MX368011A

PDC Software

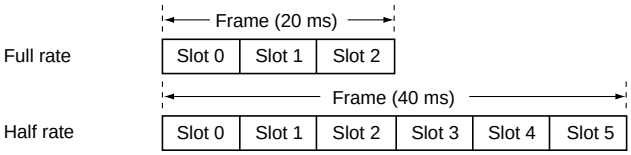
(For MG3681A Digital Modulation Signal Generator equipped with MU368010A TDMA Modulation Unit)

For PDC System's Receiver and Device Evaluation

Frame/Slot Configuration

Install MX368011A in MU368010A TDMA Modulation Unit, which is mounted into MG3681A Digital Modulation Signal Generator. Frame and slot configuration for selecting PDC systems conforms to full/half rate of RCR STD-27B. Slots 0 to 2 (full-rate)/0 to 5 (half-rate) can separately set to on/off. All bits except R (ramp) and G (guard) bits have PN-pattern slot configuration that can be used for device evaluation.

[Frame configuration]



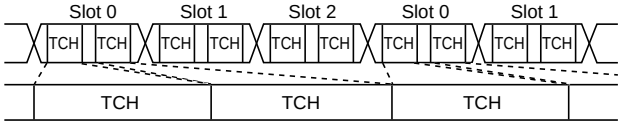
[Slot configuration]

Up-link traffic channel	R 4	P 2	TCH 112	SW 20	CC 8	SF 1	SACCH 15	TCH 112	G 6
Down-link traffic channel	R 4	P 2	TCH 112	SW 20	CC 8	SF 1	SACCH 21	TCH 112	

Modulation Pattern

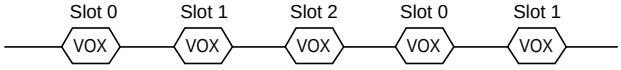
For TCH field, continuous PN9 or PN15 pseudo-random pattern can be selected with different phase by slot. When invalid slot is received, the pseudo-random pattern becomes discontinuous so that it can be detected during error rate measurement. SW, CC and SACCH fields can be edited to any data. Scrambling can be turned on/off. MX368011A which can generate testing signal for advanced diagnosis/evaluation by itself, is ideal for testing PDC receivers or evaluation/management of devices.

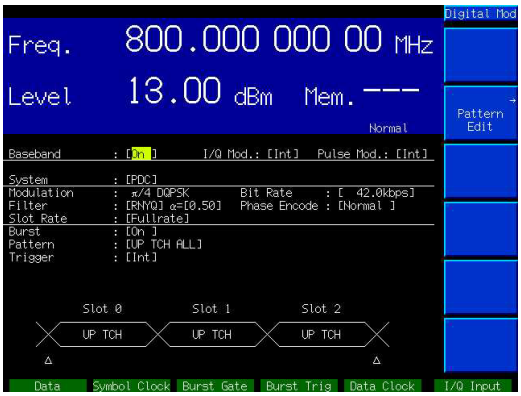
[Example of modulation pattern]



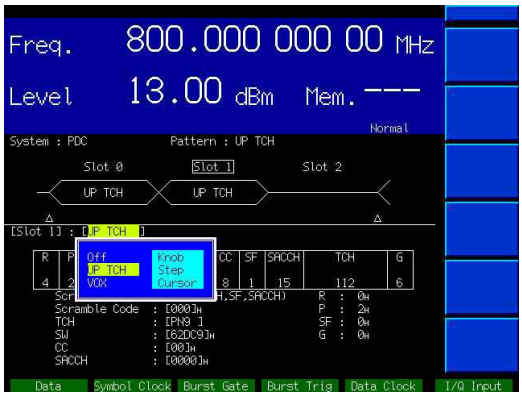
Continuous PN9 or PN15 pseudo-ramdom pattern

[Example of VOX signal]

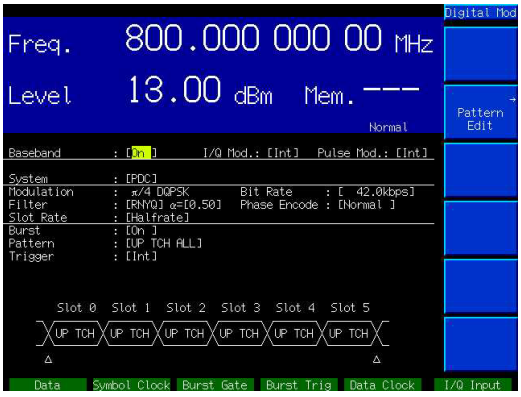




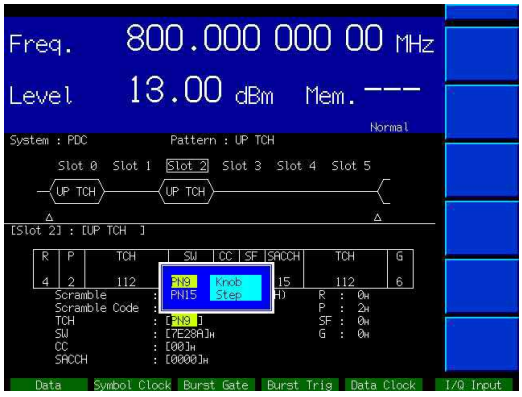
Pattern setting screen (full-rate)



Pattern editing screen (full-rate)



Pattern setting screen (half-rate)



Pattern editing screen (half-rate)

Specifications

Install MX368011A in MU368010A equipped in the MG3681A

Applicable system		PDC
Modulation method		π/4 DQPSK
Bit rate		Range: 37.8 to 46.2 kbps (default: 42.0 kbps), Resolution: 0.1 kbps, Accuracy: Depend on that for reference signal source of MG3681A main frame
Baseband filter		Nyquist and root Nyquist, Roll-off factor α: 0.40 to 0.60, Resolution: 0.01
Modulated data	Continuous modulation	PN9/PN15 pseudo-random pattern, 4-bit data repetition pattern
	Burst modulation	Data pattern conforming to RCR STD-27B can be output Frame configuration Full rate*1: Composed of 3 slots (Slot 0 to 2) [frame period: 20 ms] Half rate*2: Composed of 6 slots (Slot 0 to 5) [frame period: 40 ms] Slot configuration: For device evaluation (DEVICE)*3, up-link traffic channel (UP TCH)*4, down-link traffic channel (DOWN TCH)*5, VOX control (VOX)*6 Scramble function Turning on/off and scramble code settings are possible. Applicable slots for scramble function setting: UP TCH, DOWN TCH, VOX Scramble codes: 000 to 1FF
Auxiliary signal	Input signal	Data clock: Clock input equivalent to bit rate (input range: ±1% of setting value for bit rate) Data: Data input synchronized with data clock Symbol clock: Clock input for the symbol definition synchronized with data clock Burst gate: Gate signal input for burst signal on/off definition Burst trigger: Trigger signal input synchronized with frame
	Output signal	Data clock: Clock output equivalent to bit rate Data: Data output synchronized with data clock Symbol clock: Clock output for the symbol definition synchronized with data clock Burst gate: Gate signal output for burst signal on/off definition Burst trigger: Trigger signal output synchronized with frame Pattern synchronization: Signal output synchronized with PN9, PN15 or 4-bit pattern (at continuous modulation). TCH field gate, clock or RF signal on/off control signal output (at burst modulation)
I/Q signal	Output level	$\sqrt{I^2 + Q^2}$ = 500 mV(rms) [bit rate: 42.0 kbps, baseband filter: root Nyquist (α = 0.5), continuous modulation, pattern: PN9]
	Vector error	No additional function of I/Q output option (MG3681A-11): ≤1.6%(rms) [continuous modulation, pattern: PN 9], ≤1.7%(rms) [burst modulation, pattern: UP TCH] Installed additional function of I/Q output option (MG3681A-11): ≤3.0%(rms) [continuous modulation, pattern: PN 9], ≤3.0%(rms) [burst modulation, pattern: UP TCH] [bit rate: 42.0 kbps, baseband filter: root Nyquist (α = 0.5)]
RF Signal	Frequency range	10 to 2100 MHz
	Output level range	–143 to + 13 dBm
	Level accuracy	Within ±0.6 dB compared with CW level
	Vector error	≤1.8%(rms) [continuous modulation, pattern: PN9], ≤1.8%(rms) [burst modulation, pattern: UP TCH], [bit rate: 42.0 kbps, baseband filter: root Nyquist (α = 0.5), + 5 dBm
	Carrier leak	≤–30 dBc [bit rate: 42.0 kbps, baseband filter: root Nyquist (α = 0.5), continuous modulation, pattern: 0000, 18˚ to 35˚C]
	Image rejection	≤–40 dBc [bit rate: 42.0 kbps, baseband filter: root Nyquist (α = 0.5), continuous modulation, pattern: 0000]
	Adjacent channel power	≤–64 dBc/21 kHz (50 kHz offset), ≤–68 dBc/21 kHz (100 kHz offset)*7
	Burst on/off ratio	≥65 dB (+5 dBm)
Firmware backup space		CPU: 280 kbyte, FPGA: 256 kbyte

*1 Full rate

Slot 0	Slot 1	Slot 2

*2 Half rate

Slot 0	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5

*3 For device evaluation

R 4	PN 270	G 6

PN: PN9 or PN15

*4 Up-link traffic channel

R 4	P 2	TCH 112	SW 20	CC 8	SF 1	SACCH 15	TCH 112	G 6

TCH: PN9/PN15, SW: 00000 to FFFFF, CC: 00 to FF, SACCH: 0000 to 7FFF

*5 Down-link traffic channel

R 4	P 2	TCH 112	SW 20	CC 8	SF 1	SACCH 21	TCH 112

TCH: PN9/PN15, SW: 00000 to FFFFF, CC: 00 to FF, SACCH: 000000 to 1FFFFF

*6 VOX control

G 108	R 4	P 6	SW 20	CC 8	SF 1	SACCH 15	G 118

SW: 00000 to FFFFF, CC: 00 to FF, SACCH: 0000 to 7FFF

*7 Bit rate: 42.0 kbps, +5 dBm, baseband filter: root Nyquist (α = 0.5), continuous modulation, pattern: PN 9, frequency: 810 to 958 MHz/1429 to 1501 MHz (except deterioration of performance by spurious of MG3681A main frame)

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
MU368010A*1	**Expansion unit** TDMA Modulation Unit	
MX368011A	**Software** PDC Software	Supplied with compact flash card and PC card adapter or ATA flash memory card
W1836AE	**Standard accessories** MX368011A operation manual: 1 copy	

*1: Refer to catalog for the MG3681A or MU368010A

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Specifications are subject to change without notice.

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