



Cobham Microwave

Electrical & Electronic Equipment



Microwave Components



Antennas



Waveguides



Test Benches



Microwave Subsystems



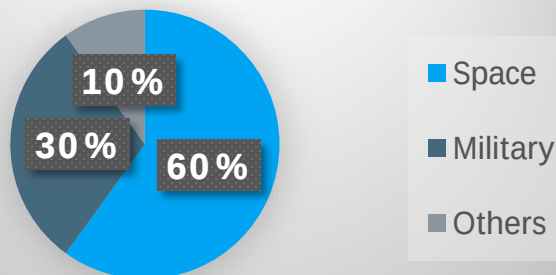
Slip rings



Company

- **2 legal entities:**
 - Chelton Telecom & Microwave
 - Hyper Technologies
- **250 employees**
- **3 locations in France**
- **Turnover 35 M€**

Market



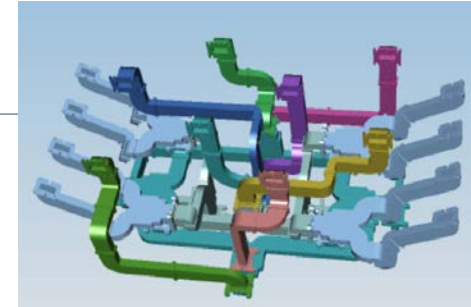
Markets

- **Space :**
 - Satellite payload
 - Ground based

40 years of Space Heritage on >200 satellites


- **Military and security:**
 - Radars
 - Military communication
- **Industrial, scientific & medical**

Space Capabilities



- **Waveguide capabilities:**

- Rigid and flexible Waveguides
- Equipments:
 - Couplers
 - Waveguide to coax adapters



Q & V band available

- Complex assembly:
 - Matrix, combiner
 - Complete Payload waveguides

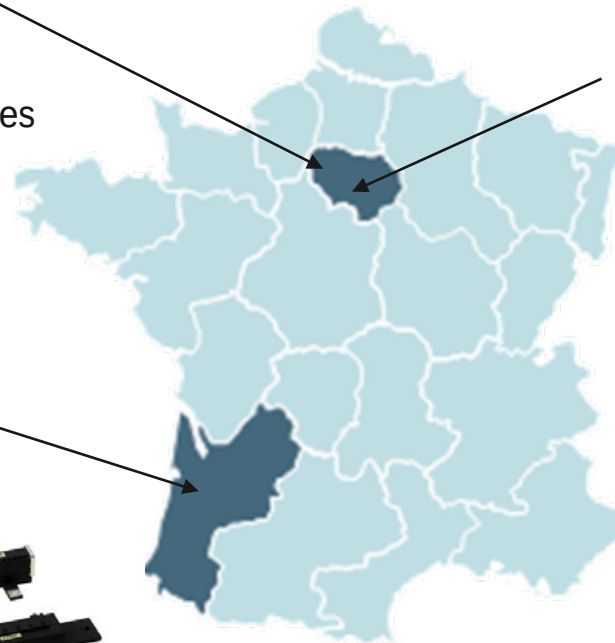


- **Filters and duplexers:**

- Ceramic Resonators
- Cavity
- Lumped Elements
- Waveguide

- Power test screening:

- TVAC
- Corona
- Multipactor



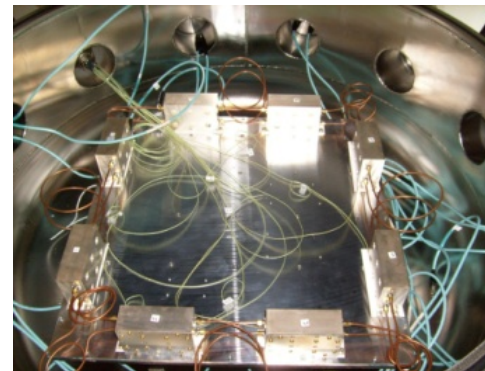
- **RF PIN diodes**
- **RF Modules**
- **Ferrite devices**
- **Sub-systems:**

- Complete RFDN assembly
- Duplexer assembly



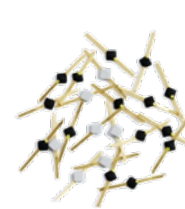
Cobham Microwave in-house Space and MIL screening processes :

- ✓ Electrical testing,
- ✓ Thermal vacuum cycling,
- ✓ High power testing,
- ✓ Semiconductor testing,
- ✓ Life tests (HTRB, PBI,...),
- ✓ Die shear tests,
- ✓ Pull tests, Gross and fine leakage,
- ✓ Vibrations and accelerations test,
- ✓ PIND tests (Particle Impact Noise Detection)



Diodes

ESA QPL – ESCC 5010



Sub-Families	Types	Spec.	Status
Varactors, Multipliers	DH 267, 252, 256, 292, 294	5512/016	Extended
Varactors Tuning	DH 76 XXX	5512/023	Added
PIN, Fast Switching	DH 50151 – DH 50157 DH 50201 – DH 50209 DH 50251 – DH 50256	5513/031 5513/033 5513/034	Extended
PIN, Ultra Fast Switching	DH 50033 – DH 50037 DH 50052 – DH 50057 DH 50071 – DH 50077 DH 50101 – DH 50107	5513/032 5513/036 5513/037 5513/038	Qualification Renewal in progress
MOS Capacitors			Added

Ferrites Activity Space qualified products

High power



Coaxial TNC Isolator

2 to 4 Ghz
200W
ESA QPL in 2016



Coaxial TNC Isolator

3.4 to 4.8 Ghz
160W
ESA QPL in 2016



Waveguide WR51 Isolator

17 to 22 Ghz
350W
ARTES Project

Low power



Coaxial SMA 2.9 Isolator

27 to 32 Ghz
1W
ESA QPL in 2016



Coaxial SMA 3.5 Isolator

7 to 22 GHz
1w
ESA EPPL in 2012

Ferrites Activity Roadmap

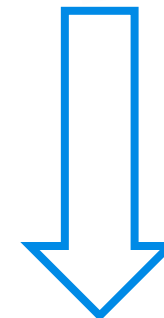
SMALL COMPONENTS

MICROSTRIP, SMD



Qualification for
Space applications

COAXIAL & WAVEGUIDE COMPONENTS

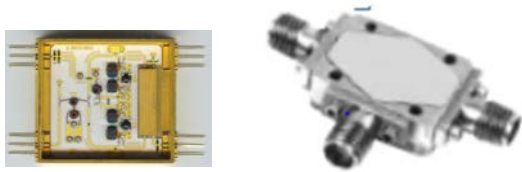


Higher frequencies &
Higher power capability

Space Modules Portfolio

RF Hybrids:

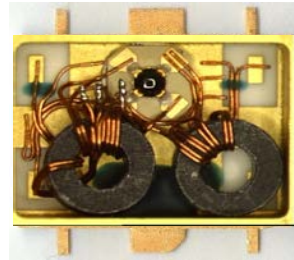
Up to 18 GHz



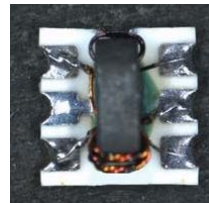
- ☐ Amplifier (ESA ECI prg*)
- ☐ Mixer (ESA ECI prg*)
- ☐ Switch
- ☐ Power Divider
- ☐ 3dB Hybrid Coupler
- ☐ Transformer
- ☐ Driver
- ☐ I&Q Demodulator

SMD Hybrids:

Up to 4 GHz



- ☐ Mixer
- ☐ Impedance Transformer



Coaxial RF passives :

Up to 32 GHz



- ☐ Power Divider/ Combiner
(2, 3, 4, 5... up to 10 ways)
- ☐ Directional Coupler
- ☐ 3dB Hybrid Coupler
- ☐ Multi Hybrid assembly

*: ECI : European Components Initiative

Thank you

**See you on our booth &
during our private roadmap**

Friday 14h30 – 15h