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UTS7000A Series Signal Analyzers

Data Sheet

V1.2

January , 2026

Product Feature

- Frequency range: 2 Hz to 40 GHz (Maximum)
- Displayed average noise level (DANL): Up to -167 dBm (Typical)
- Phase noise: <-110 dBc/Hz (at 10 kHz offset, typical)
- Maximum real-time spectrum analysis bandwidth: 255 MHz
- Sweep point: Up to 100,001
- Minimum resolution bandwidth (RBW): 1 Hz
- Supports real-time spectrum analysis
- Supports advanced measurements (Option)
- Supports EMI analysis function (Option)
- Supports analog demodulation analysis (Option)
- Supports vector signal analysis (Option)
- Supports I/Q analysis (Option)
- Supports 5G NR and 4G LTE standard communication signal demodulation(Option)
- Standard high-stability clock source (OCXO)
- Equipped with 11.6-inch 1920x1080 TFT LCD display
- Various interfaces: Keyboard, mouse, storage, upper computer, remote control, Web control, multi-device synchronization, demo monitoring, 3.5mm headphone jack, etc.

UTS7000A Series Signal Analyzer

Multi-Touch High-Definition Display

Equipped with an 11.6-inch multi-touch capacitive HD screen, the system supports intuitive gesture operations such as dragging, pinching, and zooming of traces through quick-access menus. This user-friendly human-machine interface streamlines workflows and reduces operational complexity.

Exceptional Sensitivity

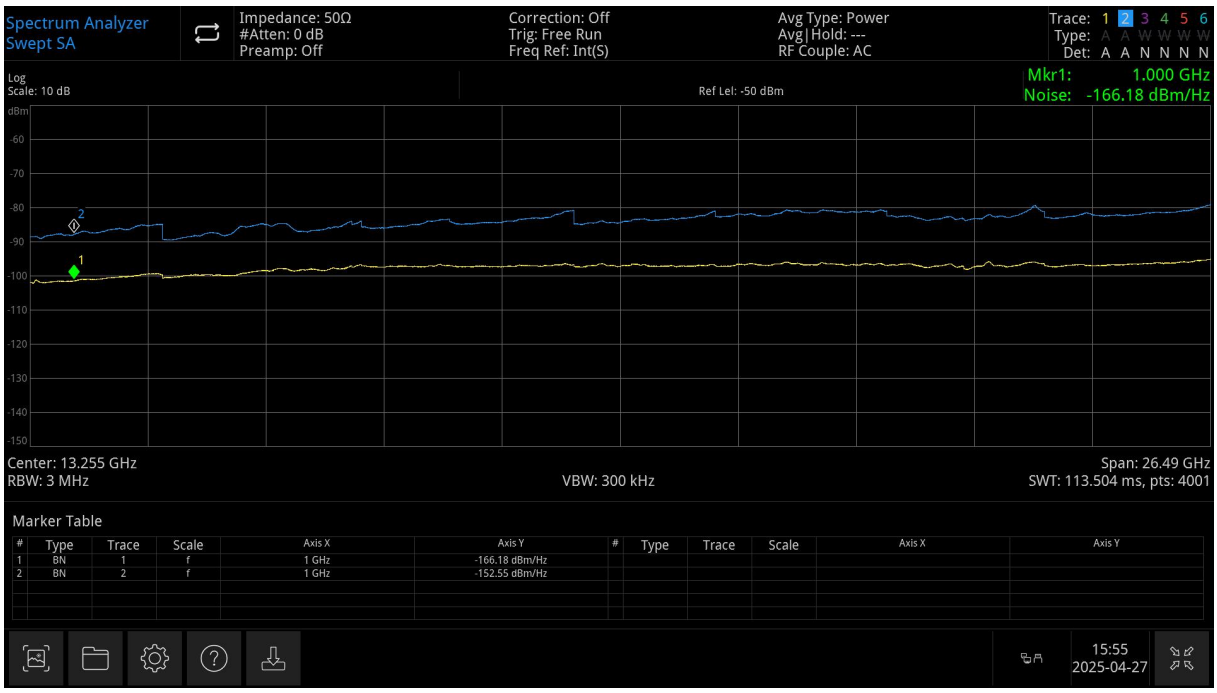
Detecting weak signals can be challenging due to interference from the instrument's inherent noise floor. The UTS7000A series features a low displayed average noise level (DANL) of −167 dBm (typical), delivering exceptional sensitivity for reliable weak signal detection.

Great Phase Noise Performance

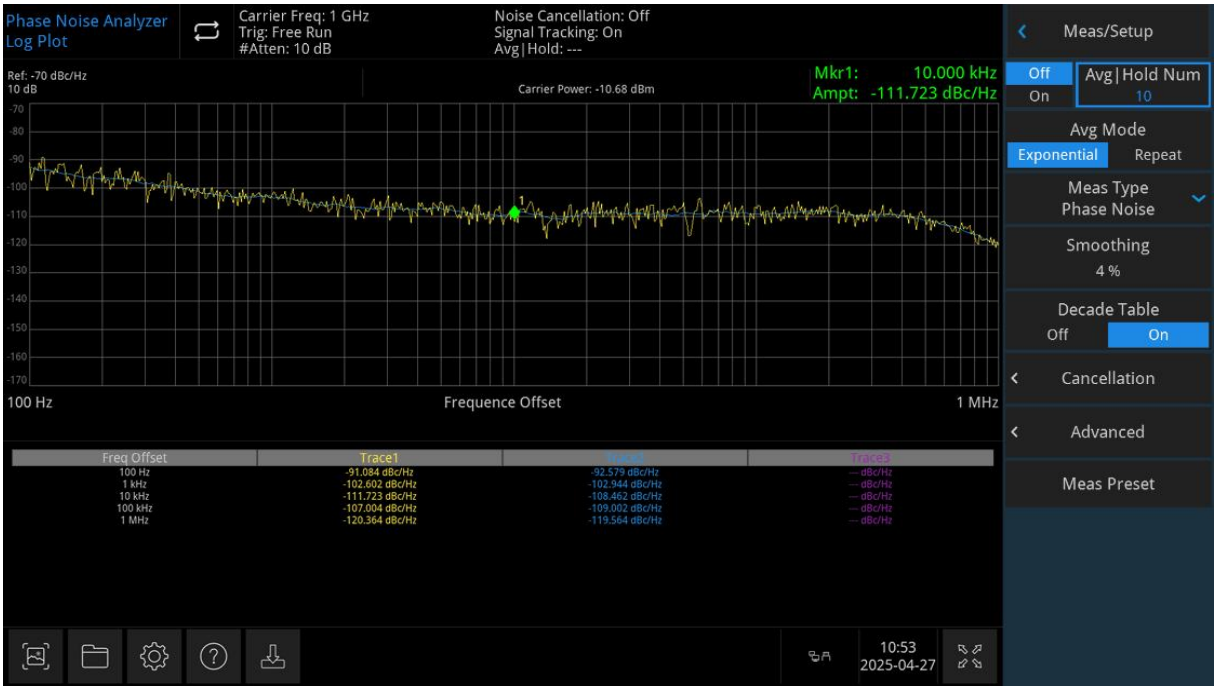
Engineered to meet demanding requirements in communication signal analysis, the UTS7000A achieves phase noise performance better than −110 dBc/Hz (typical) at a 10 kHz offset with a 1 GHz carrier, ensuring accurate and stable measurements.

High-Precision Amplitude Accuracy

The system delivers excellent amplitude measurement accuracy. For signals below 8 GHz, the typical amplitude accuracy is better than ±0.4 dB, enabling precise signal analysis across a wide frequency range.



DANL (Preamplifier ON/OFF)



Phase Noise@10 kHz

Comprehensive Spectrum Analysis

The UTS7000A series offers an extensive set of spectrum parameter measurement functions, providing thorough and detailed signal analysis.

It supports two sweep modes: swept frequency and FFT. The number of sweep points is configurable from 200 to 100,001. In zero span mode, the sweep time ranges from 1μs to 6,000s.

Versatile Trace and Detection Modes

The instrument supports up to 6 traces, 10 markers, 7 detection modes, and 3 types of averaging. It also includes a wide range of marker measurement functions, such as NdB marker, noise marker, occupied bandwidth, power spectral density, and frequency counter.
It supports CISPR-compliant EMC testing, with preset frequency bands and built-in EMI average and quasi-peak detection capabilities.

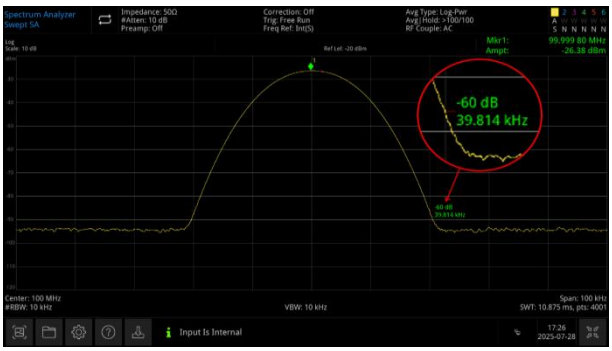
Enhanced Selectivity

Delivers enhanced ability to resolve adjacent signals with significantly different amplitudes.

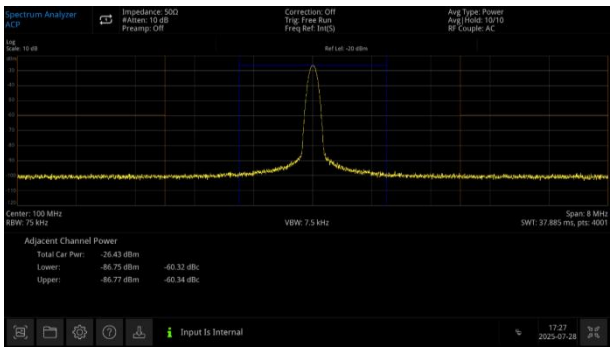
One-Touch Power Measurement Kit

Provides a suite of power and nonlinearity measurement functions, including occupied bandwidth, channel power, adjacent channel power, third-order intermodulation (TOI), spectrum monitoring, carrier-to-noise ratio (CNR), and other nonlinear distortion measurements.

Increasing the number of sweep points significantly improves spectrum measurement accuracy



Enhanced Selectivity



Adjacent Channel Power Measurement

Comprehensive Signal Analysis Capabilities

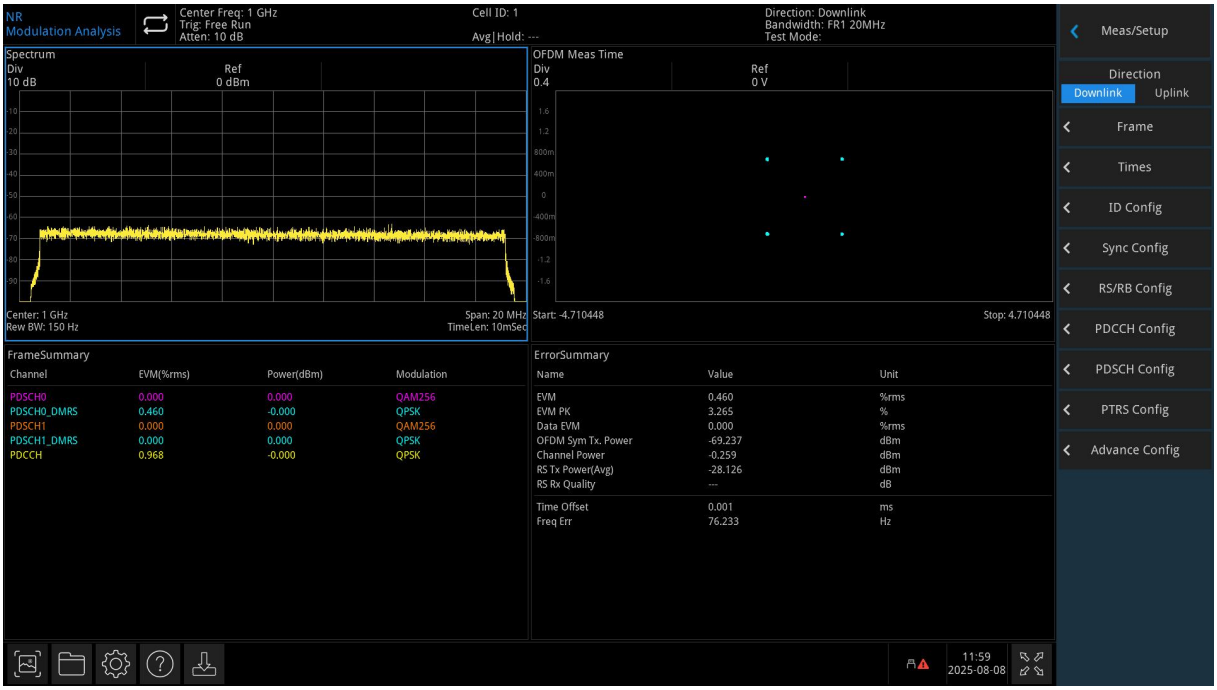
UTS7000A offers a wide range of signal analysis functions: I/Q analysis, EMI pre-compliance testing, analog demodulation, vector signal analysis, real-time spectrum analysis, phase noise analysis, LTE, and 5G NR signal analysis.

5G NR Signal Analysis

The UTS7000A supports modulation analysis of both uplink and downlink signals compliant with 3GPP Release 15 through Release 18. It supports FDD and TDD duplexing modes and a variety of modulation formats, ranging from BPSK to 1024QAM.

The instrument enables one-click testing of standard Test Models and allows for customized parameter configuration and analysis. It displays key measurement results such as Error Vector Magnitude (EVM), frequency error, and power across different modulation types and signal conditions.

To facilitate in-depth analysis, the instrument offers multiple visualizations, including constellation diagrams and eye diagrams.



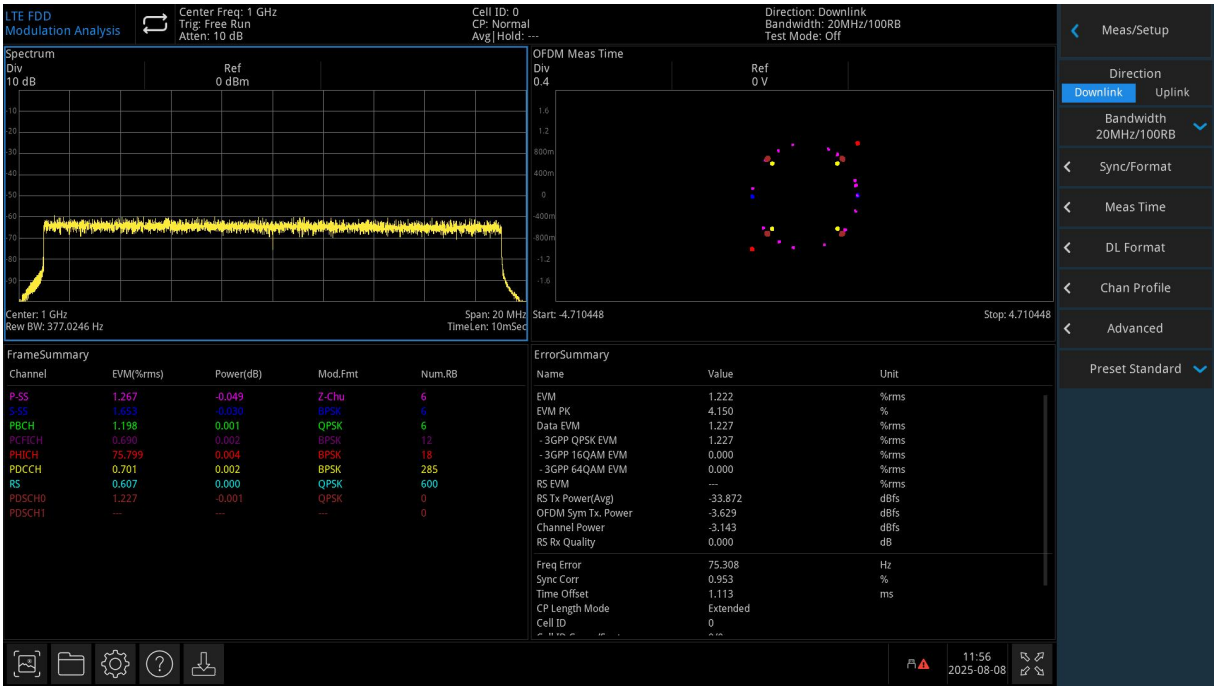
5G NR Signal Analysis

LTE Signal Analysis

The LTE signal analysis function enables modulation analysis of both uplink and downlink signals. It supports FDD and TDD duplexing modes and a variety of modulation formats, ranging from QPSK to 256QAM.

The instrument enables one-click Evolved Test Models (E-TM) and supports customized parameter configuration and analysis. It displays key measurement results such as Error Vector Magnitude (EVM), frequency error, and power across different modulation types and signal conditions.

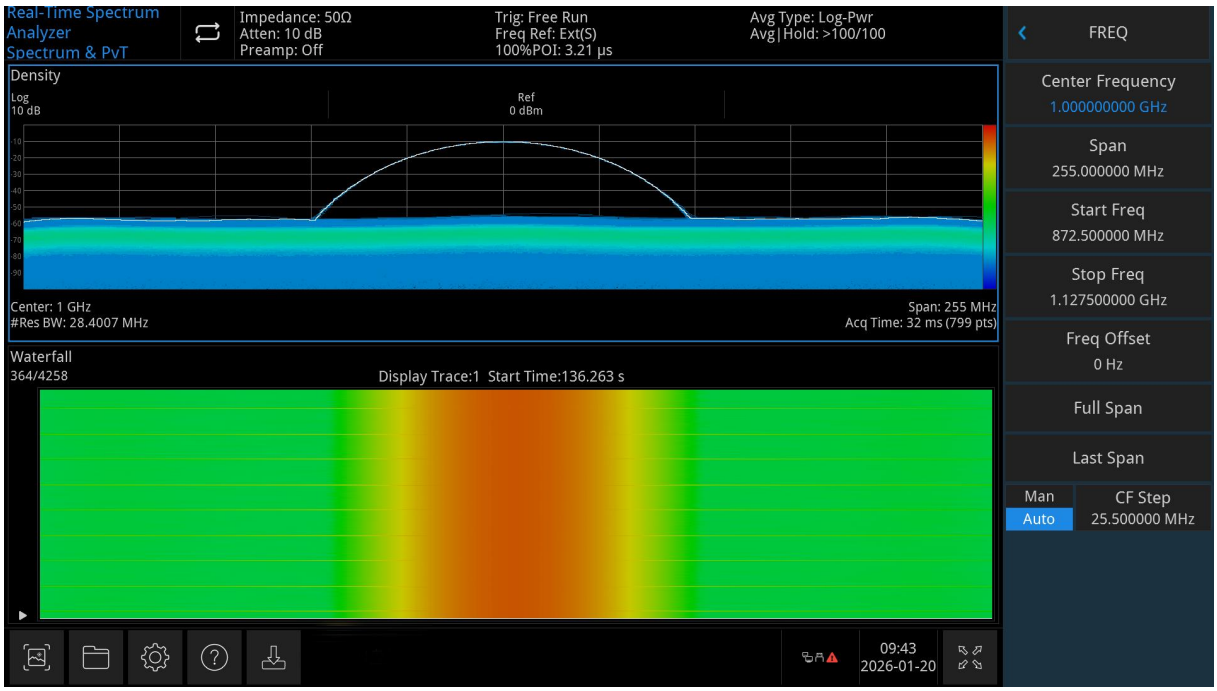
To facilitate in-depth analysis, the instrument offers multiple visualizations, including constellation diagrams and eye diagrams.



LTE Signal Analysis

Powerful Real-Time Spectrum Analysis

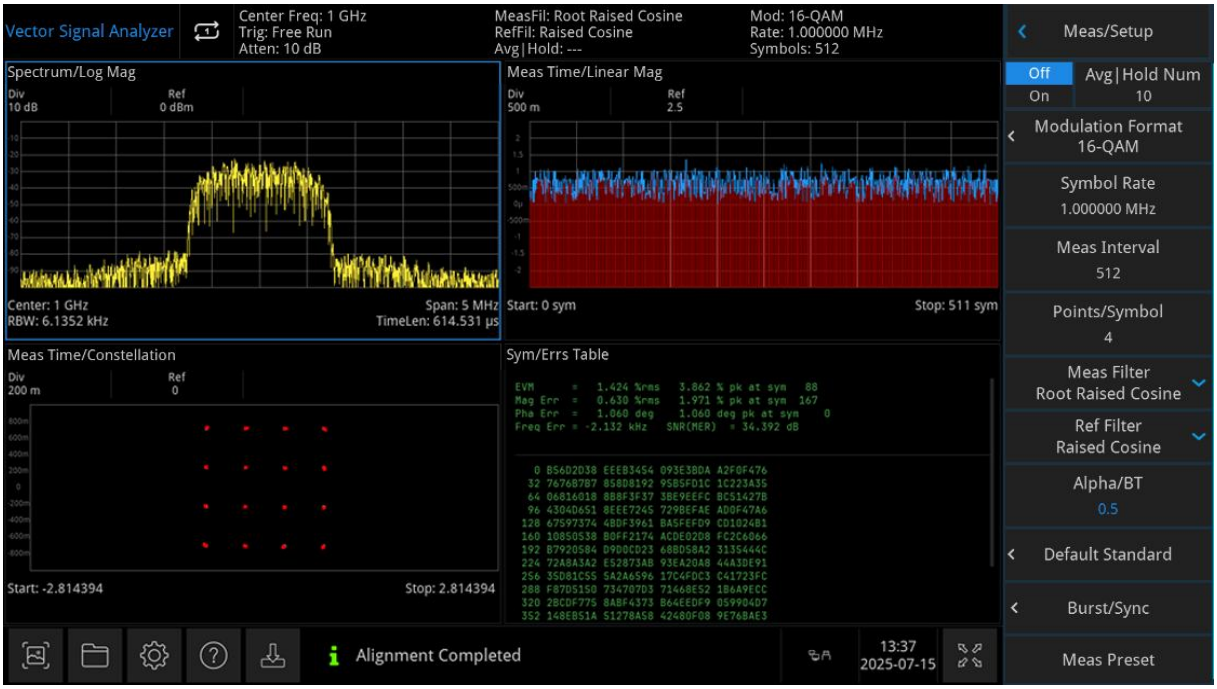
The real-time spectrum analysis function provides an ideal tool for testing time-varying signals such as burst, agile, and frequency-hopping signals. The real-time analysis bandwidth options include 40 MHz, 85 MHz, 160 MHz, and 255 MHz. The instrument achieves 100% frequency-domain signal capture in under 3.21 μs.



Real-Time Spectrum Analysis

Vector Modulation Signal Analysis

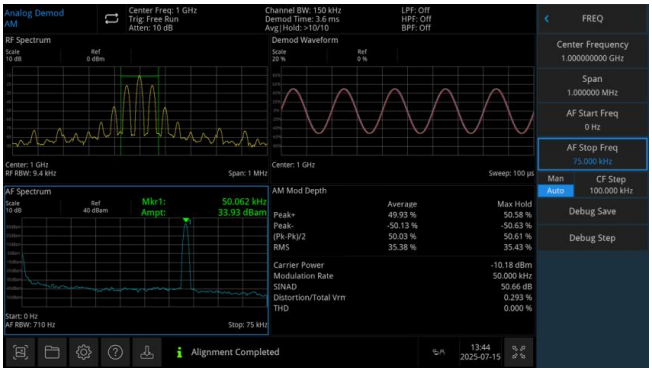
The UTS7000A series signal analyzers provide comprehensive demodulation analysis capabilities. They perform time-domain, frequency-domain, and modulation-domain analyses on digitally modulated signals, supporting a wide range of modulation types including PSK, FSK, QAM, and ASK. These capabilities cover demodulation analysis of common single-carrier and single-phase digital modulation schemes.



Vector Signal Analysis

Analog Demodulation

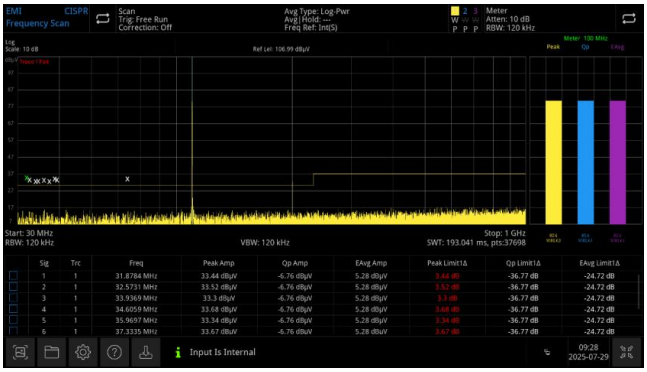
Provides AM, FM, and PM demodulation analysis.



Analog Demodulation

EMI Pre-Compliance and Compliance Testing

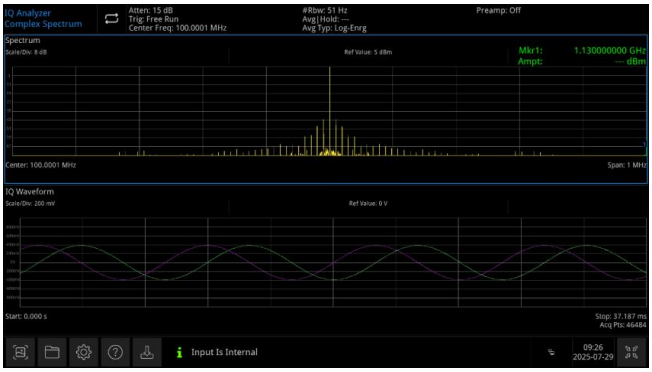
Early electromagnetic interference (EMI) testing helps avoid delays in product launches. To ensure successful final EMI compliance, pre-compliance testing should be conducted during product development. Early identification of EMI issues allows for effective internal conduction and radiation emission testing, thereby shortening the overall testing cycle.



EMI Measurement

I/Q Analysis

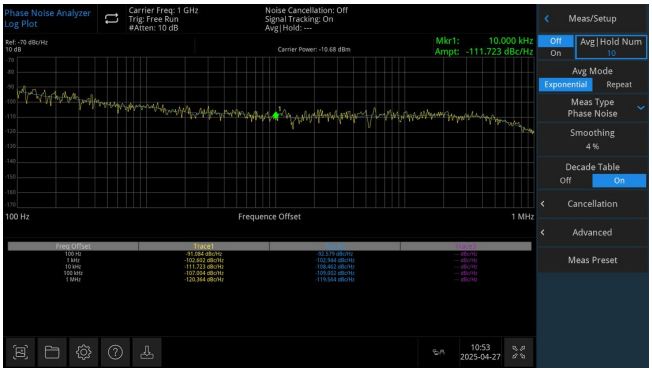
Efficiently acquires and analyzes I/Q data for accurate signal characterization.



I/Q Analysis

Phase Noise Analysis

One-click phase noise analysis enables fast and reliable phase noise measurement.



Phase Noise Analysis

Technical Specifications

Specifications describe the performance of the parameters covered by the product warranty in detail. Unless otherwise noted, these specifications apply to the temperature range of 20°C to 30°C.
Typical Value (Typ.) refers to additional product performance information that is not covered by the product warranty. When performance exceeds specifications, 80% of units can be demonstrated with a 95% confidence level over a temperature range of 20°C to 30°C. Typical values do not include measurement uncertainty.
Nominal Value (Nom.) indicates expected or approximate performance useful for product applications but is not covered by the product warranty.

The analyzer can meet its specifications under the following conditions.
The instrument should in a calibration cycle and has been warmed up for at least 30 minutes.
If the analyzer has been stored within the allowable storage temperature range but exceed the allowable operating temperature range, it must be placed within the allowable operating temperature range for at least two hours before powering on.

Comparison of Product Functions and Modes

	UTS7013A	UTS7026A	UTS7032A	UTS7040A
Spectrum Analysis	●	●	●	●
Real-time Spectrum Analysis	●	●	●	●
Vector Signal Analysis	○	○	○	○
EMI	○	○	○	○
Analog Demodulation	○	○	○	○
Advanced Measurement	○	○	○	○
I/Q Analysis	○	○	○	○
FDD-LTE	○	○	○	○
TDD-LTE	○	○	○	○
NR	○	○	○	○
Phase Noise Measurement	○	○	○	○
Preamplifier	○	○	○	○
Analysis Bandwidth 40 MHz	○	○	○	○
Analysis Bandwidth 85 MHz	○	○	○	○
Analysis Bandwidth 160 MHz	○	○	○	○
Analysis Bandwidth 255 MHz	○	○	○	○

● Standard ○ Option

Frequency and Time

Frequency				
Model	**UTS7013A**	**UTS7026A**	**UTS7032A**	**UTS7040A**
Frequency range	2 Hz to 13.6 GHz	2 Hz to 26.5 GHz	2 Hz to 32 GHz	2 Hz to 40 GHz
Frequency band	LO multiple (N)			
0	1		9 kHz to 3.0 GHz	
1	2		3.0 GHz to 7.5 GHz	
2	2		7.5 GHz to 9.5 GHz	
3	2		9.5 GHz to 12.3 GHz	
4	2		12.3 GHz to 15.5 GHz	
5	4		15.5 GHz to 19.3 GHz	
6	4		19.3 GHz to 21.0 GHz	
7	4		21.0 GHz to 22.8 GHz	
8	4		22.8 GHz to 26.5 GHz	
9	8		26.5 GHz to 32.0 GHz	
10	4		32.0 GHz to 36.0 GHz	
11	8		36.0 GHz to 40.0 GHz	

10MHz Internal Frequency Reference	
Frequency reference	10.000000 MHz
Accuracy	±[(Time since last adjustment x aging rate) + Temperature stability +Calibration accuracy]
Temperature stability	Full temperature range ±10 ppb, ($\pm10\times10^{-9}$)
Frequency aging rate	≤ ±0.2 ppm/year, ($\pm2\times10^{-7}$/year)
Achievable initial calibration accuracy	≤ ±40 ppb, ($\pm4\times10^{-8}$)
1 year since the last calibration	± (2×10^{-7}+ 4×10^{-8}+ 1×10^{-8})
Residual FM	≤ 1 Hz p-p, 20 ms (Nom.)

Frequency Readout Accuracy (Start, Stop, Center, Marker)	
Marker resolution	Span / (Sweep point - 1)
Marker frequency uncertainty	±[Marker frequency x Frequency reference accuracy + 0.25% x span + 5% × RBW + Marker resolution]
Marker mode	Normal, Delta Δ, Fixed
Marker function	Marker Noise, Band Power, Band Density, N dB, Counter
Counter resolution	0.001 Hz

Uncertainty of frequency counter	± [Marker frequency × Frequency reference accuracy + Counter resolution]	
ΔCounter accuracy	± [Δ Frequency reading × Reference frequency accuracy+ 0.141 Hz]	
Frequency Span (FFT and Swept mode)		
Range	0 Hz, 10 Hz to 40 GHz	
Resolution	Span / (Sweep point - 1)	
Accuracy (Span ⩾ 50 kHz)	Sweep frequency	± [0.25% × Span + Resolution]
	FFT	± [0.10% × Span + Resolution]
Sweep Time and Triggering		
Sweep Time	Span = 0 Hz	1 µs to 6000 s
	Span ⩾ 10 Hz	1 ms to 4000 s
Sweep Accuracy	Span ⩾ 10 Hz, swept	± 0.01% (Nom.)
	Span ⩾ 10 Hz, FFT	± 40% (Nom.)
	Span = 0 Hz	± 1% (Nom.)
Sweep	Single, Cont	
Trigger Type	Free Run, External 1, External 2, Video, Periodic Timer, RF power	
Trigger Delay	0 to +500 ms	
	Resolution	0.1 µs
Resolution Bandwidth (RBW)		
Range (-3 dB bandwidth)	1 Hz to 3 MHz (10% Steps), 4 MHz, 5 MHz, 6 MHz, 8 MHz, 10 MHz	
Selectivity (-60 dB/-3 dB)	<4.1 : 1 (Nom.)	-60 dB : -3 dB
Bandwidth Accuracy (-3.01 dB) (Sweep Time Rules=Accuracy, Sweep mode)	1 Hz to 910 kHz	±2.0% (Nom.)
	1 MHz to 3 MHz	±7.0% (Nom.)
	4 MHz to 10 MHz	±15% (Nom.)
Video Bandwidth (VBW)		
Range	1 Hz to 3 MHz (10% Steps), 4 MHz, 5 MHz, 6 MHz, 8 MHz, 10 MHz	
Uncertainty of video bandwidth	± 6.0% (Nom.)	
Sweep (trace) Point Range		
All spans	200 to 100,001	

Amplitude

Amplitude Range		
Measurement range	Displayed average noise level (DANL) to +30 dBm	
Input attenuator range	0 to 75 dB, 5 dB Steps	
Reference Level		
Log scale	-170 dBm to +30 dBm, 0.01 dB Steps	
Linear scale	Same as Log (707 pV to 7.07 V)	
Accuracy	0 dB	
Preamplifier (Option)		
Frequency range	100 kHz to 40 GHz	
Noise figure	10 MHz to 40 GHz	Displayed average noise level (DANL) +174 dBm (Nom.)
Maximum Safe Input Level		
Average total power	+30 dBm (1W)	
Peak pulse power	+50 dBm (100W)	< 10 μs pulse width, < 1 % duty cycle and input attenuation ≥ 30 dB
DC volts	DC coupled	0 VDC
	AC coupled	±16VDC
Display Range		
Log scale	0.1 to 1 dB/division, in 0.1 steps	
	1 to 20 dB/division, in 1 dB steps (10 display divisions)	
Linear scale	10 division	
Scale units	dBm, dBmV, dBμV, V, W	
Display Scale Switching Uncertainty		
Switching between linear and log	0 dB	
Log scale/grid switching	0 dB	
Display Scale Fidelity		
Between −10 dBm and −80 dBm input mixer level		±0.15 dB total
Trace detectors	Normal, peak, sample, negative peak, log power average, RMS average, and voltage average, Quasi peak, EMI average	
Trace Type	Clear/Write, Average, Max Hold, Min Hold	
Frequency Response		
20°C to 30°C, 30% to 70% relative humidity, input attenuation 10 dB, be relative to 100 MHz, σ = Nominal standard deviation		

		Specifications	95% (≈2σ)
Preamp Off	2 Hz to 9 kHz	±0.50 dB	±0.30 dB
	9 kHz to 10 MHz	±0.50 dB	±0.40 dB
	10 MHz to 3 GHz	±0.65 dB	±0.65 dB
	3 GHz to 13.6 GHz	±1.30 dB	±0.80 dB
	13.6 GHz to 19.3 GHz	±1.50 dB	±1.00 dB
	19.3 GHz to 24.2 GHz	±1.80 dB	±1.30 dB
	24.2 GHz to 26.5 GHz	±2.50 dB	±1.40 dB
	26.5 GHz to 32 GHz	±2.60 dB	±2.00 dB
	32 GHz to 40.0 GHz	±2.80 dB	±2.30 dB
Preamp On	100 kHz to 10 MHz	±0.60 dB	±0.50 dB
	10 MHz to 3 GHz	±1.10 dB	±1.00 dB
	3 GHz to 7.5 GHz	±1.40 dB	±1.20 dB
	7.5 GHz to 13.6 GHz	±1.50 dB	±1.20 dB
	13.6 GHz to 21 GHz	±1.60 dB	±1.20 dB
	21 GHz to 24.2 GHz	±2.00 dB	±1.80 dB
	24.2 GHz to 26.5 GHz	±2.80 dB	±2.40 dB
	26.5 GHz to 32 GHz	±3.00 dB	±2.60 dB
	32 GHz to 40.0 GHz	±3.20 dB	±2.80 dB

Note: DC coupling meets specifications below 9 kHz. For communication coupling, the specifications are applicable to frequencies of 9 kHz and above. The preamplifier is suitable for frequencies of 100 kHz and above.

Input Attenuation Switching Uncertainty

		Specifications	Additional information
Preamp Off	100 MHz (reference frequency)	±0.30 dB	±0.15 dB (Typ.)
Relative to 10 dB (reference setting, Input attenuation ≤ 55dB)	100 kHz to 3.0 GHz		±0.30 dB (Nom.)
	3.0 GHz to 7.5 GHz		±0.50 dB (Nom.)
	7.5 GHz to 26.5 GHz		±0.70 dB (Nom.)
	26.5 GHz to 40 GHz		±1.00 dB(Nom.)

Total Absolute Amplitude Accuracy

10 dB attenuation, 20 to 30 °C, 1 Hz ≤ RBW ≤ 1 MHz, input signal −10 to −50 dBm, all settings auto-coupled except Auto Swp Time = Accy, any reference level, any scale

100 MHz	±0.40 dB
At all frequencies	±(0.40 dB + Frequency response)
Preamp On	±(0.36 dB + Frequency response)(Nom.)

Input Voltage Standing Wave Ratio (VSWR) (0 dB input attenuation)	
10 MHz to 26.5 GHz	<1.6 (Nom.)
26.5 GHz to 40 GHz	<1.8 (Nom.)

Resolution Bandwidth Switching Uncertainty (Relative to reference RBW of 30 kHz)		
Sweep mode	RBW 1 Hz to 910 kHz	±0.05 dB
	RBW 1 MHz to 3 MHz	±0.10 dB
	RBW 4, 5, 6 MHz	±0.15 dB
	RBW 8, 10 MHz	±1.0 dB

Dynamic Range

1 dB Gain Compression Point (two-tone)		
		Total power at input mixer
Preamp Off	10 MHz to 7.5 GHz	+6 dBm (Nom.)
	7.5 GHz to 13.5 GHz	+4 dBm (Nom.)
	13.5 GHz to 26.5 GHz	+2 dBm (Nom.)
	26.5 GHz to 40 GHz	-2 dBm (Nom.)
Preamp On	10 MHz to 7.5 GHz	-15 dBm (Nom.)
	7.5 GHz to 26.5 GHz	-19 dBm (Nom.)
	26.5 GHz to 40 GHz	-32 dBm (Nom.)

Displayed Average Noise Level (DANL)

Input terminated, sample or average detector, averaging type = Log, 0 dB input attenuation, IF Gain = High, RBW = 1 Hz, 20 to 30 °C.

UTS7013A, UTS7026A	Preamp Off	Preamp On
100 kHz to 1 MHz	-140 dBm (Typ.)	---
1 MHz to 20 MHz	-145 dBm, -151 dBm (Typ.)	-160 dBm, -166 dBm (Typ.)
20 MHz to 1.5 GHz	-147 dBm, -153 dBm (Typ.)	-162 dBm, -167 dBm (Typ.)
1.5 GHz to 3 GHz	-146 dBm, -151 dBm (Typ.)	-160 dBm, -165 dBm (Typ.)
3 GHz to 4.5 GHz	-146 dBm, -152 dBm (Typ.)	-160 dBm, -165 dBm (Typ.)
4.5 GHz to 7.5 GHz	-140 dBm, -145 dBm (Typ.)	-153 dBm, -159 dBm (Typ.)
7.5 GHz to 9.5 GHz	-143 dBm, -149 dBm (Typ.)	-156 dBm, -160 dBm (Typ.)
9.5 GHz to 12.3 GHz	-138 dBm, -146 dBm (Typ.)	-153 dBm, -161 dBm (Typ.)
12.3 GHz to 15.5 GHz	-142 dBm, -147 dBm (Typ.)	-155 dBm, -162 dBm (Typ.)
15.5 GHz to 19.3 GHz	-140 dBm, -145 dBm (Typ.)	-153 dBm, -158 dBm (Typ.)
19.3 GHz to 21 GHz	-140 dBm, -148 dBm (Typ.)	-153 dBm, -158 dBm (Typ.)

21 GHz to 22.8 GHz	-138 dBm, -145 dBm (Typ.)	-150 dBm, -155 dBm (Typ.)
22.8 GHz to 26.5 GHz	-138 dBm, -145 dBm (Typ.)	-152 dBm, -159 dBm (Typ.)

UTS7032A, UTS7040A	Preamp Off	Preamp On
100 kHz to 1 MHz	-140 dBm (Typ.)	---
1 MHz to 20 MHz	-145 dBm, -149 dBm (Typ.)	-160 dBm, -166 dBm (Typ.)
20 MHz to 1.5 GHz	-145 dBm, -150 dBm (Typ.)	-162 dBm, -165 dBm (Typ.)
1.5 GHz to 3 GHz	-143 dBm, -149 dBm (Typ.)	-158 dBm, -162 dBm (Typ.)
3 GHz to 4.5 GHz	-144 dBm, -149 dBm (Typ.)	-158 dBm, -162 dBm (Typ.)
4.5 GHz to 7.5 GHz	-139 dBm, -145 dBm (Typ.)	-152 dBm, -158 dBm (Typ.)
7.5 GHz to 9.5 GHz	-140 dBm, -145 dBm (Typ.)	-154 dBm, -158 dBm (Typ.)
9.5 GHz to 12.3 GHz	-136 dBm, -144 dBm (Typ.)	-152 dBm, -157 dBm (Typ.)
12.3 GHz to 15.5 GHz	-136 dBm, -143 dBm (Typ.)	-152 dBm, -157 dBm (Typ.)
15.5 GHz to 19.3 GHz	-134 dBm, -140 dBm (Typ.)	-150 dBm, -155 dBm (Typ.)
19.3 GHz to 21 GHz	-135 dBm, -141 dBm (Typ.)	-150 dBm, -155 dBm (Typ.)
21 GHz to 22.8 GHz	-133 dBm, -139 dBm (Typ.)	-148 dBm, -154 dBm (Typ.)
22.8 GHz to 26.5 GHz	-133 dBm, -138 dBm (Typ.)	-148 dBm, -153 dBm (Typ.)
26.5GHz to 32GHz	-128 dBm, -135 dBm (Typ.)	-144 dBm, -150 dBm (Typ.)
32GHz to 40GHz	-124 dBm, -131 dBm (Typ.)	-140 dBm, -148 dBm (Typ.)
Spurious Response		
Residual responses (Input terminated and 0 dB attenuation)	200 kHz to 40 GHz (swept)	-90 dBm
	Zero span or FFT or other frequencies	-100 dBm (Nom.)
Mirror response (primary mixer)	Tuning frequency (f)	Response
	10 MHz to 40 GHz	-70 dBc, -80 dBc (Typ.)
LO related spurious	10 MHz to 40 GHz	-10 dBm, -64 dB (Nom.)
Other Spurious		
	Mixer level	Response
Intermediate frequency feedthrough	-10 dBm	-75 dBc, -80 dBc (Typ.)
First order RF (f ≥ 10 MHz from carrier)	-10 dBm	-70 dBc, -80 dBc (Nom.)
Higher order RF (f ≥ 10 MHz from carrier)	-10 dBm	-70 dBc, -80 dBc (Nom.)
Second Harmonic Distortion (SHI)		
Source frequency	SHI (Nom.)	

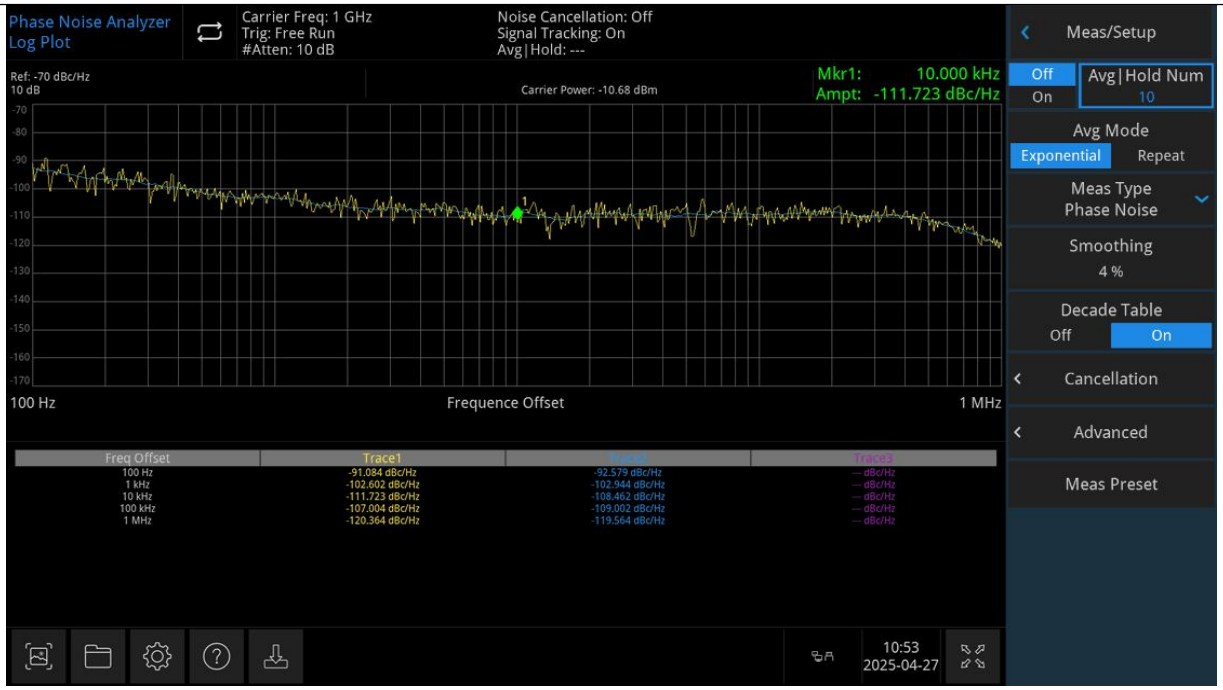
10 MHz to 3.75 GHz	+45 dBm
3.75 GHz to 13.25 GHz	+62 dBm
13.25 GHz to 20 GHz	+50 dBm

Third Order Intermodulation (TOI)

Preamp off (mixer input -20 dBm, 100 kHz frequency interval dual tone signal, 0dB attenuation, 20°C to 30°C)	10 MHz to 2 GHz	+12 dBm, +16 dBm (Typ.)
	2 GHz to 3 GHz	+12 dBm, +17 dBm (Typ.)
	3 GHz to 7.5 GHz	+12 dBm, +16 dBm (Typ.)
	7.5 GHz to 13.6 GHz	+11 dBm, +15 dBm (Typ.)
	13.6 GHz to 26.5 GHz	+8 dBm, +12 dBm (Typ.)
	26.5 GHz to 40 GHz	+7 dBm, +12 dBm (Typ.)
Preamp on (mixer input -45 dBm, 100 kHz frequency interval dual tone signal, 0dB attenuation, 20°C to 30°C)	10 MHz to 26.5 GHz	-8 dBm (Nom.)
	26.5 GHz to 40 GHz	-15 dBm (Nom.)

Phase Noise

	Frequency offset	Specifications	Typical
Offset relative to continuous wave signal Fc=1 GHz, RBW=1 kHz, VBW=10 Hz, Sampling detection, Log avg, avg > 50	100 Hz	---	-80 dBc/Hz nominal
	1 kHz	-102 dBc/Hz	-104 dBc/Hz
	10 kHz	-108 dBc/Hz	-110 dBc/Hz
	100 kHz	-108 dBc/Hz	-110 dBc/Hz
	1 MHz	-122 dBc/Hz	-124 dBc/Hz



Phase Noise (Nom.) at 1 GHz Center Frequency

Advanced Measurement (Option)

Power Suite Measurement	
Channel Power	Channel power, Power integral density
T-power	Zero sweep time integral power
Occupied Bandwidth	Occupancy power, transmission frequency error
Adjacent Channel Power	Main channel power, left adjacent channel power/power ratio, right adjacent channel power/power ratio
Carrier to noise ratio	Carrier power, noise power
Nonlinear Measurement	
Third order intermodulation	Automatic search based on dual tone peak
Harmonic analysis	Maximum number of harmonics 10
Spectrum Monitoring	
Waterfall Plot	

Analog Demodulation (Option)

Demodulation		
Frequency range	2 MHz to 40 GHz	
Carrier power accuracy	±2 dB (Nom.)	
Input power	-30 dB to +20 dBm	Automatic attenuation
AM Measurement (option)		
Modulation rate	20 Hz to 100 kHz	
Accuracy	1 Hz (Nom.)	Modulation rate < 1 kHz
	< 0.1% Modulation rate (Nom.)	Modulation rate ⩾ 1 kHz
Depth	5 to 95%	
Accuracy	±4% (Nom.)	
FM Measurement (option)		
Modulation rate	20 Hz to 100 kHz	
Accuracy	1 Hz (Nom.)	Modulation rate < 1 kHz
	< 0.1% Modulation rate (Nom.)	Modulation rate ⩾ 1 kHz
Frequency offset	1 kHz to 400 kHz	
Accuracy	±4 % (Nom.)	
PM Measurement (option)		

Modulation rate	20 Hz to 100 kHz	
Accuracy	1 Hz (Nom.)	Modulation rate < 1 kHz
	< 0.1% Modulation rate (Nom.)	Modulation rate ≥ 1 kHz
Phase deviation	0.2 to 6.28 rad	
Accuracy	±4% (Nom.)	

Vector Signal Analyzer (Option)

Measurement Function	
Modulation type	ASK: 2ASK, 4ASK, 8ASK, 16ASK
	FSK: 2FSK, 4FSK, 8FSK, 16FSK
	MSK: Type1, Type2
	PSK: BPSK, QPSK, OQPSK, 8PSK
	BPSK, QPSK, 8BPSK, DQPSK, D8PSK, π/4-DQPSK, π/8-D8PSK, OQPSK
	QAM: 16, 32, 64, 128, 256
Measurement symbol length	10 to 4,096
Symbol point/over-sampling rate	4, 6, 8, 10, 12, 14, 16, 20
Symbol rate	1 ksps to Analyzer bandwidth /symbol point
Filter	
Measurement Filter type	No Filter, RRC, Gaussian, EDGE, CDMA, Rectangular
Filter length	2 to 128
Alpha/BT	0.05 to 1
Display	
Data	IQ measurement time domain, IQ measurement frequency domain
	IQ reference time domain, IQ reference frequency domain
	Symbol error statistics, error vector time domain, and error vector frequency domain
	Time domain, frequency domain, IQ amplitude error, and IQ phase error
Format	logarithmic amplitude, linear amplitude, real part, and imaginary part
	IQ diagram, constellation diagram, I (eye diagram), and Q (eye diagram)

	Phase diagram, Phase extension diagram, and phase tree-like diagram
Symbol Error Statistics	
PSK/DPSK/MSK/QAM	EVM (rms EVM, peak EVM), Magnitude error
	Phase error, IQ offset, Carrier offset, SNR Quadrature error
	Gain imbalance (not support for MSK)
ASK	ASK Error, ASK depth, carrier offset
FSK	FSK Error, Magnitude error, FSK deviation, carrier offset

I/Q Analysis (Option)

Frequency			
Frequency sweep width	10 Hz to 20 MHz 10 Hz to 40 MHz (Optional UTS7000A-B40, factory configuration required) 10 Hz to 85 MHz (Optional UTS7000A-B85, factory configuration required) 10 Hz to 160 MHz (Optional UTS7000A-B160, factory configuration required) 10 Hz to 255 MHz (Optional UTS7000A-B255, factory configuration required)		
Resolution bandwidth (spectrum measurement)			
Range	1 Hz to 10 MHz		
Window shapes	Flat top, Hanning, Gaussian, Blackman, Blackman-Harris		
IF frequency response (demodulation and FFT response relative to the center frequency, 20 to 30 °C)			
Center frequency (GHz)	Span (MHz)	Max error	RMS (Nom.)
≤ 3.0	≤ 10	±0.4 dB	0.03 dB
3.0 < f ≤ 26.5	≤ 10		0.10 dB
IF phase linearity (deviation from mean phase linearity, nominal)			
Center frequency (GHz)	Span (MHz)	Peak-to-peak	RMS (Nom.)
≤ 3.0	≤ 10	0.5°	0.2°
3.0 < f ≤ 7.5	≤ 10	0.5°	0.4°
7.5 < f ≤ 26.5	≤ 10	0.5°	0.4°
Data acquisition (20 MHz IF path),Time record length			
IQ analyzer	8,000,000 IQ sample pairs		
Data rate	IFBW × 1.25		

Sample rate	100 MSa/s
ADC resolution	14 bits
Data acquisition(40MHz to 255MHz IF path), Time record length	
IQ analyzer	8,000,000 IQ sample pairs
Data rate	IFBW × 1.2
Sample rate	1 GSa/s
ADC resolution	14 bits

Real-time Spectrum Analyzer

Frequency and Time Accuracy			
Real-time analyzer bandwidth	20 MHz		
	40 MHz (Optional UTS7000A-B40, factory configuration required)		
	85 MHz (Optional UTS7000A-B85, factory configuration required)		
	160 MHz (Optional UTS7000A-B160, factory configuration required)		
	255 MHz (Optional UTS7000A-B255, factory configuration required)		
Detection mode	Peak, negative peak, sample, and average		
Number of traces	12		
RBW filter type	Hanning, Blackman-harris, rectangle, flat top, Kaiser, Gaussian		
Resolution bandwidth	Provides 6 RBW options for each window, except the rectangle window		
	Kaiser window		
	Span	Min. bandwidth	Max. bandwidth
	255 MHz	882.0084 kHz	28.4007 MHz
	160 MHz	553.0802 kHz	17.7504 MHz
	85 MHz	294.0028 kHz	9.4669 MHz
	40 MHz	138.2028 kHz	4.508 MHz
	20 MHz	69.1014 kHz	2.254 MHz
	10 MHz	34.5507 kHz	1.127 MHz
	1 MHz	3.4551 kHz	112.7011 kHz
	100 kHz	345.5069 Hz	11.2701 kHz
Max. sampling rate	100 MSa/s		
	1 GSa/s (Optional UTS7000A-B40 to B255)		
FFT rate	622,437/s (Nom.)		

Number of markers	10				
Amplitude resolution	0.01 dB				
Frequency point	799				
Min. Signal Duration for 100% POI at Different RBWs					
Default window Kaiser	Duration time (μs)				
Span	255MHz	160MHz	85MHz	40MHz	20MHz
RBW6	3.21	6.41	3.24	3.28	3.36
Amplitude					
Amplitude flatness (Normal spectrum)	±0.6 dB (Nom.)				
SFDR	<-60 dBc (Typ.)				
Probability Density Display					
Probability range	0 to 100% (with a step of 0.1%)				
Min. span	5 kHz				
Duration	32 ms to 10 s				
Spectrogram					
History depth	10,000				
Dynamic range covered by bitmap color	200 dB				
PVT					
Min. Acquisition time	50 μs				
Max. Acquisition time	100 s				
Trigger					
Trigger source	Free run, external trigger 1, external trigger 2, cycle trigger, power (time), FMT				
Frequency Mask Template Trigger (FMT)					
Trigger resolution	0.5 dB (Nom.)				
Trigger Criteria	Enter, Leave, Inside, Outside, Enter-Leave, Leave-Enter				

Analyze bandwidth
(Options need to be factory configured)

Analyze bandwidth 20MHz	
IQ Analyze bandwidth	10Hz to 20MHz
RTSA Analyze bandwidth	5kHz to 20MHz
Analyze bandwidth 40MHz to 255MHz（Option UTS7000A-B40 to B255，need to be	

factory configured)	
IQ Analyze bandwidth	10Hz to 40MHz, 85MHz, 160MHz, 255MHz
RTSA Analyze bandwidth	5kHz to 40MHz, 85MHz, 160MHz, 255MHz

LTE (Option)

Measurement Parameters	
Predefined Configuration	
Duplex type	TDD, FDD
Test model	Uplink: FRC Test Mode/ PUCCH Test Mode
	Downlink: TM1.1, TM2, TM2a, TM2b, TM3.1, TM3.1a, TM3.1b, TM3.2, TM3.3
Carrier Wave	
System bandwidth	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
Spectrum mirroring	On, Off
Configuration	0 to 6
Synchronous mode	Downlink: CRS/ PSS
	Uplink: PUSCH DMRS/ PUCCH DMRS/ SRS
Synchronous time slot	0 to Maximum time slot number
Cell ID source	Downlink: Manul
	Uplink: Manul
Cell ID	0 to 503
Cyclic prefix	Normal/ Extended
Total number of Antennas	1 / 2 / 4
Reference signal port	0 to Maximum reference port number
Channel type	Downlink: CRS, PSS, SSS, PCFICH, PDCCH, PHICH, PBCH, PDSCH
	Uplink: PUCCH, PUSCH, SRS
Time	
Time slot offset	0 to Maximum time slot number
Symbol offset	0 to Maximum symbol number of time slot
Measure time slot length	1 to Number of time slots
Measure symbol length	0 to Measure symbol length

View	
Data	Raw Data - Time, Raw data, IQ Meas Time, IQ Meas, IQ Ref Time, IQ Ref, Error Vector Time, Error Vector Spectrum, RB Error Mag Time, RB Error Mag Spectrum, Error Statistics Table, Frame statistics table
Format	Log Mag, Linear Mag, Real (I), Imag (Q), I-Q, Constellation, I-Eye, Q-Eye, Phase, Phase unwrapping
Parameter Table	
Error summary	Channel Power, EVM (RMS/ Peak), Data EVM, Freq Error, Sync Corr, Sync Source, CTE, Time Offset, Cell ID, CP Type
Frame summary	Each channel/ UE: EVM, RE Power, Modulation type

5G NR (Option)

Measurement Parameters	
Predefined Configuration	
Duplex type	TDD, FDD
Test model	FR1: TM1.1, TM1.2, TM2.0, TM2.0a, TM2.0b, TM3.1, TM3.1a, TM3.1b, TM3.2, TM3.3
Carrier Wave	
Number of carriers	1
System bandwidth	FR1: 5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 35 MHz, 40 MHz, 45 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz
Numerology	15 kHz, 30 kHz
Carrier type	Downlink: SSB, PDSCH, PDCCH, CSI-RS
	Uplink: PUCCH, PUSCH, SRS
View	
Data	Raw Data - Time, Raw data, IQ Meas Time, IQ Ref Time, RMS Power vs Time, RMS Power vs Frequency, Error Vector time, Error Vector Frequency, RMS Error Vector time, RMS Error Vector Frequency, Results statistics table, Frame statistics table, Time slot statistics table, RE allocation diagram, MIMO information
Format	Log Mag, Linear Mag, Real (I), Imag (Q), I-Q, Constellation, I-Eye, Q-Eye, Phase, Phase unwrapping, Phase tree diagram
Parameter Table	
Result statistics table	Channel Power, EVM (RMS/Peak), Freq Error, Symbol clock deviation, IQ Offset, Time Offset, Sync correlation, Sync Source, Mag Error, Phase Error, IQ Gain Imbalance, IQ Quad Error, IQ Timing Skew, Cell

	ID
Frame statistics table	Each channel/ UE: EVM, RE Power, Modulation Type, RB Number, RNTI
Time slot statistics table	Each time slot (Classified by channel/UE): EVM, REPower, Modulation Type, RB Number, SINR
MIMO	Port number, EVM, Power, TAE, Freq Error, Phase Error, Symbol clock deviation

Phase Noise (Option)

Measurement parameters	
Frequency range	100 kHz to 40 GHz
Min offset frequency	10 Hz
Max offset frequency	Max measurement frequency - Measure signal frequency
Measurement function	
View	Monitor, Spot Frequency, Log Plot, IQ Waveform
Measurement Type	Phase Noise, DANL Floor
Marker Function	Noise Degree, Noise Radian, Noise Jitter, Noise dBc, Residual FM (Weighted Integ), Averaged Noise Density

Interface and Display

Common Interface	
Front RF input	NMD 2.92 male head
10MHz Ext Ref input	10 MHz, - 5 dBm to +10 dBm, 50 Ω, BNC pubic head
10MHz Ref output	10 MHz, > 0 dBm, 50 Ω, BNC pubic head
External trigger input 1	TTL, BNC
External trigger input 2	TTL, BNC
Trigger 1 Out	BNC pubic head
Trigger 2 Out	BNC pubic head
HDMI display	19 pin HDMI connector
USB-Host	Front panel: USB-A 3.0 Rear panel: USB-A 2.0
USB-Device	USB-B 3.0
LAN	LAN(VXI11), 10/100/1,000 Base, RJ-45
Headphone jack	3.5 mm (1/8 inch) miniature stereo audio jack

GPIB	24-pin D-Sub (Typ D-24) compatible with IEEE-488
Display Screen	
Display	11.6-inch 1920x1080 TFT LCD
Display resolution	1920×1080

General Technical Specifications

Specifications		
Supply voltage	100 to 240 VAC (Fluctuations ±10%)	100 to 120 VAC (Fluctuations ± 10%)
Frequency	50 / 60 Hz	400 Hz
Power	≤ 250 W	
Environmental Requirements		
Temperature range	Operating: 0°C to +40°C	
	Non-operating: -20°C to +60°C	
Cooling method	Fan forced cooling	
Humidity range	Operating: Below +35°C, ≤ 90% R.H Non-operating: +35°C to +40°C, ≤ 60% R.H	
Altitude	Operating: Below 3,000 m; Non-operating: Below 15,000 m	
Pollution degree	2	
Usage environment	Indoor use	
Mechanical Specifications		
Dimensions	484mm×189mm×475.5mm (Width x Height x Length)	
	426mm×177mm×400mm (Width x Height x Length) excluding handles, feet, pads, and side straps	
Net weight	About 15kg	
Calibration cycle	One year	
Regulatory Standards		
EMC	Compliance with EMC directives (2014/30/EU), conform to or better than IEC 61326-1:2021/EN61326-1:2021,IEC 61326-2-1:2021/EN61326-2-1:2021	
Conductive disturbance	CISPR 11/EN 55011	CLASS B group 1,150kHz-30MHz
Radiation disturbance	CISPR 11/EN 55011	CLASS B group 1,30MHz-1GHz
Electrostatic discharge (ESD)	IEC 61000-4-2/EN 61000-4-2	±4.0 kV (Contact), ±8.0 kV (Air)
Radio frequency	IEC 61000-4-3/EN 61000-4-3	3 V/m (80 MHz to 1 GHz)

electromagnetic field immunity		1 V/m (1.4 GHz to 6 GHz)
Electrical fast transient burst (EFT)	IEC 61000-4-4/EN 61000-4-4	±1 kV (AC input port)
Surge	IEC 61000-4-5/EN 61000-4-5	±0.5 kV (Live line to zero line) ±1 kV (Fire/zero line to ground)
Immunity to RF continuous conduction	IEC 61000-4-6/EN 61000-4-6	3 V, 0.15-80 MHz
Voltage dips and short interruptions	IEC 61000-4-11/EN 61000-4-11	Voltage dip: 0% UT during 0.5 cycle 0% UT during 1 cycles 70% UT during 25/30 cycles Short Interruption: 0% UT during 250/300 cycles
Safety Regulations		
	EN 61010-1:2010+A1:2019 EN IEC61010-2-030:2021+A11:2021 UL 61010-1:2012 Ed.3+ R:19 Jul2019 UL 61010-2-030:2018 Ed.2 CSA C22.2#61010-1:2012 Ed.3+U1; U2; A1 CSA C22.2#61010-2-030:2018 Ed.2	

Order Information and Warranty Period

	Description	Order No.
Model	Signal analyzer, 2 Hz to 13.6 GHz	UTS7013A
	Signal analyzer, 2 Hz to 26.5 GHz	UTS7026A
	Signal analyzer, 2 Hz to 32 GHz	UTS7032A
	Signal analyzer, 2 Hz to 40 GHz	UTS7040A
Standard accessories	Power cable x1	
	USB data cable x1	UT-D14
Accessories (Option)		
Software	UTS7040A Preamplifier, 40 GHz	UTS7000A-P40
	UTS7032A Preamplifier, 32 GHz	UTS7000A-P32
	UTS7026A Preamplifier, 26.5 GHz	UTS7000A-P26
	UTS7013A Preamplifier, 13.6 GHz	UTS7000A-P13
	Phase noise measurement	UTS7000A-PNM
	EMI measurement	UTS7000A-EMI
	Analog demodulation analysis	UTS7000A-AMA
	Advanced measurement	UTS7000A-AMK
	Digital demodulation analysis	UTS7000A-VSA
	I/Q analysis	UTS7000A-I/Q
	FDD-LTE demodulation analysis	UTS7000A-FDD-LTE
	NR demodulation analysis	UTS7000A-NR
	TDD-LTE demodulation analysis	UTS7000A-TDD-LTE
	40MHz signal analysis bandwidth	UTS7000A-B40
	85MHz signal analysis bandwidth	UTS7000A-B85
	160MHz signal analysis bandwidth	UTS7000A-B160
	255MHz signal analysis bandwidth	UTS7000A-B255
Accessories kit UT-CK02	UT-W03-40GHz-2.92J RF cable x1	UT-W03-40GHz
	RF connector 2.92-KKG double female connector x2	UT-C04-40GHz
	UT-C03-18GHz RF adaptor SMA-N x1	UT-C03-18GHz
Near-field probe kit UTS-EMI01	50Ω-SMA-SMB cable x1	UT-W03
	Adaptor SMA-N-KJ-T DC-6GHz x1	UT-C01
	Near-field probe, frequency range: 30 MHz-3 GHz, detection range: 10cm x1	NFP-3G-P1

	Near-field probe, frequency range: 30 MHz-3 GHz, detection range: 3cm x1	NFP-3G-P2
	Near-field probe, frequency range: 30 MHz-2 GHz, resolution: 5mm x1	NFP-2G-P3
	Near-field probe, frequency range: 30 MHz-3 GHz, resolution: 2mm x1	NFP-3G-P4

Options ordering and installation

1. Purchase options: Based on your requirements, please purchase the specified function options from UNI-T Sales Personnel and provide the serial number of the instrument that needs the option installed.
2. Receive certificate: You will receive the license certificate based on the address provided in the order.
3. Register and obtain license: Visit the UNI-T official website license activation session for registration. Use the license key and instrument serial number provided in the certificate to obtain the option license code and license file.
4. Install the option: Download the option license file to the root directory of a USB storage device and connect the USB storage device to the instrument. Once the USB storage device is recognized, the Option Install menu will be activated. Press this menu key to begin installing the option.

Limited Warranty and Liability

UNI-T guarantees that the Instrument product is free from any defect in material and workmanship within three years from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination, or improper handling. If you need a warranty service within the warranty period, please contact your seller directly. UNI-T will not be responsible for any special, indirect, incidental, or subsequent damage or loss caused by using this device. For the probes and accessories, the warranty period is one year. Visit instrument.uni-trend.com for full warranty information.

Learn more at: www.uni-trend.com

Register your product to confirm your ownership. You will also get product notifications, update alerts, exclusive offers and all the latest information you need to know.

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