

## IEEE P802.22 Wireless RANs

### 5C for Enhanced Broadband and Monitoring Amendment

Date: 2011-09-21

Author(s):				
Name	Company	Address	Phone	email
M. Azizur Rahman	NICT	3-4 Hikari no oka, Yokosuka, Kanagawa, Japan	+81-46-847-5060	aziz.jp@ieee.org
Chang Woo Pyo	NICT			
Xin Zhang	NICT			
Chunyi Song	NICT			
Hiroshi Harada	NICT			
Apurva Mody	BAE Systems	USA		
Sung Hyun Hwang	ETRI	Korea		
Gwangzeen Ko	ETRI			
Shigenobu Sasaki	Niigata University	Niigata, Japan		
Gerald Chouinard	CRC	Canada		

### Abstract

This document presents the revised response to the five criteria (5C) for Enhanced Broadband and Monitoring Amendment. This is based on 98r3.

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## 5 Criteria- P802.22b, Amendment to IEEE Std. 802.22-2011

### 1. Broad Market Potential

#### a) Broad sets of applicability

The proposed amendment will enable a number of new broadband applications in television white spaces (TVWS) in the context of wireless regional area networks by combining broadband services and monitoring applications.

#### b) Multiple vendors and numerous users

It is expected that this amendment will be applicable in all markets where the 802.22 technology will be used. The new features of the amendment are expected to bring new equipment vendors.

#### c) Balanced costs (LAN versus attached stations)

It is expected that the new features of the amendment can be implemented with reasonable cost resulting in overall better value for money.

### 2. Compatibility

The amendment will be compatible with IEEE 802 family of standards, specifically 802 overview and architecture, 802.1 including 802.1D and 802.1Q.

### 3. Distinct Identity

#### a) Substantially different from other IEEE 802 standards

There is no other IEEE 802 standard or project, for combined broadband services and monitoring applications aimed at wireless regional area networks using television white space bands.

#### b) One unique solution per problem (not two solutions to a problem)

Combined broadband services and monitoring applications for wireless regional area networks by using television white space bands are not currently considered by any other wireless standard or project. Hence, this is the only solution to this problem.

#### c) Easy for the document reader to select the relevant specification

Yes, since the proposed standard will produce an amendment to the IEEE std. 802.22-2011.

### 4. Technical Feasibility

#### a) Demonstrated system feasibility

There are a number of examples of successful prototype operation in TVWS by complying with requirements of various regulatory organizations (e.g., Federal Communications Commission (FCC), USA, Infocomm Development Authority (IDA), Singapore, etc.).

#### b) Proven technology, reasonable testing

Experimental licenses have been issued for operation in TVWS in many countries (e.g. Federal Communications Commission (FCC), USA, Infocomm Development Authority (IDA), Singapore etc). Communications over TVWS are being tested by regulatory organizations in those countries.

**c) Confidence in reliability**

Results of TVWS test trial campaigns being carried out by various regulatory organizations provide confidence in the reliability of the proposed project.

**d) Coexistence of 802 wireless standards specifying devices for unlicensed operation**

This amendment supports mechanisms to enable coexistence with other 802 systems in the same band. A coexistence assurance document will be produced by the WG as a part of the WG balloting process.

**5. Economic Feasibility**

**a) Known cost factors, reliable data**

The amendment uses technologies that are well-proven in the market in a cost effective manner.

**b) Reasonable cost for performance**

The IEEE 802.22 systems are designed for operation in rural areas where the population density is likely to be low. However, , an IEEE 802.22 base station (BS) covers a large area typically with 30 km radius implying a reasonable cost per geographical unit of coverage. The CPEs are expected to be inexpensive and hence cost for overall network performance would be reasonable.

**c) Consideration of installation costs**

This amendment will be later combined to the base 802.22 standard resulting in an updated version of IEEE std. 802.22-2011. Installation costs will be those of the updated base standard and are expected to be reasonable.