

**IEEE P802.15**  
**Wireless Personal Area Networks**

Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)	
Title	Suggested Elements of 802.15.4m Functional Requirements	
Date Submitted	September 2011	
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Re:		
Abstract	Requirements for functional and system performance for TG4m. The requirements have to be addressed by the amendment.	
Purpose	Specifies the functional requirements of TG4m	
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## **1. Overview**

This document specifies the functional and specification requirements for TG4m based on the PAR and 5C documents of SG4TV.

The requirements are summarized in the following:

- (a) Regulations
- (b) System Performance
- (c) Frequency band switching
- (d) Compatibility with 802.15.4
- (e) Coexistence with systems protected by regulations
- (f) Coexistence with other 802 systems
- (g) Compliance to PAR

## **2. Functional Requirements**

### 2.1 Regulations

#### 2.1.1 Regulatory domains

[Req01] The amendment shall specify operations meeting at least one, and as many as practical, TV White Space regulatory requirements.

#### 2.1.2 Frequency band

[Req02] The amendment shall specify operations in TV white space frequency bands under regulatory constraints.

### 2.2 System Performance

#### 2.2.1 Data rate

[Req03] The amendment shall provide operation modes that support PHY data rate of at least 40kbps.

[Req04] The amendment shall provide at least one optional operation mode that supports PHY data rate up to at least 10Mbps.

#### 2.2.2 Operating range

[Req05] The amendment shall achieve operating range of at least 1km at PHY data rate of 40kbps.

### 2.2.3 Number of supported devices

[Req06] The amendment shall provide at least one operation mode that supports up to at least 1000 direct neighboring devices.

### 2.3 Frequency band switching

[Req07] The amendment should provide a means for seamless frequency band switching for radios with multi-band capability.

### 2.4 Compatibility with 802.15.4

[Req08] The amendment shall maintain compatibility in network architecture and management with the existing 802.15.4 standards and amendments.

### 2.5 Coexistence with systems protected by regulations

[Req09] The amendment shall provide mechanism to enable coexistence with users (*e.g.* TV broadcasting) protected by regulations.

### 2.6 Coexistence with other 802 systems

[Req10] The amendment should support coexistence with other 802 systems operating in the same frequency band.

### 2.7 Compliance to PAR

[Req11] The amendment complies with the SG4TV PAR and 5 Criteria.

## **3. Specification Requirements**

[Req12] The amendment will include a PICS proforma.