



farran

Operational Manual

Signal Generator Frequency Extenders (FES)



QUALITY
ISO 9001:2015
NSAI Certified



2.1 Whats in the box

This sub-section (page 3), introduces the various components and accessories that comes with the FES-XX. Be sure to familiarise yourself with them before using the system.

1x



1x



RF/LO SMA Cable

1x



DC Power Supply

1x



Ruggedized Waveguide



Table 1. FES-XX Specifications

Model	Parameters																	
	Operating Frequency (GHz)		Test Port Output Power (dBm)	RF Input Frequency (GHz)		RF xN	RF Input Power (dBm)		RF Port Damage Level (dBm)	Optional Variable Attenuator (dB)		RF Test Port VSWR	RF Input Port VSWR	RF Input Port Interface (GHz)	DC Input Power (V/A)	Wght. (kg)	Dim. (mm)	Test Port Interface (UG-383/U compatible)
	min	max	typ	min	max	nom	min	max	nom	min	max	typ	typ	typ	nom	typ	typ	typ
FES-19-0001	40	60	+10	10	15	4	+5	+10	+15	0	25	<1.4:1	<1.4:1	SMA(F)	+12V@1.0A	1.5	205x120x85	WR-19 Precision Style
FES-19-0002	40	60	+19	10	15	4	+7	+12	+15	0	25	<1.4:1	<1.4:1	SMA(F)	+12V@1.5A	1.5	205x120x85	WR-19 Precision Style
FES-15-0001	50	75	+8	12.5	18.75	4	+5	+10	+15	0	25	<1.4:1	<1.4:1	SMA(F)	+12V@1.0A	1.25	170x105x60	WR-15, IEEE 1785.2a
FES-15-0002	50	75	+18	12.5	18.75	4	+5	+10	+15	0	25	<1.4:1	<1.4:1	SMA(F)	+12V@1.4A	1.25	205x105x60	WR-15, IEEE 1785.2a
FES-12-0001	60	90	+7	10	15	6	+5	+10	+15	0	25	<1.4:1	<1.4:1	SMA(F)	+12V@1.0A	1.25	170x105x60	WR-12, IEEE 1785.2a
FES-12-0002	60	90	+17	10	15	6	+5	+10	+15	0	25	<1.4:1	<1.4:1	SMA(F)	+12V@1.4A	1.25	205x105x60	WR-12, IEEE 1785.2a
FES-10-0001	75	110	+5	12.5	18.33	6	+5	+10	+15	0	25	<1.4:1	<1.4:1	SMA(F)	+12V@1.0A	1.25	170x105x60	WR-10, IEEE 1785.2a
FES-10-0003	75	110	+17	12.5	18.33	6	+5	+10	+15	0	25	<1.4:1	<1.4:1	SMA(F)	+18V@1.5A	1.25	170x105x60	WR-10, IEEE 1785.2a
FES-10-0004	75	110	+18	12.5	18.33	6	+5	+10	+15	0	25	<1.4:1	<1.4:1	SMA(F)	+18V@1.5A	1.25	170x105x60	WR-10, IEEE 1785.2a
FES-08-0001	90	140	-8	7.5	11.67	12	+5	+10	+15	0	25	<1.5:1	<1.5:1	SMA(F)	+12V@1.0A	1.25	170x105x60	WR-08, IEEE 1785.2a
FES-06-0001	135	145	-8	9.16	14.17	12	+5	+10	+15	0	25	<1.5:1	<1.5:1	SMA(F)	+12V@1.0A	1.25	170x105x60	WR-06, IEEE 1785.2a
FES-06-0004	135	145	+16	11.25	12.08	12	+5	+10	+15	0	25	<2.5:1	<1.5:1	SMA(F)	+12V@1.4A	1.25	210x105x60	WR-06, IEEE 1785.2a
FES-05-0001	140	220	-10	11.66	18.33	12	+5	+10	+15	0	25	<1.5:1	<1.5:1	SMA(F)	+12V@1.0A	1.25	170x105x60	WR-05, IEEE 1785.2a
FES-04-0001	170	260	-8	9.44	14.44	18	+5	+10	+15	0	25	<2.0:1	<1.5:1	SMA(F)	+12V@1.2A	1.25	170x105x60	WR-04, IEEE 1785.2a
FES-03-0001	220	325	-8	12.22	18.06	18	+5	+10	+15	0	25	<2.0:1	<1.5:1	SMA(F)	+12V@1.2A	1.25	170x105x60	WR-03, IEEE 1785.2a
FES-02-0001	325	500	-18	10.83	16.67	30	+5	+10	+15	0	25	<2.5:1	<1.5:1	SMA(F)	+12V@1.2A	1.25	170x105x60	WR-02, IEEE 1785.2a

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.





8. Typical Performance

FES-XX output power vs frequency performance plots are provided in this section. Unless otherwise stated, all performance data furnished here has been obtained from in-house measurements at standard temperature and pressure. The power measurement uncertainty is ± 0.5 dB. Test results were obtained after 1 hour warm-up time.

8.1 Test Port Power

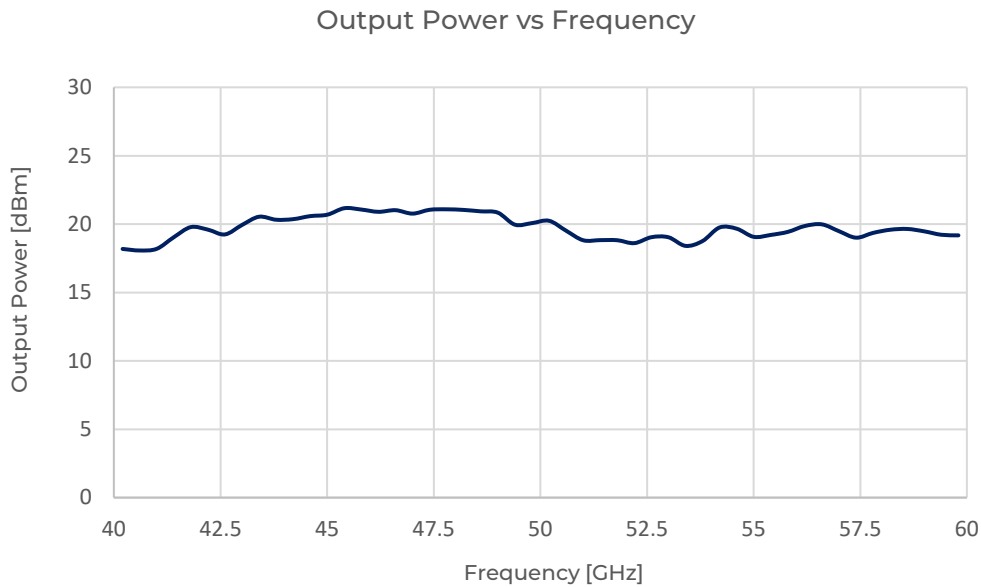


Figure 4.1: Typical test port output power for FES-19-0001

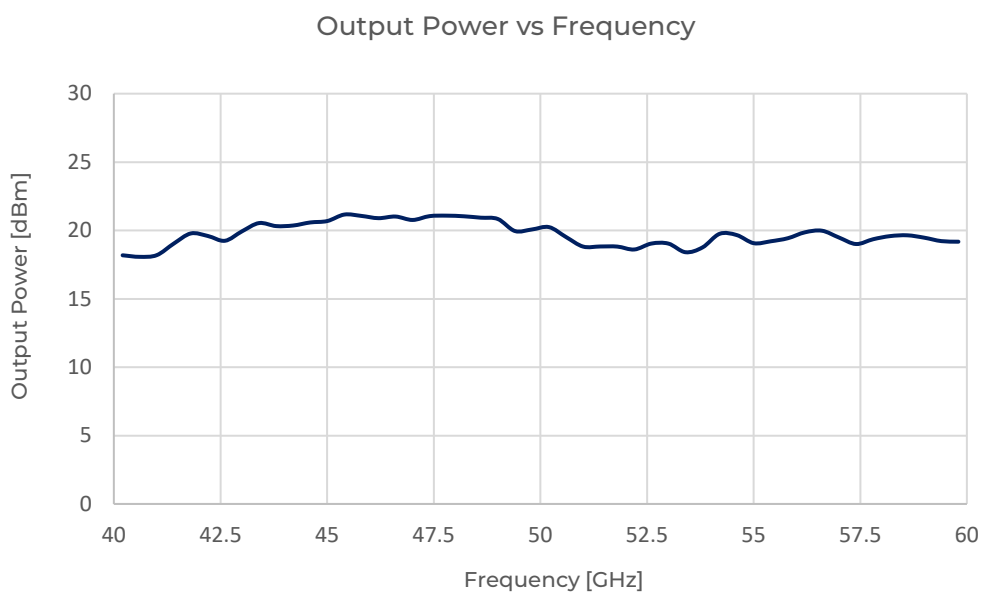


Figure 4.2: Typical test port output power for FES-19-0002



8. Typical Performance

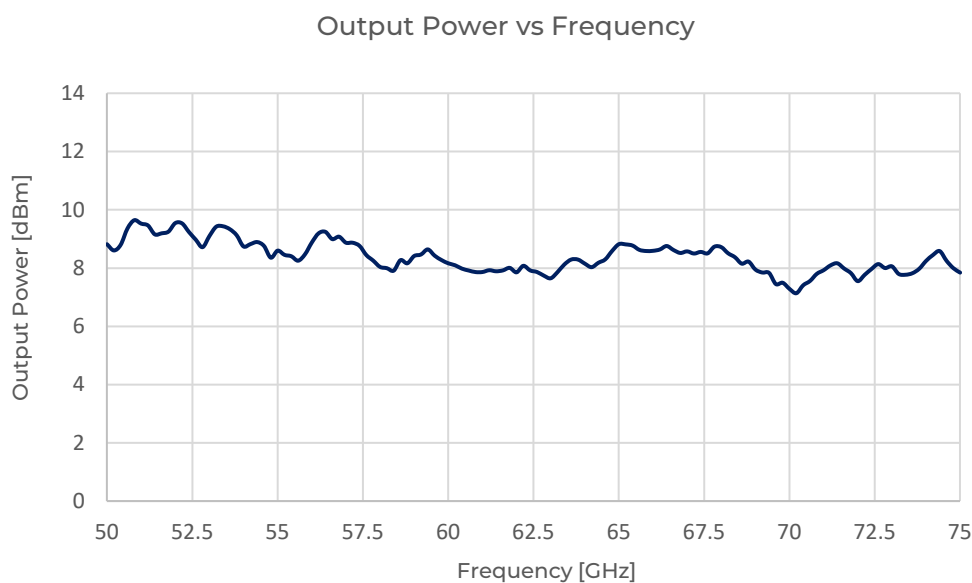


Figure 4.3: Typical test port output power for FES-15-0001

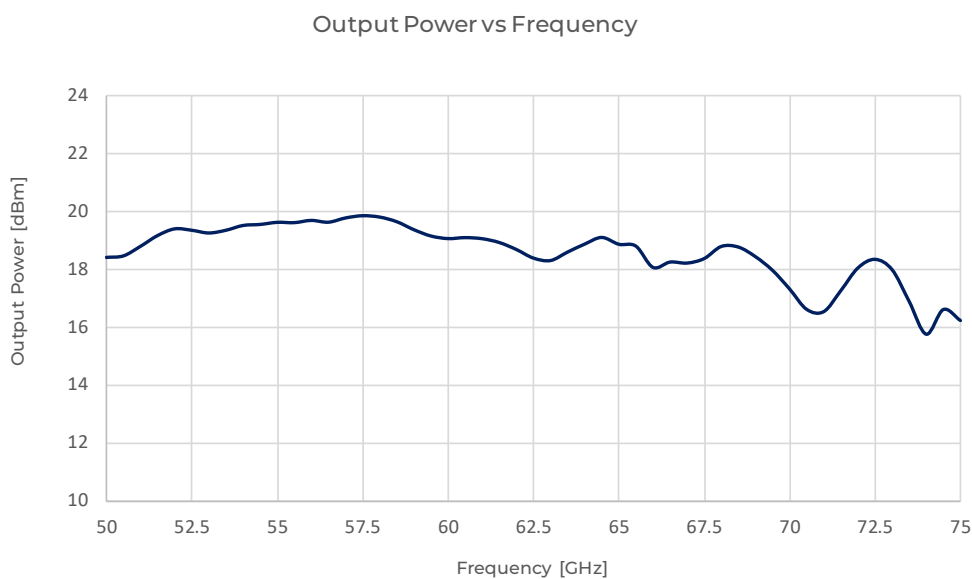


Figure 4.4: Typical test port output power for FES-15-0002



8. Typical Performance

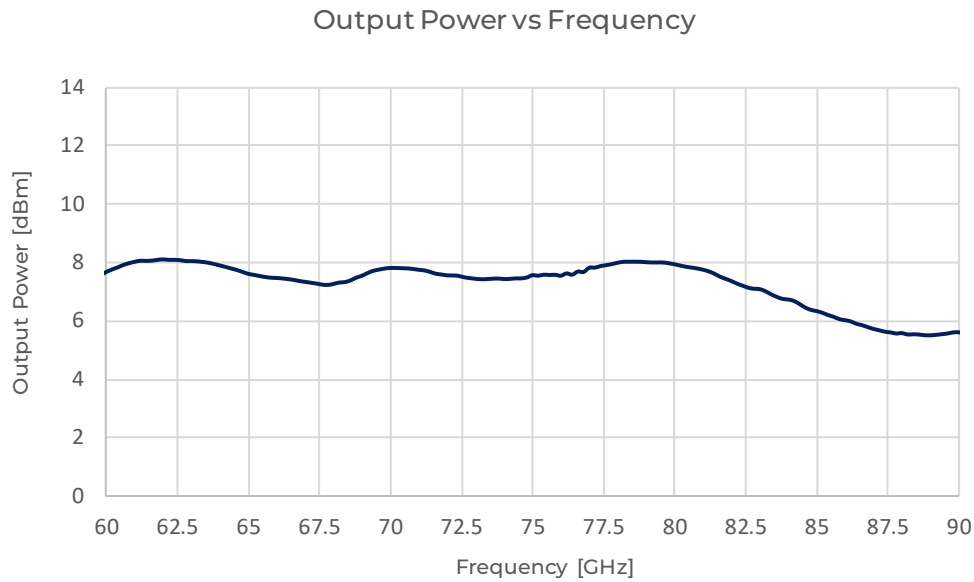


Figure 4.5: Typical test port output power for FES-12-0001

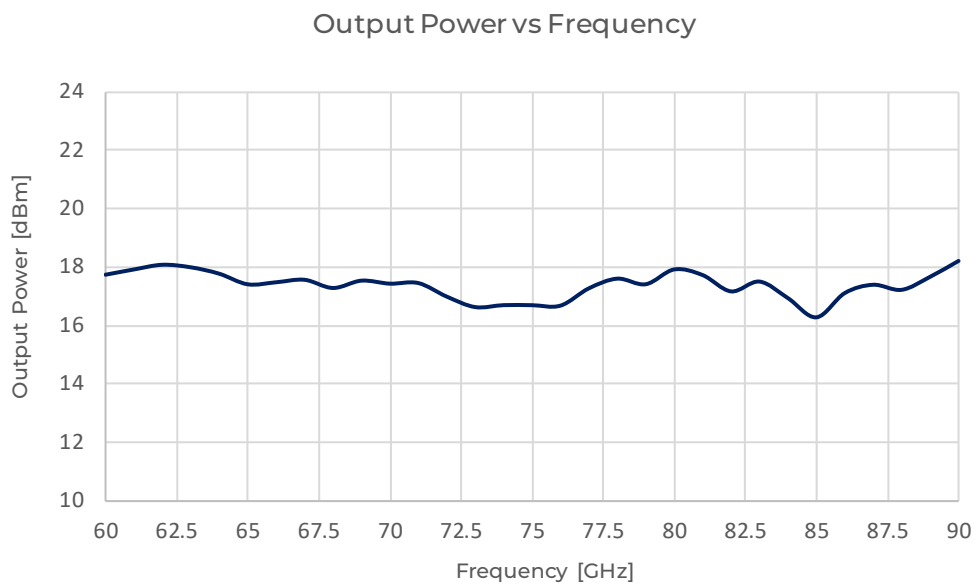


Figure 4.6: Typical test port output power for FES-12-0002



8. Typical Performance

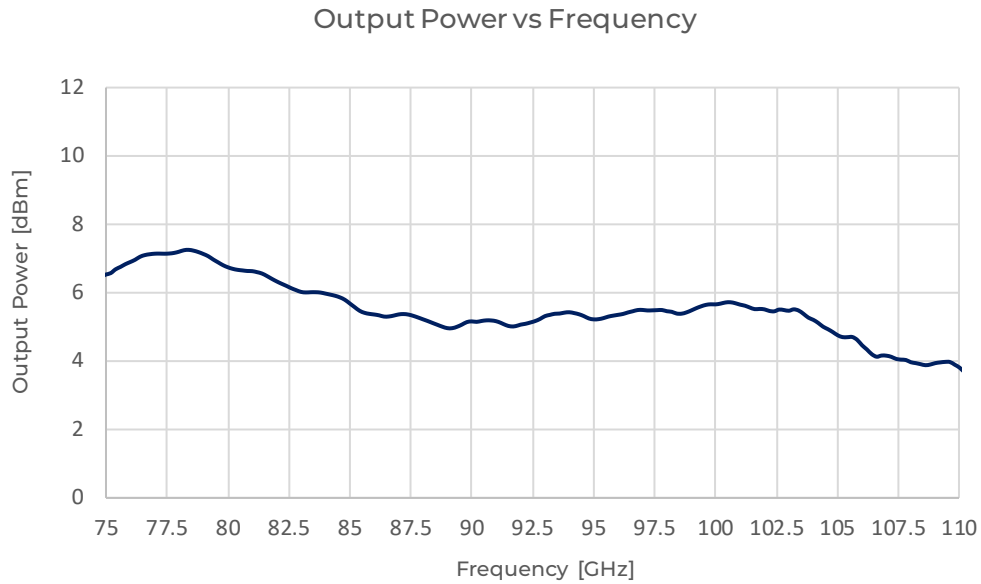


Figure 4.7: Typical test port output power for FES-10-0001

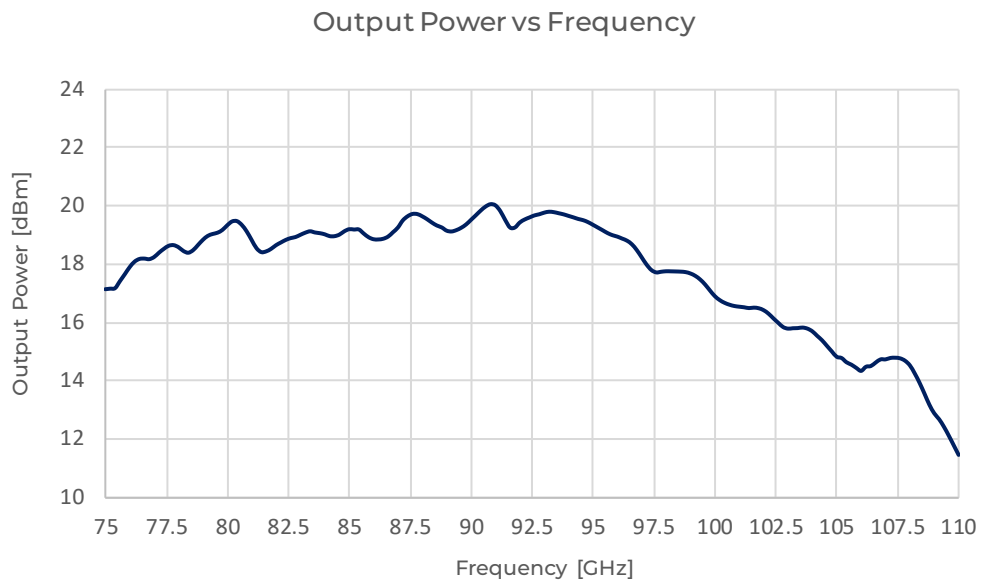


Figure 4.8: Typical test port output power for FES-10-0003



8. Typical Performance

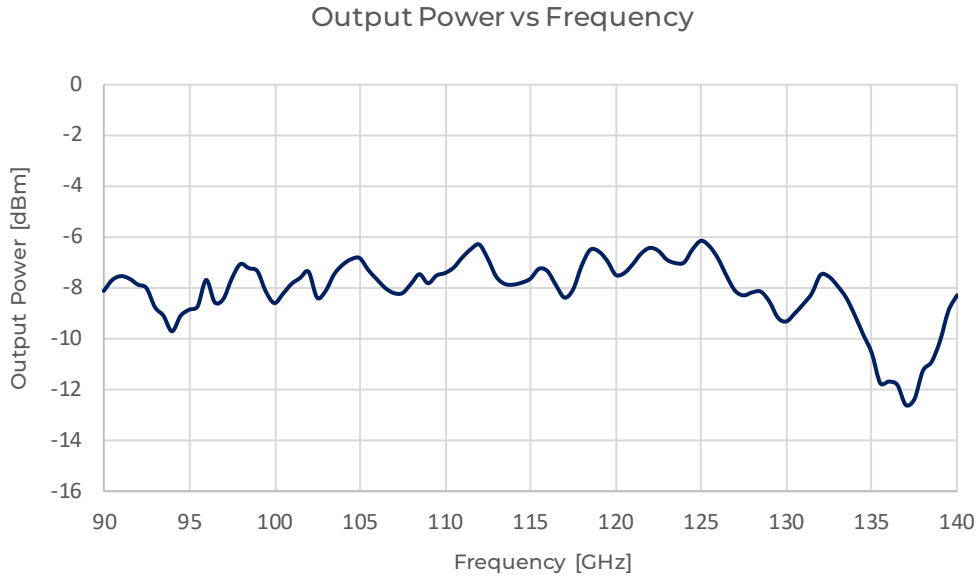


Figure 4.9: Typical test port output power for FES-08-0001

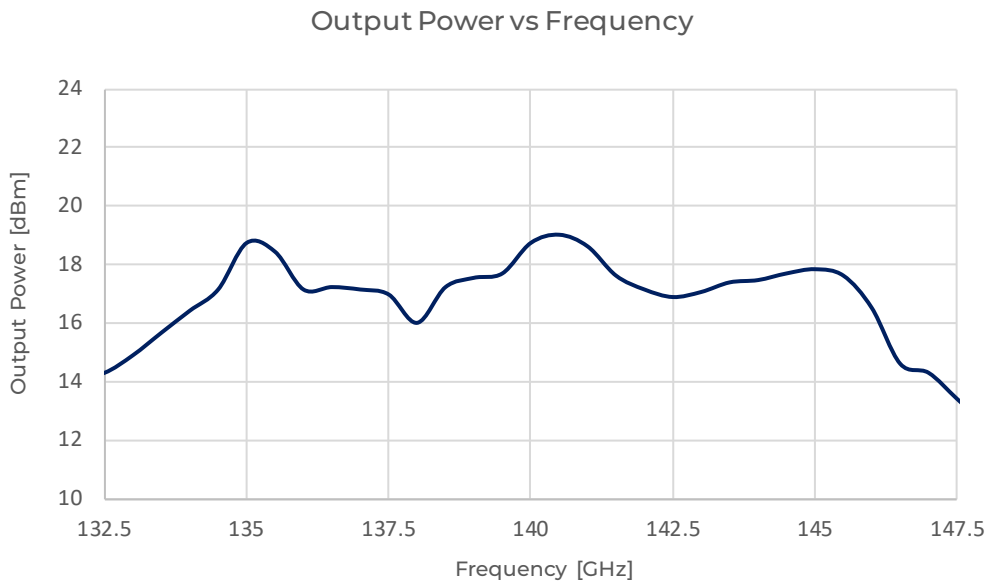


Figure 4.10: Typical test port output power for FES-06-0004



8. Typical Performance

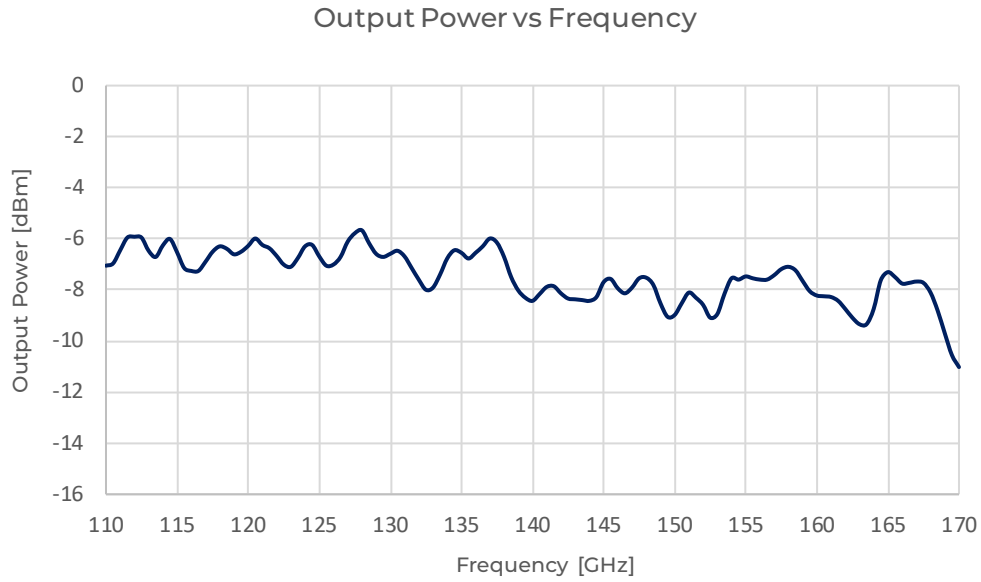


Figure 4.11: Typical test port output power for FES-06-0001

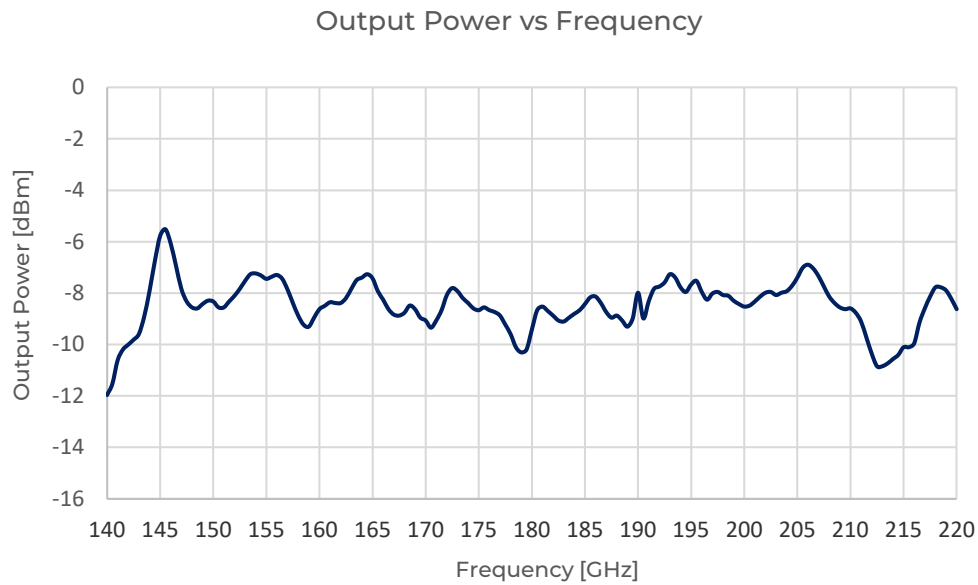


Figure 4.12: Typical test port output power for FES-05-0001



8. Typical Performance

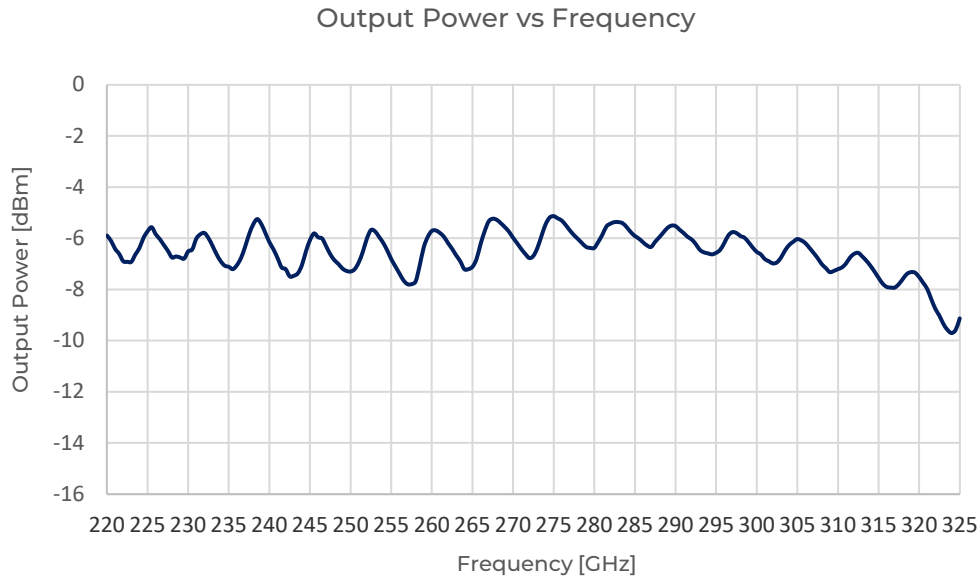


Figure 4.13: Typical test port output power for FES-03-0001

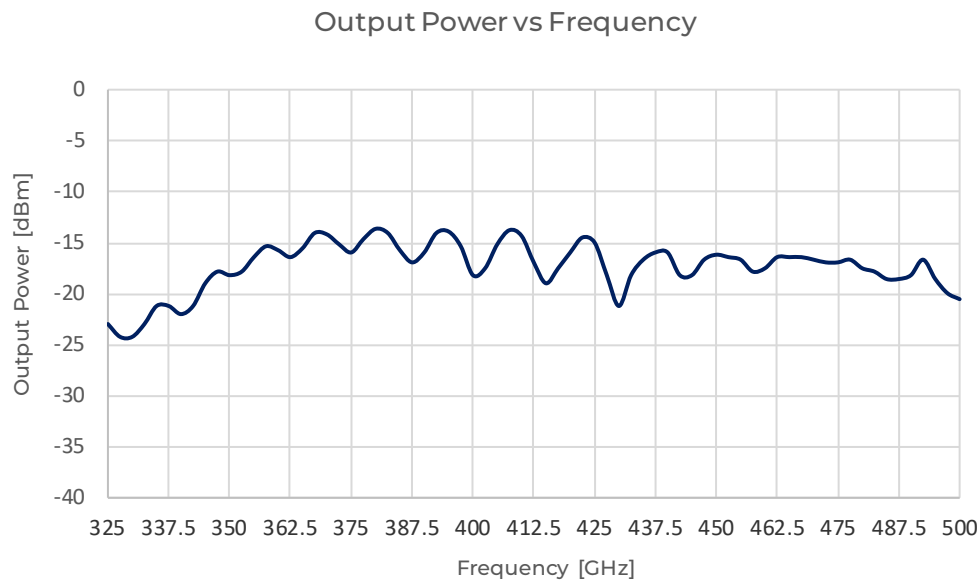


Figure 4.14: Typical test port output power for FES-02-0001

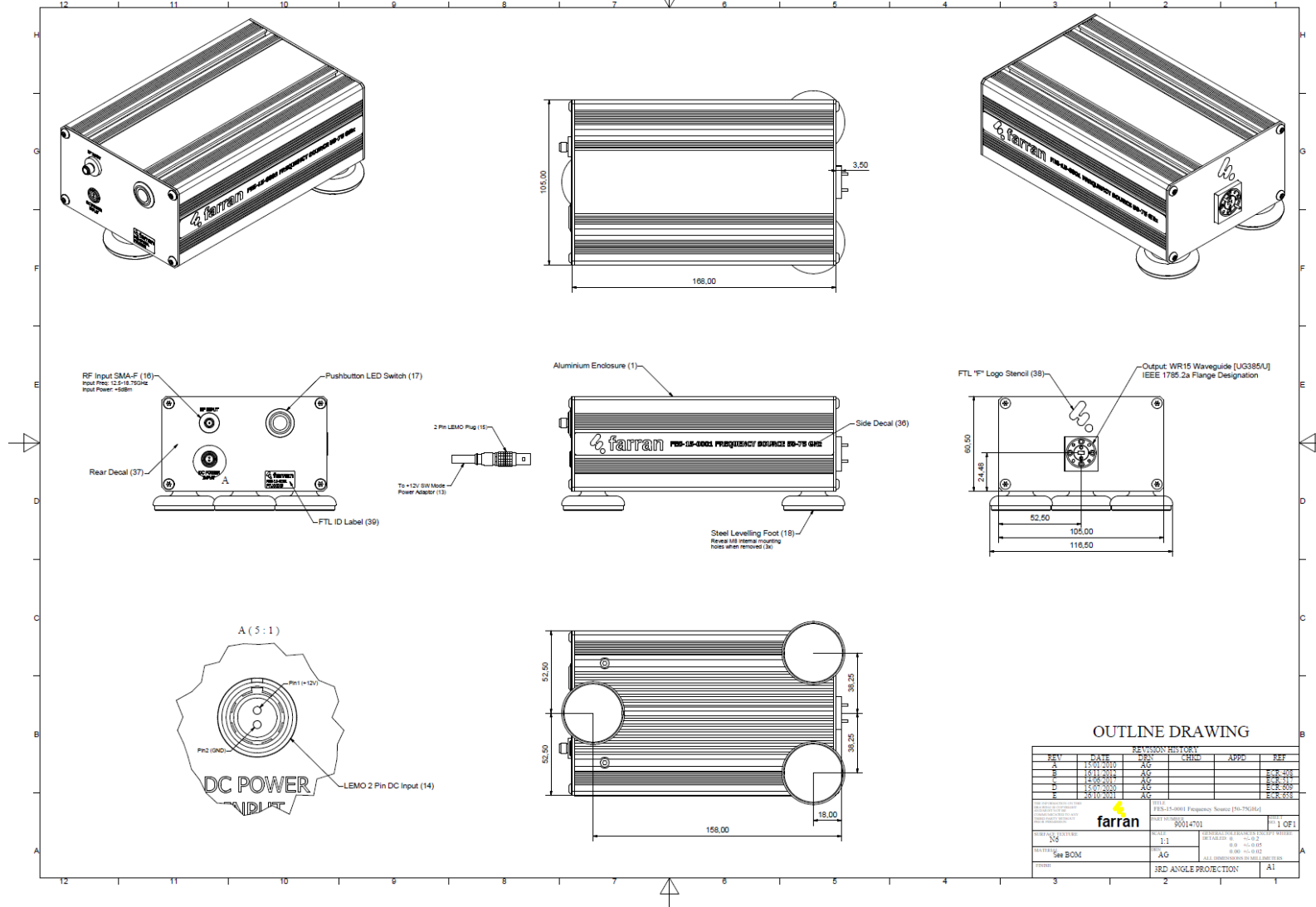


12. Appendices

12.1 Drawings



FES-15-0001



OUTLINE DRAWING

REVISION HISTORY					
REV	DATE	BY	CHKD	APPR	REF
A	15/01/2010	AG			ECR-208
B	18/11/2014	AG			ECR-210
C	14/08/2015	AG			ECR-211
D	11/07/2016	AG			ECR-209
E	28/10/2016	AG			ECR-205

TITLE: FES-15-0001 Frequency Extender (10-70GHz) PART NUMBER: 90014701 SCALE: 1:1 DRAWN BY: AG CHECKED BY: AG DATE: 11/07/2016 ALL DIMENSIONS IN MILLIMETERS 3RD ANGLE PROJECTION A1		SHEET: 1 OF 1
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