

LOCKHEED MARTIN 

F-35 Lightning II

Range Requirements



Brad "Bones" McCoy
F-22 and F-35 Strategy and Assessment

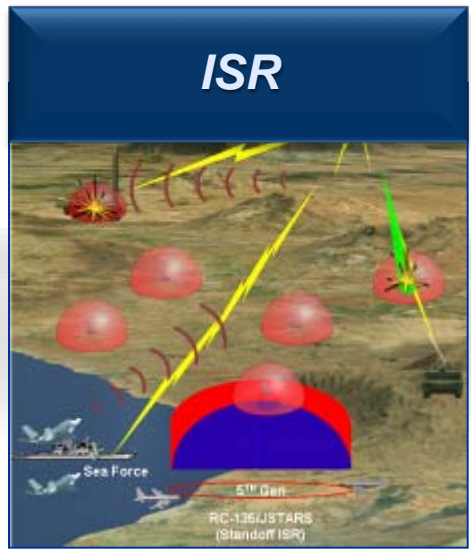




Multi-Mission Capability



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



F-35 Redefines Multi-Role Aircraft



Primary Air-Air Attributes

Relative Contribution to Effectiveness



Advanced Legacy Fighters



F-35 Lightning II

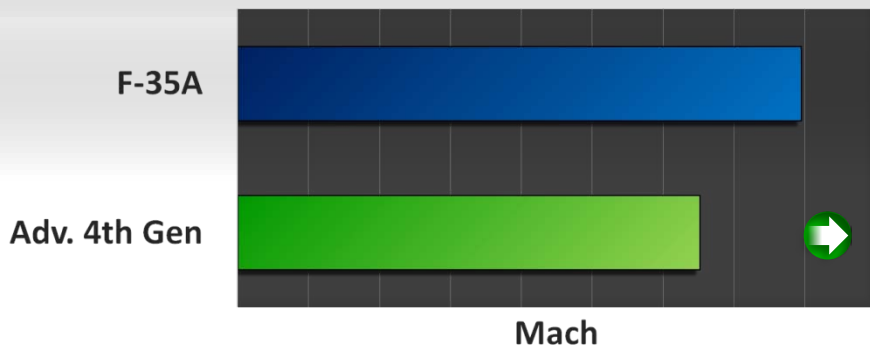
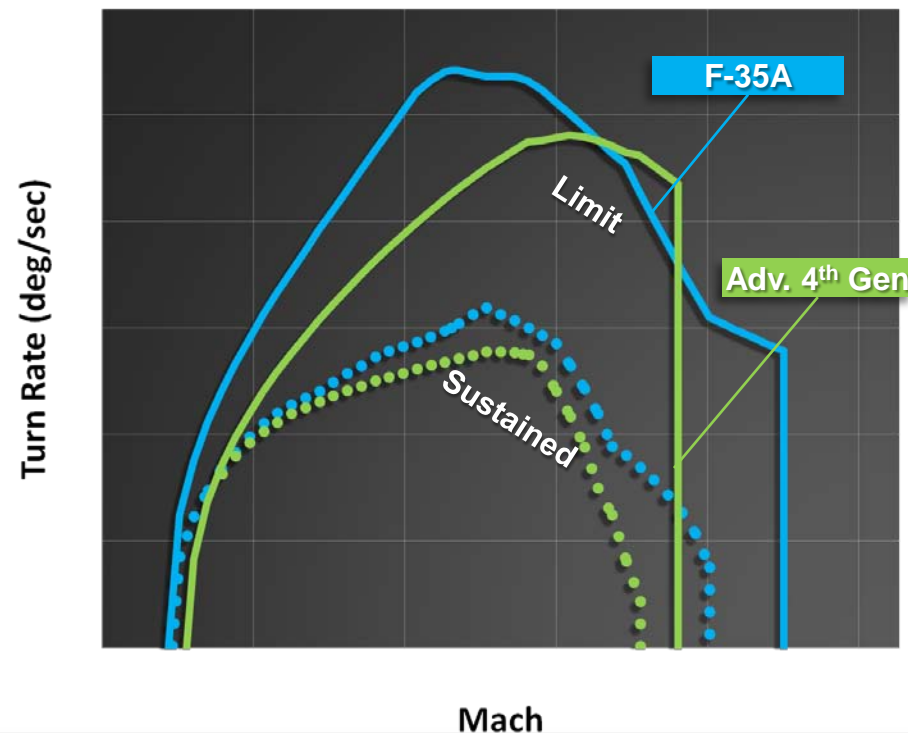
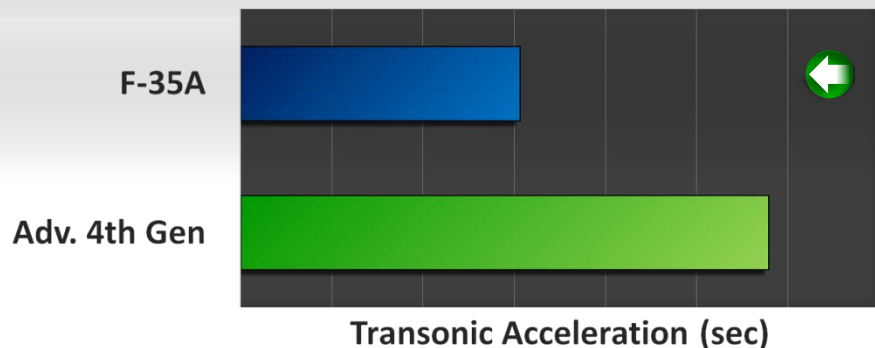
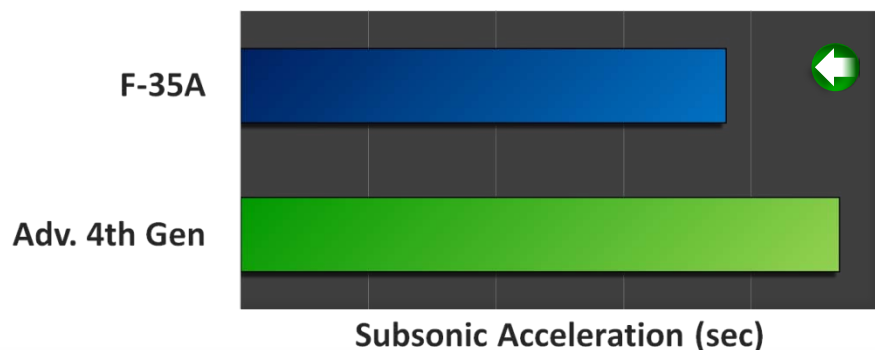
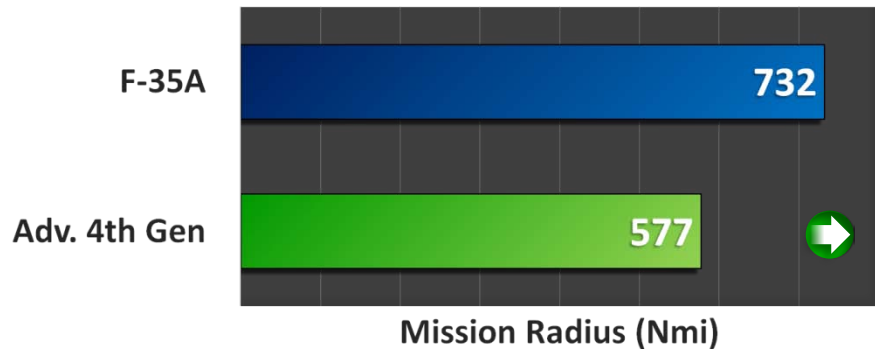


4th Generation Aircraft Lack All Required Attributes



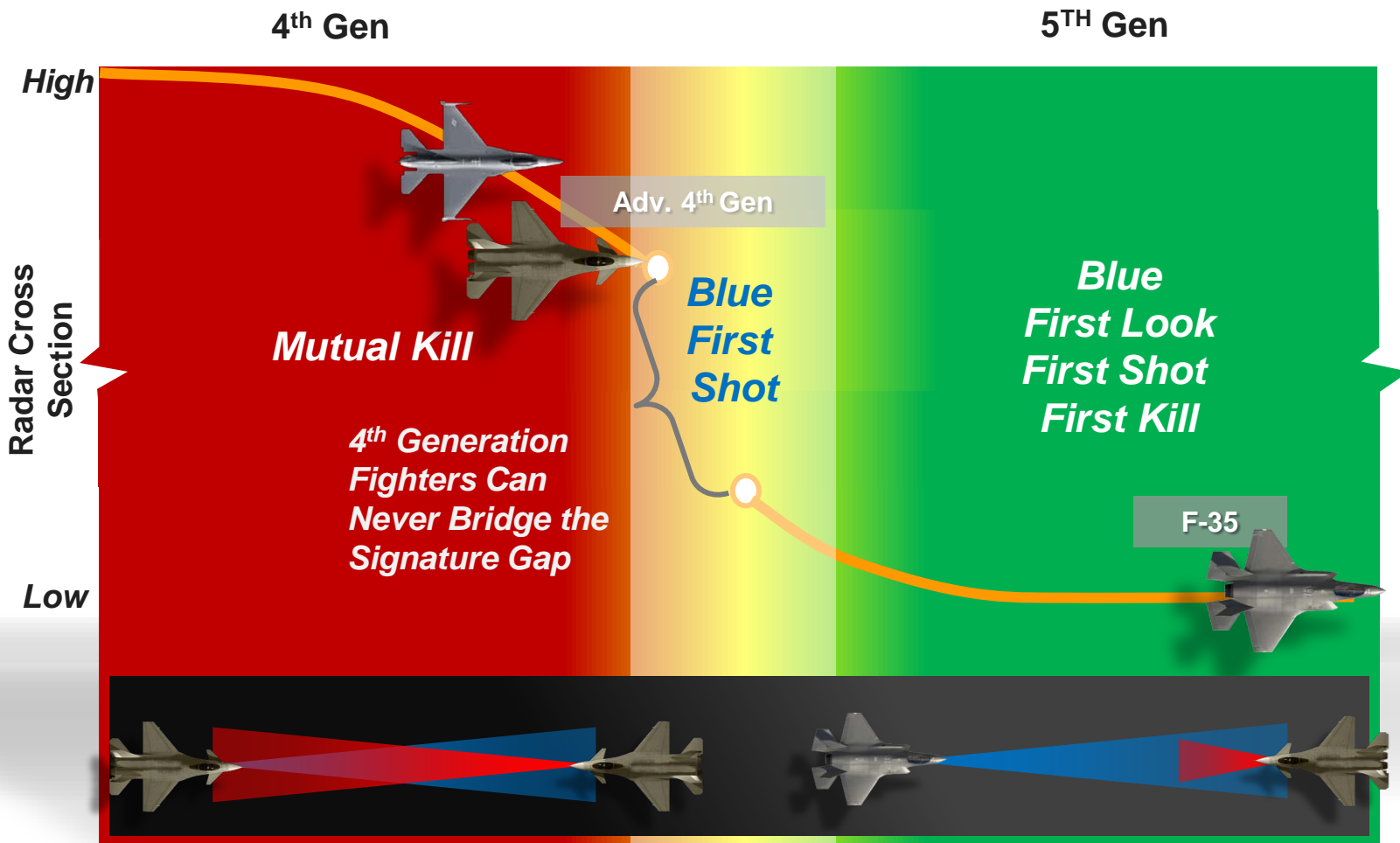
Aerodynamic Performance

Air-Surface Weapons Load





Signature Comparisons



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

*Curved Diverterless Inlets,
"Buried" Engine*

Composite Structure

*Radar Absorbing
Material (RAM)*

*Large Capacity Internal
Fuel Tanks*

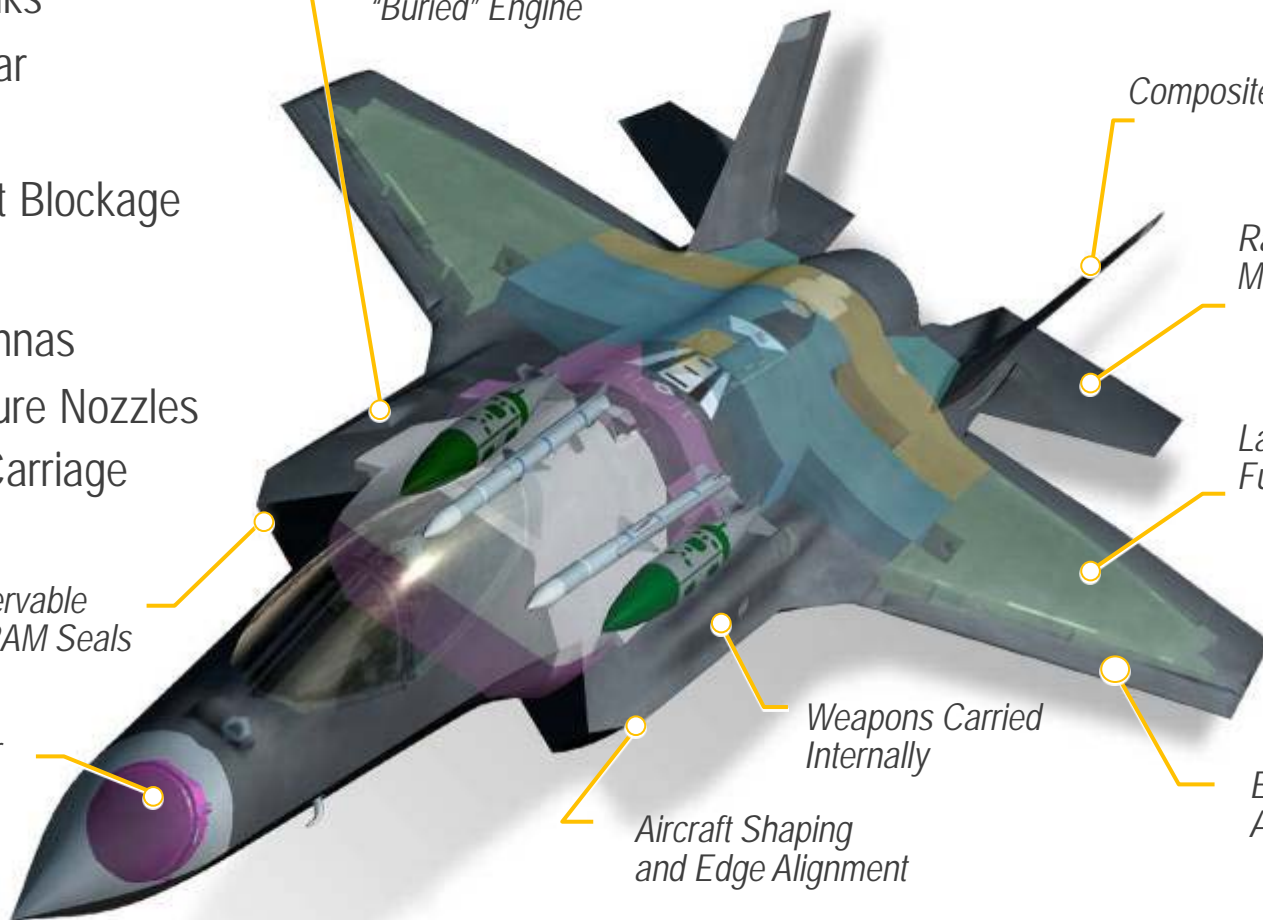
*Low Observable
Seams, RAM Seals*

*Weapons Carried
Internally*

*Embedded
Antennas*

*Low-Emission Radar
and Avionics*

*Aircraft Shaping
and Edge Alignment*

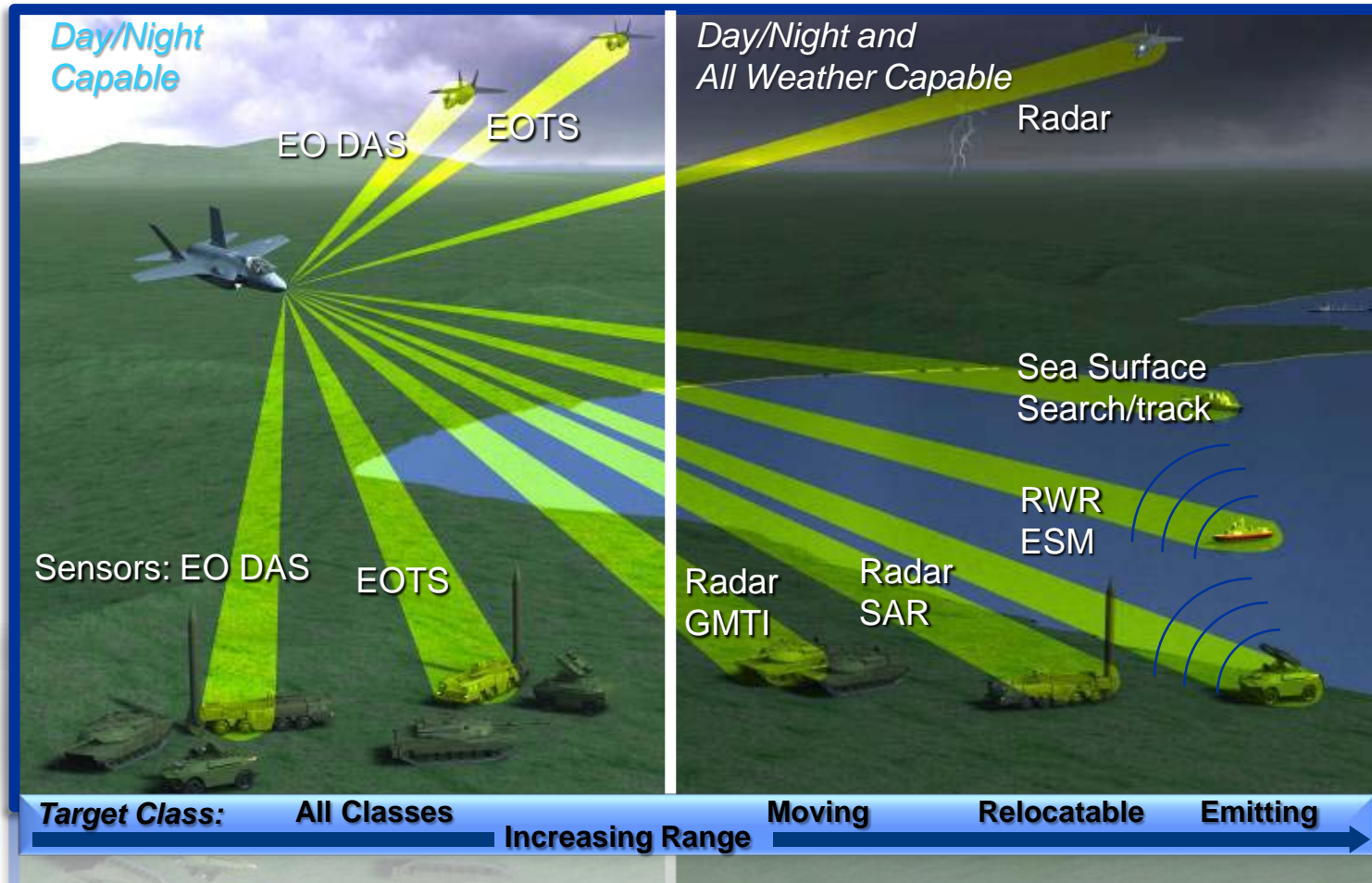


Fundamental 5TH Design Features Can Not Be Retrofitted



Mission Systems

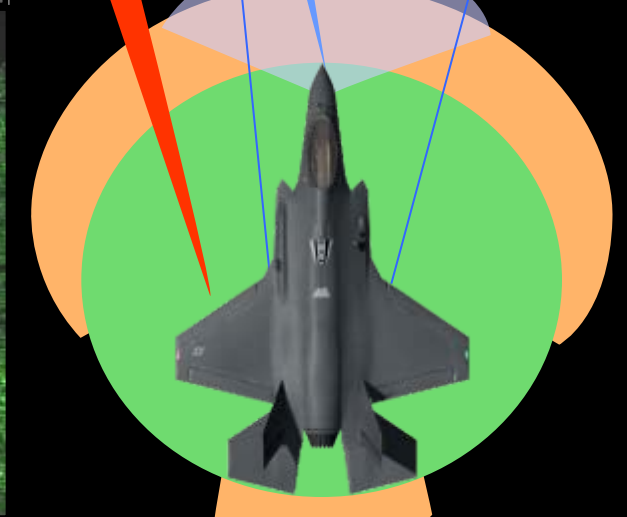
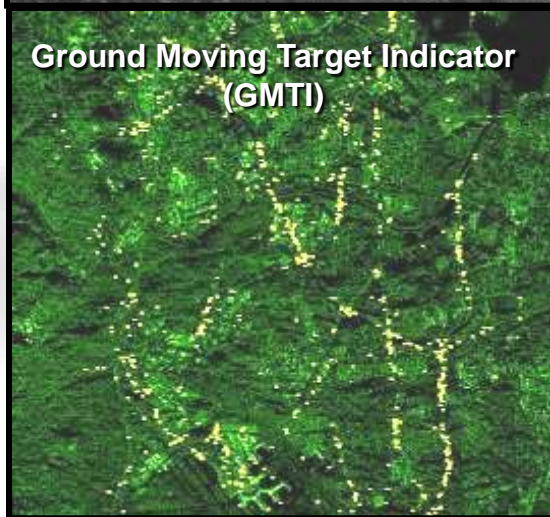
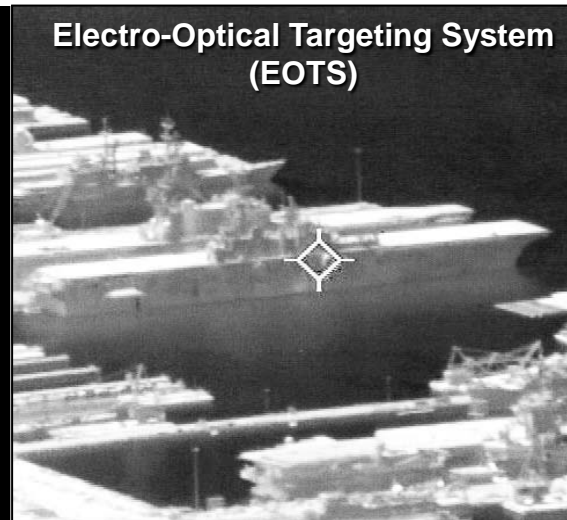
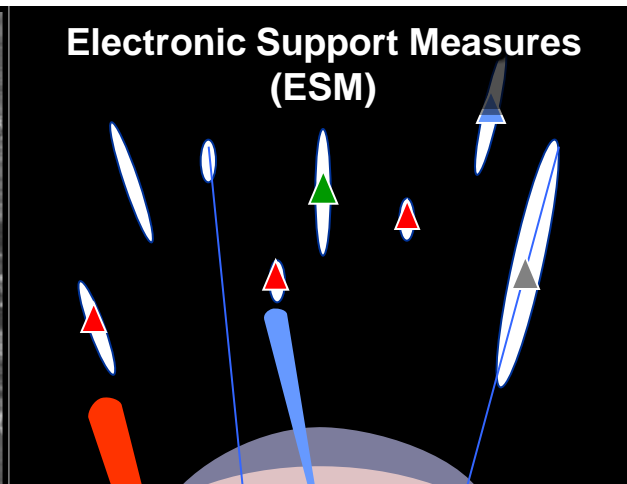
Target Detection, Track, Classification, and Identification



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



Multi-Spectral Sensors





Mission Systems



Legend

- Good
- Limited
- None

RF Band

- Radar (Current)
- Radar (Planned)
- RWR/ESM
- High Gain EA

F-35



APG-81

APG-81

RWR/ESM

Yes

Advanced 4th Gen



AESA

AESA

RWR/ESM

None

Eurofighter



ECR-90

CAESAR

DASS

None

Rafale



RBE-2

RBE-2 Active

Spectra

None

Gripen



PS-05/A Mk4

PS-05/A Mk5

EWS-39

None

Su-30MKI



N011M

N011M+

Tarang-30 MkII

None

IR Band

- IRST (Current)
- IRST (Planned)
- Targeting FLIR
- 360° IR Threat Sensor
- IR Missile Warning

EOTS

EOTS

EOTS

DAS

Yes

None

IRST

Pod for AS

None

None

PIRATE

PIRATE

Pod for AS

None

DASS

OSF

Follow-On

Pod for AS

None

MWR

None

OTIS

Pod for AS

None

EWS-39

OLS-30

OLS-30

?

None

?

Additional Avionics

- Legacy Datalink
- Advanced Datalink
- ECM
- Sensor Fusion

Yes

MADL

ECM

Datalink

No

ECM

MIDS

No

ECM

MIDS

No

Spectra

MIDS

No

EWS-39

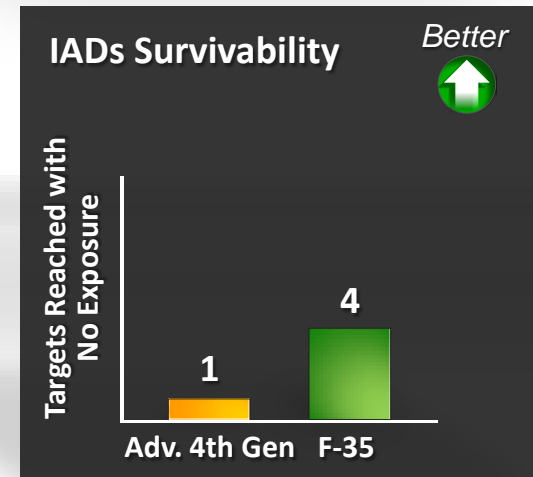
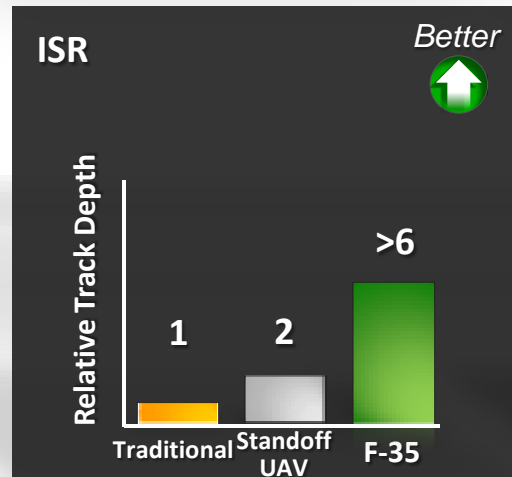
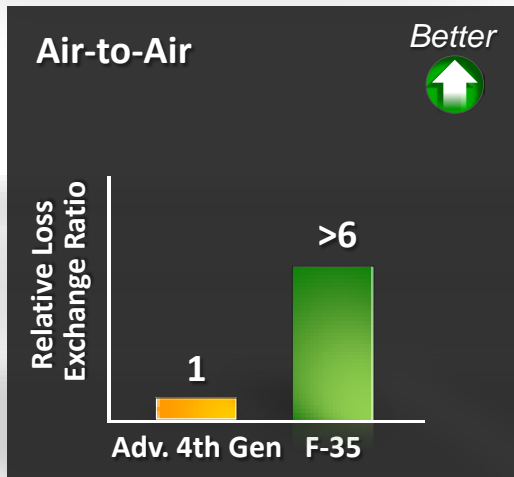
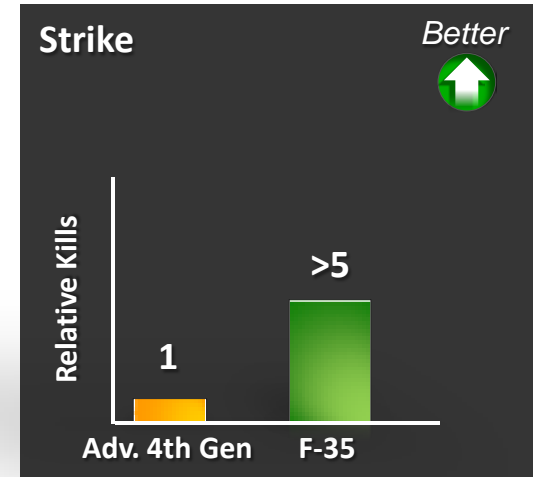
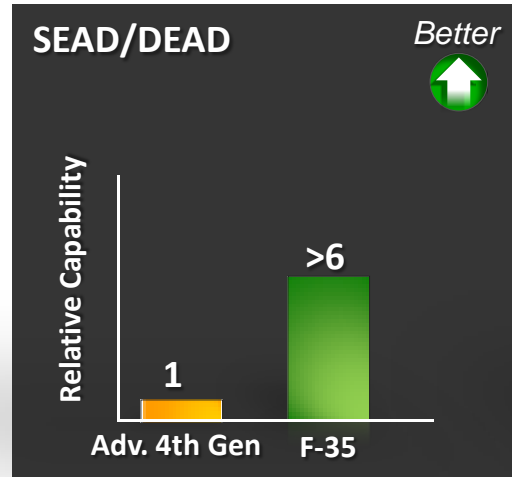
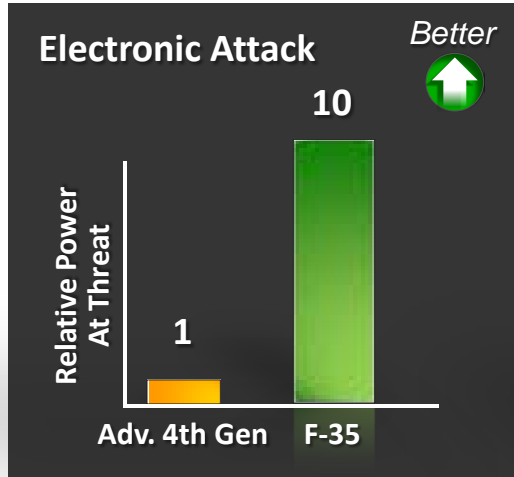
Datalink

No

SAP-518

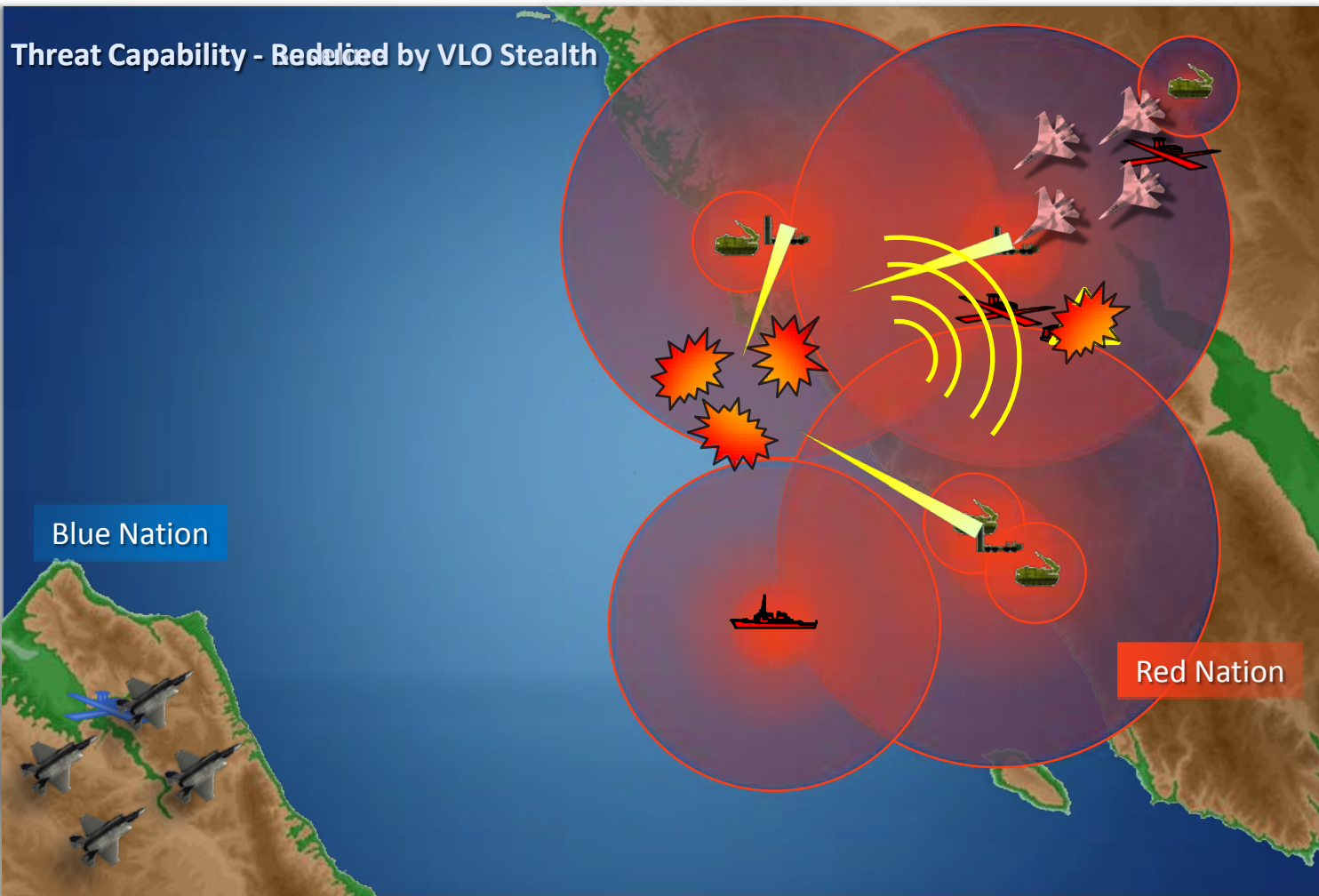


F-35 Significantly Improves Effectiveness vs. Advanced Threats Compared to Legacy





Multi-Role Scenario





Global Recapitalization/Force Multiplier



Replace
7 Platforms

Relevant Throughout
Spectrum of Operations

Perform
New Missions

