*International Civil Aviation Organization*

**FOURTEENTH MEETING OF THE ASIA/PACIFIC METEOROLOGICAL INFORMATION EXCHANGE WORKING GROUP (MET/IE WG/14)**

Bangkok, Thailand, 7 – 9 March 2016

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**Agenda Item 4:**     **Planning and implementation of digital exchange of meteorological information**

**STATUS AND PLANS OF IWXXM IN SINGAPORE**

(Presented by Singapore)

| SUMMARY |
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| This paper presents an update on Singapore's status and plans in the implementation of XML-based OPMET using the ICAO Meteorological Information Exchange Model (IWXXM), and invites the meeting to discuss the requirement for ROBEX BCC/ROBDs/IROGs with respect to IWXXM conversion and exchange. |

## 1.     INTRODUCTION

1.1     The bilateral exchange of the ICAO Meteorological Information Exchange Model-based (IWXXM-based) information was introduced in Amendment 76 to ICAO Annex 3 (Meteorological Service for International Air Navigation) in November 2013, enabling States to exchange their OPMET data not only in TAC (Traditional Alphanumeric Code) but also in XML (Extensible Mark-up Language). This is a significant change from the provision and exchange of textual OPMET data towards a digital environment supporting SWIM (System Wide Information Management).

1.2     Prior to ICAO's introduction of the XML requirement in Amendment 76 of Annex 3, the World Meteorological Organization (WMO) had formed a Task Team on Aviation XML (TT-AvXML) to identify meteorological information that would need to be represented in the aviation XML standard which subsequently  led to the  development of IWXXM in 2013. Details of IWXXM are documented in the *Manual on the Digital Exchange of Aeronautical Meteorological Information* (ICAO Doc 10003).

1.3     This paper presents Singapore's status and plans in IWXXM implementation trial to support ICAO's workplan of migration towards digital OPMET exchange. In addition, this paper invites the meeting to discuss the roles and responsibilities of the ROBEX BCC/ROBDs/IROGs with respect to the IWXXM conversion and exchange.

## 2.     DISCUSSION

### Conversion of TC and WS SIGMETs from TAC to XML Compliant Format

2.1       In September 2013, Singapore implemented an XML Converter tool to convert METAR, SPECI and TAF messages from TAC to XML.  In February 2015, Singapore successfully converted and transmitted VA SIGMET from TAC to XML format on the AMHS in February 2015.

2.2       In July 2015, following the conversion of VA SIGMET, Singapore had also successfully converted and transmitted TC and WS SIGMETs from TAC to XML format, and through AMHS.

### Data Analysis of IWXXM Exchange between Singapore and FAA

2.3       Singapore conducted a pre-operation IWXXM exchange between Singapore and the Federal Aviation Authority (FAA) in March 2015. The OPMET IWXXM formatted data received at FAA Tech Centre was analysed and an analysis report of the  message showed that the main content of the message contained 'empty' elements in some lines and truncated strings when text exceeded the 70 character string limit. To resolve these issues, FAA recommended that the XML files in binary format be disseminated through File Transfer Body Part (FTBP).

2.5       FAA's recommendation required Singapore to modify the encoding software to enable the OPMET to be disseminated in binary format via FTBP. This is currently in progress and further bilateral tests with FAA will be conducted in the second quarter of 2016.

### Compliance Testing

2.6       There is currently no application software to enable States to test the compliance of XML data. While Singapore is able to generate and disseminate IWXXM formatted OPMET data, the testing of compliance has not been conducted. There may be a need to consider making available IWXXM compliance testing platform or application software to enable States to test the compliance of their XML data prior to the operationalization of the international exchange. Through this, future internationally operational data would be deemed compliant prior to dissemination.

### Web Availability of IWXXM information

2.7       For future IWXXM development and implementation, the availability of an ICAO official website would be beneficial to enable States to have readily accessible information such as the latest application tools, XML models / schemas and IWXXM announcements and training materials. This would enable States to have a common platform and language for communication and discussion.

### Roles of ROBEX Bulletin Compiling Centre (BCC), Regional OPMET Data Bank (RODB) and  Inter-Regional OPMET Gate (IROG)

2.8       It is foreseen that some States may not be able to fully comply with the requirement to produce and exchange IWXXM-compliant OPMET by November 2016. There have been concerns that the ROBEX BCC and/or IROGs may have to undertake a two-way conversion and switching of OPMET in both TAC and IWXXM formats to support the ROBEX scheme.  Given the significant planning and commitment required for this undertaking, the meeting is invited to further discuss the requirement for ROBEX BCC/ROBDs/IROGs with respect to IWXXM conversion and exchange.

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**3.      ACTION REQUIRED BY THE MEETING**

3.1          The meeting is invited to:

    a)  note the information contained in the paper;

    b)  discuss on the

        (i)   availability of an official website

        (ii)  ROBEX BCC/RODB/IROG roles during the transition period from Nov
              2016 to the applicability date of Amendment 78 and beyond.


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