


Per eye	Today (demo available)	Target 2024
Depth resolution (planes)	Continuous	Continuous
Angular resolution at infinity	40 px/° light-field	40 px/° light-field
Modulator resolution	Light-field: 1 Mpix Periphery: 1600×1440 px	Light-field: 1 Mpix Periphery: 1600×1440 px
FoV (diagonal)	100° (Light-field: 36°)	100° (Light-field: 36°, possibly movable)
Effective eyebox (exit pupil)	13 mm (7 mm)	> 13 mm (7 mm)
Eye relief	17 ± 3 mm	17 ± 3 mm
Colors	5-10 M	5-10 M
GPU load	FHD (equivalent)	FHD (equivalent)
Frame rate	160 - 240 Hz	up to 180 Hz
Sub-frame rate	3.8 - 7.6 kHz	up to 8.0 kHz
Spatial tracking	Intel RealSense T265	Custom
Hand-tracking	Ultraleap	Custom
Eye tracking*	Pupil Labs	Custom

* Eye-tracking is not required for the essential function

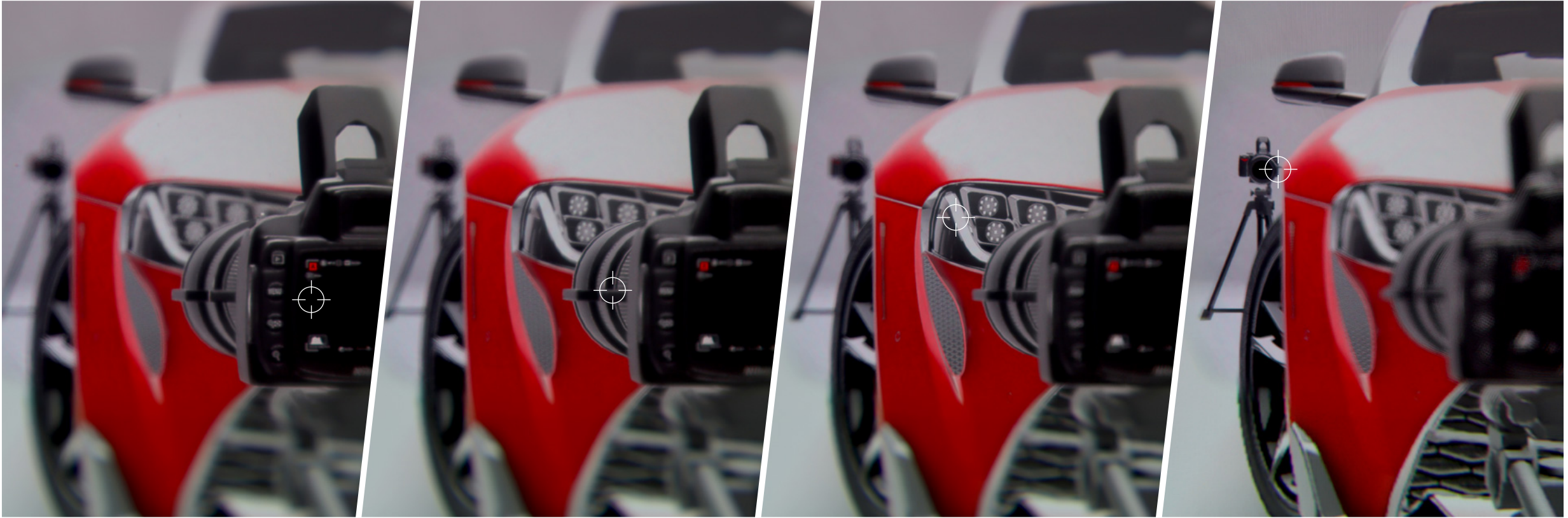


	Real light-field	No eye-tracking required	Depth resolution (planes)	Spatial resolution	Complexity (HW/SW)	Image quality	Eye box
	✓	✓	Unlimited*	> 1 Mpix	✓	✓	—
Holography	✓	✓	Unlimited*	> 1 Mpix	✗	—	—
Lens array	✓	✓	> 10	< 100 Kpix	—	✗	—
Multipile depth planes	✗	—	2 - 4	> 1 Mpix	✗	✓	✓
Varifocal elements	✗	—	> 100	> 1 Mpix	✓	✓	✓

* Resolution is finite, however much higher than an eye can resolve







Focus

0.2 M

Focus

0.3 M

Focus

0.6 M

Focus

3 M



Standard display

Standard display doesn't allow focus up-close (it is a flat image)



Light-field display

CREAL's light-field display allows natural eye focus within arm's reach distance



1600x1440 px in 100°FOV ≈ 20 px/°

Standard display

Even when in focus, standard display
provides limited resolution only at 1.4 m

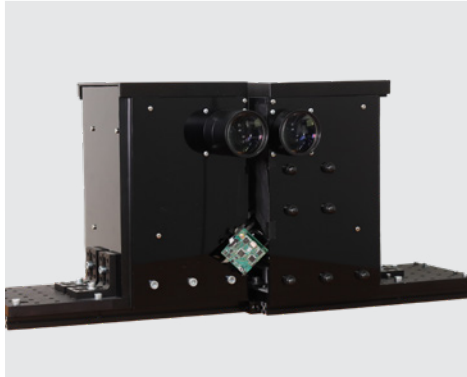


Additional 1280 x 1024 px in 30°FOV ≈ 40 px/° foveated light-field

Light-field display

CREAL's light-field provides high-
resolution image at any focal distance

Q1 2020



Q1 2021



Q1 2022



2024



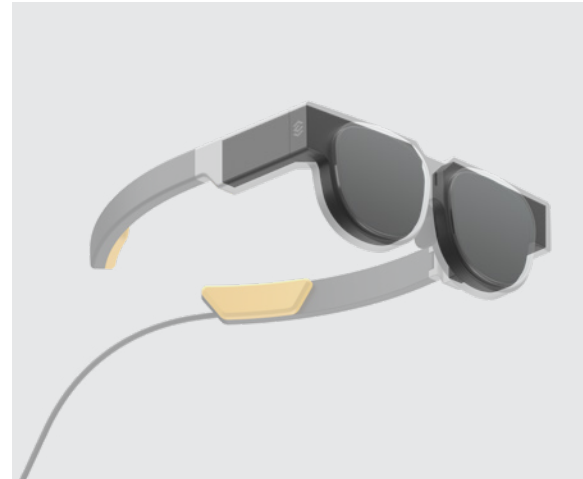
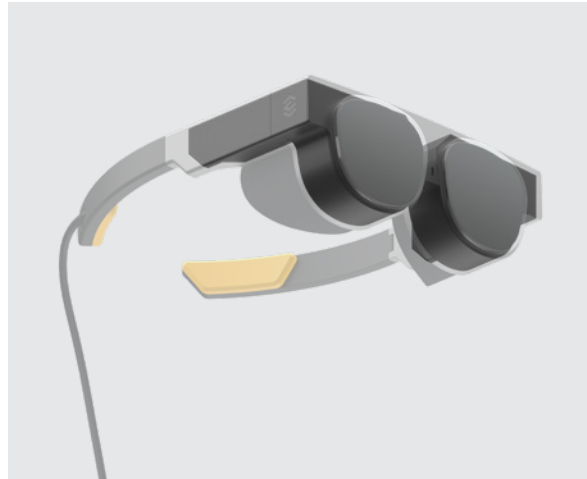
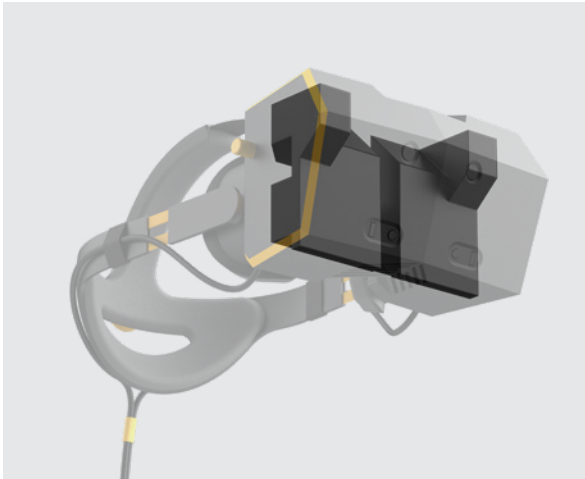
2025+



Q1 2022

2024

2025+



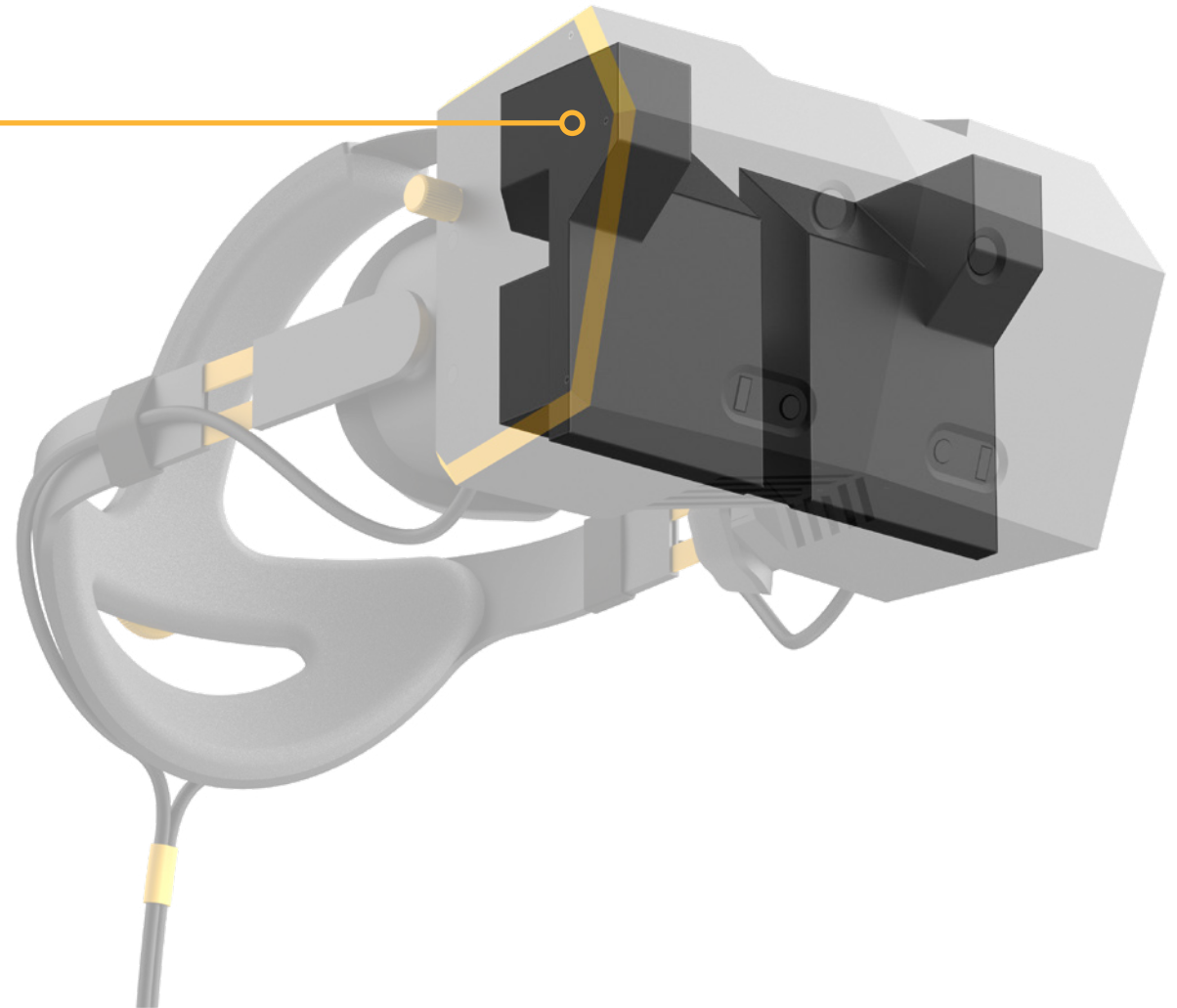
Full evaluation kit and optical engine available today

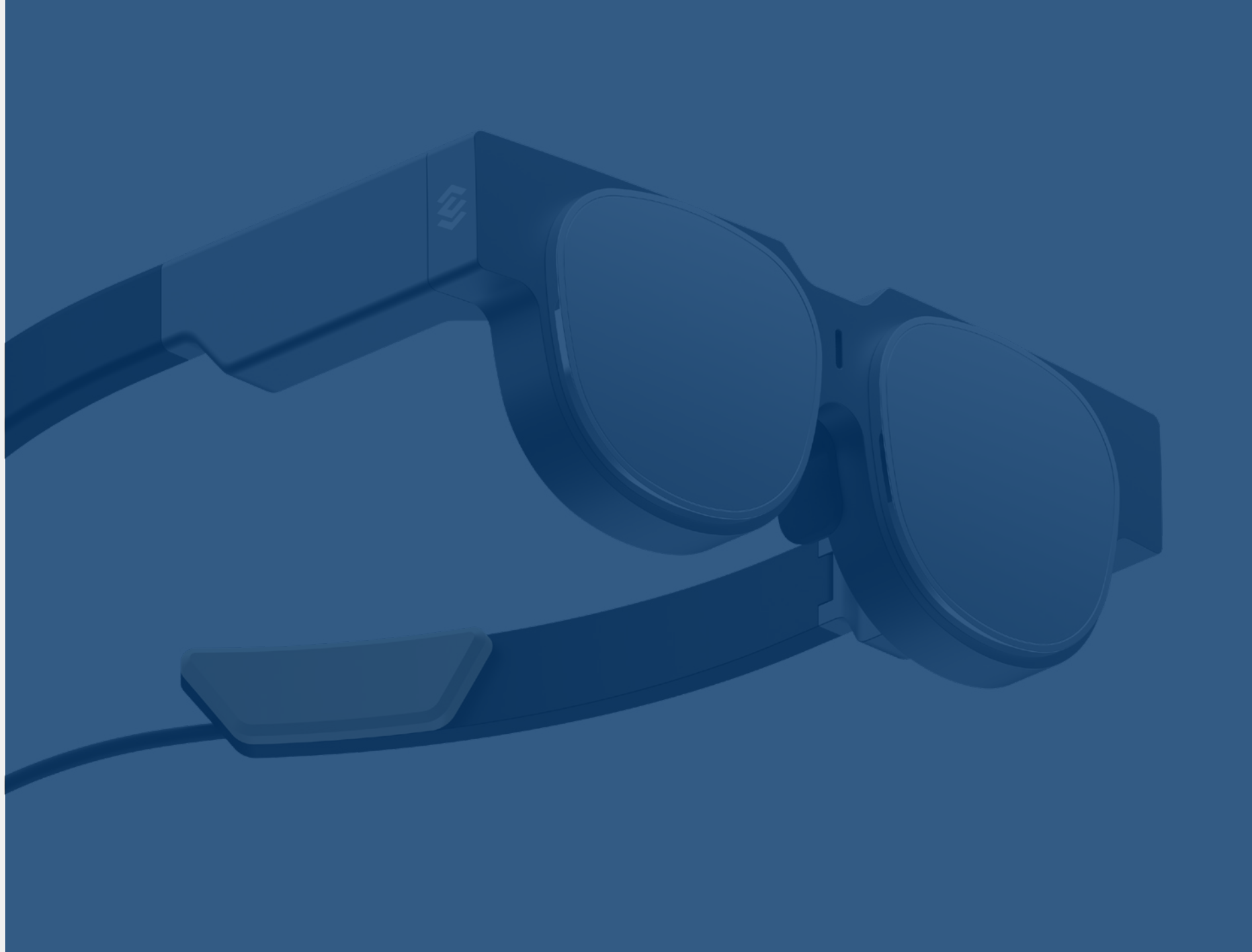
- + Complete light-field optical engine
- + Foveated light-field “addon” to integrate with your existing back screen

Light-field can help you to build
the ultimate VR headset where
the virtual looks just like real.

Please ask us at sales@creal.com for:

- 1 VR technology evaluation kits
- 2 Engineering and integration support





CREAL.com |
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EPFL Innovation Park, Switzerland