

Radiocommunication Study Groups



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GENERAL ASPECTS

Institute of Electrical and Electronics Engineers (IEEE)

COMMENTS ON WORKING THE WORKING DOCUMENT TOWARD A PDNR ON THE USE OF IMT FOR BROADBAND PPDR APPLICATIONS

1 Source information

This contribution was developed by the IEEE 802.16 Working Group on Wireless Metropolitan Area Networks and the IEEE 802.18 Radio Regulatory Technical Advisory Group, in accordance with the IEEE 802 policies and procedures, and represents the view of IEEE 802.

2 Background

This contribution responds to the 17 October 2012 Liaison statement (“Invitation to provide input material for development of working document toward a preliminary draft new Report on ‘The use of IMT for broadband PPDR applications’”).

We appreciate the information and the request for input.

3 Views regarding case studies of applications of IMT technologies to broadband PPDR

We are of the view that many IMT technologies may be applicable to broadband PPDR applications. We would like to particularly identify information relevant to the applicability of IEEE technologies, so that such material could form the basis of some of the examples in the development of section 7 (“Case studies of applications of IMT technologies to broadband PPDR”).

Examples include the following Case Studies:

3.1 Emergency communications during the Minneapolis bridge disaster in USA

To better understand the communication needs of emergency responders, the Communications Systems Analysis Division of the Public Safety and Homeland Security Bureau studied the impact of the 2007 Minneapolis bridge collapse on local emergency communications systems. The Division also examined how next-generation commercial wireless technologies could play a role to supplement public safety communications. The study considered “WiMAX technology... based upon the IEEE 802.16 standard for fixed and mobile wireless connectivity.” This technology is incorporated in IMT-2000 as IMT-2000 OFDMA TDD WMAN.

[1] “Emergency Communications During the Minneapolis Bridge Disaster: A Technical Case Study by the Federal Communications Commission's Public Safety and Homeland

Security Bureau's Communications System Analysis Division” (2008-11-13) <<http://transition.fcc.gov/pshs/minneapolisbridge.html>>.

3.2 A consideration of broadband mobile communication for PPDR applications in Republic of Korea

To deploy a wireless communication system for PPDR applications, the Ministry of Public Administration and Security (MOPAS) in the Republic of Korea specified sets of functional requirements for the wireless communication of PPDR applications: 17 essential functional requirements and 20 supplementary functional requirements. In November 2011, the Ministry identified the Mobile WiMAX system, which is known as the WiBro system in Korea and is based on the WirelessMAN-OFDMA air interface of IEEE Std 802.16 and IMT-2000 OFDMA TDD WMAN, as one of the two wireless communication candidates for nationwide deployment of PPDR applications.

To support use of broadband mobile communication for applications such as PPDR, IEEE Std 802.16 is currently being amended by IEEE Project P802.16n [2], with the work led by the “Greater Reliability In Disrupted Metropolitan Area Networks” (GRIDMAN) Task Group. The draft amendment modifies IEEE Std 802.16 specifications for additional functionality addressing direct communication as well as network robustness in degraded network conditions [3]. The amendment also provides efficient multicast connectivity for group communication within a single base station.

[2] <http://ieee802.org/16/gridman>

[3] Sungcheol Chang, “[Broadband Mobile Communication for PPDR Applications - IEEE 802.16 GRIDMAN](#),” [ITU Workshop on Emergency Communications and Information Management](#) (201202-20)

3.3 Broadband wireless communications for public safety in Japan

In Japan, 32.5 MHz of bandwidth (170-202.5 MHz) of newly available spectrum has been allocated for public safety broadband wireless communication systems [4] in 2011 following conversion of VHF/UHF band analogue TV broadcasting service to digital format. Since this system consists of a portable base station (BS) and multiple mobile stations (MSs), it can be operated when and where it is needed. It is capable of providing several Mbit/s transmission data rate within the communication area of several km from the BS. One representative use case is high quality video image transmission from a disaster area to the local emergency headquarters. Technical specifications [5] for the system have been standardized in ARIB STD-T103 based on IEEE Std 802.16-2009, and elements introduced in ARIB STD-T103 have been incorporated in the new VHF mode of the IEEE P802.16n draft [2]. An overall introduction of the public safety broadband system can be found in [6].

[4] “Committee Report of Effective Spectrum Usage Policy, Information and Communications Council, Ministry of Internal Affairs and Communications” (June 2007) http://www.soumu.go.jp/main_sosiki/joho_tsusin/policyreports/chousa/mobile_media/pdf/070802_2_si5.pdf (in Japanese)

[5] [ARIB STD-T103](#) Ver1.0, “200 MHz-Band Broadband Wireless Communication Systems between Portable BS and MSs”, http://www.arib.or.jp/english/html/overview/st_ej.html (2011-03-28)

- [6] Smart Wireless Laboratory, National Institute of Information and Communications Technology (NICT), “PBB Wireless Communication System using VHF-band”, <http://www2.nict.go.jp/wireless/smartlab/project/pbb.html>

4 Proposal

We propose that the three cases studies identified in Section 3 be incorporated into section 7 (“Case studies of applications of IMT technologies to broadband PPDR”) of the working document toward a PDNR on “The Use of International Mobile Telecommunications (IMT) for Broadband Public Protection and Disaster Relief (PPDR) Applications.”

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