

RF Extension through Optical Fiber

1 / RF coverage without disruption

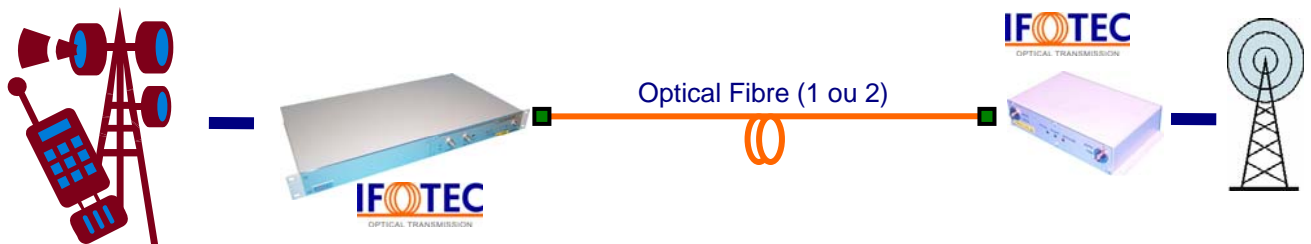
RF extension through optical fibre has two main applications :

- ensuring the continuity of radio or telecom services in underground or confined environments,
- extending the coverage of Radio and TV broadcast services.

In addition to extending the coverage, these solutions show two main advantages :

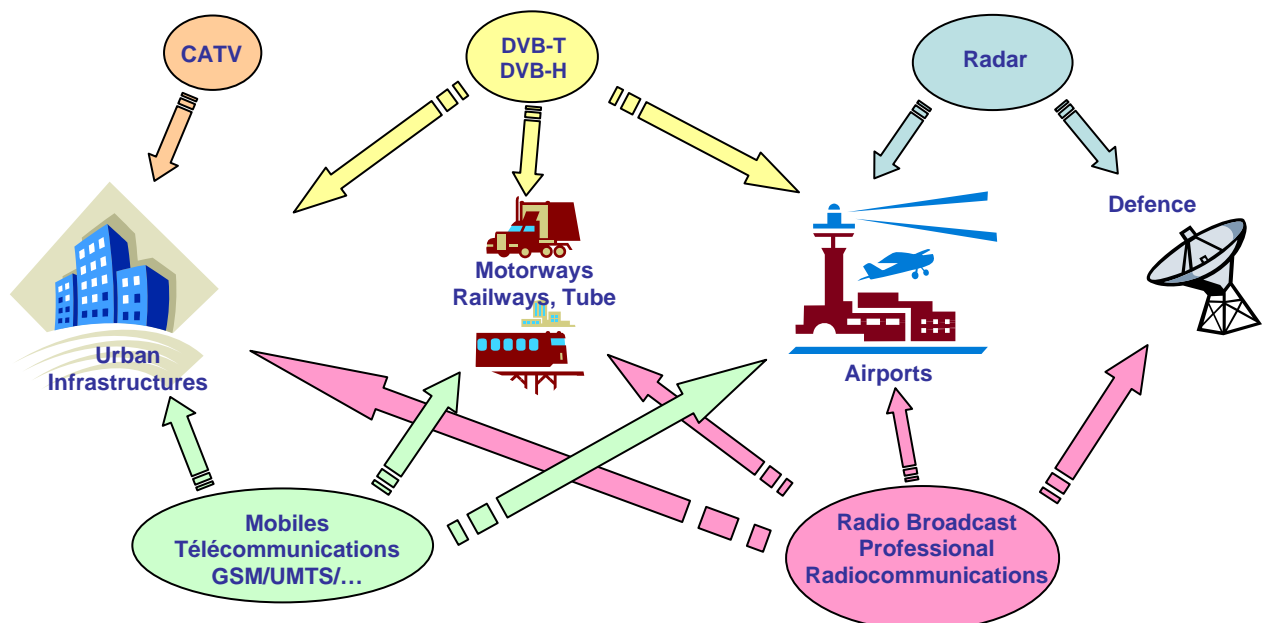
- Centralisation of main RF equipment like BTS or DTT transmitters
- Cost reduction by using simple repeaters or amplifiers in remote.

2/ The way it works



- The IFOTEC optical transmission device is connected to the RF source (GSM/UMTS BTS; FM, DTT or professional radio transmitter) through either a coupler or a duplexer in case of bidirectional transmissions.
- RF to optical conversion is carried out thanks to an isolated DFB laser in order to ensure a low noise, low distortion, high quality signal transmission over long distances, even in harsh electrical environments.
- After the signal has been transported on a singlemode optical fibre over a distance which can exceed 30 km, it is converted back to RF within the optical receiver. Then the signal is amplified and/or reshaped, using amplifiers or gap fillers, in order to be transmitted to the users via antennas or radiating cables.

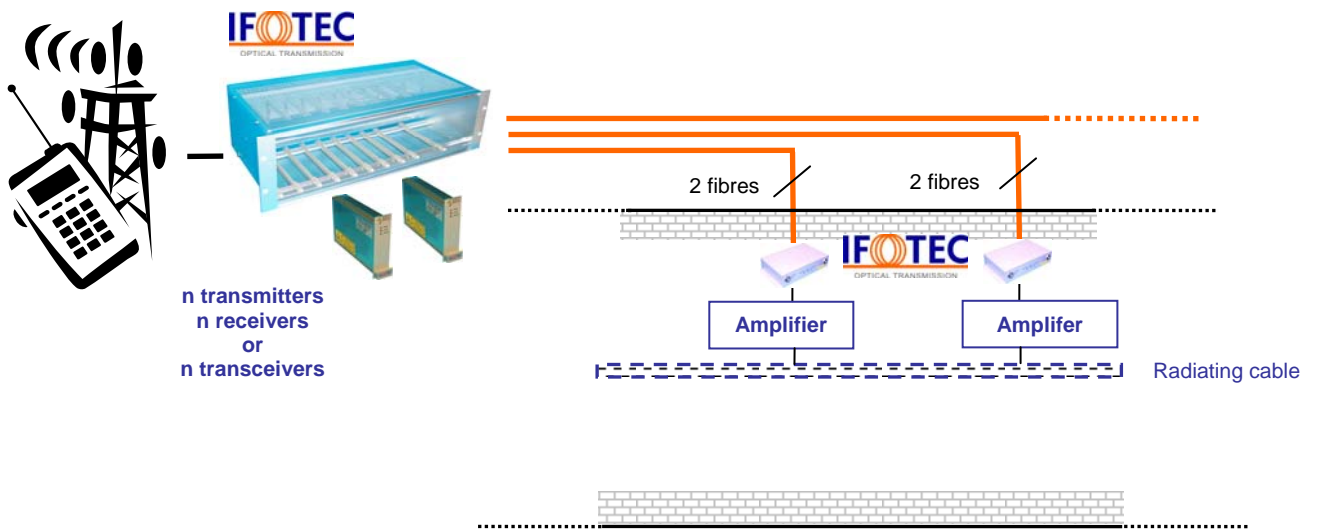
3/ Applications





4/ Examples

■ GSM OR PROFESSIONAL RADIO EXTENSION IN A TUNNEL, WITH A STAR ARCHITECTURE



■ FM RADIO OR DTT BROADCAST IN A TUNNEL, WITH A BUS ARCHITECTURE

