
Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)**Submission Title:** [NICT, MedWiN, and Fujitsu merged baseline proposal for TG6]**Date Submitted:** [September 24, 2009]**Source:** [Kohno Ryuji(1)(2), Bin Zhen (1), Huan-Bang Li(1), Marco Hernandez(1), Igor Dotlic(1), Shinsuke Hara (1), Kenichi Takizawa(1), Tetsushi Ikegami(3), David Davenport (4), Neal Seidl (5), Anuj Batra (6), Jin-Meng Ho (6), Srinath Hosur (6), June Chul Roh (6), Tim Schmidl (6), Okundu Omeni(7), Alan Wong (7), Hind Munzer-Chebbo (8), Sunil Vadgama (8), Ichirou Ida (9), Kaoru Yokoo (9), Jeremy Moss (10), Maulin Patel (11)]

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Contact: Huan-Bang Li, Anuj Batra**Abstract:** [Describe the merged baseline proposals of NICT, MedWiN, and Fujitsu]**Purpose:** [To propose a combined baseline structure for TG15.6]**Notice:** This document has been prepared to assist the IEEE P802.15. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.**Release:** The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15.

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**

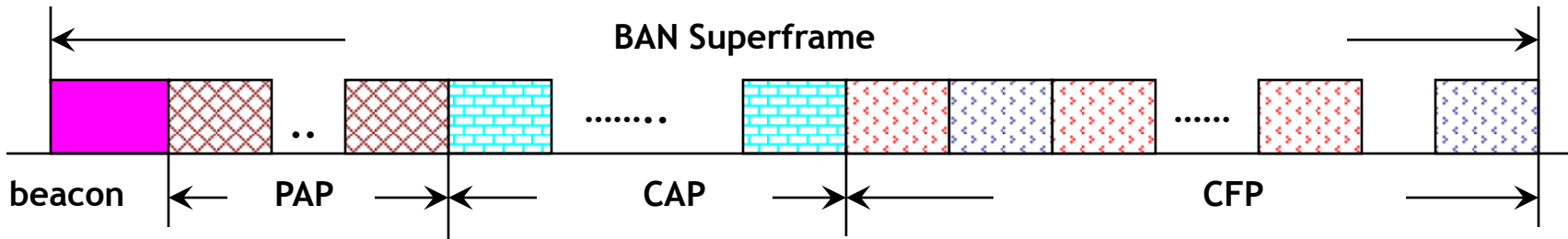
Narrow Band Baseline

- **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