Submission No 87

INQUIRY INTO RESPONSE TO MAJOR FLOODING ACROSS NEW SOUTH WALES IN 2022

Organisation: Inmarsat

Date Received: 29 July 2022

SUBMISSION TO SELECT COMMITTEE

INMARSAT

How satellite communications can provide a critical link in natural disasters

29/07/2022

AUTHOR: NEIL MATHESON

1.1 INTRODUCTION

Inmarsat is a global satellite communications solutions business with its Australian headquarters in western Sydney. Inmarsat (we) is pleased to provide this short submission to the Select Committee into the response to major flooding across New South Wales. Our primary interest relates to Terms of Reference 1 (d),

> ***(d) public communication, systems and strategies.***

Inmarsat notes a variety of submissions made by telecommunications service providers to inform the Select Committee on the response to major flooding across New South Wales in 2022. Specifically, Inmarsat notes the submission made by Telstra to the inquiry, and comments made regarding improved information flow regarding evacuation centres and better community preparedness for natural disasters. Specifically, we note,

> While telecommunications providers build resiliency and redundancy into their networks, terrestrial network infrastructure located in possible flood affected zones may be damaged or impacted, leading to potential interruption to telecommunications services. For this reason, it is important for government, first responders, support organisations (e.g. hospitals, medical centres, community facilities), businesses and consumers to take steps to prepare for possible impacts to telecommunications services during floods and other natural disasters.

Inmarsat submits that the provision of satellite communication solutions would complement back-up communication capability provided by terrestrial networks. These solutions including the latest in mobile, global satellite technology would serve as an effective 'stop-gap' to ensure communication capability is maintained for both frontline agencies and the community during times of disaster.

1.2 OPPORTUNITY TO BOLSTER COMMUNICATION CAPABILITIES FOR COMMUNITIES IN TIMES OF DISASTER

In times of natural disaster, network congestion and the destruction of terrestrial network infrastructure (mobile phone towers and radio repeaters) have hampered response operations. Our GEO Satellite infrastructure, being 36000 km up in space, is unimpaired by such conditions and is the perfect solution for these situations. Inmarsat has a broad range of portable satellite terminals and satellite phones available, which could be situated in strategic emergency response locations and rapidly deployed by first responders in local areas, without the need to transport large trailer-based platforms, where quick access may be difficult.

A recently added terminal known as the BGAN Patrol, as shown in the below graphic, is a backpack solution that can be worn by first responders to provide Wi-Fi access for devices such as Smartphones and Wi-Fi enabled radios.

Inmarsat's capability to aid resilience communications in NSW is further demonstrated in our partnership with Hypha to facilitate critical communications for firefighters in NSW, which we entered in March this year. As part of the NSW Government's Connected Firefighter Program, Hypha was awarded the contract to supply Cobham Satcom Explorer terminals over the Inmarsat satellite network.

This contract will complete the 'Vehicle as a Node' (VaaN) capability for FRNSW and SES vehicles, as described in the following extract from the FRNSW website. While primarily used for mission critical emergency services communications, vehicles fitted with satellite terminals could potentially be used for limited Wi-Fi access by disaster effected residents

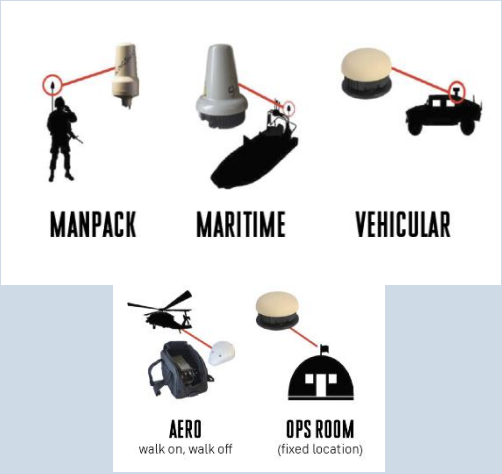
VEHICLE AS A NODE (VaaN)

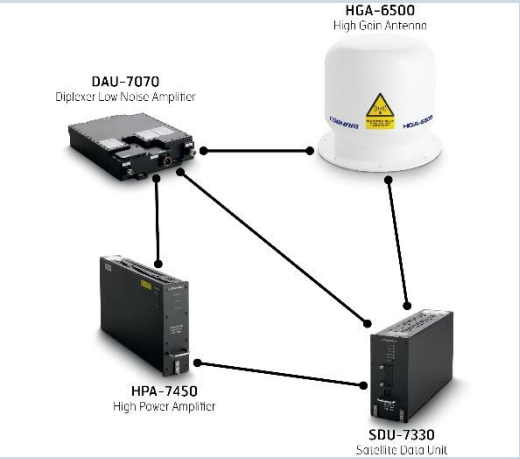
- VaaN provides critical communications, Advanced Vehicle Location (AVL) and telemetry technologies.
- The cutting-edge, highly resilient communications technology enables firefighters to continue using radios and hand-held devices anywhere and at any time through 4G and satellite.
- AVL technology allows the closest fire truck to respond to an emergency, and improves the safety of the crew through continual visibility of vehicle location.
- Telemetry technology remotely checks that fire trucks are mechanically sound and ready for emergency response.

1.3 INMARSAT SATELLITE SOLUTIONS FOR COMMUNITY AND PUBLIC SAFETY USERS

Outlined below are the terminals we consider would be of greatest interest to the committee.

Inmarsat Solution	Description/User case	Photo
COMMUNITY USERS		
IsatPhone 2	Inmarsat's portable satellite phone service provides essential voice calls and messaging for users operating in remote regions and harsh environments around the world or when terrestrial infrastructure is damaged or non-existent. **Network registration**: <45 secs **Battery life:** 8 hours' talk time 160 hours on standby	
BGAN	With ease of use in small, lightweight, and affordable satcom terminals that are no bigger than a laptop, BGAN readily translates to any 'grab and go' situation for your need to instantly deploy with minimal training. The smallest terminals start at about 1.5 kgs and are designed to support single users. The larger portable terminals offer WLAN (WIFI) capability and are particularly suitable for small teams looking to establish an immediate field office A single BGAN terminal delivers simultaneous voice and data up to 492kbps, enabling users to access the Internet or send emails and talk on the phone at the same time.	
GLOBAL XPRESS (GX)	Following the initial establishment of a voice communications link through satellite phones and portable BGAN devices, data requirements from ground control and local communities often become increasingly demanding. Global Xpress allows for higher data rates to ensure operational expediency and allows many users to simultaneously connect through Wi-Fi hotspots to co-ordinate recovery plans and communicate with loved ones.	

Inmarsat Solution	Description/User case	Photo
EMERGENCY RESPONSE		
LTAC	When the radio network is down, LTAC allows you to use existing radio handsets over satellite. L-TAC enables existing public safety radios to be connected to an L-band satellite antenna through a small frequency converter unit. This allows you to operate security-accredited equipment over L-band satellite connections using the same GRN radios in VHF bands. LTAC hardware solutions come in multiple variants including man-pack, vehicular, vessel and a walk on aeronautical kit.	
BGAN PTT	The BGAN PTT solution is built upon our highly reliable BGAN service, which delivers up to 99.9% uptime. So even if you have no land mobile radio (LMR) coverage or lose cellular connectivity you are always connected. We work with leading hardware providers such as Cobham and Motorola to ensure that BGAN PTT can be built into existing radio networks.	
GLOBAL XPRESS (GX)	Following the initial establishment of a voice communications link through satellite phones and portable BGAN devices, data requirements from ground control often become increasingly demanding. Global Xpress allows for higher data rates to ensure operational expediency and allows several users to simultaneously connect through Wi-Fi hotspots to co-ordinate recovery plans and can form the communications backbone of disaster HQ. Shown here in flatpack portable and Communications on the Move (COTM) variants.	 

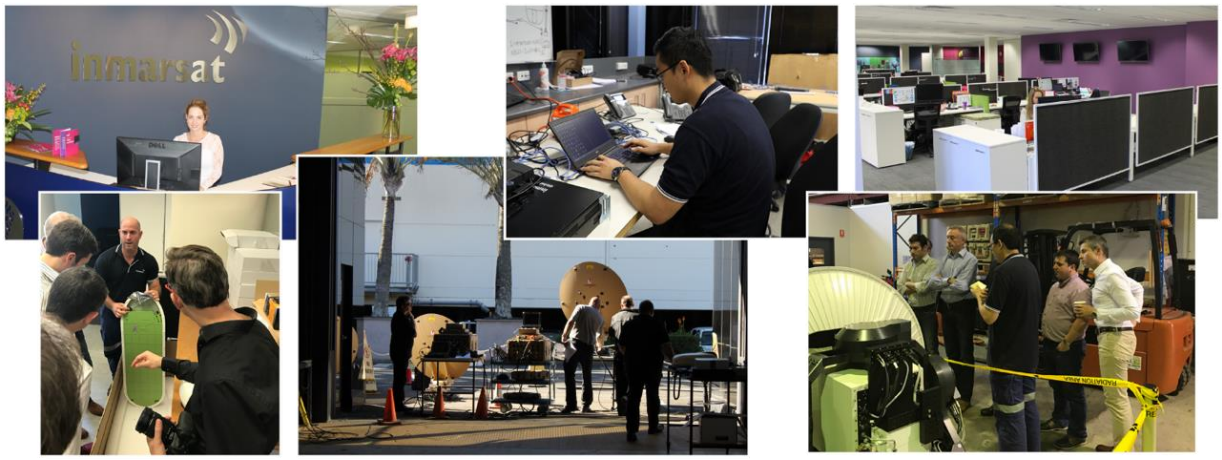
SWIFTBROADBAND/ SB-HELO STREAM	SwiftBroadband allows simultaneous voice and IP data communications over low-profile antennas that are significantly smaller and lighter than any other systems on the market. When it comes to responding to disaster and emergency situations, rotary wing aircraft are usually the first aircraft on the scene – and have traditionally been most affected by difficulties in communications links. The SB-Helo X-Stream service has been specifically developed for rotary aircraft. The tailor-made solution is designed to achieve advanced streaming performance on intermediate and high-gain antennas, alleviating the connectivity constraints traditionally caused by rotary blades.	

1.4. POWER SOURCES/BATTERY CHARGING

	SATPHONE	VEHICLE DATA / PORTABLE DATA	HIGH-SPEED VEHICLE-BASED DATA
	iSatPhone 2 (SATPHONE)	**BGAN family** (Portable or vehicle)	**GX system** (Portable)
POWER SOURCE OPTIONS			
Local Battery	**INCLUDED** (long-life, all models)	**INCLUDED** (Some models only)	No
Dedicated Lithium Battery portable kit (w/solar charger)	**RECHARGING**	**YES**	No*
Other External DC (12/24V)	**RECHARGING**	**YES**	**YES** (Some models only)
Any car (12V cig lighter socket)	**RECHARGING**	**YES**	No
Larger Car/Van/SUV (w/premium inverter)	**RECHARGING**	**YES**	**YES** (Dual-battery kit may be needed)
Petrol Generator	**RECHARGING**	**YES**	**YES** (Inverter or UPS usually needed)
Diesel Generator	**RECHARGING**	**YES**	**YES** (Inverter or UPS usually needed)

1.5. SUPPORT

Inmarsat's Sydney facility features a purpose-built office, secure test lab, training facilities, a MILIS accredited warehouse, a local 24/7 Technical Support Centre and our Service Support Centre. This facility houses the greater Inmarsat Global Government Solutions team, which is set up primarily to support our long-term contract with the ADF.



Inmarsat Australia is therefore well positioned to support the NSW Government's use of satellite communications. Through our highly skilled local team in Sydney in harmony with our regional partners, Inmarsat can provide Fully Managed Services to manage on an end-to-end basis the SATCOM terminals, satellite airtime, RF link services, maintenance support, training and control/activation systems, as required by the end users.

Recommendation 1: The New South Wales Government explore the use of satellite-based communications solutions to supplement disaster resilience for at-risk communities.

Inmarsat Australia would welcome the opportunity for further discussions with the Flood Inquiry committee and would be pleased to host a visit to our Sydney facility to demonstrate how our range of satellite solutions, outlined above, could be tailored to the NSW Government requirements to maintain communication capability during times of disaster.

Your faithfully,

Inmarsat Australia Pty Ltd

Neil Matheson

Director of Strategic Programs & Partnerships