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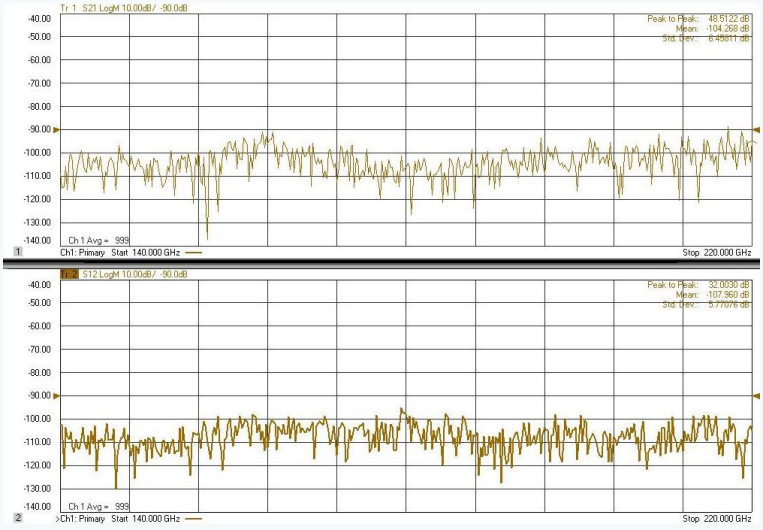
# WR-05 VNA Frequency Extension Module 140 - 220 GHz: **FEV-05-TR-0001**

**Farran's FEV-05 frequency extenders are a dedicated Test & Measurement solution for extending the range of your Vector Network Analyzer (VNA) to 140 – 220 GHz.**

These modules connect to your VNA and leverage its performance and features to perform unilateral (TR – T) or bilateral (TR – TR) S-parameters measurements in 140 – 220 GHz range.

**Key Facts:**

- Full simultaneous 2-port or 4-port network analysis
- Excellent dynamic range
- Excellent stability
- Compact and robust design




"Over the years, Farran's FEV extenders have delivered unparalleled dynamic range and long-term stability of the measurements without the need for frequent calibrations. They can be easily configured with wide range of our VNAs and are seamlessly controlled via VNA's user interface. Great customer support and direct access to Farran's engineers, coupled with the extenders' reliability, make my job simple and stress-free.

**Principal Test Engineer, European Automotive Radar Company**

## ADDITIONAL FEATURES

- T/R and T heads available
- Electronic power control compatibility with Agilent PNA-X
- 25 dB integrated manual variable attenuator on Port 1 heads
- 2-Port controller available as standard

## APPLICATIONS

- Test and measurement frequency range extension
- Balanced S-parameters
- Multi-port S-parameters
- Wafer probe measurement
- Antenna measurements
- Material characterisation

## ACCESSORIES

- Calibration Kits
- Cables
- User Manuals
- Flight Cases
- Power Supply Unit

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# Product Specification

| System Specification | Unit | Min | Typ | Max |
|---|---|---|---|---|
| Operating Frequency | GHz | 140 | - | 220 |
| Test Port Output Power (n. trc. meas.) | dBm | - | -15 | - |
| Dynamic Range | dB | 90 | 100 | - |
| Magnitude Trace Stability (typ.) | dB | - | ±0.3 | - |
| Phase Trace Stability (typ.) | deg | - | ±6 | - |
| Test Port Input 0.1dB Compression Point (nom.) | dBm | - | +15 | - |
| RF/LO Port Damage Level (nom.) | dBm | +15 | - | - |
| Raw Coupler Directivity (nom.) | dB | 30 | 35 | - |
| Variable Attenuator | dB | 0 | - | 25 |
| RF Input Frequency | GHz | 11.66 | - | 18.33 |
| RF Multiplier Number (nom.) | - | - | 12 | - |
| RF/LO Power Input | dBm | 5 | - | 10 |
| LO Input Frequency | GHz | 11.66 | - | 18.33 |
| LO Harmonic Number (nom.) | - | - | 12 | - |
| RF Test Port (nom.) | - | WR-05, IEEE 1785.2a (UG-387/UM compatible) | | |
| RF Test Port VSWR (typ.) | - | - | <1.5:1 | - |
| RF Input VSWR (typ.) | - | - | <1.4:1 | - |
| IF Bandwidth (nom.) | MHz | 5 | - | 50 |
| RF/LO/IF Ports | - | SMA(F) | | |
| DC Power Requirements (typ.) | - | +6V @ 1.5A | | |
| Dimensions (approx.) | mm | 290 x 105 x 60 | | |
| Weight (approx.) | kg | 2.4 | | |
| Operating Temperatures (nom.) | ˚C | 0 | - | 30 |

## SERVICES AVAILABLE

- Technical Support
- Installation and Setup
- Maintenance
- Application Support
- Hardware Support

For more information on any of our products or services please visit our website: www.farran.com

## TECHNICAL SUPPORT

- Technical support provided directly by our knowledgeable and friendly engineers.
- Support for pre- and post-purchase: system configuration, installation and troubleshooting.

## PRODUCT INSIGHTS

- For more product insights register at www.farran.com/customer
- Additional information: test data, CAD drawings and 3D models available.

## WARRANTY

- Standard 3 year warranty.
- Up to 5 year warranty optional.

## Specification Definitions

**Nominal value (nom.)** – ensured by design, not tested. **Measured value (min, max)** – expected and warranted product performance obtained from the actual measurements of product sample. **Non-traceable measured value (n. trc. meas.)** – expected product performance obtained from the actual measurements of a product sample by means of using Farran's own equipment and methods. Traceable only to Farran laboratory equipment. **Typical data (typ.)** – value that represents the product specification met over 90% of bandwidth or a mean value.
**Specifications without limits** – represent the warranted product performance; with values of no or a negligible deviation from the given value and as such have a secondary impact on the product performance.