



VNA Frequency Extension Products

FEATURES

- ▶ Light & easy to carry.
- ▶ 3 foot mounting for optimum stability.
- ▶ Compact Robust Design.
- ▶ Excellent Dynamic range.
- ▶ Low Noise Level.
- ▶ Convection Cooled.
- ▶ Offers full capability to measure Active & Passive components using integrated Manual Attenuator
- ▶ Custom options available for Antenna Testing and other High Dynamic range requirements

APPLICATIONS

- ▶ Test Equipment.
- ▶ Test Instrumentation.

ACCESSORIES

- ▶ Calibration Kit.
- ▶ Cables.
- ▶ Manuals.
- ▶ Flight case optional.

DESCRIPTION

Farran Technology Ltd offers frequency extension modules and frequency extension controller for Vector Network Analysers to extend their measurement capability to 110GHz. They are designed to cover 4 waveguides bands:

- U band (40GHz - 60GHz);
- V band (50GHz - 75GHz);
- E band (60GHz - 90GHz);
- W band (75GHz - 110GHz)

with ongoing development on higher frequency modules.

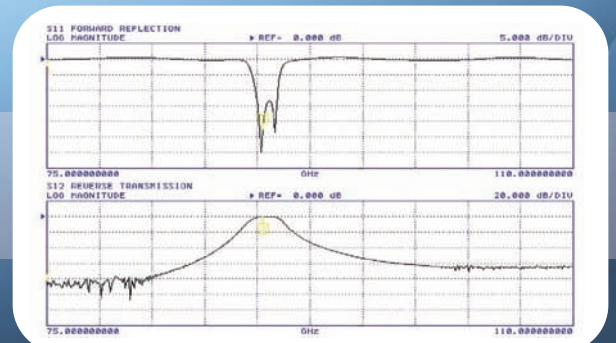


◀ FEV-xx-T/R Extender Head



▶ FEC-xx Controller Box

▼ Calibration Kit





SPECIFICATION

(F & D band are currently being developed)

Waveguide designation	U – band (WR-19)	V – band (WR-15)	E – band (WR-12)	W – band (WR-10)	F – band* (WR-8)	D – band* (WR-6)
Model Number	FEV - 19	FEV - 15	FEV - 12	FEV - 10	FEV - 8	FEV - 6
Frequency Range [GHz]	40 - 60	50 - 75	60 - 90	75 - 110	90 - 140	110 - 170
RF Frequency [GHz]	10 - 15	12.5 - 18.8	10 - 15	12.5 - 18.8	11.25 - 17.5	11 - 17
RF Harmonic Number	4	4	6	6	8	10
LO Frequency \pm IF offset [GHz]	10 - 15	10 - 15	10 - 15	9.4 - 13.75	11.25 - 17.5	9.1 - 14.2
LO Harmonic Number	4	5	6	8	8	12
IF Frequency [MHz]	10 - 300	10 - 300	10 - 300	10 - 300	10 - 300	10 - 300
Dynamic Range [dB]	>105	>100	>97	>94	>80	70dB typ
Power at DUT input [dBm] (typical)	+7	+5	+2	0	-8	-20

SYSTEM OPERATION

The Farran transmission/reflection module is driven by RF and LO signals from the compatible VNA, with mm-wave option. In the T/R module the RF signal is amplified, multiplied and applied to dual directional coupler. The through path of the coupler is connected to the test port and the signal is transmitted to DUT. A portion of the transmitted signal is coupled back to the harmonic mixer, driven by the LO. The mixing product is sent to REF IF output.

The reflected signal from the DUT is coupled through the other coupled port of the coupler and used as a RF input for the second harmonic mixer, where Test IF signal is generated. The REF and TEST IF signals are compared in phase and amplitude in the VNA to produce results for S11. The transmitted signal through the DUT is received by the other module and is coupled to the harmonic mixer.

This again is compared in phase and amplitude to the REF signal to produce results for S21. Similar scenario occurs in the other module of the pair, to produce results for S22 and S12, enabling quick and accurate full two port S-parameter measurement.

In the configuration with T/R and T only forward transmission coefficient and input reflection coefficient can be measured simultaneously. To obtain a full two port S-parameter measurement the DUT is reversed in the next step and measurement repeated.

CONTACT DETAILS:

Unit 1, Airport East Business Park,
Farmers Cross, Cork, Ireland.

tel: (353) 21 484 9170
fax: (353) 21 484 9192

sales@farran.com
www.farran.com