This low noise, high dynamic range down-converter translates signals in the 18–26.5 GHz and 26.5–40 GHz bands (K and Ka-bands) to the 4–18 GHz band for further processing by a spectrum analyzer or an EMC test receiver such as the CER2018A.

The CFE1840 provides ample gain of RF signals to accommodate long cable runs between the down converter and the EMC test receiver, while maintaining a good noise figure for the system. The CFE1840 has a stable, built-in noise source to facilitate self-test and self-calibration operations.

The CFE1840 integrates seamlessly with the CER2018A EMC test receiver, forming a 20Hz to 40GHz test system. When plugged into the CER2018A using any of the supplied cable sets, the CER2018A senses the presence of the CFE1840 automatically.

**SPECIFICATIONS, CFE1840 AS STANDALONE PRODUCT**

**FREQUENCY RANGE, CFE1840 Down-converter** .................. 18–40 GHz

**TYPICAL GAIN, NOISE FIGURE, COMPRESSION POINT**. See Fig. 1

**MODES OF OPERATION**
- **K-Band Down-convert Mode**. IF Output Frequency = 31GHz minus RF Input Frequency
- **Ka-Band Down-convert Mode**. IF Output Frequency = 44GHz minus RF Input Frequency
- **Calibrate Mode, K-Band**. Internal Noise source connected to input of K-Band signal path
- **Calibrate Mode, Ka-Band**. Internal Noise source connected to input of Ka-Band signal path

**STABILITY OF INTERNAL FREQUENCY STANDARD**
- Initial setting .......................................................... ±0.2 ppm
- Over operating temperature range ......................... ±0.4 ppm
- First year ................................................................ ±0.5 ppm
- First ten years ......................................................... ±2.0 ppm

**IMAGE REJECTION** ....................................................... > 90 dB

**IF REJECTION** .......................................................... > 90 dB

**SPURIOUS RESPONSES WITH NO INPUT** ...................... < -100 dBm

**RF INPUTS** ..................................................................... 2.9mm (F)

**IF OUTPUTS (rear panel)** .............................................. Precision N (F)

**OTHER INTERFACES** ..................................................... Control port for connection with CER2018A

**PRIMARY POWER** .......................................................... 90–264 VAC, single phase, 47-63 Hz, 60VA maximum
MODEL CONFIGURATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Weight</th>
<th>Size (W x H x D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFE1840</td>
<td>Base model with cabinet</td>
<td>5.45 kg (12.0 lb)</td>
<td>26.0 x 11.4 x 28.2 cm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CFE1840M1</td>
<td>Same as CFE1840 with enclosure removed for 19” rack mounting,</td>
<td>2.61 kg (5.75 lb)</td>
<td>20.6 x 8.4 x 25.1 cm</td>
</tr>
<tr>
<td></td>
<td>bracket included</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Typical Performance

Fig. 1. Typical Performance of the CFE1840 as a standalone product

SPECIFICATIONS, CFE1840 INTEGRATED WITH CER2018A

INTERCONNECTING CABLE LIMITATIONS

Recommended insertion loss: less than 20dB (The supplied 20ft/6m cable has 13.5dB insertion loss at 18GHz)

LEVEL MEASUREMENT ACCURACY

- Log Detector (Swept Frequency Mode) ………………. Peak responding, 18–40 GHz: 3.0 dB
- Linear Detector (Receiver Mode) ……………………. PK, AVG, QP, RMS-AVG responding, 18–40 GHz: 3.0 dB

SENSITIVITY – Peak Displayed Noise Level (PDNL) …………See Fig. 2 for typical PDNL and Average Displayed Noise level (ADNL)

- Log detector (Swept Frequency Mode, CER2018A IF BW = 1MHz, Input Attenuator = 20dB, short interconnecting cable)
  - K-Band ……………………………………………………….. < -90 dBm
  - Ka-Band ……………………………………………………….. < -87 dBm

- Linear detector (Receiver Mode, CER2018A IF BW = 1MHz, Input Attenuator = 20dB, short interconnecting cable)
  - K-Band ……………………………………………………….. < -90 dBm
  - Ka-Band ……………………………………………………….. < -87 dBm

Typical Displayed Noise Levels

Resolution Bandwidth = 1MHz

Fig. 2. Typical Displayed Noise Levels when integrated with the CER2018A