# Frequency Conversion Componment

# Model: LNB-13G75-15G25-55-IP68

13.75-15.25GHz 55dB,Gain

Low power consumption, high accuracy, fast response and high stability

## Features:

- RF Frequency range: 13.75-15.25GHz
- IF Frequency range: 950-2450MHz
- Gain: 55dB
- External/Internal Reference Adaptive

## Applications:

- Test Lab
- Instrumentations
- Auto Test Set

## Product Overview：

The LNB-13G75-15G25-55-IP68 is a frequency conversion component operating in the Ku-band. It features an integrated local oscillator, with input RF frequency of 13.75-15.25 GHz and output IF frequency of 950~2450 MHz. Providing a conversion gain of 55 dB, it also supports adaptive switching between internal and external references.

## Electrical Specifications at 25℃:

| Parameter | | Min | Typ | Max | Units |
|---|---|---|---|---|---|
| RF Input Frequency | | 13.75 | | 15.25 | GHz |
| IF Output Freqency | | 950 | | 2450 | MHz |
| Gain | | 55 | | | dB |
| Gain Control Range | | | 31.5 | | dB |
| Gain Control Step | | | 0.5 | | dB |
| Gain Flatness | | | | ±2 | dB |
| Noise Figure | | | | 2 | dB |
| Image Rejection | | 50 | | | dBc |
| Spurious@IF out | | | | -60 | dBc |
| Spurious@12.7GHz&17GHz | | | | -25 | dBc |
| Group Delay@100MHz BW | | | | ±2 | ns |
| Output P1dB | | 10 | | | dBm |
| Phase Noise | @1KHz | | | -80 | dBc/Hz |
| | @10KHz | | | -85 | |
| | @100KHz | | | -95 | |
| | @1MHz | | | -100 | |
| LO Reference Mode | | External/Internal Reference Adaptive; External reference with fallback to Internal Refence | | | |
| External LO Reference Level (Sine wave, 100MHz) | | 5 | | | dBm |
| Output Reference Clock @Output Power≥10dBm | | | 100 | | MHz |
| VSWR | | | | 2 | :1 |
| DC Supply Voltage | | | 12 | | V DC |

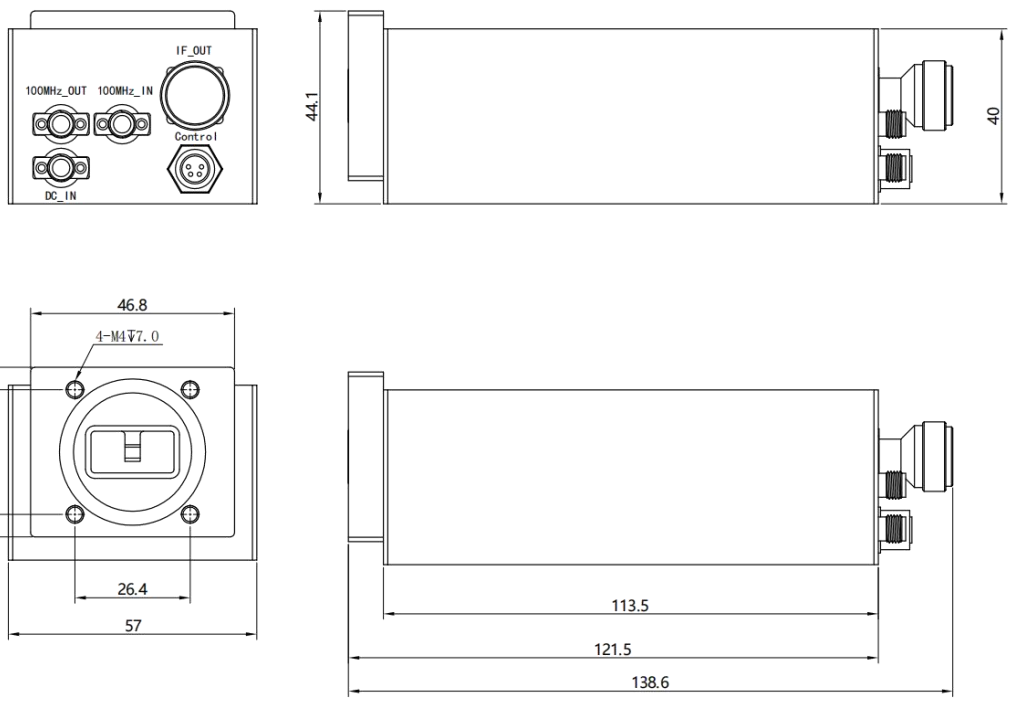
## Mechanical Specifications:

| Parameter | Value | Notes |
|---|---|---|
| Operating Temerature | -30℃ to +65℃ | |
| RF Input/Output Connector | WR75 or WR120/N Female | |
| Remote Control Connector | M8 Female, 4 pin<br>( Pin1 = NC;<br>Pin2 = A pos+ RS485;<br>Pin3 = B neg- RS485;<br>Pin4 = Common GND) | 1、LO Frequency Setting<br>2、Digital Attenuator Setting<br>3、Internal/External Reference Status Query<br>4、PLL Lock Status Monitoring<br>5、DC Power Supply Status Monitoring |
| Communication Conneector | RS485 | |
| DC supply Interface | SMA Female | +12 VDC |
| Reference Output Reference Interface | SMA Female | 100MHz |
| External Reference Input Interface | SMA Female | 100MHz |
| Ingress Protection Grade | IP-68 | |
| Dimensions W x H x D | 121.5*57*40 | mm |
| Weight | TBD | Kg |

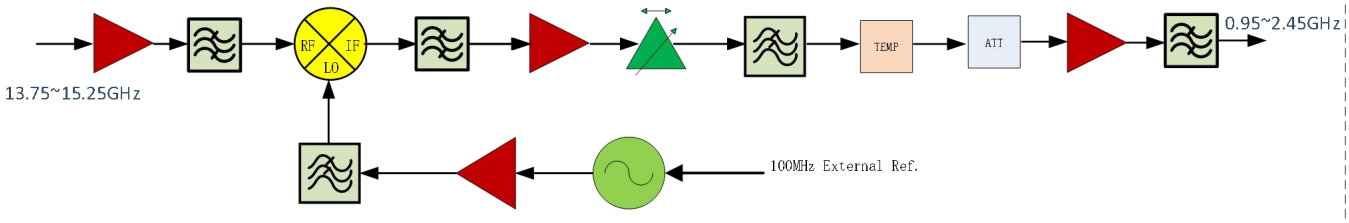
**Note：** The PLL frequency and the Digital Attenuator attenuation will be done by writing a number in the relevant register as per the communication protocol.

## Outline Drawing:

Unit:mm



## Functional Block Diagram:




## Ordering Information:

| Base Number | Description |
|---|---|
| LNB-13G75-15G25-55-IP68 | Frequency Conversion Component,<br>RF frequency; 13.75-15.25 GHz,Gain: 55dB |

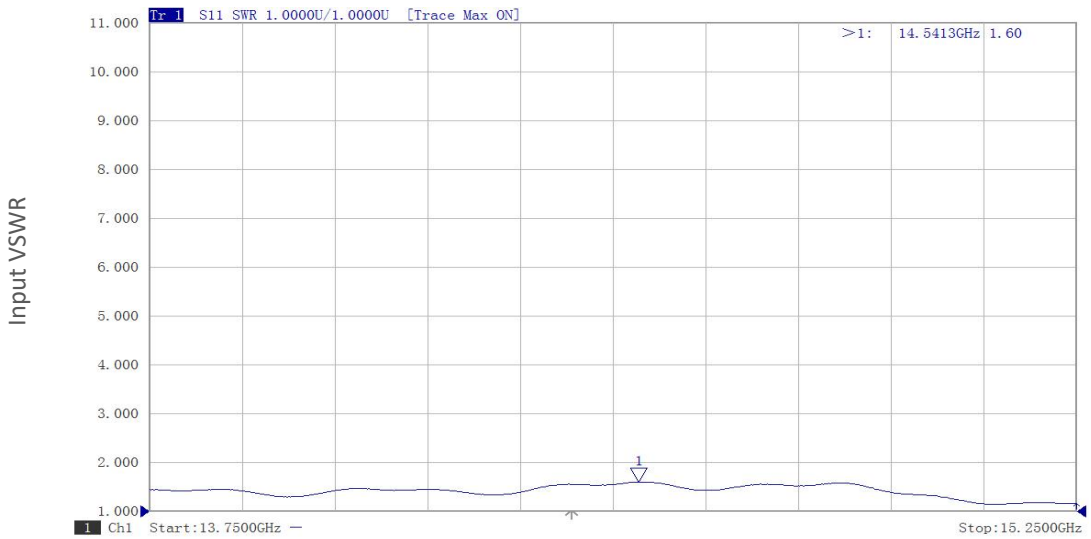
**Notes:**

1、Dimensions and specifications may be changed without prior notice.

2、Standard Warranty: three years.

## Typical Performance Data:

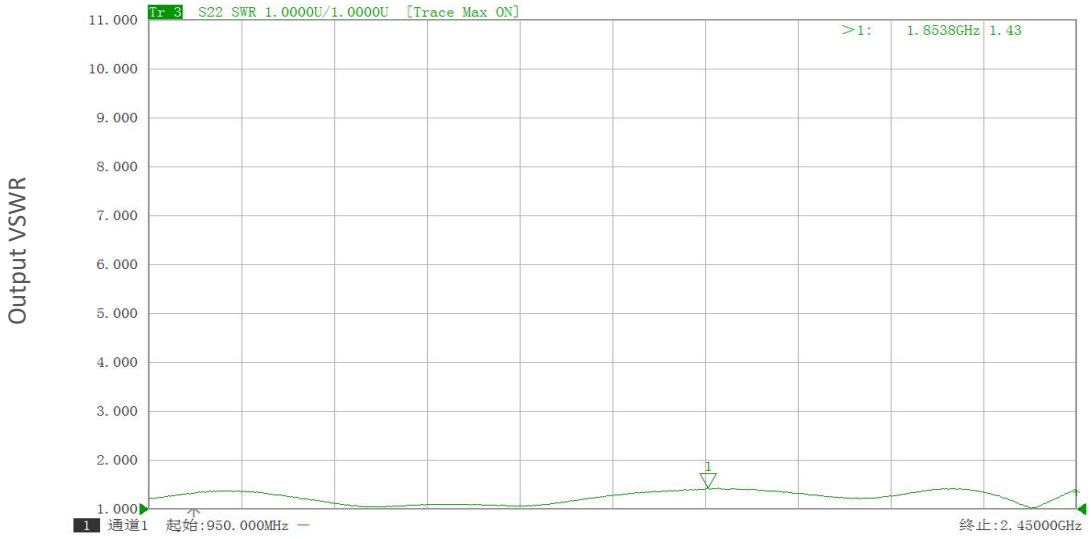
### Input VSWR vs Frequency




Input VSWR

Frequency(GHz)

### Output VSWR vs Frequency



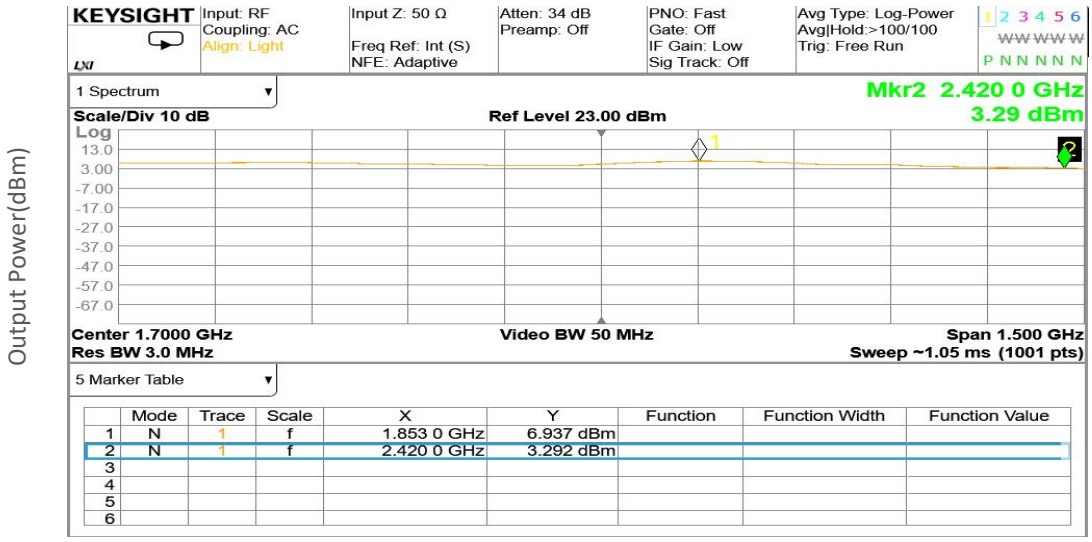

Output VSWR

Frequency(GHz)

Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

## Typical Performance Data:

### Output Power vs Frequency@RF Pin=-50dBm;13.75~15.25GHz




Output Power(dBm)

Frequency(GHz)

### Noise Figure vs Frequency


Noise Figure(dB)

Frequency(GHz)

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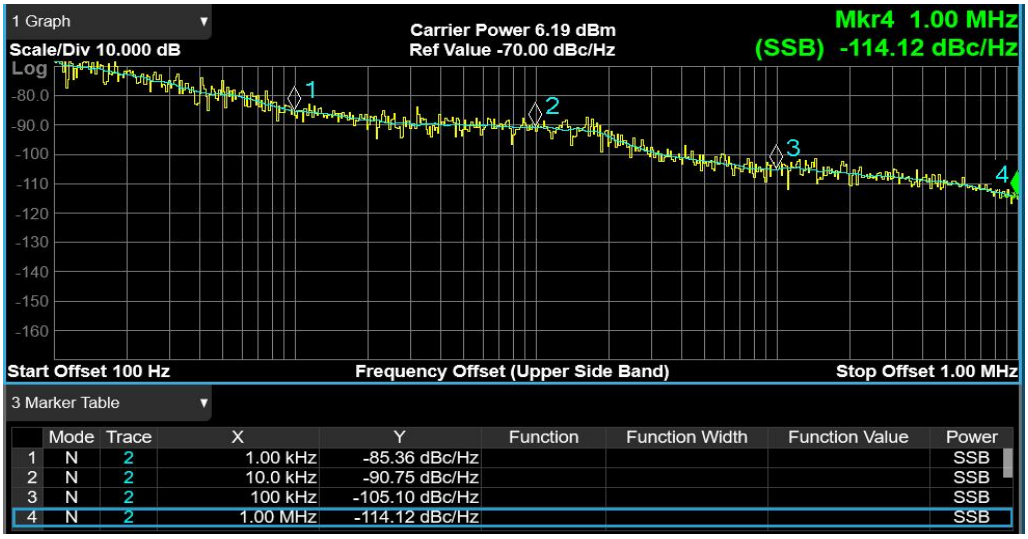
## Typical Performance Data:

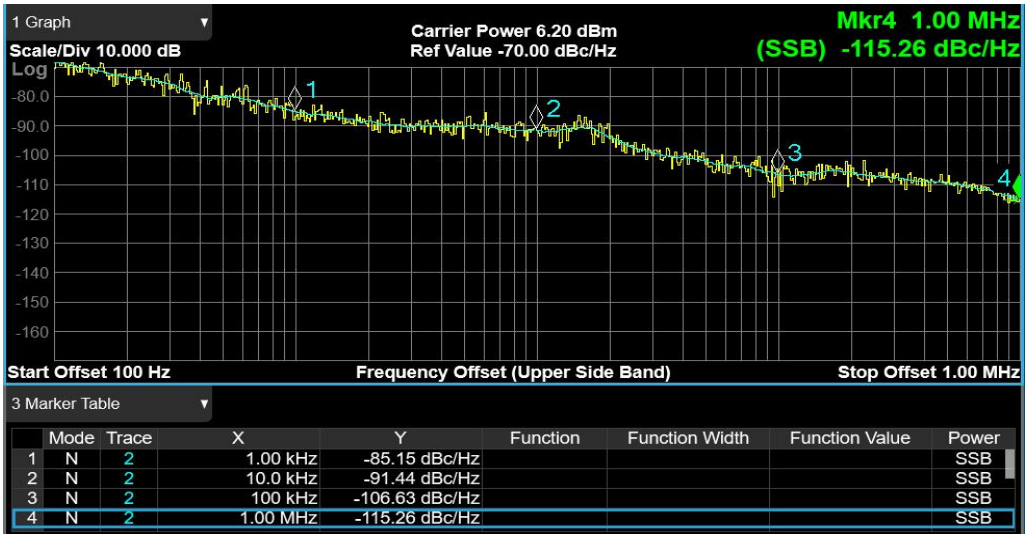
### Phase Noise @950MHz




Phase Noise(dBc)

Frequency Offset(MHz)

### Phase Noise @1300MHz



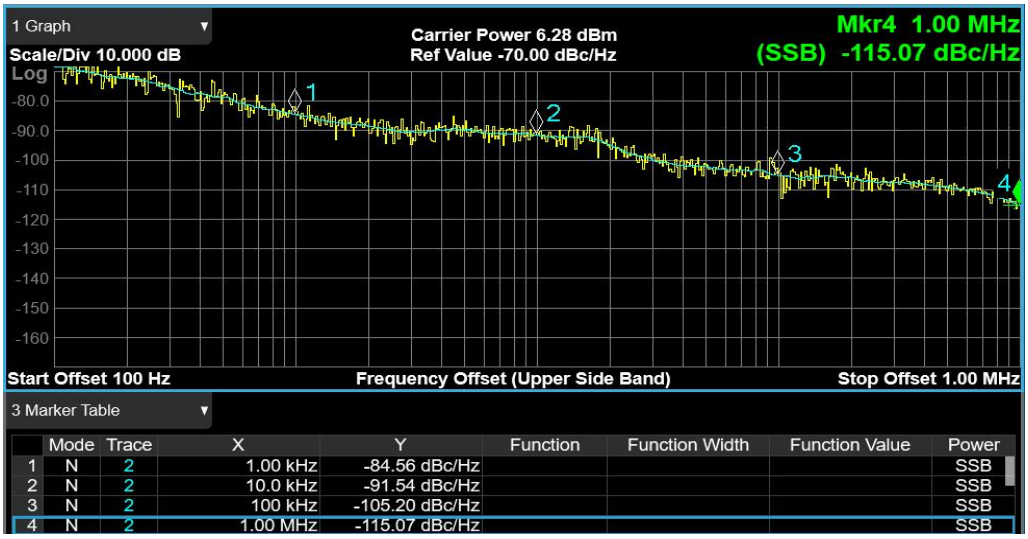

Phase Noise(dBc)

Frequency Offset(MHz)

Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

## Typical Performance Data:

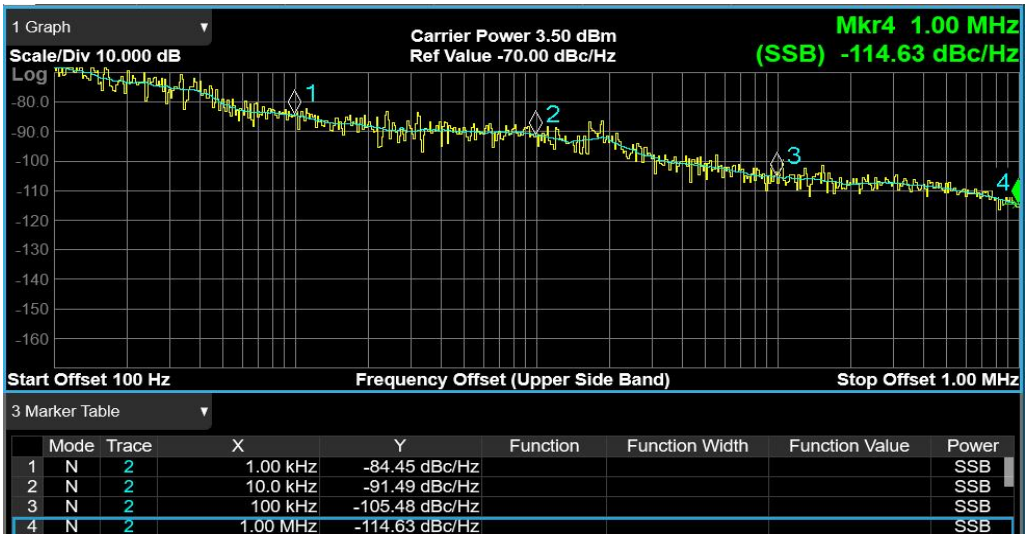
### Phase Noise @2000MHz




Phase Noise(dBc)

Frequency Offset(MHz)

### Phase Noise @2450MHz



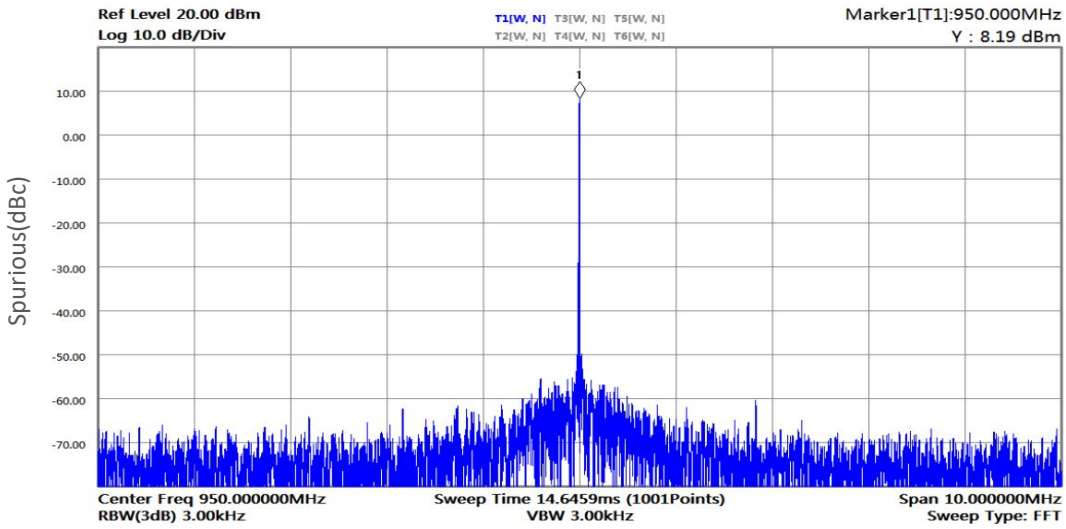

Phase Noise(dBc)

Frequency Offset(MHz)

Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

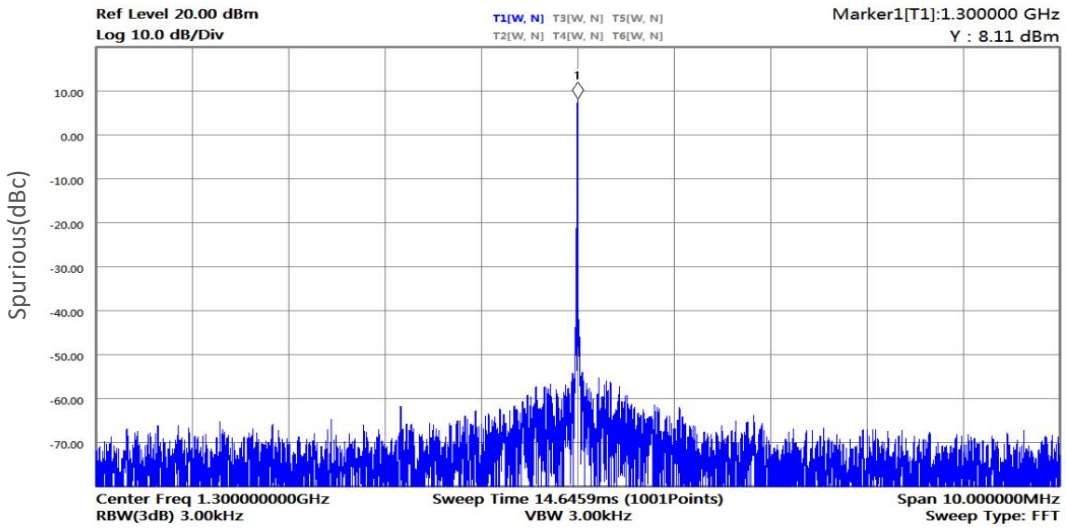
## Typical Performance Data:

### Near-end Spurious@950MHz




Frequency(MHz)

### Near-end Spurious@1300MHz




Frequency(MHz)

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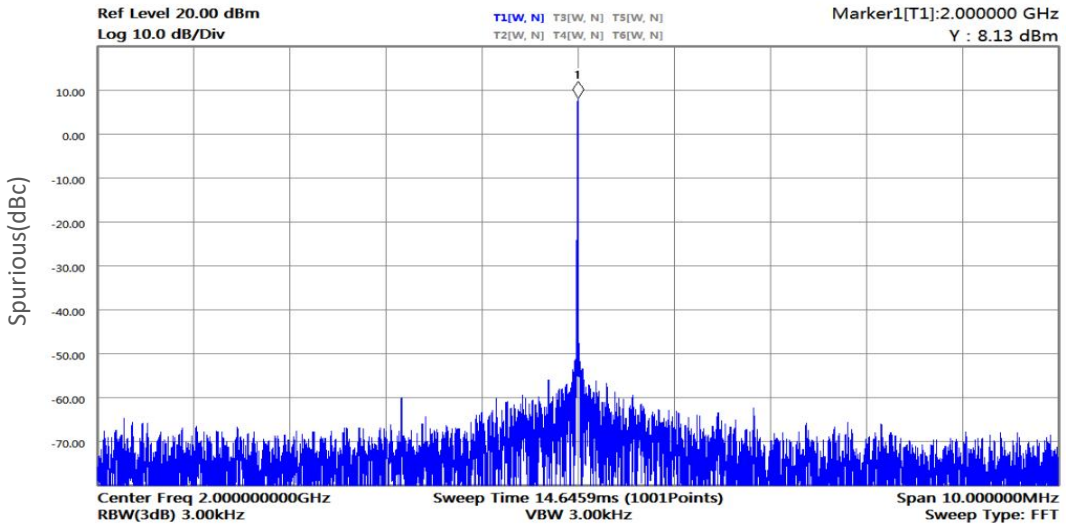
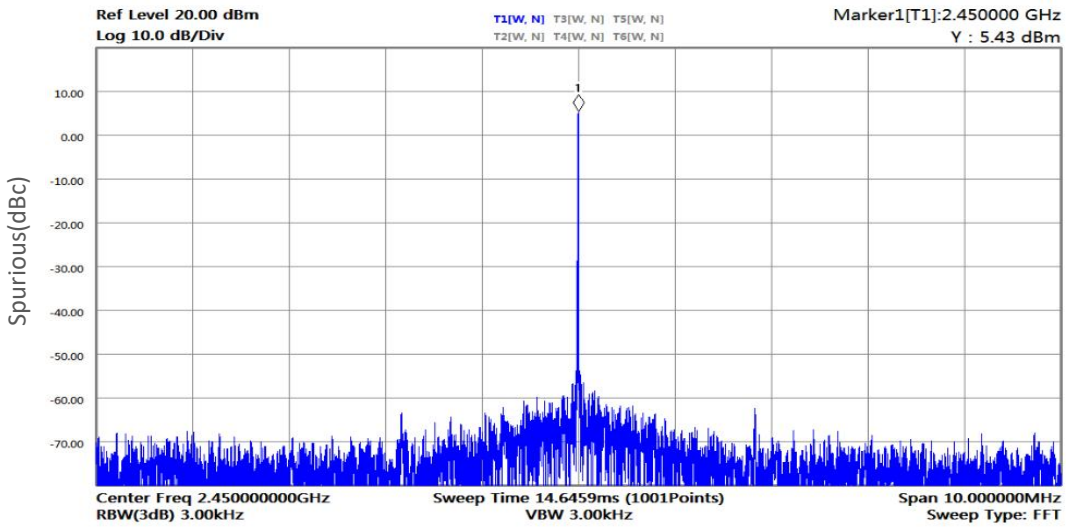
## Typical Performance Data:

### Near-end Spurious@2000MHz




Frequency(MHz)

### Near-end Spurious@2450MHz




Frequency(MHz)

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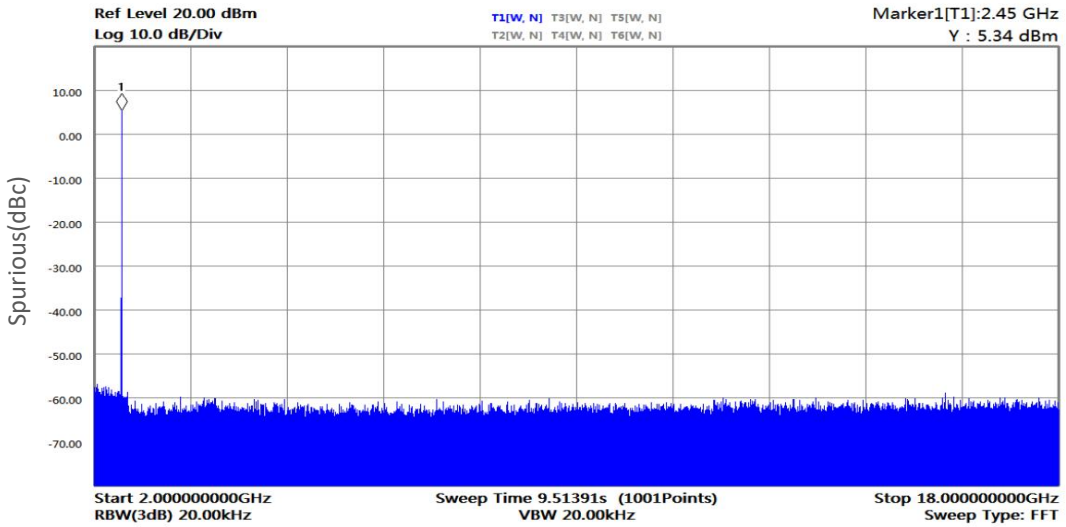
## Typical Performance Data:

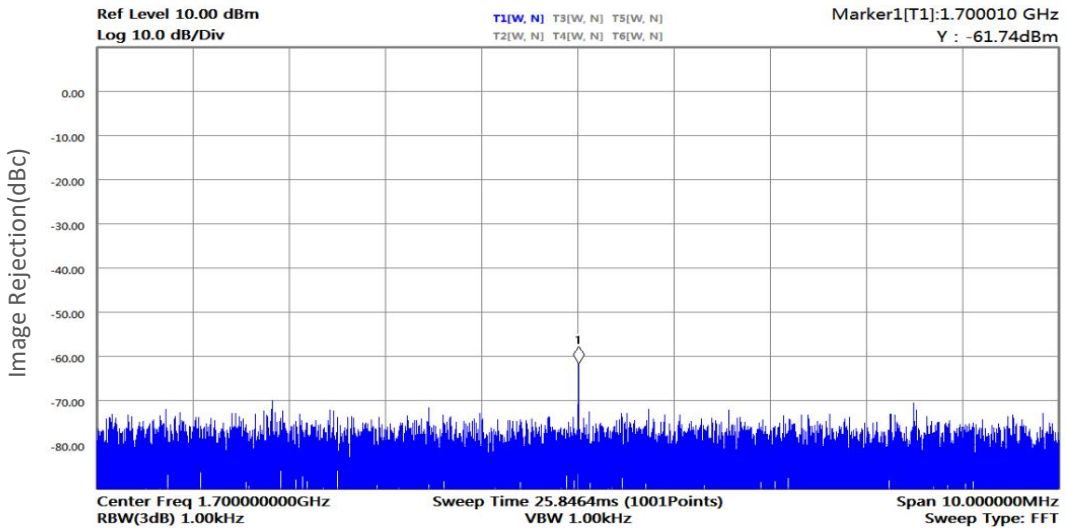
### Far-end Spurious vs Frequency




Frequency(GHz)

RF Pin:-50dBm@11.1GHz

### Image Rejection@14.5GHz

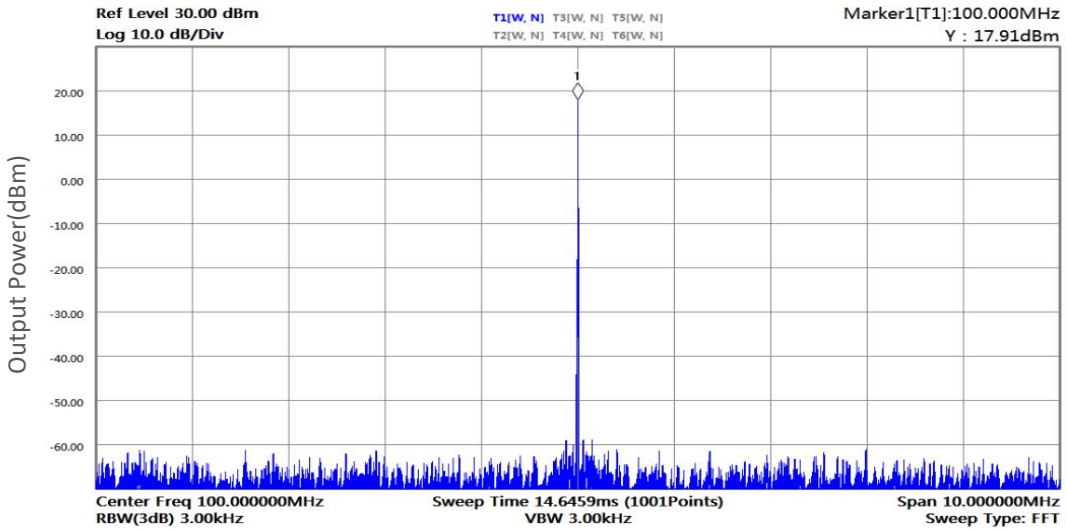



Frequency(MHz)

Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

## Typical Performance Data:

### Output Power@Output Reference Clock

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