ADVANTEST®

ADVANTEST CORPORATION

R3755

Network Analyzer

Operation Manual

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Safety Summary

To ensure thorough understanding of all functions and to ensure efficient use of this instrument, please read the manual carefully before using. Note that Advantest bears absolutely no responsibility for the result of operations caused due to incorrect or inappropriate use of this instrument.

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

- **Warning Labels**

  Warning labels are applied to Advantest products in locations where specific dangers exist. Pay careful attention to these labels during handling. Do not remove or tear these labels. If you have any questions regarding warning labels, please ask your nearest Advantest dealer. Our address and phone number are listed at the end of this manual.

  Symbols of those warning labels are shown below together with their meaning.

  DANGER: Indicates an imminently hazardous situation which will result in death or serious personal injury.

  WARNING: Indicates a potentially hazardous situation which will result in death or serious personal injury.

  CAUTION: Indicates a potentially hazardous situation which will result in personal injury or a damage to property including the product.

- **Basic Precautions**

  Please observe the following precautions to prevent fire, burn, electric shock, and personal injury.

  - Use a power cable rated for the voltage in question. Be sure however to use a power cable conforming to safety standards of your nation when using a product overseas.
  - When inserting the plug into the electrical outlet, first turn the power switch OFF and then insert the plug as far as it will go.
  - When removing the plug from the electrical outlet, first turn the power switch OFF and then pull it out by gripping the plug. Do not pull on the power cable itself. Make sure your hands are dry at this time.
  - Before turning on the power, be sure to check that the supply voltage matches the voltage requirements of the instrument.
  - Be sure to plug the power cable into an electrical outlet which has a safety ground terminal. Grounding will be defeated if you use an extension cord which does not include a safety ground terminal.
  - Be sure to use fuses rated for the voltage in question.
  - Do not use this instrument with the case open.
  - Do not place objects on top of this product. Also, do not place flower pots or other containers containing liquid such as chemicals near this product.

- When the product has ventilation outlets, do not stick or drop metal or easily flammable objects into the ventilation outlets.
- When using the product on a cart, fix it with belts to avoid its drop.
- When connecting the product to peripheral equipment, turn the power off.

- **Caution Symbols Used Within this Manual**

  Symbols indicating items requiring caution which are used in this manual are shown below together with their meaning.

  DANGER: Indicates an item where there is a danger of serious personal injury (death or serious injury).

  WARNING: Indicates an item relating to personal safety or health.

  CAUTION: Indicates an item relating to possible damage to the product or instrument or relating to a restriction on operation.

- **Safety Marks on the Product**

  The following safety marks can be found on Advantest products.

   : ATTENTION - Refer to manual.

   : Protective ground (earth) terminal.

   : DANGER - High voltage.

   : CAUTION - Risk of electric shock.

- **Replacing Parts with Limited Life**

  The following parts used in the instrument are main parts with limited life.
  Replace the parts listed below after their expected lifespan has expired.
  Note that the estimated lifespan for the parts listed below may be shortened by factors such as the environment where the instrument is stored or used, and how often the instrument is used.
  The parts inside are not user-replaceable. For a part replacement, please contact the Advantest sales office for servicing.

  There is a possibility that each product uses different parts with limited life. For more information, refer to Chapter 1.

Main Parts with Limited Life

Part name	Life
Unit power supply	5 years
Fan motor	5 years
Electrolytic capacitor	5 years
LCD display	6 years
LCD backlight	2.5 years
Floppy disk drive	5 years

- **Hard Disk Mounted Products**

  The operational warnings are listed below.

  - Do not move, shock and vibrate the product while the power is turned on.
    Reading or writing data in the hard disk unit is performed with the memory disk turning at a high speed. It is a very delicate process.

  - Store and operate the products under the following environmental conditions.
    An area with no sudden temperature changes.
    An area away from shock or vibrations.
    An area free from moisture, dirt, or dust.
    An area away from magnets or an instrument which generates a magnetic field.

  - Make back-ups of important data.
    The data stored in the disk may become damaged if the product is mishandled. The hard disc has a limited life span which depends on the operational conditions. Note that there is no guarantee for any loss of data.

- **Precautions when Disposing of this Instrument**

  When disposing of harmful substances, be sure dispose of them properly with abiding by the state-provided law.

  Harmful substances: (1) PCB (polycarbon biphenyl)
  (2) Mercury
  (3) Ni-Cd (nickel cadmium)
  (4) Other
  Items possessing cyan, organic phosphorous and hexadic chromium and items which may leak cadmium or arsenic (excluding lead in sol der).

  Example: fluorescent tubes, batteries

This instrument should be only be used in an area which satisfies the following conditions:

- An area free from corrosive gas
- An area away from direct sunlight

Environmental Conditions

- A dust-free area
- An area free from vibrations

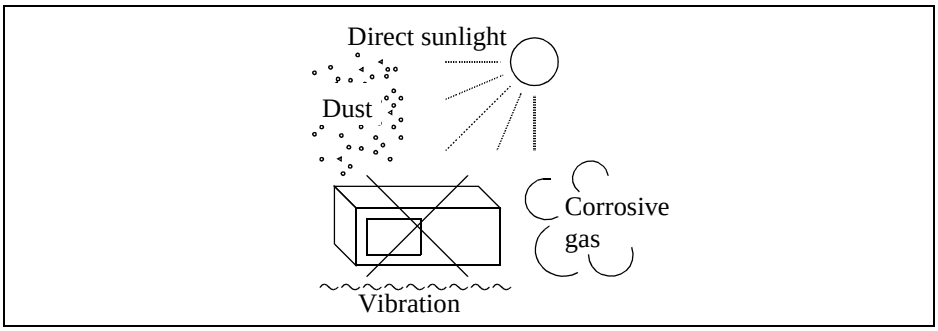

Figure-1 Environmental Conditions

- Operating position

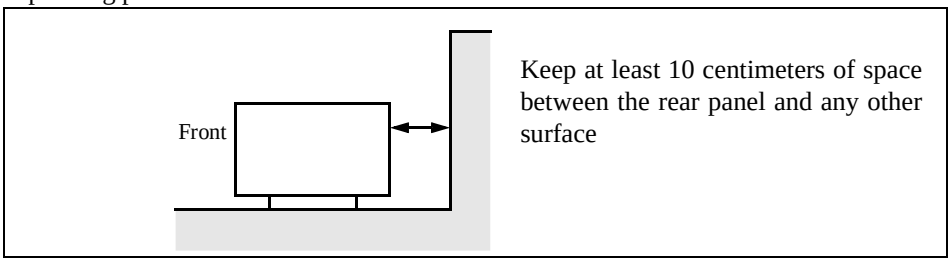

Figure-2 Operating Position

- Storage position

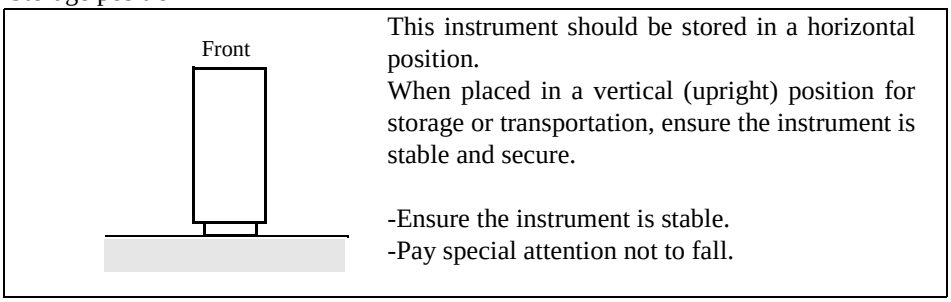

Figure-3 Storage Position

This instrument can be used safely under the following conditions:

- Altitude of up to 2000 m
- Installation Categories II
- Pollution Degree 2

PREFACE

This manual describes the R3755 Network Analyzer transmission procedures, programming functions, and remote programs.

1. Organization of this manual

This manual consists of the following chapters:

Safety Summary	To use the analyzer safely, be sure to read this manual first.
1. INTRODUCTION	Describes the R3755 unit accessories and operating environment.
2. EXPLANATION OF PANEL SURFACE	Describes each part name and function on the panel.
3. BAPI FUNCTIONS	Describes the Application Programming Interface for Board Instruments (BAPI) functions.
4. FUNCTION SPECIFICATIONS	Describes the BAPI specification in detail.
5. PERFORMANCE TEST	Describes the performance check procedure.
6. ADJUSTMENT	Describes the reference frequency adjustment procedure.
7. SPECIFICATIONS	Provides the specifications for the analyzer.

2. Trademarks

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1. INTRODUCTION

Includes the accessories along with information on the analyzers' operating environment, and information on how to perform a system checkout for users who operate the analyzer for the first time.

1.1 Product Description

The R3755 is a new type of network analyzer, which can be used by installing it into a PCI extension slot of a personal computer (PC).

The key features of the analyzer are listed below:

- The space-saving automatic/semiautomatic system can be easily configured.
- Applications can be created and run on the PC.
  Commercially available tools such as Visual C++ 6.0 or Visual Basic 6.0 can be used. This allows easy application development and maintenance. (A required driver installation CD is supplied as standard.)
- Wide measuring range 1 MHz to 300 MHz
- High-speed measurement 50 µsec/point (@RBW 15 kHz)

1.2 Accessories

The table below lists the standard accessories shipped with the analyzer. If any of the accessories are damaged or missing, contact the nearest ADVANTEST Field Office or representative. Additional accessories should be referred to by model name when ordered.

Table 1-1 Standard Accessories List

Name	Model name	Quantity	Remarks
Driver installation CD	FFC-8440059A00	1	
R3755 Operation manual	FOB-8440060A00	1	

1.3 Options (Sold Separately)

The options used for the analyzer is shown below. Options should be referred to by model name when ordered.

Table 1-2 Options

Name	Model name
Highly stable standard frequency	Option 20

1.4 Operating Environment

This section describes the environmental conditions and power requirements necessary to use the analyzer.

1.4.1 Environmental Conditions

The analyzer should be only be used in an area which satisfies the following conditions:

- Ambient temperature: +5°C to +55°C (operating temperature range: the internal temperature of the PC where the R3755 is installed)
- Relative humidity: 80% or less (without condensation)
- An area free from corrosive gas
- An area away from direct sunlight
- A dust-free area
- An area free from vibrations
- A low noise area
  The R3755 is designed with full consideration for DC power line noise.
  However, it is recommended to use a PC that is located in an environment with minimum line noise.
  If line noise cannot be avoided, attach a noise filter to the PC power supply.
- An area allowing unobstructed air flow
  A cooling fan is located in the rear panel of the PC, and vents are located in the side panels and on the bottom (toward the front) of the PC. Never block the fan and these vents.
  Keep the rear panel 10 centimeters away from the wall. In addition, do not use the analyzer upright turned the rear panel side down. The resulting internal temperature rise will affect measurement accuracy.
  If exhaust air from the PC is obstructed, the internal temperature may rise resulting in the PC operating incorrectly.
- This network analyzer card is for use only with compatible UL Listed personal computers that have installation instructions detailing user installation of card cage accessories.

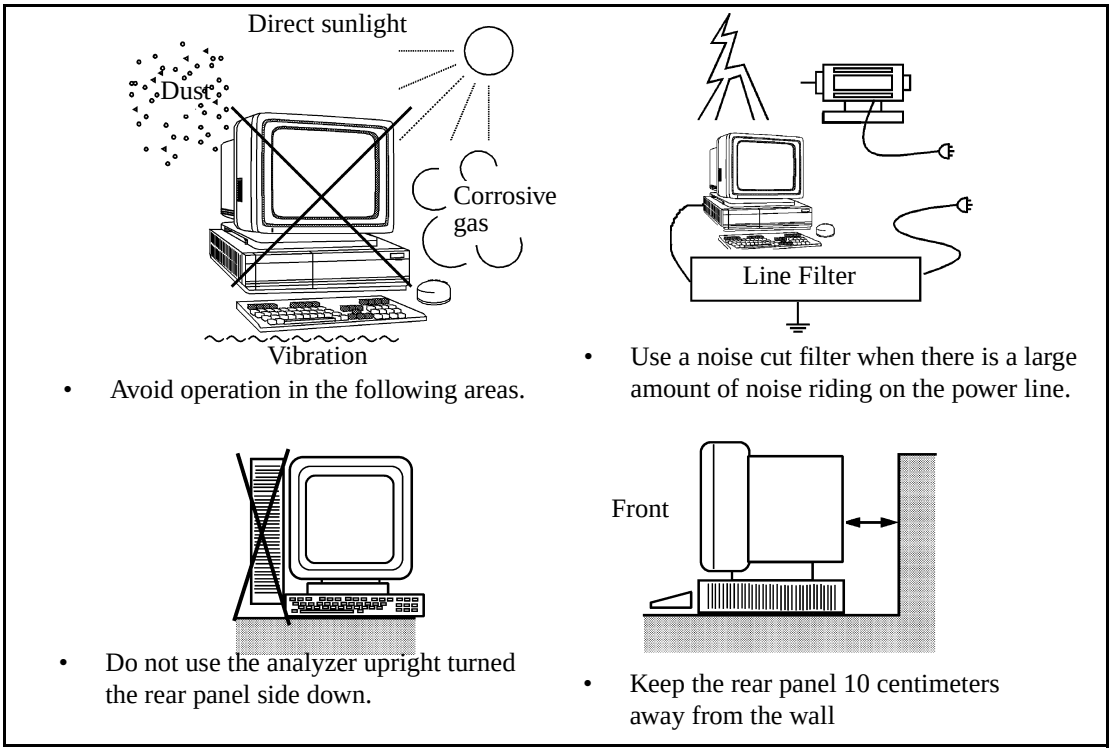


Figure 1-1 Operating Environment

The analyzer can be used safely under the following conditions:

- Altitude of up to 2000 m
- Installation Categories II
- Pollution Degree 2

1.4.2 Power Supply Specifications

The power supply specifications of the analyzer are listed in Table 1-3.

CAUTION: ***To prevent damage, operate the analyzer within the specified input voltage.***

Table 1-3 Power Supply Specifications

Required voltages	+12V, +5V, +3.3V, -12V
Power consumption	25 W or lower

1.5 Precautions in Use

1. Before starting the measurement

   When turning on the power, don't connect DUT.

   Before starting the measurement, check to see the output power level.

2. Removing of case

   Do not open the case to one except service man of our company.

3. When abnormality occurs

   If smoke or any unusual smells or sounds come from the R3755, turn off the power to the PC, remove the power cable, and contact the nearest ADVANTEST sales office or sales representative.

4. Electromagnetic interference

   Electromagnetic interference may be caused to the television or the radio.

   The R3755 or PC may be the cause of electromagnetic interference if the electromagnetic interference is reduced when the power is turned off.

   Reduce electromagnetic interference using the following methods

   - Change the direction of antenna of the television or the radio.
   - Place a PC with the R3755 installed away from any electrical devices such as TVs or radios.
   - Use a separate power supply to the power supply with electrical devices such as TVs or radios attached.

5. Prevention of Electrostatic Buildup

   To prevent damages to semiconductor parts from electrostatic discharge (ESD), the precautions shown below should be taken. We recommend that two or more measures be combined to provide adequate protection from ESD. (Static electricity can easily be built up when a person moves or an insulator is rubbed.)

   Countermeasure example

Human body:	Use of a wrist strap (see Figure 1-2).
Floor in the work area:	Installation of a conductive mat, the use of conductive shoes, and grounding (see Figure 1-3).
Benchboard:	Installation of a conductive mat and grounding (see Figure 1-4).

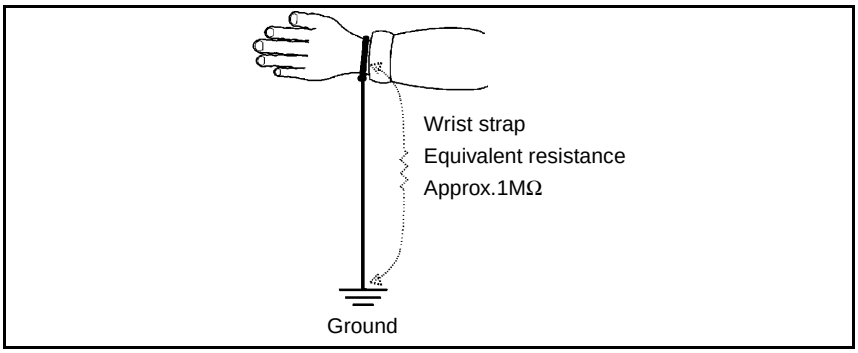


Figure 1-2 Countermeasures for Static Electricity of Human Bodies

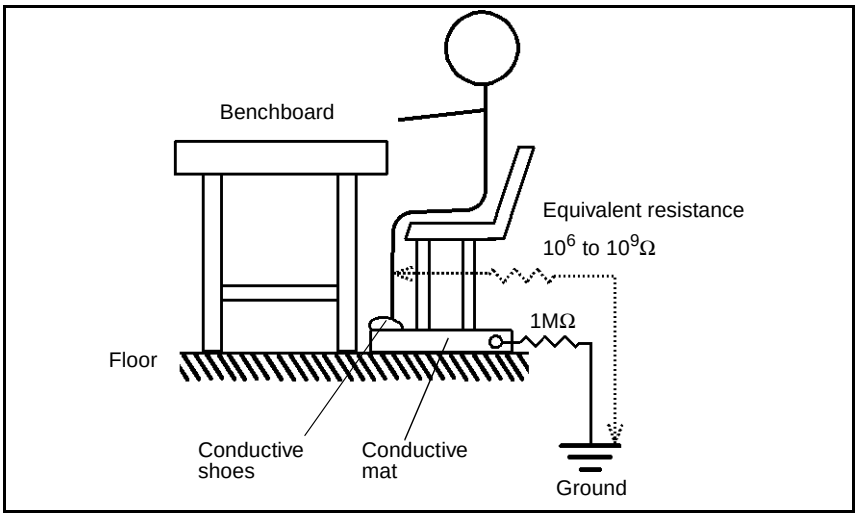


Figure 1-3 Countermeasures for Static Electricity of Work Site Floor

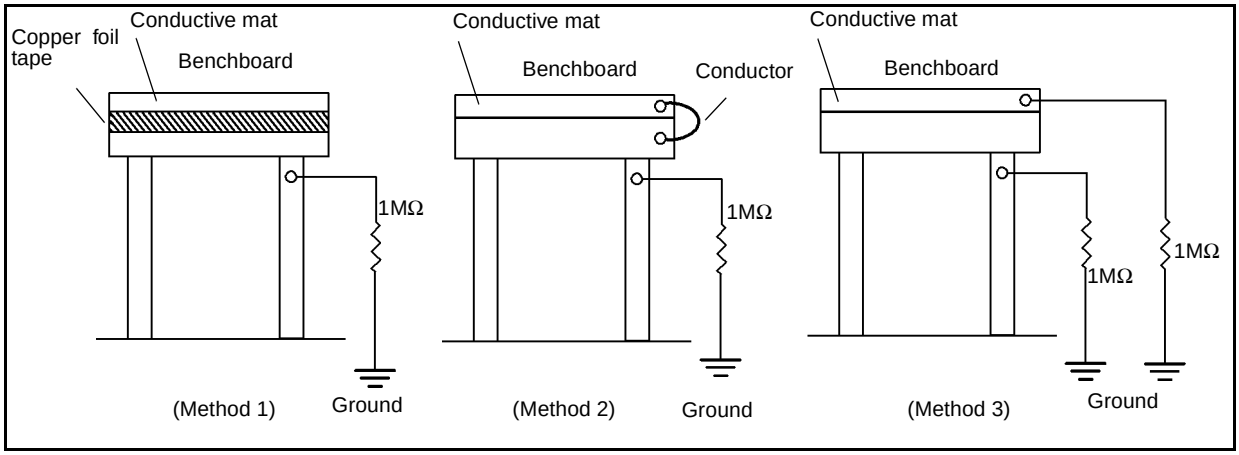


Figure 1-4 Countermeasures for Static Electricity of Work Bench

1.6 Cleaning, Storing and Transporting the R3755 Network Analyzer

1.6.1 Cleaning

Clean the R3755 with a soft cloth.

CAUTION:

1. ***Do not allow water to get inside the analyzer.***
2. ***Do not use organic cleaning solvents, such as benzene, toluene, xylene, acetone or similar compounds, since these solvents may damage the plastic parts.***
3. ***Do not use cleanser.***

1.6.2 Storing

Store the analyzer in an area which has a temperature from -20°C to +60°C. If you plan to store the analyzer for a long period (more than 90 days), put the analyzer in a vapor-barrier bag with a drying agent and store the analyzer in a dust-free location out of direct sunlight.

1.6.3 Transporting

When you ship the analyzer, use the original container and packing material. If the original packaging is not available, use the following repackaging guidelines:

1. To allow for cushioning, use a corrugated cardboard container that is at least 15 centimeters larger than those of the analyzer.
2. Surround the analyzer with protective sheeting.
3. Cushion the analyzer on all sides with packing material.
4. Seal the corrugated cardboard container with shipping tape or an industrial stapler.

If you are shipping the analyzer to a sales representative for service or repair, attach a tag to the analyzer that shows the following information:

- Owner and address
- Name of a contact person at your location
- Serial number of the analyzer (written on the bottom of the board)
- Description of the service requested

1.7 Warm up

When the R3755 temperature has reached room temperature, turn on the PC and warm it up for at least 30 minutes.

1.8 Calibration

Calibration work should be performed at an ADVANTEST CORPORATION site.
When you want to calibrate the analyzer, please contact a sales representative.

Desirable Period	1 year

2. EXPLANATION OF PANEL SURFACE

2.1 Front Panel

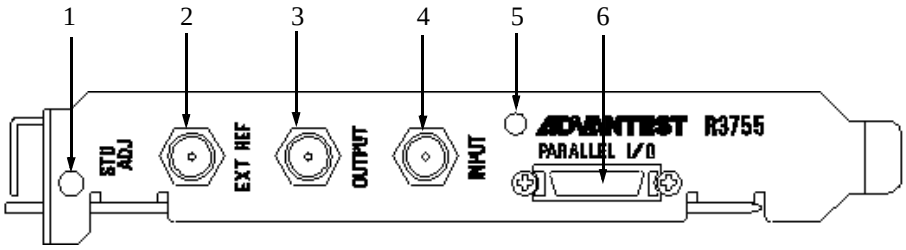


Figure 2-1 Front Panel

1. High stability frequency reference adjustment volume (available with OPT20)
   High stability frequency reference adjustment volume is available when OPT 20 is installed and is used to adjust the high stability frequency reference value.

2. External reference frequency input connector
   Connect when using an external reference frequency.
   Input frequency : 10 MHz 0 dBm or higher
   Input frequency accuracy : Within ±10 ppm

3. Signal source output connector — Outputs measurement signals.

4. Receiver input connector — Connects pass target signals.

5. Monitor LED — Flashes while operating correctly.
   Lights and stays ON or stays Off when an error occurs.

6. Parallel output connector — Connects to a controller (Refer to 2.2).
   (Output: 8 bit, C-MOS level)

2.2 Parallel Output Port

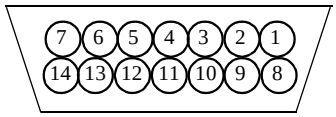


Figure 2-2 Parallel Output Port

Pin No.	Signal	Description
1	GND	Ground
2	Output port 0	C-MOS level negative logic output.
3	Output port 1	C-MOS level negative logic output.
4	Output port 2	C-MOS level negative logic output.
5	Output port 3	C-MOS level negative logic output.
6	Output port 4	C-MOS level negative logic output.
7	Output port 5	C-MOS level negative logic output.
8	Output port 6	C-MOS level negative logic output.
9	Output port 7	C-MOS level negative logic output.
10	Maintenance port	Caution: Do not connect.
11	Maintenance port	Caution: Do not connect.
12	Maintenance port	Caution: Do not connect.
13	Maintenance port	Caution: Do not connect.
14	GND	

* Compatible connector: TX20A-14PH1-D2P1-D1 by JAE (Japan Aviation Electronics) or equivalent.

CAUTION: ***Before connecting (or disconnecting) the cable to (or from) the port, turn off the PC that, this option has bee installed, or the PCI Extension box.***

3. BAPI FUNCTIONS

This chapter describes the Application Programming Interface for Board Instrument (hereafter shortened to BAPI) functions that are used in ADVANTEST's R3755 internal PCI board network analyzers and are required to generate measurement applications by using Visual Basic 6.0.

3.1 Communication Protocol

To use the R3755, the server program which controls the R3755 must be executed in advance. Controlling the R3755 from a user application program can be achieved by using the BAPI functions to communicate with the server program.

Winsock (socket communications utilizing the TCP/IP protocol) is used to communicate between the user application program and the R3755 server program.

Figure 3-1, shown below, shows the communication process between the R3755 and the User application.

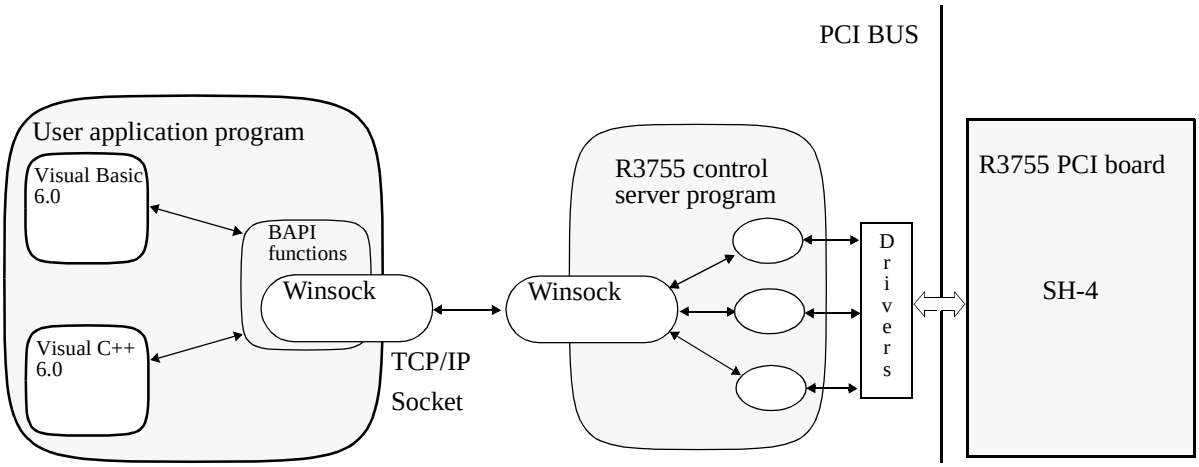


Figure 3-1 Communication Protocol

3.2 Internal Data Flow

In the R3755, basic calculations (port calculation, calibration and parameter conversion) are performed based on the data input to R-ch and A-ch. After which, LOGMAG calculations and phase calculations are also performed (refer to Figure 3-2). For other formats, calculations must be performed at application level using unformatted data (Real/Imag).

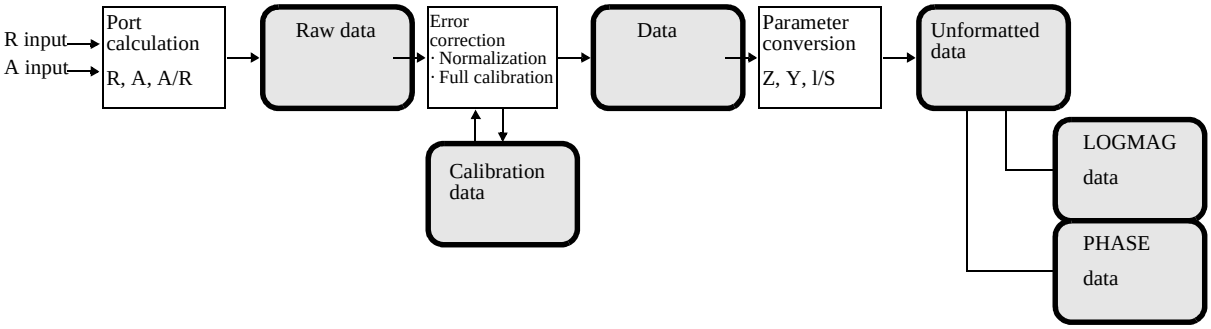


Figure 3-2 Internal Data Flow

3.3 Macro Definitions

3.3.1 ON/OFF

Macro name	Data	Function
BIS_OFF	0	OFF
BIS_ON	1	ON

3.3.2 TRUE/FALSE

Macro name	Data	Function
BIS_TRUE	0	Completed correctly (Normal data)
BIS_FALSE	1	Error exists (for details, refer to the error code)

3.3.3 Measurement Ports

Macro name	Data	Function
BIS_MEAS_R	0x00000000	
BIS_MEAS_A	0x00000001	
BIS_MEAS_AR	0x00000010	

3.3.4 CAL Types

Macro name	Data	Function
BIS_CAL_NORM	0x00000000	Normalization
BIS_CAL_TRANS	0x00000001	Transmission full calibration
BIS_CAL_1PORT	0x00000002	1 port full calibration

3.3.5 Z Conversion Modes

Macro name	Data	Function
BIS_CONV_OFF	0x00000000	OFF
BIS_CONV_ZTRANS	0x00000001	Impedance conversion (transmission)
BIS_CONV_YTRANS	0x00000002	Admittance conversion (transmission)
BIS_CONV_ZREFL	0x00000003	Impedance conversion (reflection)
BIS_CONV_YREFL	0x00000004	Admittance conversion (reflection)
BIS_CONV_1DS	0x00000005	1/S (Inverted S parameter)

3.3.6 Frequency Modes

Macro name	Data	Function
BIS_FREQ_LIN	0x00000000	LIN mode
BIS_FREQ_LOG	0x00000001	LOG mode

3.3.7 Frequency Setting Types

Macro name	Data	Function
BIS_FREQ_STRSTP	0x00000000	START/STOP type
BIS_FREQ_CNTSPN	0x00000001	CENTER/SPAN type

3.3.8 Analysis Channels

Macro name	Data	Function
BIS_TRAC1_RAW_RE	208	CH1: REAL data before CAL calculation
BIS_TRAC1_RAW_IM	209	CH1: IMAG data before CAL calculation
BIS_TRAC1_DAT_RE	144	CH1: REAL data after CAL calculation
BIS_TRAC1_DAT_IM	145	CH1: IMAG data after CAL calculation
BIS_TRAC1_UDT_RE	32	CH1: REAL unformatted data
BIS_TRAC1_UDT_IM	33	CH1: IMAG unformatted data
BIS_TRAC1_LOGMAG	64	CH1: LOGMAG data
BIS_TRAC1_LINMAG	65	CH1: LINMAG data
BIS_TRAC1_PHASE	80	CH1: PHASE data
BIS_TRAC1_CAL1	256	CH1: CAL data 1 (complex data)
BIS_TRAC1_CAL2	257	CH1: CAL data 2 (complex data)
BIS_TRAC1_CAL3	258	CH1: CAL data 3 (complex data)
BIS_TRAC2_xxxx	(BIS_TRAC1_xxxx + 1024)	CH2: above CH1 value + 1024
BIS_TRAC3_xxxx	(BIS_TRAC1_xxxx + 2048)	CH2: above CH1 value + 2048
BIS_TRAC4_xxxx	(BIS_TRAC1_xxxx + 3072)	CH2: above CH1 value + 3072

3.3.9 Declaration of the Structure for Batch Setting

- For Visual C++ 6.0

```
typedef struct {
                                // The following commands specify the parameters shown below:
    double dblFreq1             // CENTER frequency or START frequency.
    double dblFreq2             // Frequency SPAN or STOP frequency.
    long lngFtype               // Frequency type
                                // 0: START/STOP mode; 1: CENTER/SPAN modes
    long lngFmode               // Frequency mode (BIS_FREQ_LIN or BIS_FREQ_LOG)
                                // 0: LIN; 1: LOG
    long lngPntN                // Number of measurement points
    float sngRbw                // RBW
    float sngPow1               // Output level (START)
    float sngPow2               // Output level (STOP)
    float sngStime              // Settling time
} SourSeg;
```

- For Visual Basic 6.0

```
Type SourSeg
                                ' The following commands specify the parameters shown below:
    dblFreq1 As Double          ' CENTER frequency
    dblFreq2 As Double          ' Frequency SPAN
    lngFtype As Long            ' Frequency type
                                ' 0: START/STOP mode; 1: CENTER/SPAN mode
    lngFmode As Long            ' Frequency mode (BIS_FREQ_LIN or BIS_FREQ_LOG)
                                ' 0: LIN; 1: LOG
    lngPntN As Long             ' Number of measurement points
    sngRbw As Single            ' RBW
    sngPow1 As Single           ' Output level (START)
    sngPow2 As Single           ' Output level (STOP)
    sngStime As Single          ' Settling time
End Type
```

3.4 Error Code List

Error	Code	Description
ERR_SOCKET_COM	0x0100	A socket communication error has occurred.
ERR_SEND_SIZE	0x0101	The amount of transmitted data is incorrect.
ERR_RECV_SIZE	0x0102	The amount of received data is incorrect.
ERR_PACKET_ATTR	0x0103	The packet attribute is incorrect.
ERR_ILLEGAL_COM	0x0104	This is an incorrect response to the transmit command.
ERR_QUERY_BUF	0x0105	The query buffer contains no data or is unspecified.
ERR_PARAM_NUM	0x0106	The number of received data parameters is different from the number of destination variables.
ERR_NO_TYPE	0x0107	The received data type is inappropriate.
ERR_TYPE_SIZE	0x0108	The LONG, SINGLE or DOUBLE type data size is incorrect.
ERR_ALLOC	0x0109	An internal area to receive data is unavailable.
ERR_WSAEINTR	10004	The Windows socket 1.1 blocking call has been cancelled by WSACancelBlockingCall.
ERR_WSAEACCES	10013	Connect a datagram socket to the broadcast address failed because SO_BROADCAST, a setsockopt option, is disabled.
ERR_WSAEFAULT	10014	The nemelen parameter is too small or the name parameter-related address has an incorrect address format.
ERR_WSAEINVAL	10022	The parameter “s” indicates a listening socket.
ERR_WSAEWOULDBLOCK	10035	The non-blocking socket cannot be detected and the connection cannot be terminated immediately.
ERR_WSAEINPROGRESS	10036	The Windows socket 1.1 call for blocking is being processed. Or the service provider is still processing the callback function.
ERR_WSAEALREADY	10037	The un-blocking connect function call is in progress on the specified socket.
ERR_WSAENOTSOCK	10038	A socket generated in a process is being used by another process.
ERR_WSAEAFNOSUPPORT	10047	The addresses in the specified family cannot be used together with this socket.
ERR_WSAEADDRINUSE	10048	Bind() has been activated because the process was terminated without closing the socket. If the process is reactivated, the socket is bound to the previous socket. Therefore, the new bind() will be terminated abnormally.
ERR_WSAEADDRNOTAVAIL	10049	The remote address is invalid, unlike ADDR_ANY.
ERR_WSAENETDOWN	10050	The network subsystem has failed.

Error	Code	Description
ERR_WSAENETUNREACH	10051	This host cannot reach the network.
ERR_WSAENOBUFS	10055	The buffer space is unusable. The socket cannot be connected.
ERR_WSAEISCONN	10056	The socket has already been connected (only for connection-oriented sockets).
ERR_WSAETIMEDOUT	10060	The time limit to establish a connection has been exceeded.
ERR_WSAECONNREFUSED	10061	Client applications cannot be connected to the server, because the amount of backlog in the server has reached the server limit.
ERR_WSANOTINITIALISED	10093	Call WSAStartup before using this function.
FALSE	0x0001	Other errors.

3.5 Packet Communication Functions (Socket Communications)

3.5.1 Communication Control Function List

The following communication control functions are used in generating applications.

1. BisOpenPacket(): When activating an application, BisOpenPacket() must be called to open a communication path with the R3755.
2. BisGetIpStr(): Acquires an IP address from the host name.
   The acquired IP address is saved as a character string.
3. BisClosePacket(): When terminating an application, call BisClosePacket() to close the communication path with the R3755.

3.5.2 BisOpenPacket

- Function name: long BisOpenPacket
- Usage: Opens communication.
- Argument:

[IN]	char*strIP	// A character string indicating the IP address
		// (for example, “127.0.0.1”Return value
		// “127.0.0.1”: indicates itself.
		// “xxx.xxx.xxx.xxx”: The IP address used when
		// connected to LAN.

	char*strBD	// A letter string representing a board identifier // (“0” ~ “3”).

[OUT]	long*lngPID	// A connection identifier. Set this value to the first
		// argument of each API function to specify
		// the connection destination.

- Return value:

0:	Indicates a normal termination.
A value other than 0:	Indicates an error generation (for details, see 3.4 Error Code List)

- Description: TCP/IP socket communications are opened, and the packet ID is saved in the variable specified in lngPID.

  Long BisOpenPacket must be executed before each BAPI function is executed.

- Example:

```
Public Declare Function BisOpenPacket Lib "bis.dll" _
        (ByVal strIP As String, ByVal strBD As String, ByRef lngPID As
Long) As Long


Private Sub cmdOpen_Click()
        Dim lngPID As Long
        Dim lngErr As Long

    lngErr = BisOpenPacket("127.0.0.1", "0", lngPID)
                                                ‘ If “local.”
    If (lngErr <> 0) Then
        MsgBox "Invalid open the Communication Port.(" _
                & Str(lngErr) & ")", vbOKOnly
    Else
        lngErr = BisSystPres(lngPID)
    End If
End Sub
```

3.5.3 BisGetlpStr

- Function name: long BisGetIpStr
- Usage: Acquires the IP address from the host name
- Argument:
  [IN] char*strHost // A character string which indicates the host name
  char **strIpAddr // The pointer to specify the character
  // string which saves the IP address
- Return value: 0: Indicates a normal termination.
- Description: The IP address is acquired from the host name. The IP address is stored in the character string variable specified by strIpAddr.

  Example: For 192.10.100.1
  strIpAddr = "192.10.100.1"
- Example:

```
Public Declare Function BisOpenPacket Lib "bis.dll" _
        (ByVal strIP As String, ByVal strBD As String, ByRef lngPID As
Long) As Long
Public Declare Function BisGetIpStr Lib "gxr.dll" _
        (ByVal strHost As String, ByRef strIpAddr As String) As Long


Private Sub cmdOpen_Click()
        Dim lngPID As Long
        Dim lngErr As Long
        Dim strIpAddr As String * 16
                                // Ensure the string length is fixed to
                                // 16 characters or more.
    BisGetIpStr("termprgr", strIpAddr)
    lngErr = BisOpenPacket(strIpAddr, "", lngPID)
    If (lngErr <> 0) Then
        MsgBox "Invalid open the Communication Port.(" _
                & Str(lngErr) & ")", vbOKOnly
    Else    lngErr = BisSystPres(lngID)
    End If
End Sub
```

3.5.4 BisClosePacket

- Function name: long BisClosePacket
- Usage: Closes communication.
- Argument: [IN]

  long lngPID // Packet ID (specifies the value acquired
  // by BisOpenPacket)
- Return value: 0: Indicates a normal termination.
- Description: When closing applications, call longBisClosePacket to close the communication path with the R3755.
- Example:

```
Public Declare Function BisClosePacket Lib "bis.dll" _
                                    (ByVal lngPID As Long) As Long

Private Sub cmdClose_Click()
    Dim lngErr As Long

    lngErr = BisClosePacket(lngPID)
End Sub
```

3.6 Programming Example

The following is a typical program example used for setting data and loading query data.

3.6.1 Setting Conditions for an Instrument

Example	For Channel 1, sets each item with the value given. Center frequency: 10 MHz, Frequency span: 1 MHz (linear interval), Output level: +5 dBm, Number of measurement points: 601, IF RBW: 3 kHz, and Settling time: 0 seconds.

Program	Adds declare_bis.bas and bis_macro.bas to the standard module in advance.
	The first argument in the API function, IngID is assumed to be defined separately as an external variable.
	
	Private Sub cmdSetup_Click ()
	  Dim seg As SourSeg
	
	  Call BisMeasAct(lngID, 1) ’ Sets the measurement channel to CH1.
	
	  seg.dblFreq1 = 10.0e6 ’ Sets the center frequency.
	  seg.dblFreq2 = 1.0e6 ’ Sets the frequency span.
	  seg.lngFtype = BIS_FREQ_CNTSPN ’ Sets center and span settings mode.
	  seg.lngFmode = BIS_FREQ_LIN ’ Sets the linear interval.
	  seg.lngPntN = 601 ’ Sets the number of measurement points.
	  seg.sngRbw = 3.0e3 ’ Sets the IF RBW.
	  seg.sngPow1 = 5.0 ’ Sets the output level (start).
	  seg.sngPow2 = 5.0 ’ Sets the output level (finish).
	  seg.sngStime = 0.0 ’ Sets the settling time.
	  Call BisSourSeg(lngID, seg, LenB(seg))
	End Sub

3.6.2 Calling Conditions From an Instrument

Example	Calls the current channel and stimulus related settings values.

Program	Adds declare_bis.bas and bis_macro.bas to the standard module in advance.
	Assume the first argument in the API function, IngID, is defined separately as an external variable.
	
	Private Sub cmdRead_Click()
	  Dim Actch As Long
	  Dim Segcnt As Long
	  Dim seg(1601) As SourSeg ' Secures a 1601 segment size array.
	
	  Call QryMeasAct(lngID, Actch) ' Calls the measurement channel.
	  Call QrySourSeg(lngID, seg(0)) ' Calls stimulus settings.
	  Call QrySourSegCoun(lngID, Segcnt) ' Calls the segment number.
	End Sub

3.6.3 Calling Measurement and Measurement Results

Example	Triggers a single measurement and call measurement results when measurements are completed.

Program	Adds declare_bis.bas and bis_macro.bas to the standard module in advance.
	Assume the first argument in the API function, IngID, is defined separately as an external variable.
	
	Private Sub cmdSweep_Click()
	  Dim stat As Long
	  Dim endP As Long, totP As Long
	  Dim logmag(1601) As Single
	
	  Call BisInitCont(lngID, 0) ' Sets continuous measurement to OFF.
	  Call BisInitImm(lngID) ' Starts the measurement.
	  Do
	  Call QryStatOper(lngID, stat) ' Calls the operation status
	  ' (If during a measurement, 1 appears).
	  DoEvents
	  Loop While (stat <> 0) ' Waits until the status is 0.
	
	  Call QryStatSweCoun(lngID, endP, totP)' Calls the total measurement point number.
	  "Calls the measurement result (LOG amplitude)
	  Call QryTracData(lngID, BIS_TRAC1_LOGMAG, 0, totP - 1, logmag(0))
	End Sub

3.6.4 Calling and Writing Complex Number Data

Example	Calls and writes calibration data.

Program	Adds declare_bis.bas and bis_macro.bas to the standard module in advance.
	Assume the first argument in the API function, IngID, is defined separately as an external variable.
	
	Dim cal1(3202) As Single, cal2(3202) As Single, cal3(3202) As Single
	Dim caltype As Long, totP As Long
	
	”----------
	”Calling calibration data.
	”----------
	Private Sub cmdCalRead_Click()
	  Dim endP As Long
	
	  Call QryStatSweCoun(lngID, endP, totP) ’ Calls the total measurement point number.
	  Call QrySensCorrCollMeth(lngID, caltype)’ Calls the calibration type.
	  ”Calls each calibration data item.
	  Call QryTracData(lngID, BIS_TRAC1_CAL1, 0, totP - 1, cal1(0)) ’ Calibration data 1
	  Call QryTracData(lngID, BIS_TRAC1_CAL2, 0, totP - 1, cal2(0)) ’ Calibration data 2
	  Call QryTracData(lngID, BIS_TRAC1_CAL3, 0, totP - 1, cal3(0)) ’ Calibration data 3
	End Sub
	”----------
	”Writing calibration data.
	”----------
	Private Sub cmdCalWrite_Click()
	  Call BisSensCorrCollDel(lngID) ’ Clears the current calibration data.
	  Call BisSensCorrCollMeth(lngID, caltype) ’ Sets the calibration type.
	  ”Writes each calibration data item.
	  Call BisTracData(lngID, BIS_TRAC1_CAL1, 0, totP - 1, cal1(0), totP * 8)
	  Call BisTracData(lngID, BIS_TRAC1_CAL2, 0, totP - 1, cal2(0), totP * 8)
	  Call BisTracData(lngID, BIS_TRAC1_CAL3, 0, totP - 1, cal3(0), totP * 8)
	End Sub

4. FUNCTION SPECIFICATIONS

4.1 ABORt Subsystem

4.1.1 BisAbor

- Function name: long BisAbor
- Usage: Resets measuring (Forces termination).
- Argument: [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Measuring is reset.
  If BisInitCont () is set to OFF, measurement is suspended.
  If BisInitCont () is set to ON, the sweep is suspended and then restarts from the beginning. (A restart operation).

4.2 CALCulate Subsystem

4.2.1 BisCalcTranImpCimp

- Function name: long BisCalcTranImpCimp
- Usage: Sets the Z conversion characteristic impedance.
- Argument:
  [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  double dblZ0 // Specifies characteristic impedance (Ω).
- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Sets the Z conversion characteristic impedance.

4.2.2 QryCalcTranImpCim

- Function name: long QryCalcTranImpCimp
- Usage: Reads the Z conversion characteristic impedance.
- Argument:
  [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  [OUT] double * dblZ0 // Characteristic impedance (Ω).
- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: QryCalcTranImpCimp is used to read the Z conversion characteristic impedance set by BisCalcTranImpCimp(). The read value is stored in the variable dblZ0.

4.2.3 BisCalcTranImpType

- Function name: long BisCalcTranImpType
- Usage: Sets the Z conversion mode
- Argument:

```
[IN]  long lngPID    // Packet ID (specifies the value acquired
                     // by BisOpenPacket)
      long lngType   // The Z conversion mode is specified using
                     // BIS_CONV_xxxx
                     // 0: No conversion
                     // 1: Transmission impedance
                     // 2: Transmission admittance
                     // 3: Reflection impedance
                     // 4: Reflection admittance
                     // 5: Inverted S parameters
```

- Return value:
  0: Normal
  1: The IngType argument is incorrectly specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: Sets the Z conversion mode

4.2.4 QryCalcTranImpType

- Function name: long QryCalcTranImpType
- Usage: Reads the Z conversion mode.
- Argument:

```
[IN]  long lngPID        // Packet ID (specifies the value acquired
                         // by BisOpenPacket)
[OUT] long * lngType     // Z conversion mode
```

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: The Z conversion mode set using BisCalcTranImpType() is read. The read value is stored in the variable lngType.

4.3 FETCh Subsystem

4.3.1 QryFetcFreq

- Function name: long QryFetcFreq
- Usage: Acquires the frequency from point data.
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	long lngCh	// Specify CH (1 to 4)
	long lntPntN	// Specifies the point position used to convert // to the frequency data.
[OUT]	double * dblFreq	// Returns the acquired frequency (Hz).

- Return value:
  0: Normal
  1: The IngCh or IngPntN argument is incorrectly specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: The frequency corresponding to the position specified using the argument lngPntN is determined. Then, the value is stored in the argument dblFreq.

4.3.2 QryFetcPoin

- Function name: long QryFetcPoin
- Usage: Acquires the point from frequency data.
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	long lngCh	// Specify CH (1 to 4)
	double dblFreq	// Specifies the frequency position used to convert // to the point data.
[OUT]	long * lngPntN	// Returns the acquired point data.

- Return value:
  0: Normal
  1: The IngCh argument is incorrectly specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: The point corresponding to the frequency specified using the argument dblFreq is acquired. Then, the value is stored in the argument lngPntN.

4.3.3 QryFetcMax

- Function name: long QryFetcMax
- Usage: Acquires the maximum value in a specified range.
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	long lngTr	// Specifies the analysis channel // (BIS_TRACx_xxx)
	long lngStrPnt	// The point where the search starts
	long lngStpPnt	// The point where the search ends
[OUT]	double * dblMaxV	// Returns the response for the maximum // point searched.
	double * dblMaxF	// Returns the frequency for the maximum // point searched.
	long * lngMaxP	// Return the point data for the maximum // point searched.

- Return value:
  0: Normal
  1: The IngStrPnt or StpPnt argument is incorrectly specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: The maximum value is searched in the range specified using the arguments lngStrPnt and lngStpPnt. Then, the value is stored in the variables specified using the arguments dblMaxV, dblMaxF and lngMaxP, respectively.

4.3.4 QryFetcMin

- Function name: long QryFetcMin
- Usage: Acquires the minimum value in a specified range.
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	long lngTr	// Specifies the analysis channel // (BIS_TRACx_xxx)
	long lngStrPnt	// The point where the search starts
	long lngStpPnt	// The point where the search ends
[OUT]	double * dblMinV	// Returns the response for the minimum // point searched.
	double * dblMinF	// Returns the frequency for the minimum // point searched.
	long * lngMinP	// Returns the point data for the minimum // point searched.

- Return value:
  0: Normal
  1: The IngStrPnt or IngStpPnt argument is incorrectly specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: The minimum value is searched in the range specified using the arguments lngStrPnt and lngStpPnt. Then, the value is stored in the variables specified using the arguments dblMin, dblMinF and lngMinP, respectively.

4.3.5 QryFetcTarg

- Function name: long QryFetcTarg
- Usage: Searches for response values (Targets) in a specified range.
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	long lngTr	// Specifies the analysis channel // (BIS_TRACx_xxx)
	long lngStrPnt	// The point where the search starts
	long lngStpPnt	// The point where the search ends
	double dblTgt	// A response value to be searched for
[OUT]	double * dblFreq	// Returns the frequency of the searched point.
	long * lngPleft	// Returns the (left side) point value of // the searched point.
	long * lngPright	// Returns the (right side) point value // of the searched point.

- Return value:
  0: Normal
  1: The IngStrPnt or IngStpPnt argument is incorrectly specified.
  8: Search Error (No Target was found).
  Other: Refer to Section 3.4, “Error Code List.”
- Description: The point where the response value specified using dblTgt is crossed is searched for in the range specified using the arguments lngStrPnt and lngStp-Pnt. Then, the frequency, and the left-side point value and the right-side point value of the crossed point are stored in the arguments of dblFreq, lngPleft and lngPright, respectively.
  If lngStrPnt > lngStpPnt, the search direction is reversed.

4.3.6 QryFetcVal

- Function name: long QryFetcVal
- Usage: Determines the response value (measurement value) for a specified point position
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	long lngTr	// Specifies the analysis channel // (BIS_TRACx_xxx)
	long lngPntN	// A point position to determine a // measurement value
[OUT]	double * dblValue	// Return the measurement value.

- Return value:
  0: Normal
  1: The IngPntN argument is incorrectly specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: The response value (measurement value) for the position specified with the argument lngPntN is determined.
  Then, the value is saved in the variable specified with the argument dblValue.

4.3.7 QryFetcCVal

- Function name: long QryFetcCVal
- Usage: Acquires a response value (measurement value) for the specified frequency
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	long lngTr	// Specifies the analysis channel // (BIS_TRACx_xxx)
	double dblFreq	// Specifies the frequency position to determine // a measurement value.
[OUT]	double * dblValue	// Returns the measurement value.

- Return value:
  0: Normal
  1: The dblFreq argument is incorrectly specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: The response value for the frequency position specified using the argument dblFreq is acquired. Then, the value is stored in the variable specified using the argument dblValue.
  If the specified frequency is not on the measurement point, the value is estimated by interpolation from response values of the preceding and succeeding measurement points.

4.4 INITiate Subsystem

4.4.1 BisInitCont

- Function name: long BisInitCont
- Usage: Sets continuous measurement (continuity) to ON or OFF
- Argument:
  [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  long lngOnoff // 0:OFF / 1:ON
- Return value:
  0: Normal
  -1: The upper limit (1:ON) has been set because the IngOnoff argument was specified by using a non binary value.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: When set to ON, BisInitImm() is disabled in continuous measurement mode. When set to OFF, the system waits for a trigger signal in the single measurement mode. Therefore, BisInitImm() must be used to start measurement.

4.4.2 QryInitCont

- Function name: long QryInitCont
- Usage: Reads continuous measurement (continuity) status (ON or OFF).
- Argument:
  [[IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  [OUT] long * lngOnoff // ON/OFF
- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: The continuous measurement (continuity) status ON or OFF set using BisInitCont() is read. The read data is saved in the variable lngOnoff.

4.4.3 BisInitImm

- Function name: long BisInitImm
- Usage: Starts measurement
- Argument: [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
- Return value:
  0: Normal
  2: This command was ignored because continuous measurement was set to ON.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: Starts the measurement.
  However, long BistInitImm is disabled when BisInitCont() is set to ON.

4.4.4 BisInitImmPart

- Function name: long BisInitImmPart
- Usage: Starts partial measurement
- Argument: [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  long StartP // Specifies the measurement start point // (0 to 1600)
  long StopP // Specifies the measurement end point // (0 to 1600)
- Return value:
  0: Normal
  2: This command was ignored because continuous measurement was set to ON.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: The partial measurement in the range specified using the argument StartP and StopP starts.
  However, long BistInitImm is disabled when BisInitCont() is set to ON.
  If the specified end point is larger than any of the measurement points, the measurement ends at the last measurement point.

4.4.5 BisInitWai

- Function name: long BisInitWai
- Usage: Waits for the measurement to end.
- Argument: [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Waits for the measurement to end (long BisInitWai provides no return until the measurement is completed).
  If long BisInitWai is executed when BisInitCont()is set to ON, a response will be returned immediately.
- Note: Ensure that long BisInitWai provides no return until the trigger system operation is complete.

4.5 MEASurement Subsystem

4.5.1 BisMeasAct

- Function name: long BisMeasAct
- Usage: Sets the active channel
- Argument:
  [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  long lngCh // Specifies CH number (1 to 4)
- Return value:
  0: Normal
  -1: The threshold limit is set because the IngCh argument exceeding the upper or lower limit is specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: An active channel (1 to 4) is set. Measurement is performed and settings are made for the active channel.

4.5.2 QryMeasAct

- Function name: long QryMeasAct
- Usage: Reads the active channel number.
- Argument:
  [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  [OUT] long * lngCh // CH number
- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: The active channel number set using BisMeasAct() is read. The read value is stored in the variable lngCh.

4.6 PIO Subsystem

4.6.1 BisPioOut

- Function name long BisPioOut
- Usage Outputs data to PIO.
- Argument [IN] long lngPID // Packet ID (Specifies the value obtained // by BisOpenPacket).
  long IngData // Data to output.
- Return value Normal (0:BIS_TRUE) / Error (1:BIS_FALSE)
- Description Outputs the data specified by the IngData argument to PIO.

4.7 SENSe Subsystem

4.7.1 BisSensCorrCollMeth

- Function name: long BisSensCorrCollMeth
- Usage: Specifies the CAL type.
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)

	long lngCalMeth	// Specifies the CAL type using
		// BIS_CAL_xxxx
		// 0: Normalization
		// 1: Transmission full calibration
		// 2: 1-port full calibration

- Return value:
  0: Normal
  1: The IngCalMeth argument is incorrectly specified.
  4: This command was executed while the calibration measurement (BisSensorrCsetStat) was set to on.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: A CAL type must be specified prior to acquiring CAL data.
  Actual CAL data acquisition is performed using BisSensCorrColl().
  This command is unavailable while BisSensCorrCsetStat( ) is set to ON.

4.7.2 QrySensCorrCollMeth

- Function name: long QrySensCorrCollMeth
- Usage: Reads the CAL type
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
[OUT]	long * lngCalMeth// CAL type		

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: The CAL type set using BisSensCorrCollMeth() is read. The read value is stored in the variable lngCalMeth.

4.7.3 BisSensCorrColl

- Function name long BisSensCorrColl
- Usage Acquires calibration data.
- Argument

```
[IN]  long lngPID    // Packet ID (specifies the value acquired by BisOpenPacket)
      long lngAcqId  // <BIS_CAL_NORM> <BIS_CAL_TRANS> <BIS_CAL_1PORT>
                     // 0: NORMALIZE      OPEN          OPEN
                     // 1:      --        SHORT         SHORT
                     // 2:      --        LOAD          LOAD
```

- Return value
  0: Normal
  1: The IngAcqld argument is incorrectly specified.
  5: BisSensorrCollSave has already been executed.
  Other: Refer to Section 3.4, “Error Code List.”
- Description Acquires calibration data.
  When BisSensCorrollSave( ) has already been executed, This command is unavailable. Execute BisSensCorrCollDel( ) in advance.
- Note CAL type must be specified in advance using BisSensCorrCollMeth().

4.7.4 BisSensCorrCollSave

- Function name long BisSensCorrCollSave
- Usage Calculates error factors
- Argument

```
[IN]  long lngPID    // Packet ID (specifies the value acquired
                     // by BisOpenPacket)
```

- Return value
  0: Normal
  5: BisSensorrollSave has already been executed.
  6: One of the calibration data has not been obtained.
  Other: Refer to Section 3.4, “Error Code List.”
- Description Calculates error factors.
  Also, when BisSensorrCollSave( ) has been executed, this command is unavailable.
- Note CAL data must be acquired in advance using BisSensCorrColl().

4.7.5 BisSensCorrCollDel

- Function name: long BisSensCorrCollDel
- Usage: Clears the calibration data.
- Argument: [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Clears the acquired calibration data (CAL data).

4.7.6 BisSensCorrCsetStat

- Function name: long BisSensCorrCsetStat
- Usage: Sets calibration measurement to ON (enabled) and OFF (disabled).
- Argument: [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  long lngOnoff // 0:OFF / 1:ON
- Return value:
  0: Normal
  -1: The upper limit (1:ON) has been set, because the IngOnoff argument with a value other than 0/1 was incorrectly specified.
  7: No error coefficient (BisSensCorrCollSave) calculation is executed.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: Specifies whether or not error correction measurement using calibration data is enabled (ON) or disabled (OFF).

4.7.7 QrySensCorrCsetStat

- Function name: long QrySensCorrCsetStat
- Usage: Reads the calibration measurement status (ON or OFF).
- Argument:
  [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  [OUT] long * lngOnoff // ON/OFF
- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: The ON or OFF status set for the calibration measurement by using BisSensCorrCsetStat() is read. The read data is saved in the variable lngOnoff.
  The data is stored as follows:
  0: Calibration measurement set to OFF.
  1: Calibration measurement set to ON (normal condition).
  2: Calibration measurement set to ON (interpolating condition)
  4: Calibration measurement set to ON (extrapolating condition)
  However, if the calibration measurement is set to ON in SensCorrCsetStat( ), This command must be set to 1. The above conditions apply only when in query.

4.7.8 BisSensCorrCkitDefOpen

- Function name: long BisSensCorrCkitDefOpen
- Usage: Sets standard open-circuit correction values
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	double dblRs	// Specify impedance (Rs) [Ω]
	double dblLs	// Specify inductance (Ls) [H]
	double dblCp	// Specify capacitance (Cp) [F]

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Sets standard open-circuit correction values.

4.7.9 QrySensCorrCkitDefOpen

- Function name: long QrySensCorrCkitDefOpen
- Usage: Reads standard open-circuit correction values.
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
[OUT]	double * dblRs	// Impedance (Rs) [Ω]
	double * dblLs	// Inductance (Ls) [H]
	double * dblCp	// Capacitance (Cp) [F]

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Correction values set for the standard open-circuit by using BisSensCorrCkit-DefOpen() are read and saved in variables, dblRs, dblLs and dblCp, respectively.

4.7.10 BisSensCorrCkitDefShor

- Function name: long BisSensCorrCkitDefShor
- Usage: Sets correction values for the standard short-circuit
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	double dblRs	// Specify impedance (Rs) [Ω]
	double dblLs	// Specify inductance (Ls) [H]
	double dblCp	// Specify capacitance (Cp) [F]

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Sets correction values for the standard short-circuit.

4.7.11 QrySensCorrCkitDefShor

- Function name: long QrySensCorrCkitDefShor
- Usage: Reads correction values for the standard short-circuit.
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
[OUT]	double * dblRs	// Impedance (Rs) [Ω]
	double * dblLs	// Inductance (Ls) [H]
	double * dblCp	// Capacitance (Cp) [F]

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Correction values set for the standard short-circuit by using BisSensCorrCkit-DefShor() are read and saved in variables, dblRs, dblLs and dblCp, respectively.

4.7.12 BisSensCorrCkitDefLoad

- Function name: long BisSensCorrCkitDefLoad
- Usage: Sets correction values for the standard load
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	double dblRs	// Specify impedance (Rs) [Ω]
	double dblLs	// Specify inductance (Ls) [H]
	double dblCp	// Specify capacitance (Cp) [F]

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Sets correction values for the standard load.

4.7.13 QrySensCorrCkitDefLoad

- Function name: long QrySensCorrCkitDefLoad
- Usage: Reads correction values for the standard load.
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
[OUT]	double * dblRs	// Impedance (Rs) [Ω]
	double * dblLs	// Inductance (Ls) [H]
	double * dblCp	// Capacitance (Cp) [F]

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Correction values set for the standard load by using BisSensCorrCkitDefLoad() are read. The read values are saved in variables, dblRs, dblLs and dblCp, respectively.

4.7.14 BisSensFunc

- Function name: long BisSensFunc
- Usage: Specifies measurement ports
- Argument:

```
[IN]  long lngPID    // Packet ID (specifies the value acquired
                     // by BisOpenPacket)
      long lngFunc   // Specifies a measurement ports by using
                     // BIS_MEAS_xxxx.
                     // 0x0000: for R input
                     // 0x0001: for A input
                     // 0x0010: for A/R input
```

- Return value:
  0: Normal
  1: The IngFunc argument is incorrectly specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: Specifies measurement ports.

4.7.15 QrySensFunc

- Function name: long QrySensFunc
- Usage: Reads measurement port numbers.
- Argument:

```
[IN]  long lngPID       // Packet ID (specifies the value acquired
                        // by BisOpenPacket)
[OUT] long * lngFunc    // Measurement port
```

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Measurement port numbers set by using BisSensFunc() are read and saved in variable lngFunc.

4.8 SOURce Subsystem

4.8.1 BisSourSeg

- Function name: long BisSourSeg
- Usage: Makes basic settings such as those for CENTER, SPAN and the number of points, collectively.
- Argument:

```
typedef struct {                // For Visual C++ 6.0
        double dblFreq1         // Specifies a CENTER frequency or START
                                // frequency (Hz).
        double dblFreq2         // Specifies a frequency SPAN or STOP
                                // frequency (Hz).
        long lngFtype           // Frequency type
                                // 0: for the START mode and STOP
                                // modes; 1: for the CENTER mode and SPAN
                                // modes
        long lngFmode           // The frequency mode
                                // (BIS_FREQ_LIN or BIS_FREQ_LOG)
                                // 0:LIN / 1:LOG
        long lngPntN            // Specifies the number of measurement points
        float sngRbw            // Specifies IF RBW (Hz)
        float sngPow1           // Specifies the START output level (dBm).
        float sngPow2           // Specifies the STOP output level (dBm).
        float sngStime          // Specifies a settling time (sec)
} SourSeg;
[IN]    long lngPID             // Packet ID (specifies the value acquired
                                // by BisOpenPacket)
        SourSeg * Stim          // A structure pointer (the start of the array)
        long len                // Total bytes
                                // (An array depth X the number of bytes
                                // of the structure “SourSeg”)
```

- Return value:
  - 0: Normal
  - 3: The total number of points has exceeded 1601 segments.
  - -1: The threshold limit has been set, because one of settings in the segment exceeded the upper or lower limit.
  - Other: Refer to Section 3.4, “Error Code List.”
- Description: Basic settings such as those for CENTER, SPAN and the number of points are made collectively.
  However, the maximum number of total measurement points is set to 1601.

4.8.2 QrySourSeg

- Function name: long QrySourSeg
- Usage: Reads basic settings such as those for CENTER, SPAN and the number of points.
- Argument:
  [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  [OUT] SourSeg * Stim // A structure pointer (the start of the array)
- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Basic settings such as those for CENTER, SPAN and the number of points set with BisSourSeg() are read.
  The read values are saved in the array specified by using the argument Stim.
- Note: This command can specify up to 1601 segments in the R3755.
  Therefore, storing 1601 segment size data is possible.
  Secure a sufficiently sized array at the storage location (argument * Stim) for the data placement. No capacity check is conducted by the API function. The memory data may be damaged if the array size differs.

4.8.3 QrySourSegCoun

- Function name: long QrySourSegCoun
- Usage: Reads the number of segments
- Argument:
  [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  [OUT] long * lngNum // The number of segments
- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: The number of set segments are read and saved in variable lngNum.

4.8.4 BisSourSweTime

- Function name: long BisSourSweTime
- Usage: Sets the sweep time
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)

	long lngOnoff	// Specifies the enabled (ON) or disabled (OFF)
		// status of TIME AUTO
		// 0:MANUAL / 1:AUTO

	double dblStime	// Specifies the sweep time in seconds // (valid only when TIME AUTO is set to OFF).

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: A sweep time is set.
  To set a sweep time automatically based on resolution bandwidth, set lngOnoff to ON and dblStime to 0.
  To end the automatic setting of a sweep time, set lngOnoff to OFF and dbl-Stime to an intended sweep time.

4.8.5 QrySourSweTime

- Function name: long QrySourSweTime
- Usage: Reads the sweep time.
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)

[OUT]	long * lngOnoff	// Specifies the enabled (ON) or disabled (OFF)
		// status of TIME
		// AUTO

	double * dblStime	// Specifies a sweep time // (enabled onlywhen TIME AUTO is set to OFF.)

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: The sweep time set with BisSourSweTime() is read together with the ON/OFF status of TIMEAUTO. The read data are saved in variables, lngOnoff and dblStime.

4.8.6 QrySourFreqTab

- Function name: long QrySourFreqTab
- Usage: Reads the frequency table
- Argument:

[IN]	long	lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	long	lngCh	// Channel (1 to 4)
[OUT]	double *	dblFreq	// A frequency table (for the number of // measurement points)

- Return value:
  0: Normal
  1: The IngCh argument is incorrectly specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: Frequency data is read for each measurement point and is saved in the array specified by the argument dblFreq.
- Note: Provide a large enough capacity for the memory (on the application side) where the data is to be saved. API functions do not check the amount of available memory where the data is to be saved.
  The maximum number of measurement points is set to 1601. Therefore, it is recommended to provide the amount of memory for the maximum number.

4.8.7 QrySourPowTab

- Function name: long QrySourPowTab
- Usage: Reads the output level table
- Argument:

[IN]	long	lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
	long	lngCh	// Channel (1 to 4)
[OUT]	float *	fltPow	// An output level table (for the number // of measurement points)

- Return value:
  0: Normal
  1: The IngCh argument is incorrectly specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: In level sweep, output level data is read for each measurement point. The read data is saved in the array specified with the argument fltPow.
- Note: Provide a large enough capacity for the memory (on the application side) where the data is to be saved. API functions do not check the amount of available memory where the data is to be saved.
  The maximum number of measurement points is set to 1601. Therefore, it is recommended to provide the amount of memory for the maximum number.

4.9 STATus Subsystem

4.9.1 QryStatOper

- Function name: long QryStatOper
- Usage: Reads calculation statuses.
- Argument:
  [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  [OUT] long * lngStat // An calculation status
- Return value: Operation complete (0: BIS_TRUE)
  During operation (1: BIS_FALSE)
- Description: End statuses of calculation such as the modification of settings and the finishing of a sweep operation are read. The read data is saved in the variable lngStat.
  It is possible to write operation end-monitoring programs using this function.

4.9.2 QryStatSweCoun

- Function name: long QryStatSweCoun
- Usage: Reads measurement counter values
- Argument:
  [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
  [OUT] long * lngEndP // A measurement end point (0 to 1601)
  long * lngTotP // The total number of measurement points
- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Measurement counter values are read. The measurement end point data and the total number of measurement points, which have been read, are saved in the variables, lngEndP and lngTotP, respectively.

4.10 SYSTem Subsystem

4.10.1 BisSystPres

- Function name long BisSystPres
- Usage Initializes the system
- Argument [IN] long lngPID // Packet ID (specifies the value acquired // by BisOpenPacket)
- Return value Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description The system is initialized and initial settings are restored.

4.11 TRACe Susbsystem

4.11.1 BisTracData

- Function name: long BisTracData
- Usage: Writes specified trace data
- Argument:

[IN] long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)
long lngTr	// Trace number // (Analysis channel: specified with // BIS_TRACx_xxx)
long lngStrP	// A start point (0 to 1600)
long lngStpP	// An end point (0 to 1600)
float * fltBuff	// A data array pointer
long lngSize	// Total bytes of the data to be written

- Return value:
  0: Normal
  1: The IngStrP and IngStpP argument is incorrectly specified.
  Other: Refer to Section 3.4, “Error Code List.”
- Description: Specified trace data is written into the R3755.
  For CAL data, specify a double-sized array where “Real” data is saved first, followed by “Imag” data.

4.11.2 QryTracData

- Function name: long QryTracData
- Usage: Reads specified trace data
- Argument:

[IN]	long lngPID	// Packet ID (specifies the value acquired // by BisOpenPacket)

	long lngTr	// Trace number
		// (Analysis channel: specified with
		// BIS_TRACx_xxx)

	long lngStrP	// A start point (0 to 1600)
	long lngStpP	// An end point (0 to 1600)
	float * fltBuff	// A data array pointer

- Return value: Normal (0: BIS_TRUE) or error (1: BIS_FALSE)
- Description: Specified trace data is read from the R3755.
  For CAL data, “Real” data is saved first, followed by “Imag” data. Therefore, a double-sized array must be provided.
- Note: Provide a large enough capacity for the memory (on the application side) where the data is to be saved. API functions do not check the amount of available memory where the data is to be saved.
  The memory data may be damaged if the array size differs.

5. PERFORMANCE TEST

This chapter describes testing procedures designed to maintain this analyzer's efficiency.
For items not covered in this chapter, contact ADVANTEST.

5.1 Preparing for a Performance Test

1. Warm up

   Warm up the R3755 for at least 30 minutes before executing the performance test.

2. Preparing measurement instruments

   The following measurement instruments are required to perform the test items as shown in Table 5-1.

   Use the sample software in the driver installation CD (FFC-8440059A00-1) for performance verification.

Table 5-1 Required Measurement Instruments for Performance Test (1 of 2)

Test items	Measurement instrument		Remarks
1. Frequency accuracy and range	• Counter Frequency: 1 MHz to 300 MHz Display: 7 digits or more Accuracy: 0.1ppm or less	Model R5372 (to 18 GHz) or Model R5373 (to 26 GHz) (Manufactured by ADVANTEST)	Refer to section 5.3.
	• BNC-SMA cable		
2. Output/Input level and flatness	• Power meter Frequency: 1 MHz to 300 MHz Power range: -43 dBm to +21 dBm	HP436A (HP437B) (HP438A) (Calibrated under the national standard)	Refer to section 5.4.
	• Power sensor Frequency: 1 MHz to 300 MHz Power range: -43 dBm to +21 dBm	HP8482A	
3. Output level linearity	• Power meter Frequency: 1 MHz to 300 MHz Power range: -43 dBm to +21 dBm	HP436A (HP437B) (HP438A) (Calibrated under the national standard)	Refer to section 5.5.
	• Power sensor Frequency: 1 MHz to 300 MHz Power range: -43 dBm to +21 dBm	HP8482A	

Table 5-1 Required Measurement Instruments for Performance Test (1 of 2)

Test items	Measurement instrument		Remarks
Dynamic Level Accuracy	• Step Attenuator Variable Range: 0 dB - 90 dB Accuracy: Within 0.02 dB	HP8496B (Equipment calibrated using national standards)	Refer to Section 5.7.
	• RF Cable (SMA(m)/SMA(m) 50Ω) (2	A01253-060	
	• Transformer Connectors (N(m)/SMA (f)) (2	HRM-554S	
	• 3 dB Fixed Attenuator (SMA(f)/SMA(m)) (2	AT-103	

5.2 General Cautionary Points

- Perform testing under the following environmental conditions.
  Test temperature range: +23°C±5°C
  Relative humidity: RH80% or lower
  Locations free of dust, vibration, and noise

5.3 Frequency Accuracy and Range

Testing procedure

1. Setup the R3755 as shown in the figure below.

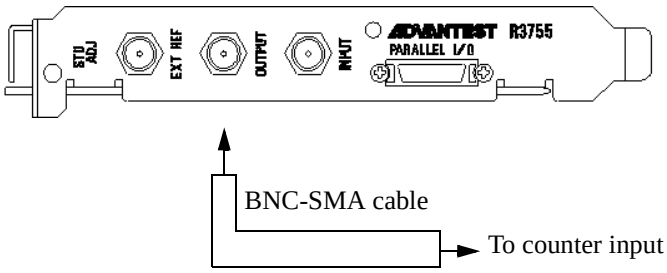


Figure 5-1 Frequency Accuracy and Range

2. Set the R3755 as follows.
   Span : 0 Hz
   Sweep mode : SINGLE
3. Change any center frequency in the range of 1 MHz to 300 MHz.
4. Check that the counter read frequency < center frequency ± center frequency × 10×10^{-6}
   Example: When the center frequency is at 10 MHz, the range is 10 MHz ± 100 Hz (that is between 9,999,900 Hz and 10,000,100 Hz).

5.4 Output Level Accuracy and Flatness

Testing procedure

1. Setup the R3755 as shown in the figure below.

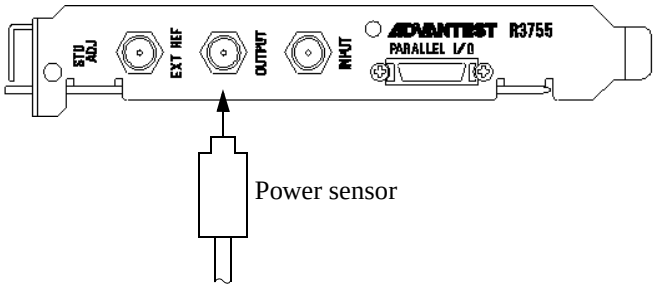


Figure 5-2 Output Level Accuracy and Flatness

Output level accuracy

2. Perform the ZERO calibration for the power meter.
3. Set the R3755 as follows.
   Center frequency: 10 MHz
   Span : 0 Hz
   Output level : 0 dBm
4. Connect the power sensor to the output terminal and perform the measurement.

NOTE: The calibration factor should be set to 10 MHz.

5. Check the output level accuracy of ±2.0 dB at 0 dBm and 10 MHz.

Flatness

6. Perform the ZERO calibration for the power meter.
7. Set the R3755 as follows.
   Center frequency: 10 MHz
   Span : 0 Hz
   Output level : 0 dBm
8. Press the **[REL]** key on the power meter and set it to 0 dB (ratio measurement mode).

9. The span and the output level are fixed. Change the center frequency and read data from the power meter.

NOTE: ***Use the calibration factor at the center frequency.***

10. Check that the Flatness of 0dBm is as follows.

    1 MHz to 100 MHz : 5.0 dBp-p

    100 MHz to 300 MHz : 8.0 dBp-p

5.5 Output Level Linearity

Testing procedure

1. Perform the ZERO calibration for the power meter.
2. Set the R3755 as follows.
   Center frequency : 10 MHz
   Span : 0 Hz
   Output level : 0 dBm
3. Connect the power sensor to the output terminal as shown in the figure below.

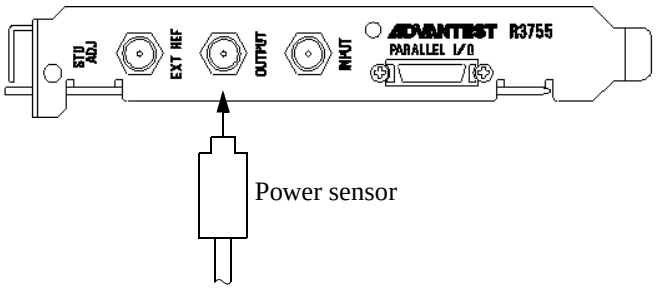


Figure 5-3 Output Level Linearity

4. Press the **[REL]** key on the power meter and set it to 0 dB (ratio test mode).
5. Obtain the linearity data when the output level is changed.

NOTE: The calibration factor should be set to 10 MHz.

6. Check that the output level linearity of 0dBm is as follows.
   +18 dBm to -35 dBm : ± 1.5 dB
   -35 dBm to -43 dBm : ± 2.5 dB

5.6 Noise Floor

Testing procedure

1. Nothing should be connected to the R3755.
2. Set the R3755 as follows.
   Output level : -43 dBm
   Number of the measurement points : 1601
   Format : LOGMAG
   MEAS : A
3. Set the frequency range and the resolution band width as follows.
   Start frequency : 1 MHz
   Stop frequency : 100 MHz
   Resolution band width : 1 kHz
4. Sweep the frequency once using the SINGLE sweep mode.
   Sum up the results of measurement data from the first point to the 1601th point and divide it by 1601.

$$\text{Noise floor} = \frac{\text{MEAS (1)} + \text{MEAS (2)} + \text{---} + \text{MEAS (1601)}}{1601}$$

   MEAS (n) : the measurement data at the nth point

5. <Check> : The noise floor (dBm) ≤ -85(dBm)
6. Repeat the above procedure by changing the frequency ranges.
   Start frequency : 100 MHz
   Stop frequency : 300 MHz
   Noise floor data: (dBm) ≤ -70 (dBm)

5.7 Dynamic Level Accuracy

Measurements of the analyzer are expressed as vector data, so the dynamic level accuracy of phase characteristics is assured by magnitude characteristics satisfying standards. As a result, this section explains the method for confirming the dynamic level accuracy of magnitude characteristics.

Testing Procedure

Dynamic Level Accuracy

1. Connect the 3 dB fixed attenuator and step attenuator to OUTPUT and INPUT respectively by using the RF cables as shown in the figure below:

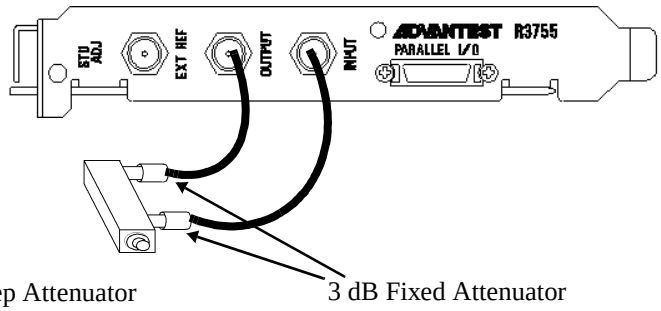


Figure 5-4 Dynamic Level Accuracy

2. This operation sets Center Frequency to 11 MHz, Frequency Span to 0 Hz, Output power to 6 dBm, and RBW to 30 Hz.
3. Set the step attenuator to 20 dB.
4. Execute Thru normalize.
5. Set the step attenuator to 0 dB.
6. Acquire the Trace data using a marker.

7. Repeat steps 5 and 6 in accordance with the following table.

Step Attenuator Setting	Dynamic Level Accuracy Standard Value
0 dB	±0.5 dB
10 dB	±0.3 dB
20 dB	Reference
30 dB	±0.3 dB
40 dB	±0.3 dB
50 dB	±0.3 dB
60 dB	±0.5 dB

<Confirm> Confirm that dynamic level accuracy is within the standard values of the above table for the various step attenuator setting values.

Dynamic level accuracy = (marker reading value) - (step attenuator value)

CAUTION: ***Use a value calibrated from a 20 dB standard as the step attenuator value. When 19.95 dB is calibrated as the difference from 20 dB at a setting of 0 dB, the step attenuator value is 19.95 dB.***

6. ADJUSTMENT

6.1 Frequency Reference Adjustment (when OPT 20 is installed)

Testing procedure

1. Set up the R3755 as shown in the figure below.

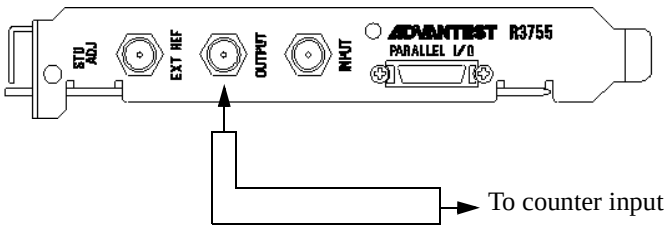


Figure 6-1 Frequency Reference Adjustment (when OPT 20 is installed)

2. Set the R3755 to the following:

Center frequency	:	10 MHz
Span	:	0 MHz
Sweep mode	:	SINGLE
Output level	:	0 dBm

3. Adjust the counter reading frequency to within the following range by using the STD ADJ volume.

   Adjustment range: 9.999992 to 10.0000008 (< ±0.8 ppm)

7. SPECIFICATIONS

This chapter describes about the function of the R3755 and the performance/specification together.

1. Measurement Function

Measurement channels	4 channels
Measurement parameter	A/R
Measurement format	Log / Linear amplitude, Phase,complex parameter real and imaginary numbers, Z, R, X (When measuring impedance conversion) Y, G, B (When measuring admittance conversion)

2. Signal Source Section (23°C±5°C, and calibration period: 1 year)

Frequency characteristics	
Range	1 MHz to 300 MHz
Resolution	1 Hz
Accuracy	±20 ppm
Output characteristics	
Range	+18 dBm to -43 dBm
Resolution	0.1 dB
Accuracy	±2.0 dB (0 dBm, 10 MHz)
Linearity (10 MHz)	+18 dBm to -35 dBm ±1.5 dB -35 dBm to -43 dBm ±2.5 dB
Flatness (At 0 dBm Output)	1 MHz to 100 MHz 5.0 dBp-p 100 MHz to 300 MHz 8.0 dBp-p
Sweep characteristics	
Sweep parameter	Frequency
Range	Frequency sweep same as frequency characteristics
Range setting	Start / Stop or Center / Span
Sweep type	Any specified segment sweep (Frequency, Output level, RBW, Poin, Settling setting)
Sweep time	Max. 0.05 ms / Point (RBW 15 KHz)
Measurement points (Segments)	Max. 1601 points (segments)
Sweep trigger	Continuous or Single
Sweep mode	Single channel sweep
Output format	
Output	Single
Connector	SMA (Female), 50 Ω

3. Characteristic of the Receiver Part (23°C±5°C, and calibration period: 1 year))

Input characteristics	
Input channel	1 cH
Frequency range	1 MHz to 300 MHz
Impedance	Nominal 50Ω
Max. input level	0 dBm
Input destruction level	+24 dBm, +/-3 VDC
Average noise level	RBW 1KHz 1 MHz to 100 MHz -85 dBm 100 MHz to 300 MHz -70 dBm
Resolution bandwidth (RBW)	15 kHz to 100 Hz (1, 1.5, 2, 3, 4, 5, 7 steps)
Input connector	SMA (Female), 50 Ω
Amplitude characteristics	
Measurement range RBW 1 kHz	<100 MHz 0 dBm to -85 dBm >100 MHz 0 dBm to -70 dBm
Frequency response (At 0 dBm Input)	1 MHz to -100 MHz 6.0 dBp-p 100 MHz to 300 MHz 8.0 dBp-p
Dynamic accuracy -20 dBm reference	0 to -10 dBm ±0.5 dB -10 to -50dBm ±0.3 dB -50 to -60 dBm ±0.5 dB
Phase characteristic	
Measurement range	±180°
Error compensation function	
Normalize	Frequency response compensation (Amplitude and phase) for transmission measurement
Transmission full calibration	Highly accurate measurement than transmission normalize for transmission measurement Error compensation requires a (0 Ω) short and a (50 Ω) load

4. Connection to External Devices

External reference frequency input	Input frequency 10 MHz +/- 10 ppm > 0 dBm
Parallel I/O	8 bit output (C-MOS)

5. General Specification

Minimum requirements *1	
Expansion slot	PCI (32 bit, 5 V, Full size) slot
OS	Windows NT 4.0 ServicePack 6 or later
CPU	Celeron 500 MHz or Pentium III 500 MHz or faster
Main memory	10 MB or more (Free space)
Hard disk	10 MB or more (Free disk space)
Required programming software	Microsoft Visual Basic 6.0 or Visual C++ 6.0
Miscellaneous	CD-ROM drive
Operating environment	
Temperature range	Refer to the PC's specification. Maximum temperature range : +5 to +55 °C *2
Humidity range	Refer to the PC's specification. Maximum range : 80% (No moisture)
Storing environment	
Temperature range	-20°C to +60°C
Humidity range	Maximum 85 % (No moisture)
Power supply	DC +12V (4.3W), +5V (9W), +3.3 V (6.7W), and -12V (5W) (Major voltages) (Supplied through PCI connector)
Power consumption	Maximum 25 Watt
Dimensions	Approximately 310 (W) × 106 (H) × 20 (D) mm Approximately 12.20 (W) × 4.20 (H) × 0.79 (D) inches
Mass	1 kg or less 1.1 pound or less

*1 The R3755 may not operate exactly as described in the PC specifications.

*2 R3755 temperature
Keep the temperature inside the PC not exceeding +55°C, when the R3755 option is installed in the PC.

APPENDIX

A.1 Removing the Retainer

If the short type desktop PC is used, loosen the screw b, remove the retainer a, and then install the R3755 unit. (See Figure A-1)

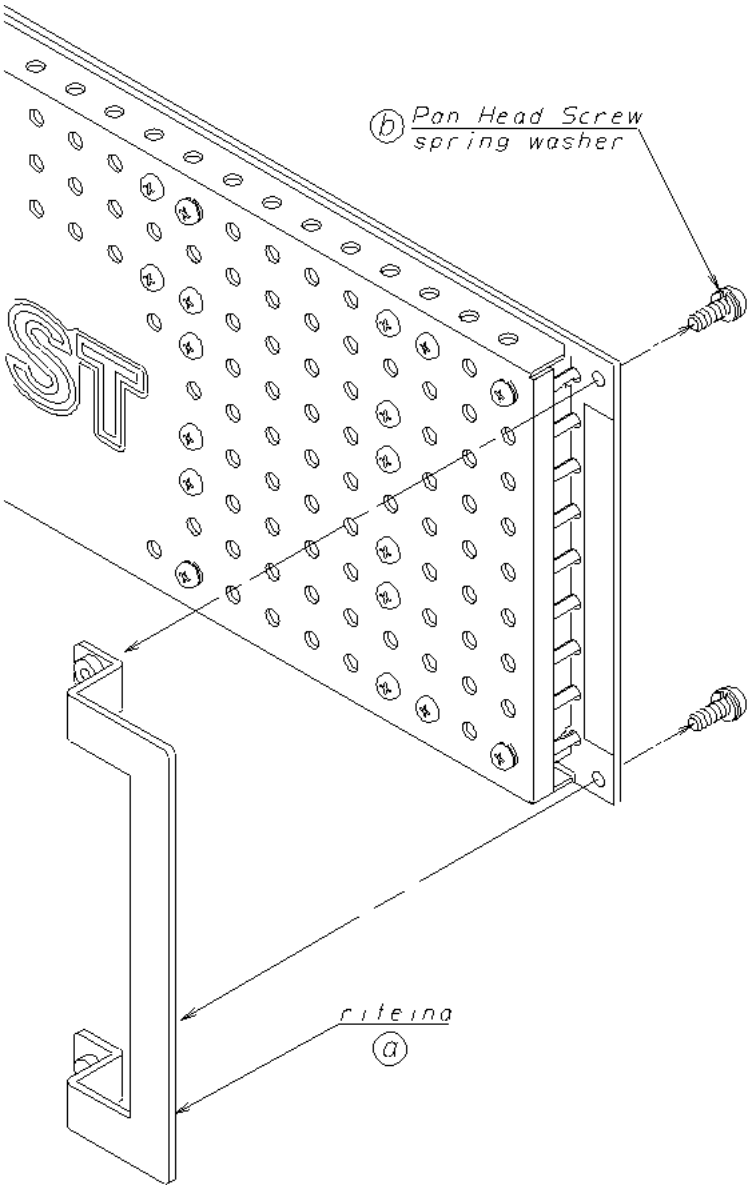
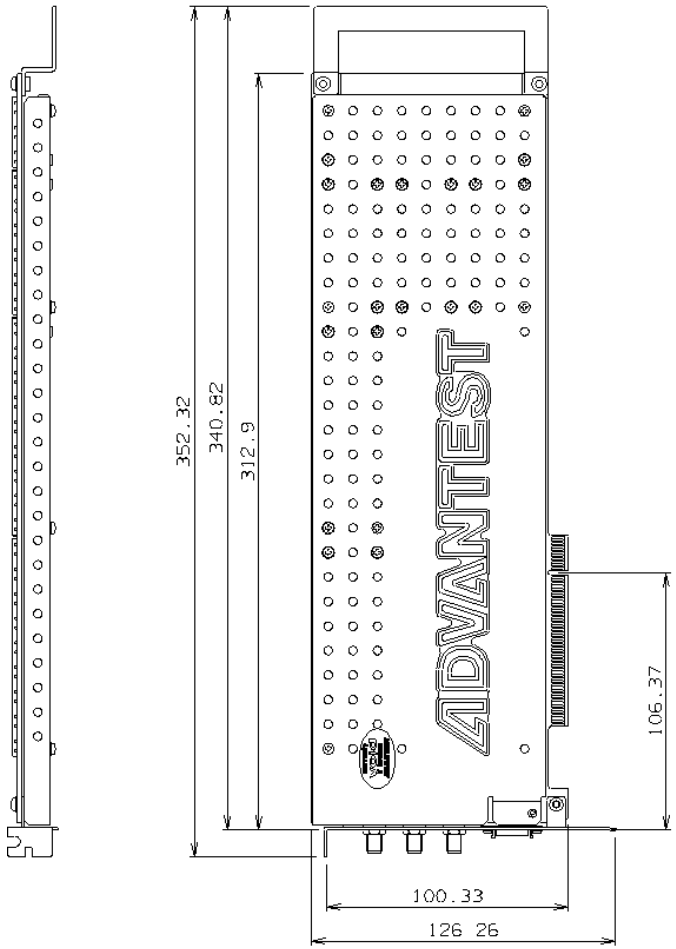
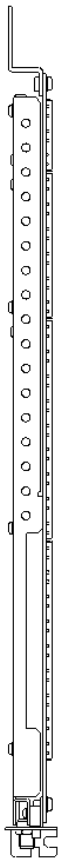
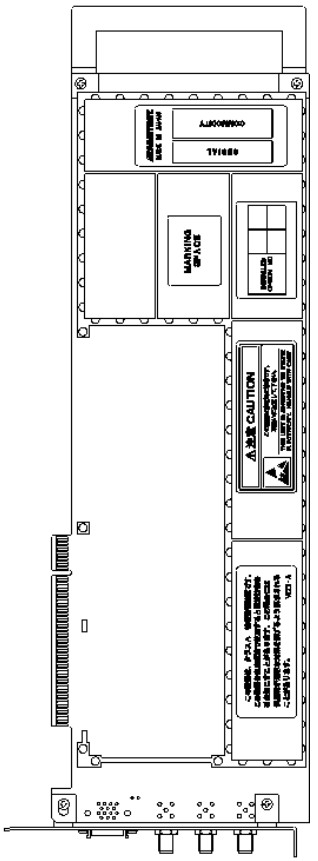
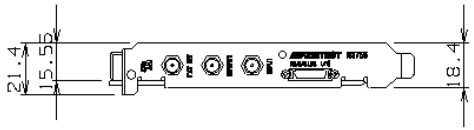


Figure A-1 Removing the Retainer









Unit : mm

NOTE

This drawing shows external dimensions of this instrument.

The difference in products and options used can cause a change in the appearance of the instrument.

DIMENSIONAL OUTLINE DRAWING

ALPHABETICAL INDEX

[T]

[W]

[Z]

IMPORTANT INFORMATION FOR ADVANTEST SOFTWARE

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1. Unless otherwise specifically agreed by Seller and Purchaser in writing, ADVANTEST will warrant to the Purchaser that during the Warranty Period this Product (other than consumables included in the Product) will be free from defects in material and workmanship and shall conform to the specifications set forth in this Operation Manual.

2. The warranty period for the Product (the "Warranty Period") will be a period of one year commencing on the delivery date of the Product.

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   (b) any improper or inadequate handling, carriage or storage of the Product by the Purchaser or any third party (other than ADVANTEST or its agents);

   (c) use of the Product under operating conditions or environments different than those specified in the Operation Manual or recommended by ADVANTEST, including, without limitation, (i) instances where the Product has been subjected to physical stress or electrical voltage exceeding the permissible range and (ii) instances where the corrosion of electrical circuits or other deterioration was accelerated by exposure to corrosive gases or dusty environments;

   (d) use of the Product in connection with software, interfaces, products or parts other than software, interfaces, products or parts supplied or recommended by ADVANTEST;

   (e) the occurrence of an event of force majeure, including, without limitation, fire, explosion, geological change, storm, flood, earthquake, tidal wave, lightning or act of war; or

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CUSTOMER SERVICE DESCRIPTION

In order to maintain safe and trouble-free operation of the Product and to prevent the incurrence of unnecessary costs and expenses, ADVANTEST recommends a regular preventive maintenance program under its maintenance agreement.

ADVANTEST's maintenance agreement provides the Purchaser on-site and off-site maintenance, parts, maintenance machinery, regular inspections, and telephone support and will last a maximum of ten years from the date the delivery of the Product. For specific details of the services provided under the maintenance agreement, please contact the nearest ADVANTEST office listed at the end of this Operation Manual or ADVANTEST's sales representatives.

Some of the components and parts of this Product have a limited operating life (such as, electrical and mechanical parts, fan motors, unit power supply, etc.). Accordingly, these components and parts will have to be replaced on a periodic basis. If the operating life of a component or part has expired and such component or part has not been replaced, there is a possibility that the Product will not perform properly. Additionally, if the operating life of a component or part has expired and continued use of such component or part damages the Product, the Product may not be repairable. Please contact the nearest ADVANTEST office listed at the end of this Operation Manual or ADVANTEST's sales representatives to determine the operating life of a specific component or part, as the operating life may vary depending on various factors such as operating condition and usage environment.

CLAIM FOR DAMAGE IN SHIPMENT TO ORIGINAL BUYER

The product should be thoroughly inspected immediately upon original delivery to buyer. All material in the container should be checked against the enclosed packing list or the instruction manual alternatively. ADVANTEST will not be responsible for shortage unless notified immediately.
If the product is damaged in any way, a claim should be filed by the buyer with carrier immediately. (To obtain a quotation to repair shipment damage, contact ADVANTEST or the local supplier.) Final claim and negotiations with the carrier must be completed by buyer.

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