

TSQA-16CH10

16 Channel Super Precision Automatic HTOL RF Testing System, 10 W,
600 MHz...2200 MHz

Features

- up to 10 W RF power
- wideband
- very high measurement accuracy
- high efficiency
- CW and pulse operation
- output level control

Applications

- qualification of e.g. active and passive cellular and wireless front-end components
- quality assurance (new designs, batch verification)
- research and development (R&D)

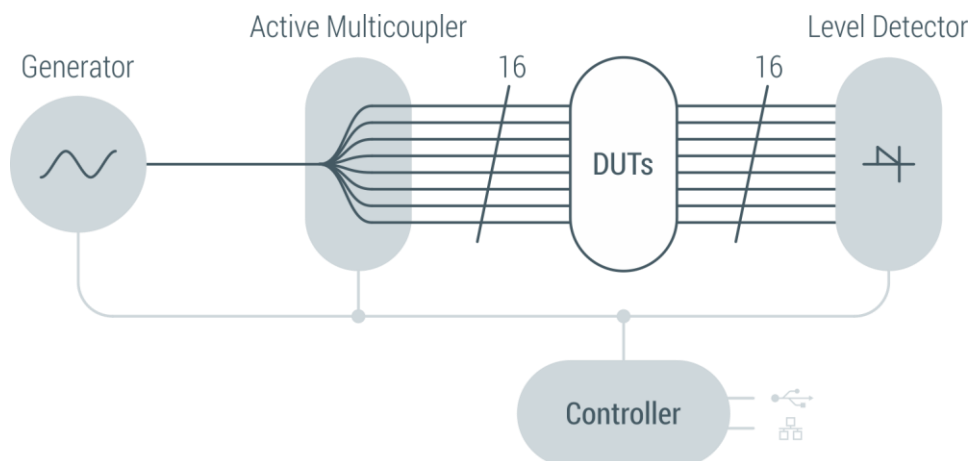


At a glance

High-temperature Operating Life Time (HTOL) testing is an intense stress test performed to simulate aging and accelerate thermally activated failure mechanisms.

During HTOL testing a large set of devices under test (DUT) is put under extreme temperature and absolute maximum rating conditions. Typically it is performed at 125°C. Details are described in JEDEC standard JESD22-A108.

Principle Circuit



Scope

Operating life is an intense stress test performed to accelerate thermally activated failure mechanisms through the application of extreme temperature and dynamic biasing conditions. Typically it is performed at 125°C with a bias level at the maximum data sheet specifications. It is described in JEDEC standard JESD22-A108.

TSQA-16CH10 is a HTOL RF testing system with 16 channels, each with RF output power of up to 10 W.

High power over a high bandwidth

The TSQA-16CH10 has a usable frequency range of 600 MHz ... 2200 MHz. The system operates with a single RF source, the signal distribution & amplification is done internally. The TSQA-16CH10 is equipped with an internal ALC (automatic level control) for accurate RF levels with a high RF level balance in the testing signals. This allows operation in the maximum ratings range of the test components close to the damage limits.

CW and pulse operation

The wide frequency range covers all common mobile communication standards. The system can be configured for HTOL stress test with CW signals or pulsed signals.

Highest accuracies in measurements

The input power measurement and the determination of the DUT insertion loss is done with high accuracy three-path diode sensors. In pulsed mode, measurement is triggered in a way that ensures the insertion loss is measured within a single RF pulse. The measurement for all RF channels is multiplexed to save costs and increase the measurement accuracy. The device supports DUTs with a VSWR of less than 2:1. VSWR of up to 6:1 in any channel will not influence the performance of other channels.

Operating temperature monitoring

The power amplifiers are protected against overheating. In the case of violating operating temperature, the RF power amplifier modules switch off automatically. For optical indication an additional LED on the front panel of the power amplifier modules indicates overheating.

Flexible control interfaces

The TSQA-16CH10 is remote controllable via LAN interface. The control protocol is ASCII strings or browser-based using the integrated web server. It allows configuration of parameters and operating the system.

Using the web-interface allows the remote operation of the system without any additional effort of application software development and regardless of a remote location.

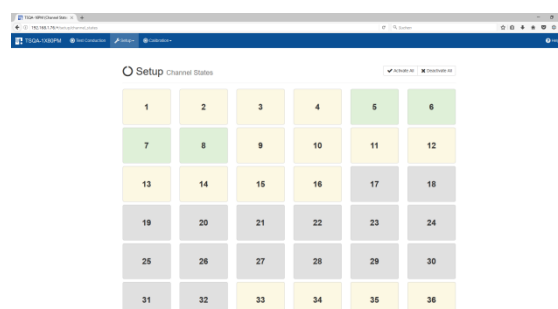


Figure shows Setup Menu of the web-interface

The communication with the signal source is entirely by the TSQA system.

Flexibility during Operation

TSQA-16CH10 also offers a "maintenance" mode. Faulty DUTs can be replaced or removed without interrupting the endurance stress tests for the other channels.

RF Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	Z_{in} / Z_{out}		50		Ohm	
number of channels	n_{DUT}		16			
low frequency	f_{min}		600	850	MHz	
high frequency	f_{max}	1850	2200		MHz	
maximum output power	P_{DUT_MAX}	39.2	40.5		dBm	@ f = 850 MHz
		36,0	37.5		dBm	@ f = 1850 MHz
minimum output power	P_{DUT_MIN}			20.0	dBm	@ f = 850 & 1850 MHz
output power accuracy	ΔP_{DUT}			± 0.5	dB	ALC activated
harmonic distortion	d2	20	30		dBc	2 x f_{GEN}
	d3	20	30		dBc	3 x f_{GEN}
ALC update period	t_{ALC}			60	s	
measurement accuracy	d_{MEAS}			± 0.2	dB	Calibration required, insertion loss of DUT 0.1...1.0 dB.
power measurement interval	Δt_{POW}			10	μs	synchronous measurement between input and output power of DUT
signal type modes		CW and pulse				
pulse length	t_{pulse}	577		2300	μs	pulse mode
period	t_{period}	4.6		1000	ms	pulse mode
stability conditions		open / short				at DUT ports
output isolation	S_{23}		- 80		dB	adjacent channels, full gain
connector type to DUT		SMA male				

Common Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
power supply	U_{AC}	210	230	250	V _{AC}	50/60 Hz
power consumption	P		2000		W	
dimensions	W x H x D	approx. 610 x 1200 x 640			mm	19", 24 U
weight	m		200		kg	TSQA-16CH10
remote interface		RJ45 10/100BaseT				ASCII commands
operating temp. range	T_o	+ 20		+ 30	°C	ambient temperature (system front)
storage temp. range	T_s	- 40		+ 70	°C	
over temperature warning	T_{WARN}		+58		°C	heat sink temperature. LED (yellow) on front panel of TSQA-10ADT
over temperature switch off	T_{OFF}		+65		°C	temperature of amplifier module in TSQA-10ADT
humidity	RH			+ 70	%	
EMC		EN61326-1:2013				according directions: 2014/30/EU
safety		EN61010-1:2010				according directions: 2014/35/EU

Ordering Information

TSQA-16CH10	P/N:	1507.1012.1	Cable feed-trough on the right side
TSQA-16CH10	P/N:	1507.1012.2	Cable feed-trough on the left side

Related Products

Product	Description	P/N
TSQA-1X80PM	80 Channel Precise Automatic HTOL RF Testing System, 2.5 W, 20 MHz...3000 MHz	1606.1012
TSQA-1X16PM	16 Channel Precise Automatic HTOL RF Testing System, 2.5 W, 20 MHz...3000 MHz	1606.1027
WSDU-1X80P	80 Channel HTOL RF Testing System, 2.5 W, 20 MHz...3000 MHz	1202.6102
WSDU-1X16P	16 Channel HTOL RF Testing System, 2.5 W, 20 MHz...3000 MHz	1202.6402
WSDU-1X232	232 Way HTOL RF Testing System, 125 mW, 350...2500 MHz	1004.1002

