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Japan

INFORMATION DOCUMENT

QUESTIONNAIRE ON “POSSIBLE FUTURE CHANGE TO COORDINATED UNIVERSAL TIME (UTC)” IN JAPAN

WP 7A in 2006 decided that more time is required for further analysis for a possible future change to Coordinated Universal Time (UTC). In line with this decision, we conducted a questionnaire concerning the influences from leap second adjustments and possible future changes to UTC for several different industries.

Details of the questionnaire results are shown in Annex.

There were few opinions objecting to future changes. Opposing opinions were received from GPS receiver manufacturers. According to their GPS receiver manufacturers' opinions, an irregular operation can easily contain a computer bug. Through leap second adjustments, past experience shows that the occurrence of a major problem is unlikely. However a new adjustment method may involve the possibility of significant problems, as the leap hour adjustment is required only once in several hundred years, at least. As for the opinion of space-geodesy and global positioning fields, they are not openly against the changes. Required however are changes and repairs to the equipment and software carrying cost inconvenience to prepare for the implementation of the change of the UTC definition.

On the other hand, telecommunications carriers and communication service providers are in agreement with future changes. They find an advantage in eliminating an irregular leap second adjustment. Especially in positive agreement are time stamp authorities who stopped the time services at the latest leap second event.

Based on these opinions, we think that sufficient time for the implementation is necessary if change of the UTC definition will be implemented in future.

Annex

| Field | Effect of past leap second adjustment | Effect of future change to UTC | Agree or disagree with future change |
|--------------------------------|---|--|--------------------------------------|
| Broadcasting carriers | None | None (Find the merit in disappearing in an irregular leap second adjustment) | Agree |
| Telecommunications carriers | None | None (Find the merit in disappearing in an irregular leap second adjustment) | Agree |
| Time stamp authorities | Operation stopped | None | Agree |
| GPS receiver manufacturers | None (Problem with bit length of the navigation message of the GPS in the future) | None in near future (New adjustment method may involve the possibility of significant problems) | Both agree and disagree |
| Geographical Survey Institute | None (Manual adjustment) | Need to adopt some changes to the control programs | - |
| Satellite launching enterprise | Made some changes to the control programs | Need to adopt some changes to the control programs | - |

As individual opinions:

- (1) Manufacturers and Software developers need 5 to 10 years for the future change of UTC. New adjustment method may involve the possibility of significant problems.
 - (2) Concerning GPS receiver manufacturing, it would be difficult to start a discussion until the new treatment on the data transmission concerning the leap second or DUT1 is clarified.
 - (3) Telecommunications carriers and communication service providers are in agreement with future changes, cause of the trouble prevention, and cost reduction based on the irregular leap second adjustment.
 - (4) Time stamp authorities positively agree in because they need to stop the time services for several hours before and after the leap second adjustment. They also desire that the leap second should adjust avoidance July 1 and hope for January 1 from the aspect of the service offer.
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