CNE III – Comparison Noise Emitter

Product Technical Information

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The industry standard reference noise source offering continuous radiated and conducted outputs up to 3.5GHz.

- Continuous, broadband output
  - ✔ Full spectrum measurements and analysis
- Stable output
  - ✔ Repeatable measurements
- Conducted and radiated output options
  - ✔ Evaluation of both conducted and radiated systems
- 9kHz to 3.5GHz output
  - ✔ Applications across a broad frequency spectrum
- Compact and portable
  - ✔ Comparisons between sites and environments
- Battery powered
  - ✔ No power or interconnecting cable effects on measurements

Radiated Emissions

The CNE III is a broadband noise source which provides continuous output power from 9kHz to 3.5GHz. The broadband nature of the output enables the observation of details within the spectrum which would be missed with a comb generator. For radiated operation three monopole antennas, optimised for different bands of the spectrum, are available which attach to the top of the unit. The CNE III is an ideal source for carrying out checks on open area test sites (OATS) and anechoic chambers.

The CNE III is battery powered to allow operation as an electrically small source which minimises the effect of the structure of the CNE III itself when characterising the electromagnetic environment. Conversely, if desired, cables may be attached to the earth stud or the RF output to allow characterisation and investigation of the effects of changes in the wiring layout on measurements. The CNE III is housed in a metal box so that it can be mounted in direct contact with a metal ground plane as may be required by some tests. The power output level of the unit avoids the overloads possible with impulsive noise sources which may cause damage to the sensitive input circuits of receiving equipment.

Conducted emissions

In the same way that using the CNE III with an antenna can be used to check radiated measurement systems, an N-type connector provides a direct 50Ω matched output which can be used to carry out checks on conducted measurement systems. An adaptor is available (LSA02) which provides a capacitive link from the output of the CNE to a standard IEC 320 mains power connector. This allows checks and investigations on conducted measurement systems to be made, for example using a LISN or an absorbing clamp.

Applications

- Comparisons between different measurement environments such as OATS or anechoic chambers
- Radiated and conducted measurement systems validation and verification. Reference source for:
  - Daily pre-test checks as required by the accreditation authorities e.g. ISO17025
  - Long-term performance monitoring
  - Cable position investigation
- Investigation of screened room behaviour
- Characterisation of filter performance
- Cable loss measurements
- Spectrum analyser/receiver pre-check

Specifications

Frequency Range	9kHz to 3.5GHz direct connection into 50Ω system (usable to 5GHz) 30MHz to 3.5GHz radiated using TLM01, TLM02, MCN01 antennas
Output connector	50Ω N-type socket
Temperature stability	15°C to 30°C <+/-1dB 500kHz to 3.5GHz, 5°C to 40°C <+/-2dB 9kHz to 5GHz
Time stability	Typically <1dB over a 12 month period
Power off timer	Continuous operation or variable between 15 and 135 minutes in 15-minute steps.
Dimensions	206mm x 120mm x 80mm not including antenna
Weight	1.3kg (excluding battery)
Power supply:	2 x C-type cells. Alkaline or rechargeable
Operating time	12 hours typical with alkaline cells
Indicators	Power on – green LED Battery low, timeout – red LED

Standard Order Kits

Part Number	Description	Parts Included
CNEIIIKIT01	Standard CNE III comparison continuous noise emitter kit with antenna and LISN adaptor	• CNE III noise source • 200MHz to 1GHz (optimum) 100mm long top-loaded monopole antenna – TLM01 • LISN adapter with IEC-style connection – LSA02 • Alkaline batteries • Hard case • Standard test CAL01
CNEIIIKIT02	Enhanced CNE III comparison continuous noise emitter kit with multiple antennas and LISN adaptor	• CNE III noise source • 200MHz to 1GHz (optimum) 100mm long top-loaded monopole antenna – TLM01 • 30MHz to 300MHz (optimum) 290mm long top-loaded monopole antenna – TLM02 • 1GHz+ (optimum) monocone antenna – MCN01 • LISN adapter with IEC-style connection – LSA02 • Alkaline batteries • Hard case • Standard test CAL01

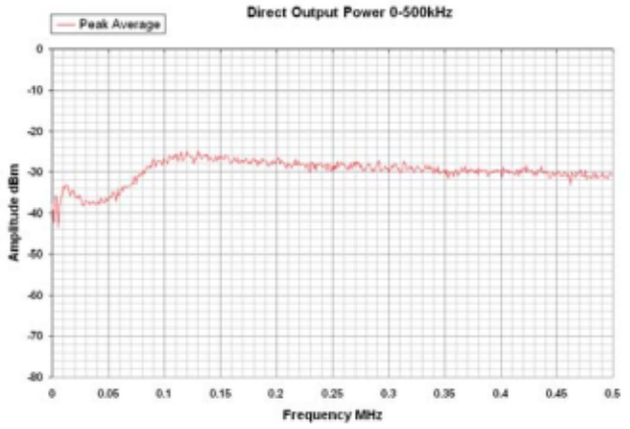
Accessories

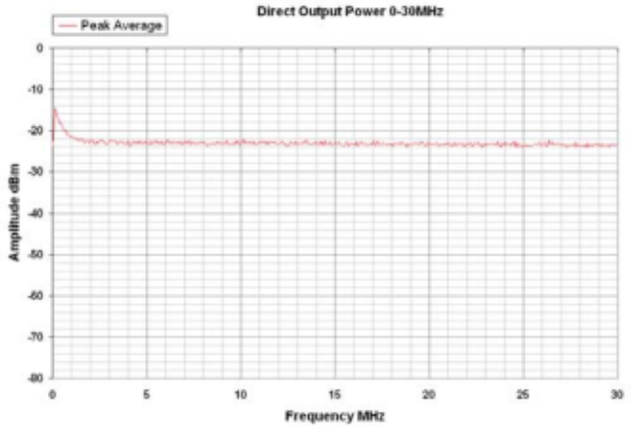
Antenna	TLM01	200MHz to 1GHz (optimum) 100mm long top-loaded monopole
	TLM02	30MHz to 300MHz (optimum) 290mm long top-loaded monopole
	MCN01	1GHz+ (optimum) monocone antenna
Direct coupler	LSA02	LISN adapter with IEC-style connection

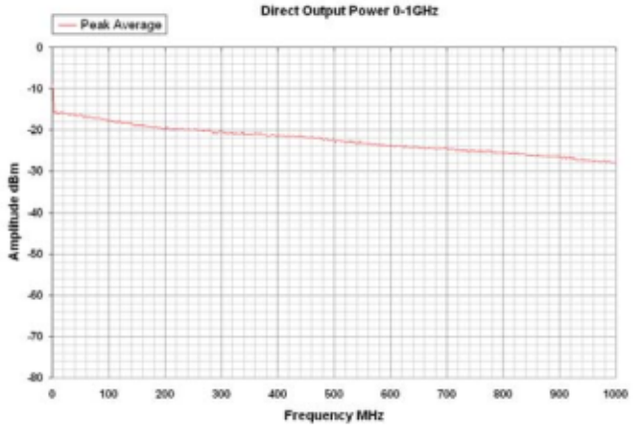
Output Measurement Results

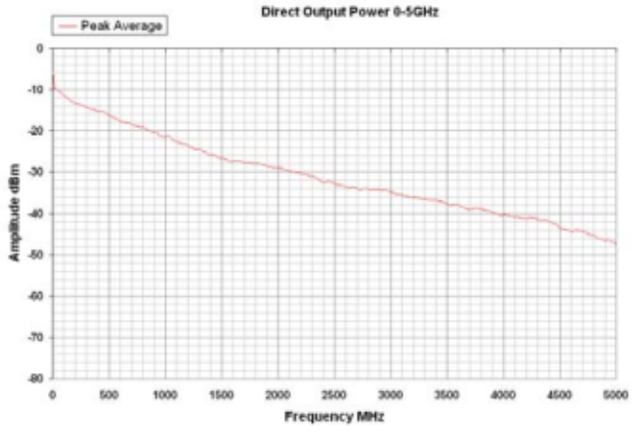
Direct output:	CAL01	0-5GHz power measurement using spectrum analyser
Radiated output	CAL02	30MHz to 1GHz horizontal and vertical polarisation electric field-strength on OATS using receiver, either 3m or 10m
	CAL06	30MHz to 1GHz horizontal and vertical polarisation electric field strength in FAR using a spectrum analyser at 3m

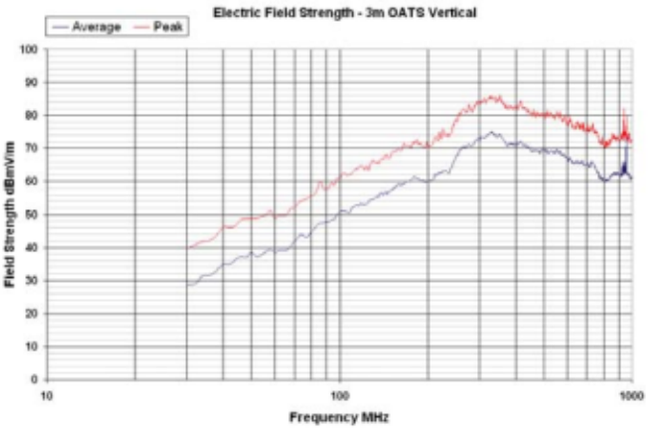
Typical Output Measurement Results

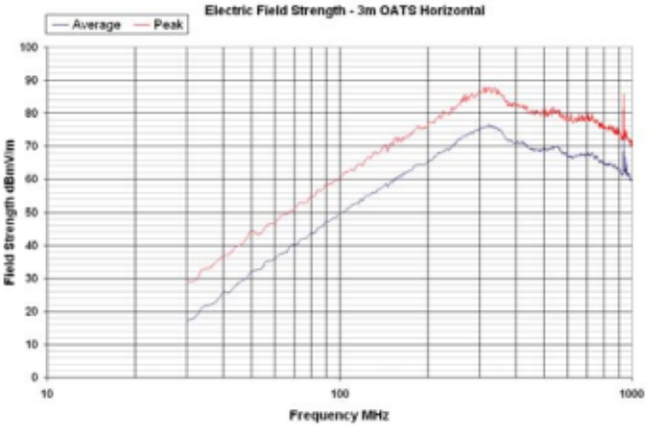


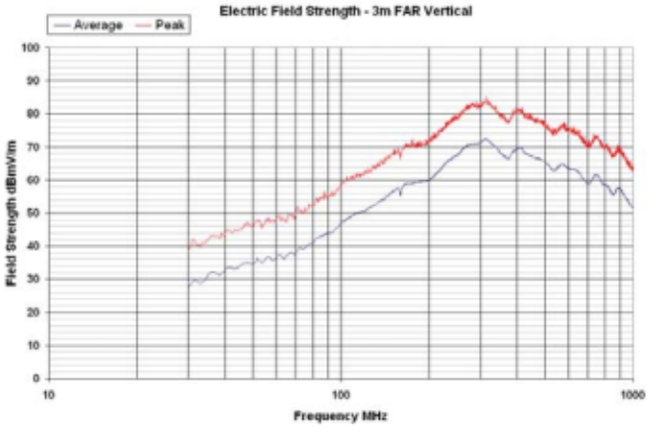


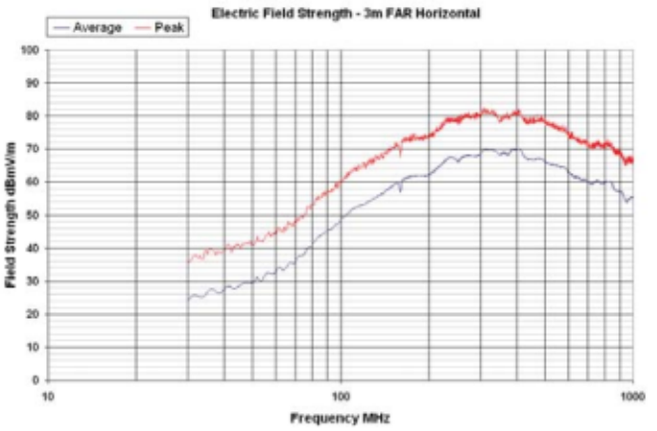












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