

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

Submission Title: [PAR & 5C Review for Personal Space Communication]

Date Submitted: [16 May 2010]

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Re: [In response to 802.15 WNG call for presentations.]

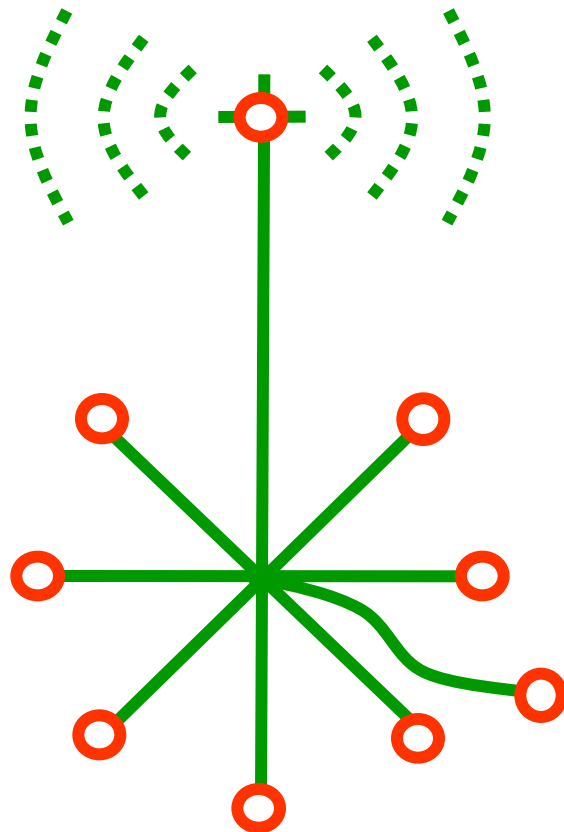
Abstract: [In 5G with mobile computing, power will shift from service providers to users, thus the personal space will be central, not peripheral, to the global communication. Users will maintain intact the essential features of their personal space while seamlessly floating over the global communication infrastructure. The 802.15 Personal Space Communication(PSC) will define technologies empowering this inevitable paradigm shift, among which broadcasting capability is one of the most essential. PSC devices are themselves personal broadcast stations. Service providers will enter this personal space just as another broadcast station. 5G communication is nothing more than connections of these PSC spaces.]

Purpose: [[Information related to the request for international cooperation](#)]

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PAR & 5 C Review for PSC



May 2010

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PicoCast Forum

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Project Authorization Request

- ✓ Scope of Proposed Standard
- ✓ Purpose of Proposed Standard
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Scope of Proposed Standard

Feature	Description	Remark
Territory	User centered space	
Target	PHY, MAC	
MAC	Container frame structure (Time/Frequency diversity)	Interference Rejection, Broadcasting
PHY	Unlicensed Band	900M, 2.4G, UWB, White Space
Service Range	International regulations	~30m
Service Modes	Audio, Voice, RFID, Mobile Video, Data Control	base : 1Mbps (Typ : 4Mbps)
Mobility	Pedestrian	~10Km/H
Location	Position & Direction	~ m

Purpose of Proposed Standard

Feature	Description	Remark
Application	Convergence of services	Communication / Broadcasting
New Feature	- Interference free and Optimization in congestion	Container frame structure
New Services	- WPAN Broadcasting, - MAC Diversity for Multiple Services & Protocols	Frequency /time hybrid diversity
Multiple Service Convergence	Sensor, control, voice, mobile video	
Multiple Protocol Convergence	- Point-to-point, multi point-to-multi point, Broadcast, Multicast, Communication & Broadcast convergence	

Needs for the Project

Feature	Description	Remark
Trend	Market Power shift to user, Protocol convergence and Usage diversity	~ 10 EA / person
Needs for users	<ul style="list-style-type: none">- Unified user interface for various services- Global user interface over the world	
Needs for manufacturers	<ul style="list-style-type: none">- Reduce Cost & develop period- Increase total sale amount- Various kinds of terminals disposable or changeable	
Needs for Service Providers	<ul style="list-style-type: none">- Create 2-way broadcast market- Easy to access to users	
Market Size	Lager than mobile phone number	~1000 million / year

Stakeholders for the Standard

Feature	Description	Remark
Mobile,		
Game,		
Computer and		
Home Appliance Industries and Consumers		

5C

- ✓ Broad Market Potential
- ✓ Compatibility
- ✓ Distinct Identity
- ✓ Technical Feasibility
- ✓ Economic Feasibility

Broad Market Potential

Feature	Description	Remark
Broad sets of applicability	Wireless Audio, Mobile VoIP, Internet Radio, Mobile IPTV, Group Game Device, 2-way remote control, & convergence of above applications, Future ubiquitous & 5G mobile communication	Beyond the horizon
Multiple vendors and numerous	Smart Phone Industry, and WPAN chip makers	Google, Apple, Qualcomm, Microsoft, Samsung, Nokia, LG, Telco's
Balanced costs	Smarter service but Affordable price	Cost effective multiple usages with single solution,

Compatibility

Feature	Description	Remark
<i>IEEE 802.1 Architecture,</i>		
<i>ISO 10039</i>		
<i>IEEE 802 family of standards</i>		
<i>OSI systems management standards</i>		
ISO/IEC29157	ISO standard Finallized	

Distinct Identity

Feature	Description	Remark
Substantially different from other IEEE 802 standards	Broadcasting & Communication Convergence Protocol, Container frame structure to avoid congestion	
One unique solution per problem (not two solutions to a problem)	Unique solution to support multiple protocols and services in the user space	
Easy for the document reader to select the relevant specification	Improved version of ISO/IEC 29157	Enhance Scalable Speed, Multiple PHY's,

Highlights of PSC Standard

		ISO/IEC 29157	IEEE802.15.PSC
P H Y	media	2.4GHz ISM,	Any Unlicensed Bands
	speed	1Mbps (fixed)	~ 4Mbps (scalable)
M A C	protocol	P-P, Star, broadcast, Multicast, multi-direct, broadcast relay	<i>plus</i> AP* Sync Relay, Soft Hand-over
	PHY interface	Single	Multiple
	Container frame structure	Hard Box, 128bit preamble	Hard & Soft Box 0 ~ 128bit preamble

Technical Feasibility

Feature	Description	Remark
Demonstrated system feasibility	Already Demonstrated. Now, ready for IEEE802.15.psc.	
Proven technology, reasonable	10 years of R&D. Proven to be Reliable, Available, Maintainable, and Durable.	
Confidence in reliability	Market proven. ISO/IEC 29157 (2010)	More than 1 million chips in use

PSC Technology

- Private Area Broadcasting – PicoCast
- Low Latency for Natural Lip Sync
- ‘Smarter’ Data Packaging – Container
- Privacy by Binary CDMA



Wireless
Game
Headset



Tour Guide
Headset



3-Way
communication



Multi Language
Broadcasting



Wireless
Microphone
System



Secured
Conference
Microphone



Listening to
Favorite Music
from Multi Ch.



Public Place
Broadcasting



Closed Group
Broadcasting

Economic Feasibility

Feature	Description	Remark
Known cost factors, reliable data	PHY: Similar to WPAN Chip Size: Similar to WPAN Cost: Similar to WPAN	
Reasonable cost for performance	Smarter service and affordable price.	
Consideration of installation costs	No extra installation cost.	Only define inside of user space and use any existing infra.