Russian detection of Ukrainian UAV's and countermeasures on Brigade level

1. Spectrum Analyser, usually a HackRF with a 20 DB signal amplifier & directional antenna. Allows russian soldiers to highlight the Ukrainian video channel and provide it's specific details to other units to avoid jamming friendly UAV's in the area.

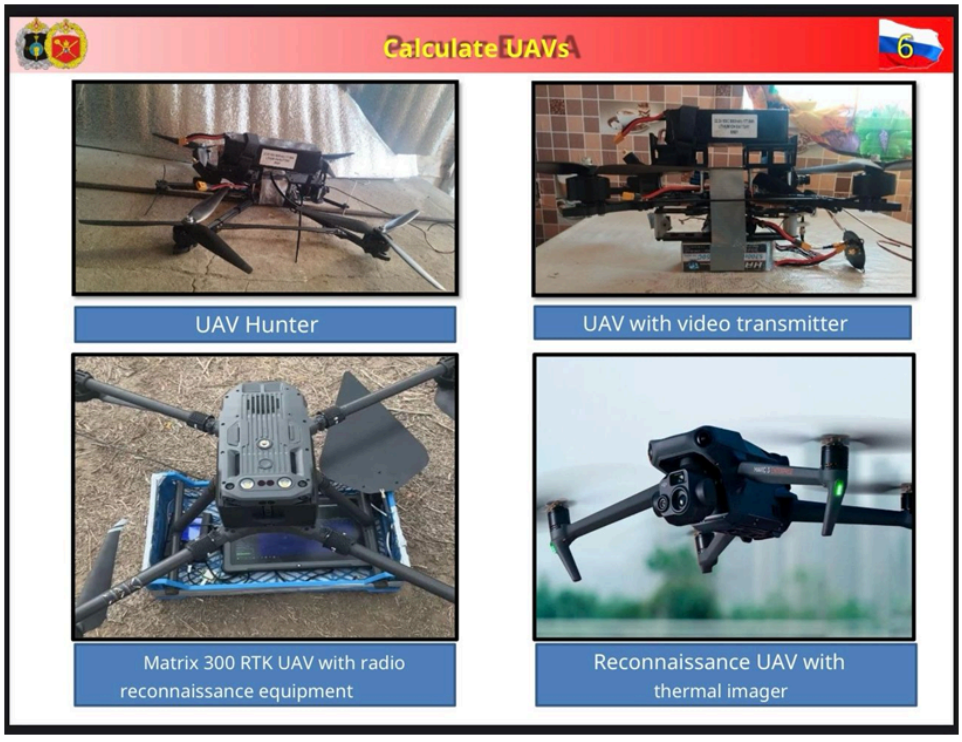
2. Automatic 4.8 to 6.2Ghz video scanner, used to detect live Ukrainian analog video feeds from allegedly "25 kilometres away" it's thought to be useful for revealing take off locations and patterns in flight routes, which can be highlighted to russian jammer stations to deal with.

3. A computer with Internet access (starlink) for transmitting information about the HackRF and video interception scanner, as well as for monitoring the situation from neighboring posts.

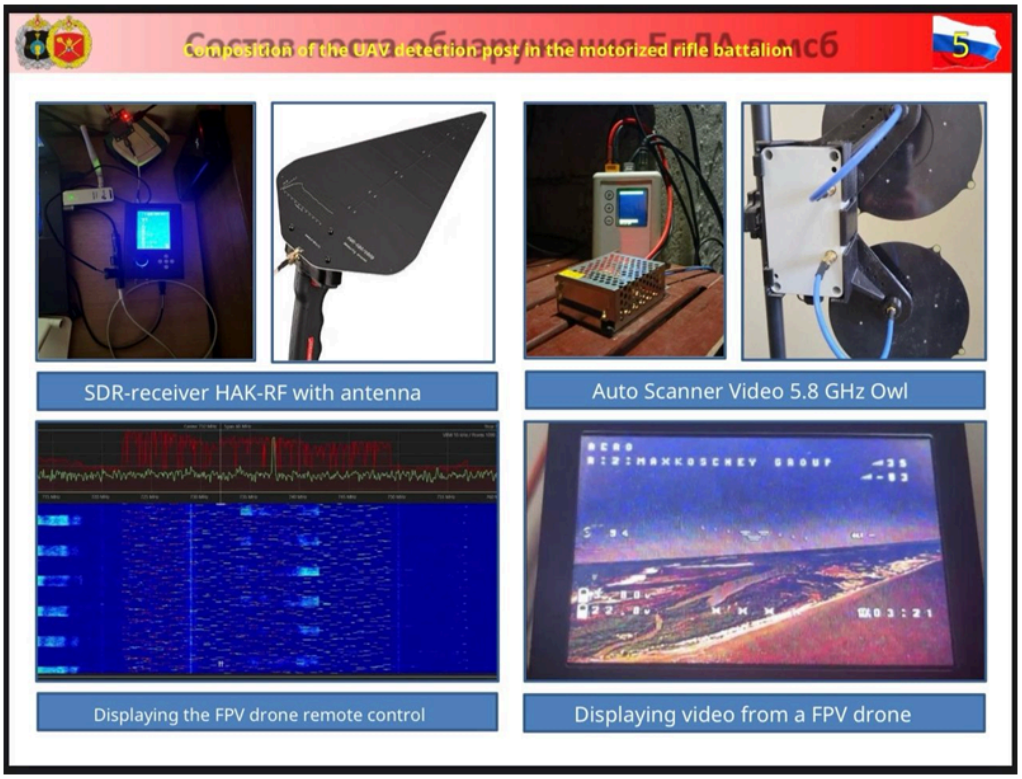
4. Comms, DMR and TA-57 are standard radio stations for communication with electronic warfare posts. Russ Motorised rifle companies are equipped with electronic warfare systems "GROZA-YUB" "Carlson" & "Mgla-10"

5. Jamming, by using Silok-02 russ is able to jam UAV's with a directional antenna or a higher-power video transmitter of 5 to 10 watts (most Ukrainian FPV drones usually have a 2.5 watt VTX and an omnidirectional antenna)

Russia's use of custom and commercial UAS to conduct SIGNIT. Note the DJI matrice 300 with a Hack RF and long periodic antenna for improved direction finding:



A handheld hackrf with long periodic antenna for soldiers to scan for UAV's. The soldiers also have a video scanner showing the strongest signal:

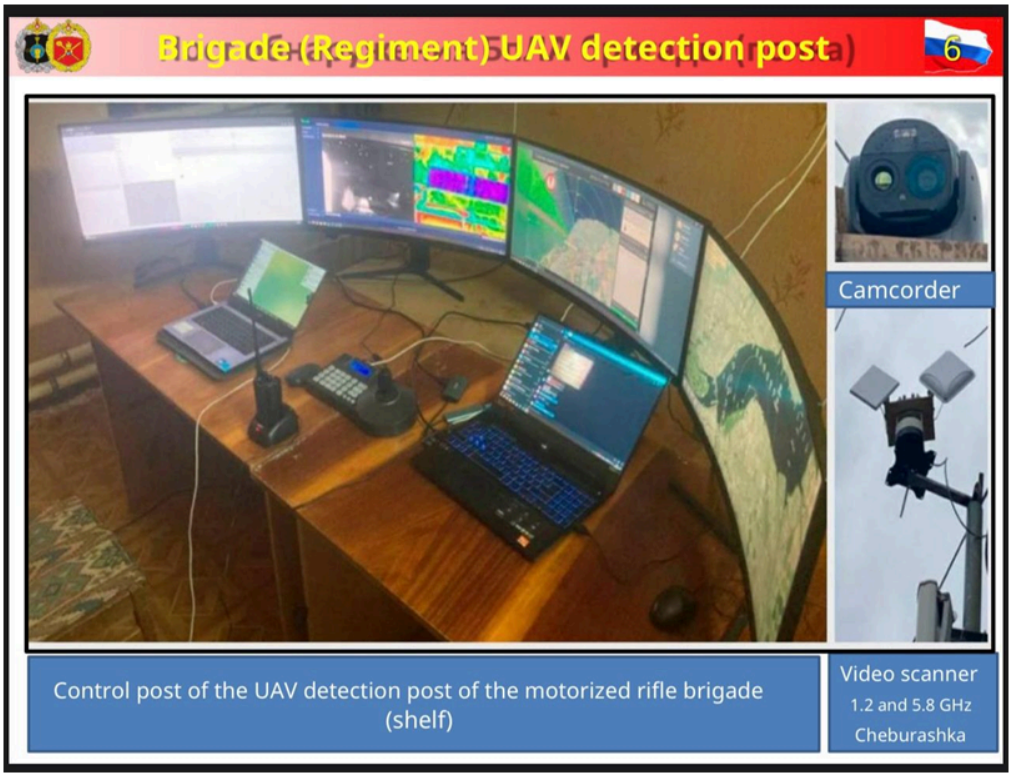


The first layer of detection command, soldiers monitor muiltple video links from the russian front lines, monitor the SDR and are responsible for escalating information higher:

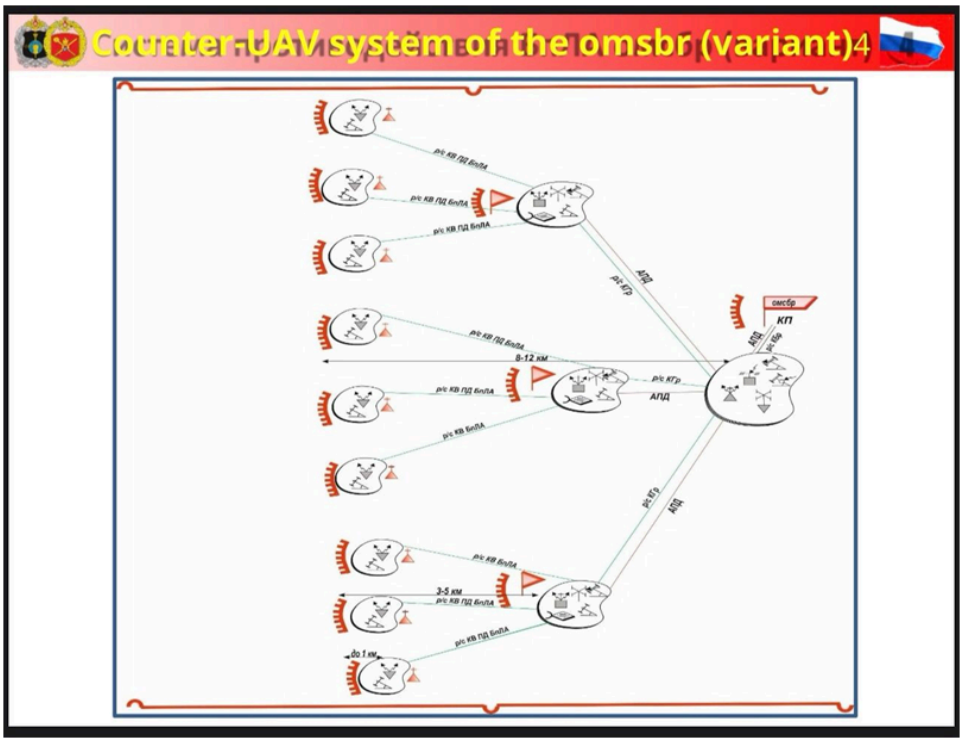
Russian methods to block/jam Ukrainian video transmissions:

Standard russian radio jamming equipment:

Second level detection command, Brigade / regiment command post, including HD thermal camera:



Simple outline of the chain of command with required equipment for each post:



Standard mobile radio jammer:

The strategic command control room, monitors and oversees cuas operations. Shares comms with other commanders along the front:

According to Russian military data:
- detection 95%(previously 40%);
- destruction via suppression 70-80% (previously - up to 30%).
- the ability to detect the take-off points of enemy FPV drones
- saturation of the enemy's UAV countermeasure system with advanced means of detecting and radio suppressing UAVs (2.4 GHz, 3.5 GHz video receivers and video transmitters, high-power radio jamming devices with the ability to select a specific frequency range.