3 RF Subsystem of the BTS

About This Chapter

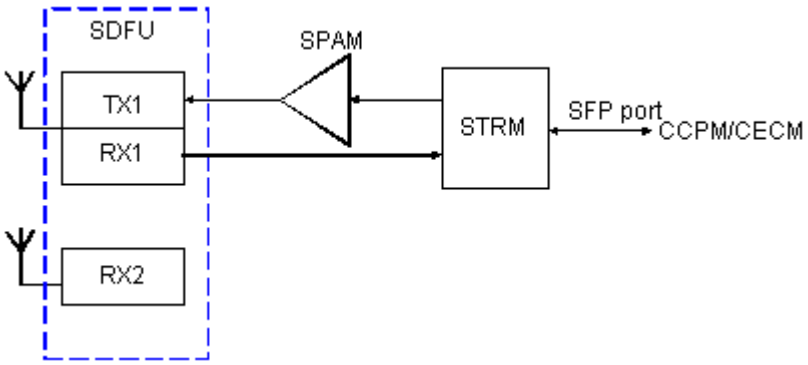
This topic describes the functional structure and hardware configuration of the RF subsystem of the BTS.

3.1 Functional Structure of the RF Subsystem

This topic describes the functional structure of the RF subsystem. The RF subsystem is used for up-conversion and down-conversion of signals and for power amplification.

Figure 3-1 shows the functional structure of the RF subsystem.

Figure 3-1 Functional structure of the RF subsystem



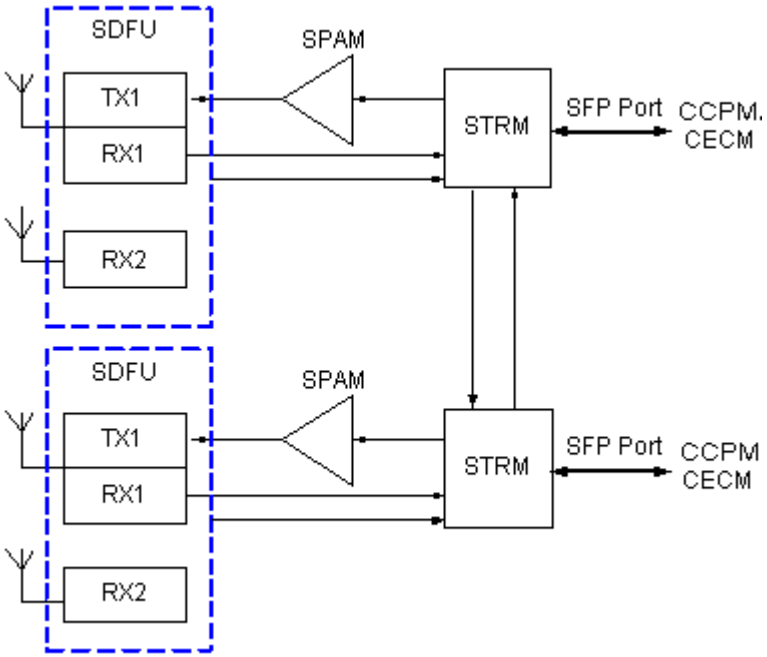
SDFU: standalone duplexer filter unit

STRM: standalone transceiver module

SPAM: standalone power amplification module

Figure 3-2 shows the functional structure of the RF subsystem with the extended RF subrack.

Figure 3-2 Functional structure of the RF subsystem with the extended RF subrack



The RF subsystem is connected to the baseband subsystem through the SFP port of the STDM and connected to the antenna subsystem through the feeder port of the STDM. The major functions of the RF subsystem are as follows:

- On the forward links, the RF subsystem performs power-adjustable up-conversion and power amplification for modulated transmitted signals. The RF subsystem also filters the transmitted signals to ensure that they meet the requirements of the air interface protocol.
- On the reverse links, the RF subsystem filters signals received by the antenna of the BTS to suppress out-band interference, and then performs low noise amplification, channel division, down-conversion, and channel-selective filtering.

3.2 Hardware Configuration of the RF Subsystem

The topic describes the hardware configuration of the RF subsystem.

Figure 3-3 shows the configuration of the RF subsystem.

Figure 3-3 Configuration of the RF subsystem

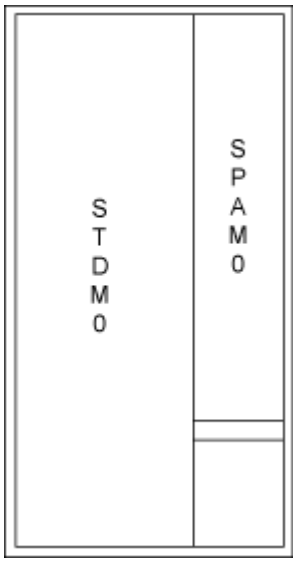
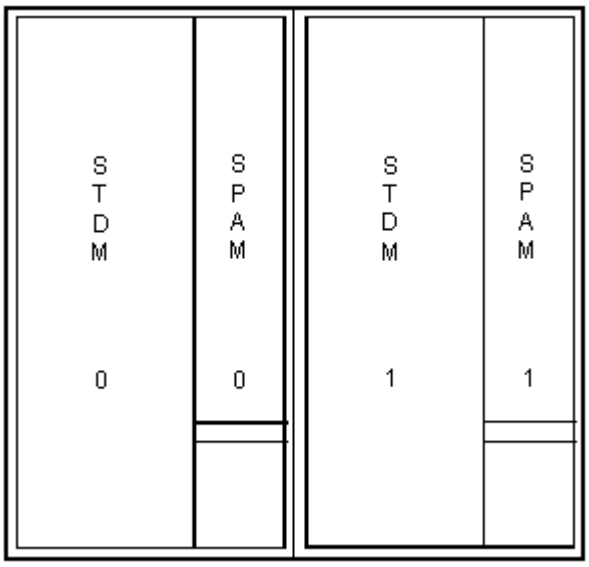


Figure 3-4 shows the full configuration of the RF subsystem with the extended RF subrack.

Figure 3-4 Full configuration of the RF subsystem with the extended RF subrack



The modules in the RF subsystem are as follows:

- STDM: The STDM consists of the STRM and the SDFU. The STRM implements modulation, demodulation, up-conversion, and down-conversion for baseband signals. The SDFU implements filtering and duplex separation for two paths of transmitted and received signals.
- SPAM: The SPAM implements high power amplification for transmitted carrier signals.