

SSA ELECTRICAL LAYER STUDY GROUP

- INTRODUCTIONS
- AGENDA DISCUSSION
- OVERALL STATUS AND CONCERNS
- REVIEW OF RECENT DATA
- TERMINATION SPECIFICATIONS
- CONNECTOR SPECIFICATIONS
- MEDIA SPECIFICATIONS
- STUB SPECIFICATIONS
- GROUND RETURN SPECIFICATIONS
- REPEATER / LRC ISSUES
- EQUALIZERS
- JITTER FREQUENCY ISSUES
- FORMAL AGREEMENTS ON DETAILS OF MEASUREMENT LOCATIONS
- ACTION ITEMS
- NEXT MEETINGS
- ADJOURN

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- THE EFFECTS OF IMPERFECT TERMINATION, CONNECTORS, EQUALIZERS, LRC'S AND OTHER DISTURBANCES IN THE LINK PATH MAY NOT AFFECT THE MARGINS LINEARLY
- THE PRESENT SPECIFICATION ASSUMES THAT THE DRIVER, RECEIVER, AND INTERCONNECT CAN BE INDEPENDENTLY TESTED AND THE RESULTS WILL APPLY WHEN ALL THREE ARE ACTUALLY CONNECTED AT THE SAME TIME
- THIS ASSUMPTION IGNORES EFFECTS CAUSED BY REFLECTIONS IN THE TRANSMISSION LINES -- ESPECIALLY THAT CAUSED BY IMPERFECT REACTIVE TERMINATION

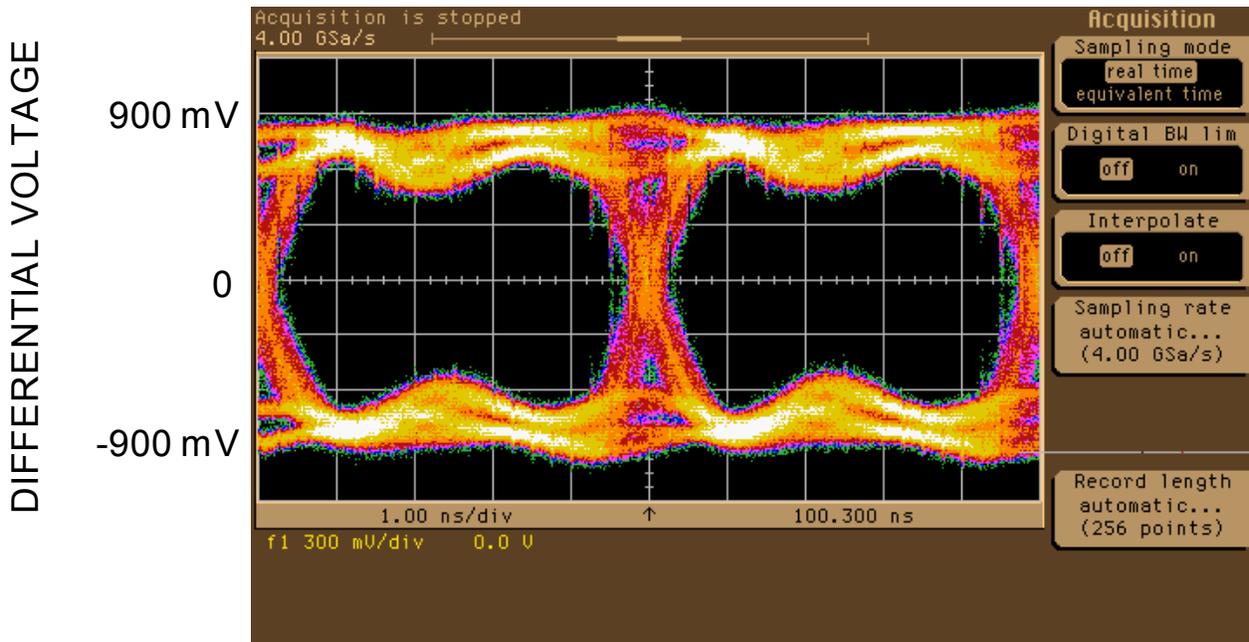
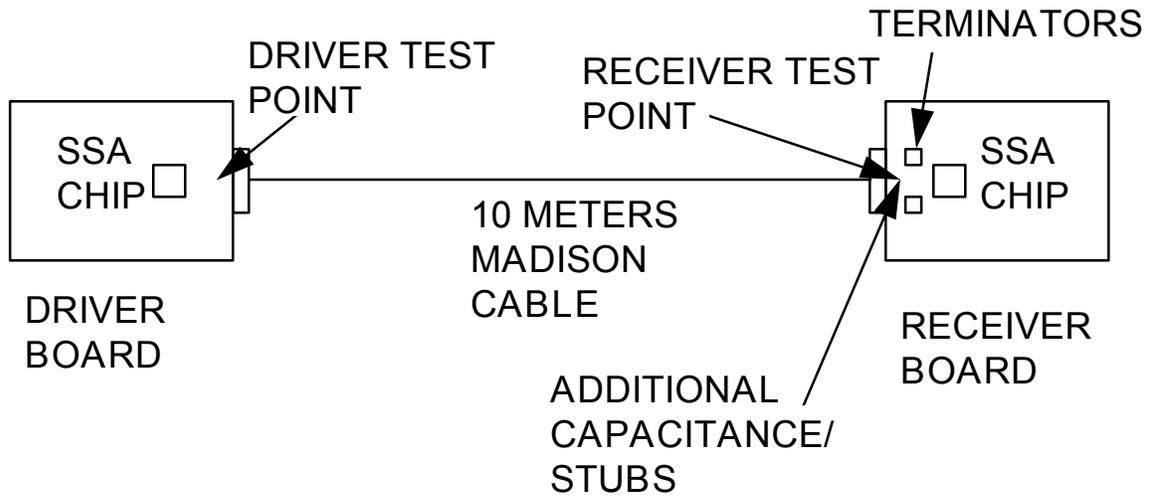
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- THE RECEIVER SPECIFICATION IS BASED ON MEASUREMENT OF ERROR RATE BY THE OPERATING SSA SYSTEM
- IF A “RECEIVER” CANNOT REPORT ERROR RATE IT CANNOT USE THE PRESENT SPECIFICATIONS -- THIS ISSUE APPLIES MOST STRONGLY TO REPEATERS WHERE RECEIVERS IN THE SSA SENSE CANNOT EXIST
- REPEATERS MAY THEREFORE ONLY BE CONSIDERED AS DRIVERS AND SHOULD BE SUBJECT ONLY TO DRIVER SPECIFICATIONS
- REPEATERS MUST PROVIDE SSA TERMINATION HOWEVER SINCE THEIR INPUTS (REPEATER “RECEIVERS”) ARE DIRECTLY CONNECTED TO THE SSA DRIVERS

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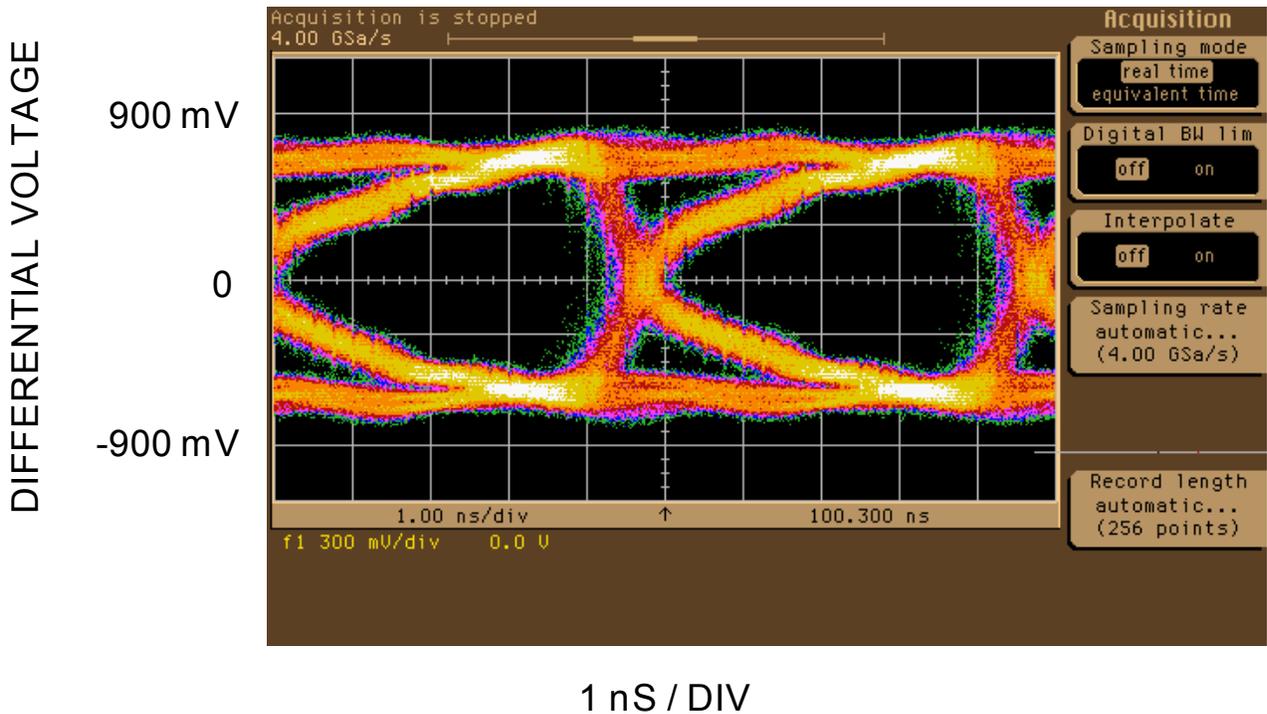
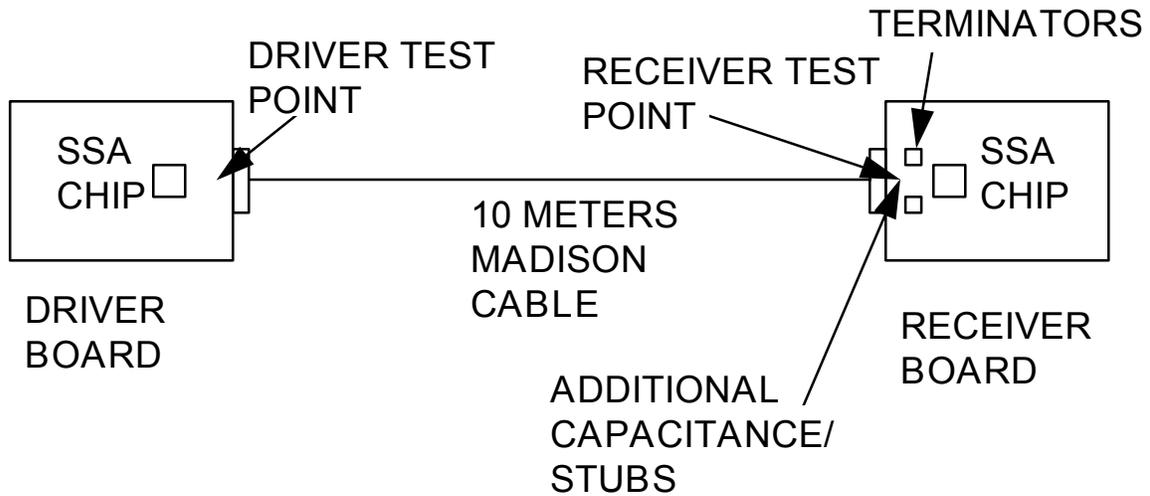
- THERE IS AN IMPLICIT ASSUMPTION THAT THE TERMINATION IS VERY CLOSE TO THE ELECTRICAL RECEIVER
- THERE IS ALSO A REQUIREMENT THAT TERMINATORS SUPPLY THE DC PATH BACK TO THE DRIVERS
- THE PATHS FROM THE SSA DRIVER TO THE TERMINATOR NEAR THE REAL SSA RECEIVER ARE GENERALLY ASSUMED TO BE LOW RESISTANCE DIRECTLY COUPLED COPPER LINES
- THE INTRODUCTION OF REPEATERS AND EQUALIZERS VIOLATES THIS ASSUMPTION

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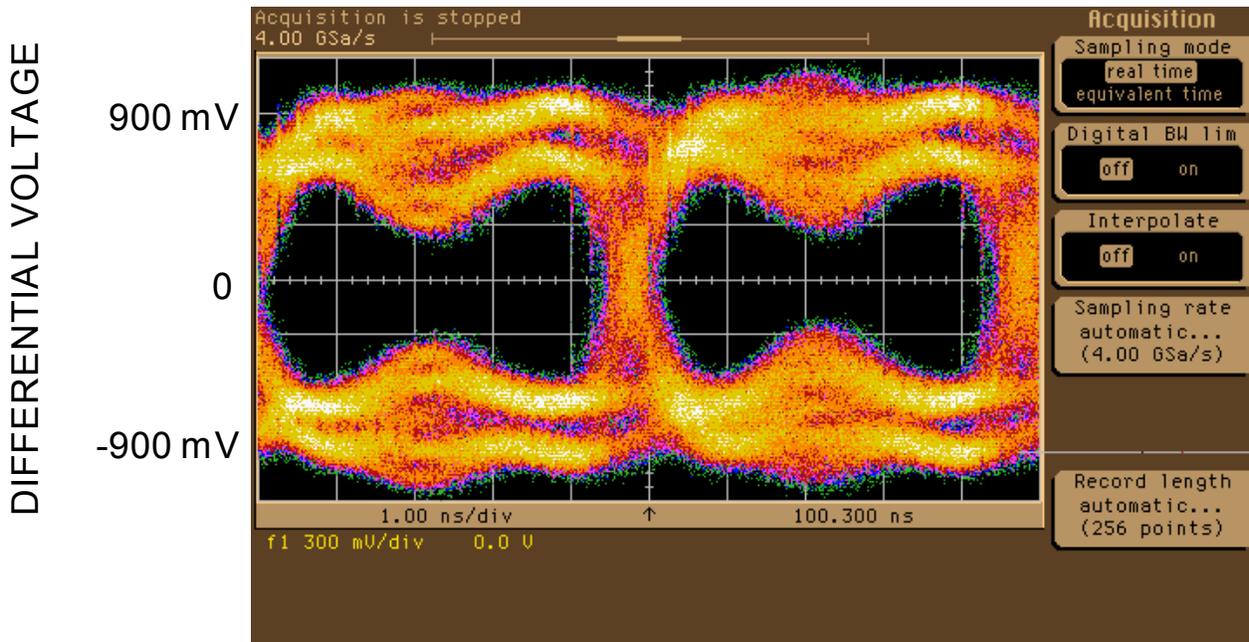
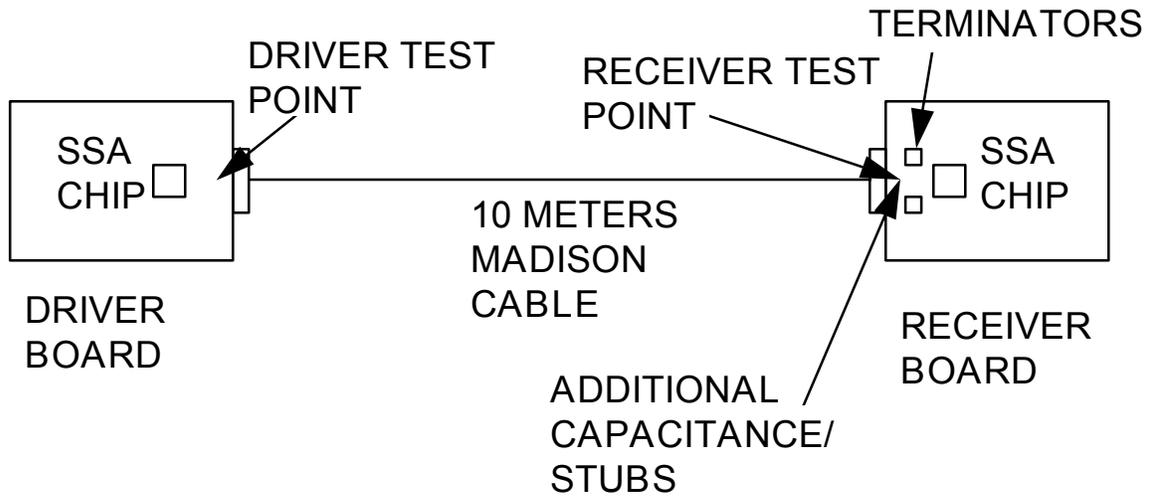
AT DRIVER WITH 75 OHMS TERMINATING RESISTORS
AND NO ADDITIONAL CAPACITANCE/STUBS

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AT RECEIVER WITH 75 OHMS TERMINATING RESISTORS
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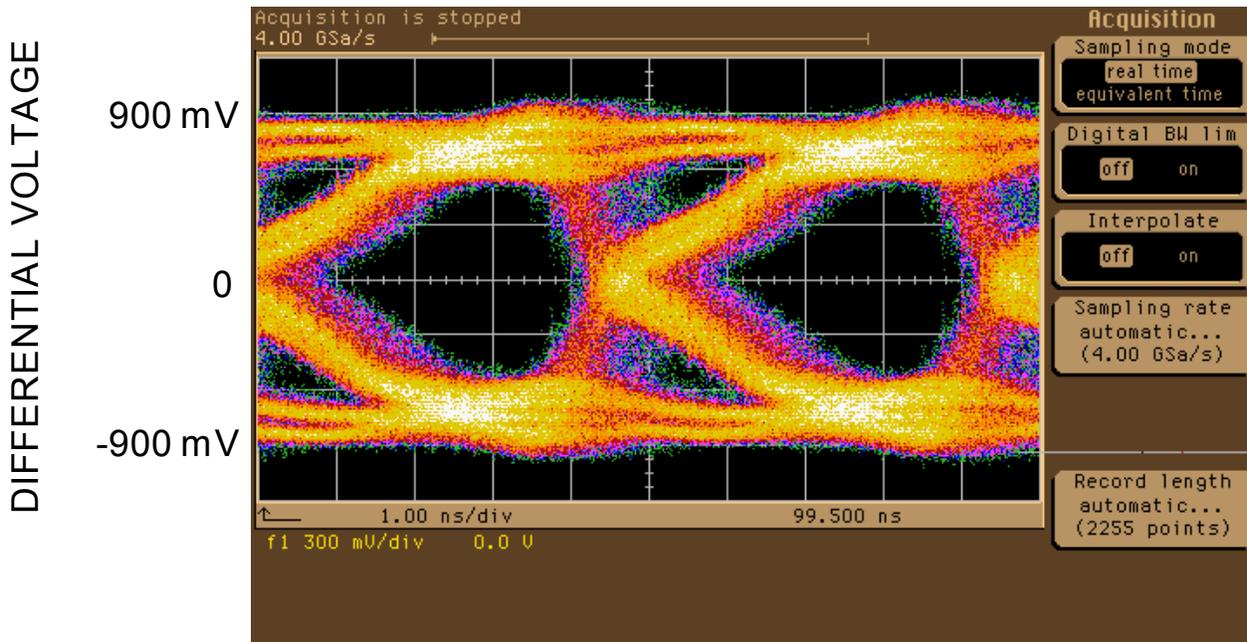
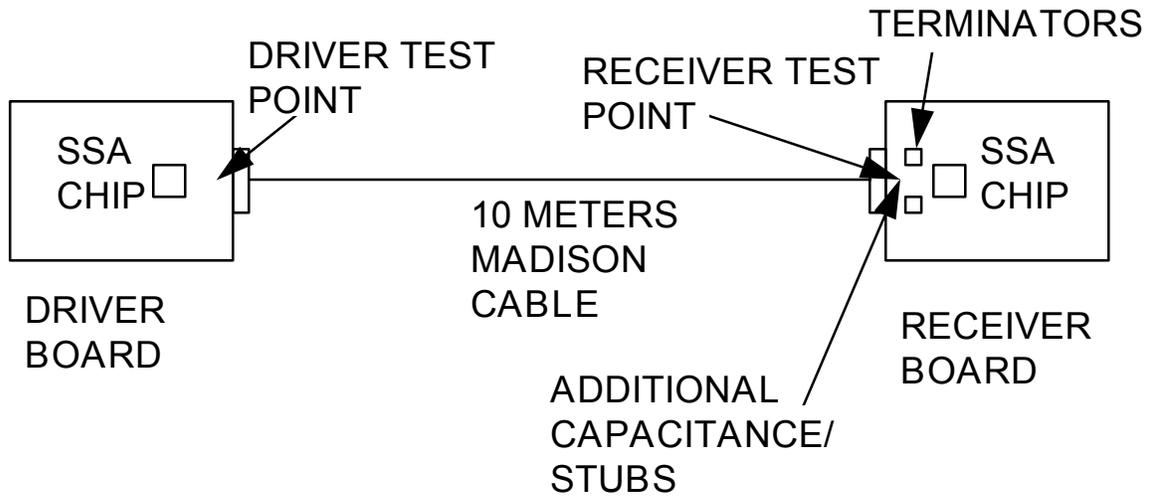
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AT DRIVER WITH 100 OHMS TERMINATING RESISTOR
AND NO ADDITIONAL CAPACITANCE/STUBS

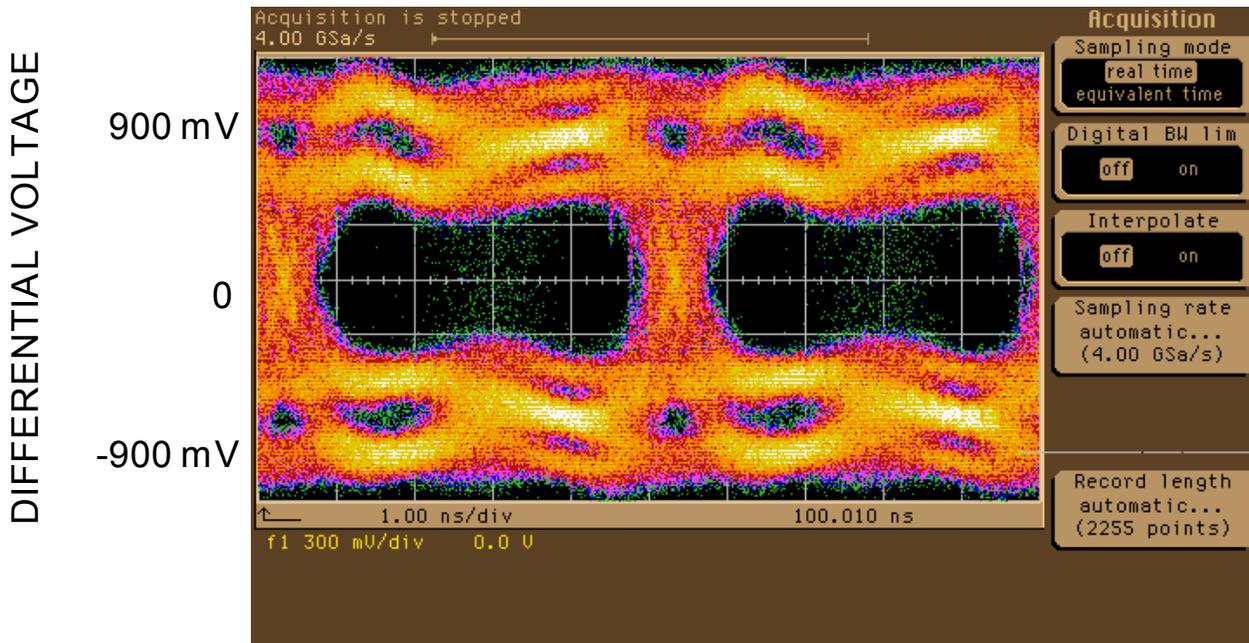
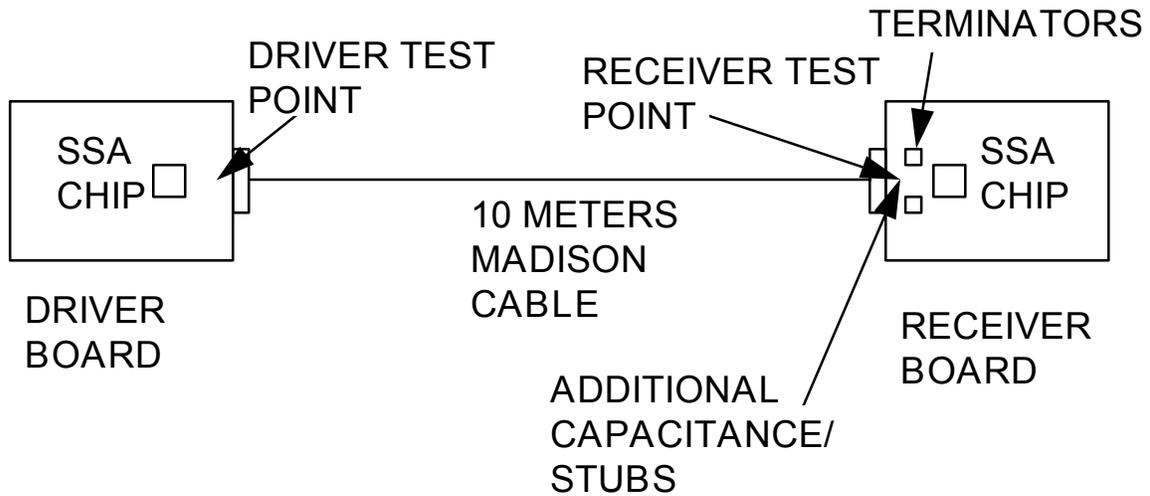
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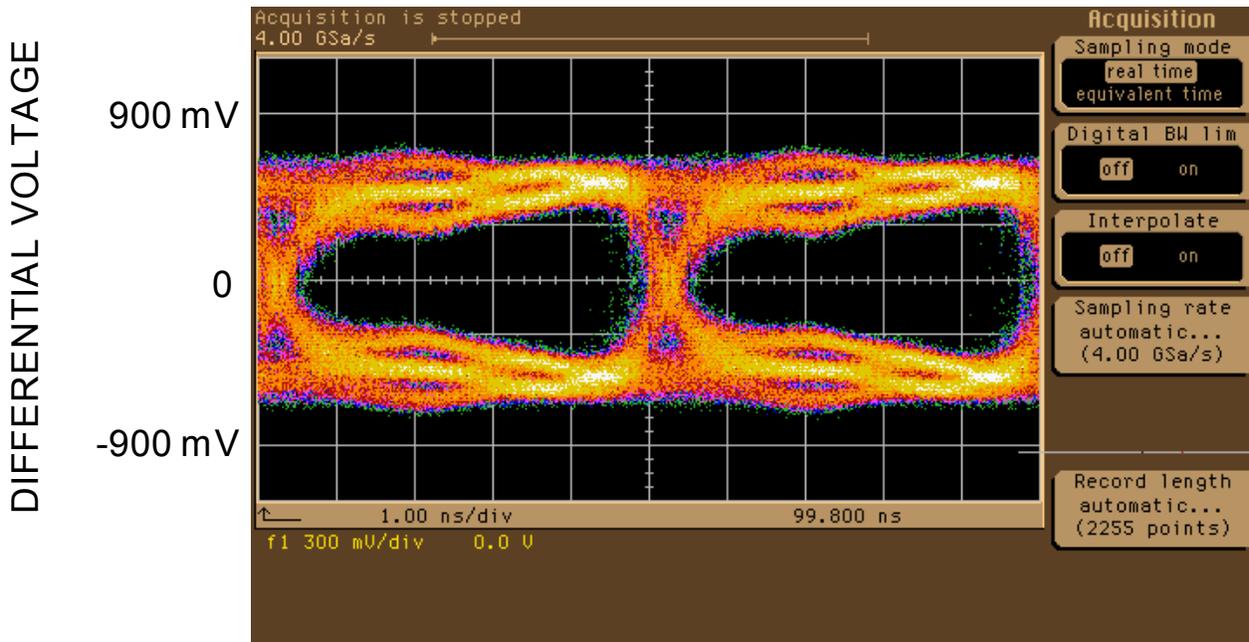
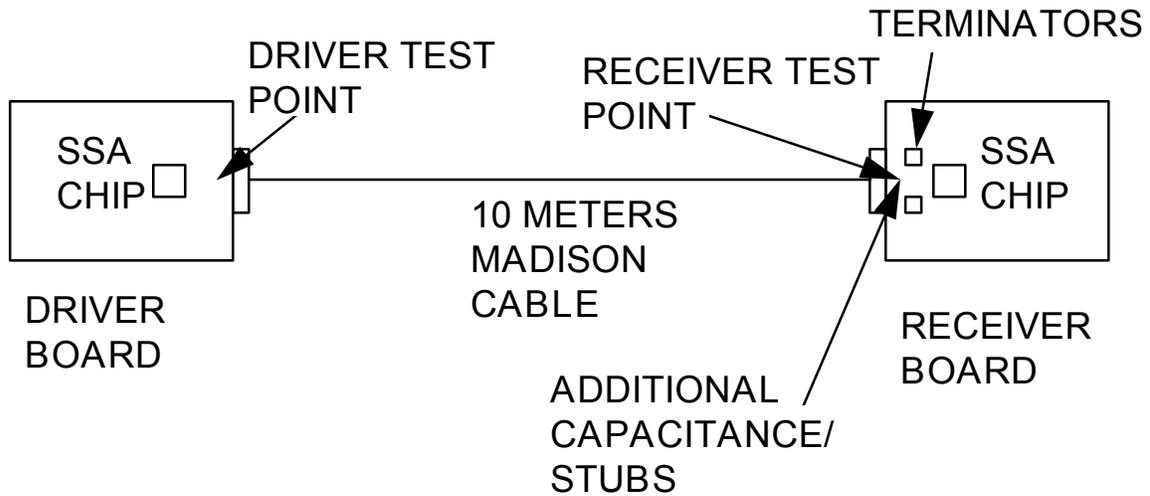
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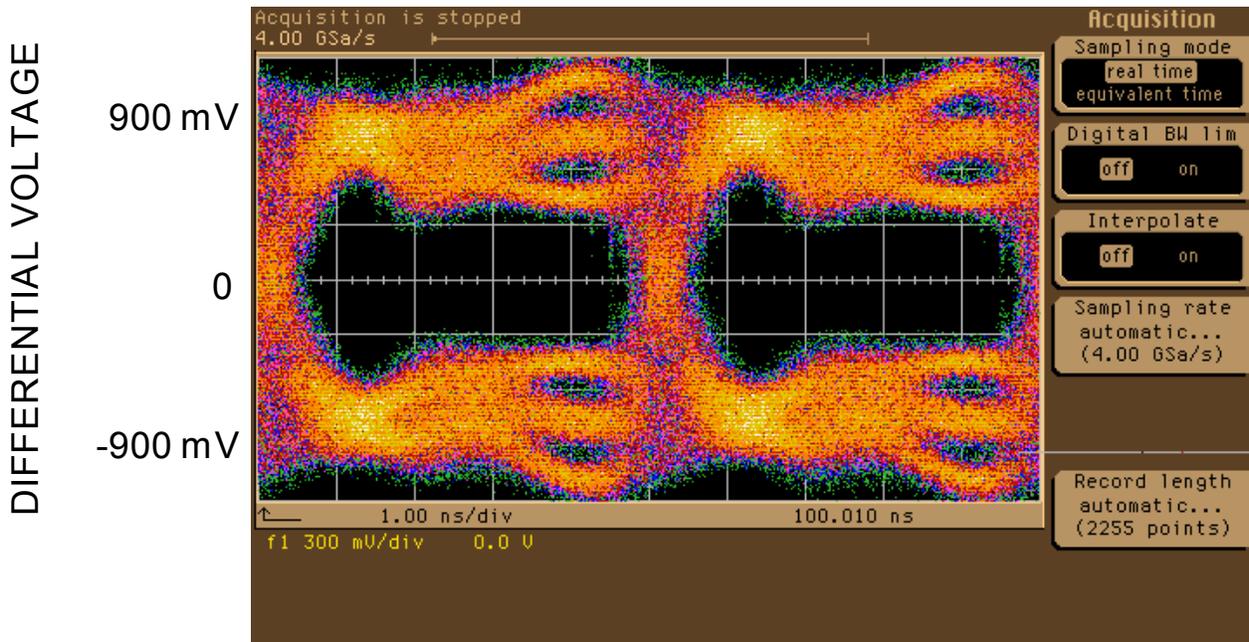
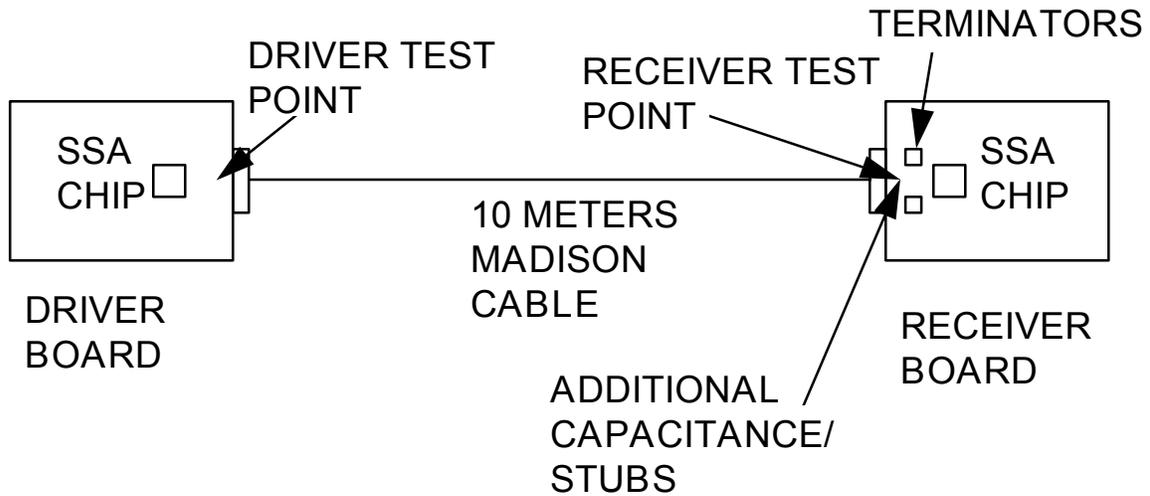
AT DRIVER WITH 50 OHMS TERMINATING RESISTOR
AND NO ADDITIONAL CAPACITANCE/STUBS

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AT RECEIVER WITH 50 OHMS TERMINATING RESISTOR
AND NO ADDITIONAL CAPACITANCE/STUBS

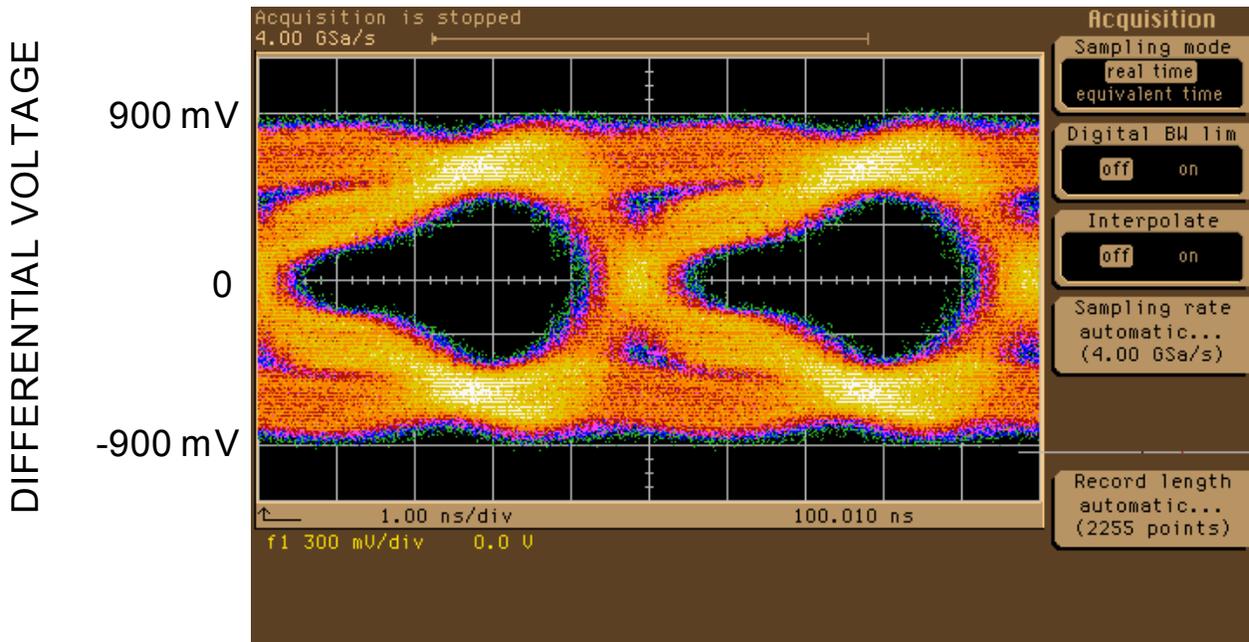
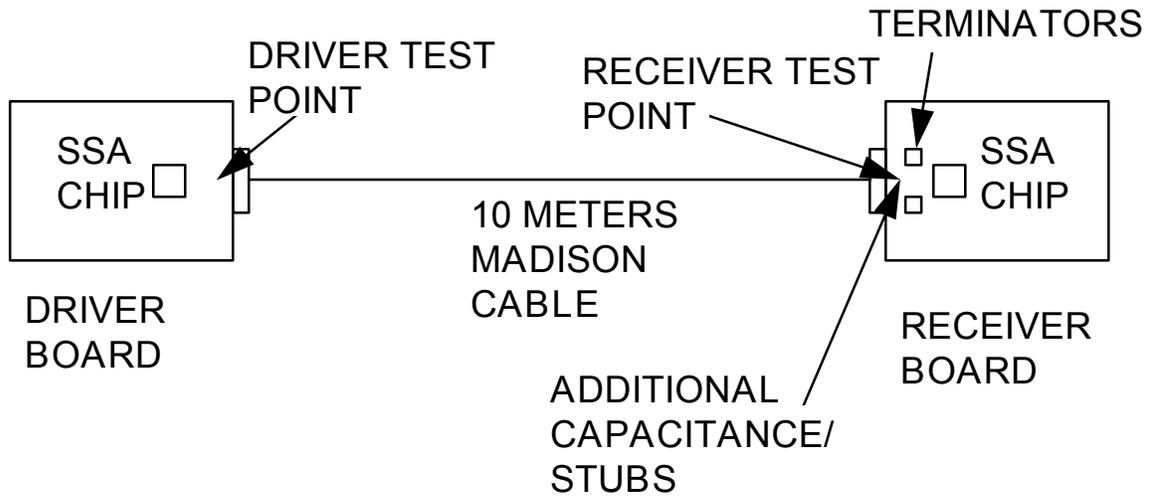
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AT DRIVER WITH 75 OHMS TERMINATING RESISTOR
AND 5pF ADDITIONAL CAPACITANCE BETWEEN
LINE+ AND LINE -

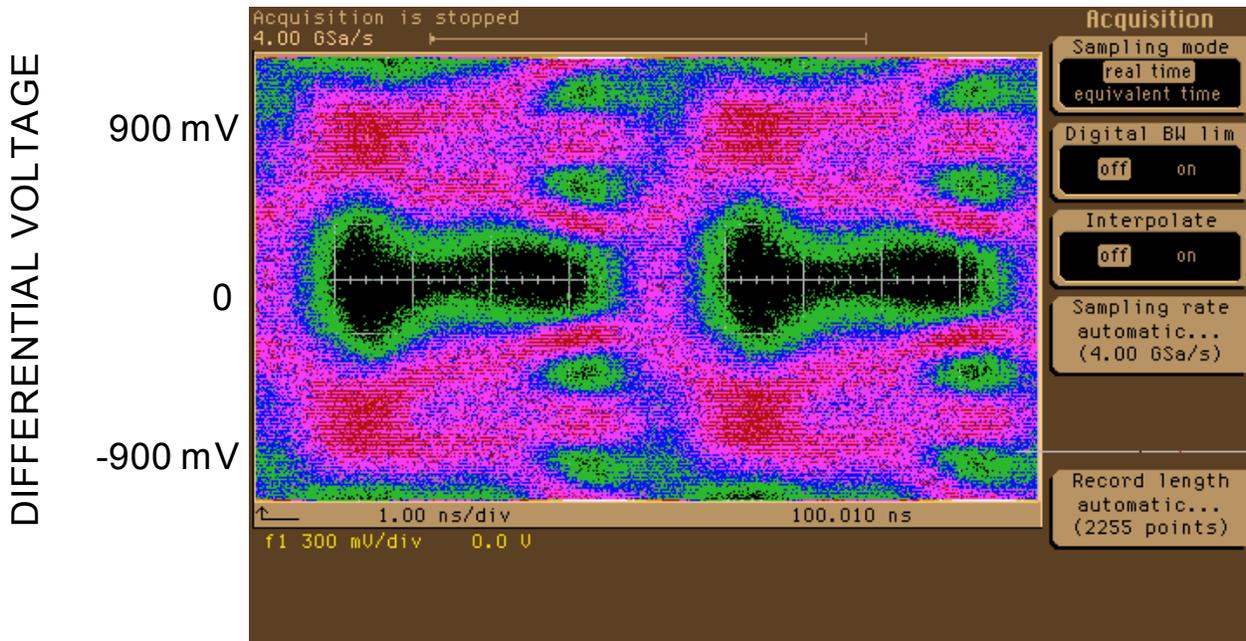
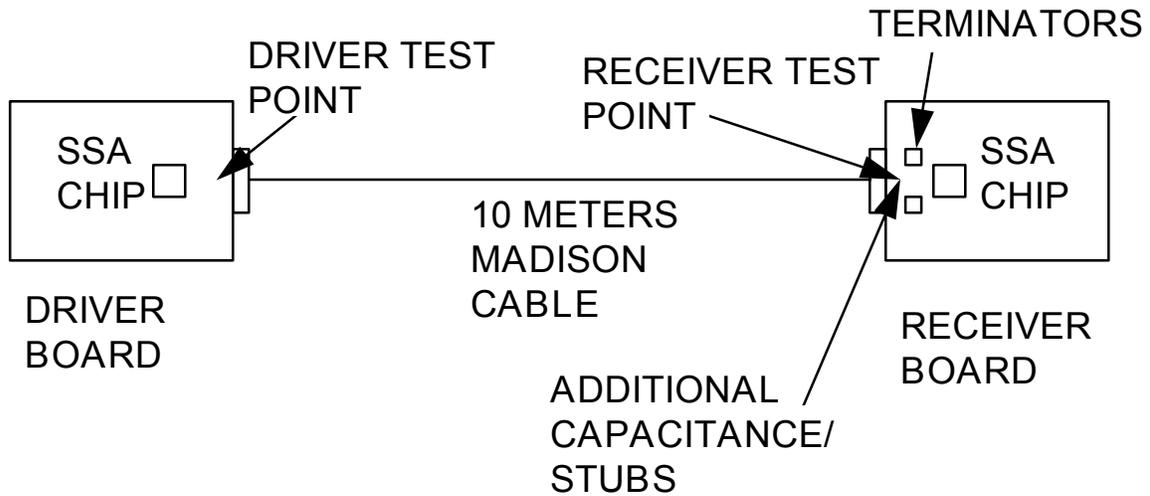
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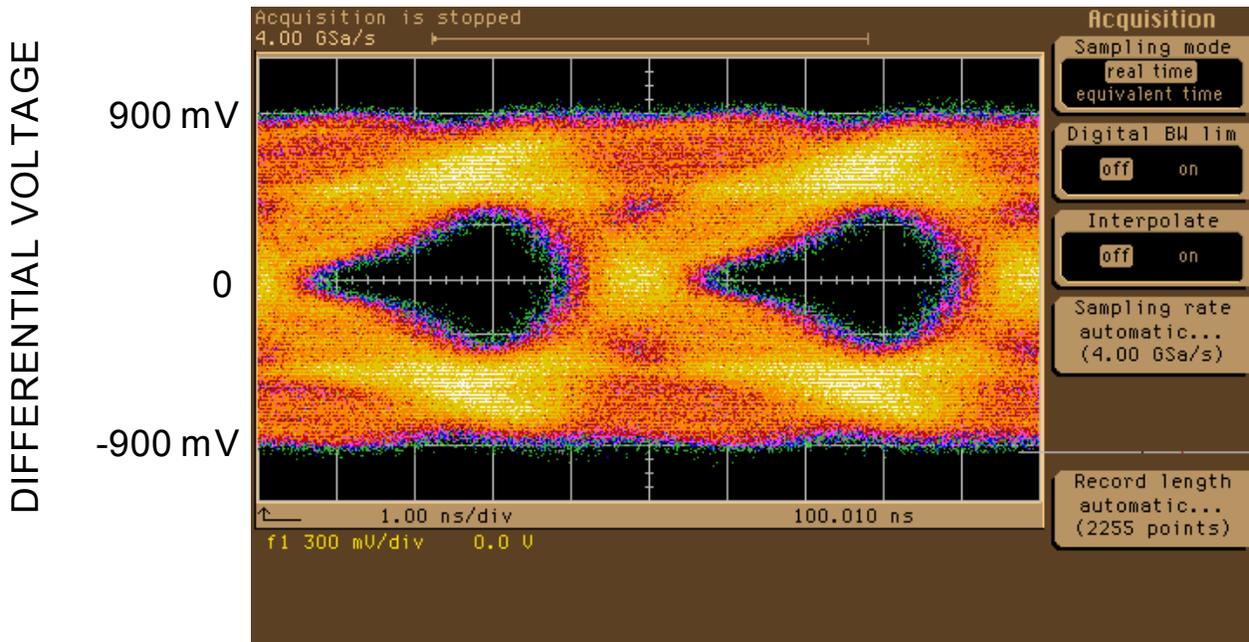
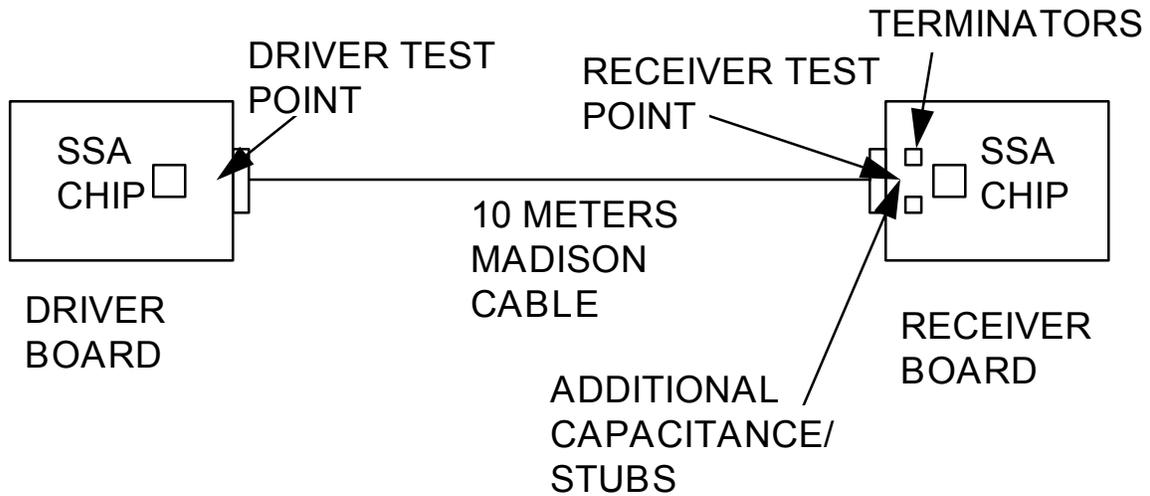
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AT DRIVER WITH 75 OHMS TERMINATING RESISTOR
AND 10pF ADDITIONAL CAPACITANCE BETWEEN
LINE + AND LINE -

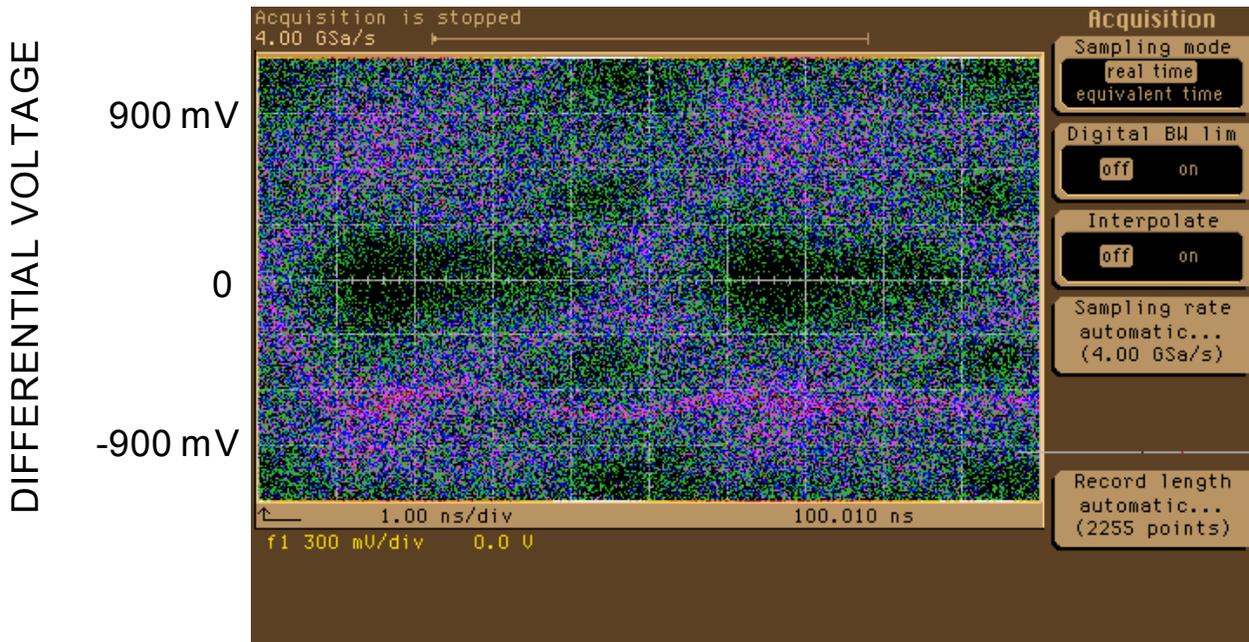
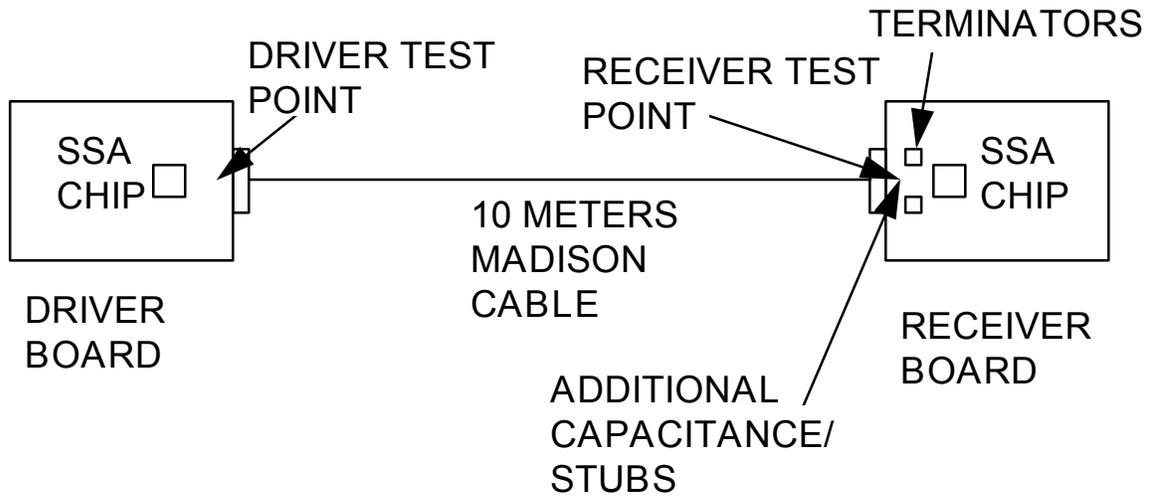
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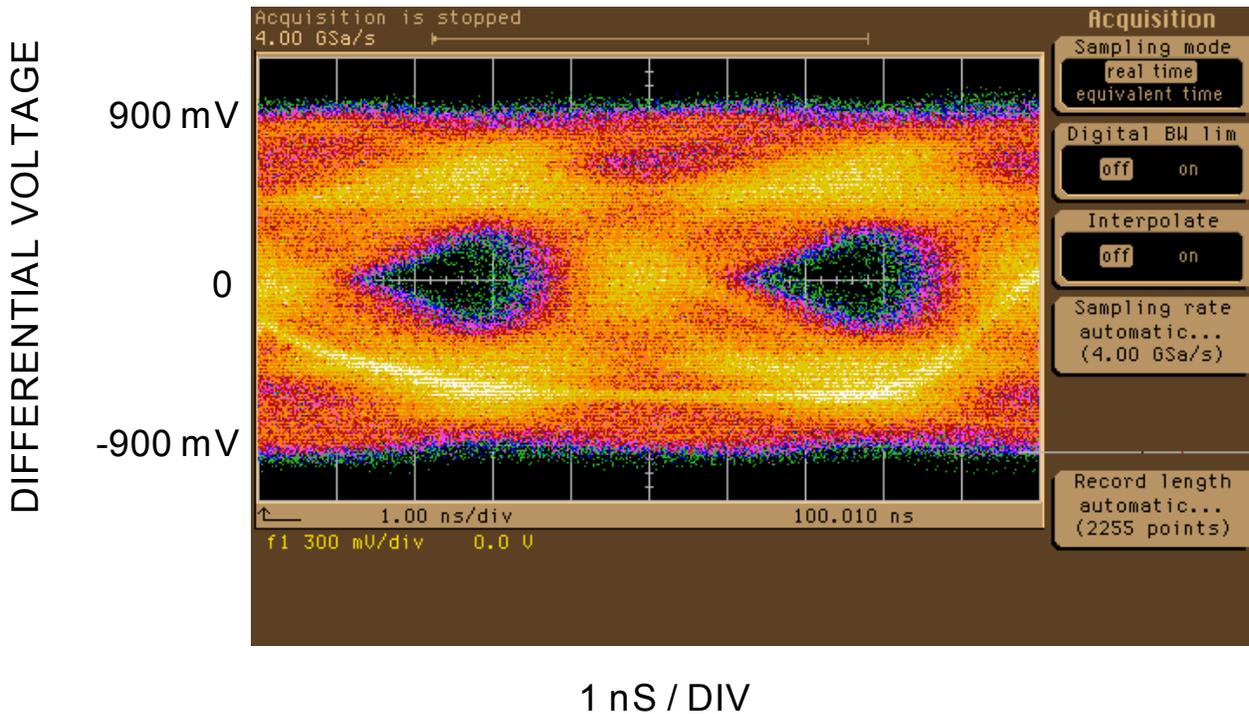
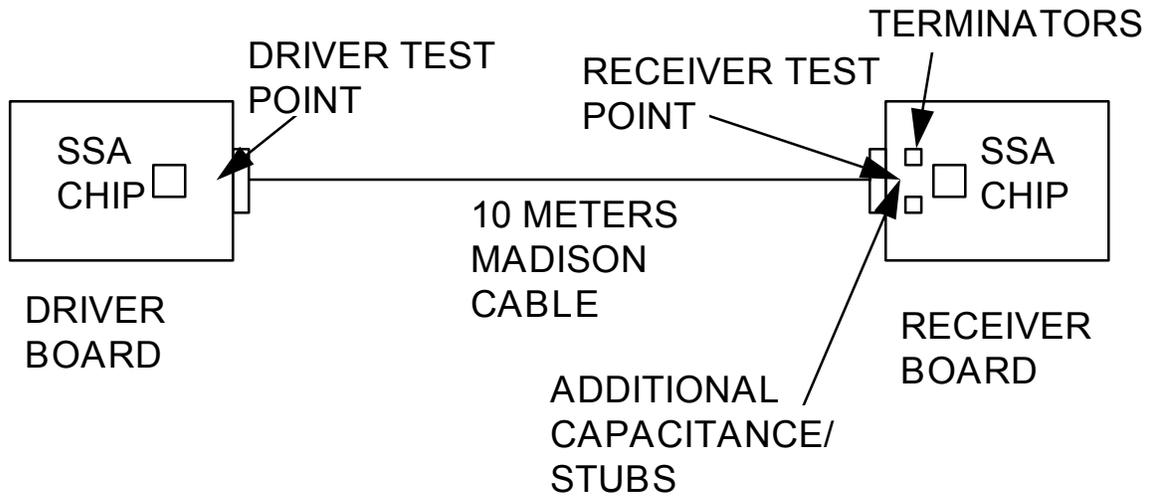
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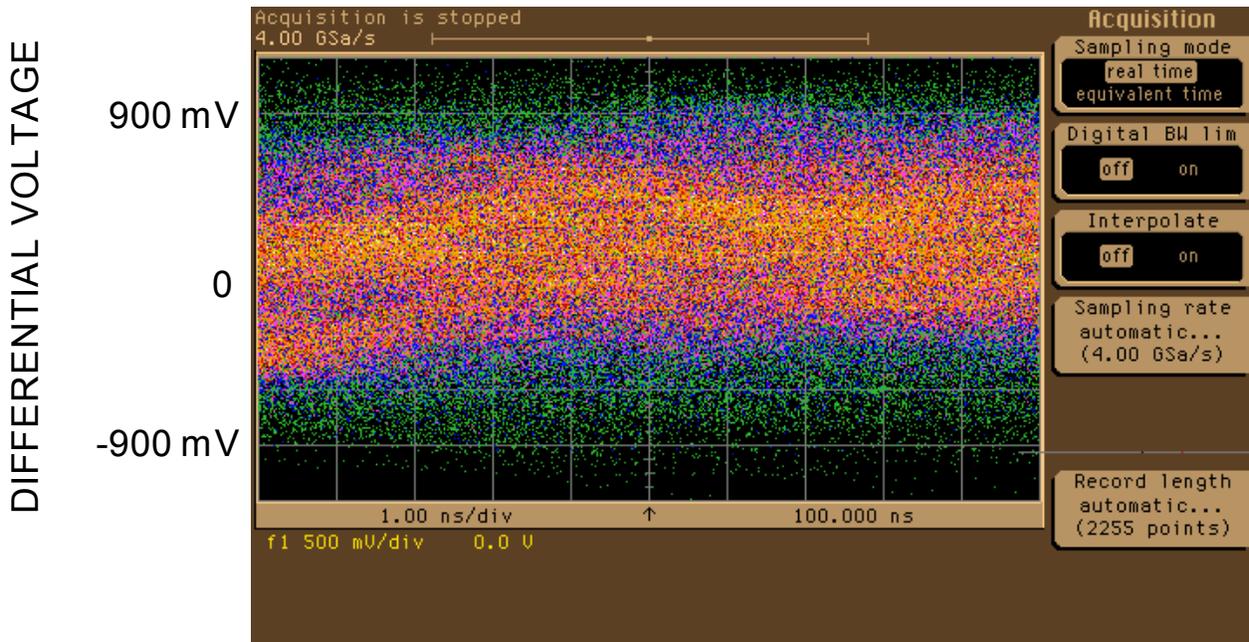
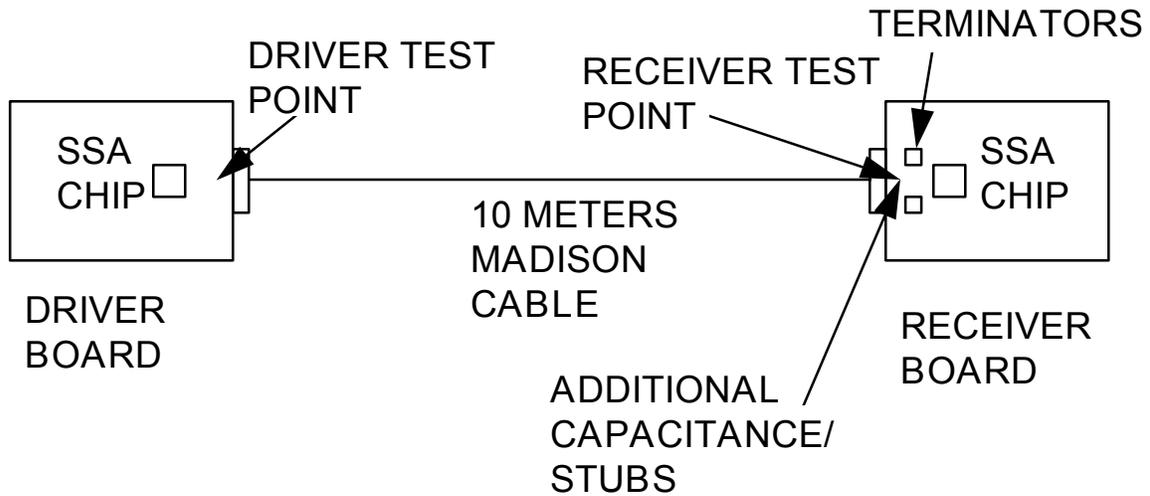
AT DRIVER WITH 75 OHMS TERMINATING RESISTOR
AND 15pF ADDITIONAL CAPACITANCE BETWEEN
LINE + AND LINE -

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AT RECEIVER WITH 75 OHMS TERMINATING RESISTOR AND 15pF ADDITIONAL CAPACITANCE BETWEEN LINE + AND LINE -

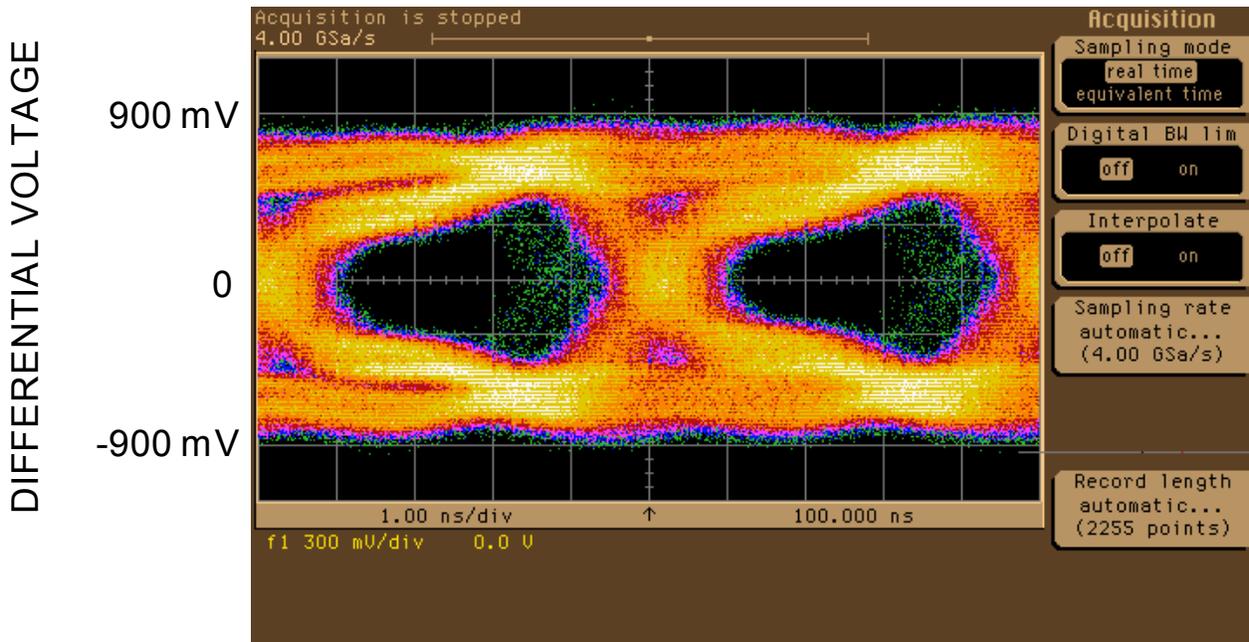
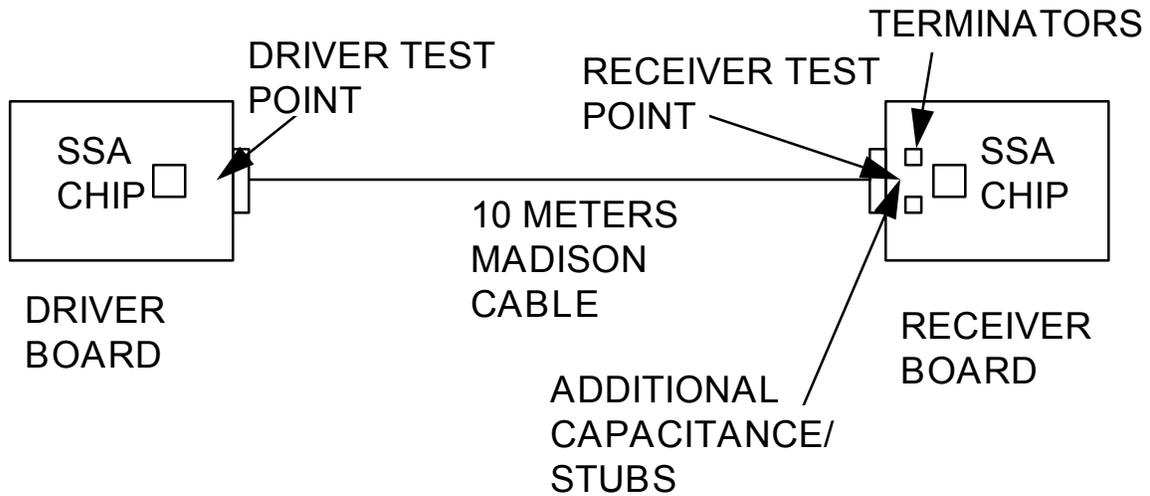
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AND 33pF ADDITIONAL CAPACITANCE BETWEEN
LINE + AND LINE -

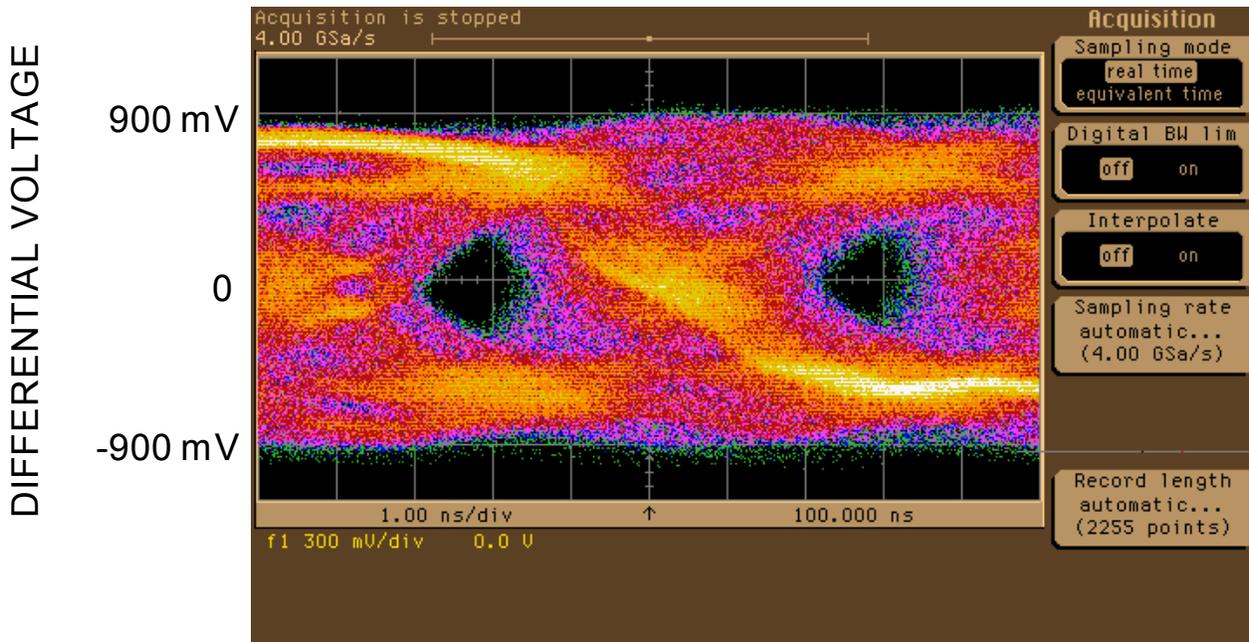
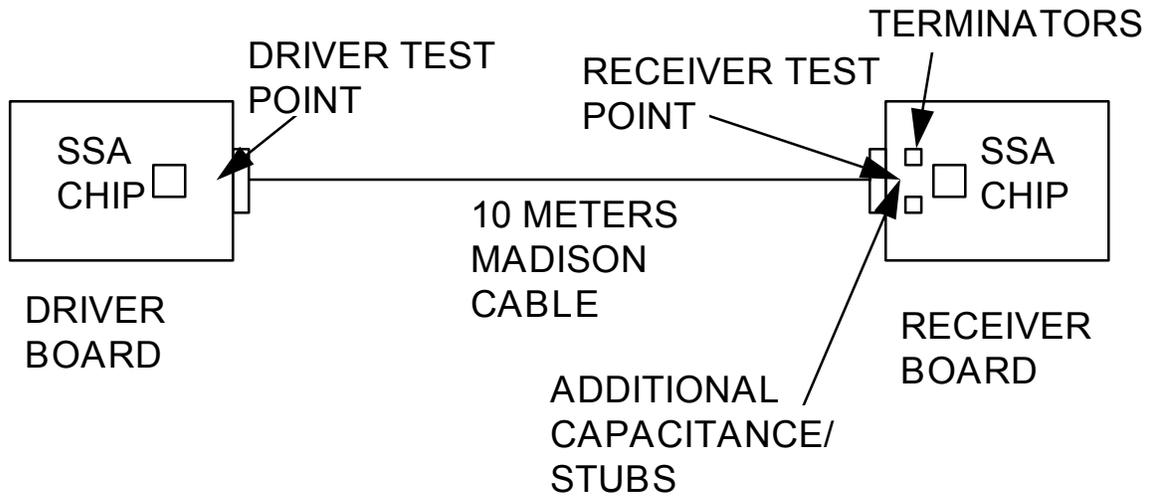
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1 nS / DIV

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AND 3" ADDITIONAL 30 AWG UTP STUB
LINE + AND LINE -

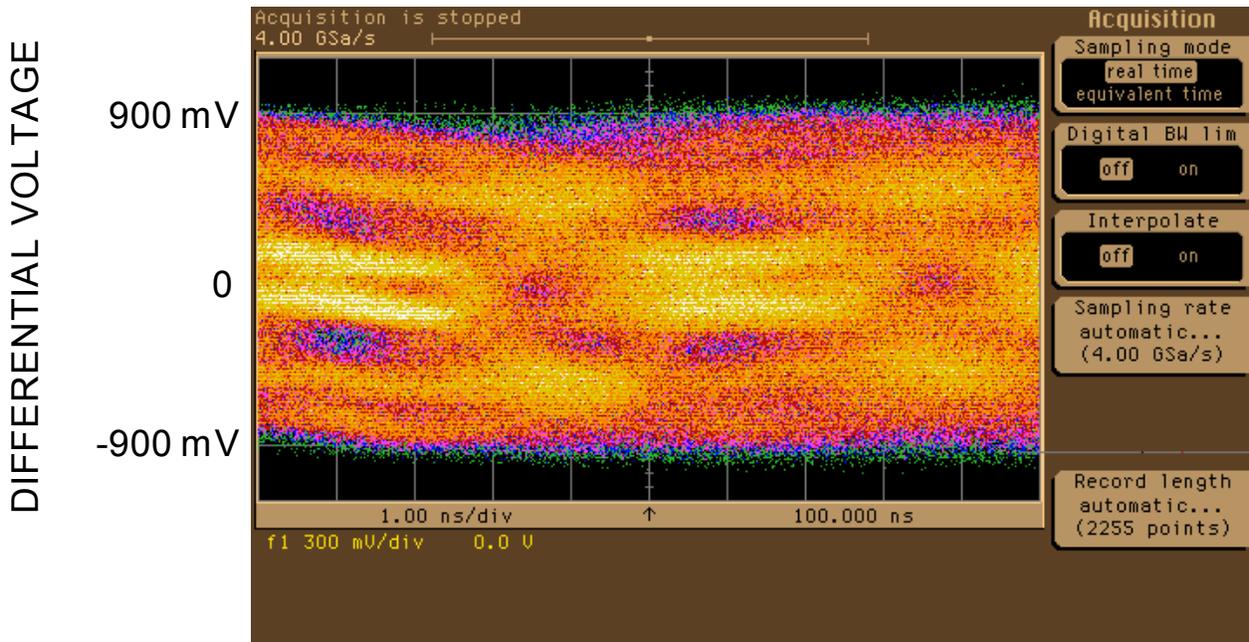
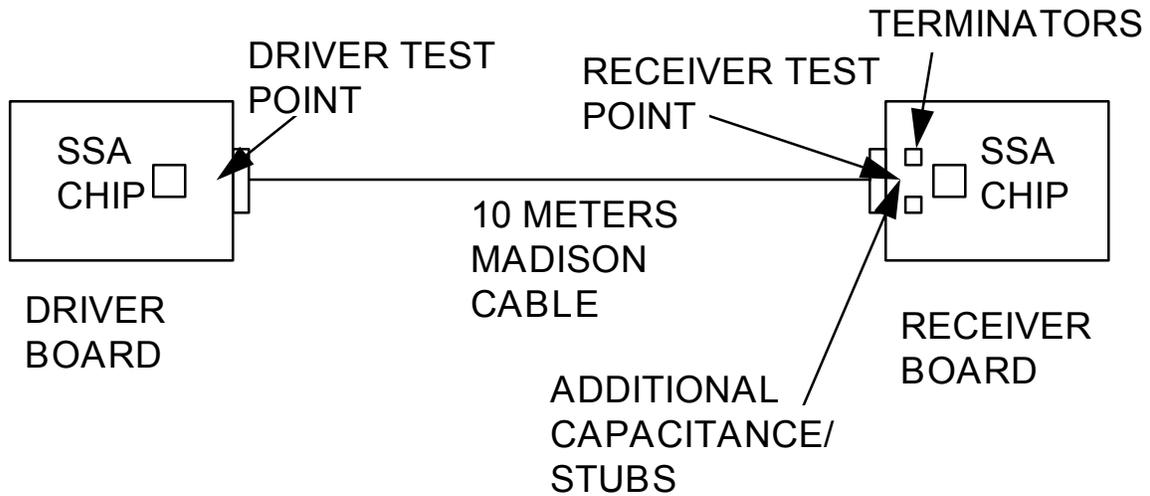
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AND 6" ADDITIONAL 30 AWG UTP STUB
LINE + AND LINE -

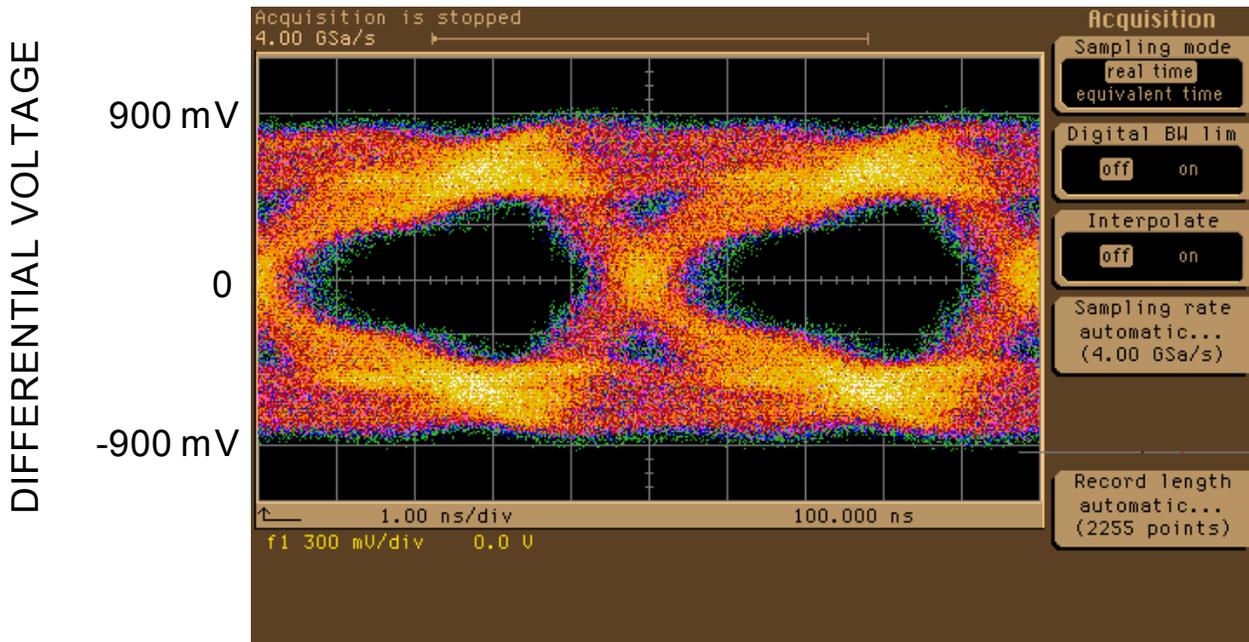
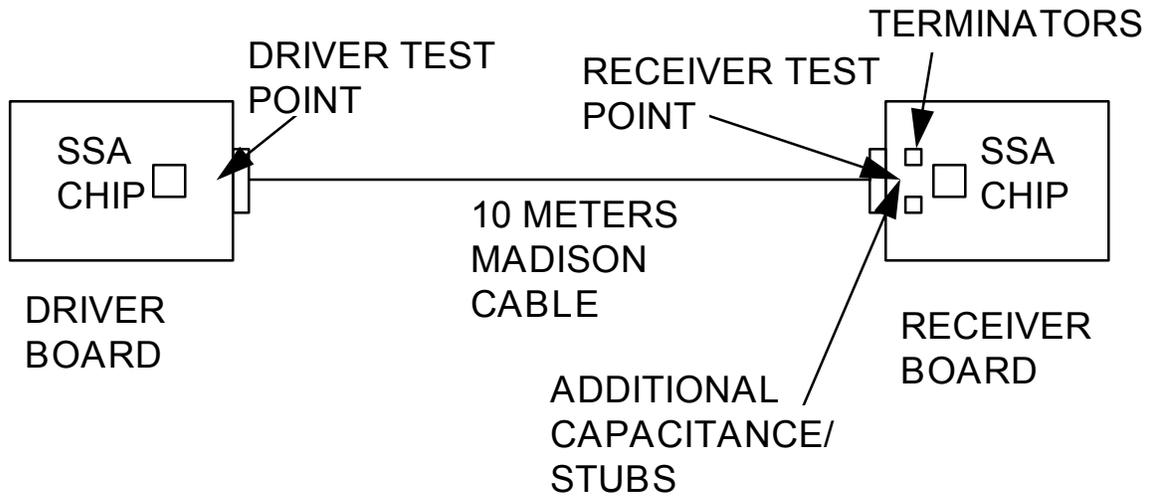
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AND 12" ADDITIONAL 30 AWG UTP STUB
LINE + AND LINE -

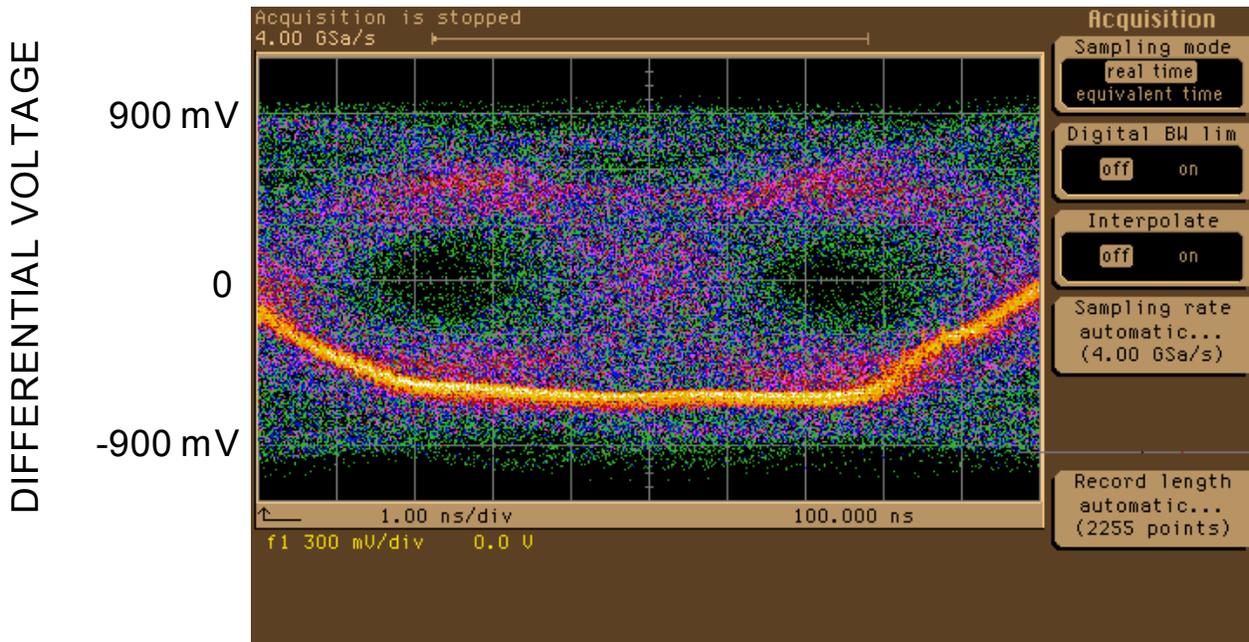
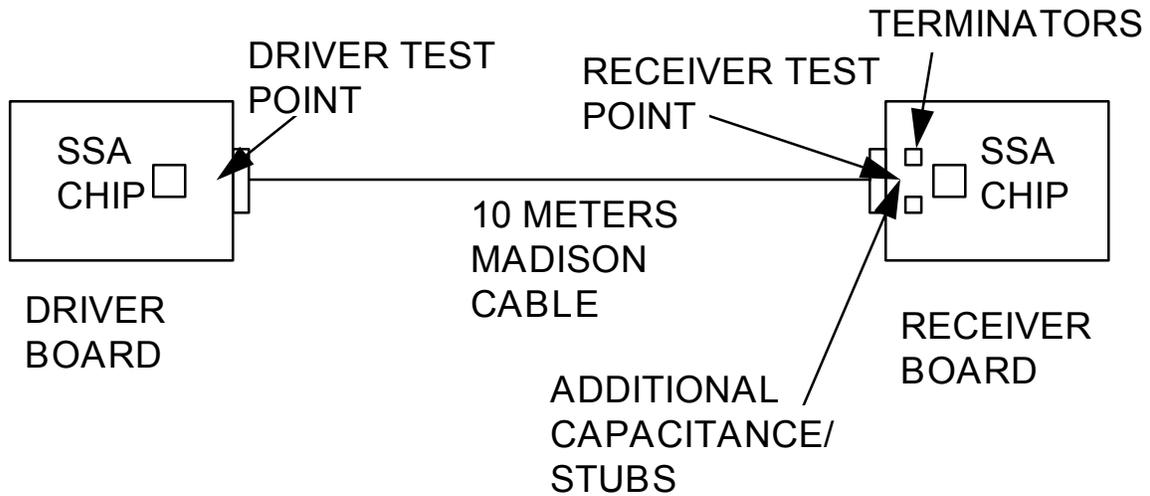
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1 nS / DIV

AT RECEIVER WITH 75 OHMS TERMINATING RESISTOR AND 12 pF BETWEEN BOTH LINE + AND LINE - TO LOCAL GROUND

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1 nS / DIV

AT RECEIVER WITH 75 OHMS TERMINATING RESISTOR AND 33 pF BETWEEN BOTH LINE + AND LINE - TO LOCAL GROUND