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Re:	IEEE 802.16j-07/007r2: “Call for Technical Comments and Contributions regarding IEEE Project 802.16j”
Abstract	This contribution proposes procedures for RS autonomous synchronization
Purpose	Text proposal for 802.16j Baseline Document
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RS Autonomous Synchronization

Global navigation satellite system (GNSS) is the generic name given to the satellite-based navigation systems including GPS (global positioning system), GLONASS (global navigation satellite system), and Galileo. GPS is the first passive one-way ranging satellite system to be-come operational. While GPS was under development by United States (US), the Soviet Union undertook to develop a similar system, called GLONASS. Like GPS, GLONASS was designed primarily for the military, and was also offered for civil use. In a later time, the European Un-ion decided to develop a similar system planed to under civil control. This system is called Galileo, which is now developed by European Space Agency (ESA).

This contribution describes RS time synchronization with MR-BS. In order to facilitate the incorporation of this proposal into IEEE 802.16j standard, specific changes to the baseline working document IEEE 802.16j-06/026r2 are listed below.

Text Proposal

6.3.2.3 MAC management messages

6.3.2.3.25 Clock Comparison (CLK-CMP) message

6.3.2.3.25.1 RS Clock Synchronization (CLK-SYNC) message

In MR network systems with service flows carrying information that requires the RSs to transmit preamble synchronously, CLK-SYNC messages shall be periodically broadcast by access stations. Implementation of the CLK-SYNC message at RS is optional. If provisioned to do so, the access station shall keep a fixed time difference between preamble and GPS time at each frame and transmit one CLK-SYNC message according to the format shown in Table xxx.

Upon receiving CLK-SYNC message, RS shall synchronize with the access station and send its DL frame start preamble synchronously with MR-BS. Algorithms to synchronize with the access station are out of scope of this specification.

Table xxx – CLK-SYNC message format

Syntax	Size	Notes
CLK-SYNC_ message_format () {	-	-
Management Message Type = xx	8 bits	-
Frame Sequence Number	8 bits	8-LSB Frame Sequence Number
Fraction GPS time	16 bits	Fraction GPS time for frame-start DL preamble of current frame in unit of 1 micro second, where fraction GPS time defined as the GPS time minus the integer part of GPS time in unit of frame duration $fraction\ \ GPS\ time \equiv GPS\ time - frame\ duration \times \left\lfloor \frac{GPS\ time}{frame\ duration} \right\rfloor$
}	-	-