

## Low power consuming microwave radio systems in conjunction with alternative power sources

“Its so easy to configure the system that anyone can do it.”

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Telecommunications Engineer  
CJSC “Babilon-Mobile”

### SAF provides the following services for Babilon-Mobile:

- Backhaul for GSM
- E1 for PSTN
- Ethernet for Internet services

### Advantages:

- Easy to install and configure
- Low power consumption (can be used in conjunction with alternative power sources)
- Meets the requirements of the local climate conditions

**Customer:** CJSC “Babilon-Mobile”  
**Location:** Tajikistan  
**Industry:** GSM/3G-UMTS/3.5G-HSDPA  
**Challenge:** To build low power consuming GSM network

**Solution:** 34Mbps SAF - CFM (IDU-M-MUX);  
155Mbps SAF - CFQ (STM1, 63E1)

Babilon-Mobile is the largest Mobile Communications Operator in Tajikistan. The company offers to its customers the widest range of up-to-date services of mobile communications standards like GSM900/1800, 3G-UMTS and 3.5G-HSDPA.

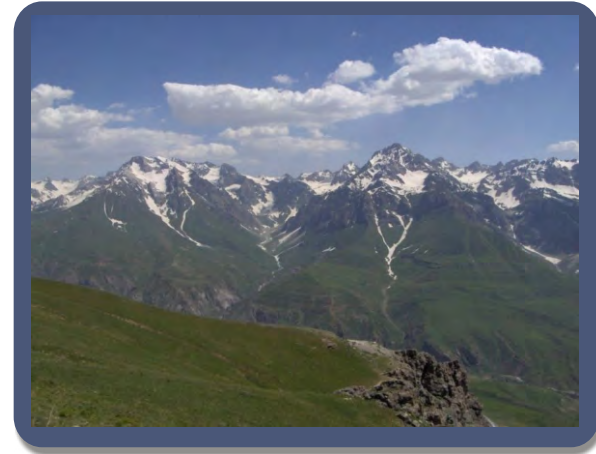
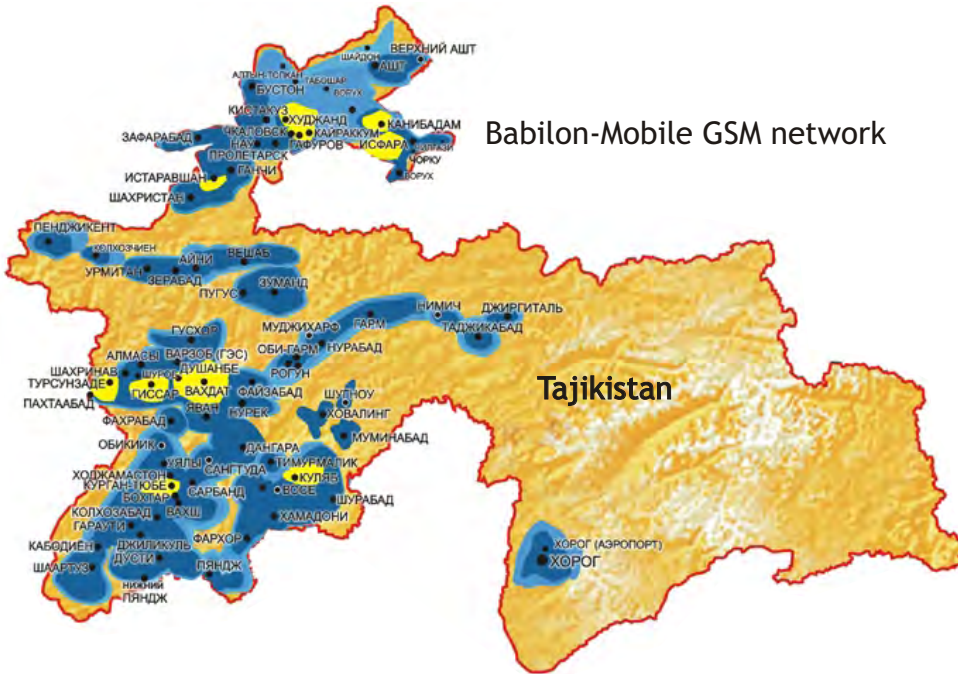
The total quantity of its subscribers is more than 900 000 and it is the leading mobile communications Carrier of Tajikistan. Currently, the company's network covers all populated areas of the Republic of Tajikistan.

### Challenge

Tajikistan is located on the southern edge of the Central Asian group of nations bordering with Afghanistan, China, Kyrgyzstan and Uzbekistan. Tajikistan is covered by the mountains of Pamir (93% of Tajikistan's territory is covered by mountains), and more than fifty percent of the country is over 3,000 meters (approx. 10,000 ft) above sea level. Because of the local environment, every system deployed in the mountains is hard to maintain due to limited accessibility. However, the main issue was to provide the equipment with uninterrupted power supply which would be extremely expensive using standard power sources. Therefore, low power consumption was one of the most critical conditions that would allow to use alternative power sources such as solar panels and wind generators.

### Solution

SAF CFM - PDH microwave radio system was designed to run at a maximum power of 35W, using less electricity power, which makes it ideal for deployment at base station sites that rely on locally generated energy. The installation and configuration of CFM is relatively easy as no external connection to any terminal is required. The whole system can be configured by using 4 buttons located on the frontal panel of the CFM indoor unit (IDU) which makes it very easy. Solar powered SAF CFM and CFQ systems form Babilon-Mobile's main Transport Network of base stations and provide stable connectivity for more than 900 000 mobile subscribers of Tajikistan.



■ Mountains of Tajikistan

## Facts about Tajikistan

- Area: 143,100 sq. km (55,800 sq. miles)
- Population: 7,320,716
- Climate: continental, subtropical and semi-arid with some desert areas
- Temperature: -40 / +50 C°
- Altitude: 50% of the territory is about 3,000 meters (approx. 10,000 ft) above sea level
- Precipitation rate: up to 2,236 mm per year

## Facts on SAF equipment used by “Babilon-Mobile”

- Total quantity of SAF Links: more than 300 links
- Distances between sites: up to 108 km
- Services provided by SAF equipment: TDM and Ethernet

## CFM Power Consumption:

- Indoor Unit (IDU) - from 7 to 15W (According to capacity and modules installed)
- Outdoor Unit (ODU) - from 8 to 19W
- Full Outdoor Unit (FODU) - from 13 to 23W



■ SAF CFM powered by solar panels

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