Product Introduction

P25-Phase 1 Rx Test Solution

MG3710A
Vector Signal Generator
P25-Phase 1
Rx Test Solution

P25 Phase 1 Technical Specifications
Transceiver Performance Recommendations
TIA-102.CAAB-C (Jun 2010)
Transceiver Measurement Methods
TIA-102.CAAA-D (Apr 2013)

Note: For details, refer to the TIA-102 standard.

Version 1.00
May 2014
Anritsu Corporation
For Rx Evaluation

**Output multi-signals with one unit!**

MG3710A Vector Signal Generator

- **Single** memory in one RF port
  - Wanted Signal

- **Dual** memory in one RF port
  - Wanted Signal + Unwanted Signal (Mod) + Unwanted Signal (CW)
  - + Opt-062 (2.7 GHz)

- **Triple** memory & two RF ports
  - Wanted Signal + Unwanted Signal (Mod)
  - + Opt-048

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*Combination of Baseband Signal option*: (Two internal ARB memories)
Selected two waveform patterns per RF output for setting mutual frequency offset, level offset, delay time, etc., to output two signals from one RF port.
Frequency (recommended range: ±60 MHz) and level (CN: ±80 dB) can also be set at the screen.
### TIA-102 Receiver test items

<table>
<thead>
<tr>
<th>CAAB-C</th>
<th>CAAA-C</th>
<th>Receiver test items</th>
<th>Signal Generator</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.4</td>
<td>2.1.4</td>
<td>Reference Sensitibility</td>
<td>Tone</td>
<td>---</td>
</tr>
<tr>
<td>3.1.5</td>
<td>2.1.5</td>
<td>Faded Reference Sensitibility</td>
<td>Faded Tone</td>
<td>---</td>
</tr>
<tr>
<td>3.1.6</td>
<td>2.1.6</td>
<td>Signal Delay Spread Capability</td>
<td>Faded Tone</td>
<td>Faded Tone</td>
</tr>
<tr>
<td>3.1.7</td>
<td>2.1.7</td>
<td>Digital ACR</td>
<td>Tone</td>
<td>Interference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Digital Offset ACR</td>
<td>Tone</td>
<td>---</td>
</tr>
<tr>
<td>3.1.8</td>
<td>2.1.8</td>
<td>Co-channel Rejection</td>
<td>Tone</td>
<td>Interference</td>
</tr>
<tr>
<td>3.1.9</td>
<td>2.1.9</td>
<td>Spurious Response Rejection</td>
<td>Tone</td>
<td>FM</td>
</tr>
<tr>
<td>3.1.10</td>
<td>2.1.10</td>
<td>Intermodulation Rejection</td>
<td>Tone</td>
<td>Interference</td>
</tr>
<tr>
<td>3.1.11</td>
<td>2.1.11</td>
<td>Signal Displacement Bandwidth</td>
<td>Tone</td>
<td>---</td>
</tr>
<tr>
<td>3.1.12</td>
<td>2.1.12</td>
<td>Audio Output Noise Ratio</td>
<td>Tone</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Faded Tone</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Residual Audio Noise Ratio</td>
<td>Tone</td>
<td>Silence MUTE</td>
</tr>
<tr>
<td>3.1.14</td>
<td>2.1.14</td>
<td>Average Radiation Sensitivity</td>
<td>Tone</td>
<td>---</td>
</tr>
<tr>
<td>3.1.15</td>
<td>2.1.15</td>
<td>Acoustic Audio Output</td>
<td>Tone</td>
<td>---</td>
</tr>
<tr>
<td>3.1.16</td>
<td>2.1.16</td>
<td>Bit error Rate Floor</td>
<td>Tone</td>
<td>---</td>
</tr>
<tr>
<td>3.1.17</td>
<td>2.1.17</td>
<td>Late Entry Unsquelch Delay</td>
<td>Under investigation</td>
<td>Oscilloscope, etc.</td>
</tr>
<tr>
<td>3.1.18</td>
<td>2.1.18</td>
<td>Receiver Throughput Delay</td>
<td>Under investigation</td>
<td>Oscilloscope, etc.</td>
</tr>
<tr>
<td>3.1.19</td>
<td>2.1.19</td>
<td>Blocking Rejection</td>
<td>Tone</td>
<td>---</td>
</tr>
</tbody>
</table>

**Note:** For details, refer to the TIA-102 standard.

**MG3710A Vector Signal Generator**

**One RF port**
- Single

**Two RF ports**
- Dual
- Dual or Triple

**ACR:** Adjacent Channel Rejection

Faded Tone: User can create Faded pattern by using Fading IQproducer (Option).

FM: User can output FM signal by using analog function of main frame.

CW: User can output CW signal by using non-modulation mode of main frame.
Modulation:

- C4FM (Compatible 4-level FM version of QPSK-c Modulation)
- CQPSK (Compatible QPSK version of QPSK-c modulation)
- LSM (Linear Simulcast Modulation)
- WCQPSK

Data Rate: 9.6 kbps
Symbol Rate: 4.8 ksps
Receiver Performance Measurement Methods

Reference Sensitivity

Measures input level when BER = 5%

The Vector SG is supported as an MG2830A option.

The MS2830A is recommended when only “Reference Sensitivity” is included in the manufacturing Rx test.

Expected Value: BER of 5% when 250 ms or more (2400 bits)

Limits:

<table>
<thead>
<tr>
<th>Radio Application</th>
<th>Mobile</th>
<th>Portable</th>
<th>Base Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>–116 dBm</td>
<td>–116 dBm</td>
<td>–116 dBm</td>
</tr>
<tr>
<td>Class B</td>
<td>–113 dBm</td>
<td>–113 dBm</td>
<td>–113 dBm</td>
</tr>
</tbody>
</table>

*Mobile or Portable only

Note: For details, refer to the TIA-102 standard.

Standard Tone Test Pattern
Standard Simulcast Modulation*

RF Signal (Static)

Receiver under Test

Note: For details, refer to the TIA-102 standard.

*Mobile or Portable only
Receiver Performance Measurement Methods

Reference Sensitivity

Choose P25 Phase1 signal you want from the list.
## Receiver Performance Measurement Methods

### Faded Reference Sensitivity

Measures input level when BER = 5%

**Fading IQproducer:** “Fading (Flat/Rayleigh)” pattern created by Fading IQproducer. This is supported only by the MG3710A.

**Expected Value:** BER of 5% over time interval of \( \geq t \) s

**Fading conditions:**
- Single path
- Flat Rayleigh fading
- Moving speed 8 km/h, 100 km/h

**Limits:**

<table>
<thead>
<tr>
<th>Radio Application</th>
<th>Mobile</th>
<th>Portable</th>
<th>Base Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>–108 dBm</td>
<td>–108 dBm</td>
<td>–108 dBm</td>
</tr>
<tr>
<td>Class B</td>
<td>–105 dBm</td>
<td>–105 dBm</td>
<td>–105 dBm</td>
</tr>
</tbody>
</table>

*Mobile or Portable only

**RF Signal (Faded)**

**Faded Standard Tone Test Pattern**

**Faded Standard Simulcast Modulation**

*Note: For details, refer to the TIA-102 standard.*

\[
t = \frac{180,000}{(F_{\text{MHz}}) / (S_{\text{km/h}})}
\]
Receiver Performance Measurement Methods

Faded Reference Sensitivity

Wanted Signal (Faded)

MG3710A

Load to Memory

User creates Fading pattern using Fading IQproducer

Fading IQproducer:
“Fading (Flat/Rayleigh)” pattern created by Fading IQproducer.
This is supported only by the MG3710A.

Load to Fading IQproducer

Standard Tone Test Pattern

Standard Simulcast Modulation
Receiver Performance Measurement Methods

Signal Delay Spread Ability

Measures delay time between two paths when BER = 5%

*Mobile or Portable only

Dual Memory:
One RF port has two memories. Two signals are output at one RF port. The Frequency, Level and Delay-Time can be set. This is supported only by the MG3710A.

Faded Standard Tone Test Pattern
Faded Standard Simulcast Modulation*

RF Signal (Faded) x 2
–47 dBm

Faded Standard Tone Test Pattern
Faded Standard Simulcast Modulation*

Fading conditions
- Single path
- Flat Rayleigh fading
- Moving speed 8 km/h, 100 km/h

Expected Value: BER of 5% over time interval of ≥“t” s

Limits:

<table>
<thead>
<tr>
<th>Modulation Type</th>
<th>Delay Spread</th>
</tr>
</thead>
<tbody>
<tr>
<td>C4FM</td>
<td>50 µs</td>
</tr>
<tr>
<td>Standard Simulcast</td>
<td>80 µs</td>
</tr>
</tbody>
</table>

\[ t = \frac{180,000}{(F \text{ MHz}) / (S \text{ km/h})} \]
Receiver Performance Measurement Methods

Signal Delay Spread Ability

- **Wanted Signal (Faded)**
- **Delayed Signal (Faded)**
- **User creates Fading pattern using Fading IQproducer**
- **Load to Memory**

**Fading IQproducer:**
- "Fading (Flat/Rayleigh)" pattern created by Fading IQproducer.
- This is supported only by the MG3710A.

**Load to Test Pattern**

**Merit of Dual Memory:**
- Two signals of “Wanted signal” and “Unwanted signal” are output by one RF-port.
- Both Level and C/N set for each level
- Frequency offset set by direct input.

1 point = 0.407 µs
123 points = 50.05 µs

Symbol Rate = 4800 sps
Oversampling = 512

1 s/4800 symbols = 208 µs
208 µs/512 = 0.407 µs
Receiver Performance Measurement Methods

Digital Adjacent Channel Rejection

Measures ability to reject unwanted signal applied to adjacent channels

Dual Memory:
One RF port has two memories. Two signals are output at one RF port. The Frequency, Level and Delay-Time can be set. This is supported only by the MG3710A.

RF1 = Wanted signal (Standard Tone Test Pattern)
- Level: 3 dB above reference sensitivity
RF2 = Unwanted signal
(Standard Interference Test Pattern or Standard Simulcast Modulation)
- Frequency: \([\text{RF1 Freq}] \pm [12.5 \text{ kHz}]\) or \([\text{RF1 Freq}] \pm [6.25 \text{ kHz}]\)

Standard Tone Test Pattern
- RF1 signal @1stRF
- RF2 signal @1stRF

Standard Interference Test Pattern
- Standard Simulcast Modulation

*\(C4FM\) for ChBW = 12.5 kHz, or \(CQPSK\) for ChBW = 6.25 kHz

Expected Value: BER of 5%

Limits: Adjacent Channel Rejection Limits

<table>
<thead>
<tr>
<th>Radio Application</th>
<th>Mobile</th>
<th>Portable</th>
<th>Base Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>60 dB</td>
<td>60 dB</td>
<td>60 dB</td>
</tr>
<tr>
<td>Class B</td>
<td>50 dB</td>
<td>50 dB</td>
<td>50 dB</td>
</tr>
</tbody>
</table>

Reference Sensitivity Level

3 dB

Wanted Signal

Memory A @1stRF

Memory A @1stRF

Note: For details, refer to the TIA-102 standard.
Receiver Performance Measurement Methods

Digital Adjacent Channel Rejection

Merit of Dual Memory:
- Two signals of “Wanted signal” and “Unwanted signal” are output by one RF-port.
- Both Level and C/N set for each level
- Frequency offset set by direct input.

- Wanted Signal Level
- Unwanted Signal Level
- Wanted/Unwanted Level Ratio

Wanted Signal
Unwanted Signal

12.5 kHz or 6.25 kHz
12.5 kHz or 6.25 kHz
Digital Offset Adjacent Channel Rejection

Measures ability to reject unwanted signal applied to adjacent channels

**Dual Memory:**
One RF port has two memories. Two signals are output at one RF port. The Frequency, Level and Delay-Time can be set. This is supported only by the MG3710A.

**RF1 =** Wanted signal (Standard Tone Test Pattern)
- Level: 3 dB above reference sensitivity

**RF2 =** Unwanted signal (Standard Interference Test Pattern)
- Frequency: \( RF1 \text{ Freq} \pm [12.5 \text{ kHz}], \) Toward receiver frequency by 1 kHz
- Frequency: \( RF1 \text{ Freq} \pm [6.25 \text{ kHz}], \) Toward receiver frequency by 500 Hz

*\( \text{C}4\text{FM for ChBW = 12.5 kHz, or CQPSK for ChBW = 6.25 kHz} \)*

**Expected Value:** BER of 5%

**Limits:**

<table>
<thead>
<tr>
<th>Radio Application</th>
<th>Mobile</th>
<th>Portable</th>
<th>Base Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>47 dB</td>
<td>47 dB</td>
<td>47 dB</td>
</tr>
<tr>
<td>Class B</td>
<td>37 dB</td>
<td>37 dB</td>
<td>37 dB</td>
</tr>
</tbody>
</table>

**Note:** For details, refer to the TIA-102 standard.
Receiver Performance Measurement Methods

Digital Offset Adjacent Channel Rejection

Merit of Dual Memory:
- Two signals of “Wanted signal” and “Unwanted signal” are output by one RF-port.
- Both Level and C/N set for each level.
- Frequency offset set by direct input.

- Wanted Signal Level
- Unwanted Signal Level
- Wanted/Unwanted Level Ratio

11.5 kHz or 5.75 kHz

Unwanted Signal

Wanted Signal

Memory A

Unwanted Signal

Memory B

MG3710A

Slide 14
MG3710A-E-L-4
Co-channel Rejection

Measures ability to reject unwanted signal applied to same channel

**Dual Memory:**
One RF port has two memories. Two signals are output at one RF port. The Frequency, Level and Delay-Time can be set. This is supported only by the MG3710A.

**Expected Value:** BER of 5%

**Limits:** Shall not exceed 9 dB

**RF1 =** Wanted signal (Standard Tone Test Pattern)
- Level: 3 dB above reference sensitivity

**RF2 =** Unwanted signal (Standard Interference Test Pattern)
- Frequency: Same as [RF1 Freq]

**Reference Sensitivity Level**

3 dB

**Wanted Signal**

**Memory A @1stRF**

**Memory A @1stRF**

**Note:** For details, refer to the TIA-102 standard.
Co-channel Rejection

**Merit of Dual Memory:**
- Two signals of “Wanted signal” and “Unwanted signal” are output by one RF-port.
- Both level and C/N set for each level.
- Frequency offset set by direct input.
**Receiver Performance Measurement Methods**

**Spurious Response Rejection**

Measures ability to reject specified unwanted signal applied to receiver under test. The frequency of the unwanted signal is varied over a range from half the lowest IF frequency of the receiver under test to twice the highest receiver frequency or 1000 MHz, whichever is higher. Exclude all responses within ±50 kHz of the receiver frequency.

**Two RF Ports:**
The MG3710A supports two RF ports in one unit, cutting equipment costs.

**RF1 = Wanted signal (Standard Tone Test Pattern)**
- Level: 3 dB above reference sensitivity

**RF2 = Unwanted signal (FM)**
- FM with 400 Hz tone
- 1500 Hz deviation

Measures ability to reject specified unwanted signal applied to receiver under test. The frequency of the unwanted signal is varied over a range from half of the lowest IF frequency of the receiver under test to twice the highest receiver frequency or 1000 MHz, whichever is higher. Exclude all responses within ±50 kHz of the receiver frequency.

**Expected Value:** BER of 5%

**Limits:**

<table>
<thead>
<tr>
<th>Radio Application</th>
<th>Mobile</th>
<th>Portable</th>
<th>Base Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>80 dB</td>
<td>70 dB</td>
<td>90 dB</td>
</tr>
<tr>
<td>Class B</td>
<td>70 dB</td>
<td>60 dB</td>
<td>70 dB</td>
</tr>
</tbody>
</table>

**Notes:**
- For details, refer to the TIA-102 standard.
- BM = Reference Sensitivity Level
- PU = Level of unwanted signal [dBm]
- $P_{REF}$ = Level of reference sensitivity [dBm]
- SRR = Manufacturer specified limit [dB]
Receiver Performance Measurement Methods

Spurious Response Rejection

Two RF Ports: The MG3710A supports two RF ports in one unit, cutting equipment costs.

Wanted Signal

Unwanted Signal (FM)

1stRF

2ndRF

Lowest IF Freq

2

Exclude ±50 kHz

Receiver Freq x 2 or 1000 MHz (whichever is greater)

Unwanted Signal (FM)

Wanted Signal

2ndRF

1stRF

2ndRF

MG3710A-E-L-4
Receiver Performance Measurement Methods

**Intermodulation Rejection**

Measures ability to reject intermodulation caused by unwanted signals with offset frequency of +50 kHz/+100 kHz or –50 kHz/–100 kHz

**Dual Memory:**
One RF port has two memories. Two signals are output by one RF port. The Frequency, Level and Delay-Time can be set. This is supported only by the MG3710A.

**Two RF Ports:**
The MG3710A supports two RF ports in one unit, cutting equipment costs.

**Standard Tone Test Pattern**
- RF1 signal @1stRF
- RF3 signal @1stRF

**Standard Interference Test Pattern**
- RF2 signal @2ndRF

**Unwanted Signal (CW)**

* C4FM for ChBW = 12.5 kHz, or CQPSK for ChBW = 6.25 kHz

**Expected Value:** BER of 5%

**Limits:**

<table>
<thead>
<tr>
<th>Radio Application</th>
<th>Mobile</th>
<th>Portable</th>
<th>Base Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>75 dB</td>
<td>70 dB</td>
<td>80 dB</td>
</tr>
<tr>
<td>Class B</td>
<td>70 dB</td>
<td>50 dB</td>
<td>70 dB</td>
</tr>
</tbody>
</table>

**Note:** For details, refer to the TIA-102 standard.
Receiver Performance Measurement Methods

Intermodulation Rejection

Wanted Signal

Unwanted Signal (Standard Interference Test Pattern)

Frequency Offset

e.g. +50 kHz

Unwanted Signal
(CW: Mod = Off) @2nd RF

Frequency Offset

e.g. +100 kHz

Merit of Dual Memory:

- Two signals of "Wanted signal" and "Unwanted signal" are output by one RF-port.
- Both Level and C/N set for each level.
- Frequency offset set by direct input.

Two RF Ports:
The MG3710A supports two RF ports in one unit, cutting equipment costs.

Two RF Ports:

Memory A @1stRF

Memory B @1stRF

Wanted Signal

Interference Signal (CW)

Unwanted Signal

MG3710A

E-L-4

Slide 20
Receiver Performance Measurement Methods

Signal Displacement Bandwidth

Measures ability to reject signal in standard modulation state with specified offset frequency from nominal frequency

Note: For details, refer to the TIA-102 standard.

RF1 = Wanted signal (Standard Tone Test Pattern)
- Level: 6 dB above reference sensitivity
- Frequency: Shift until BER = 5%.

Expected Value: BER of 5% over at least 250 ms (2400 bits)

Limits: Minimum signal displacement bandwidth of 1000 Hz
Audio Output Distortion

Measures audio distortion factor under audio frequency load

Limits: Maximum audio output distortion shall not exceed 5% when tested at both rated audio power, and 17 dB below rated audio power.

Note: For details, refer to the TIA-102 standard.
Residual Audio Noise Ratio

Measures audio output level in three states (Tone/Silence/Mute)

- Standard Tone Test Pattern
- Standard Silence Test Pattern
- Mute (Remove SG)

RF Signal (Static)  
-47 dBm

Limits:

<table>
<thead>
<tr>
<th>Radio Application</th>
<th>Silence Pattern</th>
<th>Muted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>45 dB</td>
<td>-35 dB</td>
</tr>
<tr>
<td>Class B</td>
<td>35 dB</td>
<td>-27 dB</td>
</tr>
</tbody>
</table>

residual audio noise ratio (silence): \(20 \log_{10} \left( \frac{V_{\text{REF}}}{V_S} \right)\)

residual audio noise ratio (mute): \(10 \log_{10} \left( \frac{V_{\text{MUTE}}}{R_{\text{ROAD}}} \right)\)

Note: For details, refer to the TIA-102 standard.
Receiver Performance Measurement Methods

Average Radiation Sensitivity

Measures power received by half-wave dipole antenna

Limits:

<table>
<thead>
<tr>
<th>Frequency Range (25 MHz to 1 GHz)</th>
<th>Equipment with External Antennas</th>
<th>Equipment with Internal Antennas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>−98 dbm</td>
<td>−80 dBm</td>
</tr>
<tr>
<td>Class B</td>
<td>−95 dBm</td>
<td>−77 dBm</td>
</tr>
</tbody>
</table>

Note: For details, refer to the TIA-102 standard.
Acoustic Audio Output

Measures reading of sound level meter

Limits: This requirement applies only to units equipped with a loudspeaker.
The C weighted level measured shall not be less than
\[ 80 + 10 \log_{10} \text{(rated audio output power, in watts)} \] dB_{SPL}
Receiver Performance Measurement Methods

Bit Error Rate Floor

Measures resulting bit error rate

Expected Value: Over time interval of $\geq 10$ s (120,000 bits)

Limits: The maximum bit error rate shall be $\leq 0.01\%$.

Note: For details, refer to the TIA-102 standard.
Late Entry Unsquelch Delay

Measures the late entry unsquelch delay time.

Limits:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Maximum delay [ms]</th>
</tr>
</thead>
<tbody>
<tr>
<td>No talk group or encryption</td>
<td>125</td>
</tr>
<tr>
<td>Talk group only</td>
<td>370</td>
</tr>
<tr>
<td>Encryption only</td>
<td>370</td>
</tr>
<tr>
<td>Both (on clear or encrypted channel)</td>
<td>460</td>
</tr>
</tbody>
</table>
Receiver Performance Measurement Methods

Receiver Throughput Delay

Measures the average receiver throughput delay time.

Note: For details, refer to the TIA-102 standard.

Limits: Shall not exceed 125 ms
Receiver Performance Measurement Methods

Blocking Rejection

Measures the ratio of the level of an unwanted input signal to the reference sensitivity.

**Dual Memory:**
One RF port has two memories. Two signals are output at one RF port. The Frequency, Level and Delay-Time can be set. This is supported only by the MG3710A.

Expected Value: BER of 5%

Limits:

<table>
<thead>
<tr>
<th>Radio Application</th>
<th>Mobile</th>
<th>Portable</th>
<th>Base Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>90 dB</td>
<td>80 dB</td>
<td>90 dB</td>
</tr>
<tr>
<td>Class B</td>
<td>80 dB</td>
<td>70 dB</td>
<td>80 dB</td>
</tr>
</tbody>
</table>

**Standard Tone Test Pattern**

RF1 signal @1stRF
RF2 signal @2ndRF

Unwanted Signal (CW)

**Note:** For details, refer to the TIA-102 standard.
Receiver Performance Measurement Methods

Blocking Rejection

Two RF Ports:
The MG3710A supports two RF ports in one unit, cutting equipment costs.

Wanted Signal

Unwanted Signal (CW)

1MHz, 2MHz, 10MHz

1MHz, 2MHz, 5MHz, 10MHz

Memory B

Memory A

Memory B

Unwanted Signal (CW): Mod = Off @ 2nd RF

MG3710A supports two RF ports in one unit, cutting equipment costs.
Select SG2.  
[SG2]

Set FM conditions.  
[FM/φM]  
[F1: FM/φM Setup]  
[F1: FM] = On  
[F2: FM Deviation] = 1500 Hz  
[F3: FM Rate] = 400 Hz  
[F4: Setup FM Source]  
[F1: FM Source] = Int  
[F2: Waveform] = Sine
[Appendix] How to Set FM Signal  2/2

Set ARB for disable.
[Mode]
[F1: ARB] = Off

Set Modulation and RF output conditions.
[Menu]
[F1: FM/M Set Up] = On
[F6: Modulation] = On
[F7: RF Output] = On

Finish
Start Fading IQproducer.

[IQpro]
- Click [General Purpose] tab.
- Click [Fading] icon.

Set Fading parameter (Tx Antenna Configuration).

Click [Reference].

Select [Tone1011Hz_ov512].

(C:\Anritsu\MG3710A\User Data\Waveform \P25_Phase1-C4FM*) on MG3710A HDD

*C4FM, CQPSK, LSM or WCQPSK

Set RF Frequency (ex: 483 MHz).

Create different patterns for each evaluated frequency
[Appendix] How to Create Faded Pattern 2/2

Set Fading parameter (Channel condition).
Click [Channel 1] tab.
  Set [Fading Type] = Rayleigh.
  Set [Moving Speed] = 8 km/h or 100 km/h.
  Set [Spectrum Shape] = Flat.

Create pattern (Calculation).
Click [Calculation].
Input [Package] name.
  (ex: P25_Phase1-C4FM-Faded-483MHz)
Input [Pattern] name.
  (ex: Tone1011Hz-100kmh)
Click [OK].
## Recommended MG3710A Configuration

### Base Configuration

<table>
<thead>
<tr>
<th>Model</th>
<th>Product Name</th>
<th>One RF port</th>
<th>Two RF port</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG3710A</td>
<td>Vector Signal Generator</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MG3710A-032</td>
<td>1stRF 100 kHz to 2.7 GHz</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MG3710A-042</td>
<td>Low Power Extension for 1stRF</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MG3710A-048</td>
<td>Combination of Baseband Signal for 1stRF</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MG3710A-062</td>
<td>2ndRF 100 kHz to 2.7 GHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MX370102A</td>
<td>TDMA IQproducer</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Additional Recommended Options

| Model          | Product Name                              | Note                                                                 |
|----------------|-------------------------------------------|                                                                     |
| MG3710A-002    | High Stability Reference Oscillator       | Aging Rate: $\pm 1 \times 10^{-7}$/year, $\pm 1 \times 10^{-8}$/day |
| MG3710A-043/073| Reverse Power Protection                  | Protects signal output connector against reverse input power. 20W@<2GHz (Standard 2 W nominal) |
| MG3710A-045/075| ARB Memory Upgrade 256Msample             | Upgrades ARB size to 256 Msamples (1 GB)                            |
| MX370107A      | Fading IQproducer                         | Create Faded signal                                                 |

**Required for Reference Sensitivity (Faded)**
Note