EMC Instruments Co.,Ltd.

Operation Manual

CG10L10100R

Comb Generator

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I. General Information

1. SMA connector:

The CG10L10100R functions as a reference signal source tailored for generating a wideband radiation output, supporting frequencies up to 6 GHz while being powered by batteries. This versatile device serves multiple purposes, including acting as a reference source for measurements or calculations in unknown systems. It is adept at verifying the accuracy of radiated sites and evaluating the shielding effectiveness of small shielded boxes.

The CG10L10100R features a 50Ω SMA female output connector, allowing direct measurement for conducted tests. Alternatively, an external antenna can be installed at the SMA output connector for radiated test systems.

2. AC socket output:

The Power inlet for generating conducted output to provide quickly and very easily checking the accuracy of EMC conducted emission test system.

II. Shipping List

1. CG10L10100R Unit
2. Antennas
3. Charger Adapter CE Eligibility Criteria
4. USB Cable
5. Adapter SMA Male-BNC Female
6. Operation Manual
7. Storage Box

Figure 2-1 CG10L10100R Comb Generator and Accessories

III. Specifications

AC socket output	IEC 320-C14 AC Power Inlet
Frequency range	10kHz~30MHz
Frequency step size	10kHz,500kHz 10k/500kHz switchable
Maximum Mains Voltage range of LISN	240VDC or 240Vac, 60Hz
SMA output connector	SMA female
Frequency Range	30MHz - 1GHz (10MHz/Step) 100MHz - 1GHz (100MHz/Step) 1GHz - 6GHz (100MHz/Step)
Frequency Step Size	10MHz / 100MHz Step Switchable
RF Connector	SMA Female
Battery Type	Lithium-ion Rechargeable Battery
Battery Capacity	3.6V/6000mAh
Charging Input	DC 5V/800mA
Charging Time	8 - 10 Hours
Usage Time	16 hours
Charging Connector	Mini USB Socket
Charger Adapter	Input: 100 - 240 Vac / 50Hz - 60Hz, 0.3A Output: 5V DC, 2A max
Length	120 mm
Wide	82 mm
Height	96 mm, including connector
Height	250 mm, including antenna
Weight	1 kg

IV. Operation

1. Battery Charging

Prior to utilizing the field reference source, it is necessary to charge the internal batteries. A recommended minimum charge time of 8 hours is advised.

CAUTION: Ensure that the Power switch is in the OFF position during charging.

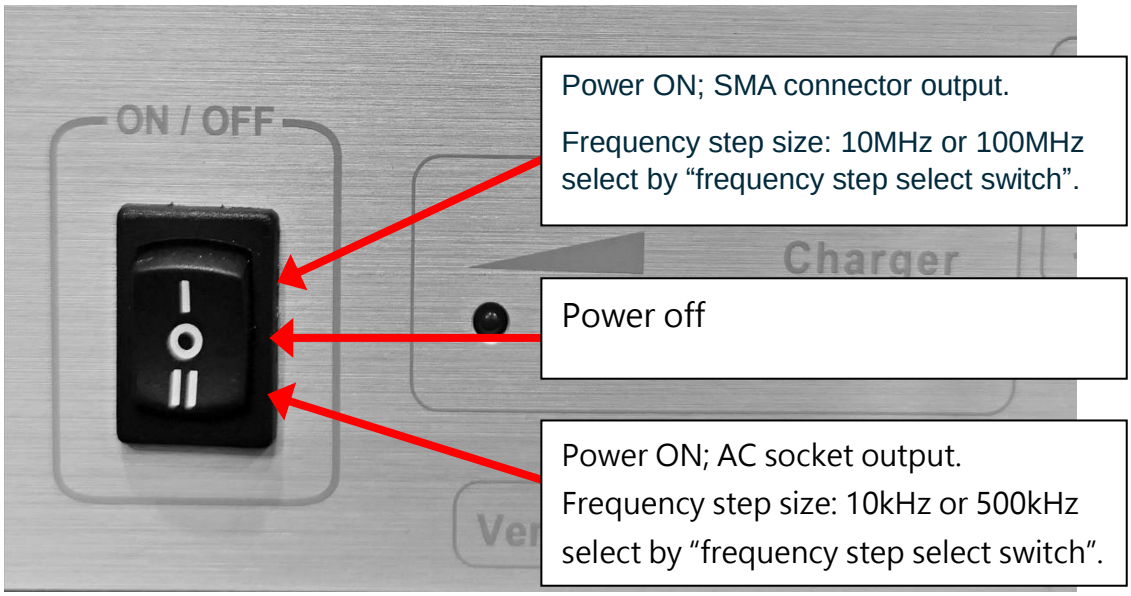
CAUTION: The charger input for the CG10L10100R must not exceed 5.5V DC.

2. General Operation

a. Power On Switch

The switch is used to turn the unit's power on or off.

Before powering on, ensure that the **antenna or signal reception equipment** has been properly **connected**.



b. Power On Indicator

When the Power On indicator LED is illuminated, the Comb Generator is ready for use.

When 3 LEDs are illuminated, the battery level is in the range of 70~100%.

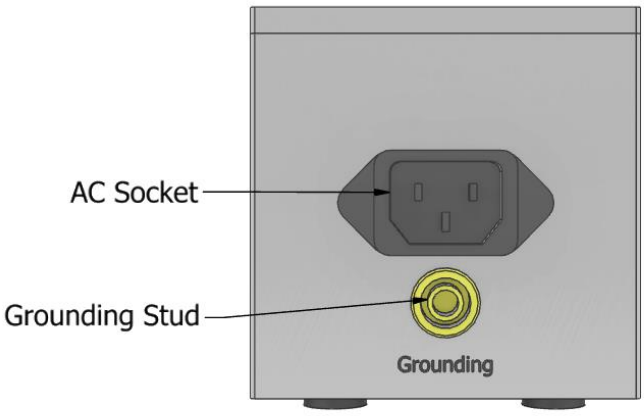
When 2 LEDs are illuminated, the battery level is in the range of 40~70%.

When 1 LED is illuminated, the battery level is in the range of 20~40%.

If only one LED is lit upon powering on, the battery level is within the range of 20~40%. In this case, please recharge the CG10L10100R unit. If all LEDs are not illuminated at power-on, indicating a critically low battery, immediate recharging of the CG10L10100R unit is required.

The LED will flash during the CG10L10100 charging process and will remain fully lit once the battery has been completely charged.

c. LISN test mode (10kHz ~ 30MHz)



d. Vertical Mode and Horizontal Mode (30MHz ~ 1GHz)

- Extend the last segment of Antenna in order to increase radiated Field strength, especially in the frequency range of 30MHz to 80MHz.

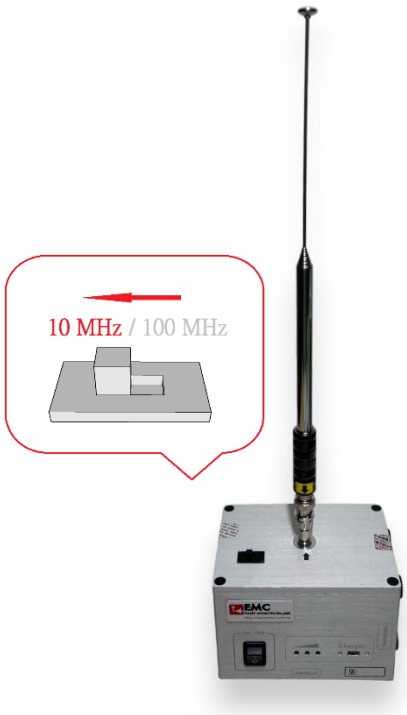


Figure 4-1 Vertical polarization

Figure 4-2 Horizontal polarization

- Frequency:1GHz to 6GHz with 5cm antenna

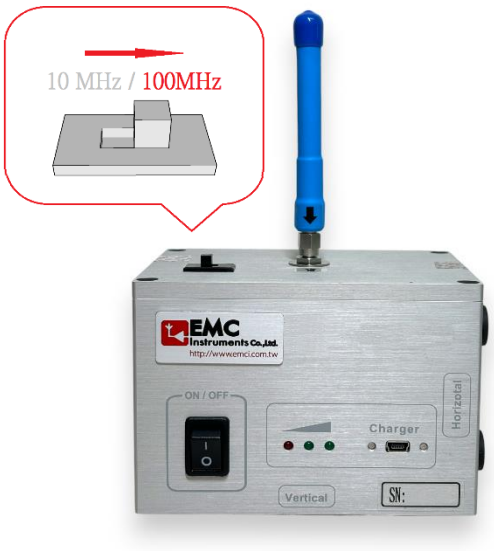


Figure 4-3 Vertical polarization

Figure 4-4 Horizontal polarization

e. Recommends of Site Validation

The CG10L10100R Comb generator is suitable for validating test sites and conducting daily checks. To minimize measurement deviations, it is essential to maintain consistent test setups and installations, taking into account the following considerations:

- The antenna should be installed at the same position and orientation for each test.

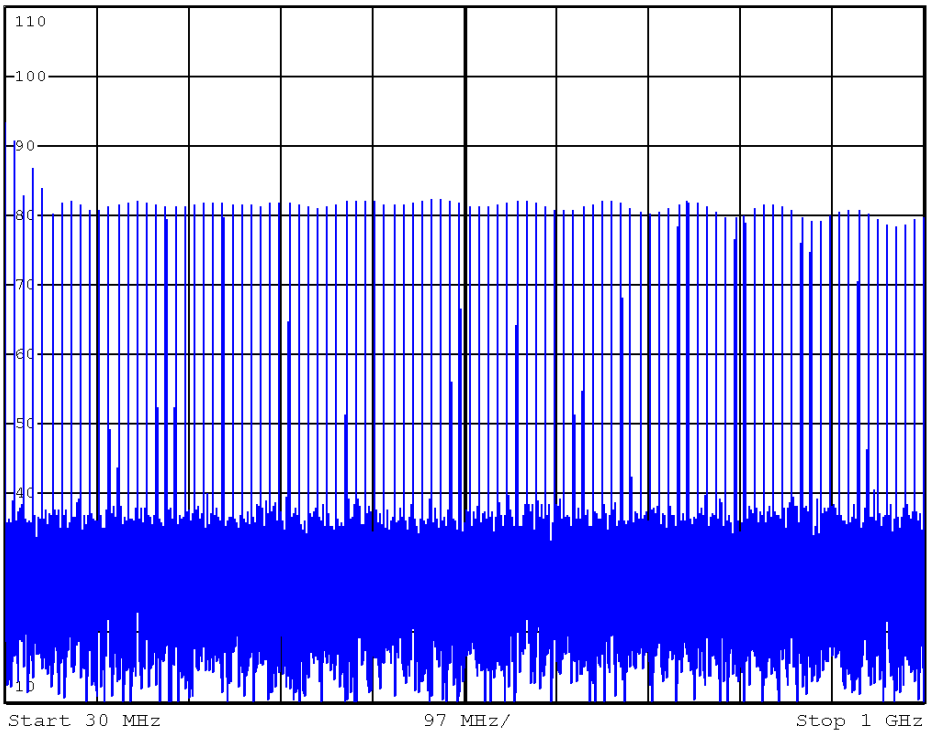
- Ensure that the position and orientation of the CG10L10100R remain consistent in each test setup. For instance, mark both the test table and Comb generator, using these marks to align them at the same position and orientation.
- Ensure a secure connection by tightly twisting the antenna connector for CG10L10100R into place.
- Avoid testing at low battery status.

f. Output Connection

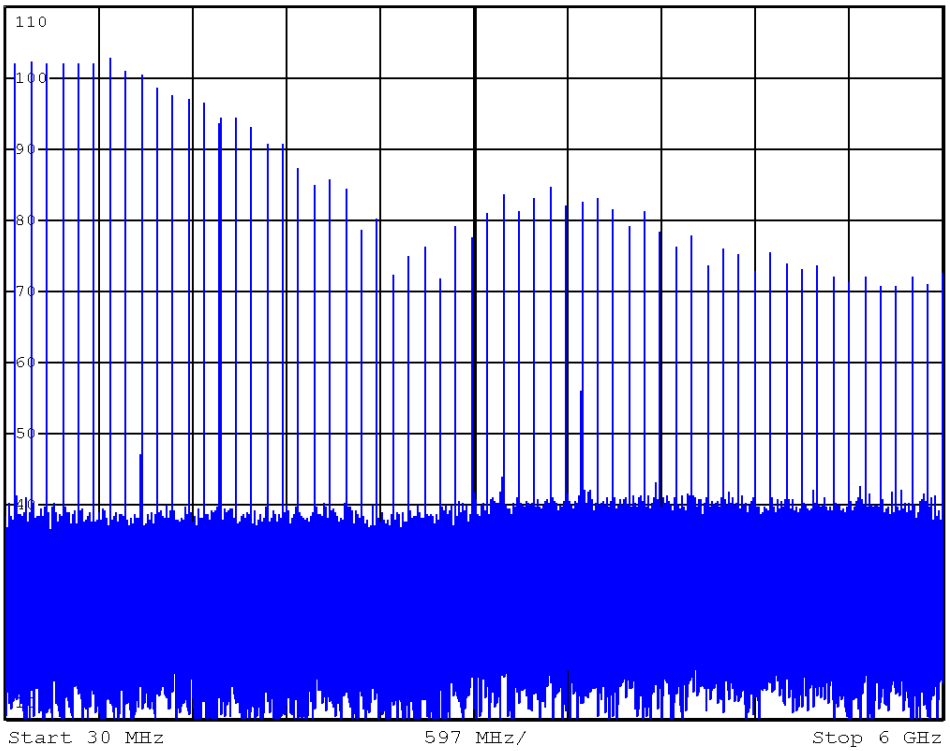
The CG10L10100R is equipped with a female SMA connector on the top panel, where achieving a matching impedance to a 50Ω system is crucial. It is recommended to use an SMA pad or attenuator to minimize impedance mismatches across the frequency range.

V. General data

SMA output direct measurement, frequency step: 10MHz (RBW=100kHz, VBW=100kHz)

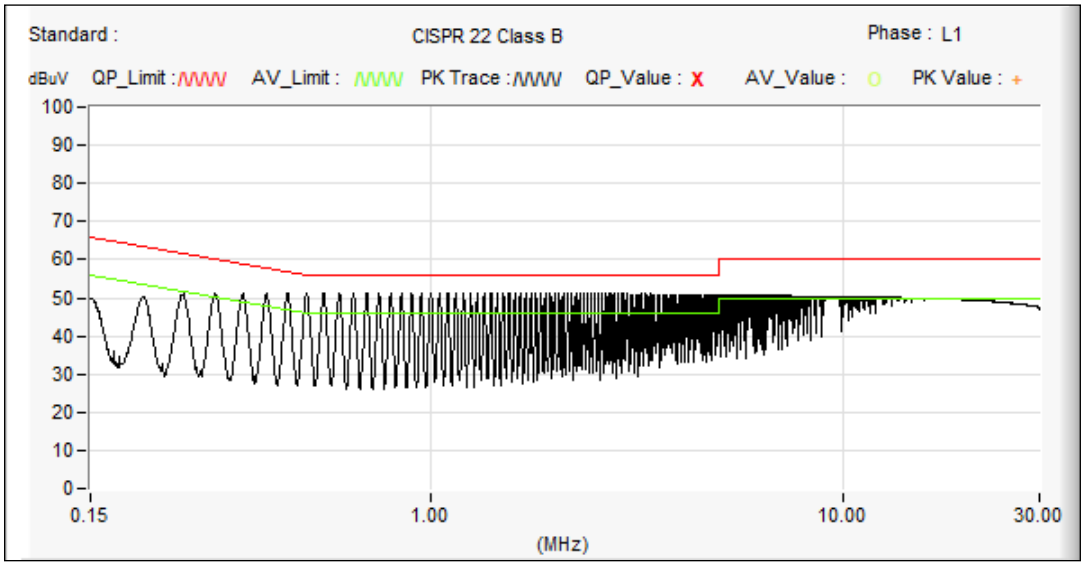


SMA output direct measurement, frequency step: 100MHz (RBW=100kHz, VBW=100kHz)



AC socket output measurement via LISN

LISN, frequency step: 50kHz (RBW=10kHz, VBW=10kHz)



LISN, frequency step: 500kHz (RBW=10kHz, VBW=10kHz)