

**RADIO SPECTRUM AND TECHNICAL STANDARDS ADVISORY COMMITTEE**

**Proposed New Performance Specifications  
For Ground-based Radio Equipment for Voice and Data Communications  
For the VHF Aeronautical Mobile Service**

**Purpose**

This paper proposes the adoption of the following technical standards –

HKCA 1066 Issue 1	Performance Specification for Ground-based VHF Radio Equipment for the VHF Aeronautical Mobile Service
HKCA 1067 Issue 1	Performance Specification for Ground-based VHF Digital Link (VDL) Mode 2 Radio Equipment

**Background**

2. The frequency band 117.975 - 137.000 MHz in the VHF range is globally allocated on a primary basis to Aeronautical Mobile Services (Route) by the International Telecommunication Union. This VHF aeronautical band is used for air-ground communications between aircraft and ground stations.

3. The International Civil Aviation Organisation (ICAO) has developed the technical requirements and regulations for voice/data communications and the use of the VHF Digital Link (VDL) technology in the VHF aeronautical band. Currently, the ICAO VDL Mode 2 is the prevalent version used in air-ground data communications capable of offering a data rate of 31.5 kbps in a 25 kHz channel.

4. Under the Single European Sky Initiative, after 5 February 2015, all aircraft flying in Europe shall be equipped with VDL Mode 2 radio equipment. Equally, VDL Mode 2 radio equipment shall be installed in ground stations to facilitate the exchange of information.

5. In order to facilitate standardisation of aeronautical mobile communication service for the aviation industry in Hong Kong, it is necessary to adopt technical standards for the certification of ground-based aeronautical VHF radio equipment under the Hong Kong Telecommunications Equipment Evaluation and Certification (HKTEC) Scheme.

### **International Standards**

6. At present, ICAO, the European Telecommunications Standards Institute (ETSI) and the Federal Communications Commission (FCC) of US have issued standards covering technical specifications and conformance requirements for ground-based aeronautical VHF radio equipment. They are :

- (a) ICAO Standards and Recommended Practices  
Annex 10 to the Convention on International Civil Aviation,  
Aeronautical Telecommunications,  
Volume III, Part II – Voice Communication System  
Chapter 2 – Aeronautical Mobile Service; and
- (b) ETSI EN 300 676-2  
Ground-based VHF hand-held, mobile and fixed radio  
transmitters, receivers and transceivers for the VHF  
aeronautical mobile service using amplitude modulation;  
Part 2 : Harmonized EN covering the essential requirements of  
article 3.2 of the R&TTE Directive; and
- (c) Code of Federal Regulations (USA);  
Title 47 Telecommunication;  
Chapter 1 Federal Communications Commission,  
Part 87 Aviation Services, Subpart D - Technical Requirements.

The above standards are compatible and can be applied to equipment designed for analogue voice/data using double sideband amplitude modulation systems with a channel separation of 25 kHz.

7. The ETSI has also published a harmonized standard covering conformance test specification for ground-based radio equipment deploying VDL Mode 2 radio technology, namely:

ETSI EN 301 841-3  
VHF air-ground Digital Link (VDL) Mode 2;  
Technical characteristics and methods of measurement

for ground-based equipment ;  
Part 3: Harmonized EN covering the essential requirements  
of article 3.2 of the R&TTE Directive

### **Proposed New HKCA Specifications**

8. The proposed new specifications HKCA 1066 and HKCA 1067 are given at Annexes 1 and 2. These specifications make reference to the relevant ICAO, ETSI and FCC standards.

### **Certification Requirement**

9. Radio equipment for use in the VHF aeronautical mobile services is classified under the Compulsory Certification Scheme (CCS) of the HKTEC Scheme. These equipment must be certified before they can be used in Hong Kong.

### **WTO Notification**

10. As the proposed new specifications HKCA 1066 and HKCA 1067 are based on widely recognized international standards, notification to the World Trade Organisation (WTO) is not required.

### **Recommendation**

11. It is recommended that the proposed new specifications HKCA 1066 and HKCA 1067 as given in Annexes be adopted by the CA.

### **Advice Sought**

12. Members are invited to give their comments on the recommendation in paragraph 11 above.

**Office of the Communications Authority**  
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