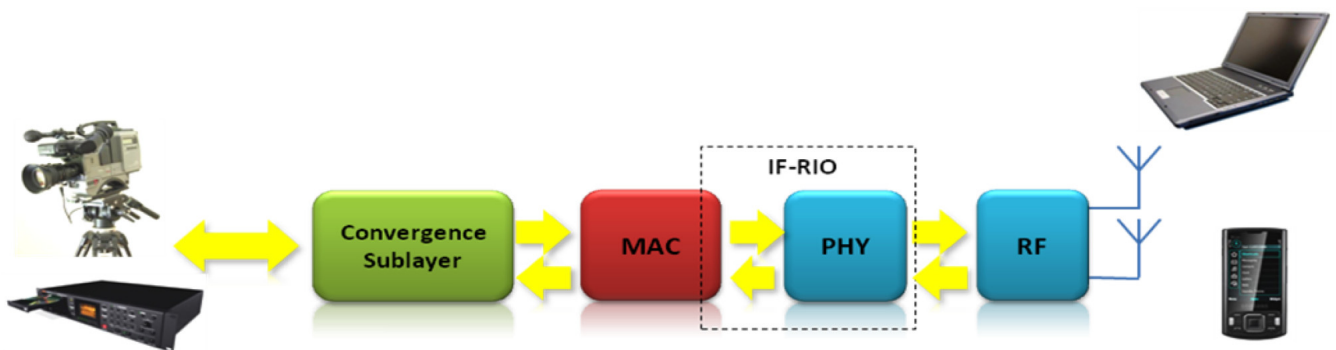**WisyMAX-RT**

Manufacturing test with the strict timing constraints of the 5ms frame structure of mobile WiMAX (IEEE802.16-2005) requires a real-time (RT) reconfigurable FPGA architecture in order to process the whole baseband chain.

WisyMAX-RT implements the main WiMAX baseband over the FPGA-based NI IF-RIO. This includes the mobile WiMAX PHY layer signal processing of both as TX and RX for either downlink (DL) and uplink (UL) and a MAC portion.

Since WisyMAX-RT implements both links TX/RX, part of the WisyMAX-RT code can be downloaded to reconfigure the instrument either as a basestation (BS) or a subscriber station (SS). This allows to easily turn the instrument personality to be able to perform BS or SS emulation.

The command/control PHY/MAC interface of WisyMAX-RT is based on the Intel PHY-SAP for IEEE 802.16e as protocol while a standardized data structure allows for communication across PHY and MAC levels.

WisyMAX-RT is an essential tool for performance analysis limited not only to conventional RF-testing but also to all the configurations where real-time PHY processing is mandatory such as:
- Testing and analysis of QoS for pre-conformance and pre-certification validation in realistic and/or extreme settings (e.g., fading channels, synchronization, Doppler effect, any degree of noise and interference).
- Manufacturing test of assembled terminal devices or load-stress tests for base-stations.
- Acquisition/monitoring of radio channel and interference characterization (e.g., cell-coverage monitoring/controlling and/or QoS in deployed networks).

WisyMAX-RT in TX or RX configuration supports the mandatory data format and PUSC burst structure specified by the IEEE802.16-2005 standard for either DL and UL (UL will be released by 2Q2009).

WisyMAX-RT supports National Instruments PXIe IF-RIO and NI PXI 56xx Up/Down converters including the newest 6.6GHz instruments suite.