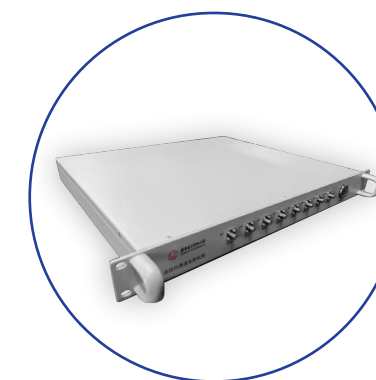
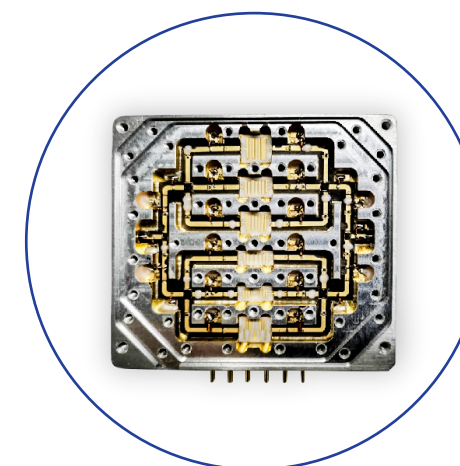


Yun Micro Electronics Ltd. (China)

-----Custom Microwave Assembly



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Anhui Province,230088 China.

**Customizable microwave
components**

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COMPANY

PROFILE



Hefei Yunzhi Microelectronics Co., Ltd (abbreviated as Yunzhi Micro) is a specialized enterprise engaged in the R&D and production of microwave filters (LC filters, dielectric filters, cavity filters, LTCC filters, thin film filters) and microwave components (switching filter banks, inverter components) as well as a high and new tech enterprise with independent intellectual property rights, with a leading technology level in China. After more than seven years of development, the company has developed a number of filters and microwave components with high technical content and good market prospects, which have been supplied to a number of military units across the country and have been well received by customers.

1

Broadband RF bandwidth:

RF Frequency Coverage
30MHz~40GHz

2

Broadband instantaneous bandwidth:

Maximum instantaneous
bandwidth up to 4 GHz

3

High Integration:

Integrated using multifunction chip,
LTCC circuit hybrid microassembly

Other microwave components include frequency synthesizers, etc.



GJB 9001C-2017 Weaponry Quality Management System Certificate and GB/T 19001-2016/ISO 9001:2015 Quality Management System Certificate.

In October 2019, we obtained the Certificate of Class III Secrecy Qualification for Weapon and Equipment Research and Production Units.

In February 2021, we obtained the certificate of National Military Standard Quality Management System Certification.

Passed the annual supervision and audit of equipment quality management system organized by China New Era Certification Center in November 2022, and reached the second level evaluation of the maturity level of capability of equipment construction quality management system in the new era.

Yunzhiwei was recognized as a high-tech enterprise by the Science and Technology Department of Anhui Province in 2018 and 2021.

It has been authorized 33 patents in recent years.

HONOR

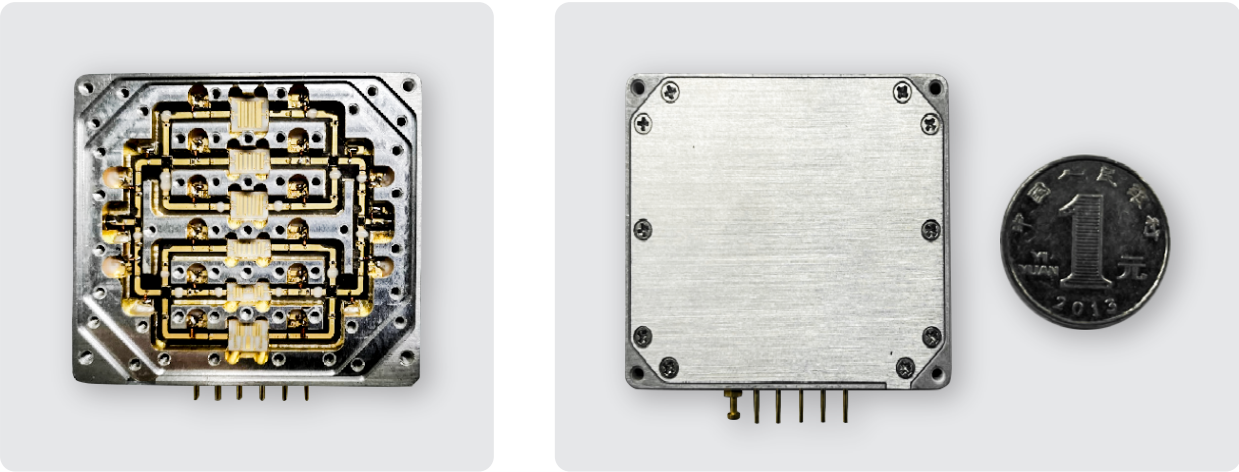


Miniaturized Switching Filter Banks

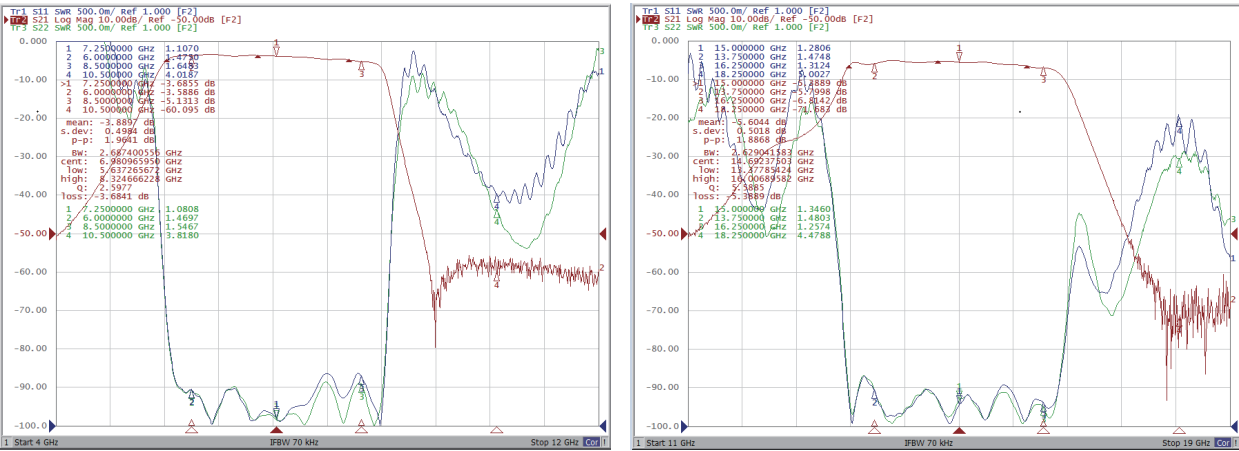
Technical indicators:

- **Frequency range:** 30MHz~40GHz;
- **Advantages:** small size, light weight, meet various customization needs.

Filter Bank Mechanical Design:



Frequency Response Curve of Filter Bank:

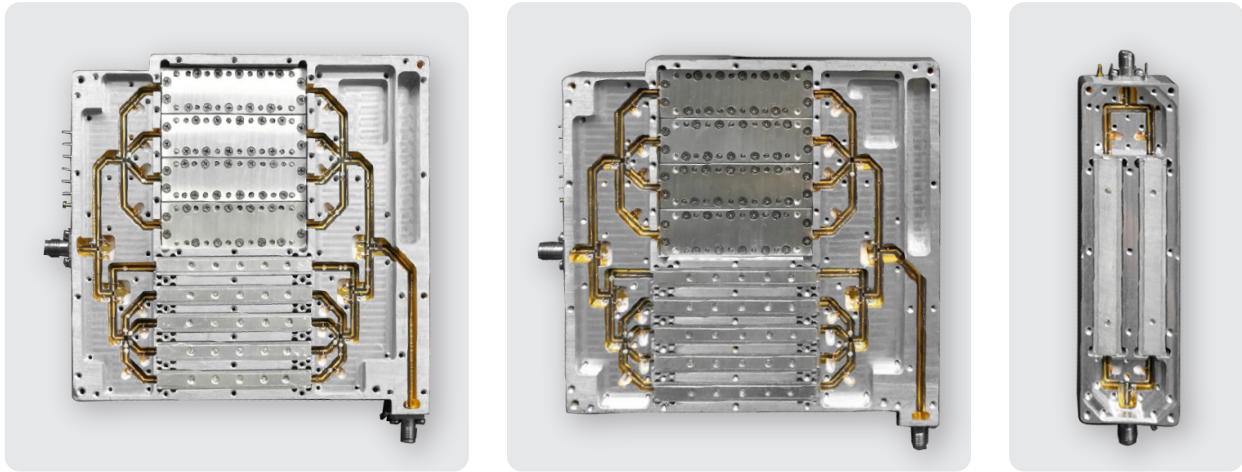


Switching Filter Banks

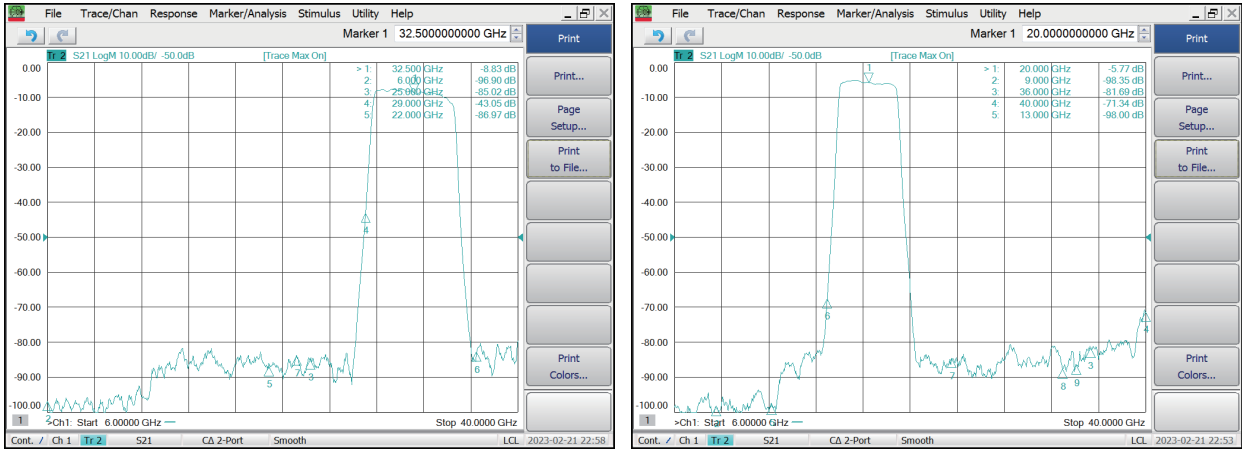
Technical indicators:

- **Frequency range:** 30MHz~40GHz;
- **Advantages:** High rejection, low insertion loss to meet various customized needs.

Filter Bank Mechanical Design:



Frequency Response Curve of Filter Bank:



I Frequency Selector Modules

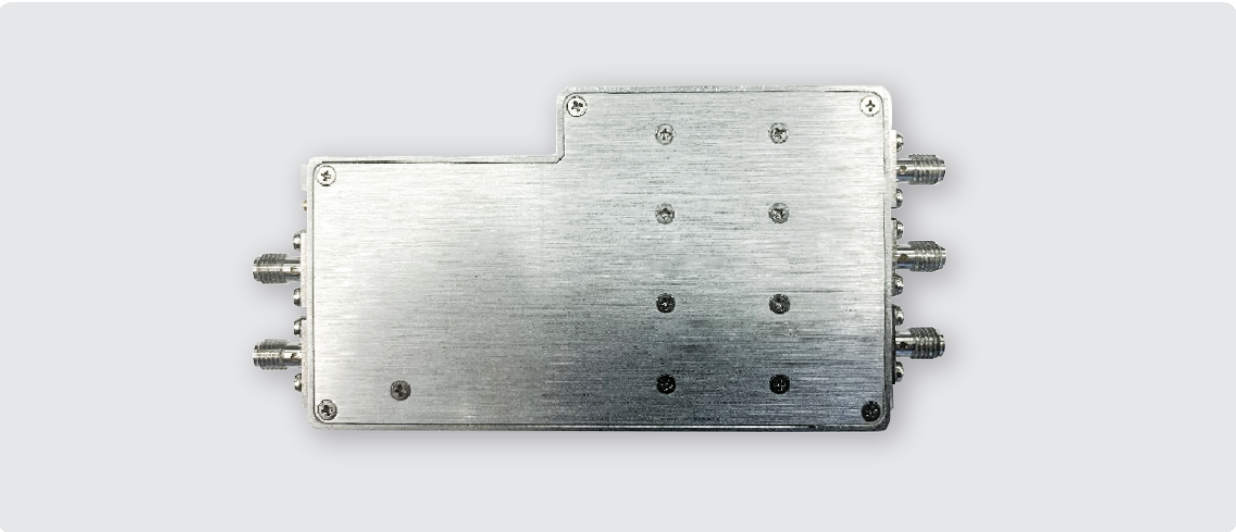
Technical indicators:

- **Output frequency:** 700, 800, 900MHz;

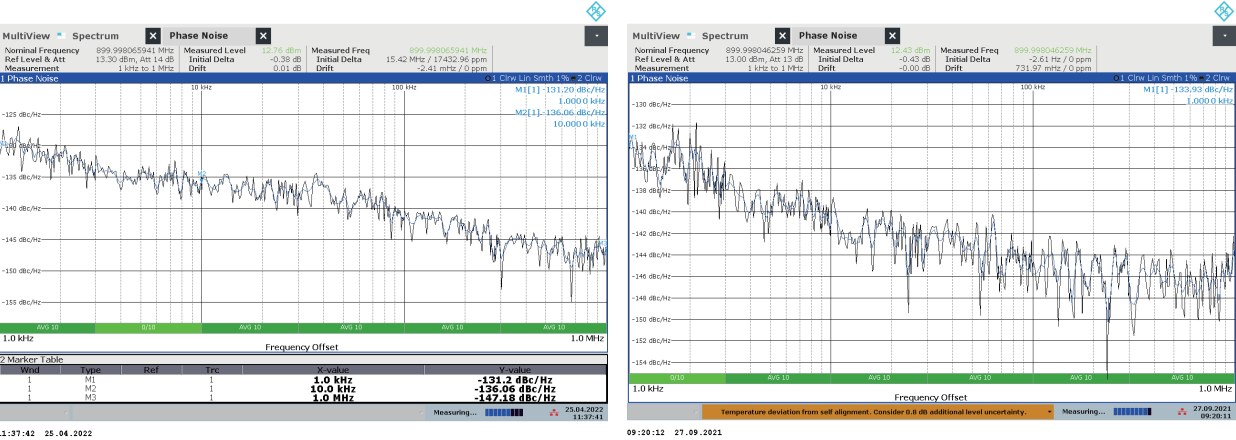
► **Phase noise:** $\leq -133\text{dBc/Hz}@1\text{kHz}$;
- **Spurious:** $\leq 75\text{dBc}$;

► **Volume:** 96mm*50mm*13mm;

Module Mechanical Design



Module Phase Noise



I Comb Spectrum Modules

Technical indicators:

- **Output frequency:** 100MHz~3.5GHz;

► **Output power:** $\geq -10\text{dBm}$;

► **Phase noise:** $\leq -120\text{dBc/Hz}@1\text{kHz}$;
- **Power supply:** +12V/400mA

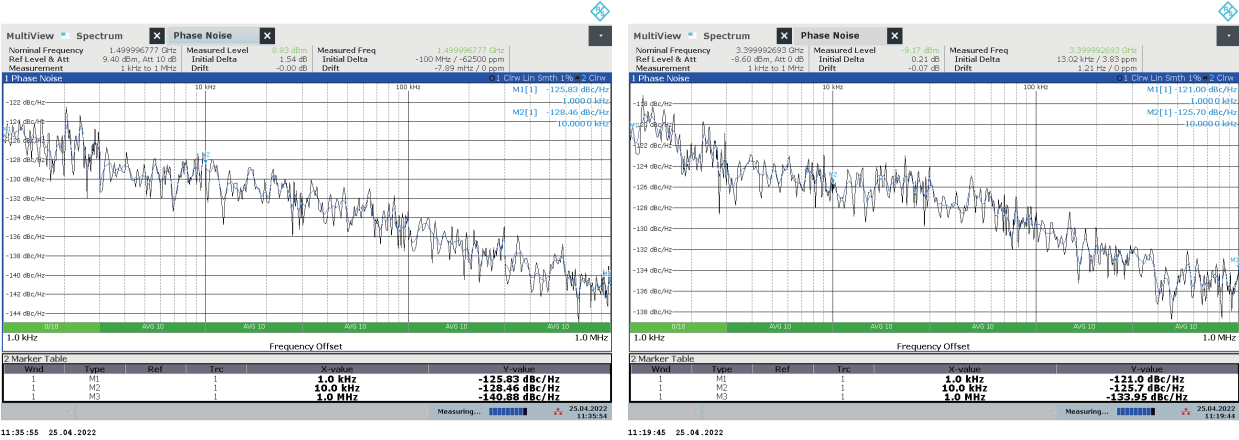
► **Number of output channels:** 2 channels

► **Volume:** 47mm*68mm*13mm;

Module Mechanical Design



Module Phase Noise

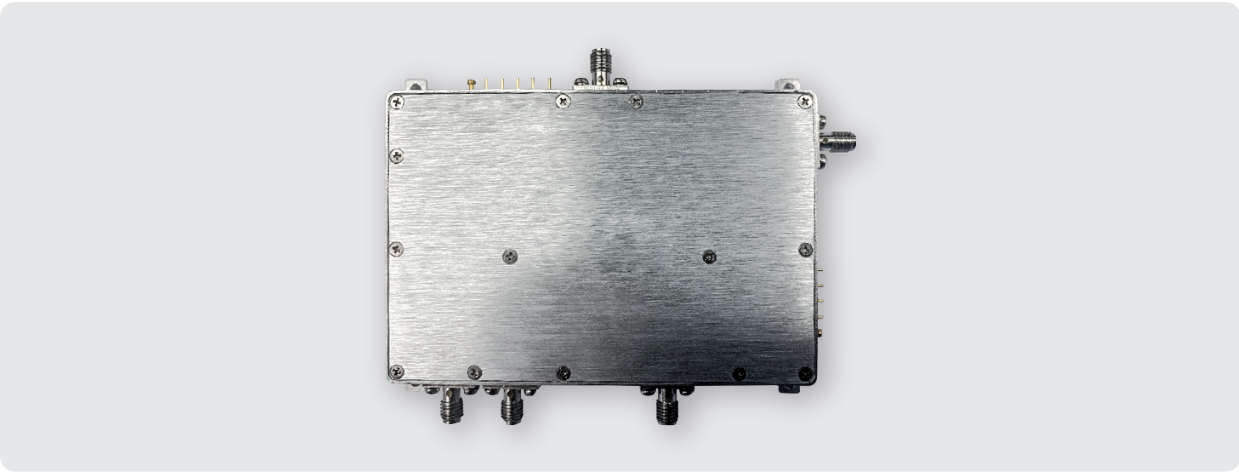


I Inverter Modules

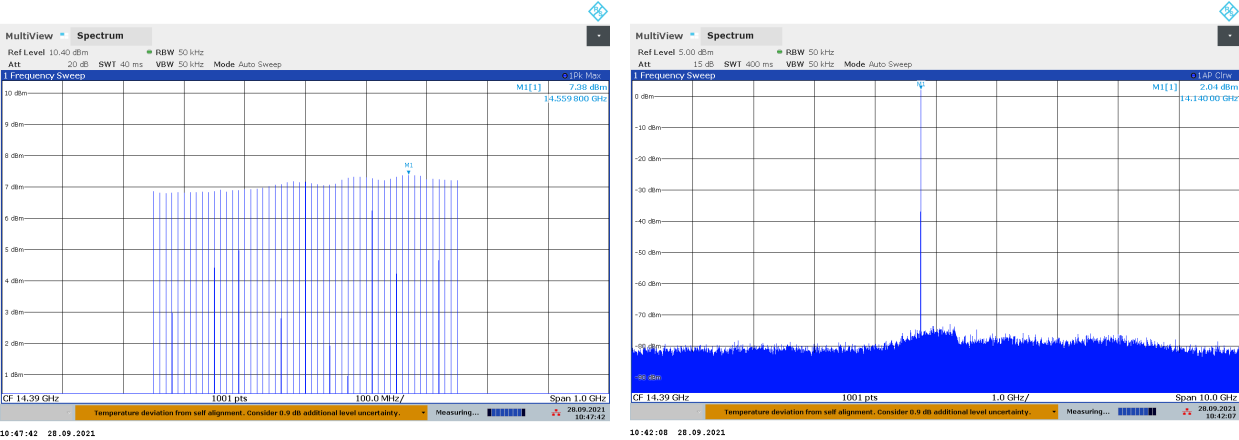
Technical indicators:

- ▶ **Spurious:** $\leq -75\text{dBc}$;
- ▶ **Volume:** 88mm*60mm*13mm;
- ▶ **Output flatness:** $\leq \pm 1\text{dB}$;
- ▶ **Turn-off ratio:** $\geq 75\text{dB}$.

Module Exterior:



Module Frequency Response and Spurious:

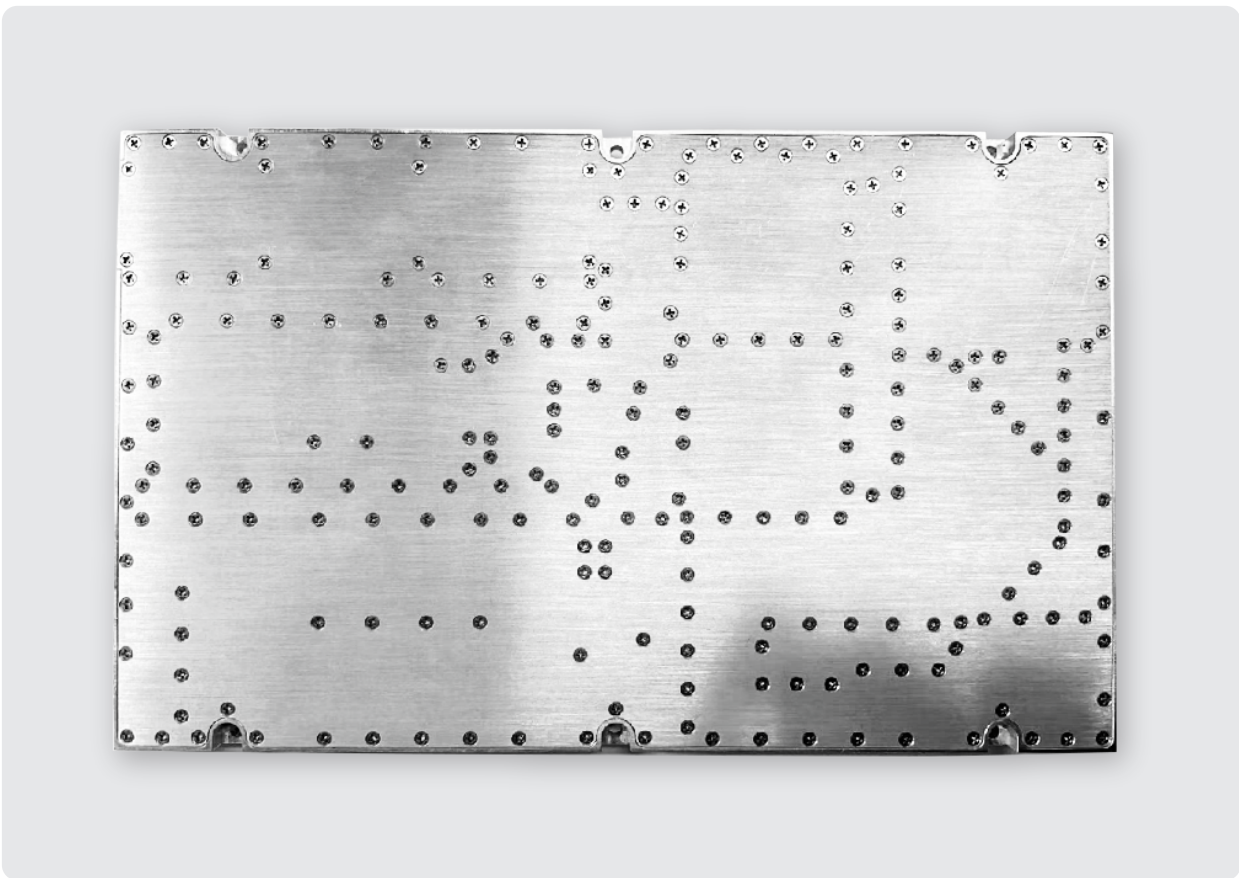


I Channel Modules

Technical indicators:

- ▶ **Input Signal:** 30MHz~6GHz;
- ▶ **Output Signal:** 140MHz $\pm$ 120kHz/30MHz;
- ▶ **IIP2:** $\geq +40\text{dBm}$.
- ▶ **IIP3:** $\geq +10\text{dBm}$.
- ▶ **Spurious-free dynamic range:** $\geq 65\text{dB}$;
- ▶ **Instantaneous dynamic range:** $\geq 65\text{dB}$;
- ▶ **Spurious:** the point of equivalent -107dBm input is not greater than 5;
- ▶ **Mirror frequency rejection:** $\geq 90\text{dB}$;
- ▶ **IF rejection:** $\geq 90\text{dB}$;
- ▶ **Volume:** 218mm*129mm*13mm;
- ▶ **Gain:** 36 $\pm$ 3dB/56 $\pm$ 3dB;

Module Exterior:

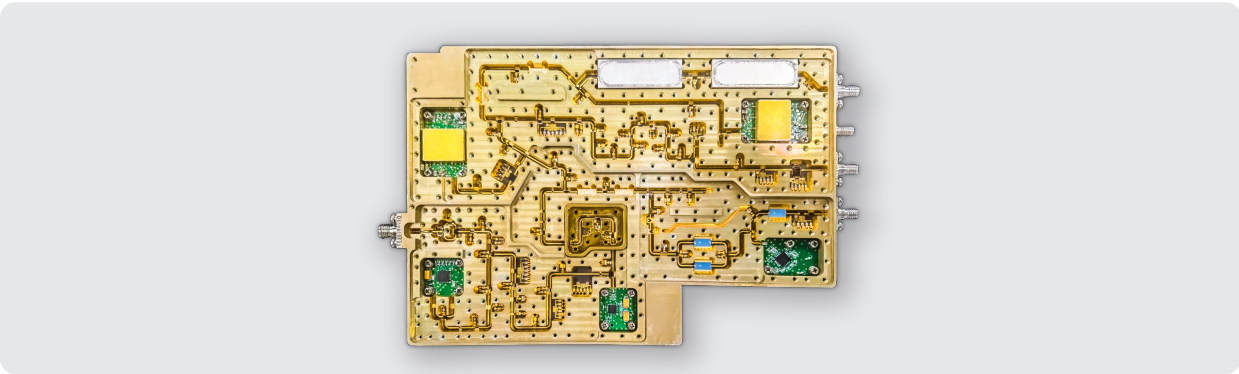


I Frequency Conversion Module

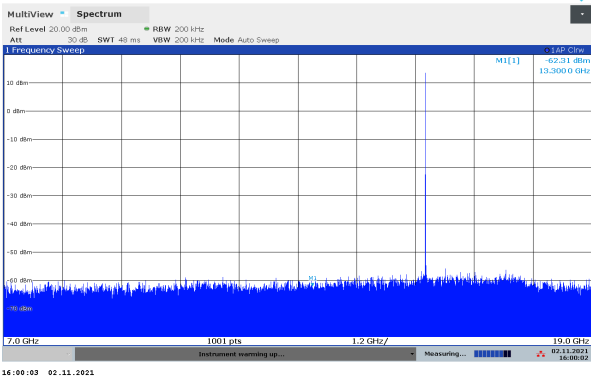
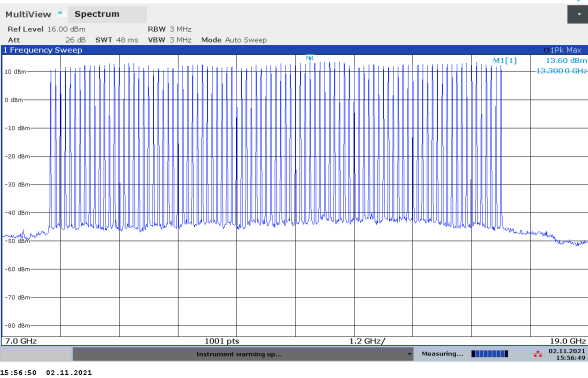
Technical indicators:

- ▶ **IF frequency:** 1.9±500MHz/ 3.8±1000MHz;
- ▶ **RF frequency:**2~18GHz;
- ▶ **Transmit output dynamics:** 90dB;
- ▶ **Modulator isolation:** >80dB;
- ▶ **Receiving sensitivity:** ≤ -65dBm;
- ▶ **Instantaneous dynamics:** ≥40dB;
- ▶ **DLVA output:** 0.5~3.3V;
- ▶ **Narrowband VP:** Output Characteristics: Shaping width-preserving pulse, pulse width range 0.1us~continuous wave;
- ▶ **Pulse signal:** rising edge ≤10ns, delay ≤80ns, width preserving accuracy: 0.1~2μs signal range ±0.1μs, 2μs or more wide pulse width range ±(0.1+PW*0.01)μs;
- ▶ **Spurious:** ≤ -55dBc;
- ▶ **Output flatness:** ≤ ±2dB;
- ▶ **Volume:** 153mm*107mm*15mm;
- ▶ **Instantaneous bandwidth:** 1GHz/2GHz;

Component Appearance:



Component Frequency Response and Spurious:

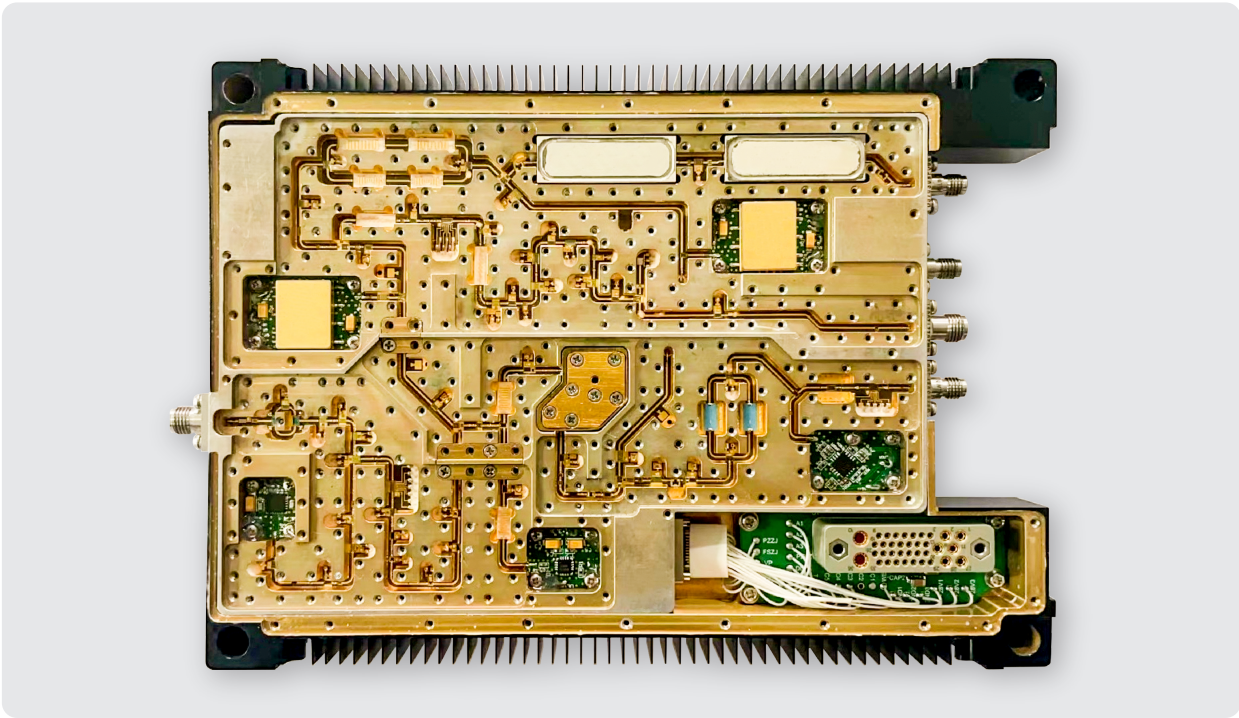


I Frequency Conversion Module

Technical indicators:

- ▶ **IF frequency:** 1.9±500MHz/ 3.8±1000MHz;
- ▶ **RF frequency:** 26.5~40GHz;
- ▶ **Transmit output dynamics:** 90dB;
- ▶ **Modulator isolation:** >80dB;
- ▶ **Receiving sensitivity:** ≤ -62dBm;
- ▶ **Instantaneous dynamics:** ≥40dB;
- ▶ **DLVA output:** 0.5~3.3V;
- ▶ **Narrowband VP:** Output Characteristics: Shaping width-preserving pulse, pulse width range 0.1us~continuous wave;
- ▶ **Pulse signal:** rising edge ≤10ns, delay ≤80ns, width preserving accuracy: 0.1~2μs signal range ±0.1μs, 2μs or more wide pulse width range ±(0.1+P-W*0.01)μs;
- ▶ **Spurious:** ≤ -55dBc;
- ▶ **Output flatness:** ≤ ±2dB;
- ▶ **Volume:** 180mm*150mm*17mm;
- ▶ **Instantaneous bandwidth:** 1GHz/2GHz;

Component Appearance:

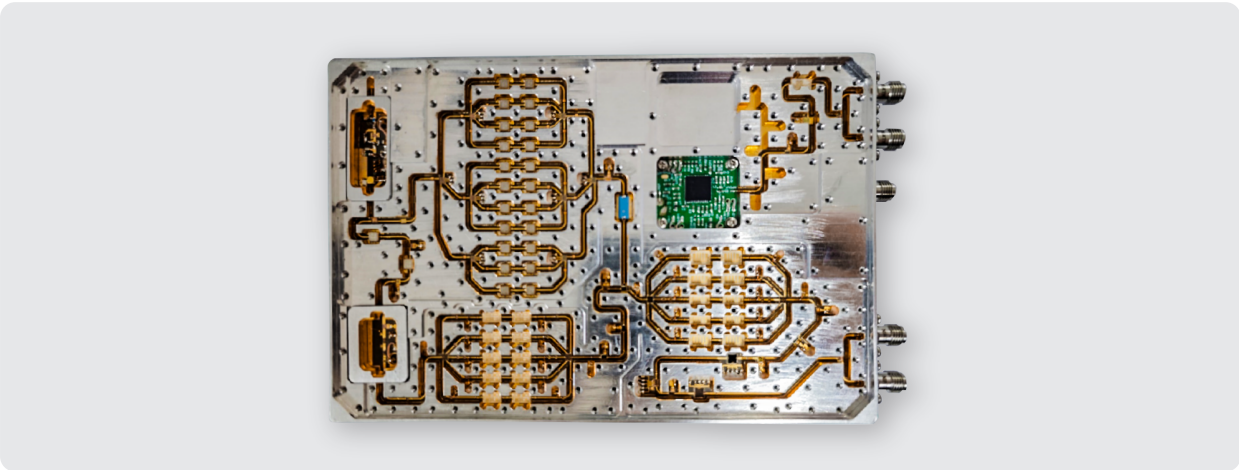


I Fast frequency hopping frequency synthesizer

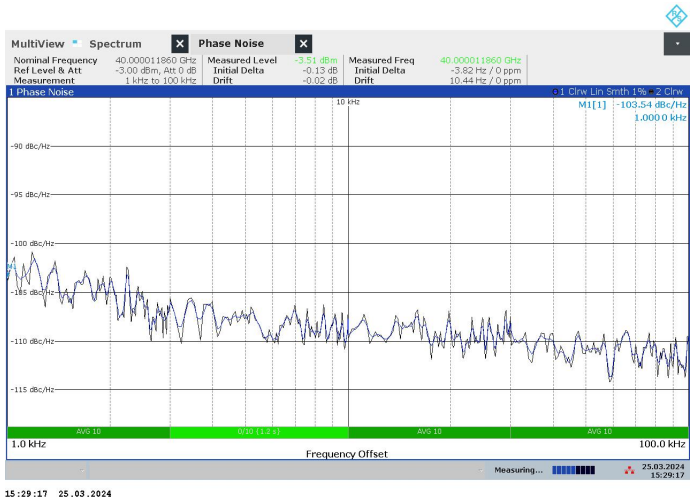
Technical indicators:

- ▶ **RF frequency:** 20~40GHz,
Point frequency output 23.9GHz (changeable);
- ▶ **Frequency step:** 200MHz;
- ▶ **Frequency hopping time:** <200ns;
- ▶ **Spurious:** <-55dBc;
- ▶ **Volume:** 150mm*100mm*15mm;
- ▶ **Phase noise:** ≤-100dBc/Hz@1kHz;
- ▶ **Reference output:** 100MHz;

Module Exterior:



Output phase noise:



I Frequency Conversion Channel

Technical indicators:

- ▶ **Signal frequency:** 5~13GHz;
- ▶ **Number of input channels:** 4;
- ▶ **Input power range:** -74~+6dBm;
- ▶ **Instantaneous dynamic range:** 40dB;
- ▶ **Manual dynamic range:** 50dB
(0/20dB two-state + 1~31dB/1dB small step combination).
- ▶ **Output frequency:** 1400~2400MHz/1850~1950MHz;
- ▶ **Number of output channels:** 4 channels;
- ▶ **Output power:** -40~+0dBm;
- ▶ **NF:** ≤6dB (full temperature);
- ▶ **Saturated maximum output power:** ≤0dBm (full temperature);
- ▶ **Output power flatness:** ≤±2dB (linear test at input -70dBm);
- ▶ **Output Spurious:** ≤-55dBm
(within 40dB of input -74~+6dBm instantaneous dynamics);
- ▶ **Out-of-band rejection:** ≥45dBc@DC~1000MHz;
≥45dBc@2800~8000MHz.
- ▶ **Phase consistency:** ≤±5° (phase temperature stability);
- ▶ **Amplitude consistency:** ≤±2dB;
- ▶ **Output standing wave:** ≤2.0;
- ▶ **Volume:** 160mm (height) × 233.4mm (length) × 24mm (thickness)
- ▶ **RF and control interface:** LRM2-AT10-B60H16B-CT10-T1

Component Appearance:

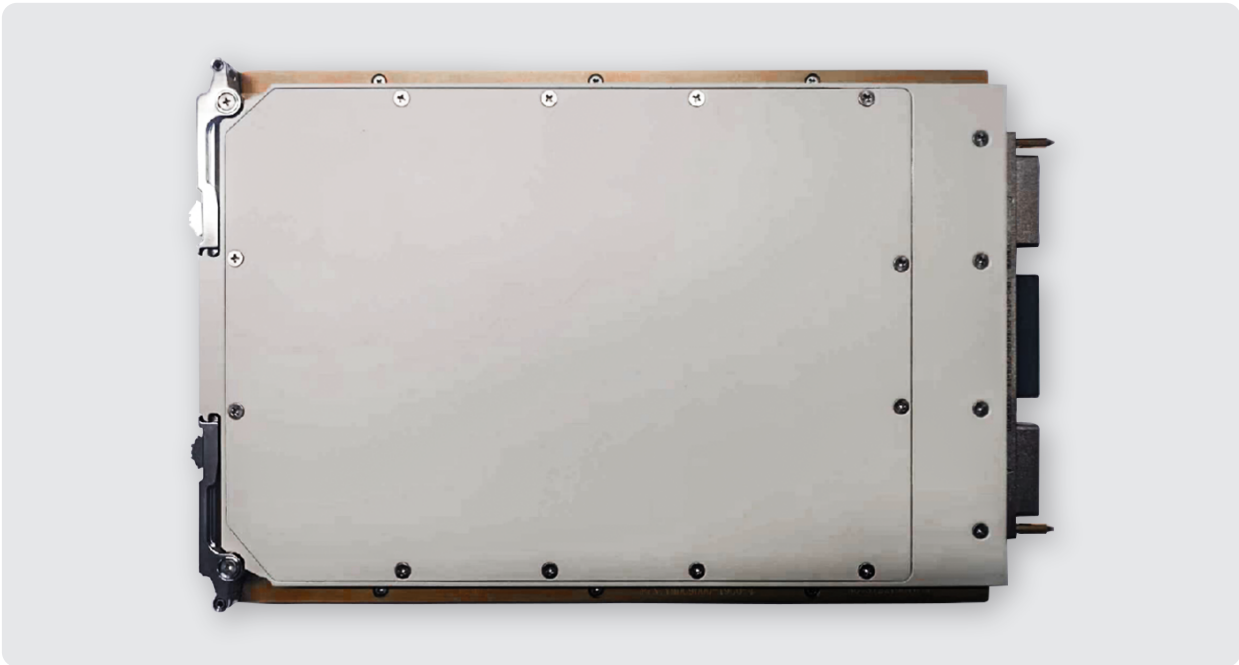


I Receive Downconversion Component

Technical indicators:

- ▶ **Input RF signal frequency:** 1GHz~18GHz;
 - ▶ **Input RF signal power range:** -75~+5dBm;
 - ▶ **Dynamic range:** 80dB, instantaneous dynamic: better than 40dB, manual dynamic 50dB;
 - ▶ **Instantaneous operating bandwidth:** 400MHz@1~2GHz;1000MHz@2~18GHz.
 - ▶ **Output IF signal frequency:** 1900±500MHz/200MHz/50MHz;
 - ▶ **Output IF signal power:** -40~0dBm;
 - ▶ **Saturated maximum output power:** ≤0dBm (full temperature);
 - ▶ **In-band spurious and harmonic clutter level:** ≤-55dBm(DC~5GHz instantaneous dynamic 50dB range);
 - ▶ **Switching isolation:** ≥70dB.
 - ▶ **Single-pole double-throw switch turn-off ratio:** ≥80dB (as high as possible);
- ▶ **Switch off time:** ≤50ns;
 - ▶ **Switch rising edge:** ≤20ns;
 - ▶ **Self-test source:** Frequency: 3.5GHz and 13.5GHz; Power: -50±2dBm; Harmonics: ≥45dBc;
 - ▶ **Power off time:** ≤150us;
 - ▶ **Noise figure:** ≤10dB (full temperature,1~6.5GHz ≤12dB);
 - ▶ **Anti-burnout power:** not less than 2W;
 - ▶ **Standing wave:** ≤2.2 (design guarantee).
 - ▶ **Volume:** 160mm (height) × 233.4mm (length) × 24mm (thickness)
 - ▶ **RF as well as control interface:** LRM2-AT10-B60H16B-CT10-T1

Component Appearance:



I Multi-channel standard chassis

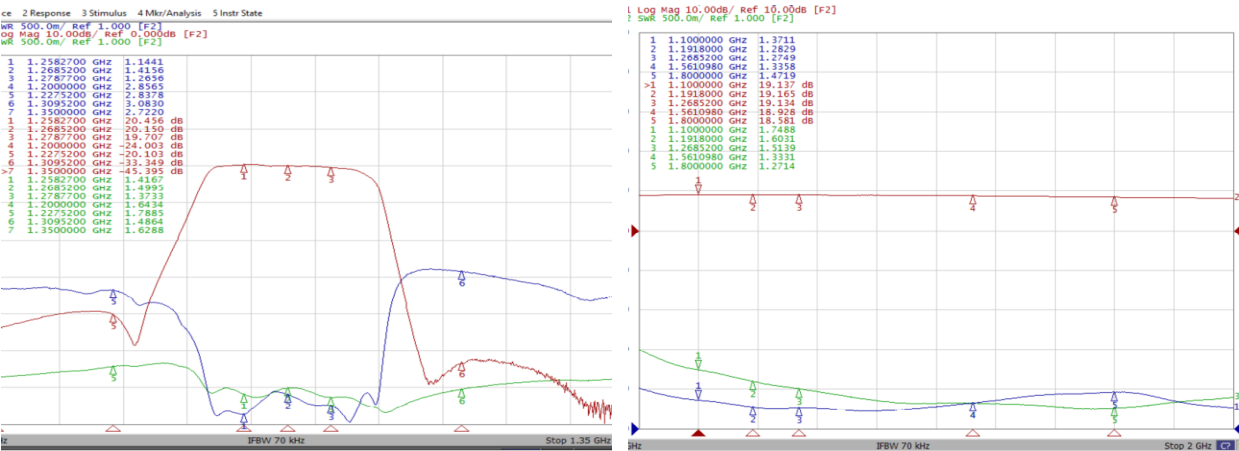
Technical indicators:

- ▶ **Volume:** standard 1U case;
 - ▶ **Operating voltage:** 220V/AC;
 - ▶ **Control interface:** RS232;
- ▶ **RF indicators:** demand customization;
 - ▶ **Number of channels:** demand customization;

Chassis Exterior:



Test Curve:



I X/Ku-band frequency conversion kit

Receiving specifications:

- ▶ **RF input RFIN1**
Frequency: 8~12GHz;
Number of channels: 1;
Power range: -65~0dBm;
 - ▶ **Radio frequency input RFIN2**
Frequency: 12~18GHz;
Number of channels: 1;
Power range: -65~0dBm;
 - ▶ **Output IF signal IFOUT**
Output frequency: 0.5~2.5GHz;
- Number of output channels: 1 channel;
Output flatness: $\leq \pm 2\text{dB}$;
Output spurious: $\geq 50\text{dBc}$;
 - ▶ **Front-end CNC attenuator:** 0~63dB/1dB;
Gain: $25 \pm 2\text{dB}$;
 - ▶ **Local oscillator frequency step:** 100MHz;
 - ▶ **Receiving front-end noise figure:** $\leq 8\text{dB}$;
 - ▶ **Receiving modulator isolation:** $\geq 60\text{dB}$;
 - ▶ **Anti-burnout power:** $\geq 2\text{W}$ (design guarantee);

Transmission index requirements:

- ▶ **Input IF signal IFIN**
Input frequency: 0.5~2.5GHz;
Number of input channels: 1 channel;
Input power range: $-10 \pm 2\text{dBm}$;
 - ▶ **Output RF signal RF-OUT1**
Output RF frequency: 8~12GHz;
Number of output channels: 1;
Output power: $\geq +10\text{dBm}$;
Output spurious: $\geq 50\text{dBc}$;
Output flatness: $\leq \pm 2\text{dB}$;
 - ▶ **Output RF signal RF-OUT2**
Output RF frequency: 12~18GHz;
Number of output channels: 1;
Output power: $+10\text{dBm}$;
- Output spurious: $\geq 50\text{dBc}$;
Output flatness: $\leq \pm 2\text{dB}$;
 - ▶ **Single-pole double-throw switch turn-off Ratio:** $\geq 60\text{dB}$ (design guarantee);
 - ▶ **Switching rising edge:** $\leq 20\text{ns}$;
 - ▶ **Transmit modulator isolation:** $\geq 80\text{dB}$;
 - ▶ **Switching time:** $\leq 50\text{ns}$;
 - ▶ **Emission NC:** 0.5~121.5dB (small step and two-state attenuator used in combination);

Power requirements:

- ▶ **Power supply:** +28V;
- ▶ **Current:** $\leq 650\text{mA}$;

Module Exterior:



I Ka Frequency Conversion Components

Receiving specifications:

- **RF input RFIN**

Frequency: 33~38GHz;

Number of channels: 1;

Power range: -65~0dBm;
- **Output IF signal IFOUT**

Output frequency: 0.5~2.5GHz;

Number of output channels: 1 channel;

Output flatness: $\leq \pm 2\text{dB}$;

Output spurious: $\geq 50\text{dBc}$;
- **Front-end CNC attenuator:** 0~63dB/1dB;

► **Gain:** $25 \pm 2\text{dB}$;

► **Local oscillator frequency step:** 100MHz;

► **Receiving front-end noise figure:** $\leq 8\text{dB}$;

► **Receiving modulator isolation:** $\geq 60\text{dB}$;

► **Anti-burnout power:** $\geq 2\text{W}$ (design guarantee);

Transmission index requirements:

- **Input IF signal IFIN**

Input frequency: 0.5~2.5GHz;

Number of input channels: 1 channel;

Input power range: $-10 \pm 2\text{dBm}$;
- **Output RF signal RF-OUT**

Output RF frequency: 33~38GHz;

Number of output channels: 1;

Output power: +10dBm;
- Output Spurious: $\geq 50\text{dBc}$;

Output flatness: $\leq \pm 2\text{dB}$;

► **Switching rising edge:** $\leq 20\text{ns}$;

► **Transmit modulator isolation:** $\geq 80\text{dB}$;

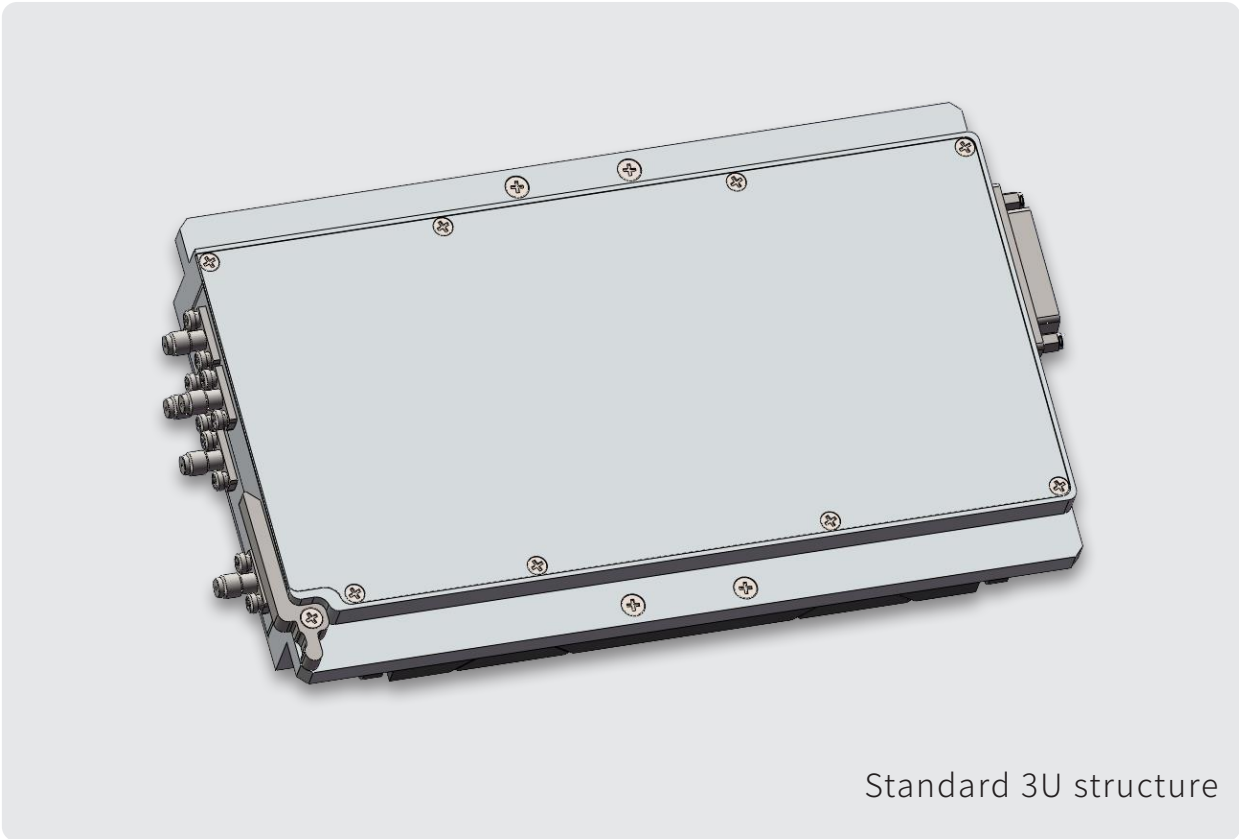
► **Switching time:** $\leq 50\text{ns}$;

► **Emission NC:** 0.5~121.5dB (small step and two-state attenuator used in combination);

Power requirements:

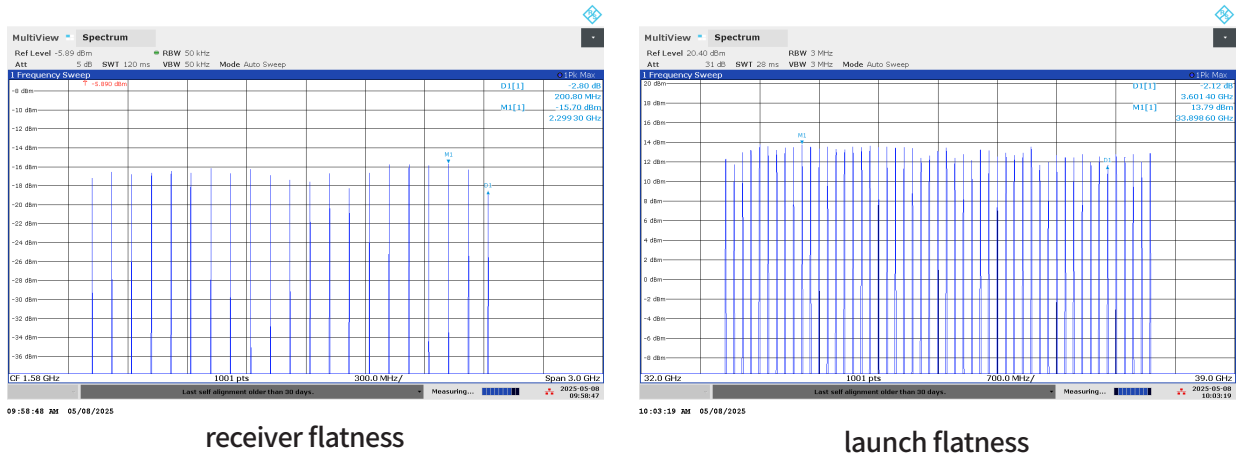
- **Power supply:** +28V;
- **Current:** $\leq 650\text{mA}$;

Module Exterior:



Standard 3U structure

Ka test indicators:

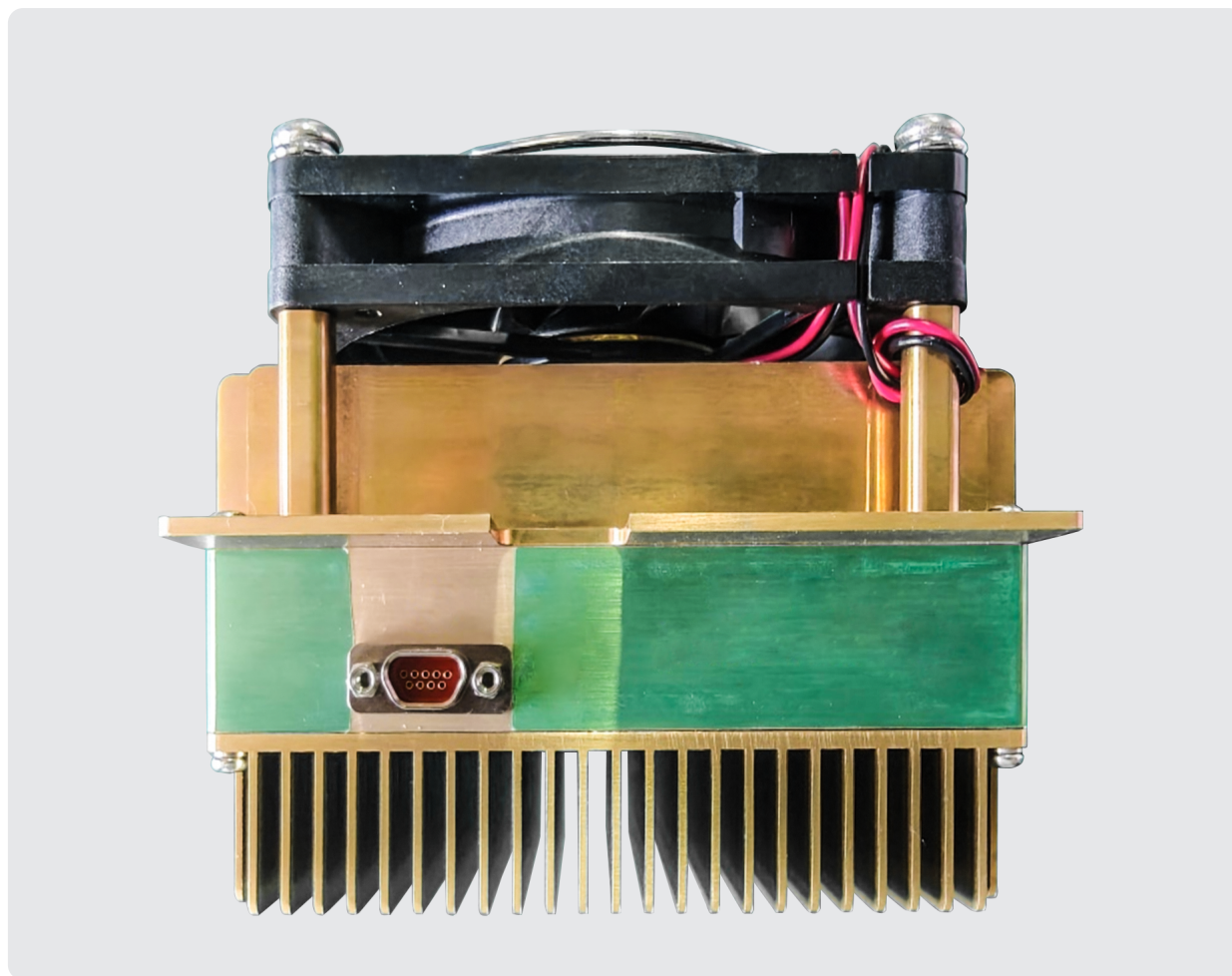


I 2~6 GHz Power Amplifier Module

Technical indicators:

- ▶ **Frequency Range:** 2~6 GHz
- ▶ **Gain:** 50 dB
- ▶ **Gain Flatness:** ± 2 dB
- ▶ **Input VSWR:** ≤ 2
- ▶ **Saturated Output Power:** ≥ 43 dBm
- ▶ **Connector Type:** SMA-K
- ▶ **Operating Voltage:** +28 V
- ▶ **Operating Current:** 5 A

Module Exterior:



Module Exterior:

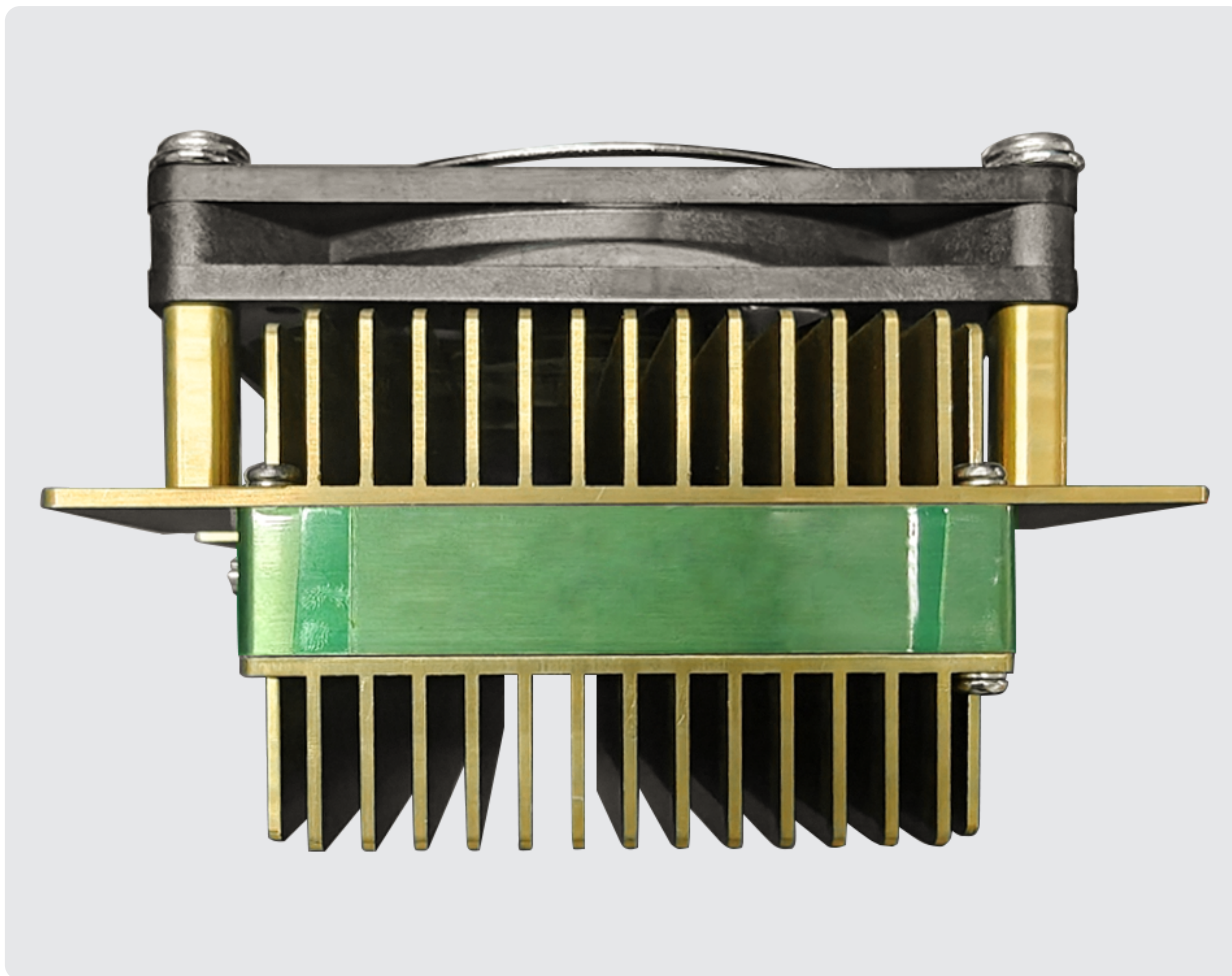


I 6~18 GHz Power Amplifier Module

Technical indicators:

- ▶ **Frequency Range:** 6~18 GHz
- ▶ **Gain:** 50 dB
- ▶ **Gain Flatness:** ± 2 dB
- ▶ **Input VSWR:** ≤ 2
- ▶ **Saturated Output Power:** ≥ 43 dBm
- ▶ **Connector Type:** SMA-K
- ▶ **Operating Voltage:** +28 V
- ▶ **Operating Current:** 5A

Module Exterior:



Module Exterior:



I Micro-assembly 10,000 class clean room

