ISO 21806-11:2021 (E)

Road vehicles — Media Oriented Systems Transport (MOST) — Part 11: 150-Mbit/s coaxial physical layer conformance test plan

Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms and definitions

4 Symbols and abbreviated terms

4.1 Symbols
4.2 Abbreviated terms

5 Conventions

6 Operating conditions and measurement tools, requested accuracy

6.1 Operating conditions
6.2 Apparatus — Measurement tools, requested accuracy

7 Electrical characteristics

7.1 Test according to LVDS
7.2 Test according to LVTTL

8 Coaxial characteristics

8.1 High/low detection at SP2
8.2 Transition times at SP2
8.3 Steady state amplitude at SP2
8.4 Attenuation of coaxial interconnect
8.4.1 General
8.4.2 Coefficient values based on attenuation measurements
8.4.3 Fitting of corridor
8.4.4 Attenuation test set-up
8.4.5 Test procedure
8.4.5.1 General
8.4.5.2 Data acquisition
8.4.5.3 Data fitting
8.4.5.4 Attenuation conformance
8.4.5.5 Impact of attenuation on data signal
8.5 RL of connectors and couplers
8.6 Characteristic impedance of coaxial cable
8.7 RL of coaxial interconnect
8.8 RL of PCB interfaces
8.9 Stimulus creation for SP3
8.9.1 General
8.9.2 Pattern generator
8.9.3 Arbitrary signal generator
8.9.4 Attenuator
8.9.5 Cable or analogue representation
8.9.6 Noise generator
8.9.7 Creating a stimulus for SP3 for simplex applications
8.9.8 Creating a stimulus for SP3 for duplex applications

9 Measurement of phase variation

9.1 General
9.2 Measuring alignment jitter
9.3 Measuring transferred jitter

10 Test set-ups

10.1 General
10.2 Graphical symbols and descriptions
10.2.1 Pattern generator SP1
10.2.2 SP3 stimulus
10.2.3 Standalone simplex ECport under test
10.2.4 Integrated simplex ECport under test
10.2.5 Standalone simplex CEport under test
10.2.6 Integrated simplex CEport under test
10.2.7 Duplex ECport under test
10.2.8 Duplex CEport under test
10.3 Set-ups for dual simplex
10.3.1 General
10.3.2 SP2 signal quality measurement for simplex
10.3.3 SP4 jitter measurement (AJ and TJ) for simplex
10.4 Set-ups for duplex
10.4.1 General
10.4.2 Directional couplers
10.4.3 SP2 signal quality measurement for duplex
10.4.4 SP4 jitter measurement (AJ and TJ) for duplex

11 Power-on and power-off

11.1 General
11.2 Measuring ECC parameters
11.2.1 Measuring ECC parameters – Test set-up
11.2.2 Measuring ECC parameters – Signal charts
11.2.3 Measuring ECC parameters – Test sequences
11.2.3.1 ECC test sequence #1 – off-state to on-state by SP1 signal
11.2.3.2 ECC test sequence #2 – off-state to on-state by SP1 signal
11.2.3.3 ECC test sequence #3 - on-state to off-state by SP1 signal
11.2.3.4 ECC test sequence #4 - off-state to on-state by SP1 signal
11.2.3.5 ECC test sequence #5 - on-state to off-state by SP1 signal
11.2.3.6 ECC test sequence #6 - off-state to on-state by /RST signal
11.2.3.7 ECC test sequence #7 - on-state to off-state by /RST signal
11.3 Measuring CEC parameters
11.3.1 Measuring CEC parameters – Test set-up
11.3.2 Measuring CEC parameters – Signal charts
11.3.3 Measuring CEC parameters – Test sequences
11.3.3.1 General
11.3.3.2 CEC test sequence #1 – off-state to on-state
11.3.3.3 CEC test sequence #2 – off-state to on-state
11.3.3.4 CEC test sequence #3 – off-state to on-state
11.3.3.5 CEC test sequence #4 – off-state to on-state
11.3.3.6 CEC test sequence #5 – on-state to off-state
11.3.3.7 CEC test sequence #6 – off-state to on-state
11.3.3.8 CEC test sequence #7 – on-state to off-state

12 Detecting bit rate (frequency reference)

13 System performance

13.1 General
13.2 SP4 receiver tolerance
13.3 TimingMaster delay tolerance

14 Conformance tests of 150-Mbit/s coaxial physical layer

14.1 Location of interfaces
14.2 Control signals
14.3 Limited access to specification points

14.4 Parameter overview

15 Limited physical layer conformance

15.1 Overview
15.2 Test set-ups 1 and 2
15.3 Generating test signals for the IUT input section SP3
15.4 Analysis of test results
15.5 Test flow overview
15.6 Measurement of SP3 input signal of the IUT
15.7 Measurement of SP2 output signal of the IUT
15.8 Measurement of RL
15.9 Functional test of wake-up and shutdown

16 Direct physical measuring accuracy

17 Measurement of Port1 delay drift

Annex A (informative) Limited physical layer conformance for development tools

Annex B (normative) SP3 stress conditions

Annex C (normative) Compensation set-up for MOST150 cPHY duplex

C.1 General
C.2 Compensation method for set-up related reflections
C.2.1 General
C.2.2 Scenario A – IUT as TimingSlave
C.2.2.1 General
C.2.2.2 Test operation
C.2.2.3 Reflection compensation
C.2.3 Scenario B – IUT as TimingMaster
C.2.3.1 General
C.2.3.2 Test operation
C.2.3.3 Reflection compensation

Annex D (informative) Test procedure for 2-port nodes

D.1 Enhanced test set-ups for 2-port nodes
D.2 Enhanced test flow for 2-port nodes

Page count: 84