Viasat

SWIFTBROADBAND FOR ROTARY WING AIRCRAFT

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SB HELO **X-STREAM**

Tailored specifically for rotary wing aircraft, SB Helo X-Stream is a Viasat streaming service, offering guaranteed on-demand streaming data rates over our L-band network. It is an enhancement of the existing X-Stream service, allowing an extra 1 dB in the link budget so as to mitigate the impact on data packets caused by the rotary blades. This enhancement effectively reduces the packet loss and jitter, improving the bandwidth and quality of service significantly.

This service achieves higher streaming performance on class 6.2 and class 7.2 terminals by conducting a change on the Link Condition Table (LCT) file to enable a more rotor resilient X-Stream service. This will allow helicopters fitted with a SB Helo X-Stream-capable terminals to realise better performance over existing services.

A successful proof-of-concept trial was conducted with Cobham, demonstrating a service enhancement that can be brought to market in order to meet the requirements of a sample sector of the rotary wing market. Feasibility assessment was carried out on test RNS 9 with access to several LCT configurations. These included testing the effects of various additional margins in link budget, and maximum data capture.

The field test was conducted on a Mi-8 platform in Hungary. During the testing, the class 6 terminal that was employed delivered extraordinary performance, achieving measured throughput speeds exceeding 430 kbps with minimal packet loss, when 1dB margin and no data capture are applied, as is shown in Table 1.

	BACKGROUND IP		**SB HELO X-STREAM***	
	Return (TX)	Forward (RX)	Return (TX)	Forward (RX)
C/NO	56-57.5 dB		58-59 dB	
SPEED (UDP)	272 kbps	424 kbps	431 kbps	425 kbps
JITTER	18 ms	15 ms	6 ms	7 ms
PACKET LOSS	40%	6%	2.50%	0%

** Throughputs figures are based on the current network configuration at the date and location of test. Actual throughputs experienced in the field will depend on the location, type of terminal, antenna installation, link conditions, type of traffic (UDP/TCP), application in use, encryption overheads, etc.*

Cobham is currently the only terminal manufacturer offering SB Helo X-Stream capable terminals. A free of charge firmware upgrade is available for Cobham AVIATOR SP series product with IGA or HGA. Up to four channels can be connected simultaneously to supportmulti-link capable applications in HGA (Class 6.2) deployments.

		SB HELO XSTREAM
TERMINAL CLASS		6 and 7
COMPONENT		SDU-7315/7320/7330 HPA-7450 DAU-7070 HGA-6000/6500/7001 or IGA-5001
SERVICE	No. of channe ls	1, 2/4**
	Voice	Yes
	Background Data	Up to 332 kbps (Class 7) Up to 432 kbps (Class 6) (with significant packet loss)
	Streaming Data	31 kbps under test (Class 6)*

SYSTEM CONFIGURATION

Figure 1: System configuration of 1 / 2 channel system employing an IGA (Subclass 7.2)

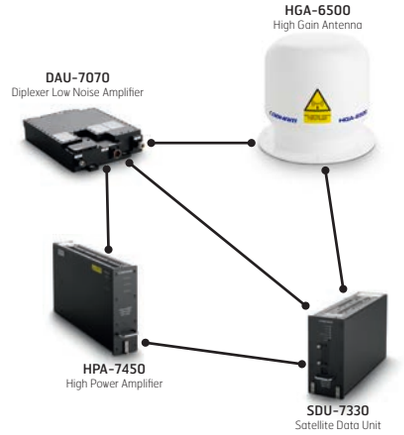

Figure 2: System configuration of 1 / 2 / 4 channel system employing an HGA (Subclass 6.2)

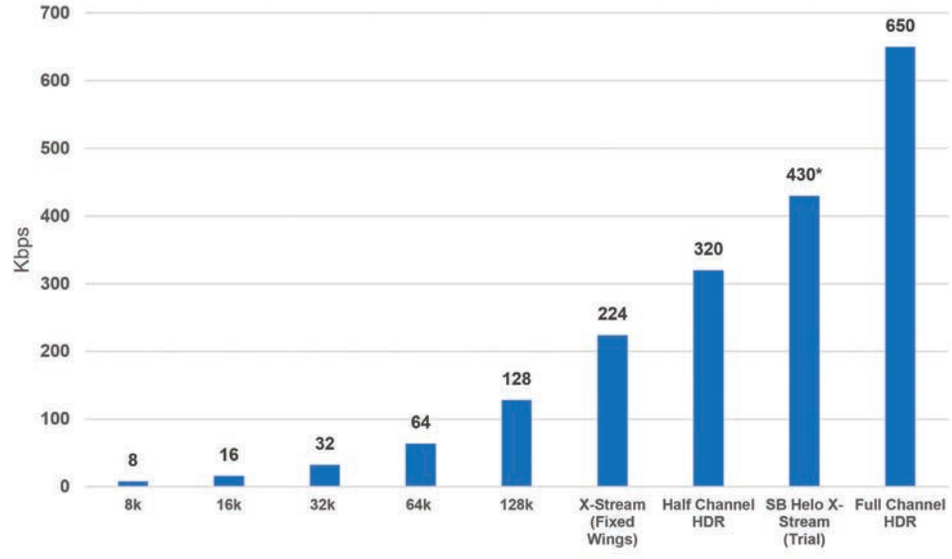

Figure 3: Data Rate of SwiftBroadband Streaming Services

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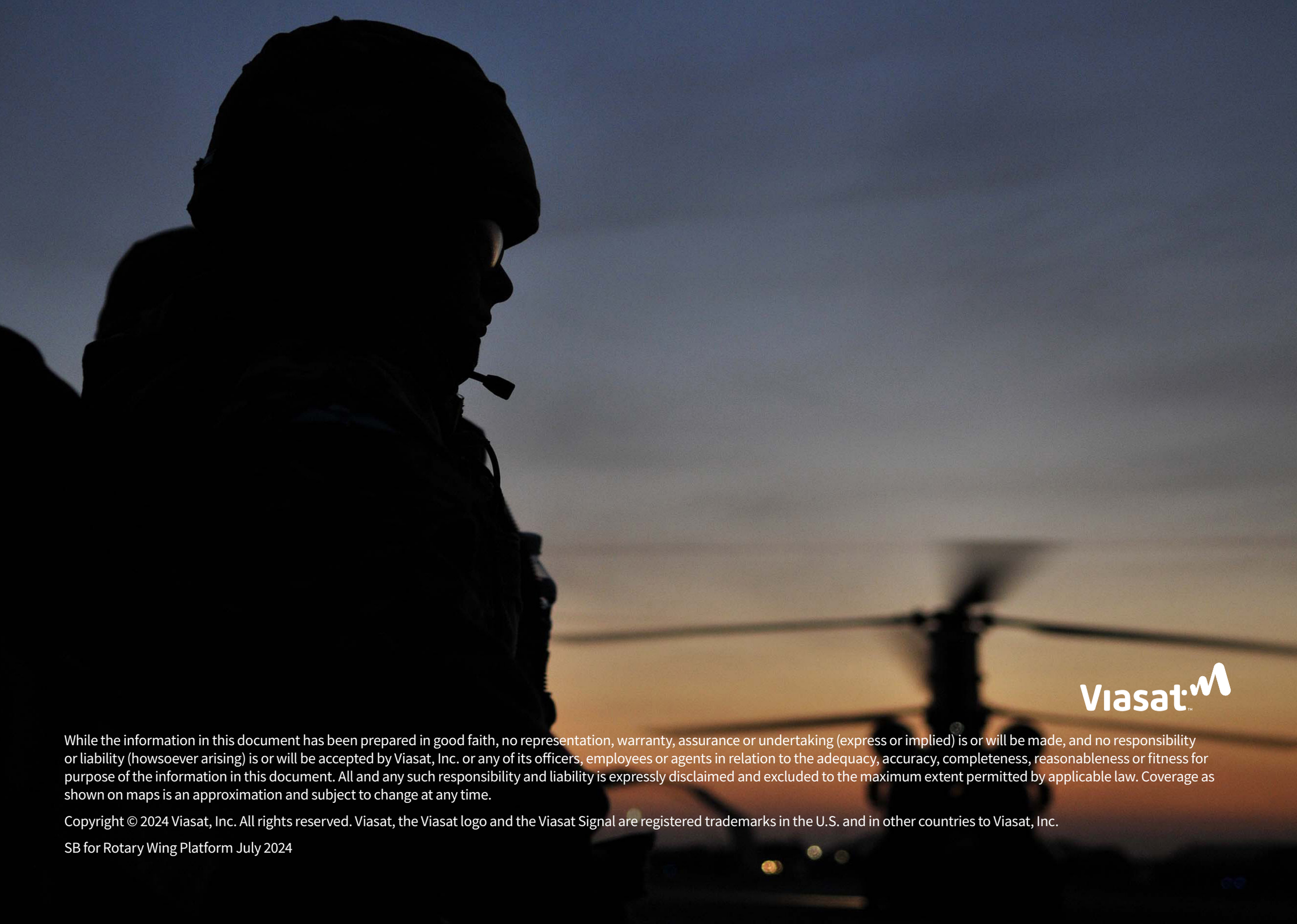

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