Description of the Tune Up Procedure

The tune-up procedure is comprised of three steps: The board level tests, the final factory tests and the third step, start-up and supervision, which is performed whenever the uBTS is initially powered up and during the operational mode. This ensures that the µBTS operates with specified frequencies and power levels.

A. Board level tests

These tests/adjustments are carried out for each of the concerned boards in the transmitter path (RFTX and PA).

. RFTX tests

- Modulation mask of the modulated output signal
- Phase and frequency accuracy of the modulated output signal
- Spurious of the synthesizers and of the output signal
- Function of PLL lock detect and alarms

. PA tests

- Gain and linearity
- Bandwidth
- DC outputs of direct and reflected power detectors
- DC input current from +26V at maximum output

B. Final factory test

These tests are carried out with a completely equipped µBTS assembly.
The following transmitter tests are performed and tested at the antenna connector:

- Phase and frequency error.
- Power level accuracy.
- Transmitted RF carrier power versus time.
- Spectrum due to modulation.
- Switching transients spectrum.
- Spurious emissions.

C. Start-up and supervision

Whenever the equipment is powered on, the following test procedure is performed automatically prior to the activation of the RF output power:

The transmitter is set to its operational frequency, all PLL's are checked for lock. If one of these tests fails the transmitter remains disabled.

During operation, the PLL lock signals, the transmitted power, the power control loop, and the temperature are checked periodically. High temperature, unlocked

synthesizers of the RFTX and also a wrong power control loop of the PA are treated as critical alarms.

The complete transmitter is switched off immediately in case of a critical alarm. This means that uncontrolled RF transmission, violating the emission limits, is prevented.