

# VNA S-Parameter Report

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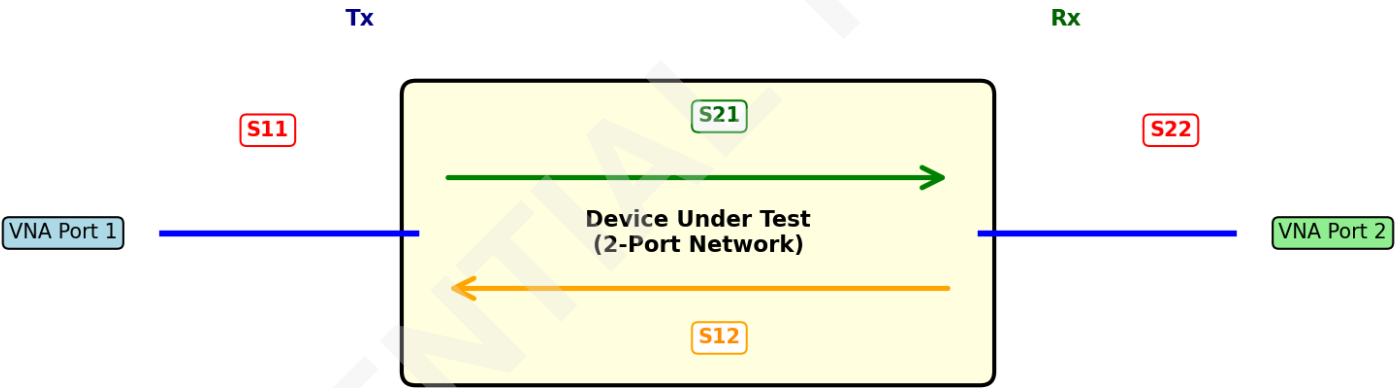
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VNA Measurement Configuration

| Parameter          | Value                 |
|--------------------|-----------------------|
| Instrument         | Keysight N5247B PNA-X |
| Start Frequency    | 1.000 GHz             |
| Stop Frequency     | 10.000 GHz            |
| Frequency Span     | 9.000 GHz             |
| Frequency Step     | 90.000 MHz            |
| Number of Points   | 101                   |
| IF Bandwidth       | 10.0 kHz              |
| Number of Averages | 16                    |
| Power Level        | -10.0 dBm             |
| Calibration Type   | SOLT                  |
| Calibration Date   | 2026-01-20            |
| Measurement Date   | 2026-01-26 20:00:44   |
| Notes:<br>Operator | Test Engineer         |

Test measurement for demonstration purposes. Cable length approximately 1 cm.

2-Port S-Parameters

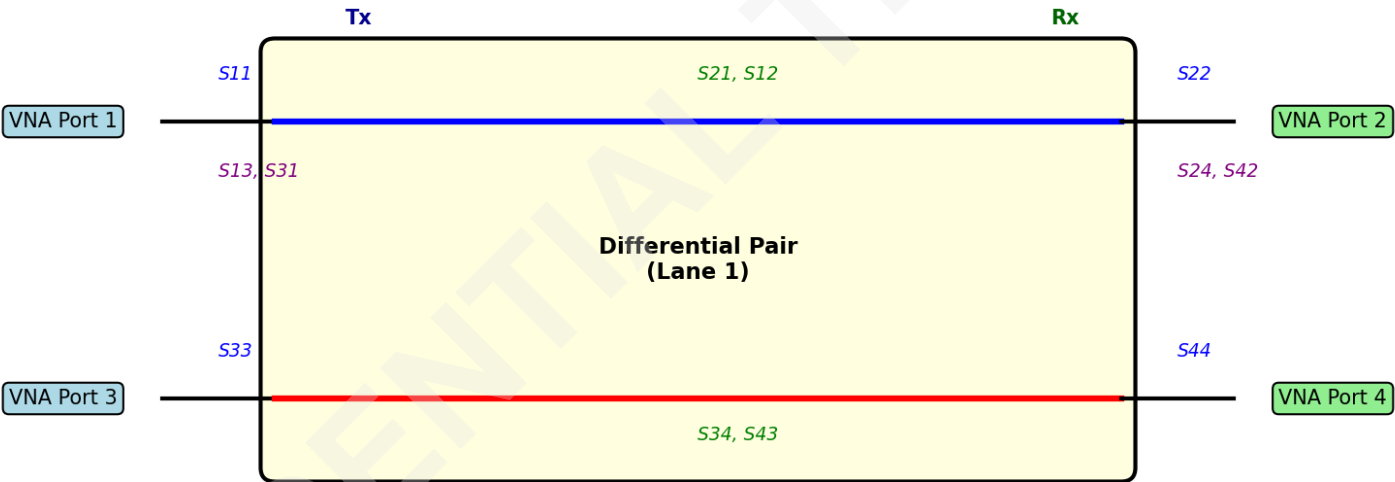


*S11, S22: Input/Output Return Loss (Reflection)*

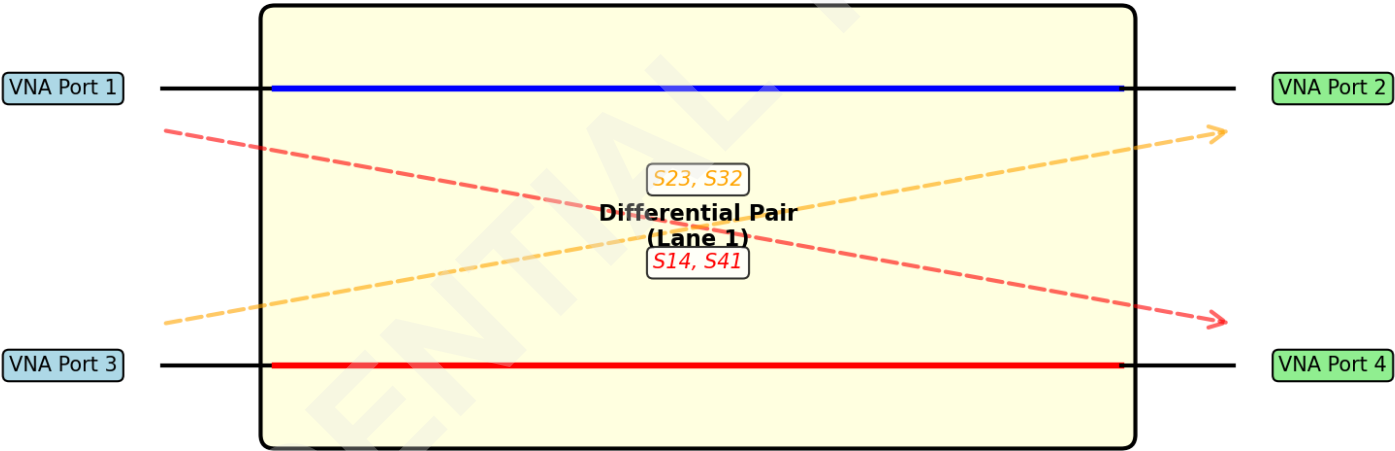
*S21: Forward Gain/Loss | S12: Reverse Isolation*

*For passive reciprocal devices:  $S12 = S21$*

Single-Ended S-Parameters

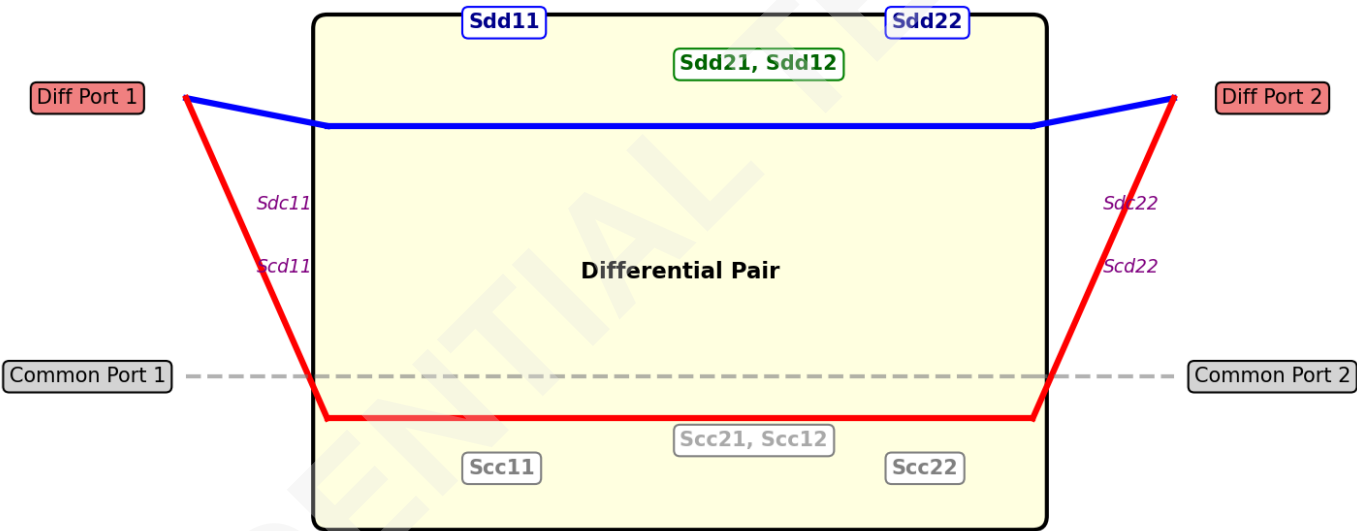


Cross-Coupling S-Parameters



Cross-coupling between positive and negative lines

Mixed-Mode S-Parameters

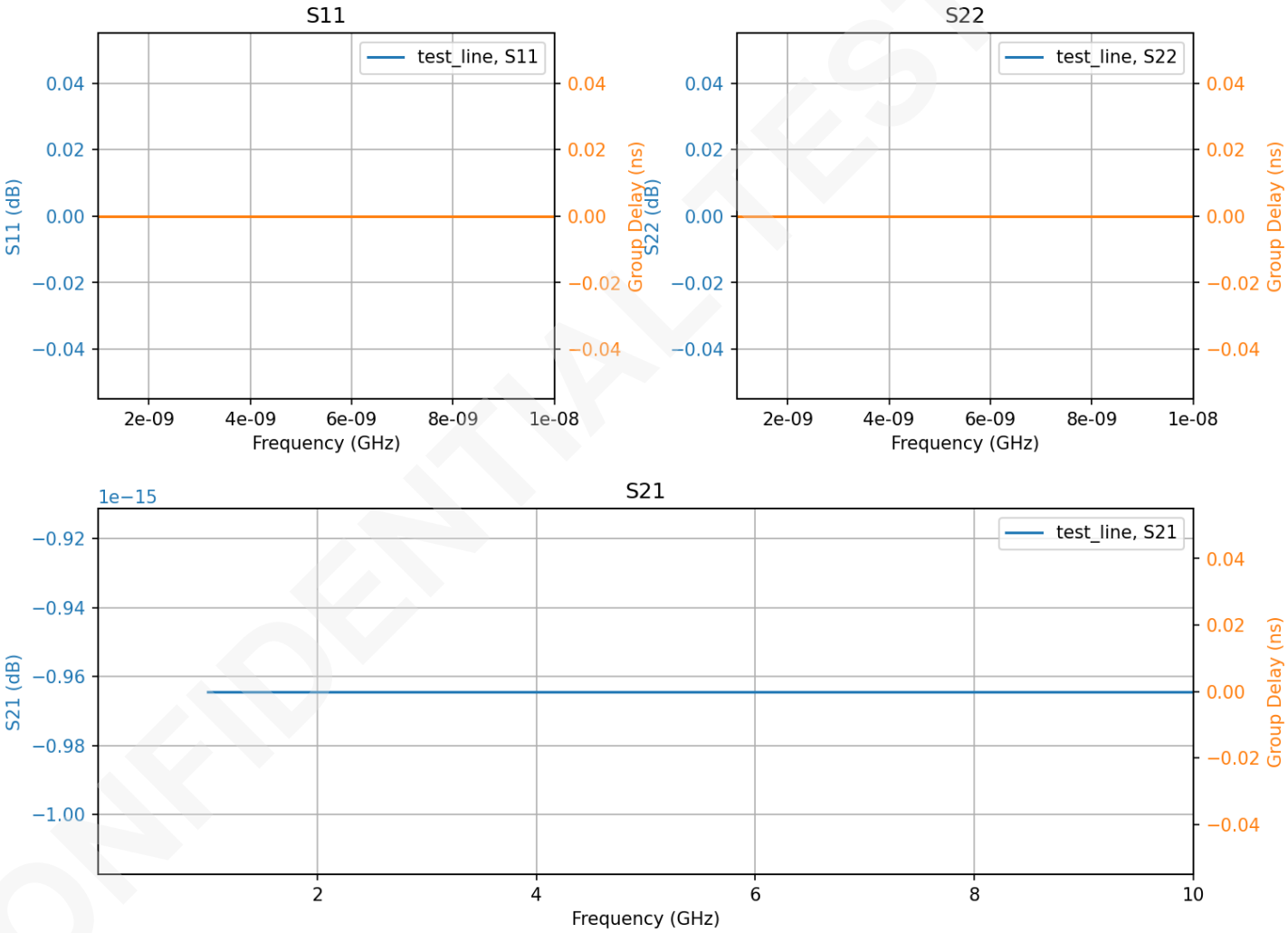


dd: Differential → Differential

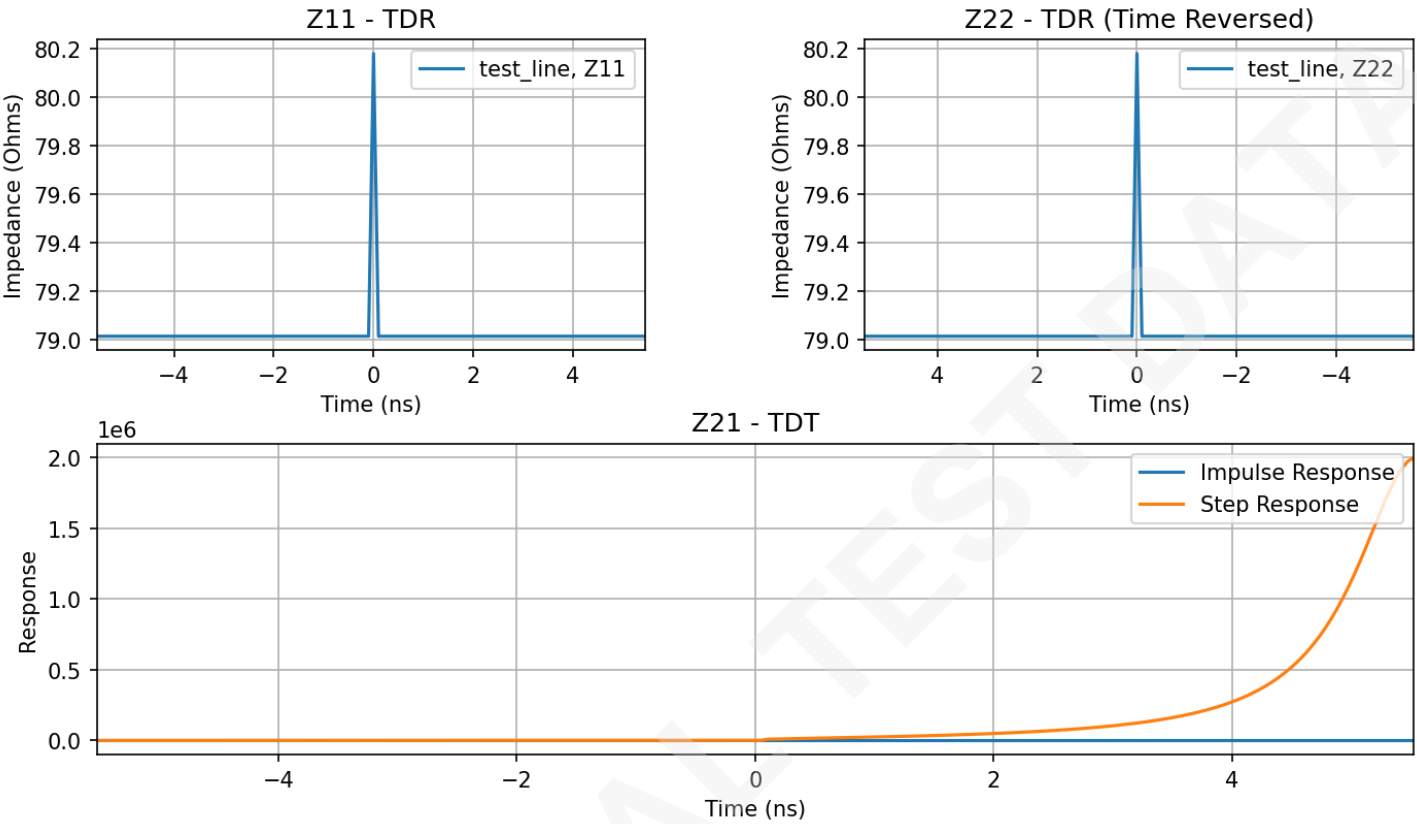
cc: Common → Common

cd/dc: Mode Conversion

DUT: DUT\_1 - S-Parameters



DUT: DUT\_1 - TDR/TDT

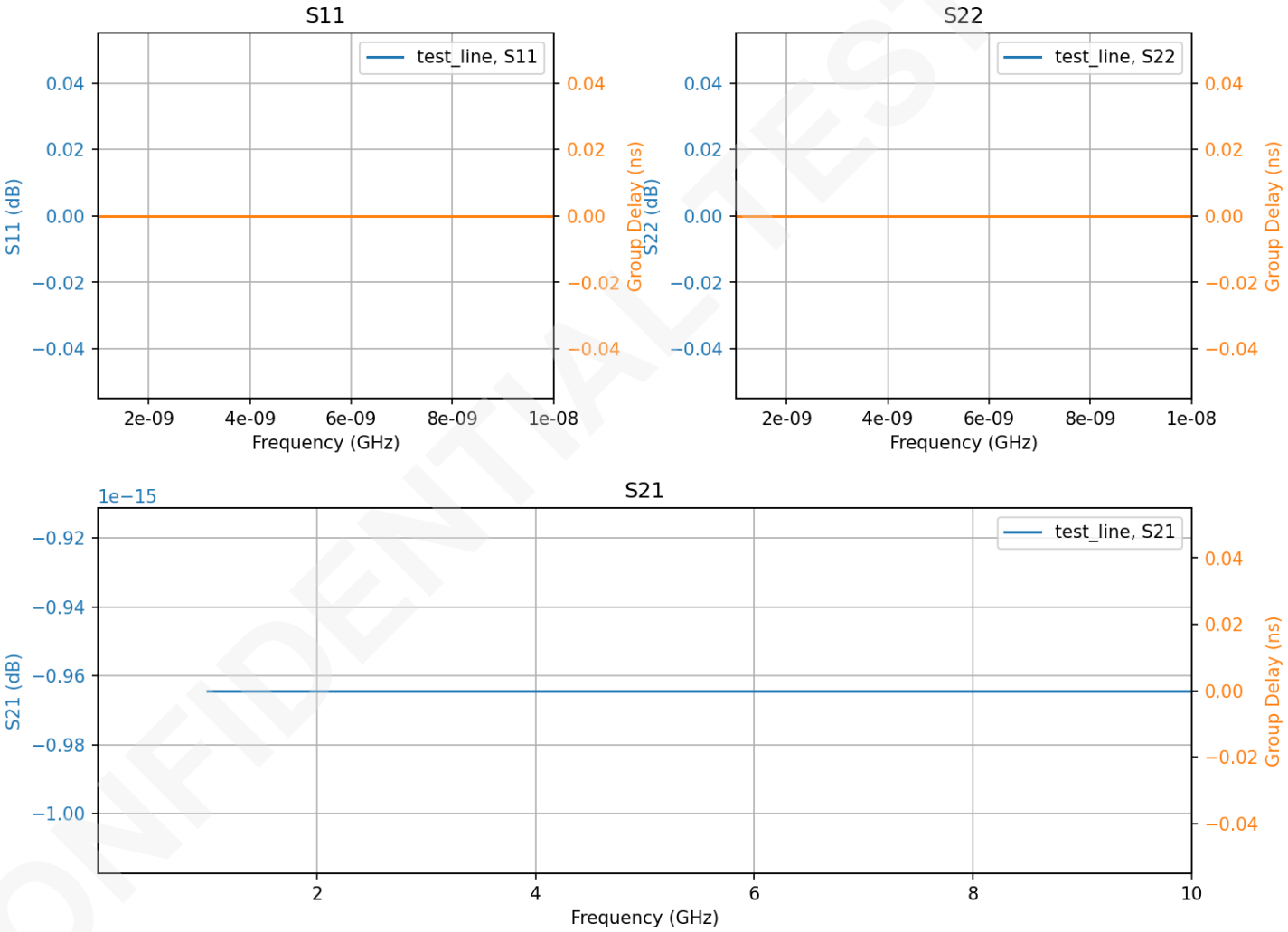


Impedance Metrics Summary

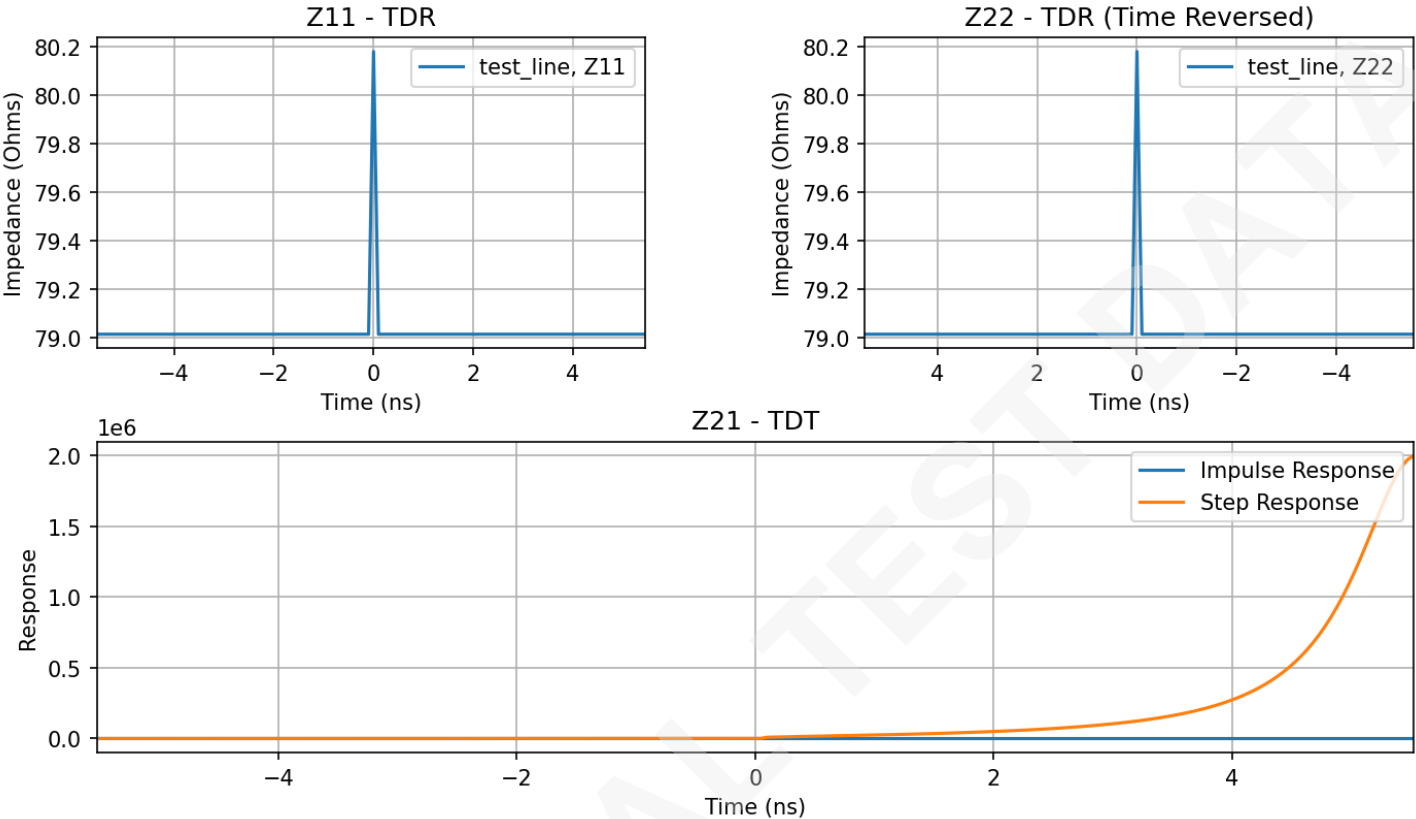
| Parameter | Target ( $\Omega$ ) | Reading ( $\Omega$ ) | Margin ( $\Omega$ ) | Pass/Fail |
|-----------|---------------------|----------------------|---------------------|-----------|
| Z11       | 50.00               | 10211.30             | +10161.30           | FAIL      |
| Z22       | 50.00               | 10211.30             | +10161.30           | FAIL      |
| Z21       | 50.00               | 10211.42             | +10161.42           | FAIL      |



DUT: DUT\_2 - S-Parameters



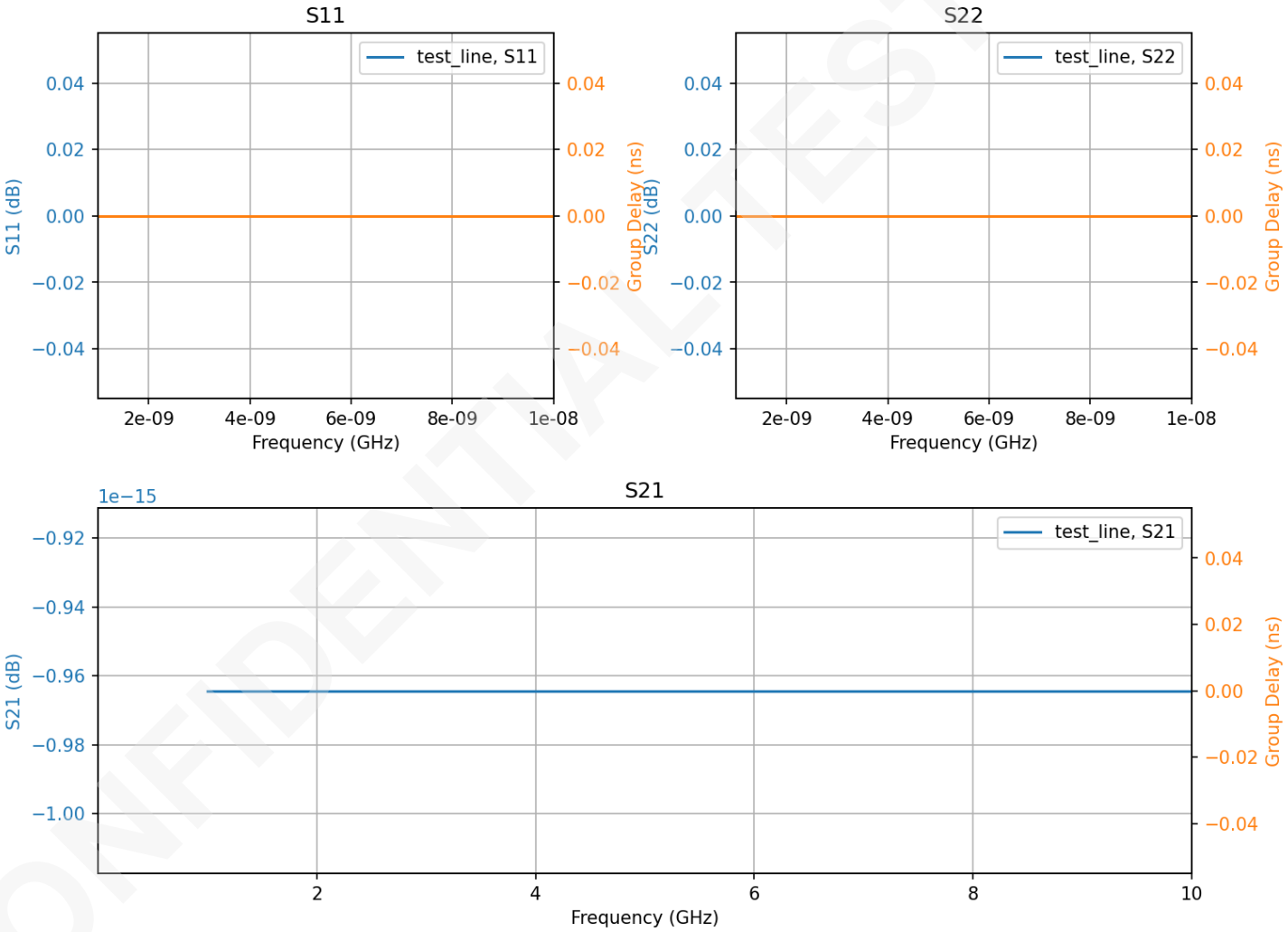
DUT: DUT\_2 - TDR/TDT



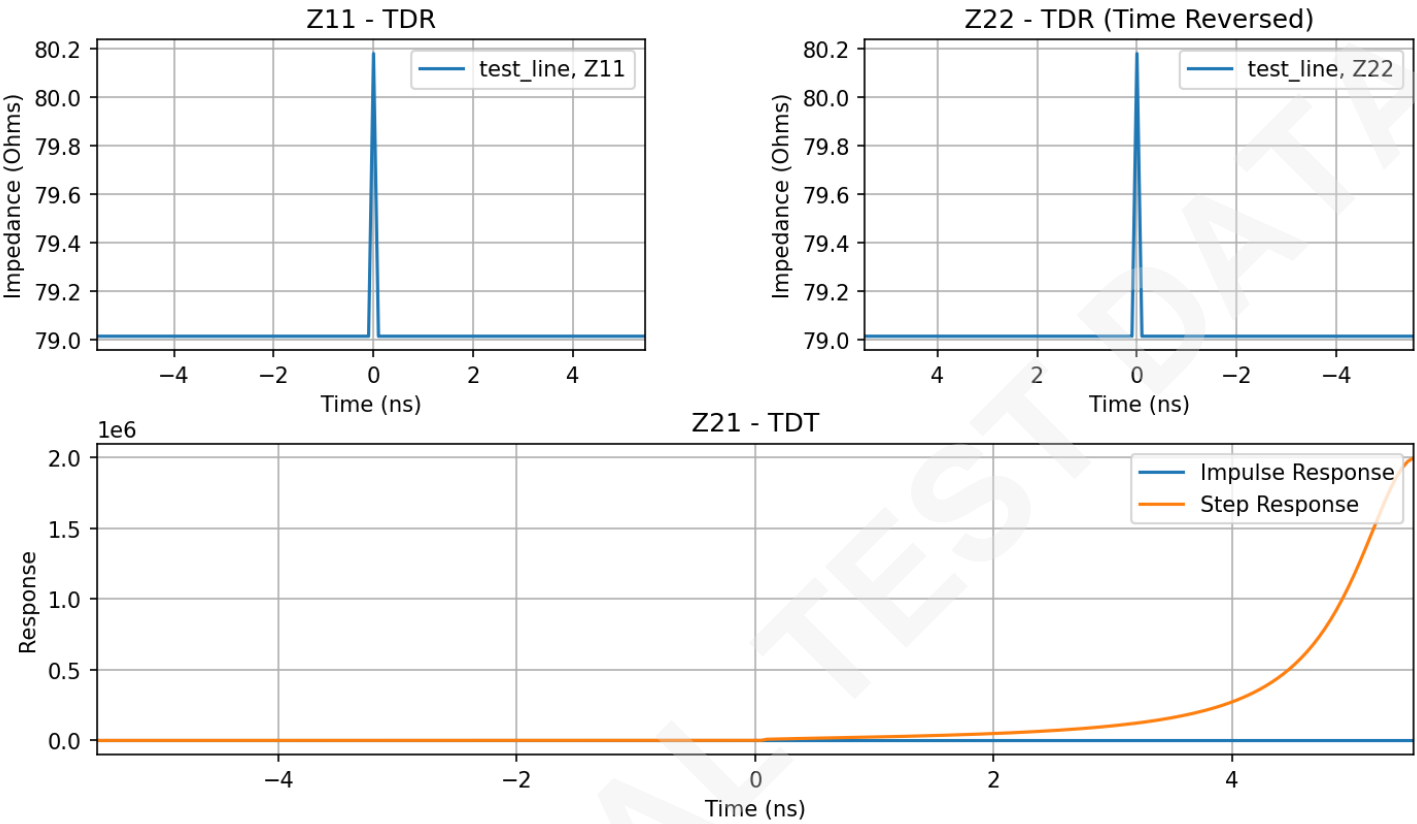
Impedance Metrics Summary

| Parameter | Target ( $\Omega$ ) | Reading ( $\Omega$ ) | Margin ( $\Omega$ ) | Pass/Fail |
|-----------|---------------------|----------------------|---------------------|-----------|
| Z11       | 50.00               | 10211.30             | +10161.30           | FAIL      |
| Z22       | 50.00               | 10211.30             | +10161.30           | FAIL      |
| Z21       | 50.00               | 10211.42             | +10161.42           | FAIL      |

DUT: DUT\_3 - S-Parameters



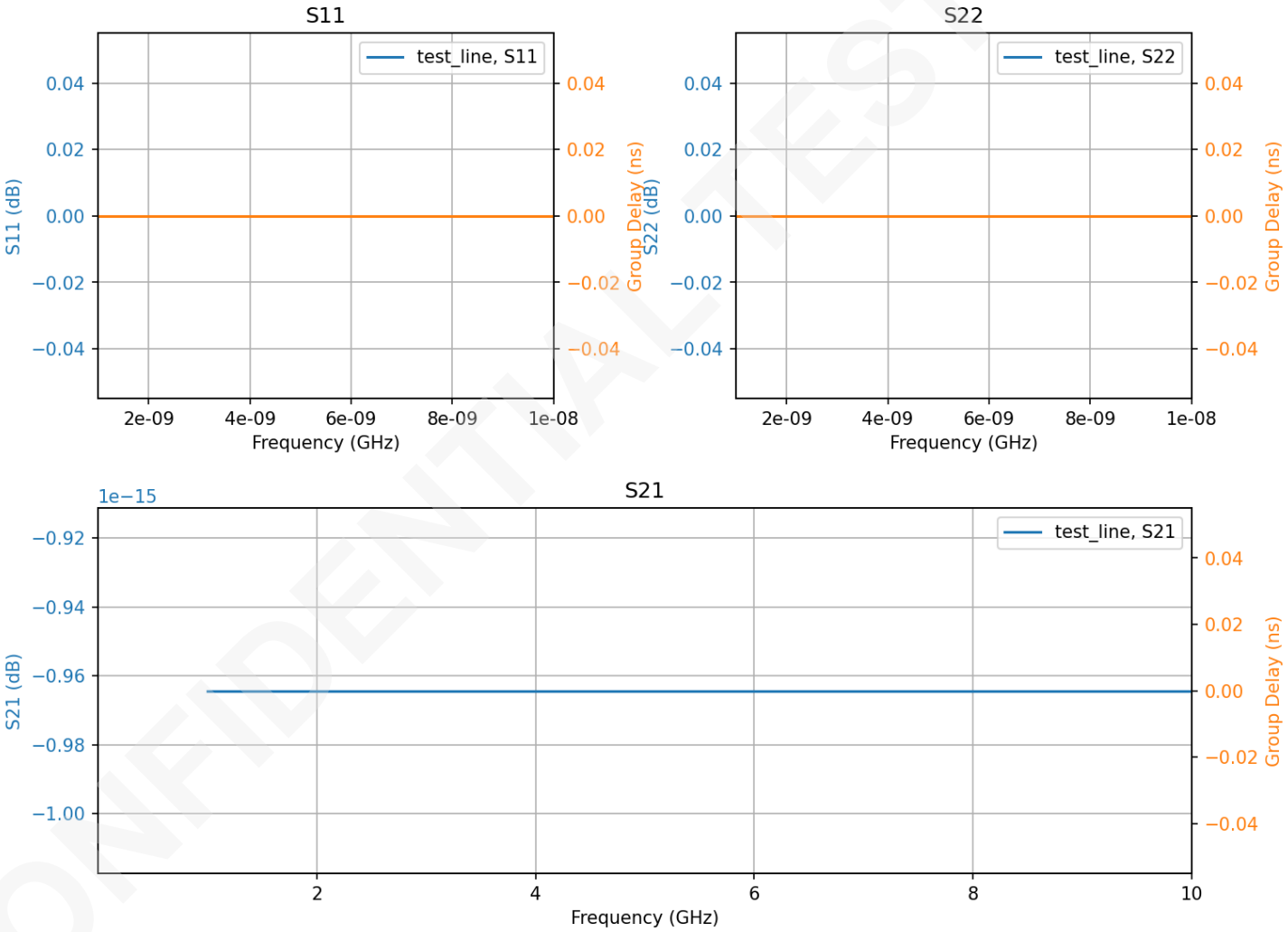
DUT: DUT\_3 - TDR/TDT



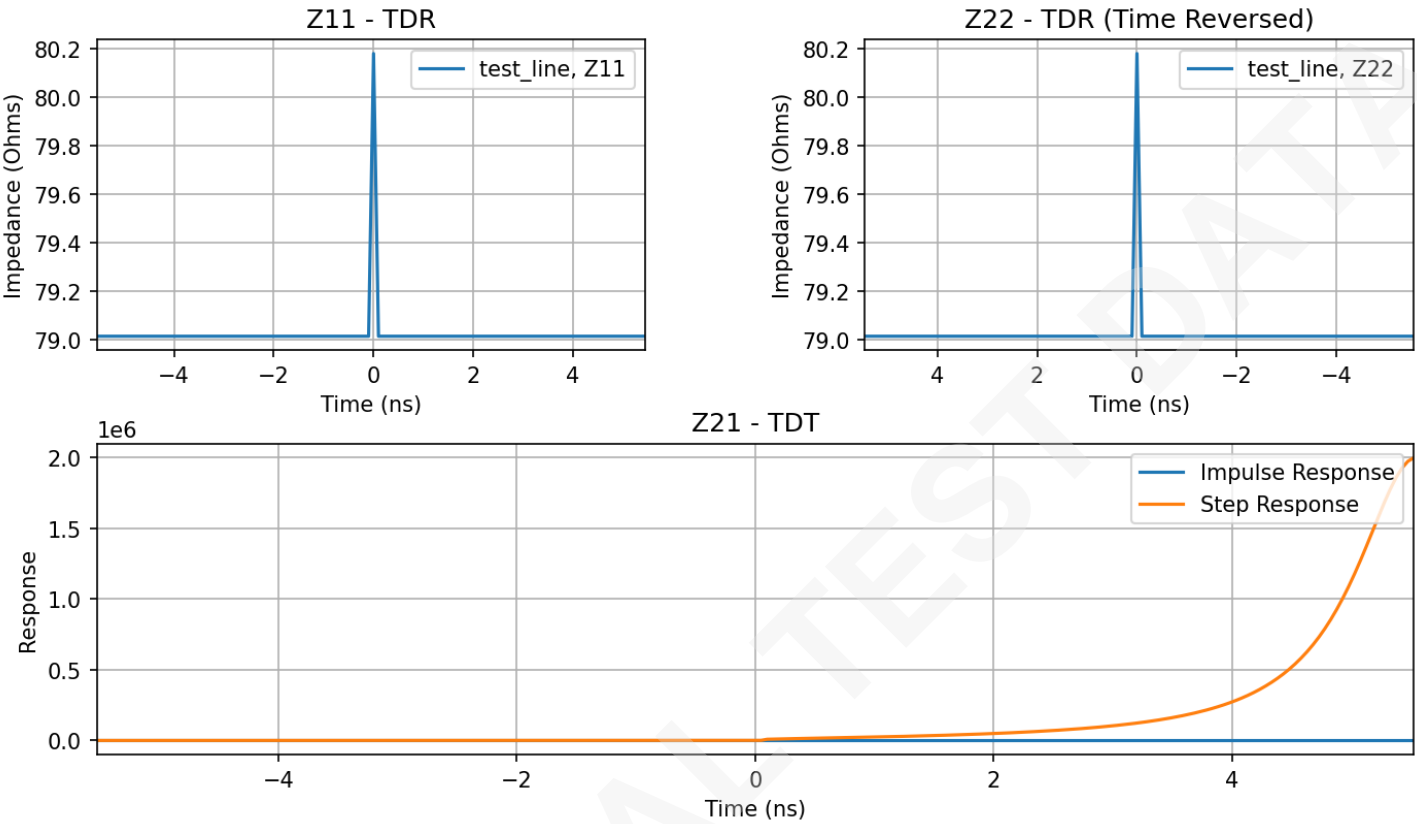
Impedance Metrics Summary

| Parameter | Target ( $\Omega$ ) | Reading ( $\Omega$ ) | Margin ( $\Omega$ ) | Pass/Fail |
|-----------|---------------------|----------------------|---------------------|-----------|
| Z11       | 50.00               | 10211.30             | +10161.30           | FAIL      |
| Z22       | 50.00               | 10211.30             | +10161.30           | FAIL      |
| Z21       | 50.00               | 10211.42             | +10161.42           | FAIL      |

DUT: DUT\_4 - S-Parameters



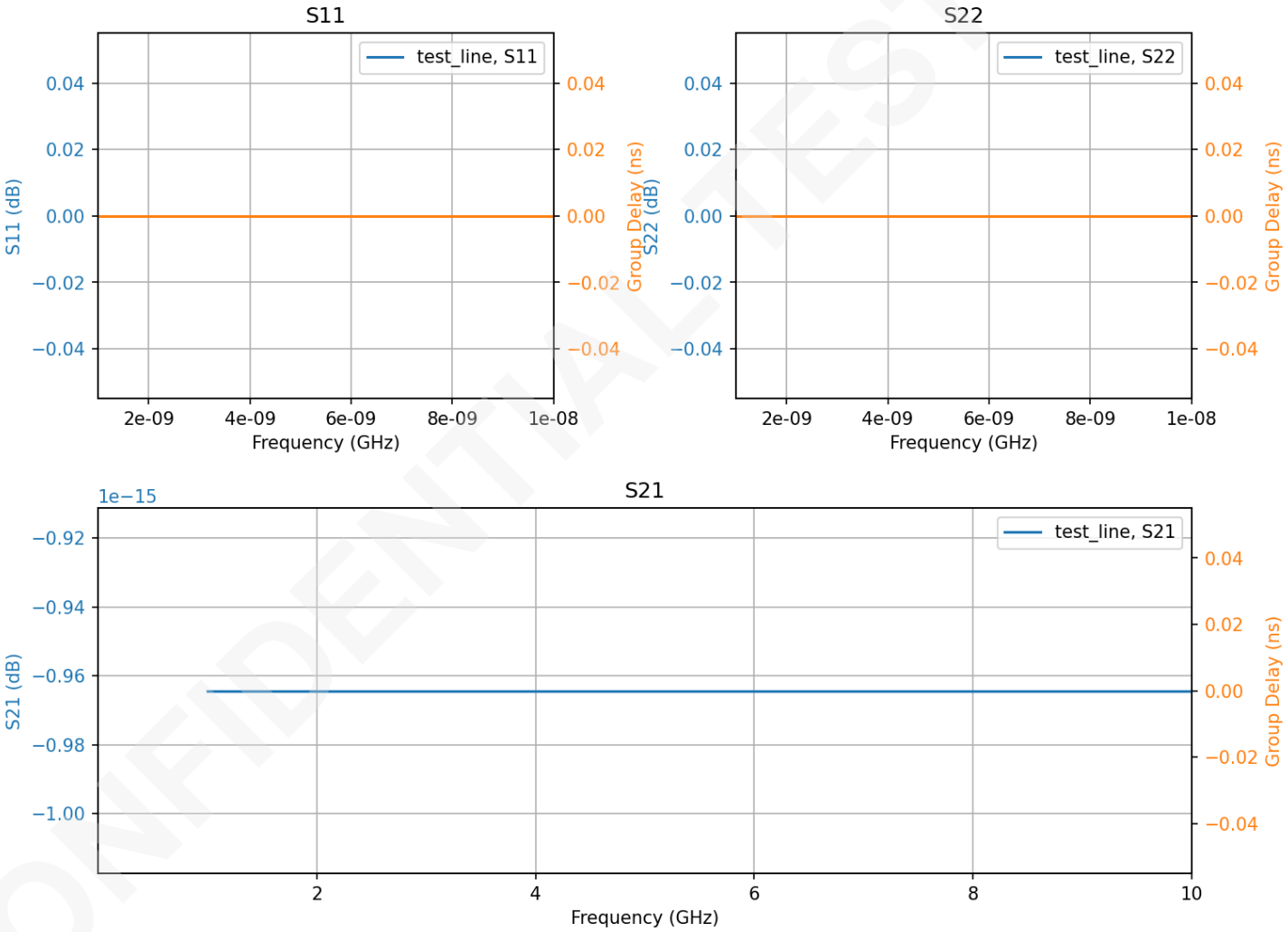
DUT: DUT\_4 - TDR/TDT



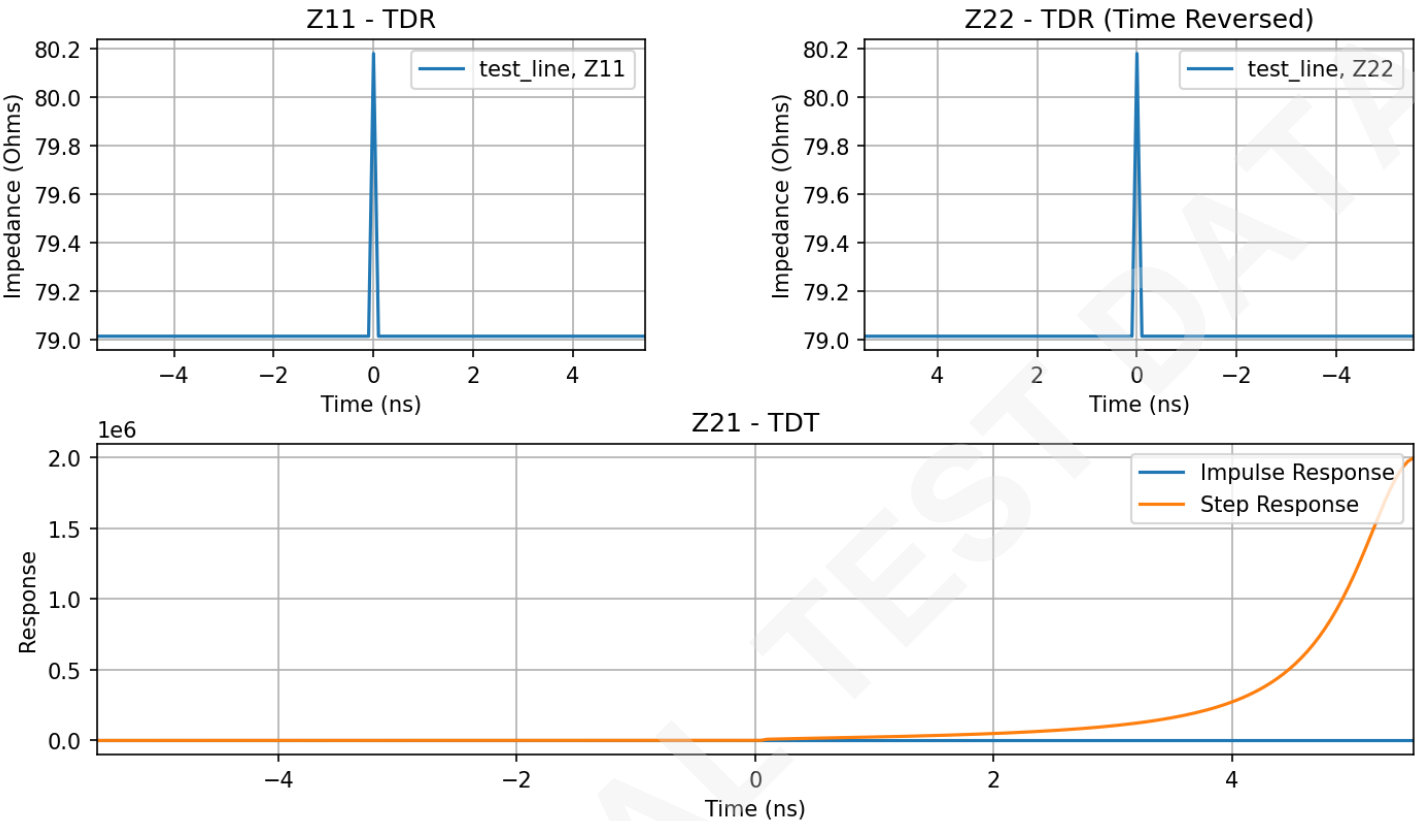
Impedance Metrics Summary

| Parameter | Target ( $\Omega$ ) | Reading ( $\Omega$ ) | Margin ( $\Omega$ ) | Pass/Fail |
|-----------|---------------------|----------------------|---------------------|-----------|
| Z11       | 50.00               | 10211.30             | +10161.30           | FAIL      |
| Z22       | 50.00               | 10211.30             | +10161.30           | FAIL      |
| Z21       | 50.00               | 10211.42             | +10161.42           | FAIL      |

DUT: DUT\_5 - S-Parameters



DUT: DUT\_5 - TDR/TDT



Impedance Metrics Summary

| Parameter | Target ( $\Omega$ ) | Reading ( $\Omega$ ) | Margin ( $\Omega$ ) | Pass/Fail |
|-----------|---------------------|----------------------|---------------------|-----------|
| Z11       | 50.00               | 10211.30             | +10161.30           | FAIL      |
| Z22       | 50.00               | 10211.30             | +10161.30           | FAIL      |
| Z21       | 50.00               | 10211.42             | +10161.42           | FAIL      |