

The background of the entire page is a photograph of three soldiers in camouflage uniforms and helmets. They are in a tactical stance, with one soldier in the foreground looking towards the left. Overlaid on this image are several black tactical graphics: a large circle with a red dot in the center, a horizontal line with tick marks, and a vertical line with tick marks. The text is positioned in the top left corner.

APPLICATION WHITEPAPER SPOTTER TEAM MANET COMMUNICATIONS

SUMMARY

End-to-end control of Assault Operations with connectivity between the Surveillance Commander and Sniper Surveillance team can be a challenge for traditional communications links. Broadband and High-Speed communications in the urban domain can be a challenge without an existing fixed communications infrastructure e.g. 4G/5G. Existing communications links are typically low data rate (voice only with some IP data), unreliable or insecure in multiple floor buildings or urban canyon. DTC's MeshUltra™ waveform offers MANET IP connectivity with secure, seamless exchange of data with the additional capability to stream live HD video (Full Motion Video [FMV]) from sniper's scope, Audio and Curser On Target (CoT) data. Thus, DTC MeshUltra™ capability provides Assault Commanders with real-time situation awareness feedback and enable quick decision making for successful and safe operations.

INTRODUCTION

DTC is revolutionising communications between Spotter, Sniper Teams and Mobile Commanders. DTC's Video MANET offers wireless IP Mesh connectivity which can be used for the secure and seamless exchange of video, data, voice between Commander to and from Assault team leaders.

End-to-end control of assault operations with connectivity between mobile command post and assault team leader can be a challenge for traditional communications links. DTC's Mobile Ad-hoc NETwork (MANET) IP Mesh radios enable in real-time, Full Motion Video (FMV), voice, audio, positional (PLI) data from radios with the spotter and sniper teams back to the command facilitating quicker decision making. The excellent NLOS properties of COFDM mean that the RF signal can penetrate buildings with multiple floors and relay the communications using an additional 'drop bag' as a repeater node. Enabling Shared Situational Awareness (SSA) from within the building during an assault.

deployment of the Sniper Video System can be deployed with or without the assault team equipment and vice versa.

The level of mobile vehicle integration varies with customers and DTC can provide these services or a stand-alone system with a quick deployed 5-metre mast for rapidly deployed Command posts that do not use vehicles.

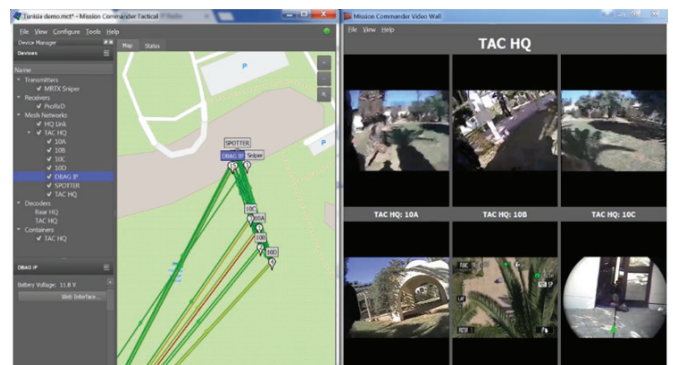
OPERATIONAL DEPLOYMENT

A typical deployment involves Sniper teams (comprising of Spotter and Sniper pairs) providing overwatch protection and surveillance information to the Command Post.

The encrypted video, voice and GPS data can be displayed on DTC's Mission Commander (MC) that operates on a laptop in the Command Post.



Multiple teams can be deployed on the same or different frequencies and the system can be used in conjunction with existing voice communications radio as required. The



The Spotter can transmit 'live' full motion video via the Spotter's scope camera attachment on the Spotter's scope. The bi-directional MANET radios enable live video, two-way audio, GPS data to display at the Command Post Laptop. In addition, the Spotter can receive data (text, stills, etc.) or received mission updates from the

Commander, if Spotter is provided with a tablet option. The spotter's scope camera provides HD video (1920 x 1080p @ 25fps, $\geq 0.17\text{Lux}$) and is designed specifically for each make and model of scope, ensuring the eye-relief is maintained for operational performance.

The Sniper can transmit 'live' full motion video via the Sniper's scope camera attachment on the Sniper's telescope. The sniper's scope camera provides HD video (1920 x 1080p @ 25fps, $\geq 0.17\text{Lux}$) and is designed specifically for each make and model of scope, ensuring the eye-relief is maintained for operational performance. The camera can be provided for standard scope makes e.g., Leupold Mark 4 - 6.5-20*50mm H58. Other scopes can be accommodated at extra Non-Recurring Effort (NRE) costs.

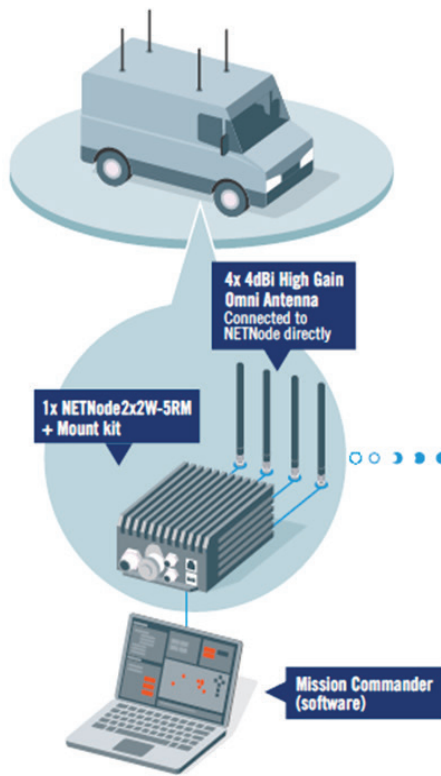
The system is software configurable and typical deployment would utilise a 5 MHz RF channel for 2 x Sniper & Spotter Teams video streams to the command vehicle.

CONCLUSION

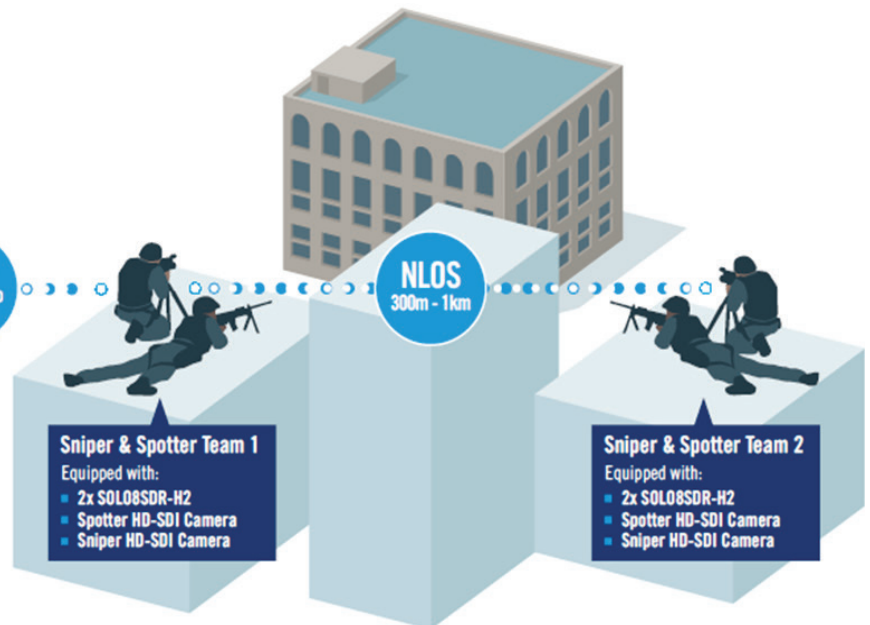
DTC's MeshUltra™ waveform has excellent RF properties that can penetrate all floors of modern urban commercial buildings and operate in urban canyon. Each radio is a transceiver that enables each Sniper Surveillance team to act as a repeater, relaying in real-time Video, Audio and IP data between the Surveillance Commander and Surveillance Sniper. With our modern communications, the situation awareness between multiple Sniper surveillance teams and Commander ensures a coordinated action and efficient mission.

SPOTTER AND SNIPER TEAM BASIC KIT

Mobile Command Vehicle



Target Building



R2 X SNIPER & SPOTTER EQUIPMENT KIT & COMMAND VEHICLE

Sniper / Spotter Team Equipment	Description	QTY
NETNode2x2W-5RM	IP Mesh Node Phase 5 Robust Mobile 2x2W	1
ANT4.5N	4.5dBi High Gain Omni N-Type (m) (for NETNode-R)	2
CA3793	N-Type Plug to TNC Plug, LBC240XF, 8000mm	2
AP010251	Antenna Magnetic Mount, N Type(f) base to TNC(m) cable, 3m length	2
CA3819	Power cable, Croc clips to XLR, 3m	1
AP003562	Antenna GPS/GLONASS, 1.575-1.6GHz, SMA	1
MISC DRTAC-P	Mission Commander Tactical Platinum Perpetual Licence, up to 20 devices	1
MCS-CMAP	Mission Commander Additional or Updated Map File	1
MCS-VW4DEC	Mission Commander Strategic, Video Wall 4 Deco	1
MCS-AES	Mission Commander AES Encryption Support	1
AES256NN	AES Transmitter 256 Bit Encryption	1

Sniper / Spotter Team Equipment	Description	QTY
SOL8SDR-H2	Enhanced Special Role Radio 2x1W	4
AP010166	SOL8SDR-H2 MBTR ANIPRC148 Battery 7.0Ah	4
AP003681	2dBi Omni, Half Wave Dipole, TNC (m), Flexi Gooseneck	8
SDRAPP-ENC-PLATINUM	PLATINUM ENCODER APPLICATION BUNDLE FOR SOL8SDR	4
SDRAPP-MESH	MESH APPLICATION BUNDLE FOR SOL8SDR	4
AES256NN	AES Transmitter 256 Bit Encryption	4
AP003604	MBTR battery charger 4-way	2
AP010253	RUSH 12 Backpack - Sand Coloured - Size 24 Litre	2
AP010252	Flexi Radio MOLLE Pouch - Sand Coloured	4
MW412XX	Equipment case	2
AP010293	Camera for 'Leupold Mark 4 - 6.5-20" 50mm H58' (SDI output, ≥ 0.17Lux, 1980x1020 resolution)	2
CA3815	SOL8SDR-H2 SDI cable for Kaishot Camera for: 'Leupold Mark 4 - 6.5-20" 50mm H58' (SDI output, ≥ 0.17Lux, 1980x1020 resolution)	2
AP010294	Camera for 'Swarovski ATX 30-70x35' (SDI output, ≥ 0.17Lux, 1980x1020 resolution, 25fps)	2
CA3816	SOL8SDR-H2 SDI cable for Kaishot Camera for 'Swarovski ATX 30-70x35'	2

Non-Recurring Engineering Costs may be required if the make & model of the telescope is non-standard.

Excludes:

- Headset & boom microphone and Drop Bag for range extension.
- Video Management System (VMS) and customer IT equipment. Mission Commander is Milestone VMS compatible
- Command Vehicle integration or 5M mast sold separately.
- Advanced Encryption Standard (AES) Spotter Camera and Sniper Camera are subject to UK Export License.

ABOUT CODAN COMMUNICATIONS

Codan Communications is a global technology company that develops robust technology solutions to solve customers' communications, safety, security and productivity problems in some of the harshest environments around the world.

We provide tactical communications solutions that enable our customers to be connected, ultimately to support critical missions worldwide. With almost 60 years in the business, we have garnered a reputation for quality, reliability and customer satisfaction, producing innovative and industry-leading technology solutions.

Codan Communications is a member of the Codan group of companies.

ABOUT DTC, DOMO TACTICAL COMMUNICATIONS

DTC is the leading MIMO MESH provider in the world. DTC radio solutions provide short range high bandwidth communications suitable for the wireless transmission of video and other data applications. DTC is an established provider to customers including Military and Special Forces, Intelligence Agencies, Border Control and First Responders. DTC is headquartered in the US with locations in the UK and Denmark, with over 140 employees.

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