



TC-2600A RFID Tester

- ◆ Integration of All required Functions for Reader and Tag Testing Into a Single Unit
- ◆ Supports 860MHz ~ 960MHz UHF RFID
- ◆ Supports ISO/IEC 18000-6 Air Interface Protocol
- ◆ Reader and Tag Emulator Functions
- ◆ Multi-Tag Simulator Function for Reader Test
- ◆ Tag Performance Test Function
- ◆ RF Measurement –Spectrum, RF Envelope, Power-Time



Introduction

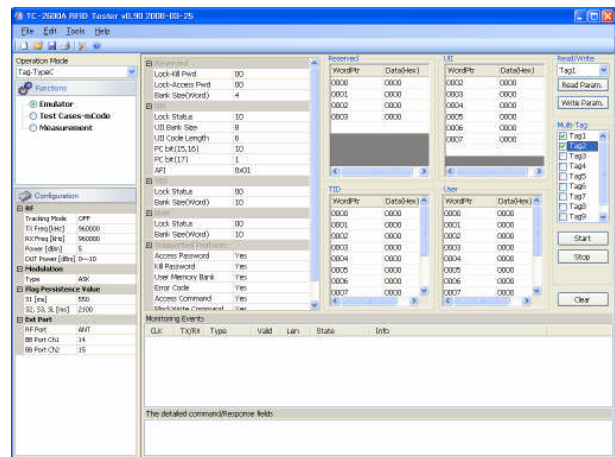
The TC-2600A RFID tester is an integrated device that combines all the RFID Reader and Tag performance evaluation functions in the 860~960MHz UHF frequency range. It provides an optimal test environment for the production, development and servicing of RFID products with versatile and easy functions, as well as a wide range of applications. TC-2600A is a measurement instrument dedicated to and optimized for UHF RFID products. It allows easy and accurate measurement of parameters which would be otherwise difficult using general-purpose instruments, thereby offering exceptional benefits in terms of expedited development, improved production efficiency and enhanced quality.

ISO/IEC 18000-6 Type C (EPC Global Class 1 Generation 2)

The TC-2600A is designed to be completely compliant with ISO/IEC 18000-6 Type C (EPC Global Class-1 Generation 2), the standard air interface protocol of the 860~960MHz UHF frequency range, to operate with reference Readers or Tags. Users can easily configure all protocol parameters including the modulation scheme, data encoding scheme, data rate, symbol interval, response time, Tag memory and lock status.

Tag Emulator Mode for Reader Testing

The TC-2600A can emulate as a reference Tag to test Readers. Since an actual Tag backscatters the Reader signal and communicates based on accurate link timing in microseconds, the TC-2600A analyzes the Reader signal to provide an experimental environment. This environment simulates a real world situation and communication with the Reader is carried out by maintaining accurate link timing as if an actual Tag is backscattering. Furthermore, adjustable power enables easy measurement of the Reader sensitivity and the TC-2600A can simultaneously test up to 10 tags, allowing easy setting of Tag information according to test conditions.

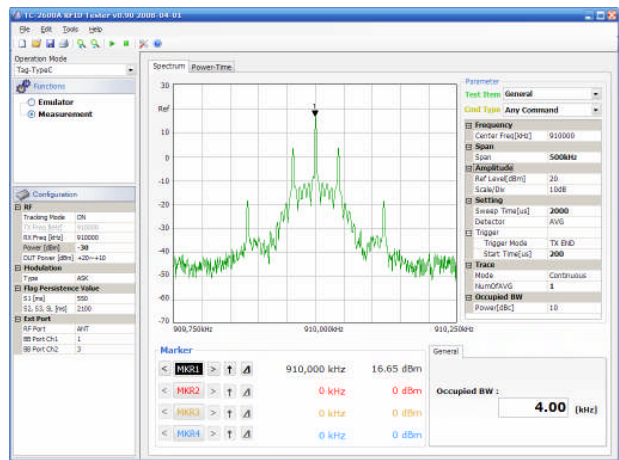
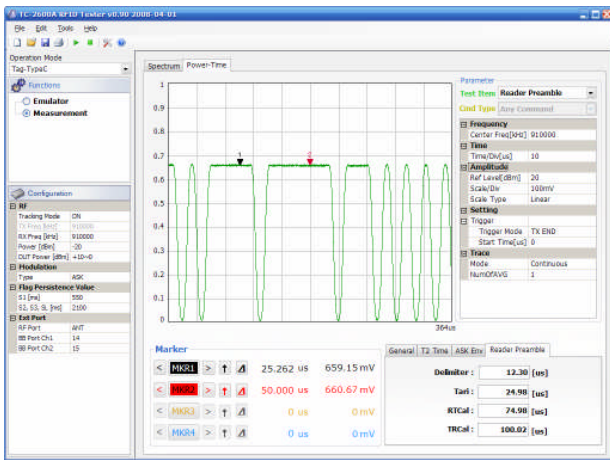


- ◆ Tag Memory Bank Parameters
- ◆ Tag Memory Bank Data
- ◆ Tag Transmission Power, Modulation Type and Flag Persistence Value
- ◆ Display Command and Response Log

Reader RF Measurement

The TC-2600A can operate in the Tag mode and measure the Reader signal to analyze the Reader performance when it communicates with an actual Tag. The measurements are automatically displayed on the screen according to the measurement objective of parameters and their values. Users can easily verify complex measurement results such as:

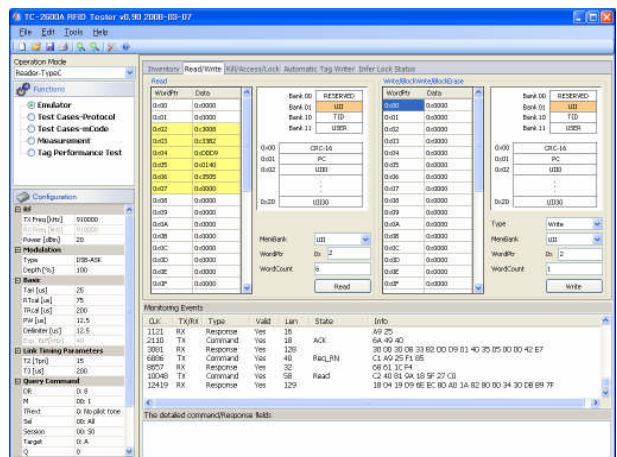
- ◆ Reader Transmission Spectrum and Power
- ◆ Reader Power-up/-down RF envelope
- ◆ Reader PIE Symbol Interval (Delimiter, Tari, PW, RTcal, TRcal, etc.)
- ◆ Reader Preamble and Frame-Sync
- ◆ Reader Response Time



Reader Emulator Mode for Tag Testing

The TC-2600A can operate as a reference Reader to test Tags. Every command can be executed to test Tag operations, including Inventory, Read and Write, Access, Kill, Lock, etc. As in the Tag Emulator mode, the TC-2600A communicates with the Tag while maintaining link timing. When operating, a Reader and Tag performance can be evaluated according to various test conditions below.

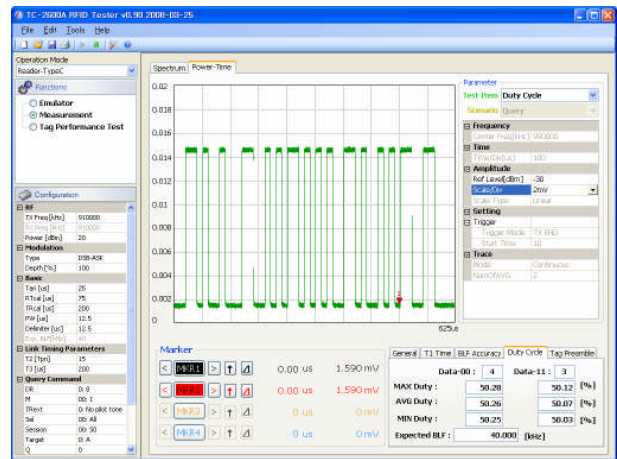
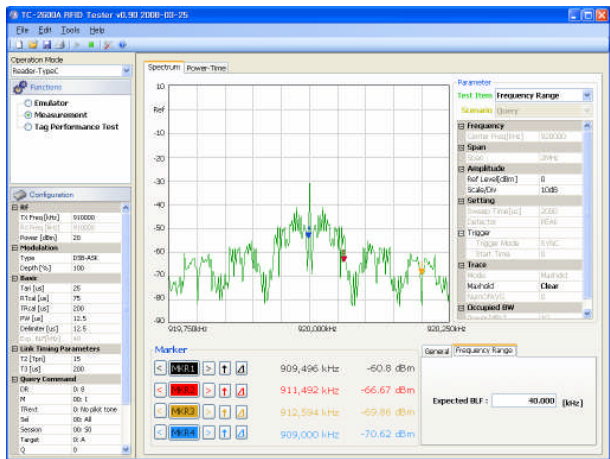
- ◆ Reader Transmission Power, Modulation Type & Depth, PIE symbol interval, Link timing, Query Command Parameter Settings
- ◆ Inventory and Select Tag
- ◆ Commands including Read, Write, Kill, Lock, Access, BlockWrite and BlockErase
- ◆ Automatic TUT (Tag Under Test) Generator
- ◆ Automatic Presumption Tag Lock Status
- ◆ Display Command and Response Log



Tag RF Measurement

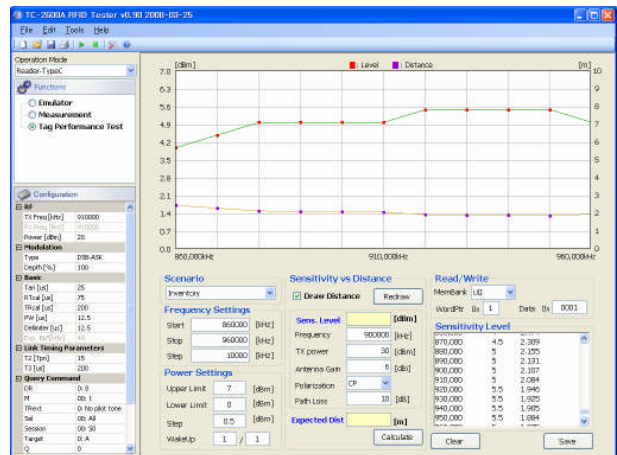
The TC-2600A can operate as a reference Reader to communicate with a Tag and analyze a Tag's backscattering signal in various ways. Commands necessary for test conditions are sent to the Tag, a waveform of the Tag's response signal is displayed according to users' measurement objectives and the experimental parameters are automatically measured and displayed. Accordingly, users can easily perform RF measurements without the complex process of using markers to measure desired values in the signal waveform.

- ◆ Tag Spectrum and Power
- ◆ Tag BLF(Backscattering Link Frequency) Accuracy
- ◆ Tag Duty Cycle
- ◆ Tag FM0/Miller Preamble
- ◆ Tag Turn-around Time



Tag Performance Test

Along with the measurement of specific parameters such as Tag modulation characteristics and signal spectrum, overall Tag performance measurements such as Tag sensitivity, read range and frequency tolerance are some of the most important parameters in Tag performance testing. There is no longer the need for the anechoic chamber, complex jigs for distance adjustment and several instruments for measuring Tag performance. The TC-2600A features combined with an UHF TEM cell, which provides a RF environment similar to an anechoic chamber, provides an excellent Tag performance measurement system along with automatic measurement of Tag sensitivity.

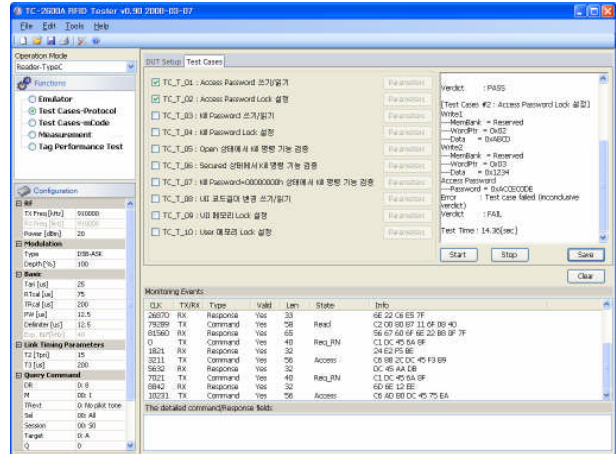


- ◆ Tag Identification Sensitivity
- ◆ Tag Read Identification Sensitivity
- ◆ Tag Write Identification Sensitivity
- ◆ Frequency tolerance to Tag Sensitivity
- ◆ Calculate Read Range

Mobile RFID Standard Compliance Test

The TC-2600A is a standard certification instrument for testing standard protocol compliance of the Korean mobile RFID standard. Whereas conventional standard compliance testing involved a series of complex procedures and analyses, the TC-2600A automatically performs every measurement once the user selects a test case and pushes the execute button.

- ◆ MRFS-5-02: Mobile RFID Air Interface Protocol Compliance Testing Standard (Option 2600-20)
- ◆ MRFS-5-06: Mobile RFID Code System and Application Data Protocol Compliance Testing Standard (Option 2600-30)



Specification

TX Specification		RX Specification	
Common		Common	
Output Frequency	860MHz ~ 960MHz	Input Frequency Range	860MHz ~ 960MHz
Output Level	+20dBm ~ -120dBm	Reader Mode	
Output Frequency Accuracy	± 3.8Hz + Frequency Reference Drift	Input Frequency	Same frequency as Tx
Reader Mode		Input Level	+10dBm ~ -70dBm
Output Frequency Resolution	±50Hz	Input BW	8MHz
Output Level Resolution	± 0.1dB	Tag Mode	
Output Level Accuracy	± 1 dB	Input Level	+20dBm ~ -40dBm
Phase Noise	< -95 dBc at 10KHz Offset	Center Frequency Step Size	100kHz
Tag Mode		IF Frequency	80MHz
Output Frequency Resolution	tracking with Reader signal	Input BW	8MHz
Output Level Resolution	± 0.1dB	Image Rejection	-50dBc
Output Level Accuracy	± 1 dB (ALC Table)	Spectrum (FFT)	
Phase Noise	< -85 dBc at 10KHz Offset	Input Level	+20dBm ~ -40dBm
General Mode		Number of Point	256, 512, 1024 point
Modulation	AM, FM	Span	8M/4M/2M/1M/500K/250KHz
Source Signal Frequency Range	0~500KHz (Max)	Windowing	Blackman-Harris 4-term
Source Signal Type	Sinusoidal, Rectangular, Triangular	Modulation (Include FM Analyzer)	
AM depth	0~99.7%	Input Level	+20dBm ~ -40dBm
FM Deviation	0~500KHz	Number of Point	256Kpoint (Max.)
Frequency Reference		Max. Sampling Frequency	64MHz
Internal Reference Stability	± 1ppm vs. at 10 ~ 40□, ±1ppm/ first year	Power Time (Include AM Analyzer)	
External Reference Input	10MHz (50ohm, 0dBm ~ +20dBm)	Frequency Range	860MHz ~ 960MHz
Reference output	10MHz (50ohm)	Input Level	+20dBm ~ -40dBm
Front Panel		Trigger	Free, Reader/Tag Preamble
N Type Port Impedance	50ohm	Number of Point	256Kpoint (Max.)
N Type Port VSWR	< 1.5	Max. Sampling Frequency	64MHz
Normal Front BNC output level	±1.0Vpp (Max), DC coupled	Miscellaneous Functions	
Front BNC Output Port Impedance	50ohms	Frequency Counter Resolution	18Hz
Rear Panel		Frequency Range	860MHz ~ 960MHz
Interface	USB 2.0	Power Sensor Detect Range	+25 ~ -20dBm
Miscellaneous			
Operating temperature	10 ~ 40□	Dimension	363(w) x 468(d) x 128(h) mm
Line Voltage	100 to 240 VAC, 50/60Hz	Weight	10.8Kg

Ordering Information

Designation	Description	Order No.
Basic unit		
RFID Tester	Tag & Reader Emulator RF Measurement	TC-2600A
Options		
Base band Test Case	Conformance test for Korea mobile RFID standard	2600-20
mCode Test Case	Conformance test for Korea mobile RFID standard	2600-30

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.



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