LeopardWin Ka Hybrid
ESA COTM Terminal Datasheet

-Empower Mobile solution with Simplicity & Easiness

General Description:

Starwin LeopardWin Ka Hybrid ESA COTM Terminal is an innovative Satcom terminal, providing COTM (Communication On The Move) solution, versatilely applied for land, marine and airborne mobility under Multi-Orbits- GEO, LEO, MEO.

LeopardWin Ka Hybrid terminal integrates the proven and advanced 2-dimension mechanical steering technology, fully electronic steering phased array technology and miniaturized integrated design and production technology from Starwin over years, empowering the practicality, scale, economic efficiency of the production and applications of such Ka Hybrid phased array terminals. This terminal can quickly capture satellites and establish stable and reliable satellite communication links for vehicle, train, shipping vessels and airplane, anytime, anywhere.

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Unique Features:

- Unique Design: With mechanic and electronic steering combined system, wider EL scan angle with low loss from EIRP and G/T in normal direction;
- High Integration: All in one, fully 2D phased array, ACU, satellite Modem, Up & Down converter are all integrated in one outdoor unit;
- Proven technology of beam forming to track and switch among multi orbit networks of GEO, LEO and MEO;
- Convenience: With ultra-portability without complex installation, cabling, connection and commission processing on site;
- Flexible and Scalable: Manifold application for mobile broadband connectivity under GEO, MEO and LEO.

Specifications:

<table>
<tr><th colspan="4">Ka Band Hybrid ESA Terminal</th></tr>
<tr><th colspan="4">Overall Specifications of Terminal</th></tr>
<tr><td>Model</td><td>HSA48114MAC</td><td>Dynamic Capture Time of First Boot</td><td>≤ 2.5min</td></tr>
<tr><td>Name</td><td>LeopardWin</td><td>Static Capture Time of First Boot</td><td>≤ 2min</td></tr>
<tr><td>Type</td><td>Ka band Hybrid ESA COTM Terminal</td><td>Mechanical Steering Type</td><td>Auto</td></tr>
<tr><td>Tx</td><td>27.5 ~ 31.0 GHz</td><td rowspan="2">Recapture Time After Loss</td><td>< 15sec (Duration of occlusion ≤5min)</td></tr>
<tr><td>Rx</td><td>17.7 ~ 21.2 GHz</td><td><25sec (Duration of occlusion >5min)</td></tr>
<tr><td>Tracking Accuracy</td><td>≤ 0.2°</td><td>Applicable Satellite Type</td><td>HTS GEO, MEO and LEO</td></tr>
<tr><td>Rx LO.</td><td>16.75 GHz, 17.25 GHz, 18.25 GHz, 19.25 GHz</td><td>Tx LO.</td><td>26.55 GHz, 27.4 GHz, 28.05 GHz, 29.05 GHz</td></tr>
<tr><td>Scan Mode</td><td>Hybrid Steering (2D Electronic Steering + 2D Mechanical Steering)</td><td>Beam Switching Time</td><td>≤ 3ms</td></tr>
<tr><th colspan="4">IF Specifications</th></tr>
<tr><td colspan="2">Input Power (Modem Output)</td><td colspan="2">-35 ~ 0dBm</td></tr>
<tr><td colspan="2">IF Input (Modem Output)</td><td colspan="2">0.95 GHz ~ 1.8 GHz, 0.95 GHz ~ 1.95 GHz</td></tr>
<tr><td colspan="2">IF Output (Modem Input)</td><td colspan="2">0.95 GHz ~ 1.45 GHz, 0.95 GHz ~ 1.95 GHz</td></tr>
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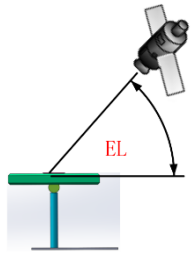
Internal Modem	Customized	**External Modem**	Customized
RF Specifications			
EIRP	≥ 48dBW@ Normal	**G/T**	≥ 11.4dB/K@ Normal
Polarization	Full polarization, automatic switching LHCP and RHCP	**Azimuth Range**	Unlimited
X-Pol Isolation	>30dB@90°	**Hybrid Elevation Steering Range** 	60°~ 120° @ Scanning Gain Loss ≤ 0.1dB (90° means the antenna is horizontal) **Note**
Scanning Gain Loss (Hybrid Steering)	≤ 0.1dB@ Elevation from 60-120°		
	≤ 0.8dB@ Elevation 30°		
	≤ 2dB@ Elevation 15°		
	≤ 3dB@ Elevation 5°		
	≤ 4.5dB@ Elevation 0°		
Interface			
Power Interface	Waterproof Quick Plug	**Network Interface**	Waterproof Quick Plug
IF Interface (Tx)	SMA	**IF Interface (Rx)**	SMA
Physical Dimensions and Electrical Specifications			
Outline Dimension	640×570×180mm	**Power Input (With Adapter)**	AC 90 ~ 264V/50Hz
Weight	≤ 22kg	**Power Input (Without Adapter)**	DC 28V±5%
Power Consumption	≤ 350 W		
Environmental Specifications			
Wind Speed	150km/h	**Ingress Protection**	IP66
Operation Temperature	-25℃ ~ +55℃(Standard) -40 °C ~ +70 °C (Customizable)	**Storage Temperature**	-40 °C to +85 °C
Humidity	5 ~ 95%		

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