

The Comparison Noise Emitter the internationally accepted reference source.

Introduction

The University of York developed the Comparison Noise Emitter (CNE) as a research tool for the evaluation of screened room resonances. It has been used as a reference source for intersite comparison in a number of national and international studies including one by UKAS.

Radiated emissions

The CNE is a continuous broadband noise source with a usable output power from 9kHz to 2GHz. Three monopole antennas are available which may be attached to the BNC connector on the top of the unit enabling it to act as a radiating field source.

The CNE can be used as a source for carrying out checks on open area test sites (OATS) and anechoic chambers. The broadband nature of the output enables the observation of details which would be missed with a comb generator. The power output of the unit also avoids the overloads possible with impulsive noise sources which may cause damage to the sensitive input circuits of receiving equipment.

The unit is battery powered so that it can be operated as a 'small' source without the effect of cables which would modify the fields generated. Alternatively cables can be connected to the output or the earth stud on one side of the unit, to investigate the effect of cables and cable positioning on measurements. The CNE is housed in a plated metal box so that it can be mounted in direct contact with a metal ground plane if desired.

The batteries are easily removed and replaced to minimise the potential down time.

Conducted emissions

An adaptor is available 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 measurements to be made (e.g. LISN, absorbing clamp).



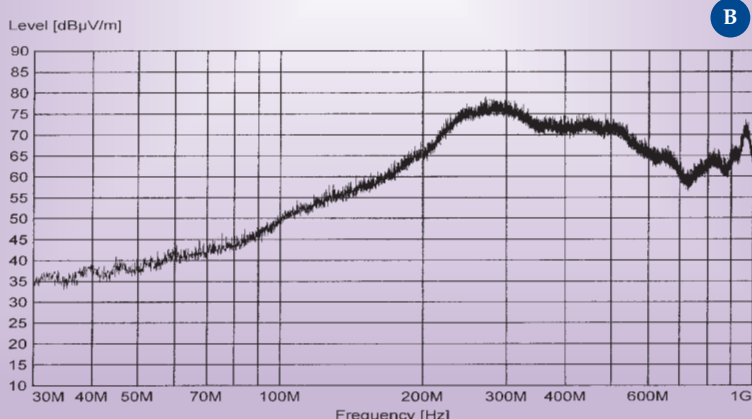
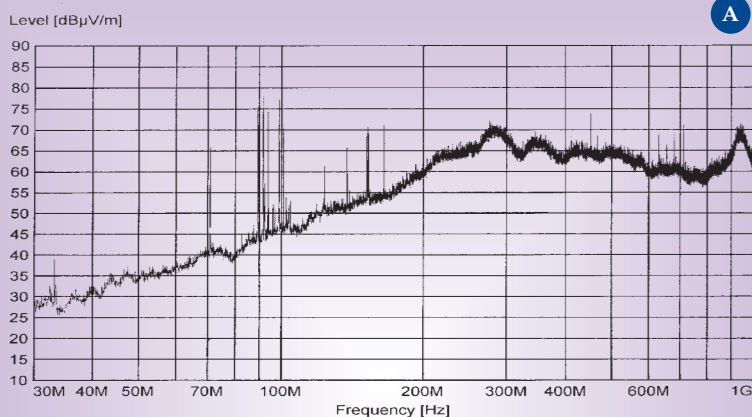
Operation

The microprocessor control allows the operating time of the unit to be adjusted from a minimum period of 15 minutes to continuous operation. The unit will turn off automatically if the batteries are low.

Applications include:

- ◆ Comparison between different measurement environments such as OATS or Anechoic Chambers
- ◆ Radiated and conducted measurement systems as a reference source for:
 - daily pre-test checks as required by the accreditation authorities
 - long term performance monitoring
 - cable position investigation
- ◆ Investigation of screened room behaviour
- ◆ Characterising filter performance
- ◆ Measuring cable losses

Typical field strengths **A** at 10m on an OATS **B** in an anechoic chamber at 3m. Measurements taken with the 100mm top loaded monopole. Vertical polarisation with bandwidth of 120 kHz.



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Technical details

Output	50 ohms nominal. 9kHz to 2GHz
Enclosure	Chrome plated steel box
Dimensions	
length	188mm (206mm including battery covers and earth stud)
width	120mm
height	62mm (80mm including BNC connector)
weight	1.3kg
Timer	15 min to 135 min in 15 min steps or continuous operation

Power source
4 C cells (1.2 - 1.5V nominal per cell)
Battery Life 4-5 hours continuous with Ni-Cd cells, up to 12 hours with alkaline cells.

Output coupling devices

Antennas

100mm top loaded monopole

length	100mm
disk diameter	100mm
recommended freq. range	30MHz-1GHz

115mm top loaded monopole

length	268mm
disk diameter	115mm
recommended freq. range	30MHz-100MHz

1-2GHz monopole

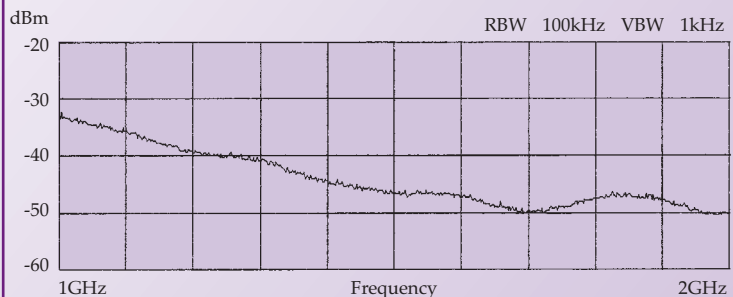
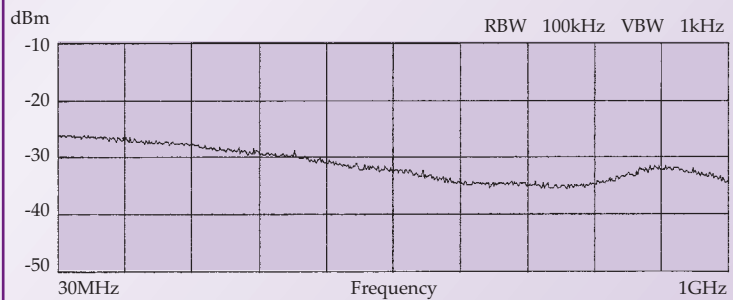
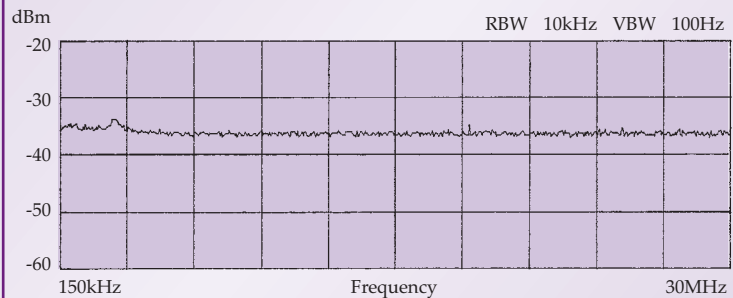
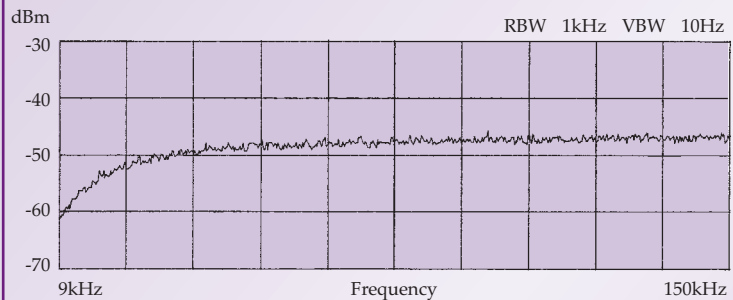
length	37mm
counterpoise diameter	100mm
recommended freq. range	1GHz-2GHz

Note that at higher frequencies than those recommended, care should be exercised owing to antenna resonances.

LISN adaptor (240V line voltage maximum)

Capacitively couples the CNE output to the neutral of an IEC 320 mains plug.

Typical output power into 50 ohms



For further information or advice contact:

York EMC Services Ltd

University of York, Heslington, York YO10 5DD, UK

Tele +44 (0) 1904 434440 · Fax +44 (0) 1904 434434

email : enquiry@yorkemc.co.uk · Web <http://www.yorkemc.co.uk>