

Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [NICT, MedWiN, and Fujitsu merged baseline proposal for TG6]

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Abstract: [A brief view on the TG15.6 related regulations]

Purpose: [To propose a combined baseline structure for TG15.6]

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NICT, MedWiN, and Fujitsu merged Baseline proposal for TG6

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Motivations

- **Present a merged baseline proposal for**
 - **Narrow band PHY**
 - **UWB PHY**
 - **Common MAC**

- **Solicit for new mergers to join in**

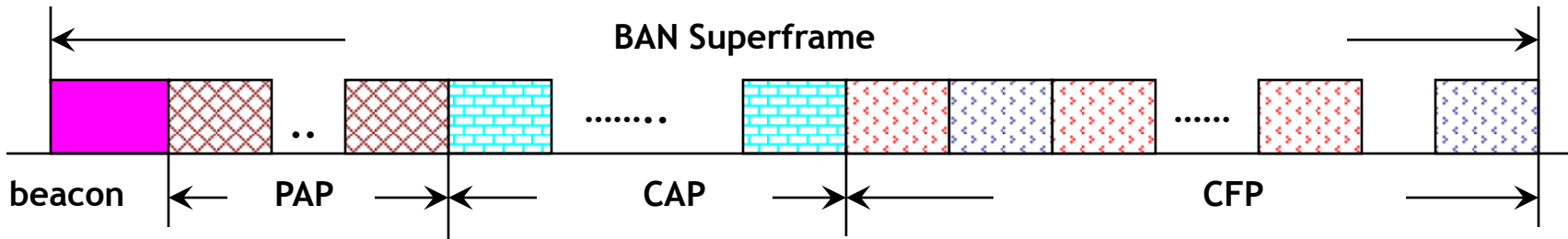
Narrow Band Baseline

- **Frequency bands: MICS, WMTS (Japan only), MBANS (US) and ISM band compliant with local regulations**
- **Modulations:**
 - **Data rates < 100 kbps must be based on GMSK/FSK**
 - **Data rates ≥ 100 kbps must be based on differential M-ary PSK**
- **Data rate: No mandatory data rate**

UWB baseline

- **Frequency bands: 7.25 – 8.5 GHz is mandatory. Other UWB bands are optional.**
- **Modulations: must support non-coherent and coherent detection**
 - **Burst Position Modulation for non-coherent detection**
 - **Differential M-ary PSK for differentially coherent detection for high QoS applications**
- **Data rate: 1Mbps – 10Mbps with 1 Mbps as mandatory**
- **Channel coding:**
 - **Systematic RS for all applications**
 - **Hybrid ARQ for high QoS applications**
- **Pulse shape:**
 - **no mandatory pulse shape**
 - **chirp, chaotic, burst of short pulses, etc. can be used to meet different QoS requirement**

MAC baseline



- **BAN superframe**
 - Configurable superframe structure
 - Fixed number of allocation slots with equal slot duration
 - A superframe includes a beacon (if permitted by regulations), PAP, one or two CAP, and a CFP
- **PAP**
 - Flexible location and duration in the superframe
 - Only for emergency/alarm message
- **CAP**
 - CAP is mainly for channel contention
 - Slotted CSMA or slotted ALOHA
- **CFP**
 - TDMA based GTS allocation
 - Scheduled access and improvised access