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Re:	Working group review, document IEEE 802.16-01/49	
Abstract	The document contains text that relates to comments submitted on document P802.16ab-01/01r2	
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Section to replace section 6.2.7.11.1.5:

6.2.7.11.1.5 Channel state information transfer

As part of the network entry process the SS will obtain all necessary downlink and uplink parameters (as described in section 6.2.9 in IEEE P802.16/D4-2001) for all valid channels, and determine what downlink channels contain primary users as determined by the Primary User Detection subsystem. The next step is the initial ranging and automatic adjustments stage. The ranging mechanism was originally created to handle ‘natural’ interference (e.g. fades), and is capable of handling other sort of interference (e.g. man-made interference). The ranging mechanism already has all the provisions to be used both during the SS network entry process, and during periodic SS maintenance. The initial ranging mechanism basically consists of a series of transactions where the SS sends a RNG-REQ message containing the parameters of all valid channels (N) as well as the downlink channel numbers of all channels (see Table 225) occupied by primary users (M detections). Of the valid channel that the SS will detect, there will be a primary channel (Base Station ID) on which the SS sends its initial request, and which shall be the first identified in the TLV, along with its measured signal parameters (RSSI and CCI). The BS responds by a RNG-RSP message assigning the SS a working Base Station ID and/or ordering the SS to change its transmission power or timing parameters. During periodic maintenance for such functions as DFS monitoring or off-loading of the SS to other cells, the SS can be polled by the BS to transmit a RNG-REQ message, or otherwise it can be sent independently by the SS, for example, in response to a DFS action. The BS answers using a RNG-RSP message, and the SS corrects its parameters as instructed by the BS.

In order to utilize the ranging mechanism for dynamic frequency selection the following TLV are added to the RNG-REQ message,

Name	Type	Length	Value	Scope
Base Station ID(n)	?	6 byte	The BS ID the SS is sending the RNG-REQ message as determined from the DL-MAP message. (repeated N times for N valid channels)	RNG-REQ
Downlink channel ID(n)	?	1 byte	The downlink channel ID the SS is sending the RNG-REQ message to (determined from the DCD message) (repeated N times)	RNG-REQ
Mean RSSI(n)	?	1 byte	Mean RSSI measured by the SS in 1dBm increments from -60 dBm (00111111) to -123 dBm (00000000) (repeated N times)	RNG-REQ
Mean CCI (n)	?	1 byte	Mean CCI measured by the SS in 1dBm increments from -60 dBm (00111111) to -123 dBm (00000000)(repeated N times)	RNG-REQ
RSSI standard (n) deviation	?	1 byte	RSSI variance measured by the SS, expressed in dB from -10 dB (00000000) to 53 dB (00111111) (repeated N times)	RNG-REQ
CCI standard deviation (n)	?	1 byte	CCI variance measured by the SS, expressed in dB from -10 dB 00(000000) to 53 dB (00111111) (repeated N times)	RNG-REQ
DFS		2 bytes	Channel number of occupied channel (repeated M times)	RNG-REQ
Uplink EIRP (optional)	?	1	EIRP power emitted SS, expressed as a signed integer (range -128 to 127) in units of 1dBm	RNG-REQ

Table 1: additional TLV set for RNG-REQ message

The following TLV are added to the RNG-RSP message,

Name	Type	Length	Value	Scope
Base Station ID override (optional)	?	6	The BS ID the SS should operate with. The SS shall restart the network entry process on this BS.	RNG-RSP
DFS info request	?	1	0 = No DFS information required 1 = Send DFS information (e.g. the TLV values listed in table 1) in the next RNG-REQ message	RNG-RSP

Table 2: additional TLV set for RNG-RSP message

The initial ranging procedure executed by the SS and the BS is exactly the same as described in section 6.2.9.6 (in IEEE P802.16/D4-2001), except that the BS should request the DFS info in one or more of the RNG-RSP messages. The SS shall reply with an appropriate RNG-REQ message containing the request information. The RNG-REQ/RSP transactions continue until the BS is satisfied with the results.

During periodic ranging the BS may request the DFS info using a RNG-RSP message and the SS must reply with an appropriate RNG-REQ message.

Notes – not to be included in the above section:

The following parameters have been dropped from the current messages,

- ?? **Vendor ID of SS** – This parameter is transferred in the REG-REQ message, and is already defined as a TLV (see section 11.4.3 in IEEE P802.16/D4-2001).
- ?? **Downlink Channel Configuration Setting (current, assigned)** – The BS knows this downlink channel parameters and so does the SS (or it would not receive). The SS sends the BS ID and channel ID on the uplink going message, so there is no reason any for any confusion as to what downlink channel the SS was listening to.
- ?? **Uplink Channel Configuration Setting (current, assigned)** – All uplink channel settings are done dynamically through the UCD and the UL-MAP messages. Settings such as uplink frequency override are already defined for the ranging message.
- ?? **Downlink channel ID (assigned)** – Not required, as the RNG-RSP already has a setting of downlink frequency override.
- ?? **Uplink EIRP setting** – Not required, as the RNG-RSP message already has the capability to adjust uplink power