Anritsu

MX368042A

IS-95 Device Test Software

(For MG3681A Digital Modulation Signal Generator equipped with MU368040A CDMA Modulation Unit)


For IS-95 RF Devices Evaluation

Outputs Multiplex Signals up to 64 Channels

For base station transmission (forward link) evaluation, up to 64 channels of multiplexed signals can be generated by the MX368042A. On/off or code power settings are possible for every Walsh code from 0 to 63, enabling detailed reproduction of desired modulation conditions.
In addition, PCB (Power Control Bit) addition, 3-type baseband signal clipping and reverse link functions are supported to easily provide modulation signals for various conditions.
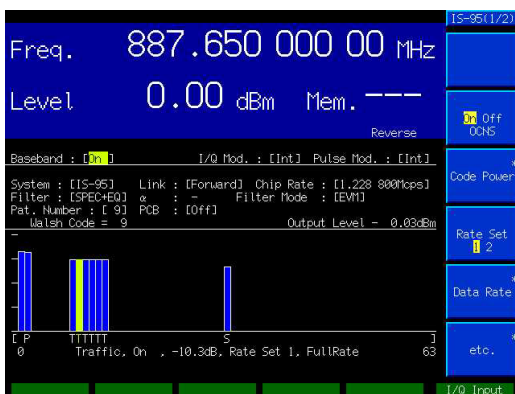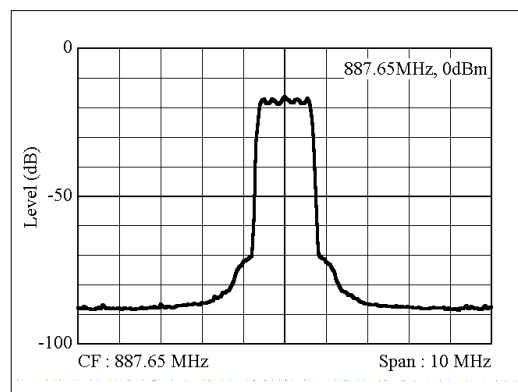

Modulation screen (forward link)

Modulation screen (reverse link)

Superior Spurious Emission Characteristics

The spurious emission characteristics of the RF signal for 9 multiplexed channels are –63 dBc or less at ±900 kHz offset, and –77 dBc or less at ±1.98 MHz offset (at bandwidth: 30 kHz). On single wave output[*1], waveform quality factor (ρ) of 0.997 or higher can be achieved.
These standard basic functions are source very well adapted to development and production of RF devices and modules for IS-95 (not used to test of the receiver sensitivity).

*1: Refer to the specifications for detailed settings

Modulation spectrum

Specifications

Install MX368042A in MU368040A equipped in MG3681A

Applicable system	IS-95
Spreading method	Direct spreading
Modulation method	BPSK (data), QPSK (spreading)
Number of multiplex channels	Forward: 1 to 64, Reverse: 1

Applicable channels	Forward
	  Pilot: Symbol = All 0
	  Sync: Symbol rate = 4.8 ksps, symbol data = random
	  Paging: Symbol rate = 19.2 ksps, symbol data = random
	  Traffic: Symbol rate = 19.2 ksps, symbol data = random
	Reverse
	  Traffic: Symbol rate = 28.8 ksps, symbol = random

Spreading code	Forward
	  Walsh code: Code length = 64 chip, Short code: Code length = 32768 chip
	Reverse
	  Short code: Code length = 32768 chip

Code channel power	At forwarding, select on/off or OCNS for each Walsh code channel
	  On: Set code channel power from range of 0 to –40 dB, resolution: 0.1 dB
	    [Impossible for setting in which total of all code powers exceeds 0.05 dB]
	  OCNS: Automatic setting in which the total of all code channel powers is 0 dB.

Chip rate	Range: 0.8 to 2.0625 Mcps, Resolution: 1 cps
Baseband filter	SPEC (FIR filter conforming to IS-95) SPEC + EQ (equalizing FIR filter conforming to IS-95) Nyquist filter (roll-off factor: variable from 0.1 to 1.0, resolution: 0.01) Root Nyquist filter (roll-off factor: variable from 0.1 to 1.0, resolution: 0.01)

Clipping function	Clipping function can be set separately from following 3 types.
	  (1) For |I| and |Q| before baseband filtering, setting range: 0 to 18 dB (resolution: 0.1 dB)
	  (2) For |I| and |Q| after baseband filtering, setting range: 0 to 18 dB (resolution: 0.1 dB)
	  (3) For |I + jQ| after baseband filtering, setting range: 0 to 21 dB (resolution: 0.1 dB)
	  [Clipping function is processed in the order of (1), (2), and (3) above.]

Auxiliary signal output	Timing clock: Timing clock output sync with RF signal Reference clock: Clock output of the chip rate signal
I/Q signal output level	$\sqrt{I^2 + Q^2}$ = 200 mV(rms) [Number of multiples: 1, PCB MUX: off]

RF Signal		
	Frequency range	824 to 925 MHz, 1750 to 1990 MHz

	Output level range	Forward (PCB MUX: off):
		  –143 to +8 dBm (number of multiplex: 1), –143 to +5 dBm (number of multiplex: 2 to 9),
		  –143 to +2 dBm (number of multiplex:10 to 64)
		Reverse: –143 to +8 dBm

	Level accuracy	±1.0 dB compared with CW level (output: 0 dBm, number of multiplex: 1, PCB MUX: off)
	Waveform quality	ρ: ≥0.997 (at 0 dBm, 18˚ to 35˚C, number of multiplex: 1)

	Spurious emission	Forward (number of multiplex: 9)[*1]:
		  ≤–63 dBc (0.885 to 1.25 MHz offset), ≤–69 dBc (1.25 to 1.98 MHz offset), ≤–77 dBc (1.98 to 5 MHz offset)
		Forward (number of multiplex: 64)[*2]:
		  ≤–63 dBc (0.885 to 1.25 MHz offset), ≤–68 dBc (1.25 to 1.98 MHz offset), ≤–75 dBc (1.98 to 5 MHz offset)
		Reverse (full rate):
		  ≤–65 dBc (0.885 to 1.25 MHz offset), ≤–70 dBc (1.25 to 1.98 MHz offset:), ≤–77 dBc (1.98 to 5 MHz offset)
		  [Power ratio of total bandwidth and 30 kHz bandwidth. Except deterioration of performance by spurious of MG3681A main frame]

	Burst on/off ratio	≥65 dB (0 dBm)
Firmware backup space		CPU: 150 kbyte, DSP: 50 kbyte, FPGA: 100 kbyte

*1

Walsh code	Code channel power
0	–7.0 dB
32	–13.3 dB
1	–7.3 dB
8 to 13	–10.3 dB (rate set = 1, data rate = full)
2 to 7, 14 to 31, 33 to 63	Off

*2

Walsh code	Code channel power
0	–7.0 dB
32	–22.4 dB
1 to 7	–16.4 dB
8 to 31	–19.4 dB (rate set = 1, data rate = full)
33 to 63	–19.4 dB (rate set = 1, data rate = full)

Ordering Information

Please specify model, order number, name and quantity when ordering.

Model/Order No.	Name	Remarks
MG3681A*1	**Main frame** Digital Modulation Signal Generator	250 kHz to 3000 MHz
MU368040A*1	**Expansion unit** CDMA Modulation Unit	
MX368042A	**Software** IS-95 Device Test Software	Supplied with compact flash card and PC card adapter or ATA flash memory card
W1838AE	**Standard accessory** MX368042A operation manual: 1 copy	

*1: Refer to catalog for MG3681A and MU368040A specifications

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Specifications are subject to change without notice.