

UFS Compliance Testing

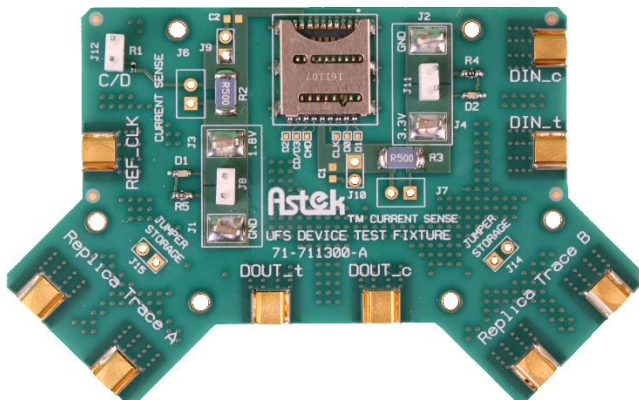
The A9-UFS Test Fixtures enable designers to verify compliance of UFS host systems and UFS device components to the JEDEC UFS Test Specification. The test fixtures provide an SMP interface between UFS components and analysis equipment. Transmitter and receiver compliance testing and return loss measurements of UFS systems can be achieved using the A9-UFS test fixtures.

Features

- Compliance testing of UFS with bus speeds up to M-Phy Gear 3 (Gear 4 TBD).
- SMP connections and test points for access to REF_CLK, C/D, DIN_t/c and DOUT_t/c differential signals.
- Replica Traces used for calibration and de-embedding of Test Fixture.
- Measurement of power consumption of 1.8V and 3.3V on UFS devices and UFS cards.
- Determine power delivery capability of 1.8V and 3.3V on UFS host systems.
- Typical s-parameter files included for de-embedding effects of the test fixtures.

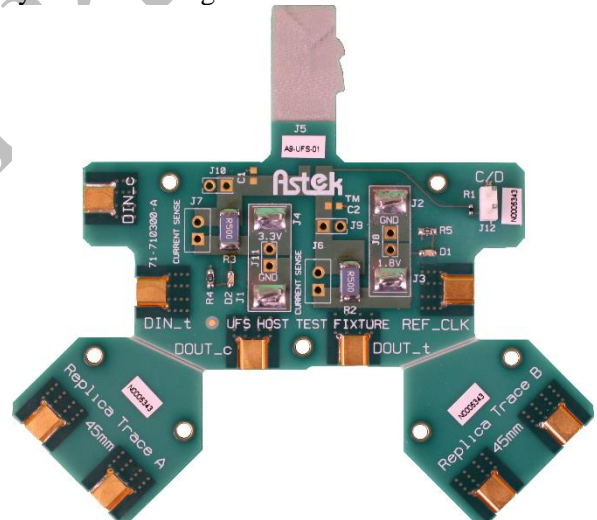
UFS Device Test Fixture

UFS cards are inserted into the A9-UFS-02 device fixture for testing.

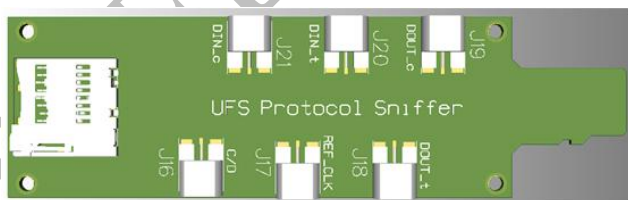


UFS Host Test Fixture

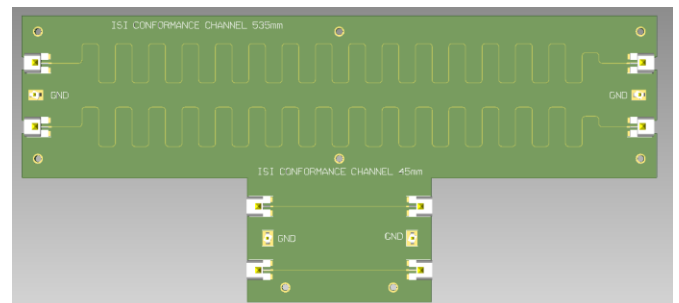
The A9-UFS-01 host fixture plugs into a UFS socket on a host system for testing.



UFS Protocol Sniffer



ISI Conformance Channel



Technical Specifications (UFS Test Fixtures)

Bus Type	UFS		
Bus Speeds Supported	TBD (Gear 3 reqd, Gear 4 design goal)		
Fixture Bandwidth	5.8 GHz		
Impedance	95-ohm differential / 47.5 -ohm single-ended (tolerance +/- 5%, +/- 8% absolute limit) Insertion and return loss (constrained for MIPI fixtures)		
Replica trace loss and impedance	Matches fixture SMP to point where UFS connector pin contacts UFS device.		
Max Power Consumption Allowed (Device Fixture)	1.8V - 2A Power dist. Impedance (0.1 ohm max) – current consumption to calculate impedance. Remote power and Gnd sense at device is supported to eliminate effects of voltage drop across current sense resistor. 3.3V - 2A – Same current measurement and remote sense as for 1.8V supply.		
De-embedding support	2 & 4 port s-parameter files based on a typical test fixture.		
Agency Approval	EU RoHS Compliant (lead-free)		
	Device Test Fixture	Host Test Fixture	Protocol Sniffer
UFS Connections	UFS Socket	Per JEDEC UFS 1.0 Card spec	
Signal Connections	REF_CLK – SMP DIN_t/c – SMP DOUT_t/c – SMP Cal Trace – SMP C/D – 2-pin header	REF_CLK – SMP DIN_t/c – SMP DOUT_t/c – SMP Cal Trace – SMP C/D – 2-pin header	REF_CLK – SMP DIN_t/c – SMP DOUT_t/c – SMP C/D – 2-pin header
Power Connections	2-pin header and test clip for 1.8V and 3.3V	2-pin header and test clip for 1.8V and 3.3V	
Power LEDs	1.8V and 3.3V	1.8V and 3.3V	
Current Monitoring	Supported. 2-pin headers for 1.8V and 3.3V current measurement.	Low impedance connection to external load for measuring host power supply capability.	
Power Conditioning	Decoupling as required by UFS specification.	N/A	
Environments	Storage	Operating	
Temperature	-40° to +85° C	0° to 55° C	
Relative Humidity	5 to 90% non-condensing	5 to 90% non-condensing	

Technical Specifications (ISI Channel)

Bus Type	ISI Channel
Trace loss	5.5 dB at 1.5 GHz
Impedance	95-ohm differential / 47.5 -ohm single-ended (tolerance +/- 5%, +/- 8% absolute reject)

WARRANTY

Astek products are assembled and tested in world-class facilities to ensure superior product performance and reliability. Astek's test fixture products carry a 6-month limited warranty.

About Astek Corporation

Astek manufactures fixtures, probes, and test equipment for measuring signal quality and signal integrity of high-speed digital interfaces such as PCIe, USB, SAS, SATA, UHS-II, and DDR. Astek also provides storage products for embedded markets including medical, tele-communications and military applications. Astek is a registered ISO 9001:2008 company.

For more information please contact your sales representative or visit the Astek web site at:

www.astekcorp.com

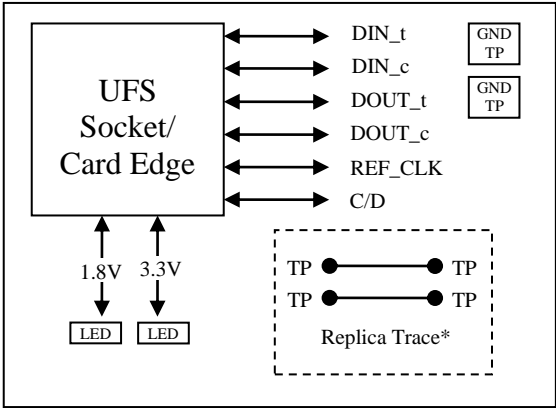
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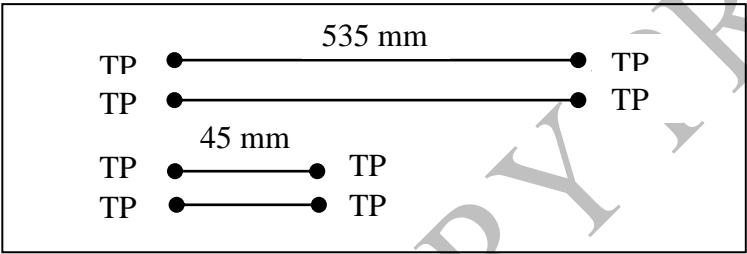
Block Diagram

UFS Device and Host Test Fixture

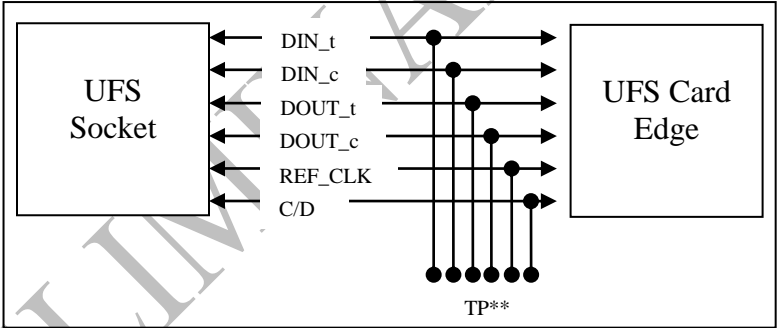


* The Replica Trace is used to de-embed the test fixture

ISI Conformance Channel



UFS Protocol Sniffer



** There is isolation circuitry for signal probing

Ordering Information

Model Number	Product Description
A9-UFS-01	UFS Host Test Fixture
A9-UFS-02	UFS Device Test Fixture
A9-UFS-03	UFS Protocol Sniffer
A9-UFS-04	ISI Conformance Channel
A9-UFS-KIT	One set of four Test Fixtures (1 ea)