



# Sentinel<sup>3</sup>

## RF over Fibre Intelligent EMC Test and Measurement System

Sentinel 3 is a fully shielded, high performance, RF over fibre intelligent EMC test and measurement system for:

- EMP test & EMC conformance
- HIRF aircraft clearance
- Simulated lightning testing
- Impulse / time domain / NEMP testing
- Low & high level swept frequency coupling measurements.

### Key military test standards

The Sentinel 3 product supports standards testing for EMC, EMP, HIRF, NEMP etc., including key standards such as:

- MIL-STD-188-125
- MIL-STD-461G
- DEF STAN 59-188
- DEF STAN 59-411.

Sentinel 3 is designed to reduce setup time and maximise measurement certainty. A variety of connector options offer a balance of robustness and compact size. Multi-core cross-site cables and compact patch leads provide additional options for easier test setup. A wide, touch-screen controller supports connectivity via Ethernet and USB.

### Choice of receivers and transmitters

- Rx1, Rx2 and Rx6 offer a choice of channel inputs and optional simultaneous monitoring of two channels
- Tx1 and Tx8 offer a choice of single or eight sensor inputs



### High density, scalable system

- Each chassis accepts up to six receivers and a system controller
- Up to eight inputs per transmitter
- Up to six remote transmitters per receiver
- Up to six receivers per chassis

Due to our policy of continuing product development, these specifications are subject to change and improvement without notice.

### Multi-core cross-site cables

Multiple receiver designs and cross-site cable options allow a variety of test configurations, including simultaneous monitoring of two channels or sequential monitoring of up to 48 sensors per receiver slot and up to 288 per receiver chassis.

### World class performance

- Multiple modes: super low noise mode, high power mode and high impedance mode.
- Increased sensitivity means lower test field strength and reduced ERP.
- 150 dB/Hz instantaneous dynamic range.
- Thermal compensation maintains gain accuracy over full operating temperature range.



### Ultra-compact remote transmitters (single or 8-input)

Double-screened to maximise shielding effectiveness, Sentinel 3 remote transmitter units incorporate power detection to allow easy identification of overdrive conditions. Transmitters can be remotely controlled to perform functions such as:

- Gain setting verification
- Link parameter modification
- Self-test / signal selection
- Enter or exit sleep mode
- Battery and alarm monitoring.

# SPECIFICATIONS

## Link Performance

No. input channels per module	Tx1 = 1, Tx8 = 8
Input/output impedance	50 $\Omega$ /1 M $\Omega$
Frequency response (-3 dB)	50 Hz to 1.5 GHz
Rise time (max)	350 ps
Rx channel isolation (typ.)	90 dB
Tx channel isolation (typ.)	55 dB (Tx8)
Noise figure (100 MHz / 55 dB gain)	Tx1 = 4 dB, Tx8 = 6 dB (super low noise mode)
Gain adjustment (1 dB steps)	-63 dB to +55 dB (High impedance mode range -20 dB to + 30 dB)
Flatness (+40 dB gain)	75 Hz-1 GHz +/-1.25 dB
Max instantaneous input	200 Vpk <400 ns FWHM pulse
Output P1dB (max)	+20 dBm
Selectable integrator	0.1 $\mu$ S, 1 $\mu$ S, 10 $\mu$ S
Dynamic range (100 MHz / 0 dB gain)	150 dB in 1 Hz bandwidth
Shielding (electrical)	>80 dB (flat wave, E/H $\approx$ 377 $\Omega$ )
Gain Step accuracy	$\pm$ 0.75 dB
Input match	18 dB <1 GHz

## Temperature Specification

Receiver operating	+0 $^{\circ}$ C to +45 $^{\circ}$ C
Transmitter operating	-20 $^{\circ}$ C to +55 $^{\circ}$ C
System Storage	-20 $^{\circ}$ C to +55 $^{\circ}$ C
Battery Storage	50% Charge, +10 $^{\circ}$ C to +30 $^{\circ}$ C (50 $^{\circ}$ C Abs Max)

## Optical Specification

Laser wavelength	1310 nm laser (EN60825 Class 1 laser radiation hazard)
Cross-site cable lengths	50 m, 100 m, 200 m, >200 m contact PPM
Transmitter module housing	Double shielded module
Transmitter weight (incl. battery)	Tx1 <1750 g, Tx8 < 2250 g
Receiver module housing	8 hp plug-in
Receiver module weight	<500 g

## Power Supply

Transmitter module	Shielded battery pack: Tx1/Tx8 = 5 hrs/10 hrs continuous operation, 1 wk / 2 wks in sleep mode
Receiver module	Power derived from chassis (supply 85-265 VAC)

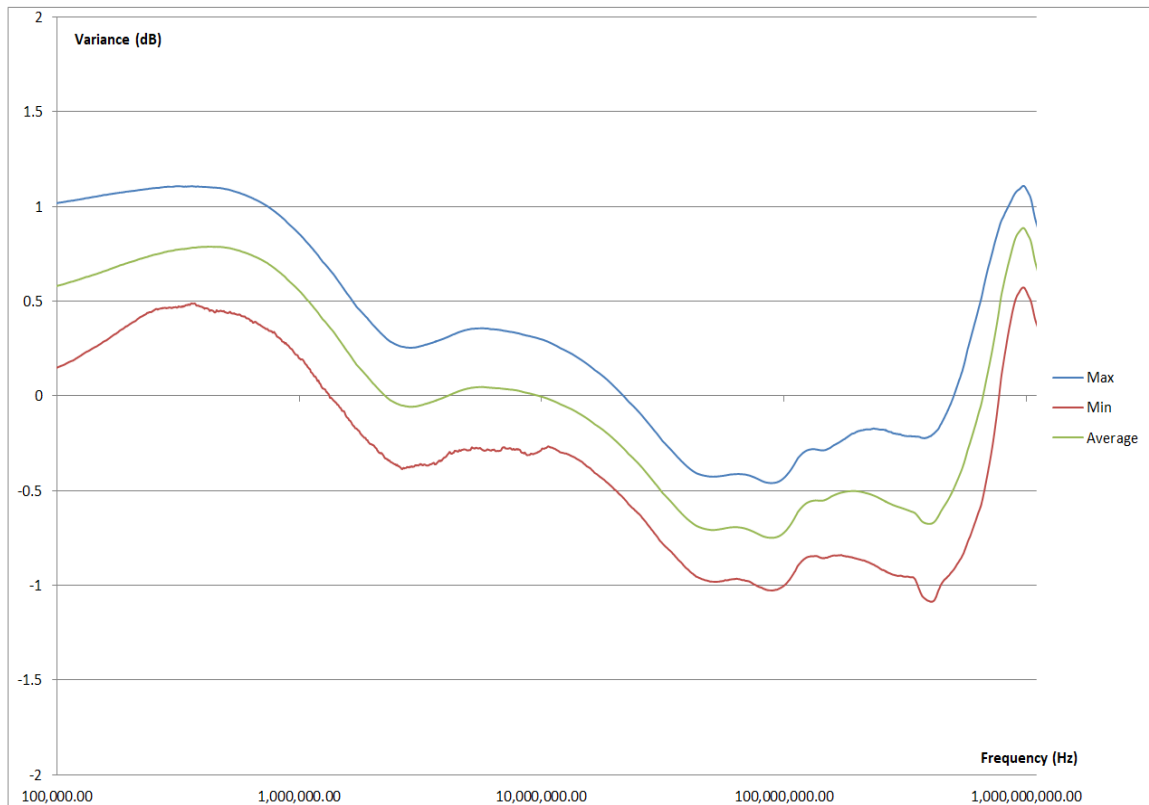
## Connections

Electrical	SMA (Tx), N-type (Rx)
Optical	Standard duplex LC/APC and/or MTP/APC, IP65 cable connectors
Remote PC monitor and control	Ethernet

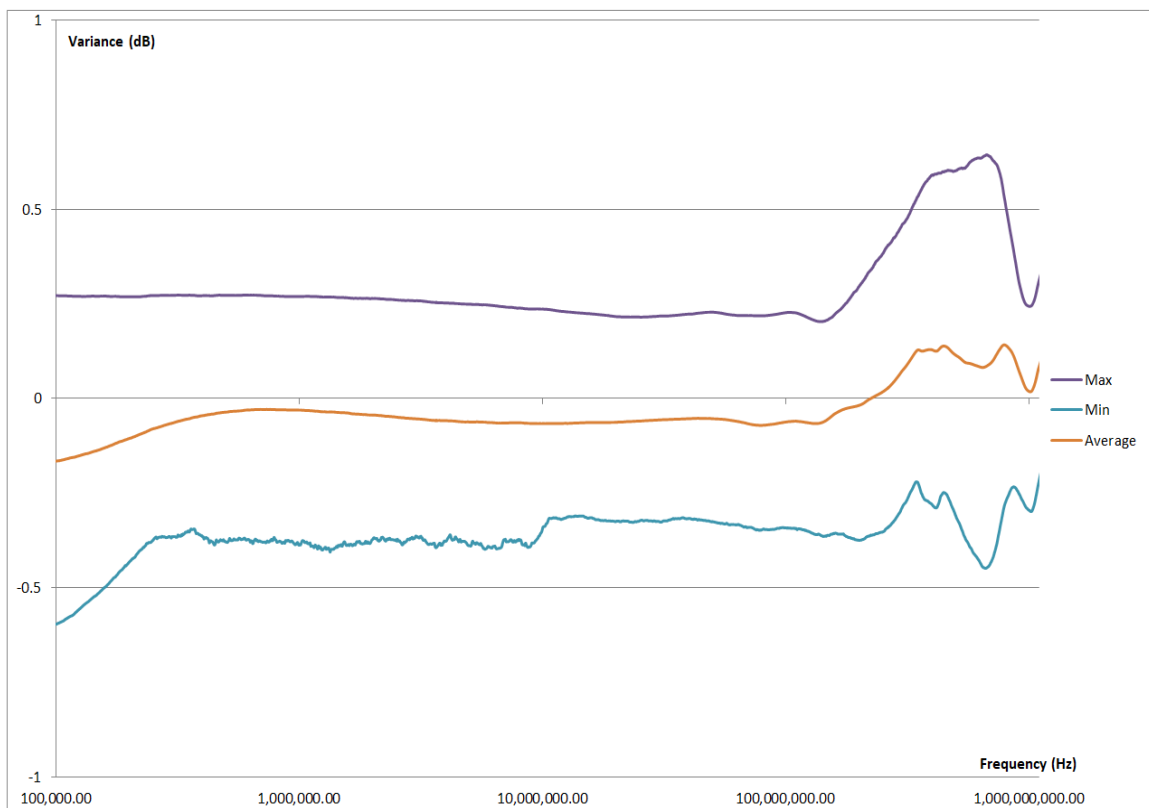
## Dimensions

Rx modules (Rx1, Rx2, Rx6)	130 mm (3 U) high, 40.3 (4 HP) wide, 251 mm depth
Tx1 remote transmitter (single input)	121 mm high x 81.5 / 73.5 mm wide (front/rear) x 143 mm depth
Tx8 remote transmitter (8-input)	126.5 mm high x 81.5 / 73.5 mm wide (front/rear) x 198 mm depth

## Link Ripple across Frequency

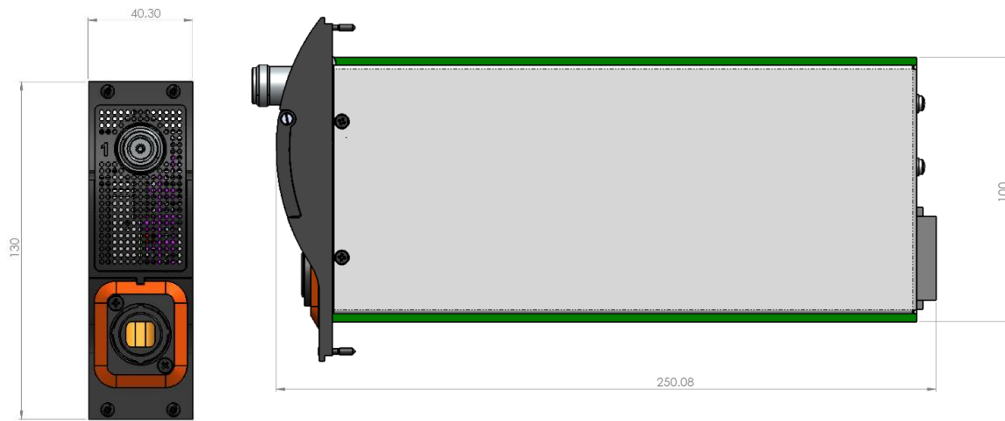


## Gain Step Accuracy across Frequency

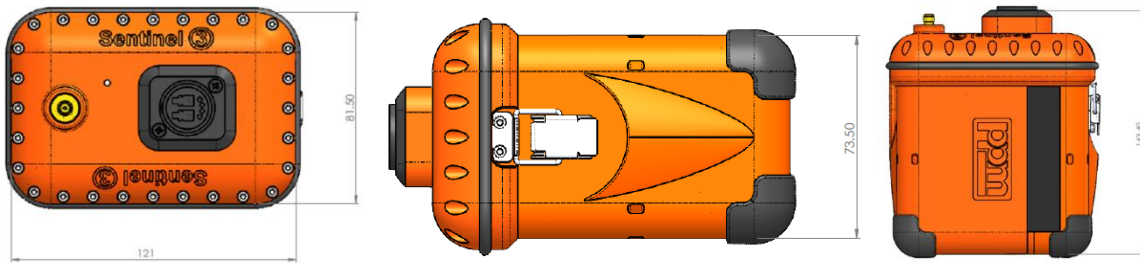


# DIMENSIONS

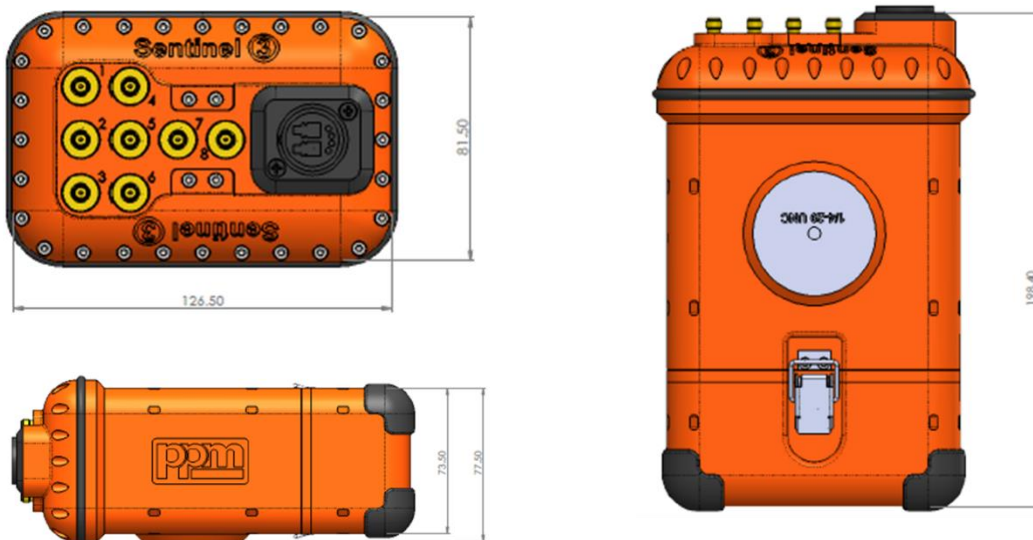
## Rx1/Rx6 Module



## Tx1 Transmitter Module



## Tx8 Transmitter Module



### Desktop Chassis



### 19" Rack Chassis

