Zenmuse XT2 Introduction

UAS

New XT2

Two products in one package

- XT2 Camera Visual
  - 1/1.7” CMOS
  - 12MP
  - 4K video

- XT2 Camera Thermal
  - Advanced Radiometric Thermal Sensor
  - <50 mk @ f/1.0
  - 30 Hz or 9 Hz
  - 640x512 or 33
  - Multiple FOV’s

336x256	**640x512**
High Gain -25° to 100°C Low Gain -40° to 550°C	High Gain -25° to 135°C Low Gain -40° to 550°C

Zenmuse XT2 - Specs

IP44 Rated

Weight: 588g

Weight: 629g (25mm)

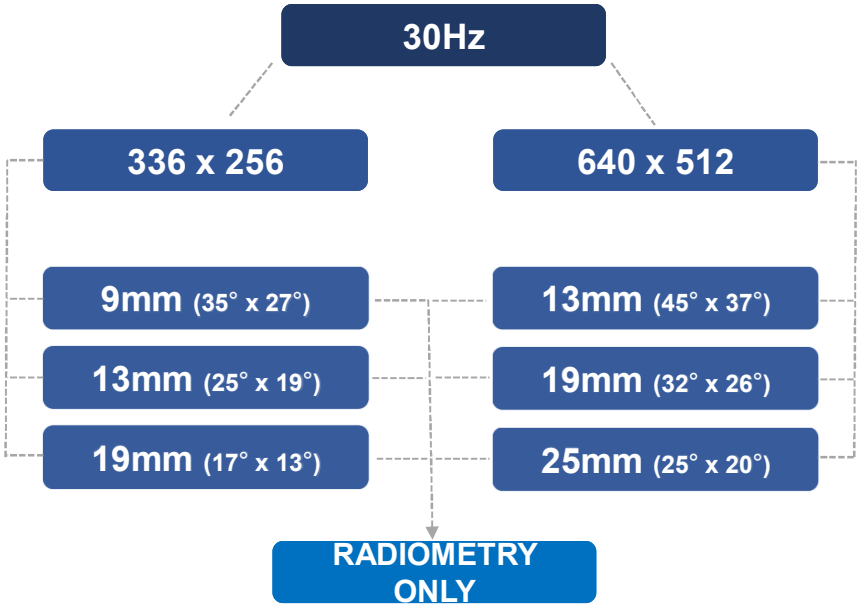
FRAMERATES

RESOLUTIONS

LENSES

RADIOMETRY

6 VARIATIONS

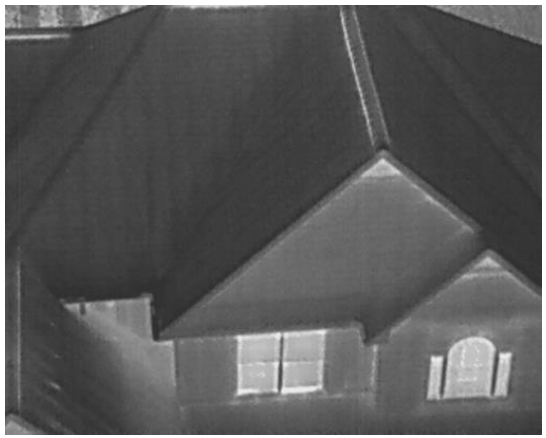


336 x 256 Images at 200ft (61m)

9MM

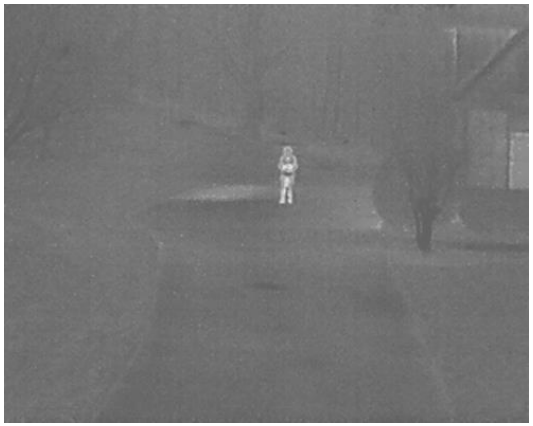
13MM

19MM



336 x 256 Person at 100ft (30.5m)

9MM LENS



13MM LENS

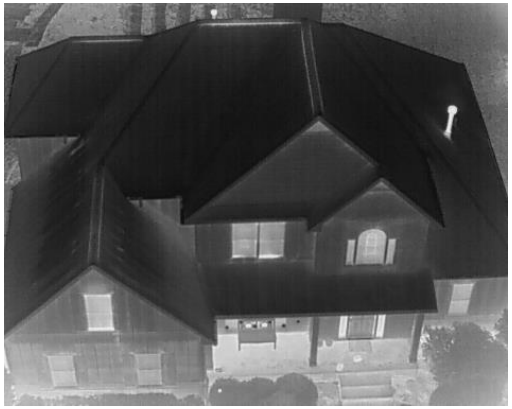
19MM LENS

640 x 512 Images at 200ft (61m)

13MM

19MM

25MM



640 x 512 Person at 100ft (30.5m)

13MM

19MM

25MM

Visual Camera

Visual Camera is identical in both the 336 and 640 XT2's

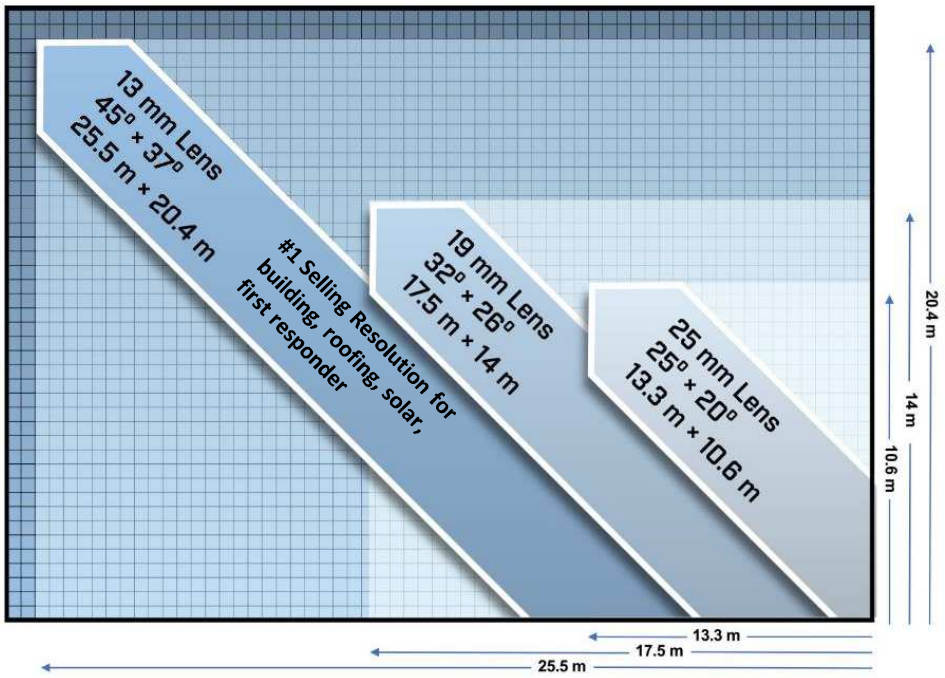
336 x 256 XT2 Visual

640 x 512 XT2 Visual

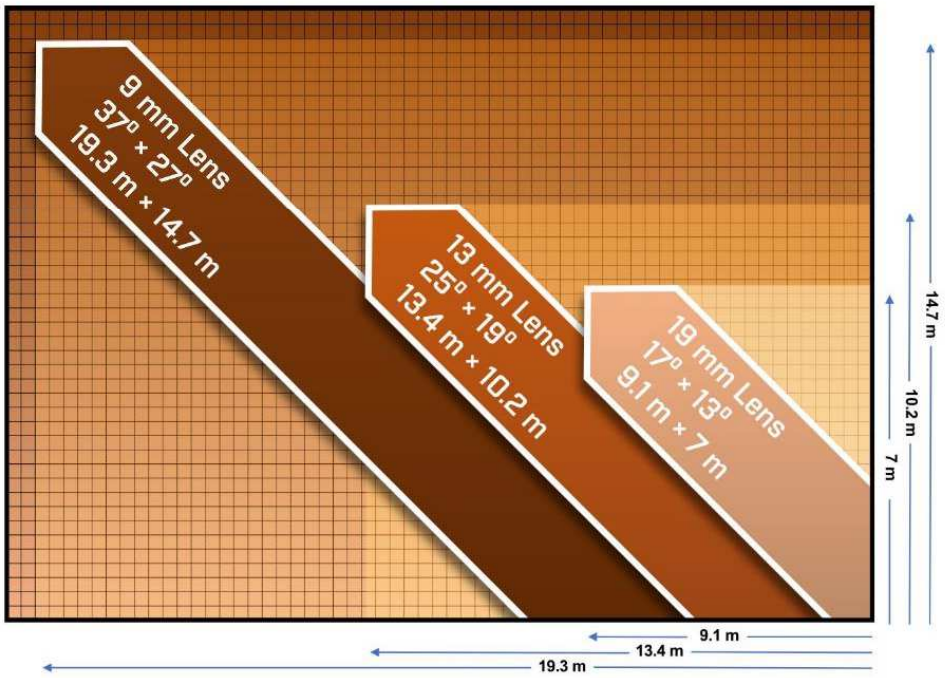
XT2 IR - Field of View

AT 30.5 m Distance

640 x 512 pixels



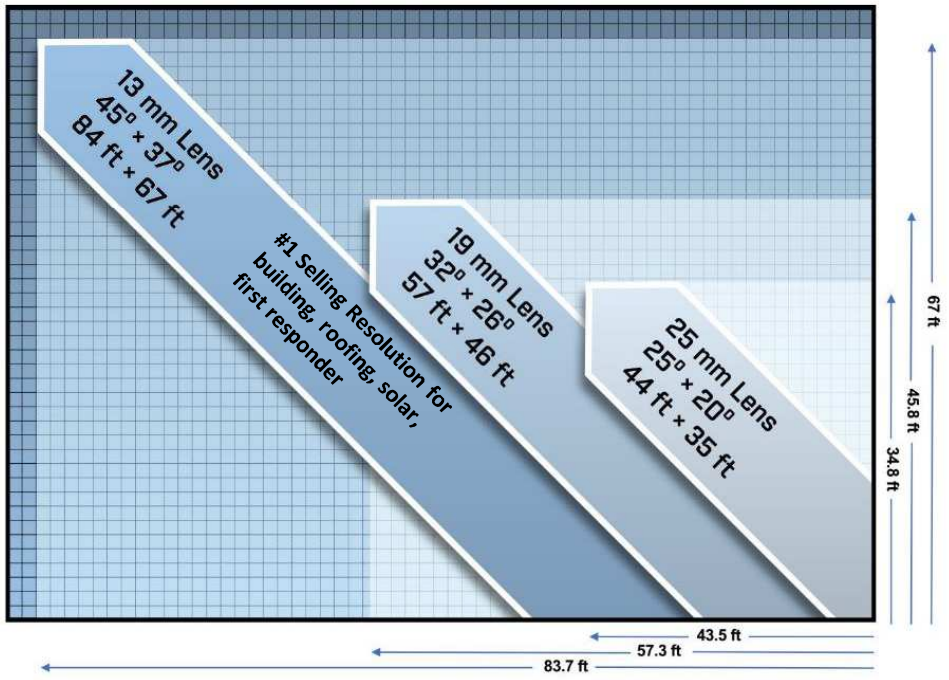
336 x 256 pixels



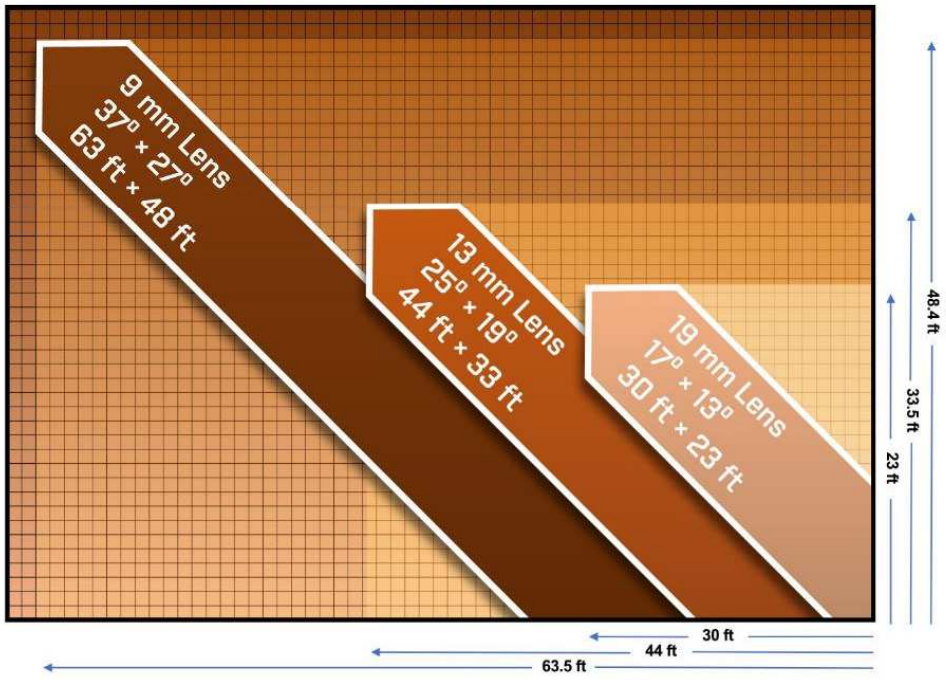
XT2 IR - Field of View

AT 100 ft Distance

640 x 512 pixels



336 x 256 pixels



XT2 Intelligent Features

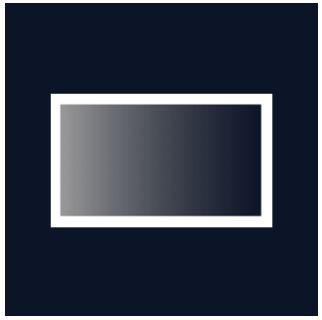
Temp
Alarm

Heat
Track

NEW
FLIR MSX

Temp
Check

NEW
Quick Track



Isotherms

Color
Palettes

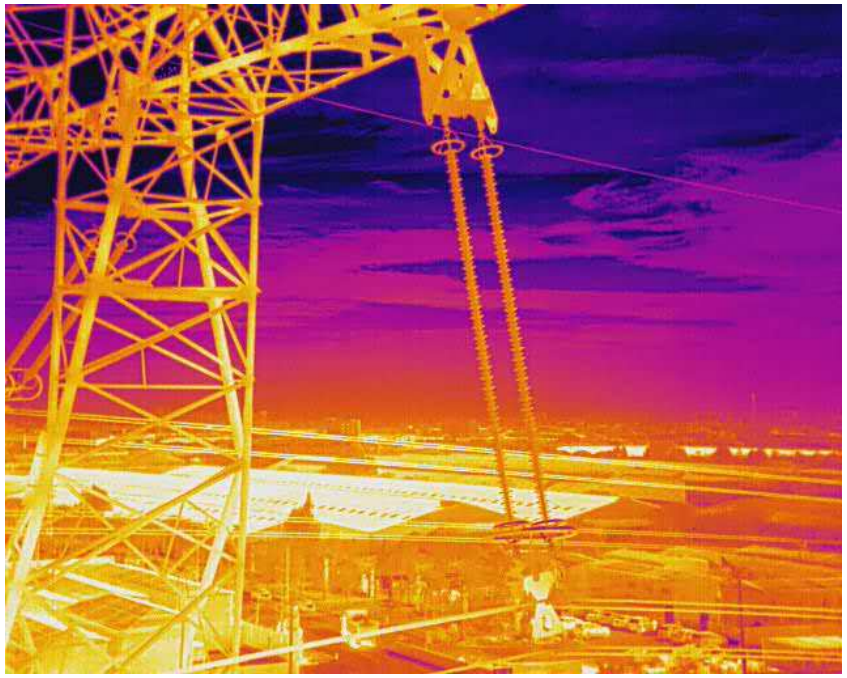
NEW
PiP Options

ZENMUSE XT2

MSX from a DRONE!

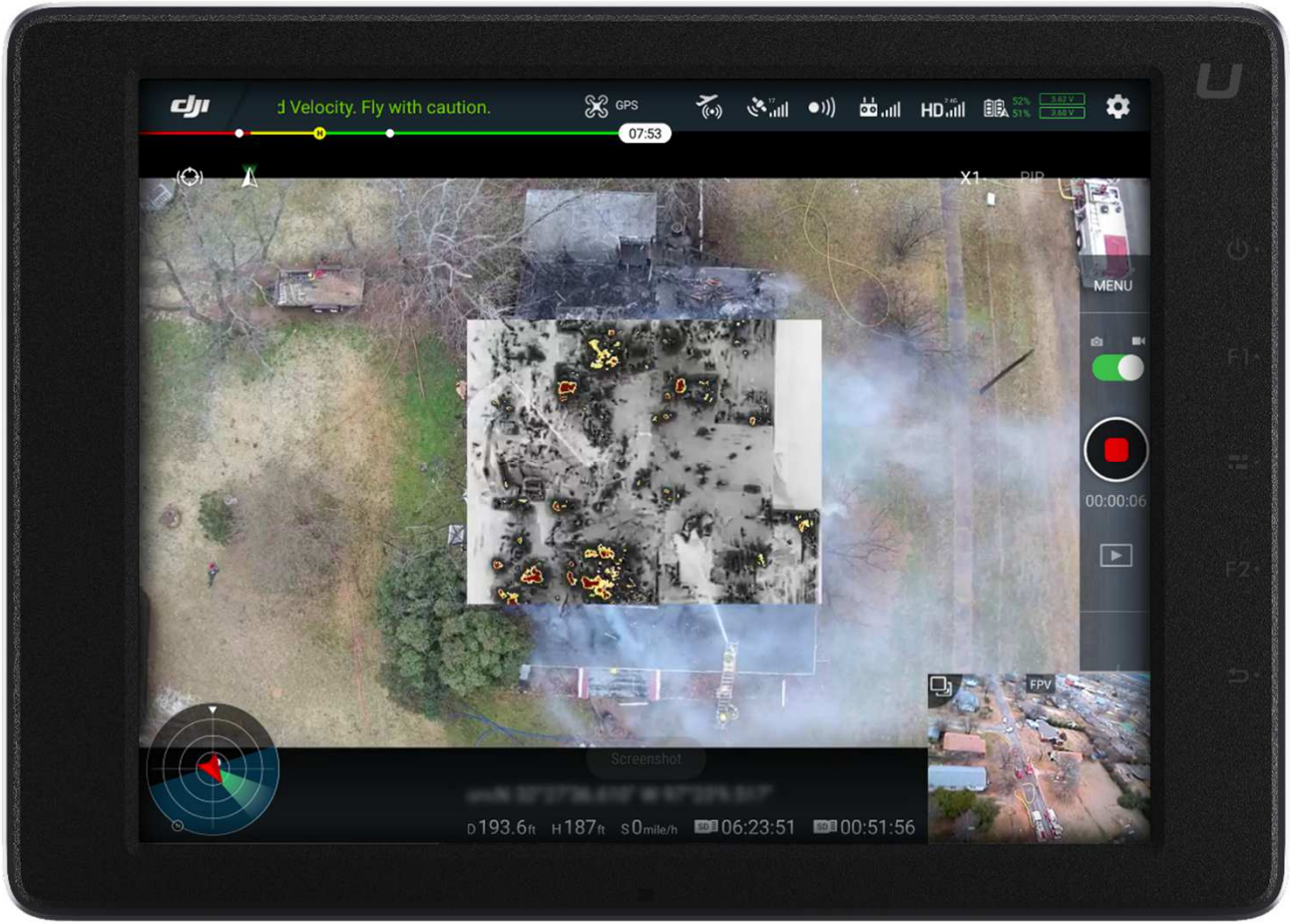
Zenmuse XT2

Visual and Thermal



ZENMUSE XT2

Picture in Picture



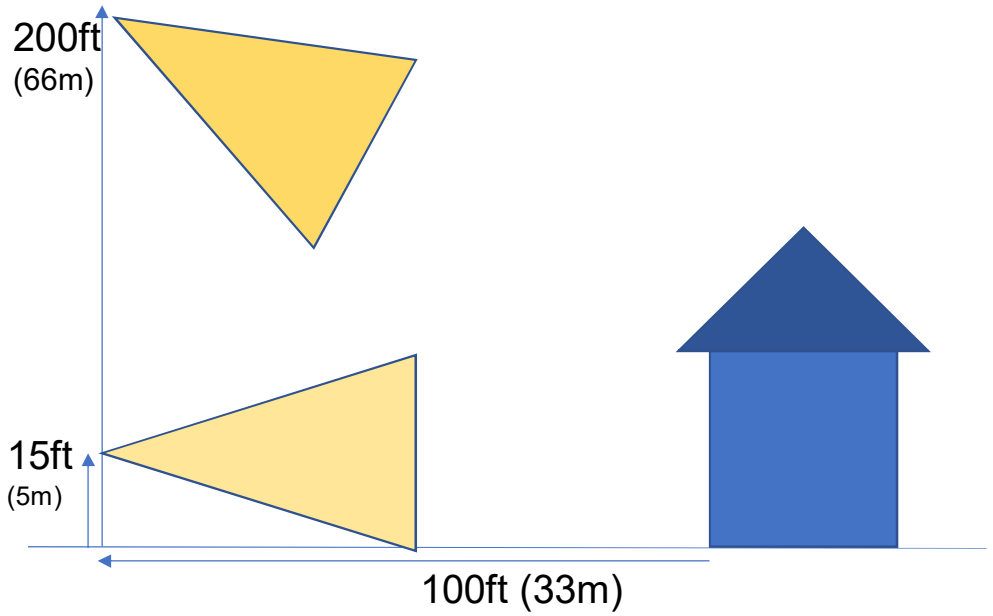
IN DEPTH IMAGE COMPARISONS

XT2 Camera Comparison

336 VS 640 XT2

FOV Comparison

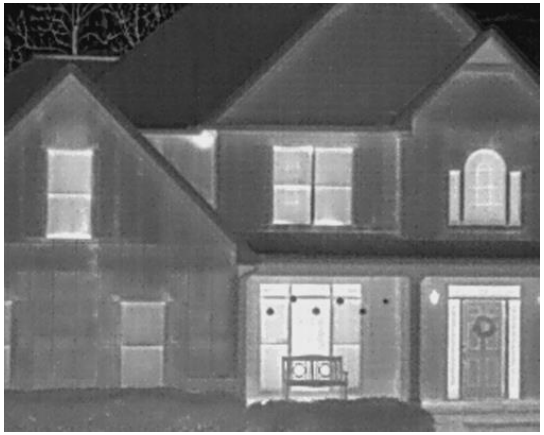
The following images represent two views of a house from the same relative positions to demonstrate field of view with each camera



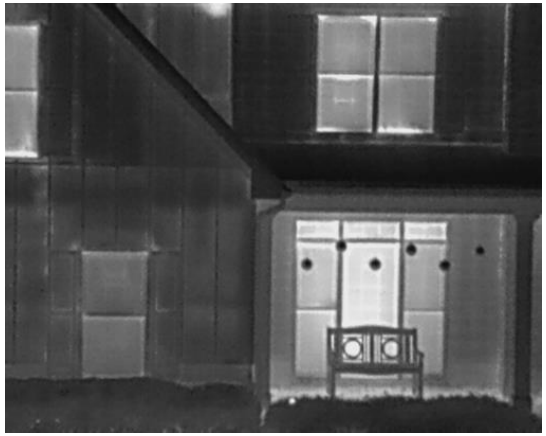
100ft (30.5 meters) to target straight on

XT2 336 X 256 9MM

XT2 336 X 256 13MM



XT2 336 X 256 19MM

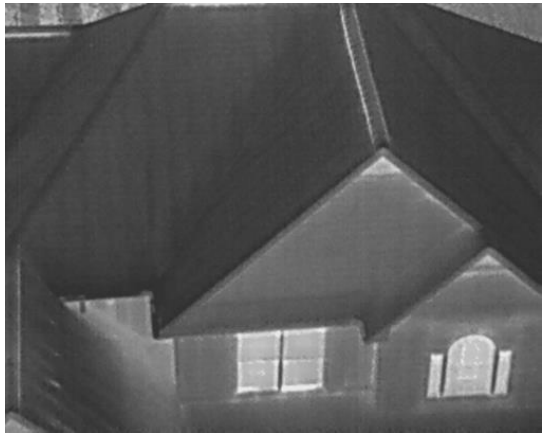


200ft (61 Meters) AGL looking down

XT2 336 X 256 9MM

XT2 336 X 256 13MM

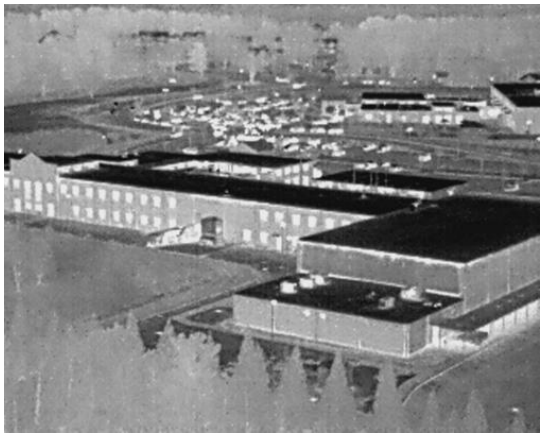
XT2 336 X 256 19MM



~650 ft (200m) to front corner of school at 200ft (61m) AGL

XT2 336 X 256 9MM

XT2 336 X 256 13MM



XT2 336 X 256 19MM

100ft (30.5m)to target straight on

XT2 640 13MM

XT2 640 19MM

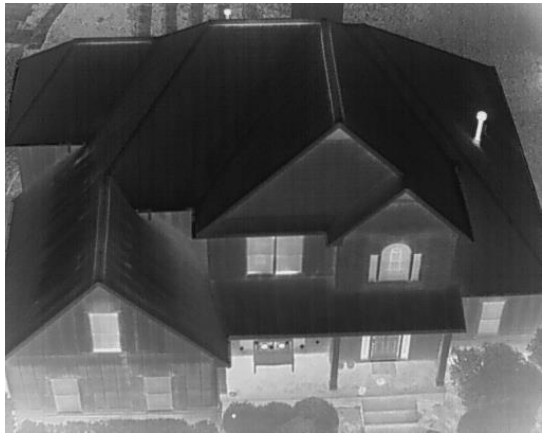
XT2 640 25MM

200ft (61m)AGL looking down

XT2 640 13MM

XT2 640 19MM

XT2 640 25MM



~650 ft (200m) to front corner of school at 200ft (61m) AGL

XT2 640 13MM

XT2 640 19MM

XT2 640 25MM

FOV Comparison with Identical Spot Size Ratio

Both cameras deliver the same resolution per pixel but 640 x 512 provides 3.8X more data in each image. If you were flying a solar field or roof, with the 336 x 256, you'd have to take 4X the images and fly much longer over a smaller pattern to collect the same data as the 640 x 512

336 x 256 13mm- Spot size ratio 765

640 x 512 13mm- Spot size ratio 765

The other side of the story-

What if we just want the house in the image? Then the 640 delivers 3.8x more pixels on the house than the 336 with similar effective FOV. Both images were captured from the same location

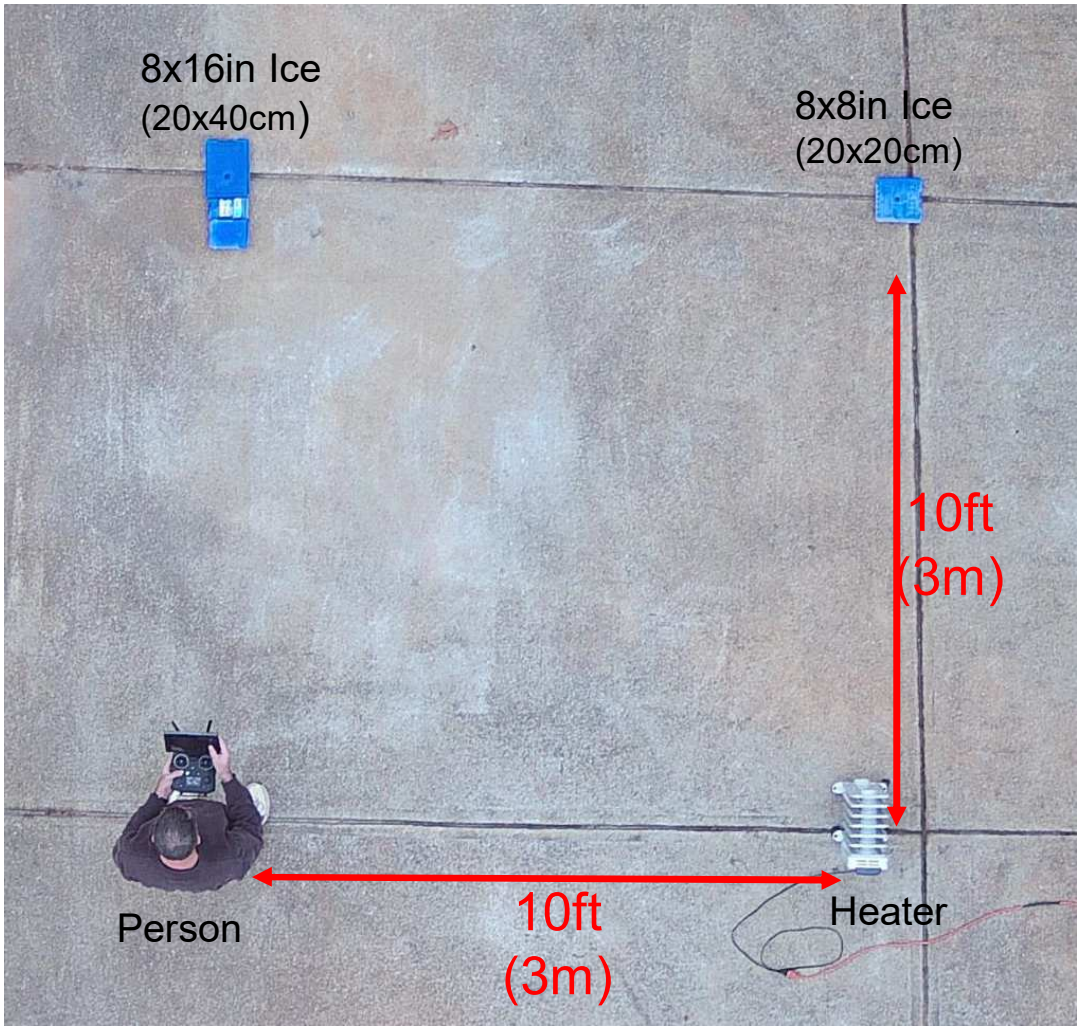
336 x 256 9mm

640 x 512 19mm

XT2 IR CAMERAS

Experiment-Visibility of hot/cold items from each XT2 at 50ft (15m), 100ft (30m), 200ft (61m), 350ft (107m) AGL

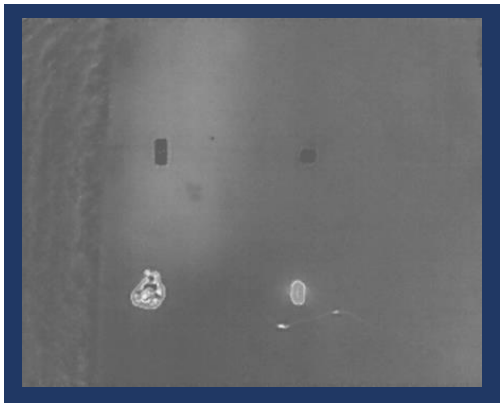
Note: All images are unaltered raw pictures directly from the SD card in the XT2



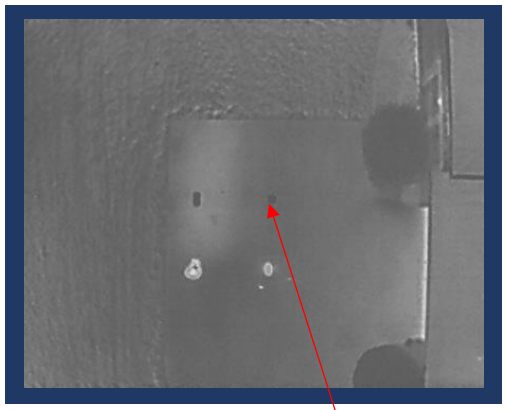
Ambient Temperature 38F, (3C) no wind

336 x 256 9mm

50ft (15m) AGL

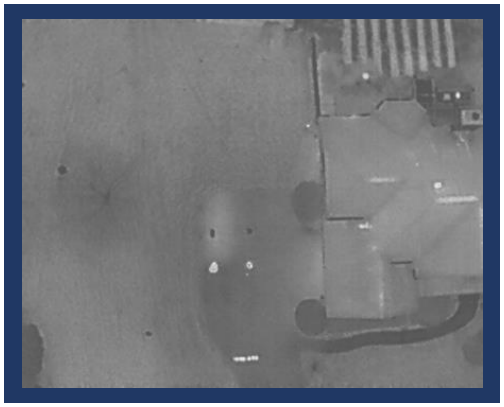


100ft (30m)AGL



5 x 5 pixels on target

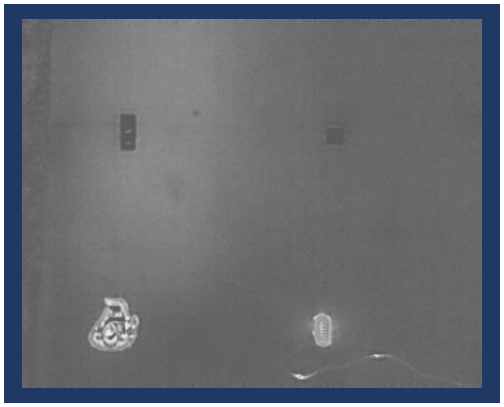
200ft (61m) AGL



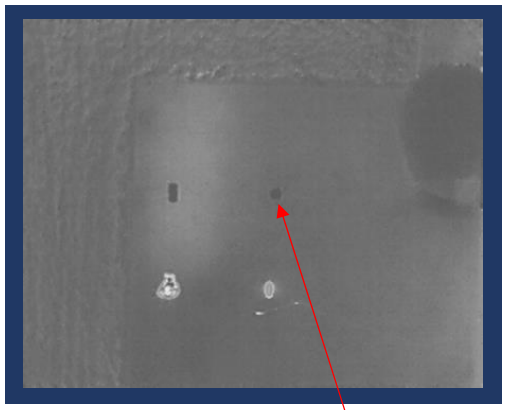
350ft (107m) AGL

336 x 256 13mm

50ft (15m) AGL

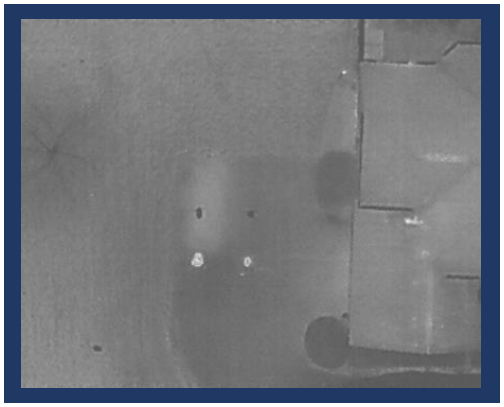


100ft (30m)AGL

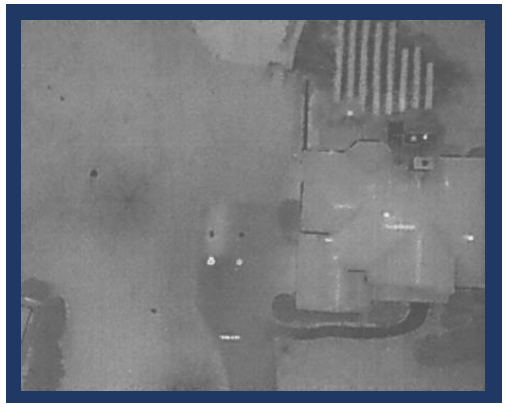


6 x 6 pixels on target

200ft (61m) AGL

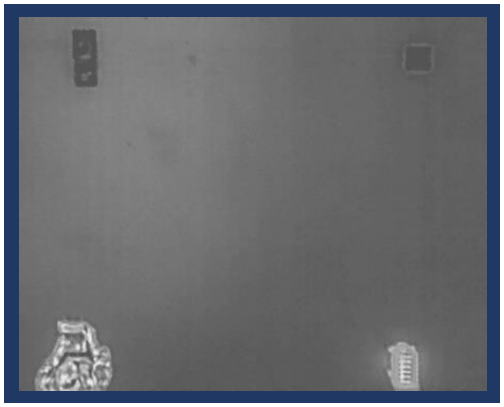


350ft (107m) AGL

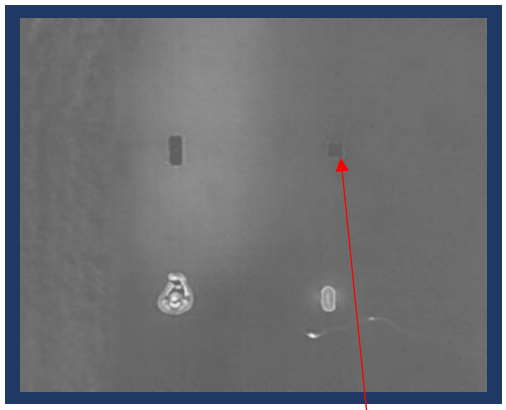


336 x 256 19mm

50ft (15m) AGL

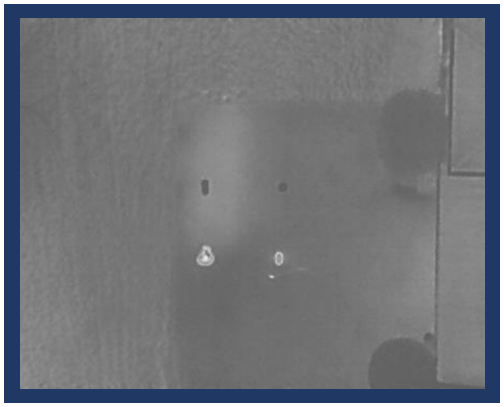


100ft (30m)AGL

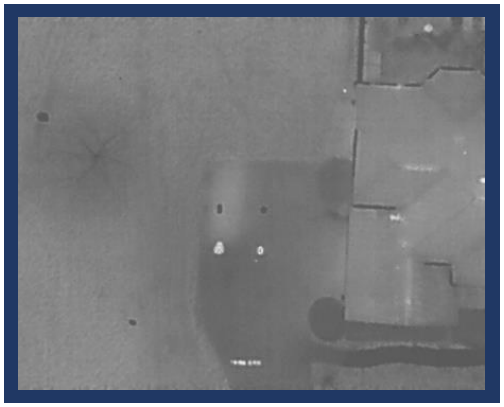


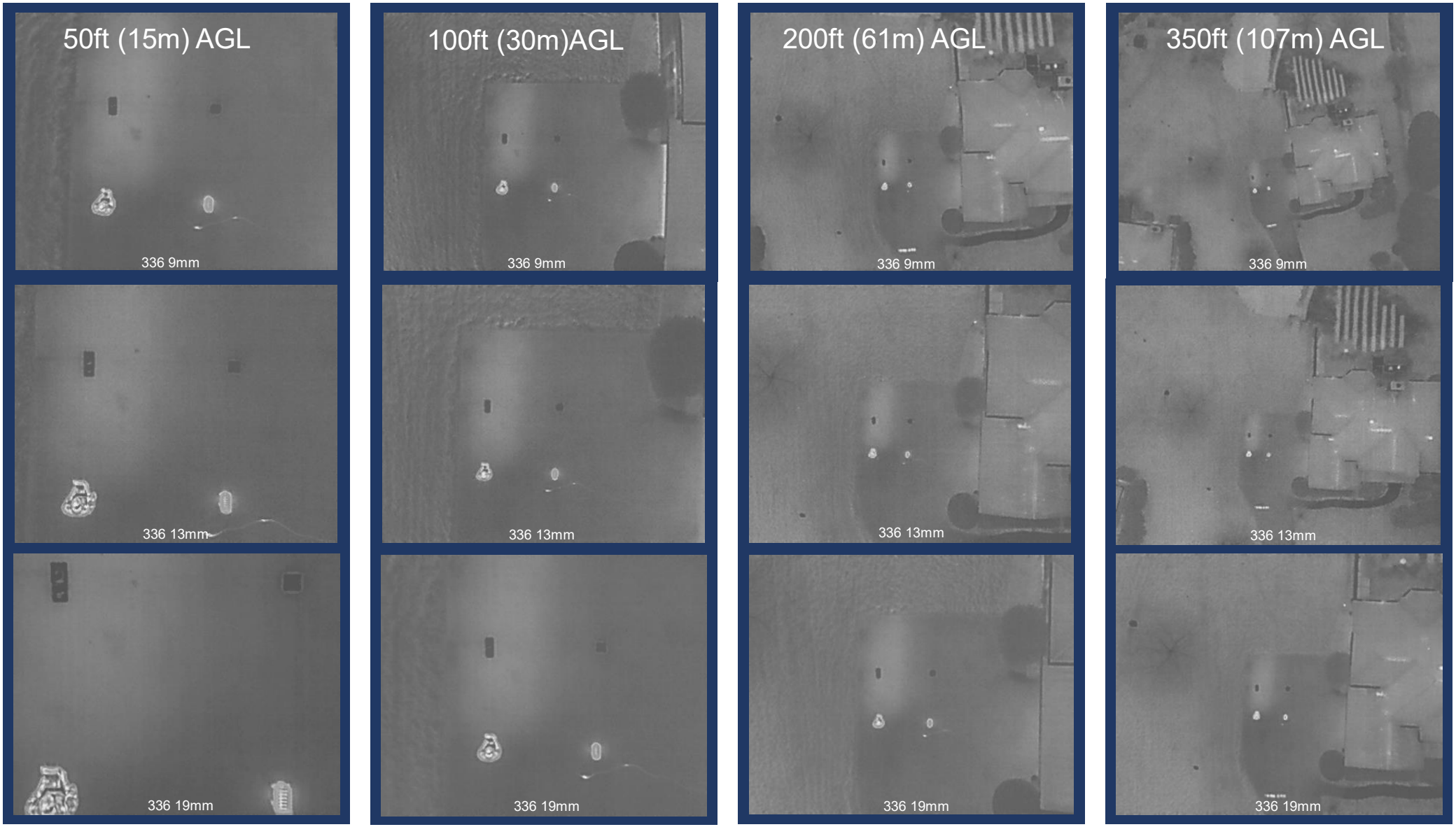
7 x 7 pixels on target

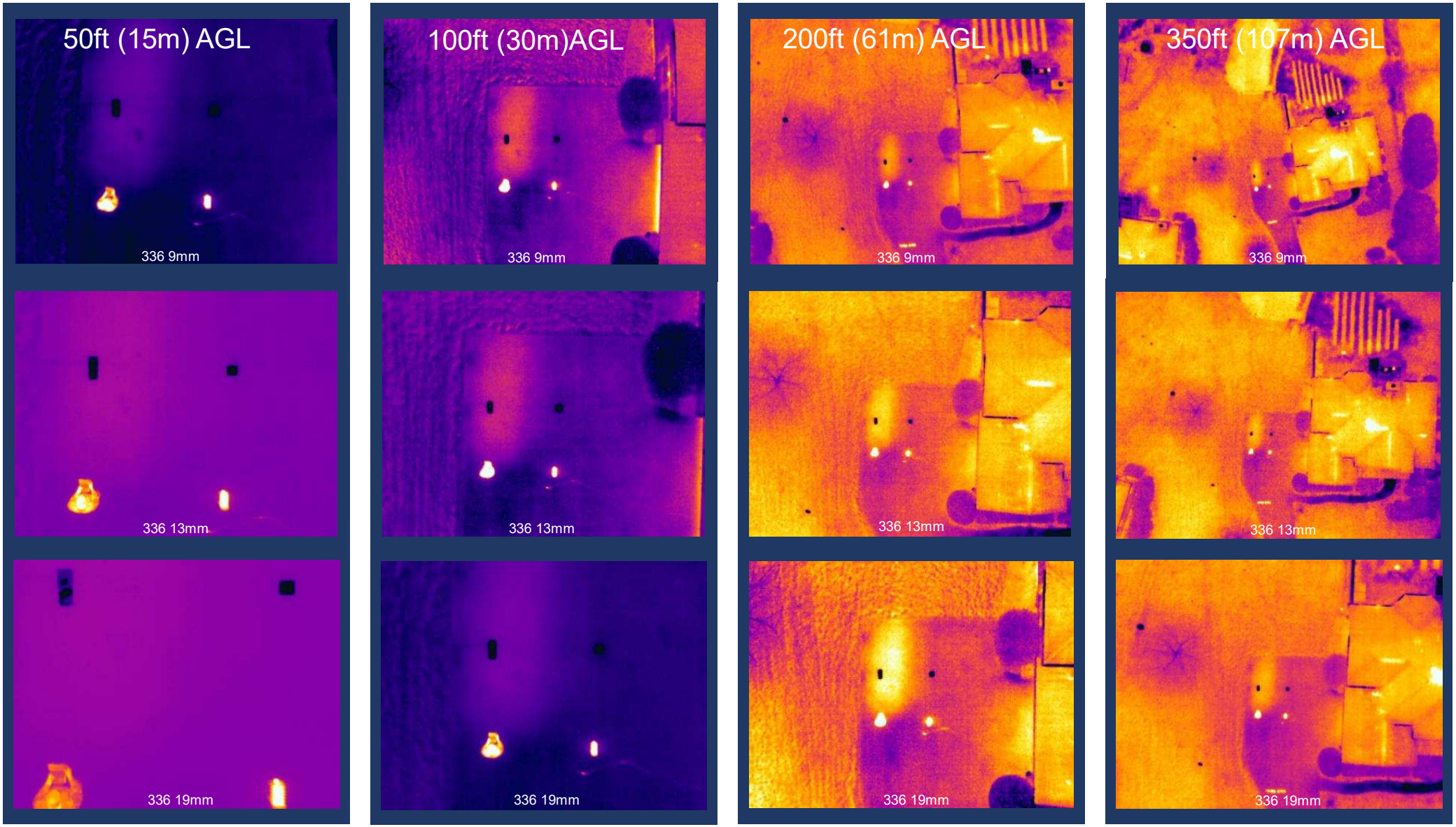
200ft (61m) AGL



350ft (107m) AGL



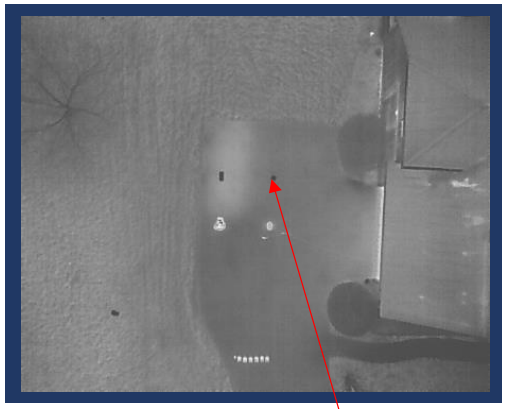

50ft (15m) AGL
100ft (30m)AGL
200ft (61m) AGL
350ft (107m) AGL
336 9mm
336 9mm
336 9mm
336 9mm
336 13mm
336 13mm
336 13mm
336 13mm
336 19mm
336 19mm
336 19mm
336 19mm


50ft (15m) AGL
100ft (30m)AGL
200ft (61m) AGL
350ft (107m) AGL
336 9mm
336 9mm
336 9mm
336 9mm
336 13mm
336 13mm
336 13mm
336 13mm
336 19mm
336 19mm
336 19mm
336 19mm

640 x 512 13mm

50ft (15m) AGL

100ft (30m)AGL



5 x 5 pixels on target

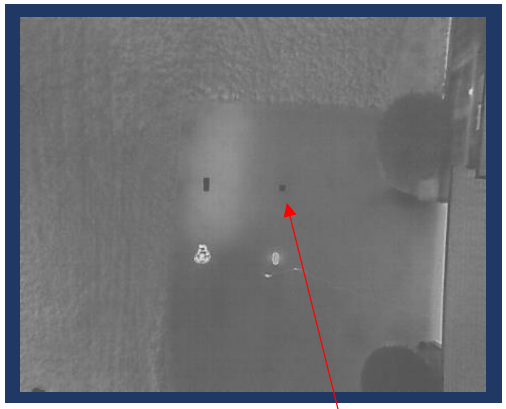
200ft (61m) AGL

350ft (107m) AGL

640 x 512 19mm

50ft (15m) AGL

100ft (30m)AGL



7 x 7 pixels on target

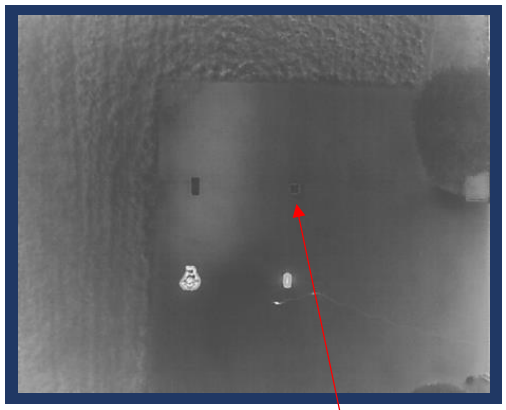
200ft (61m) AGL

350ft (107m) AGL

640 x 512 25mm

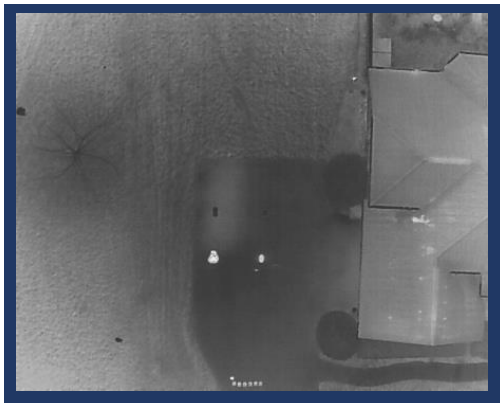
50ft (15m) AGL

100ft (30m)AGL

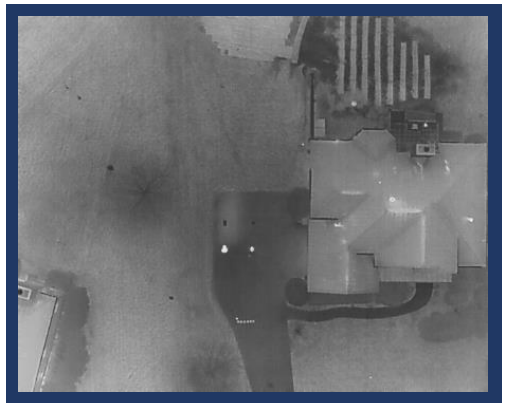


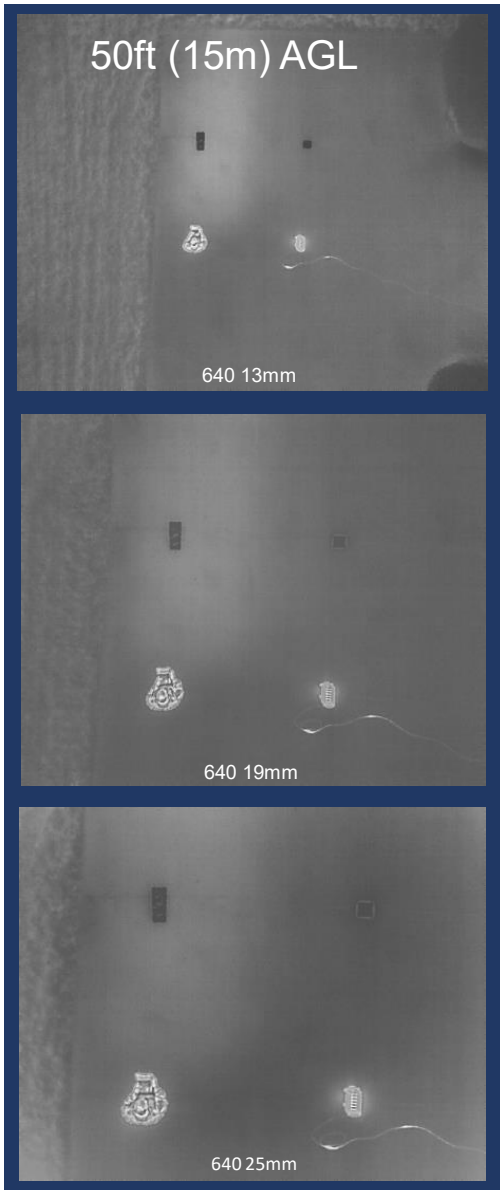
9 x 9 pixels on target

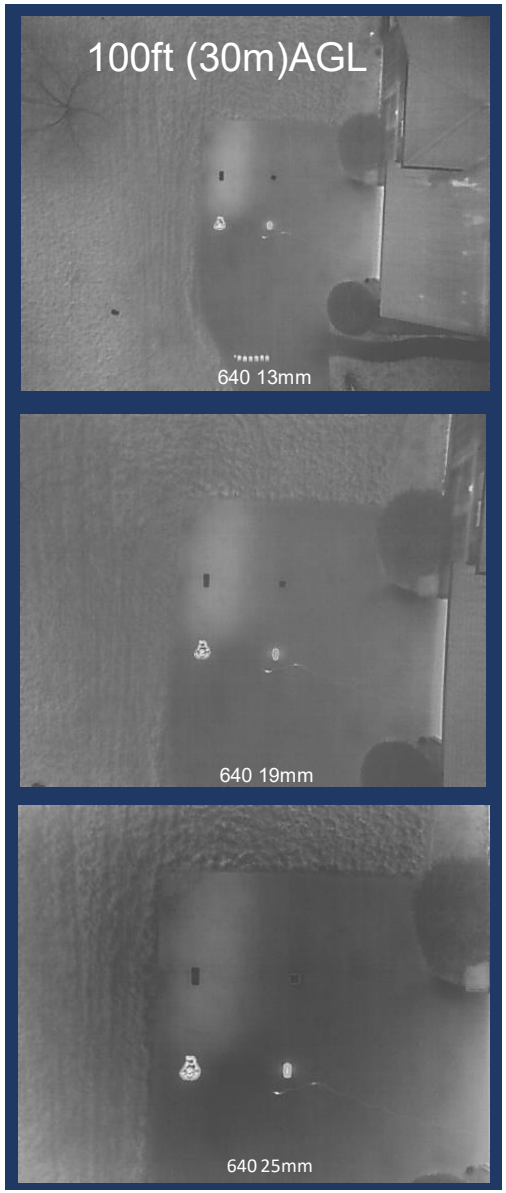
200ft (61m) AGL

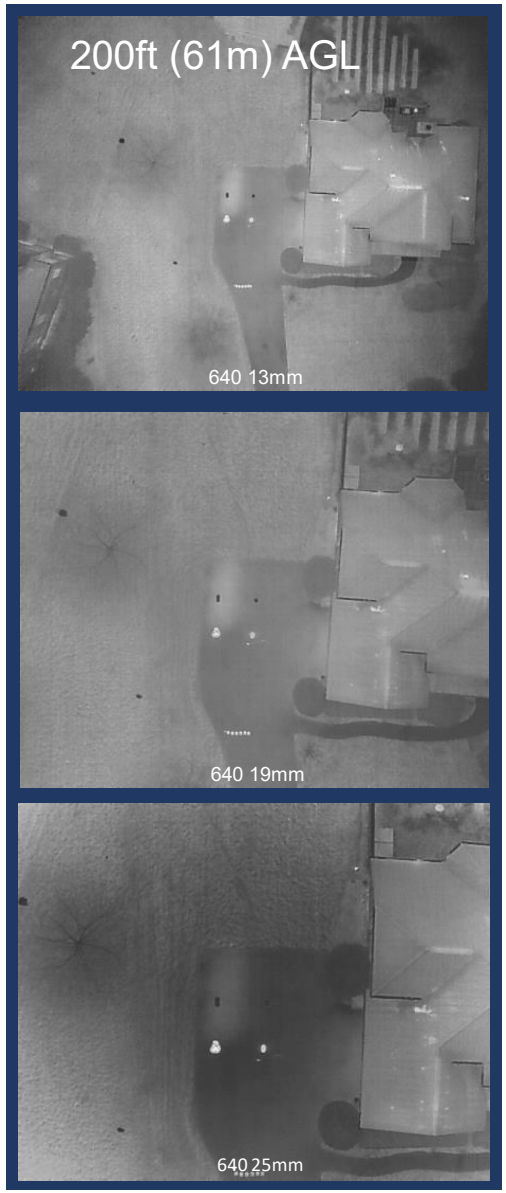


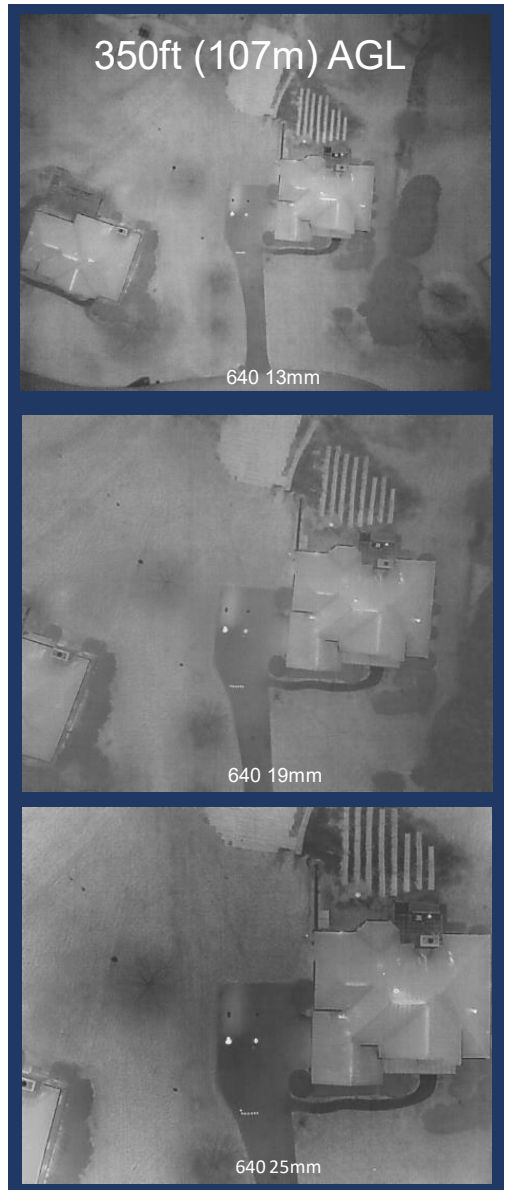
350ft (107m) AGL



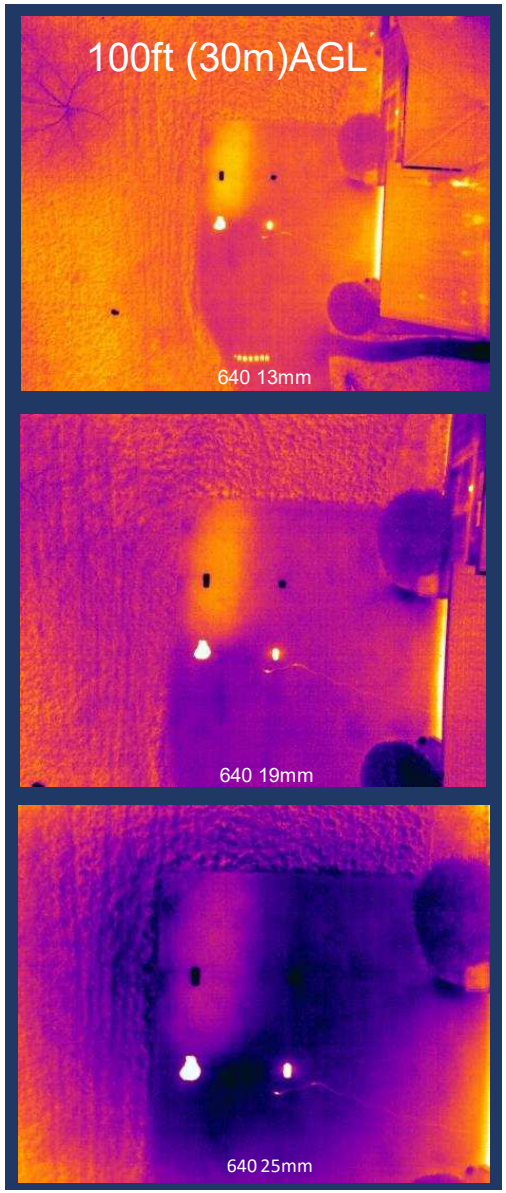

50ft (15m) AGL
640 13mm
640 19mm
640 25mm

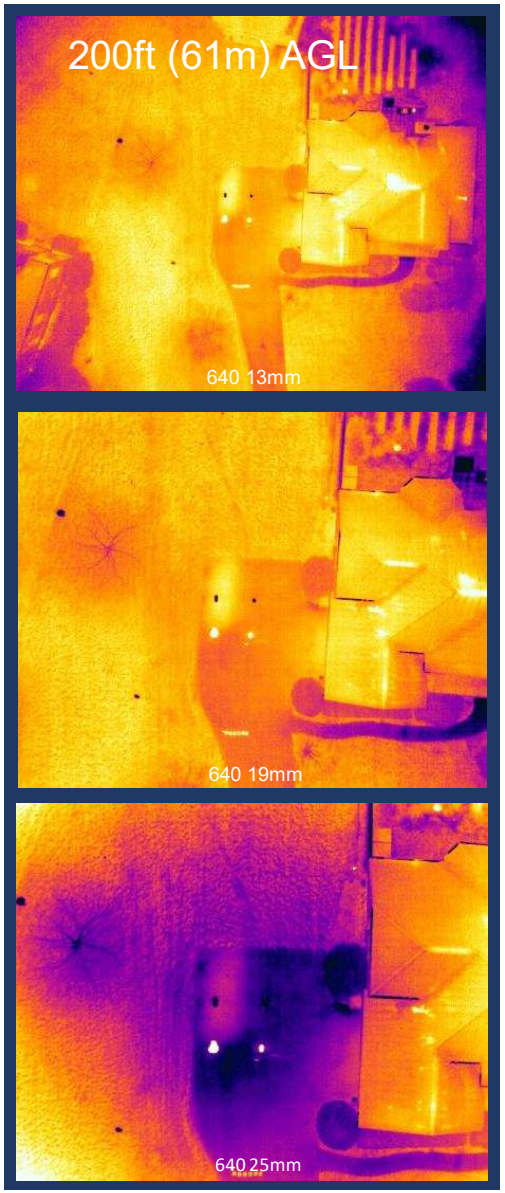

100ft (30m)AGL
640 13mm
640 19mm
640 25mm

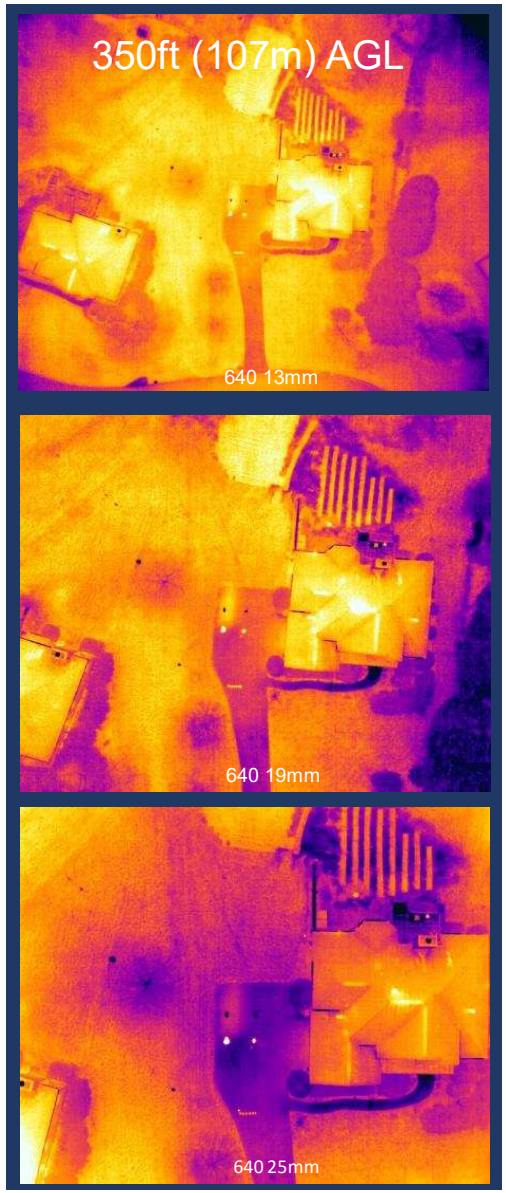

200ft (61m) AGL
640 13mm
640 19mm
640 25mm


350ft (107m) AGL
640 13mm
640 19mm
640 25mm

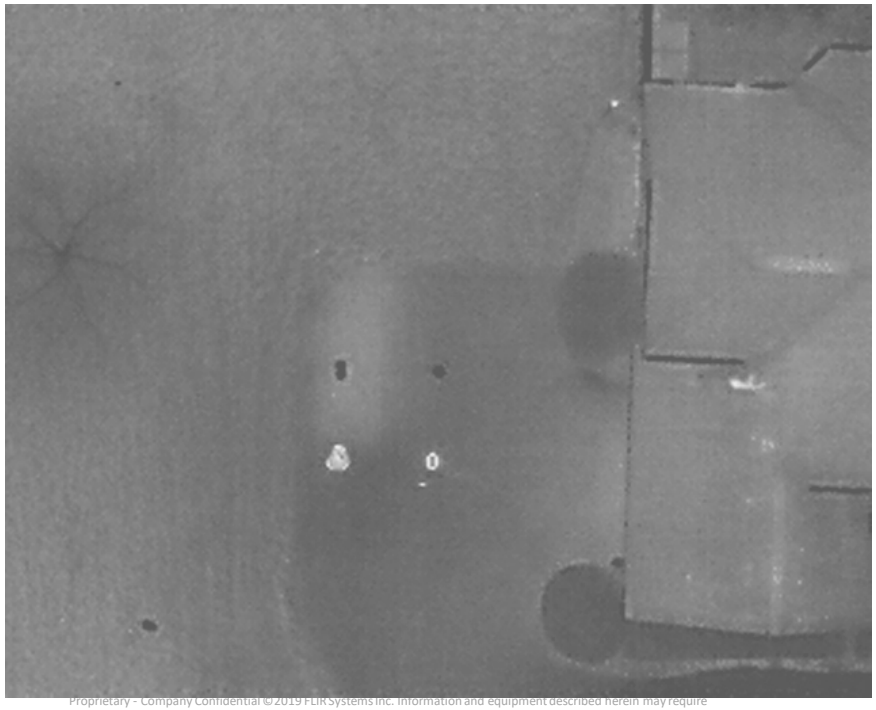

50ft (15m) AGL
640 13mm
640 19mm
640 25mm


100ft (30m)AGL
640 13mm
640 19mm
640 25mm


200ft (61m) AGL
640 13mm
640 19mm
640 25mm


350ft (107m) AGL
640 13mm
640 19mm
640 25mm

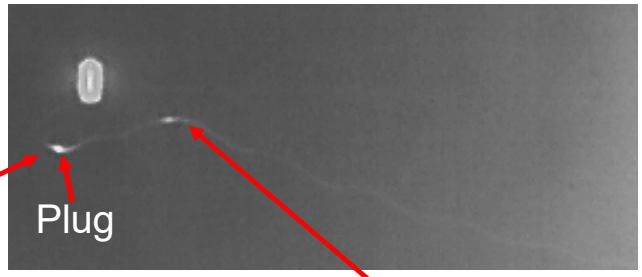
640 delivers 3.8X more pixels and data in the image with larger FOV



Just for fun! Did you notice

The 6 XT2 boxes that were stored in the house and hold residual heat? It was just above freezing when I conducted these tests with no wind. These boxes show up in the larger FOV images as hot spots. Extra white spot is 2 batteries after being flown

The electric cord in the images to the heater?



The splice where I had cut it with the hedge trimmer and fixed it?

The warm spot where my wife pre-heated the car for 15 minutes on the driveway?