

Yuma Proving Grounds Flight

In support of: *High Altitude Platform System (HAPS) Communication Support*

Abside Networks POC

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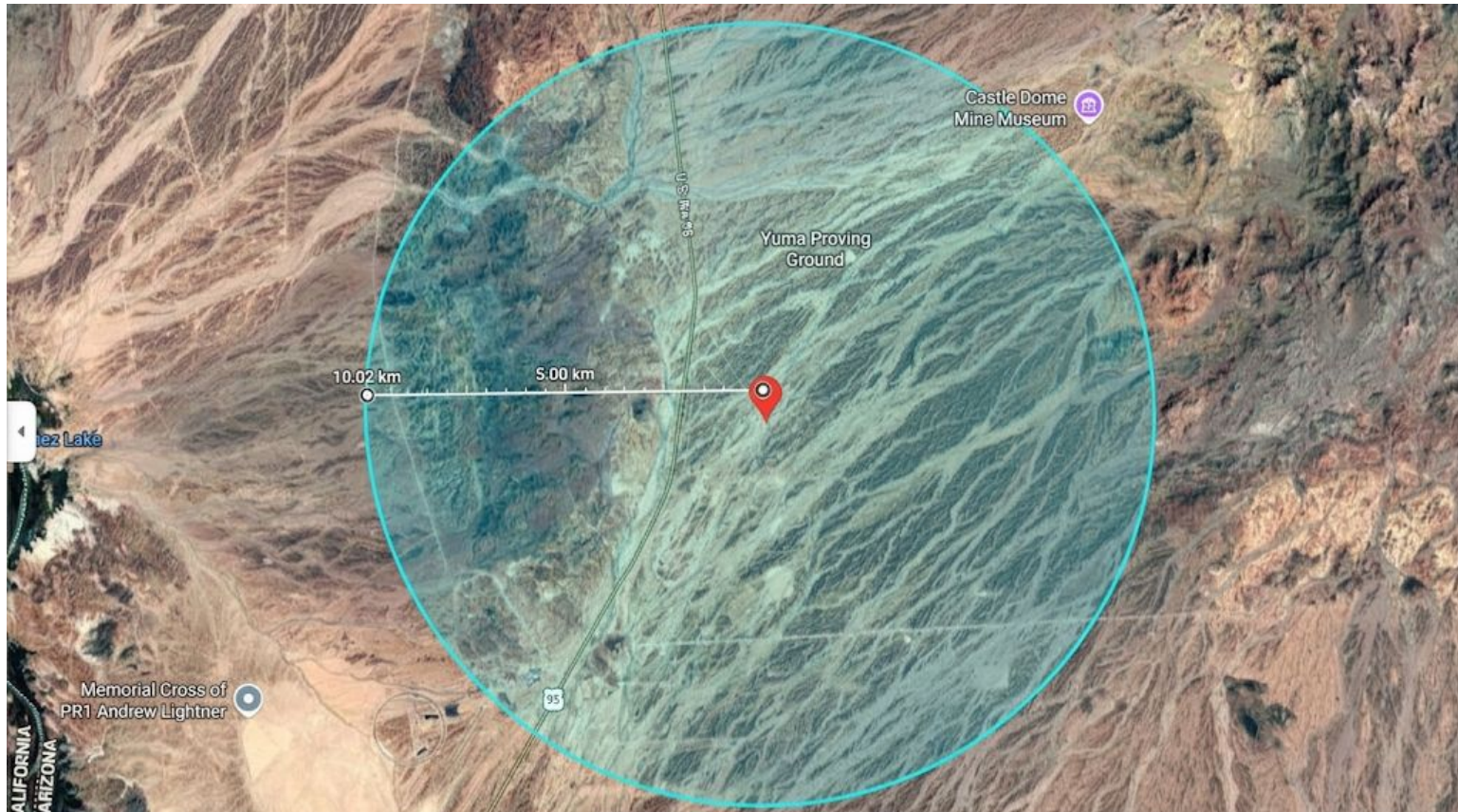
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STA File Number: 1770-EX-ST-2026

Operations Area is a **10 km** radius centered on the Yuma Proving Grounds in Arizona (Latitude: 32.978524 & Longitude: -114.266118) to enable **air to ground** 5G n79 testing.

Latitude: 32° 58' 42.69" N
Longitude: 114° 15' 58.02" W



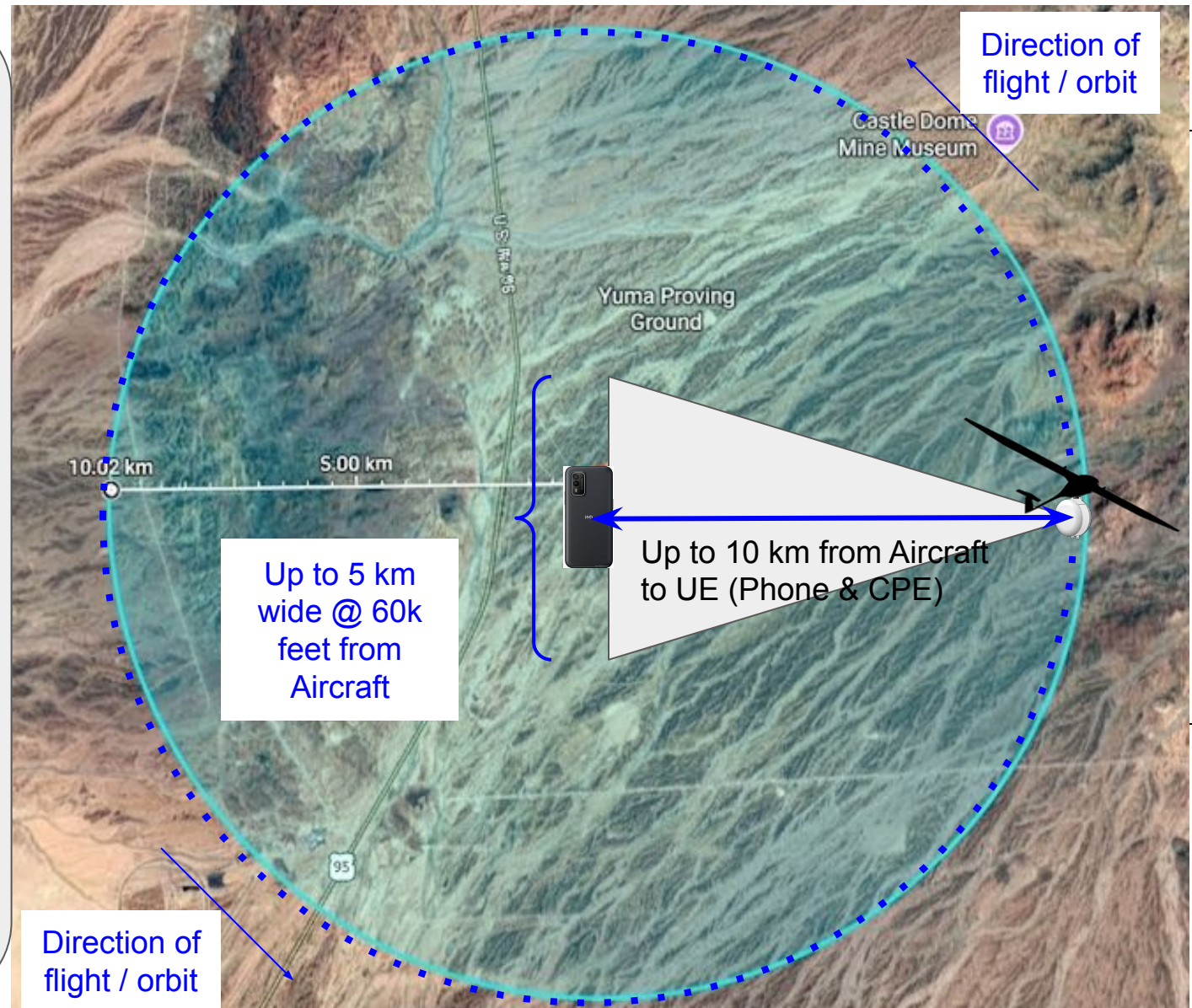
Operations Area is a **1 km** radius centered on the Yuma Proving Grounds in Arizona (Latitude: 32.978524 & Longitude: -114.266118) to enable **ground to ground** 5G n79 testing.



Concept of Operations: Airborne (Air to Ground) 5G Cellular from an Aircraft to Ground Personnel (Top View)

5G Base station mounted in the aircraft.

5G UE Phone and CPE at various distances where geography allows for line of site from the airborne base station to the UE.



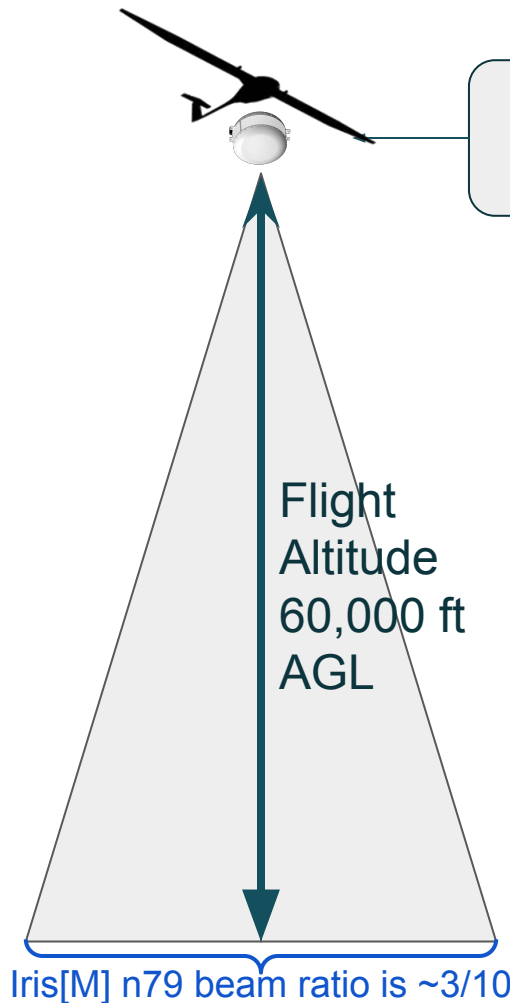
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Concept of Operations: Airborne (Sky to Ground) 5G Cellular from an Aircraft to Ground Personnel (Side View)

AGL	km	mile	ft
85000	7.8	4.8	25500
80000	7.3	4.5	24000
75000	6.9	4.3	22500
70000	6.4	4.0	21000
65000	5.9	3.7	19500
60000	5.5	3.4	18000
55000	5.0	3.1	16500
50000	4.6	2.8	15000
45000	4.1	2.6	13500
40000	3.7	2.3	12000
35000	3.2	2.0	10500
30000	2.7	1.7	9000
25000	2.3	1.4	7500
20000	1.8	1.1	6000
15000	1.4	0.9	4500
10000	0.9	0.6	3000
5000	0.5	0.3	1500

RF Coverage
Diameter on Ground
Straight Down



Abside Networks
ABN-RAN-800-0001

HMD
XR21 Phone UE



Sierra Wireless
XR60 CPE UE

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5G Base Station
that is mounted
on the aircraft.
This unit has
beam forming
and the beam
will track the UE
on the ground.



ABSIDE Networks

Iris[M]TM Macro n79 Radio Unit (RU) AAU

Iris[M]TM Macro Cell n79 Radio Unit (RU) is a 5G coherent massive MIMO 3D steerable active array unit (AAU) leveraging Abside's RF-RetinaTM technology and supporting the 5G waveform across all 600 MHz of the 5G NR n79 spectrum (4400 MHz through 5000 MHz) from a single unit / SKU.

The Iris[M]TM array implements high-order fully digital beamforming which enables both massive MIMO 5G operation and beamforming with 3D beam steering, providing industry-leading uplink performance, throughput, and range.

Uplink & Downlink	5G Band n79 (NATO Band IV) 4400 MHz - 5000 MHz
Integrated Antenna	+20 dBi gain Integrated Antenna Active Antenna Elements Dual Slant Polarization
Scalable RF	6 Active Beams/Cells @ 2T2R or 3 Active Beam/Cell @ 4T4R
TX Power	+36W Total RF Power (+18W per polarization)
5G LTE Bandwidths	10, 20, 30, 40, 50, 60, 70, 80, 90, & 100 MHz (3GPP Rel.17)
Peak Data Rates	DL +1 Gbps UL +1 Gbps
Duplex Schema	5G NR Dynamic TDD
I/O's & RU Interface	2*100GigE eCPRI with SyncE option Split 8, ORAN 7.2* (in development) Integrated GPS for asynchronous vRAN Power -48 VDC
Environ-mentals	IP67 Design -40°C to +50°C
Size	~24"x~24"x~14"





BYOD - Proven Compatibility with 5G COTS Modems
Best in class MAC layer for optimum bandwidth sharing



Scalable to 6 Simultaneous Active Cells @ 2T2R
Massive MIMO for maximal TX and RX performance



Full Digital array with 3D steerability enables gNodeB to gNodeB IAB meshing and/or air-to-ground communications

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ABN-RAN-800-0001

IRIS-72T72AE-N79 TAA Compliant

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UE Phone that is
located on the
ground.

Antenna = Omni
@ ~0dBi

Max TX Power =
23 dBm



UE CPE that is
located on the
ground.

Antenna = Omni
@
~2 dBi

Max TX Power =
23 dBm



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