



TAN-031

DS3 Pulse Template Measurements with Various “Stub- Lengths” on the XRT73L03 Device

Preliminary

May 23, 2001

Revision 1.01

1.0 INTRODUCTION

The purpose of this Applications Note is to document some measurements that were performed on the XRT73L03 DS3/E3/STS-1 LIU IC. In particular, these measurements were performed in order to determine how various “stub” lengths will affect the XRT73L03 device’s ability to comply with the Pulse Template Requirement for DS3 applications, over a cable length of 450 feet.

2.0 TEST APPROACH

The “stub-length” (mentioned in this Applications Note) was realized by connecting a “T-Connector” to one of the “Transmit Output” BNC connectors on the XRT73L03 Evaluation Board. One end of the “T-Connector” was connected to 450 feet of WECO 728A type of coaxial cable, and was ultimately routed to the Tektronix TDS-3054 Four Channel Color Digital Phosphor Oscilloscope, for pulse template measurement. One the other end of the “T-Connector” we connected a “strand” of coaxial cable ($Z_0 = 75\Omega$) of a specific length, which was allowed to “float”. This strand of coaxial cable emulated the “stub-length” in our system.

In all, we tested with 4, 6, 8 and 10 inches of stub length

3.0 LIST OF MEASUREMENTS/FIGURES

This document includes six (6) plots of the Transmit Outputs of one of the channels within the XRT73L03 device. The listing of these plots and the corresponding measurement conditions are listed below.

- Figure 1 – XRT73L03 Transmit Output pulse (with 450 feet of cable loss) – Stub Length = 0 inches.
- Figure 2 – XRT73L03 Transmit Output pulse (with 450 feet of cable loss) – Stub Length = 2 inches.
- Figure 3 – XRT73L03 Transmit Output pulse (with 450 feet of cable loss) – Stub Length = 4 inches.
- Figure 4 – XRT73L03 Transmit Output pulse (with 450 feet of cable loss) – Stub Length = 6 inches.
- Figure 5 – XRT73L03 Transmit Output pulse (with 450 feet of cable loss) – Stub Length = 8 inches.
- Figure 6 – XRT73L03 Transmit Output pulse (with 450 feet of cable loss) – Stub Length = 10 inches.



TAN-031

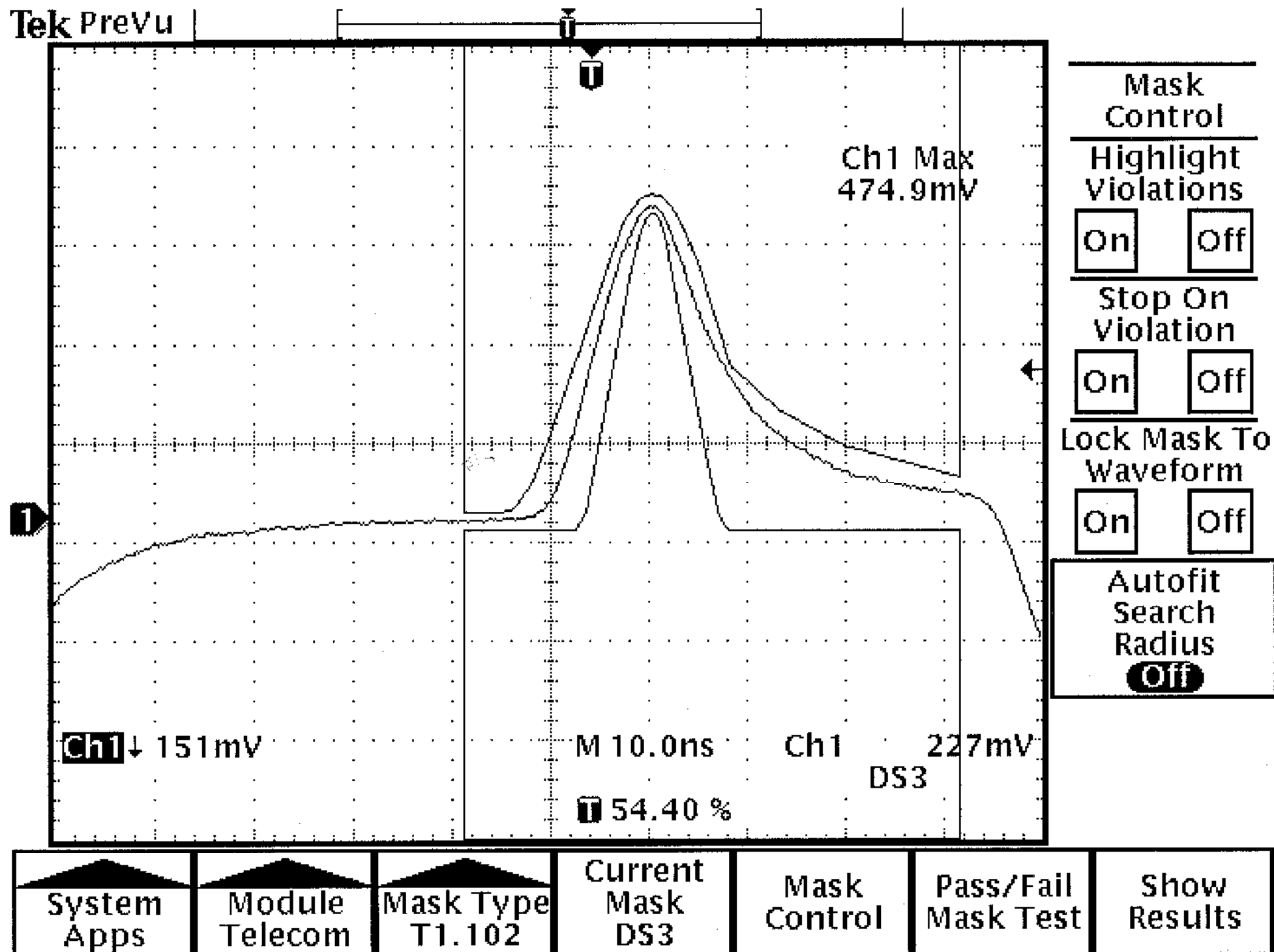
**DS3 Pulse Template Measurements with Various “Stub-
Lengths” on the XRT73L03 Device**

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May 23, 2001

Revision 1.01

**Figure 1 – XRT73L03 Transmit Output pulse (with 450 feet of cable
loss) – Stub Length = 0 inches.**





TAN-031

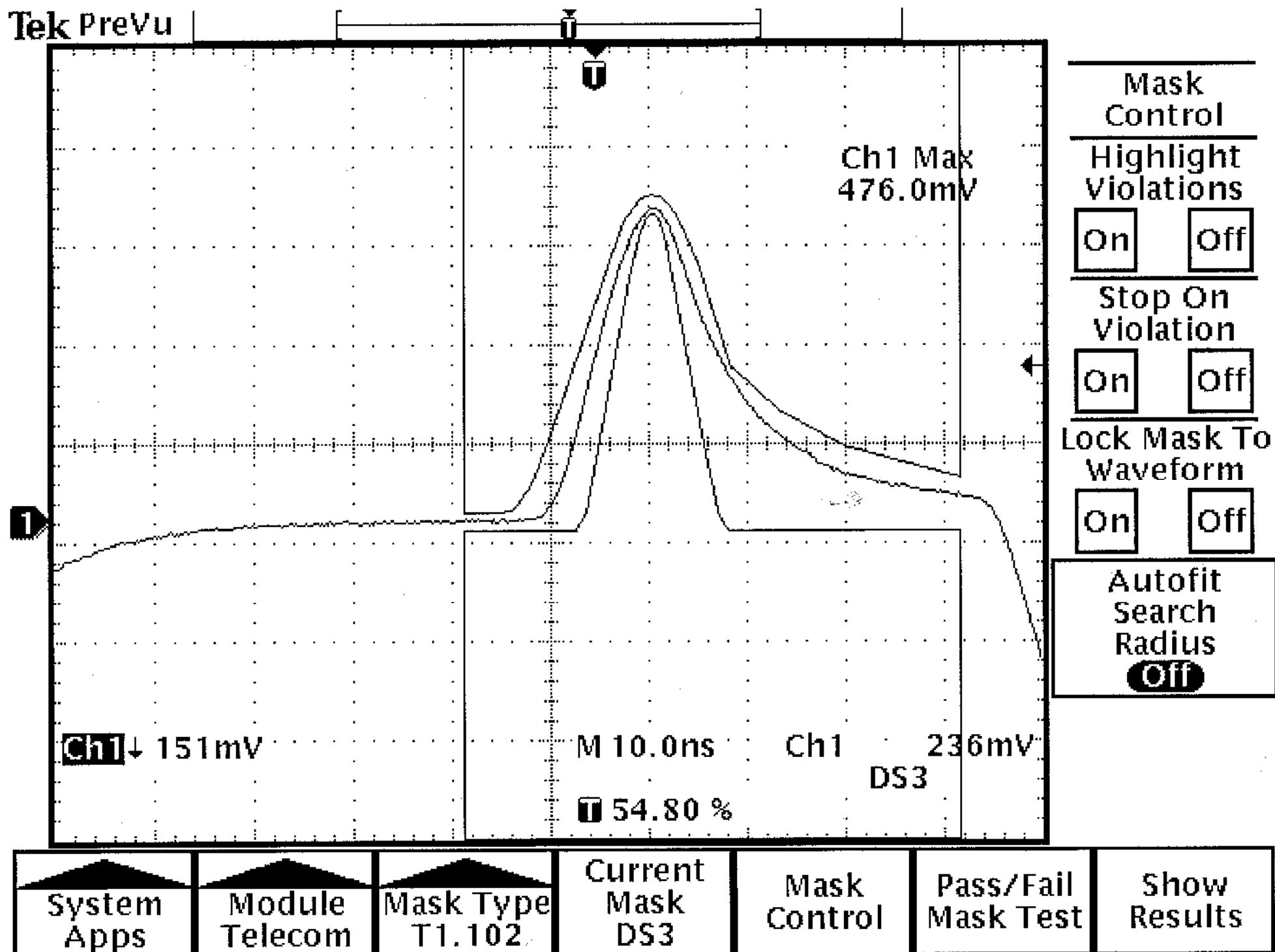
**DS3 Pulse Template Measurements with Various “Stub-
Lengths” on the XRT73L03 Device**

Preliminary

May 23, 2001

Revision 1.01

**Figure 2 – XRT73L03 Transmit Output pulse (with 450 feet of cable
loss) – Stub Length = 2 inches.**





TAN-031

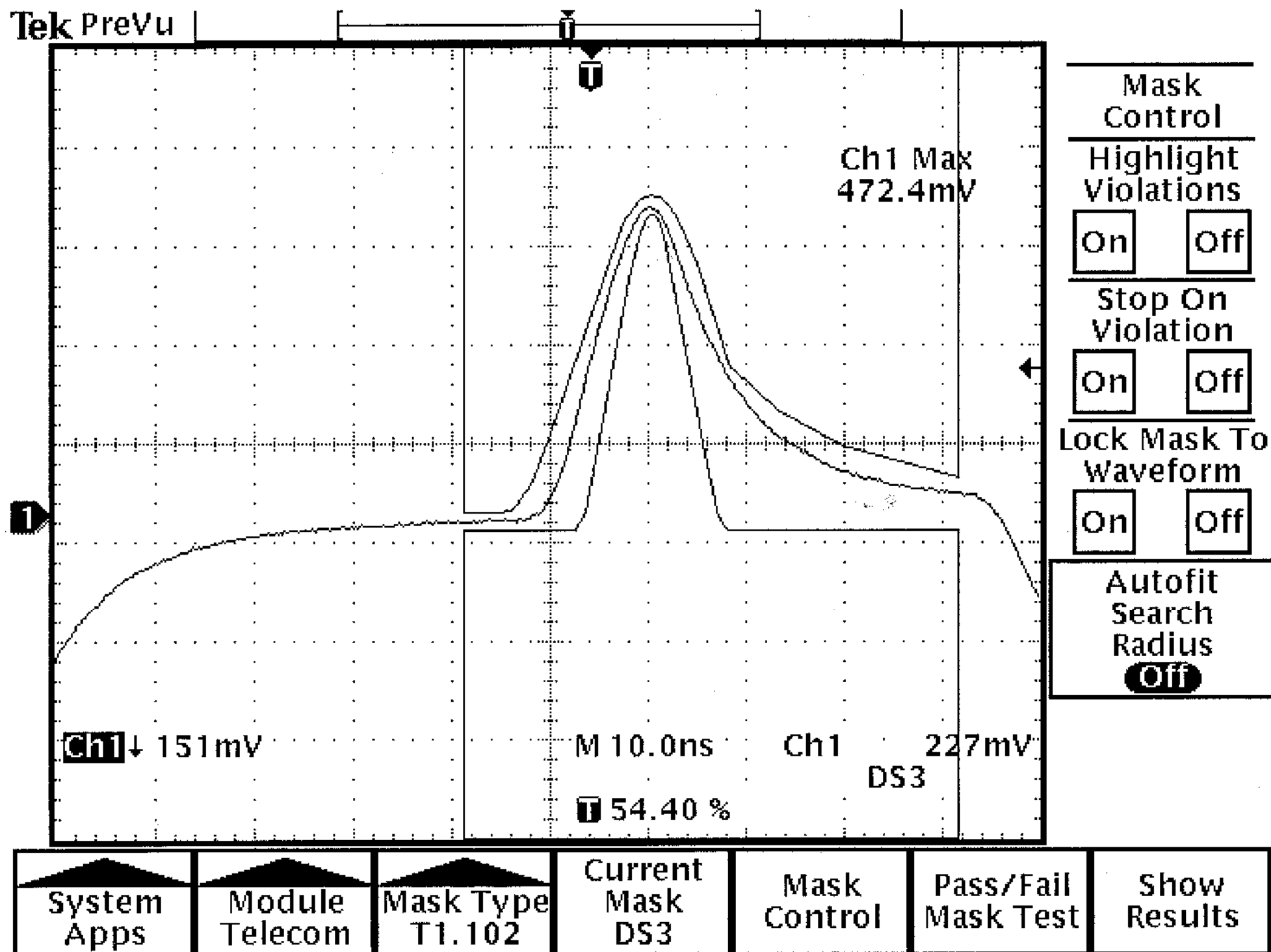
**DS3 Pulse Template Measurements with Various “Stub-
Lengths” on the XRT73L03 Device**

Preliminary

May 23, 2001

Revision 1.01

**Figure 3 – XRT73L03 Transmit Output pulse (with 450 feet of cable
loss) – Stub Length = 4 inches.**





TAN-031

**DS3 Pulse Template Measurements with Various “Stub-
Lengths” on the XRT73L03 Device**

Preliminary

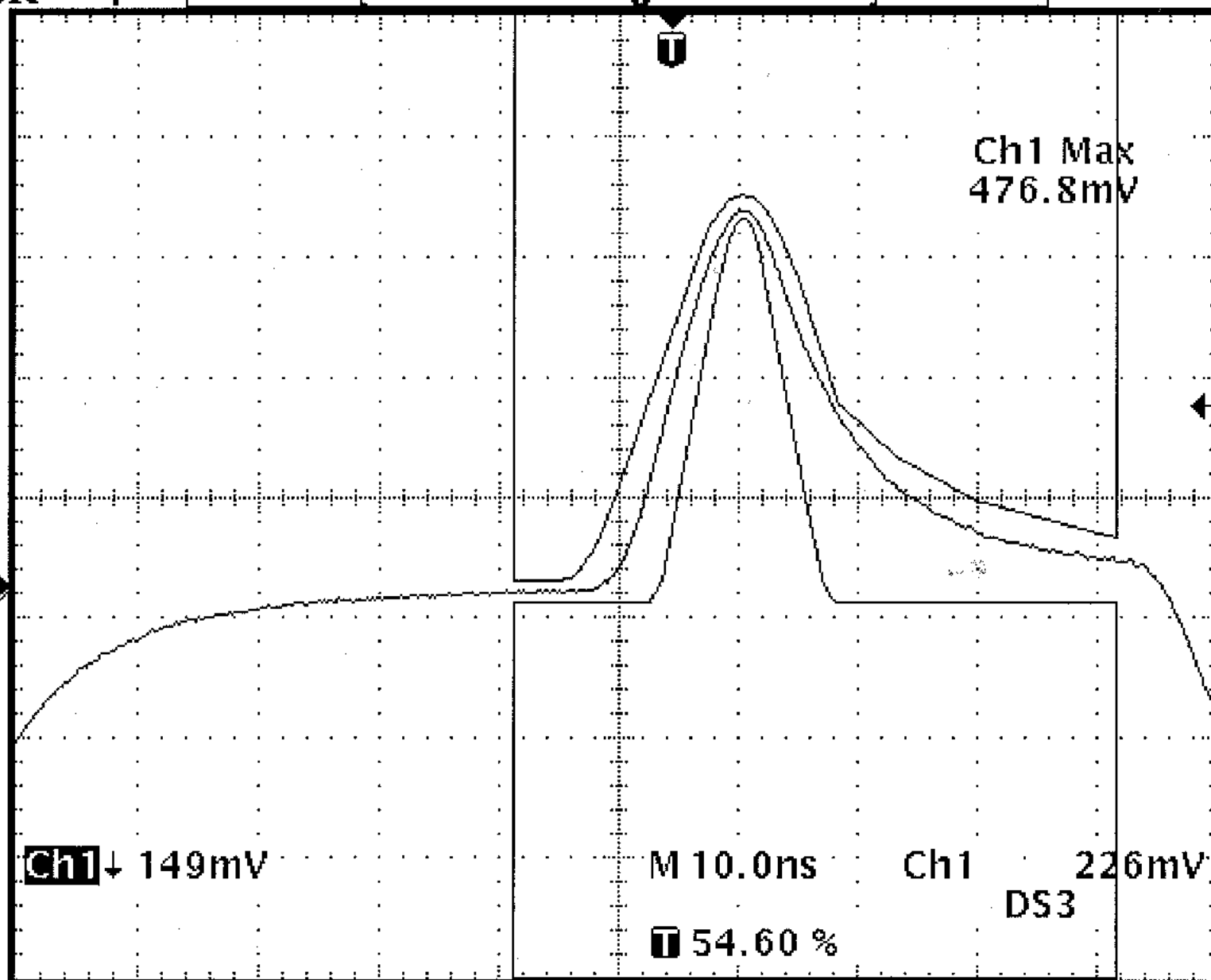
May 23, 2001

Revision 1.01

**Figure 4 – XRT73L03 Transmit Output pulse (with 450 feet of cable
loss) – Stub Length = 6 inches.**

Tek Stop

1



Mask
Control

Highlight
Violations

On

Off

Stop On
Violation

On

Off

Lock Mask To
Waveform

On

Off

Autofit
Search
Radius

Off

System
Apps

Module
Telecom

Mask Type
T1.102

Current
Mask
DS3

Mask
Control

Pass/Fail
Mask Test

Show
Results



TAN-031

**DS3 Pulse Template Measurements with Various “Stub-
Lengths” on the XRT73L03 Device**

Preliminary

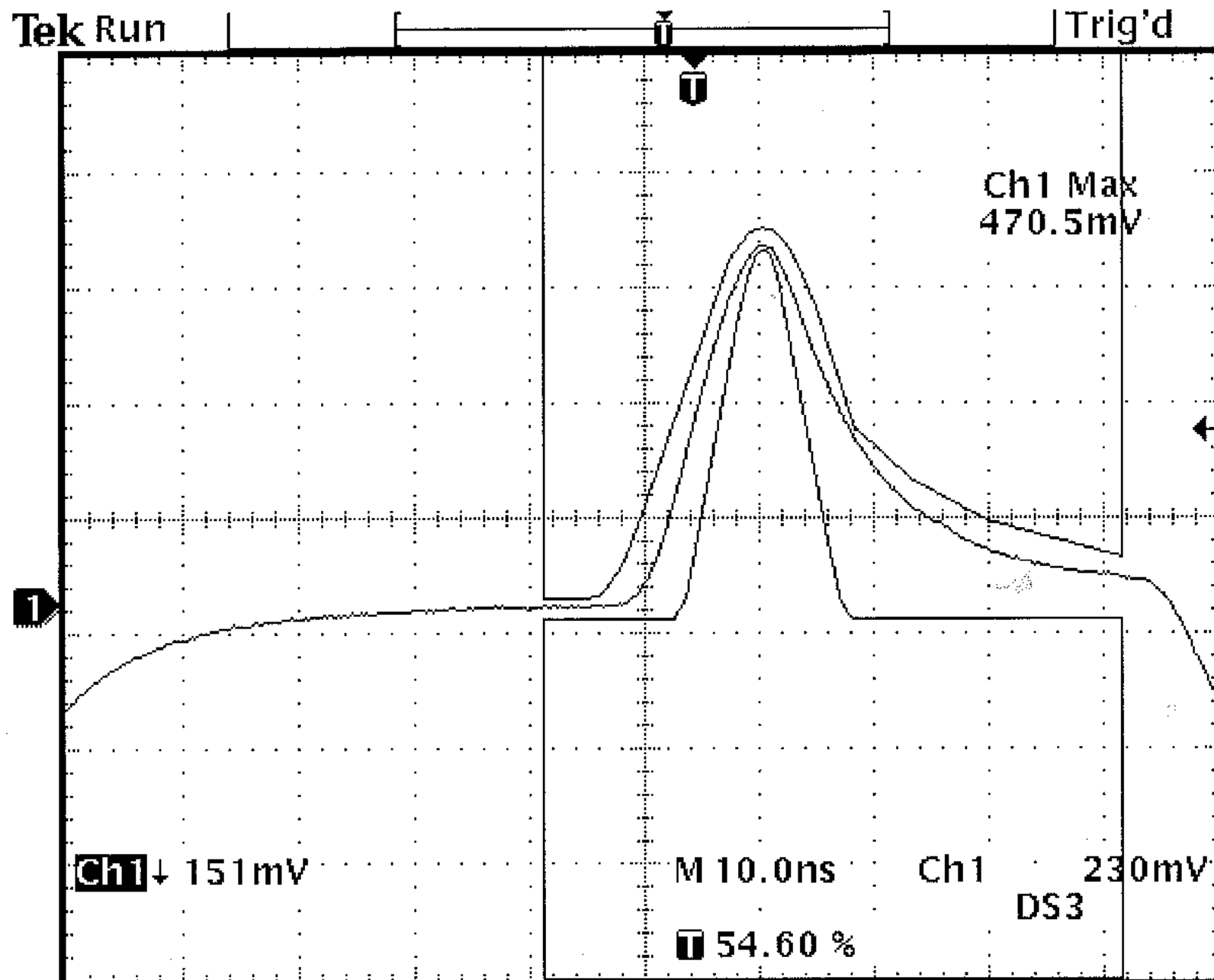
May 23, 2001

Revision 1.01

**Figure 5 – XRT73L03 Transmit Output pulse (with 450 feet of cable
loss) – Stub Length = 8 inches.**

Tek Run

Trig'd



Waveform
Display

Dots Only

On

Off

Persist
Time
Min s

Set to Min

Clear
Persistence

Waveform
Display

Backlight
Intensity
High

Graticule
Full

XY Display
Off

Color
Palette
Normal



TAN-031

**DS3 Pulse Template Measurements with Various “Stub-
Lengths” on the XRT73L03 Device**

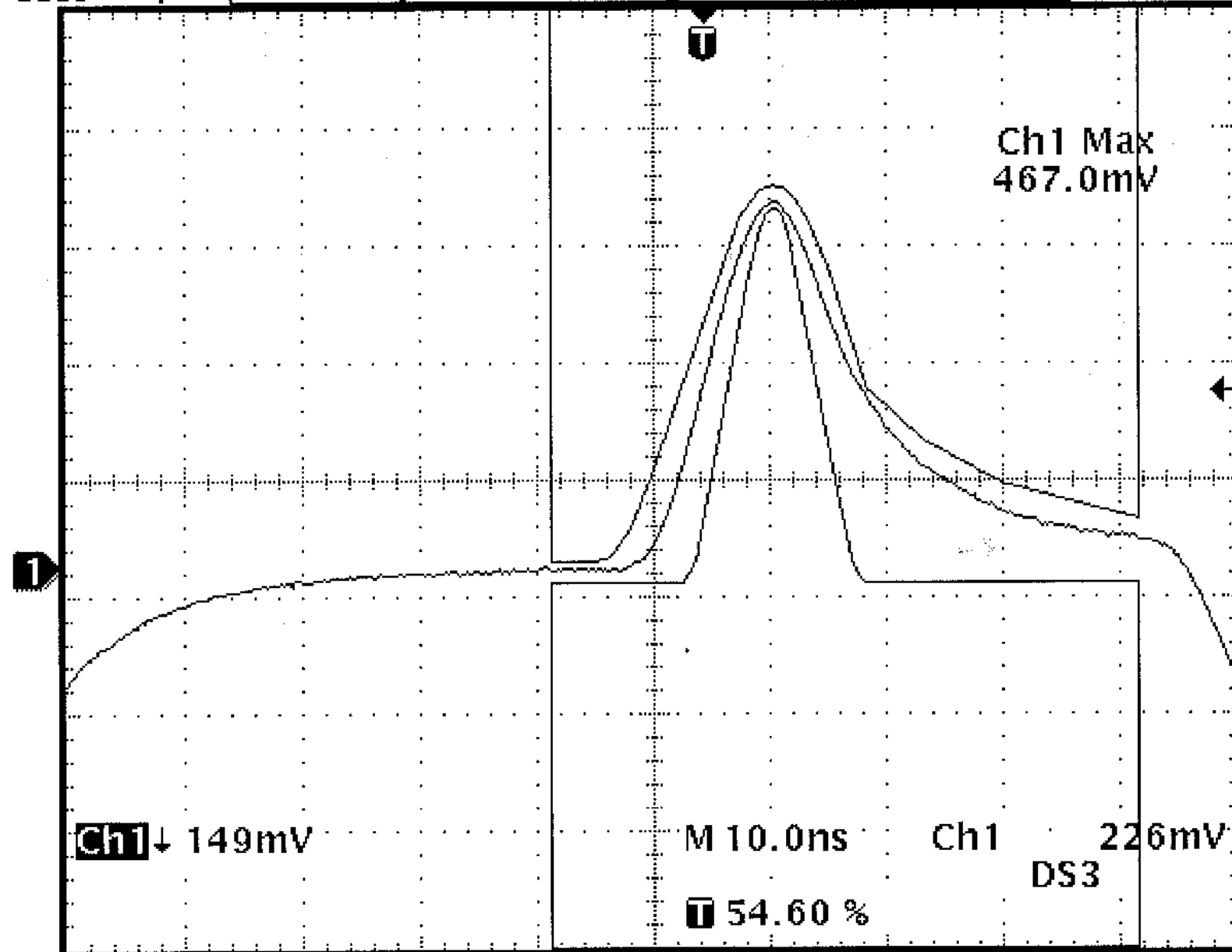
Preliminary

May 23, 2001

Revision 1.01

**Figure 6 – XRT73L03 Transmit Output pulse (with 450 feet of cable
loss) – Stub Length = 10 inches.**

Tek Stop



Mask Control

Highlight Violations

On

Off

Stop On Violation

On

Off

Lock Mask To Waveform

On

Off

Autofit Search Radius

Off

System Apps

Module Telecom

Mask Type T1.102

Current Mask DS3

Mask Control

Pass/Fail Mask Test

Show Results



TAN-031

**DS3 Pulse Template Measurements with Various “Stub-
Lengths” on the XRT73L03 Device**

Preliminary

May 23, 2001



Revision 1.01

APPENDIX A – REVISION CHANGE HISTORY

CHANGES FROM REVISION 1.00 TO 1.01

Included “Section 2.0 – TEST APPROACH”.