

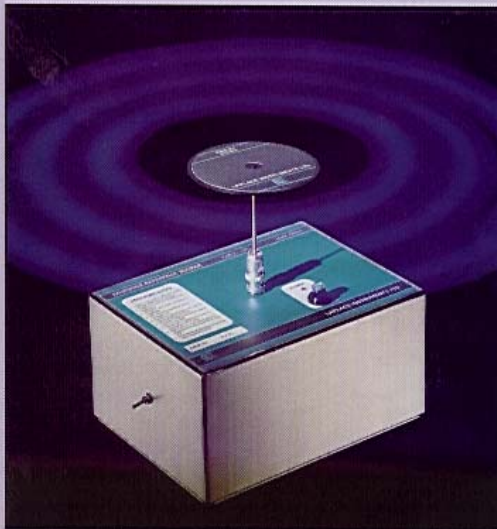
# EMISSIONS REFERENCE SOURCE

ERS

## Takes the guesswork out of radiated emissions testing

A small self contained emitter which generates a known, measured field strength at standard measurement distances. Enables emission measurements to be correlated against a true open field site condition.

- ▼ Obtain a true end-to-end calibration including site conditions and analyser.
- ▼ Allows the user to obtain realistic measurements in indoor test sites.
- ▼ Built-in monopole radiator.
- ▼ Broadband output covering the range 30MHz to 1GHz.
- ▼ Direct output available on BNC socket.



**REDUCE MEASUREMENT ERRORS** By correlation between the results on your site and the calibration plots supplied with the ERS, errors due to your site distortions and instrumentation error are quantified and can be compensated for.

**SITE FLEXIBILITY** The ERS enables non-compliant sites to be used because a compensation plot can be derived which will adjust your site to approximate to a true OATS as required for EMC testing. It is even possible to obtain reasonable measurements in cases where due to size/weight restrictions, tests have to be done indoors.

**SELF CONTAINED** The ERS is supplied complete with antennas, batteries and battery charger. Its small size and ease of use make it ideal for spot checks and for moving around larger equipments under test to ensure that the emissions emanate from close to the source under investigation.

The ERS provides a known strength RF field with calibration data supplied for a distance of 3m. Both vertical and horizontal plots are provided. The output from the ERS is a closely spaced harmonic series which permits all frequencies to be checked over the full range required by most EMC specifications. In particular, this technique checks the analyser response to discrete frequencies avoiding potential errors due to analyser I.F. response rate. The close spacing of the harmonics ensures that site resonances will be detected. The use of this ERS enables less than perfect test sites to be used by comparison of the spectrum obtained from your test site with that supplied on the calibration plots. Deviations must be due to test site conditions or instrumentation errors. Having identified the deviations, the appropriate correction factors can be applied to your own test results, hence considerably reducing the measurement uncertainty.

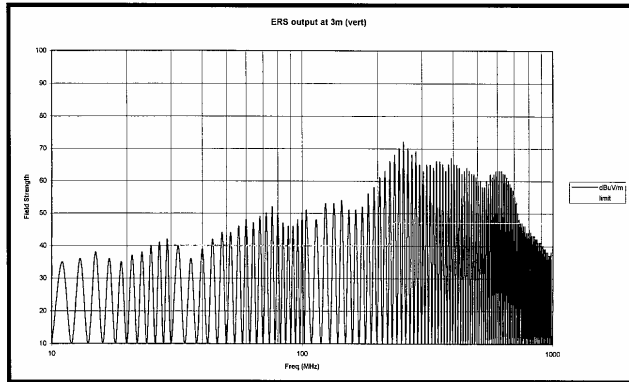
LAPLACE INSTRUMENTS LIMITED



The ERS has been developed by Laplace originally for the evaluation of screened room resonances and other test site inconsistencies. Each unit is issued with a set of calibration plots obtained on an accredited open area test site (OATS) with a known uncertainty factor. These results are obtained under precisely known conditions:

Antenna – ERS distance: 3m  
 Polarisation: vertical and horizontal  
 ERS height: 0.8m  
 Antenna height: scanned 1 to 4 metres

**Typical plot**



**Features**

**Frequency:** The usable output power covers the range required for radiated EMC work, ie 30MHz to 1GHz. The actual output in fact extends down to 2MHz for low frequency work.

**Antenna:** Included antenna is a top loaded monopole which is detachable for storage.

**Polarity:** The ERS can be operated on its base to give vertical polarised output or on its side to give horizontal polarisation.

**Direct:** An output is provided via a BNC socket to enable direct connection for testing of cables and filters.

**Signal type:** The output signal is a harmonic series with a fundamental of 2MHz giving effective energy at all frequencies in the specified range.

**Power:** The supplied batteries are rechargeable and a separate mains charger is included with the ERS.

**Power protection:** The internal control circuits include a battery monitoring feature that automatically switches the ERS down to a standby mode with the OK indicator off if the batteries become too low for correct operation. This avoids the battery going into deep discharge.

Available from:

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**Application**

For radiated emissions testing, the great unknown (usually) is the degree to which the test site and local circumstances are corrupting the results. Quantifying this unknown with the ERS is quite straightforward.

There are two techniques:

a) The complete test site can be checked at all frequencies in one operation. If the ERS is located at the same location as the EUT and a scan taken of the emissions from the ERS with any A.F. compensation switched off, a site plot will be obtained which includes the characteristics of the antenna. This will differ from the ERS plot. The differences equate to the required compensation factors required.

b) Individual frequencies can be spot checked. Once a potential problem emission is detected from the EUT, the source is located with a near field probe and the ERS located as close as possible to the source. The ERS is switched on and the measured emission level correlated with the level shown for that frequency on the ERS plot. Any error equates to the required compensation factor. This technique is particularly useful when the EUT is relatively large.

**Specification**

Output: Narrow band 30MHz – 1GHz  
 Level: approx 30 – 70dBuV/m @ 3m  
 Full calibration data supplied with each unit  
 Supply: Rechargeable internal batteries.  
 Life approx 4 hours.  
 Recharge: 14 hours from 240V mains  
 Discharge: Automatic indication if batteries too low  
 Antenna: Top loaded monopole  
 Size: 120 x 64 x 188mm  
 Weight: 1.5kg

**Ordering Information**

Order code ERS  
 Includes ERS unit  
 Antenna  
 Set of batteries and charger  
 Radiated & conducted output plots  
 User manual

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