York EMC Services

CNE V/V+
Comparison Noise Emitter

Product Technical Information

Comparison Noise Emitter: CNE V/ V+

The Comparison Noise Emitter V (CNE V) is a low-cost broadband noise source providing a continuous output from 9 kHz to 1 GHz. The stable output allows the CNE V to be used as a general-purpose reference source for characterising and verifying both conducted and radiated test environments.

The Comparison Noise Emitter V+ (CNE V+) is an enhanced version of the low cost CNE V broadband noise source, providing an extended, continuous output from 9 kHz to 3.5 GHz with a usable output to 5 GHz.

The broadband nature of the output enables the observation of details within the spectrum that would be missed when using a comb generator, whilst the power output level of the unit avoids the overloads possible with impulsive noise sources that may cause damage to the sensitive input circuits of receiving equipment.

The CNE V is supplied with a 50 Ω BNC-type output connector for direct connection to conducted measurement systems. An IEC 320 adapter is also available to provide a connection to LISN equipment, as well as an RJ11/RJ14/RJ25/RJ45 adapter for connection to telecoms ISNs.

CNE V+ with TLM01

The CNE V can also be connected to an antenna, to generate reference fields for use with radiated emissions test environments such as Open Area Test Sites and anechoic chambers. A selection of antennas that connect directly to the CNE V for this purpose is available. The CNE V is compact and battery powered to allow operation as an electrically small source at lower frequencies, thereby minimising the effect of the CNE V structure when being used as a radiating reference.

Features

- **Continuous, broadband output**
  - Full spectrum measurements and analysis
- **Stable output**
  - Repeatable measurements
- **Conducted and radiated options**
  - Evaluation of both conducted and radiated systems
- **9 kHz to 1 GHz (CNE V) or 9 kHz to 3.5 GHz (CNE V+) output**
  - Applications across a broad frequency spectrum
- **Compact and portable**
  - Comparisons between sites and environments
- **Battery powered**
  - No power or interconnecting cables affecting measurements
- **Low cost**
  - Affordable confidence in measurement system results

Applications

- **Conducted measurement systems validation and verification**
- **Radiated measurement systems validation and verification**
- **Reference source for:**
  - Daily pre-test verification checks as required by Quality Management Systems e.g. ISO 17025, DEF STAN 59-411
  - Long term performance monitoring
  - Spectrum analyser / receiver pre-checks
  - Cable position investigation
- **Investigation of screened room/anechoic room/ OATS behaviour**
- **Comparisons between different measurement environments e.g. OATS or anechoic chambers**
- **Characterisation of filter performance**
- **Cable loss measurements**
- **Inter-laboratory test programs**
- **Proficiency test programs**

Manufacturer's calibrations

CAL01	**Conducted** output power, 9 kHz to 5 GHz, measured using a spectrum analyser (**CNE V+ only**)
CAL02	**Radiated** field strength, 30 MHz to 1 GHz, measured at 3 m OR 10 m on an OATS using a spectrum analyser or receiver
CAL03	**Conducted** output power, 9 kHz to 1 GHz, measured using a spectrum analyser (**CNE V only**)
CAL04	**Radiated** field strength, 30 MHz to 1 GHz, measured at 3 m AND 10 m on an OATS using a spectrum analyser or receiver
CAL06	**Radiated** field strength, 30 MHz to 1 GHz, measured at 3 m in a FAR using a spectrum analyser or receiver

CNE V Specifications

Frequency range	9 kHz to 1 GHz direct connection into 50 Ω system 30 MHz to 1 GHz radiated using TLM01 and TLM02 antennas
Output connector	50 Ω BNC-type socket
Temperature stability	9 kHz to 1 GHz, <±1 dB, at an ambient temperature of 15 °C to 30 °C 9 kHz to 1 GHz, <±2 dB, at an ambient temperature of 5 °C to 40 °C
Time stability	Typically <1 dB over a 12 month period
Dimensions	120 mm × 120 mm x 41 mm (60 mm including connector)
Weight	Approx 0.53 kg (including battery)
Power supply	1 x 9 V battery (PP3 or equivalent). Alkaline or rechargeable NiMH
Operating time	3 hours typical with alkaline batteries
Indicators	Power on, low battery

CNE V+ Specifications

Frequency range	9 kHz to 3.5 GHz (usable to 5 GHz) into a 50 Ω system 30 MHz to 3.5 GHz radiated using TLM01, TLM02 and MCN03 antennas
Output connector	50 Ω N-type socket
Temperature stability	9 kHz to 3.5 GHz, <±1 dB, at an ambient temperature of 15 °C to 30 °C 9 kHz to 3.5 GHz, <±2 dB, at an ambient temperature of 5 °C to 40 °C
Time stability	Typically <1 dB over a 12 month period
Dimensions	120 mm × 120 mm x 41 mm (60 mm including connector)
Weight	Approx 0.53 kg (including battery)
Power supply	1 x 9 V battery (PP3 or equivalent). Alkaline or rechargeable NiMH
Operating Time	3 hours typical with alkaline batteries
Indicators	Power on, low battery

Standard kits

Part Number	Description	Parts included
CNEVKIT01	Standard CNE V comparison noise emitter kit	• CNE V noise source • TLM01 – 200 MHz to 1 GHz (optimum) 100 mm long top-loaded monopole antenna
CNEVKIT02	Enhanced CNE V comparison noise emitter kit	• CNE V noise source • TLM01 – 200 MHz to 1 GHz (optimum) 100 mm long top-loaded monopole antenna • TLM02 – 30 MHz to 300 MHz (optimum) 270 mm long top-loaded monopole antenna • LSA03 – LISN adapter with IEC 320 style connector
CNEVKIT03	Standard CNE V+ comparison noise emitter kit	• CNE V+ noise source • TLM01 – 200 MHz to 1 GHz (optimum) 100 mm long top-loaded monopole antenna
CNEVKIT04	Enhanced CNE V+ comparison noise emitter kit	• CNE V+ noise source • TLM01 – 200 MHz to 1 GHz (optimum) 100 mm long top-loaded monopole antenna • TLM02 – 30 MHz to 300 MHz (optimum) 270 mm long top-loaded monopole antenna • MCN03 – 1 GHz to 3.5 GHz (optimum with CNE V+) monocone antenna • LSA03 – LISN adapter with IEC 320 style connector

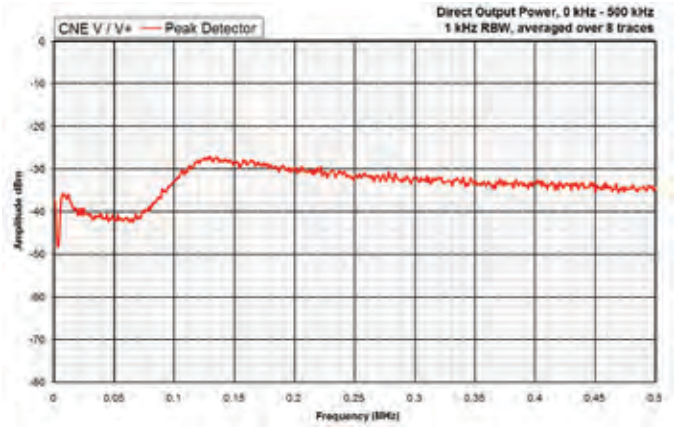
All kits are supplied with: Alkaline batteries, hard case, CAL03 – 9 kHz to 1 GHz CNE V output power measurement using spectrum analyser or CAL01 – 9 kHz to 5 GHz CNE V+ output power measurement using a spectrum analyser or receiver, manual.

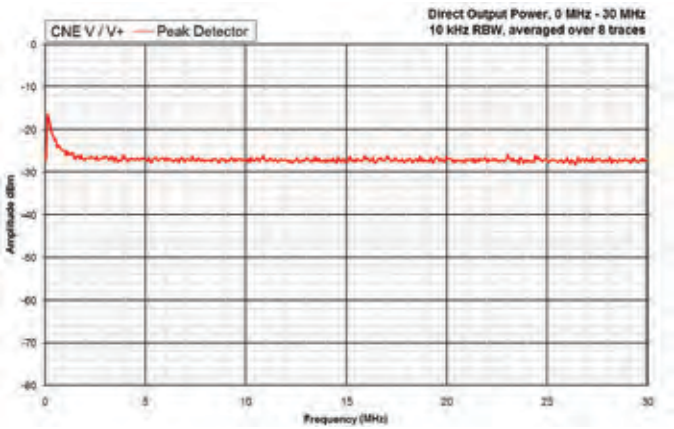
Accessories

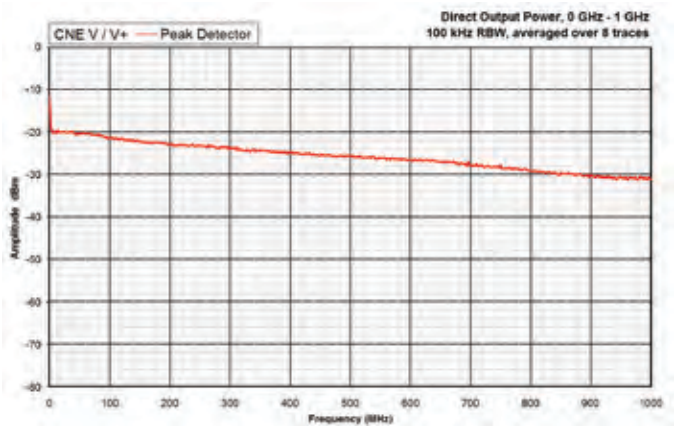
TLM01	200 MHz to 1 GHz (optimum) 100 mm top-loaded monopole antenna
TLM02	30 MHz to 300 MHz (optimum) 270 mm top-loaded monopole antenna
MCN03	1 GHz to 6 GHz (optimum) monocone antenna (CNEV+ only)
LSA03	LISN adapter with IEC 320 style connector
NIA01	ISN adapter with RJ11/RJ14/RJ25/RJ45 style connection
MON02	Telescopic rod antenna

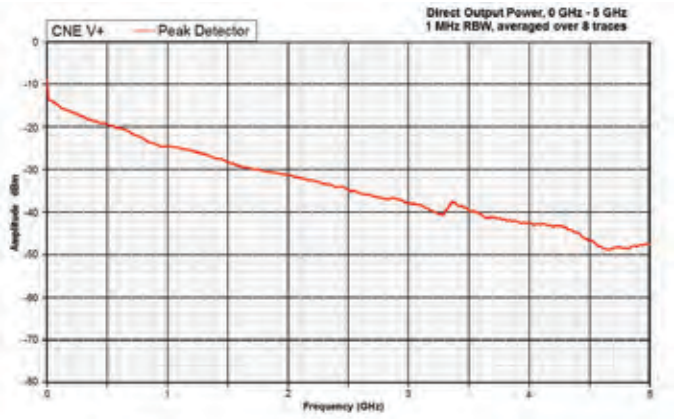
Comparison Noise Emitter: CNE V/ V+

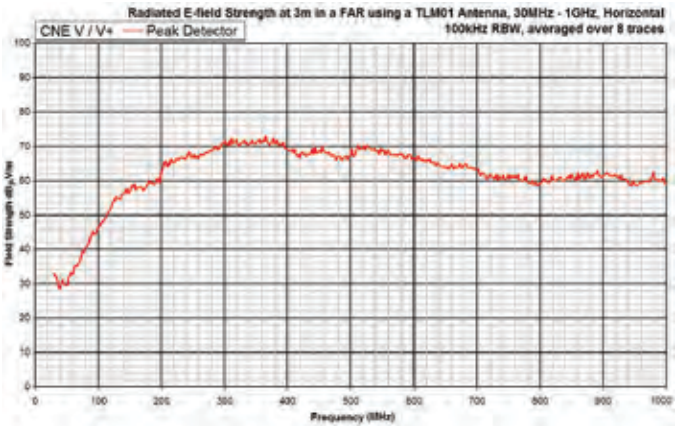
Typical output measurement results

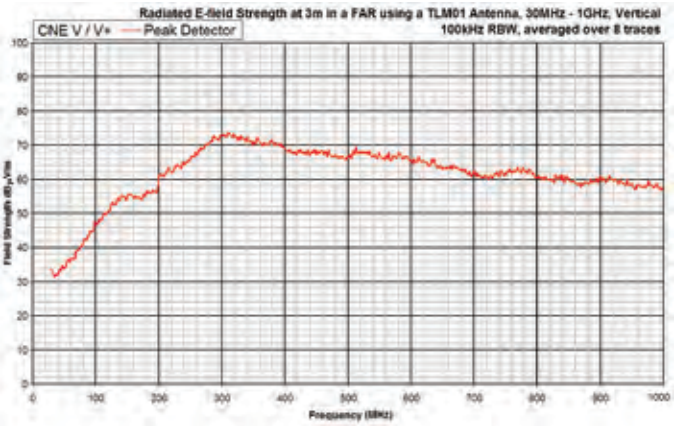


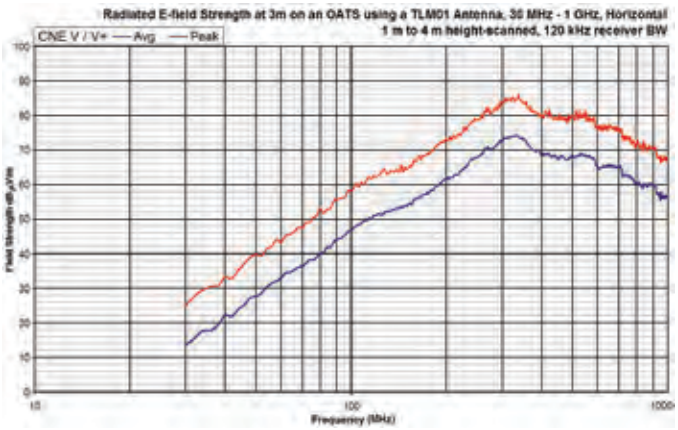


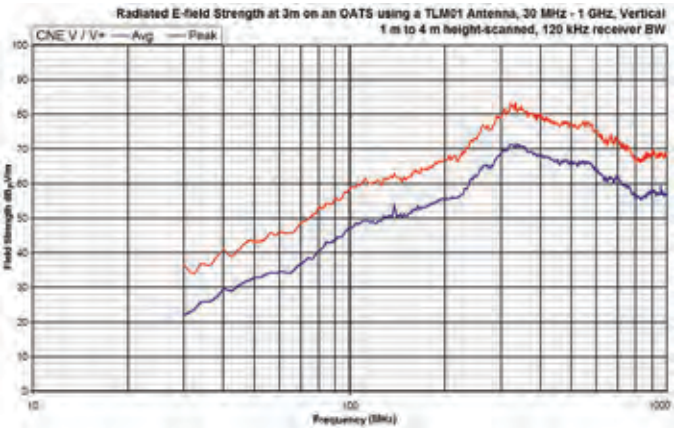












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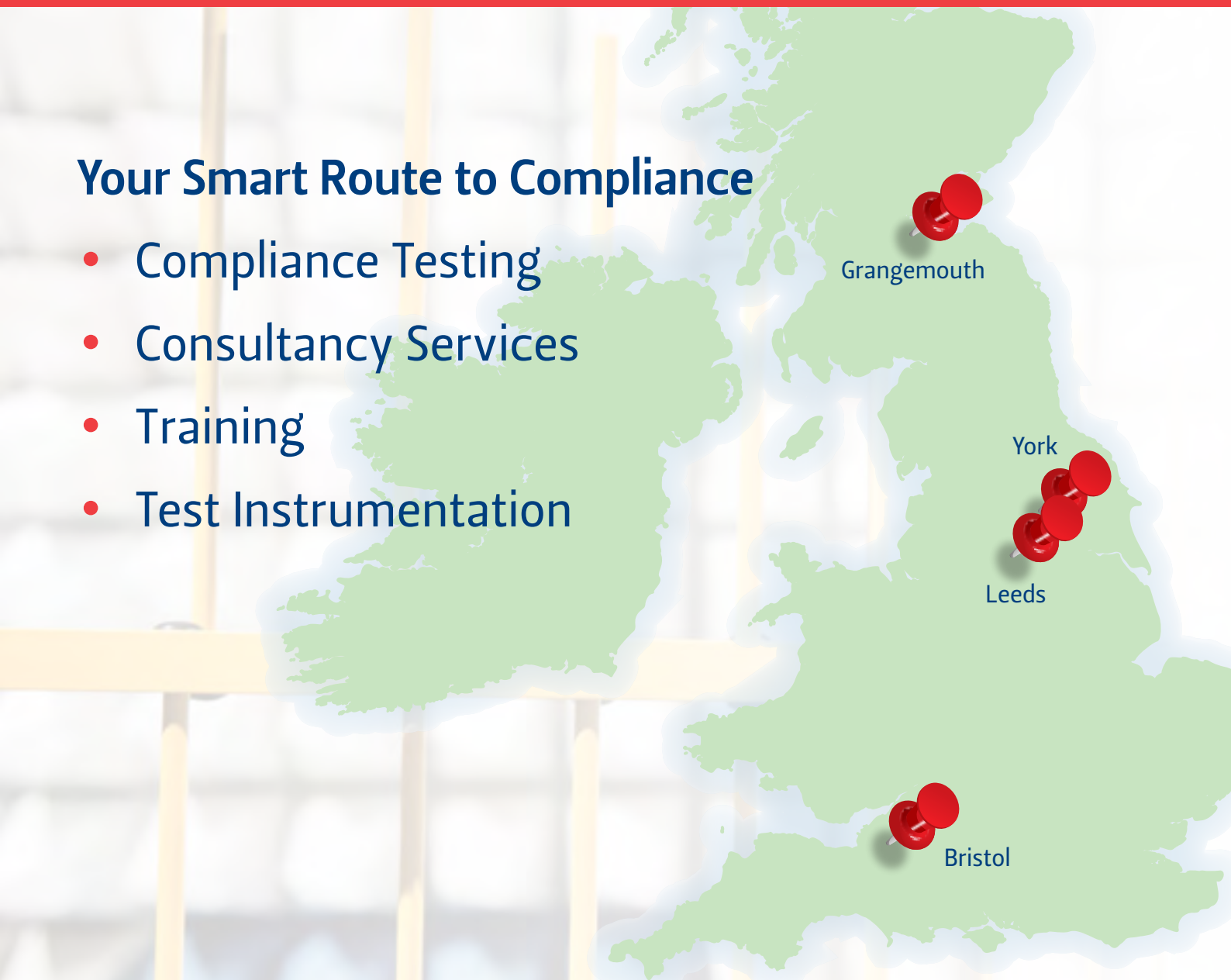

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