

Tough Stump Tech Rodeo

After Action Report



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Overview

The Tech Rodeo executed by Tough Stump Technologies and Skybridge Tactical was a success. Our goal was to create a challenging but realistic test environment that encompassed distance, terrain and elevation, with rural and urban atmospherics. Granite Creek Training Facility in south-central Montana provided that unique venue to push communication and drone technology to its limits, similar to operational conditions.

Over five days in this unique terrain we put the participating vendors through a rigorous communication challenge. Each vendor was given the opportunity to gather and push selected data which was deemed successful once received at the Operations Center, then relayed to a third party and viewed on a WinTAK device.

Law Enforcement and Army observers were able to see each vendor's ability to accomplish the given tasks in real-time. Additionally, these observers were able to interact directly with the vendors allowing hands on experience with each system.



Area Map

- Bozeman to Ennis = 1Hr 15min
- Bozeman to Virginia City = 1Hr 20min
- Bozeman to Sheridan = 1Hr 30min
- Ennis to Ranch turn = 20min
- Virginia City to Ranch turn = 15min
- Sheridan to Ranch turn = 15min
- Ranch turn to staging cabin = 15min



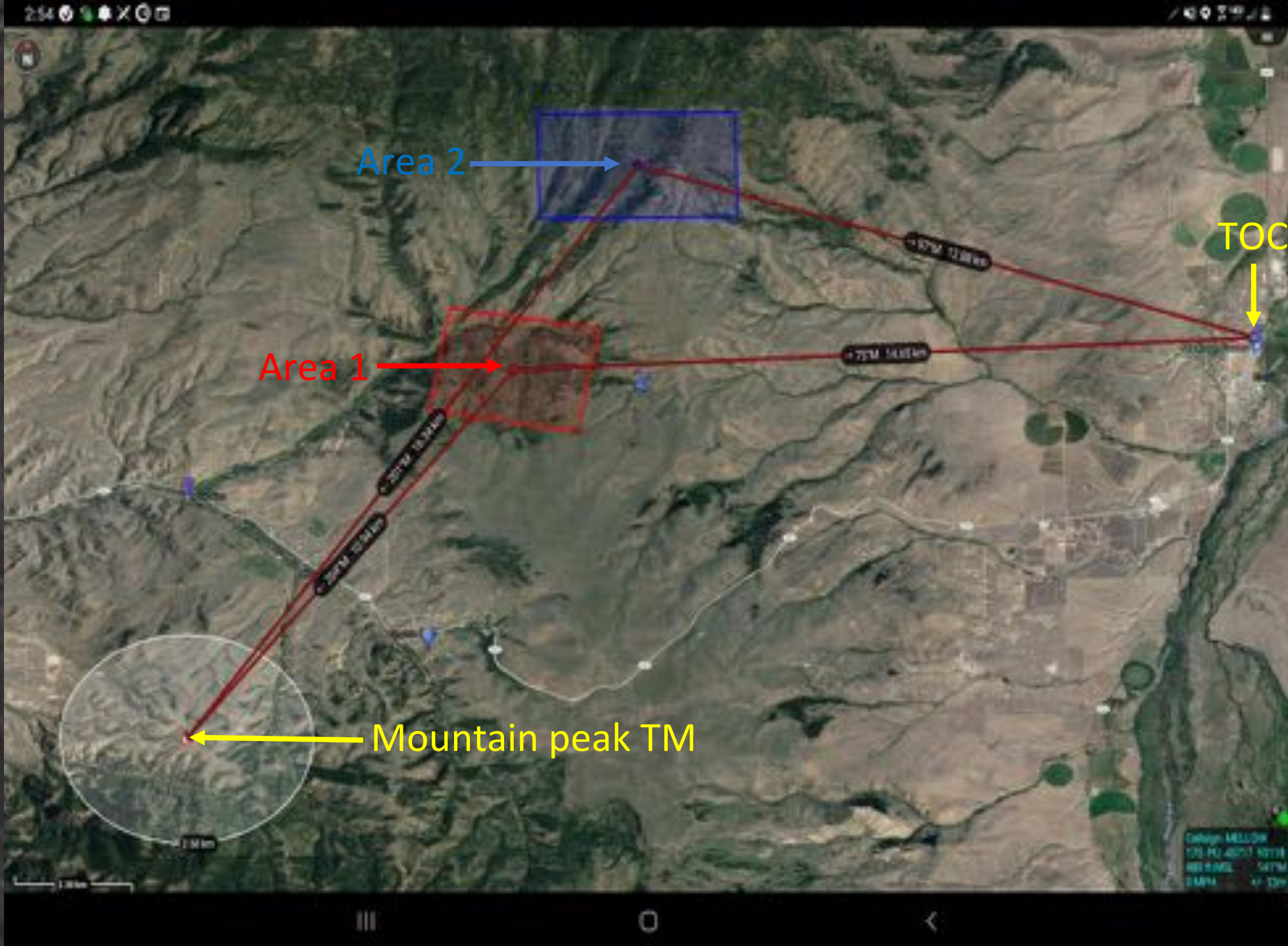
Scenario 1

Military working dogs and personnel in Area 1 and Area 2. Objective: pass PLI DATA from both areas back to the TOC and Mountain peak south of the range.

The TOC represented sending DATA back to a C2 area. The DATA passed back to the Mountain peak is simulated split operations and/or another Team that needs the DATA. This was performed without "4G/5G" or "WIFI" access.

Distance :Area 1/2 to the TOC approx. 8-9 Miles

Distance :Area 1/2 to Mt Peak TM approx. 7-10 Miles



goTenna

goTenna sent ATOS PLI & chat messages to TOC

- PLI Data over 11 Miles

To the Mt Peak

- PLI Data over 14 miles

Equipment Used

- 6 x goTenna - AF Version 4
- 6 x Antenna – Smiley Mini 465 MHz
- 2 x Samsung Galaxy S10 (Dog Team)
- 2 x Samsung Galaxy S9

TOC (Ennis) to Primary Node View



ESTABLISHED MESH NETWORK

Mountain Peak to Primary Node View



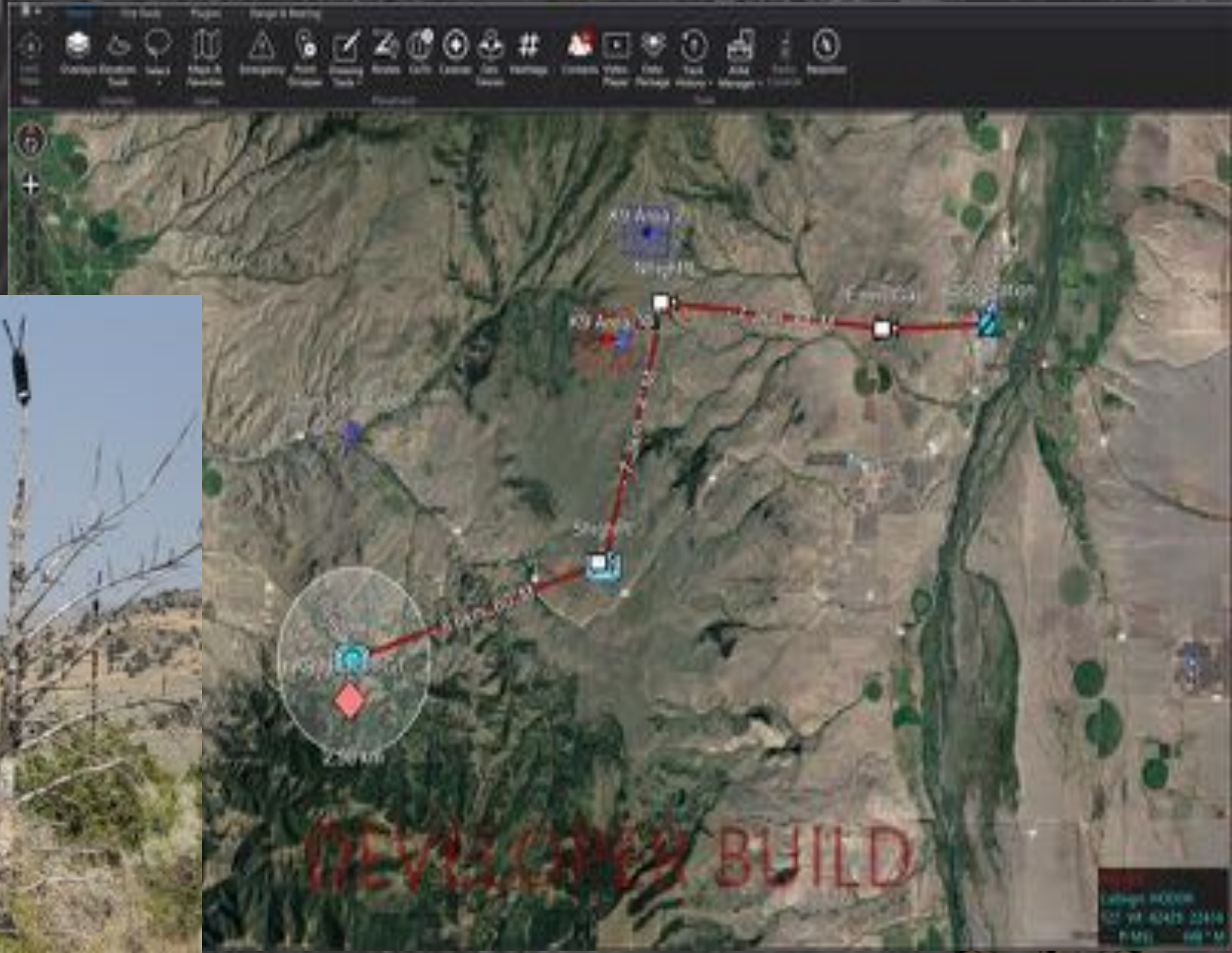
Domo Tactical

Pushed PLI Data to TOC

- Over 6.5 Miles

Pushed PLI Data to Mt. Peak

- Over 10 Miles



Trellisware

Pushed PLI Data to JOC

- Ground to Ground over 10 Miles

Pushed PLI Data to Mt. Peak

- Ground to Ground over 6.5 Miles



Scenario 2

An offset RECON TM located on the NW side of the Mt Peak flew a Tactical mapping mission of the target area. They used the DATA network to send those pictures to the TOC for processing.

After processing, the Orthomosaic imagery of the area was sent to the Assault Force staging at the ranch cabin via a DATA network for use on ATAK devices to conduct mission planning.

Distance: Mt Peak to TOC = 14 Miles

Distance: TOC to Staging area = 7.5 Miles



Domo Tactical

Pushed imagery to TOC

- 650 Mb over 17 Miles

Pushed imagery to Cabin

- 650 Mb over 11 Miles



Trellisware

Pushed imagery to TOC

- 650 Mb over 17 Miles

Pushed imagery to Cabin

- 650 Mb over 11 Miles



goTenna

Sent ATOS data & chat messages to TOC

- PLI Data over 55 Miles

Equipment Used

- 6 x goTenna - AF Version 4
- 6 x Antenna – Smiley Mini 465 MHz
- 1 x Samsung Galaxy S20 Note
- 2 x Samsung Galaxy S9

PRIMARY NODE PLACEMENT



Longest PLI Update From Primary Node
88.45KM / 55.28 Miles



Assessment

Vendor	Below Advertised	As Advertised	Better than Advertised
ATOS			
goTenna			
Trellisware*			
Persistent*			
Domo Tactical			

*Both Trellisware and Persistent networks were setup and managed by Tough Stump

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Testimonials

- Army Research Office, “The key component was the actual demonstration of the systems with a realistic setting that would show the different radio systems. The range was ideal for testing concepts and gear. The layout of the various locations worked well and the total area covered was a good representation of our mission space. The ability to use the airspace was a plus.”
- goTenna, “The operational environment provided the perfect setting to push our equipment. This enabled us to emphasize the capabilities and constraints while providing a real-world demonstration.
- Domo Tactical, “Obviously, location was great. I also liked that Tough Stump got a lot of different technology providers to show up and have equipment evaluated, and I enjoyed the fluid structure of the demonstrations.”

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Tough Stump Tech Rodeo

Special thanks to the Army Research Office & [SkyBridge Tactical](#) for making the Tech Rodeo possible

