

Specifications

Measuring Function

Sweep Channel:	2 channels (CH1, CH2)
Display Channel:	4 channels (CH1, CH2, CH3, CH4)
Trace:	2 traces/channels (Maximum 8 traces can be displayed in a screen)

Measuring Parameters

R3765CG/3767CG:	S11, S21, S12, S22
OPT.11/13:	S11, S22, S33, S21, S12, S31, S13, S23, S32
OPT.14:	S11, S22, S33, S44, S21, S31, S41, S12, S32, S42, S13, S23, S43, S14, S24, S34

Parameters can be converted to impedance (Z), admittance (Y).

Measurement Formats

Orthogonal Coordinates Display:	Amplitude (linear/logarithm), phase, groupdelay, VSER, complex number (real number/imaginary number),
Smith Chart:	Marker read out values are linear/logarithmic amplitude, phase, complex number (real number/imaginary number) R + jX, G + jB
Polar Coordinate Display:	Marker read out values are linear/logarithmic amplitude, phase, complex number (real number/imaginary number)

Signal Source Characteristic

Frequency

Range	
R3765CG:	300 kHz to 3.8 GHz
R3767CG:	300 kHz to 8.0 GHz
OPT.12/13	
R3765CG:	300 kHz to 3.8 GHz
Setting Resolution:	1 Hz
Measuring Resolution:	±0.01 ppm
Accuracy:	±10 ppm (23 ±5°C)
Temperature Stability:	±7.5 ppm (0 to 55°C, typical)
Long Range Stability:	±3 ppm (year, typical)

Output Power

Range	
R3765CG/3767CG:	+10 to -10 dBm
OPT.12/13:	+4 to -16 dBm
OPT.14:	+8 to -10 dBm
OPT.10/10 + 11:	+5 to -15 dBm (ATT FIX) +5 to -75 dBm (ATT AUTO)
OPT.10 + 12/10 + 13:	-1 to -21 dBm (ATT FIX) -1 to -81 dBm (ATT AUTO)
OPT.10 + 14:	+3 to -15 dBm (ATT FIX) +3 to -75 dBm (ATT AUTO)

Resolution:	0.01 dB
-------------	---------

Accuracy

R3765CG/3767CG:	±0.5 dB (50 MHz, 0 dBm, 23 ±5°C)
OPT.10/10 +11/10 +14:	±0.5 dB (50 MHz, -5 dBm, 23 ±5°C)
OPT.12/13:	±0.5 dB (50 MHz, -6 dBm, 23 ±5°C)
OPT.10 + 12/10 + 13:	±0.5 dB (50 MHz, -11 dBm, 23 ±5°C)

For OPT.11/13/14 specified at TEST PORT 1
For OPT.10 specified at ATT = 0 dB

Flatness:

2.0 dBp-p (23 ±5°C)
For OPT.10 specified at ATT = 0 dB
For OPT.11/13/14 specified at TEST PORT 1

Linearity

R3765CG/3767CG:	
300 kHz to 15 MHz;	±0.4 dB (-5 to +5 dBm, 0 dBm Reference 23 ±5°C) ±0.8 dB (-10 to +10 dBm, 0 dBm Reference 23 ±5°C)
15 MHz to 8 GHz;	±0.2 dB (-5 to +5 dBm, 0 dBm Reference 23 ±5°C) ±0.4 dB (-10 to +10 dBm, 0 dBm Reference 23 ±5°C)
OPT.10/10 + 11:	
300 kHz to 15 MHz;	±0.6 dB (-10 to 0 dBm, -5 dBm Reference 23 ±5°C) ±1.3dB (-15 to +5 dBm, -5 dBm Reference 23 ±5°C)
15 MHz to 8 GHz;	±0.4 dB (-10 to 0 dBm, -5 dBm Reference 23 ±5°C) ±0.6 dB (-15 to +5 dBm, -5 dBm Reference 23 ±5°C)
OPT.12/13:	
300 kHz to 15 MHz;	±0.4 dB (-11 to -1 dBm, -6 dBm Reference 23 ±5°C) ±0.8 dB (-16 to +4 dBm, -6 dBm Reference 23 ±5°C)
15 MHz to 3.8 GHz;	±0.2 dB (-11 to -1 dBm, -6 dBm Reference 23 ±5°C) ±0.4 dB (-16 to +4 dBm, -6 dBm Reference 23 ±5°C)
OPT.10 + 12/10 + 13:	
300 kHz to 15 MHz;	±0.6 dB (-16 to -6 dBm, -11 dBm Reference 23 ±5°C) ±1.3 dB (-21 to -1 dBm, -11 dBm Reference 23 ±5°C)
15 MHz to 3.8 GHz;	±0.4 dB (-16 to -6 dBm, -11 dBm Reference 23 ±5°C) ±0.6 dB (-21 to -1 dBm, -11 dBm Reference 23 ±5°C)
OPT.14:	
300 kHz to 15 MHz;	±0.4 dB (-5 to +5 dBm, 0 dBm Reference 23 ±5°C) ±0.8 dB (-10 to +8 dBm, 0 dBm Reference 23 ±5°C)
15 MHz to 8 GHz;	±0.2 dB (-5 to +5 dBm, 0 dBm Reference 23 ±5°C) ±0.4 dB (-10 to +8 dBm, 0 dBm Reference 23 ±5°C)
OPT.10 + 14:	
300 kHz to 15 MHz;	±0.6 dB (-10 to 0 dBm, -5 dBm Reference 23 ±5°C) ±1.3dB (-15 to +3 dBm, -5 dBm Reference 23 ±5°C)
15 MHz to 8 GHz;	±0.4 dB (-10 to 0 dBm, -5 dBm Reference 23 ±5°C) ±0.6 dB (-15 to +3 dBm, -5 dBm Reference 23 ±5°C)

For OPT.10 specified at ATT = 0 dB

Attenuation Accuracy

OPT.10/10 + 11/10 + 12/ 10 + 13/10 + 14:	ATT 20 dB (ATT FIX) ±4 dB (ATT = 0 dB Reference 23 ±5°C) ATT 40 dB (ATT FIX) ±5 dB (ATT = 0 dB Reference 23 ±5°C) ATT 60 dB (ATT FIX) ±6 dB (ATT = 0 dB Reference 23 ±5°C) Specified at TEST PORT1
---	--

Signal Purity

Harmonic Spurious:	20 dBc (at maximum power, 23 ±5°C)
Non-Harmonic Spurious:	30 dBc (at maximum power, 23 ±5°C)
OPT.14:	30 dBc (at maximum power, >1 MHz offset 23 ±5°C)
Phase Noise (10 kHz):	85 dBc/Hz (300 kHz to 40 MHz, 23 ±5°C) 85 dBc/Hz + 20 Log (f/40 MHz) (40 MHz to 8 GHz, 23 ±5°C)
OPT.12/13:	85 dBc/Hz +20Log (f/40 MHz) (40 MHz to 3.8 GHz 23 ±5°C)

Sweep Function

Sweep Type:	Linear sweep, log sweep, program sweep, power sweep
Sweep Time:	150 µs/point
Number of Points:	3, 5, 11, 21, 51, 101, 201, 301, 401, 601, 801, 1201 points
Sweep Trigger:	Continuous, single, hold, external trigger

Characteristic of Reception Assembly

Resolution Bandwidth:	10 Hz to 20 kHz (variable by 1, 1.5, 2, 3, 4, 5, 7 steps)
-----------------------	--

Stability

Trace Noise:	0.003 dBrms (300 kHz to 2.6 GHz, RBW 3 kHz, typical) 0.006 dBrms (2.6 GHz to 3.8 GHz, RBW 3 kHz, typical) 0.012 dBrms (3.8 GHz to 8.0 GHz, RBW 3 kHz, typical)
OPT.12/13:	0.014 dBrms (300 kHz to 2.6 GHz, RBW 3 kHz, typical) 0.022 dBrms (2.6 to 3.8 GHz, RBW 3 kHz, typical)
Temperature Stability:	0.01 dB/°C (300 kHz to 2.6 GHz, typical) 0.02 dB/°C (2.6 GHz to 8.0 GHz, typical)
Long Range Stability:	0.005 dB/week (typical)

Amplitude Characteristic

Amplitude Resolution:	0.001 dB
Frequency Characteristic:	±1.0 dB (23 ±5°C)
Dynamic Accuracy:	Based on -20 dB reduction from the maximum power 0.20 dB (0 to -10 dB, 300 kHz to 3.8 GHz) 0.40 dB (0 to -10 dB, 3.8 GHz to 8.0 GHz) 0.05 dB (-10 to -50 dB) 0.10 dB (-50 to -60 dB) 0.40 dB (-60 to -70 dB) 1.00 dB (-70 to -90 dB)

OPT.12/13
R3765CG:

With an input power level of +4 dBm considered to be a 0 dB level, a reduction of -32 dB from that level is the reference
0.2 dB (-12 to 0 dB) Typical
0.05 dB (-42 to -12 dB)
0.2 dB (-52 to -42 dB)
0.7 dB (-62 to -52 dB)
2.0 dB (-72 to -62 dB)

Phase Characteristic

Phase Resolution:	0.01°
Frequency Characteristic:	±5° (23 ±5°C)
Dynamic Accuracy:	Based on -20 dB reduction from the maximum power 2.0° (0 to -10 dB, 300 kHz to 3.8 GHz) 4.0° (0 to -10 dB, 3.8 GHz to 8.0 GHz) 0.3° (-10 to -50 dB) 0.4° (-50 to -60 dB) 1.5° (-60 to -70 dB) 4.0° (-70 to -80 dB) 8.0° (-80 to -90 dB)

OPT.12/13
R3765CG:

With an input power level of +4 dBm considered to be a 0 dB level, a reduction of -32 dB from that level is the reference
2.0° (-12 to 0 dB) typical
0.3° (-42 to -12 dB)
0.5° (-52 to -42 dB)
1.0° (-62 to -52 dB)
3.0° (-72 to -62 dB)

Group Delay Characteristic

Range:	Calculated by the following formula; $\tau = \frac{\Delta\theta}{360 \times \Delta f}$ $\Delta\theta = \text{Phase Difference}$ $\Delta f = \text{Frequency Difference}$ $(\text{Aperture frequency})$
Group Delay Time Resolution:	1 pS
Aperture Frequency:	[100/(Measured point - 1)] x 2% to 50% of setting frequency range can be set
Accuracy:	Phase accuracy/ (360 x aperture frequency (Hz))

Test Port Characteristic

Load Match:	16 dB (300 kHz to 40 MHz, 23 ±5°C) 18 dB (40 MHz to 2.6 GHz, 23 ±5°C) 16 dB (2.6 GHz to 3.8 GHz, 23 ±5°C)
OPT.12/13:	14 dB (3.8 GHz to 8.0 GHz, 23 ±5°C) 16 dB (300 kHz to 40 MHz, 23 ±5°C) 16 dB (40 MHz to 2.0 GHz, 23 ±5°C) 15 dB (2.0 to 3.8 GHz, 23 ±5°C)

Source Match:	14 dB (300 kHz to 40 MHz, 23 ±5°C) 16 dB (40 MHz to 2.6 GHz, 23 ±5°C) 15 dB (2.6 GHz to 3.8 GHz, 23 ±5°C) 12 dB (3.8 GHz to 8.0 GHz, 23 ±5°C)
OPT.12/13:	14 dB (300 kHz to 40 MHz, 23 ±5°C) 16 dB (40 MHz to 2.0 GHz, 23 ±5°C) 15 dB (2.0 to 3.8 GHz, 23 ±5°C)
OPT.10/10 + 11/10 + 14:	13 dB (300 kHz to 40 MHz, 23 ±5°C) 16 dB (40 MHz to 2.6 GHz, 23 ±5°C) 15 dB (2.6 to 3.8 GHz, 23 ±5°C) 12 dB (3.8 to 8 GHz, 23 ±5°C)

OPT.10 + 12/10 + 13 R3765CG:	13 dB (300 kHz to 40 MHz, 23 ±5°C) 16 dB (40 MHz to 2 GHz, 23 ±5°C) 15 dB (2 to 3.8 GHz, 23 ±5°C)
---------------------------------	---

Directivity:	28 dB (300 kHz to 40 MHz, 23 ±5°C) 30 dB (40 MHz to 2.6 GHz, 23 ±5°C) 26 dB (2.6 GHz to 3.8 GHz, 23 ±5°C) 22 dB (3.8 GHz to 8.0 GHz, 23 ±5°C)
OPT.12/13:	28 dB (300 kHz to 40 MHz, 23 ±5°C) 27 dB (40 MHz to 2.0 GHz, 23 ±5°C) 22 dB (2.0 to 3.8 GHz, 23 ±5°C)

Cross Talk:	90 dB (300 kHz to 40 MHz) 100 dB (40 MHz to 2.6 GHz) 90 dB (2.6 GHz to 3.8 GHz) 80 dB (3.8 GHz to 5.0 GHz) 70 dB (5.0 GHz to 8.0 GHz)
OPT.12/13:	85 dB (300 kHz to 40 MHz) 90 dB (40 MHz to 2.0 GHz) 90 dB (2.0 to 3.8 GHz)
OPT.14:	90 dB (300 kHz to 40 MHz) 95 dB (40 MHz to 2.6 GHz) 85 dB (2.6 to 3.8 GHz) 75 dB (3.8 to 5.0 GHz) 65 dB (5.0 to 8.0 GHz)

Maximum Input Level:	+12 dBm
OPT.12/13:	+20 dBm (R3765CG)

Noise Level:	(Range from maximum input level)
RBW 3 kHz;	-85 dB (300 kHz to 40 MHz) -90 dB (40 MHz to 3.8 GHz) -80 dB (3.8 GHz to 8.0 GHz)
RBW 300 Hz;	-95 dB (300 kHz to 40 MHz) -100 dB (40 MHz to 3.8 GHz) -90 dB (3.8 GHz to 8.0 GHz)

OPT.14:	
RBW 3 kHz;	-85 dB (300 kHz to 40 MHz) -85 dB (40 MHz to 3.8 GHz) -75 dB (3.8 to 8.0 GHz)
RBW 300Hz;	-95 dB (300 kHz to 40 MHz) -95 dB (40 MHz to 3.8 GHz) -85 dB (3.8 to 8.0 GHz)

Maximum Port Bias:	±30 Vdc, 0.5 A (only R3765CG/3767CG)
--------------------	--------------------------------------

Maximum Input Level:	+21 dBm, 30 Vdc
----------------------	-----------------

Test Port Connector:	Type N connector (female)
OPT.12/13:	Type N75Ω connector (female)

Display

Monitor:	8.4-inch TFT color LC monitor
Back Light:	Brightness half-life; (40000 H, typical)

Other Functions

Error correction:	Normalize, normalize & isolation, 1-port correction 2-port correction 3-port correction (OPT.11/13/14 only) 4-port correction (OPT.14 only) Average smoothing, smoothing Electrical length compensation, phase offset compensation
Marker Function:	10 x Multi-marker Δ marker function, search function, marker function
Limit Line Function:	Can be set up to a Maximum of 31 segments PASS/FAIL display function, beep sound function
Save Recall Function:	Register Type; saved to a maximum of 20 registers File Type; saved to floppy diskettes or internal memory (8 Mbytes)
Controller Function:	BASIC programming function (Program size; 2 Mbytes)
FDD Function:	Conforms to MS-DOS FAT Type Format 2-mode compatible (DD 720 KB, HD 1.44 MB)

Connection With External Devices

For External Monitor:	15-pin D-SUB connector (VGA)
GPIB:	Conforms to IEEE488.1, IEEE488.2
Parallel Ports:	TTL level Output ports (8-bit x 2 ports) Input/output ports (4-bits x 2 ports)
Serial Ports:	Serial I/O for accessories
Printer Port:	Conforms to IEEE-1284-1994 (ESC/P J84, ESC/P Y2, PCL)
Keyboard:	Conforms to IBM PC-AT External Reference Frequency
Input:	1 MHz, 2 MHz, 5 MHz, 10 MHz (± 10 ppm) higher than 0 dBm (50 Ω)
Probe Power:	± 12 V ± 0.5 V, 300 mA

General Specification

Operational Environment

When FDD is used:	Temperature Range; +5 to +40°C Relative Humidity; 80% or less (no condensation allowed)
When FDD is not used:	Temperature Range; 0 to +50°C Relative Humidity; 80% or less (no condensation allowed)
Storing Conditions:	-20 to +60°C
Power Source:	100 VAC to 120 VAC, 50 Hz/60 Hz 220 VAC to 240 VAC, 50 Hz/60 Hz (Automatic switching between 100 VAC system and 200 VAC system)
External Dimensions:	Approx. 424 (W) x 220 (H) x 400 (D) mm
Mass:	Approx. 18.5 kg or less
Power Consumption:	250 VA or less
Accessories:	Operation Manual, Programming Manual, Power Cable, Fuse

Ordering Information

Network Analyzer	R3765CG	R3767CG
Frequency Range	300 kHz to 3.8 GHz	300 kHz to 8 GHz
Transmission Characteristic Measurement	●	●
Reflection Characteristic Measurement	●	●
S Parameter Measurement	●	●
Optional Hardware		
OPT.11 (Built-in 3-port Test Set)	▲	▲
OPT.14 (Built-in 4-port Test Set)	▲	▲
OPT.10 (Output Attenuator)	★	★
OPT.12 (75 Ω Impedance)	▲	—
OPT.13 (75 Ω Impedance)	For R3765CG + OPT.11	—
Optional Software		
OPT. 70 (Time Domain)	★	★
OPT. 71 (Software Fixture (Balance)) [☆]	★	★
OPT. 72 (Software Fixture (Single))	★	★

● Standard Function ★ Can be added individually, at option ▲ Either one can be added, at option

☆ OPT.71 requires an environment on R3765CG/3767CG which is added with either one of optional hardware OPT.11 or OPT.14.

Correction Kit for Error Correction	Model 9617S3	Model 9617A3 ¹⁾	Model 9617F3 ¹⁾	R17050
Impedance	75 Ω	50 Ω	50 Ω	50 Ω
Connector Type	BNC	Type N	3.5 mm	3.5 mm
Frequency	DC to 2 GHz	DC to 18 GHz	DC to 18 GHz	40 MHz to 8 GHz
Structure	BNC (f) Open BNC (m) Open BNC (f) Short BNC (m) Short BNC (f) Load BNC (m) Load Box	N (m) Open N (f) Open N (m) Short N (f) Short N (m) Load N (f) Load Box	3.5 mm (m) Open 3.5 mm (f) Open 3.5 mm (m) Short 3.5 mm (f) Short 3.5 mm (m) Load 3.5 mm (f) Load Box	Auto-Calibration Kit 3.5 mm (f) - (f) *OPT.04 3.5mm (m) - (m) *OPT.05 3.5mm (f) - (m) *OPT.06 Connector Cable Torque Wrench Box

¹⁾ Product of MAURY Corporation

* Please specify polarity of connector by either one of 04, 05 or 06.

Please be sure to read the product manual thoroughly before using the products.

Specifications may change without notification.