

# Aeronautical telemetry spectrum requirements in the framework of the World Radio communication Conference 2007 (WRC-07) preparation.

## Agenda Items 1.5 and 1.6

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**ETTC 2007**

Toulouse, 12 June 2007

**WRC 07 A.I. 1.5 and 1.6 preparations.  
- Aeronautical telemetry aspects -**

1- Introduction

2-The aeronautical telemetry in the WRC 07 A. I. 1.5 and 1.6

3-The current CEPT views

4-The current ITU-R views

5- Conclusion – Towards an A.I. 7.2/UAS

# 1-Introduction

- AMT requirements have been considered under the frameworks of both A.I 1.5 and 1.6;
- Both A.I. deal with bands already allocated to aeronautical services;
- A WRC 07 decision is urgently required as of 2008 for AMT implementation for flight testing;
- An AMT allocation is in competition with other new services in the same bands:
  - ⇒ ⇒ Ground AM(R)S, AMS/AS
  - ⇒ ⇒ which may constrain its deployment;

## WRC 07 A.I. 1.5 and 1.6 preparations. - Aeronautical telemetry aspects -

### 2-The aeronautical telemetry per the WRC' 07 A. I. 1.5 and 1.6

#### 2.1 The Agenda item 1.5 :

- **Consideration of spectrum requirements for aeronautical telemetry** and associated telecommand in frequency range 3 – 30 GHz for flight testing (Resolution 230);
- Reference to the ITU-R Question 231/8 widens the studies to the UAV needs;

#### 2.2 The Agenda item 1.6 :

- **Resolution 414 : (frequency range : 108 MHz – 6 GHz)**
  - Background: congestion in VHF band (radiotelephony)
  - Need for new aeronautical communications to support enhanced CNS/ATM at 2020 + timeframe
  - Need for a communication network dedicated to airport surface in the 5 GHz band;
  - New aeronautical security requirement, against unlawful action;
- **Resolution 415 :**
  - Need to upgrade aeronautical ground-ground infrastructure by reviewing existing satellite allocations for safety and regularity of flight purposes;

## 3-The current CEPT views based on studies done to date:

### 3.1 re A.I. 1.5 :

- Telecommand requirements have been dropped off;
- For UAV payload :
  - a) short term needs can be satisfied in current MOBILE allocations;
  - b) long term : no requirements identified yet;
- AMT for flight testing :
  - around 100 MHz bandwidth for UK;
  - 100 MHz for EADS/Airbus (Germany, France, Nederland, Spain..);
- This 100 MHz bandwidth requirement can be satisfied in the 5 030 – 5 250 MHz band;
- Europe is opposed to the USA proposal for the use the current MOBILE **allocations in** 4 and 6 GHz to satisfy their 650 MHz requirement by introducing additional constraints;
- **ICAO is strongly opposed to CEPT position concerning the identification of the band 5030-5091 MHz for telemetry applications;**
- Additionally CEPT to consider introducing a new WRC-11 AI for the purpose of studying additional allocations to UAV, including in the 5 GHz band.

## 3-The current CEPT views:

### 3.2 The A.I. 1.6 :

- Requirements in VHF ->112-118 MHz and L-> 960-1164 MHz for voice **and data** communications;

  - Some administrations seek restriction to use only by new digital systems (and not analogue legacy radiotelephony)

- Requirements in the band 5 091 – 5 150 MHz are :

  - for local **ground** airport networks (3 x 20 MHz required) as part of ground AM(R)S

  - aeronautical (telemetry) security systems (3 x 5 MHz required);

- No telemetry required under resolution 415 (communications via satellites);

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## 4-The current ITU-R view

### 4.1 The A.I. 1.5 :

- No telecommand need;
- European short term needs dedicated to the UAV (aka UAS) payload can be satisfied in current MOBILE service allocations;
- No long term telemetry need expressed for the UAV;
- Aeronautical telemetry requirements to support air flight testing are :
  - around 100 MHz bandwidth for UK;
  - 100 MHz for EADS/Airbus (Germany, France, Nederland, Spain..);
  - 650 MHz for USA flight test centers;
- The 650 MHz bandwidth requirement is proposed to be satisfied in parts of 4 and 6 GHz bands already allocated to the MOBILE services but with specific constraints to be added on this service;
- The European 100 MHz bandwidth requirement to be satisfied in parts of the 5 030 – 5 250 MHz band;



## 4-The current ITU-R views

### 4.2 The A.I. 1.6 :

Requirements are for CNS/ATM applications both :

=> in a short term (complement to current VHF R/T and VDL up to 2015) and,

=> long term for data intensive air ground and air exchanges to support enhanced ATM concept

Source of requirements is Eurocontrol/FAA COCR (Concept of Operations and Communication Requirement)

#### Bands studied by ITU-R

- VHF-> 112/116-118 MHz and L960-1024/1164 MHz for voice **and data** communications for aircraft aloft;

- C band : comms networks for :

- aircraft taxiing at airport (**60 to 100 MHz required**) in the 5 000 – 5 030 MHz and in the 5 091 – 5 150 MHz bands;

- aeronautical (telemetry) security systems (3 x 5 MHz req'd) in the band 5 091 – 5 150 MHz ;

- No telemetry requirement under resolution 415 (communications via satellites);

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The aeronautical telemetry requirements could be satisfied :

- In the band 5 091 – 5 150 MHz for the aeronautical security system;
- In parts of the band 5 030 – 5 250 MHz for the 100 MHz bandwidth asked by European flight test operators;
- In the 4 and 6 GHz bands for the 650 MHz bandwidth required by the USA;
- These possible allocations would lead to specific constraints on the incumbent or future MOBILE allocations;

As the UAV/UAS telemetry and telecommand needs were not completely studied under the agenda items 1.5, 1.6 and the question 231/8, Europe proposes to write a specific agenda item to this purpose in order to invite WRC 11 to bring efficient answers and adapted services to be allocated by 2012.