Project	**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>
Title	**A Proposed TOC for the 802.16m System Description Document**
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Source	Kim Olszewski E-mail: kolszewski@zteusa.com ZTE USA, Inc. 10105 Pacific Heights Blvd, Suite 250 San Diego, CA 92121
Re:	IEEE 802.16m-07/040 - Call for Contributions on Project 802.16m System Description Description Document.
Abstract	This contribution contains a proposal for the 802.16m SDD Table of Contents.
Purpose	To review and adopt the proposed text for the SDD table of contents.
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A Proposed Table of Contents for the 802.16m System Description Document

Kim Olszewski
ZTE USA, Inc.

1 Introduction

The main purpose of the 802.16m System Description Document (SDD) is to provide a high-level view and concise description of an entire 802.16m system; it should provide a broad overview or quick snapshot of what a 802.16m system is and how it functions. The document's emphasis should be on system breadth rather than system depth. The system view and description should be realized using high-level system block diagrams, protocol stack architectures, system interfaces and concise descriptions that tie all system levels and blocks together. The concise descriptions should not contain detailed text describing specific technology details. Such details will be addressed in future calls for contributions.

The SDD table of contents is a key SDD component because it provides the supporting structure, framework or skeleton that will eventually give an 802.16m system its shape. The SDD table of contents also provides an outline for system development and a list of subject areas that may be addressed in future calls for contributions. This contribution contains a proposed table of contents that may used as a starting point for the 802.16m SDD. Sections within the proposed table of contents can improved, extended, added, or removed during SDD development. A section describing the rationale for the structure and sections of the proposed table of contents is also provided. This may be of use during the development of the SDD table of contents.

2 Rationale for the Outline Structure and Section Naming

The air interface (PHY and MAC layer) for 802.16m systems must support numerous functional, performance, and operational requirements. These requirements concern various operating environments (residential, office, hot spot, public access, etc), cell ranges (femto, pico, micro, macro, etc.), service classes (voice, data, multimedia, etc.), terminal types (palmtop, laptop, desktop, mobile phones, etc.), in-cell user distributions and densities, traffic flow types, and user profiles (mobile, fixed, nomadic). In addition, the 802.16m air interface must transparently integrate with the air interfaces of legacy 802.16 systems in order to provide for backwards compatibility and a smooth 802.16 product evolution.

The proposed table of contents only addresses the air interface. However, the table of contents begins with sections that describe a network reference architecture so readers can better see the scope of 802.16m system development and how an 802.16m system interfaces with other network entities (see Figure 1). The proposed table of contents is also rooted or aligned with prior 802.16 work in order to support backwards compatibility. To meet the IMT-Advanced requirements and to enable backwards compatibility, the proposed table of contents was designed using references 1-6 within the reference section of this contribution. Sections within 1-6 can be referenced or summarized in order to fill SDD sections that do not require new technology.

The proposed SDD table of contents has a top-down, modular structure that outlines the 802.16m system-level architecture. The top-down, modular structure allows readers to get a quick idea of the structure and building blocks of an 802.16m system by just looking at the table of contents. The top-down, modular structure also facilitates the addition, removal or reorganization of sections if needed during table of contents development.

The table of contents allows for flexibility and variety in future SDD technology proposals that will address 802.16m functional blocks; sections comprising the table of contents are made as general as possible. The rationale for a generalized table of contents is that it does not constrain the system to specific

technologies, only a system structure and core functional blocks that are needed for backwards compatibility. Indeed, proposers of new 802.16 technologies will be constrained or confined if the table of content dictates specific technologies or components. This will impede the evolution of 802.16 systems and will make 802.16 system less competitive compared to similar technologies from other industry groups.

The outline tries to utilize current 802.16 definitions and terminology rather than providing new ones or those used by other standards working groups. This should lessen the development time for the SDD and better support compatibility with legacy 802.16 systems. The introduction of new definitions and terminology should be avoided if they impact 802.16m development time or legacy 802.16 systems. They should only be introduced when necessary or when they improve an existing 802.16 definition or term.

For example, in other standards numerous logical and transport channels are defined. In simple terms a logical channel may be defined as an information stream dedicated to the transfer of a specific type of information (e.g. control or data). On the other hand, transport channels support the logical channels, they are distinguished by physical layer characteristic such as modulation and coding. A MAC layer scheduler is used to perform the mapping between defined logical and transport channels, it schedules user traffic using the most appropriate combination of logical and transport channels. It is the contributors opinion that the definition of transport channels for 802.16m is not needed since the 802.16 equivalent is already provided by interval usage codes via DL and UL burst profiles. The definition of new transport channels for 802.16m may delay SDD development time and complicate backwards compatibility with current 802.16 implementations.

As example case where new definitions can be introduced is define a set of definitions for user terminals. Specifically, within the proposed table of contents the terms fixed, nomadic and mobile access terminals are used rather than subscriber station, mobile station, etc. as used in past. These definitions allow terminals to be classified based on their capabilities and usage scenarios rather than grouping them all together under one non-descriptive name such as subscriber station or mobile station.

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4 References

1. 802.16m Requirements Document
2. 802.16m Evaluation Document
3. 802.16 P802.16 Rev2/D1 (October 2007)
4. 802.16j
5. 802.16g P802.16g/D9 (April 2007)
6. 802.16i

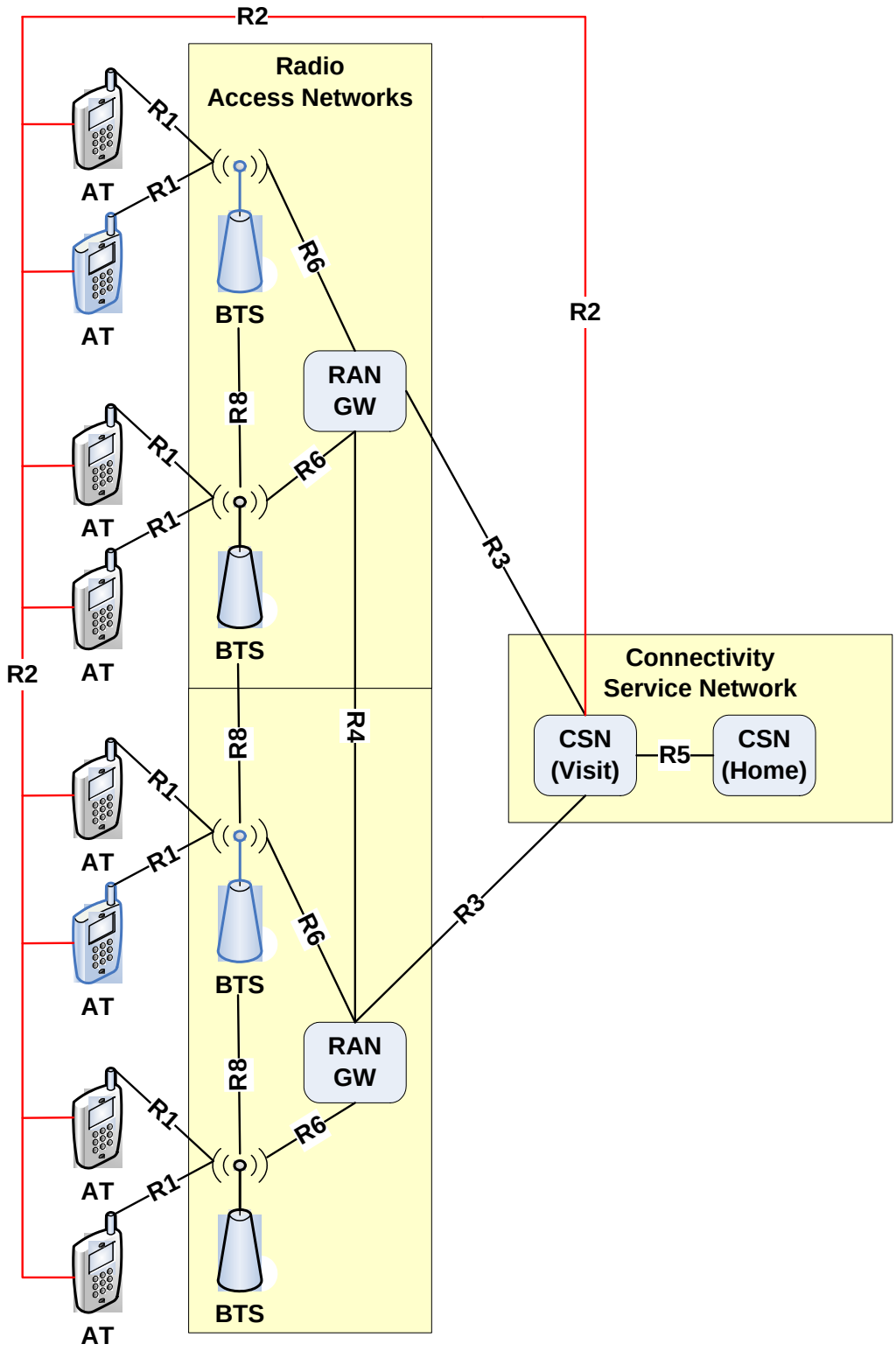

Figure 1: Example of a Network Reference Architecture as listed in the proposed SDD Table of Contents.

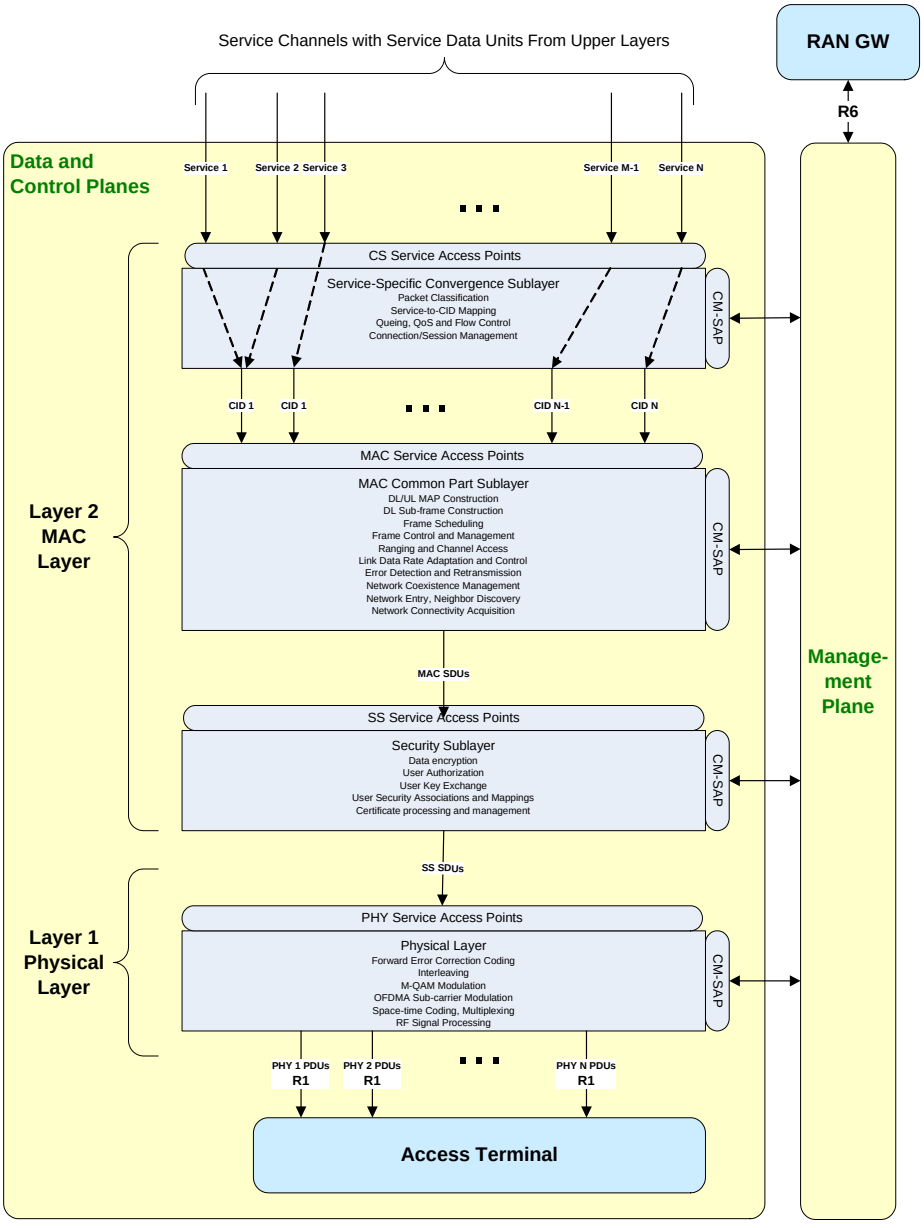

Figure 2: Example of an Air Interface Protocol Architecture for the Data, Control and Management Planes as listed in the proposed SDD Table of Contents.