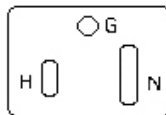# PeakTech® 1135

RF Vector Signal Generator

Power Supply

○ AC Input   :   @115V
   H – N   :   115V
   H – G   :   115V
   N – G   :   < 5V

○   Notice
 - Always use the three-prong AC
   Power cord supplied with this product.

 - Failure to ensure adequate grounding
   may cause product damage.

Operating Manual

Read First

In order for a long period of trouble-free service of the instrument, please pay special attention to the following precautions:

1. Protect the instrument from excessive impact during transportation and installation.

2. Be sure to verify whether the line voltage setting matches the line voltage used.

3. Use a fuse with correct ratings only.

4. Do not apply excessive AC or DC voltage to the signal output connector beyond the maximum voltage allowed.

5. Use the instrument within operating temperature range, which is from 15 deg C to 35 deg C.

6. For an accurate measurement, allow approximately 30 minutes of instrument warm-up time.

7. Avoid operating the instrument under the following conditions; direct sun light, rapid temperature variation, high humidity, or strong magnetic field.

8. Do not alter or change the parts or their locations inside the instrument. please contact PeakTech® for service and calibration.

* This Information contained in this document is subject to change without Notice

Safety Symbols

The following symbols on instrument and in the documentation indicate

precautions which must be taken to maintain safe operation of

the instrument.

⚠ **Warning**

 : A warning calls attention to a procedure, practice or the like which.
correctly performed or adhered to, could result in injury or loss of life.

⚠ **Caution**

: A Caution calls attention to a procedure, practice or the like which.
if not correctly performed or adhered to, could result in damage to
or the destruction of part or all of the equipment.

⏚ : Earth Ground to chassis

⏚ : Protective Conductor Terminal

⏚ : Frame or chassis Terminal

⚠ : Caution, risk of danger

| : ON (Supply)

○ : OFF (Supply)

Clearing and Maintenance

1. In order for a long period of trouble-free use of the instrument, please read this manual carefully.

2. Be sure to verify whether the line voltage setting matches the line voltage used. Use a fuse with the correct rating only.

3. **Caution** ⚠

   Use 3 pin power cable to avoid any damage caused by floating voltage.

4. Precaution

   Note :

   If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

   - Avoid placing this instrument in an extremely hot or cold place.

   - Do not use this instrument after bring it in from the cold.

   - Do not expose the instrument to wet or dusty environment.

   - Do not place liquid-filled container, such as coffee cups on top of this instrument

   - Do not use this instrument where it is subject to serve vibration.

   - Do not use this instrument in strong magnetic fields, such as near motors.

   - Do not place heavy objects on the case or block the ventilation holes.

   - Do not leave a hot soldering iron near the instrument.

   - Cleaning :

   To clean stained case, lightly rub the stained area with a soft cloth dipped in a neutral detergent.

   Never use highly volatile material such as benzene or paint thinner.

Contents

Chapter 1   GENERAL INFORMATION

Chapter 2   INSTALLATION INSTRUCTIONS

Chapter 3   OPERATINGINSTRUCTIONS

Chapter 4   GPIB & RS-232C

Chapter 1 GENERAL INFORMATION

1.1 Introduction

PeakTech® 1135 is a micro-processor controlled, high frequency (10MHz~3GHz) signal generator.

In regard of the features of PeakTech® 1135, it is available to modulate external input digital signal (I/Q) and it has the function of up-conversion.

And you can recall the memory which is stored for your convenience.

All of the control can be done at the front panel with keys and rotary knob.

The output frequency can be stepped.

1.1.1 Carrier Frequency

The operating frequency range of PeakTech® 1135 is from 10MHz to 3GHz and the resolution is 1Hz with PLL system. The LCD displays the frequency.   The desired carrier frequency can be controlled directly by key pad or rotary knob.

1.1.2 Output Level

Level can be varied from -120dBm to 0dBm in 0.1dB step.

And the flatness is under ±1.2dB.

dBm, dBuV, EMF, mV and uV can be used as its unit and also it is possible to convert each other.

1.1.3 Digital Modulation

It is available to modulate the digital signal which is external input.

1.1.4 UP-Converter Function

The function of up-converter which mix the input IF signal with local oscillated signal so that you can get the signal you want.

1.1.5 Memory Function (Save/Recall)

Memory registers allow you to save instruments set-ups and recall them whenever you want. The number of the currently selected Sequence and the last Register selected are always in the lower left corner of the display to help you keep track of where you are in your testing process.

1.1.6 RS-232C

   RS-232c and a computer allows programmable control of the instrument.

1.1.7 AUTOCAL/DIAGNOSTICS

   PeakTech® 1135 utilizes a unique AutoCal routine to perform a quick and easy, almost

   completely automatic self-calibration.

1.2 Specifications

1.2.1 Frequency

-. Range	: 10MHz ∼ 3GHz
-. Resolution	: 1Hz (ALL BAND)
-. Frequency stability/Temp	: ±0.05ppm, 0 ∼ 40 , OCXO
-. Frequency stability (time)	: < 2 ppm/yr.

1.2.2 RF Output

-. Impedance	: 50Ω
	(VSWR < 1.5:1 for output **<** - 4dBm)
-. Output connector	: Type "N"
-. Calibrated Level Range	: 0 to -120dBm
-. Level Resolution	: 0.1dB
-. ATT Accuracy	: ±1.0dB (-30dBm to 0dBm)
	±2.0dB(-120dBm to -30dBm)
-. Flatness	: ±1.2dB (±0.7dB, typical) at 0dBm
-. EMI/RFI Leakage	: < 1uV into a 2-turn 1 inch diameter
	loop 1 inch from any surface at 1000MHz

1.2.3 Spectral Purity

-. Harmonics	: <-30dBc

1.2.4 Phase Noise @ 1000MHz

-. 10kHz offset	: -95dBc/Hz

1.2.5 Digital Modulation

   -. Mode   : I/Q

   -. External Source

     Input Level   : 1Vpp

     Input impedance   : 50Ω

1.2.6 UP-Converter

   -. Mode   : IF

   -. External Source

     Input Frequency   : 70MHz, 36MHz (Option : 44MHz)

     Input Level   : 0 ~ -20dBm

     Input Impedance   : 50Ω

1.2.7 Front Panel Control

   -. Type   : Push-buttons, Rotary-knob,

                             RS-232C , GPIB

1.2.8 Interface

  - RS-232C   (Standard), GPIB (Option)

1.2.9 Appearance

   -. Dimensions   : 115(H) × 430(W) × 490(D)mm

   -. Weight   : 13kg (Except package box, Accessory...)

   -. Power   : 90 ~ 230VAC, 50/60Hz, 90VAmax

   -. Standard Accessories : Power Cable

                             Cable (N-N) , Cable (BNC-BNC) – 2 ea

                             Operating Manual, Fuse

   -. Others   : Indoor use

                             Amplitude up to 2000 m

                             Pollution degree IP20

Chapter 2   INSTALLATION INSTRUCTIONS

2.1 Introduction

This chapter provides complete installation instruction for PeakTech® 1135. The instruction includes the initial inspection, the precautions for AC line connection, and the equipment turn-on procedures.

2.2 Initial Inspection

Open the package, inspect for any mechanical damage to the product; e.g., instrument exterior, connectors, and so on.

2.3 Electrical Installation

The equipment operates on 50/60Hz, 90~230V AC line voltages.

1.0A fuse for 90~230V operation is used.

2.4 Installation Check

Although every PeakTech® 1135 is checked carefully before each shipment, some chance still exists for equipment damage during transportation. Therefore, the operator should verify whether the received equipment is correct or not. The following installation instruction provides the verification procedure.

2.4.1 Required Equipments

In order to test the operation of PeakTech® 1135, one needs to verify the output frequency and power level requiring spectrum analyzer and power meter.

2.4.2 Initial Turn-On

When the power switch is pushed on, the front panel display will indicate the operation of the instrument.

2.4.3 Test Procedure

The following paragraphs describe the general operational test procedures for PeakTech®1135. Please verify with test equipments that have proper specification.

2.4.3.1 Frequency

Verify that frequency commanded with keypad or rotary knob is correct.

Modulation: OFF, RF Level: 0dBm

2.4.3.2 Output Level

Verify that output level commanded with keypad or rotary knob is correct.

Modulation = OFF, Frequency=1000MHz, RF Level = 0dBm

2.4.3.3 Digital Modulation (I/Q)

Set   RF Level =-10dBm , Frequency = 1000MHz, MODE = IQ . MOD = ON

If any IQ source don't be supplied to this equipment , the output signal is generated as follow.

Level : (-10 - 20) dBm = -30dBm (Approximately)

2.4.3.4 UP-Converter

Set RF Level =-10 dBm , Frequency = 1000MHz, MODE = IF, MOD = ON

If any IF source don't be supplied, the output signal is generated as follow.

Level : (-10 -20) dBm = -30dBm (Approximately)

Chapter 3   OPERATING INSTRUCTIONS

3.1 Front Panel Description
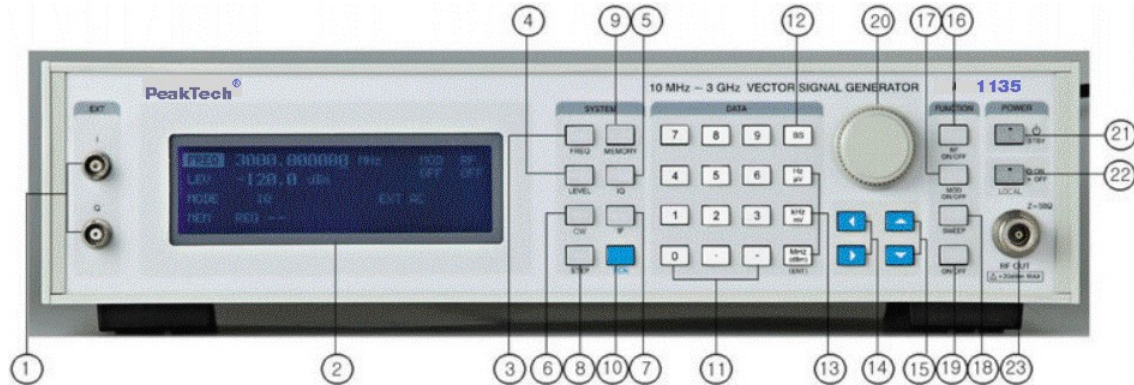
1. I (IN-phase) , Q (Quadrature) Input Terminal

2. DISPLAY

   The Display shows the information of the state of   PeakTech® 1135 such as modulation, frequency

   and amplitude etc.

   If nothing is displayed, please check the illumination of the display.

3. ▭ (FREQ) key

   Press this key to activate the frequency function so that you can change the frequency of the

   RF output EX) How to use

   1) Press ▭ (FREQ) key

   2) Press the value you want

   3) Press Unit Set key (Hz, kHz, MHz)

   If the value is out of the frequency range of   PeakTech® 1135 (10MHz ~ 3GHz), it returns

   to its former value.

4. ▭ (LEVEL) key

   Press this key to activate the level function so that you can change the amplitude of the RF

   output.

   EX) How to use

   1) Press ▭ (LEVEL) key

   2) Press the value you want

3) Press Unit Set key (uV, mV, dBm)

If the value is out of the output level range of DSG-3000 (-120dBm ~ 0dBm), it returns to its former value.

5. ☐ (IQ) key (In-Phase Quadrature-Phase)
   Press this key to modulate the signal with the external I/Q signal.

6. ☐ (CW) key
   Press this key to get the wanted output signal without any modulation.

7. ☐ (IF) key (Intermediate Frequency)
   It is possible to up-convert the external IF signal.

8. ☐ (STEP) key
   Press this key to set up the increment value of frequency or level.

9. ☐ (MEMORY) key
   Press this key to store the current set value to the register or to recall the stored value of the register.
   EX1) How to store the value
   1) Press ☐ (FCN) key
   2) Press ☐ (MEMORY) key
   3) Input the address you want with the numeric key (00 ~ 99)

   EX2) How to recall the value
   1) Press ☐ (MEMORY) key
   2) Press the address(00 ~ 99) you want to recall
       If there is nothing is the address you pressed, a message appear on the display.

10. ☐ (FCN) key
    This key is used with another key to operate a function

    Initialize   : ☐ (FCN) key , ☐ 7 key
    DEL   : ☐ (FCN) key , ☐ 8 key
    CALIBRATION   : ☐ (FCN) key , ☐ 9 key
    GPIB Address   : ☐ (FCN) key , . ☐ (FREQ) key

11. Numeric Keypad

   The numeric keys are used when you input the data by number.

12. ⬜ BS Back Space key

   Press this key if you want to revise or delete the wrong number when you input the value.

13. Unit Set keys

   You can choose the unit of frequency and level for your convenience.

   Setting of Frequency : ⬜(MHz), ⬜(kHz) , ⬜(Hz)

   Setting of Level   : ⬜ (dBm), ⬜(mV), ⬜ (uV)

   Note]   How to setting (dBuV, dBuV EMF)

   Press   ⬜(FCN) key , ⬜ (MHz) key

14. ⬜ , ⬜ key

   The left and right arrow keys choose the under cursor digit in the active

15. ⬜ , ⬜ key

   The up and down arrow keys increase or decrease a numeric value by step setting value.

16. ⬜(RF ON/OFF) key

   This key is used to turn on or off the RF signal of the RF output terminal.

   And it is available to Cancel the function of Tripped of Reverse Power Protection with this RF ON/OFF key.

17. ⬜ (MOD ON/OFF) key

   You can set up the condition of RF signal whether you use the function of modulation or not.

   Although you can set up the value and condition of modulation, the RF carrier is not modulated until MOD ON/OFF is set to ON.

   You can check the condition of MOD ON/OFF on the display whether the function of modulation is turned on or off.

   * It is not available to use this key in case of "CW"

18. ⬜ （SWEEP) key

   This key is used for the function of sweep of frequency or level.

   Frequency sweep   : Press ⬜ （SWEEP) key, . ⬜ (FREQ) key

Level sweep : Press (SWEEP) key, . (LEVEL) key

19. (SWEEP ON/OFF) key

You can start of stop the function of sweep with this key.

20. (KNOB) key

The knob increases or decreases a numeric value of cursor position.

Any of the values that can be set through the numeric keypad can also be set with the knob.

21. (STBY) key

If the system is ready, the LED of STBY is on. After the ready, if the system works, the LED is off.

22. (LOCAL) key

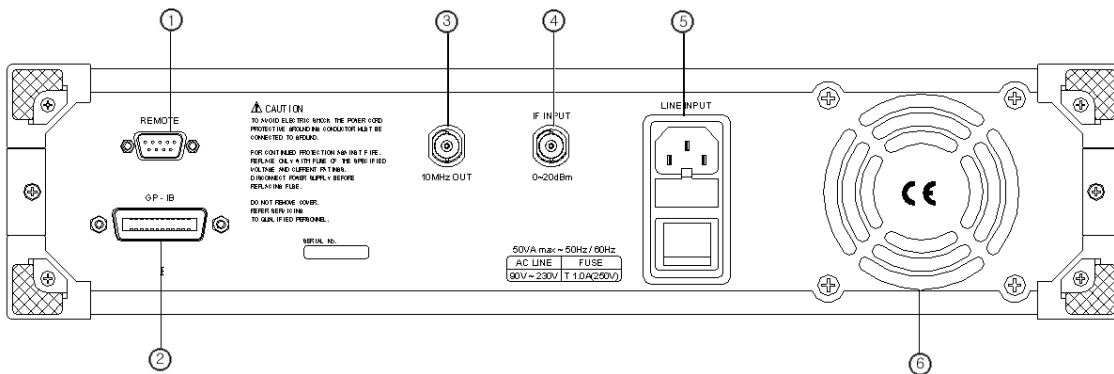Press this key, if you want to control the instrument with front panel, when the instrument is

being controlled by remote (RS-232C, GPIB).

23. RF Output terminal

This N-type connector is the terminal of RF signal output.

3.2 Rear Panel Description

1. RS-232c connector

2. GPIB connector (Option 1)

3. 10MHz Output Terminal

4. IF Input Terminal

It is available to input the IF signal of 70MHz or 36MHz.

5. Power ON/OFF switch   (90~ 230 VAC)

PeakTech® maintains the last setting condition before turning off.

Caution ⚠

Please keep the interval of two seconds at least between on and off to prevent the instrument from being damaged due to the surge current.

6. Fan

3.3 Operating Examples

3.3.1 Setting of the RF Output Signal

   In the following example, you can show the way of setting of frequency, level and modulation

   of RF output signal.

[The start display]

```
FREQ   1000.000000 MHz     MOD   RF

LEV    -107 dBm           OFF   OFF

MODE    CW

MEM    REG - -
```

3.3.1.1 Setting of Frequency (ex. : 2000MHz)

   Press these keys : ⬚(FREQ) , ⬚2 , ⬚0 , ⬚0 , ⬚0 , ⬚(MHz)

```
FREQ   2000.000000 MHz     MOD   RF

LEV    -107 dBm           OFF   OFF

MODE    CW

MEM    REG - -
```

3.3.1.2 Setting of Level (ex: -30dBm)

   Press these keys : ⬚(LEVEL) , ⬚– , ⬚3 , ⬚0 , ⬚(dBM)

```
FREQ   2000.000000 MHz     MOD   RF

LEV    -30.0 dBm          OFF   OFF

MODE    CW

MEM    REG - -
```

3.3.1.3 Turn on the RF output

   Press the ⬚ (RF ON/OFF)key to turn on the RF output

```
FREQ   2000.000000 MHz     MOD   RF

LEV    -30.0 dBm          OFF   ON

MODE    CW

MEM    REG - -
```

   If the RF output is off, ' RF OFF ' appear on the display

3.3.1.4 Setting of digital modulation (ex. : IQ on, MOD on)

Press these keys : (IQ) , （MOD ON/OFF）

```
FREQ   2000.000000 MHz      MOD   RF

LEV    -30.0 dBm          ON    ON

MODE    IQ    EXT AC

MEM    REG - -
```

3.3.1.5 Setting of the Up-convert function (ex. : IF on)

Press these keys : (IF) , （MOD ON/OFF）

```
FREQ   2000.000000 MHz      MOD   RF

LEV    -30.0 dBm          ON    ON

MODE    IF    EXT AC

MEM    REG - -
```

3.3.2 Adjusting of the RF Output Signal

3.3.2.1 Preliminary steps

Set the frequency to 1000MHz and level (amplitude) to 0dBm.

The cursor in on the level.

```
FREQ   1000.000000 MHz      MOD   RF

LEV     0.0 dBm          ON    ON

MODE    IF    EXT AC

MEM    REG - -
```

3.3.2.2 Using of knob

Decrement the amplitude by using of the knob.

```
FREQ   1000.000000 MHz      MOD   RF

LEV     0.0 dBm          ON    ON

MODE    IF    EXT AC

MEM    REG - -
```

Press or when you want to adjust the increment resolution.

3.3.2.3   Using of ⬜(STEP) function   (ex: FREQ INCrement STEP= 25kHz)
   1) Press these keys: ⬜(FREQ) , ⬜(STEP),⬜ 2 , ⬜ 5 , ⬜(kHz)
      (Setting of the step)

```
FREQ      25.000 kHz     MOD    RF

LEV      0.0 dBm          ON     ON

MODE     IF     EXT AC

MEM     REG - -
```

   2) Press this key : ⬜ （FREQ) key
      (Return to the main display)

```
FREQ   1000.000000 MHz     MOD    RF

LEV      0.0 dBm          ON     ON

MODE     IF     EXT AC

MEM     REG - -
```

   3) Press the ⬜ (or⬜） key
      (Control the output frequency by step)

```
FREQ   1000.025000 MHz     MOD    RF

LEV      0.0 dBm          ON     ON

MODE     IF     EXT AC

MEM     REG - -
```

3.3.3 Using of the Memory Register

3.3.3.1 Store the setting data of   PeakTech® 1135 to the register.
   1) Press these keys : ⬜ （FCN) , ⬜ (MEMORY)

```
FREQ   1000.025000 MHz     MOD    RF

LEV      0.0 dBm          ON     ON

MODE     IF     EXT AC

MEM    SAVE - - 100 available
```

If there is not any data in the register, the above message appears on the display.

2) Store the above setting data to register memory 5

Press these keys :   [0] , [5]

```
FREQ   1000.025000 MHz      MOD   RF

LEV      0.0 dBm            ON     ON

MODE     IF     EXT AC

MEM     REG 05 saved
```

```
FREQ   1000.025000 MHz      MOD   RF

LEV      0.0 dBm            ON     ON

MODE     IF     EXT AC

MEM     REG 05
```

3) Store the following data to register memory 4

   ex) Frequency : 2000 MHz

      Level   : -33 dBm

3.3.3.2 Recall the data of register memory 5.

   1) Press these keys : [MEMORY] (MEMORY) , [0] , [5]

```
FREQ   2000.000000 MHz      MOD   RF

LEV    -33.0 dBm            ON     ON

MODE     IF     EXT AC

MEM     REG 04
```

```
FREQ   1000.025000 MHz      MOD   RF

LEV      0.0 dBm            ON     ON

MODE     IF     EXT AC

MEM     REG 05
```

3.4 Initialize

Press these keys : [FCN] (FCN) , [7]

In that case, all of the memories are cleared and all of the setting conditions are initialized.

FREQ 1000.025000 MHz	MOD	RF
LEV 0.0 dBm	ON	ON
MODE IF EXT AC		
MEM REG 05		

Be careful to use this function. Because all of the memories are cleared.

TABLE 3-2   The initial setting condition of PeakTech®1135

MOD	: OFF
FREQ	: 1000 MHz
LEVEL	: -107.0dBm
IF	: EXT AC
FREQ STEP	: 125 kHz
LEVEL STEP	: 1.0dB
GPIB Address	: 02
RF On/Off	: OFF

Chapter 4   GPIB & RS-232C

4.1 Introduction

4.1.1 GPIB

General Purpose Interface Bus (GPIB) is another important option in PeakTech® 1135 for test automation.

PeakTech® 1135 GPIB is fully compatible with IEEE 488.2-1992 standard and the following set of commands are available.

-. SH1   Source handshake

-. AH1   Complete acceptor handshake capability

-. T6   Talker

-. TE0   Extended talker mode disabled

-. L4   Basic listener

-. LE0   Extended listener mode disabled

-. RL1   Complete Remote/Local capability

-. PP0   Parallel poll capability disabled

-. DC1   Deice clear capability

-. DT0   Device trigger disabled

-. C0   Controller capability disabled

-. SR0   Service request disabled

All of the instrument functions except Power ON/OFF can be accessed through GPIB.

The GPIB Command format in PeakTech® 1135 uses small set of unique commands which are flexible for general purpose programming from GPIB controller (Computer).

4.1.2 RS-232C

Communication Protocol.

-. BAUD RATE   :   9600 bps

-. PARITY   :   None/8 bits,   1 stop bit

-. Cable   :   DTE-DTE interface cable (cross over cable)

4.2 Installation Instructions

The default address of PeakTech® 1135 GPIB (My listen Address : MLA) set at the factory is "2", but it can easily changed from the front panel.

GPIB Controller is made up of a computer with GPIB I/O interface hardware and an operating system which is compatible with IEEE-488 standard. The GPIB controller sends ASCII command strings on GPIB to control GPIB instrument on GPIB bus.

4.3 Operating Instructions

4.3.1 LOCAL/REMOTE Mode Selection

When Power is turned ON, PeakTech® 1135 is in LOCAL mode and front panel is active. If a valid GPIB command is sent to GPIB bus, the instrument enters Remote mode. During Remote mode, only Local key is active on the front panel. Unless Local Lockout bus command is sent previously, Pressing Local key returns the full control to the front panel. To return to the LOCAL mode from Local Lockout condition, a GPIB command, RTL(Return to Local), is sent from the controller. Otherwise, the instrument could be hard reset turning Power SW off and on.

4.3.2 GPIB Address Setting

MLA (my listen address), the bus address of PeakTech® 1135, can be set from the front panel using UTILITY key. At power up, the address has a default value "2".

4.3.3 GPIB & RS-232C Input Command

GPIB input commands are ASCII strings used by the GPIB controller for programming GPIB. When the commands are executed programmatic ally by the controller, PeakTech® 1135 performs special functions requested by the controller.

There are 2 types of GPIB input commands; Parameter and Direct commands. These are described in the following sections.

4.3.3.1 Parameter Commands

Parameter commands allow the operational parameter setting of PeakTech® 1135

(e.g., Frequency, Levels, etc.)

Parameter command is described in Table 4-1 ~ 4-3.

Parameter command format:

 <header> <numeric argument> <unit> <terminator>

Table 4-1. Parameter Command Headers

HEADER	DESCRIPTION
FR	Carrier Frequency
FR?	Carrier Frequency Query
FS	Frequency Step Interval
FS?	Frequency Step Interval Query
LE	Output Level
LE?	Output Level Query
LS	Level Step Interval
LS?	Level Step Interval Query
FM	Frequency Modulation
FM?	Frequency Modulation Query
SN	Internal Frequency
SN?	Internal Frequency Query
RC	Recall
ST	Store
CAL:FM	FM Calibration
CAL:ALC	ALC Calibration

Table 4-2. Parameter Command numeric arguments

0 ~ 9	Number
.	Decimal Point
-	Minus Sign

Table 4-3. Parameter Command Units

UNITS	DESCRIPTION
KZ	Output, Step Frequency, FM Deviation
MZ	Output Frequency, Step Frequency
GZ	Output Frequency, Step Frequency
HZ	Output Frequency, Step Frequency
DM	Output Level dBm

DU	Output Level dBu
MV	Output Level mV
UV	Output Level uV
DUE	Output Level dBuV emf
DB	Step Level

4.3.3.2 Direct Commands

Direct Command is another form of system command requiring no 200 argument.

The commands are listed in Table 4-4.

Direct command format: <header> <termination>

Table 4-4. Direct Command Headers

HEADER	DESCRIPTION
DM	dBu to dBm Conversion
DU	dBm to dBu Conversion
DUE	dBuV
UV	uV
EA	EXT AC
M0	Modulation Off
M1	Modulation On
M?	Modulation On/Off Query
RF0	RF Off
RF1	RF On
RF?	RF On/Off Query
FD	Frequency Step Down
FU	Frequency Step Up
LD	Level Step Down
LU	Level Step Up
CW	CW Mode
IF	IF Mode
IQ	IQ Mode

4.3.3.3 The last input for a parameter command format is made of EOS

terminator, which is LF, CR, CR+LF, or EOI. Each completed command is separated by

semicolon (;).

4.3.3.4 The argument for ST and RC commands is limited to a number between 0 and 99. It

requires no unit.

Table 4-5. RS-232C/GPIB   Command List

FUNCTION	DATA	UNIT	COMMENTS
FR	0~9, .	KZ,MZ,GZ,HZ	Frequency(Carrier)
FR?			Frequency(Carrier) Query
FS	0~9, .	KZ,MZ,GZ,HZ	Frequency Step
FS?			Frequency Step Query
FD			Frequency Step Down
FU			Frequency Step Up
LE	0~9, .	DM,DU,DUE,MV,UV	Level(Carrier)
LE?			Level(Carrier) Query
LS	0~9, .	DB	Level Step
LS?			Level Step Query
LD			Level Step Down
LU			Level Step Up
DM			dBm
DU			dBuV
DUE			dBuV emf
MV			mV
UV			uV
RF0			RF Off
RF1			RF On
RF?			RF On/Off Query
IF			IF Mode
IQ			IQ Mode
M0			Modulation Off
M1			Modulation On
RC	0~99		Recall
ST	0~99		Store

☞ Input command is only a capital letter.

4.3.4 Examples

4.3.4.1 Memory

    Ex1) Recall stored data from REGister 10.

          "RC 10"

    Ex2) Store current front panel setting to REGister 10

          "ST 10"

4.3.4.2 Programming Frequency Function

    Ex1) Carrier Frequency to 2500MHz

          "FR 2500 MZ"

    Ex2) Set Frequency step value to 1 MHz

          "FS 1 MZ"

    Ex3) Up or Down the Carrier Frequency using in frequency steps.

          "FU"   ; Increment one frequency step

          "FD"   ; Decrement one frequency step

    Ex4) Starting at carrier frequency 2420MHz, increment the frequency twice and decrement
       once in 1kHz step.

          "FR 2420 MZ;FS 1 KZ;FU;FU;FD"

    Ex5) current frequency ?

          "FR?"

4.3.4.3 Programming LEVEL Function

    Ex1) Set output level to -13dBm

          "LE -13 DM"

    Ex2) Set output level to 100dBμ

          "LE 100 DU"

    Ex3) Convert units from dBm to dBμ

          "DM"   ; dBμ to dBm

          "DU"   ; dBm to dBμ

    Ex4) Set step value to 1dB

          "LS 1 DB"

Ex5) Up and down level steps

           "LU"   ; increase one level step

           "LD"   ; decrease one level step

Ex6) Set level to -13dBm, convert units to dBu, set level step value to 2dB, and decrease level by one step.

           "LE -13 DM;DU;LS 2 DB;LD"

4.3.4.4   MODE

Ex1) Select IF Mode

           "IF"

Ex2) Select IQ Mode

           "IQ"