

# Sunflower Seeds Ukraine

## and the BB Jam project

August 2024

# Sunflower Seeds Ukraine

## Vision:

save lives and reduce suffering in Ukraine

## Mission:

provide medical aid and protective gear to small groups of defenders

Fundraising, development in Colorado, USA

Logistics and outreach in Europe

Distribution center near Rivne, Ukraine

Direct contacts on the front lines

Registered organizations in USA and Ukraine



# WE HAVE PROVIDED

AS OF JUNE 2024

MEDICAL ITEMS



3,548

UNIFORM PARTS



10,717

OPTICAL DEVICES



1,501

PROTECTIVE GEAR



6,226

TACTICAL GEAR



5,874

OTHER BIG ITEMS



537

**5,660+**

**DEFENDERS HELPED**



Many of the 'Ukrainian' EW systems are rebranded Chinese systems sold at 3-5x price  
We provided a few customized Chinese jammers in 700-1000MHz and 400-700MHz range  
UAV measures and EW countermeasures are changing too fast - need more flexible solutions

SUNFLOWER SEEDS  
UKRAINE  
www.sunflowerseedsukraine.org

[www.sunflowerseedsukraine.org](http://www.sunflowerseedsukraine.org)

# Broad Band Jammer (BBJam)



## Overview

- BBJam is an EWF device to interfere with control and video channels of UAV
- Can be scanned continuously or work in frequency jumping modes.
- Smart device with user programmable software interface
- Possibility of changing device configurations in field conditions.

## Current needs:

- Robust broadband antenna 100MHz – 2.8GHz
- Inexpensive 50-100W broadband power amplifier



PARAMETER	VALUE
Work Frequency	0,1 .. 2,8 GHz
Output Power	25 W
Antenna	Broad spectrum dome
Power Supply	12-32 V
Connectors	Input: Power Output: Antenna
Interfaces	Programmable (USB)
Enclosure	Aluminum, IP67
Dimensions	200 x 50 x 25 mm
Weight (with antenna)	2 kg

# BBJam targeted use



## Supported jamming waveforms

- Spot jamming: multiple spots with gaps in between
- Linear scan jamming: adjustable direction, speed, slope/density
- WGN jamming: sectional

## Tactical level

- Company/platoon installations
- Individual usage for certain tasks

## Installation types

- Carry-on/backpack
- Stationary
- Vehicles
- Aircraft

Increased output power (40-50W+)

Single-channel DDS-based carrier generation

Simultaneous multi-carrier in different freq. bands

Analyze the spectrum for activation

Spoofing capabilities

# Introductions and current needs



- Design and integration in the USA: Lexycom technologies, Inc (Alex, Slava, Denis)
- Export from USA and import to Ukraine: Sunflower Seeds Ukraine (Andriy)
- Representation and support in Ukraine: Ukrcertico LLC (Mykola)



Alex



Slava



Denis



Mykola



Andriy

## Current needs:

- Integration in Ukraine – currently Lexycom in the USA
- Testing and certification – currently Brave1 and individual units
- Fundraising/funding – currently Lexycom + Sunflower Seeds
- Import into Ukraine – need end user certificates co-signed by MOD
- Technical support in Ukraine – currently Ukrcertico

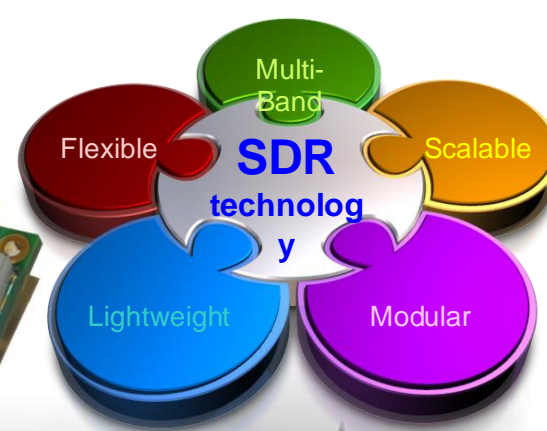
# Lexycom technologies, Inc

---

More information, capabilities, and other products



# LEXYCOM's Lineup of DoD Products



**TDMA, P2P/P2M, AdHoc, Mesh, Cognitive TDMA (QoS-based waveform variation)**

**SMART ANTENNA INTERFACE (Self-Structuring Beam Steering)**

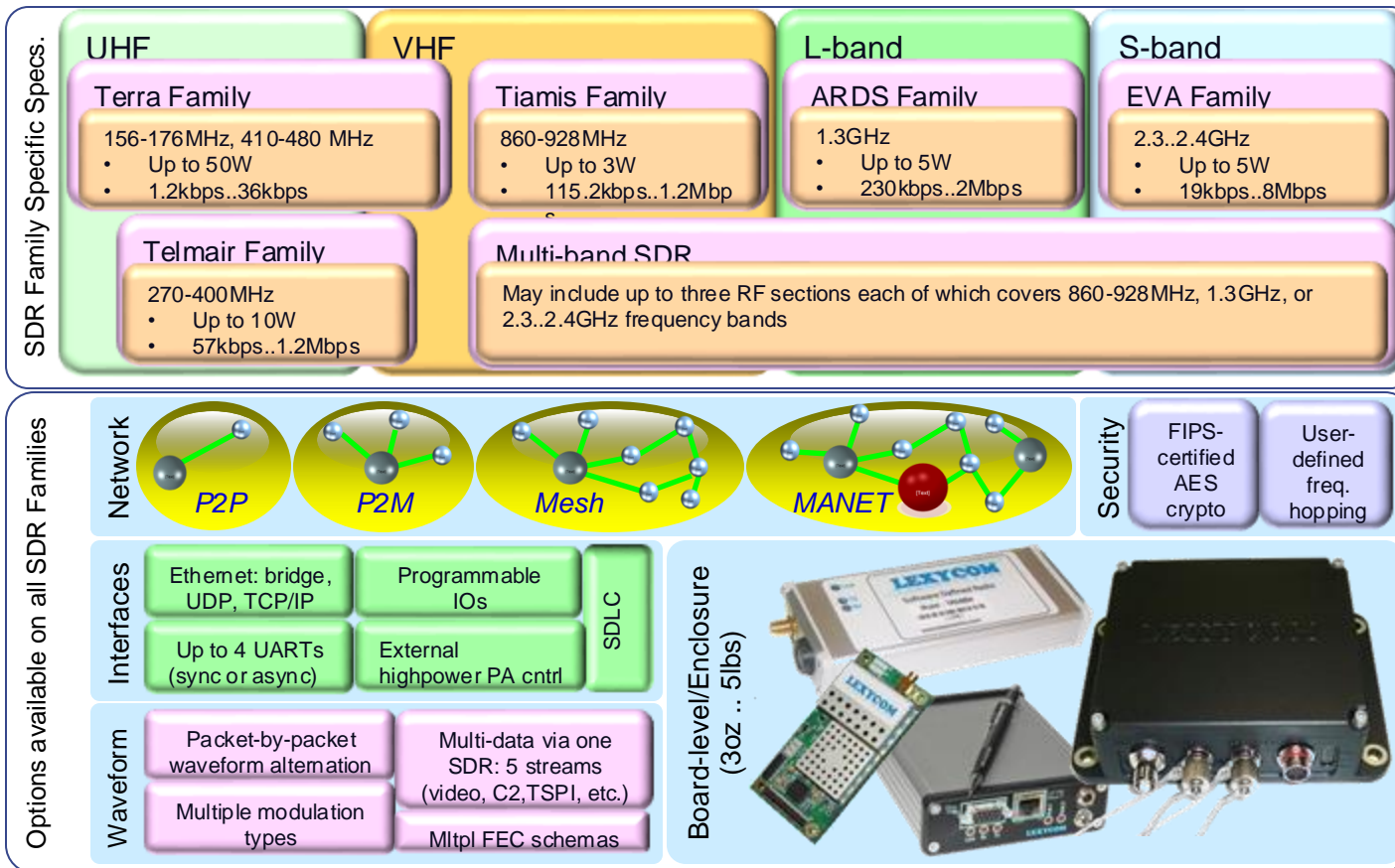
**RECONFIGURABLE (Data rates 1.2kbps-8Mbps)**

**MULTIPLE DATA TYPES (Simultaneous)**

**SECURITY (FIPS-certified Encryption)**



# Current Product Families



# Prototyping and Full-Rate Production of Antennas

Outline of the Antenna Products

## Antennas

- 'LPDA' Family
- 'Signal Commander' Family
- Satellite antennas

## Power supplies

- single TV/FM outlet
- two TV/FM outlets
- three TV/FM outlets

## Accessories

- Miscellaneous items supporting the Antennas and the Power Supplies
- Spare Parts



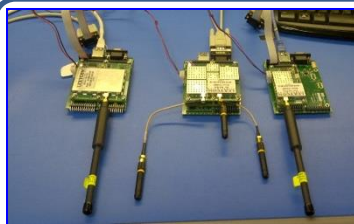
# Prototyping, Production Capabilities, R&D Tools

*Owens surface-mount and through-hole production assembly lines*

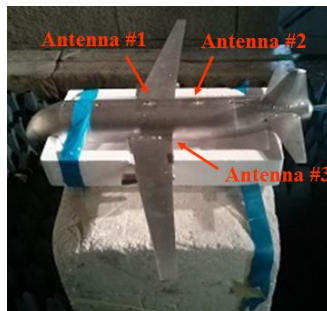
*The factory includes a set of metal processing, packaging, and warehouse management machines*

*R&D lab equipped to perform the majority of MIL-STD-461 EMI & environmental testing*

Production Capabilities

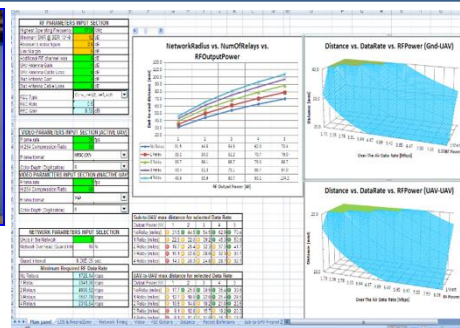


Jamming/EMI simulation setup

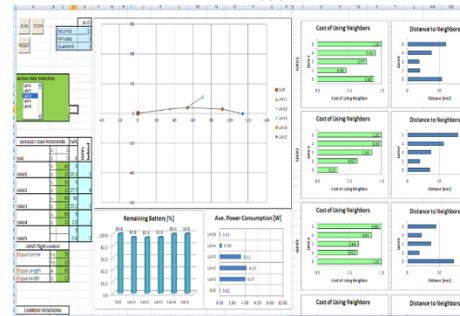


Scaled model of an aircraft with three blade antennas being measured in the anechoic chamber

Unique R&D Tools related to Air-Force applications

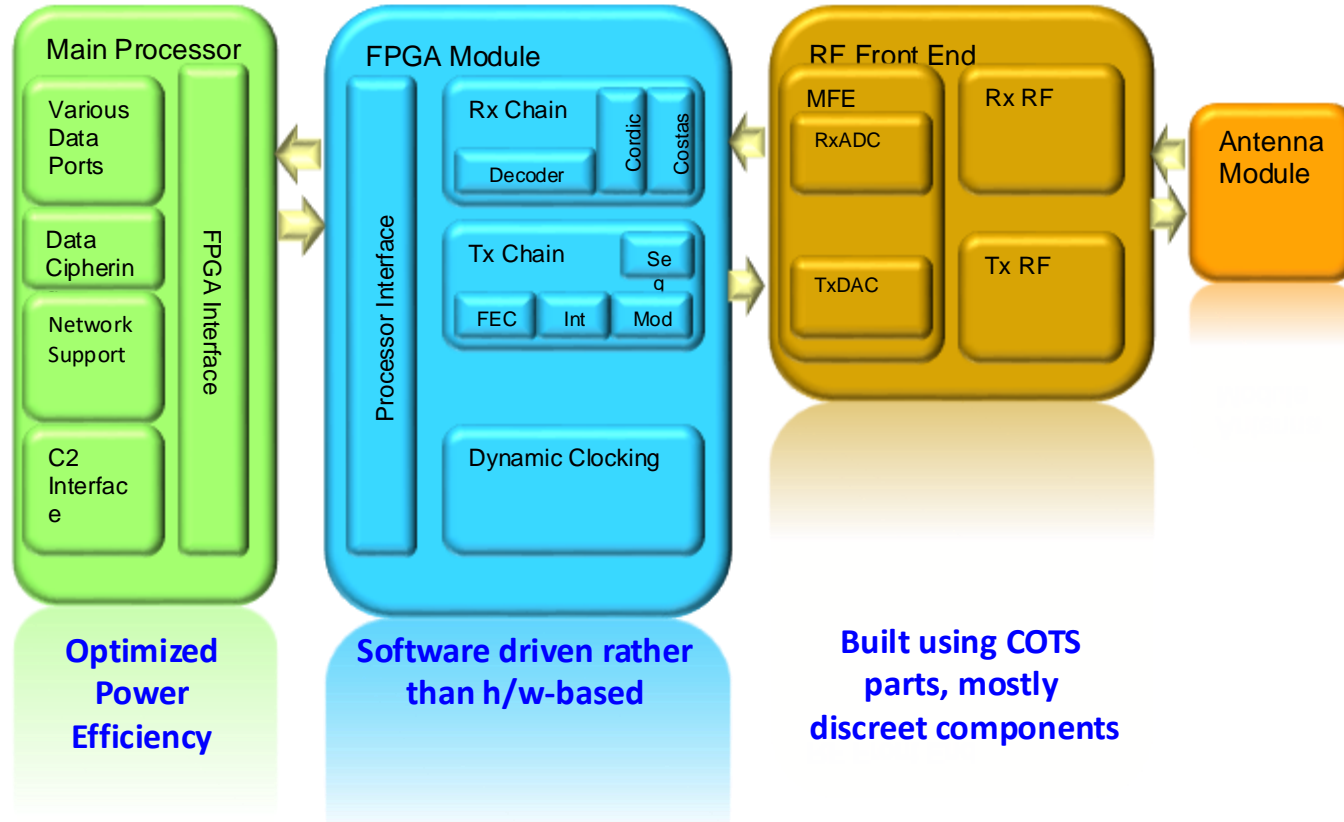


Screenshot of Lexycom's MANET Analysis tool.



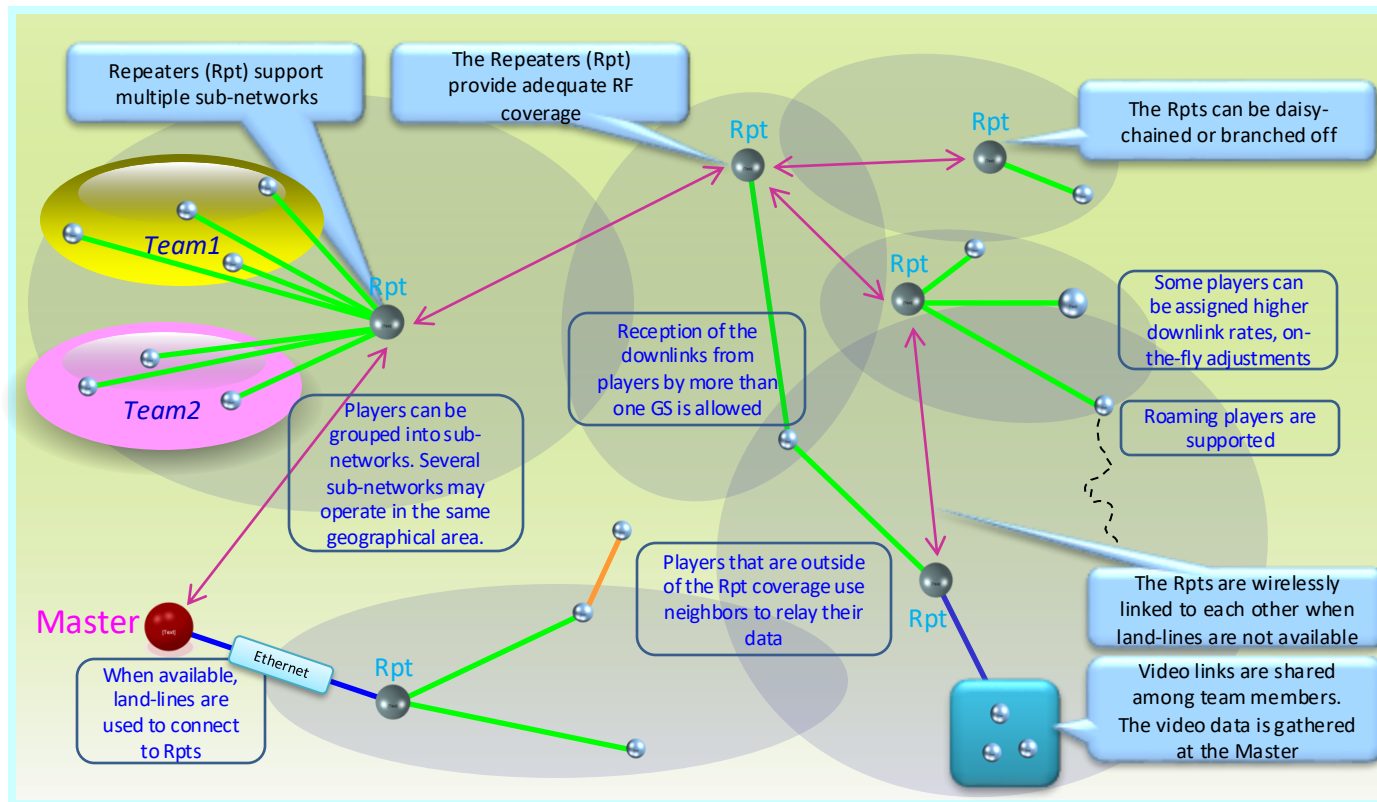
Screenshot of Lexycom's AdHoc Network real-time simulator.

## Currently Utilized SDR's Modular Architecture



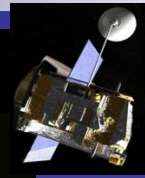
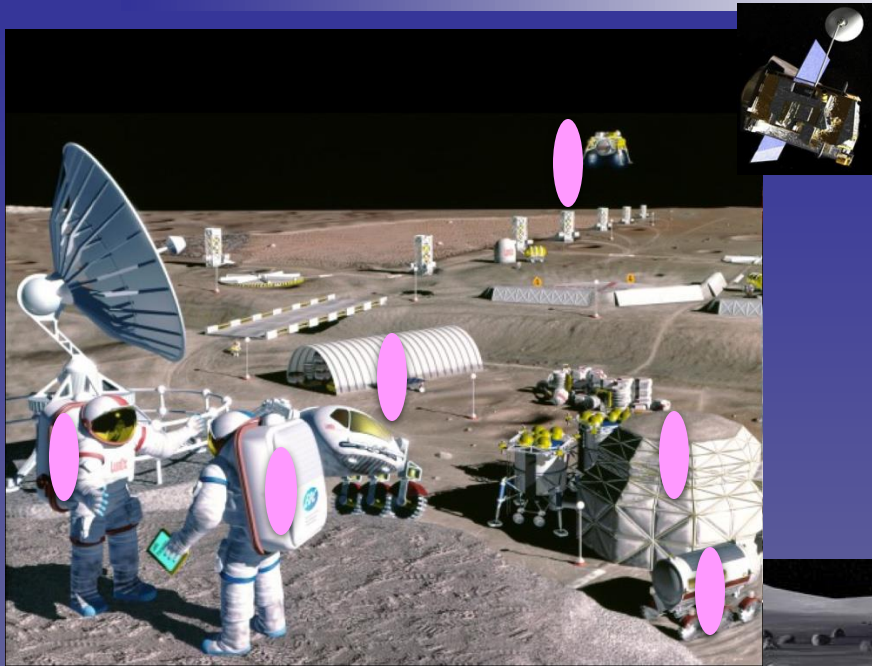
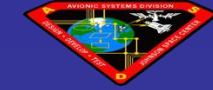
# Lexycom's war-games/training network example

(fielded (TRL9); up to 1000 players; Video/Voice/TSPI/C2 on-the-fly config. per player)





# Planetary Exploration, SDR nodes, Cancellation Program (unclassified)



Depicts  
placement of  
Lexycom's SDRs

