

DESIGNED IN UKRAINE

Kara Dag Obriy 1.3

Wearable Drone Detector
Specifications



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Field Demo: drone video interception
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Kara Dag Obriy 1.3 is a battlefield-tested personal drone detector. It decreases casualties by informing users about approaching drones, thus helping them to hide. These detectors are widely used in the Russo-Ukrainian war.

- Detects FPV, DJI and other drones up to 2km away
- Fully autonomous operation; little to no training required
- Battlefield-tested, military grade (300g, 8h operation, IP65)
- Mobile app; FPV video interception; jammer integration

Purpose Detection

Detection frequencies	1080 – 1360 MHz, 2370 – 2510 MHz, 4900 – 6050 MHz
Operating principle	The device detects drones by their video signals. An alarm is triggered when the signal level (RSSI) exceeds a certain threshold, or when a specific signal fingerprint is detected. Noise filtering is implemented through RF signal fingerprint checks, adjustable sensitivity thresholds, short signals and WiFi/Bluetooth channels filtering. This ensures smooth operation with minimum false alerts.

Types of drones detected by the detector (sensitivity)

1080 – 1360 MHz	-95 dBm *
2370 – 2510 MHz	-85 dBm *
4900 – 6050 MHz	-85 dBm *

Distance

DJI Mavic 3 (2.4G)	Minimum - 2 km , Maximum - 5 km . **
DJI Mavic 3 (5.8G)	Minimum - 2 km , Maximum - 4 km . **
FPV (1.2G video), 2500 mW, OSD, telemetry disabled	Minimum - 2 km , Maximum - 11 km . **
FPV (5.8G video), 2500 mW, OSD, telemetry disabled	Minimum - 2 km , Maximum - 7 km . **
with external directional antennas and LNA	within the radio horizon (up to 40 km) depending on the LNA and antenna characteristics

* according to the component manufacturer specifications

** on open terrain with a set of longer antennas from the kit

Speed of response ***		
	1080 – 1360 MHz, FPV	2-4 s
	1080 – 1360 MHz, DJI Mavic	3-4 s
	2370 – 2510 MHz, FPV	2-5 s
	2370 – 2510 MHz, DJI Mavic	3-5 s
	4900 – 6050 MHz, FPV	3-5 s
	4900 – 6050 MHz, DJI Mavic	3-6 s

Prevention of false alarms		
	Can the device distinguish between WiFi signals and drone signals?	Yes
	Do WiFi signals cause false alarms?	With "FPV only" mode turned on : no false alarms. With "FPV only" mode turned off : in city environments crowded with WiFi signals false alarms are possible, especially at 2.4 band.
	Do short pulses (interference) cause false alarms?	No

Dimensions and weight (of the portable device)		
	Without antennas	300g
	With antennas	320g

Functionality		
	Direction finding	Ability to determine the direction of threat using a directional antenna.
	Analog video interception	Automatic channel scanning across all frequency ranges and output of video to an external analog display.
	Integration with electronic warfare (EW)	Available output for jammer relay activation, allowing the device to integrate with virtually any jamming system with minimal modifications. The electronic warfare system will then automatically activate in the presence of drones.
	Integration with other devices	The device outputs spectrum analyzer data, as well as the information about detected threats via Type C using Serial over USB protocol. The data format can be obtained from the developer. This data can be integrated into a smart Electronic Warfare (EW) system (which, for example, will jam drones based on their video frequency) or into a centralized drone detection system.
	Mobile app for spectrum viewing	Allows for a better understanding of signals and better situational awareness.
	FPV detection only mode	In this mode, the device ignores all signals except for those of FPV and minimizes false alerts; this mode is intended to be used in areas crowded with jammers or WiFi.
	Powering the antenna via Bias-T	Ability to connect external antennas via cable (up to 10m) with an amplifier powered by the device itself via Bias T.
	Calibration of the frequency response for a specific antenna and situation	Ensures accurate detection of weak signals, regardless of the characteristics of specific antennas and changes caused by the external environment.
	Spectrum output to PC via Type-C	Ability to monitor the radio spectrum on a PC screen, extend the display to a command post, or integrate with operational information collection systems.
	Headphone output	Output of alarm and direction-finding signals to headphones.
	"Blackout" mode	Disabling all LEDs for masking purposes.

*** The test was conducted with up to 5 signals exceeding the activation threshold. With a greater number of signals above the threshold, the device will check each of them for the presence of video. Each such check will slow down detection by 200 ms.

Case	Material	Anodized aluminum (100%), thickness 1 mm - 2 mm.
	Waterproofing	The device is protected against water splashes and dust. Submersion in liquids is not recommended. SMA and Jack connectors are waterproof. The case and buttons fit tightly and/or have silicone seals for insulation. The Type-C connector is standard and has standard protection.
Charging and operating duration		
	Battery runtime	8 hours
	Charging time	6-8 hours
Temperature range		
	Device temperature	-20 .. +60°C
	Air temperature	-20 .. +40°C
	Air temperature during charging	-10 .. +30°C
Secondary radioelectronic radiation		
	Internal signal sources	WiFi module (operates only in "WiFi Filtering" mode). It can be turned off, putting the device into radio silence mode.
	Shielding	Fully metal enclosure. Receiving modules are additionally shielded.
Connectors		
	USB Type-C	For charging, mobile app and PC connection, electronic warfare control
	Jack 3.5mm	Headphones, video signal
	SMA	Antenna, power source (Bias-T)
Firmware		
	Firmware updates	Performed via a mobile application. New firmware versions include improved drone detection algorithms and new features.

Our website
www.karadagtech.com

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