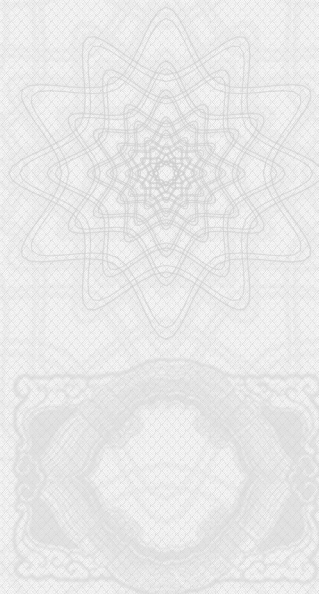


# IFF SYSTEM GR-8450

Integration of IFF (Identification Friend or Foe) System





# GR-8451

## IFF Interrogator System



*The GR-8451 IFF Interrogator is an advanced long-range IFF interrogator system for the new generation air-defense early warning system. It provides ATCRBS, Mode 4 and Mode S Level 2 aircraft data to the ATC center or weapon system operator.*

GR-8451 IFF Integrator operates in conjunction with the primary radar. The system is suitable for all AEW (Airborne Early Warning), ASW (Anti-Submarine Warfare), and SAR (Synthetic Aperture Radar) applications and can be integrated with a variety of radar systems.

GR-8451 IFF Interrogator represents the most technically advanced, digital commercial off-the-shelf equipment available for long-range stationary/mobile IFF. Designed as a replacement for the old version

of legacy interrogators or new installations.

It provides the advanced processing capability to rapidly identify friendly targets. The system is designed with a DSP and FPGA technology that enables maximum system flexibility and supports practical upgrades.

Extensive use of these technologies allow configuration of system interfaces to a variety of platform applications.

### Critical Function

- |                            |                  |
|----------------------------|------------------|
| • Target capacity          | 1,200 per scan   |
| • Probability of detection | >89%             |
| • False targets            | <0.1%            |
| • Validated code accuracy  | >99.9%           |
| • MTBF                     | 9,400 hours      |
| • Azimuth accuracy         | 0.087 degrees    |
| • Transmit power           | 2,000 watts peak |

### Long-Range System Performance

- Amplitude Mono-pulse reply processing
- Mode 1, 2, 3/A, C, 4, growth to 5
- Mode S level 2, growth to Mode S level 4
- Software programmable COTS architecture
- Mode 4 target evaluator
- Adjustable transmit power
- Beacon performance monitoring and measurement reporting
- Reflection target suppression
- ASTERIX data category 34/48 interface



## GR-8451 IFF Interrogator

GR-8451 IFF Interrogator provides civil and military air traffic controllers with the latest in Identification and ATC system performance including:

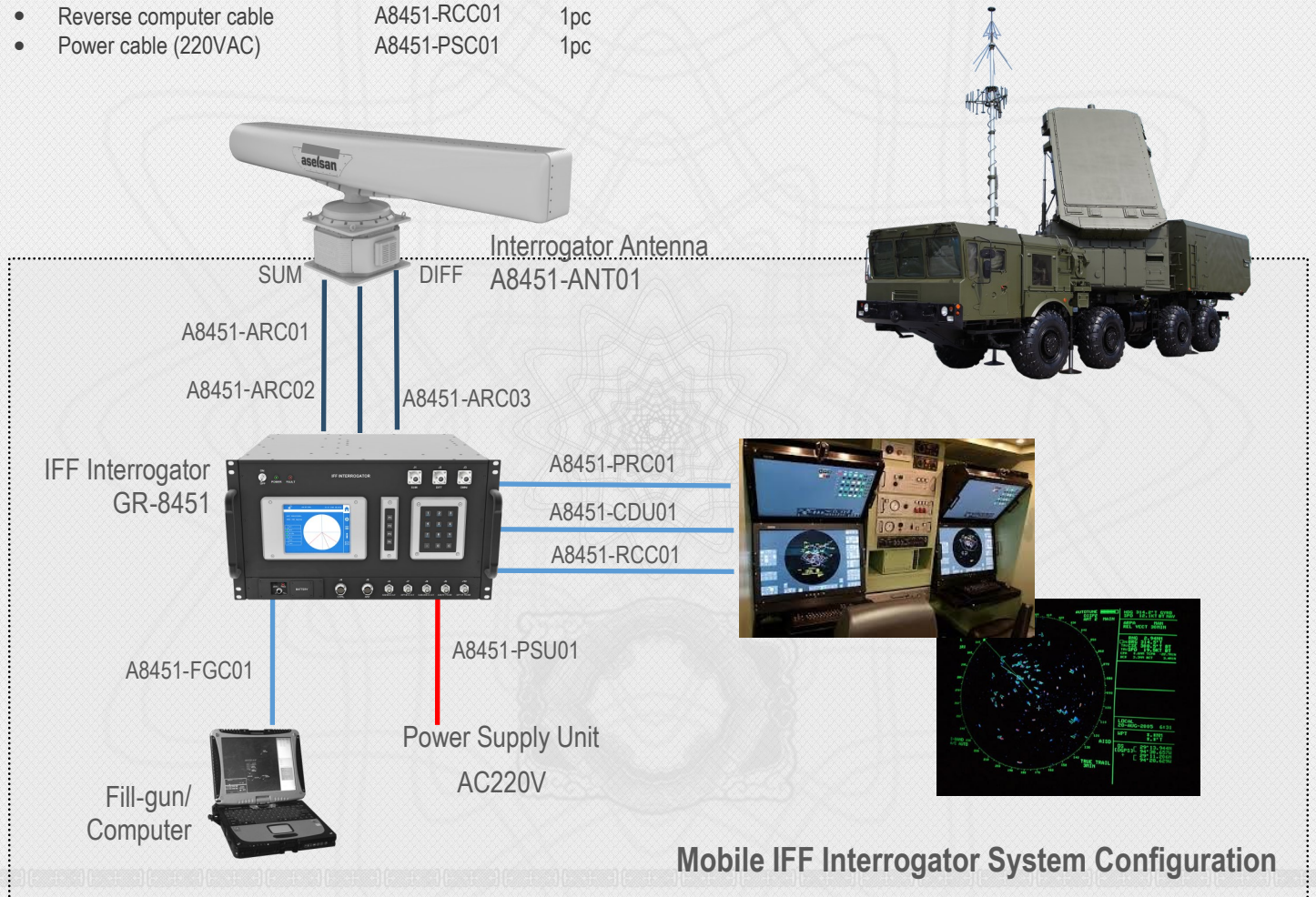
- Mode 1, 2, 3/A, B, C, D, 4
- User selectable four-mode interface and super mode sequence
- Mode S level 2 including ground initiated comm B
- Transmit power electronically adjustable from 23 to 33dBW
- Built-in MSSR target extractor and tracker
- Digital target reports containing selectable plot or tract data
- LDMOS linear transmitter amplifiers
- Three channel digital software radio receiver
- All-digital, software-programmable system
- Remote monitoring and control
- Measured and reported system performance parameters including transmitted power, pulse width and pulse spacing, antenna VSWR,

receiver sensitivity, target extractor/tracker, GTC and RSLs performance

- ASTERIX, CD2 and Ethernet interfaces
- Four PPI video output ports
- Automatic detection and location of reflecting objects

## GR-8451 IFF Interrogator Set

- |                              |             |     |
|------------------------------|-------------|-----|
| • IFF interrogator main body | GR-8451     | 1pc |
| • Interrogator antenna       | A8451-ANT01 | 1pc |
| • Fill-gun/computer          | S420        | 1pc |
| • Fill-gun/computer cable    | A8451-FGC01 | 1pc |
| • Antenna RF cable 01        | A8451-ARC01 | 1pc |
| • Antenna RF cable 02        | A8451-ARC02 | 1pc |
| • Antenna RF cable 03        | A8451-ARC03 | 1pc |
| • Primary radar cable        | A8451-PRC01 | 1pc |
| • Control display unit cable | A8451-CDU01 | 1pc |
| • Reverse computer cable     | A8451-RCC01 | 1pc |
| • Power cable (220VAC)       | A8451-PSU01 | 1pc |

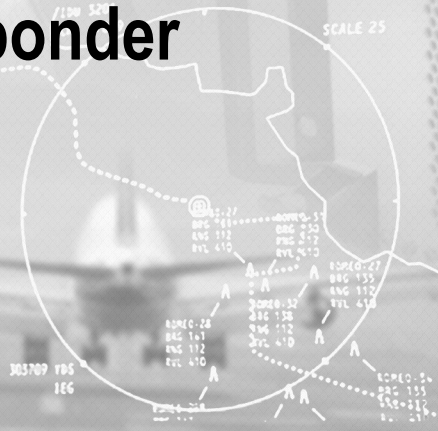


Mobile IFF Interrogator System Configuration



# GR-8454

## IFF Transponder



*The GR-8454 IFF Transponder is the military standard transponder for all retrofit and new product applications. It is designed for any type of airplanes like fixed-wing and rotary-wing fighters.*

### Key features

- Integrated IFF/Mode 1, 2, 3/A, C, 4, 5
- Cost effective
- Ensures Flight Safety
- Secure ID
- Compact System
- Remote Control Panel (Cockpit)

### Advantages

- Operates simultaneously in Modes 1, 2, 3/A, C, 4, 5; provides IDENT and emergency reply codes
- National Secure Mode (NSM) operation via integrated crypto module
- Mode S compatible
- Single-box solution for Tx/Rx and reply evaluator
- MTBF 4,000 hours.

GR-8454 IFF Transponder operates in conjunction with the all kinds of aircraft. In addition to single antenna configuration system, the system uses two antenna system operation. One antenna will be installed on top of aircraft and another one is under the aircraft, so all signals can be received in any direction. The system is suitable for all new and legacy aircrafts and can be integrated with a variety of aircraft systems.

GR-8454 IFF Transponder represents the most technically advanced, compact and lightweight transponder available for airborne, long-range and shipboard IFF. Designed as a replacement for the old version of airborne transponder, the GR-8454 has been selected by many international Air Forces as part of their platforms.

It provides the advanced processing capability to rapidly identify friendly targets. The system is designed with a DSP and FPGA technology that enables maximum system flexibility and supports practical upgrades.

Extensive use of these technologies allow configuration of system interfaces to a variety of platform applications.



## General Specifications

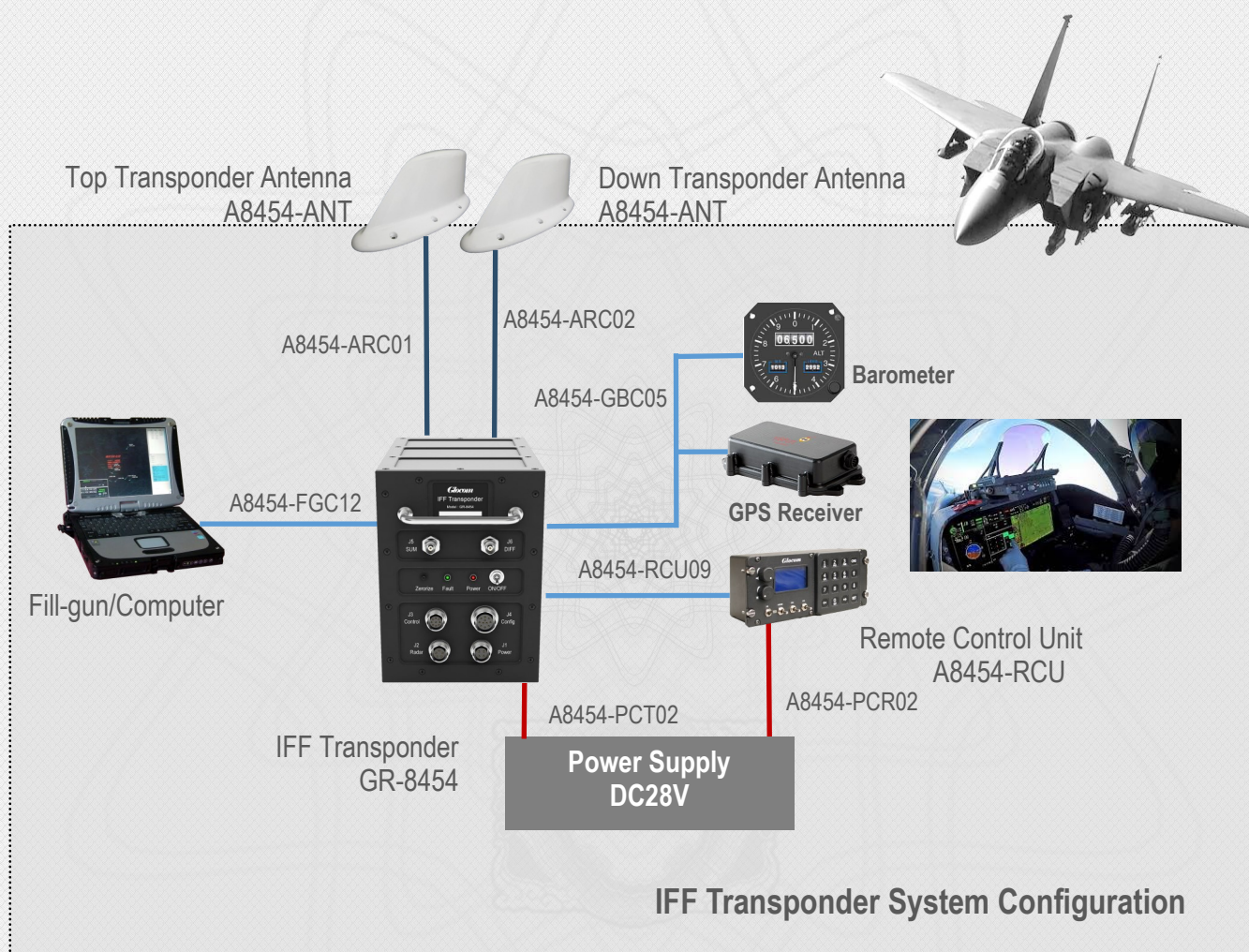
Operation mode	Mode 1, 2, 3/A, C, 4, 5
Transmitter frequency	1090±0.1MHz
Transmit duty cycle	Max. 1%
RF Power	Peak power 500W±2dB
Receiver frequency	1030±0.5MHz
Receiver sensitivity	< -74dBm (measured at front panel)
Dynamic range	> 60dB
Dimensions	236 x 152 x 207mm
Weight	< 8Kg
Current consumption	DV27V/40W
Remote control	RS-232/422/485, Ethernet

## GR-8454 IFF Transponder Set

• IFF transponder	GR-8454	1pc
• Transponder antenna (top, down)	A8454-ANT	2pcs
• Antenna RF cable (top)	A8454-ARC01	1pc
• Antenna RF cable (bottom)	A8454-ARC02	1pc
• Remote control unit	A8454-RCU	1pc
• RCU 9 way control cable	A8454-RCU09	1pc
• Transponder 2 way power cable	A8454-PCT02	1pc
• RCU 2 way power cable	A8454-PCR02	1pc
• 5 way data cable (GPS, Altitude)	A8454-GBC05	1pc
• 12 way data cable (Fillgun/PC)	A8454-FGC12	1pc

## OPTION

• Fill-gun/Computer	Getac	1pc
• Barometer		1pc
• GPS receiver		1pc
• 320W power supply unit	GA-34A	1pc
• Installation kit	A8453-ITK01	1pc



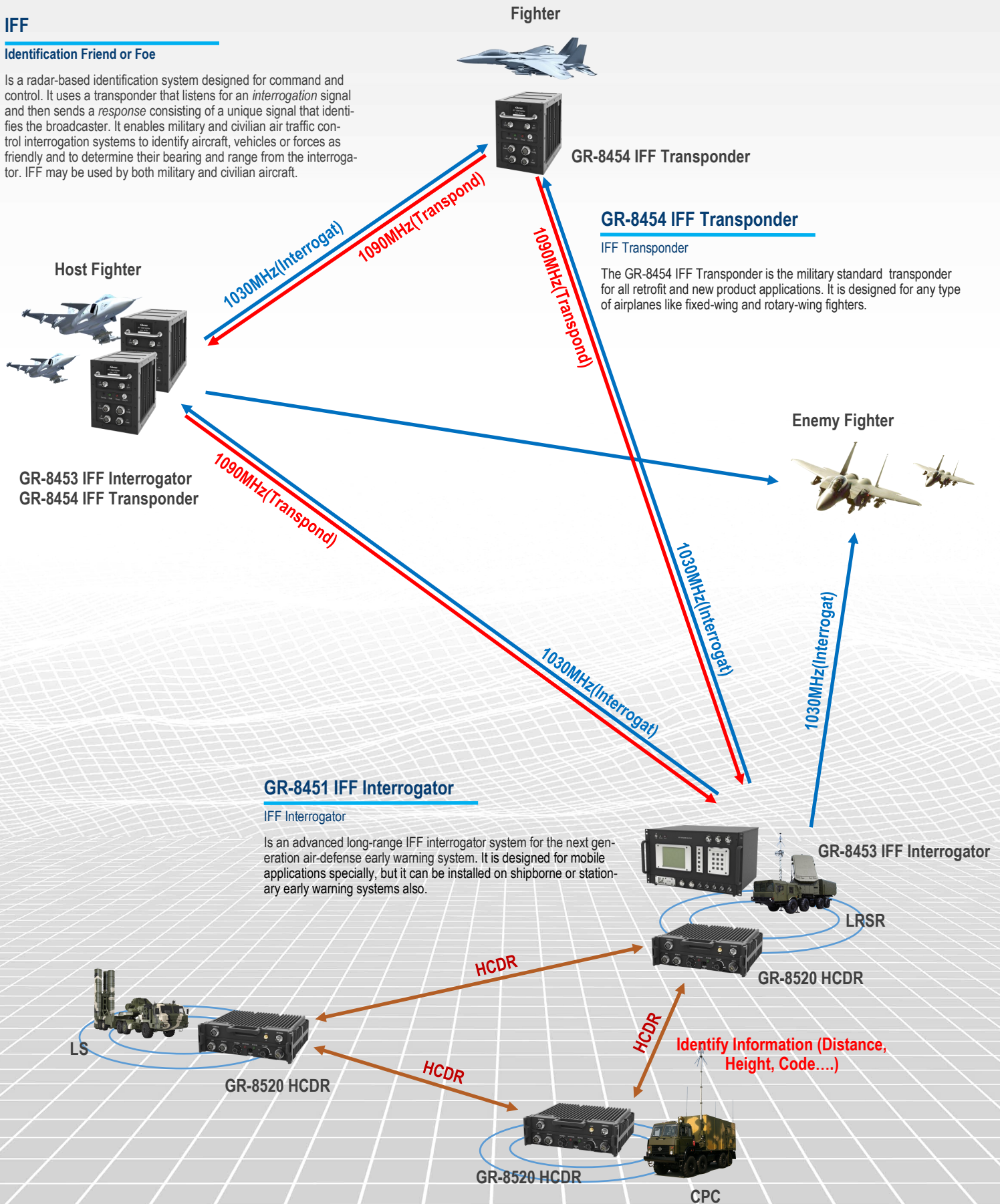


## IFF System Concept

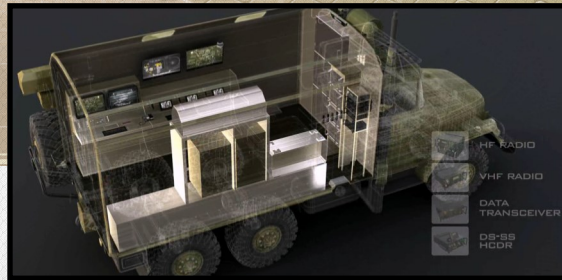
### IFF

#### Identification Friend or Foe

Is a radar-based identification system designed for command and control. It uses a transponder that listens for an *interrogation* signal and then sends a *response* consisting of a unique signal that identifies the broadcaster. It enables military and civilian air traffic control interrogation systems to identify aircraft, vehicles or forces as friendly and to determine their bearing and range from the interrogator. IFF may be used by both military and civilian aircraft.







- Tactical manpack radio systems
- Tactical handheld radio systems
- Stationary systems
- Mobile systems
- Airborne systems
- Shipborne systems
- Soldier systems
- BMS applications

## Communications solutions for anywhere, anytime in battlefield

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