<table>
<thead>
<tr>
<th>Project</th>
<th>IEEE 802.16 Broadband Wireless Access Working Group</th>
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<tbody>
<tr>
<td>Title</td>
<td>URFM Submission to IEEE 802.16 TG4</td>
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<tr>
<td>Date Submitted</td>
<td>2001-04-26</td>
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</tbody>
</table>
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| Re: | This is a response to a IEEE 802.16.4 Task Group session 12 assignment. |
| Abstract | This document proposes a new URFM message for the TG4 strawman. |
| Purpose | This document forms a response to the requirement of updating the TG4 MAC strawman document. |
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Uplink Radio Frequency Management (URFM) Message

An Uplink Radio Frequency Management (URFM) Message shall be transmitted by the SS at periodic intervals (30 sec TBD) (Table XX TBD). The URFM is a MAC Management Message of Type 29 (TBD). It begins with a Generic Uplink MAC header and its format is shown in Figure (XX TBD). The CID in the MAC Management Header is the basic CID for the SS.

This message will characterize the radio frequency emission properties of the SS. Its purpose is to inform the host as well as other nearby and potentially interfering base stations of the emission characteristics of the SS.

Each SS will have its radio emission characteristics summarized by the URFM, which will contain information on the occupied channel frequency, EIRP, and beamwidth of the emission. Information will include the identification of the host base station to the SS. Reserved space is left in the URFM to include advanced propagation and SS identification characteristics that can be included in future improvements. The following parameters will be included in the current URFM:

**Base Station ID**

This is the ID of the BS to which the SS registered. It is a 64 bit long field. The BS ID can be extracted from the DL-MAP message broadcast to the SS by the BS.

**Uplink Channel ID**

The uplink channel ID which the SS uses. This channel is an override for the channel selected during initialization. The uplink channel ID is unique within the Downlink Channel. This message is 1 byte.

**Downlink Frequency Configuration Setting**

The transmitted frequency used by the SS. This is the centre radio frequency of the uplink channel in KHz stored as a 32 bit binary number. In the TDD mode, this frequency will be the same as the received frequency of the SS.

**EIRP Level Setting**

This is a single byte with the most significant bit indicating the sign of the EIRP. The EIRP is expressed as an absolute transmitted power spectral density level in dBm/MHz radiated at the peak gain of the antenna.

**Antenna Beamwidth**

This is a single byte with that is derived from the configuration files for the SS station. The value represents the 3 dB azimuth beamwidth of the SS. This value is defined in increments of 2 degrees.
<table>
<thead>
<tr>
<th>EC</th>
<th>EKS</th>
<th>Rsvd</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
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**Connection Identifier**

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<tr>
<th>HT=</th>
<th>CSI</th>
<th>FC</th>
<th>FSN</th>
<th>CI</th>
<th>PDE</th>
<th>CPT</th>
<th>PSP</th>
<th>Rsvd</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**GM**

MAC Management Message
Type=29

**HCS**

Reserved

<table>
<thead>
<tr>
<th>Base Station ID Byte 1</th>
<th>Base Station ID Byte 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Station ID Byte 3</td>
<td>Base Station ID Byte 4</td>
</tr>
<tr>
<td>Base Station ID Byte 5</td>
<td>Base Station ID Byte 6</td>
</tr>
<tr>
<td>Base Station ID Byte 7</td>
<td>Base Station ID Byte 8</td>
</tr>
</tbody>
</table>

Uplink Channel ID
Downlink Frequency Byte 1
Downlink Frequency Byte 2
Downlink Frequency Byte 3
Downlink Frequency Byte 4
Reserved
Beamwidth of SS Antenna
Reserved

<table>
<thead>
<tr>
<th>Eirp</th>
</tr>
</thead>
<tbody>
<tr>
<td>0= -</td>
</tr>
<tr>
<td>1= +</td>
</tr>
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</table>

EIRP in dBm/MHz for
Reserved

Figure XX TBD Uplink Radio Frequency Management Message Format