

YRS 02 York Reference Source



Product Technical Information

York Reference Source: YRS02

The YRS02 is a broadband noise and comb source that is capable of producing a continuous noise output from 9 kHz to 1 GHz, or a comb of frequencies within the 5 kHz to 1 GHz range, with step size being selected by the user. The noise generator enables observation of details over the full spectral range, while the comb generator allows for the reference signal output and noise floor to be viewed simultaneously, and the frequency accuracy of measurement equipment to be checked.

The YRS02 is compact and battery powered, allowing operation as an electrically small source, which minimises the effect of the YRS02 itself when characterising the electromagnetic environment. The YRS02 is housed in a metal enclosure so that it can be mounted in direct contact with a metal ground plane, as may be required by some tests.

The YRS02 is supplied with a 50 Ω N-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, to provide a reference source for conducted emissions setups.



YRS02 with MON03 antenna

For radiated operation, antennas can be attached to the unit's output connector. Two monopole antennas, optimised for different frequency bands, are available. The YRS02 is an ideal source for carrying out checks on open area test sites (OATS) and anechoic chambers.

Features

- **Selectable noise or comb output**
 - Flexibility across a range of applications
- **Stable output**
 - Repeatable measurements
- **5 kHz to 1 GHz output**
 - Applications across a broad frequency spectrum
- **Conducted and radiated options**
 - Evaluation of both conducted and radiated systems
- **Compact and portable**
 - Comparisons between sites and environments
- **Battery powered**
 - No power or interconnecting cables affecting measurements

Applications

- **Investigation, characterisation and comparison of different measurement environments such as OATS, FAR or SAC.**
- **Validation and verification of radiated and conducted measurement systems, such as:**
 - Open Area Test Sites (OATS)
 - Fully Anechoic Rooms (FAR)
 - Semi-Anechoic Chambers (SAC)
 - Gigahertz Transverse ElectroMagnetic (GTEM) cells
- **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
 - Cable position investigation
 - Investigation and characterisation of screened room/anechoic room/OATS behaviour
 - Characterisation of filter performance
 - Cable loss measurements
- **Measuring amplifier gain and bandwidth**
- **Spectrum analyser/receiver pre-check**
- **Inter-laboratory test programs**
- **Proficiency test programs**

Manufacturer's calibrations

- CAL16** **Conducted** output power, 9 kHz to 1 GHz, measured using a spectrum analyser. **All modes.**
- CAL17** **Radiated** field strength, 30 MHz to 1 GHz, measured on an OATS at 3 m or 10 m using a receiver. **Noise, 1 MHz and 5 MHz modes, horizontal and vertical polarisation.**
- CAL18** **Radiated** field strength, 30 MHz to 1 GHz, measured in a FAR at 3 m using a using a receiver. **Noise, 1 MHz and 5 MHz modes, horizontal and vertical polarisation.**
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Specifications: Noise mode

Frequency range	9 kHz to 1 GHz direct connection into 50 Ω system 30 MHz to 1 GHz radiated using TLM02 and MON03 monopole antennas
Temperature stability	< +/-1 dB 9 kHz to 1 GHz, at an ambient temperature of 15 °C to 30 °C < +/-2.5 dB 9 kHz to 1 GHz, at an ambient temperature of 5 °C to 40 °C
Time stability	<1 dB (typical over a 12 month period)
Operating time	7.5 hours (typical with alkaline batteries)

Specifications: Comb modes

Frequency range	5 kHz to 1 GHz direct connection into 50 Ω system 30 MHz to 1 GHz radiated using TLM02 and MON03 monopole antennas
Comb signal step size	Selectable between: 10 kHz (5 kHz, 15 kHz, 25 kHz to 3.005 MHz min.) 100 kHz (50 kHz, 150 kHz, 250 kHz to 30.05 MHz min.) 1 MHz (0.5 MHz, 1.5 MHz, 2.5 MHz to 300.5 MHz min.) 5 MHz (2.5 MHz, 7.5 MHz, 12.5 MHz to 1.0025 GHz min.)
Temperature stability	Amplitude: < +/-0.5 dB 5 kHz to 1 GHz, at an ambient temperature of 15 °C to 30 °C < +/-1 dB 5 kHz to 1 GHz, at an ambient temperature of 5 °C to 40 °C Frequency: < +/-0.5 ppm, at an ambient temperature of 5 °C to 40 °C
Time stability	<1 dB (typical over 12 month period) < +/-1 ppm (typical over a 12 month period)
Operating time	8 hours (typical with alkaline batteries)

Other

Output connector	50 Ω N-type socket
Dimensions	120 mm x 120 mm x 60 mm (79 mm including connector)
Weight	1 kg (including cells)
Power supply	4 x 1.5 V cells (AA or equivalent). Alkaline or rechargeable NiMH
Indicators	Active, low battery
Controls	Rotary switch for mode selection including OFF

Standard kits

Part Number	Description	Parts included
YRS02KIT01	Standard YRS02 reference source kit with antenna	<ul style="list-style-type: none">• YRS02 reference source• MON03 – 200 MHz to 1 GHz (optimum) 270 mm long monopole antenna
YRS02KIT02	Enhanced YRS02 reference source kit with multiple antennas and LISN adaptor	<ul style="list-style-type: none">• YRS02 reference source• TLM02 – 30 MHz to 300 MHz (optimum) 270 mm long top-loaded monopole antenna• MON03 – 200 MHz to 1 GHz (optimum) 270 mm long monopole antenna• LSA03 – LISN adaptor with IEC 320 style connector
YRS Combination Kit	Enhanced YRS02 and YRS03 reference source kit with multiple antennas and LISN adaptor with output range from 5 kHz to 6 GHz	<ul style="list-style-type: none">• YRS02 reference source• YRS03 reference source• TLM02 – 30 MHz to 300 MHz (optimum) 270 mm long top-loaded monopole antenna• MON03 – 200 MHz to 1 GHz (optimum) 270 mm long monopole antenna• MCN03 – 1 GHz to 6 GHz (optimum) monocone antenna• LSA03 – LISN adaptor with IEC 320 style connector• CAL19 – 30 MHz to 6 GHz output power measured using a spectrum analyser, all modes (YRS03 only)

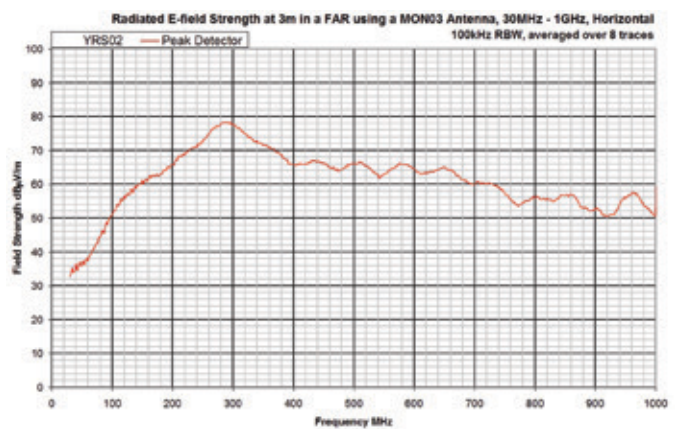
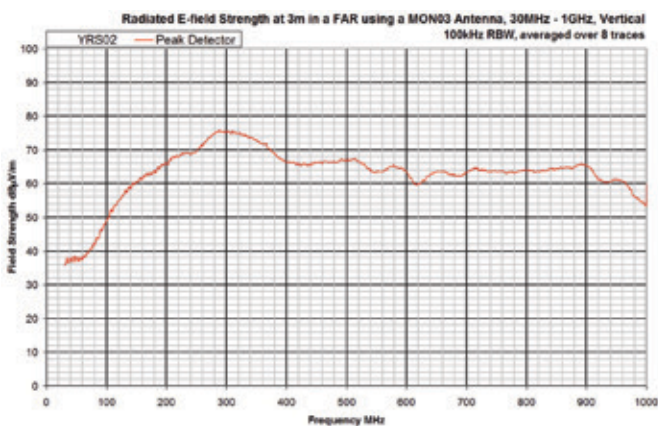
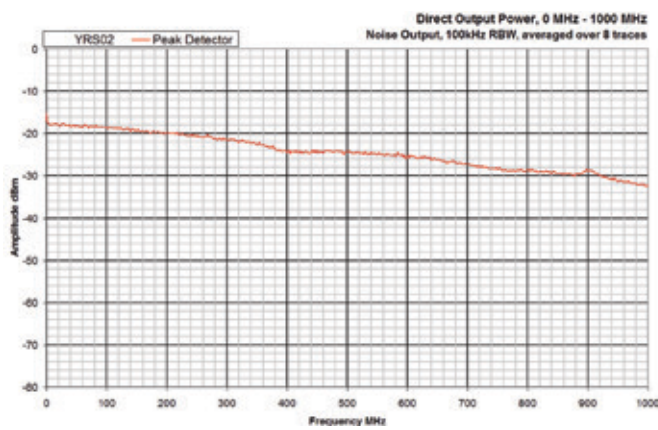
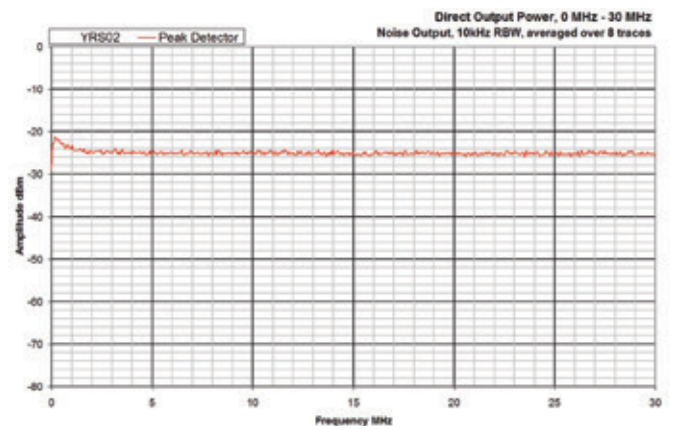
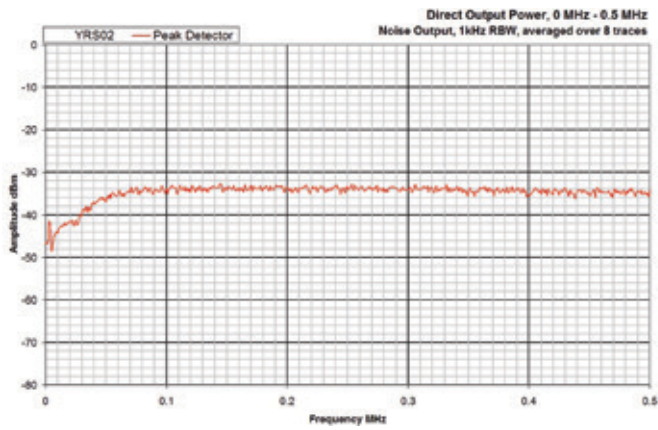
All kits are supplied with: Hard case, 4 x AA alkaline cells, CAL16 – 9 kHz to 1 GHz output power measurement using spectrum analyser, all modes, manual.

Accessories

MON02	Telescopic rod antenna
MON03	200 MHz to 1 GHz (optimum) 270 mm monopole antenna
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
LSA03	LISN adaptor with IEC 320 style connector
NIA01	ISN adaptor with RJ11/RJ14/RJ25/RJ45 style connection

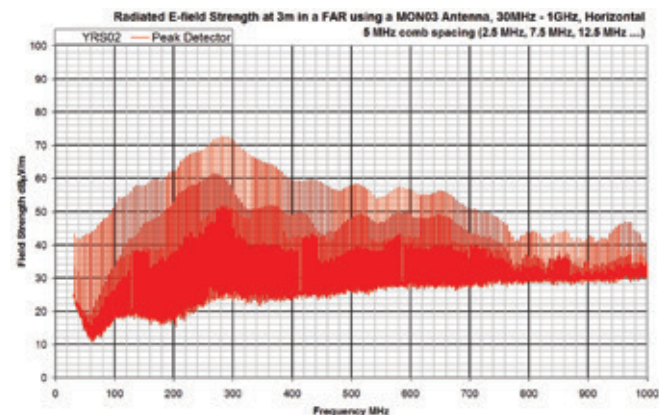
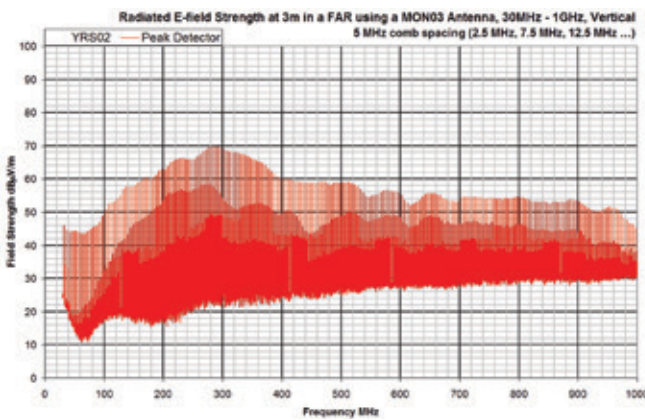
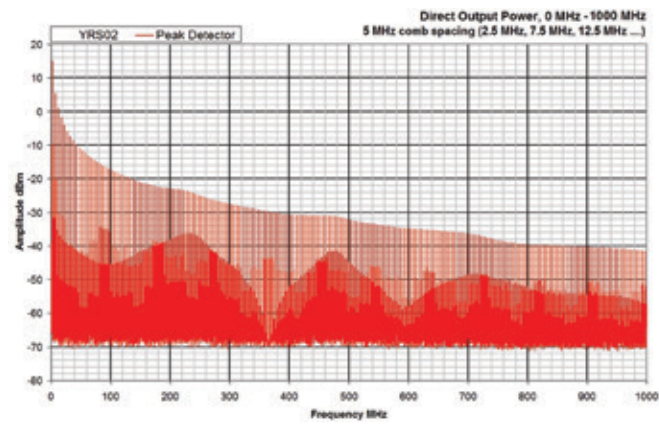
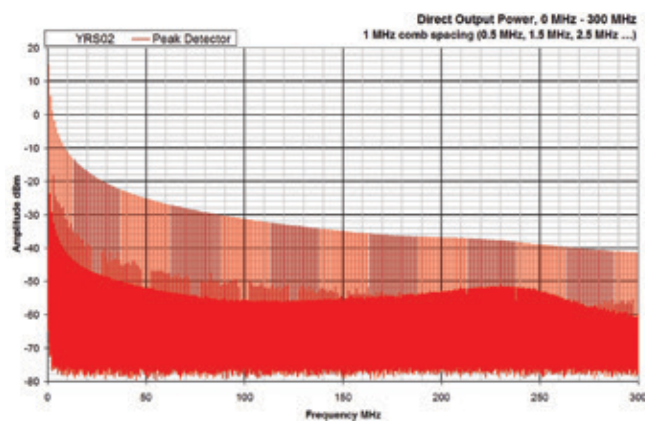
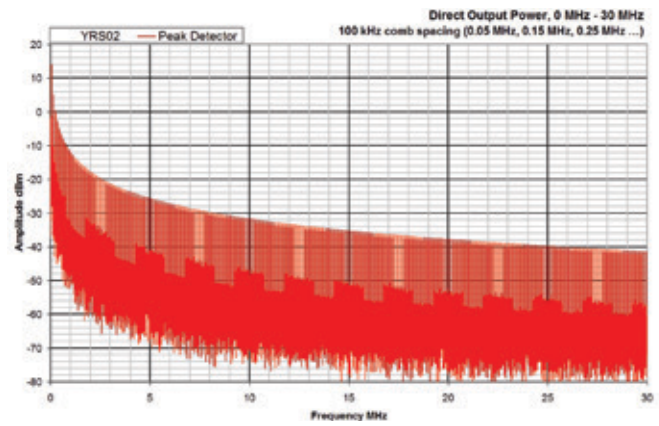
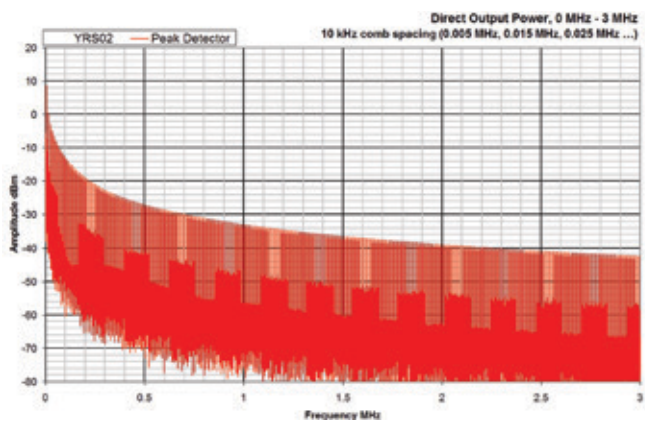
York Reference Source: YRS02

Typical output measurement results



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Typical output measurement results



Note: Artefacts below the peak level are due to image scaling.

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