

### DCM Test Report

|                                 |                                      |   |
|---------------------------------|--------------------------------------|---|
| Cable Type : 4x2x24 x PE/PVC    | Factory Number : PHOENIX             | Data File Name : DA111406.D3S           |
| Cable I.D. : SF/UTP#24X4P CABLE | Order Number : 5459 GY-265 210760121 | Specification File : FTP C5e-305M.S3S   |
| Temperature : 25.00 °C          | Relative Humidity : 50 %             | Test Date/Time : 07/03/2021 05:29:13 AM |
| Length : 305.00 m               | Number of Pairs to Test : 4          | Operator : M 210609SM016003/R1          |
| Starting Position : 1           |                                      | Analyzer Type : ENA                     |

### Pass - Fail Test Certificate - 4 Pairs

#### High Frequency

| Test Type                                      | Test Result |
|--|-------------|
| Input Impedance (Zin)(Ohms)(Terminated)        | OK          |
| Return Loss (RL)(dB)                           | OK          |
| Insertion Loss (IL)(Curve Fit)(dB/100.0 m)@20C | OK          |
| Near End Crosstalk Loss (NEXT)(dB)             | OK          |
| Power Sum NEXT(PSNEXT)(dB)                     | OK          |

#### Low Frequency

| Test Type                                   | Test Result |
|---|-------------|
| Conductor Resistance(Ohms/100.0 m)@20C      | OK          |
| Resistance Unbalance( % )                   | OK          |
| Mutual Capacitance(nF/100.0 m)@1000Hz       | OK          |
| Cap. Unbalance to Ground(pF/100.0 m)@1000Hz | OK          |

|            |           |       |
|------------|-----------|-------|
| Signature: | Approved: | Date: |
|------------|-----------|-------|

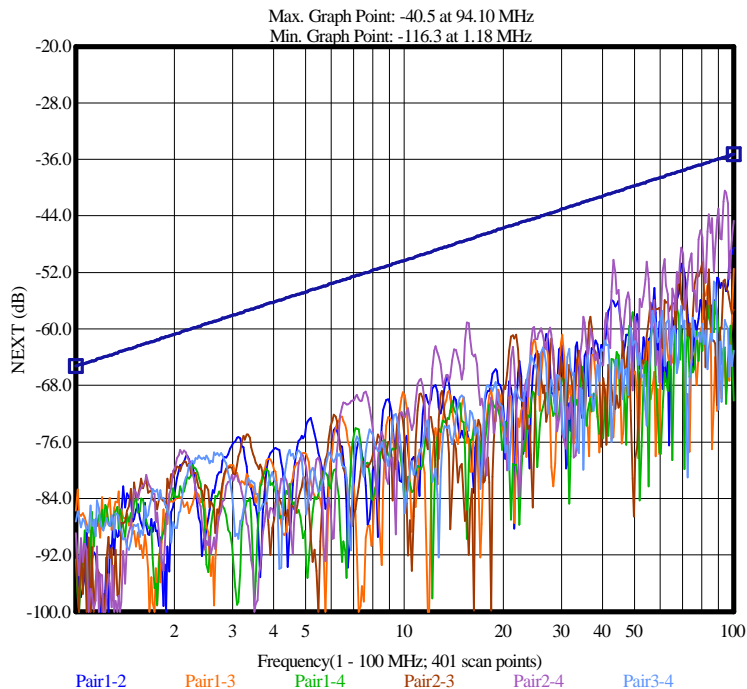
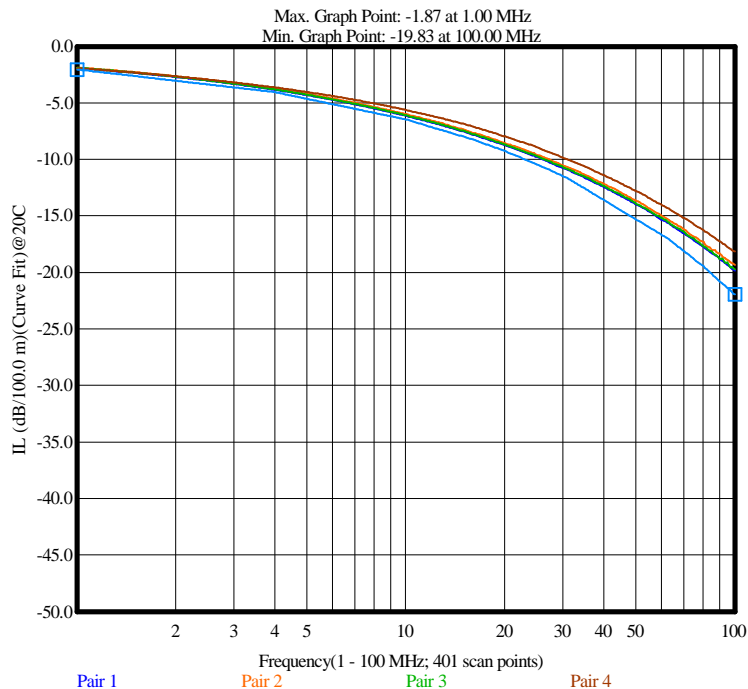
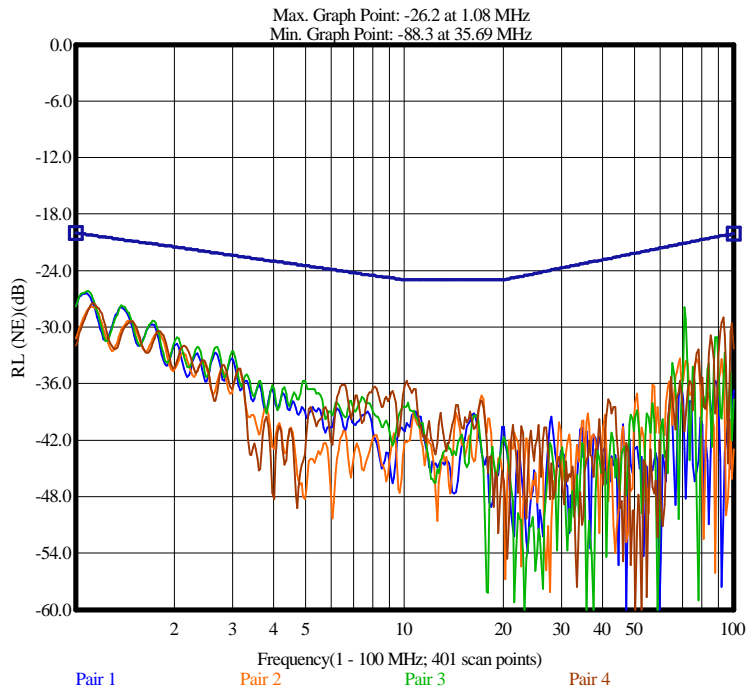
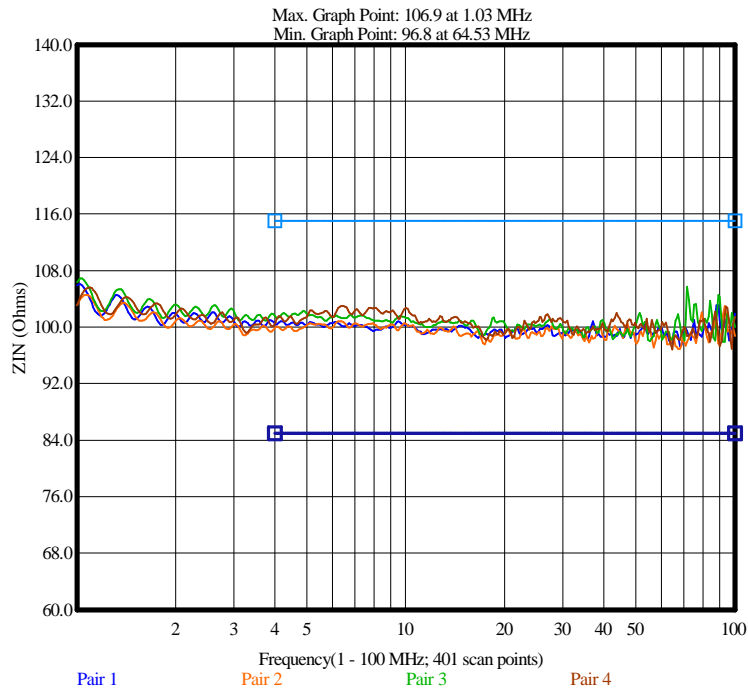
### DCM Test Report

|                                 |                                      |   |
|---------------------------------|--------------------------------------|---|
| Cable Type : 4x2x24 x PE/PVC    | Factory Number : PHOENIX             | Data File Name : DA111406.D3S           |
| Cable I.D. : SF/UTP#24X4P CABLE | Order Number : 5459 GY-265 210760121 | Specification File : FTP C5e-305M.S3S   |
| Temperature : 25.00 °C          | Relative Humidity : 50 %             | Test Date/Time : 07/03/2021 05:29:13 AM |
| Length : 305.00 m               | Number of Pairs to Test : 4          | Operator : M 210609SM016003/R1          |
| Starting Position : 1           |                                      | Analyzer Type : ENA                     |

### Worst Case Summary

#### High Frequency

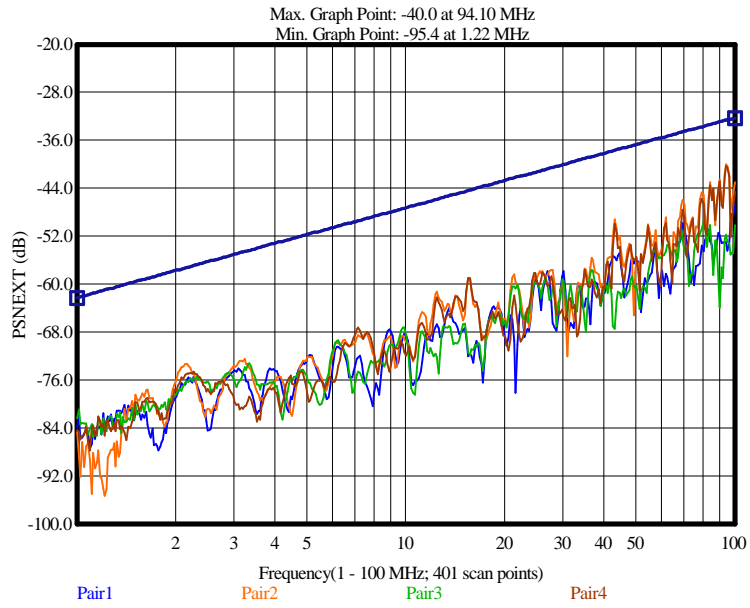
| Test Type                          | Specification | Measured (Pair)  | Margin | @ Frequency (MHz) | Test Result |
|------------------------------------|---------------|------------------|--------|-------------------|-------------|
| Input Impedance (Zin)(Terminated)  | 85.0 (Min)    | 96.8 (Pair 4)    | 11.8   | 64.53             | Passed      |
| Input Impedance (Zin)(Terminated)  | 115.0 (Max)   | 105.7 (Pair 3)   | 9.3    | 71.61             | Passed      |
| Return Loss (RL)                   | 20.2 (Min)    | 26.2 (Pair 3)    | 6.0    | 1.08              | Passed      |
| Insertion Loss (IL)(Curve Fit)@20C | 2.06 (Max)    | 1.95 (Pair 4)    | 0.11   | 1.01              | Passed      |
| Near End Crosstalk Loss (NEXT)     | 35.7 (Min)    | 40.5 (Pairs 2-4) | 4.8    | 94.10             | Passed      |
| Power Sum NEXT(PSNEXT)             | 32.7 (Min)    | 40.0 (Pair 2)    | 7.3    | 94.10             | Passed      |



N/A = Not Applicable.  
 --- = Disable/Bypassed Pair.

\* = Measured value out of spec.  
 xxx = No entry.

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## Worst Case Summary

## Low Frequency

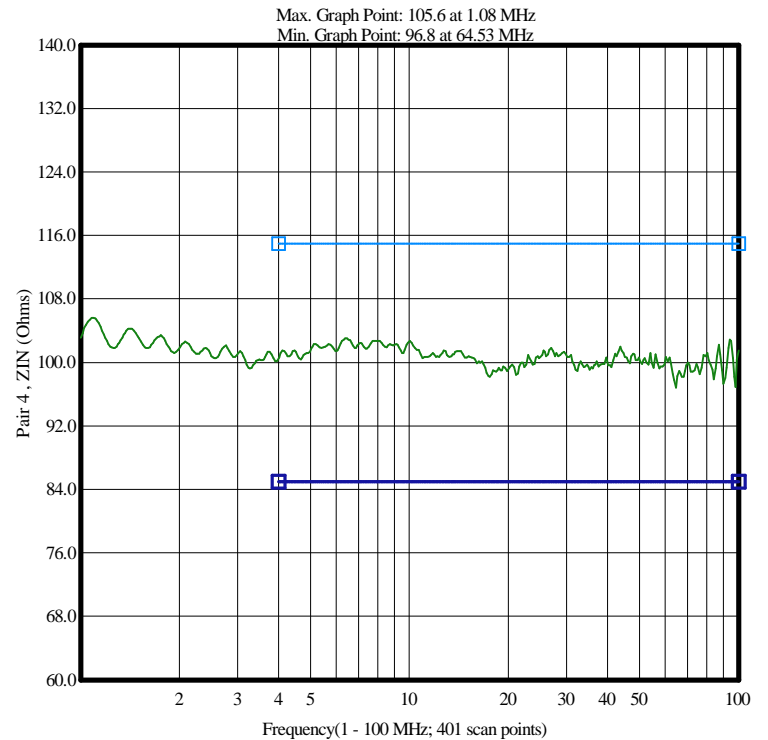
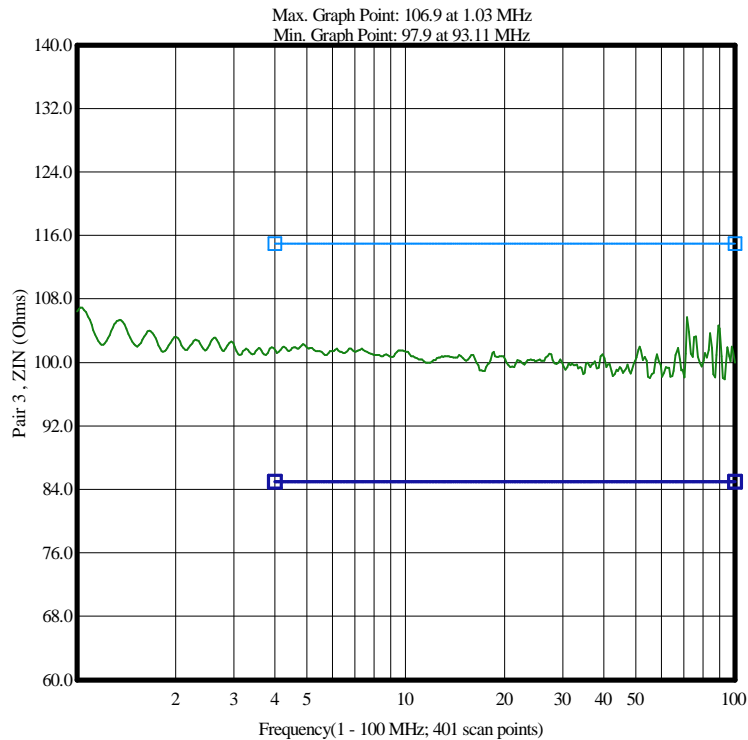
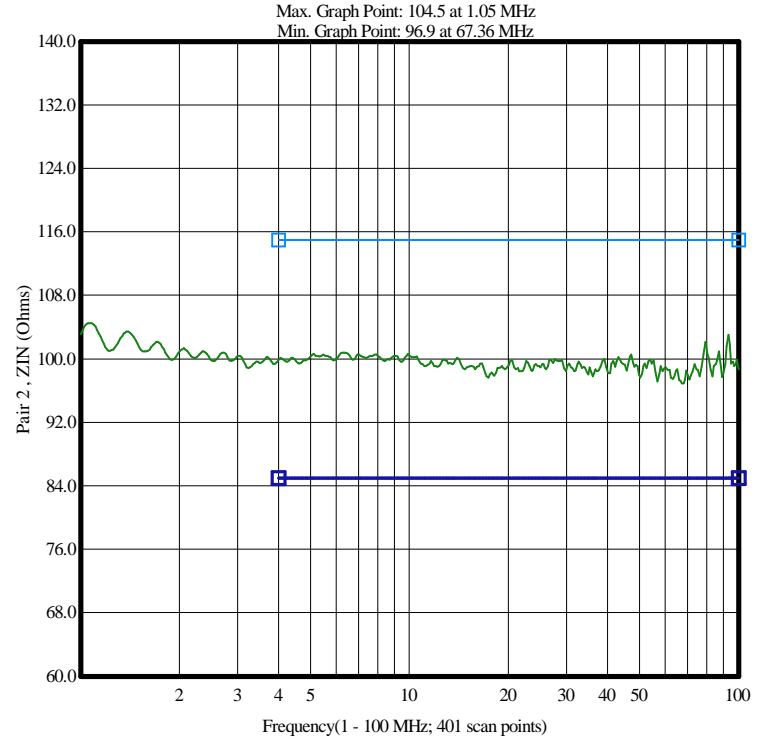
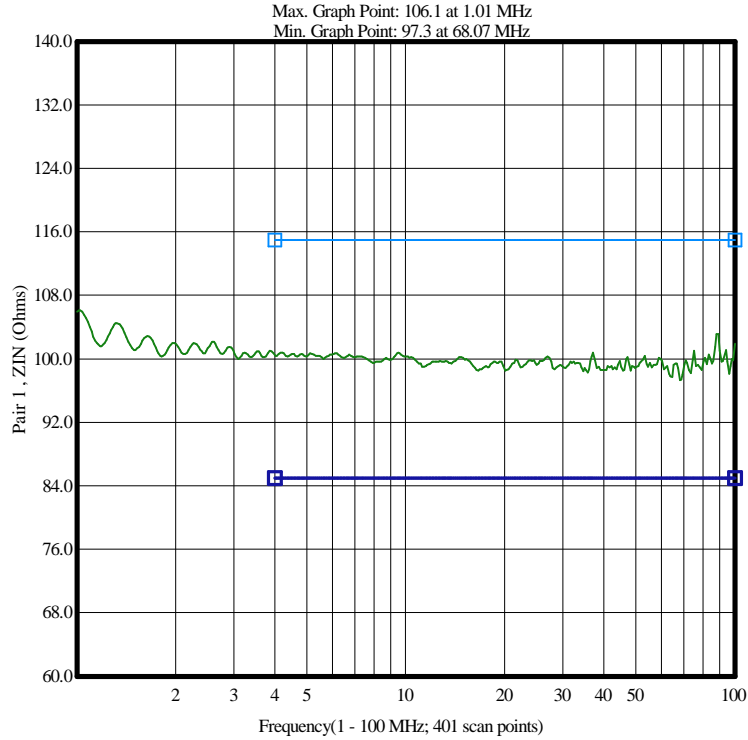
| Statistical Parameter                       | Maximum    |          | Minimum    |          | Average Maximum |          | Standard Deviation |          | Result |
|---|------------|----------|------------|----------|-----------------|----------|--------------------|----------|--------|
|   | Spec Limit | Measured | Spec Limit | Measured | Spec Limit      | Measured | Spec Limit         | Measured |        |
| Conductor Resistance(Ohms/100.0 m)@20C      | 9.38       | 8.40     | xxx        | 7.99     | xxx             | 8.19     | xxx                | 0.165    | Passed |
| Resistance Unbalance( % )                   | 5.00       | 0.39     | xxx        | 0.17     | xxx             | 0.30     | xxx                | 0.082    | Passed |
| Mutual Capacitance(nF/100.0 m)@1000Hz       | 5.60       | 5.29     | xxx        | 5.00     | xxx             | 5.16     | xxx                | 0.111    | Passed |
| Cap. Unbalance to Ground(pF/100.0 m)@1000Hz | 330.00     | 10.60    | xxx        | 3.97     | xxx             | 7.11     | xxx                | 2.808    | Passed |

## Detail: Resistance/Capacitance Measurement -Normalized

| Test Types | Conductor Resistance Ra @20C | Conductor Resistance Rb @20C | Resistance Unbalance | Mutual Capacitance @1000 Hz | Capacitance Unbalance to Ground @1000 Hz | Test Result |
|------------|------------------------------|------------------------------|----------------------|-----------------------------|--|-------------|
| Unit       | Ohms/100.0 m                 | Ohms/100.0 m                 | %                    | nF/100.0 m                  | pF/100.0 m                               |             |
| Max Spec   | 9.38                         | 9.38                         | 5.00                 | 5.60                        | 330.00                                   |             |
| Min Spec   | xxx                          | xxx                          | xxx                  | xxx                         | xxx                                      |             |
| Pair 1 [1] | 8.40                         | 8.37                         | 0.39                 | 5.29                        | -9.10                                    | Passed      |
| Pair 2 [2] | 8.07                         | 8.04                         | 0.35                 | 5.12                        | 10.60                                    | Passed      |
| Pair 3 [3] | 8.33                         | 8.30                         | 0.29                 | 5.23                        | 3.97                                     | Passed      |
| Pair 4 [4] | 8.00                         | 7.99                         | 0.17                 | 5.00                        | 4.76                                     | Passed      |

### Summary and Graphic: Input Impedance (Zin)(Terminated)

| Pair       | Specification |         | Measured(Ohms) |         | Margin (Ohms) |         | @ Frequency (MHz) |         | Test Result |
|------------|---------------|---------|----------------|---------|---------------|---------|-------------------|---------|-------------|
|            | Minimum       | Maximum | Minimum        | Maximum | Minimum       | Maximum | Minimum           | Maximum |             |
| Pair 1 [1] | 85.0          | 115.0   | 97.3           | 103.1   | 12.3          | 11.9    | 68.07             | 88.19   | Passed      |
| Pair 2 [2] | 85.0          | 115.0   | 96.9           | 103.0   | 11.9          | 12.0    | 67.36             | 93.11   | Passed      |
| Pair 3 [3] | 85.0          | 115.0   | 97.9           | 105.7   | 12.9          | 9.3     | 93.11             | 71.61   | Passed      |
| Pair 4 [4] | 85.0          | 115.0   | 96.8           | 103.0   | 11.8          | 12.0    | 64.53             | 6.39    | Passed      |



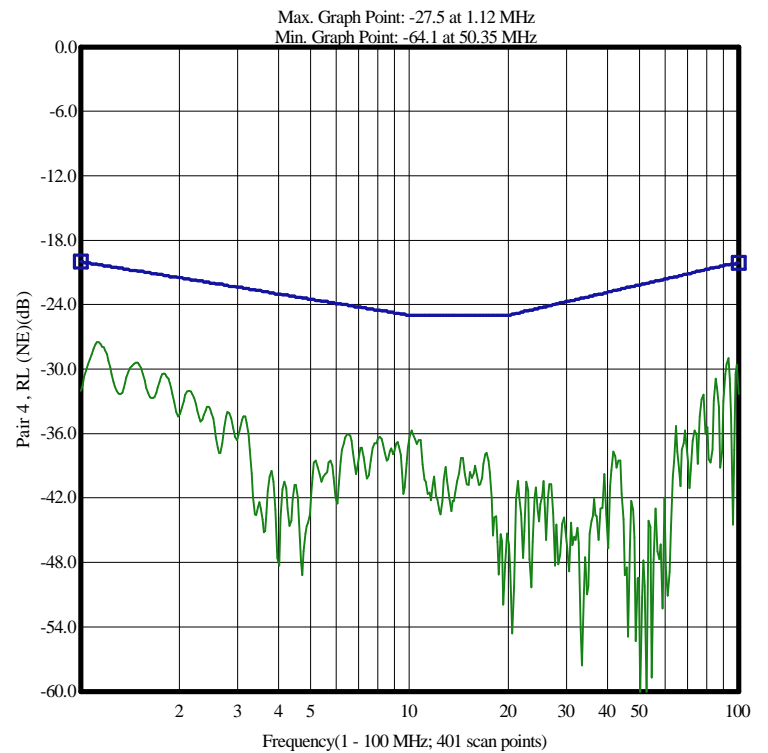
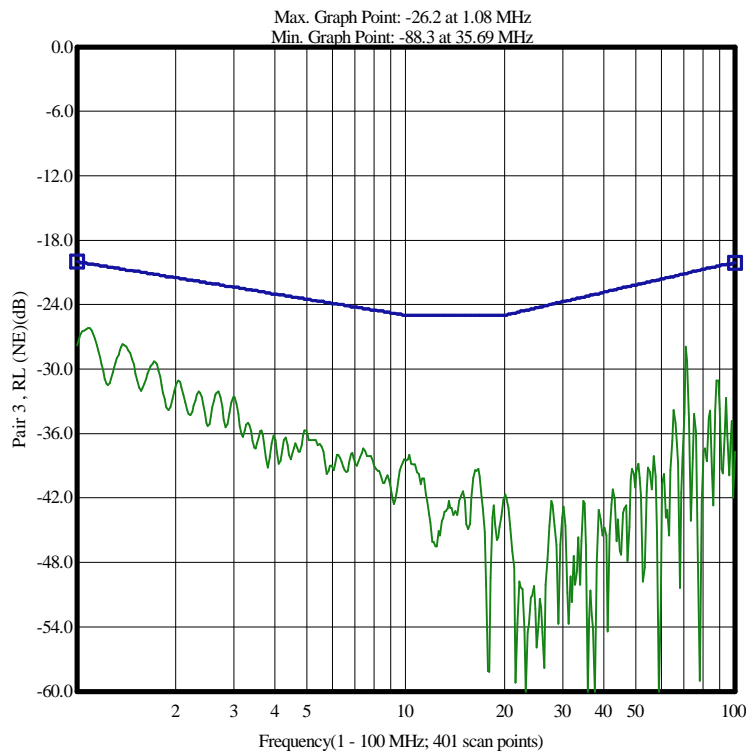
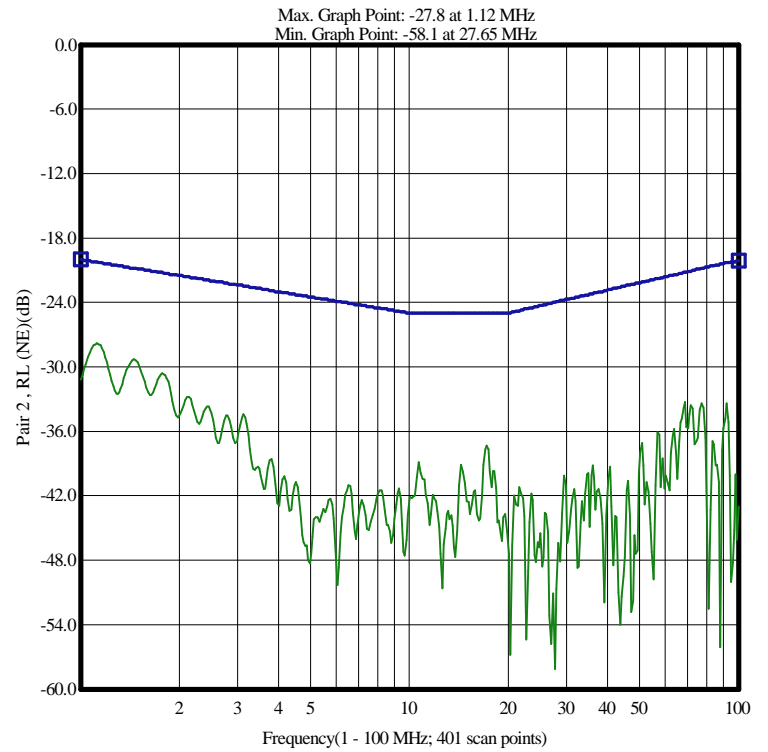
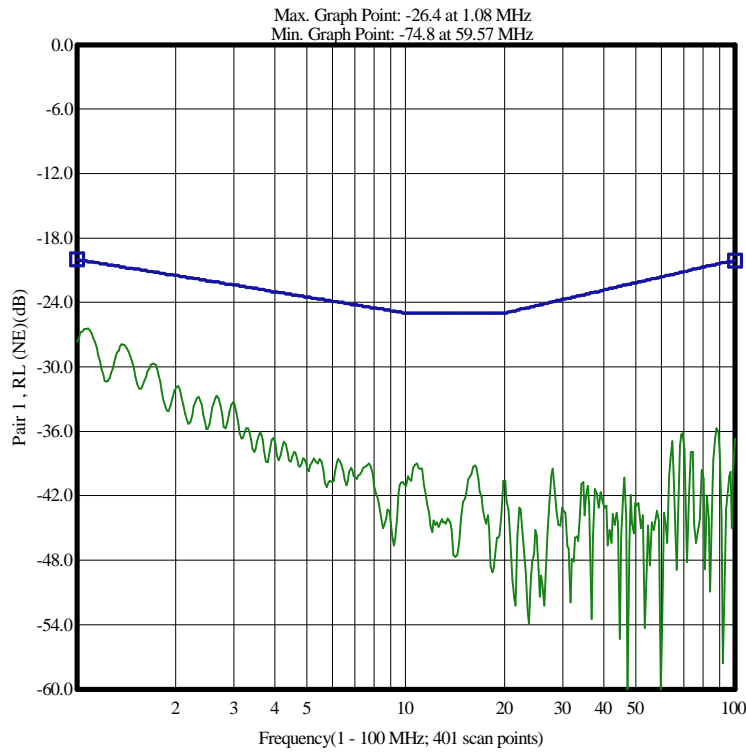
N/A = Not Applicable.  
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### Summary and Graphic: Return Loss (RL)

| Pair       | Spec (Min)(dB) | Measured(dB) | Margin (dB) | @ Frequency (MHz) | Test Result |
|------------|----------------|--------------|-------------|-------------------|-------------|
| Pair 1 [1] | 20.2           | 26.4         | 6.2         | 1.08              | Passed      |
| Pair 2 [2] | 20.2           | 27.8         | 7.6         | 1.12              | Passed      |
| Pair 3 [3] | 20.2           | 26.2         | 6.0         | 1.08              | Passed      |
| Pair 4 [4] | 20.3           | 27.5         | 7.2         | 1.14              | Passed      |



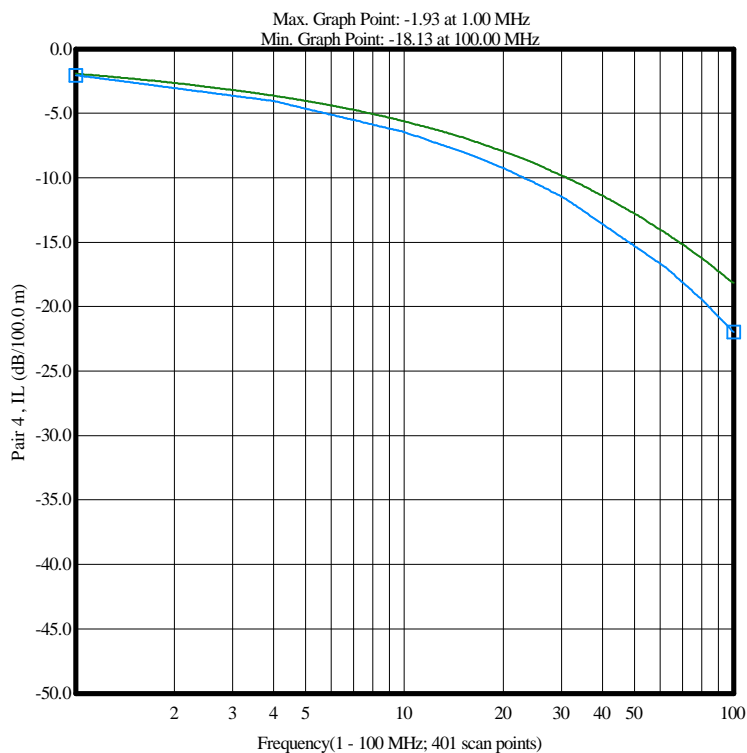
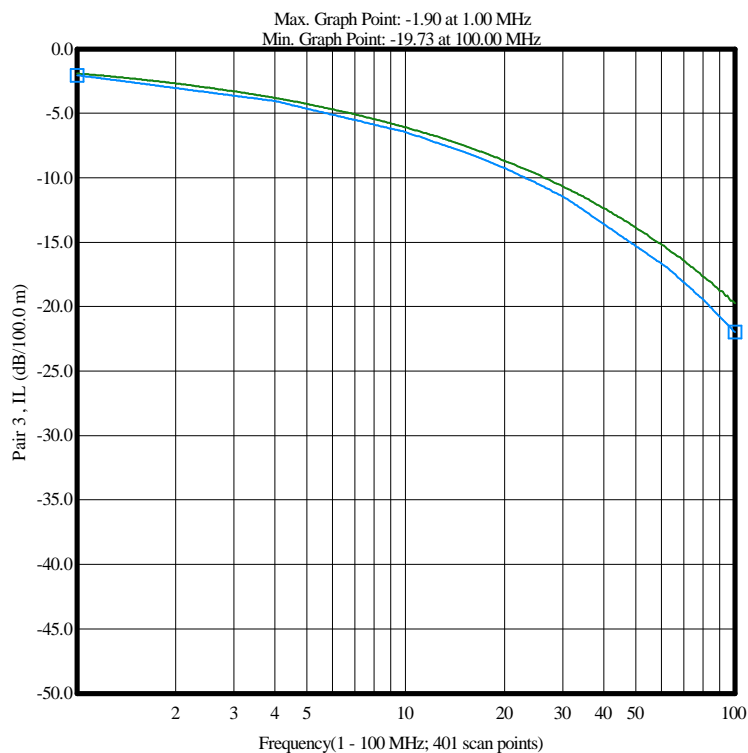
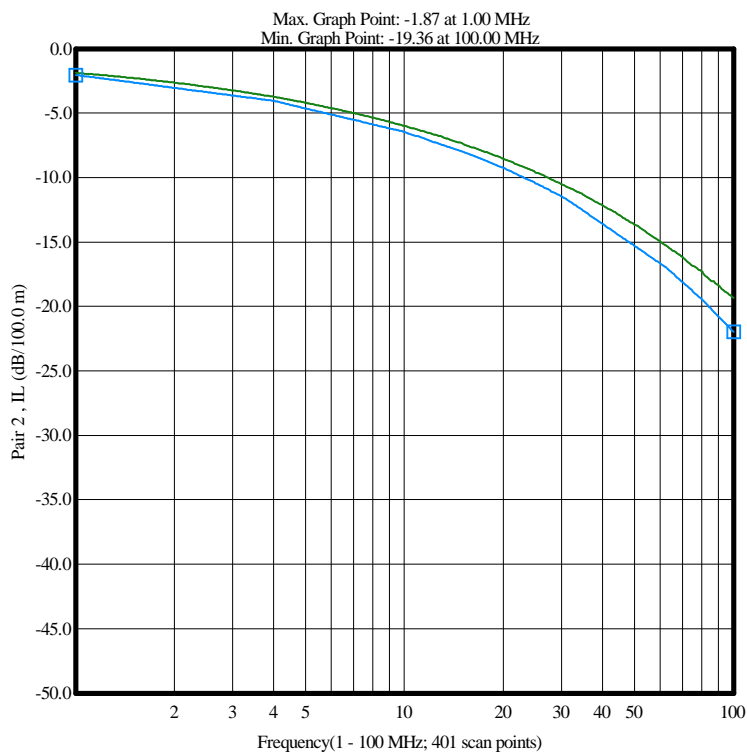
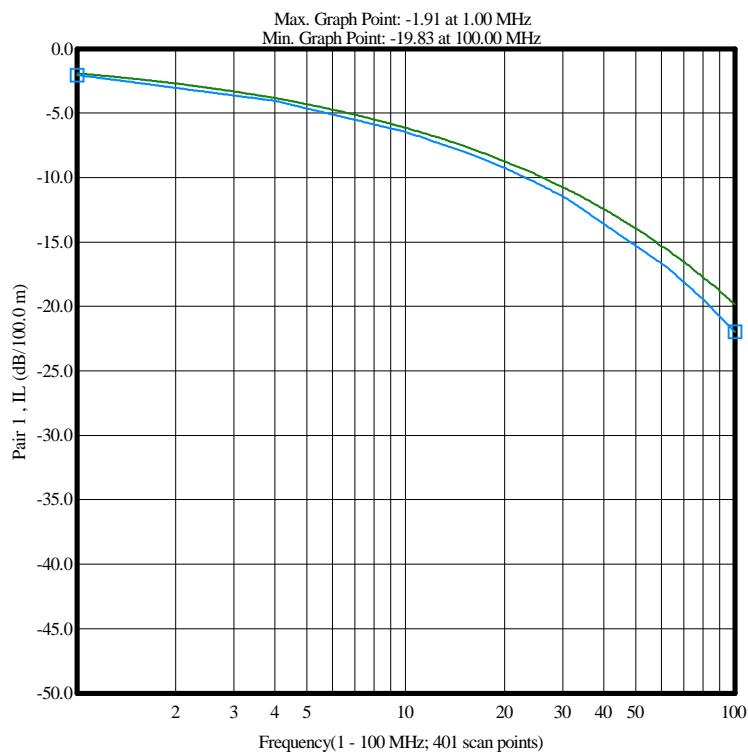
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Summary and Graphic: Insertion Loss (IL)(Curve Fit)@20C

| Pair       | Spec (Max)(dB/100.0 m) | Measured(dB/100.0 m) | Margin (dB/100.0 m) | @ Frequency (MHz) | Test Result |
|------------|------------------------|----------------------|---------------------|-------------------|-------------|
| Pair 1 [1] | 2.08                   | 1.95                 | 0.13                | 1.03              | Passed      |
| Pair 2 [2] | 2.04                   | 1.87                 | 0.17                | 1.00              | Passed      |
| Pair 3 [3] | 2.08                   | 1.94                 | 0.14                | 1.03              | Passed      |
| Pair 4 [4] | 2.06                   | 1.95                 | 0.11                | 1.01              | Passed      |



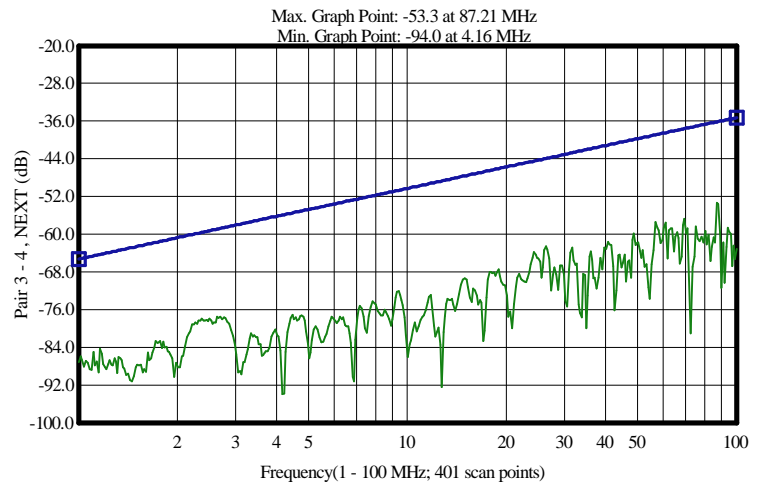
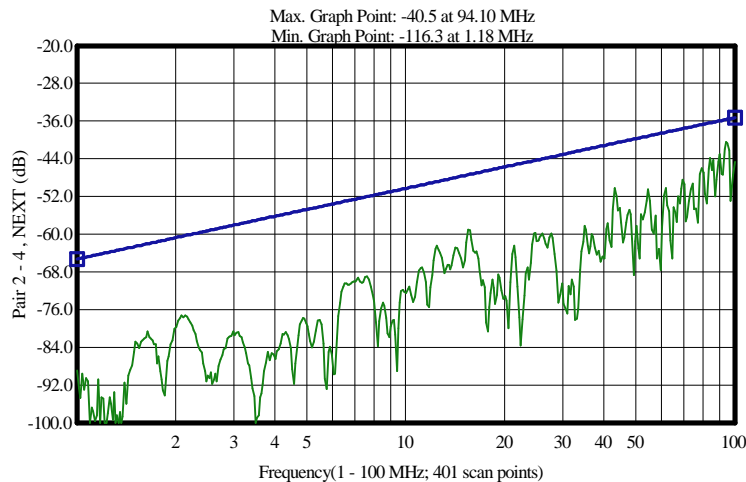
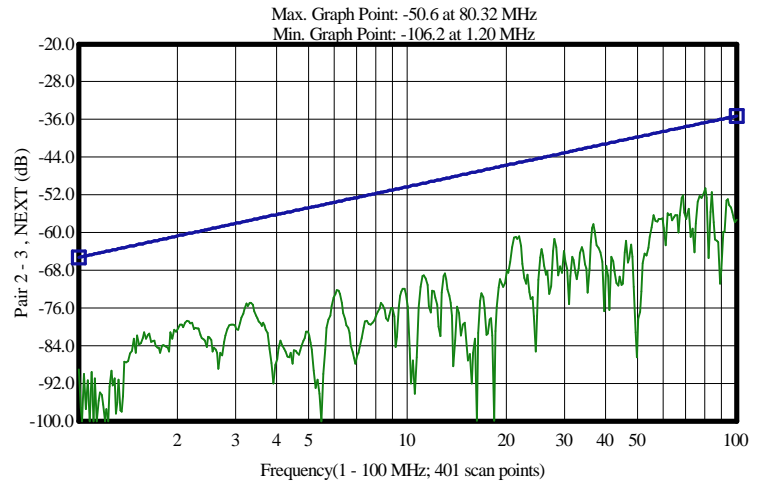
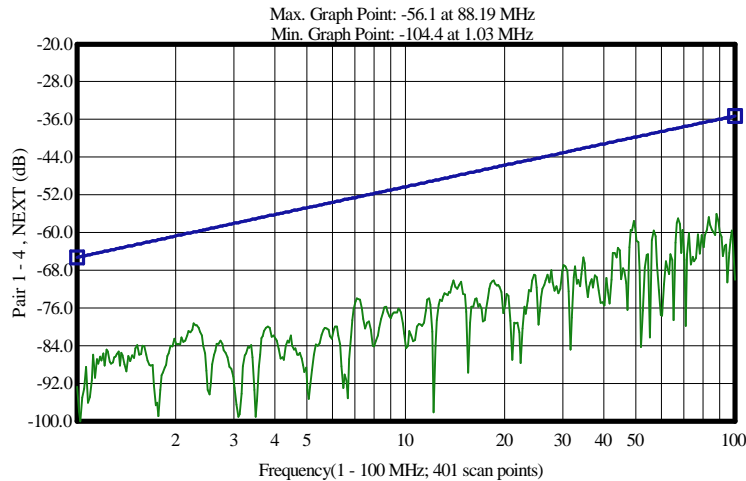
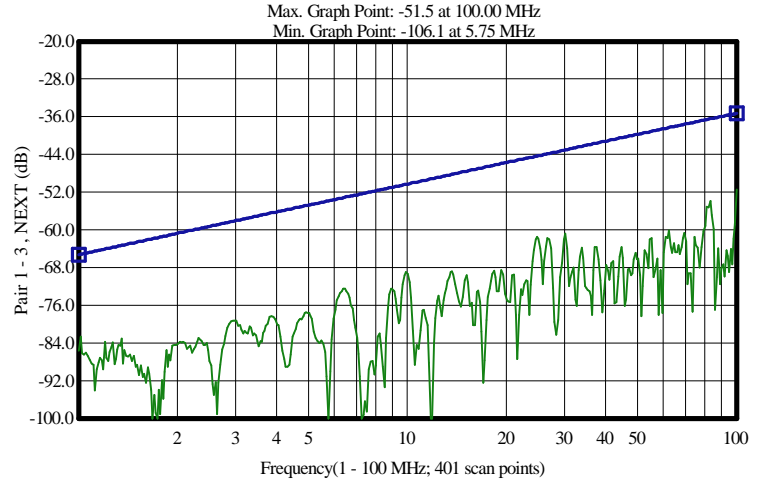
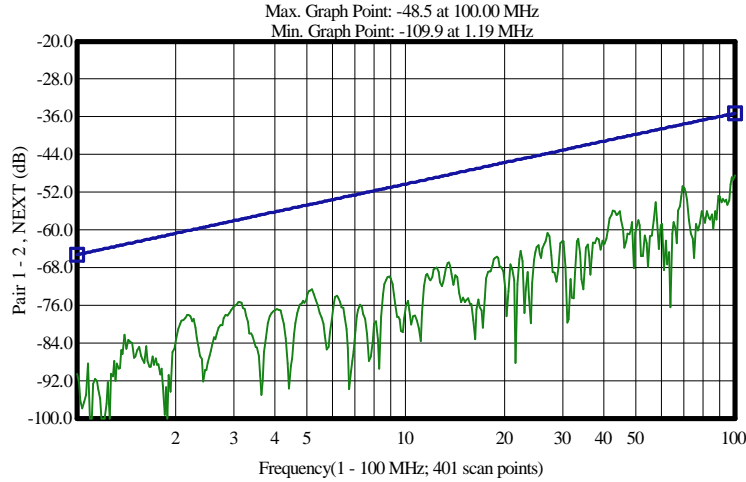
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### Summary and Graphic: Near End Crosstalk Loss (NEXT)

| Pair       | Spec (Min)(dB) | Measured(dB) | Margin (dB) | @ Frequency (MHz) | Test Result |
|------------|----------------|--------------|-------------|-------------------|-------------|
| Pair 1 - 2 | 37.6           | 50.8         | 13.2        | 69.49             | Passed      |
| Pair 1 - 3 | 35.3           | 51.5         | 16.2        | 100.00            | Passed      |
| Pair 1 - 4 | 39.8           | 57.6         | 17.8        | 49.33             | Passed      |
| Pair 2 - 3 | 36.7           | 50.6         | 13.9        | 80.32             | Passed      |
| Pair 2 - 4 | 35.7           | 40.5         | 4.8         | 94.10             | Passed      |
| Pair 3 - 4 | 36.2           | 53.3         | 17.1        | 87.21             | Passed      |



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--- = Disable/Bypassed Pair.

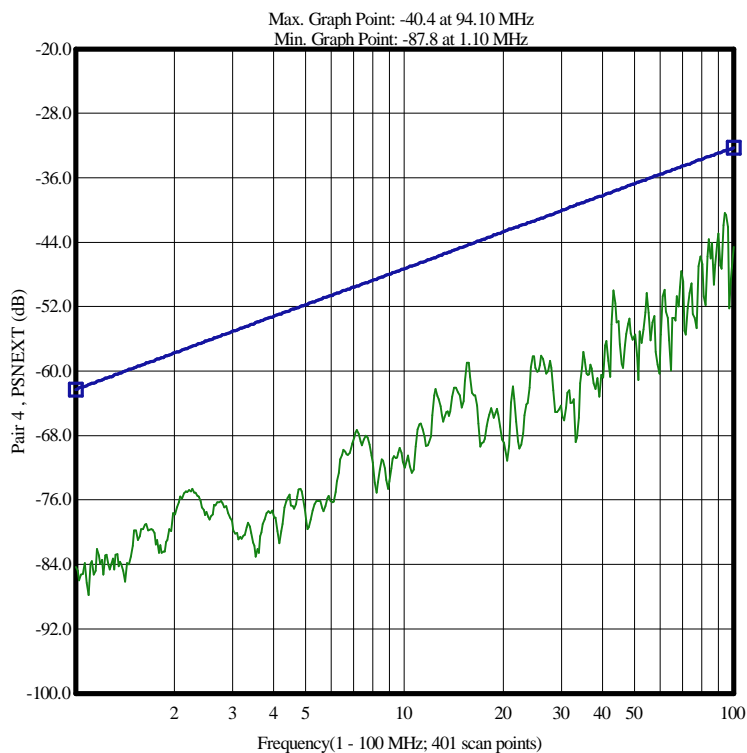
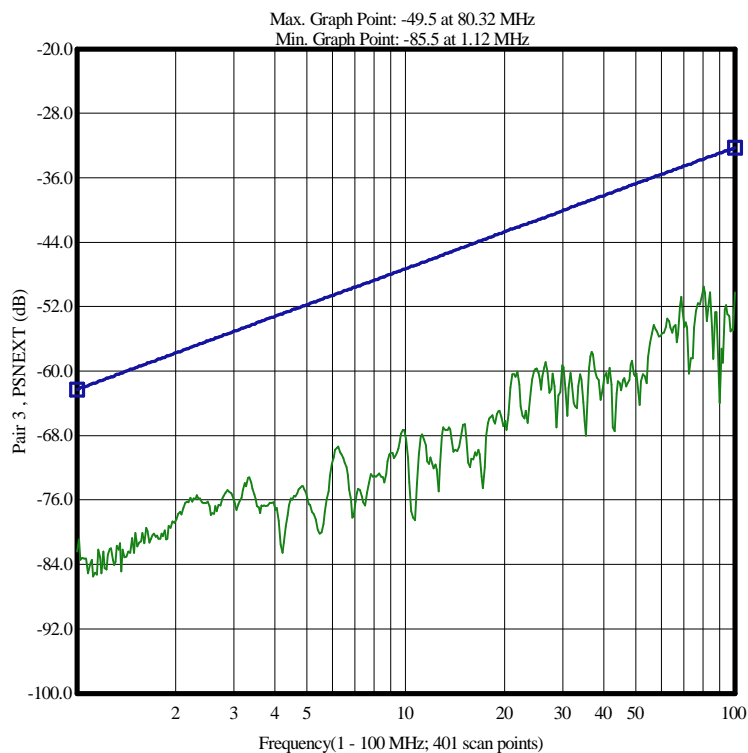
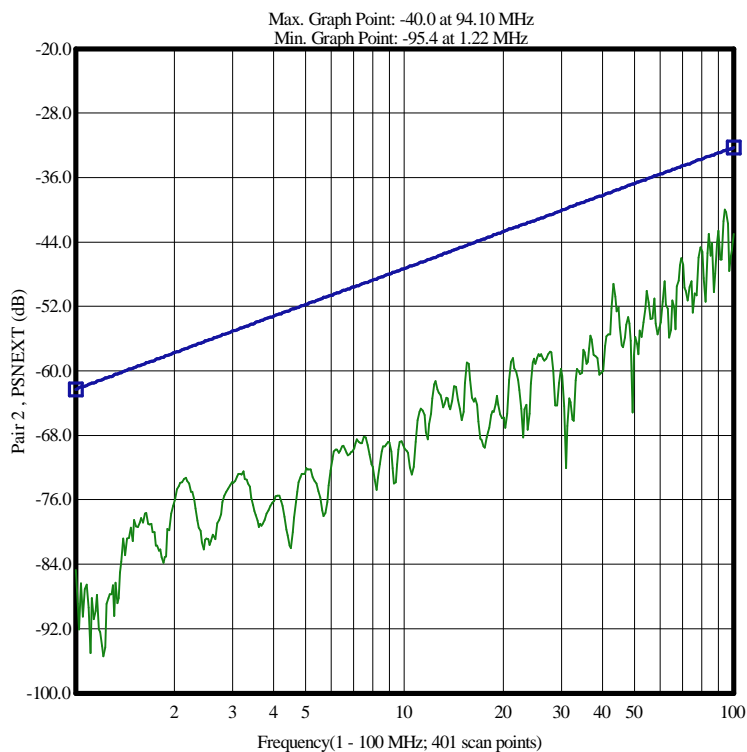
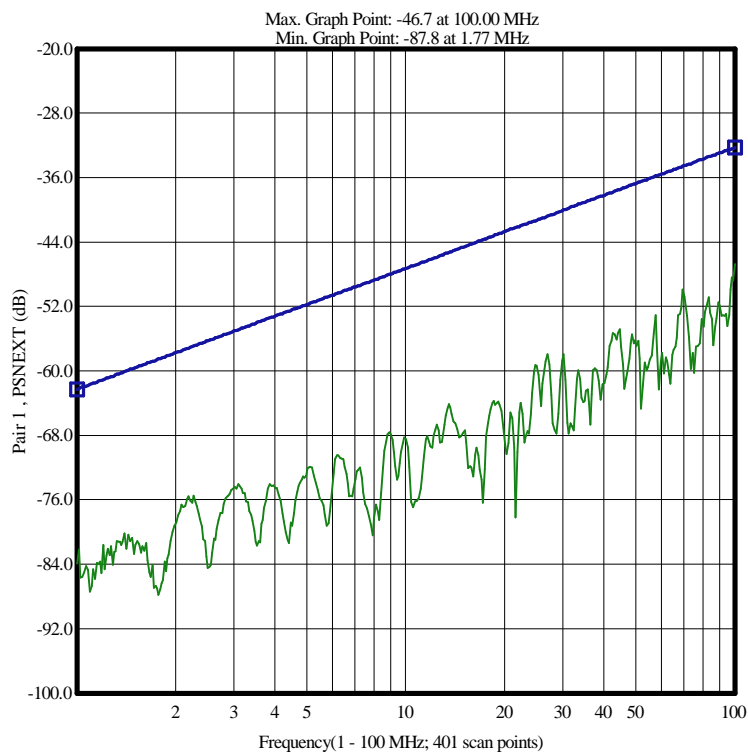
\* = Measured value out of spec.  
xxx = No entry.

\*\*\* = Measured value is invalid.



### Summary and Graphic: Power Sum NEXT(PSNEXT)

| Pair       | Spec (Min)(dB) | Measured(dB) | Margin (dB) | @ Frequency (MHz) | Test Result |
|------------|----------------|--------------|-------------|-------------------|-------------|
| Pair 1 [1] | 32.3           | 46.7         | 14.4        | 100.00            | Passed      |
| Pair 2 [2] | 32.7           | 40.0         | 7.3         | 94.10             | Passed      |
| Pair 3 [3] | 33.7           | 49.5         | 15.8        | 80.32             | Passed      |
| Pair 4 [4] | 32.7           | 40.4         | 7.7         | 94.10             | Passed      |



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**Detail Discrete Frequencies ---Return Loss (RL)(dB)**

|            |      |      |       |       |       |       |       |       |       |       |
|------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frequency  | 1.00 | 4.00 | 10.00 | 16.00 | 20.00 | 25.00 | 30.00 | 31.25 | 62.50 | 80.00 |
| Min Spec   | 20.0 | 23.0 | 25.0  | 25.0  | 25.0  | 24.3  | 23.7  | 23.6  | 21.5  | 20.7  |
| Pair 1 [1] | 27.7 | 37.1 | 41.1  | 39.5  | 40.6  | 45.6  | 43.2  | 46.9  | 45.5  | 40.1  |
| Pair 2 [2] | 31.2 | 42.9 | 42.1  | 43.1  | 47.2  | 45.6  | 43.4  | 42.4  | 37.8  | 43.4  |
| Pair 3 [3] | 27.8 | 36.5 | 38.5  | 40.6  | 41.7  | 55.5  | 43.4  | 53.3  | 43.4  | 39.1  |
| Pair 4 [4] | 32.0 | 48.1 | 36.2  | 39.7  | 46.3  | 42.8  | 46.0  | 46.1  | 44.2  | 35.6  |

**Continue:Return Loss (RL)(dB)**

|            |        |  |  |  |  |  |  |  |  |  |
|------------|--------|--|--|--|--|--|--|--|--|--|
| Frequency  | 100.00 |  |  |  |  |  |  |  |  |  |
| Min Spec   | 20.1   |  |  |  |  |  |  |  |  |  |
| Pair 1 [1] | 36.7   |  |  |  |  |  |  |  |  |  |
| Pair 2 [2] | 43.0   |  |  |  |  |  |  |  |  |  |
| Pair 3 [3] | 37.7   |  |  |  |  |  |  |  |  |  |
| Pair 4 [4] | 32.3   |  |  |  |  |  |  |  |  |  |

**Detail Discrete Frequencies ---Insertion Loss (IL)(dB/100.0 m)(Curve Fit)@20C**

|            |      |      |       |       |       |       |       |       |       |       |
|------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frequency  | 1.00 | 4.00 | 10.00 | 16.00 | 20.00 | 25.00 | 30.00 | 31.25 | 62.50 | 80.00 |
| Max Spec   | 2.04 | 4.05 | 6.46  | 8.24  | 9.26  | 10.42 | 11.47 | 11.72 | 16.99 | 19.43 |
| Pair 1 [1] | 1.91 | 3.84 | 6.15  | 7.81  | 8.76  | 9.78  | 10.76 | 10.97 | 15.59 | 17.73 |
| Pair 2 [2] | 1.87 | 3.74 | 6.00  | 7.64  | 8.55  | 9.58  | 10.51 | 10.73 | 15.29 | 17.29 |
| Pair 3 [3] | 1.90 | 3.81 | 6.10  | 7.75  | 8.70  | 9.72  | 10.67 | 10.89 | 15.52 | 17.67 |
| Pair 4 [4] | 1.93 | 3.64 | 5.63  | 7.09  | 7.98  | 8.92  | 9.83  | 10.03 | 14.32 | 16.24 |

**Continue:Insertion Loss (IL)(dB/100.0 m)(Curve Fit)@20C**

|            |        |  |  |  |  |  |  |  |  |  |
|------------|--------|--|--|--|--|--|--|--|--|--|
| Frequency  | 100.00 |  |  |  |  |  |  |  |  |  |
| Max Spec   | 21.97  |  |  |  |  |  |  |  |  |  |
| Pair 1 [1] | 19.83  |  |  |  |  |  |  |  |  |  |
| Pair 2 [2] | 19.36  |  |  |  |  |  |  |  |  |  |
| Pair 3 [3] | 19.73  |  |  |  |  |  |  |  |  |  |
| Pair 4 [4] | 18.13  |  |  |  |  |  |  |  |  |  |

**Detail Discrete Frequencies ---Near End Crosstalk Loss (NEXT)(dB)**

|            |      |      |       |       |       |       |       |       |       |       |
|------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frequency  | 1.00 | 4.00 | 10.00 | 16.00 | 20.00 | 25.00 | 30.00 | 31.25 | 62.50 | 80.00 |
| Min Spec   | 65.3 | 56.2 | 50.3  | 47.2  | 45.7  | 44.3  | 43.1  | 42.8  | 38.3  | 36.7  |
| Pair 1 - 2 | 90.6 | 77.0 | 76.0  | 78.2  | 72.1  | 63.8  | 62.5  | 79.1  | 67.0  | 56.9  |
| Pair 1 - 3 | 85.7 | 79.8 | 69.4  | 80.2  | 74.9  | 61.8  | 61.5  | 70.4  | 60.7  | 59.6  |
| Pair 1 - 4 | 92.7 | 82.3 | 84.6  | 75.7  | 75.5  | 71.4  | 67.7  | 71.8  | 67.5  | 62.2  |
| Pair 2 - 3 | 89.1 | 87.2 | 75.7  | 83.4  | 68.3  | 70.8  | 64.9  | 70.2  | 56.3  | 51.0  |
| Pair 2 - 4 | 88.9 | 86.2 | 72.5  | 62.9  | 73.2  | 61.3  | 72.4  | 71.9  | 54.0  | 46.7  |
| Pair 3 - 4 | 87.2 | 81.1 | 86.1  | 71.8  | 72.8  | 65.0  | 71.0  | 64.5  | 59.2  | 60.1  |

**Continue:Near End Crosstalk Loss (NEXT)(dB)**

|            |        |  |  |  |  |  |  |  |  |  |
|------------|--------|--|--|--|--|--|--|--|--|--|
| Frequency  | 100.00 |  |  |  |  |  |  |  |  |  |
| Min Spec   | 35.3   |  |  |  |  |  |  |  |  |  |
| Pair 1 - 2 | 48.5   |  |  |  |  |  |  |  |  |  |
| Pair 1 - 3 | 51.5   |  |  |  |  |  |  |  |  |  |
| Pair 1 - 4 | 70.1   |  |  |  |  |  |  |  |  |  |
| Pair 2 - 3 | 57.3   |  |  |  |  |  |  |  |  |  |
| Pair 2 - 4 | 44.7   |  |  |  |  |  |  |  |  |  |
| Pair 3 - 4 | 63.1   |  |  |  |  |  |  |  |  |  |

**Detail Discrete Frequencies ---Power Sum NEXT(PSNEXT)(dB)**

|            |      |      |       |       |       |       |       |       |       |       |
|------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Frequency  | 1.00 | 4.00 | 10.00 | 16.00 | 20.00 | 25.00 | 30.00 | 31.25 | 62.50 | 80.00 |
| Min Spec   | 62.3 | 53.2 | 47.3  | 44.2  | 42.7  | 41.3  | 40.1  | 39.8  | 35.3  | 33.7  |
| Pair 1 [1] | 83.9 | 74.4 | 68.5  | 72.8  | 69.1  | 59.4  | 58.4  | 67.6  | 59.0  | 54.2  |
| Pair 2 [2] | 84.7 | 76.2 | 69.7  | 62.7  | 65.8  | 59.0  | 60.1  | 67.6  | 51.9  | 45.0  |
| Pair 3 [3] | 82.4 | 77.0 | 68.4  | 71.0  | 66.3  | 59.7  | 59.4  | 62.6  | 53.5  | 49.9  |
| Pair 4 [4] | 84.3 | 78.0 | 72.0  | 62.2  | 68.9  | 59.5  | 64.9  | 63.0  | 52.7  | 46.4  |

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**Continue:Power Sum NEXT(PSNEXT)(dB)**

|            |        |  |  |  |  |  |  |  |  |  |
|------------|--------|--|--|--|--|--|--|--|--|--|
| Frequency  | 100.00 |  |  |  |  |  |  |  |  |  |
| Min Spec   | 32.3   |  |  |  |  |  |  |  |  |  |
| Pair 1 [1] | 46.7   |  |  |  |  |  |  |  |  |  |
| Pair 2 [2] | 43.0   |  |  |  |  |  |  |  |  |  |
| Pair 3 [3] | 50.2   |  |  |  |  |  |  |  |  |  |
| Pair 4 [4] | 44.6   |  |  |  |  |  |  |  |  |  |

N/A = Not Applicable.  
--- = Disable/Bypassed Pair.

\* = Measured value out of spec.  
xxx = No entry.

\*\*\* = Measured value is invalid.