

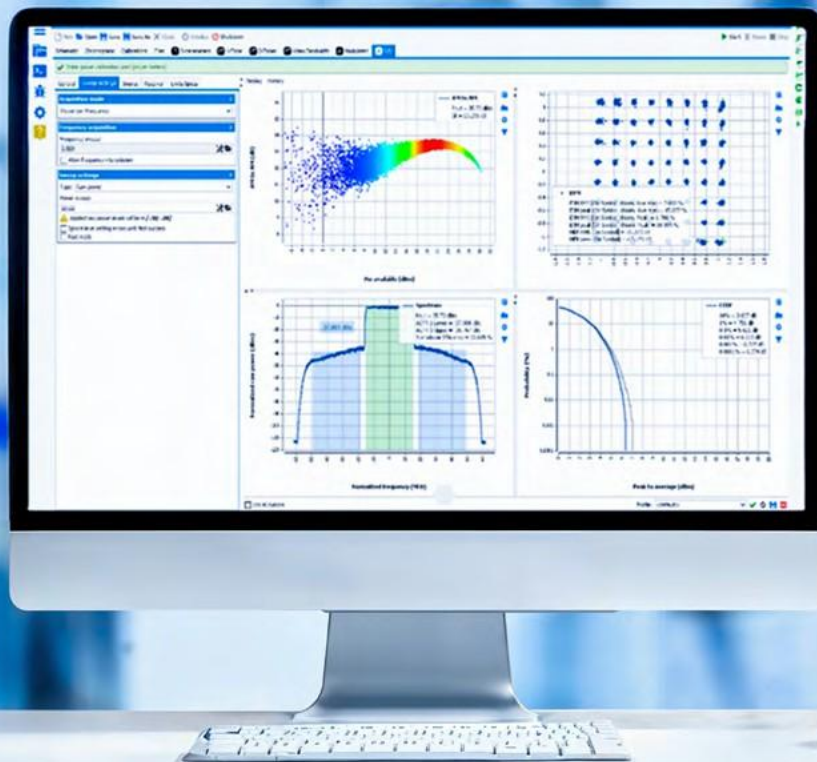
IQMASTER

(IQ6400)



MAIN FEATURES:

- **75MHz-6GHz Vector Signal Transceiver (VST) based on Radio Unit SoC Technologies**
- **Turnkey solution for IVCAD Suite measurement software (Dassault Système software)**
- **Dedicated firmware to run the VST like a benchtop instrument grade solution**
- **Measurement of RF Power Amplifier in base station-like conditions**
 - LTE/5G PA Tests with signal generation and analysis bandwidth up to 400MHz
 - 1-tone measurements: CW and pulsed CW characterization with configurable rise/fall time
 - 2-tone measurements for video bandwidth analysis
 - IQ signal generation and analysis with Digital Predistortion capabilities - Acquisition averaging up to 8192 in IQ modulation mode for high dynamic range characterization
- **Trigger and 10 MHz IN/OUT available to connect power meters, multimeter or spectrum analyzer**
- **High data transfer rate (Gigabit LAN interface)**



Specifications Table

GENERAL SPECIFICATIONS		
Frequency range	75MHz to 6GHz	
Harmonics	Rejected by external low pass filter	
Frequency accuracy	± (Output frequency × 61.5ppm + 1.832)	
RF OUTPUT PORT		
RF Output port connector	SMA female, 50Ω nominal	
RF Output port max. reverse input power level	+15dBm	
RF Output port max. DC voltage input level	TBD	
RF Output port setting level range	130dB relative to max power	
RF Output port level accuracy	Power Level = max power - 6dB	< ± 0.15dB
	Overall power range	< ± 1dB
RF Output port setting resolution	0.01dB	
RF INPUT PORT		
RF Input port (ORx1)	Connector	SMA female, 50Ω nominal
	Max. safe input power level	+17 dBm
	Damage input power level	+23 dBm (peak)
	Max. DC voltage input level	+30V
	RF Input port level accuracy	NA (uncalibrated)
INPUTS AND OUTPUTS		
REF OUT	BNC female, 50Ω nominal Output level: +5dBm ± 1dB (square waveform) Frequency: 10MHz ± 61.5 ppm	
REF IN	BNC female, 50Ω nominal Input level range: -15 to +13dBm (sine or square waveform) Frequency: 10MHz Lock range: ± 30 ppm	
TRIGIN	BNC female, > 100 kΩ nominal Accepts +3.3V TTL V _{high} min: +2.0V Min. pulse width: 20ns	
TRIG OUT 1, TRIG OUT 2, TRIG OUT 3	BNC female, 30Ω nominal +3.3V _{pp} into > 100kΩ +2.0V _{pp} into 50Ω	
DIMENSIONS AND WEIGHT		
Dimensions	85 mm (H) × 460mm (L) × 300mm (W)	
Weight	5.54kg	
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 Table

Vector Signal Generator and Vector Signal Analy		
Samplingrate	122.88MSa/s, 245.76MSa/s, 491.52MSa/s	
Capture depth	64MSa, 136ms @ 491.52MSa/s	
Maximum signal generation and analysis bandwidth	Center frequency	
	75 MHz – 526 MHz	100 MHz
	526 MHz – 5835 MHz	400 MHz
	5836 MHz – 5948 MHz	200 MHz
	5948 MHz – 6000 MHz	100 MHz
Waveform transfer rate	Read	87.5MB/s
	Write	62.5MB/s
Triggering	Internal, External, Free Run	

1-tone CW and pulsed modes		
Samplingrate (only applicable with 1-tone pulsed mode)	122.88MSa/s, 245.76MSa/s, 491.52MSa/s	
ON/OFF ratio	> 80dB	
Pulse period ¹	wMin.	1.83µs
	Max.	17.47s
Pulse width ¹	Min.	32.55ns
	Max.	17.47s
Pulse delay ¹	Min.	0ns
	Max.	8.74s
Rise/fall time ¹	Min.	8.14ns
	Max.	66µs
Resolution ¹ (applicable to period, width, delay, rise/falltime)	4.07ns	

2-tones mode		
Frequency spacing	Center frequency	
	75 MHz – 526 MHz	100kHz to 100MHz
	526 MHz – 5835 MHz	100kHz to 400MHz
	5836 MHz – 5948 MHz	100kHz to 200MHz
	5948 MHz – 6000 MHz	100kHz to 100MHz
Frequency resolution between tones	57 mHz	
Tone power range	95dB below average output power	

¹ Data specified with 491.52MSa/s sampling rate, other values can be reached with different sampling rates

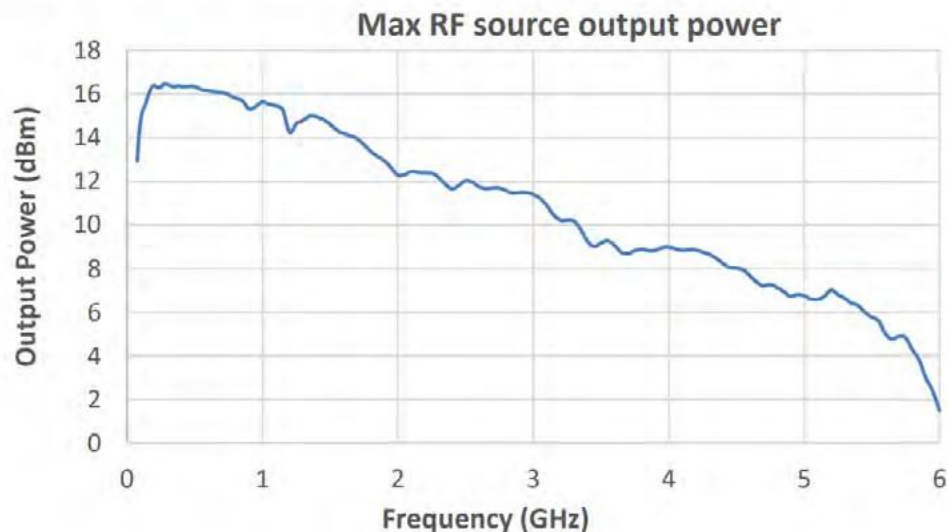
Mechanical Dimensions

- Dimensions: 85 mm (H) x 460 mm (L) x 300 mm (W)
- Weight : 5.54 kg



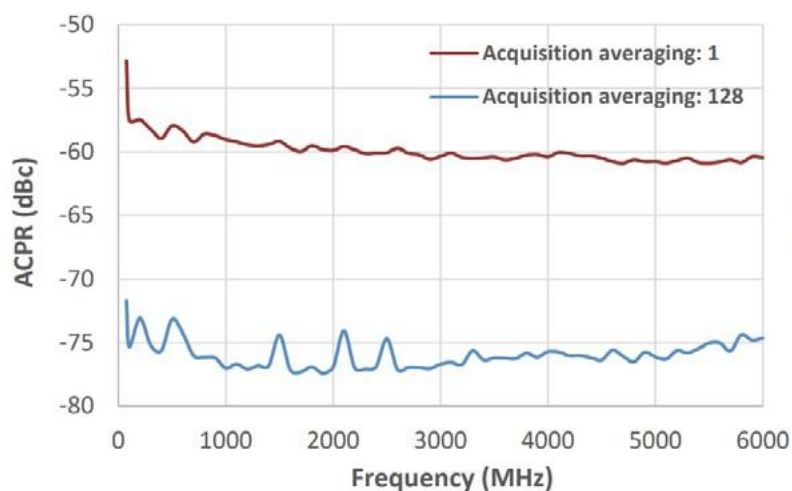
Typical Performances

Maximum CW source output power:



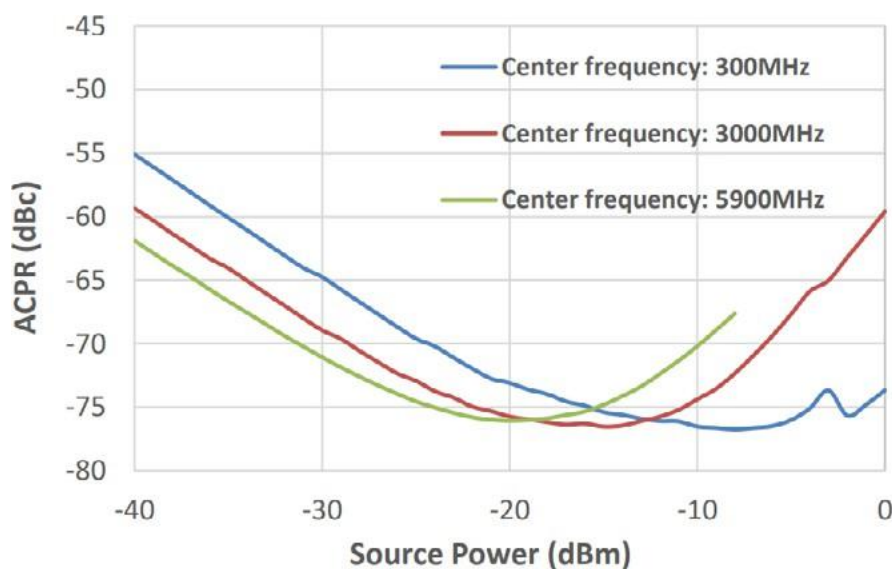
Maximum CW RF
source output power vs
frequency

General performances: 75MHz – 6GHz



General performances vs. frequency
with 20MHz bandwidth 10dB PAPR
Source power -15dBm
@122.88MSa/s

Typical Performances

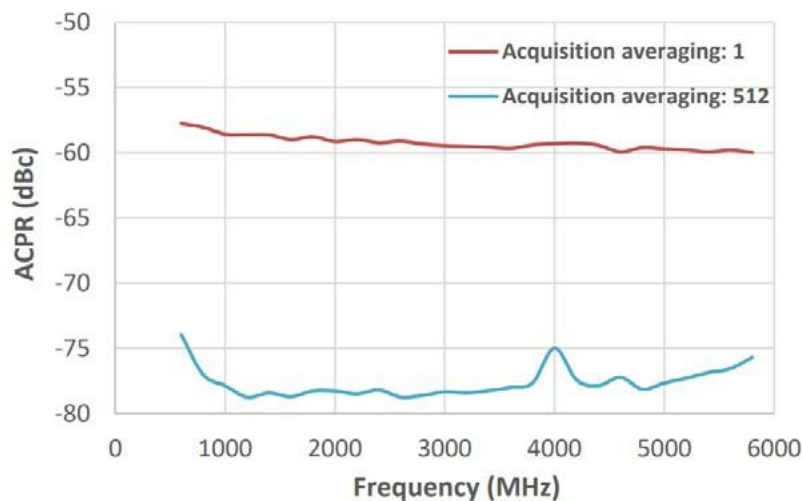


General performances vs. source power at 300MHz, 3GHz and 5.9GHz with 20MHz bandwidth 10dB PAPR @122.88MSa/s

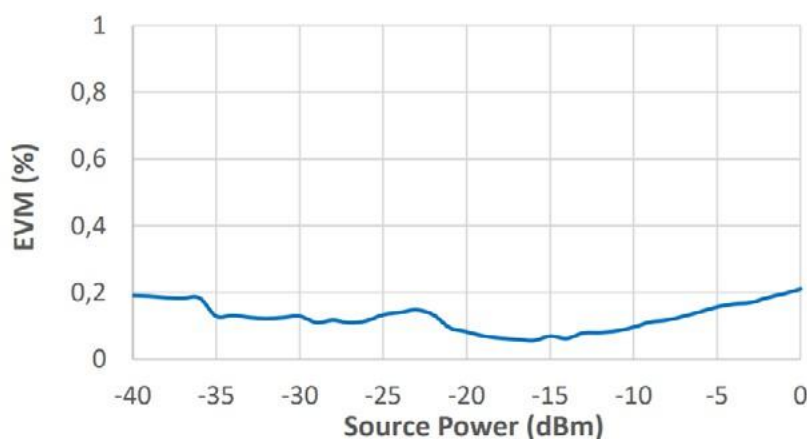
Note: RF output loopback to RF input .
Acquisition averaging set to 128.



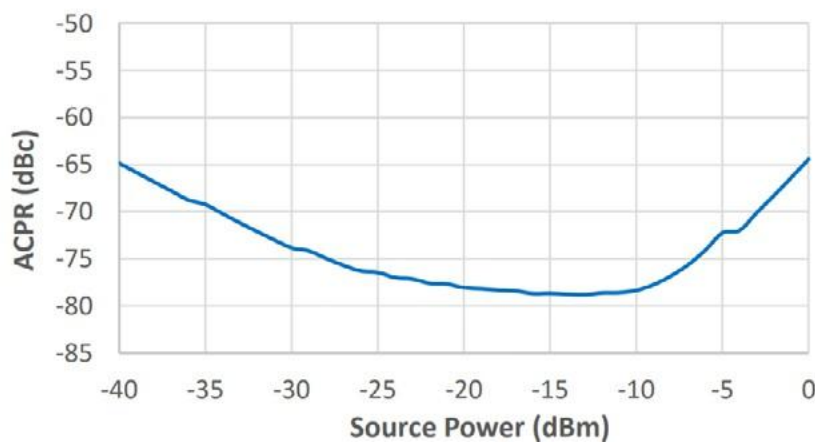
LTE Typical Performances



*LTE performances vs. frequency
with 20MHz bandwidth 10dB PAPR
Source power -15dBm
@491.52MSa/s*

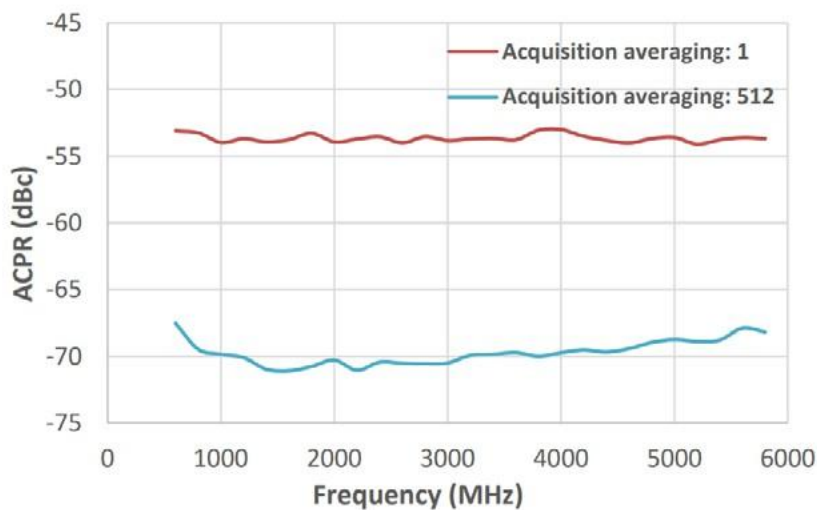


*LTE performances vs. source power
at 2.6GHz with 20MHz bandwidth
10dB PAPR
@491.52MSa/s*

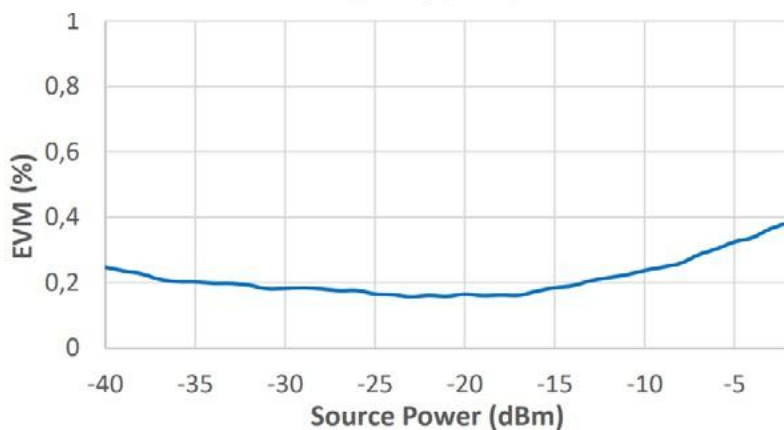


*Note: RF output loopback to RF input.
Acquisition averaging set to 512.*

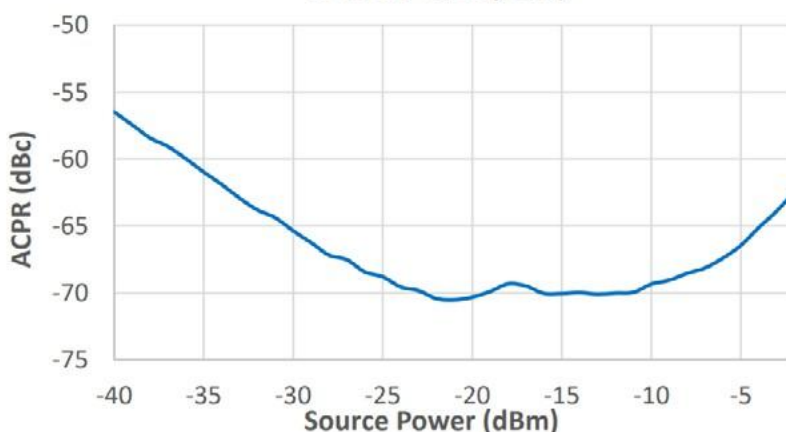
5G Typical Performances



5G performances vs. frequency with
100MHz bandwidth 10dB PAPR
Source power -15dBm
@491.52MSa/s



5G performances vs. source power
at 3.6GHz with 100MHz bandwidth
10dB PAPR
@491.52MSa/s



Note: RF output loopback to RF input.
Acquisition averaging set to 512.

Warranty

Any AMCAD product comes with a two-year parts and labor warranty, when returned to our workshops. A phone support service is also available for the same period.

At the end of the initial two-year period, a further contract can be subscribed, including:

- a preventive functional check and calibration of the modules (onsite or in our workshop)
- a further two-year warranty period

Quality Regulations & Environment

AMCAD Systems and all modules are compliant to the applicable European directive and hold the CEmark.

- Products are designed and manufactured in France.
- Serial number-based lifecycle management
- All products are 100% tested (test reports on demand)
- AMCAD only uses RoHS compliant components and does not use substances banned by the COSHH regulation.

- AMCAD complies with the relevant national regulations related to the safety and health of its employees against hazardous substances.
- As we are always seeking to improve our products, the information in this document gives only a general indication of the product capacity, performance and suitability, none of which shall form part of any contract. We reserve the right to make design changes without notice.

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