Product Introduction

MX882005C PHS Measurement Software

MX882005C-011 ADVANCED PHS Measurement Software

MT8820B

Radio Communication Analyzer

MX882005C PHS Measurement Software
MX882005C-011 ADVANCED PHS Measurement Software
Product Introduction

MT8820B-002/-102
MX882005C, MX882005C-011

Version 2.0
March 2008

Anritsu Corporation

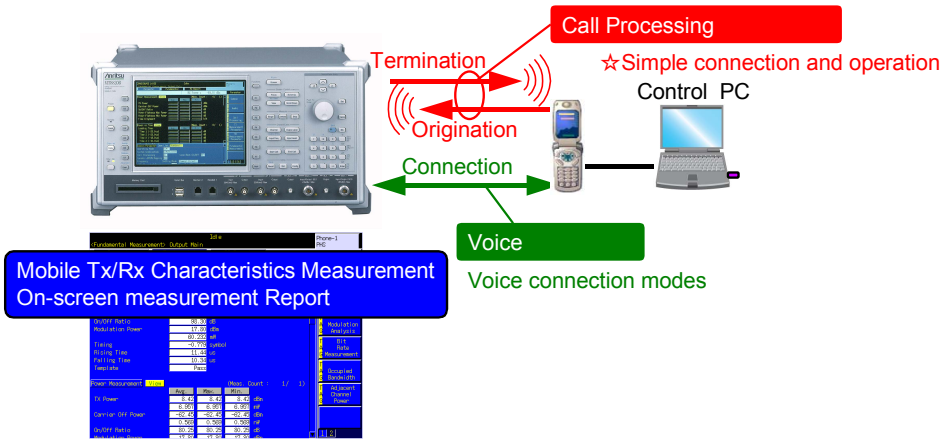
Contents

Key Features of
MX882005C PHS Measurement Software

Key Features of MX882005 PHS Measurement Software

All-in-One Call Processing and RF Tx/Rx Testing of PHS Mobiles

The MT8820B can easily test the basic RF Tx/Rx characteristics of PHS mobiles. And it supports testing of call processing, such as origination and termination.



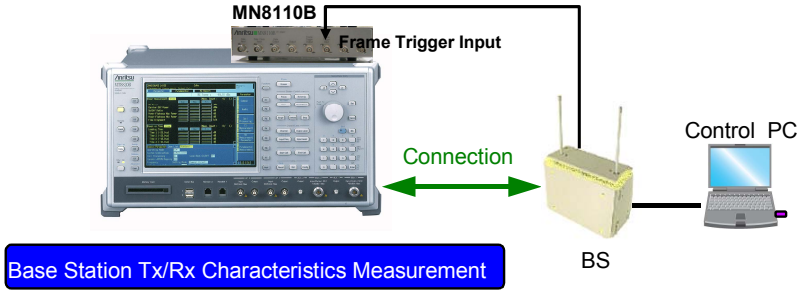
Measurement Results Screen

•When you test RX Measurement, you will need to connect with Control PC to MS. Please refer to slide7.

Key Features of MX882005C PHS Measurement Software

All-in-One RF Tx/Rx Testing of PHS Base Stations

Not only PHS terminals but also the basic RF Tx/Rx characteristics of base stations can be tested.



MN8110B I/O Adapter

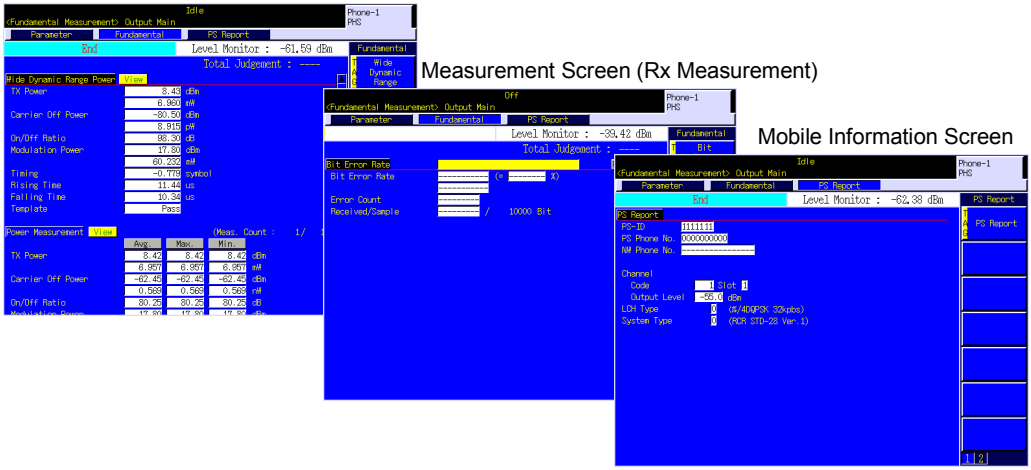
This adapter for the MT8815B/20B Call Processing converts the Input/Output port 15-pin D-sub connector to a BNC connector. The MN8110B is not always required because this accessory can be manufactured easily.

Key Features of MX882005C PHS Measurement Software

Wide Range of Measurement Functions

In addition to supporting basic measurements of RF Tx/Rx characteristics of PHS terminals, wide dynamic range power and transmission rate can be measured.

Fundamental Measurement Screen (Tx Measurement)



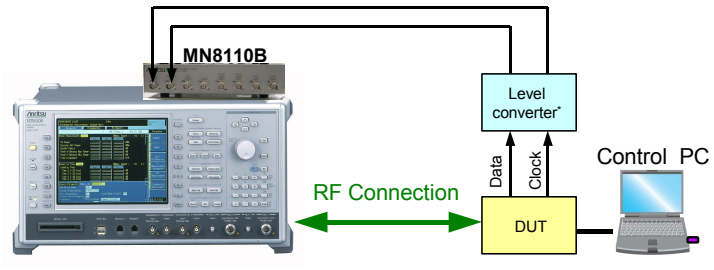
Measurement Screen (Rx Measurement)

Mobile Information Screen

Key Features of MX882005C PHS Measurement Software

Connection with DUT

The bit error rate can be measured on receipt of demodulation data and clocks output from a DUT(ex. PHS terminal) by controlling the DUT with an external controller PC etc.



Example of connection with RX measurement

MX882005C PHS Measurement Software

MX882005C PHS Measurement Software

Key Specifications

- Frequency range: 300 to 2700 MHz
- Maximum input level: +40 dBm (Measurement objects: PS-TCH, PS-SYNC, CS-TCH, CS-SYNC)
  +35 dBm (Measurement object: Continuous wave)
- Amplitude measurement accuracy: ±0.5 dB (–25 to +35 dBm)
  ±0.7 dB (–55 to –25 dBm)
  ±0.9 dB (–65 to –55 dBm) after calibration
- Amplitude measurement linearity: ±0.2 dB (–40 to 0 dBm, ≥–30 dBm)
- Residual EVM: ≤3.0% rms
- BER Measurement: Bit error rate measurement
  (Measurement object: Serial data input from Call Proc. I/O terminal on rear panel)

MX882005C PHS Measurement Software

Supported Tx/Rx Measurements

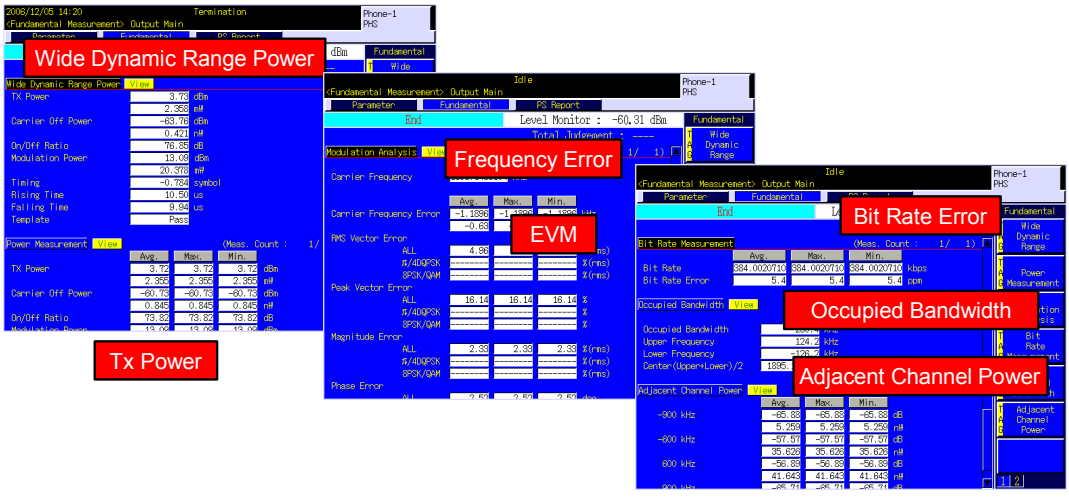
Transmitter measurement	Output power	**S**
	Modulation accuracy	**S**
	Occupied bandwidth	**S**
	Adjacent channel power	**S**
	Transmission rate	**S**
Receiver measurement	Bit error ratio	**R**

S: Supported | **R:** Requires external equipment (external controller PC for terminal) | **F:** Future Support | **N:** Not Supported

Batch Measurements at Fundamental Measurement Screen

The batch measurement results screens for Tx characteristics are shown below.
The results can be read simultaneously via GPIB.

Batch Measurement Result Screens



Graphical Spectrum Interface

The graphical interface supports easy maintenance because the Tx characteristics of PHS terminals can be understood at a glance by viewing the spectrum.

⇨ Efficient repair and maintenance

Spectrum Display Function (Occupied Bandwidth)

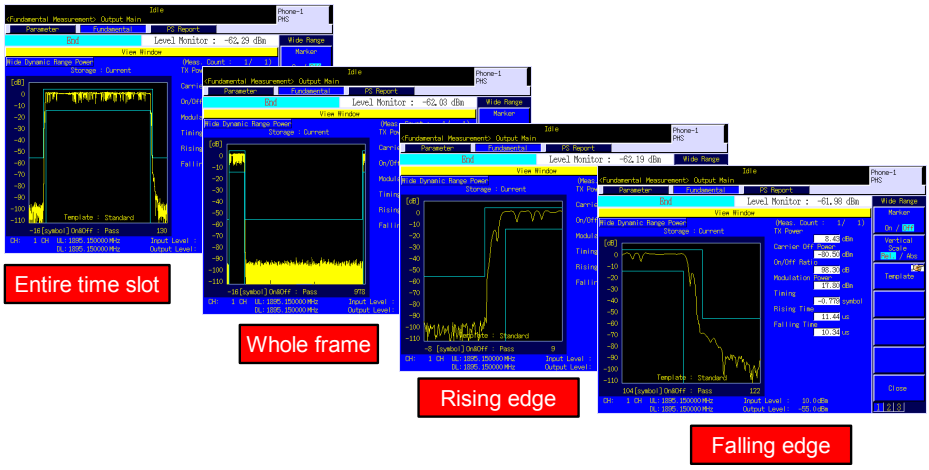
*The spectrum can also be read via GPIB.

MX882005C PHS Measurement Software

Graphical Burst Waveform Interface

The burst waveform display function supports magnified display of the entire time slot and the whole frame as well as the rising/falling edges.

Spectrum Display

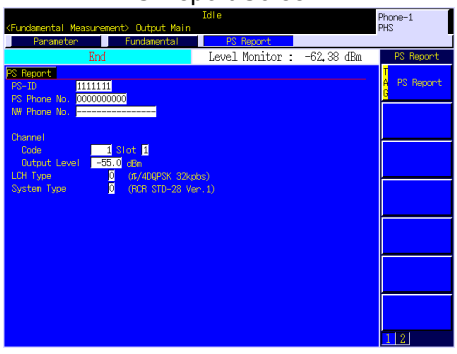


MX882005C PHS Measurement Software

PS Report Function

The dial network number and identification code of the PHS terminals (PS-ID) are displayed on the screen. In addition, the mobile Rx level reported from a PHS terminal (Tx level of MT8815B/MT8820B) and LCH type can be checked.

PS Report Screen



Call Processing Test Items
- Location Registration
- Origination
- Termination
- Disconnect from UE
- Disconnect from Network
- Hard Handover (**TCH Switch Type**)

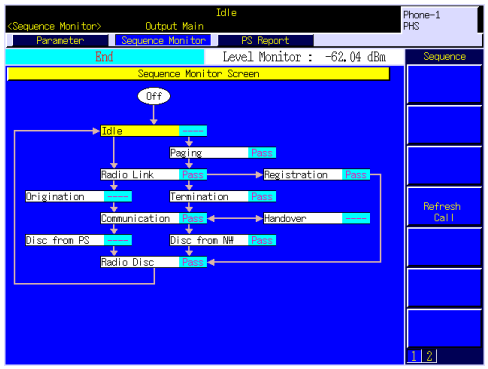
Call Processing Test Function

Call processing can be tested.

MX882005C PHS Measurement Software

Sequence Monitor

The PHS terminal functions can be operated and verified by using the call processing function and sequence monitor function.

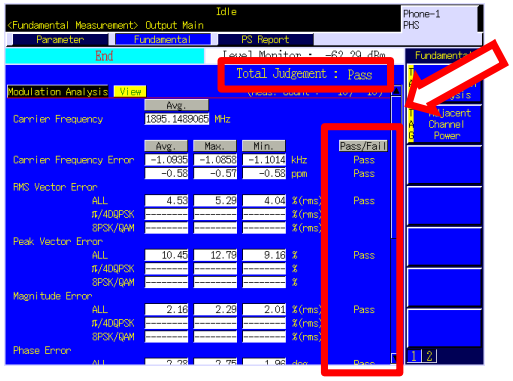


MX882005C PHS Measurement Software

Evaluation Result Evaluating Function

The upper and lower limits of the normal value can be specified for each item and Pass/Fail can be displayed for measurement results.

This function is useful for identifying fault parts at maintenance sites.



Evaluation results can be checked visually.

MX882005C-011 ADVANCED PHS

Measurement Software

MX882005C-011 ADVANCED PHS Measurement Software

Key Specifications

The specifications are the same as the MX882005C. The measured object is as follows:

• Measured object: PS-TCH (π /4DQPSK, π /2DBPSK, 8PSK, 16QAM)
PS-SYNC (π /4DQPSK, π /2DBPSK)
PS-SCCH (π /2DBPSK)
CS-TCH (π /4DQPSK, π /2DBPSK, 8PSK, 16QAM)
CS-SYNC (π /4DQPSK, π /2DBPSK)

(At modulation measurement: Guaranteed only when no bias in symbol point when modulation type of measured object is 16QAM)

• Call processing: Call control with π /4DQPSK, π /2DBPSK

*External packet data communications are not supported.

MX882005C-011 ADVANCED PHS Measurement Software

Supported Tx/Rx Measurements

Transmitter measurement	Output power	S
	Modulation accuracy	S
	Occupied bandwidth	S
	Adjacent channel power	S
	Transmission rate	S
Receiver measurement	Bit error ratio	R

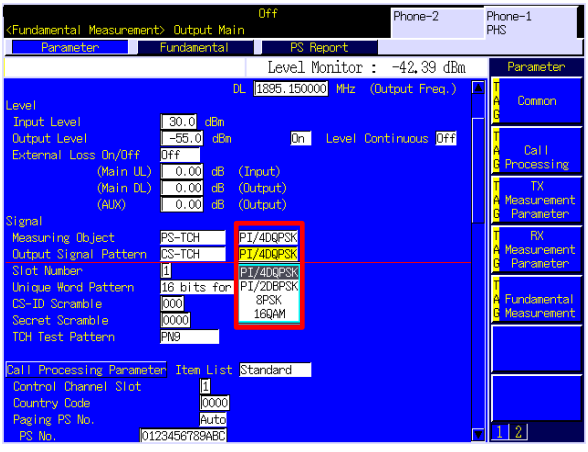
S: Supported | R: Requires external equipment (external controller PC for terminal) | F: Future Support | N: Not Supported

MX882005C-011 ADVANCED PHS Measurement Software

Modulation Type Selection

Measurements for π/4DQPSK, 8PSK, 16QAM modulation types are supported by installing the MX82005C-011 Advanced PHS Measurement Software in the MT8815B/20B.

Modulation Type Select Pop-Up Window

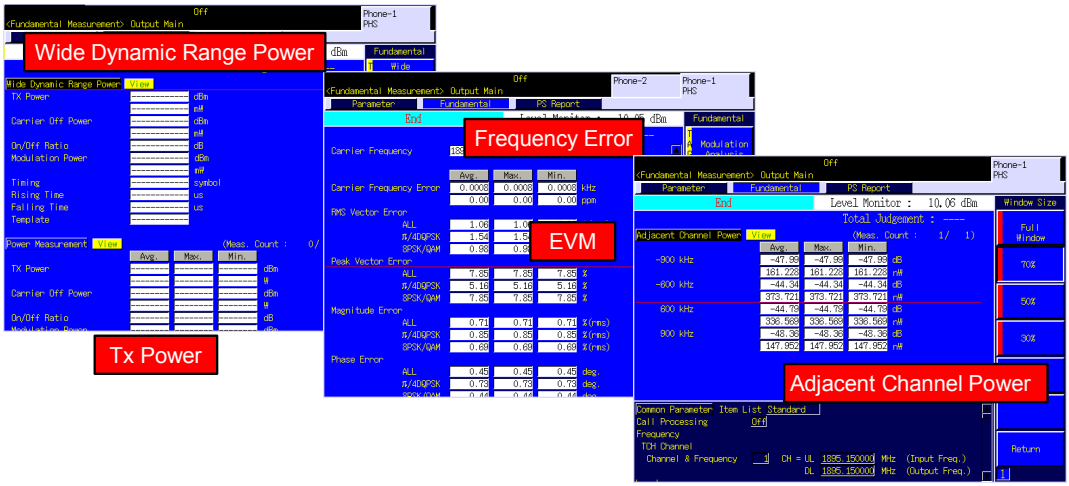


MX882005C-011 ADVANCED PHS Measurement Software

Batch Measurements at Fundamental Measurement Screen

The batch measurement results screens for Tx characteristics are shown below.
The results can be read simultaneously via GPIB.

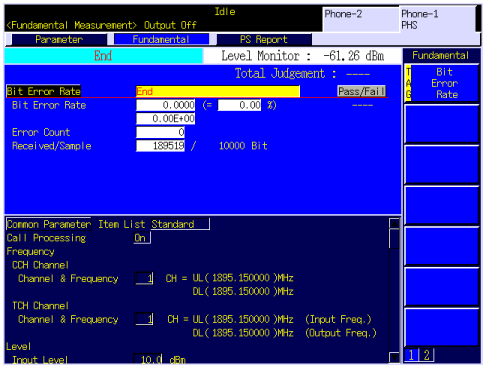
Batch Measurement Result Screens



MX882005C-011 ADVANCED PHS Measurement Software

Error Rate Test

The bit error rate can be measured on receipt of demodulation data and clocks output from a PHS terminal/ base station by controlling the advanced PHS terminal with an external controller PC etc.



Bit Error Rate Measurement (8PSK)

MX882002C CDMA2000 Measurement Software

Call Processing Testing Function

Call processing can be tested.

*Call processing with π/2BPSK voice connection is based on the PHS standard (ARIB RCR-STD-28, π/4DPSK modulation).

Call Processing Test Items

Open Session
Close Session
AT Origination
NW Origination
AT Release
NW Release
Handover

APPENDIX
(PHS Measurement Compatibility With Former OBT)

Specification Compatibility

Measurement category	Measurement items (CS, PS Standard)		MT8801C with MX880117A	MT8815A/20A with MX882005A, MT8815B/20B with MX882005C
Transmitter	Frequency/Modulaiton		±(accuracy of reference frequency + 10 Hz)	
		Modulation accuracy (≦12.5%)	±(2% of Indicated value + 0.7%)	
		Origin offset	±0.5 dB (for -30 dBc signal)	
		Transmission rate (≦±5 ppm)	±1 ppm	
	Amplitute	Output power (output accuracy: within +20%, -50%)	±10% (+10 to +40 Bm) after built-in PM calibration	±0.5 dB (-20 to +40 dBm) ±0.7dB (-30 to -20 dBm)
		Carrier-off leakage power (≦80 nW)	≧55 dB (+10 to +40 dBm) ≧69 dB (wide dynamic range power measurement)	≧55 dB (input level ≧ -10 dBm) ≧(amplitude measurement [dBm] + 70) dB (wide dynamic range power measurement)
	Adjacent channel power	600 kHz offset (≦800 nW) 900 kHz offset (≦250 nW)	≦-60 dB ≦-65 dB	
Receiver	Signal generator	Modulation accuracy	≦3% rms	
		Modulation data	PN9, PN15, arbitrary repetitive pattern of 4-bit data	
	Error rate	Function	BER Measurement	
		Measurement object	Back panel BER Input connector	Back panel Call Proc. I/O (D-sub)
Call processing		Call control	Location registration, Call origination, Call termination, Call communication, Disconnection from network, Disconnection from mobile terminal, Handover	

Function Compatibility

Function Category		MT8801C	MT8815A/20A, MT8815B/20B
Transmitter Measurement	Wide Dynamic Range	v	v
	Power Measurement	v	v
	Modulation Analysis	v	v
	Bit Rate Measurement	v	v
	Occupied Bandwidth	v	v
	Adjacent Channel Power	v	v
Receiver Measurement	Bit Error Rate	v	v
Measurement Result Evaluation	Limit Setting Window	v	v
	Limit Judgement	v	v
Waveform Display	Power Measurement	v	v
	Modulation Analysis	v	v
	Occupied Bnadwidth	v	v
	Adjacent Channel Power	v	v
Connection Test	Call Processing Test	v	v
	Sequence Monitor	v	v
Spectrum Monitor	Spectrum Monitor Screen	v	

Remote Command Compatibility

Function Category		MT8801C Compatibility	MT8815A/20A, MT8815B/20B Compatibility
Operation Series	Screen Selection Commands		v
	Window Operation Commands		v
Calibration Series	Calibration Commands		v
Measurement Series	Measurement Commands	v	
	Fundamental Measurement Result Query Commands	v	
Parameter Setting Series	Common Parameter Setting Commands	v	
	Call Processing Parameter Setting Commands	v	
	TX Measurement Parameter Setting Commands	v	
	RX Measurement Parameter Setting Commands	v	
	Fundamental Measurement Parameter Setting Commands		v
	Fundamental Measurement Template Commands	v	
Call Processing Series	PS Report Query Commands	v	
	Call Processing Query Commands	v	

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Specifications are subject to change without notice.

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