17. Functional description

17.1. Block diagram

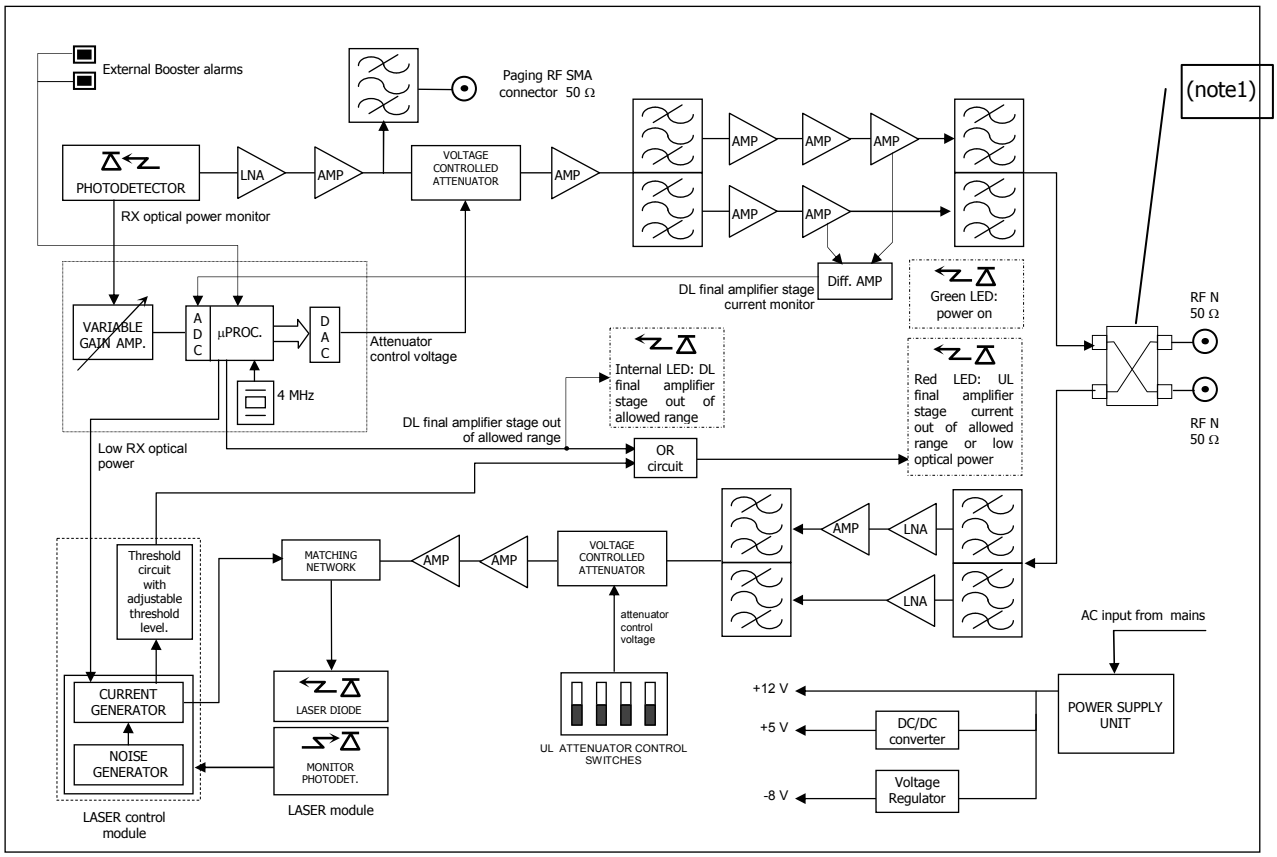

Fig. 15 – TFA block diagram

Note 1: not present in UHF TDD version

17.2. Down link operation

In the downlink the TFA fulfils the following operations:

O/E Conversion:

the optical signal is demodulated through an opto-electronic device (p-i-n photodiode).

Amplification & Filtering:

amplification is required to boost the downlink signal after is converted from light back to RF. Maintaining a good signal-to-noise ratio is critical for this operation; part of the amplification process automatically takes into account the variable loss introduced by the optical fibre.

A clean-up filter is used after the amplification process to limit transmission to the downlink band and to reduce spurious emissions in the uplink band where they would interfere with the signal coming from the mobile.

Duplexing:

the RF signal enters a duplexer which combines downlink and uplink on a single port which is then split and goes to two separate antenna ports.

9. Functional description

9.1. Block diagram

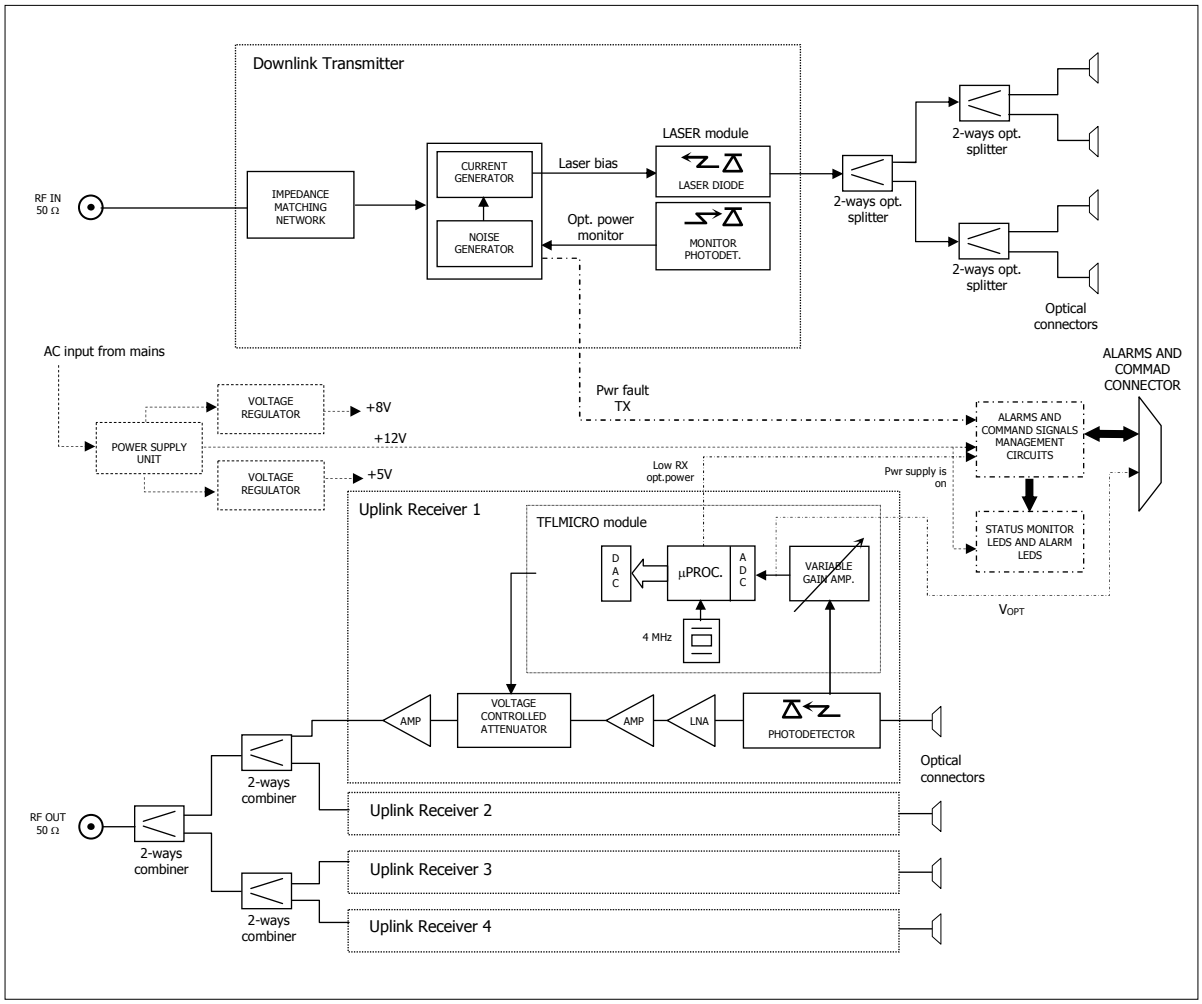

Fig. 8 - block diagram

9.2. Down link operations

In down link the TFL fulfils the following operations:

Power level adjustment:

if the RF signal coming from the BTS has a power level which is not adequate to TFL's characteristics, an external adjustment is required. It consists in an attenuation when BTS is connected through a coupler or through repeater (please refer to TFL-BSI).

E/O Conversion:

RF signal modulates the intensity of an optical carrier through an electro-optic device (laser). One laser is present on each TFL card.

Optical Splitting:

modulated optical carrier is split into 4 ways so that it may be transmitted on a maximum of 4 optical links.