DER2018
MultiStar Precision
DSP Receiver
• 20Hz–18GHz

Features
The DER2018 DSP Emissions Receiver offers continuous coverage from 20 Hz to 18 GHz with 140 MHz instantaneous bandwidth. This receiver combines state-of-the-art sensitivity, dynamic range, accuracy and convenience of operation. It complies with CISPR-16-1-1; PEAK, QUASI-PEAK and AVERAGE detectors.

The EMI receiver system includes a built-in computer and interfaces with standard data storage and high resolution video devices. A 23” wide-screen monitor, keyboard and mouse are included.

Receiver Systems Benefits
Emission Testing Solutions to the following standards:
• MIL-STD-461
• DO160
• CISPR 11/EN 55011
• CISPR 22/EN 55022
• CISPR 14/EN 55014
• FCC Part 15

• 140 MHz-wide, pre-selected, instantaneous bandwidth*
  *140MHz instantaneous bandwidth is available in CISPR bands C, D and E with -6dB resolution bandwidth ≥ 50kHz. The entire CISPR bands A and B are covered instantaneously with -6dB bandwidths at least 100Hz and 9kHz respectively. With narrower resolution bandwidth settings, the instantaneous bandwidth is proportionally reduced.

• PEAK, QUASI-PEAK, AVERAGE, and RMS-AVERAGE detections are processed simultaneously at up to 8,192 frequency points and interpolated using a proprietary algorithm. These features enable the user to:
  ◊ Display and record detector results as continuous spectra with 1 Hz resolution
  ◊ Sweep 9 kHz - 30 MHz (CISPR bands A & B) in 2 seconds with all CISPR detectors
  ◊ Process 30 - 1000 MHz (CISPR bands C & D) in 7 seconds with all CISPR detectors
  ◊ Reduce multi-day tasks to minutes

◊ Catch short-duration transient disturbances
◊ Identify emissions using fast time-base 3-D display

• Easy to use – all functions are easily accessible through a graphical user interface.

• Internal wide band noise source expedites periodic checking of the receiver’s amplitude response.

• Capability for user to set up, and save for future use, all of the needed test parameters including limit lines, start/stop frequencies, IF bandwidth, samples per bandwidth, dwell time at each frequency, transducer correction table, input attenuation, units to be used for the displayed level units, and more.
Definitions: ADNL = Average displayed noise level, PDNL = Peak displayed noise level

FREQUENCY RANGE: DER2018 Base System: 20 Hz–18 GHz
With CFE1840 antenna mountable down-converter: 20 Hz–40 GHz (See CFE1840 spec sheet)

MODES OF OPERATION: Spectrum Analyzer Modes
Free running
Single sweep

MODES OF OPERATION: Time Domain Analyzer Modes
Single Frequency
Single instantaneous sub-band
Free running
Single shot
Video, software and external trigger

SENSITIVITY & DYNAMIC RANGE (0dB input attenuation, -6dB resolution bandwidths, Preamp OFF)

<table>
<thead>
<tr>
<th>Frequency Range (MHz)</th>
<th>Resolution Bandwidth (kHz)</th>
<th>ADNL (dBm) (typical)</th>
<th>PDNL (dBm) (max., incl. spurious)</th>
<th>Typical Overload Range (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Hz–1 kHz</td>
<td>0.01</td>
<td>-100</td>
<td>-80</td>
<td>-1 to +2</td>
</tr>
<tr>
<td>10 kHz–30 MHz</td>
<td>0.01</td>
<td>-125</td>
<td>-95</td>
<td>-1 to +2</td>
</tr>
<tr>
<td>1 kHz–10 kHz</td>
<td>0.1</td>
<td>-100</td>
<td>-90</td>
<td>-1 to +2</td>
</tr>
<tr>
<td>9 kHz–150 kHz</td>
<td>0.2</td>
<td>-110</td>
<td>-98</td>
<td>-1 to +2</td>
</tr>
<tr>
<td>10 kHz–150 kHz</td>
<td>1</td>
<td>-100</td>
<td>-92</td>
<td>-1 to +2</td>
</tr>
<tr>
<td>150 kHz–30 MHz</td>
<td>9 or 10</td>
<td>-107</td>
<td>-98</td>
<td>-1 to +2</td>
</tr>
<tr>
<td>30–300 MHz</td>
<td>100 or 120</td>
<td>-94</td>
<td>-89</td>
<td>-1 to +8</td>
</tr>
<tr>
<td>300–1,000 MHz</td>
<td>100 or 120</td>
<td>-98</td>
<td>-90</td>
<td>-7 to +2</td>
</tr>
<tr>
<td>1–6 GHz</td>
<td>1,000</td>
<td>-95</td>
<td>-89</td>
<td>-8 to +2</td>
</tr>
<tr>
<td>6–18 GHz</td>
<td>1,000</td>
<td>-92</td>
<td>-74</td>
<td>-4 to +9</td>
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<tr>
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<td>-130</td>
<td>-115</td>
<td>-30 to -27</td>
</tr>
<tr>
<td>1 kHz–10 kHz</td>
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<td>-125</td>
<td>-115</td>
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<td>-130</td>
<td>-115</td>
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<td>-115</td>
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</tr>
<tr>
<td>150 kHz–30 MHz</td>
<td>9 or 10</td>
<td>-119</td>
<td>-117</td>
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</tr>
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<td>-118</td>
<td>-109</td>
<td>-38 to -30</td>
</tr>
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<td>-110</td>
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FREQUENCY RESOLUTION (Display & Markers): 1 Hz
DIGITALLY PROCESSED IF FILTERS, GAUSSIAN-SHAPED, -6dB or -3dB Bandwidths selectable
20 Hz–30 MHz: Any bandwidth in the range 10 Hz–350 kHz
30 MHz–18 GHz: Any bandwidth in the range 500 Hz–1.5 MHz
18 GHz–40 GHz (with CFE1840 down-converter): Any bandwidth in the range 500 Hz–1.5 MHz

LEVEL MEASUREMENT UNCERTAINTY: ±1.0 dB (95% uncertainty interval)

STABILITY OF INTERNAL FREQUENCY STANDARD
Over operating temperature range: ±0.5 ppm
First year: ±1 ppm
Specifications

1 dB COMPRESSION POINT: Above overload level
THIRD ORDER INTERCEPT POINT: (0 dB input attenuation, CW signals) Typically 10 dB above overload level
DETECTORS AVAILABLE IN BOTH SPECTRUM ANALYZER AND RECEIVER MODES: PK, QP, AVG, RMS-AVG, CISPR weighting and filtering. All detectors can be displayed simultaneously.

PRESELECTION

Bands A, B: 20 Hz - < 30 MHz
Band C #1: 30 MHz - < 160 MHz
Band C #2: 160 MHz - < 300 MHz
Band D #1: 300 MHz - < 440 MHz
Band D #2: 440 MHz - < 580 MHz
Band D #3: 580 MHz - < 720 MHz
Band D #4: 720 MHz - < 860 MHz
Band D #5: 860 MHz - < 1000 MHz
Band E #1: 1 GHz - < 6 GHz
Band E #2: 6 GHz - 18 GHz
Band K (with CFE1840 down-converter): 18 GHz - < 26.5 GHz
Band Ka (with CFE1840 down-converter): 26.5 GHz - 40 GHz

IMAGE REJECTION (0 dB input attenuation):
> 95 dB, CISPR limit > 40 dB (par 4.5.3)

IF REJECTION (0 dB input attenuation):
> 95 dB, CISPR limit > 40 dB (par 4.5.2)

RF INPUTS (Selectable, 50 Ohm, unbalanced, front panel)
- Regular RF input
- Remote LN1G18 Pre-amp input with DC Bias
- CFE1840 Down-converter input

MAX DC VOLTAGE AT ANY RF INPUT: 0 VDC maximum

INPUT ATTENUATOR: 20 Hz–18 GHz, 0–75 dB in 5 dB steps

OPERATING SYSTEM & PROCESSOR: Microsoft Windows 7 Professional, Intel i5 Processor (Quad Core, 2.66GHz)
DATA STORAGE: Internal 24X DVDRW and 500+ GB Hard Drive (HDD) (hot swappable drive, standard)
INTERFACES: 10 USB ports (2 front panel, 8 rear panel); 10/100/1000Mbps LAN, IEEE-488.

VIDEO OUTPUT (to display): DVI/VGA (up to 2560 x 1600 @ 60 Hz)

DATA PROCESSING: User defined limit lines and transducer correction tables. Saves original measured data for later processing with different correction tables.

TRANSIENT LIMITER LT1000 (accessory): Attenuates power line frequencies and harmonics. Attenuation: 10 dB ±0.5 V, 9 kHz to 100 MHz.

TEMPERATURE RANGE: 10°C to 40°C

SIZE (W x H x D) [excludes display and accessories]: 50.2 x 25.6(5U) x 68.2 cm, 19.75 x 10.06(5U) x 26.87 in

WEIGHT (approximate): 41 kg (90 lbs) includes display and accessories

DEGREE OF PROTECTION: IP-40

PRIMARY POWER: 100-240VAC, 50-60 Hz, single phase, 1000 VA max with included display [23 inch LED monitor], keyboard and mouse

EXPORT CLASSIFICATION: EAR99. These commodities, technology or software are controlled for export in accordance with the U.S. Export Administration Regulations. Diversion contrary to U.S. law is prohibited.