

Intra-satellite fiber optic links workshop
Diamond activities
ESTEC, 10-Dec-2015





Foundation: 1958 in Locarno



10000m² production and lab
STS certified Laboratory
40m² of ISO-7 clean room
ISO 9001 and 14001 certification



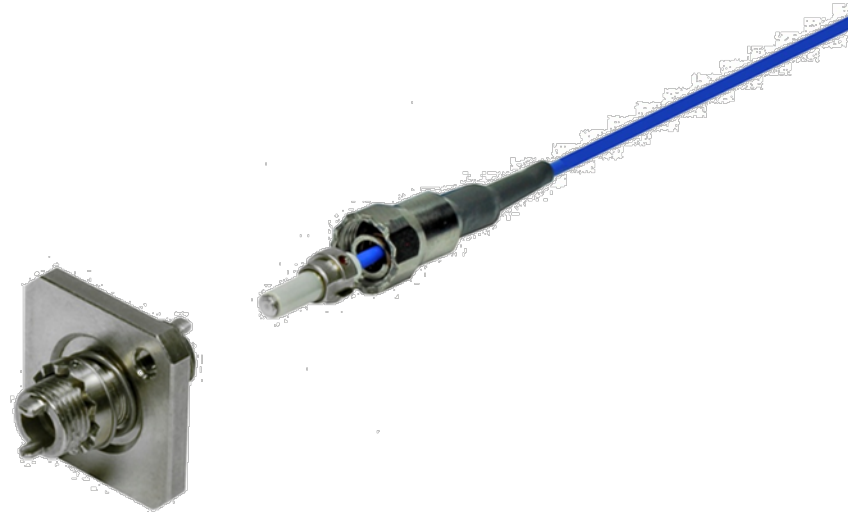


AVIM and Mini-AVIM

- AVIM (1994)



- Mini-AVIM (2009)



European Space Mission

- Delivered and flying
 - SMOS (AVIM PM)
 - Gaia (AVIM PM and SM)
 - Proba-2 (DMI)
- Delivered
 - Atlid (AVIM PM and Mini-AVIM PM)
 - Exomars (Mini-AVIM)
 - Meteosat Third Generation (MTG) (Mini-AVIM PM)
- In elaboration
 - Tesla-C (Mini-AVIM PM, PM-PS)
 - MTG (Mini-AVIM PM)
 - IASI NG (Mini-AVIM, AVIM TBD)
 - Merlin (TBD)

US Space Mission

- Delivered and flying
 - Mercury Laser Altimeter (AVIM)
 - Lunar Reconnaissance Orbiter (AVIM, Multifiber ferrules)
 - Mars Science Laboratory (MSL) on Curiosity (AVIM)
 - Express Logistic Carrier, ELC (AVIM)
- Delivered
 - IceSat2 (Atlas) (AVIM, multifiber ferrule, IMOD)
- In elaboration
 - GEDI (AVIM, multifiber ferrule, IMOD)

Fiber assemblies

Patchcords and Pigtail with PEEK 1mm loose tube

Type/core	Cladding	Numerical Aperture	Coating	Wavelength	notes
SM	80um, 125um	0.08 to 0.31	250um to 400um, acrylate Polyimide Metalized	405nm to 1625nm	Qualified
PM, PZ	80um, 125um	0.12	250um to 400um, acrylate Polyimide Metalized	405nm to 1625nm	Qualified
MM50 SI	80um, 125um	0.22	250um to 400um, acrylate Polyimide Metalized	850nm, 1310nm	
MM50 GI	80um, 125um	0.27	250um to 400um, acrylate Polyimide Metalized	850nm, 1310nm	
MM62.5 GI	80um, 125um	0.27	250um to 400um, acrylate Polyimide Metalized	850nm, 1310nm	
MM105 SI	125um, 140um	0.22	250um to 400um, acrylate Polyimide Metalized	850nm, 1310nm	
MM	up to 800um		Acrylate, polyimide, metallized	customer defined	Application pending, compatible with Diamond ferrule

Module assemblies

Third Party Modules

Module type	Fiber	Status	Notes
Coupler	SM	~	
	PM	✓	MTG
	MM	~	
Optical Modulator	SM	~	
	PM	✓	Delivered
Laser diodes	SM	✓	Via pigtails, delivered
	PM	✓	Via pigtails, delivered
Isolator	SM	✓~	Exit connector easy, entry difficult.
Delay lines	SM	✓~	In elaboration
Attenuator	SM	~	via offset splice, similar to patchcord
	PM	✓	via offset splice, similar to patchcord
Detectors	SM	✓~	Via pigtails
	PM	✓~	

- ✓ Delivered
- ✓~ Compatible, not delivered
- ~ Compatible
- ✗ Not compatible



Diamond development list

- Cable version of the Mini-AVIM,
 - But for which cable?
- High power optical interface for Mini-AVIM
 - SM, PM (up to 6W)
 - MM105 (up to 40W)
- Multi-fiber ferrules (AVIM and Mini-AVIM)
- Multi-Channel connectors
- High temperature version (+125°C)