Agenda Item 1.16: to consider the needs of passive systems for lightning detection in the meteorological aids service, including the possibility of an allocation in the frequency range below 20 kHz, and to take appropriate action, in accordance with Resolution 671 (WRC-07)

Background Information: Resolution 671 (WRC-07) resolves to invite the ITU-R to conduct and complete studies related to lightning detection to enable a decision on an appropriate method for providing recognition, including the possibility of making an allocation, to the meteorological aids service in the frequency range below 20 kHz.

The automated Arrival Time Difference (ATD) system uses the time differences of signal received to derive lightning strike locations. Meteorological organizations analyze the data from the ATD system and provide forecasts to assist safety of life, public safety and aviation operations. Recent ITU-R studies show the optimal frequency for ATD measurements is around 9.76 kHz.

Recommendation ITU-R RS.[20 kHz ATD PROTECTION] determined lightning detection systems are optimized with a 3 kHz bandwidth signal from 8.3 - 11.3 kHz. Any interference in the lower portion, i.e. 8.3 - 9 kHz, would impact the whole system. Therefore, it is important to protect the full range of the signal to ensure that the systems will be able to use their allocated band without interference.

Proposal:
ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations
(See No. 2.1)

MOD USA/1.16/1

98.3-110 kHz

<table>
<thead>
<tr>
<th>Region 1</th>
<th>Region 2</th>
<th>Region 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 98.3</td>
<td>(Not allocated)</td>
<td>MOD 5.53 MOD 5.54</td>
</tr>
<tr>
<td>8.3-9</td>
<td>METEOROLOGICAL AIDS</td>
<td>ADD 5.C116</td>
</tr>
<tr>
<td>9-1411.3</td>
<td>METEOROLOGICAL AIDS</td>
<td>RADIONAVIGATION</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ADD 5.C116</td>
</tr>
<tr>
<td>911.3-14</td>
<td>RADIONAVIGATION</td>
<td></td>
</tr>
</tbody>
</table>

Reasons: A primary allocation to the meteorological aids service in 8.3-11.3 kHz will protect the lightning detection systems from users operating under No. 4.4. Interference in the lower portion, i.e. 8.3-9 kHz, is expected to impact the whole system.

MOD USA/1.16/2

5.53 Administrations authorizing the use of frequencies below 98.3 kHz shall ensure that no harmful interference is caused thereby to the services to which the bands above 98.3 kHz are allocated.

Reasons: Consequential to the meteorological aids service primary allocation in the 8.3-9 kHz frequency band.

MOD USA/1.16/3

5.54 Administrations conducting scientific research using frequencies below 98.3 kHz are urged to advise other administrations that may be concerned in order that such research may be afforded all practicable protection from harmful interference.
**Reasons:** Consequential to the meteorological aids service primary allocation in the 8.3-9 kHz frequency band.

**ADD USA/1.16/4**

**5.C116** Use of the band 8.3-11.3 kHz by the meteorological aids service is limited to passive use. In the 9-11.3 kHz band, meteorological aids service stations shall not claim protection from stations of the radionavigation service submitted for notification to the Bureau prior to the [date of entry into force of WRC-12 Final Acts]. For sharing between stations of the meteorological aids service and stations in the radionavigation service submitted after this date the most recent version of Recommendation ITU-R RS.[20 kHz ATD PROTECTION] should be applied.

**Reasons:** To protect passive lightning detection systems below 20 kHz and support a meteorological aids service allocation, limited to passive use, under the condition that no undue constraints are placed on existing services.

**SUP USA/1.16/5**

**RESOLUTION 671 (WRC-07)**

Recognition of systems in the meteorological aids service in the frequency range below 20 kHz

**Reasons:** The ITU-R completed the required studies for this agenda item.