

DCM Test Report

| | | |
|--------------------------------|-------------------------------------|---|
| Cable Type : 4x2x24 x PE/PVC | Factory Number : PHOENIX | Data File Name : DA186177.D3S |
| Cable I.D. : U/UTP#24X4P CABLE | Order Number : 5333 BL-30 240521550 | Specification File : CAT5e-305M.S3S |
| Temperature : 25.00 °C | Relative Humidity : 50 % | Test Date/Time : 05/17/2024 03:25:43 AM |
| Length : 305.00 m | Number of Pairs to Test : 4 | Operator : M 240516WE604004/3 |
| Starting Position : 9 | | 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: |
|------------|-----------|-------|

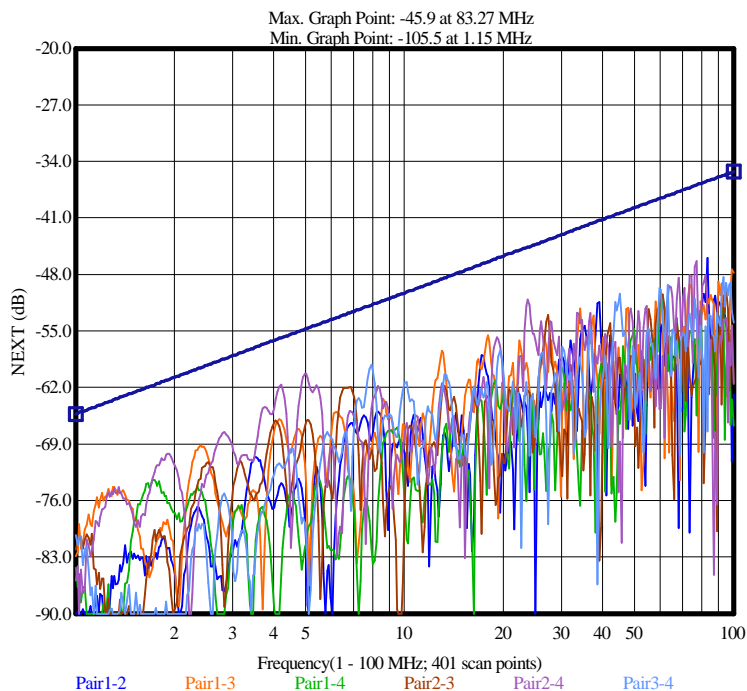
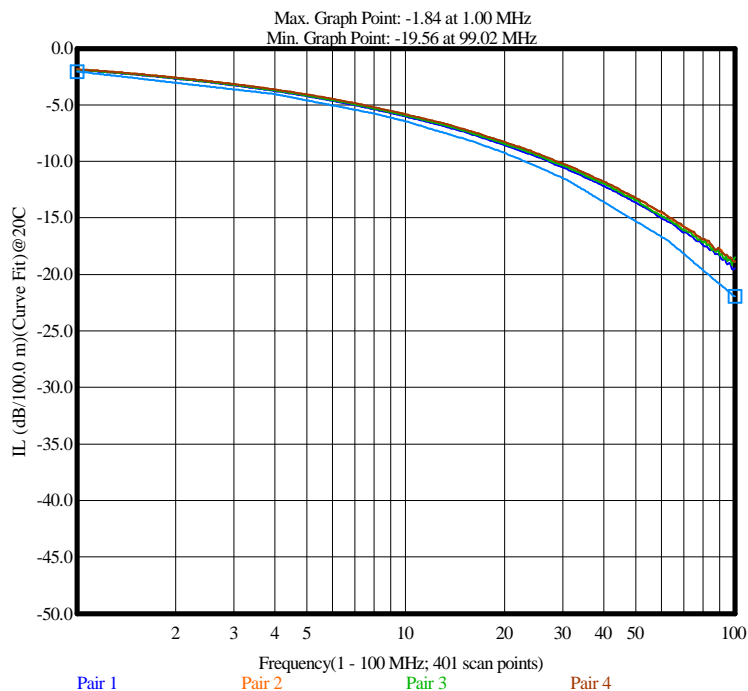
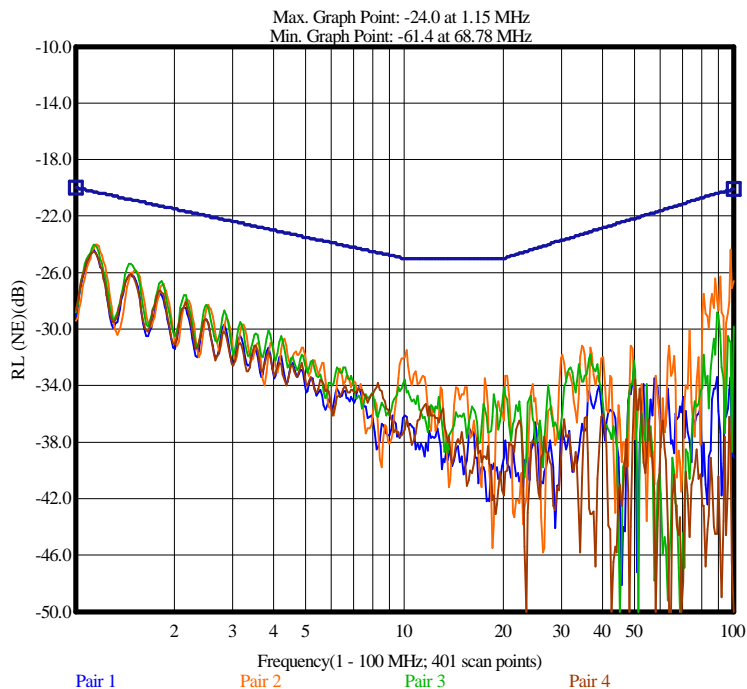
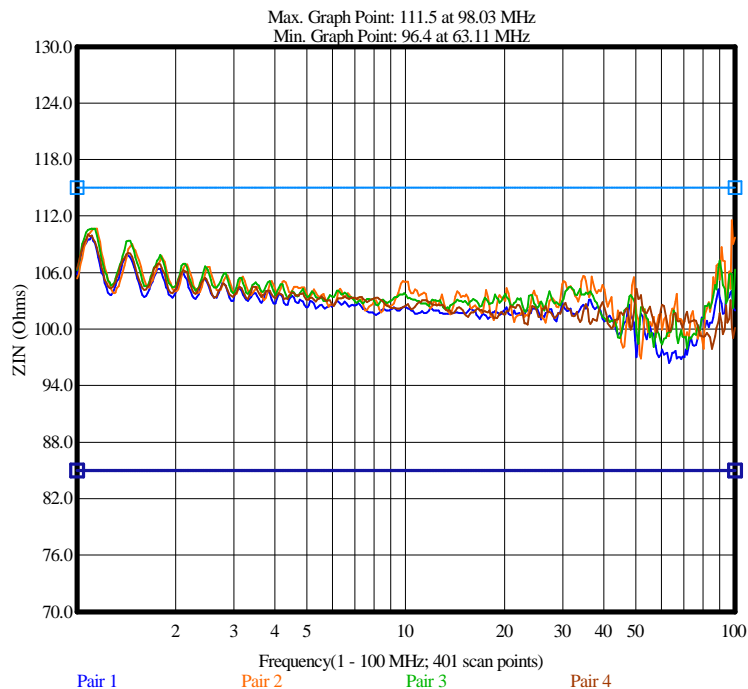
DCM Test Report

| | | |
|--------------------------------|-------------------------------------|---|
| Cable Type : 4x2x24 x PE/PVC | Factory Number : PHOENIX | Data File Name : DA186177.D3S |
| Cable I.D. : U/UTP#24X4P CABLE | Order Number : 5333 BL-30 240521550 | Specification File : CAT5e-305M.S3S |
| Temperature : 25.00 °C | Relative Humidity : 50 % | Test Date/Time : 05/17/2024 03:25:43 AM |
| Length : 305.00 m | Number of Pairs to Test : 4 | Operator : M 240516WE604004/3 |
| Starting Position : 9 | | Analyzer Type : ENA |

Worst Case Summary

High Frequency

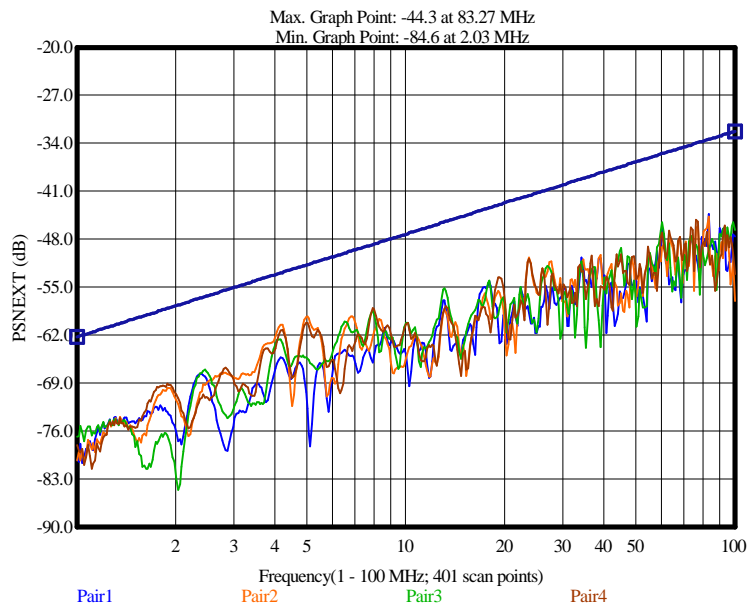
| Test Type | Specification | Measured (Pair) | Margin | @ Frequency (MHz) | Test Result |
|------------------------------------|---------------|------------------|--------|-------------------|-------------|
| Input Impedance (Zin)(Terminated) | 85.0 (Min) | 96.4 (Pair 1) | 11.4 | 63.11 | Passed |
| Input Impedance (Zin)(Terminated) | 115.0 (Max) | 111.5 (Pair 2) | 3.5 | 98.03 | Passed |
| Return Loss (RL) | 20.3 (Min) | 24.0 (Pair 2) | 3.7 | 1.15 | Passed |
| Insertion Loss (IL)(Curve Fit)@20C | 2.06 (Max) | 1.92 (Pair 1) | 0.14 | 1.01 | Passed |
| Near End Crosstalk Loss (NEXT) | 54.8 (Min) | 60.3 (Pairs 2-4) | 5.5 | 4.98 | Passed |
| Power Sum NEXT(PSNEXT) | 52.9 (Min) | 60.5 (Pair 2) | 7.6 | 4.16 | Passed |



N/A = Not Applicable.
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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 | 9.09 | xxx | 8.90 | xxx | 9.00 | xxx | 0.078 | Passed |
| Resistance Unbalance(%) | 5.00 | 0.19 | xxx | 0.03 | xxx | 0.10 | xxx | 0.059 | Passed |
| Mutual Capacitance(nF/100.0 m)@1000Hz | 5.60 | 4.91 | xxx | 4.79 | xxx | 4.84 | xxx | 0.054 | Passed |
| Cap. Unbalance to Ground(pF/100.0 m)@1000Hz | 330.00 | 21.89 | xxx | 6.82 | xxx | 11.88 | xxx | 5.993 | 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 [9] | 9.09 | 9.08 | 0.10 | 4.91 | -6.82 | Passed |
| Pair 2 [10] | 8.95 | 8.96 | 0.19 | 4.79 | 21.89 | Passed |
| Pair 3 [11] | 9.07 | 9.07 | 0.08 | 4.87 | -7.73 | Passed |
| Pair 4 [12] | 8.90 | 8.90 | 0.03 | 4.79 | -11.06 | Passed |

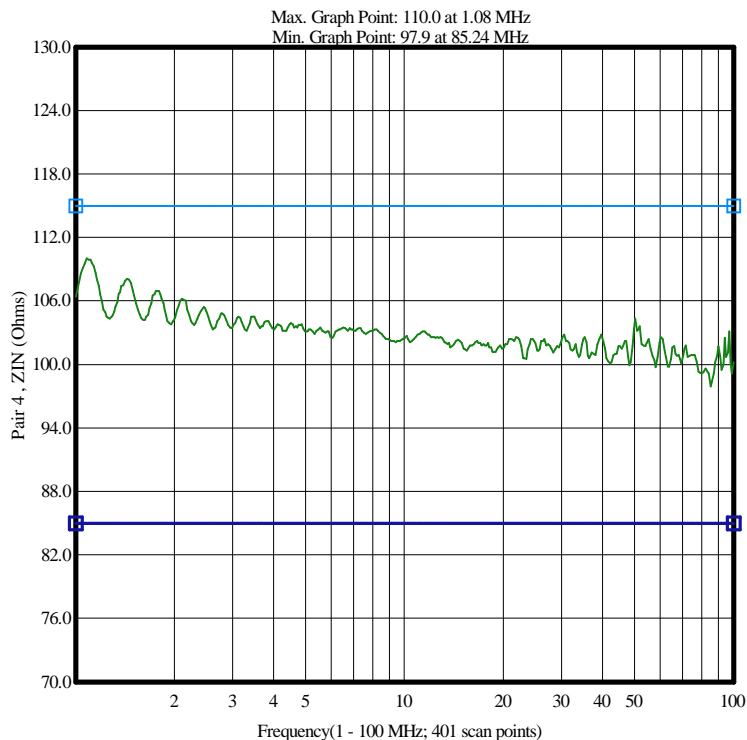
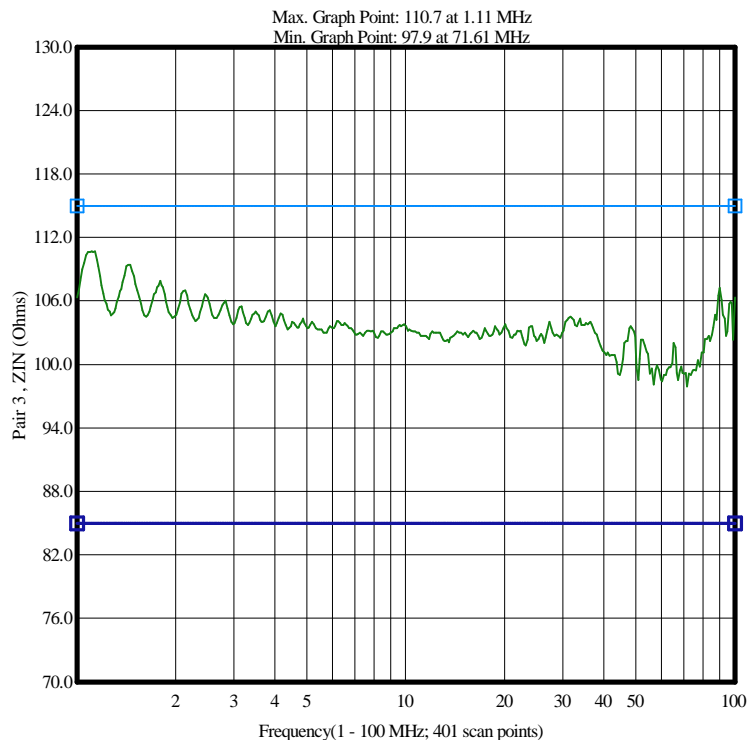
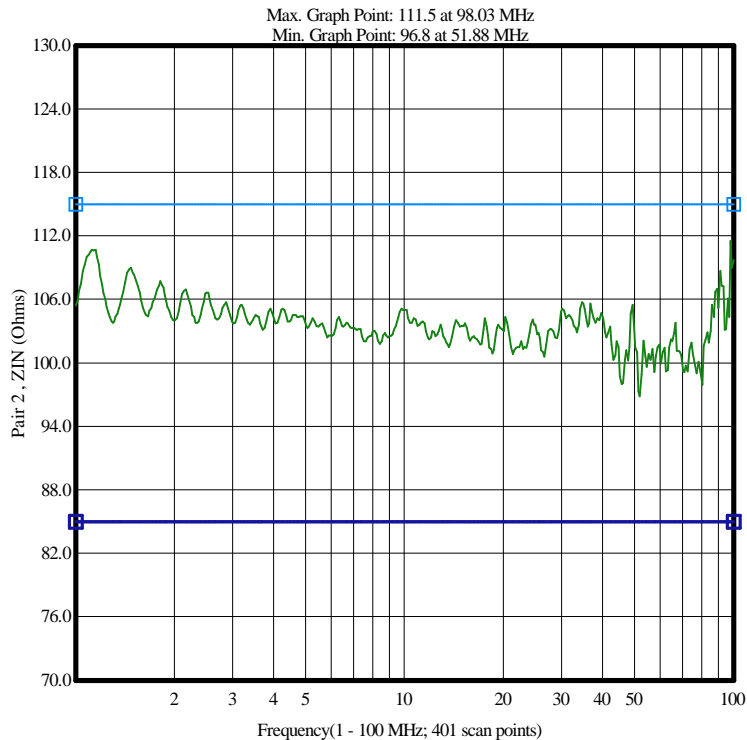
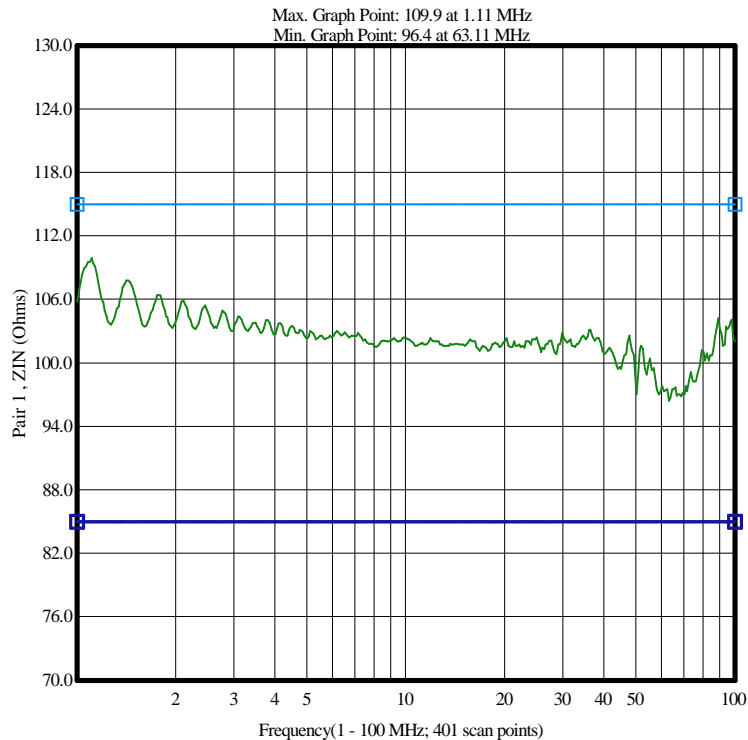
N/A = Not Applicable.
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Summary and Graphic: Input Impedance (Zin)(Terminated)

| Pair | Specification | | Measured(Ohms) | | Margin (Ohms) | | @ Frequency (MHz) | | Test Result |
|-------------|---------------|---------|----------------|---------|---------------|---------|-------------------|---------|-------------|
| | Minimum | Maximum | Minimum | Maximum | Minimum | Maximum | Minimum | Maximum | |
| Pair 1 [9] | 85.0 | 115.0 | 96.4 | 109.9 | 11.4 | 5.1 | 63.11 | 1.11 | Passed |
| Pair 2 [10] | 85.0 | 115.0 | 96.8 | 111.5 | 11.8 | 3.5 | 51.88 | 98.03 | Passed |
| Pair 3 [11] | 85.0 | 115.0 | 97.9 | 110.7 | 12.9 | 4.3 | 71.61 | 1.11 | Passed |
| Pair 4 [12] | 85.0 | 115.0 | 97.9 | 110.0 | 12.9 | 5.0 | 85.24 | 1.08 | Passed |



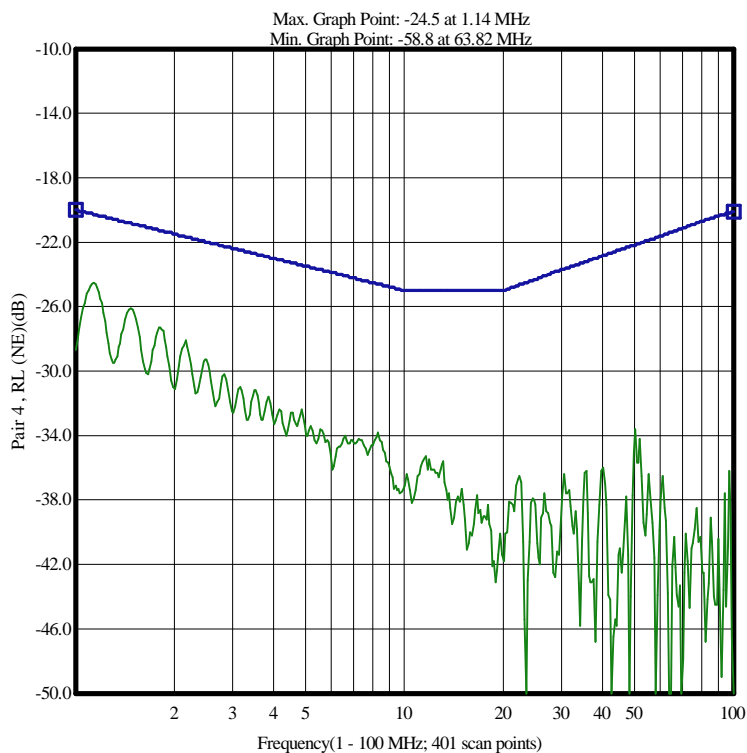
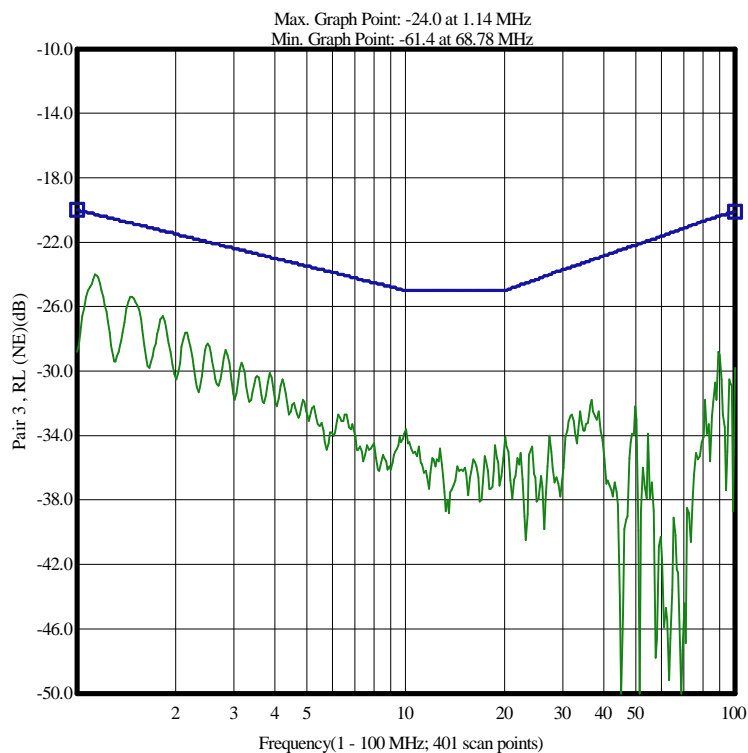
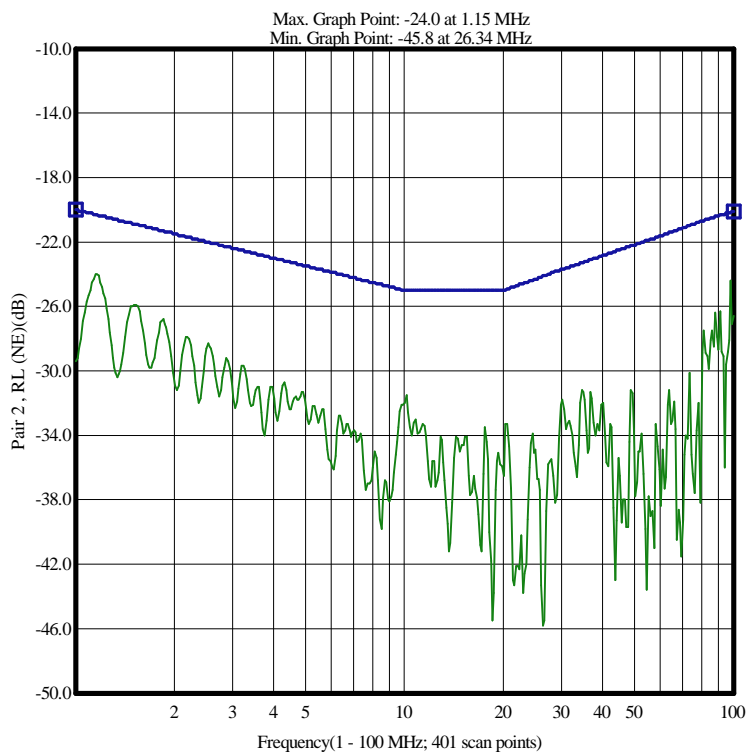
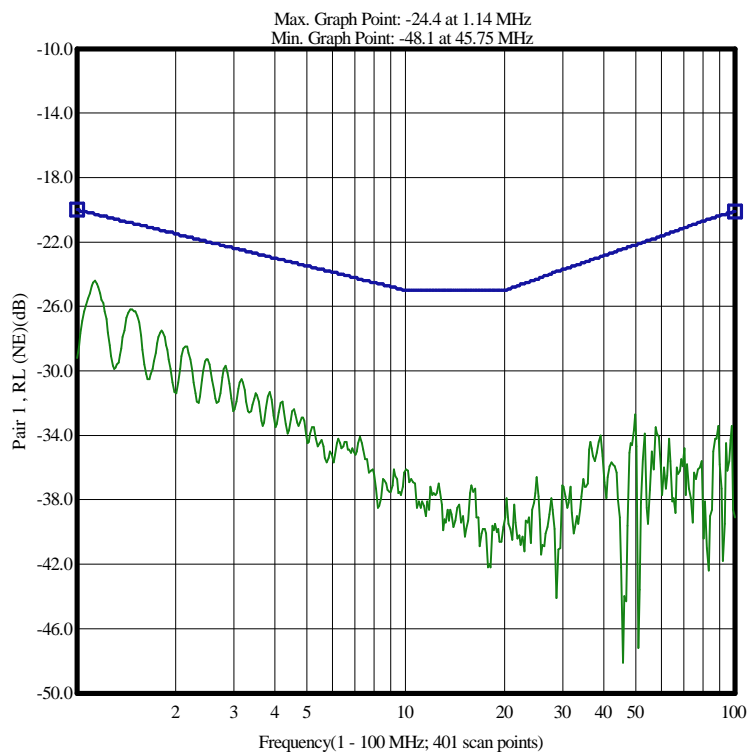
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Summary and Graphic: Return Loss (RL)

| Pair | Spec (Min)(dB) | Measured(dB) | Margin (dB) | @ Frequency (MHz) | Test Result |
|-------------|----------------|--------------|-------------|-------------------|-------------|
| Pair 1 [9] | 20.3 | 24.4 | 4.1 | 1.14 | Passed |
| Pair 2 [10] | 20.3 | 24.0 | 3.7 | 1.15 | Passed |
| Pair 3 [11] | 20.3 | 24.0 | 3.7 | 1.14 | Passed |
| Pair 4 [12] | 20.3 | 24.5 | 4.2 | 1.14 | Passed |



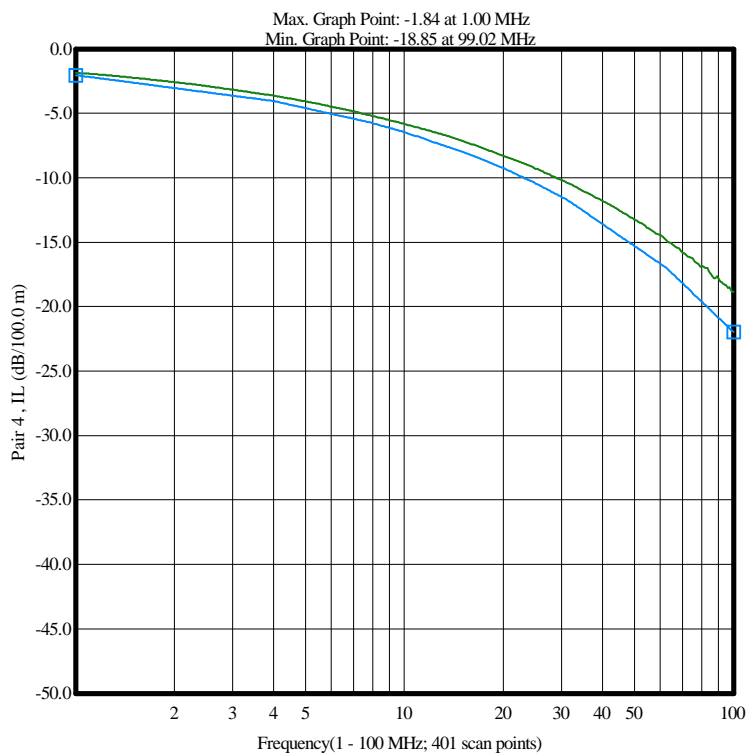
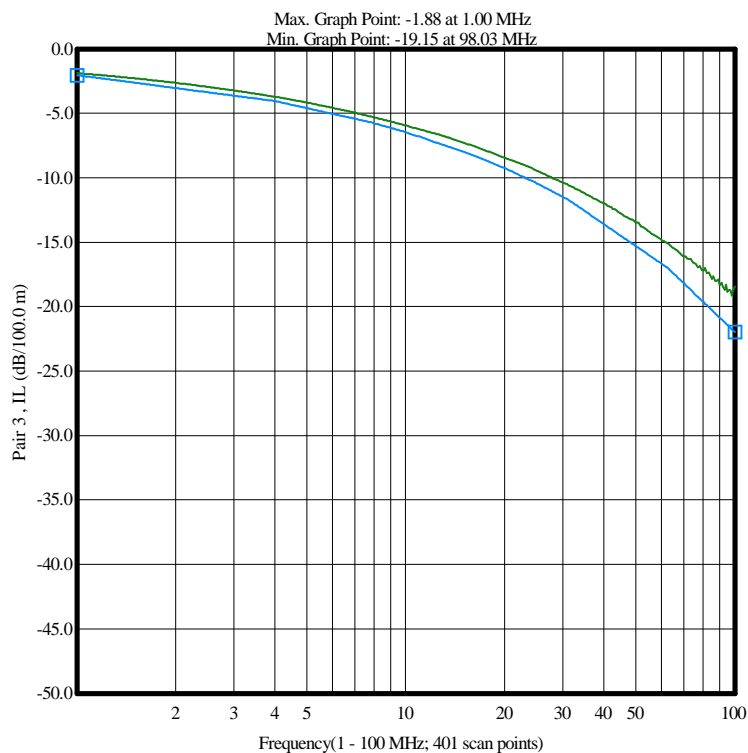
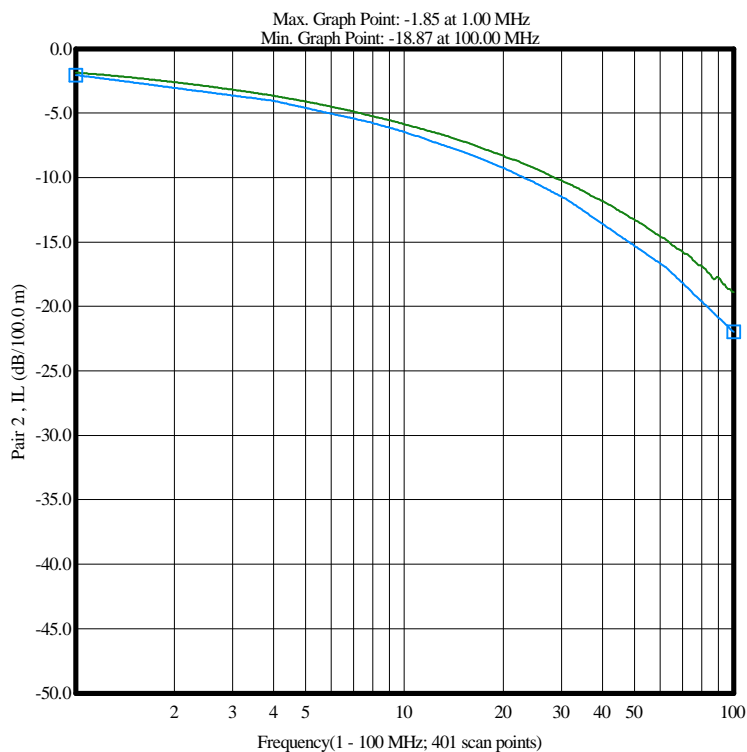
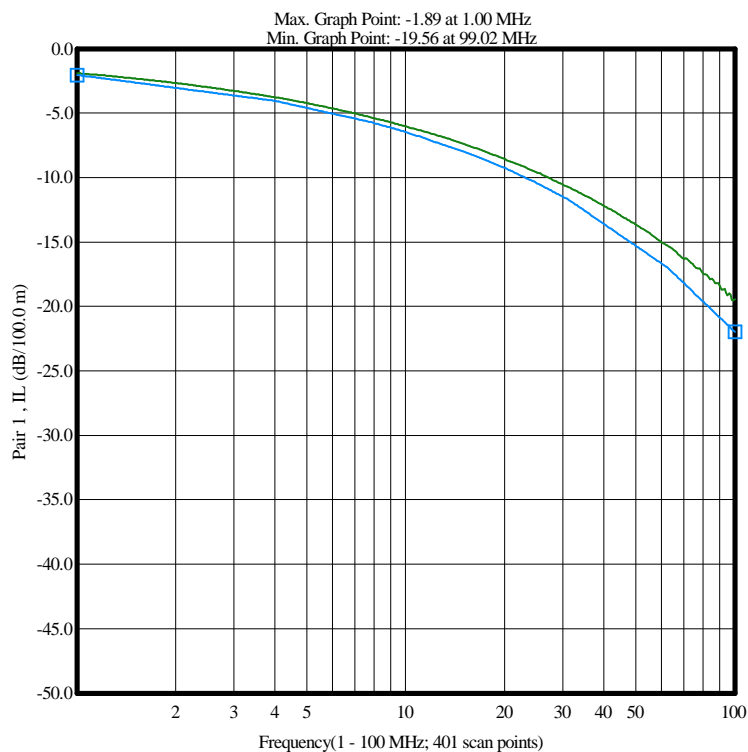
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Summary and Graphic: Insertion Loss (IL)(Curve Fit)@20C

| Pair | Spec (Max)(dB/100.0 m) | Measured(dB/100.0 m) | Margin (dB/100.0 m) | @ Frequency (MHz) | Test Result |
|-------------|------------------------|----------------------|---------------------|-------------------|-------------|
| Pair 1 [9] | 2.06 | 1.92 | 0.14 | 1.01 | Passed |
| Pair 2 [10] | 2.04 | 1.85 | 0.19 | 1.00 | Passed |
| Pair 3 [11] | 2.04 | 1.88 | 0.16 | 1.00 | Passed |
| Pair 4 [12] | 2.04 | 1.84 | 0.20 | 1.00 | Passed |



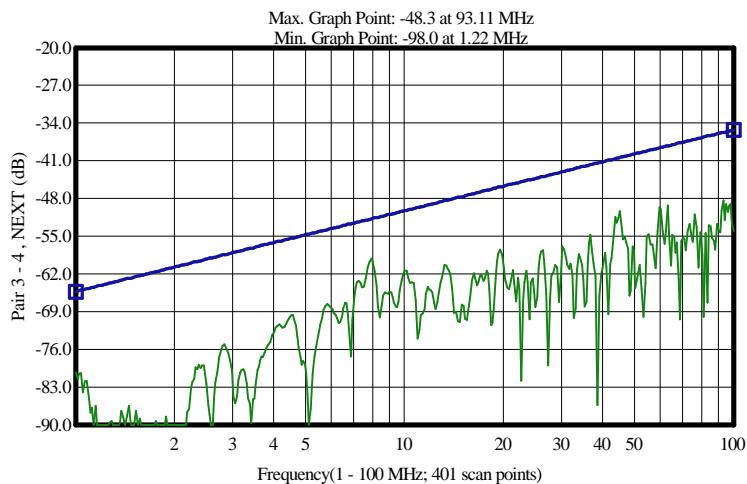
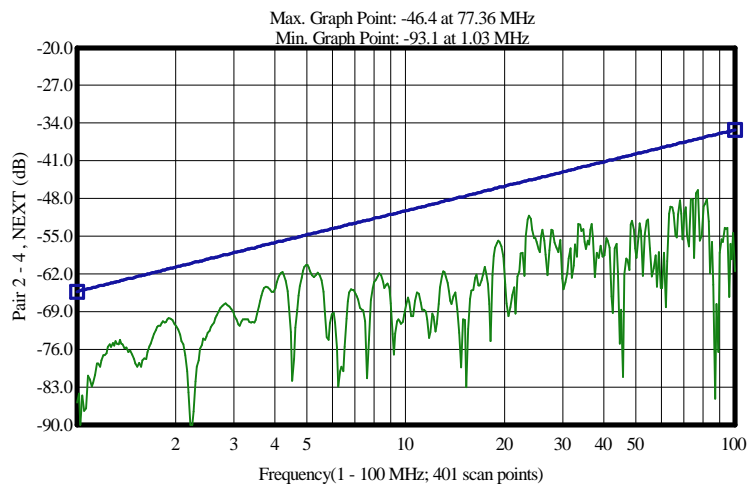
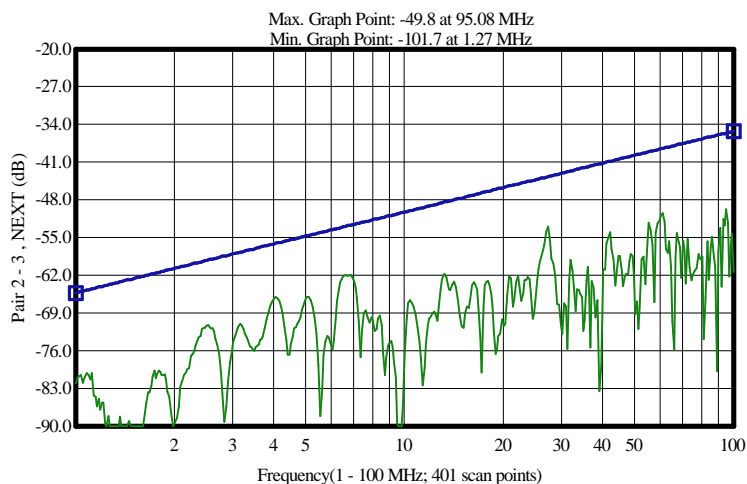
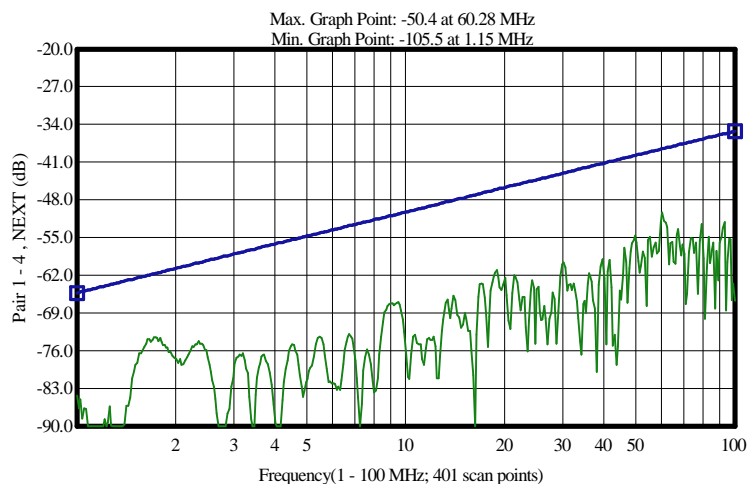
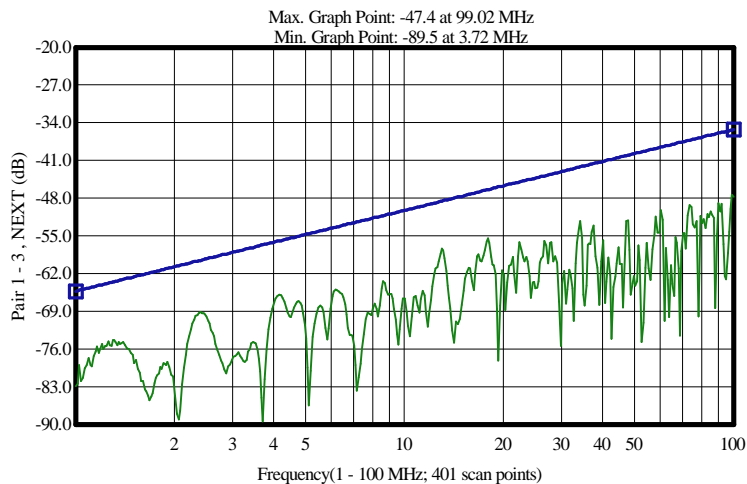
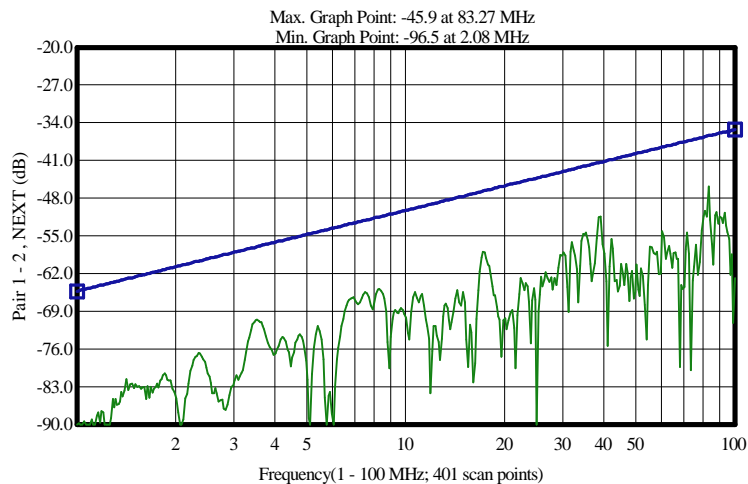
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Summary and Graphic: Near End Crosstalk Loss (NEXT)

| Pair | Spec (Min)(dB) | Measured(dB) | Margin (dB) | @ Frequency (MHz) | Test Result |
|------------|----------------|--------------|-------------|-------------------|-------------|
| Pair 1 - 2 | 36.4 | 45.9 | 9.5 | 83.27 | Passed |
| Pair 1 - 3 | 48.6 | 57.4 | 8.8 | 12.99 | Passed |
| Pair 1 - 4 | 61.8 | 73.5 | 11.7 | 1.72 | Passed |
| Pair 2 - 3 | 53.0 | 62.0 | 9.0 | 6.60 | Passed |
| Pair 2 - 4 | 54.8 | 60.3 | 5.5 | 4.98 | Passed |
| Pair 3 - 4 | 51.8 | 59.2 | 7.4 | 7.93 | Passed |



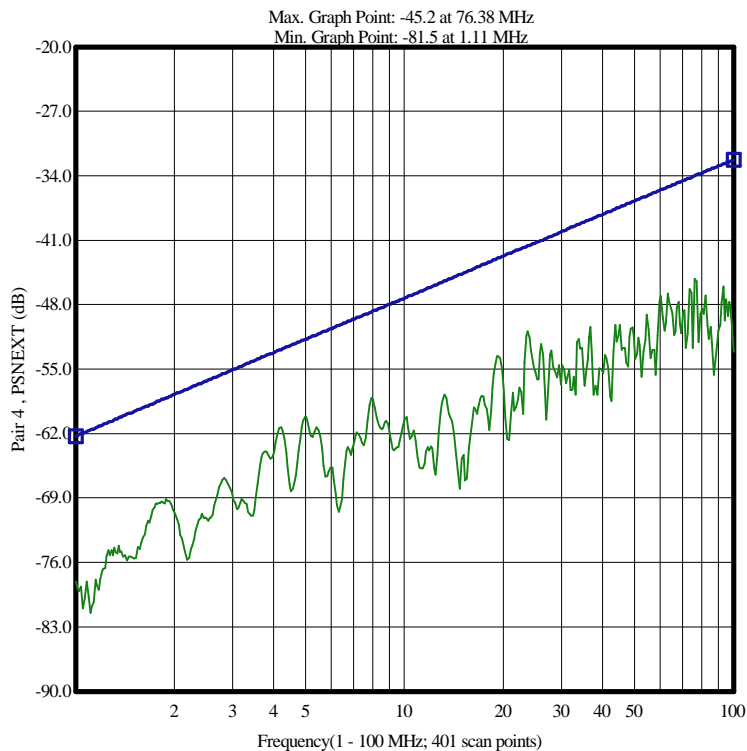
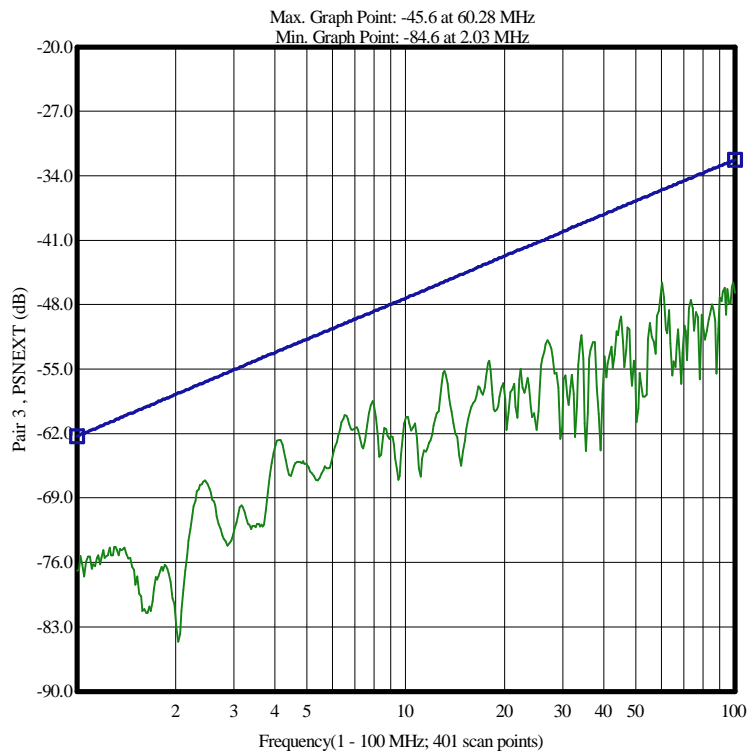
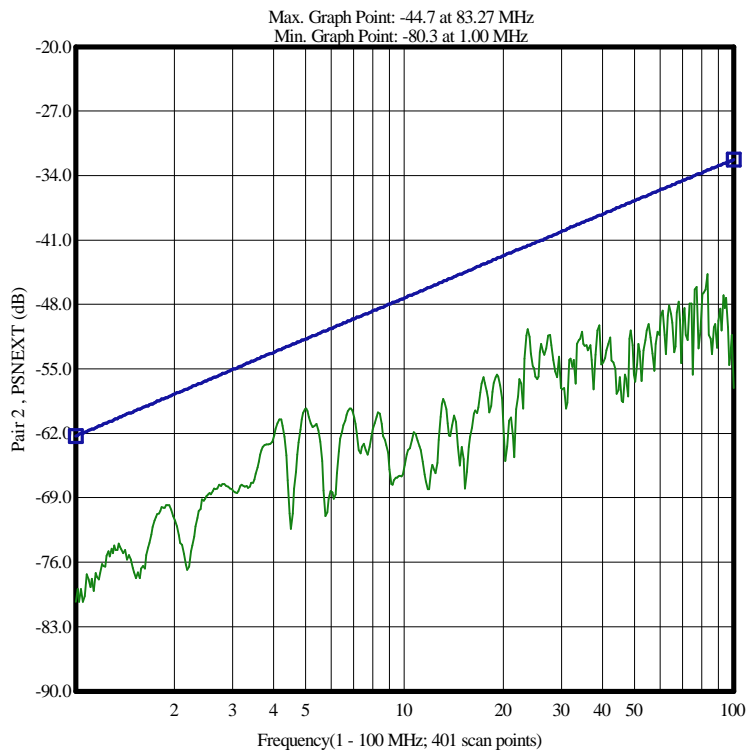
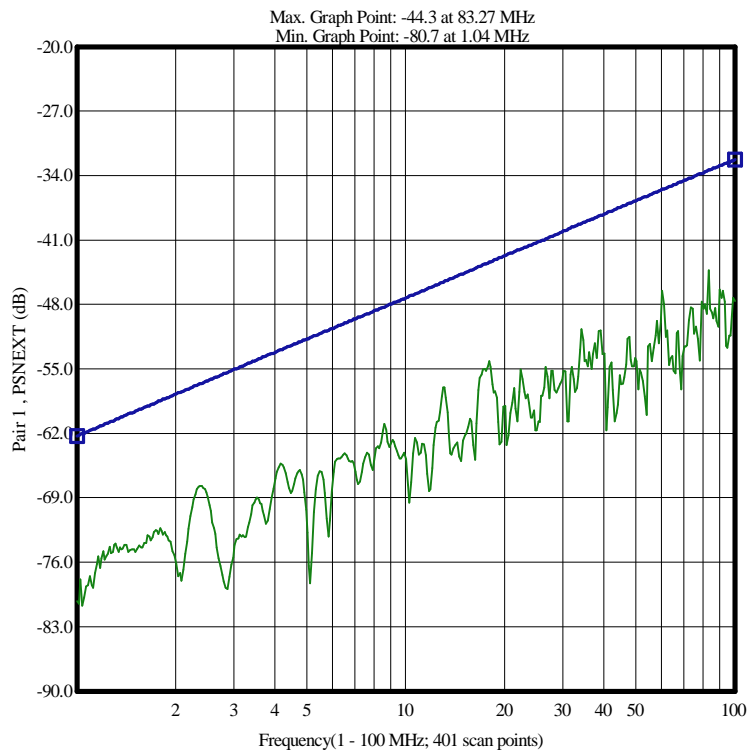
N/A = Not Applicable.
--- = Disable/Bypassed Pair.

* = 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 [9] | 43.4 | 54.2 | 10.8 | 17.95 | Passed |
| Pair 2 [10] | 52.9 | 60.5 | 7.6 | 4.16 | Passed |
| Pair 3 [11] | 53.1 | 62.8 | 9.7 | 4.06 | Passed |
| Pair 4 [12] | 52.9 | 61.3 | 8.4 | 4.22 | 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 [9] | 29.2 | 33.3 | 36.1 | 37.4 | 39.2 | 36.7 | 37.1 | 38.2 | 36.2 | 38.9 |
| Pair 2 [10] | 29.4 | 31.5 | 32.0 | 37.6 | 36.4 | 34.9 | 32.0 | 33.3 | 36.0 | 31.9 |
| Pair 3 [11] | 28.8 | 31.8 | 33.6 | 35.7 | 34.2 | 37.9 | 36.4 | 33.2 | 45.9 | 34.2 |
| Pair 4 [12] | 28.7 | 33.2 | 37.1 | 40.1 | 41.8 | 38.3 | 38.5 | 37.6 | 39.9 | 41.8 |

Continue:Return Loss (RL)(dB)

| | | | | | | | | | | |
|-------------|--------|--|--|--|--|--|--|--|--|--|
| Frequency | 100.00 | | | | | | | | | |
| Min Spec | 20.1 | | | | | | | | | |
| Pair 1 [9] | 39.1 | | | | | | | | | |
| Pair 2 [10] | 26.6 | | | | | | | | | |
| Pair 3 [11] | 29.8 | | | | | | | | | |
| Pair 4 [12] | 58.1 | | | | | | | | | |

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 | 2.04 | 4.05 | 5.76 | 6.46 | 8.24 | 9.26 | 10.42 | 11.72 | 16.99 | 21.97 |
| Pair 1 [9] | 1.89 | 3.77 | 5.39 | 6.04 | 7.64 | 8.58 | 9.58 | 10.75 | 15.30 | 19.45 |
| Pair 2 [10] | 1.85 | 3.66 | 5.24 | 5.87 | 7.42 | 8.34 | 9.31 | 10.44 | 14.83 | 18.87 |
| Pair 3 [11] | 1.88 | 3.72 | 5.32 | 5.95 | 7.52 | 8.45 | 9.44 | 10.57 | 15.10 | 18.47 |
| Pair 4 [12] | 1.84 | 3.64 | 5.21 | 5.84 | 7.38 | 8.31 | 9.29 | 10.38 | 14.85 | 18.83 |

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 | 92.1 | 76.9 | 70.2 | 79.8 | 70.4 | 87.6 | 58.4 | 68.5 | 58.0 | 52.2 |
| Pair 1 - 3 | 82.9 | 67.7 | 66.7 | 62.8 | 62.2 | 64.7 | 70.4 | 65.4 | 58.0 | 52.2 |
| Pair 1 - 4 | 84.3 | 88.7 | 76.4 | 79.3 | 62.6 | 65.7 | 59.8 | 63.9 | 54.1 | 56.8 |
| Pair 2 - 3 | 82.1 | 66.5 | 76.1 | 64.6 | 71.3 | 67.1 | 72.1 | 74.6 | 57.2 | 58.7 |
| Pair 2 - 4 | 85.9 | 64.8 | 67.8 | 65.0 | 63.5 | 56.1 | 63.8 | 59.6 | 58.4 | 51.2 |
| Pair 3 - 4 | 80.3 | 72.9 | 61.4 | 64.0 | 60.6 | 67.8 | 59.8 | 60.1 | 53.3 | 57.2 |

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

| | | | | | | | | | | |
|------------|--------|--|--|--|--|--|--|--|--|--|
| Frequency | 100.00 | | | | | | | | | |
| Min Spec | 35.3 | | | | | | | | | |
| Pair 1 - 2 | 62.9 | | | | | | | | | |
| Pair 1 - 3 | 47.8 | | | | | | | | | |
| Pair 1 - 4 | 66.8 | | | | | | | | | |
| Pair 2 - 3 | 61.4 | | | | | | | | | |
| Pair 2 - 4 | 61.5 | | | | | | | | | |
| Pair 3 - 4 | 54.0 | | | | | | | | | |

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 [9] | 80.2 | 67.2 | 64.8 | 62.6 | 59.0 | 61.7 | 55.8 | 60.7 | 51.3 | 48.2 |
| Pair 2 [10] | 80.3 | 62.4 | 65.4 | 61.7 | 62.1 | 55.7 | 57.1 | 58.8 | 52.8 | 48.2 |
| Pair 3 [11] | 76.9 | 63.5 | 60.2 | 58.8 | 58.1 | 61.5 | 59.1 | 58.8 | 50.8 | 50.3 |
| Pair 4 [12] | 78.1 | 64.1 | 60.4 | 61.3 | 57.3 | 55.3 | 55.8 | 56.0 | 49.6 | 48.7 |

Continue:Power Sum NEXT(PSNEXT)(dB)

| | | | | | | | | | | |
|-------------|--------|--|--|--|--|--|--|--|--|--|
| Frequency | 100.00 | | | | | | | | | |
| Min Spec | 32.3 | | | | | | | | | |
| Pair 1 [9] | 47.6 | | | | | | | | | |
| Pair 2 [10] | 57.1 | | | | | | | | | |
| Pair 3 [11] | 46.7 | | | | | | | | | |
| Pair 4 [12] | 53.1 | | | | | | | | | |

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