

**Gen 3 : RI 7100A ATE PERFORMANCE SUMMARY
EXAMPLE PRODUCTION TESTS (TYPICAL PERFORMANCE at 2 GHz)**

RF Measurements	Instrumentation Accuracy¹	Resolution	Comments and Test Conditions
Frequency (CW)	Time Base ²	1 Hz	
Frequency (Pulse)	Time Base ²	1 Hz	
Power (Absolute)	±0.25 dB	<0.01 dB	<-40 to >+30 dBm extendable to >+60dBm
RF Complex V Pulse Profile			
Magnitude vs time			
Phase vs time			
Harmonic Distortion	±1 dB	<0.01 dB	Source Harmonics <-30 dBc, 10 to 50 MHz; <-40 dBc, 0.05 to 2 GHz; <-60 dBc, 2 to 20 GHz.
Intermod Distortion	±1 dB	<0.01 dB	
LO to RF Isolation	±0.2 dB	<0.01 dB	
RF to LO Isolation	±0.2 dB	<0.01 dB	
1 dB Compression	±0.3 dB	<0.1 dB	
Noise Figure (DSB)	±0.2 dB	<0.01 dB	
Noise Floor	±0.2 dB	<0.01 dB	
S Parameters ³			
Gamma In (S11)		<0.01 linear (r)	
Gamma Out (S22)		<0.01 linear (r)	
Gamma Gen (Sxx) Forward	Same as S11		
Gamma Gen (Sxx) Reverse	Same as S22		
Forward Trans (S21)	±0.1 dB	<0.01 dB	
	±1 degree	<0.03 degree	
Reverse Trans (S12)	±0.4 dB	<0.01 dB	
	±4 degree	<0.03 degree	
Trans Gen (Syx) Forward	Same as S21		
Trans Gen (Sxy) Reverse	Same as S12		
AM/PM Conversion	±0.2 dB & ±2 degree	<0.01 dB & <0.03 degree	
Gain Flatness	±0.2 dB	<0.01 dB	
Large Signal Gain	±0.1 dB	<0.01 dB	
	±1 degree	<0.03 degree	
Saturation	±0.3 dB	<0.01 dB	
Spurious Outputs	±1 dB	<0.01 dB	Src Non-Harmonics <-40 dBc, 0.01 to 2 GHz; <-60 dBc, 2 to 20 GHz.
RF/DC Measurements			
Efficiency	±2.5%	<0.1%	
Pout vs. Bias	±0.25 dB	<0.01 dB	
	& ±1% FS	& <2.5 mV	
RF Freq. vs. Control Voltage	±1% FS	<2 mV	
	& +Time Base ²	& <1 Hz	Phase locked to system IF.
RF/Baseband Measurements			
Demodulator IQ Balance			
Phase Error	±2 degree	<0.03 degree	
Amplitude Error	±0.2 dB	<0.01 dB	
Demodulator DC Transient			
Modulator Errors			
IQ DC Offset	<0.1 mV	<1 mV	Using 40 Msps , 14 Bits ARB
I/Q Magnitude	±0.2 dB	<0.01 dB	
I/Q Phase	2 degree	<0.03 degree	

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RF Model Based Test EVM	0.05% std dev	N/A	54 MB/sec OFDM Residual EVM: 0.126%, 150 mSec test time
Synthesizer Measurements			
Xtal Tuning (frequency)	Time Base ²	1 Hz	4 mSec measurement; ref to Digital pin
PLL Lock to within X Hz		<5u Sec	4 mSec measurement; Ref. to Digital pin
Phase Noise	±1 dB	<0.01 dB	
DC Measurements			
V	±10V	<0.01 mV	Dependent on F.S
I	±3A	<10nA	Dependent on F.S.; 3A risetime 10uSec
Digital Pin Measurements			
Serial Bus I2C, SPI, SCAN	Up to 80 MHz		Tester and Fixture Based
V	±10V	<0.01 mV	Dependent on F.S
I	±2mA	<10nA	4 Quadrant; dependent upon FS

¹ Typical GEN III system accuracy excluding Calibration Standards uncertainty.

² All of the Time Bases for the RF Sources, Arbitrary Waveform Synthesizer and the System Receiver are tied together. Internal Time Base Accuracy: +/-1 ppm variation from 10 to 30 degrees C. and +/-5 ppm absolute accuracy.

³ All S parameters are vector error corrected. S11 accuracy is a function of the S11 of the DUT and S22 accuracy is a function of the S22 of the DUT. The typical residual directivity of the system, after calibration and assuming SMA connectors, is >34 dB. The typical tracking errors for S11 measurements are less than ±0.1 dB and ±1.0 degree and the typical tracking errors for S22 measurements are less than ±0.3 dB and ±3.0 degree. This performance may degrade as a function of the RF connector interfacing required by the DUT board.