Australian Government
Civil Aviation Safety Authority

I, WILLIAM BRUCE BYRON, Director of Aviation Safety, on behalf of CASA, make this instrument under subregulation 21A (1) of the *Civil Aviation Regulations 1988*.

[Signed Bruce Byron]
Bruce Byron
Director of Aviation Safety and
Chief Executive Officer

17 December 2007

Civil Aviation Order 103.22 Instrument 2007

1 Name of instrument

This instrument is the *Civil Aviation Order 103.22 Instrument 2007*.

2 Commencement

This instrument commences on the day after it is registered.

3 New Civil Aviation Order 103.22

Civil Aviation Order 103.22 is repealed and a new Civil Aviation Order 103.22 substituted as set out in Schedule 1.

Schedule 1 Civil Aviation Order 103.22

Equipment standards — HF communications transmitting — and receiving equipment

This Order is to be read in conjunction with Civil Aviation Order 103.21.

1 Application

1.1 This Civil Aviation Order specifies standards for airborne high frequency radio communications transmitting and receiving equipment operating within the radio frequency range of 1.5 to 30 Megahertz.

1.2 This design standard is issued under regulation 21 of the *Civil Aviation Regulations 1988*. It is applicable to the approval of equipment for use in Australian registered aircraft for the purpose of intercommunication with the aeronautical mobile radio service under regulation 82 of the *Civil Aviation Regulations 1988*.

1.3 The Director may approve equipment which varies from this standard if the applicant for approval satisfies him or her that an equivalent level of safety is achieved.

1.4 The Director may withhold, revoke or limit approval if, in his or her opinion, some design feature renders the equipment unsuitable for its intended task.

2 General design requirements

2.1 Frequency selection

The number of controls necessary to accomplish frequency selection must be kept to a minimum and the tuning of the antenna coupling unit must not require separate controls. Continuous tuning must not be used.

2.2 Illumination

Display and panel lamps must, where fitted, be automatically adjusted with cockpit ambient light level or be capable of connection into the aircraft light dimming circuit.

2.3 Connectors

The equipment must be designed so that any possibility of incorrect mating of connectors is minimised.

2.4 Marking of indicators and controls

Indicators and controls for use during flight must be marked in English or in international standard symbols.

3 Performance standards

The HF communications transmitting and receiving equipment must meet the minimum performance standards specified in Radio Technical Commission for Aeronautics (RTCA) Document No. DO-163, dated March 19, 1976. For performance under environmental test conditions only those tests required by Appendix 2 of Civil Aviation Order 103.21 for the rating being sought need be conducted.

4 Additions and exceptions

4.1 The equipment must meet additional requirements or may have exceptions from RTCA DO-163 listed in the following paragraphs.

4.2 Transmitter output power

The transmitter must be capable of delivering a peak envelope power to the antenna transmission line of at least 100 watts and not greater than 400 watts under standard conditions.

4.3 Sidetone

The equipment must provide a sidetone output suitable for connection to aircraft audio systems which, as far as possible, monitors the fidelity of the transmitter output. The sidetone level should be adjustable but must not require any control to be adjusted when changing between transmit and receive functions.

4.4 Receiver audio output

The maximum rated headphone output of the receiver must not be less than 50 milliwatts into a 600 ohm load.

4.5 Transmitter performance under environmental stress

Where any test specifies that performance degradation is permissible but does not specify the amount of degradation that is allowed, the transmitter must continue to provide clearly intelligible communications and the outpeak peak envelope power into the antenna transmission line must not be less than 70 watts.

4.6 Receiver performance under environmental stress

Where any test specifies that performance degradation is permissible but does not specify the amount of degradation that is allowed, the receiver must continue to provide clearly intelligible communications with a sensitivity not greater than 6dB different and receiver gain not greater than 3dB different from that under standard conditions.

4.7 Requirement for environmental tests

For equipment intended for installation in V.F.R. aircraft only the tests required by Appendix 2 of Civil Aviation Order 103.21 for the particular rating sought need be performed in addition to the tests required under standard conditions.

5 Proof of compliance

Compliance with these standards must be demonstrated by test. Evidence of the results of testing in accordance with these requirements must be provided to the Director. Other test documentation covering substantially the same areas may be held by the Director to be equivalent.