

5 Criteria- 802.15 SG4TV, Amendment to 802.15.4 current revision

1. Broad Market Potential

a) Broad sets of applicability.

There are many existing 802.15.4 based low data rate command and control applications, such as outdoor infrastructure management and control, that can benefit from the advantages offered by a TV White Space Physical Layer, particularly better coverage and range with less infrastructure.

b) Multiple vendors and numerous users

There are many vendors and users of IEEE 802.15.4 wireless equipment for indoor and outdoor operation. It is expected that there will be several existing as well as several new vendors offering equipment for this band as an extension to their existing portfolio of products.

c) Balanced costs (LAN versus attached stations)

Based on known implementations of other TV White Space devices, the proposed amendment can be implemented with connectivity costs which are reasonably small as compared to the cost of devices or the value of the applications served.

2. Compatibility

IEEE 802 defines a family of standards. All standards shall be in conformance with the IEEE 802.1 Architecture, Management, and Interworking documents as follows: 802 Overview and Architecture, 802.1D, 802.1Q, and parts of 802.1f. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with 802.1.

Each standard in the IEEE 802 family of standards shall include a definition of managed objects which are compatible with systems management standards.

This standard will be compatible with the IEEE 802 requirements of Architecture, Management, and Inter-networking documents as required. There is no specific technology feature anticipated in the standard that could preclude this compliance.

3. Distinct Identity

a) Substantially different from other IEEE 802 standards

There are no other IEEE 802 projects, utilizing unused TV channels, specifically addressing low data rate operation optimized for use in device command and control applications.

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

An optimized wireless solution specifically designed for command and control applications has not been anticipated by any other wireless standard where the focus has been on delivering effective broadband capability. Consequently, this is the only optimized solution to this particular problem.

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

The proposed standard will produce an amendemnt to the IEEE 802.15.4 specification.

4. Technical Feasibility

a) Demonstrated system feasibility

There are many existing devices operating in the TV bands (i.e. VHF/UHF) and many in development. The use of TV White space complying with the regulations (e.g. FCC rules) has been demonstrated and well documented.

b) Proven technology, reasonable testing

The technology has been well proven both by laboratory testing and market deployments. The WPAN application presents no unique challenges.

c) Confidence in reliability

Previously demonstrated applications of the technology provide confidence in the reliability of the proposed project.

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

The WG will create a coexistence assurance document as a part of the WG balloting process.

5. Economic Feasibility

a) Known cost factors, reliable data

The fundamental radio technology and associated cost of implementation is well established.

b) Reasonable cost for performance

Based on performance and related costs of existing 802.15 low data rate systems, a TV White Space implementation will meet the expectations.

c) Consideration of installation costs

The TV white space enabled 802.15 devices will have no impact on individual device installation costs and will likely reduce over system level implementation costs based on the reduction in required infrastructure.