

# Field application

**MG3700A**  
Vector Signal Generator

# Application Note ~ Field application ~

Anritsu Corporation

# MG3700A

## Vector Signal Generator



November 2012  
(2.00)

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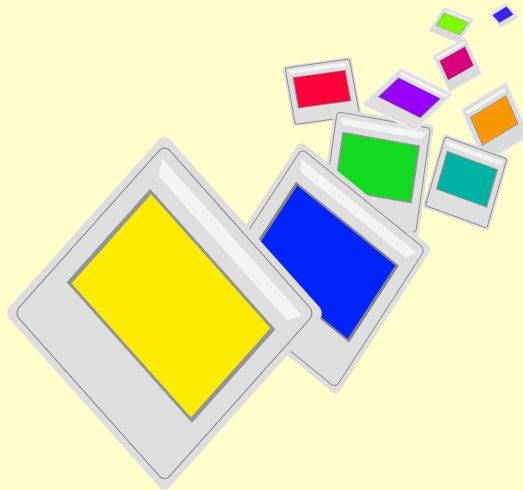
Slide 1

MG3700A-E-F-7

**Anritsu**

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# Introduction

- **MG3700A has features suitable for field application.**
  - » Lightweight
    - $\leq 15$  kg
  - » high-intensity large-screen color LCD
    - 8.4 inch TFT
  - » Long-term stable internal reference oscillator with faster warm-up stability
    - OCXO (standard)
    - Frequency is stabilized at mere 5 minutes after power-on
- **This document presents these important points:**
  - » Internal HDD
  - » Temperature range
  - » Output level accuracy
  - » EVM

# Internal HDD

**MG3700A has an internal hard disk (HDD). The HDD is vulnerable to environmental changes such as shock, vibration, and temperature that may cause the recorded data to be lost. Therefore, please take care regarding the following:**

» Installation

- Don't block the internal cooling fan vent on the rear panel.
- Install in the horizontal place where neither vibration nor shock occurs.
- Don't install in a place where rapid temperature changes are likely to happen.
  - A rapid temperature change can cause dew condensation.

» Operation

- Don't allow vibration or shock.
  - The Shock tolerance complies with MIL-T-28800E.
- Don't pull out the power supply connector.
  - The HDD is rotating at high-speed when the power is on.

» Moving

- Turn off the power.
  - The HDD continues rotating for about 2 minutes after power-off, so don't move the MG3700A until the HDD stops.
- Don't allow vibration or shock.
  - The vibration tolerance complies with MIL-STD-810D.

# Vibration and shock tolerance

- **Vibration tolerance**

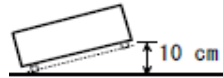
- » MIL-STD-810D compliance

- Power-off
- Random vibration that simulates the transportation conditions
  - Mutually-perpendicular 3 axes direction: 60 minutes per axis

- **Shock tolerance**

- » MIL-T-28800E compliance

- Power-on
- Free fall after raising a side edge 10 cm: 4 side edges



# HDD maintenance

- **Regularly backup HDD**
  - » Periodic backup of custom files is recommended using the "IQproducer" standard accessory.
- **Please exchange HDD promptly when abnormalities are detected.**
  - » The user can exchange it inside the rear panel on-site.

- **HDD for exchange**

G0141(Optional accessory)

HDD ASSY assembly

- 2.5 inch for notebook PC
- The files at MG3700A delivery is saved.

Be careful not to damage the connection pins when inserting HDD.



# Temperature range

- **Operating temperature**
  - » +5 to +45 °C
    - LCD: 0 to +60 °C
    - HDD: +5 to +55 °C
      - Designed with internal temperature rise  $\leq 10$  °C
- **Storage temperature**
  - » -20 to +60 °C



# Output level accuracy



- **Electronic attenuator**

- standard
- » Absolute accuracy
  - CW,  $23 \pm 5 \text{ }^\circ\text{C}$

Power p [dBm]	Frequency f [Hz]		
	$250 \text{ k} \leq f < 25 \text{ M}$	$25 \text{ M} \leq f \leq 3 \text{ G}$	$3 \text{ G} < f \leq 6 \text{ G}$
$+3 < p \leq +6$	/	$\pm 0.5 \text{ dB}$	/
$-1 < p \leq +3$	/		$\pm 0.8 \text{ dB}$
$-120 \leq p \leq -1$	$\pm 0.5 \text{ dB typ}$	$\pm 0.7 \text{ dB}$	$\pm 2.5 \text{ dB typ}$
$-127 \leq p < -120$	/		
$-136 \leq p < -127$	/	$\pm 1.5 \text{ dB typ}$	/

- **Mechanical attenuator**

- option

Power p [dBm]	Frequency f [Hz]		
	$250 \text{ k} \leq f < 25 \text{ M}$	$25 \text{ M} \leq f \leq 3 \text{ G}$	$3 \text{ G} < f \leq 6 \text{ G}$
$+7 < p \leq +10$	$\pm 0.5 \text{ dB typ}$	$\pm 0.5 \text{ dB}$	/
$-100 \leq p \leq +7$			$\pm 0.8 \text{ dB}$
$-120 \leq p < -100$			$\pm 1.0 \text{ dB}$
$-127 \leq p < -120$	/	$\pm 0.7 \text{ dB}$	$\pm 2.5 \text{ dB typ}$
$-136 \leq p < -127$	/	$\pm 1.5 \text{ dB typ}$	/

- Temperature performance of accuracy

- Design guarantee (Theoretical value)

$250 \text{ k} \leq f \leq 3 \text{ G}$	$3 \text{ G} < f \leq 6 \text{ G}$
$\pm 0.03 \text{ dB}/^\circ\text{C}$	$\pm 0.04 \text{ dB}/^\circ\text{C}$

$250 \text{ k} \leq f \leq 3 \text{ G}$	$3 \text{ G} < f \leq 6 \text{ G}$
$\pm 0.01 \text{ dB}/^\circ\text{C}$	$\pm 0.02 \text{ dB}/^\circ\text{C}$

- » Relative accuracy for I/Q modulation to CW

$\pm 0.2 \text{ dB}$	$50 \text{ M} \leq f \leq 3 \text{ GHz}$	$3 \text{ G} < f \leq 6 \text{ GHz}$
	$p \leq +2 \text{ dBm} - x$	$p \leq -1 \text{ dBm} - x$

$\pm 0.2 \text{ dB}$	$50 \text{ M} \leq f \leq 3 \text{ GHz}$	$3 \text{ G} < f \leq 6 \text{ GHz}$
	$p \leq +7 \text{ dBm} - x$	$p \leq +4 \text{ dBm} - x$

- $x = 20 \times \log_{10}(1634/\text{RMS value of pattern})$

# EVM

**EVM performance varies according to operating temperature.**

- **W-CDMA**

- »  $EVM \leq 2\%$  rms
- »  $EVM \leq 1\%$  rms typ
  - $23 \pm 5\text{ }^{\circ}\text{C}$ 
    - $\leq -1\text{ dBm}$ : Electronic attenuator (standard)
    - $\leq +3\text{ dBm}$ : Mechanical attenuator (option)
    - 800 M to 1 GHz, 1.8 G to 2.4 GHz
    - Downlink 1 code

- **WLAN**

- »  $EVM \leq 1\%$  rms
  - $23 \pm 5\text{ }^{\circ}\text{C}$ 
    - $\leq -4\text{ dBm}$ : Electronic attenuator (standard)
    - $\leq +0\text{ dBm}$ : Mechanical attenuator (option)
    - 2.4 G to 2.497 GHz, 4.9 G to 5.925 GHz
    - IEEE802.11a/g OFDM
- »  $EVM \leq 5\%$  peak
  - $23 \pm 5\text{ }^{\circ}\text{C}$ 
    - $\leq -4\text{ dBm}$ : Electronic attenuator (standard)
    - $\leq +0\text{ dBm}$ : Mechanical attenuator (option)
    - 2.4 G to 2.497 GHz
    - IEEE802.11b/g DSSS, CCK

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