



**Farran Technology Ltd.,  
Unit 1 Airport East Technology Park,  
Farmers Cross, Co. Cork,  
Ireland.**

**Certificate of Calibration**

**Certificate No : FCC 10312**

<b>Model#: FS-Z90</b>	<b>S/N: 757569/011</b>	<b>Cal Freq: 60-90GHz</b>
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**Calibration Date : 23-08-2018**

**As Shipped Condition : On completion of testing, measurement points within specification**

**Comments: Unit calibrated to spec, results on file.**

**Measurement Uncertainty: +/-1.5dB**

**Customer : RISE Research Institute of Sweden AB**

**Brinellgatan 4  
504 62 Boras  
Schweden**

**Location of Calibration: Farran Technology**

**Certified By: Michael Crowley Date 23/08/2018**

**Signature**

**This calibration certificate documents, that the named item is tested and measured against defined specifications.**

**Measurement results are located usually in the corresponding interval with a probability of approx 95% (coverage factor k=2).**

**Calibration is performed with test equipment and standards directly or indirectly traceable by means of approved calibration techniques to the PTB/DKD or other national / international standards, which realize the physical units of measurement according to the International System of Units (SI).**

**Principals and methods of calibration correspond and are conformant with EN ISO/IEC 17025 and ANSI/NCSL Z540-1-1994. The applied quality system is certified to EN ISO 9001.**

**This calibration certificate may not be reproduced other than in full. Calibration certificates without signatures are not valid.**

**The user is obliged to have the object recalibrated at appropriate intervals.**

<b>Calibration Procedure No: STP 27</b>				
<b>Calibration Equipment used:</b>				
<b>Description:</b>	<b>Model No:</b>	<b>S/N:</b>	<b>Certificate No.</b>	<b>Cal Due</b>
Agilent Spectrum Analyzer	8563E	3846A09627	1-9030600322-14	July 2019
Agilent Power Meter	E4418A	GB38273183	1-9030600322-4	July 2019
Agilent Power Sensor	8481A	3318A94748	1-9030600322-25	July 2019
Agilent Power Sensor	V8486A	MY44420202	1-9306855147-1	Nov 2019
Agilent Power Sensor	W8486A	3318A00477	1-9306855147-2	Nov 2019
Agilent Synthesized Generator	E8247B	MY43320714	1-9030600322-24	July 2019
Agilent Synthesized Generator	83712B	US37100716	1-9030600322-10	July 2019

# Conversion Loss Data for Harmonic Mixer FS-Z90 (60 .. 90 GHz)

(Order No. 8800000960/53JW/L6)

Revision 1.30

Ser. No. 757569/011

## Conversion loss data valid for following operating conditions:

IF Order of Harmonic	741,4 MHz (valid for 404,4 MHz and 729,9 MHz too)
LO frequency range	6 10.12 to 15.12GHz +15.5dBm
LO level	nominal
Bias	0 mA

Frequency / GHz	Conversion Loss / dB	Frequency / GHz	Conversion Loss / dB
60.00	-23.35	75.31	-28.55
60.61	-22.46	75.92	-28.91
61.22	-22.12	76.53	-29.07
61.84	-22.37	77.14	-29.43
62.45	-22.55	77.76	-30.37
63.06	-22.60	78.37	-31.81
63.67	-23.08	78.98	-33.06
64.29	-24.05	79.59	-34.16
64.90	-25.32	80.20	-34.92
65.51	-25.92	80.82	-36.62
66.12	-26.22	81.43	-36.34
66.74	-27.74	82.04	-35.60
67.35	-27.70	82.65	-35.13
67.96	-26.20	83.27	-35.00
68.57	-25.67	83.88	-34.92
69.18	-25.23	84.49	-35.30
69.80	-24.52	85.10	-34.89
70.41	-24.49	85.71	-34.16
71.02	-24.90	86.33	-33.66
71.63	-25.41	86.94	-33.45
72.25	-26.09	87.55	-32.75
72.86	-26.47	88.16	-32.20
73.47	-27.26	88.78	-31.49
74.08	-27.90	89.39	-30.73
74.69	-28.66	90.00	-30.24