Simplification is Our Innovation

OCTOBER 2026

ORBIX

RADIALL'S CUTTING-EDGE SOLUTION FOR MODERN SPACE CHALLENGES



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AGENDA

- **CONTEXT AND AMBITION**
- **RADIALL EXPERTISE**
- **DISCOVER ORBIX, RADIALL “NEW SPACE” OFFER**
- **ORBIX DESIGN AND QUALIFICATION METHODOLOGIES**
- **CONCLUSION**

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HOW THE PROJECT STARTED

Willingness to adjust to the market changes

MARKET TRENDS :

- More and more LEO satellite constellation projects
- Increased pressure on cost and timings
- Cost pressure is leading customers to seek alternatives to ESA-ESCC standards





RADIALL AMBITION

“From Customer Needs to Industrial Performance”

KEY NEEDS

COST EFFICIENCY

RELIABILITY & ROBUSTNESS

SCALABLE PRODUCTION

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MORE THAN 50 YEARS OF HERITAGE IN SPACE MARKET

Since 1974, Radiall has been involved in more than 300 satellite programs.

1974

First Space flight

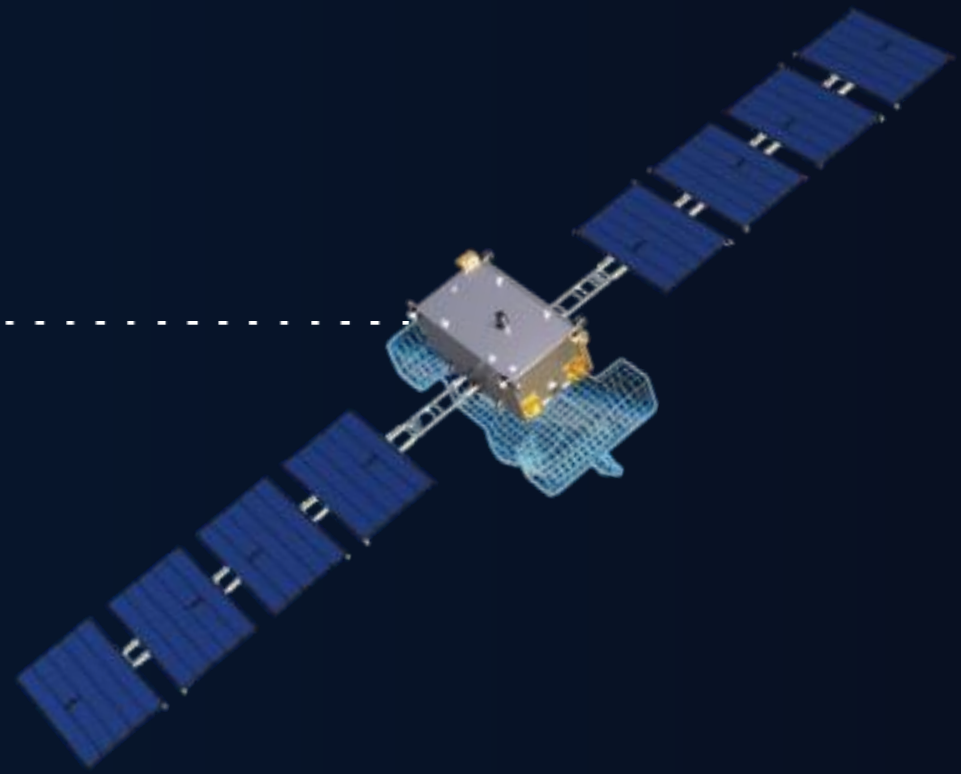
1981

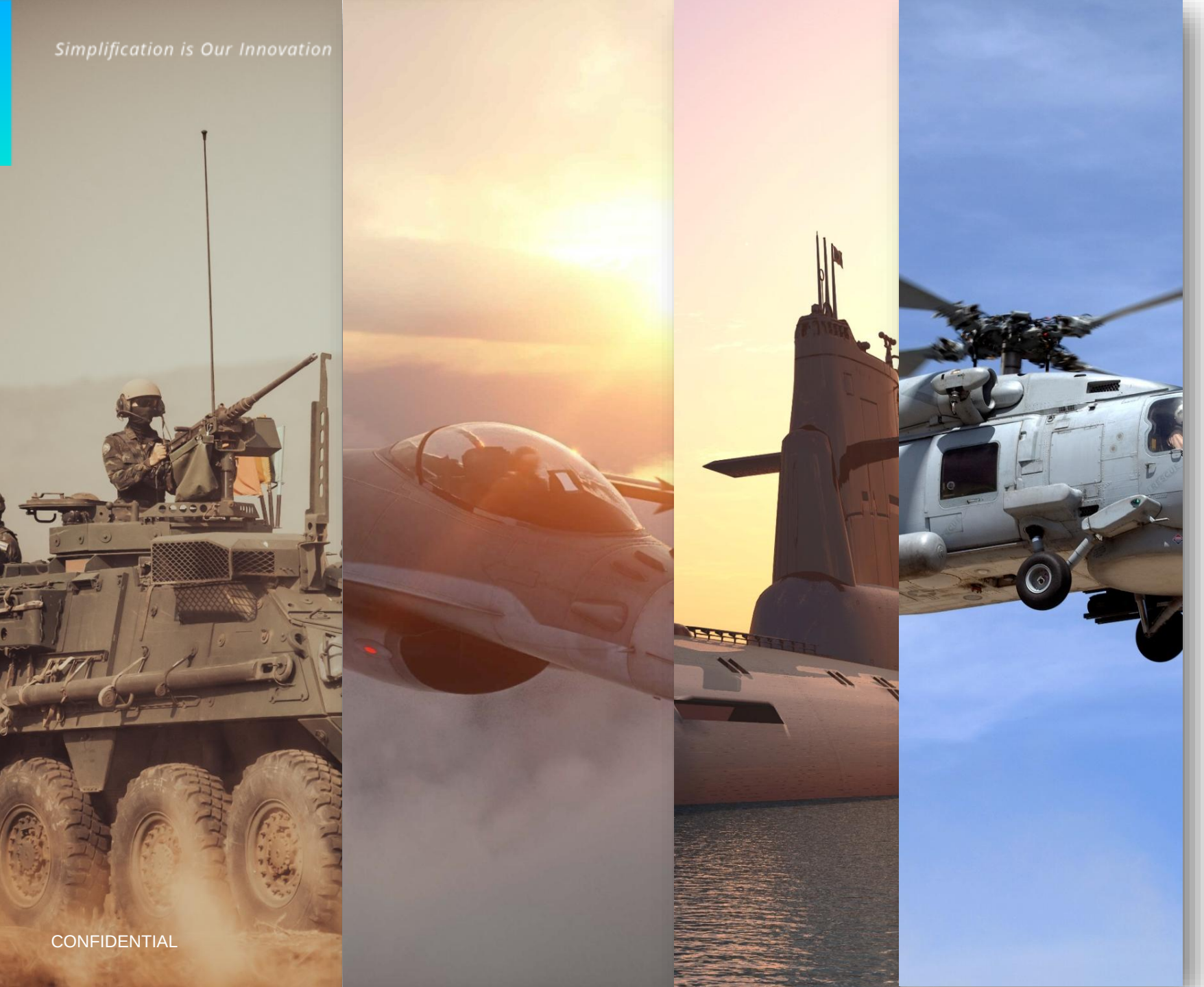
ESA QPL : SMA connectors

1989

First Flight for Space Switches

ITAR free *ITAR free products*

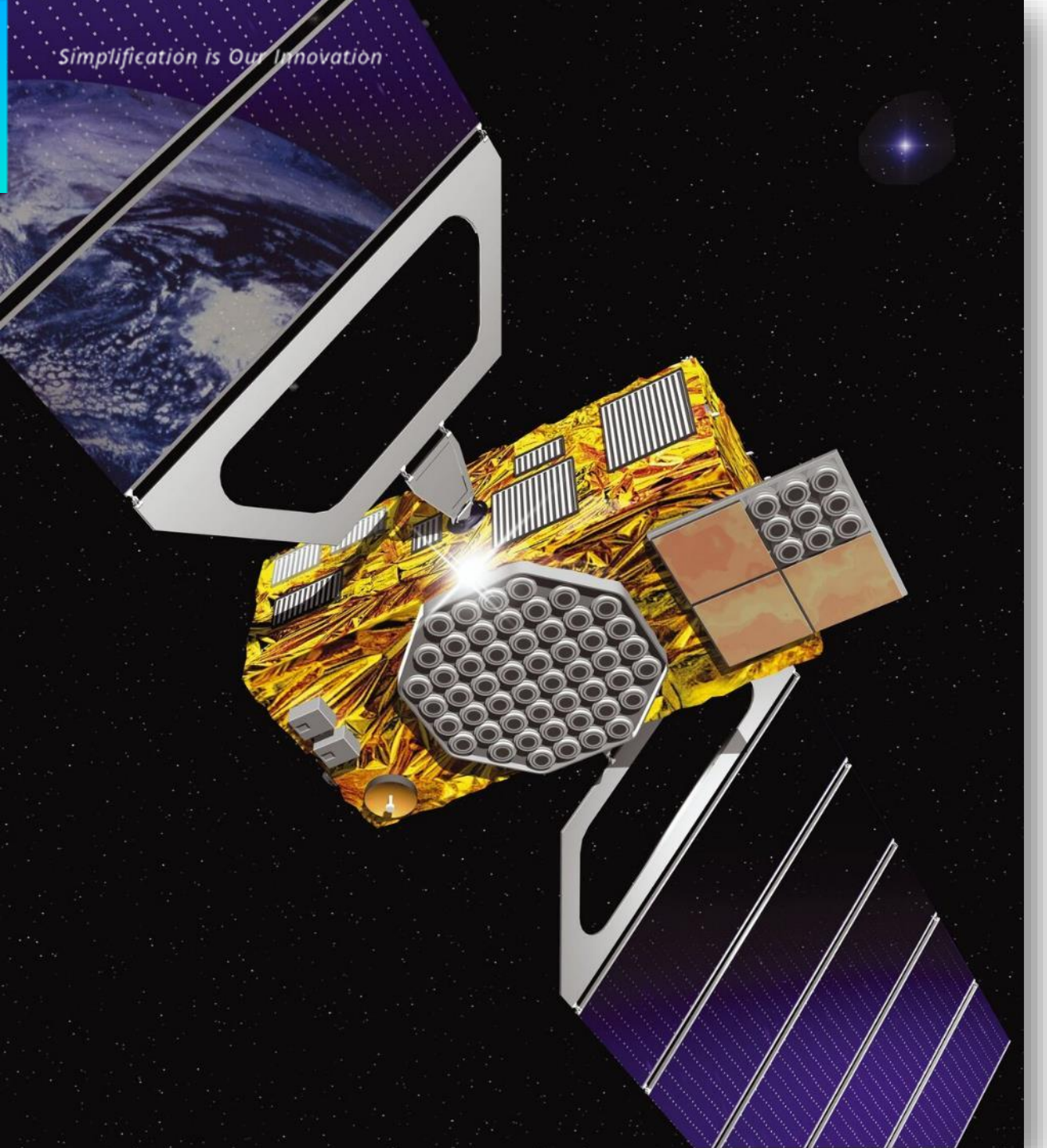




A PROVEN TRACK RECORD IN AEROSPACE & DEFENSE

- Rugged reliability
- Large-scale production capabilities
- Operational continuity
  (availability, long-term support, supply chain resilience)

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THE RIGHT EXPERTISE TO DEVELOP A TAILOR-MADE SOLUTION FOR LEO CONSTELLATIONS

SPACE HERITAGE ROBUST KNOW-HOW

- +50 years in space
- Longstanding partnerships with key organizations
- Proven expertise in design and testing
- ESA-ESCC standards

COST EFFICIENCY AND HIGH-VOLUME PRODUCTION

- Proven Track Record in Aerospace & Defense
- Demonstrated capability for large-scale production
- Specialized expertise in harsh environments
- MIL-STD standards



ORBIX
Radiall's New Space Solution

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ORBIX KEY PILLARS

1. **DESIGNED FOR SPACE ENVIRONMENTS**
2. **COST EFFECTIVE SOLUTIONS**
   (ideal for high-volume satellite programs)
3. **FAST AND COMPETITIVE LEAD TIMES**
   (supports dynamic deployment schedule)
4. **MASS PRODUCTION CAPABILITY**
5. **HIGH LEVEL OF CUSTOMIZATION**
   (through our dedicated space engineering team)
6. **TRACEABILITY**
   (marking on products / bags)

ORBIX PRODUCT RANGE



Coaxial Cable Assemblies

Offer : 5 cables

Covering DC to 40 GHz

(Ku, K, Ka bands)

0.047	SHF 2.4 M	SHF 3 M	SHF 4.6 M	SHF 5 M
SMPM-L	SMP-L	SMP-L	SMA 2.9	SMA
SMPM-L RA	SMPM-L RA	SMPM-L RA	SMA 2.9 RA	SMA RA
	SMA	SMA		
	SMA RA	SMA RA		



Coaxial Connectors

Offer : 5 connector families

Covering DC to 40 GHz

(Ku, K, Ka bands)

SMPM	SMP	SMA 2.9	SMA	ADAPTER

LOCK® option available

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ORBIX : A COMPREHENSIVE OFFERING

Compatibility with Radiall's product ranges



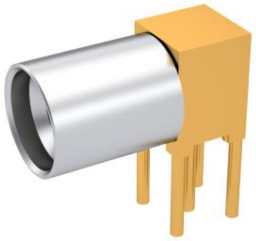
SHF 2.4M SMP LOCK Straight



SHF CABLE



SHF 2.4M SMP LOCK RA



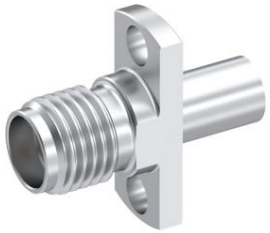
SMPS CONNECTOR



SMA CONNECTOR



SMPMS CONNECTOR



SMPS MALE ADAPTER



SMPS FEMALE ADAPTER



SMPMS ADAPTER

ORBIX : A COMPREHENSIVE OFFERING

Compatibility with Radiall's product ranges

Customization on request

PRODUCT	TYPE		MAX FREQUENCY [1]								CONNECTORS					
			8 GHz	12 GHz	18 GHz	20 GHz	26 GHz	32 GHz	40 GHz	65 GHz	SMA	SMA 2.9	SMP	SMPM	SMP [2]	SMPM [2]
			C	X	Ku	Ku	K	Ka	Ka	V						
Cable Assemblies	0.047		■	■	■	■	■	■	■					■		■
	SHF 2.4M		■	■							■					
			■	■	■	■	■	■	■				■		■	
	SHF 3M		■	■							■					
			■	■	■	■	■	■	■				■		■	
	SHF 4.6M		■	■	■	■	■	■				■				
	SHF 5M		■	■	■	■	■				■					
Connectors	Board-to-Board	SMP	■	■	■	■	■	■	■							
		SMPM	■	■	■	■	■	■	■	■						
	Connectors for Equipment	SMA	■	■												
		SMA 2.9	■	■	■	■	■	■	■							
		SMP [2]	■	■	■	■	■	■	■							
		SMPM [2]	■	■	■	■	■	■	■	■						
	Adapters	SMP to SMA	■	■												

(1) Coaxial transmission line frequency

(2) RADIALL robust locking mechanism option: SMP-LOCK® and SMPM-LOCK®

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ORBIX DESIGN & QUALIFICATION METHODOLOGY

ORBIX range bridges space-proven reliability and cost-effective design, without compromising performance.



DESIGN-TO-COST METHODOLOGY

Product design
Material selection *(ex : N2PGR)*
Manufacturing & Assembly processes
Inspection plan
Packaging strategies



DRASTIC QUALIFICATION PLAN

Connectors
Cable Assemblies

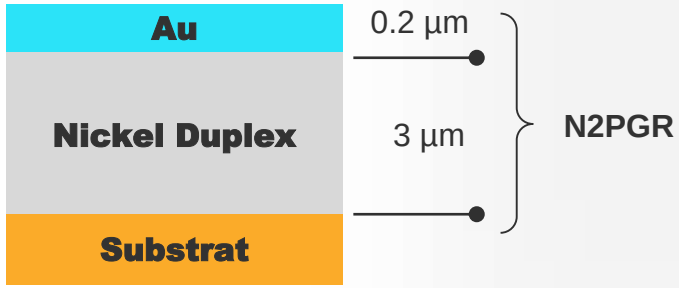
NEW RADIALL SPECIFICATIONS

Dedicated Radiall Specs for Orbix Range :
- RAD-GEN-CONN 006
- RAD GEN-CSF-003

COST-EFFICIENT MATERIAL SELECTION

Flash gold: N2PGR/NPGR





Radiall offers NPGR/N2PGR plating with flash gold (0.1 to 0.2µm) as a last protection layer. This plating can be applied to all metallic parts, including the body and center contact.

- **Well-known industrial process within Radiall**
- **Improved soldering thanks to enhanced wettability**
- **Cost-effective solution**

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COMPARISON SPACE GRADE vs ORBIX

RF Connectors

	SPACE GRADE	ORBIX NEW SPACE
QUALIFICATION	ESA-ESCC Qualification	
DESIGN	Space Design	
ASSEMBLY WORKSHOP	ISO 9 Room	Standard Workshop
ASSEMBLY PROCESS	Same Assembly Process	
ASSEMBLY CONTROLS	100% Testing with Cleaning after each Mounting Operation	Controls via Sampling, after each Mounting Operation
FINAL SCREENING TEST	Yes	N/A
PACKAGING	Individually Packaged *(Anti-Static Bags)*	
MARKING	On Connector or on Packaging	

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QUALIFICATION TESTS BASED ON THE ESA/ESCC STANDARD 3402 ISSUE 6

Qualification Test Lot :

- Selected connectors representative of the series
- Sample of 5 connectors

Testing Subgroup

4 components (1) (2) (3) plus 1 Control sample (4)

Paragraph	Qualification Test
Para 7.1	Mating and Unmating forces
Para 7.2	Random Vibration
Para 7.3	Temperature Cycling
Para 7.4	Shielding Effectiveness (5)
Para 7.5	Electrical Measurement
Para 7.6	Endurance
Para 7.7	Seal (6)
Para 7.8	Coupling Proof Torque (7)
Para 7.9	External Visual Inspection

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COMPARISON
SPACE GRADE vs ORBIX

RF Cable Assemblies

	SPACE GRADE	ORBIX NEW SPACE
QUALIFICATION	ESA-ESCC for TNC-VHP ESCC as a Guideline for others	ESA-ESCC as a Guideline
DESIGN	Space Design	Space & Enhanced MIL Design
ASSEMBLY WORKSHOP	ISO 8 Room	Standard Workshop
ASSEMBLY PROCESS	Same Assembly Process *(Soldering)*	
ASSEMBLY CONTROLS	100% Testing *(X-Ray, Mating Records, etc.)*	Lightened Test Procedure

CABLE ASSEMBLIES QUALIFICATION

Qualification Test Lot :

- 5 RF Cable Assembly Test Vehicules (TV)

3 TVs

- Shielding Effectiveness
- **Ageing**
- Mating Endurance
- Bending
- **Vibration (Random & Sine)**
- **Thermal Cycling (200 Cycles)**
- Thermal stability of insertion Losses
- Shielding Effectiveness
- Electrical Measurement at room, High and Low temperature
- External Visual Inspection
- Radiographic Inspection
- Micro Sectioning

1 TV

- Permanence of Marking
- **Mating Unmating**
- Coupling Proof Torque
- Cable Assembly Stability under Agitation

1 TV
Control

CABLE ASSEMBLIES FLIGHT MODEL (100%)

- **Thermal cycling (3 cycles)**
- Overall Length & Weight
- Marking
- **VSWR**
- **Insertion Losses (+ Phase Matching if applicable)**
- External Visual Inspection

LAT
(ON REQUEST)

Test Lot :

- 5 RF Cable Assembly Test Vehicules (TV)

4 TVs

- Shielding Effectiveness
- **Thermal Cycling (100 Cycles)**
- Thermal stability of insertion Losses
- Shielding Effectiveness
- Electrical Measurement at room, High and Low temperature
- Coupling Proof torque
- External Visual Inspection
- Radiographic Inspection
- Micro Sectioning

1 TV
Control

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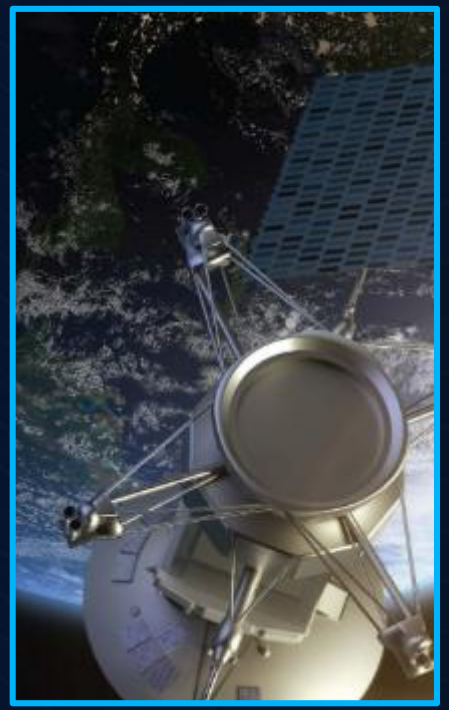
CONCLUSION

ORBIX RANGE IS…

- ✔ Answering **modern space challenges**
- ✔ **Addressing evolving market needs** *(reliability, cost-efficiency and mass-production)*
- ✔ **Complementing** existing space and military offers



Military



New Space
ORBIX



Space

Radiall

Q&A



THANK YOU

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