



WCDMA (UMTS) part

General specifications

Item	Specifications	
	Band	UARFCN
Frequency (Reception)	1	9612 to 9888
	2	9262 to 9538
	3	12 to 287
	4	8562 to 8913
Frequency (Reception)	4	8562 to 8763
		1162 to 1362
		4123 to 4233
	5	782 to 787
		807 to 812
		837, 862
	6	4162 to 4188
		812, 837

Downlink transmission section

Item	Specifications
Transmission power	-120.0 to -10.0 dBm (resolution 0.1dBm) Accuracy: ±1.0dB (-110.0 dBm)
Modulation accuracy	4% or less (when transmitting DPCCH 1ch)

Uplink reception section

Item	Specifications
Reception power	Maximum input level +35dBm
	Minimum sensitivity -70 dBm
Power measurement	Measurement range -70 dBm to +35 dBm
	Accuracy ±1.0 dB
EVM	Residual EVM 3% rms Typical (input level >-30 dBm)
Frequency error measurement	Measurement range 0 to ±10 kHz
	Residual error ±0.01 ppm

Measurement function

Item	Specifications
Signaling function	Registration
	Call setup/release
	Test loop (RMC 12.2k)
	Emergency call
	Frequency handover
	System handover
Speech function	PN signal transmission and voice loop back
	Dialing number display
Radio characteristics measurement	Transmission power
	Frequency error
	Modulation accuracy
	Open loop power control
	Inner loop power control
	Transmission OFF power
	ON/OFF time mask
	Occupied bandwidth
	Spectrum emission mask
	Adjacent channel leakage power ratio
Bit error rate	

Base unit general specifications

Item	Specifications
RF input/output	Input/output impedance 50Ω(Typical)
	Maximum input power 4W connector type N
External reference frequency(REF IN)	Input frequency 10 MHz ±3ppm
	Input impedance 5 kΩ(Typical) Connector type BNC
Display	8.4 inch color TFT LCD
Interface	100BASE-TX, RS232, GPIB(option)*
External dimensions	426(W) x 177(H) x 300(D) [mm]
Weight	Approx. 10kg
Supply voltage	100 to 120 VAC/200 to 240 VAC
Power supply frequency	50/60Hz
Maximum power consumption	250 VA or less

Note

- Before operating the product, read the user's manual thoroughly for proper and safe operation.
- If this product is for use with a system requiring safeguards that directly involve personnel safety, please contact the Yokogawa sales offices.

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*Typical or "typ." in this document means "typical value", which is for reference, not guaranteed specification.

GSM part

General specifications

Item	Specifications	
	Band	ARFCN
Frequency (BCC/TCH)	GSM900/DCS1800	0 to 124
		955 to 1023
	GSM850/PCS1900	512 to 885
		128 to 251
		512 to 810

Downlink transmission section

Item	Specifications
Frequency offset	-75 to +75kHz (resolution 1kHz) (TXRXmode only)
Transmission power	-120.0 to -10.0 dBm (resolution 0.1dBm) Accuracy: ±1.0dB (-110.0 dBm)

Uplink reception section

Item	Specifications
Reception power	Maximum input level +35dBm (CW), +40dBm (GSM single burst)
	Minimum sensitivity -40 dBm
Power measurement	Measurement range -40 dBm to +35 dBm
	Accuracy ±1.0 dB
Phase error measurement	Measurement range peak 0.5 to 45.0 deg, rms 0.5 to 20.0 deg
	Residual error Approx. 1.4 deg (rms value)
Frequency error measurement	Measurement range 0 to ±10 kHz
	Residual error ±0.01 ppm

Measurement function

Item	Specifications
Signaling function	Location update
	Call setup/release
	Emergency call
	Frequency handover
	System handover
	Dialing number display
Speech function	PN signal transmission and voice loop back
	Transmission power
Radio characteristics measurement	Frequency error
	Phase error (rms and peak)
	Burst timing
	Spectrum (modulation) Offset 100,200,250,400 to 1800 (step 200) kHz
	Spectrum (switching) Offset 400, 600, 1200 to 1800 kHz
	RX quality (UE report)
	RX level (UE report)
	FER (loopback)
	BER (loopback)
	Actual MS power level

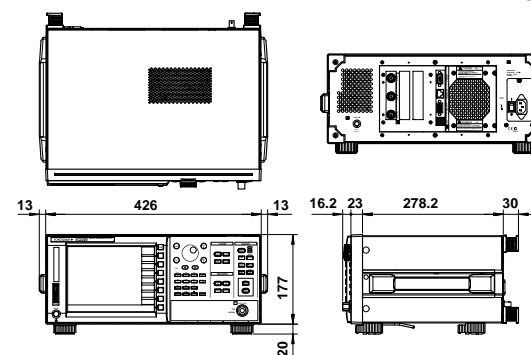
Model	Suffix code	Description
733020		VC3300 Main frame
Power cable	-D	UL and CSA
	-F	VDE
	-Q	BS
	-R	AS
	-H	GB
Options	/G*1	GSM test software pre-install
	/E**2	GSM/GPRS/EDGE test software pre-install
	/W*1	WCDMA test software pre-install
	/C**2	GPIB Interface

Model	Description
733021	GSM Test software
733022	WCDMA Test software
733023	GSM/GPRS/EDGE test software**2
733065-E02	TEST-USIM card

*1 either option must be selected *2 under development

Dimensions

Unit : mm



Wireless Communication Tester

VC3300

GSM
GPRS
EDGE
WCDMA (UMTS)



The VC3300 Saves Time, Money and Space for Testing and Programming

Benefits

With the functionality and accuracy required for high-performance tuning, the VC3300 is the most cost-effective tester.

The VC3300 is a powerful tester for mobile phone manufacturing and repair service.

VC3300
provides a
good balance

The VC3300 combines
the benefits of both worlds

High-end tester

- **Fast test speed**
- **High accuracy**
- **Functionality targeted for R&D**
- **Large size**

Go/No-Go tester

- **Easy operation**
- **Compact design**
- **Moderate accuracy**
- **Limited test function**



Key features

High-end tester class performance

- Good power accuracy
- Typical test items are measured: approx 0.2s

Cost-effective

Small space required for installation

Automatic test by Scenario mode*

3 test mode for each usage

- TxRx mode (Non-signaling) : for the component calibration
- Manual mode (Signaling) : for Radio characteristics test
- Scenario mode* (Signaling) : for automatic Go/No-Go test

Support several wireless systems

- GSM / GPRS* / EDGE* / WCDMA / TD-SCDMA*

Cover each frequency band

- GSM (GSM900/DCS1800, GSM850/PCS1900)
- WCDMA (I, II, III, IV, V, VI)

Function test

- Call processing, Voice loopback, Emergency call, frequency handover, system handover (WCDMA to GSM)

Radio characteristics test

Software update and upgrade

- Update (No charge): download the latest software file via Web site.
- Upgrade (Additional charge): receive the Upgrade CD.

Compact design and light weight

- The main frame has the ability to add future test functions. Planning: HSDPA/HSUPA, Bluetooth, Wireless LAN, etc.

*Under development

The VC3300 covers high-performance tuning at the production line or the repair center.

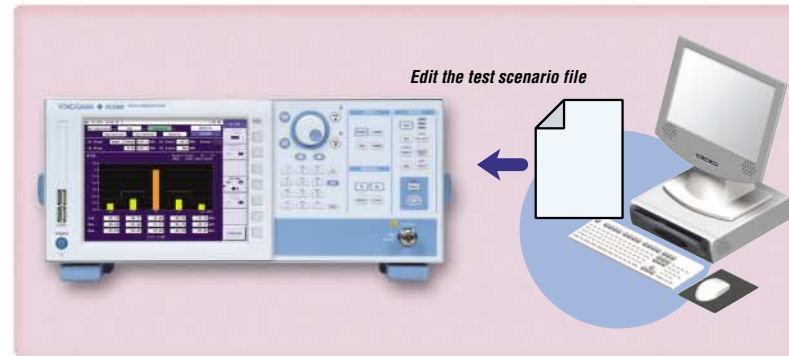
Rich Functions for Production and Repair

High Performance for Detail Analysis

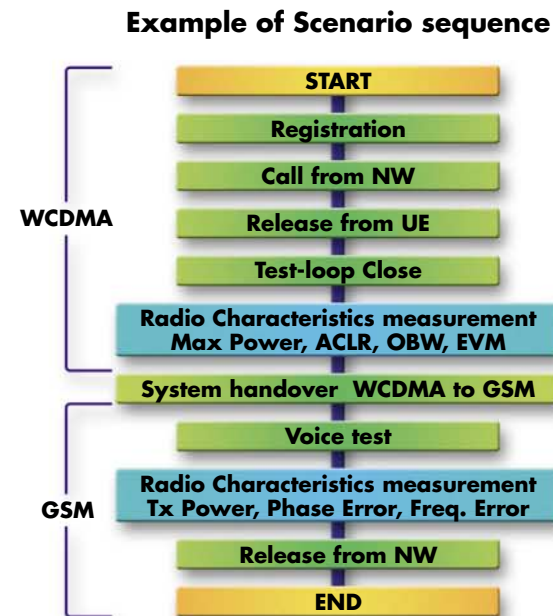


for Automatic Test: Scenario mode*

The Scenario mode automatically tests every item according to the scenario file which has been created in advance. The scenario file is edited by a PC software. Automatic and stand-alone testing is possible without remote control. By setting upper and lower limitations on the scenario file it is easy to judge the mobile phone quality like a Go/No-Go tester.

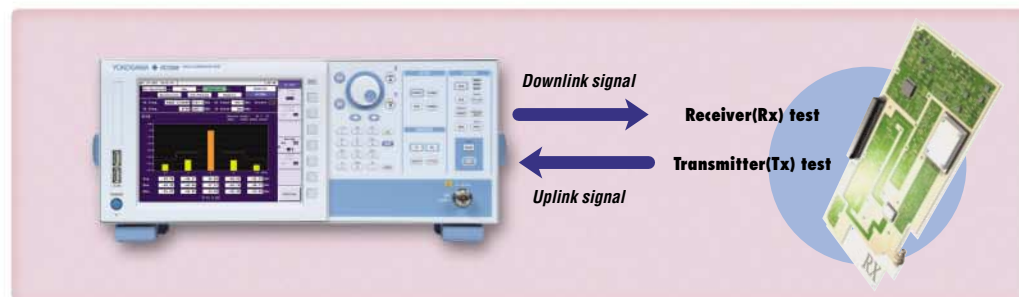


*Under development



for TxRx module Evaluation: TxRx mode

The TxRx mode tests the transmitter and receiver parts of a phone by Downlink signal source and Uplink signal analyzer under non-call processing. The items which cannot be measured under signaling status are available to test. This mode is useful to test, not only completed phones, but also the module on the way to manufacturing.



for Specific Test: Manual mode

The Manual mode provides more detailed test conditions. Selected test items are measured repeatedly. Each test condition can be modified during the test by key operations or external PC controls.

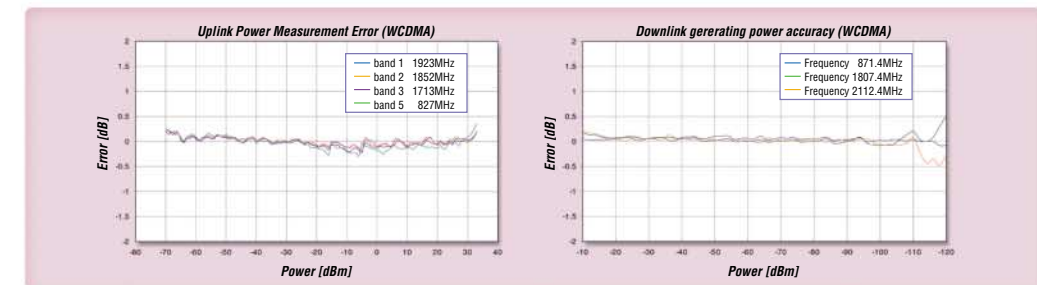


Radio characteristics test

The VC3300 provides a high accuracy radio characteristics test with high-speed, and repeatable measurements. All items are measured at the same time by using batch processing. Two types of display are available. An overview display shows each test result simultaneously. The detailed display narrows the view to one specific measurement and a graphical representation.



Characteristics (typical data)



<WCDMA> Function

- Transmitter characteristics test
 - Tx power (Adjustable)
 - Error Vector Magnitude (EVM)
 - Frequency error
 - Adjacent Channel Leakage power Ratio (ACLR)
 - Occupied bandwidth (OBW)
 - Spectrum emission mask (SEM)
 - Inner Loop Power Control
 - Open Loop Power Control
 - Transmission OFF Power
 - ON/OFF Time mask
- Receiver characteristics test
 - Reference sensitivity level (Loop back BER)
 - Maximum input level (Loop back BER)
 - Demodulation of DCH(BLER)
 - UE Report

<GSM> Function

- Transmitter characteristics test
 - Tx power
 - Frequency Error
 - Phase Error
 - Burst Timing
 - Spectrum Characteristics
- Receiver characteristics test
 - Reference sensitivity level (RX_QUALITY Report from UE)
 - Reception level (RX_LEVEL Report from UE)
 - FER/RBER (Loop-back)

GPRS/EDGE option*

Attach / Detach
Test Mode A
Test Mode B

*Under Development

Ease of Use

for Ease of Use: Simple and Intuitive Operation

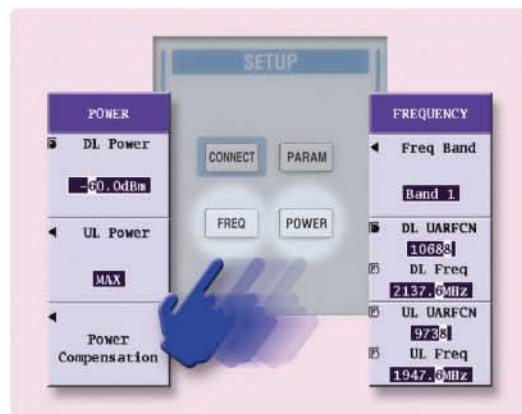
Simple operation

Quick change the display between "Detail" and "Overview" by one button action. Overview display shows all measured value for TX or RX items. Detail display informs of detailed information for each test items.



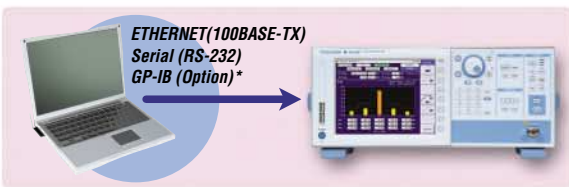
Intuitive setting keys and menu

Power and frequency conditions can be changed easily by dedicated buttons. All parameters are set by very simple operation.



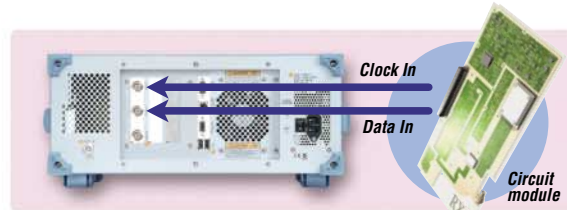
for System Use: Remote control

Remote control by user developed software made in Visual Basic, Visual C++, etc.



for BER Test: External data / Clock input

Bit error test input under non-call processing

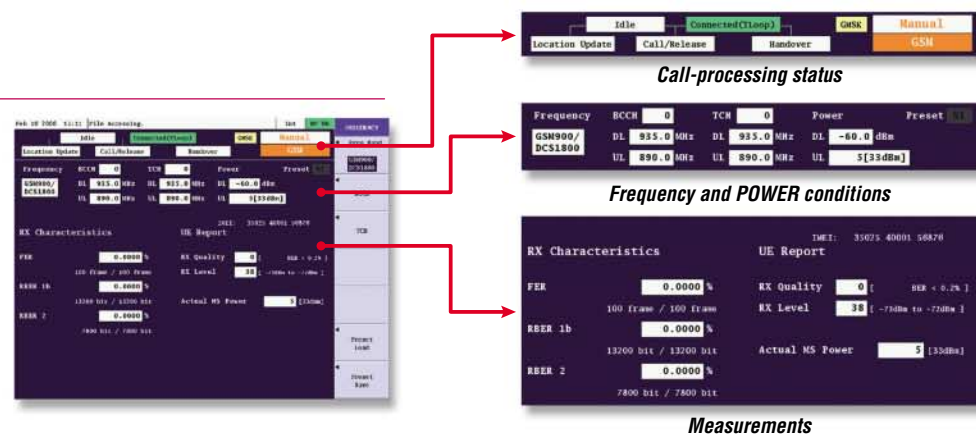


for Keeping Best Performance: Software Update and Upgrade

New standard functions can be updated via new firmware. The latest firmware is available via the Yokogawa web site. The software update can be installed to the VC3300 by a memory device which has a USB interface. By purchasing a upgrade option, the test functions for a new telecommunication system can be added to the VC3300.

Easy to see

The VC3300 always shows the general setting parameters. Power and Frequency conditions can be changed very easily.



Product Family and accessories



VC200 series WCDMA / GSM Mobile Phone Tester

Key features

- Very simple operation
- Quick fault finding
- Automatic test and data storage
- System handover test



General Specifications

Display: Color LCD VGA
 Interface: 100BASE-TX, USB, RS-232
 Language: English, Japanese, Chinese
 Operating Conditions Temperature: +5 to +35°C
 Humidity: 20 to 80%RH
 Rated supply voltage: 100 to 120VAC / 200 to 240VAC
 Allowable supply voltage frequency range: 48 to 63 Hz
 Maximum power consumption: 150VA or less
 External Dimensions: Approx. 283(W)x176(H)x303(D)mm
 Weight: Approx. 6.5kg

Models & Suffix Code

Model	Suffix code	Description
733013		VC210 GSM tester
733014		VC220 WCDMA tester
733015		VC230 GSM/WCDMA tester
	-D	UL and CSA
	-F	VDE
	-Q	BS
	-R	AS
	-H	GB
Connector type	-T	T type RF connector
	-N	N type RF connector

Accessory

Model	Suffix code	Description
733065		Test USIM card
	-E02	For UMTS

<GSM>

Model 733013 and 733015 GSM Test Functions

- Call Processing
- Frequency Handover
- Power Measurement
- Phase and Frequency Error
- Rx Quality
- Rx Level
- Loop Back BER / FER
- Burst Timing
- Voice Loop Back

GSM Band

GSM850, P-GSM, E-GSM, R-GSM, DCS1800, PCS1900

Transmission Power

Range: -110.0 to -10.0 dBm (resolution: 0.1dBm)
 Absolute Accuracy: ±1.5dB (≥ -60dBm), ±2.0dB (< -60dBm)

Reception Power (Tx power measurement)

Maximum Input level: +40dBm(GSM Burst), +35dBm(CW)
 Range: -40 to +35dBm
 Absolute Accuracy: ±1.5dB

Phase Error Measurement

Range: peak 0.5 to 45deg, rms 0.5 to 20deg
 Residual Error: Approx. 1.4deg (rms)

Frequency Error Measurement

Range: 0 to ±10kHz
 Residual Error: ±0.03ppm

<WCDMA>

Model 733014 and 733015 W-CDMA Test Functions

- Call Processing
- Frequency Handover
- Maximum Output Power Measurement
- Minimum Output Power Measurement
- Open Loop Power Control
- Inner Loop Power Control
- EVM / Frequency Error
- Reference Sensitivity (BER)
- Maximum Input (BER)
- Voice Loop Back

Transmission Frequency

Band I (2110.0 to 2170.0MHz)
 Band II (1930.0 to 1990.0MHz)
 Band III (1805.0 to 1880.0MHz)
 Band VI (875.0 to 885.0MHz)

Transmission Power

Range: -110.0 to -10.0 dBm (resolution: 0.1dBm)
 Absolute Accuracy: ±1.5dB (≥ -60dBm), ±2.0dB (< -60dBm)

Reception Frequency

Band I (1920.0 to 1980.0MHz)
 Band II (1850.0 to 1910.0MHz)
 Band III (1710.0 to 1785.0MHz)
 Band VI (830.0 to 840.0MHz)

Reception Power (TX Power Measurement)

Maximum Input level: +35dBm
 Measurement Range: -70 to +35dBm
 Absolute Accuracy: ±1.5dB

Frequency Error Measurement

Range: 0 to ±10kHz
 Residual Error: ±0.01ppm

EVM Measurement

Residual EVM: approx. 4%

VC-SHIELD Shield box with an antenna coupler



- Frequency Range: 800 ~ 2500MHz
- Shield Characteristics: < -60dB
- Including the phone fixture
- RF Cable Interface
- External Dimensions: 280(W)x140(H)x320(D) mm
- Weight: Approx. 3.4kg

Model	Description
733062	VC-SHIELD Shield box