Overview

IntegrIT DMR is a software stack implementing Digital Mobile Radio (DMR) Air Interface (AI) protocol Layers 1 and 2. It employs Time Division Multiple Access (TDMA) technology with a 2-slot TDMA solution and RF carrier bandwidth of 12,5 kHz. Additionally, for Tier I products it employs a continuous transmission variation (FDMA) of the above mentioned technology.
Strictly conformed to ETSI TS 102 361-1 specification, **IntegrIT DMR** is an ideal solution for OEM 2-way radio equipment manufacturers. It is scalable to fit in portable and mobile radios as well as base stations and repeaters. Robust decoding technique provides superior performance in noisy environment. Modular architecture and message based organization allow for manufacturers to extend their analogue radios with DMR functions at a reasonable efforts.

Features

- ETSI TS 102 361-1 interoperable (Tier I and Tier II). Can be used for conventional and trunking communication, in digital repeaters and base stations as well as portable and mobile radios.
- most DMR modes supported (full/half duplex, TDMA/FDMA)
- mixed voice/data operation
- glueless interface to external AMBE-3000 decoder chip or AMBE library
- robust MLSE equalization together with soft-decision decoders for better radio performance
- extensive self testing and logging capabilities
- easy control from the host MCU via I^2C bus

Applications

- Public Safety
- DMR equipment
- UHF 2-way radios

Specifications

DMR stack incorporates robust 4FSK modem, voice and data encoding/decoding logic, channel access and interface to the host. The solution is extremely scalable and customizable under customers needs. It is targeted for using in portable and mobile stations as well as in infrastructure equipment like repeaters and base stations. .
There are several dedicated interfaces in the stack. Interface to the voice compression is open for using of AMBE or non standard vocoders. Burst formation logic manages PTT and VCO TX lines accurately providing minimum power consumption of RF part. I^2C interface to the host enables running GUI on the existing microcontroller.
To facilitate integration efforts DMR stack incorporates built-in testing patterns generator, BER tester and extensive reporting and logging capabilities.

Supported modes:

- basestation mode (full duplex)
- half duplex direct (peer-to-peer) mode
- single slot operation
- dual slot data timing
- continuous voice timing

Layer 1 functionality:

- modulation and demodulation
- transmitter and receiver switching (PTT/VCO TX management)
- RF characteristics

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- bits and symbol definition
- frequency and symbol and burst synchronization
- burst building/decoding
- channel coding (FEC, CRC)
- interleaving, de-interleaving and bit ordering
- voice/data sequencing, super-frame building and synchronization
- raw vocoder interfacing
- auxiliary test functions (test patterns, custom PDU sequences, BER tester, etc.).

Layer 2 functionality:

- acknowledgment and retry mechanism
- media access control and channel management
- link addressing (source and/or destination)
- data bearer services
- asynchronous exchange with call control layer (user data, commands, signaling and control)
- extended vocoder interface (loopback modes, jitter buffers, etc.).

Availability

This software is available in binary/source code written on fully portable C-language for:

- Texas Instruments C674x/OMAP13x, TMS320C64xx, DaVinci
- x86

Porting to other platforms (Analog Devices, Freescale, ARM, etc.) is upon request.

Pricing/Licensing

Call

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