Comprehensive Radio Solutions

# RFX300-30 RF Subsystem

## UMTS/EDGE radio solution

### Overview

In the mobile phone industry, time to market is critical. Traditional RF development methods require extensive time to carefully program and test transceivers in order to optimize final yields and avoid expensive reworking. With this in mind, Freescale has developed a revolutionary RF programming method that reduces development time. Freescale's RFX300-30 RF subsystem is a multimode, multiband UMTS/EDGE solution in a single integrated package with the benefit of "RF Embedded Intelligence." The first to offer a 3G DigRF Interface for greater compatibility with industry basebands, the RFX300-30 provides an extremely compact board area and low electronic bill of materials.

The RFX300-30 improves upon Freescale's history of GSM/EDGE/WCDMA RF subsystems with embedded intelligence and simplified Layer 1 programming. As multiband and multimode phone electronics become more complex and form factors become smaller, simplified programming is key to getting a phone right the first time.

Traditional RF baseband programming must consider the critical timing between the transceiver, power amplifiers, switches, low noise amplifiers, baseband processor and voltage regulators. The digital baseband must perform many calibrations to control a transceiver and the detailed timing of all transceiver functions. With Freescale's revolutionary approach, an engineer enters a single command stating the desired channel and power level. This command sets the parameters and times the events so that system compliance is virtually assured.

### MMM7210 Single-Chip WCDMA/EDGE/GSM Transceiver

The MMM7210 transceiver is a highly integrated transceiver that combines quad-band GSM/EDGE functionality with up to four WCDMA bands in a single package solution. The receiver has five inputs supporting both WCDMA and GSM/EDGE and uses a new RF front-end topology for superior intercept points. The receiver also includes anti-aliasing filters, digital channel filters, digital gain control and high dynamic range ADCs.

### Key Benefits

- Significantly shorter test and development times with improved final yields
- Single-chip UMTS/EDGE transceiver
- Highest level of integration provides extremely compact board area and low electronic bill of materials
- Full antenna-to-bits functionality, no separate analog baseband required
- Freescale's revolutionary Polar architecture provides complete closed-loop control for manufacturability ease and extremely low current consumption
- First 3G subsystem to offer a 3G DigRF Interface to the baseband processor for ease of design
- Embedded control provides less dependency on Layer 1 software and simplifies software programming

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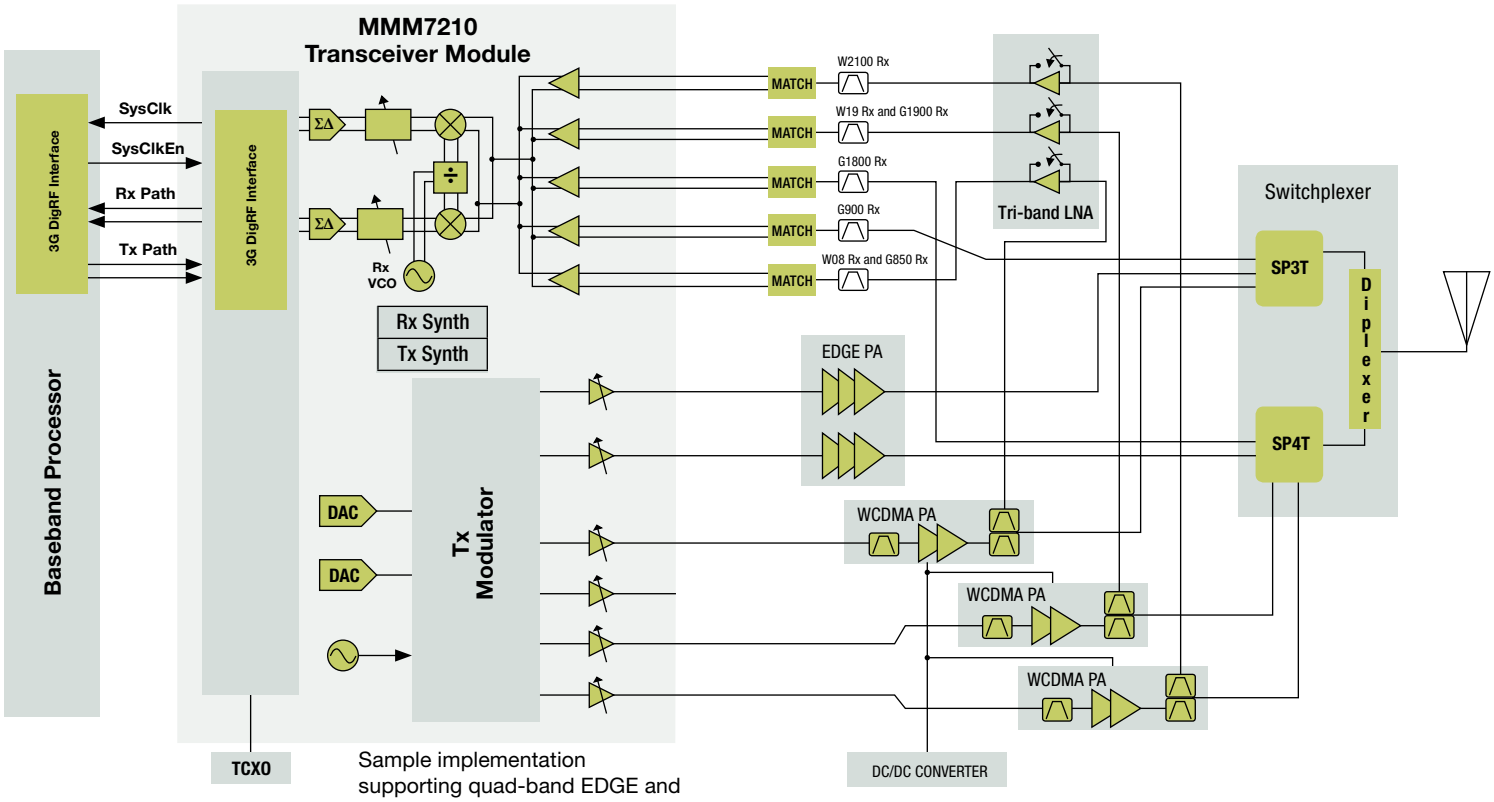
## RFX300-30 Block diagram




Sample implementation supporting quad-band EDGE and WCDMA bands I, II and V

### Key Features

- Quad-band WCDMA: bands I-VI, VIII, IX (FOMA 1700), X and FOMA 800 support
- Quad-band EGPRS: GSM850, EGSM900, DCS1800 and PCS1900
- WCDMA Power Class 3 operation
- EDGE Power Class E2 operation
- GMSK Power Class 4 operation in GSM850 and EGSM900 bands
- GMSK Power Class 1 operation in DCS1800 and PCS1900 bands
- EDGE Class 34 operation
- Low current consumption
- Direct-conversion, filter-free revolutionary Polar architecture transmitter
- HSDPA/HSUPA capable
- Closed-loop power control
- Streamlined programming model for rapid software implementation
- Digital interface to baseband processor
- Auto-calibrated transmitter
- A single MMM7210 enables 13 cellular bands, including World phones, such as Bands I, II, IV, V (VI)/Quad EGPRS

**Learn More:** For more information about Freescale's products, please visit **www.freescale.com/cellularRF**.



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REV 2