

YRS 01
York Reference Source



Product Technical Information

York Reference Source: YRS01

The YRS01 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 also the frequency accuracy of measurement equipment to be checked.

The YRS01 is compact and battery powered, allowing operation as an electrically small source, which minimises the effect of the YRS01 itself when characterising the electromagnetic environment. The YRS01 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 YRS01 is compatible with the CGE battery pack BP01.

The YRS01 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.



YRS01 with BP01 battery pack

For the radiated operation, antennas can be attached to the unit's output connector. Two monopole antennas, optimised for different frequency bands, are available. The YRS01 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 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 fully charged battery pack)

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	8.5 hours (typical with fully charged battery pack)

Other

Output connector	50 Ω N-type socket
Dimensions	76 mm diameter x 35 mm (56 mm including connector), without battery pack 76 mm diameter x 81 mm (102 mm including connector), with battery pack
Weight	0.6 kg (including battery)
Power supply	5 V 2 Ahr battery pack (order code BP01) External input 5.00 V \pm 0.25 V, 300 mA (mini-USB type B connector)
Indicators	Active, low battery
Controls	Rotary switch for mode selection

Standard kits

Part Number	Description	Parts included
YRS01KIT01	Standard YRS01 reference source kit with antenna	<ul style="list-style-type: none">• YRS01 reference source• BP01 – rechargeable battery pack• MON03 – 200 MHz to 1 GHz (optimum) 270 mm long monopole antenna
YRS01KIT02	Enhanced YRS01 reference source kit with multiple antennas and LISN adaptor	<ul style="list-style-type: none">• YRS01 reference source• BP01 – rechargeable battery pack• 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 adapter with IEC 320 style connector

All kits are supplied with: Hard case, BCH04 universal input battery charger, CAL16 – 9 kHz to 1 GHz output, power measurement using spectrum analyser, manual.

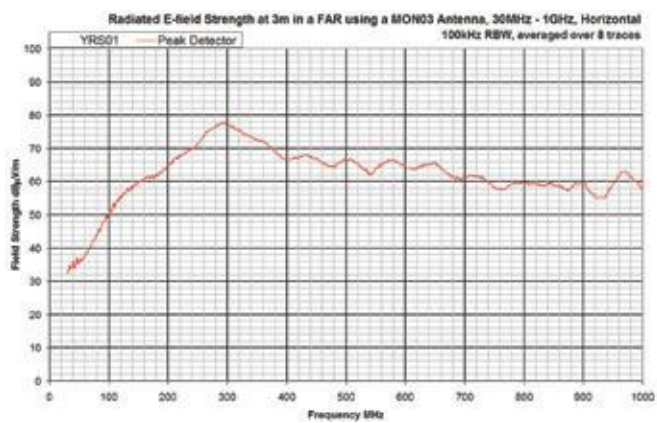
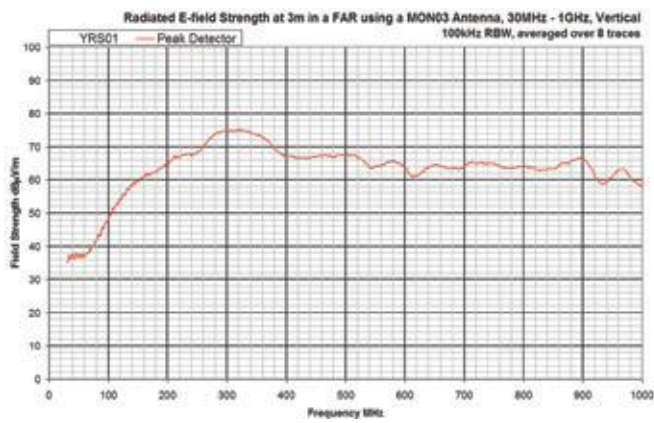
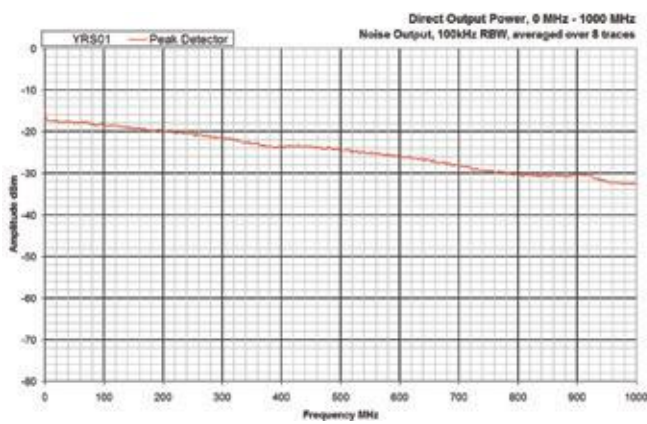
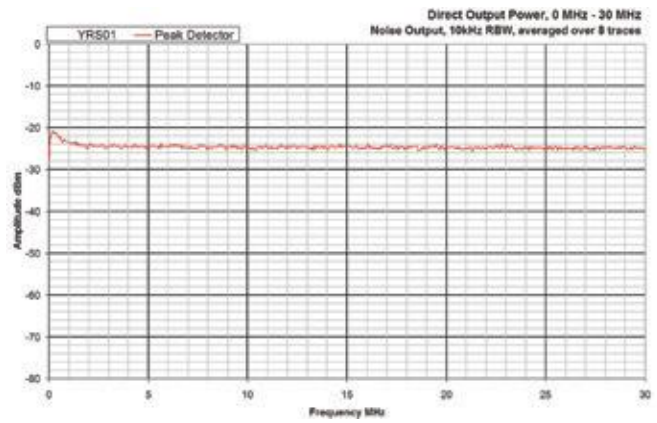
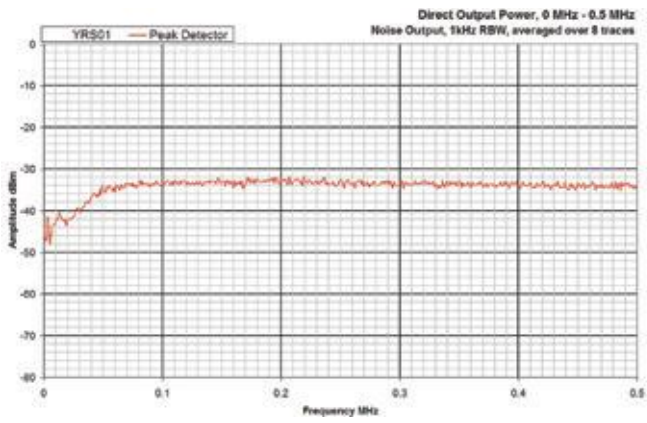
Accessories

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 adapter with IEC 320 style connector
NIA01	ISN adapter with RJ11/RJ14/RJ25/RJ45 style connection

Note: The YRS01 can be supplied as an accessory with the CGE01, CGE02 and CGE03 kits. Details of kit options can be obtained on request from York EMC Services and authorised distributors.

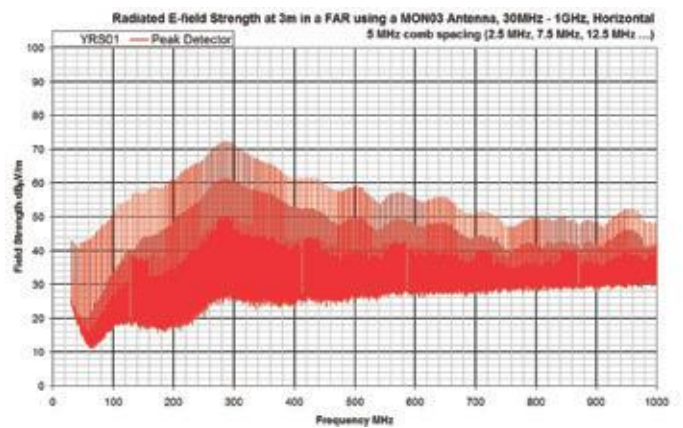
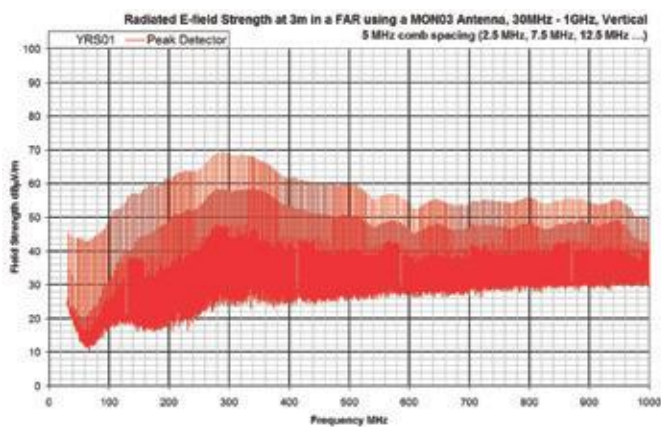
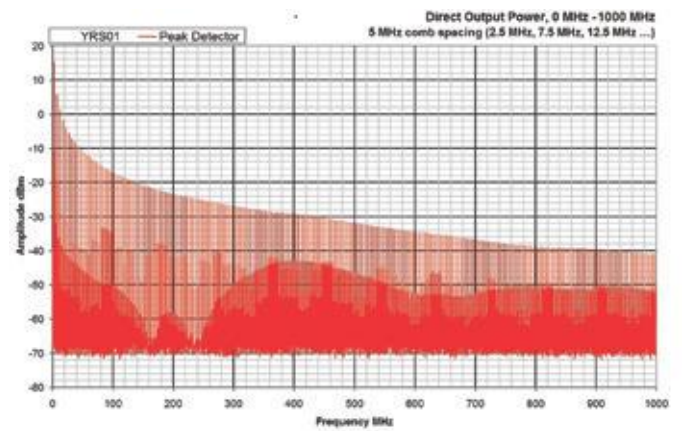
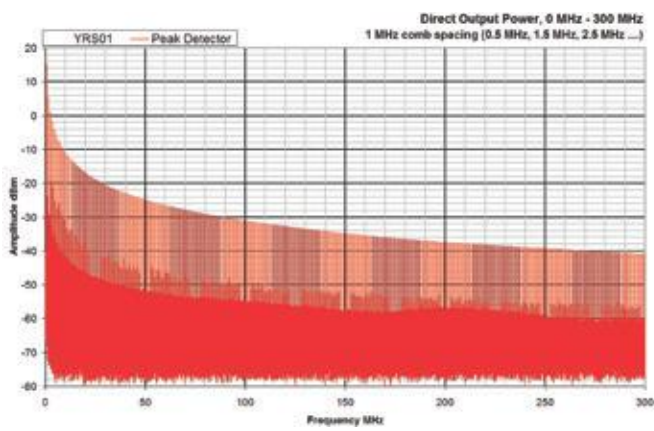
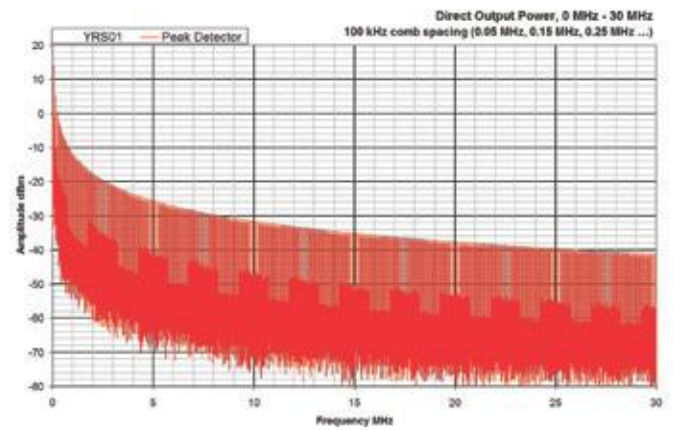
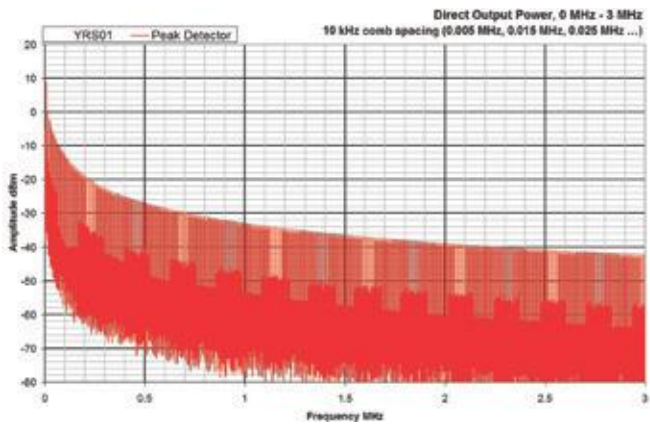
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Typical output measurement results



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Typical output measurement results



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

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