

## CGE03 – Comb Generator Emitter



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A reference noise source with a comb output characteristic generating emissions up to 40GHz with 900MHz or 1GHz step size options. Output is via a 2.9mm connector for use with external antennas.

- Stable output
  - ✓ Repeatable measurements
- Conducted output, radiated output with external antenna
  - ✓ Evaluation of both conducted and radiated systems
- 900MHz to 40GHz output
  - ✓ Applications across a broad, high frequency spectrum
  - ✓ Applicable to harmonics of high frequency systems
- Compact and portable
  - ✓ Comparisons between sites and environments
  - ✓ Shielding effectiveness measurements even of small enclosures
- Battery powered
  - ✓ No power or interconnecting cable effects on measurements

The CGE03 is a broadband comb generator emitter with a best in class useable output from 900MHz to 40GHz. In contrast to the comparison noise emitters (CNE), the comb generator approach has been adopted because it lends itself more to higher frequency applications. At higher frequencies the comb spectrum gives a higher output at specific frequencies which enable measurements to be made at those frequencies. It also allows a much smaller physical construction due to reduced power consumption enabling it to be used for shielding effectiveness measurements on small enclosures.

### Radiated Emissions

CGE03 can be used as a reference source for radiated emissions by attaching appropriate antennas to the output. The unit is battery powered so that it can be operated as an independent source without the effect of power cables, which would modify the fields generated. Additionally though, for making measurements of small enclosures, the actual emitter can be separated from the battery pack and operated remotely via a cable carrying only DC power. The CGE is housed in a plated metal cylindrical enclosure, thus ensuring uniformity of the field and can be orientated to give vertical or horizontal polarisation

### Conducted emissions

The CGE03 is supplied with a 50Ω 2.9mm connector allowing it to be used either for the investigation of conducted systems or to be used with an external antenna. The known output allows unknowns within systems or components to be measured or calculated.



### Applications

- Shielding effectiveness of small enclosures:
  - Desktop PC's
  - Servers
  - Wireless comms equipment
- Radiated measurement systems validation and verification
- Reference source for:
  - Daily pre-test checks
  - Long-term performance monitoring
  - Spectrum analyser/receiver pre-check
- Investigation of reverberation (mode stirred) chamber behaviour
- Characterisation of filter performance
- Cable loss measurements
- Measuring amplifier gain and bandwidth

## Specifications

Frequency Range	900MHz to 40GHz direct connection into a 50 $\Omega$ system Radiated emissions via connection to an external antenna.
Step Size	900MHz or 1GHz switchable
Output connector	50 $\Omega$ 2.9mm socket
Temperature stability	15°C to 35°C <2dB
Time stability	Typically <1dB over a 12 month period
Dimensions	76mm diameter x 96mm (102mm including connector) – CGE03C with battery pack 76mm diameter x 50mm (56mm including connector) – CGE03C without battery pack
Weight	Approx 0.75kg (including battery)
Power supply:	5V 2Ahr battery pack. External input 5.00V $\pm$ 0.25V, 500mA
Operating time	4 hours typical with fully charged battery pack.
Indicators	Active, lower step size – green LED Active, higher step size – red LED

## Standard Order Kits

Part Number	Description	Parts Included
CGE03KIT01	Standard CGE03C comb generator emitter (conducted output) kit with battery charger	<ul style="list-style-type: none"> <li>● CGE03C conducted reference signal source</li> <li>● BP01 rechargeable battery pack</li> <li>● Universal input battery charger</li> <li>● Hard case</li> <li>● Standard test CAL15</li> </ul>

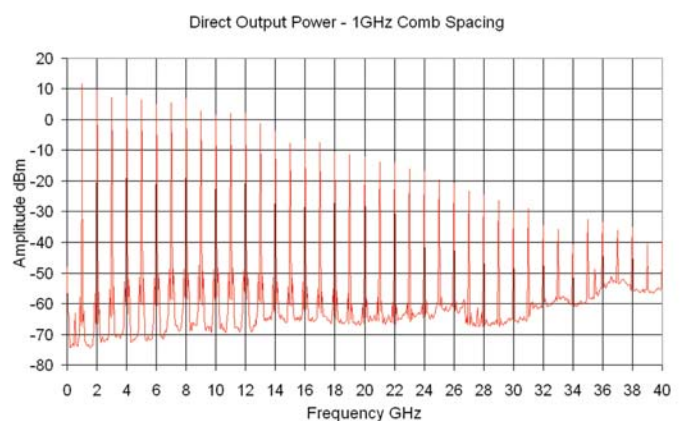
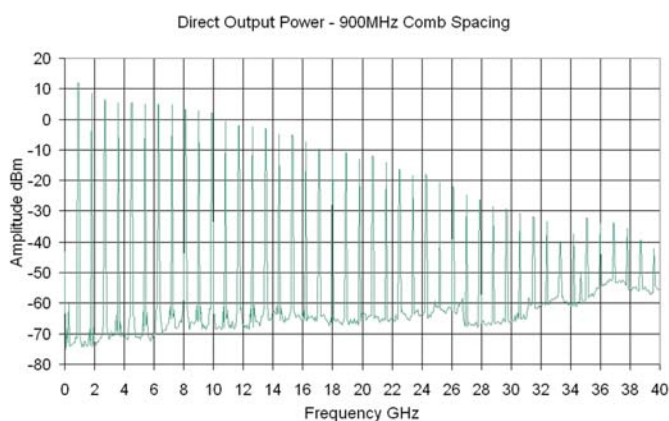
## Accessories

Battery pack	BP01	5V 2Ahr battery pack
Antennas	MCN01	Detachable monocone antenna optimised 1-26GHz

## Output Measurement Results

Direct output	CAL15	0 to 40GHz power measurement using spectrum analyser
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## Typical Output Measurement Results



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