Steerable Capability Specifications
With 5 steerable beams and a steerable cluster of 8 beams, Avanti provides guaranteed and immediate high-throughput capacity and real-time tracking.

Avanti Steerable beams brings unparalleled flexibility and security

Guaranteed capacity anywhere & full control
- Anywhere within the satellite visible earth disk
- Full steering rights on Mil band User control via secure API
  - Rapid manual steerable control, as a service
  - 2 minute SLA tracking at greater than MACH1 speeds via API
  - 20 minute SLA for cross continental moves via API

Higher capacity
- 5-10 times more capacity than competing steereables on like-for-like terminals

Real-time tracking
- MACH1 speeds
- 10 minute SLA for cross continental moves

Flexibility
- Option of gateway locations in the US and Europe
- Frequency switchable between civil and military Ka-band

Assurance
- Highly secure and resilient communication networks.
- Sovereignty of data (landing directly into a Government GES in the USA) Obfuscated positioning
- MOD compliant

Contingency
- Primary bearers can be switched in extremis for contingent backhaul to provide operational resilience

Low SWaP Terminals
- High strength, high efficiency beams generating the greatest capacity to the smallest terminals

Lower cost
- Competitively priced military capability – Efficiency due to focused spot beams which concentrate power and re-use spectrum
HYLAS 4 – Steerable Capabilities

HYLAS 4 has 4 steerable Ka-band beams that can be pointed independently anywhere on the Earth’s surface, visible from 33.5° W, providing real-time tracking and full steering control. In addition, HYLAS 4 has BSS service capabilities.

HYLAS 4 Real-time Steering

Real-time tracking
- Maritime and airborne tracking with fully automated steering capability driven by the customer via API with 2min SLAs (up to the speed of Mach 1)
- Beams can be moved rapidly with a full horizontal and vertical traverse taking only 10 minutes for (inter-continental).

Full communication and control
- Airborne data link for strategic command & control with assured high-data rate with the USA
- On-route mission & command control for mission update
- C4ISR datalink
- Sovereignty of data - capability to have data landing directly in the USA

HYLAS 4 Steerable Beams Mission

Steerable Beam Performance

- EIRP (at edge of coverage) > 54.0 dBW
- G/T (at edge of coverage) > 7.0 dB/K

Steerable Beam Functionality

- Mode of Operation: Gateway to User or Loopback
- Steering Function: Steering to track objection in motion to Mach 1
- Steering Commanding: Secure Customer Ticket or Secure API
HYLAS 3 – Steerable Capabilities

Launched on July 2019, HYLAS 3 is the world’s first Ka-band steerable cluster of 8 high throughput spot beams, providing a large steerable footprint of capacity that can be pointed anywhere on the Earth’s surface, visible from 31°E.

Unique Capabilities

HYLAS 3 provides over 4GHz of high throughput Ka-band spectrum split across 12 channels on 8 beams. These beams operate as a cluster, providing a very large footprint, anywhere from the eastern tip of Brazil to the Eastern edge of Vietnam. Of the 12 channels, 4 are dedicated to government and military communications. The remaining 8 are for civilian communications.

HYLAS 3 has a unique independently steerable gateway beam, meaning that end-users have the option to determine where gateway traffic can land.

Cluster footprint examples:

<table>
<thead>
<tr>
<th>Country</th>
<th>Example Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Libya</td>
<td><img src="image1" alt="Example" /></td>
</tr>
<tr>
<td>Senegal</td>
<td><img src="image2" alt="Example" /></td>
</tr>
<tr>
<td>DRC</td>
<td><img src="image3" alt="Example" /></td>
</tr>
</tbody>
</table>

**HYLAS 3 Steerable cluster Mission**

**Beam Performance**

- EIRP (at edge of coverage) > 58.0 dBW
- G/T (at edge of coverage) > 11.0 dB/K

**Steerable Beam Functionality**

- Mode of Operation: Gateway to User
- Steering Function: Occasional Steering
- Steering Commanding: Secure Customer Ticket

*Four defined User Beams support Civil/Govt communications simultaneously or individually*
HYLAS 2 – Steerable Capabilities

HYLAS 2 has 1 steerable Ka-band beam that can be pointed independently anywhere on the Earth's surface, visible from 31° E.

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**Beam Performance**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIRP (at edge of coverage)</td>
<td>&gt; 54.0 dBW</td>
</tr>
<tr>
<td>G/T (at edge of coverage)</td>
<td>&gt; 7.0 dB/K</td>
</tr>
</tbody>
</table>

**Steerable Beam Functionality**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode of Operation</td>
<td>Gateway to User or Loopback</td>
</tr>
<tr>
<td>Steering Function</td>
<td>Frequent Steering</td>
</tr>
<tr>
<td>Steering Commanding</td>
<td>Secure Customer Ticket or Secure API</td>
</tr>
</tbody>
</table>
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