6600W X-Band Indoor Modular BUC/SSPB/SSPA
Solid State GaN Technology

Features

- High power density GaN technology SSPA concept, in a compact, indoor modular package with Built in Redundancy
- 6.6kW single thread or 3.3kW 1:1 Redundant
- Built in Arc Detection Circuitry
- Maximum power/ bandwidth combination
- Indoor Modular Package, for maximum link availability
- Optional Built in redundant L-band Interface
- Built in Redundancy, field replaceable RF modules
- Highest Linear Power Available. Exceeds all barriers between Klystrons, TWTs and SSPAs
- Backed by over 25 years of Indoor SSPA design and manufacturing

SSPA ARMAg-X 7000-SapphireBlu™ series
SSPB (BUC) ARMUg-X 7000-SapphireBlu™ series

Specifications are subject to change without notice.
# Technical Specifications

## Output Power

<table>
<thead>
<tr>
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<th>6600 W</th>
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<tbody>
<tr>
<td>(P_{\text{SAT}}), PA Module</td>
<td>+68.12 dBm nominal</td>
</tr>
<tr>
<td>(P_{\text{SAT}}), at Flange</td>
<td>+68.0 dBm nominal</td>
</tr>
<tr>
<td>(P_{\text{LINEAR}})</td>
<td>+64.0 dBm minimum</td>
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\(P_{\text{LINEAR}}\) is the power at which the IMD specs are met and the spectral regrowth is < -30 dBc @ 1.0 x symbol rate for QPSK/OQPSK/8PSK modulation.

## Operating Frequency

- L-Band input (BUC): 950 – 1450 MHz
- Gain: SSPA 75 dB typical, SSPB (BUC) 78 dB typical

## Gain

- Gain adjustment range: 20 dB in 0.1 dB steps
- Gain flatness over full band: SSPA 3dB p-p max, SSPB (BUC) 4 dB p-p max (CS); 4dB p-p over 500 MHz (CX)
- Gain slope over 40 MHz: \(P_{\text{LINEAR}}\) is the power at which the IMD specs are met and the spectral regrowth is < -30 dBc @ 1.0 x symbol rate for QPSK/OQPSK/8PSK modulation.
- Gain variation over temperature: \(\pm 1.5\) dB max

## Input Impedance and VSWR

- SSPA: 50 Ω 1.3:1 50 Ω 1.3:1
- SSPB (BUC): 50 Ω 1.4:1
- Output VSWR: 1.3:1

## Noise power density

- SSPA: -70 dBm/Hz in Transmit Band, -110 dBm/Hz in Receive Band (7.25 GHz – 7.75 GHz)
- SSPB (BUC): -55 dBc @ \(P_{\text{LINEAR}}\)

## AM/PM conversion

- Third order IMD (two tones): -25 dBc two signals 5 MHz apart at 64.0 dBm \(P_{\text{LINEAR}}\)

## Group delay

- Residual AM Noise
  - 0 kHz – 500 kHz: -20 (1.25 + log F) dBc
  - 500 kHz – 1 MHz: -80 dBc

## SSPB (BUC)

- Local Oscillator freq.: 6.950 GHz
- Internal Reference frequency (optional): 10 MHz
- Aging/day: \(\pm 2 \times 10^{-10}\)
- Aging/year: \(\pm 5 \times 10^{-8}\)
- Stability: \(\pm 2 \times 10^{-8}\) over temp range
- Phase Noise
  - \(\pm 53\) dBc/Hz at 10 kHz: -73 dBc/Hz at 1000 Hz
  - \(\pm 63\) dBc/Hz at 100 kHz: -83 dBc/Hz at 10 kHz
  - Stability: \(-93\) dBc/Hz at 100 kHz
- External Reference
- Frequency phase noise (max)
  - 10 MHz: -120 dBc/Hz at 10 Hz
  - -135 dBc/Hz at 100 Hz

## Weight & Dimensions

- Dimensions (L x W x H): L x W x H 60 x 31.5 x 90 inches (152.5 x 80.0 x 229 cm) 1 x 19\(^\circ\) cabinet
- Weight: 770 lbs (350 kg)
- AC input voltage: 190 – 265 VAC (47-63 Hz) 3 phase
- Cooling: Water cooled (Optional Forced Air Cooled)
- Power consumption: 40,000 W at \(P_{\text{LINEAR}}\)  50,000 W at \(P_{\text{SAT}}\)

## Interfaces

- Input (RF or L-Band) - N type female
- Output Sample Port - N type female
- AC line - 3 x Phase PDU
- RS485/Ethernet - DB9/RJ45
- RF output - CPR112

## Environmental

- Temperature: Operating 0ºC to +50 ºC
- Storage -55ºC to +85 ºC
- Humidity: 5% to 95% non-condensing
- Altitude: 10,000’ AMSL, de-rated by 2 ºC/1000> from AMSL