Multi-Mission Capability

- Very Low Observable Stealth
- Fighter Performance
- Integrated Sensor Fusion
- Net-Enabled Operations
- Peace Keeping Capabilities
- Advanced Sustainment

Air-to-Air

Air-to-Surface

ISR

Electronic Attack

Command & Control

F-35 Redefines Multi-Role Aircraft
Primary Air-Air Attributes

Relative Contribution to Effectiveness

Advanced Legacy Fighters

- VLO Stealth
- 5th Gen Attribute
- Advanced Legacy Attribute
- Weapons
- Tactics & Training
- Aerodynamic Performance
- Advanced Sensors, Integration, & Fusion

Attributes Deficient

F-35 Lightning II

- VLO Stealth
- 5th Gen Attribute
- Advanced Legacy Attribute
- Weapons
- Tactics & Training
- Aerodynamic Performance
- Advanced Sensors, Integration, & Fusion

4th Generation Aircraft Lack All Required Attributes
Aerodynamic Performance

Air-Surface Weapons Load

**F-35A**

- Mission Radius (Nmi): 732

**Adv. 4th Gen**

- Mission Radius (Nmi): 577

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**Subsonic Acceleration (sec)**

**F-35A**

- Acceleration: [Bar Graph]

**Adv. 4th Gen**

- Acceleration: [Bar Graph]

---

**Transonic Acceleration (sec)**

**F-35A**

- Acceleration: [Bar Graph]

**Adv. 4th Gen**

- Acceleration: [Bar Graph]

---

**Turn Rate (deg/sec)**

**F-35A**

- Turn Rate: [Graph]

**Adv. 4th Gen**

- Turn Rate: [Graph]
Signature Comparisons

4th Gen

Mutual Kill

4th Generation Fighters Can Never Bridge the Signature Gap

F-35

5TH Gen

Blue First Look
First Shot
First Kill

VLO Stealth Must Be Designed-In From the Beginning
Advanced Stealth
Must Be Designed In

Internal Fuel Tanks
Fixed Array Radar
Engine Inlets
Full Line-of-Sight Blockage
Aligned Edges
Embedded Antennas
Reduced Signature Nozzles
Internal Stores Carriage

Fundamental 5TH Design Features Can Not Be Retrofitted

Curved Diverterless Inlets, “Buried” Engine
Composite Structure
Radar Absorbing Material (RAM)
Large Capacity Internal Fuel Tanks
Low-Observe Seams, RAM Seals
Low-Emission Radar and Avionics
Weapons Carried Internally
Aircraft Shaping and Edge Alignment
Embedded Antennas
Mission Systems
Target Detection, Track, Classification, and Identification

F-35 Is Self Supporting, Long Range, and All Weather-Capable
Multi-Spectral Sensors

- Synthetic Aperture Radar (SAR)
- Electronic Support Measures (ESM)
- Electro-Optical Targeting System (EOTS)
- Ground Moving Target Indicator (GMTI)
- Distributed Aperture System (DAS)
# Mission Systems

## Legend
- **Good**
- **Limited**
- **None**

## RF Band
- **Radar (Current)**
  - F-35: APG-81
  - Advanced 4th Gen: APG-81
  - Eurofighter: AESA
  - Rafale: AESA
  - Gripen: AESA
  - Su-30MKI: AESA
- **Radar (Planned)**
  - F-35: APG-81
  - Advanced 4th Gen: APG-81
  - Eurofighter: AESA
  - Rafale: None
  - Gripen: None
  - Su-30MKI: None
- **RWR/ESM**
  - F-35: Yes
  - Advanced 4th Gen: Yes
  - Eurofighter: None
  - Rafale: None
  - Gripen: None
  - Su-30MKI: None
- **High Gain EA**
  - F-35: Yes
  - Advanced 4th Gen: Yes
  - Eurofighter: None
  - Rafale: None
  - Gripen: None
  - Su-30MKI: None

## IR Band
- **IRST (Current)**
  - F-35: EOTS
  - Advanced 4th Gen: EOTS
  - Eurofighter: None
  - Rafale: None
  - Gripen: None
  - Su-30MKI: None
- **IRST (Planned)**
  - F-35: EOTS
  - Advanced 4th Gen: EOTS
  - Eurofighter: None
  - Rafale: None
  - Gripen: None
  - Su-30MKI: None
- **Targeting FLIR**
  - F-35: EOTS
  - Advanced 4th Gen: EOTS
  - Eurofighter: None
  - Rafale: None
  - Gripen: None
  - Su-30MKI: None
- **360° IR Threat Sensor**
  - F-35: DAS
  - Advanced 4th Gen: DAS
  - Eurofighter: None
  - Rafale: None
  - Gripen: None
  - Su-30MKI: None
- **IR Missile Warning**
  - F-35: Yes
  - Advanced 4th Gen: Yes
  - Eurofighter: None
  - Rafale: None
  - Gripen: None
  - Su-30MKI: None

## Additional Avionics
- **Legacy Datalink**
  - F-35: Yes
  - Advanced 4th Gen: Yes
  - Eurofighter: Yes
  - Rafale: No
  - Gripen: No
  - Su-30MKI: Yes
- **Advanced Datalink**
  - F-35: MADL
  - Advanced 4th Gen: Datalink
  - Eurofighter: MIDS
  - Rafale: MIDS
  - Gripen: MIDS
  - Su-30MKI: MIDS
- **ECM**
  - F-35: ECM
  - Advanced 4th Gen: ECM
  - Eurofighter: Spectra
  - Rafale: None
  - Gripen: None
  - Su-30MKI: SAP-518
- **Sensor Fusion**
  - F-35: None
  - Advanced 4th Gen: None
  - Eurofighter: None
  - Rafale: None
  - Gripen: None
  - Su-30MKI: None

## Notes
- **Mission Systems**
  - Good: 0-10 points
  - Limited: 11-20 points
  - None: 21-30 points

- **Legend**
  - Good: Green
  - Limited: Orange
  - None: Red

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NON EXPORT CONTROLLED INFORMATION – RELEASABLE TO FOREIGN PERSONS
F-35 Significantly Improves Effectiveness vs. Advanced Threats Compared to Legacy

**Electronic Attack**
- **Relative Power At Threat**: 1 (Adv. 4th Gen) vs. 10 (F-35)

**SEAD/DEAD**
- **Relative Capability**: 1 (Adv. 4th Gen) vs. >6 (F-35)

**Strike**
- **Relative Kills**: 1 (Adv. 4th Gen) vs. >5 (F-35)

**Air-to-Air**
- **Relative Loss Exchange Ratio**: 1 (Adv. 4th Gen) vs. >6 (F-35)

**ISR**
- **Relative Track Depth**: 1 (Traditional) vs. 2 (Standoff UAV) vs. >6 (F-35)

**IADs Survivability**
- **Targets Reached with No Exposure**: 1 (Adv. 4th Gen) vs. 4 (F-35)

F-35 Significantly Improves Effectiveness vs. Advanced Threats Compared to Legacy.
Multi-Role Scenario

Threat Capability - Reduced by VLO Stealth

Blue Nation

Red Nation
Global Recapitalization/Force Multiplier

- Replace 13 Platforms
- Replace 7 Platforms
- Relevant Throughout Spectrum of Operations
- Perform New Missions

- CTOL
- CV
- STOVL