

## CGE02 – Comb Generator Emitter



## CGE02 – Comb Generator Emitter

A harmonic spectrum reference signal source with a comb output characteristic generating radiated and conducted emissions up to 26GHz with 250 or 256MHz step size options.

- Stable output
  - ✓ Repeatable measurements
- Conducted and radiated output options
  - ✓ Evaluation of both conducted and radiated systems
- 250MHz to 26GHz 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 CGE02 is a broadband comb generator emitter with a class leading useable output from 250MHz to 26GHz. 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

Available either with an integral monocone antenna or with a detachable monocone antenna the CGE02 can be used as a reference source for radiated emissions. The unit is battery powered so that it can be operated as an independent source without the effect of power or interconnecting 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. Additionally external antennas can be attached to the output when required.

### Conducted emissions

The CGE02C is supplied with a 50Ω SMA 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 if required by the accreditation authorities
  - 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	250MHz to 26GHz direct connection into a 50Ω system 250MHz to 26GHz radiated using an integral antenna
Step Size	250 or 256MHz switchable
Output connector	50Ω SMA socket
Temperature stability	15°C to 35°C <1dB
Time stability	Typically <1dB over a 12 month period
Dimensions	76mm diameter x 64mm (74mm including connector) – CGE02C with battery pack 76mm diameter x 18mm (28mm including connector) – CGE02C without battery pack 76mm diameter x 92mm – CGE02R with battery pack 76mm diameter x 46mm – CGE02R without battery pack
Weight	0.55kg (including battery)
Power supply:	5V 2Ahr battery pack. External input 5.00V ± 0.25V, 300mA
Operating time	6.5 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**  
CGE02KIT01



**Description**

Standard CGE02C comb generator emitter (conducted output) kit with battery charger

**Parts Included**

- CGE02C conducted reference signal source
- BP01 rechargeable battery pack
- Universal input battery charger
- Hard case
- Standard test CAL14

**Part Number**  
CGE02KIT02



**Description**

Standard CGE02R comb generator emitter (radiated output) kit with integral monocone antenna and battery charger

**Parts Included**

- CGE01R radiated reference signal source with integral antenna
- BP01 rechargeable battery pack
- Universal input battery charger
- Hard case
- Standard test CAL10

**Part Number**  
CGE02KIT03



**Description**

Enhanced, CGE02C comb generator emitter (conducted output) kit with detachable monocone antenna and battery charger

**Parts Included**

- CGE02C conducted reference signal source
- MCN01 detachable monocone antenna optimised 1–26GHz
- BP01 rechargeable battery pack
- Universal input battery charger
- Hard case
- Standard test CAL14

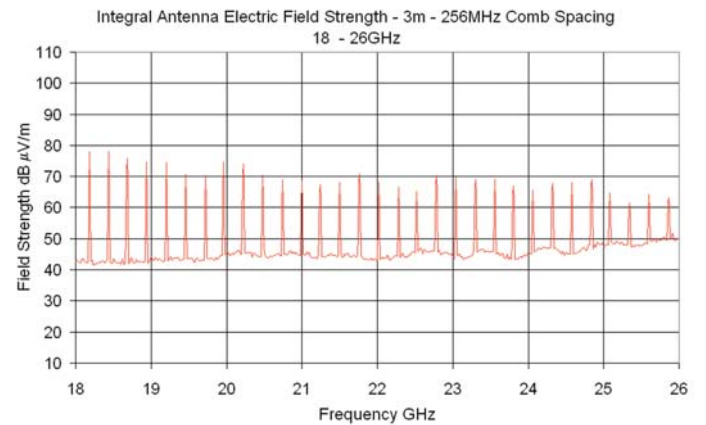
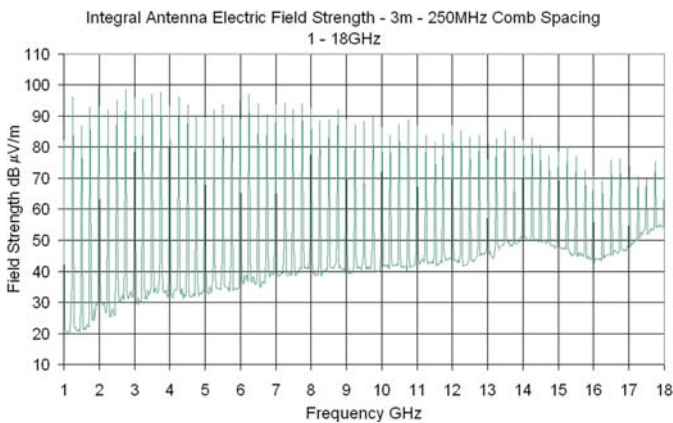
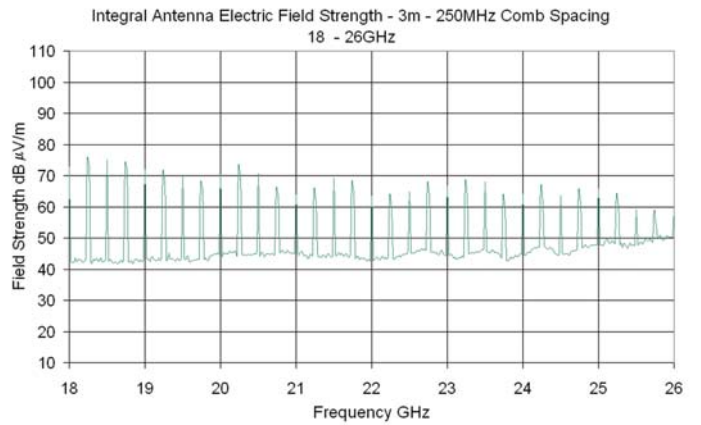
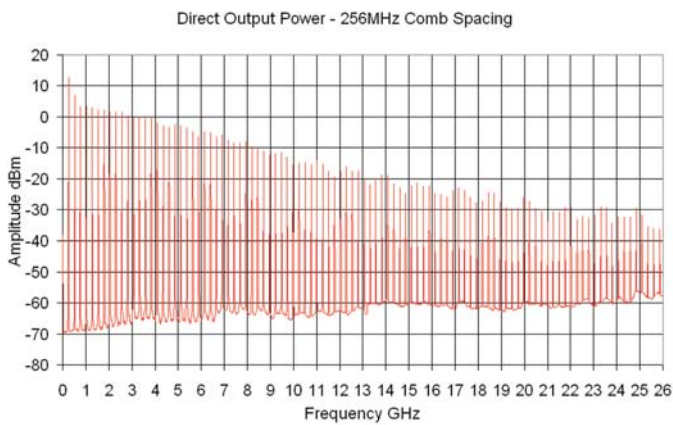
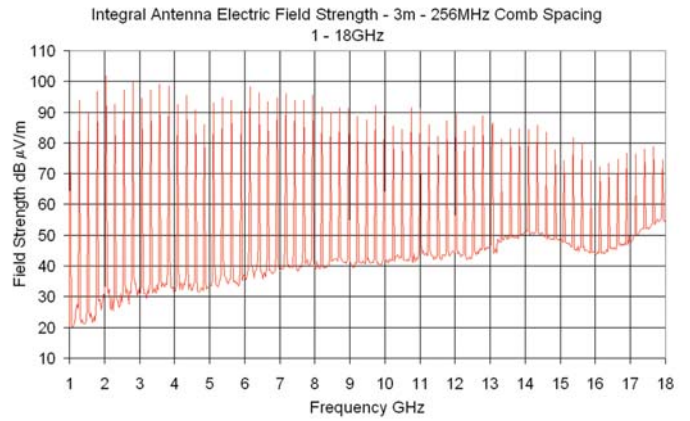
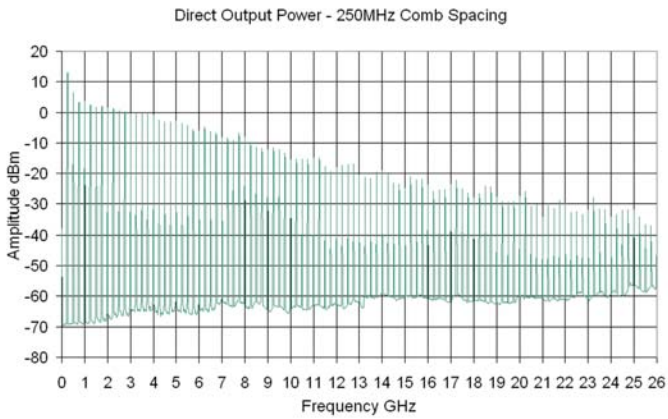
## Accessories

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

## Output Measurement Results

Direct output	CAL14	0 – 26GHz power measurement using spectrum analyser
Radiated output	CAL10	1 to 26GHz electric field strength in FAR using a spectrum analyser at 1m

## Typical Output Measurement Results



*York* **EMC** Services Ltd

York EMC Services Ltd,  
The University of York,  
Heslington, YORK, YO10 5DD, UK.  
Tel +44 (0)1904 434440  
Fax +44 (0)1904 434434  
Email [enquiry@yorkemc.co.uk](mailto:enquiry@yorkemc.co.uk)  
[www.yorkemc.co.uk/instrumentation](http://www.yorkemc.co.uk/instrumentation)