Recommended CANSO Position on Air-Ground Data Link Technology

It is widely recognized that data link or digital communication is the cornerstone of future air traffic management. Data link is a generic term that has many different forms, protocols and applications (addressable and broadcast). These multiple alternatives affect the investment decisions of the aviation industry. Addressable and broadcast data link systems perform different functions and require separate data link systems.

Addressable data links that exist are low-speed VHF (2.4 kbps), high-speed VHF (31.5 kbps) known as VDLM2 (VHF Digital Link Mode 2), satellite data link and HF data link. A proposed addressable data link system is VDLM3 (VHF Digital Link Mode 3) also operating at 31.5 kbps.

A broadcast data link that exists is Mode S. Developmental broadcast data links include VHF Digital Link Mode 4 (VDLM4) and Universal Access Transceiver (UAT).

Concurrent with the data link dilemma is the expectation of VHF frequency spectrum saturation used for Air Traffic Control (ATC) voice within the next 10 to 20 years.

CANSO CNS/ATM Technology Evolution Group addressed the data link issue by producing the information paper "The Many Faces of Air-Ground Data Links" attached as Annex 1.

Whereas:
1. VDLM2 is operational both now and for the foreseeable future from multiple data link service providers, supporting both Airline Operational Communications (AOC) and ATC data link communication services.
2. . Frequency congestion is currently addressed in Europe through 8.33 kHz channel spacing as expressed in ICAO standards.
4. VDLM2 and 8.33 kHz channel spacing has been adopted in Europe.
5. VDLM2 has been adopted in the USA for initial Controller Pilot Data Link Communications (CPDLC) operational service.
6. VDLM3 is proposed to be developed as a single system for ATC data communication and digital voice to relieve frequency congestion and to improve operational functions and security with a planned operational date of approximately 2012.
7. Initial benefit cost analysis indicate VDLM3 will incur substantial extra cost to both the ANS Providers and airline operators.

Therefore:
It is recommended that ANS Providers having a requirement for VHF-based line of sight data link system adopt, as a minimum, VDLM2 for use during the time period 2003 – 2012. It is further recommended that ANS Providers that have a need to reduce voice frequency congestion adopt 8.33 kHz channel spacing.

Whereas:
1. Mode S 1090 Extended Squitter transponders will be available in 1st quarter 2003
2. Mode S is universally accepted
3. Broadcast alternatives VDLM4 (planned for 2008) and UAT (planned for to be implemented from 2007 to 2011) only have regional acceptance.

Therefore:
It is recommended that the ANS Providers having a requirement for broadcast data link adopt, as a minimum, Mode S Extended Squitter for use during the period 2003-2012.