

**Twenty Eighth Meeting of the  
Informal South Pacific ATS Co-ordinating Group  
(ISPACG/28)**

**Papeete, Tahiti  
5-7 March 2014**

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**Agenda Item 5.1 Seamless Airspace**

**FMC WPR in YBBB**

**Presented by Airservices Australia**

**SUMMARY**

This information paper provides performance and other statistical information concerning the use of FMC WPR in YBBB airspace.

**1. INTRODUCTION**

- 1.1 Flight Management Computer Waypoint Position Reporting (FMC WPR) was implemented in portions of the southern Tasman Sea airspace in YBBB in Jan 2010.
- 1.2 The area of availability of FMC WPR in YBBB airspace was expanded in April 2013. Due to the functionality associated with Australian Eurocat it is not anticipated that this area can be expanded any further in the Tasman Sea airspace.
- 1.3 This information paper provides a summary of FMC WPR performance and statistical information during December 2013.

**2. DISCUSSION**

- 2.1 In the designated portion of the YBBB airspace, FMC WPR may be used by flight crews for the purpose of:
  - Routine position reporting;
  - Notification of maintaining a new level;
  - Notification of a revised estimate.
- 2.2 During December 2013, the following numbers of FMC WPR-generated ARPs were received:

Number of routine FMC WPR ARPs received: 1182  
Number of FMC WPR revised estimates received: 32

**Total number of FMC WPR ARPs received 1214**

2.3 An amendment to the format of the FMC WPR sent by the flight crew has resulted in there now being no method to easily determine exactly how many level reports were received.

#### 2.4 Problems observed

2.4.1 There were no specific FMC WPR-related problems reported during the period of analysis. However, an analysis of the AFTN position reports received a small number of issues:

##### 2.4.2 Message transit delays at GEMAC, LEPAR and ECKHO

2.4.2.1 It was observed that a number of reports with significantly larger than normal transmission delays occurred for reports at waypoints GEMAC, LEPAR and ECKHO. These waypoints are located on the YMMM/YBBB FIR boundary, east of Melbourne, and are possibly at the edge of VHF/SATCOM coverage. A small sample of these ARPs is included below.

Time received	AFTN ARP	Transit time (sec)
23:12:27	ARP ANZ836 ECKHO 2310 F350 COOPS 2350 OMKIN MS47 262/107 -FMC 231114 3941S15036E	73
22:08:09	ARP ANZ722 GEMAC 2206 F350 MIKEL 2244 SASRO MS52 254/104 -FMC 220704 3814S15025E	65
23:15:09	ARP ANZ898 LEPAR 2313 F350 GILLY 2347 TOMAR MS52 248/103 -FMC 231402 3915S15030E	67
23:24:53	ARP ANZ836 ECKHO 2323 F340 COOPS 0003 OMKIN MS51 249/119 -FMC 232345 3941S15036E	68
03:05:27	ARP ANZ792 GEMAC 0303 F350 MIKEL 0342 SASRO MS54 250/87 -FMC 030417 3 813S15023E	70
23:15:09	ARP ANZ898 LEPAR 2313 F350 GILLY 2347 TOMAR MS52 248/103 -FMC 231402 3915S15030E	67

2.4.2.2 The “transit time” is determined by comparing the FMC time stamp in the AFTN position report (highlighted in the first example) with the time of receipt of the report by the communications centre. By way of comparison, the transmission delay of FMC WPR is typically of the order of 20 to 25 seconds (see Figure 2 below).

2.4.2.3 While the cause of the delay has not been investigated, it is expected that it is related to VHF → SATCOM transition issues.

2.4.3 The implementation of FMC WPR in the South Pacific requires the flight crews to manually enter data into the scratchpad, including the time that the waypoint was sequenced. There were a few errors noted during the analysis, the most common being the omission of this data:



ARP ANZ893 COOPS F360 ECKHO 0555 MILLA MS53 340/90 -FMC 050219 4125S 15745E  
 ARP ANZ703 OLREL F360 MAGDA 2253 MAYOP MS56 297/75 -FMC 215311 3536S 16250E  
 ARP ANZ763 TEKEP F360 LHI 0355 GOOMA MS55 270/42 -FMC 032503 3030S16 257E  
 ARP ANZ849 SASRO F360 PLUGA 0504 SHARK MS56 226/41 -FMC 040449 3833S 16255E  
 ARP ANZ721 SASRO F340 MIKEL 0804 GEMAC MS56 205/73 -FMC 072818 3834S 16255E

2.4.3.1 By way of comparison the first of the above sample reports should look something like this:

ARP ANZ893 COOPS **0505** F360 ECKHO 0555 MILLA MS53 340/90 -FMC 050219 4125S 15745E

#### 2.4.4 Incorrect waypoint time entered by flight crew

2.4.4.1 Flight crews are required to enter the waypoint name and the time that the waypoint was sequenced into the scratchpad. There were several examples where the incorrect time was entered, resulting in the position report being rejected by Eurocat:

ARP ANZ855 TOMAR **1949** F320 GILLY 1934 LEPAR MS45 300/72 -FMC 184954 4 106S16253E

The correct time should have been **1849**.

#### 2.4.5 FMC WPR Performance

2.4.5.1 The following graph provides an indication of the performance of FMC WPR in YBBB during December 2013.

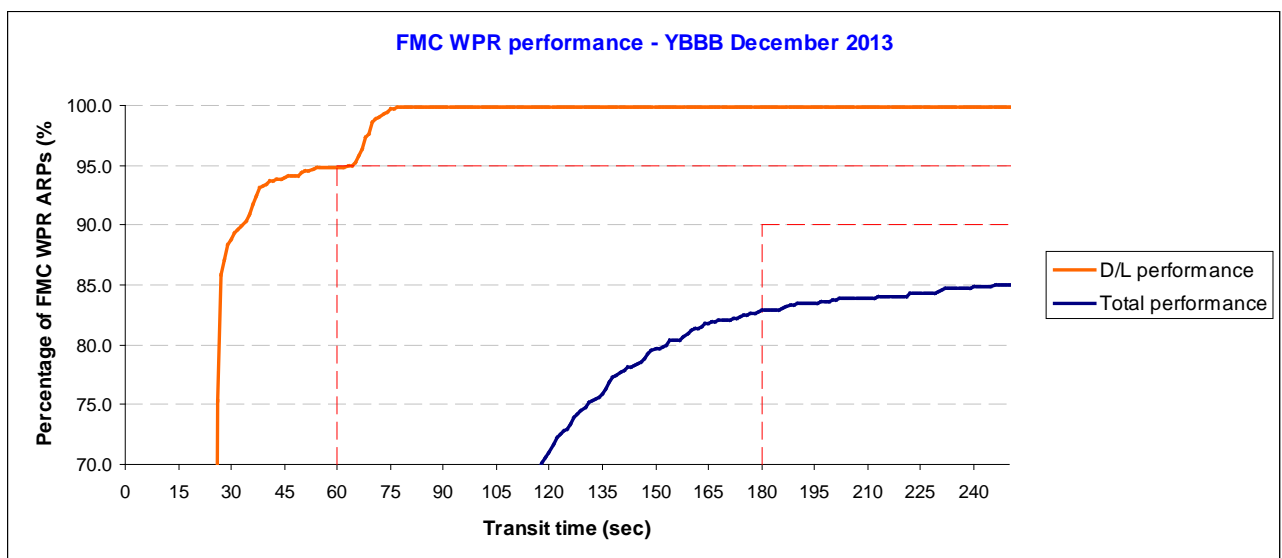
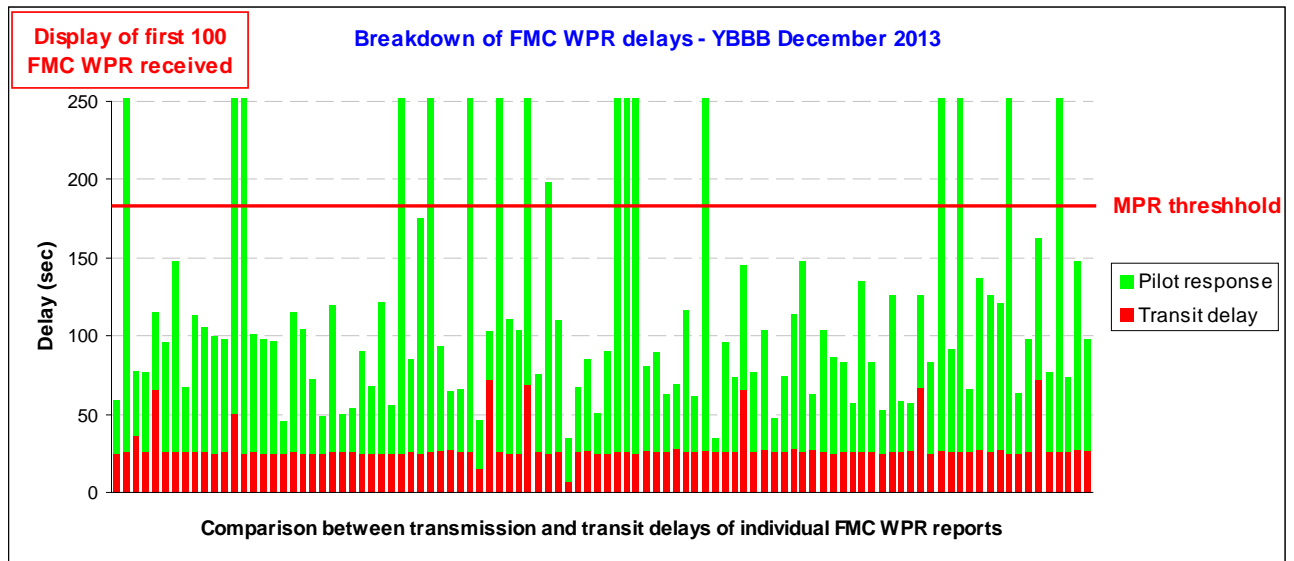


Fig 1. FMC WPR performance

2.4.5.2 In Fig 1, the red line provides an indication of the network (including AFTN) performance, whilst the blue line includes both the network and the flight crew delays in entering the required data and sending the report.



**Fig 2. Comparison of flight crew and transmission delay**

2.4.5.3 As can be seen, in Figure 2, the (unavoidable) flight crew delay makes up a significant component of the total delay.

### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) Note the information provided in this information paper