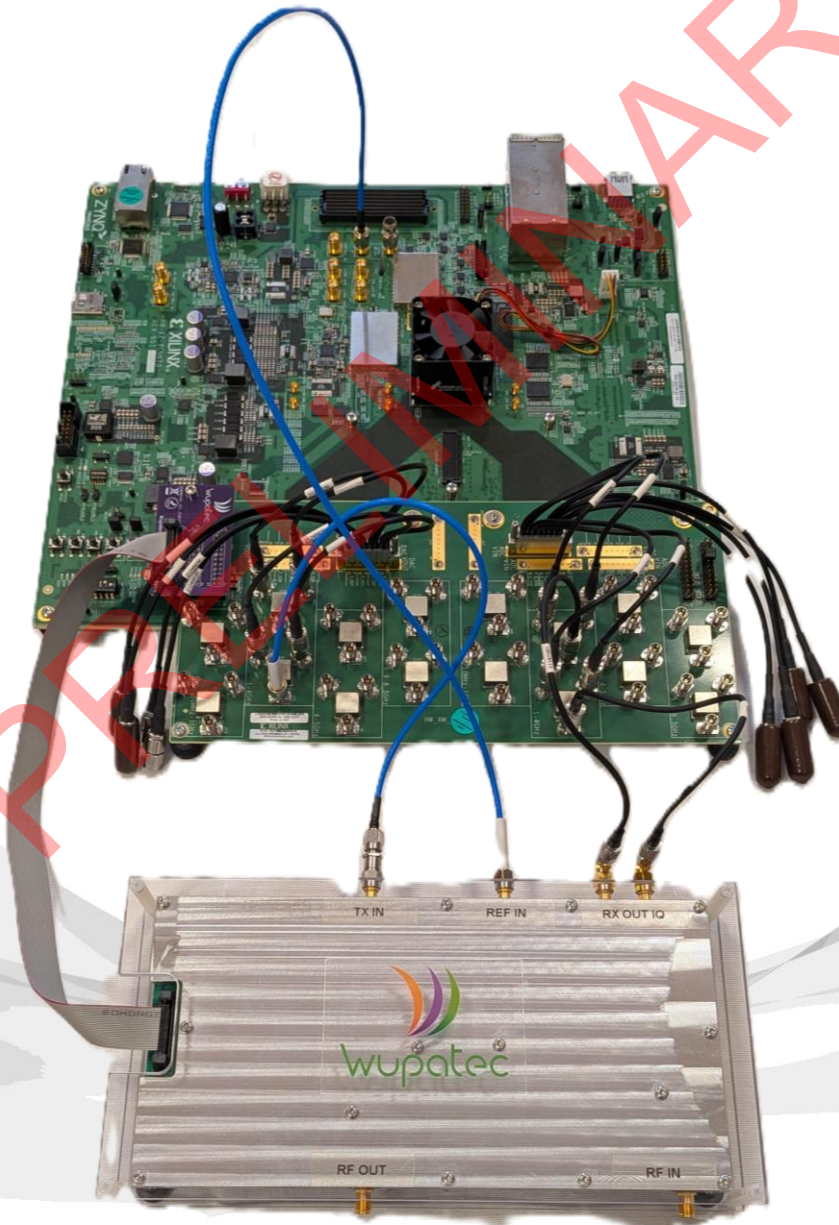


# FR3 Extension board for RFSoc

6900MHz-25800MHz

1200MHz BW



## Specifications

| Dependencies                                                                                                                                                     |                               |                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Baseboard                                                                                                                                                        |                               | AMD ZCU670 kit with Wupatec VST firmware v0.97 and above                                                                                                    |
| Software                                                                                                                                                         |                               | IQstar v1.8.1 and above                                                                                                                                     |
| General Specifications.                                                                                                                                          |                               |                                                                                                                                                             |
| Frequency range                                                                                                                                                  |                               | 6.9GHz to 25.8GHz                                                                                                                                           |
| Harmonics                                                                                                                                                        |                               | Rejected by external low pass filter                                                                                                                        |
| Frequency accuracy                                                                                                                                               |                               | $\pm$ (Output frequency x 270ppb)                                                                                                                           |
| RF OUTPUT PORT                                                                                                                                                   |                               |                                                                                                                                                             |
| RF output port connector                                                                                                                                         |                               | 2.92mm female, 50 $\Omega$ nominal                                                                                                                          |
| RF Output port max. reverse input power level                                                                                                                    |                               | 0dBm                                                                                                                                                        |
| RF Output port max. DC voltage input level                                                                                                                       |                               | $\pm$ 16V                                                                                                                                                   |
| RF Output port setting level range                                                                                                                               |                               | 100dB relative to max power                                                                                                                                 |
| RF Output port level accuracy                                                                                                                                    |                               |                                                                                                                                                             |
|                                                                                                                                                                  | Power Level = max power - 6dB | $< \pm 3$ dB                                                                                                                                                |
|                                                                                                                                                                  | Overall power range           | $< \pm 3$ dB                                                                                                                                                |
| RF Output port setting resolution                                                                                                                                |                               | 0.01 dB                                                                                                                                                     |
| RF INPUT PORT                                                                                                                                                    |                               |                                                                                                                                                             |
| RF Input port                                                                                                                                                    |                               |                                                                                                                                                             |
|                                                                                                                                                                  | Connector                     | 2.92mm female, 50 $\Omega$ nominal                                                                                                                          |
|                                                                                                                                                                  | Max. safe input power level   | +3 dBm (peak)                                                                                                                                               |
|                                                                                                                                                                  | Damage input power level      | +8 dBm (peak)                                                                                                                                               |
|                                                                                                                                                                  | Max. DC voltage input level   | $\pm$ 16V                                                                                                                                                   |
| RF Input port level accuracy                                                                                                                                     |                               | NA (uncalibrated)                                                                                                                                           |
| INPUTS AND OUTPUTS                                                                                                                                               |                               |                                                                                                                                                             |
| REF OUT (ZCU670 J147 – SI5381 OUT8)                                                                                                                              |                               | SMA female, AC coupled, 50 $\Omega$ nominal<br>Output level: +8dBm $\pm$ 1dB (square waveform)<br>Frequency: 10MHz $\pm$ 270 ppb                            |
| REF IN (ZCU670 J143 – 1588 CLK3 IN P)                                                                                                                            |                               | SMA female, AC coupled, >1 k $\Omega$ nominal<br>Input level range: -8 to +13dBm (sine or square waveform)<br>Frequency: 10MHz<br>Lock range: $\pm$ 9.2 ppm |
| DIMENSIONS AND WEIGHT                                                                                                                                            |                               |                                                                                                                                                             |
| Dimensions                                                                                                                                                       |                               | 45 mm (H) x 240 mm (L) x 120 mm (W)                                                                                                                         |
| Weight                                                                                                                                                           |                               | 0.2 kg                                                                                                                                                      |
| Environmental conditions                                                                                                                                         |                               |                                                                                                                                                             |
| Altitude up to 2000m, Temperatures : 5 to 40°C , Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C. |                               |                                                                                                                                                             |

## Specifications

| Vector Signal Generator and Vector Signal Analyzer - IQ waveform mode |                  |                                                     |
|-----------------------------------------------------------------------|------------------|-----------------------------------------------------|
| Sampling rate                                                         |                  | 245.76MSa/s, 491.52MSa/s, 983.04MSa/s, 1474.56MSa/s |
| Capture depth                                                         |                  | 2GSa, 546ms @ 983.04MSa/s                           |
| Maximum signal generation and analysis bandwidth                      |                  |                                                     |
|                                                                       | Center frequency |                                                     |
|                                                                       | 7 GHz – 25.8 GHz | 1180 MHz                                            |
| Waveform transfer rate                                                | Read             | 87.5MB/s                                            |
|                                                                       | Write            | 62.5MB/s                                            |
| Triggering                                                            |                  | Internal, Free Run                                  |

PRELIMINARY

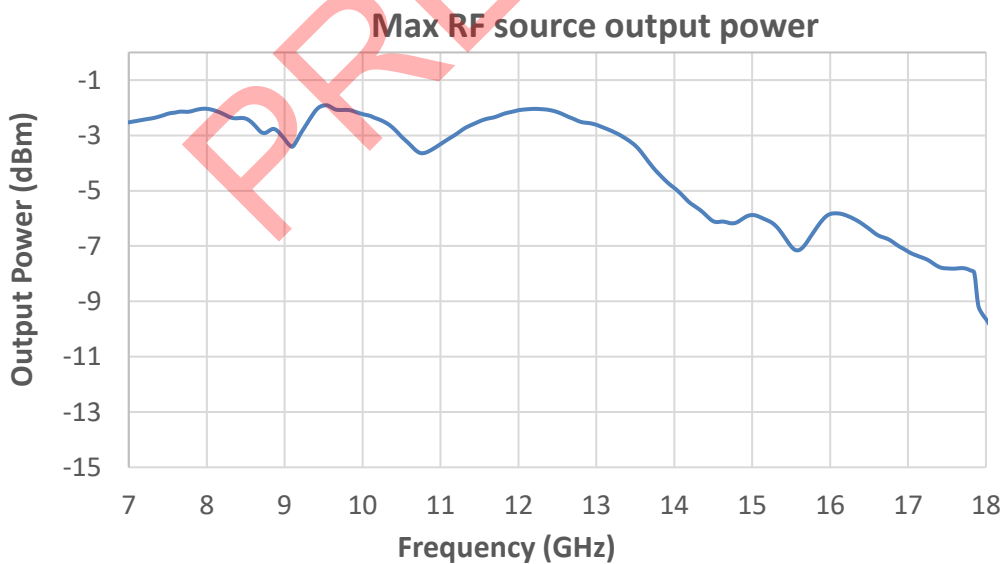
## Mechanical Dimensions

Dimensions: 5 mm (H) x 240 mm (L) x 120 mm (W)



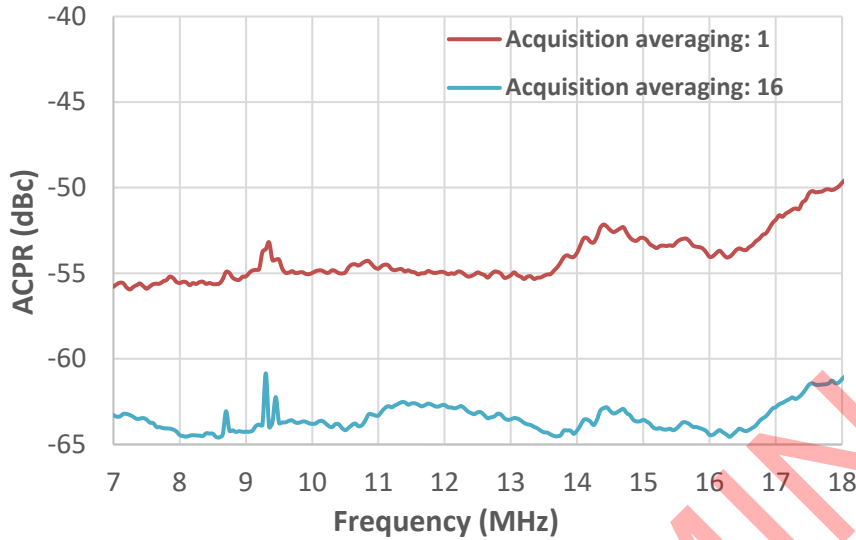
## Typical Performances

Maximum CW source output power:

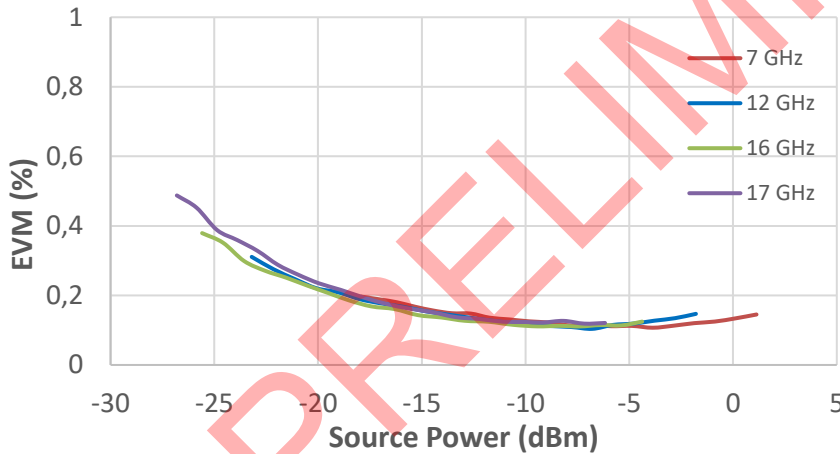


Maximum CW RF source output power vs frequency

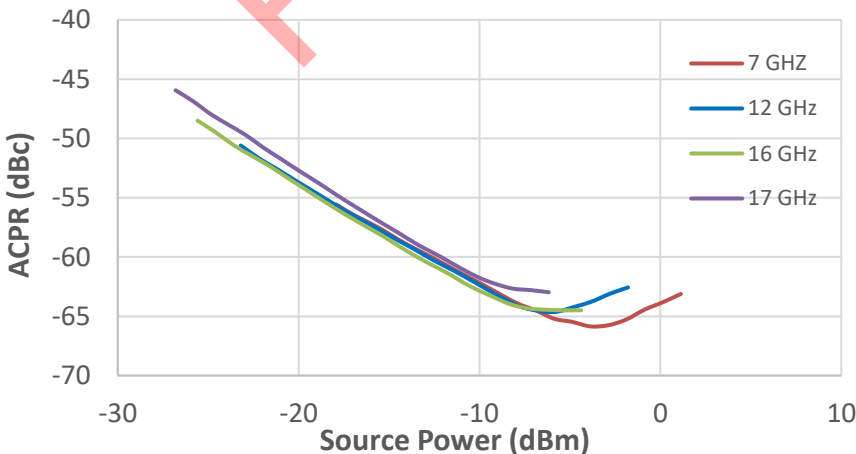
## 5G Typical Performances 7 – 18GHz



5G performances vs. frequency with  
100MHz bandwidth 8dB PAPR  
Source power -15dBm  
@1474.56MSa/s

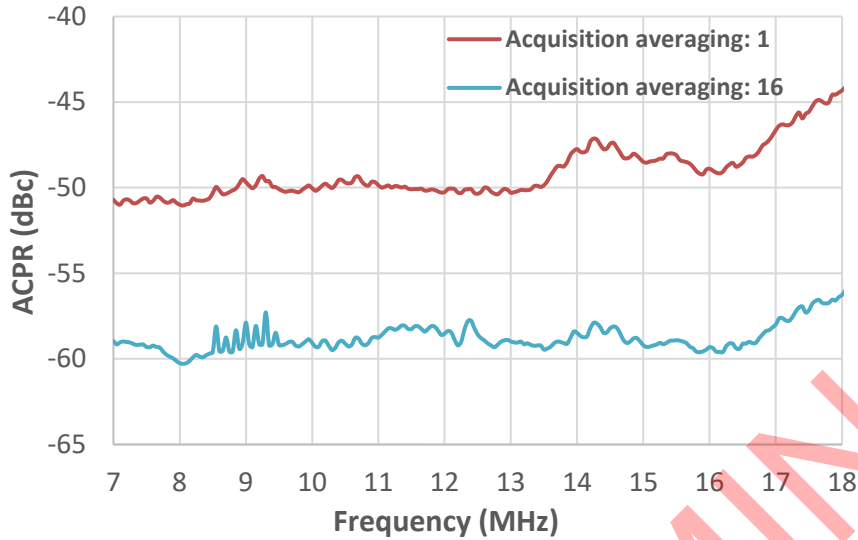


5G performances vs. source power  
at 7GHz, 12GHz and 17GHz with  
100MHz bandwidth 8dB PAPR  
@1474.56MSa/s

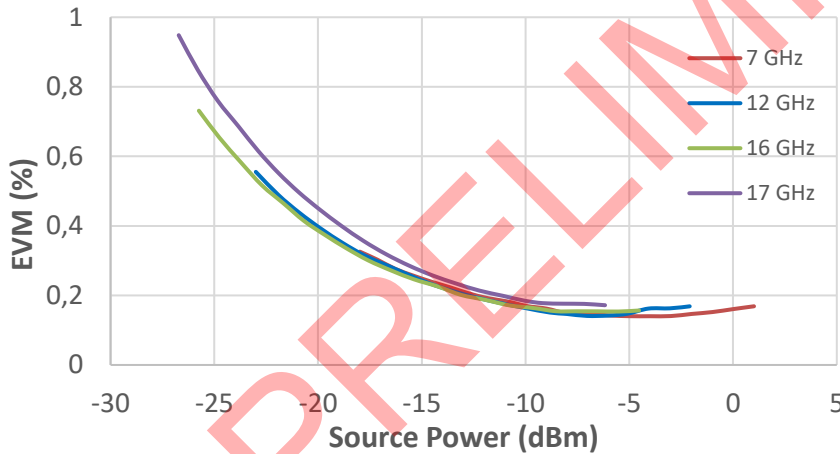


Note: RF output loopback to RF input.  
Acquisition averaging set to 16.

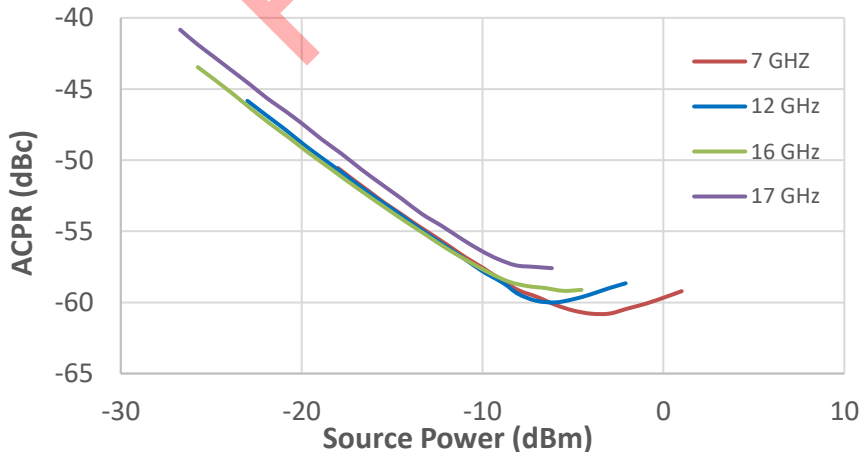
## 5G Typical Performances 7 – 18GHz



5G performances vs. frequency with  
4x100MHz bandwidth 8dB PAPR  
Source power -15dBm  
@1474.56MSa/s



5G performances vs. source power  
at 7GHz, 12GHz and 17GHz with  
4x100MHz bandwidth 8dB PAPR  
@1474.56MSa/s



Note: RF output loopback to RF input.  
Acquisition averaging set to 16.