



RF Conducted Immunity Test System

CST 1075D

■ ISO 7637-4

— Features

- > Highly integrated design with built-in signal generator, RF power amplifier and power meter
- > Built-in an internal wide dynamic range power meter for real-time and precise monitor
- > Accurate traceable closed-loop test; optional current probe for closed-loop method
- > High expandability, supports conducted immunity testing
- > Automated test procedures double testing efficiency
- > High-stability hardware configuration for worry-free long-term operation
- > Support monitoring and overrange protection functions for temperature, VSWR and power

— Introduction

CST 1075D RF Conducted Immunity Test System is an integrated automatic test system specially developed for transient immunity test for pulsed sinusoidal disturbances (pulse A) along HV power lines of electric vehicles, fully designed in compliance with ISO 7637-4 and is used for RF conducted immunity testing with frequencies ranging from 100 kHz to 35 MHz.

Adopting a highly integrated design, it comes with a built-in signal generator, RF power amplifier and RF power meter, greatly reducing setup costs and system complexity. Built-in wide dynamic range power meter ensures real-time and precise monitoring, stable test procedures and reliable measurement results.

The whole test system, centrally controlled by EMC-S/7637-4A software, can improve system scalability and test efficiency. Test results support one-click saving and printing.

— Application Areas



Technical Parameters

Pulsed Sinusoidal Disturbances (Pulse A)	
Frequency	100 kHz ~ 35 MHz
Output Voltage	$> 100 V_{pp}$
Number of Pulse Sine Cycles	1~100
Repetition Time	1 μs ~ 500 s
Output Port	N-Female
VSWR	< 1.5
Signal Generator	
Frequency	1 μHz ~ 35 MHz
Frequency Temperature Stability	$\pm 1 \text{ ppm} + 10 \text{ pHz}$
Harmonics	$< -55 \text{ dBc}$
Non-Harmonic	$< -60 \text{ dBc}$
Output Power	$\leq 10 \text{ MHz: } 1.0 \text{ mV}_{pp} \sim 10 \text{ V}_{pp}$ $\leq 30 \text{ MHz: } 1.0 \text{ mV}_{pp} \sim 5.0 \text{ V}_{pp}$ $\leq 50 \text{ MHz: } 1.0 \text{ mV}_{pp} \sim 2.5 \text{ V}_{pp}$
Power Accuracy	$\pm 1.0 \text{ dB}$
Resolution	0.1 dB
Internal Modulation Source (LF)	Sine wave/Square wave/Triangular wave/Sawtooth wave: 2 mHz ~ 1 MHz
Amplitude Modulation (AM)	Modulation depth: 0% ~ 120% Modulation frequency: 2 mHz ~ 1 MHz
Frequency Modulation (FM)	Max Frequency Deviation: 5 MHz Modulation frequency: 2 mHz ~ 1 MHz
Phase Modulation (ΦM)	Modulation Phase: $0^\circ \sim 360^\circ$ Modulation frequency: 2 mHz ~ 1 MHz
Repetition Time	1 μs ~ 500 s
Output Port	Type N-Female
VSWR	< 1.5
Power Amplifier	
Frequency	100 kHz ~ 230 MHz
Output Power (1dB compression point)	$> 75 \text{ W}$
VSWR	< 1.5
Output Impedance	50 Ω
Output Port	Type N-Female

Technical Parameters

Power Meter	
Frequency	9 kHz ~ 6 GHz
Measurement Range	-60 dBm ~ +20 dBm
Measurement Accuracy	±0.5 dB
Input Port	Type N-Female
VSWR	< 1.3

General Parameters

Working Power	AC 220 V, ± 10%, 50 Hz / 60 Hz
Max. Power Consumption	500 W
Fuse	6 A
Dimension	6U rack, 450(W) *280(H) *620(D)mm
Ambient Temperature	15°C ~ 35°C
Relative Humidity	45% ~ 75%, RH (no condensation)
Atmospheric Pressure	86 kPa ~ 106 kPa

Standard Accessories

Power Cord, RF cable, Grounding Wire, USB Cable, Attenuator, Adapter, Clip-on Ferrite Core, Fuse, User Manual

Optional Accessories

1	Test Software	Model: EMC-S/7637-4A Software for the CST series; support Windows 10 and USB communication; enable remote calibration and test operations	
2	Attenuator	Model: DTC150-30 Frequency: DC ~ 6 GHz Attenuation value: 30 dB Power: 150 W	
3	Attenuator	Model: DTC200-3 Frequency: DC ~ 1 GHz Attenuation value: 3 dB Power: 200 W	
4	Coaxial Load	Model: TFC75-50 Frequency: DC ~ 1 GHz Impedance: 50 Ω Power: 80 W	
5	Balun Transformer	Model: TBT series Frequency: 100 kHz ~ 10 MHz/ 50 MHz/80 MHz Power: 100 W Insertion loss: ≤1 dB (The single-ended output of Balun has inherent -3 dB loss due to energy conservation principle) Characteristic impedance: 50 Ω VSWR: ≤ 3	

Optional Accessories

6	HV Shield Enclosure	Model: HVSE 400 Shielding Effectiveness: >100 dB Front panel ports: 4*N-Female, RF HV+, RF HV-, 2*AUX Rear panel ports: HV+, HV- Cable gland size: 36 mm	
7	Load Resistor & Isolation Capacitor	Model: 7637-4R500C140 Loop resistance & capacitance: R:500 Ω , C:10 μ F Decoupling capacitance: 140 μ F	
8	HV Artificial Network	Model: TANHV series Test voltage: 700 V Test current: 50 A/200 A/250 A are available Dimensions: 490 mm * 200 mm * 215 mm	

CST D Series Selection

Model	Signal Generator	Power Amplifier	
	Frequency	Frequency	1 dB Gain
CST 1075D	1 μ Hz ~ 35 MHz	100 kHz ~ 230 MHz	48.5 dB $\pm$ 2 dB (75 W)
CST 1075D(50M)	1 μ Hz ~ 50 MHz	100 kHz ~ 230 MHz	48.5 dB $\pm$ 2 dB (75 W)
CST 10500D(50M)	1 μ Hz ~ 50 MHz	100 kHz ~ 50 MHz	57 dB $\pm$ 1 dB (500 W)

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