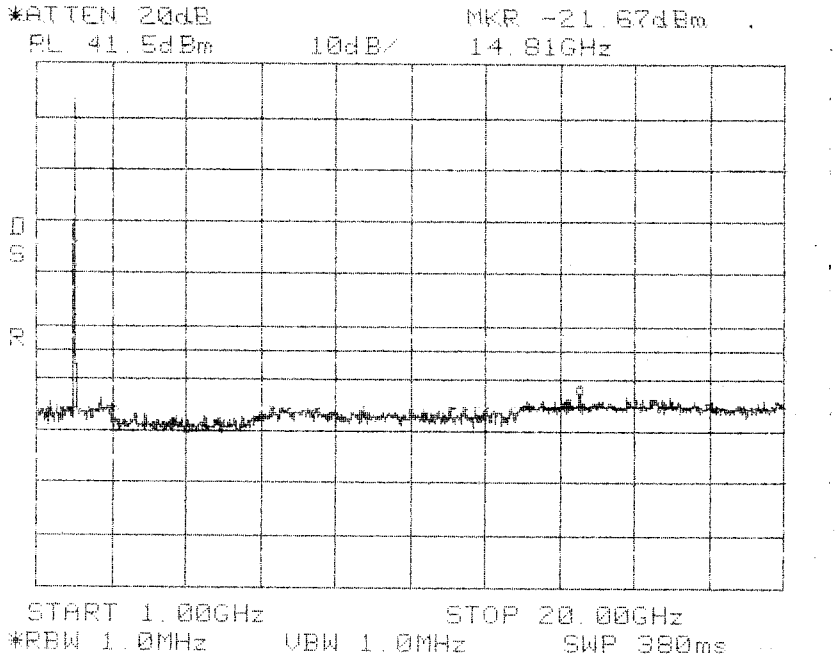
Intermodulation
Close
Lower
GSM
PCS 1900 MHz
BEF Band



Intermodulation
Close
Lower
GSM
PCS 1900 MHz
BEF Band

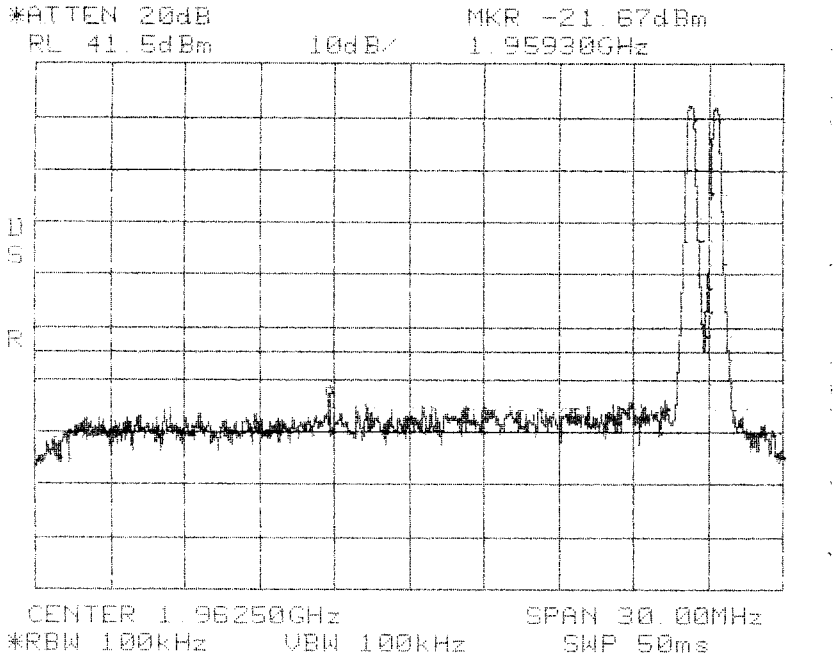
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

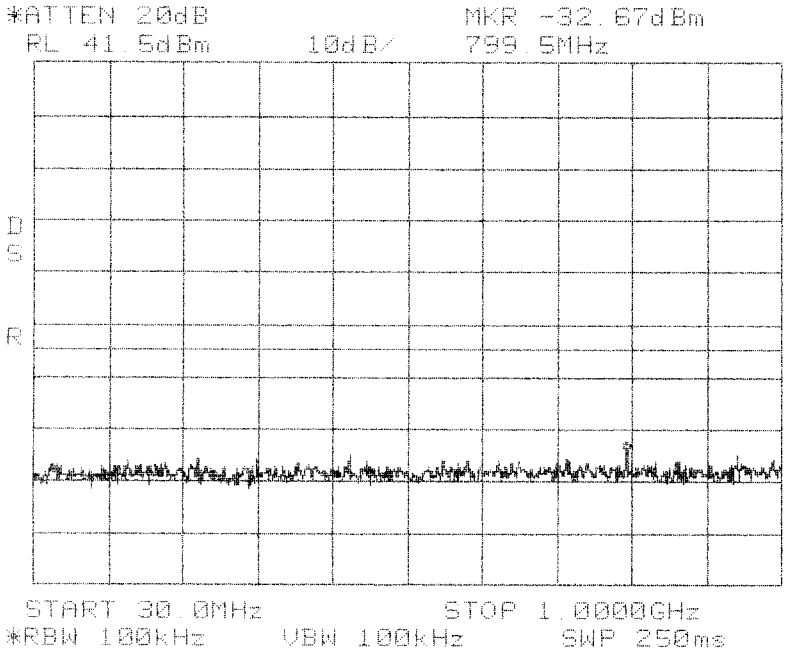


Intermodulation
Close
Lower
GSM
PCS 1900 MHz
BEF Band

Center: 1962.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



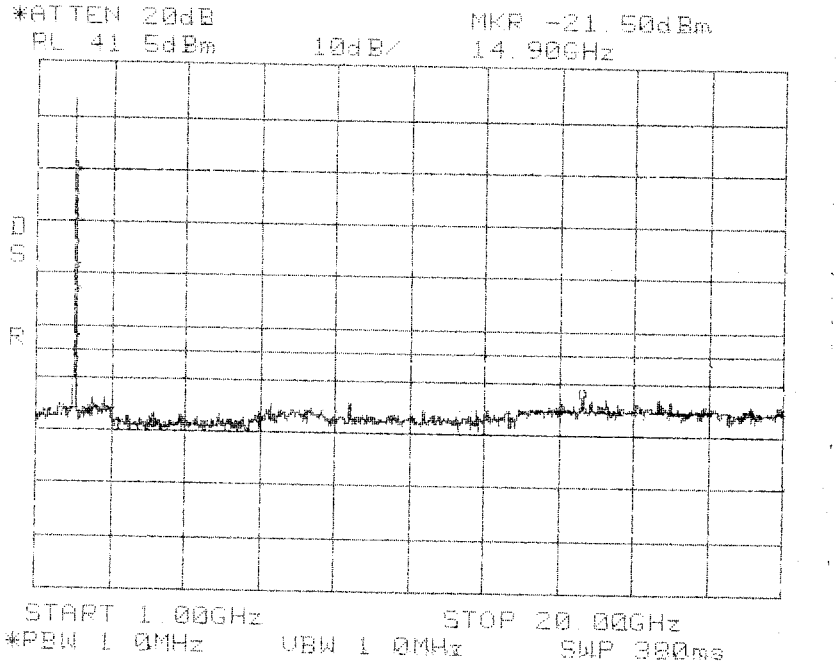
Intermodulation
Close
Upper
GSM
PCS 1900 MHz
BEF Band



Intermodulation
Close
Upper
GSM
PCS 1900 MHz
BEF Band

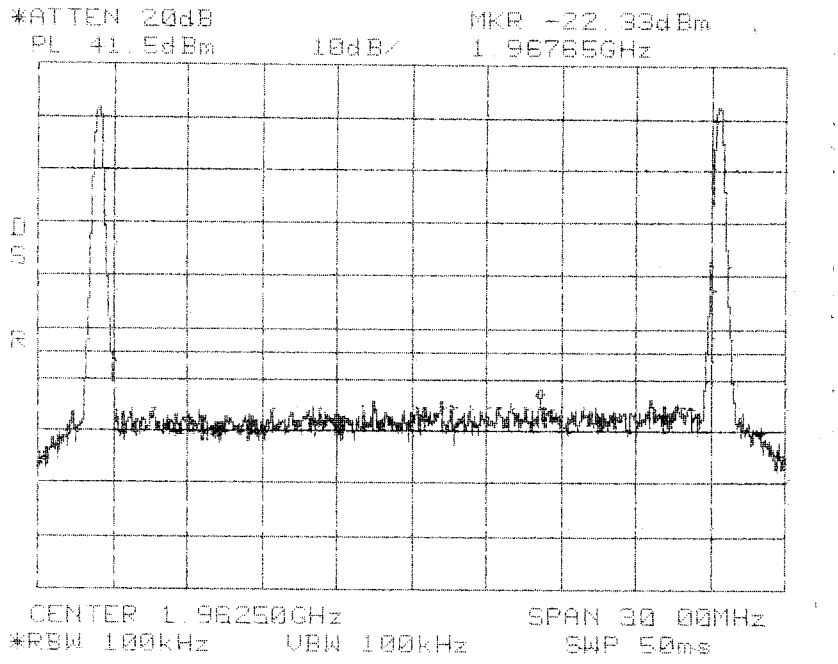
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

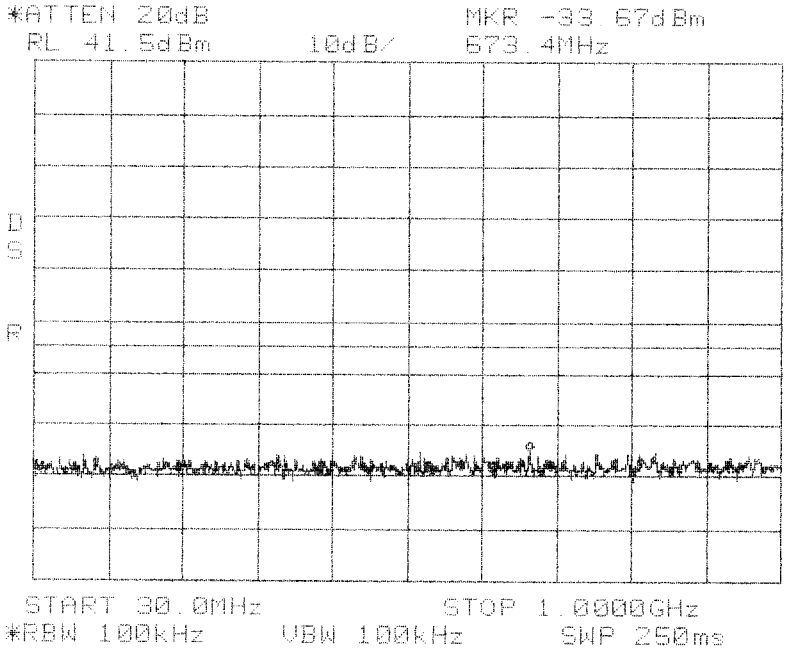


Intermodulation
Close
Upper
GSM
PCS 1900 MHz
BEF Band

Center: 1962.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



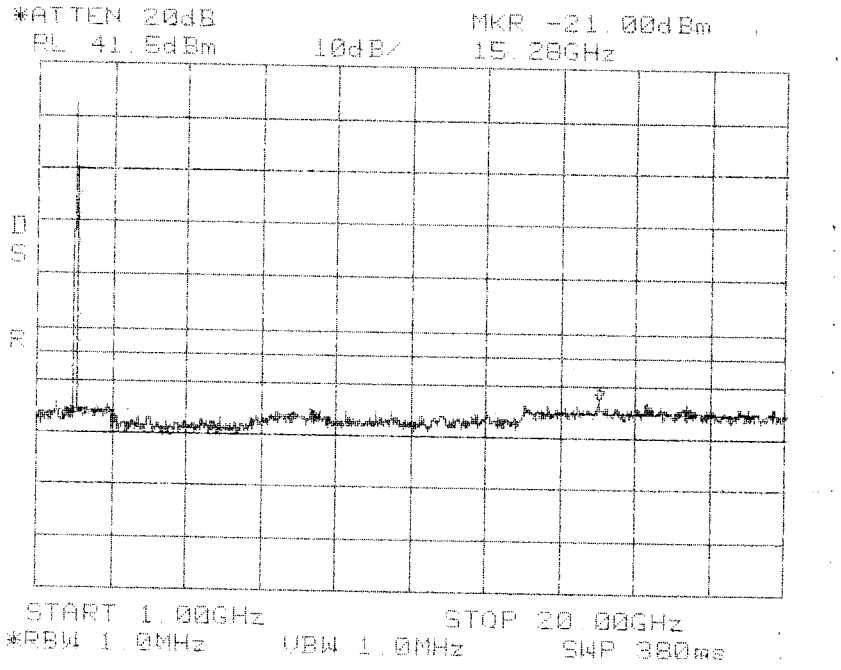
Intermodulation
Apart
GSM
PCS 1900 MHz
BEF Band



Intermodulation
Apart
GSM
PCS 1900 MHz
BEF Band

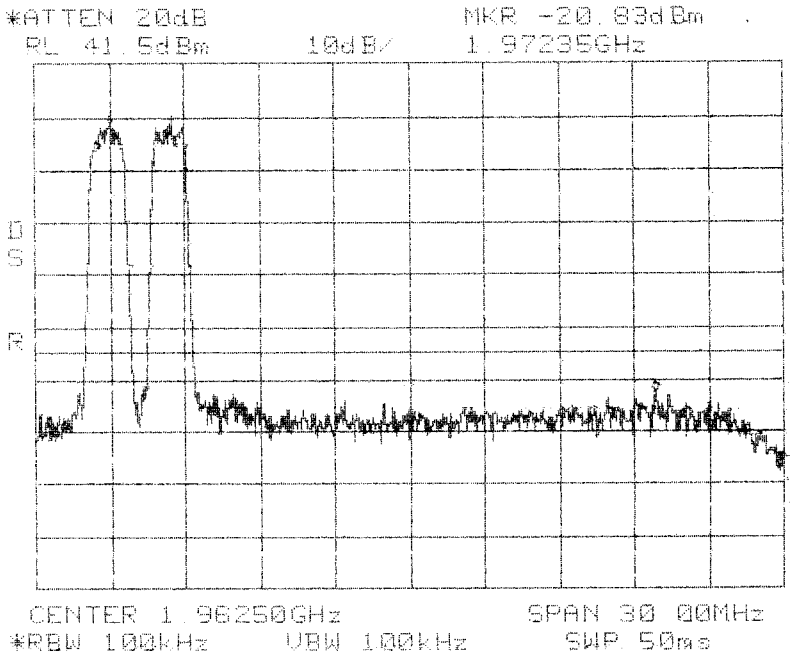
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

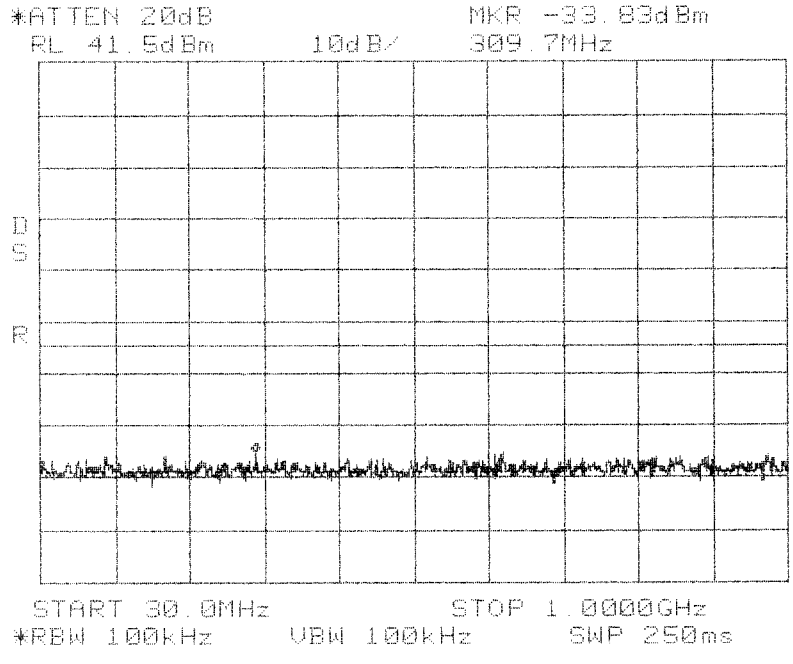


Intermodulation
Apart
GSM
PCS 1900 MHz
BEF Band

Center: 1962.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



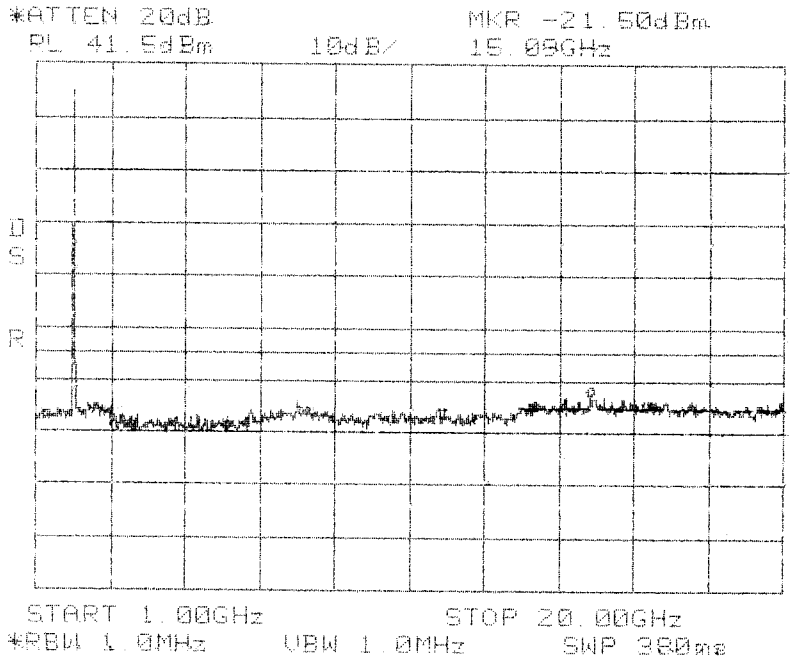
Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
BEF Band



Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
BEF Band

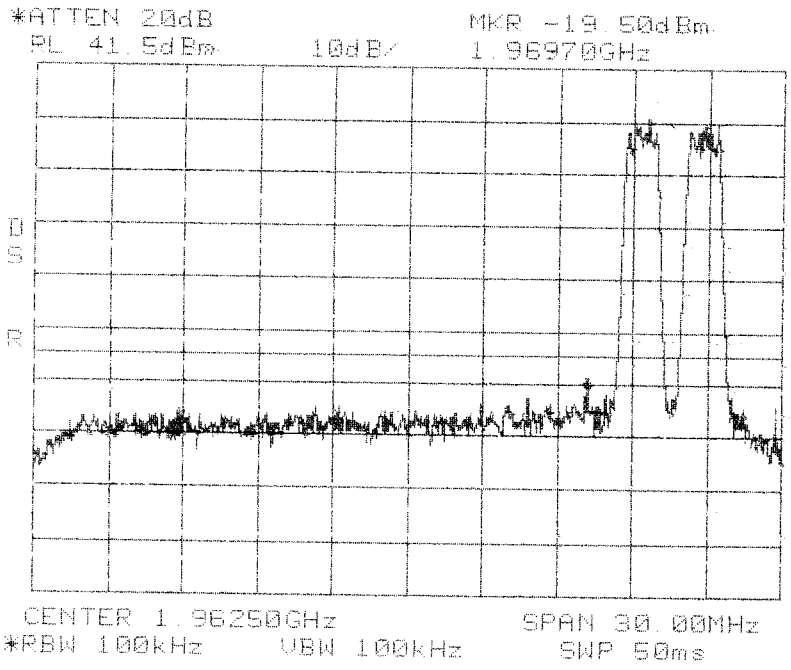
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

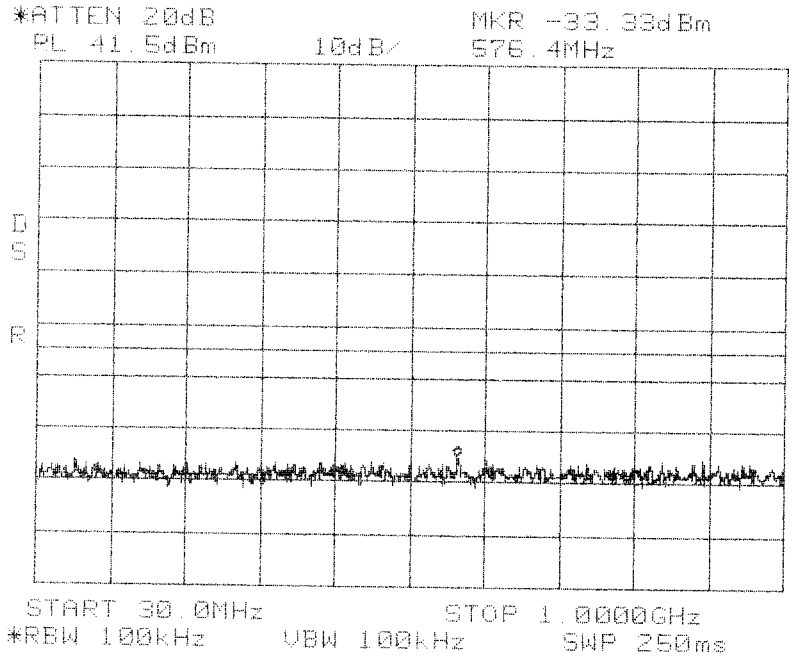


Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
BEF Band

Center: 1962.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



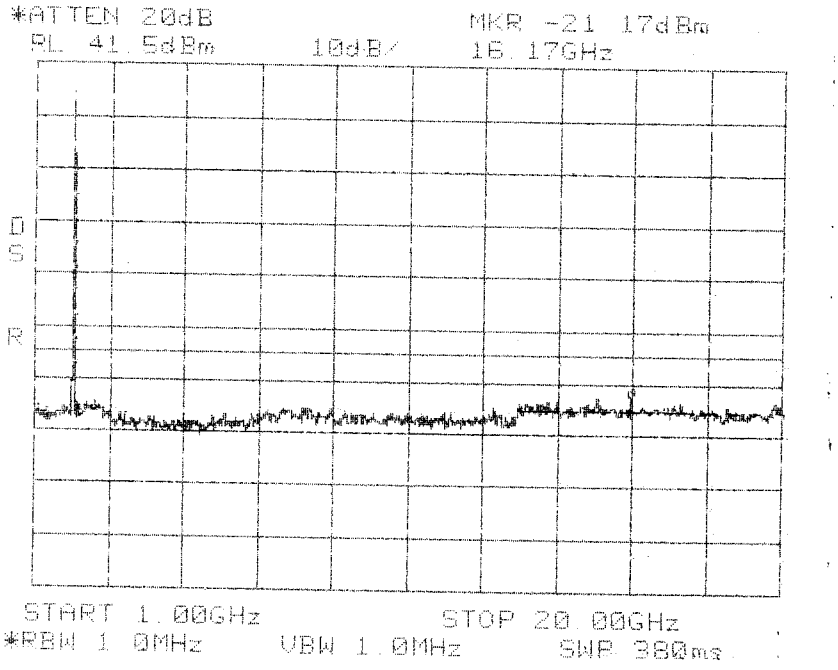
Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
BEF Band



Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
BEF Band

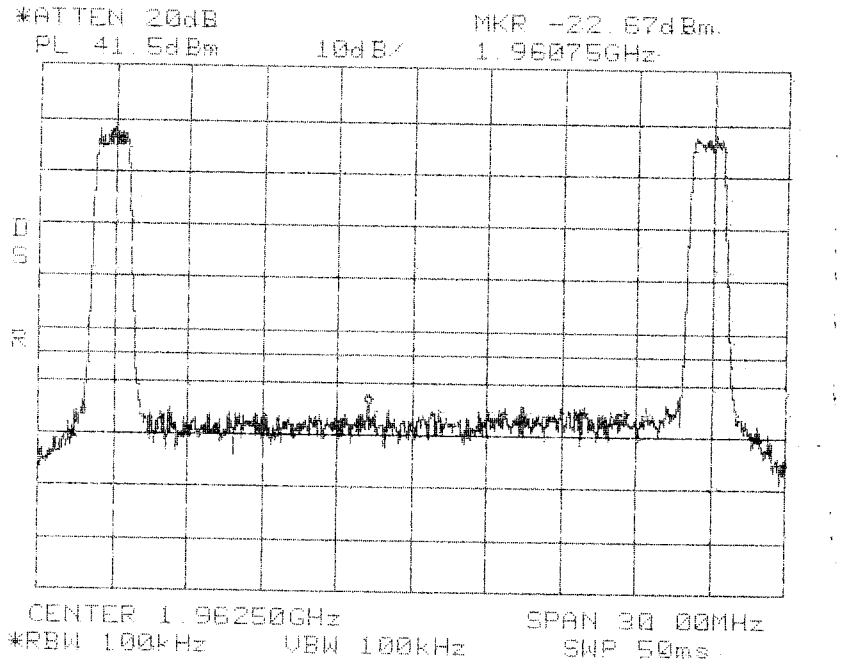
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

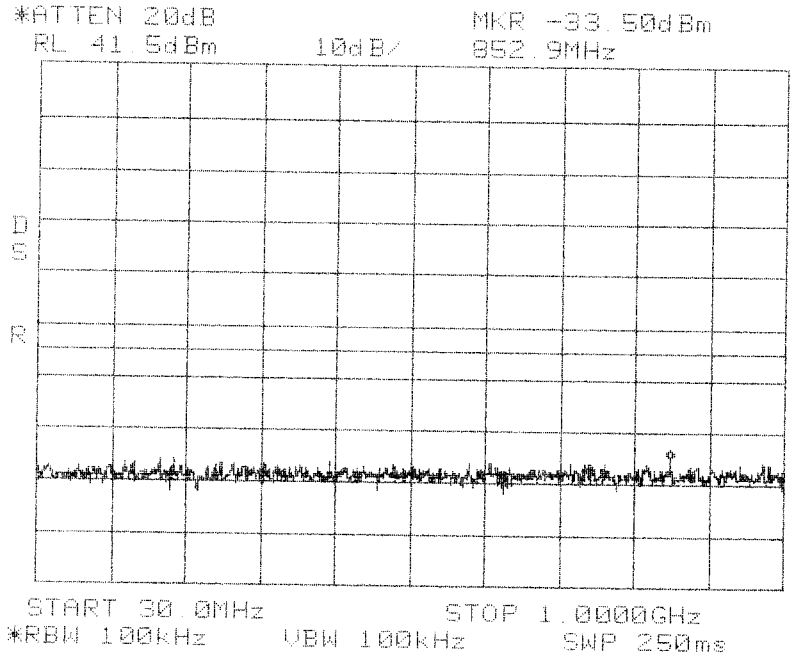


Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
BEF Band

Center: 1962.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



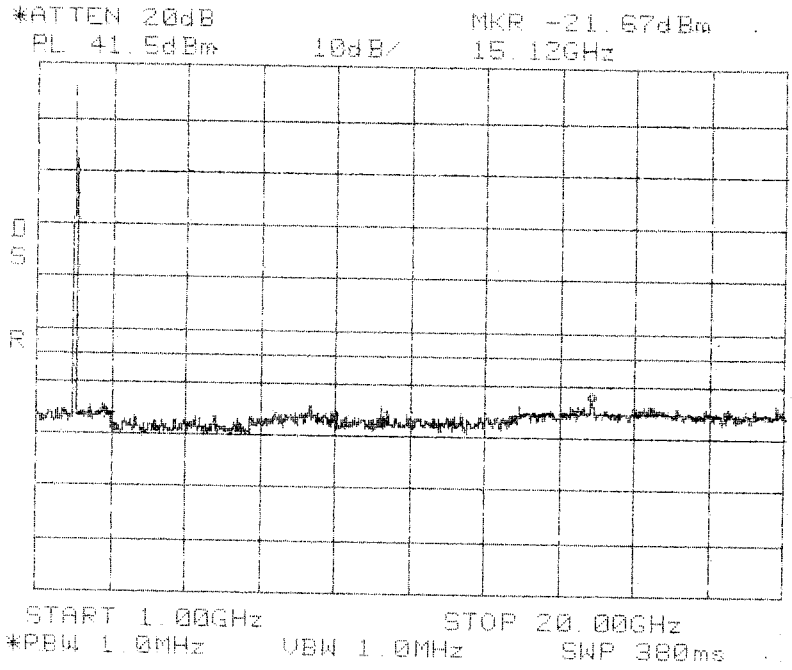
Intermodulation
Apart
CDMA
PCS 1900 MHz
BEF Band



Intermodulation
Apart
CDMA
PCS 1900 MHz
BEF Band

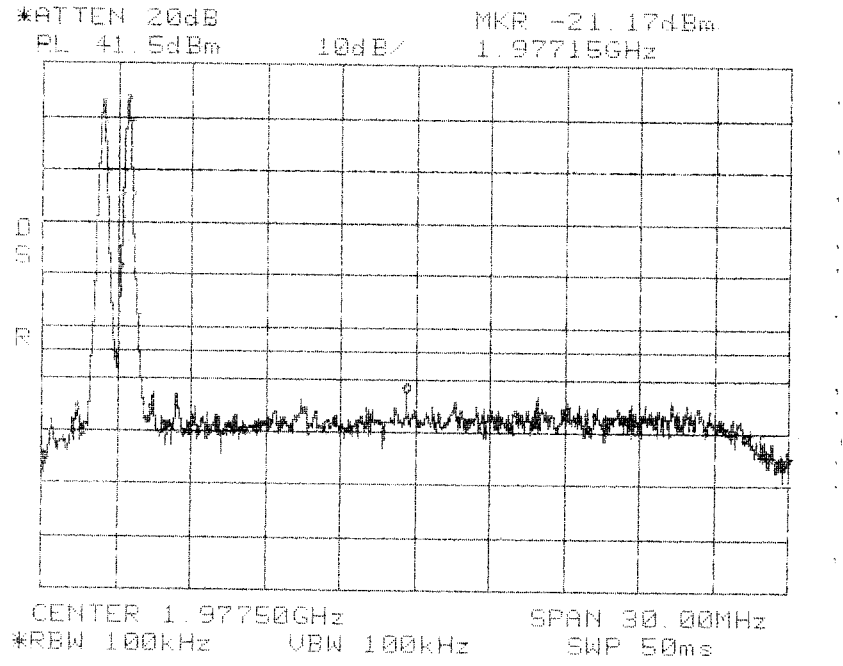
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

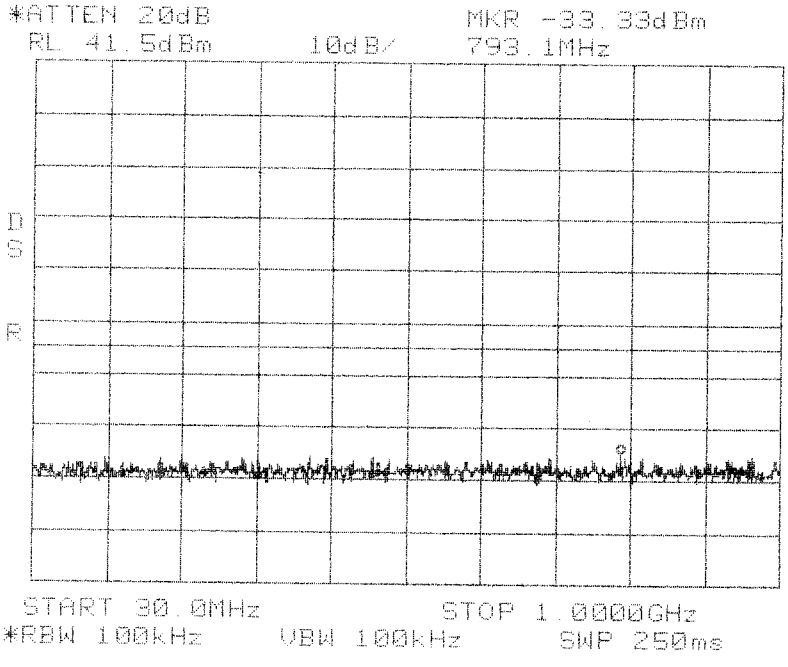


Intermodulation Apart CDMA PCS 1900 MHz BEF Band

Center: 1977.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



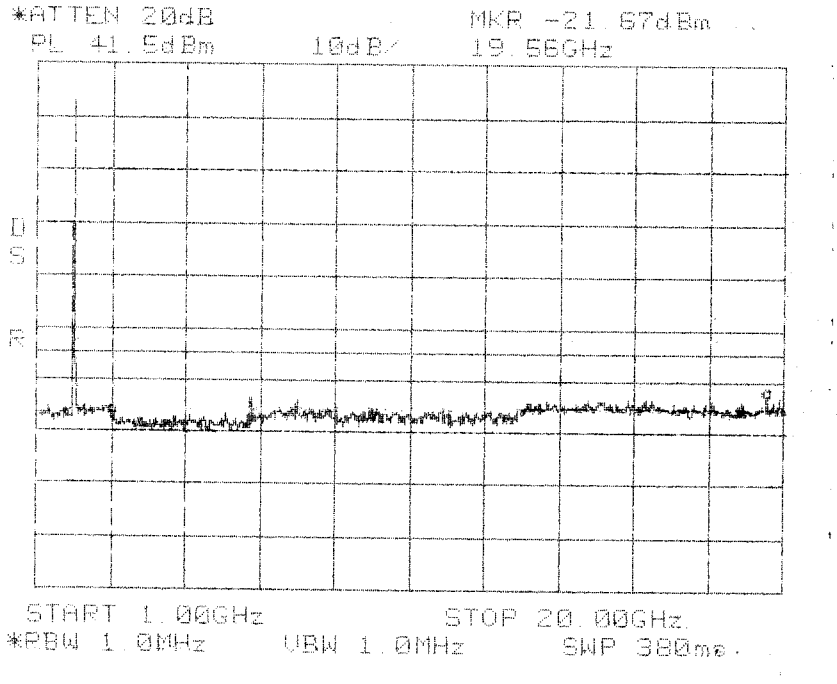
Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
EFC Band



Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
EFC Band

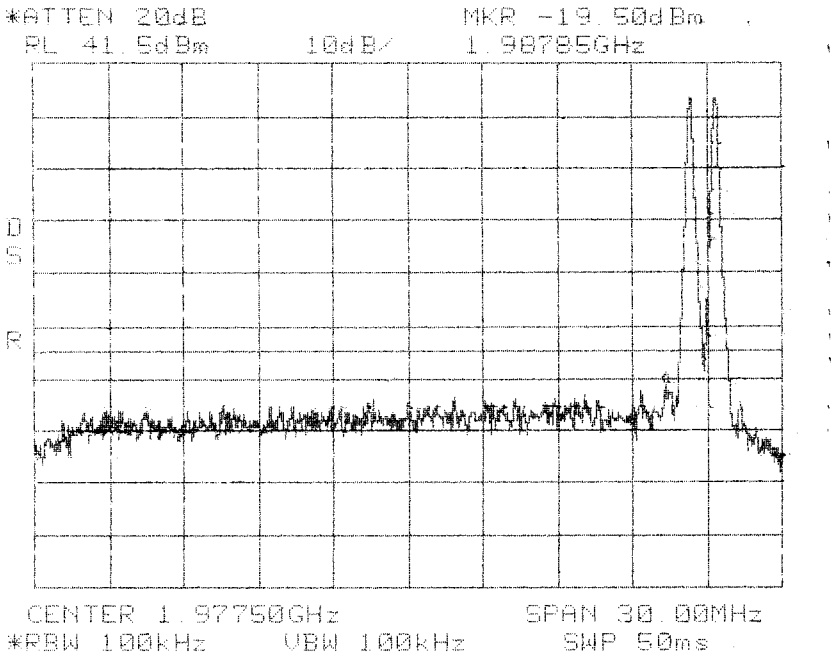
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

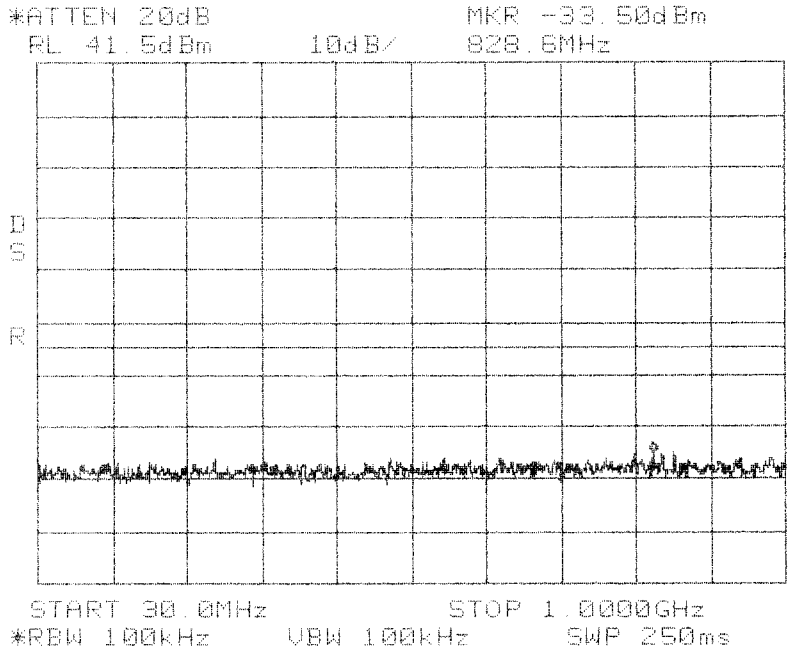


Intermodulation
Close
Lower
TDMA
PCS 1900 MHz
EFC Band

Center: 1977.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



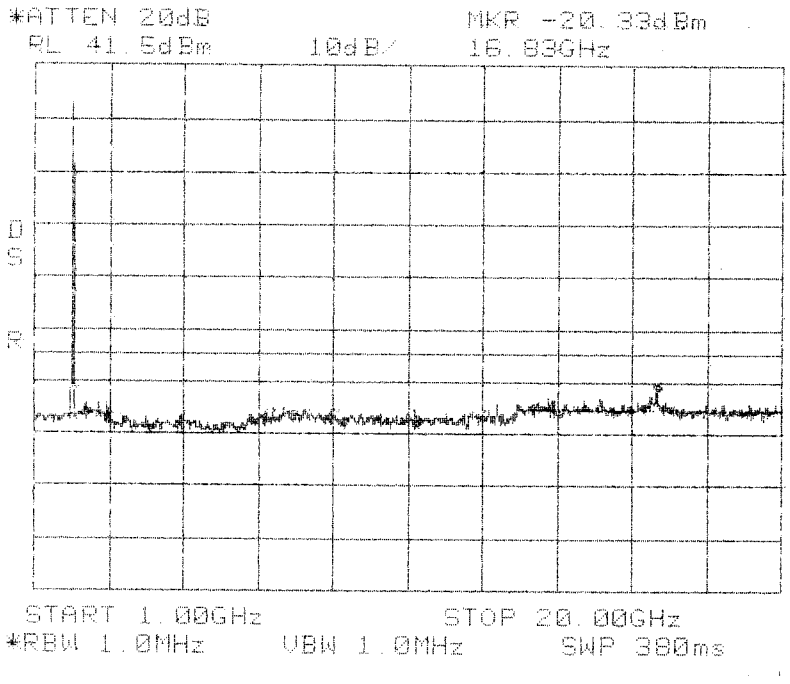
Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
EFC Band



Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
EFC Band

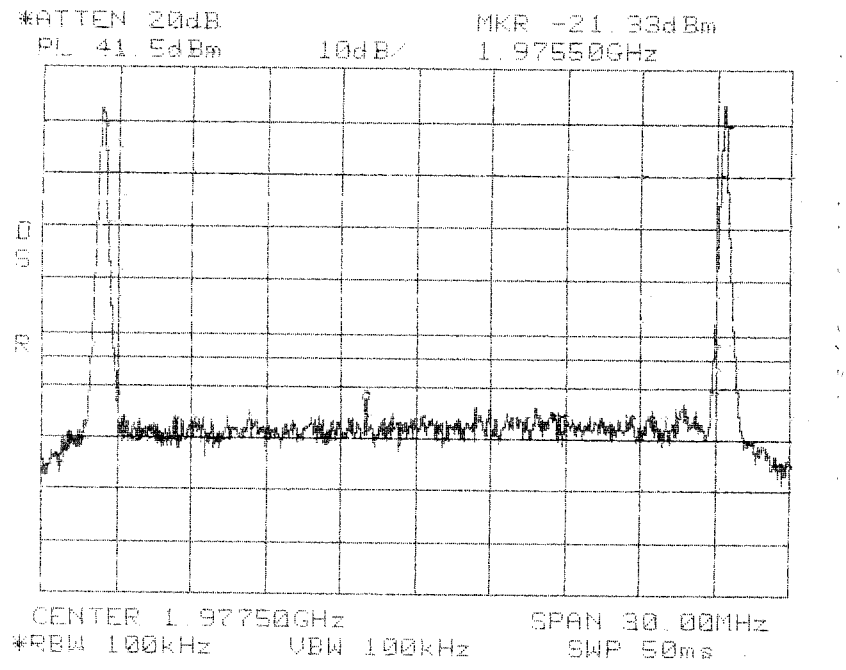
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

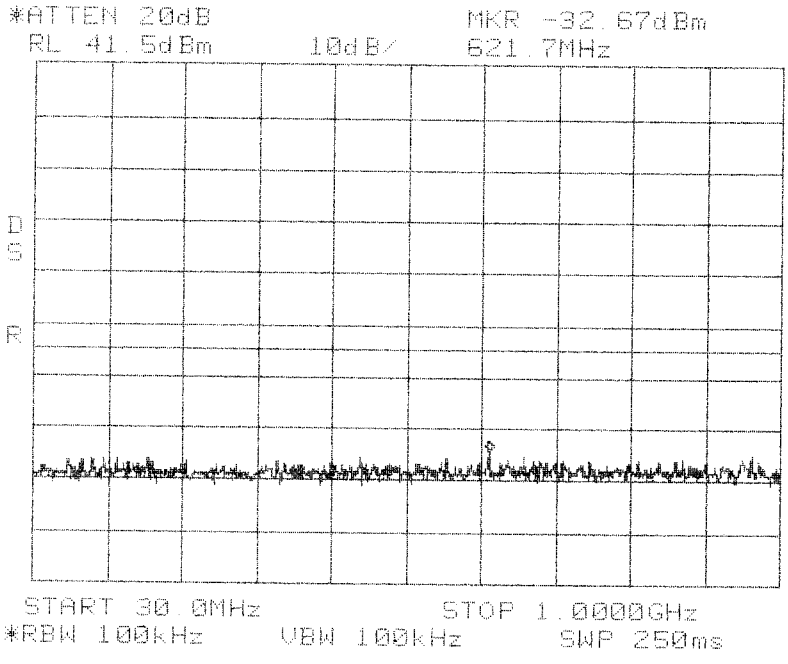


Intermodulation
Close
Upper
TDMA
PCS 1900 MHz
EFC Band

Center: 1977.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



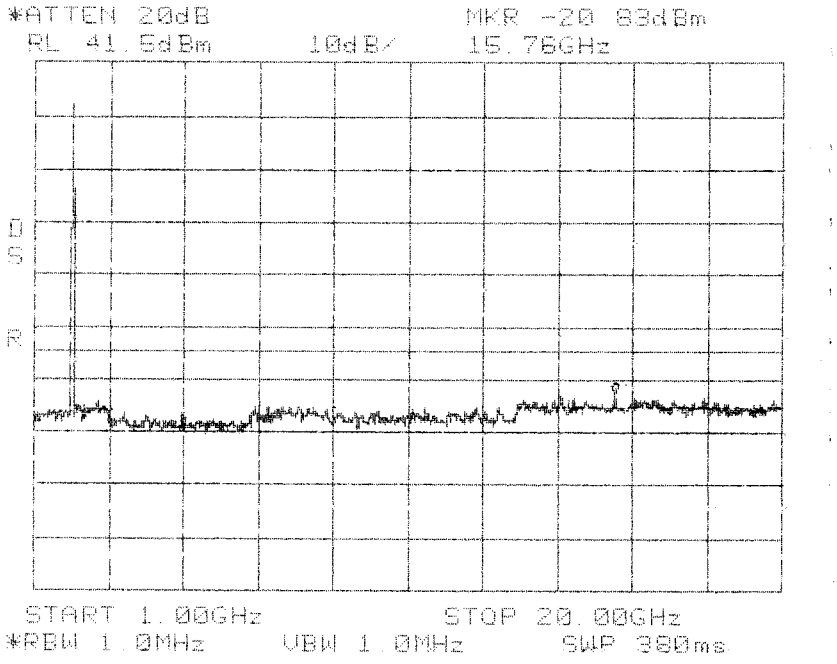
Intermodulation
Apart
TDMA
PCS 1900 MHz
EFC Band



Intermodulation
Apart
TDMA
PCS 1900 MHz
EFC Band

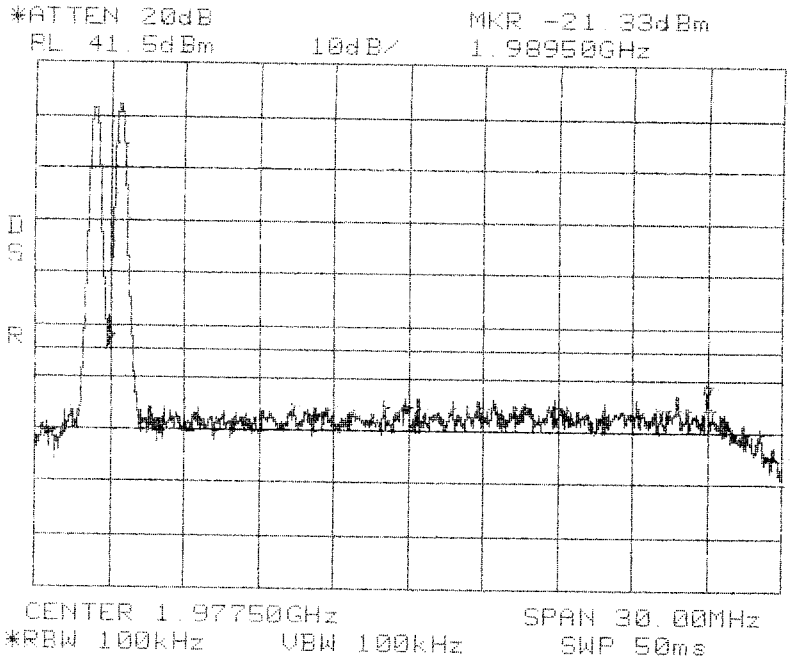
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

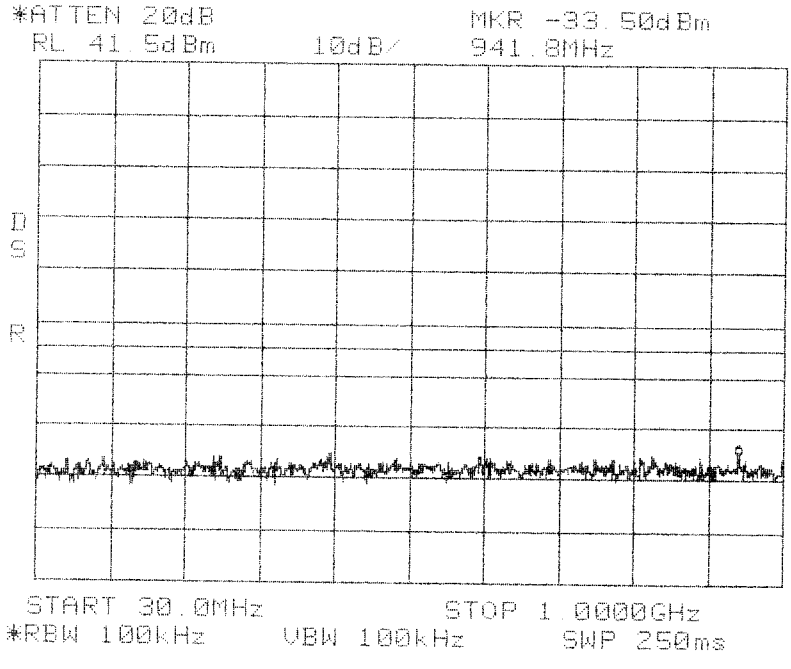


Intermodulation
Apart
TDMA
PCS 1900 MHz
EFC Band

Center: 1977.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



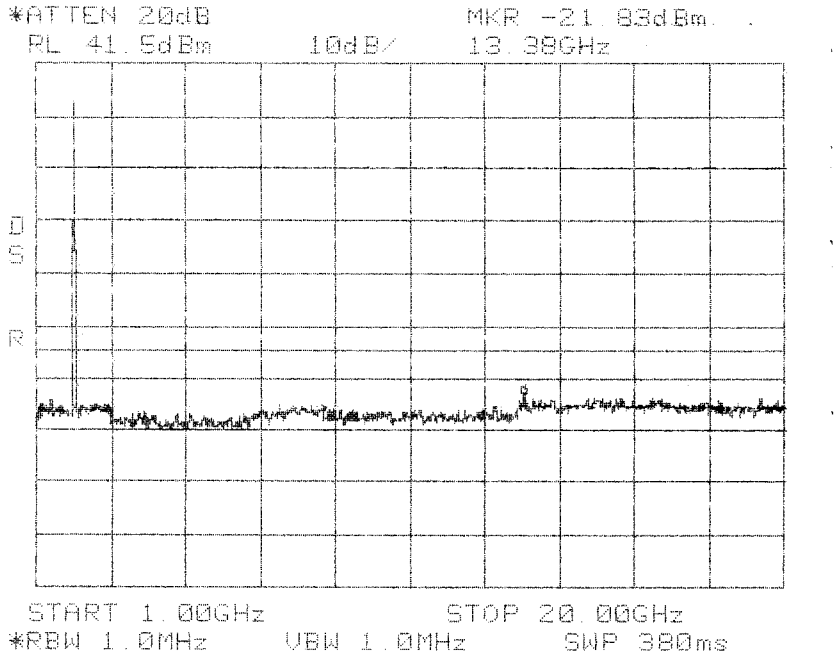
Intermodulation
Close
Lower
GSM
PCS 1900 MHz
EFC Band



Intermodulation
Close
Lower
GSM
PCS 1900 MHz
EFC Band

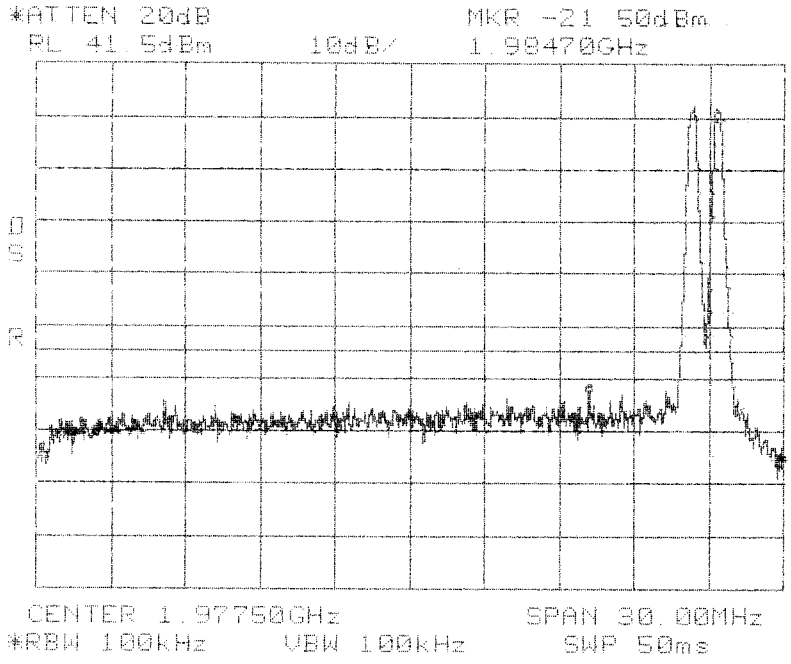
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

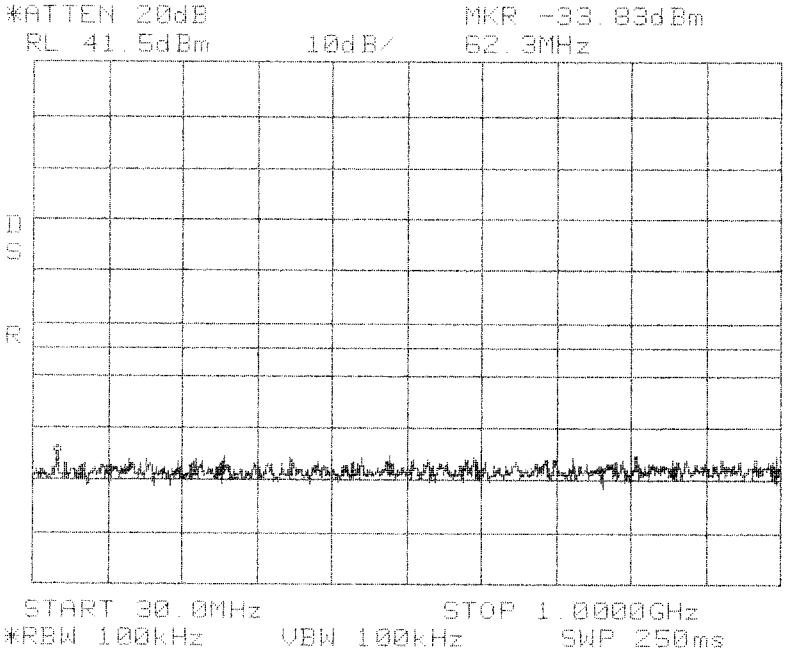


Intermodulation
Close
Lower
GSM
PCS 1900 MHz
EFC Band

Center: 1977.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



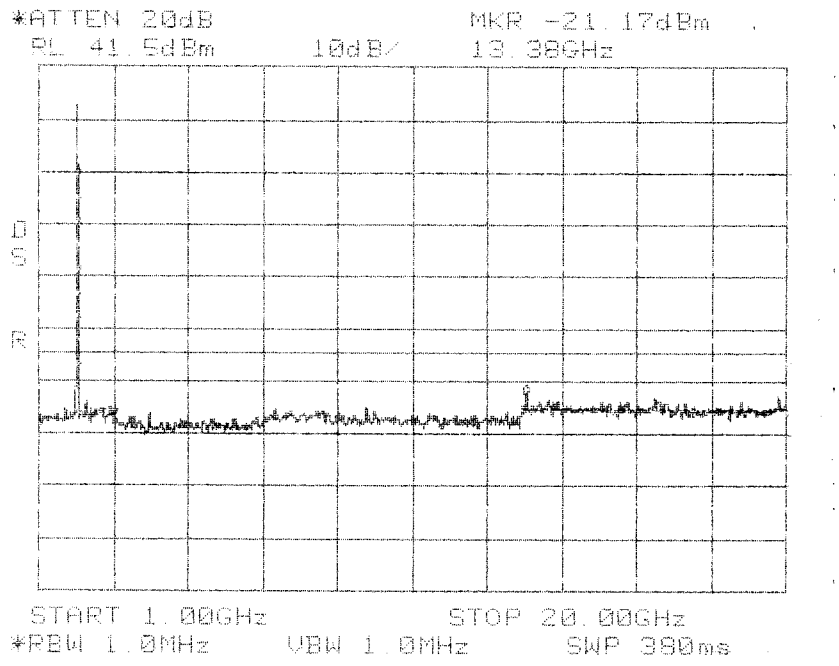
Intermodulation
Close
Upper
GSM
PCS 1900 MHz
EFC Band



Intermodulation
Close
Upper
GSM
PCS 1900 MHz
EFC Band

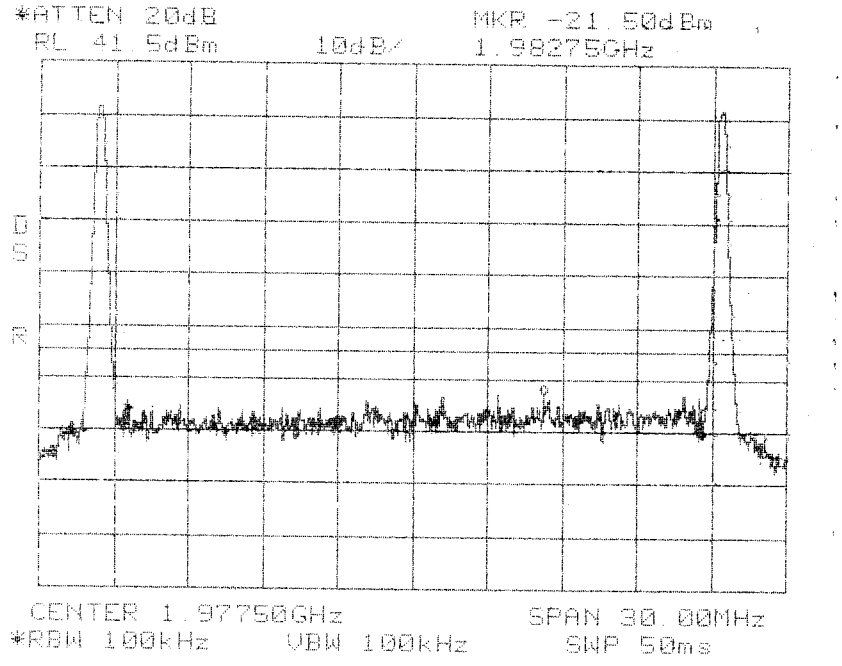
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

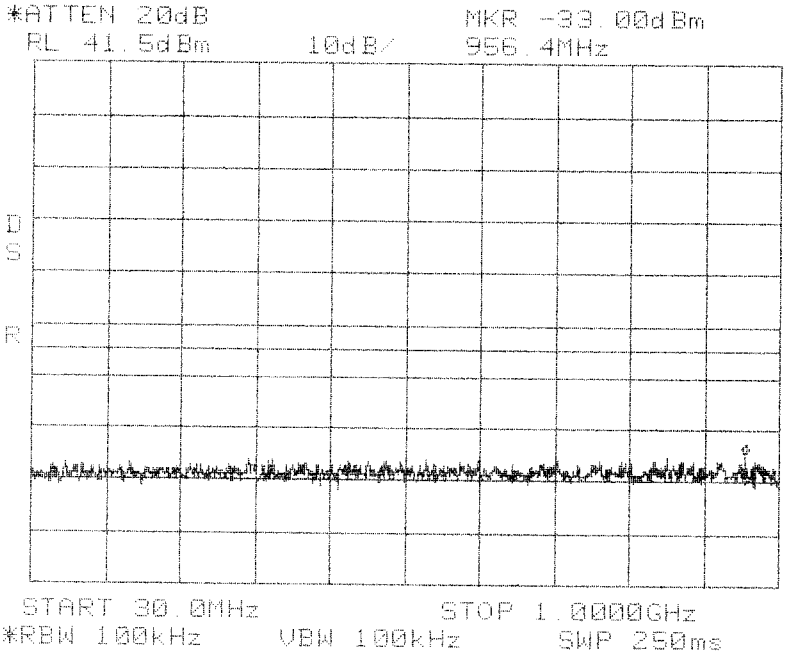


Intermodulation
Close
Upper
GSM
PCS 1900 MHz
EFC Band

Center: 1977.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



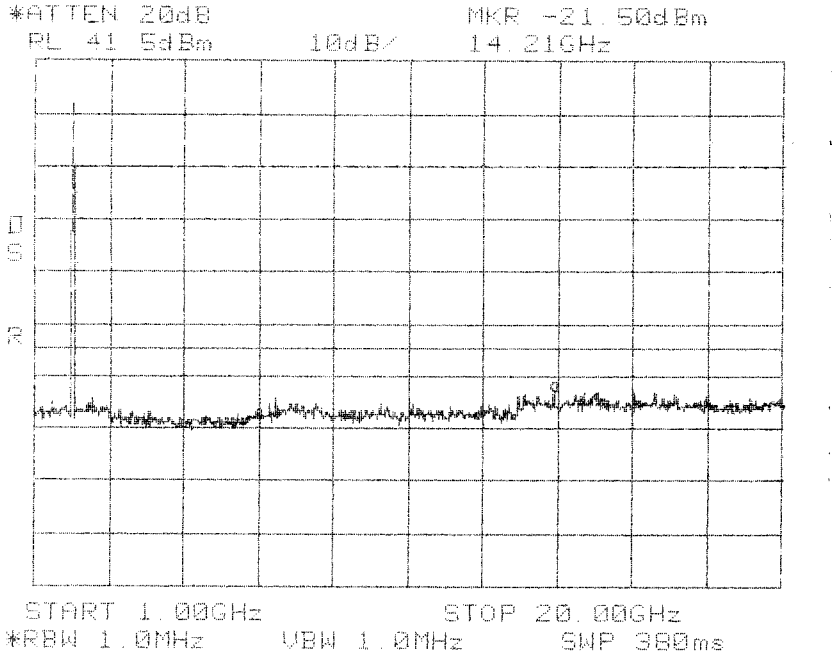
Intermodulation
Apart
GSM
PCS 1900 MHz
EFC Band



Intermodulation
Apart
GSM
PCS 1900 MHz
EFC Band

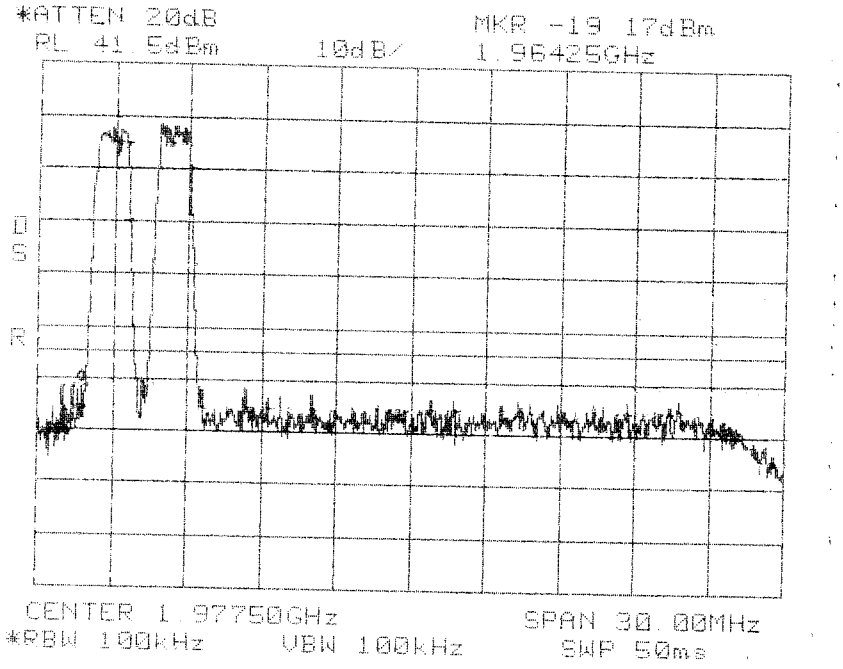
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

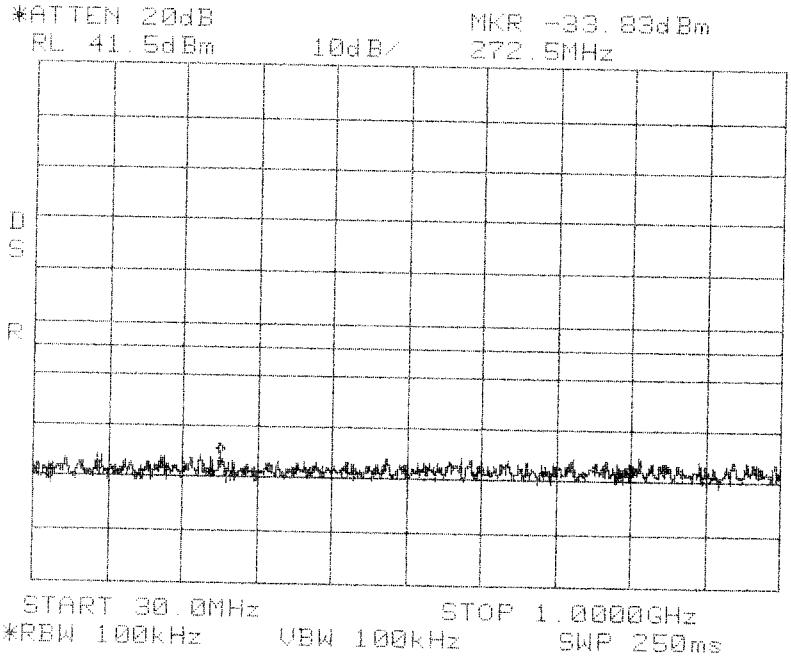


Intermodulation
Apart
GSM
PCS 1900 MHz
EFC Band

Center: 1977.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



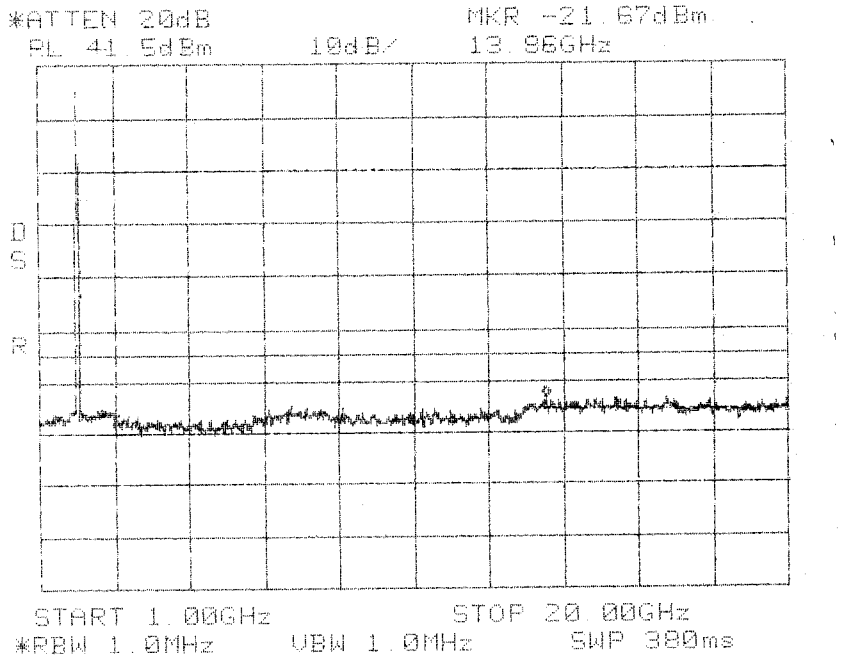
Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
EFC Band



Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
EFC Band

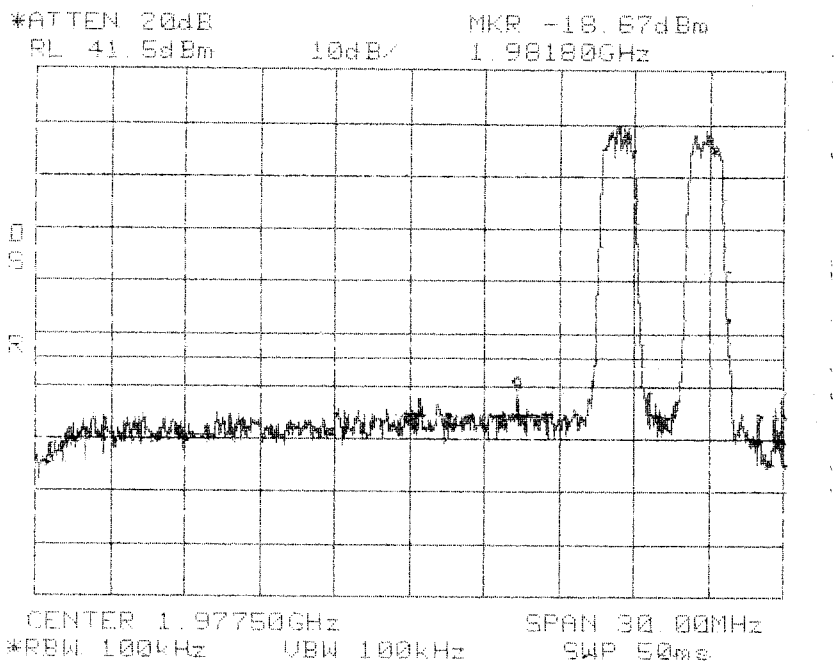
Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz

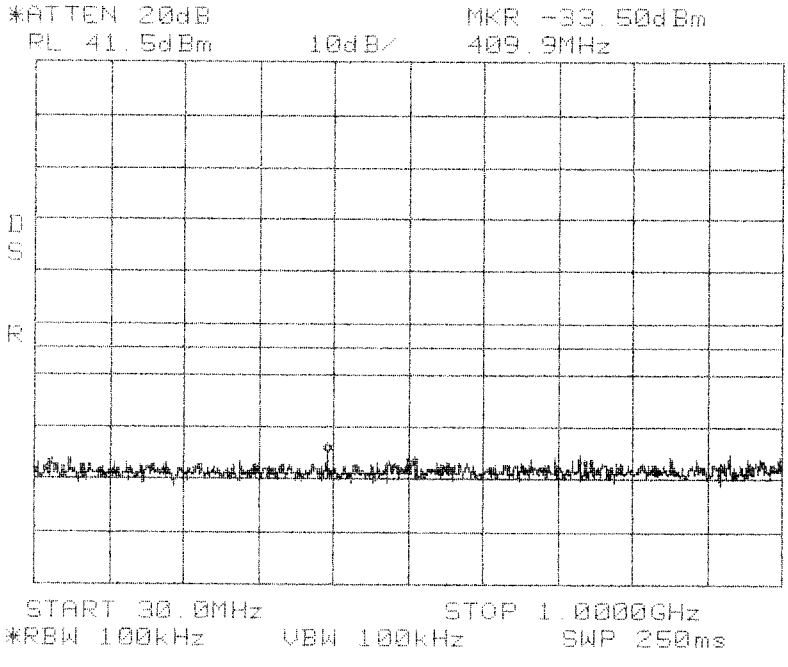


Intermodulation
Close
Lower
CDMA
PCS 1900 MHz
EFC Band

Center: 1977.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz



Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
EFC Band



Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
EFC Band

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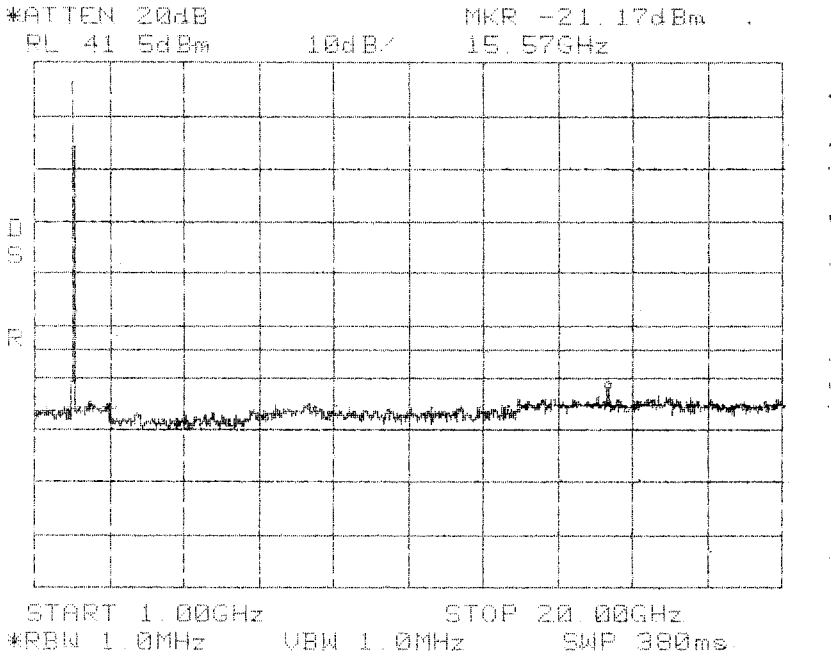
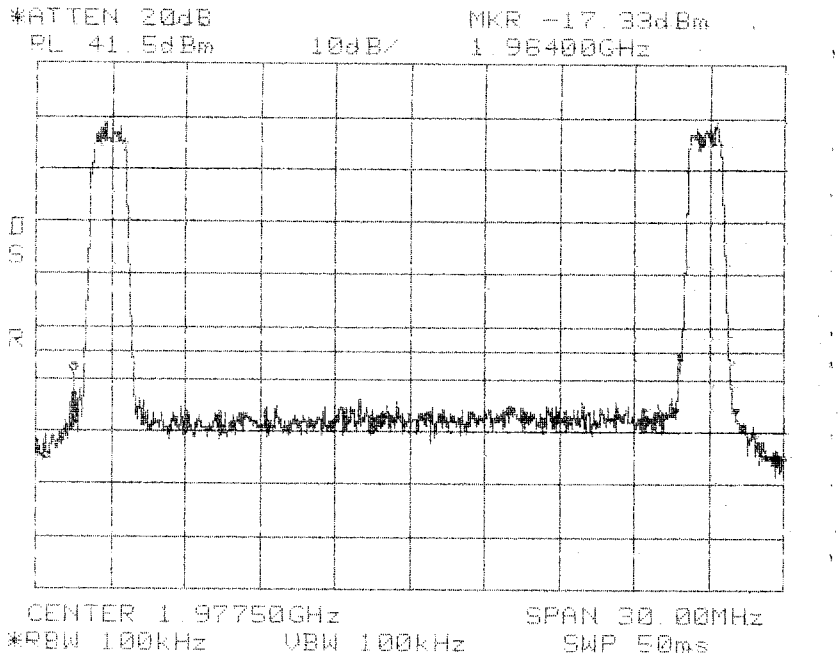


Intermodulation
Close
Upper
CDMA
PCS 1900 MHz
EFC Band

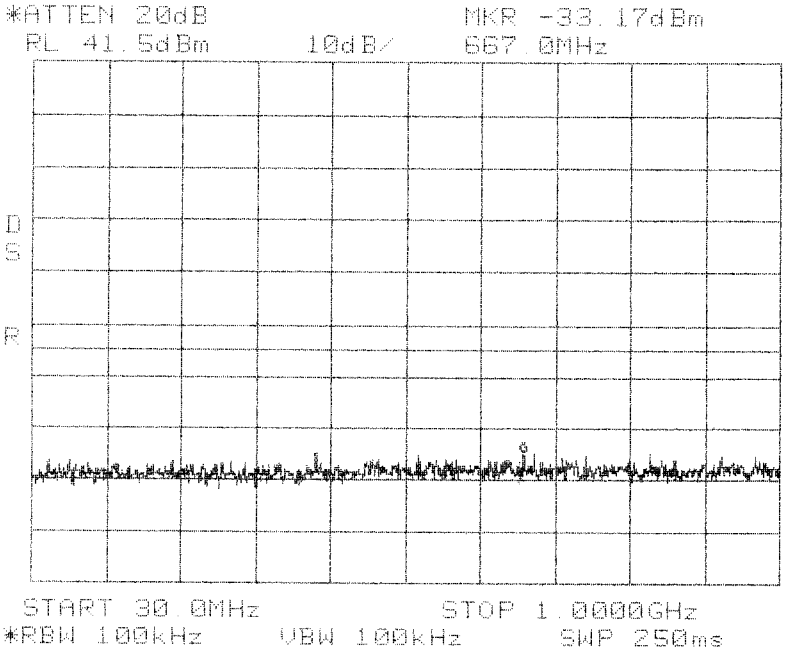
Center: 1977.5 MHz
Span: 25 MHz
RBW/VBW: 100 kHz

Intermodulation
Apart
CDMA
PCS 1900 MHz
EFC Band

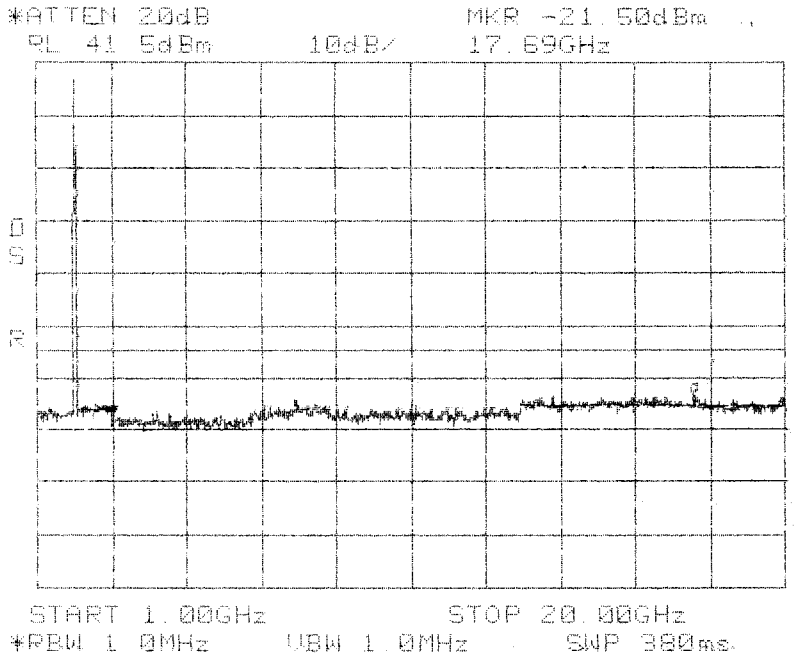


Span: 30 MHz to 1 GHz
RBW/VBW: 100 kHz

Intermodulation
Apart
CDMA
PCS 1900 MHz
EFC Band



Span: 1 GHz to 20 GHz
RBW/VBW: 1 MHz



Intermodulation
Apart
CDMA
PCS 1900 MHz
EFC Band

Appendix B

Constructional Data Form

TÜV AMERICA INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 112205

Form

EMC Test Plan and Constructional Data Form

PRODUCT SERVICE

PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IF THE FIELD IS NOT APPLICABLE.

Applicant -- ***NOTE: This information will be input into your test report as shown below.***
Press the F1 key at any time to get HELP for the current field selected.

Company: ADC

Address: P.O. Box 1101
Minneapolis, MN 55440-1101

Contact: Mark F. Miska Position: Compliance Engineer

Phone: 952-403-8340 Fax: 952-403-8858

E-mail Address: mark.miska@adc.com

General Equipment Description -- ***NOTE: This information will be input into your test report as shown below.***

EUT Description: Transports RF between a remote antenna and base station.

EUT Name: Digivance® Street Coverage Solution 1900 MHz System

Model No.: DGVC-431X0000100SYS, DGVC-441X0000100SYS, DGVC-451X0000100SYS, and DGVC-461X0000100SYS

Serial No.: None

Product Options: None

Configurations to be tested: PCS 1900 MHz AD, DBE, BEF, and EFC Band Systems

Test Objective

☐ EMC Directive 89/336/EEC (EMC)
Std:

☐ Machinery Directive 89/392/EEC (EMC
Std:

☐ Medical Device Directive 93/42/EEC (EMC)
Std:

☐ Vehicle Directive 72/245/EEC (EMC)
Std:

☐ FDA Reviewers Guidance for Premarket Notification Submissions (EMC)

☐ FCC: Class ☐ A ☐ B Part

☐ VCCI: Class ☐ A ☐ B

☐ BCIQ: Class ☐ A ☐ B

☐ Canada: Class ☐ A ☐ B

☐ Australia: Class ☐ A ☐ B

☒ Other: FCC Part 24

Form

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

TÜV Product Service Certification Requested

☐ Attestation of Conformity (AoC) ☐ International EMC Mark (IEM)

☐ Certificate of Conformity (CoC) ☐ Compliance Document

Protection Class (N/A for vehicles) ☐ Class I ☐ Class II ☐ Class III

(Press **F1** when field is selected to show additional information on Protection Class.)

Attendance

Test will be: ☒ Attended by the customer ☐ Unattended by the customer

Failure - *Complete this section if testing will not be attended by the customer.*

If a failure occurs, TUV Product Service should:

☐ Call contact listed above, if not available then stop testing. (After hrs phone): _____

☐ Continue testing to complete test series.

☐ Continue testing to define corrective action.

☐ Stop testing.

EUT Specifications and Requirements

Length: 29" Width: 10" Height: 6" Weight: 62 LBS

Power Requirements

Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)

Voltage: 115 VAC (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: 1

Current (Amps/phase(max)): 6.8 Current (Amps/phase(nominal)): 4.2

Other _____

Other Special Requirements

none

Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)

Host indoor only with Remote Unit indoor or outdoor. System is typically employed as a Microcell.

EMC Test Plan and Constructional Data Form

EUT Power Cable				
☐ Permanent	OR	☒ Removable	Length (in meters):	1
☐ Shielded	OR	☒ Unshielded		
☐ Not Applicable				

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

EUT Interface Ports and Cables

Interface			Shielding								
Type	Analog	Digital	Qty	Yes	No	Type	Termination	Connector Type	Port Termination	Length (in meters)	Removable / Permanent
EXAMPLE: *RS232*	☐	☒	*2*	☒	☐	*Foil over braid*	*Coaxial*	*Metallized 9-pin D-Sub*	*Characteristic Impedance*	*6*	☒ Removable ☐ Permanent
RF "N" type	☒	☐	3	☒	☐	Braid	Coaxial	N	50 Ohms	>3	☒ ☐
Alarm	☒	☐	1	☐	☒	Not Specified	Coaxial	6 Pin Standoff		>3	☒ ☐
Fiber	☒	☐	2	☐	☒	N/A	N/A	S/C	N/A	>3	☒ ☐
Fiber	☐	☒	1	☐	☒	N/A	N/A	Opti-Tap	N/A	>3	☒ ☐
9 Pin Din	☐	☒	4	☒	☐	Not Specified	AC Coupled	Din		3	☒ ☐
AC Power	☒	☐	1	☐	☒	N/A				>3	☒ ☐
	☒	☐	1	☐	☒					1	☒ ☐
DC Power	☒	☐	1	☐	☒	Varied		Terminal		1	☒ ☐
Net In	☒	☐	1	☐	☒	Not Specified	CAT 5	RJ-45		3	☐ ☐
Net Out	☒	☐	1	☐	☒	Not Specified	CAT 5	RJ-45		3	☐ ☐
	☐	☐		☐	☐						☐ ☐
	☐	☐		☐	☐						☐ ☐

Form

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

EUT Software.

Revision Level: Version 3.01.04

Description: Digivance Element Management System (DEMS). System Management and Interface Matching Software.

EUT Operating Modes to be Tested -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing.
Consult with your TÜV Product Service Representative if additional assistance is required.

1. Max composite in and out

2.

3.

EUT System Components -- List and describe all components which are part of the EUT. For FCC testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc.)

Description	Model #	Serial #	FCC ID #
Host Unit	DGVL-401000HU	None	
Digivance SCS 1900 MHz System Models DGVC-431X0000100SYS, DGVC-441X0000100SYS, DGVC-451X0000100SYS, and DGVC-461X0000100SYS consist of the HU, STM PCB, and LPA.			

EMC Test Plan and Constructional Data Form

TÜV PRODUCT SERVICE

Support Equipment -- List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc)

Description	*Model #*	*Serial #*	*FCC ID #*
Signal Generator	Agilent E4436B	963739	
Power Supply	Xantrex HPD 60-5	MC 27764	

Oscillator Frequencies

Frequency	*Derived Frequency*	*Component # / Location*	*Description of Use*

Power Supply

Manufacturer	*Model #*	*Serial #*	*Type*
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____

Power Line Filters

Manufacturer	*Model #*	*Location in EUT*
None		

Form

EMC Test Plan and Constructional Data Form

Critical EMI Components (Capacitors, ferrites, etc.)

Description	*Manufacturer*	*Part # or Value*	*Qty*	*Component # / Location*
None				

EMC Critical Detail -- Describe other EMC Design details used to reduce high frequency noise.

None

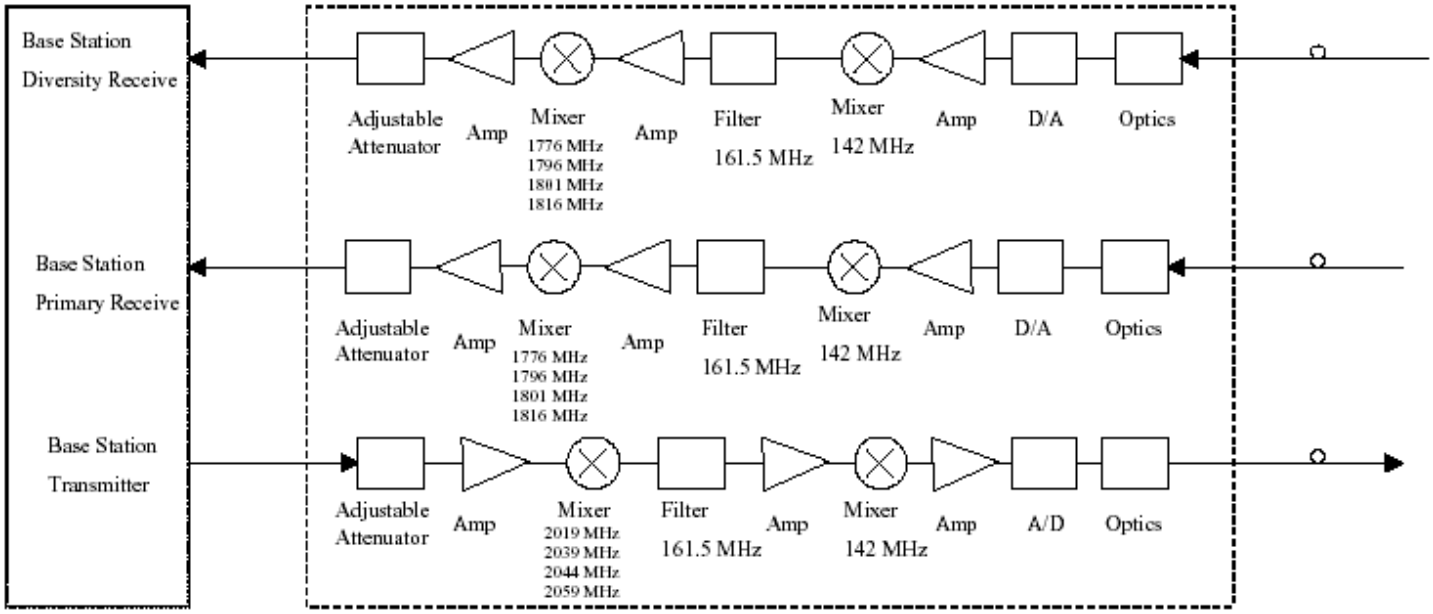
(PLEASE INSERT "**ELECTRONIC SIGNATURE**" BELOW IF POSSIBLE)

Authorization Signatures

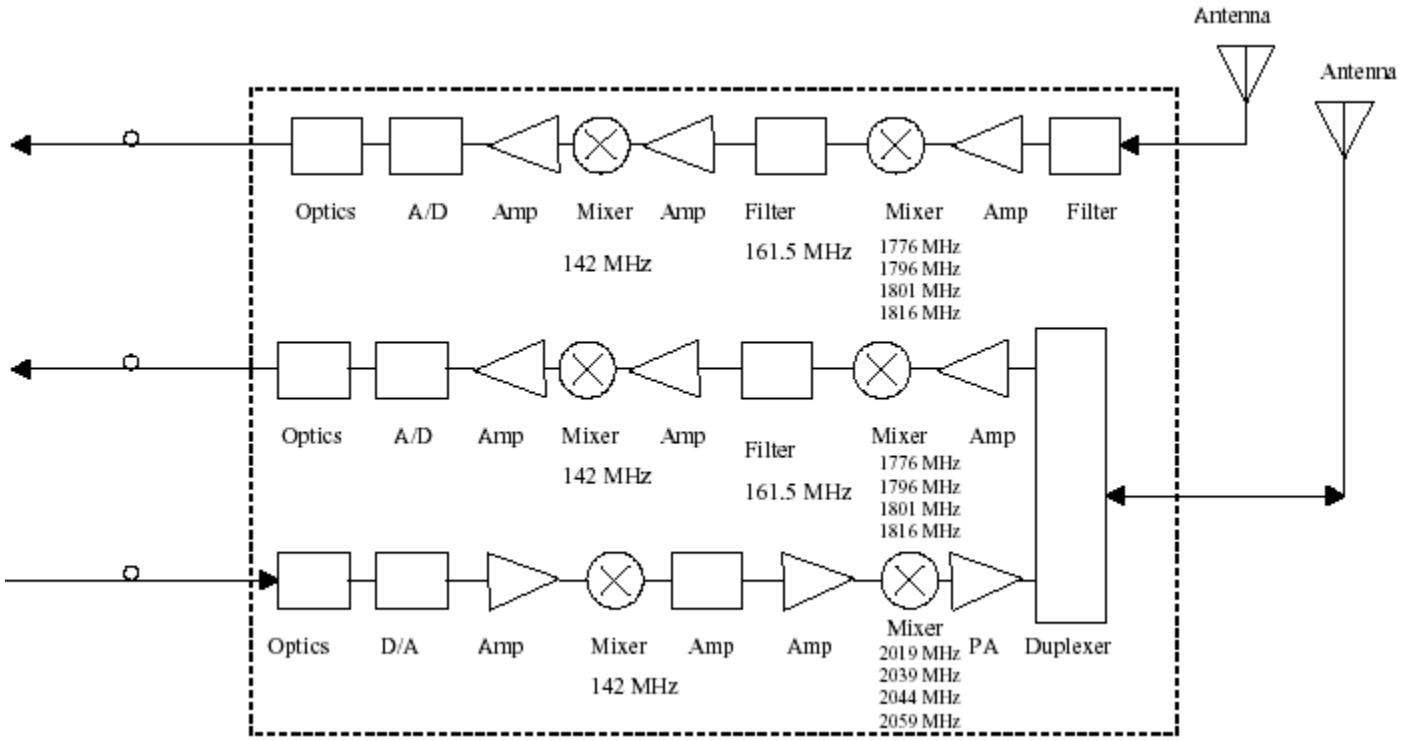
Customer authorization to perform tests according to this test plan.	Date
Test Plan/CDF Prepared By (please print)	Date
Reviewed by TÜV Product Service Associate	Date

Digivance 1900 MHz SCS

Host Unit



Remote Unit



Appendix C

Measurement Protocol

TÜV AMERICA INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 112205

MEASUREMENT PROTOCOL

Environmental conditions in the lab, (TUV)
Temperature: 22 °C
Relative Humidity: 30 %
Atmospheric pressure: 98.0 kPa

Test Methodology
Emissions testing is performed according to the procedures in EIA/TIA 603.

Measurement Uncertainty
The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. The test system has a measurement uncertainty of ±1.8 dB. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. The test system has a measurement uncertainty of ±4.8 dB. The equipment comprising the test systems is calibrated on an annual basis.

Justification
The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into its characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum emissions from the unit.

Radiated Emissions
The final level, in dBμV/m, equals the reading from the spectrum analyzer (Level dBμV), adding the antenna correction factor and cable loss factor (Factor dB) to it, and subtracting the preamp gain (and duty cycle correction factor, if applicable). This result then has the limit subtracted from it to provide the Delta, which gives the tabular data as shown in the data sheets in Attachment A.
Example:

FREQ (MHz)	LEVEL (dBuV)		CABLE/ANT/PREAMP (dB) (dB/m) (dB)			FINAL (dBuV/m)	POL/HGT/AZ	(m)	(deg)	DELTA1
60.80	42.5Qp	+	1.2	+ 10.9	- 25.5 =	29.1	V	1.0	0.0	-10.9

Substitution Method
A radiated emission scan was also made, at TUV America's Wild River Lab Large Test Site, with the EUT's antenna replaced with a termination to demonstrate case radiation compliance to the –13 dBm requirement. Radiated emissions from the EUT are measured in the frequency range of 30 to 10000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimeters above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT are rotated 360 degrees. The field strength levels were measured per ANSI C63.4. The EUT is then replaced with a tuned dipole antenna (below 1 GHz) or horn antenna (above 1 GHz). The substitute antenna was placed in the same polarization as the test antenna. A signal generator was used to generate a signal level that matched the highest level measured from the EUT. The signal generator level minus the cable loss from the signal generator to the substitute antenna plus the substitute antenna gain equals the spurious power level.

Test Equipment
All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.