



Electrical &
Electronics

CGE04

18 GHz Comb Generator Emitter

Product Technical Information

Comb Generator Emitter CGE04

The CGE04 is a broadband reference comb source producing signals within the 100 MHz to 18 GHz frequency range. The CGE04 updates and replaces the older CGE01 comb source.

The CGE04 is designed for the purpose of performing checks on fully- or semi-anechoic chambers, and other similar test environments. It is equipped with a precision SMA output connector to which an antenna (optional) can be fitted for generating radiating E-fields. The CGE04 is housed in a metal enclosure so that it can be mounted in direct electrical contact with a ground plane, as may be required by some tests.

The CGE04 is compact and can be run from a 9 – 18 V_{DC} PSU01 power adapter. To minimise cable effects when characterising an electromagnetic environment, it can also be run independently using a PPU01 NiMH battery pack.

The comb signal allows both reference and noise floor signal levels to be viewed simultaneously, aiding dynamic range measurements.



CGE04 and BP01 battery pack

Features

- **100 MHz to 18 GHz output**
 - Applications across a broad spectrum
- **Stable output**
 - Repeatable measurements
- **Selectable comb output frequency**
 - Flexibility across a range of applications
- **Compact and portable**
 - 56 x 17.5 x 72 mm
- **PPU01 battery or external power supply**
 - No power cable effects when using the PPU01
 - Continuous operation using the external 18 V_{DC} power adapter

Applications

- **Conducted and radiated measurement systems validation and verification**
- **Investigation and characterisation of different measurement environments such as fully- or semi-anechoic chambers**
- **Reference source for:**
 - Daily pre-test checks as required by accreditation authorities e.g. ISO 17025, DEF_STAN 59-411
 - Comparisons between test sites
 - Long-term performance monitoring
 - Investigation of screened room behaviour
 - Cable loss measurements
- **Evaluating component assembly characteristics e.g. filter loss, amplifier gain and bandwidth**
- **Spectrum analyser or receiver pre-checks**
- **Shielding evaluation**

Specifications

Performance

Frequency Range	Conducted	100 MHz to 18 GHz direct connection into 50 Ω system	
	Radiated	1 GHz to 18 GHz radiated using MCN02 monocone antenna	
Output Level	Conducted	50 dB μ V min. into 50 Ω system for $\geq$ 90% of combs up to 18 GHz	
Comb signal step size	Comb mode 1	100 MHz base frequency	100 MHz, 200 MHz, ... 18 GHz
	Comb mode 2	106.25 MHz base frequency	106.25 MHz, 212.5 MHz, ... 17.95625 GHz
Stability	Amplitude	15°C to 30°C	<+/- 1 dB, 100 MHz to 18 GHz,
		5°C to 40°C	<+/- 1.5 dB, 100 MHz to 18 GHz
	Frequency	5°C to 40°C	<+/- 30 ppm max, <+/- 10 ppm typ.
	Time	<1 dB (typical over a 12-month period)	
Operating time	Battery powered	7.5 hours typical with fully charged PPU01	

Other

Output connector		50 Ω precision SMA jack
Dimensions	CGE04	56 mm x 17.5 mm x 65 mm (72 mm including connector)
	With PPU01	80 mm diameter x 65 mm (72 mm including connector)
Weight	CGE04	0.1 kg
	With PPU01	0.65 kg
Power supply		9 – 18 V _{DC} , 0.5 A max
Indicator	Blue	Active, Comb mode 1
	Green	Active, Comb mode 2
	Red	Low battery / supply error
Controls	3-way switch	Comb mode 1 OFF Comb mode 2

Accessories

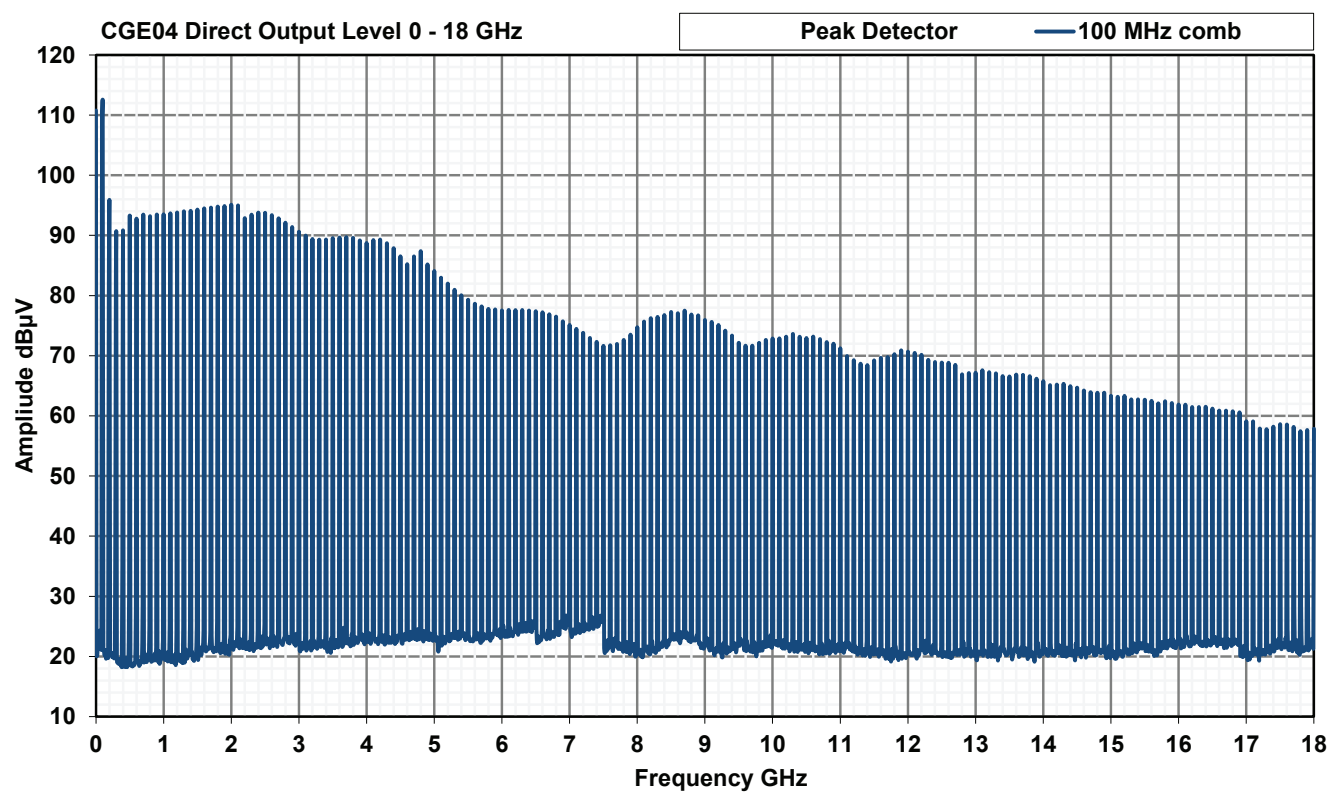
MCN02-SMA	Detachable monocone antenna (1 GHz to 18 GHz optimum when used with CGE04)
BP01	5 V 2 AHr detachable battery pack

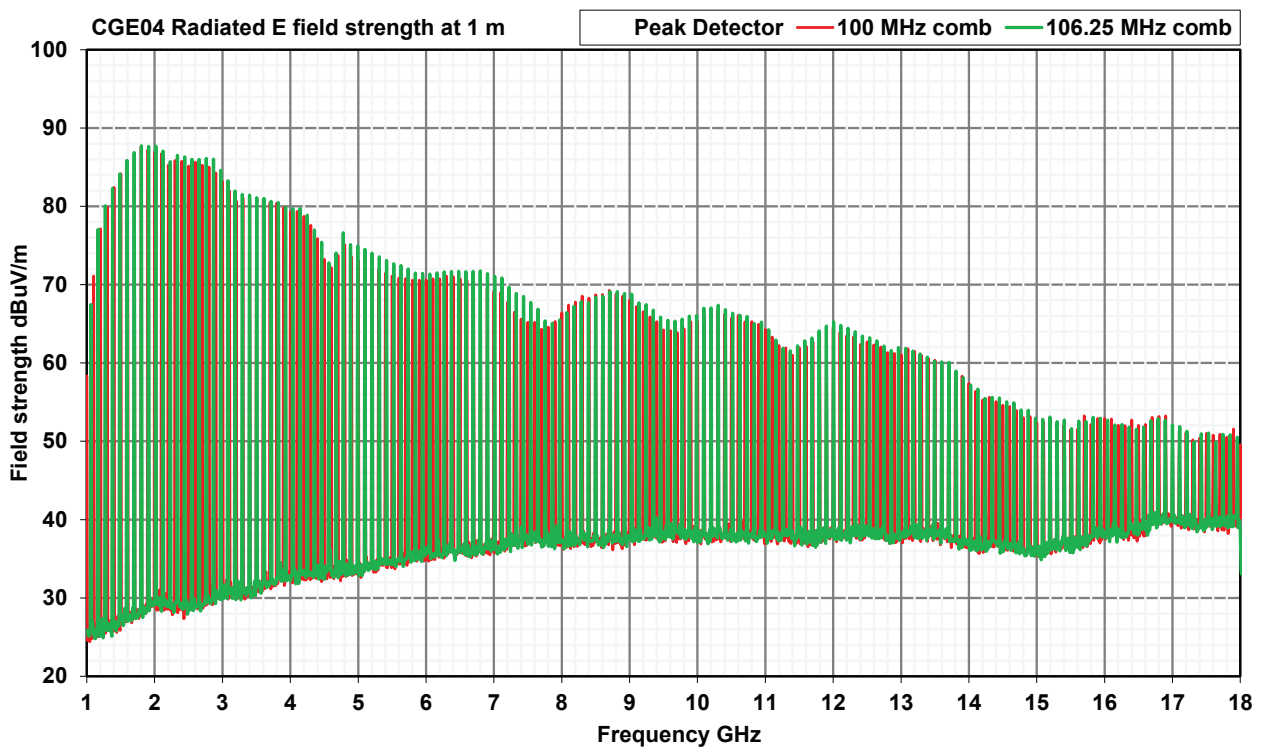
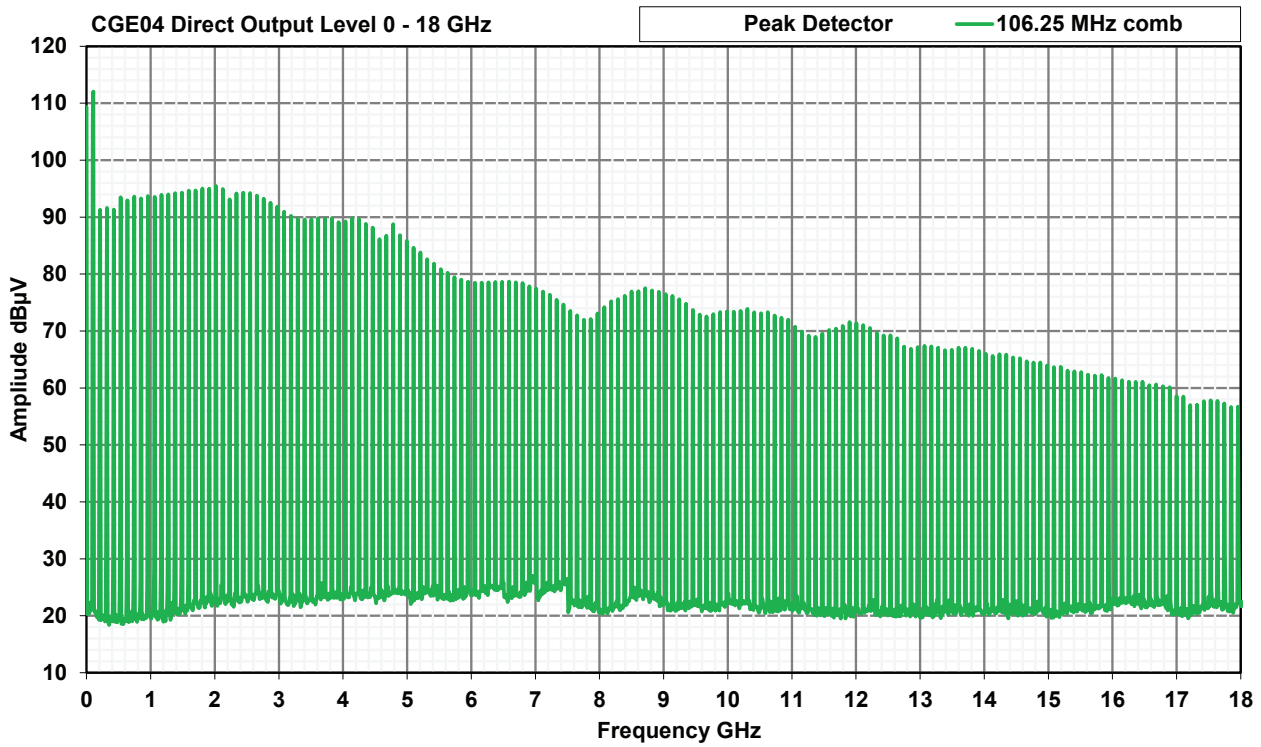
Standard kits :

Part Number	Description	Parts included
CGE04KIT01	Standard CGE04 reference source kit	CGE04 comb generator emitter PPU01 Portable Power Unit PSU01 18 V _{DC} mains power adapter Hard case Manufacturer's test certificate
CGE04KIT02	Standard CGE04 reference source kit plus antenna	CGE04 comb generator emitter PPU01 Portable Power Unit PSU01 18 V _{DC} mains power adapter Hard case Manufacturer's test certificate MCN02-SMA 1 GHz to 18 GHz detachable monocone antenna CAL13 - conducted power output measurement, 0 GHz to 18 GHz

Comb Generator Emitter: CGE04

Typical output measurement results





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