Military University of Technology

GROUP OF OPTICAL SIGNAL DETECTION

Institute of Optoelectronics

We are developing 2nd Generation FSO Communication system

COMPARISON

RF link

- **low data rate ,**
- **relatively immune to cloud,**
- **sometimes affected by rain,**
- **high probability of detection and interception,**
- **requires permission of national communications organizations.**

FSO link

- **higher data rate,**
- **must have clear conditions,**
- **less degradation than RF in rain,**
- **low probability of detection,**
- **low probability of interception,**
- **without limitations of communication organizations.**

FSO CAPABILITY

- secret operation – difficult detection,
- no emissions of EM interference,
- possibility operation during radio-jamming,
- own, independent communication path.

FSO OPERATION CONFIGURATION

- Static Ground-to-Static Ground (e.g. within Base),
- Static Ground-to-Air (from an airborne platform),
- Ship-to-Ship,
- Dynamic Air-to-Dynamic Ground, (ground station with vehicle-mounted or man-portable system).

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2nd Generation FSO Communication system

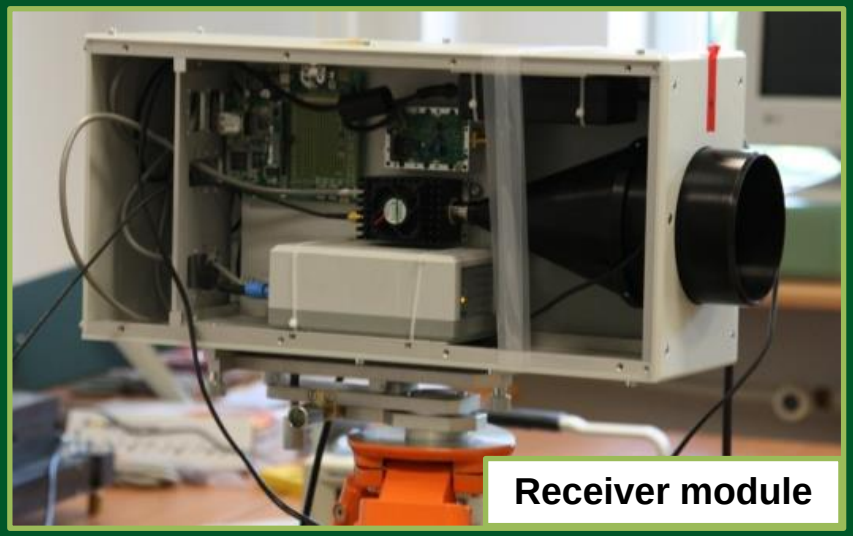
APPLICATION DETAILS

- secure, local network (offices, banks, bases),
- action in emergency situations (infrastructure damage),
- works with EM radiation limitation (hospitals, airports, power plants),
- data transfer in difficult conditions, terrain-weather,
- secret operations of customs, the police and the army.

2nd Generation FSO demonstrator - 2009

Parameter	Value
Wavelength	8,4 μm
Peak power	200 mW
Detectivity	3,8 10^{10} cm $Hz^{1/2}/W$
Beam divergance	2,5 mrad
Data rate	2 Mb/s
Range BER=10^{-9} (VIS=2km)	2,5 km

Transmitter module



Receiver module