



Millimeter wave design, production & test enterprise

Company Capabilities & Solutions Overview

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1. Who we are



Irish Millimeter wave design, test and production enterprise

Where the Irish phrase 'Céad Míle Fáilte', which translates as one hundred thousand welcomes, is at the forefront of our business ethos.

Why Farran?

Serving emerging and mature markets, we thrive on solving complex challenges with leading edge solutions that work the first time, every time.

Partner, not Supplier

Farran customers and partners may span the globe, yet our business approach is quintessentially Céad Míle Fáilte - Irish Gaelic which means 100,000 Welcomes. We place a premium on openness and accessibility, so you can speak directly with our Chief Technology Officer, Product Designer or Head Engineer at any time.

 [Video 1](#)

2. Farran Facts



- Established in 1977, located in Cork, Ireland
- Millimeter wave design, production and test enterprise providing standard and bespoke components and sub-systems for 5G & 6G, Test & Measurement, Semiconductors, Threat Detection, Intelligent Transportation and Space applications.
- Prime supplier to system integrators and solutions providers worldwide.
- All operations controlled in house: design, production and test.
- I.S. EN ISO 9001:2015 certified.

3. Farran's Solutions



Test &
Measurement
(T&M)



5G & 6G Wireless
Communications



Automated Test
Equipment (ATE)



Spectrum
Monitoring



Intelligent Threat
Detection (ITD)



Space &
Emerging
Technologies



Waveguide
Components



Custom Designs

4. Our customers



5. Our Mission & Vision



At Farran we contribute to customers' success by providing innovative and reliable millimetre-wave products that allow them to gain competitive advantage and win in their own markets. We excel in sharing our experience and know-how with customers who need to bridge their technology gap.

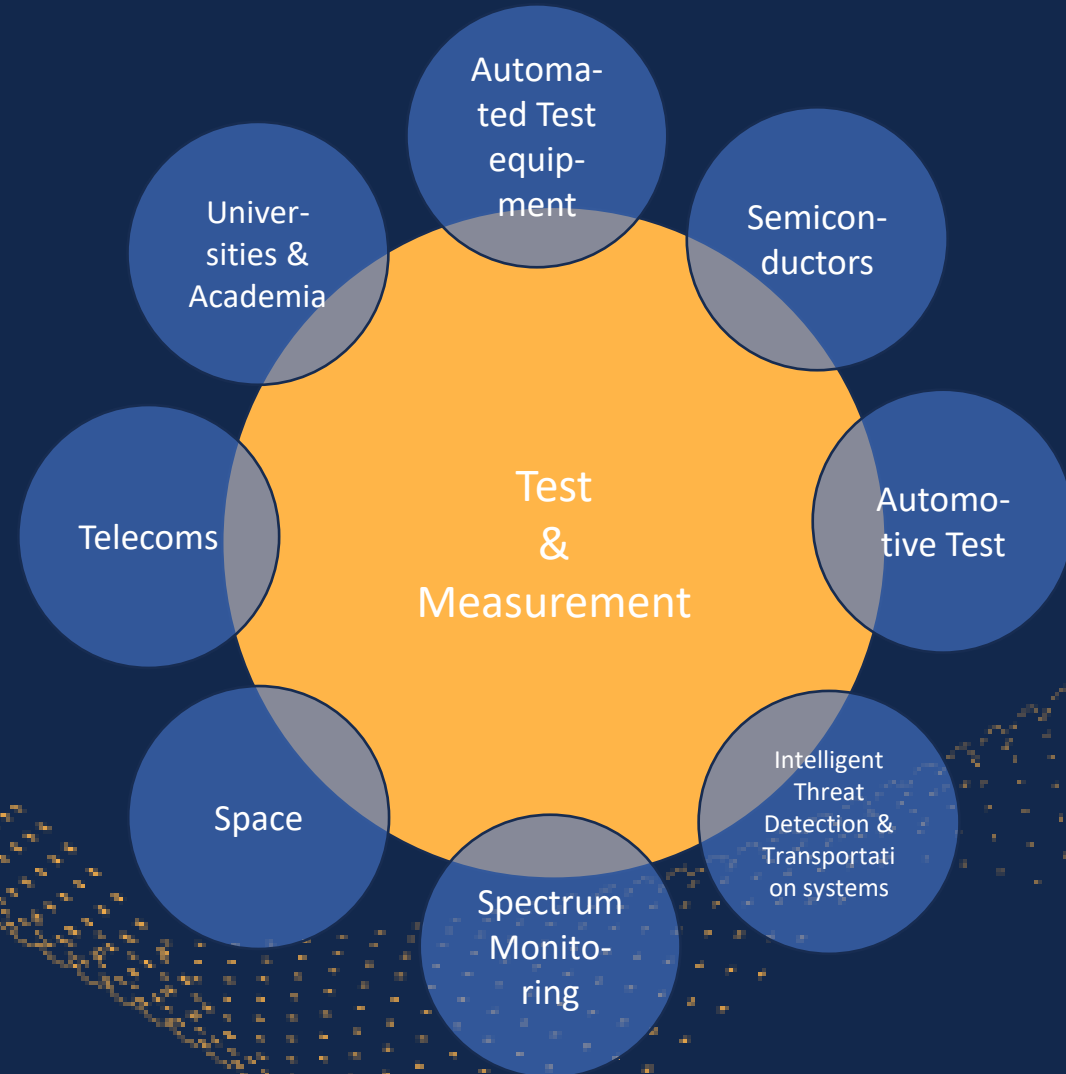
Over the past 10 years we have:

- Developed and supplied **116 custom products**
- Collaborated with **42** different customers in creation of bespoke solutions
- Successfully completed **4** technology development programmes supported by European Space Agency, and **1** R&D 7th Framework Programme funded by the EU Commission
- Expanded our technological limits and expertise from **110 GHz** to **500 GHz**
- Built strong presence in **EU, UK & US** and **Canada, Asia, Russia** and **Middle East**
- Assisted and accelerated developments in **5G & 6G, Test & Measurement, Semiconductors, Threat Detection, Intelligent Transportation** and **Space & Emerging Technologies** sectors

6. Markets

Farran's is known for its know-how and products in Test & Measurement market. Our solutions and core expertise is also required in a number of adjacent markets:

- Automated Test Equipment
- Semiconductors
- Automotive Test
- Intelligent Threat Detection & Transportation Systems
- Spectrum Monitoring
- Space
- Telecoms
- Universities and Academia



7.1 Farran's Value Proposition



RF/microwave and millimeter-wave hardware design, manufacture and test partner

Component and system development service: from concept and design, through prototyping and evaluation, to volume test and manufacturing

Who
we
are?

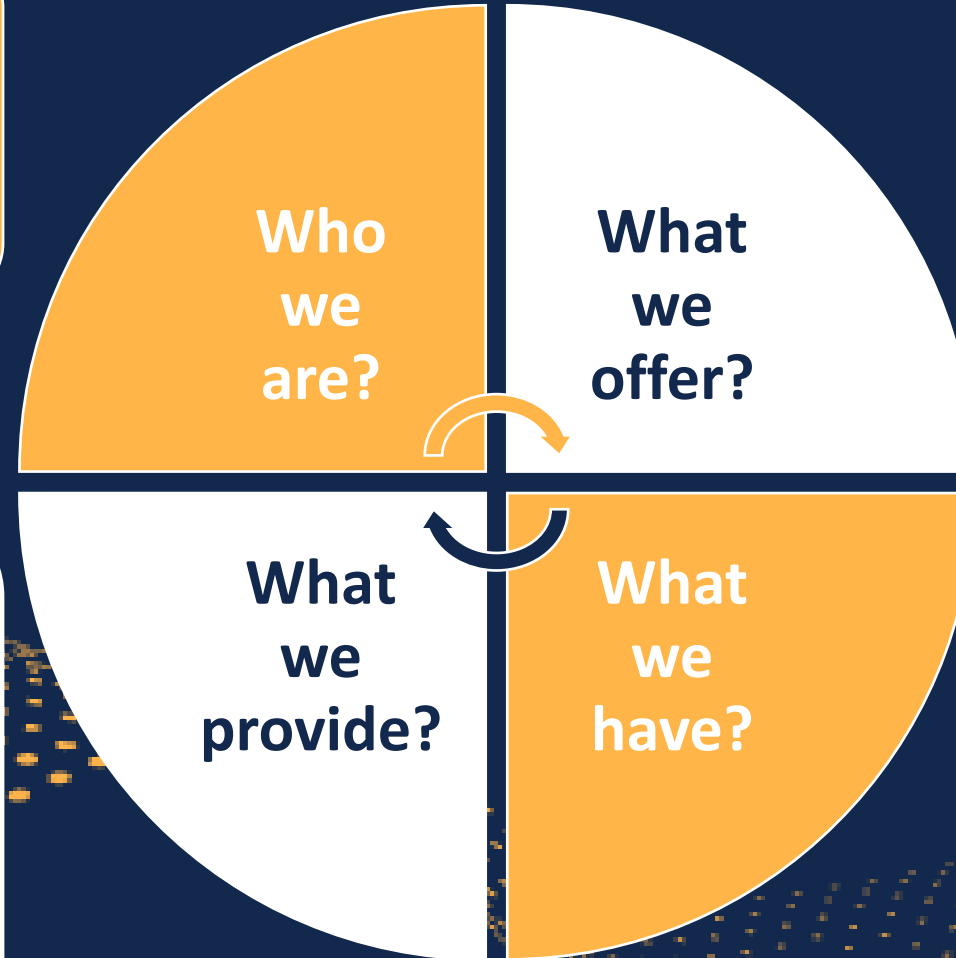
What
we
offer?

What
we
provide?

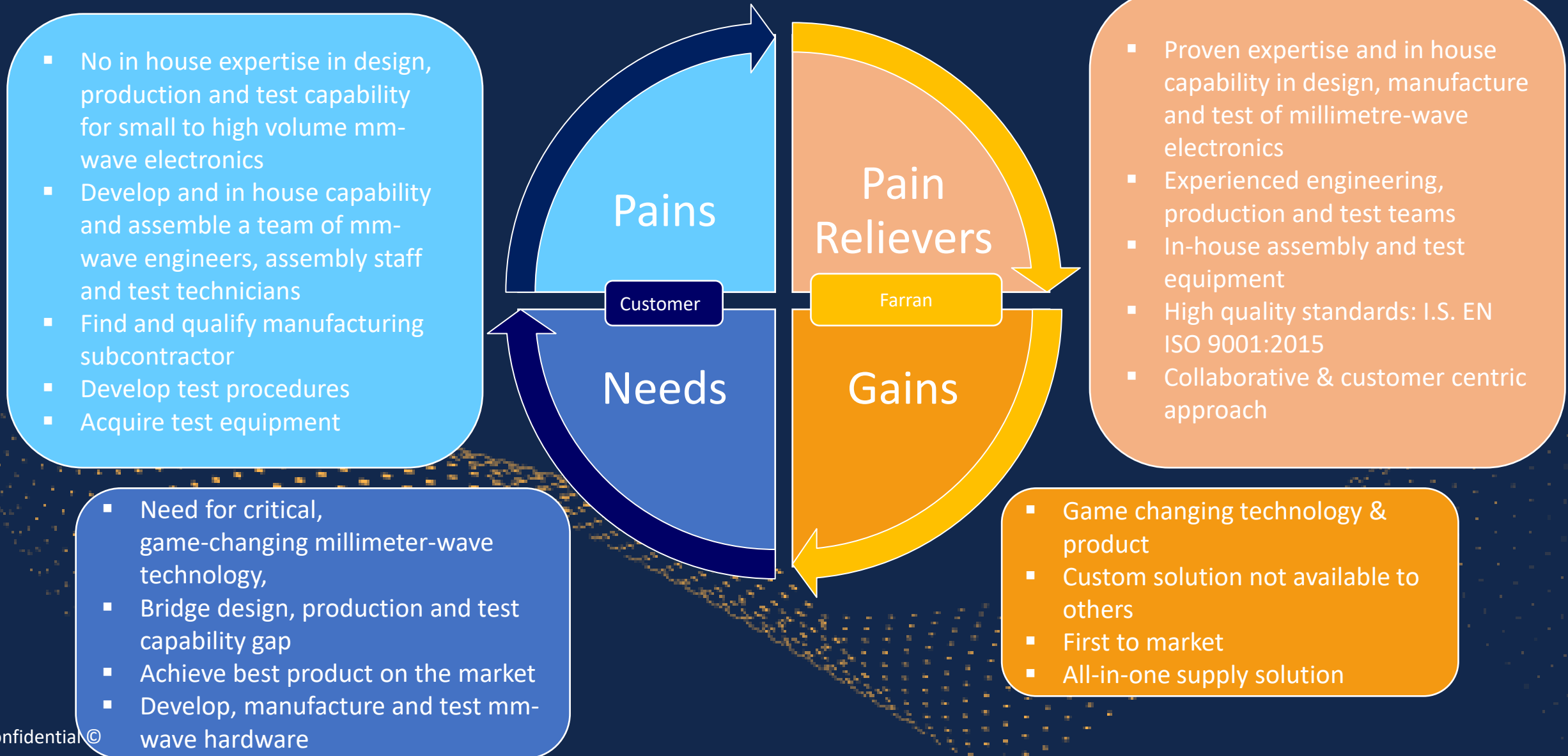
What
we
have?

- Fast design, production and test
- Bespoke products made to customer's specification
- High performance, quality and reliability

- Proven capability in high frequency mm-wave electronics design and manufacturing
- All operations controlled in house: design, production and test



7.2 Farran's Value Proposition



8. Farran's Capabilities



Design Engineering

- 70 years of combined design expertise
- Utilised state-of-the-art design tools in delivering over 100 bespoke designs
- Expertise spanning from DC to 500 GHz
- Proven ability of converting customer needs and requirements into products and solutions
- Ability to communicate to production staff the critical elements of new designs



Production Team & Equipment

- 90+ years of combined expertise in mm-wave product manufacturing
- 40 years of honing the techniques and processes for assembly of mm-wave modules and front-ends
- 95% on time delivery record YOY
- Expertise in mm-wave wire-bonding techniques
- Skilled in assembly of components up to 3THz



Test & Measurement

- Over 70 years of deep knowledge and experience in Test & Measurement techniques
- Devising new test procedures and conducting evaluation of bespoke designs
- Highly skilled in automating test procedures
- Continuous up-skilling of technical staff

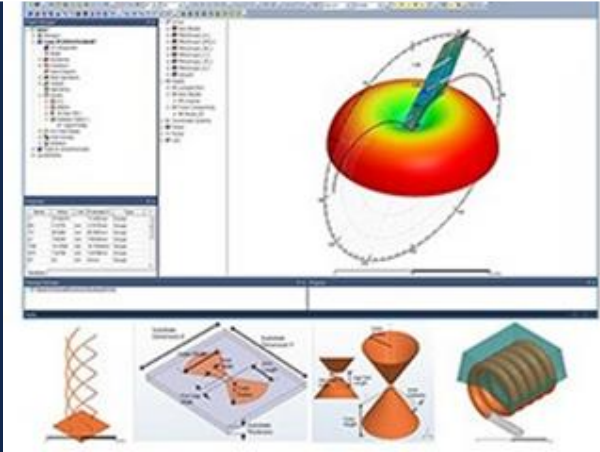


Custom Designs

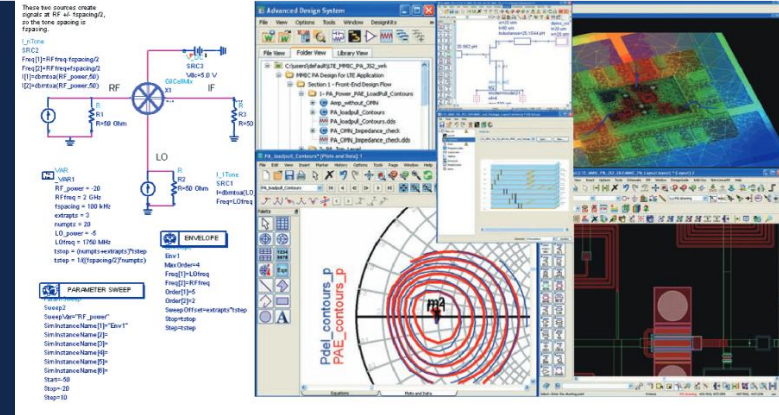
- Innovative approach to new designs
- In-depth knowledge base of emerging technologies and applications
- Flexibility and agility to adapt to changes as they occur
- Total Collaborative approach – customer focused design

8.1. Farran's Capabilities - Design farran

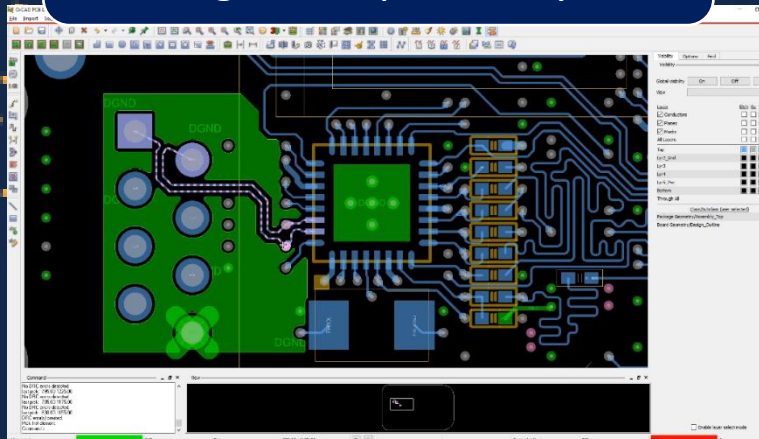
Ansyz HFSS High Frequency
Electromagnetic solver



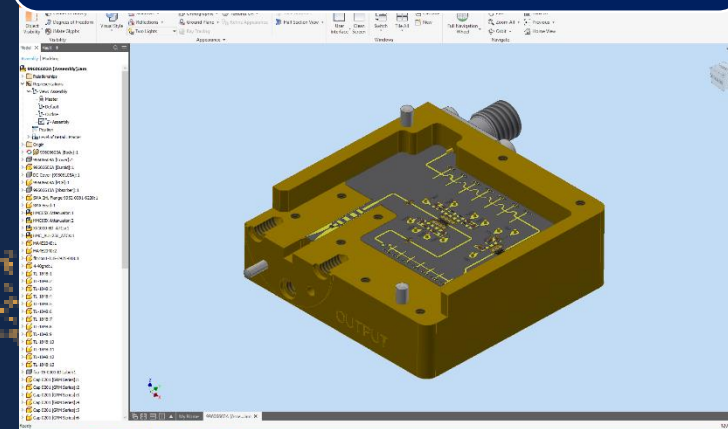
Keysight Advanced Design System – linear
and nonlinear simulation



OrCAD printed circuit board
design and Spice analysis



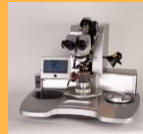
Autodesk Inventor CAD design



8.2. Farran's Capabilities - Production



Assembly



- K&S 4526 Au ribbon and wire bonders
- 3 MP iBond 5000 wedge bonders
- Memmert reflow and curing ovens
- MRSI-705 5-micron die bonder

Inspection



- Keyence VHX 5000 microscope
- Nikon OptiPhot
- Digital readout X-Y inspection and measuring microscope

Workstations



- Nikon SMZ-645 stereo microscope
- JBC soldering stations
- PDS-7150 epoxy dispenser

Environmental

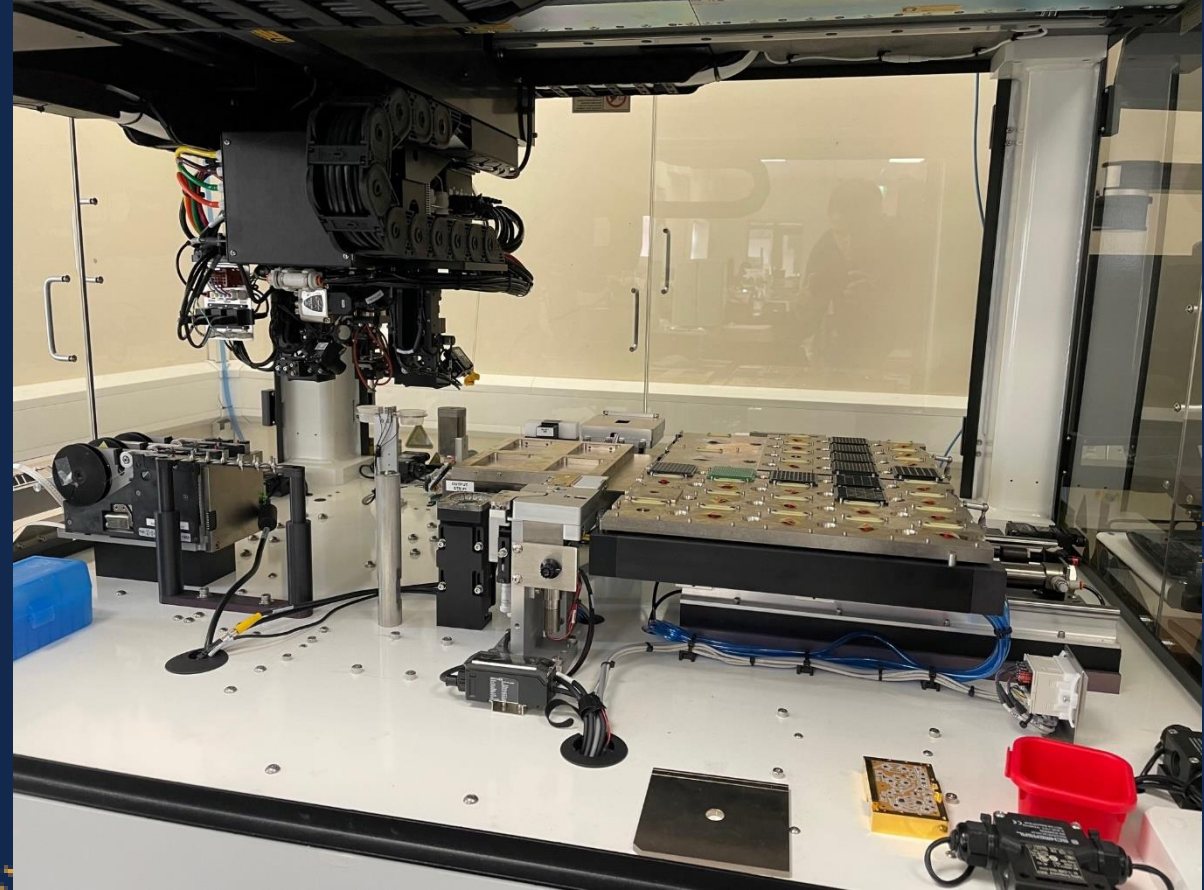


- Thermotron S 1.2 3800 thermal chambers
- Thermotron SM-8 thermal and humidity chamber
- LDS HDA-K air cooled vibration chamber



Video 2

8.2. Farran's Capabilities - Production Automation MRSI-705



8.3. Farran's Capabilities - Test Stations



 [Video 3](#)

8.3. Farran's Capabilities - Test Equipment



Vector Network Analysis 10 MHz – 110 GHz



- 2 x Keysight N5247B PNA-X 67 GHz
- Keysight N5242A PNA-X 26.5 GHz
- Anritsu Lightning 37269D 40 GHz
- Frequency extenders 50 – 500 GHz

Synthesizers 10 MHz – 500 GHz



- 2x N5183B MXG
- 3 x HP 8563E 26.5 GHz
- HP 8564EC 40 GHz
- 2 x Agilent E8247C 20 GHz
- Keysight N5183B 32 GHz
- Anritsu MG3694B 40 GHz
- Frequency extenders 40 – 500 GHz

Spectrum analysis 10 MHz – 500 GHz



- 3 x Agilent 8563E 26.5 GHz
- Agilent 8564EC 40 GHz
- Keysight N5247B 67 GHz
- External harmonic mixers 40 – 500 GHz

Noise figure 10 MHz – 110 GHz



- Agilent N8975A 26.5 GHz
- Keysight N5247B 67 GHz
- External downconverters 26.5 – 170 GHz

Power measurements 10 MHz – 500 GHz

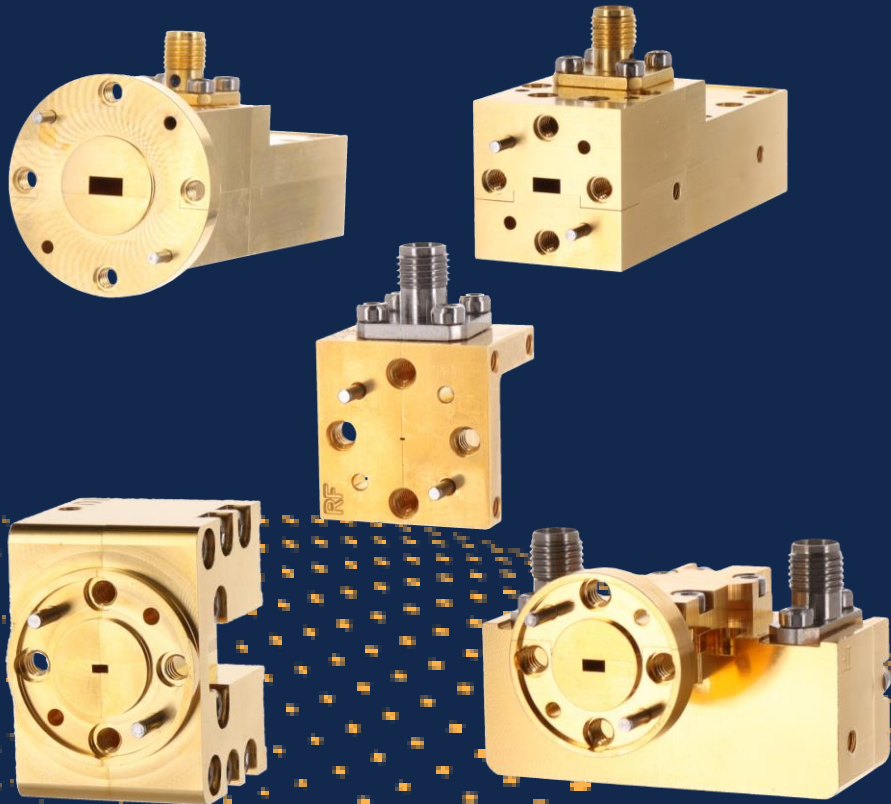


- 3x Agilent E4418B
- Coaxial and waveguide power sensors 10 MHz – 110 GHz
- Erickson PM2 & PM5 75 – 500 GHz

9. Spectrum Analysis & Monitoring Solutions



Keysight, Rohde & Schwarz, Anritsu
Spectrum/Signal Analyzers



WHMB Harmonic mixers 40 – 500 GHz

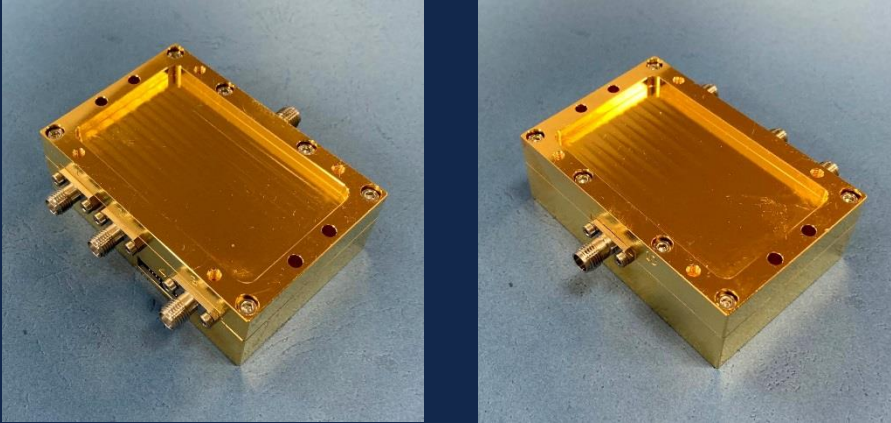


SAE Spectrum Analyser Extenders 50 – 170 GHz

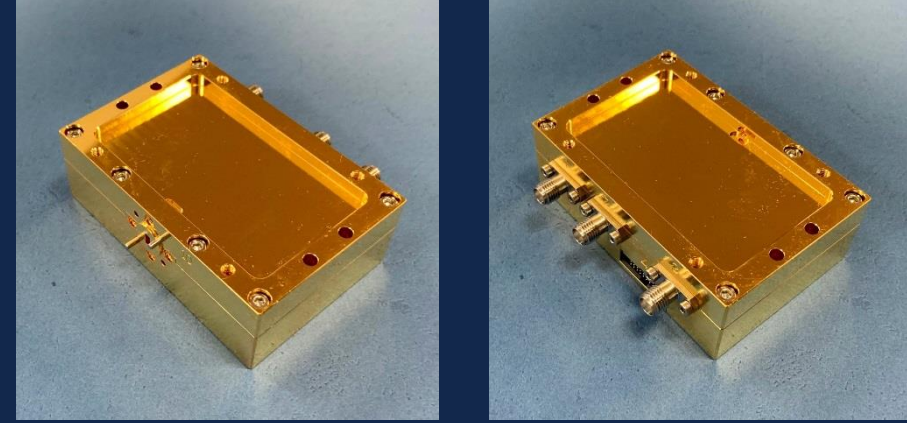
9.1. Spectrum Analysis & Monitoring Integrated Solutions



24.25 – 52.6 GHz



57 – 72 GHz



Operating frequency: 24.25 – 52.6 GHz

- Down-converter
 - Gain = 8 dB typ
 - NF < 20 dB
 - Output IMD > +15 dBm
 - OP1dB > +8 dBm

Operating frequency: 57 – 72 GHz

- Down-converter
 - Gain = 16 dB typ
 - NF < 20 dB
 - Output IMD > +14 dBm
 - OP1dB > +4 dBm

 Video 4

10. Intelligent Threat Detection Solutions

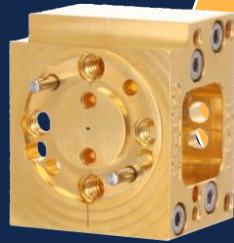


<https://farran.com/solutions/intelligent-threat-detection/>
<https://farran.com/solutions/intelligent-transportation-systems/>

11. Waveguide Components



Full-Band & Narrow-Band
Circulators &
Isolators
40 – 325 GHz



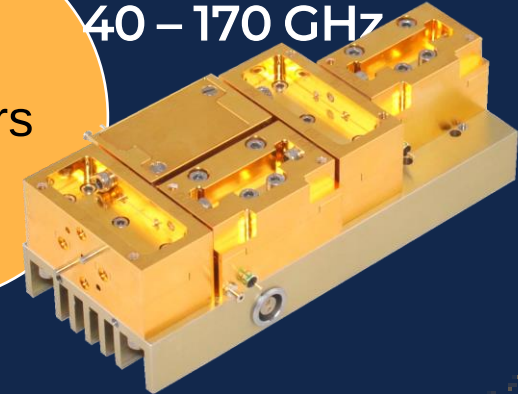
Isolators &
Circulators



Mixers

Harmonic – 40 to 500 GHz
Sub Harmonic – 50 to 250
GHz

LNAs, SSPAs
Driver Amplifiers
40 – 170 GHz



Amplifiers

Components

Band-pass filters
40 – 325 GHz



Waveguide
Filters

Active & Passive
Multipliers
30 – 500 GHz



Multipliers

<https://farran.com/solutions/components/>

12. 10 Step Custom Design Process

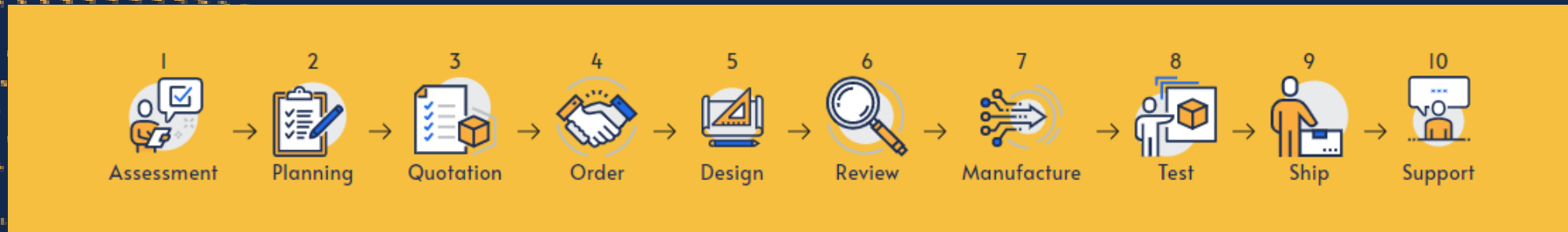


Farran is a trusted innovation partner to billion-dollar companies, system integrators, and research organizations worldwide.

We are committed to the highest standards of quality management from initial quotation through to final testing, packaging, and delivery.

We thrive on solving complex challenges with leading edge solutions that work the first time, every time.

To ensure we meet your standards, we use a 10-Step Custom Design Process.



➔ Video 5

<https://farran.com/custom-designs/>

13. Contact details



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