

### DCM Test Report

|                                |                                      |   |
|--------------------------------|--------------------------------------|---|
| Cable Type : 4x2x23 x PE/LSZH  | Factory Number : PHOENIX             | Data File Name : DA043742.D3S           |
| Cable I.D. : U/UTP#23X4P CABLE | Order Number : 12086 VI-15 191237879 | Specification File : SC6E-550-305M.S3S  |
| Temperature : 25.00 °C         | Relative Humidity : 50 %             | Test Date/Time : 12/18/2019 01:37:37 PM |
| Length : 305.00 m              | Number of Pairs to Test : 4          | Operator : L 191217WE604009/3           |
| Starting Position : 13         |                                      | 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: |
|------------|-----------|-------|

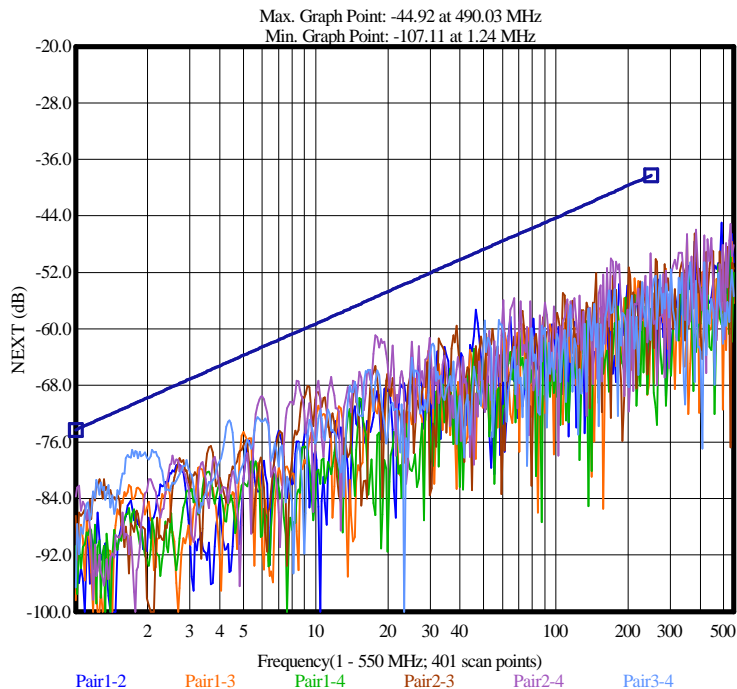
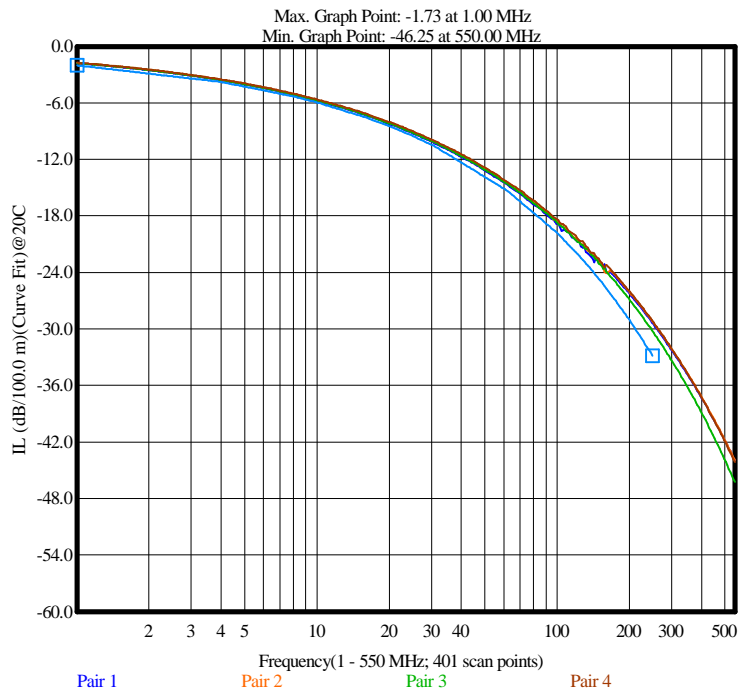
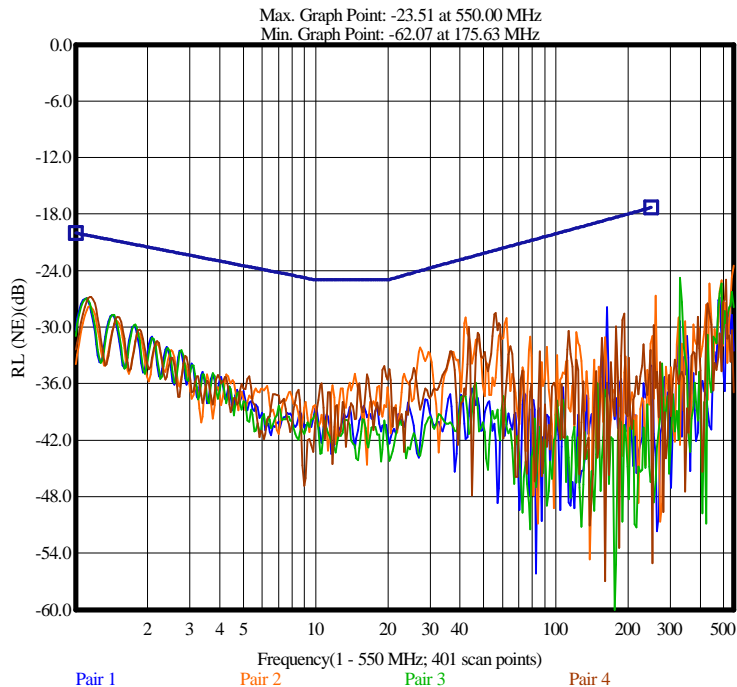
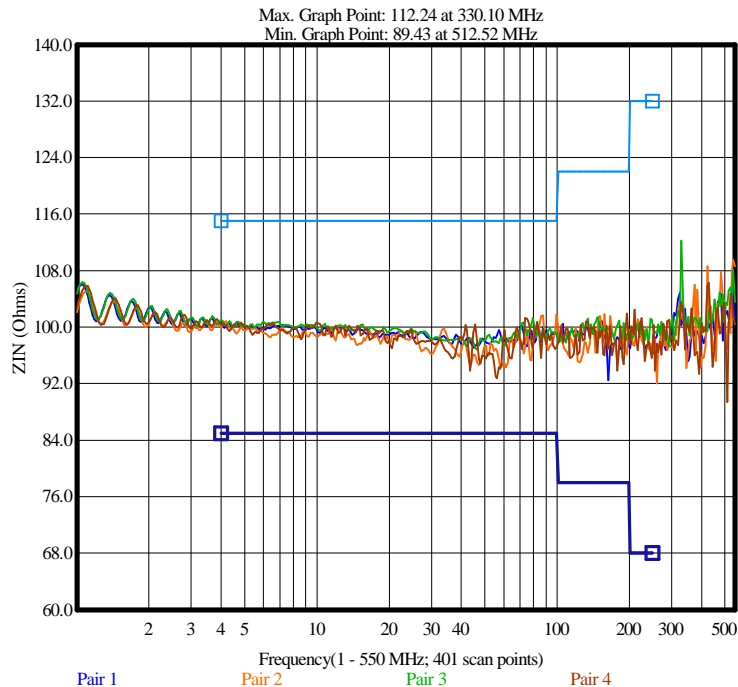
### DCM Test Report

|                                |                                      |   |
|--------------------------------|--------------------------------------|---|
| Cable Type : 4x2x23 x PE/LSZH  | Factory Number : PHOENIX             | Data File Name : DA043742.D3S           |
| Cable I.D. : U/UTP#23X4P CABLE | Order Number : 12086 VI-15 191237879 | Specification File : SC6E-550-305M.S3S  |
| Temperature : 25.00 °C         | Relative Humidity : 50 %             | Test Date/Time : 12/18/2019 01:37:37 PM |
| Length : 305.00 m              | Number of Pairs to Test : 4          | Operator : L 191217WE604009/3           |
| Starting Position : 13         |                                      | Analyzer Type : ENA                     |

### Worst Case Summary

#### High Frequency

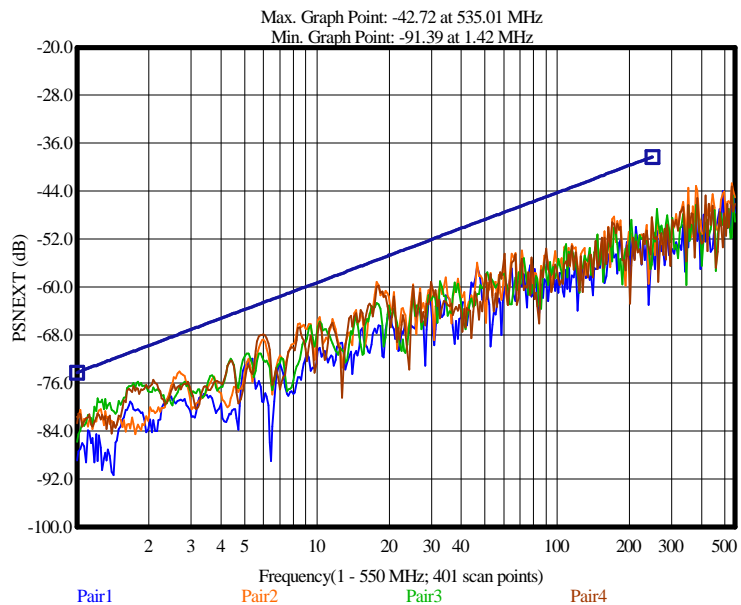
| Test Type                          | Specification | Measured (Pair)   | Margin | @ Frequency (MHz) | Test Result |
|------------------------------------|---------------|-------------------|--------|-------------------|-------------|
| Input Impedance (Zin)(Terminated)  | 85.00 (Min)   | 92.76 (Pair 4)    | 7.76   | 56.31             | Passed      |
| Input Impedance (Zin)(Terminated)  | 115.00 (Max)  | 101.83 (Pair 2)   | 13.17  | 99.64             | Passed      |
| Return Loss (RL)                   | 22.68 (Min)   | 28.96 (Pair 2)    | 6.28   | 42.28             | Passed      |
| Insertion Loss (IL)(Curve Fit)@20C | 5.68 (Max)    | 5.51 (Pair 1)     | 0.17   | 9.10              | Passed      |
| Near End Crosstalk Loss (NEXT)     | 55.51 (Min)   | 60.91 (Pairs 2-4) | 5.40   | 17.74             | Passed      |
| Power Sum NEXT(PSNEXT)             | 55.51 (Min)   | 59.17 (Pair 2)    | 3.66   | 17.74             | Passed      |



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

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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       | 7.55     | xxx        | 7.19     | xxx             | 7.35     | xxx                | 0.128    | Passed |
| Resistance Unbalance( % )                   | 5.00       | 1.17     | xxx        | 0.74     | xxx             | 0.94     | xxx                | 0.183    | Passed |
| Mutual Capacitance(nF/100.0 m)@1000Hz       | 5.60       | 5.22     | xxx        | 5.00     | xxx             | 5.11     | xxx                | 0.088    | Passed |
| Cap. Unbalance to Ground(pF/100.0 m)@1000Hz | 330.00     | 33.68    | xxx        | 15.63    | xxx             | 21.76    | xxx                | 7.197    | 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 [13] | 7.55                         | 7.46                         | 1.17                 | 5.22                        | -33.68                                   | Passed      |
| Pair 2 [14] | 7.22                         | 7.27                         | 0.74                 | 5.05                        | 15.63                                    | Passed      |
| Pair 3 [15] | 7.47                         | 7.39                         | 1.07                 | 5.17                        | -21.20                                   | Passed      |
| Pair 4 [16] | 7.19                         | 7.24                         | 0.79                 | 5.00                        | 16.53                                    | Passed      |

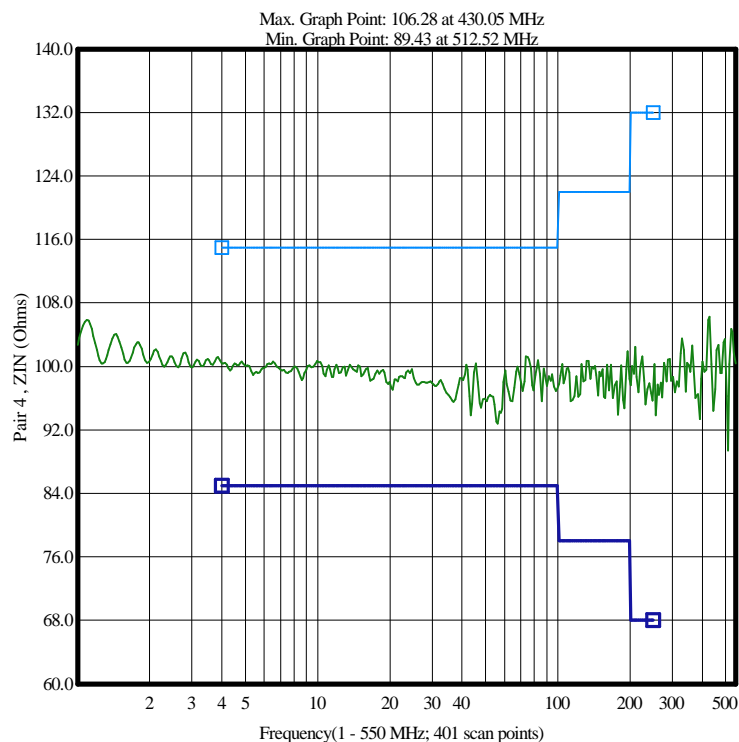
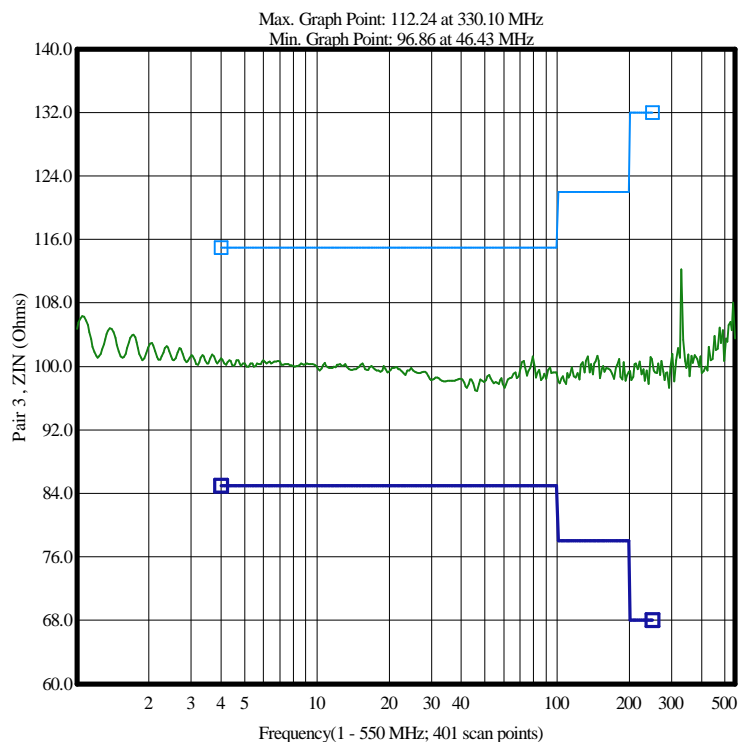
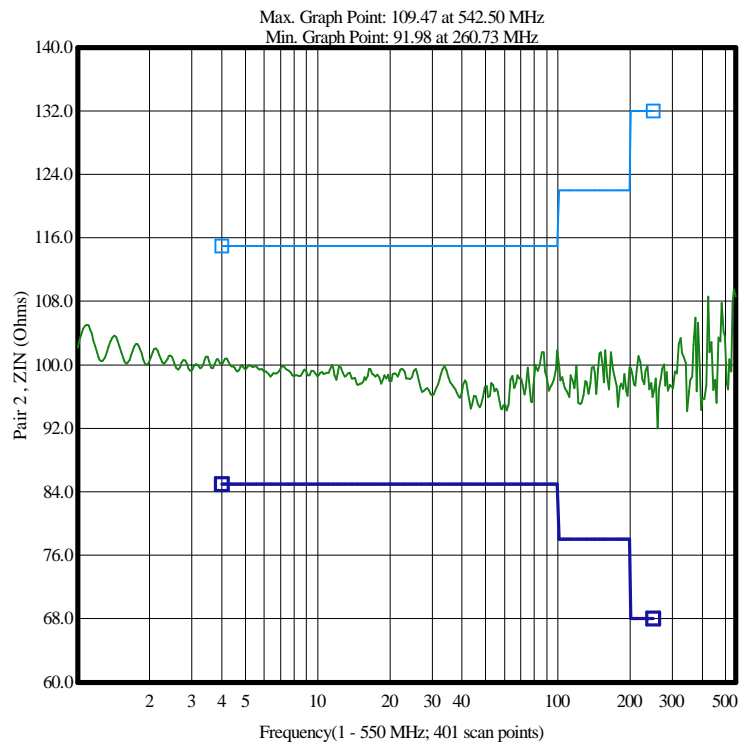
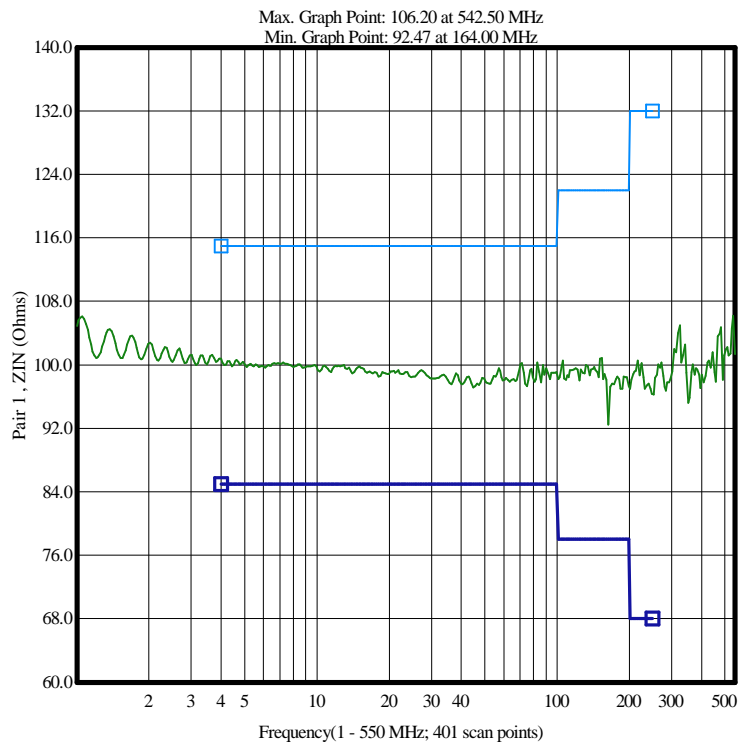
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### Summary and Graphic: Input Impedance (Zin)(Terminated)

| Pair        | Specification |         | Measured(Ohms) |         | Margin (Ohms) |         | @ Frequency (MHz) |         | Test Result |
|-------------|---------------|---------|----------------|---------|---------------|---------|-------------------|---------|-------------|
|             | Minimum       | Maximum | Minimum        | Maximum | Minimum       | Maximum | Minimum           | Maximum |             |
| Pair 1 [13] | 85.00         | 115.00  | 97.13          | 100.64  | 12.13         | 14.36   | 44.78             | 4.64    | Passed      |
| Pair 2 [14] | 85.00         | 115.00  | 94.25          | 101.83  | 9.25          | 13.17   | 61.39             | 99.64   | Passed      |
| Pair 3 [15] | 85.00         | 115.00  | 96.86          | 101.26  | 11.86         | 13.74   | 46.43             | 79.46   | Passed      |
| Pair 4 [16] | 85.00         | 115.00  | 92.76          | 101.28  | 7.76          | 13.72   | 56.31             | 73.81   | Passed      |



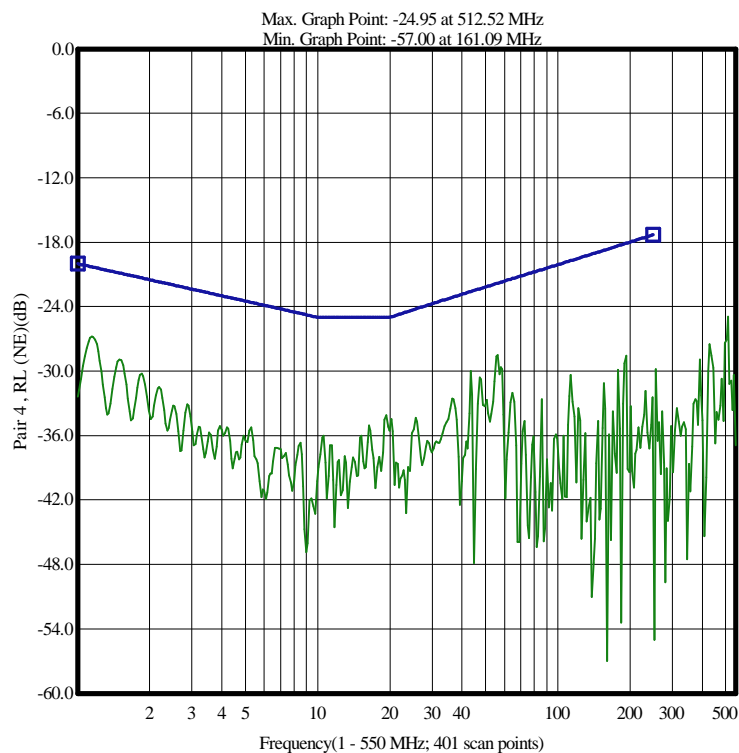
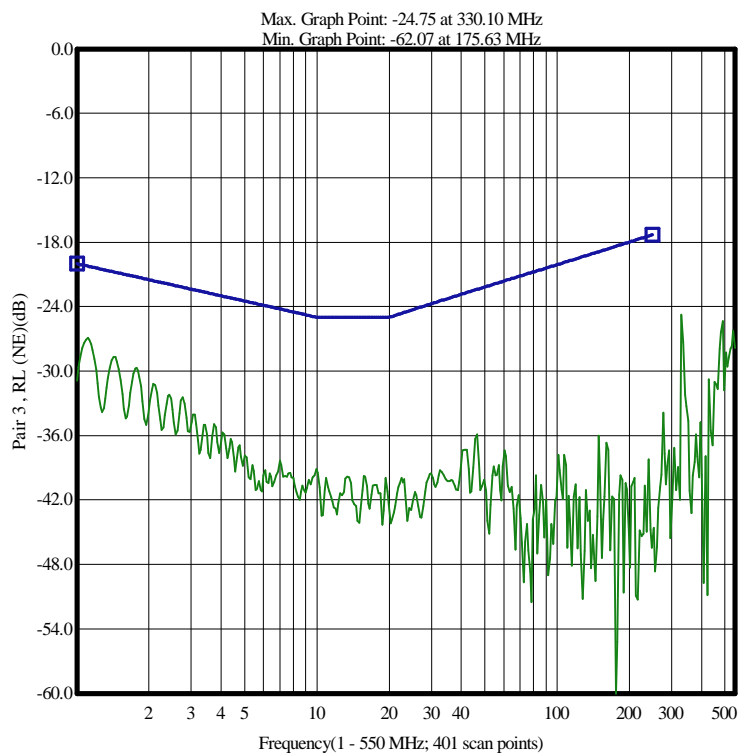
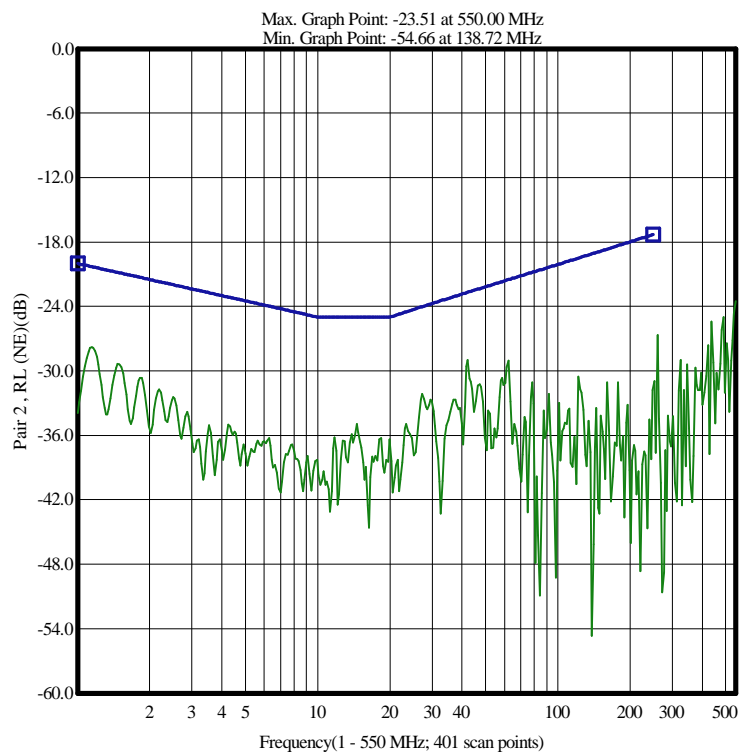
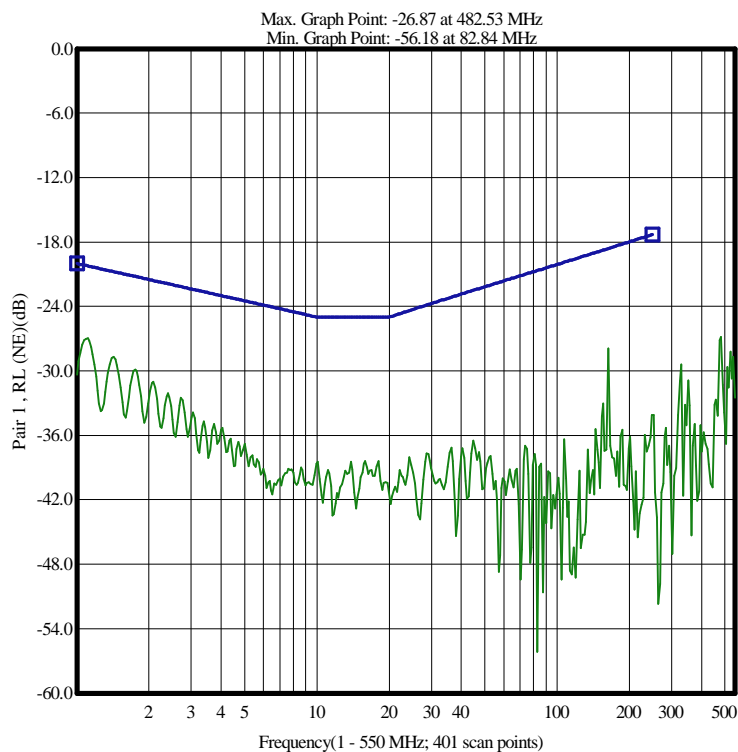
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### Summary and Graphic: Return Loss (RL)

| Pair        | Spec (Min)(dB) | Measured(dB) | Margin (dB) | @ Frequency (MHz) | Test Result |
|-------------|----------------|--------------|-------------|-------------------|-------------|
| Pair 1 [13] | 20.23          | 26.95        | 6.72        | 1.11              | Passed      |
| Pair 2 [14] | 22.68          | 28.96        | 6.28        | 42.28             | Passed      |
| Pair 3 [15] | 20.23          | 26.93        | 6.70        | 1.11              | Passed      |
| Pair 4 [16] | 20.30          | 26.79        | 6.49        | 1.15              | Passed      |



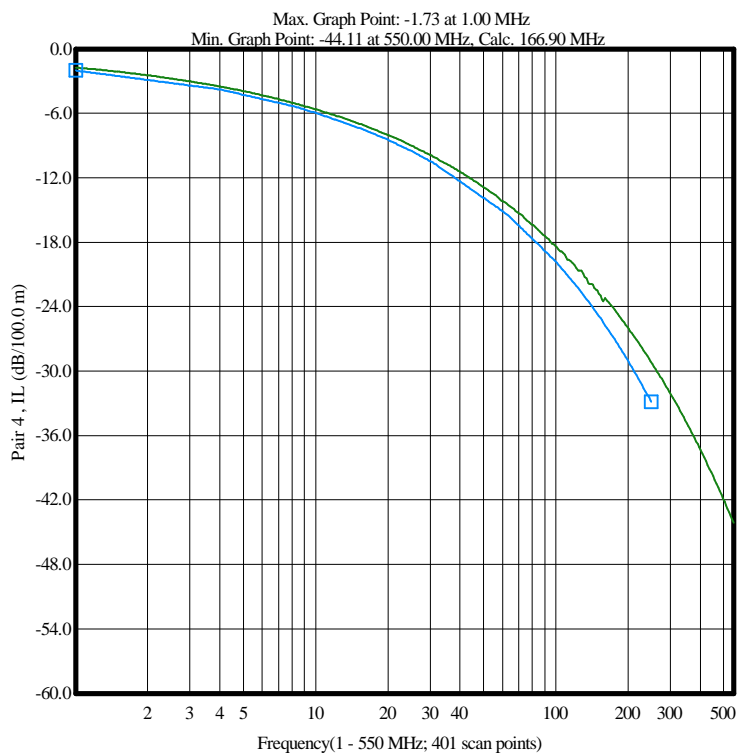
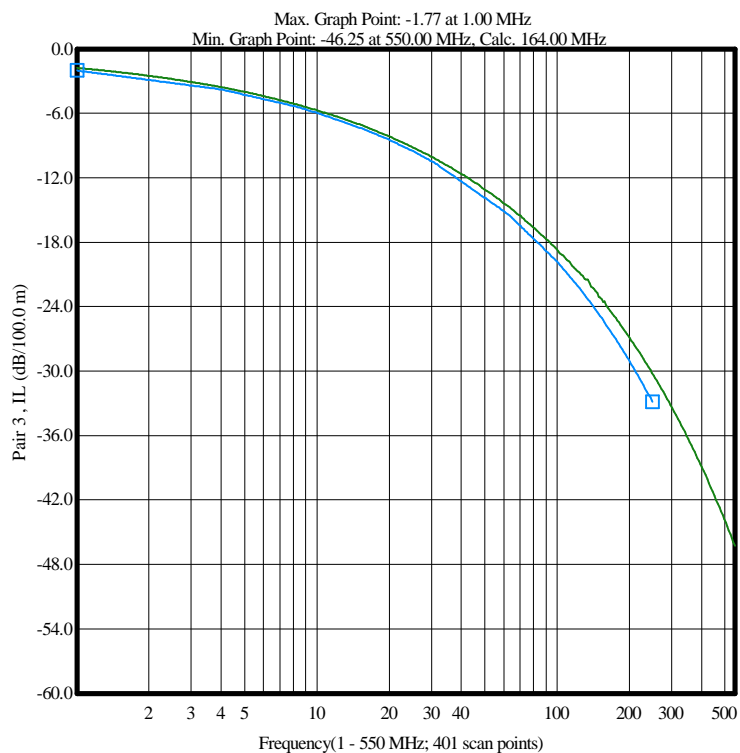
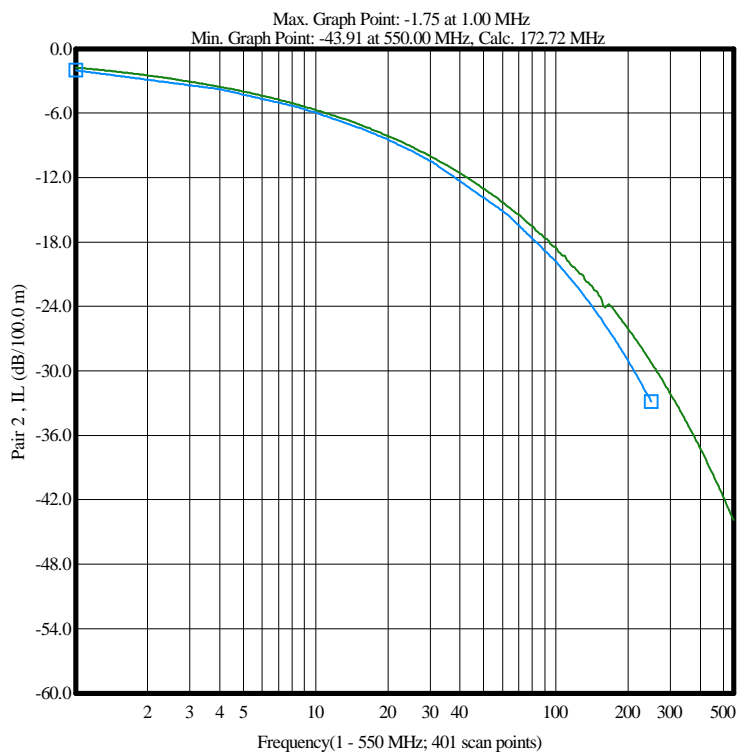
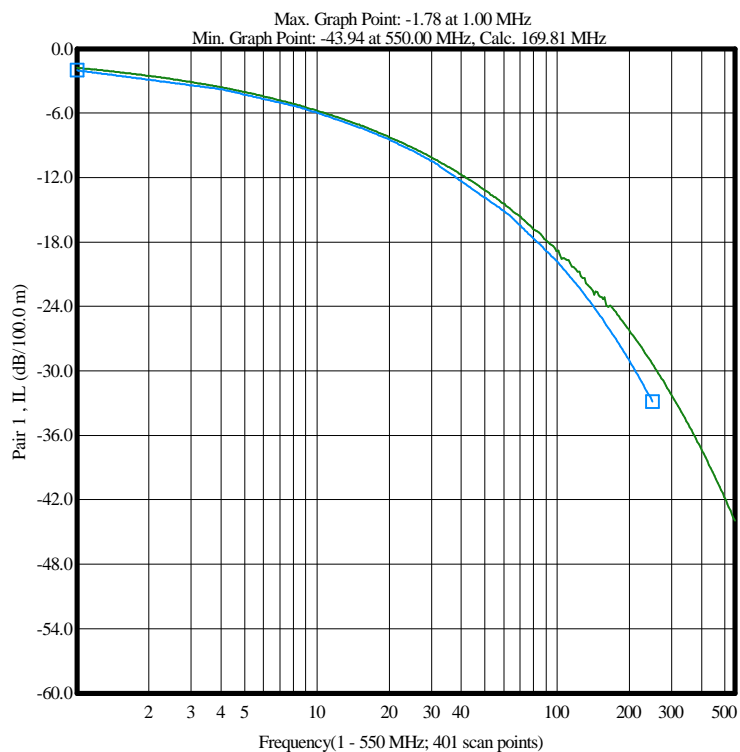
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Summary and Graphic: Insertion Loss (IL)(Curve Fit)@20C

| Pair        | Spec (Max)(dB/100.0 m) | Measured(dB/100.0 m) | Margin (dB/100.0 m) | @ Frequency (MHz) | Test Result |
|-------------|------------------------|----------------------|---------------------|-------------------|-------------|
| Pair 1 [13] | 5.68                   | 5.51                 | 0.17                | 9.10              | Passed      |
| Pair 2 [14] | 3.78                   | 3.55                 | 0.23                | 3.99              | Passed      |
| Pair 3 [15] | 5.48                   | 5.26                 | 0.22                | 8.47              | Passed      |
| Pair 4 [16] | 3.78                   | 3.51                 | 0.27                | 3.99              | Passed      |



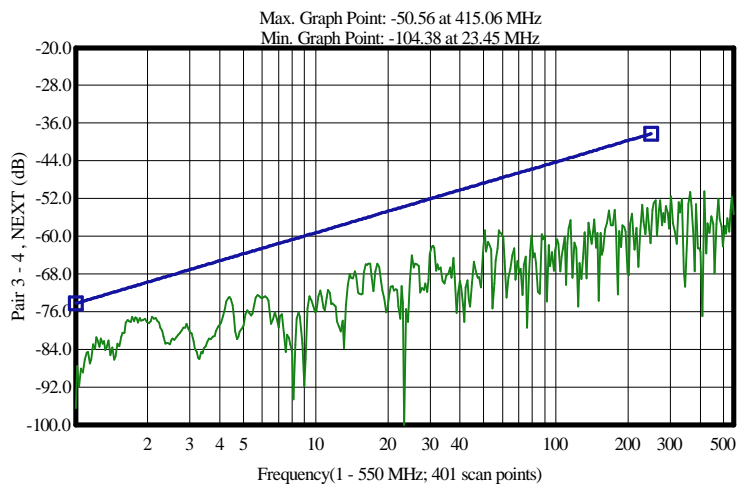
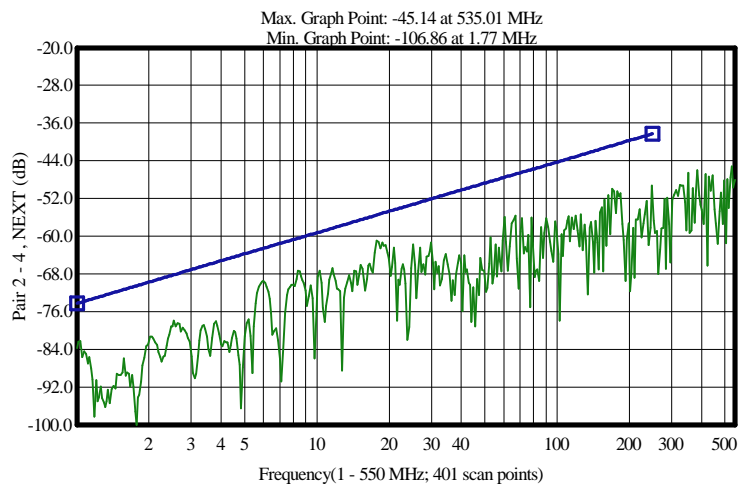
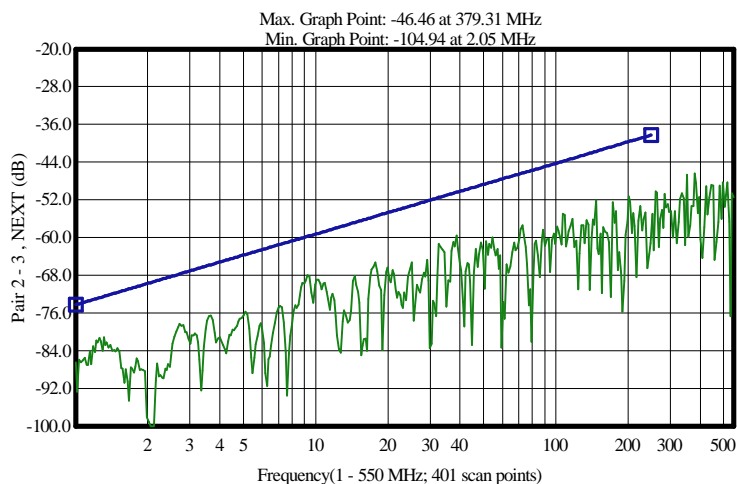
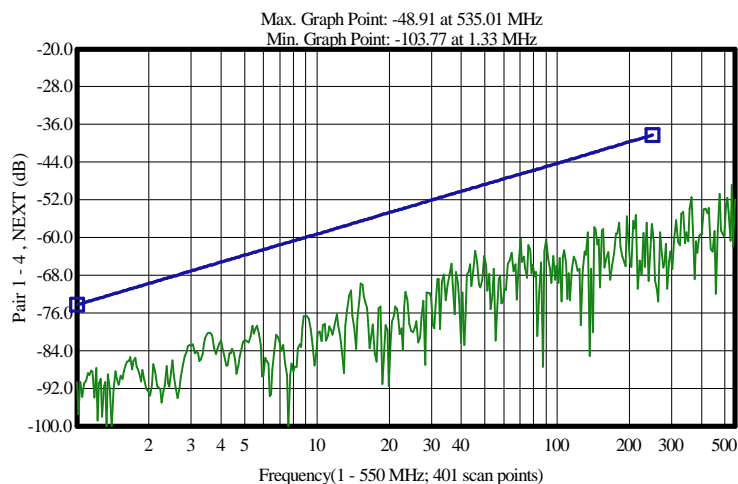
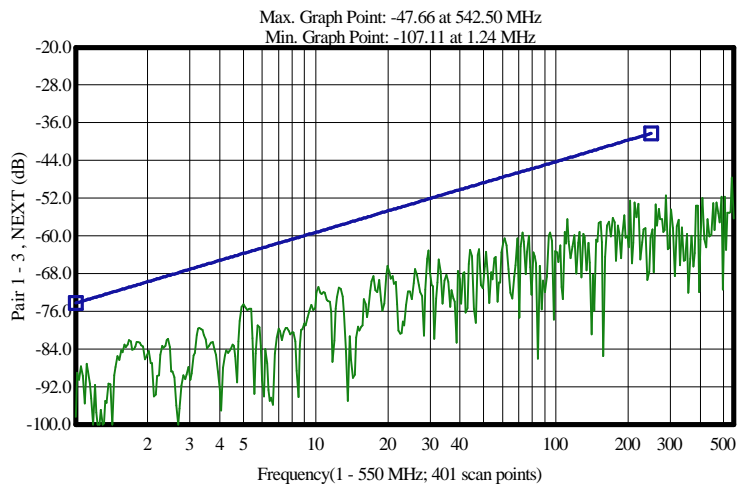
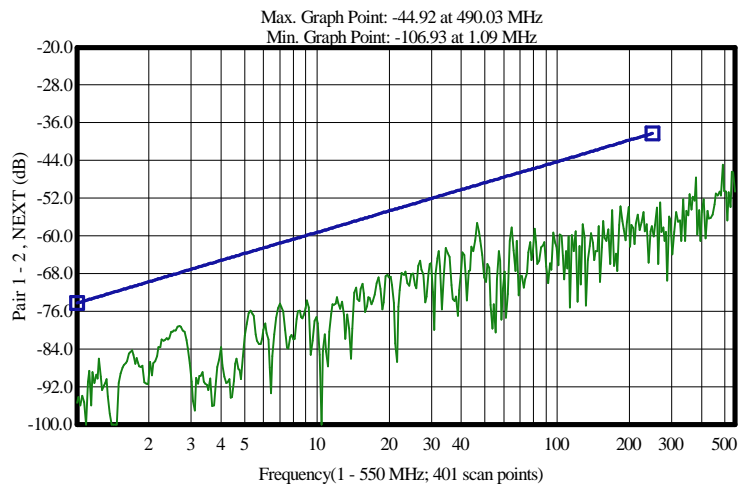
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### Summary and Graphic: Near End Crosstalk Loss (NEXT)

| Pair       | Spec (Min)(dB) | Measured(dB) | Margin (dB) | @ Frequency (MHz) | Test Result |
|------------|----------------|--------------|-------------|-------------------|-------------|
| Pair 1 - 2 | 49.23          | 57.30        | 8.07        | 46.43             | Passed      |
| Pair 1 - 3 | 63.72          | 74.60        | 10.88       | 5.02              | Passed      |
| Pair 1 - 4 | 56.52          | 69.76        | 13.24       | 15.23             | Passed      |
| Pair 2 - 3 | 59.78          | 68.07        | 8.29        | 9.27              | Passed      |
| Pair 2 - 4 | 55.51          | 60.91        | 5.40        | 17.74             | Passed      |
| Pair 3 - 4 | 70.72          | 77.16        | 6.44        | 1.72              | Passed      |



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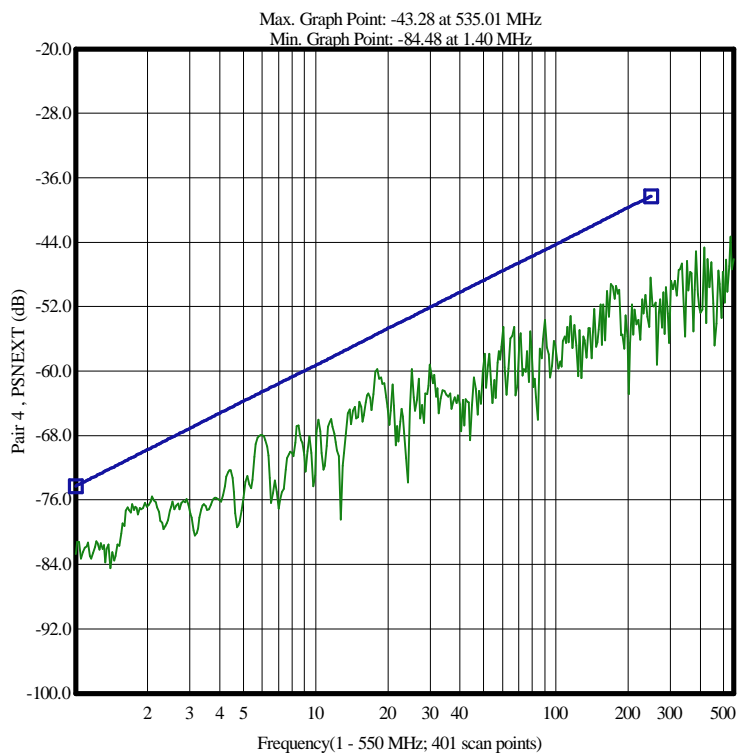
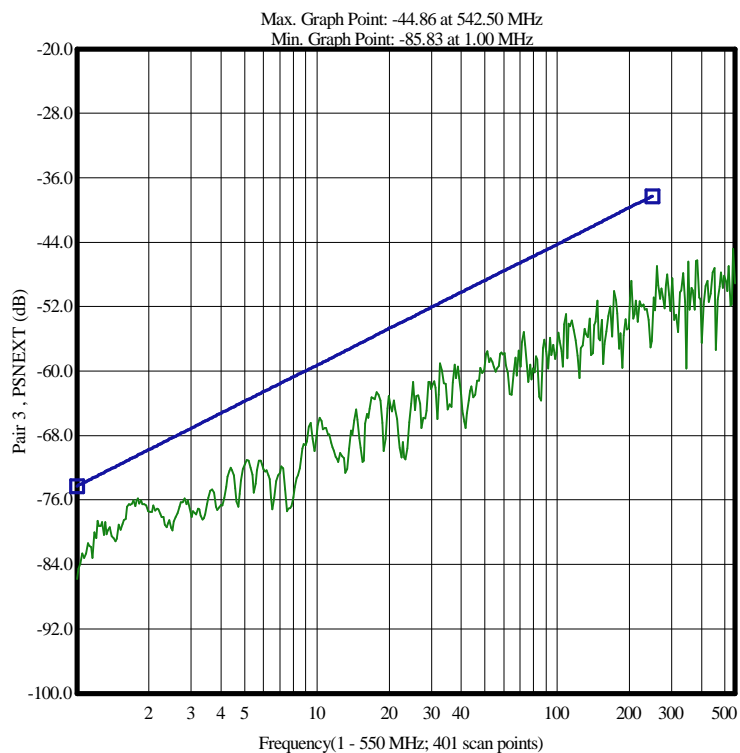
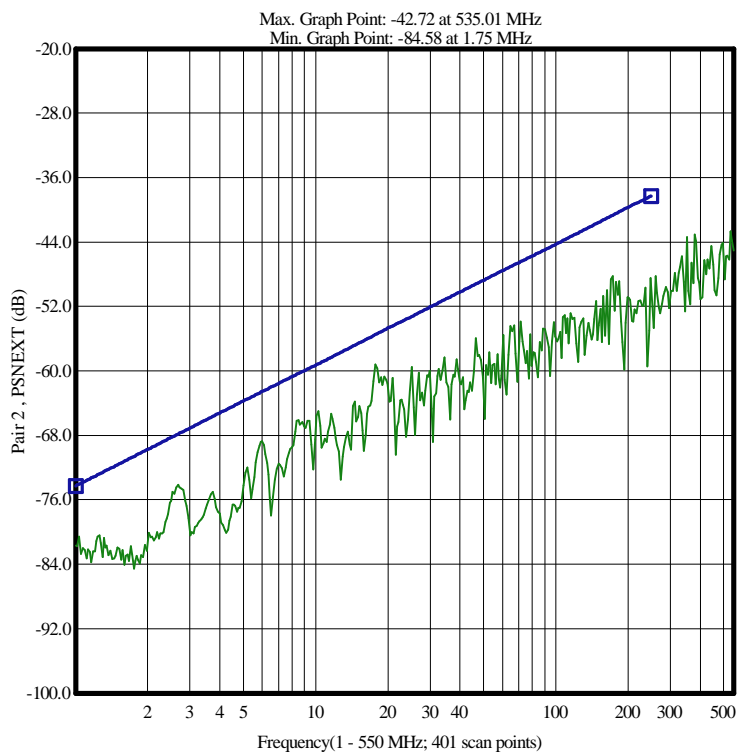
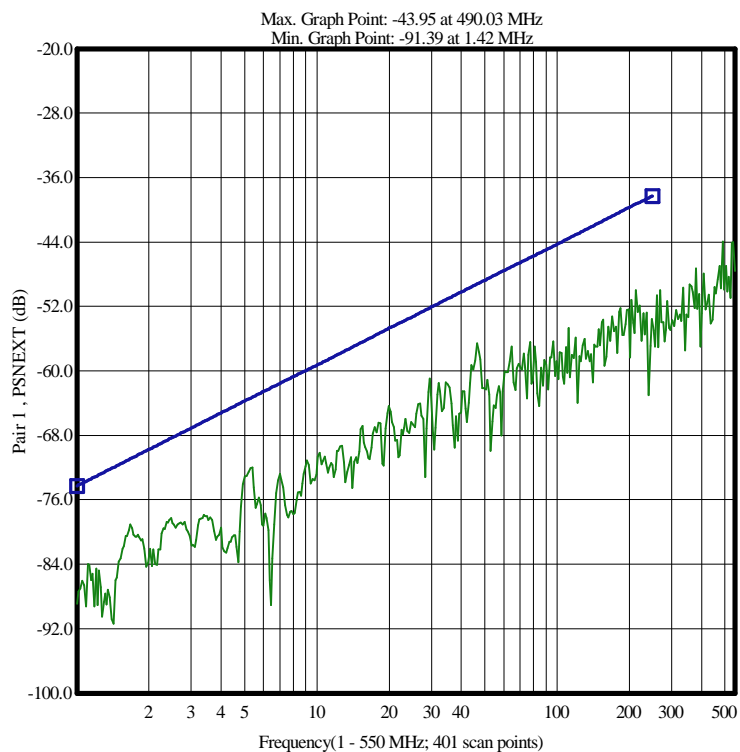
\* = Measured value out of spec.  
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### Summary and Graphic: Power Sum NEXT(PSNEXT)

| Pair        | Spec (Min)(dB) | Measured(dB) | Margin (dB) | @ Frequency (MHz) | Test Result |
|-------------|----------------|--------------|-------------|-------------------|-------------|
| Pair 1 [13] | 49.23          | 56.62        | 7.39        | 46.43             | Passed      |
| Pair 2 [14] | 55.51          | 59.17        | 3.66        | 17.74             | Passed      |
| Pair 3 [15] | 70.72          | 76.07        | 5.35        | 1.72              | Passed      |
| Pair 4 [16] | 55.39          | 59.78        | 4.39        | 18.06             | Passed      |



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**Detail Discrete Frequencies ---Input Impedance (Zin)(Ohms)(Terminated)**

|             |        |        |        |        |        |        |        |        |        |        |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Frequency   | 4.00   | 8.00   | 10.00  | 16.00  | 20.00  | 25.00  | 31.25  | 62.50  | 99.90  | 100.00 |
| Max Spec    | 115.00 | 115.00 | 115.00 | 115.00 | 115.00 | 115.00 | 115.00 | 115.00 | 115.00 | 122.00 |
| Min Spec    | 85.00  | 85.00  | 85.00  | 85.00  | 85.00  | 85.00  | 85.00  | 85.00  | 85.00  | 78.00  |
| Pair 1 [13] | 100.65 | 99.74  | 99.61  | 99.09  | 98.88  | 98.46  | 98.29  | 98.10  | 98.92  | 98.86  |
| Pair 2 [14] | 100.07 | 98.60  | 98.63  | 98.25  | 97.93  | 98.96  | 97.04  | 94.95  | 101.50 | 101.37 |
| Pair 3 [15] | 101.00 | 100.02 | 99.90  | 99.62  | 99.36  | 99.55  | 98.57  | 98.33  | 99.03  | 98.96  |
| Pair 4 [16] | 100.37 | 99.95  | 100.62 | 99.68  | 97.91  | 98.84  | 97.51  | 96.81  | 97.25  | 97.30  |

**Continue:Input Impedance (Zin)(Ohms)(Terminated)**

|             |        |        |        |        |        |  |  |  |  |  |
|-------------|--------|--------|--------|--------|--------|--|--|--|--|--|
| Frequency   | 125.00 | 155.00 | 199.90 | 200.00 | 250.00 |  |  |  |  |  |
| Max Spec    | 122.00 | 122.00 | 122.00 | 132.00 | 132.00 |  |  |  |  |  |
| Min Spec    | 78.00  | 78.00  | 78.00  | 68.00  | 68.00  |  |  |  |  |  |
| Pair 1 [13] | 98.73  | 99.06  | 97.21  | 97.20  | 96.32  |  |  |  |  |  |
| Pair 2 [14] | 95.12  | 98.53  | 99.60  | 99.60  | 96.25  |  |  |  |  |  |
| Pair 3 [15] | 99.35  | 99.96  | 99.33  | 99.34  | 100.51 |  |  |  |  |  |
| Pair 4 [16] | 98.52  | 97.29  | 98.15  | 98.12  | 97.11  |  |  |  |  |  |

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

|             |       |       |       |       |       |       |       |       |       |        |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Frequency   | 1.00  | 4.00  | 8.00  | 10.00 | 16.00 | 20.00 | 25.00 | 31.25 | 62.50 | 100.00 |
| Min Spec    | 20.00 | 23.00 | 24.50 | 25.00 | 25.00 | 25.00 | 24.30 | 23.60 | 21.50 | 20.10  |
| Pair 1 [13] | 30.36 | 35.46 | 39.62 | 38.56 | 38.59 | 41.39 | 39.26 | 40.45 | 40.35 | 41.16  |
| Pair 2 [14] | 33.94 | 37.54 | 37.56 | 38.79 | 40.15 | 36.62 | 37.36 | 36.48 | 29.07 | 37.85  |
| Pair 3 [15] | 30.92 | 36.45 | 40.08 | 39.27 | 40.15 | 42.65 | 42.30 | 40.80 | 40.61 | 40.87  |
| Pair 4 [16] | 32.39 | 35.59 | 40.05 | 39.76 | 38.14 | 35.42 | 35.55 | 36.54 | 35.74 | 36.89  |

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

|             |        |        |  |  |  |  |  |  |  |  |
|-------------|--------|--------|--|--|--|--|--|--|--|--|
| Frequency   | 200.00 | 250.00 |  |  |  |  |  |  |  |  |
| Min Spec    | 18.00  | 17.30  |  |  |  |  |  |  |  |  |
| Pair 1 [13] | 36.78  | 34.12  |  |  |  |  |  |  |  |  |
| Pair 2 [14] | 41.76  | 31.52  |  |  |  |  |  |  |  |  |
| Pair 3 [15] | 46.09  | 45.86  |  |  |  |  |  |  |  |  |
| Pair 4 [16] | 37.12  | 39.47  |  |  |  |  |  |  |  |  |

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

|             |      |      |      |       |       |       |       |       |       |        |
|-------------|------|------|------|-------|-------|-------|-------|-------|-------|--------|
| Frequency   | 1.00 | 4.00 | 8.00 | 10.00 | 16.00 | 20.00 | 25.00 | 31.25 | 62.50 | 100.00 |
| Max Spec    | 2.02 | 3.78 | 5.32 | 5.95  | 7.55  | 8.47  | 9.50  | 10.67 | 15.38 | 19.79  |
| Pair 1 [13] | 1.78 | 3.61 | 5.15 | 5.78  | 7.33  | 8.23  | 9.23  | 10.34 | 14.72 | 18.83  |
| Pair 2 [14] | 1.75 | 3.56 | 5.08 | 5.70  | 7.23  | 8.13  | 9.11  | 10.22 | 14.59 | 18.51  |
| Pair 3 [15] | 1.77 | 3.57 | 5.11 | 5.73  | 7.27  | 8.16  | 9.15  | 10.25 | 14.63 | 18.68  |
| Pair 4 [16] | 1.73 | 3.52 | 5.02 | 5.63  | 7.15  | 8.03  | 9.00  | 10.09 | 14.41 | 18.36  |

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

|             |        |        |        |        |  |  |  |  |  |  |
|-------------|--------|--------|--------|--------|--|--|--|--|--|--|
| Frequency   | 125.00 | 155.00 | 200.00 | 250.00 |  |  |  |  |  |  |
| Max Spec    | 22.35  | 25.16  | 28.98  | 32.84  |  |  |  |  |  |  |
| Pair 1 [13] | 21.01  | 23.26  | 26.22  | 29.37  |  |  |  |  |  |  |
| Pair 2 [14] | 20.88  | 23.36  | 26.05  | 29.21  |  |  |  |  |  |  |
| Pair 3 [15] | 20.92  | 23.50  | 26.85  | 30.23  |  |  |  |  |  |  |
| Pair 4 [16] | 20.65  | 23.19  | 25.97  | 29.16  |  |  |  |  |  |  |

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

|            |       |       |       |       |       |       |       |       |       |        |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Frequency  | 1.00  | 4.00  | 8.00  | 10.00 | 16.00 | 20.00 | 25.00 | 31.25 | 62.50 | 100.00 |
| Min Spec   | 74.30 | 65.20 | 60.70 | 59.30 | 56.20 | 54.70 | 53.30 | 51.80 | 47.30 | 44.30  |
| Pair 1 - 2 | 95.48 | 84.44 | 82.01 | 77.76 | 75.72 | 68.75 | 68.02 | 68.77 | 72.48 | 63.19  |
| Pair 1 - 3 | 98.40 | 93.53 | 80.49 | 74.08 | 73.81 | 66.53 | 72.97 | 81.27 | 61.96 | 63.37  |
| Pair 1 - 4 | 90.68 | 82.15 | 88.27 | 82.79 | 74.08 | 90.35 | 80.01 | 74.91 | 65.70 | 66.78  |
| Pair 2 - 3 | 86.48 | 81.27 | 77.90 | 69.68 | 81.52 | 66.74 | 65.77 | 73.93 | 65.93 | 60.53  |
| Pair 2 - 4 | 83.72 | 83.06 | 70.41 | 73.48 | 70.70 | 65.23 | 63.40 | 65.80 | 67.24 | 59.90  |
| Pair 3 - 4 | 96.57 | 78.63 | 86.05 | 76.07 | 67.12 | 74.92 | 65.73 | 62.41 | 72.97 | 62.48  |

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

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

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

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

|            |        |        |        |  |  |  |  |  |  |  |
|------------|--------|--------|--------|--|--|--|--|--|--|--|
| Frequency  | 155.00 | 200.00 | 250.00 |  |  |  |  |  |  |  |
| Min Spec   | 41.40  | 39.70  | 38.30  |  |  |  |  |  |  |  |
| Pair 1 - 2 | 58.71  | 57.02  | 58.65  |  |  |  |  |  |  |  |
| Pair 1 - 3 | 59.90  | 60.90  | 59.88  |  |  |  |  |  |  |  |
| Pair 1 - 4 | 58.27  | 63.06  | 58.30  |  |  |  |  |  |  |  |
| Pair 2 - 3 | 67.63  | 54.59  | 59.31  |  |  |  |  |  |  |  |
| Pair 2 - 4 | 62.95  | 62.70  | 51.59  |  |  |  |  |  |  |  |
| Pair 3 - 4 | 62.39  | 67.86  | 59.31  |  |  |  |  |  |  |  |

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

|             |       |       |       |       |       |       |       |       |       |        |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Frequency   | 1.00  | 4.00  | 8.00  | 10.00 | 16.00 | 20.00 | 25.00 | 31.25 | 62.50 | 100.00 |
| Min Spec    | 74.30 | 65.20 | 60.70 | 59.30 | 56.20 | 54.70 | 53.30 | 51.80 | 47.30 | 44.30  |
| Pair 1 [13] | 88.92 | 79.92 | 77.77 | 72.03 | 69.65 | 64.46 | 66.60 | 67.23 | 60.15 | 59.33  |
| Pair 2 [14] | 81.69 | 77.93 | 69.44 | 67.44 | 69.23 | 61.88 | 60.45 | 63.52 | 62.91 | 55.87  |
| Pair 3 [15] | 85.83 | 76.64 | 75.47 | 67.63 | 66.12 | 63.28 | 62.23 | 62.04 | 60.22 | 57.14  |
| Pair 4 [16] | 82.74 | 76.06 | 70.20 | 70.97 | 64.94 | 64.70 | 61.33 | 60.57 | 62.89 | 57.20  |

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

|             |        |        |        |  |  |  |  |  |  |  |
|-------------|--------|--------|--------|--|--|--|--|--|--|--|
| Frequency   | 155.00 | 200.00 | 250.00 |  |  |  |  |  |  |  |
| Min Spec    | 41.40  | 39.70  | 38.30  |  |  |  |  |  |  |  |
| Pair 1 [13] | 53.77  | 54.61  | 54.00  |  |  |  |  |  |  |  |
| Pair 2 [14] | 55.04  | 50.89  | 49.59  |  |  |  |  |  |  |  |
| Pair 3 [15] | 57.33  | 53.28  | 54.60  |  |  |  |  |  |  |  |
| Pair 4 [16] | 55.10  | 58.37  | 49.47  |  |  |  |  |  |  |  |

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

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

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