



56G OSFP Cable Assemblies

1. INTRODUCTION

1.1 Purpose

Testing was performed on TE Connectivity (TE) OSFP Cable Assemblies per Product Specification 108-130030 Rev F.

1.2 Scope

This report covers the environmental, mechanical, and electrical performance of OSFP Cable Assemblies. Testing was performed at the Harrisburg Electrical Components Test Laboratory (HECTL) and the 3101 Fulling Mill Road SI Cable Lab between 08-November-2021 and 23-May-2023. Test data is on file and maintained at HECTL under EA20210465T, EA20210467T and EA20230003T.

1.3 Conclusion

Specimens met the requirements listed in Product Specification 108-130030 Rev F. See Section 2 for detailed results.

1.4 Product Description

TE's OSFP connectors and cable assemblies address next-generation data center needs by supporting aggregate data rates of 200 Gbps and up to 400 Gbps. These products are designed for both 28G NRZ and 56G PAM-4 protocols, with a roadmap to 112G PAM-4 for future system upgrades. By utilizing integrated thermal heatsink technology in the plug, OSFP products provide superior thermal performance and signal integrity needed to support 400 Gbps data rates. OSFP products offer high-port density and can fit up to 36 ports of an 8 lane interface in a 1 RU switch form factor, aligning with current and next-generation silicon road maps.

1.5 Test Specimens

The test specimens were representative of normal production lots, and the following part numbers were used for test:

Table 1 – Specimen Description

Test Group	Test Set	Quantity	Part Number Revision	Description
1	1	5	2335030-1 Rev 7	OSFP to OSFP (2x8) 28 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages
		2	N/A	
	2	5	2336065-2 Rev 11	OSFP to OSFP (2x8) 26 AWG Cable Assembly, 2.5m High Speed Test Boards w/ OSFP Receptacles/Cages
		2	N/A	
2	3	5	2335030-1 Rev 7	OSFP to OSFP (2x8) 28 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages
		2	N/A	
	4	5	2336065-2 Rev 11	OSFP to OSFP (2x8) 26 AWG Cable Assembly, 2.5m High Speed Test Boards w/ OSFP Receptacles/Cages
		2	N/A	
5	6	5	2335032-1 Rev 6	OSFP to 2 QSFP 28 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP and QSFP Rec/Cages
		3	N/A	
6	5	5	2335033-1 Rev 5	OSFP to 2 QSFP 26 AWG Cable Assembly, 2m High Speed Test Boards w/ OSFP and QSFP Rec/Cages
		3	N/A	

Table 1 – Specimen Description, continued

Test Group	Test Set ID	Quantity	Part Number Revision	Description
3	7	5	2336065-2 Rev 11	OSFP to OSFP (2x8) 26 AWG Cable Assembly, 2.5m
		10	2324869-1	OSFP Receptacle
		10	2317416-1	OSFP Cage
		5	60-1935203-1 Rev A	OSFP LLCR Test Board, 1x4
4	8	5	2336065-2 Rev 11	OSFP to OSFP (2x8) 26 AWG Cable Ass, 2.5m, 0 Ohm Res
		10	2324869-1	OSFP Receptacle
		10	2317416-1	OSFP Cage
		5	60-1935203-1 Rev A	OSFP LLCR Test Board, 1x4
5	9	5 2	2335030-1 Rev 7 N/A	OSFP to OSFP (2x8) 28 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages
	10	5 2	2336065-2 Rev 11 N/A	OSFP to OSFP (2x8) 26 AWG Cable Assembly, 2.5m High Speed Test Boards w/ OSFP Receptacles/Cages
	11	5 3	2335032-1 Rev 6 N/A	OSFP to 2 QSFP 28 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP and QSFP Rec/Cages
	12	5 3	2335033-1 Rev 5 N/A	OSFP to 2 QSFP 26 AWG Cable Assembly, 2m High Speed Test Boards w/ OSFP and QSFP Rec/Cages
7	13	5 2	2335030-1 Rev 7 N/A	OSFP to OSFP (2x8) 28 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages
	14	5 2	2336065-2 Rev 11 N/A	OSFP to OSFP (2x8) 26 AWG Cable Assembly, 2.5m High Speed Test Boards w/ OSFP Receptacles/Cages
	15	5 3	2335032-1 Rev 6 N/A	OSFP to 2 QSFP 28 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP and QSFP Rec/Cages
	16	5 3	2335033-1 Rev 5 N/A	OSFP to 2 QSFP 26 AWG Cable Assembly, 2m High Speed Test Boards w/ OSFP and QSFP Rec/Cages
2	17	5 2	2336227-2 Rev 4 N/A	OSFP to 4 QSFP 32 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP and QSFP Rec/Cages
	18	5 2	2324442-2 Rev 4 N/A	OSFP to 4 QSFP 30 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP and QSFP Rec/Cages
4	19	5	2821906-2 Rev A1	OSFP to OSFP (2x8) 32 AWG Cable Assy, 1m, 0 Ohm Res
		10	2324869-1	OSFP Receptacle
		10	2317416-1	OSFP Cage
		5	60-1935203-1 Rev A	OSFP LLCR Test Board, 1x4
5	20	5 2	2821906-2 Rev A1 N/A	OSFP to OSFP (2x8) 32 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages
	21	5 2	2821906-5 Rev A1 N/A	OSFP to OSFP (2x8) 30 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages
	22	5 2	2335031-2 Rev 5 N/A	OSFP to 2 QSFP 32 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages
	23	5 2	2324441-2 Rev 4 N/A	OSFP to 2 QSFP 30 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages
	24	5 2	2336227-2 Rev 4 N/A	OSFP to 4 QSFP 32 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages
	25	5 2	2324442-2 Rev 4 N/A	OSFP to 4 QSFP 30 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages
	26	5 2	2336237-2 Rev 4 N/A	OSFP to 8 SFP 32 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages
27	5 2	2324443-2 Rev 3 N/A	OSFP to 8 SFP 30 AWG Cable Assembly, 1m High Speed Test Boards w/ OSFP Receptacles/Cages	
6	28	5	2821906-2 Rev A1	OSFP to OSFP (2x8) 32 AWG Cable Assy, 1m, 0 Ohm Res
		10	2324869-1	OSFP Receptacle
		10	2317416-1	OSFP Cage
		5	60-1935203-1 Rev A	OSFP LLCR Test Board, 1x4

Table 1 – Specimen Description, continued

Test Group	Test Set ID	Quantity	Part Number Revision	Description
6	29	5	2821906-5 Rev A1	OSFP to OSFP (2x8) 30 AWG Cable Assy, 1m, 0 Ohm Res
		10	2324869-1	OSFP Receptacle
		10	2317416-1	OSFP Cage
		5	60-1935203-1 Rev A	OSFP LLCR Test Board, 1x4
7	30	5	2821906-2 Rev A1	OSFP to OSFP (2x8) 32 AWG Cable Assembly, 1m
		2	N/A	High Speed Test Boards w/ OSFP Receptacles/Cages
	31	5	2821906-5 Rev A1	OSFP to OSFP (2x8) 30 AWG Cable Assembly, 1m
		2	N/A	High Speed Test Boards w/ OSFP Receptacles/Cages
	32	5	2335031-2 Rev 5	OSFP to 2 QSFP 32 AWG Cable Assembly, 1m
		2	N/A	High Speed Test Boards w/ OSFP Receptacles/Cages
	33	5	2324441-2 Rev 4	OSFP to 2 QSFP 30 AWG Cable Assembly, 1m
		2	N/A	High Speed Test Boards w/ OSFP Receptacles/Cages
34	5	2336227-2 Rev 4	OSFP to 4 QSFP 32 AWG Cable Assembly, 1m	
	2	N/A	High Speed Test Boards w/ OSFP Receptacles/Cages	
35	5	2324442-2 Rev 4	OSFP to 4 QSFP 30 AWG Cable Assembly, 1m	
	2	N/A	High Speed Test Boards w/ OSFP Receptacles/Cages	
36	5	2336237-2 Rev 4	OSFP to 8 SFP 32 AWG Cable Assembly, 1m	
	2	N/A	High Speed Test Boards w/ OSFP Receptacles/Cages	
37	5	2324443-2 Rev 3	OSFP to 8 SFP 30 AWG Cable Assembly, 1m	
	2	N/A	High Speed Test Boards w/ OSFP Receptacles/Cages	

1.6 Qualification Test Sequence

The specimens listed in Table 1 were subjected to testing as outlined in Table 2.

Table 2 – Test Sequence

Test or Examination	Test Groups						
	1	2	3	4	5	6	7
	Test Set						
	1,2	3 thru 6 17,18	7	8,19	9 thru 12 20 thru 27	28,29	13 thru 16 30 thru 37
Test Sequence (a)							
Initial Examination of Product	1	1	1	1	1	1	1
LLCR				2,4,6,8		2,5	
High-Speed Test	2,4	2,4			2,4,7		2,4,7
Cable Flex		3					
Humidity	3						
Axial Cable Retention					3,6		3,6
Module Retention			3				
Durability			2	3			
Random Vibration				5			
Mechanical Shock				7			
Thermal Shock					5		
Temperature Life							5
Mixed Flowing Gas						3(b)	
Minute Disturbance						4	
Final Examination of Product	5	5	4	9	8	6	8

(a) The numbers indicate the sequence in which tests were performed.

(b) Half of the specimens (3) unmated, half of the specimens (2) mated for first 7 days. All specimens mated for final 7 days.

1.7 Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature: 15°C to 35°C
 Relative Humidity: 20% to 80%

2. SUMMARY OF TESTING

2.1 Initial Visual Examination

An initial visual examination found no evidence of physical damage that could affect performance or function.

2.2 Low Level Contact Resistance

Specimens met the requirement of a maximum delta increase of 20 milliohm. See Tables 3 through 6 for the LLCR data summaries.

Table 3 – LLCR Data Summary in Milliohms, Test Set 8

Milliohms	Initial	After Durability	After Random Vibration	After Mechanical Shock
	Actual R	Delta (ΔR)	Delta (ΔR)	Delta (ΔR)
Signals				
Min	420.28	-20.88	-19.26	-20.05
Max	479.87	3.32	19.72	10.20
Ave	444.10	-2.28	-1.67	-0.94
St Dev	16.25	3.27	3.48	3.24
N =	160	160	160	160
Grounds				
Min	46.15	-16.23	-17.67	-17.95
Max	65.24	4.75	4.40	7.12
Ave	51.51	-2.20	-3.02	-2.63
St Dev	4.10	3.42	3.90	4.25
N =	100	100	100	100

Table 4 – LLCR Data Summary in Milliohms, Test Set 19

Milliohms	Initial	After Durability	After Random Vibration	After Mechanical Shock
	Actual R	Delta (ΔR)	Delta (ΔR)	Delta (ΔR)
Signals				
Min	601.43	-20.81	-18.56	-24.35
Max	669.05	1.27	12.11	4.82
Ave	632.75	-4.37	-0.49	-3.85
St Dev	19.14	3.31	3.76	4.39
N =	160	160	160	160
Grounds				
Min	66.76	-18.85	-17.90	-18.71
Max	88.85	2.94	6.50	13.87
Ave	72.38	-5.03	-3.10	-2.84
St Dev	4.33	4.55	4.92	5.60
N =	100	100	100	100

Table 5 – LLCR Data Summary in Milliohms, Test Set 28

Milliohms	Initial	After MFG/Minute Disturbance
	Actual R	Delta (ΔR)
Signals		
Min	630.23	-5.11
Max	679.66	17.61
Ave	650.66	0.31
St Dev	15.79	3.28
N =	160	160
Grounds		
Min	63.65	-2.78
Max	72.24	19.87
Ave	66.09	2.48
St Dev	1.51	4.02
N =	100	100

Table 6 – LLCR Data Summary in Milliohms, Test Set 29

Milliohms	Initial	After MFG/Minute Disturbance
	Actual R	Delta (ΔR)
Signals		
Min	422.86	-24.52
Max	552.10	14.00
Ave	479.90	-1.75
St Dev	50.98	5.15
N =	160	160
Grounds		
Min	53.19	-17.74
Max	78.31	16.44
Ave	60.06	1.29
St Dev	5.19	6.90
N =	100	100

2.3 High-Speed Test

The SI Cable Lab at 3101 Fulling Mill Road performed the high-speed testing. The results met the requirements. See Appendix A for results.

2.4 Cable Flex

After subjecting specimens to 100 cycles of cable flex, no evidence of physical damage detrimental to product performance was observed.

2.5 Humidity

After subjecting specimens to 20 hours of humidity, no evidence of physical damage detrimental to product performance was observed.

2.6 Axial Cable Retention

After subjecting specimens to axial cable retention, no evidence of physical damage detrimental to product performance was observed.

2.7 Module Retention

No module damage was observed on any of the modules after being subjected to an extraction force of 125N.

2.8 Durability

After subjecting the specimens to fifty cycles of manual durability, no evidence of physical damage detrimental to product performance was observed.

2.9 Random Vibration

All test specimens had no apparent physical damage or discontinuities of 1 microsecond or longer occur during vibration testing.

2.10 Mechanical Shock

All test specimens had no apparent physical damage or discontinuities of 1 microsecond or longer occur during shock testing.

Pulse Velocity Change: 6.61 feet/second.

2.11 Thermal Shock

After subjecting the specimens to a thermal shock environmental exposure, no evidence of physical damage detrimental to product performance was observed.

2.12 Temperature Life

After subjecting specimens to a temperature life environmental exposure, no evidence of physical damage detrimental to product performance was observed.

2.13 Mixed Flowing Gas

After subjecting the specimens to a mixed flowing gas environmental exposure, no evidence of physical damage detrimental to product performance was observed.

2.14 Final Visual Examination

A final visual examination found no evidence of physical damage or corrosive influence that could affect performance or function.

3. TEST METHODS

3.1. Initial Examination of Product

A C of C was issued stating that all specimens in this test package were produced, inspected, and accepted as conforming to product drawing requirements, and were manufactured using the same core manufacturing processes and technologies as production parts. Testing was conducted in accordance with specification EIA-364-18B.

3.2 Low Level Contact Resistance

Low level contact resistance measurements at low level current were made using a four terminal measuring technique. The test current was maintained at 100 milliamperes maximum with a 20 millivolt maximum open circuit voltage. Each signal and ground measurement includes 2 interfaces per measurement. Figure 1 shows the LLCR test setup. LLCR measurements after vibration and after mechanical shock were taken with the specimens still mounted in the fixture as to not disturb the interfaces being measured (see Figure 2). Testing was conducted in accordance with specification EIA 364-23C.

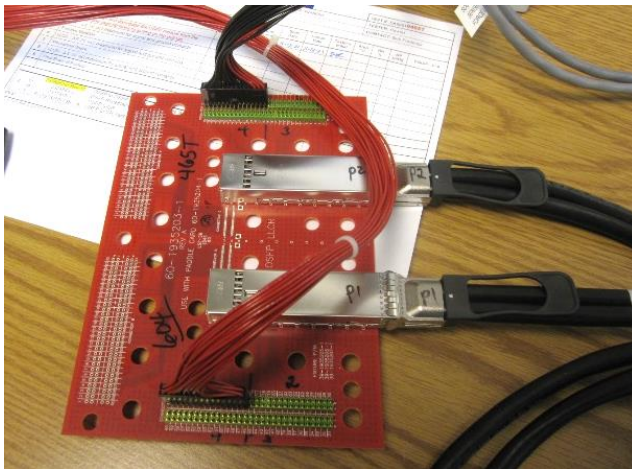


Figure 1 – LLCR Test Setup

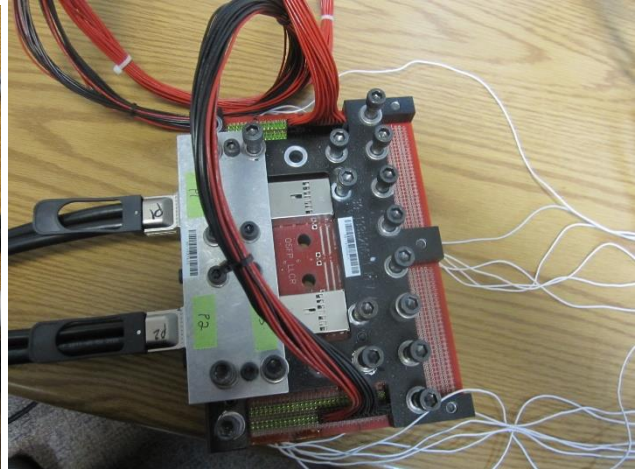


Figure 2 – LLCR in Mechanical Test Fixture

3.3 High-Speed Test

The SI Cable Lab at 3101 Fulling Mill Road performed the high-speed testing. See Appendix A for the test method.

3.4 Cable Flex

Each specimen was individually placed in a cable flex machine and subjected to 100 cycles of flex with the transceiver under test coincident with the plane of the arc, and 100 cycles with the connector under test orthogonal to the plane of the arc. The arc was 90° from vertical in both directions and the speed was 13 ± 1 cycle per minute. The mandrels used for testing were approximately 7 times the diameter of the cable diameter being tested (see Table 7 for mandrel radius used). Testing was conducted in accordance with specification SFF-8417, Type C, according to section 6.2.2. See Figure 3 for typical test setup photographs.

Table 7 – Mandrel Details

Test Set	Part Number	Mandrel Radius
3	2335030-1	53 mm
4	2336065-2	64 mm
5	2335032-1	53 mm
6	2335033-1	64 mm
17	2336227-2	31.5 mm
18	2324442-2	36 mm

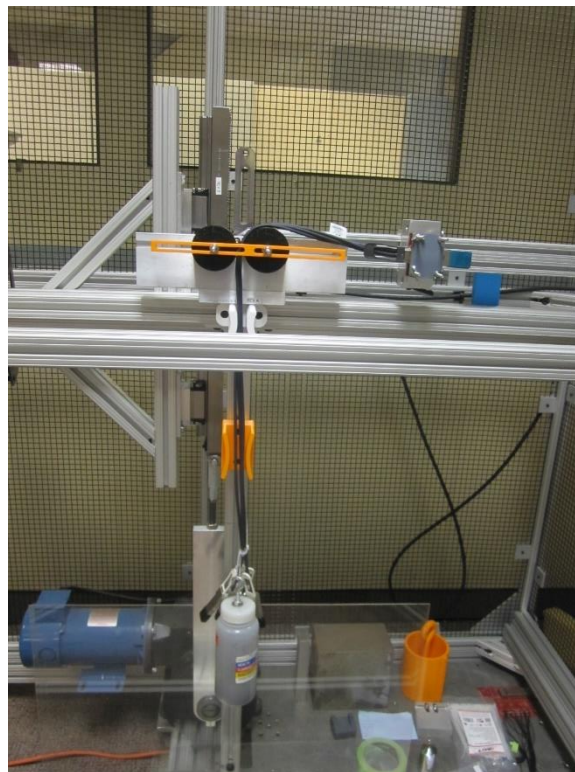


Figure 3 – Cable Flex Test Setup

3.5 Humidity

Specimens had the protective covers removed from all modules. The unmated cables were coiled to approximately 9” diameter, placed on ventilated trays and subjected to 20 hours of humidity with the conditions being 30°C and 90% relative humidity. Final SI testing was conducted within 4 hours of removal from the temperature/humidity soak.

3.6 Axial Cable Retention

Each specimen was tested by wrapping the cable around a 10-inch diameter spool. The cable was wrapped until the cable end under test was hanging from the spool. A weight of 125 N (28.1 pounds) was attached to the OSFP transceiver using a “C” clamp. The weight was suspended for a period of 5 minutes and then removed. Figure 4 shows the typical test setup. For the cables with two OSFP transceivers, each end was tested independently.



Figure 4 – Axial Cable Retention Test Setup

3.7 Module Retention

Each specimen was tested by inserting the module on a cable into a cage mounted on a test board. The module was locked into the cage with the latches enabled. The board was mounted to a right-angle plate that was attached to a floating table on the base of a tensile/compression testing machine. The terminated wires in the module were cut to approximately 13” long to accommodate the test fixtures. The free end of the wire was grasped in pneumatic jaws that were mounted to the load cell on the cross head of the machine. The cross head was started in the tensile direction at a rate of 25 millimeters per minute until a force of 125 N was reached. The machine held the force for a period of 2 seconds, and the tension was released. See Figure 5 for photographs of the test setup.



Figure 5 – Test Setup

3.8 Durability

Specimens were unmated (utilizing the pull tab) and mated from the receptacle and cage for 50 cycles.

3.9 Random Vibration

Test specimens were subjected to a Random Vibration test in accordance with EIA-364-28F, Test Condition VII, Test Condition Letter D.

The parameters of this test condition are specified by a random vibration spectrum with excitation frequency bounds of 20 and 500 Hertz (Hz). The spectrum remains flat at 0.02 G²/Hz from 20 Hz to the upper bound frequency of 500 Hz. The root-mean square amplitude of the excitation was 3.10 GRMS. Test specimens were subjected to this test condition for 15 minutes in each of the three mutually perpendicular axes, for a total test time of 45 minutes per test specimen.

An electrical load was applied to the test specimens that was maintained at 100 milliamperes maximum and was monitored for discontinuities of 1 microsecond or longer. Random vibration test setups are shown in Figures 6, 7 and 8.

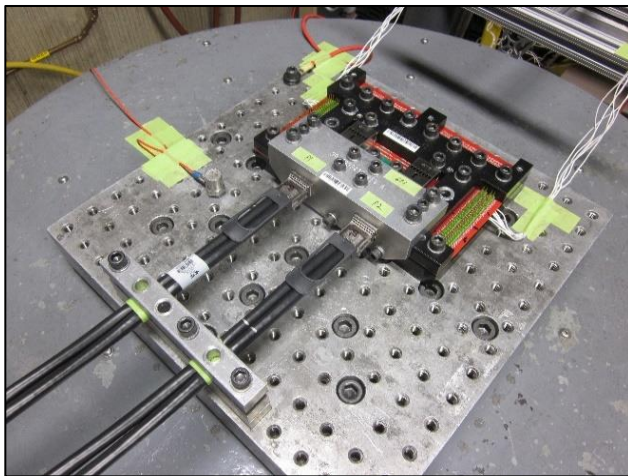


Figure 6 – Vertical Axis, Test Setup

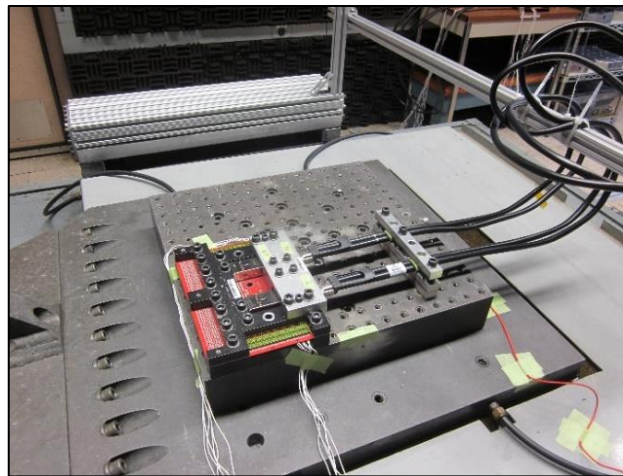


Figure 7 – Longitudinal Axis, Test Setup

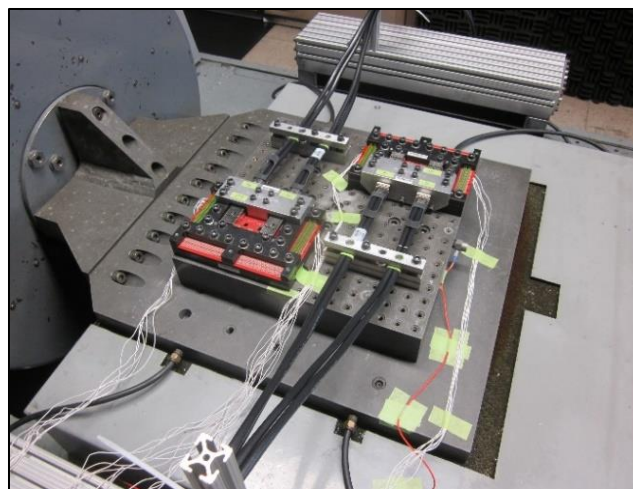


Figure 8 – Perpendicular Axis, Test Setup

3.10 Mechanical Shock

Test specimens were subjected to a Mechanical Shock test in accordance with EIA-364-28F, Test Condition H.

The parameters of this test condition are a half-sine waveform with an acceleration amplitude of 30 gravity units (g's peak) and a duration of 11 milliseconds. Three shocks in each direction were applied along the three mutually perpendicular axes of the test specimen, for a total of 18 shocks.

An electrical load was applied to the test specimens that was maintained at 100 milliamperes maximum and was monitored for discontinuities of 1 microsecond or longer. Mechanical shock test setups are shown in Figures 9, 10 and 11.

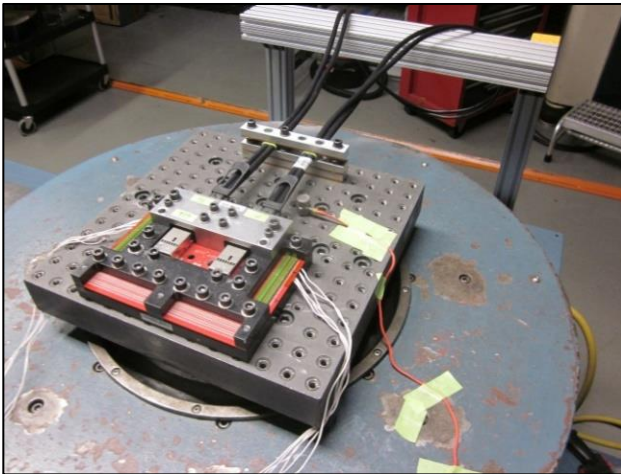


Figure 9 – Vertical Axis, Test Setup

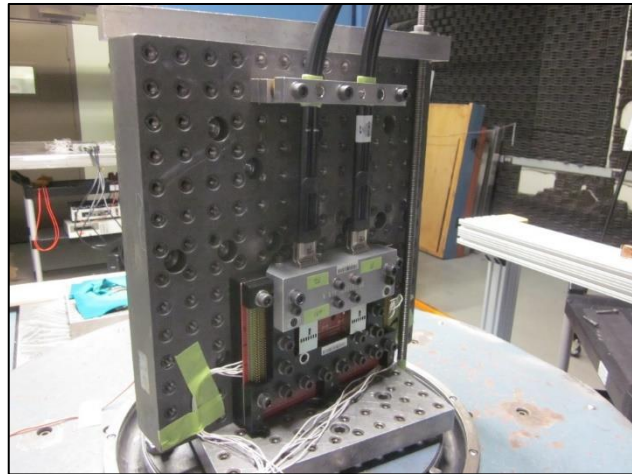


Figure 10 – Longitudinal Axis, Test Setup

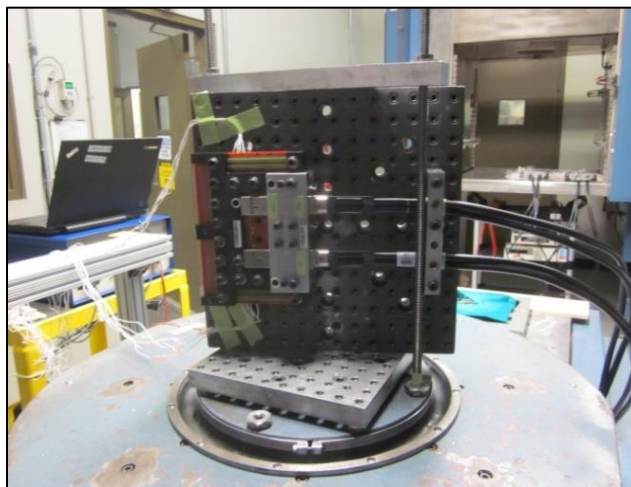


Figure 11 – Perpendicular Axis, Test Setup

3.11 Thermal Shock

Specimens had the protective covers removed from all modules. The unmated cables were coiled and placed on ventilated trays. The cables were placed in a thermal shock chamber. The specimens were subjected to 5 cycles with the extremes being 70°C and -40°C. The dwell time at each extreme was 30 minutes, and the transition time between extremes was less than 1 minute. Testing was conducted in accordance with specification EIA 364-32G, Method A.

3.12 Temperature Life

Specimens had the protective covers removed from all modules. The unmated cables were coiled and placed on ventilated trays. The cables were placed in a convection oven and subjected to a temperature of 70°C for a period of 500 hours. Testing was conducted in accordance with specification EIA 364-17C, Method A.

3.13 Mixed Flowing Gas

The test specimens consisted of two sample sets with 5 connector/cable assemblies per set. They were subjected to a 4-gas environment in accordance with EIA 364-65B, Class IIA for 14 days. Table 8 shows the MFG test parameters.

Table 8 – MFG Test Parameters

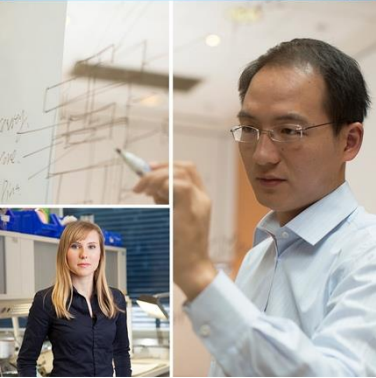
Environment	Class IIA
Temperature (°C)	30±1
Relative Humidity (%)	70±2
Chlorine (Cl ₂) Concentration (ppb)	10±3
Hydrogen Sulfide (H ₂ S) Concentration (ppb)	10±5
Nitrogen Dioxide (NO ₂) Concentration (ppb)	200±50
Sulfur Dioxide (SO ₂) Concentration (ppb)	100±20
Exposure Period	14 days
Chamber Volume Exchange Rate [minimum of 6/hr.]	8.8/hr.*

*Volume exchange rate for 105-liter test chamber [Total flow rate of 15.4 L/Min]

3.14 Final Visual Examination

Specimens were visually examined for any evidence of damage or defects detrimental to product performance. Testing was conducted in accordance with specification EIA 364-18B.

Appendix A



OSFP Cable Assembly 108-130030 Rev E Signal Integrity Report

Aug 2, 2022

Test Summary

- Testing was performed according to 108-130030 Rev E
- Signal integrity test applies to High-Speed Test for test groups 1, 2, 5, & 7
- Equipment:
 - High speed tester ARC144PSTA22
 - TE OSFP Module Compliance Boards 93-1817101-200 Rev 2 with TE OSFP connector and SMA test points
 - TE QSFP Module Compliance Boards 93-311805-100 Rev 9 with TE QSFP connector and 2.92mm test points

3.3. Test Requirements and Procedures Summary		
Unless otherwise specified, all tests shall be performed at ambient environmental conditions.		
TEST DESCRIPTION	REQUIREMENT	PROCEDURE
Initial examination of product	Meets requirements of product drawing.	EIA-364-18 Visual and dimensional (C of C) inspection per product drawing
Final examination of product	Meets visual requirements.	EIA-364-18 Visual inspection.
ELECTRICAL		
Low Level Contact Resistance (LLCR)	ΔR 20 m Ω maximum for signal and ground contacts	EIA-364-23. Max. open voltage 20mV. Max current 100 mA DC. All contacts to be measured.
High Speed Test	Per IEEE Std 802.3cd-2018 Clause 136.11, IEEE Std 802.3cd-2018 Clause 136.11 with asymmetric host COM, or IEEE 802.3bj-2014 Clause 92.10	EIA-364-108

3.4. Product Qualification and Requalification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)						
	1	2	3	4	5	6	7
	TEST SEQUENCE (b)						
Initial Examination of Product	1	1	1	1	1	1	1
LLCR				2,4,6,8		2,5	
High-Speed Test	2, 4	2, 4			2,4,7		2,4,7
Cable Flex		3					
Humidity	3						
Axial Cable Retention					3,6		3,6
Module Retention			3				
Durability			2	3			
Random Vibration				5			
Mechanical Shock				7			
Thermal Shock					5		
Temperature Life							5
Mixed Flowing Gas						3	
Minute disturbance						4	
Final Examination of Product	5	5	4	9	8	6	8

Table 3. Qualification Test Sequence



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- **Test Group 7 (Temperature Life)**
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Conclusion

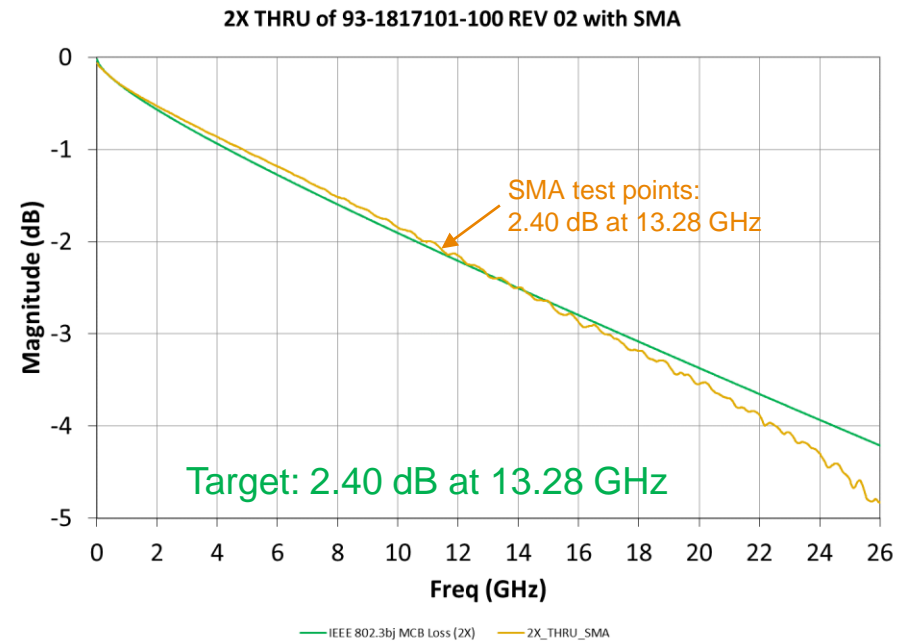
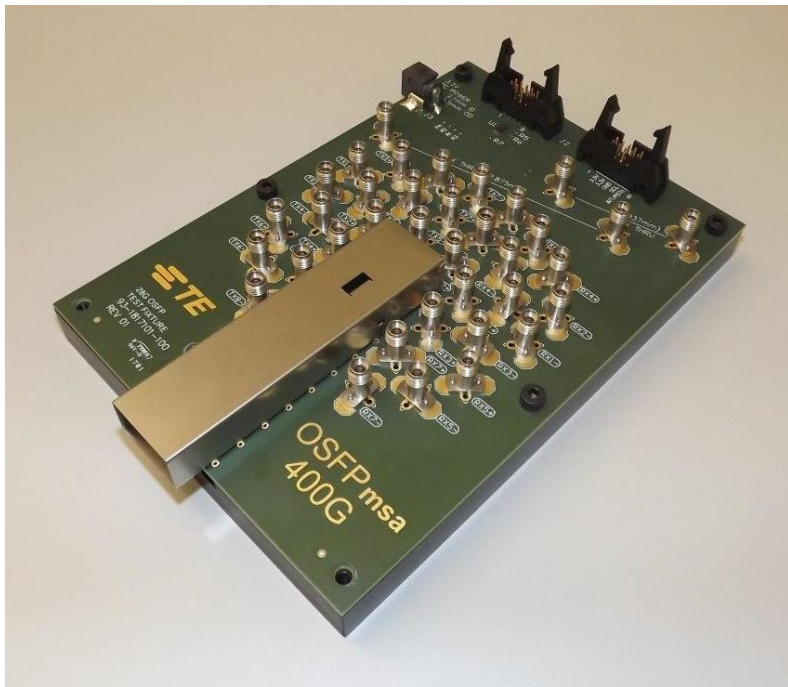
- All 32/30/28/26awg OSFP to OSFP cables **PASSED** IEEE 802.3cd and 108-130030 High-Speed Test requirements
- All 32/30/28/26awg OSFP to 2*QSFP cables **PASSED** IEEE 802.3cd and 108-130030 High-Speed Test requirements
- All 32/30awg OSFP to 4*QSFP cables **PASSED** IEEE 802.3cd and 108-130030 High-Speed Test requirements
- All 32/30awg OSFP to 8*SFP cables **PASSED** IEEE 802.3cd and 108-130030 High-Speed Test requirements

108-130030 Rev D Part Number List for High Speed Test													
Part Number	Description	Customer	Test Request	TG1 (A): Humidity		TG2 (B): Cable Flex		TG5 (E): Thermal Shock			TG7 (G): Temp Life		
2821906-2	1m 32awg OSFP-OSFP	TE	467T					TS20 Seq2	TS20 Seq4	TS20 Seq7	TS30 Seq2	TS30 Seq4	TS30 Seq7
2821906-5	1m 30awg OSFP-OSFP	TE	467T					TS21 Seq2	TS21 Seq4	TS21 Seq7	TS31 Seq2	TS31 Seq4	TS31 Seq7
2335031-2	1m 32awg OSFP-2QSFP	TE	467T					TS22 Seq2	TS22 Seq4	TS22 Seq7	TS32 Seq2	TS32 Seq4	TS32 Seq7
2324441-2	1m 30awg OSFP-2QSFP	TE	467T					TS23 Seq2	TS23 Seq4	TS23 Seq7	TS33 Seq2	TS33 Seq4	TS33 Seq7
2336227-2	1m 32awg OSFP-4QSFP	TE	467T			TS17 Seq2	TS17 Seq4	TS24 Seq2	TS24 Seq4	TS24 Seq7	TS34 Seq2	TS34 Seq4	TS34 Seq7
2324442-2	1m 30awg OSFP-4QSFP	TE	467T			TS18 Seq2	TS18 Seq4	TS25 Seq2	TS25 Seq4	TS25 Seq7	TS35 Seq2	TS35 Seq4	TS35 Seq7
2336237-2	1m 32awg OSFP-8SFP	TE	467T					TS26 Seq2	TS26 Seq4	TS26 Seq7	TS36 Seq2	TS36 Seq4	TS36 Seq7
2324443-2	1m 30awg OSFP-8SFP	TE	467T					TS27 Seq2	TS27 Seq4	TS27 Seq7	TS37 Seq2	TS37 Seq4	TS37 Seq7
2335030-1	1m 28awg OSFP-OSFP	TE	465T		TS1 Seq4	TS03 Seq2	TS03 Seq4	TS09 Seq2	TS09 Seq4	TS09 Seq7	TS13 Seq2	TS13 Seq4	TS13 Seq7
2336065-2	2.5m 26awg OSFP-OSFP	TE	465T		TS2 Seq4	TS04 Seq2	TS04 Seq4	TS10 Seq2	TS10 Seq4	TS10 Seq7	TS14 Seq2	TS14 Seq4	TS14 Seq7
2335032-1	1m 28awg OSFP-2QSFP	TE	465T			TS05 Seq2	TS05 Seq4	TS11 Seq2	TS11 Seq4	TS11 Seq7	TS15 Seq2	TS15 Seq4	TS15 Seq7
2335033-1	2m 26awg OSFP-2QSFP	TE	465T			TS06 Seq2	TS06 Seq4	TS12 Seq2	TS12 Seq4	TS12 Seq7	TS16 Seq2	TS16 Seq4	TS16 Seq7

TE OSFP MCB 93-1817101-100 Rev 02

Test Fixtures:

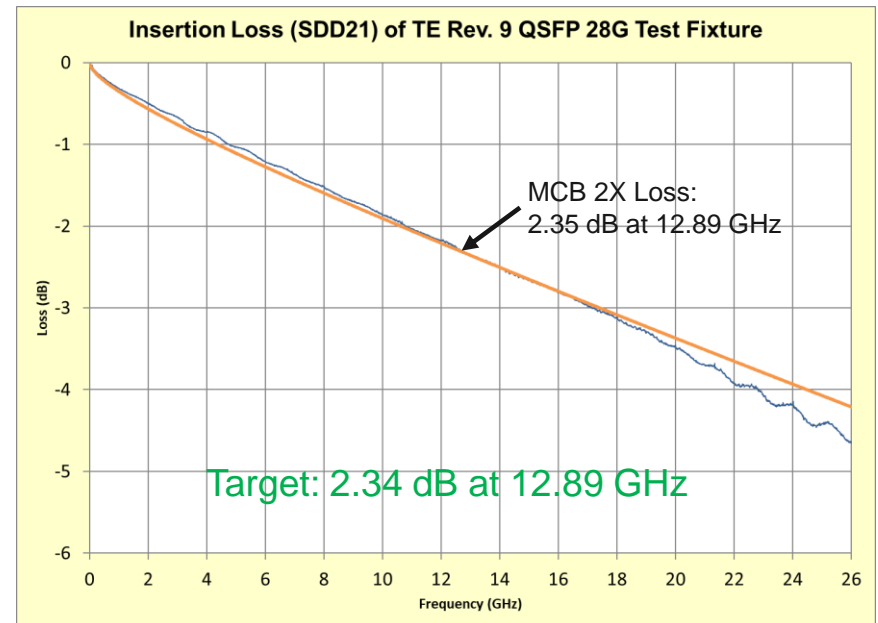
- TE OSFP MCB PN 93-1817101-100 Rev 2 with SMA test points
- Per IEEE 802.3bj-2014 Clause 92.11



TE QSFP MCB 93-311805-100 Rev 09

Test Fixtures:

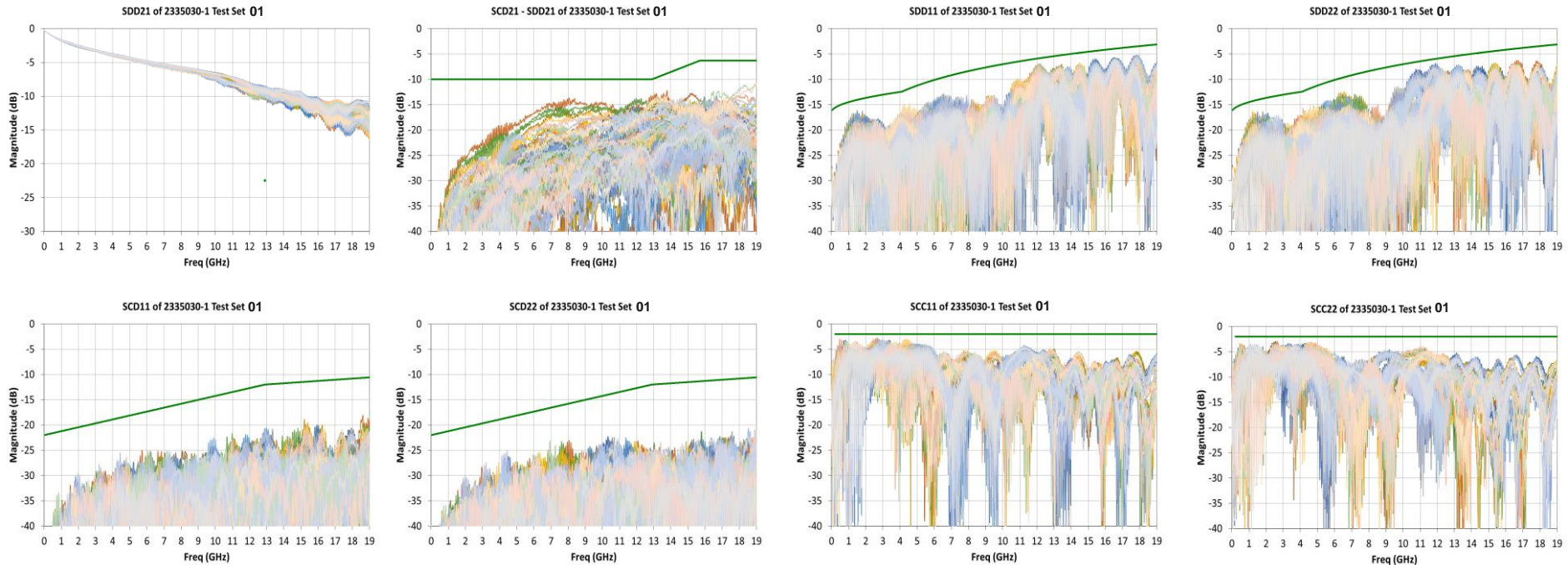
- TE QSFP MCB PN 93-311805-100 Rev 9 with 2.92mm test points
- Per IEEE 802.3bj-2014 Clause 92.11



Test Group 1: Humidity Test

Cable specimens are tested uncoiled for initial SI at 25°C then specimens coiled (9" coil for 32/30AWG and 15" coil for 28/26AWG) and are exposed to 30°C/90% relative humidity for 20 hours. Cable specimens are tested uncoiled for final SI at 25°C. Perform return to nominal SI testing within 4 hours after temperature/humidity soak.

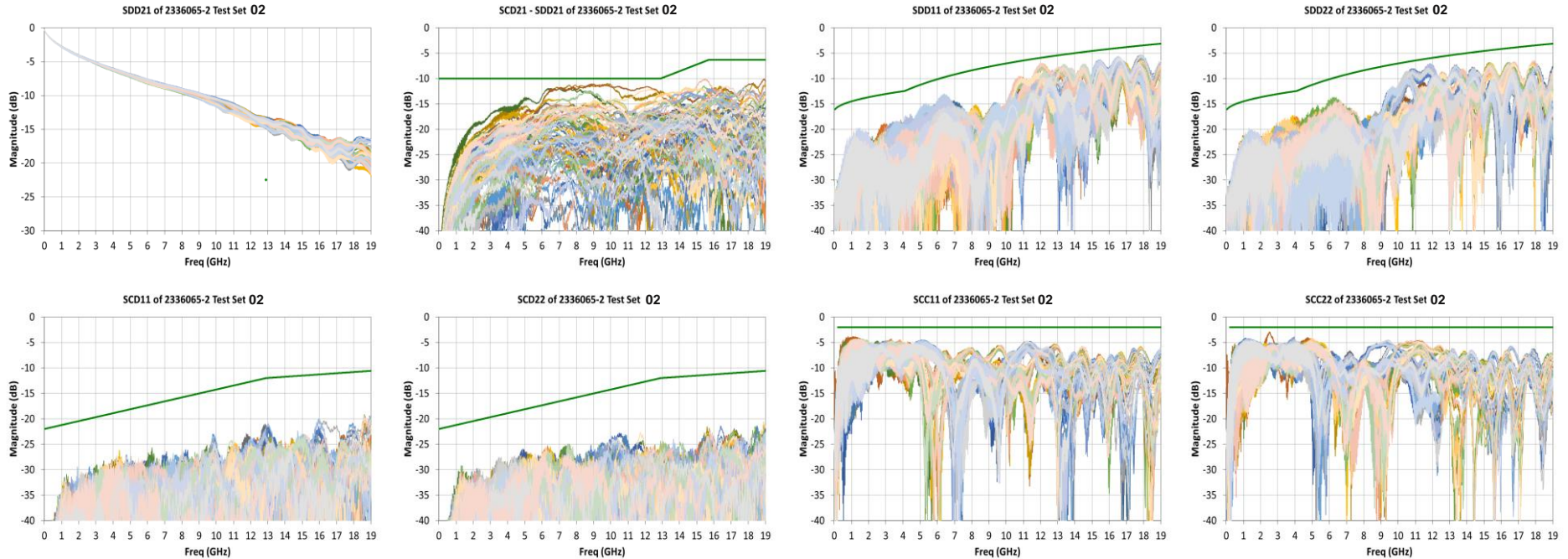
2335030-1 (O-O 1m 28awg): Humidity Test Group 1, Test Set 1, Sequence 4



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.1	6.1	6.1	5.9	6.1
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

2336065-2 (O-O 2.5m 26awg): Humidity Test Group 1, Test Set 2, Sequence 4



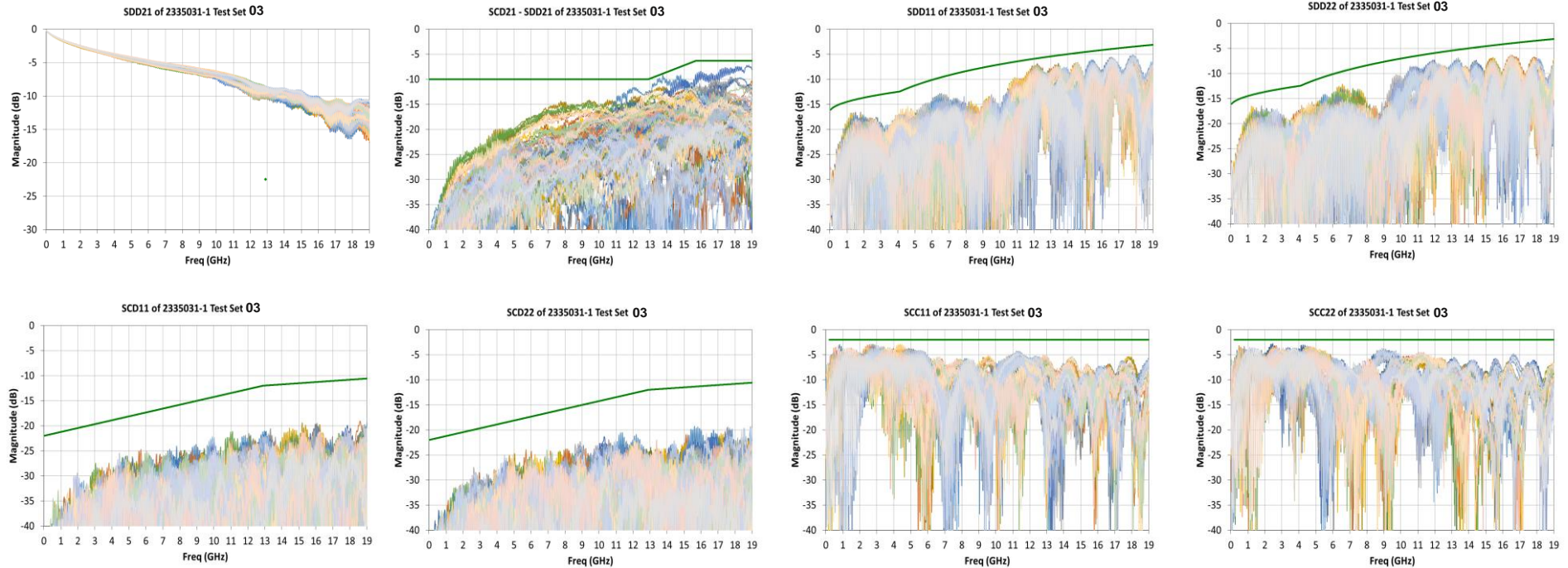
IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	4.7	4.8	4.9	4.7	4.9
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

Test Group 2: Cable Flex

Flex per SFF-8417, Type C According to 6.2.2. Mandrel radius to be 7 times cable diameter. (no signal monitoring), 100 cycles with connector coincident with the plane of the arc, 100 cycles with connector orthogonal to the plane of the arc. High Speed Test before and after cable flex.

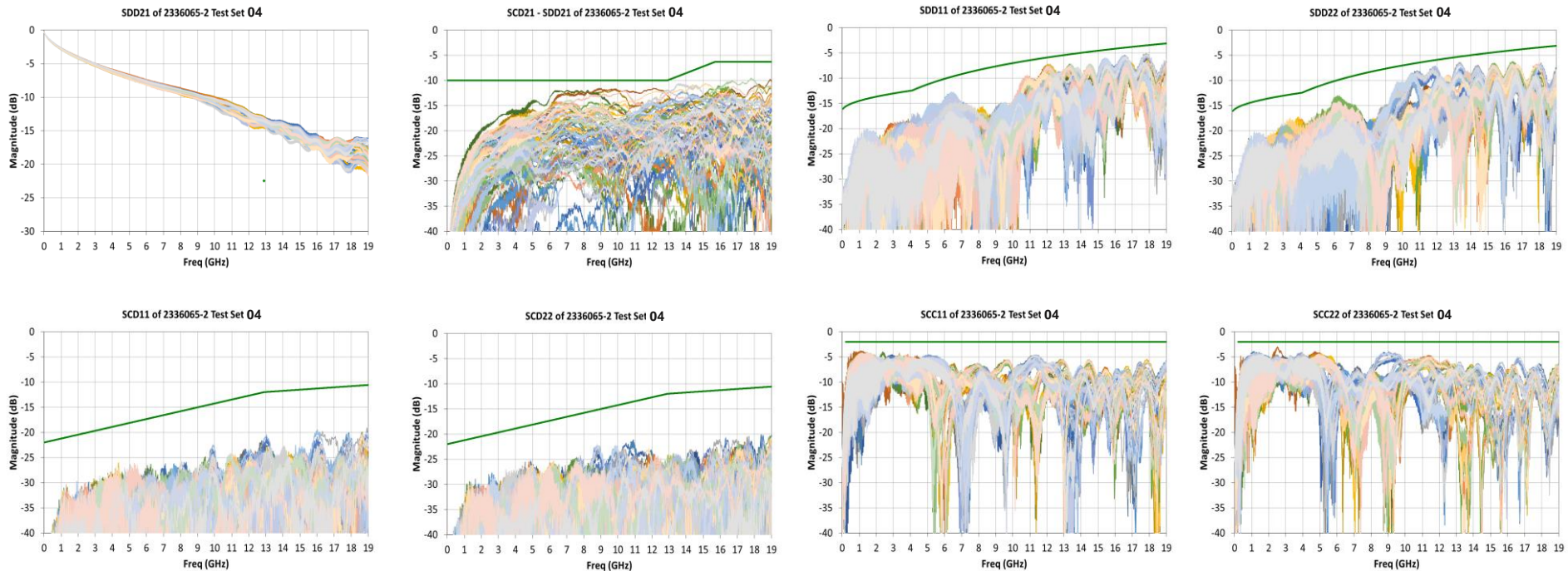
2335030-1 (O-O 1m 28awg): Cable Flex Test Group 2, Test Set 03, Sequence 4



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.9	6.1	5.9	5.7	6.0
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

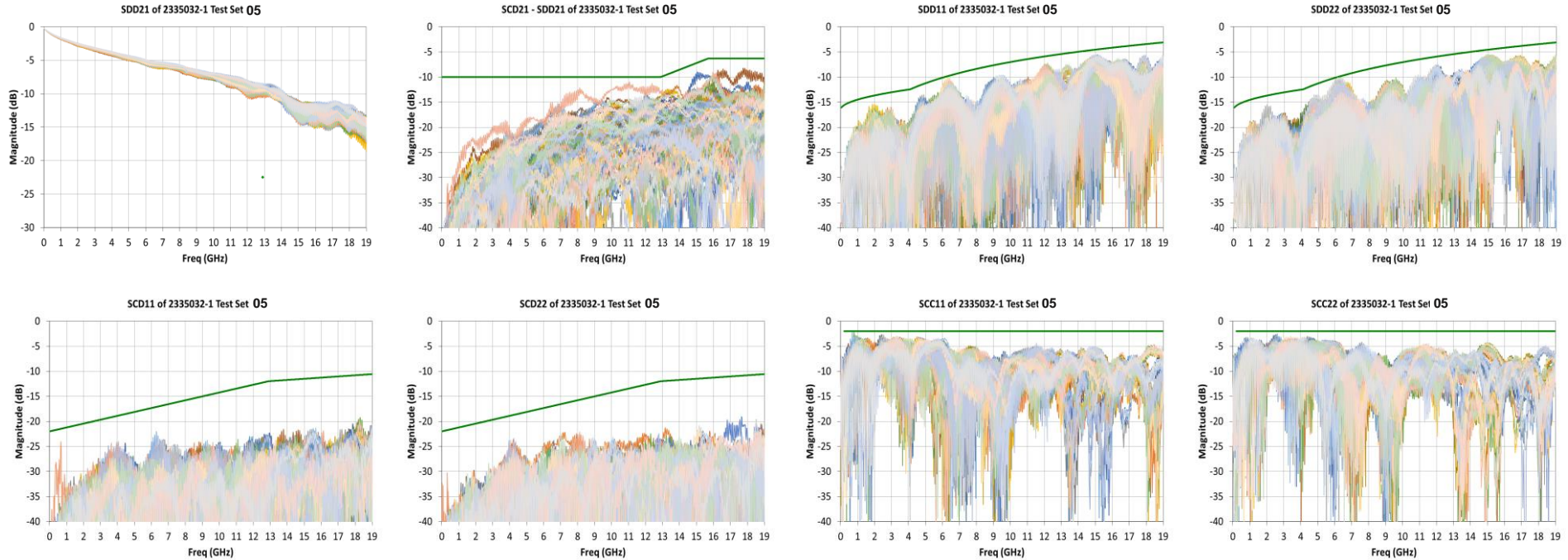
2336065-2 (O-O 2.5m 26awg): Cable Flex Test Group 2, Test Set 04, Sequence 4



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	4.6	4.4	4.5	4.5	4.4
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

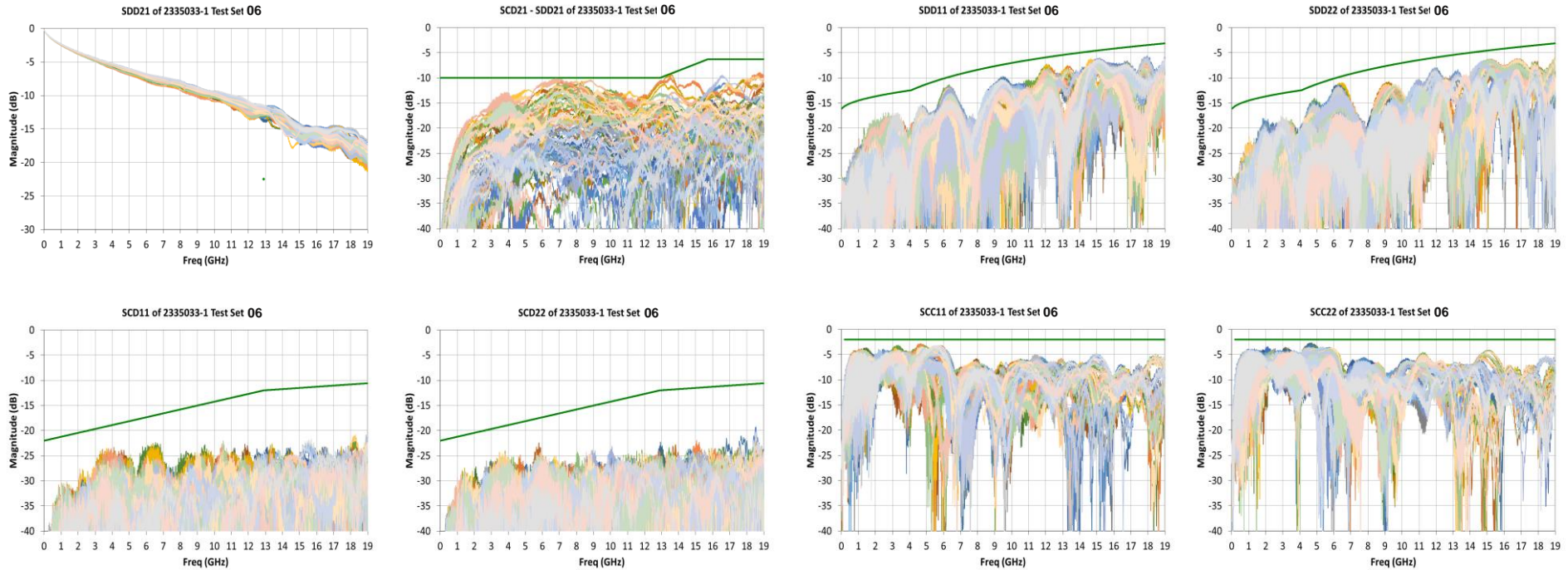
2335032-1 (O-2Q 1m 28awg): Cable Flex Test Group 2, Test Set 05, Sequence 4



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.0	5.9	6.0	5.9	6.0
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

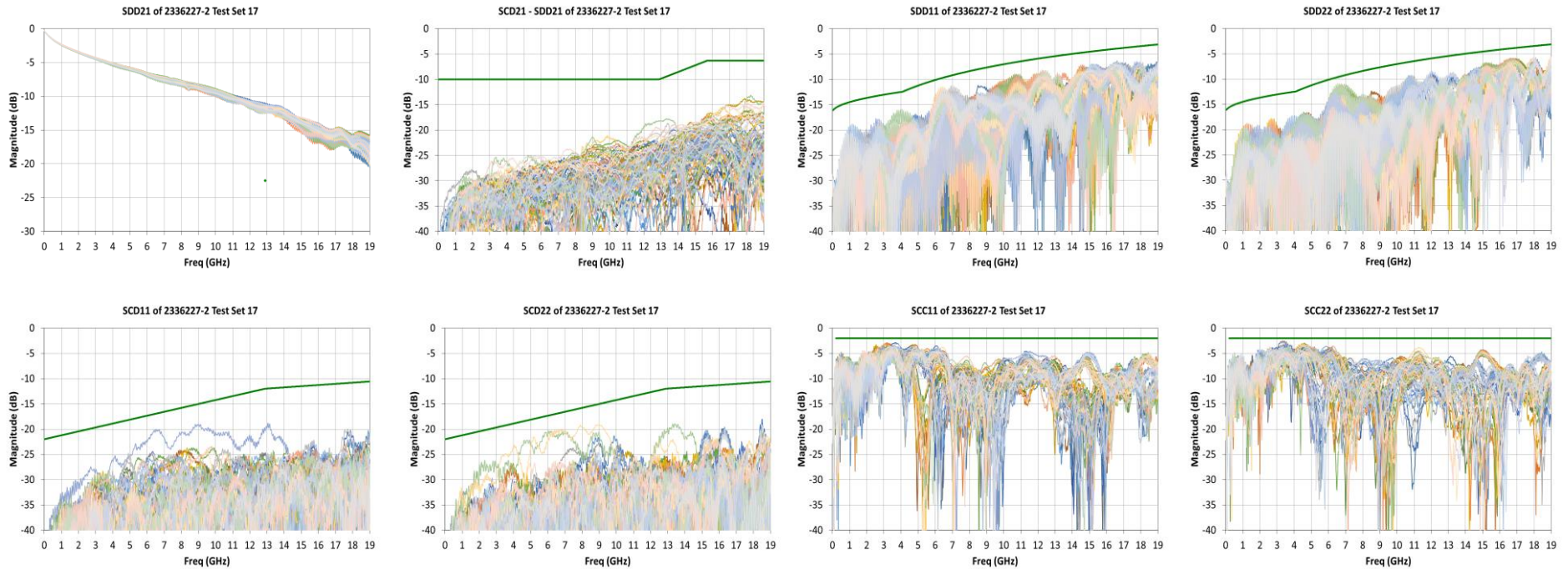
2335033-1 (O-2Q 2m 26awg): Cable Flex Test Group 2, Test Set 06, Sequence 4



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	4.6	4.8	3.8	4.7	4.7
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

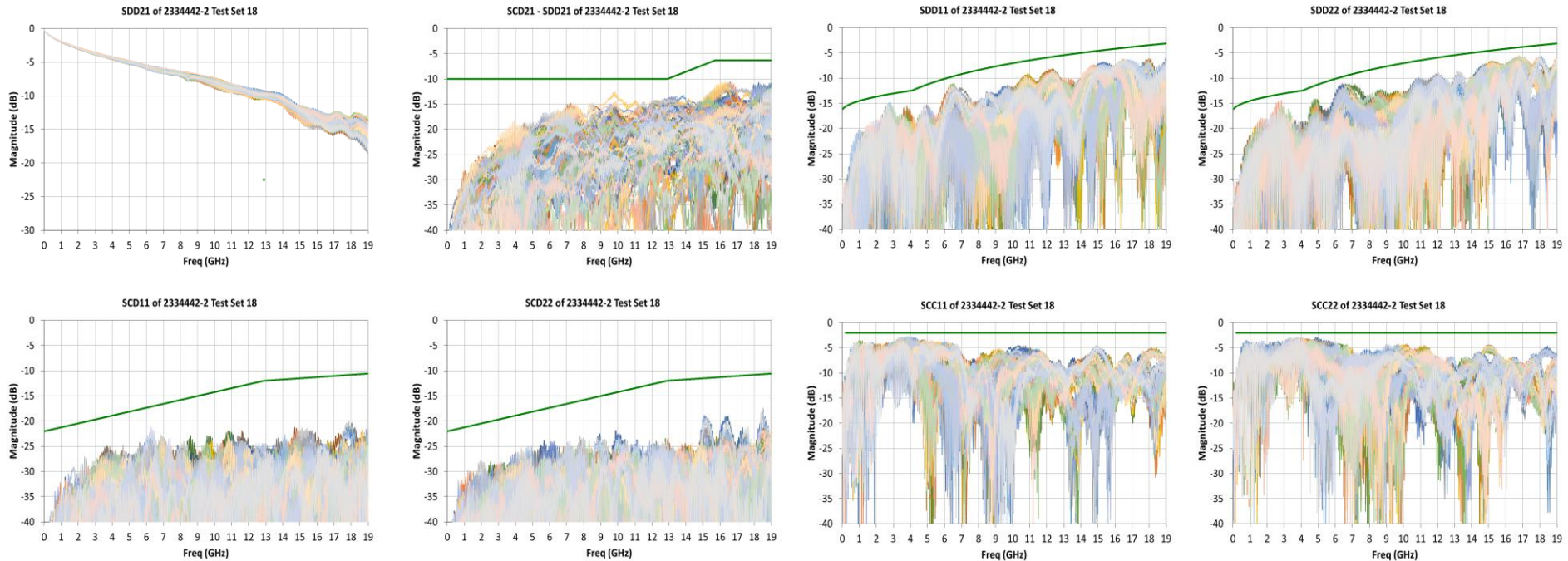
2336227-2 (O-4Q 1m 32awg): Cable Flex Test Group 2, Test Set 17, Sequence 4



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.9	5.8	5.9	5.7	4.7
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

2324442-2 (O-4Q 1m 30awg): Cable Flex Test Group 2, Test Set 18, Sequence 4



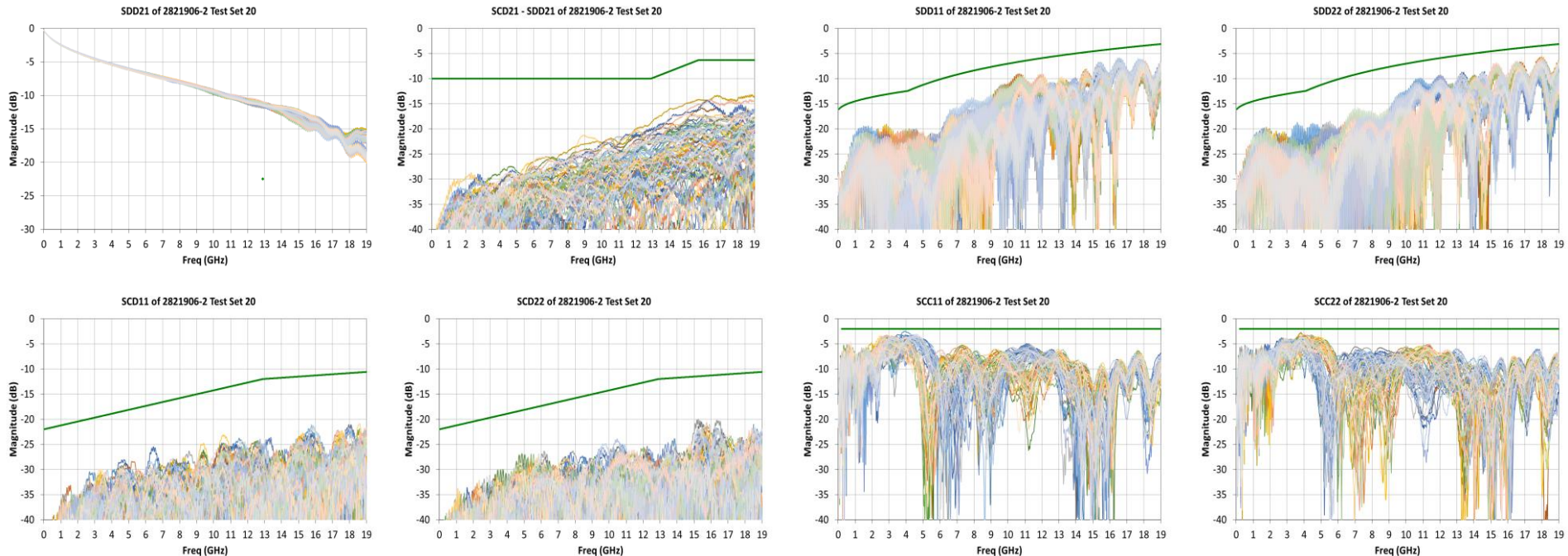
IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.1	6.2	6.1	5.7	6.0
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

Test Group 5: Thermal Shock

EIA-364-32, Method A, Test Condition I. Subject unmated specimens to 5 cycles between -40°C and 70°C with 30-minute dwells at temperature extremes and 1-minute transition between temperatures. High Speed Test before and after thermal shock.

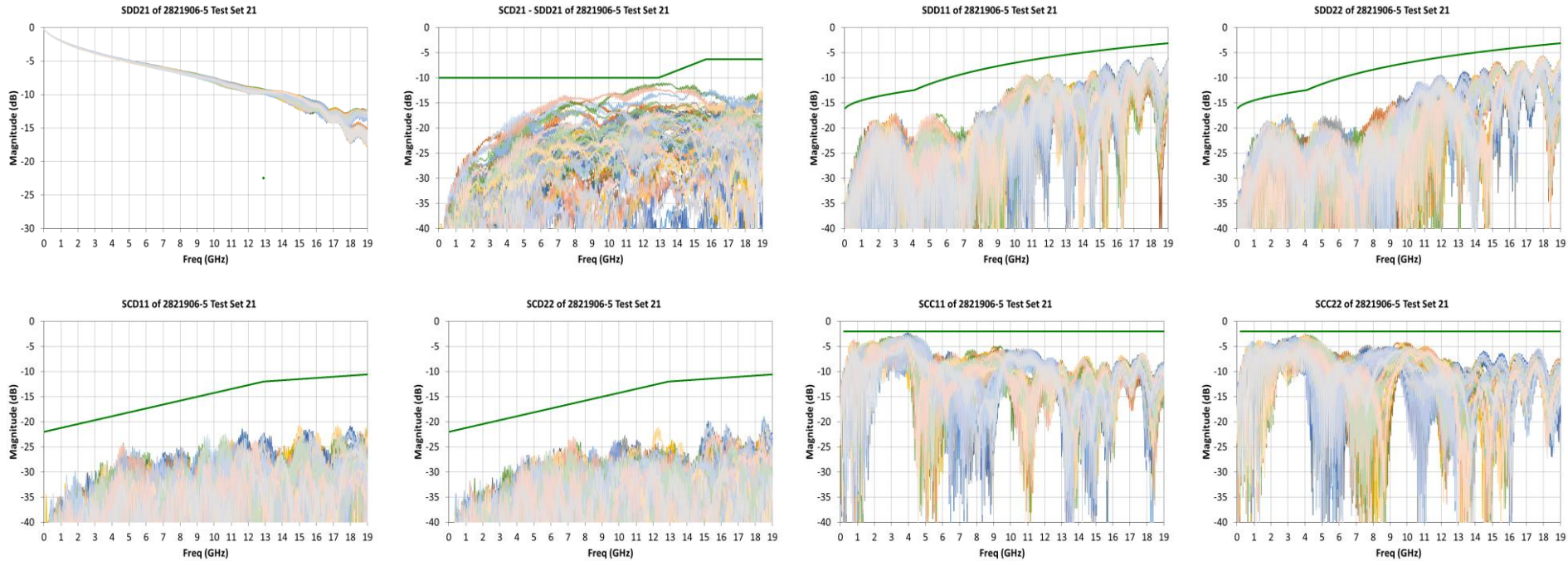
2821906-2 (O-O 1m 32awg): Thermal Shock Test Group 5, Test Set 20, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.0	6.0	6.0	6.0	5.9
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

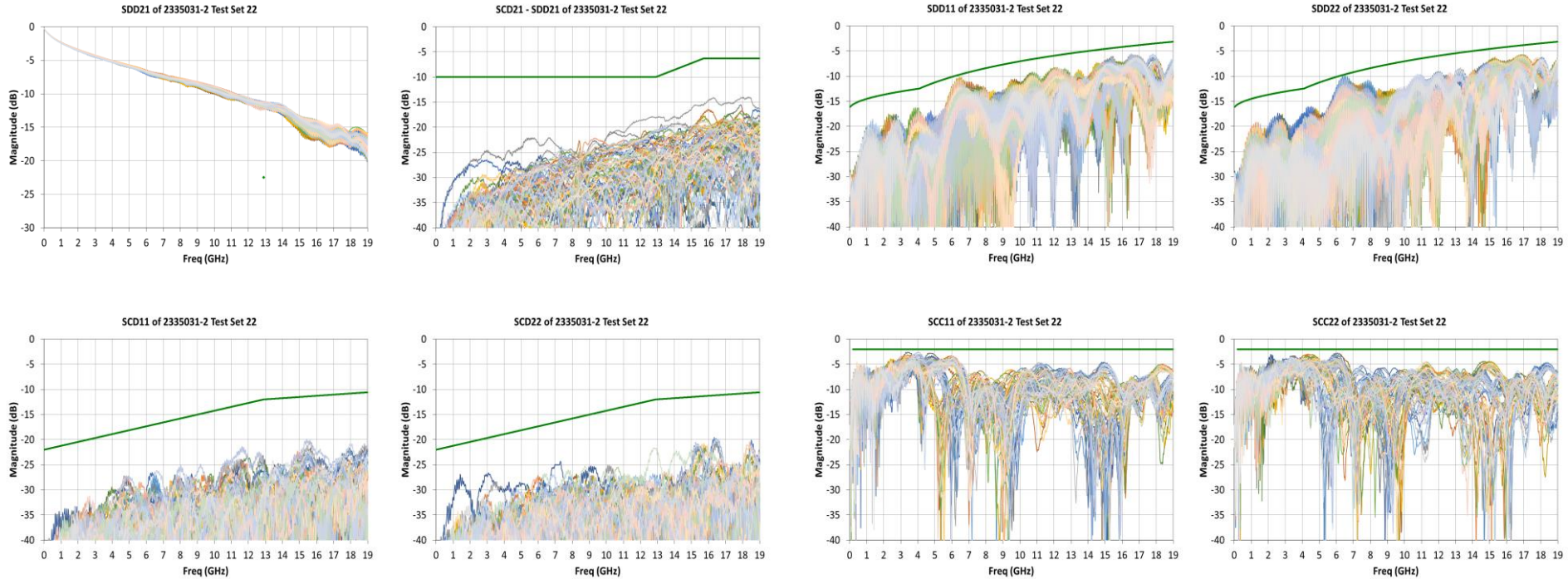
2821906-5 (O-O 1m 30awg): Thermal Shock Test Group 5, Test Set 21, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.2	6.1	6.2	6.1	6.2
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

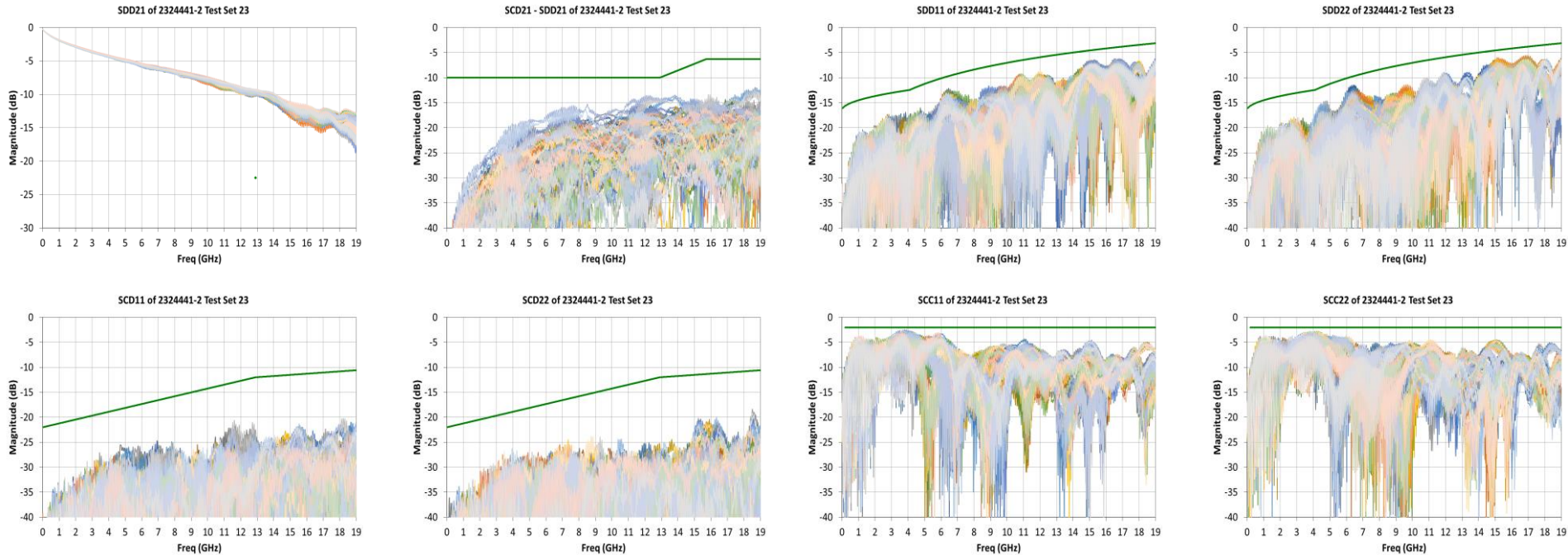
2335031-2 (O-2Q 1m 32awg): Thermal Shock Test Group 5, Test Set 22, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.8	5.9	5.8	5.8	5.9
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

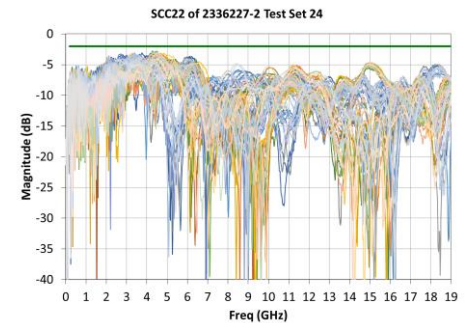
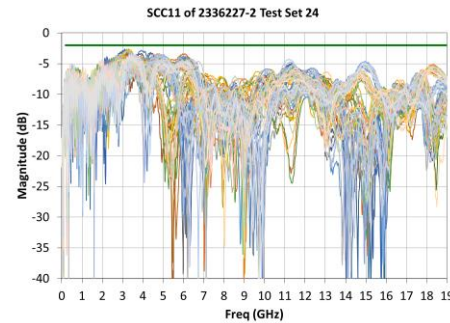
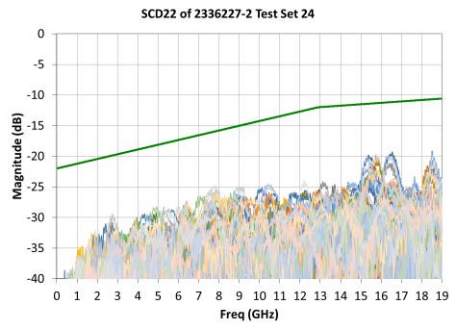
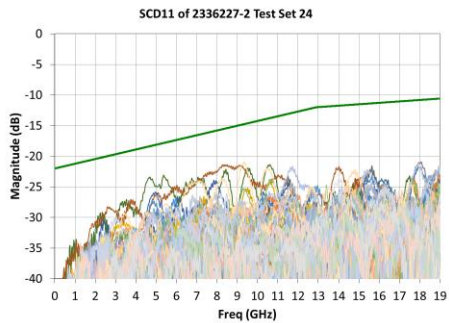
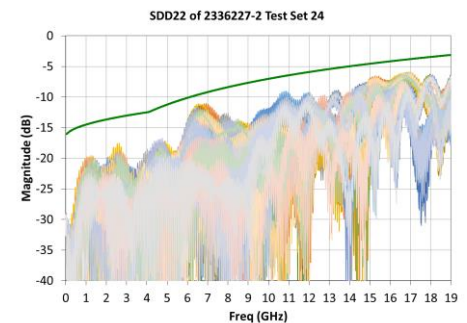
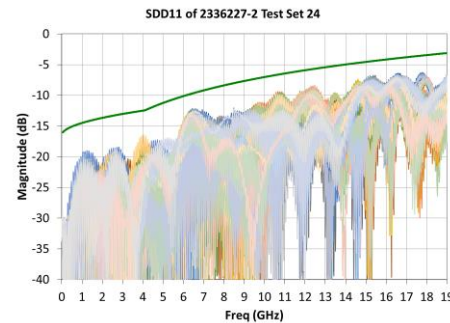
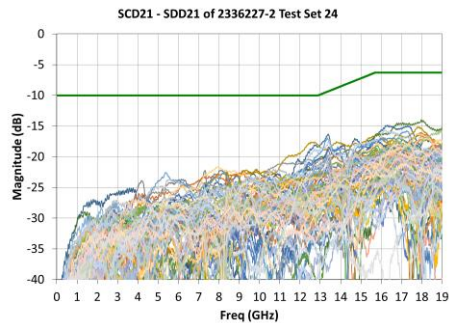
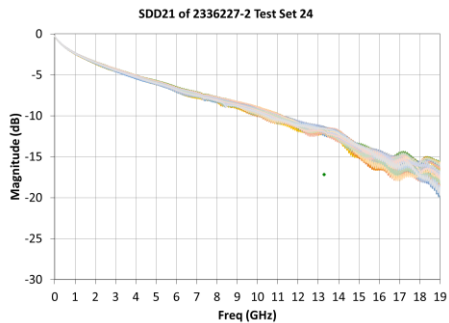
2324441-2 (O-2Q 1m 30awg): Thermal Shock Test Group 5, Test Set 23, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.1	6.1	5.9	6.1	6.2
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

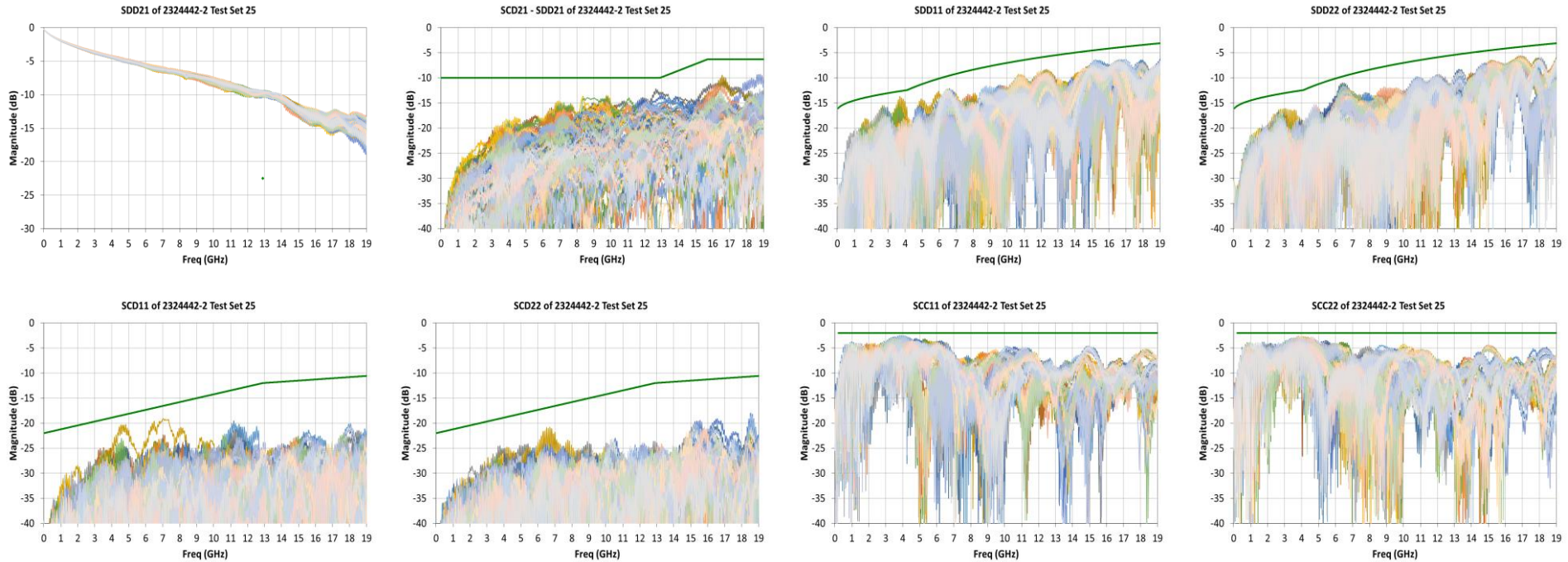
2336227-2 (O-4Q 1m 32awg): Thermal Shock Test Group 5, Test Set 24, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.7	5.9	5.9	6.0	5.8
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

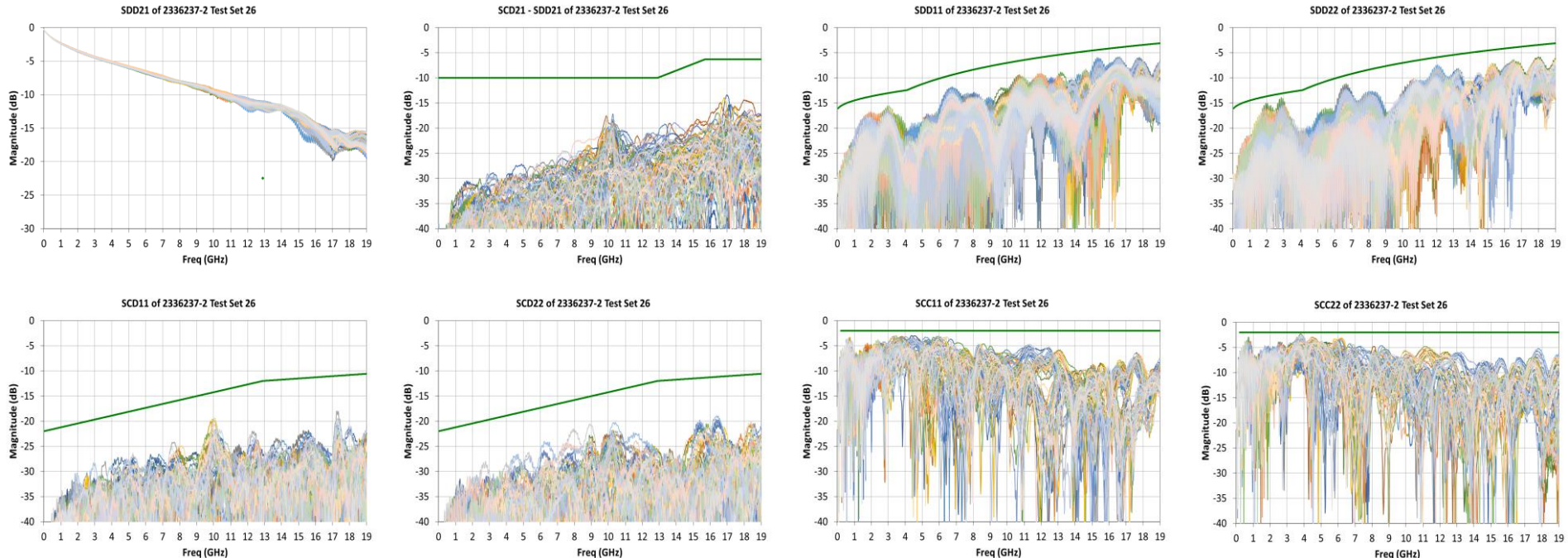
2324442-2 (O-4Q 1m 30awg): Thermal Shock Test Group 5, Test Set 25, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.1	5.8	6.0	6.2	6.1
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

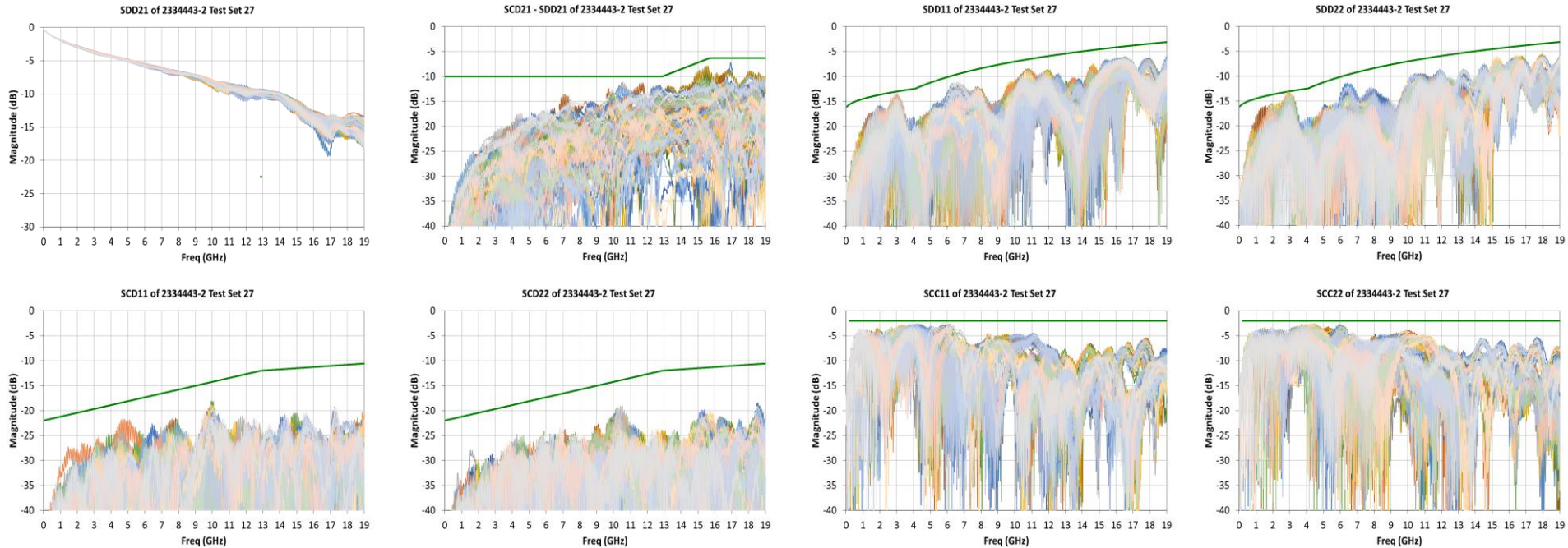
2336237-2 (O-8S 1m 32awg): Thermal Shock Test Group 5, Test Set 26, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.5	5.7	5.6	5.6	5.6
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

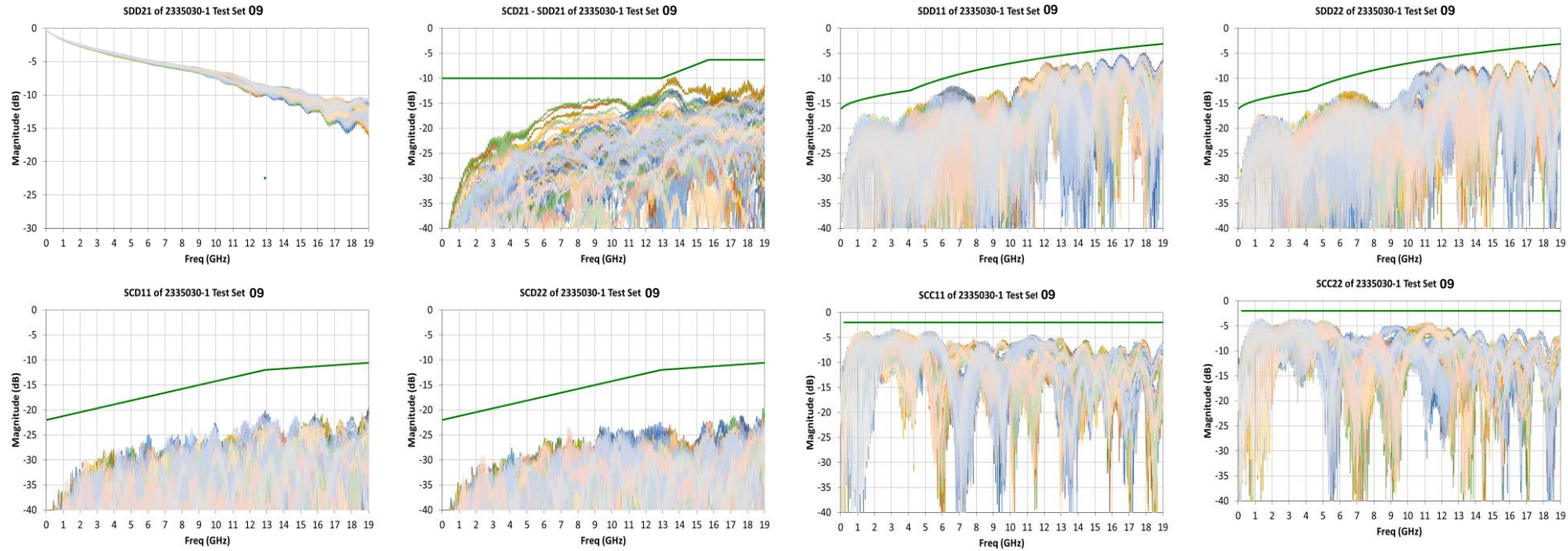
2324443-2 (O-8S 1m 30awg): Thermal Shock Test Group 5, Test Set 27, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.8	6.0	5.8	5.8	6.1
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

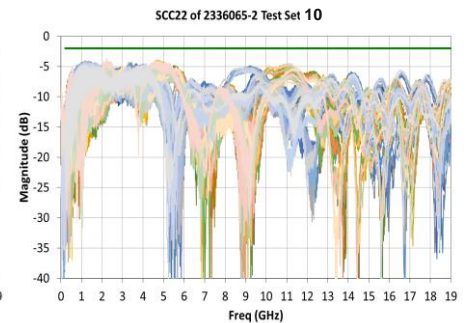
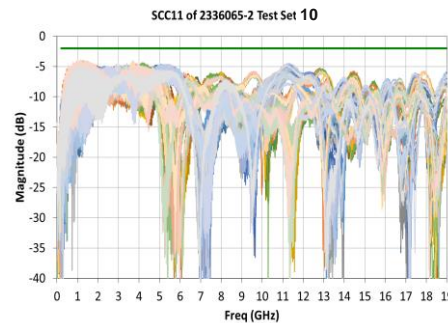
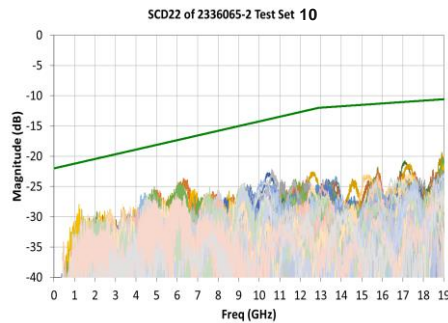
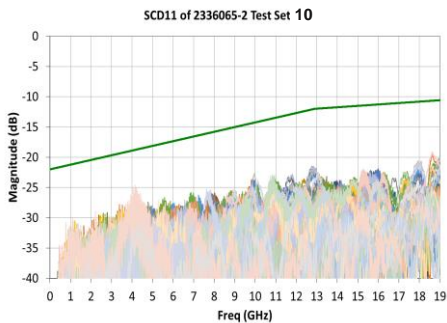
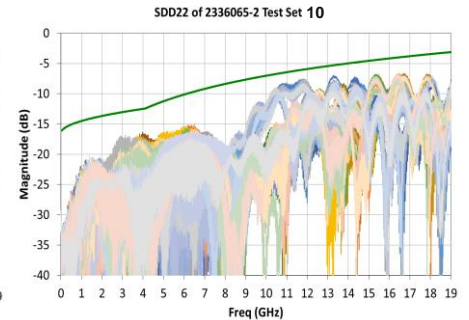
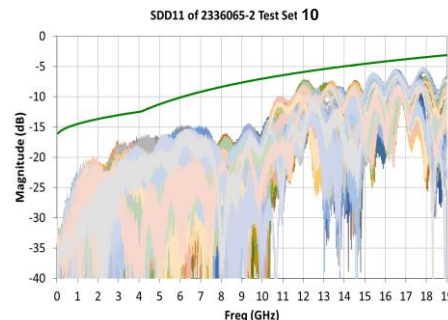
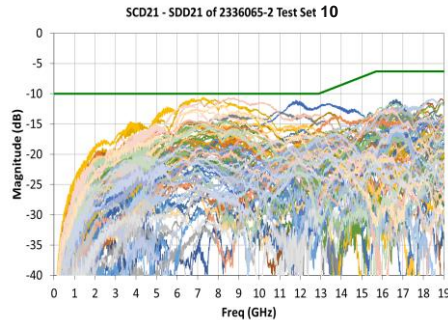
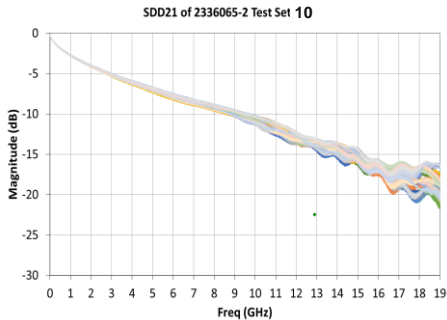
2335030-1 (O-O 1m 28awg): Thermal Shock Test Group 5, Test Set 09, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.1	5.9	6.1	6.0	6.1
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

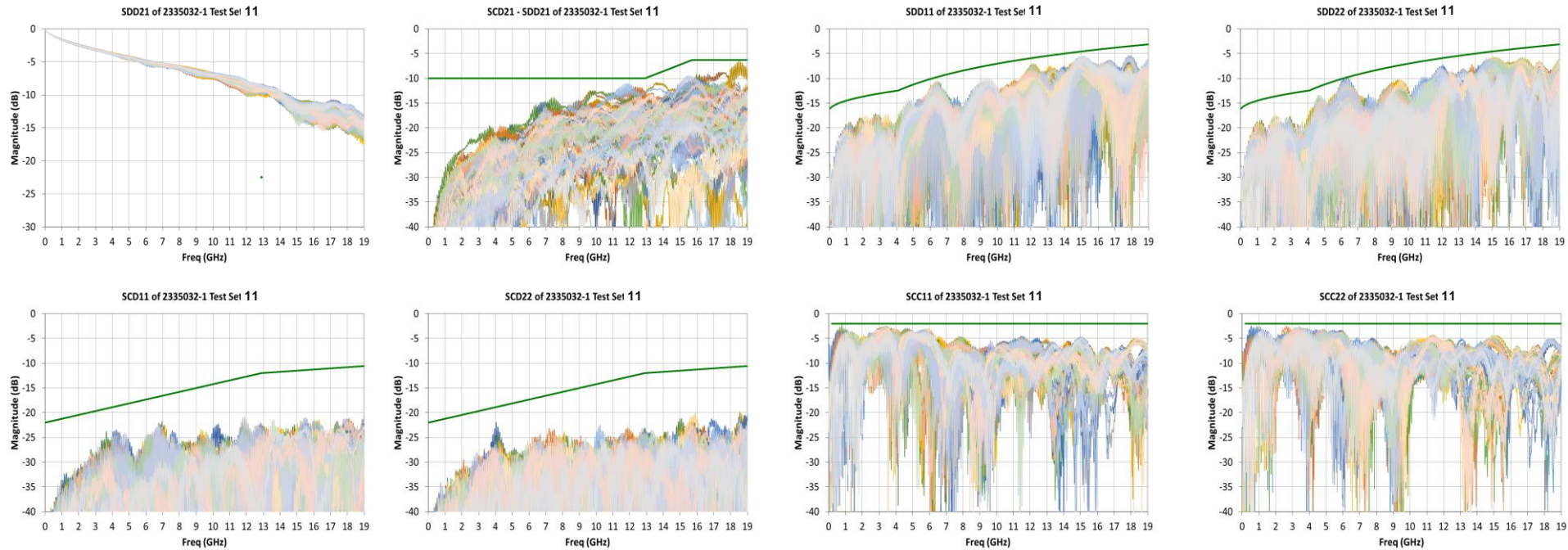
2336065-2 (O-O) 2.5m 26awg): Thermal Shock Test Group 5, Test Set 10, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	4.6	4.4	4.4	4.5	4.6
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

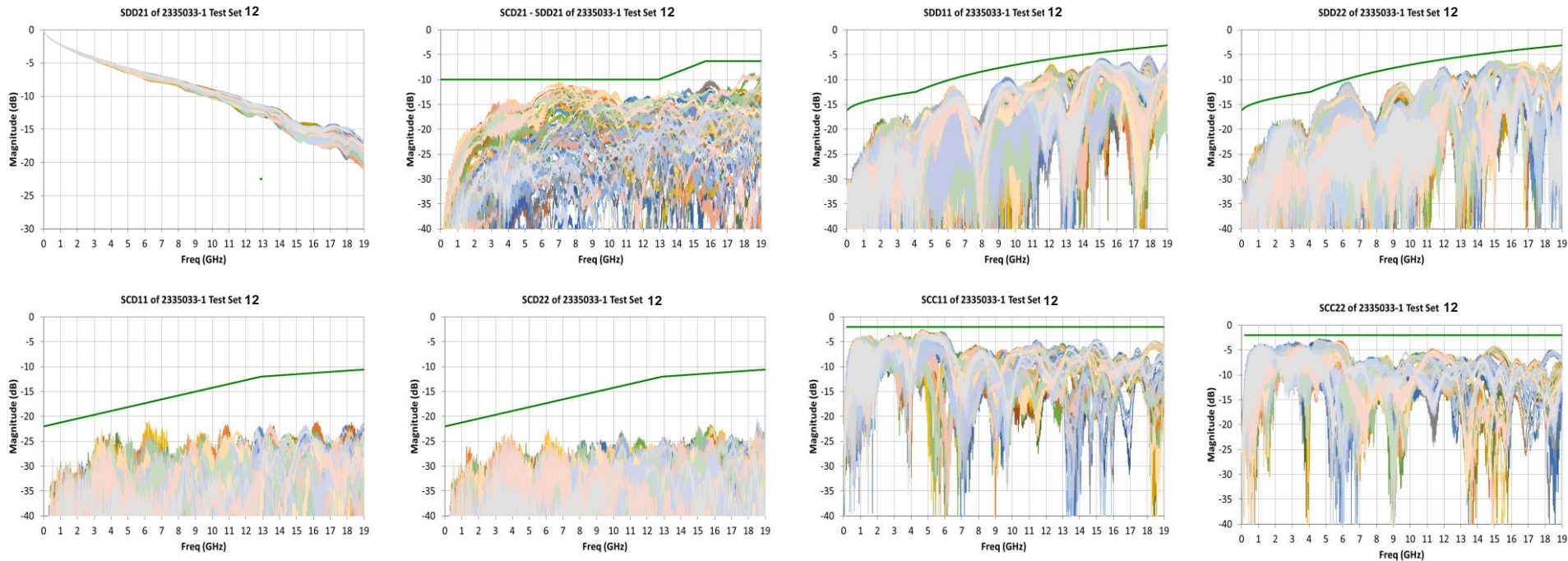
2335032-1 (O-2Q 1m 28awg): Thermal Shock Test Group 5, Test Set 11, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.9	6.0	6.0	6.0	6.0
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

2335033-1 (O-2Q 2m 26awg): Thermal Shock Test Group 5, Test Set 12, Sequence 7



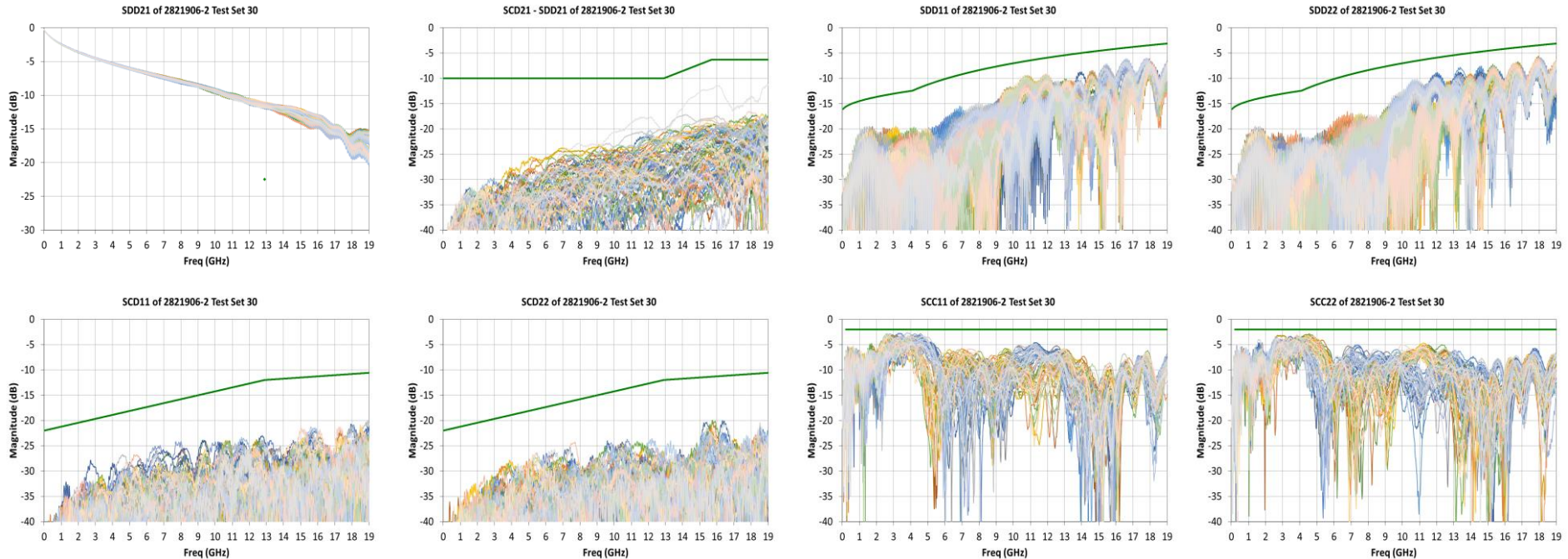
IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	4.6	4.7	4.1	4.1	4.7
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

Test Group 7: Temperature Life

IA-364-17, Method A, Test Subject mated specimens to 70°C for 500 hours.
High Speed Test before and after Temperature Life.

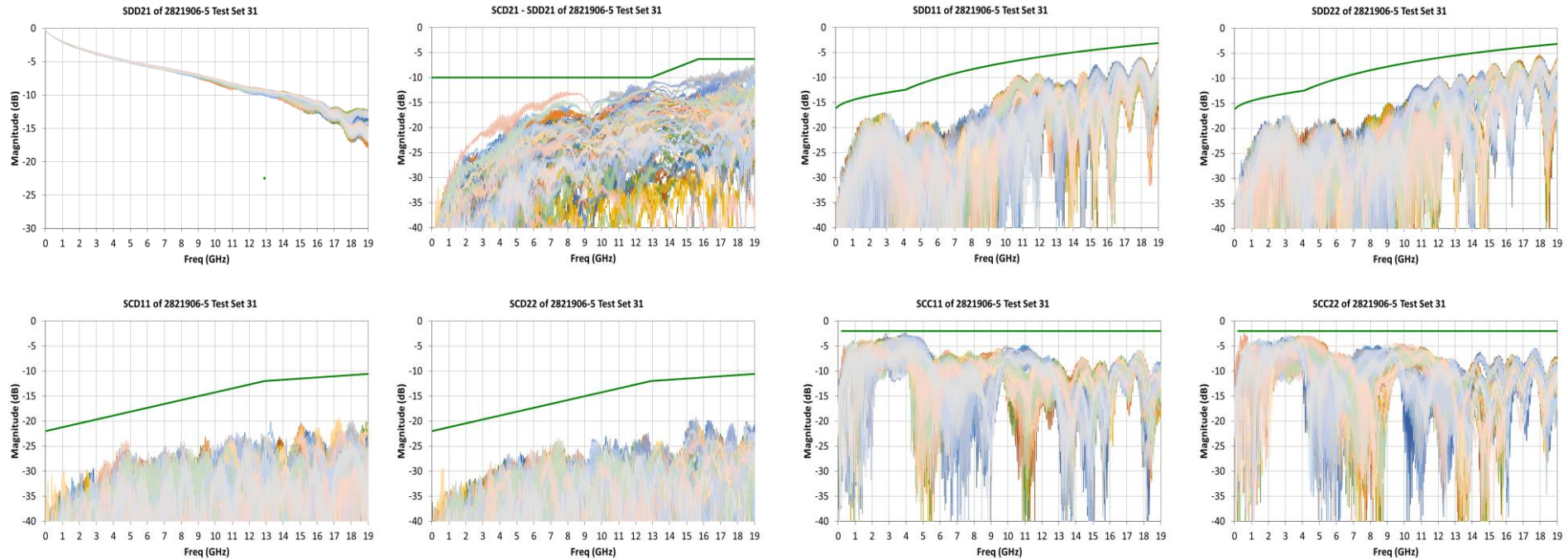
2821906-2 (O-O 1m 32awg): Temp Life Test Group 7, Test Set 30, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.0	6.0	6.0	5.9	5.8
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

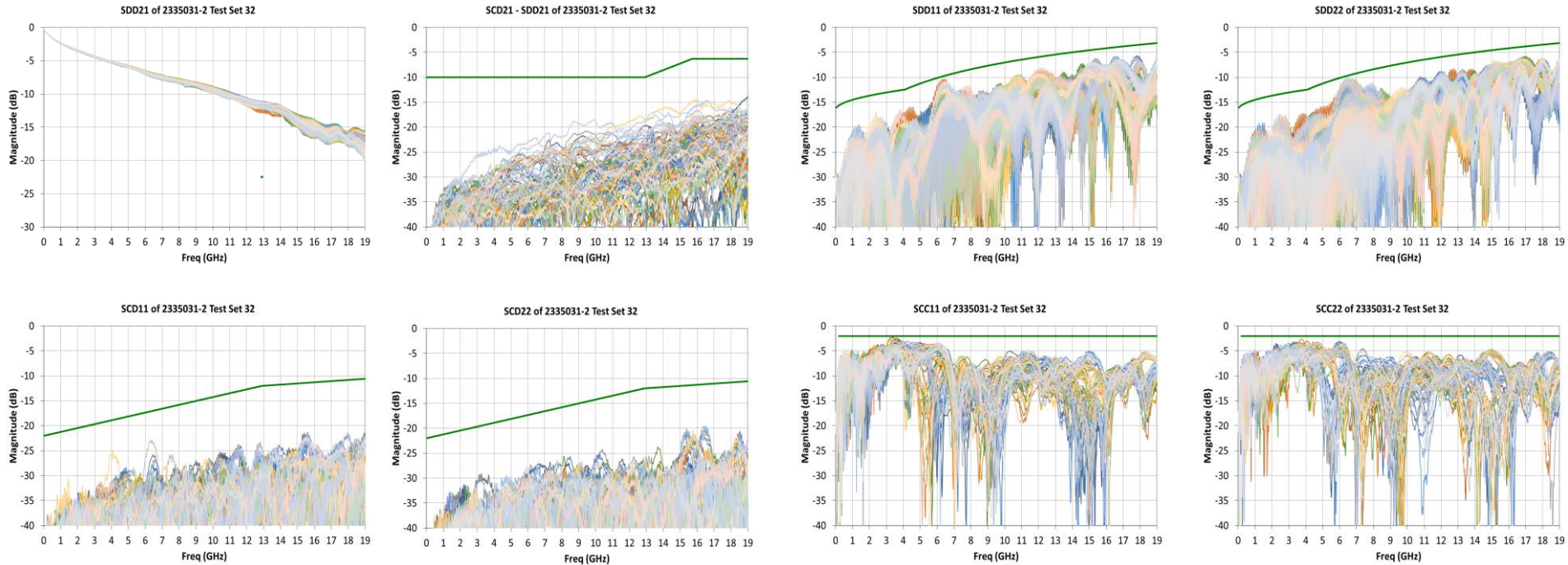
2821906-5 (O-O 1m 30awg): Temp Life Test Group 7, Test Set 31, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.2	6.2	6.2	6.2	6.2
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

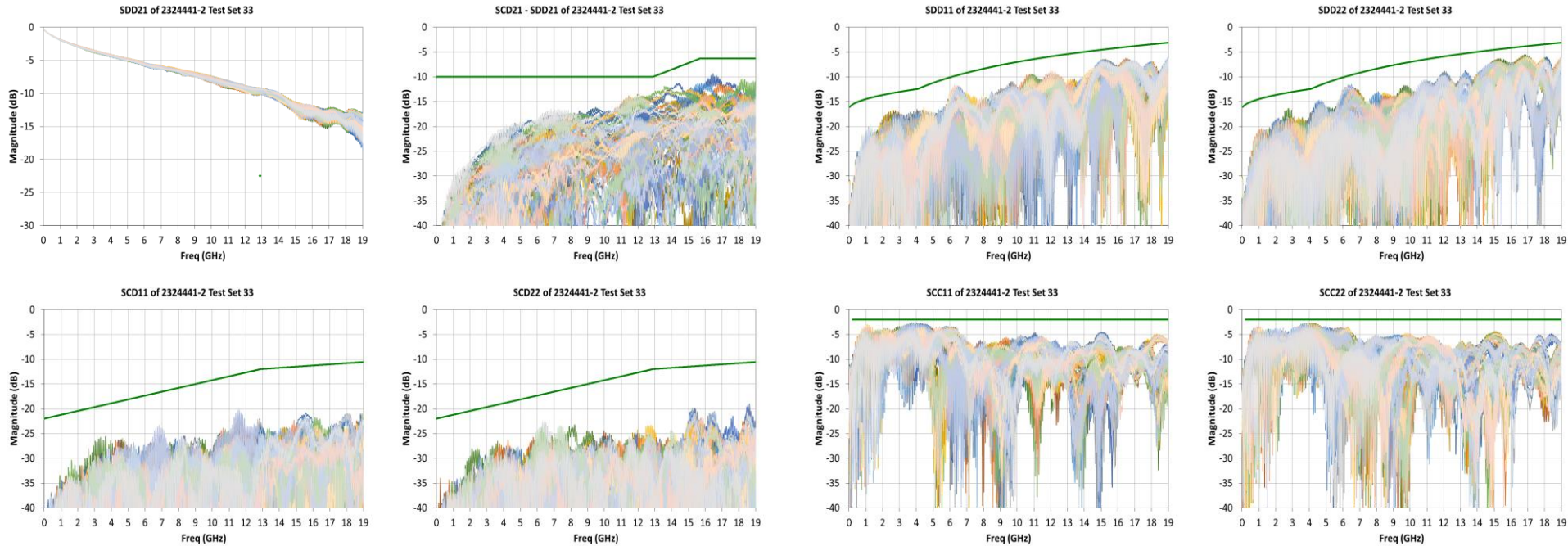
2335031-2 (O-2Q 1m 32awg): Temp Life Test Group 7, Test Set 32, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.8	5.9	6.0	5.9	5.7
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

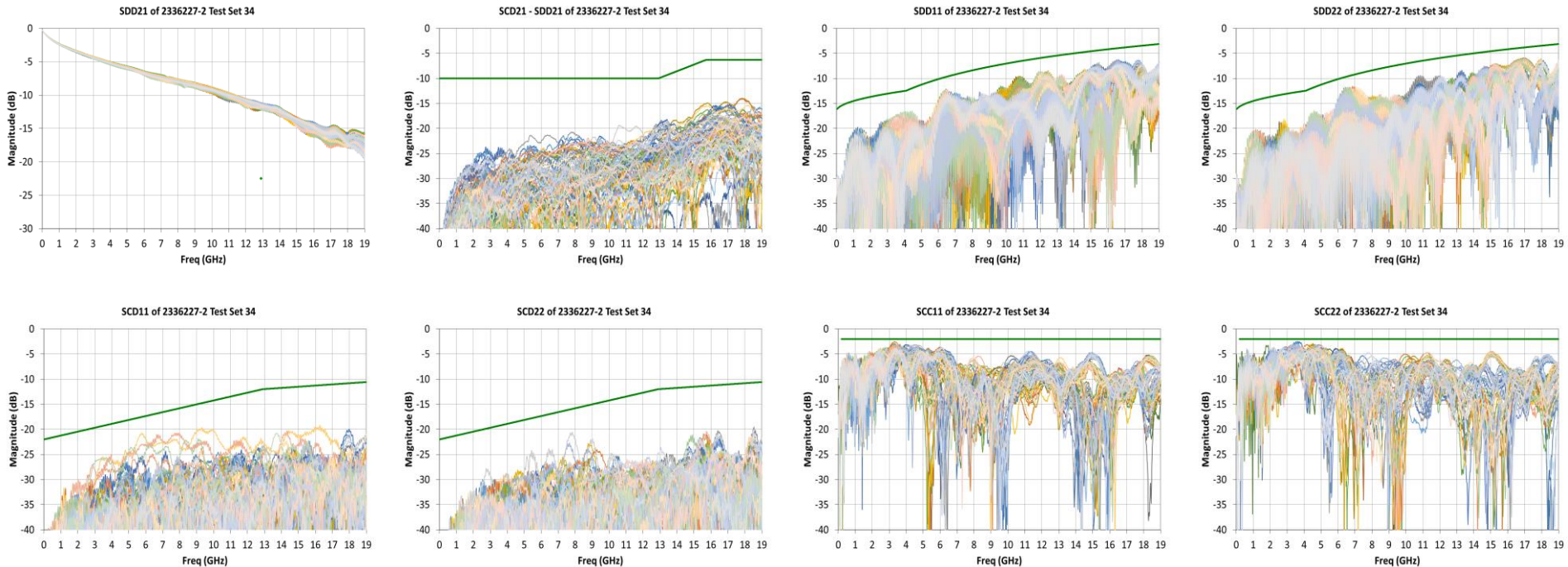
2324441-2 (O-2Q 1m 30awg): Temp Life Test Group 7, Test Set 33, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.0	6.0	6.1	6.0	6.2
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

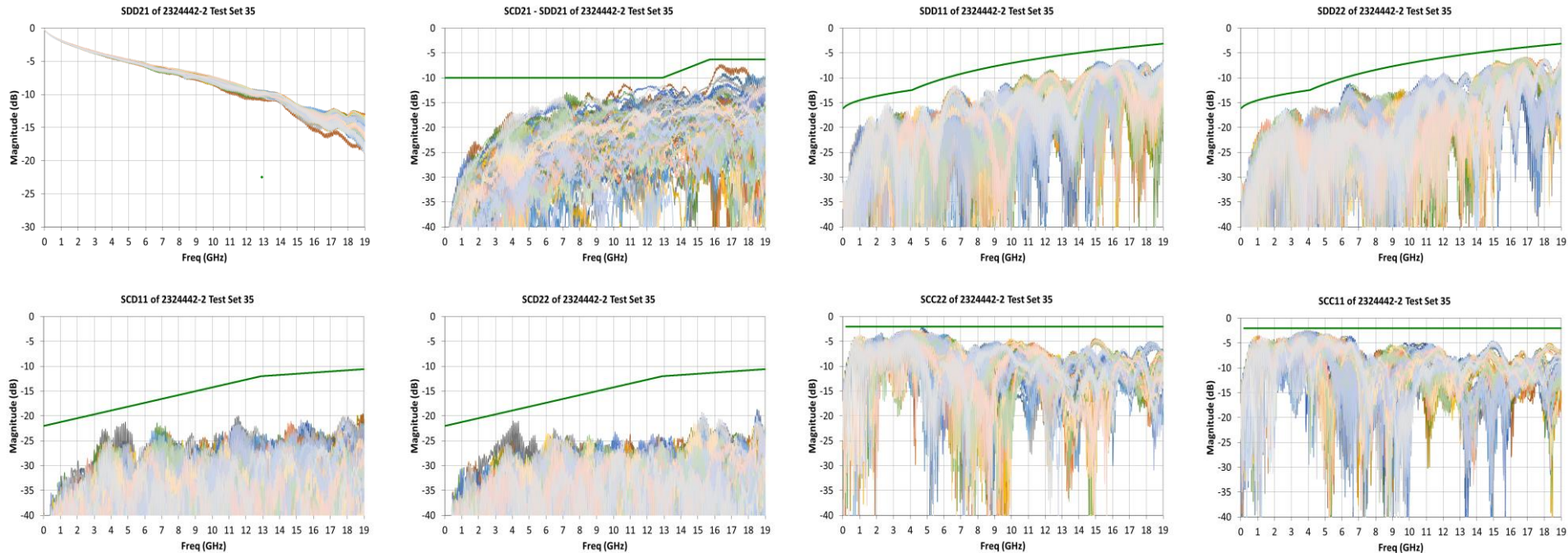
2336227-2 (O-4Q 1m 32awg): Temp Life Test Group 7, Test Set 34, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.8	6.0	5.9	5.9	5.6
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

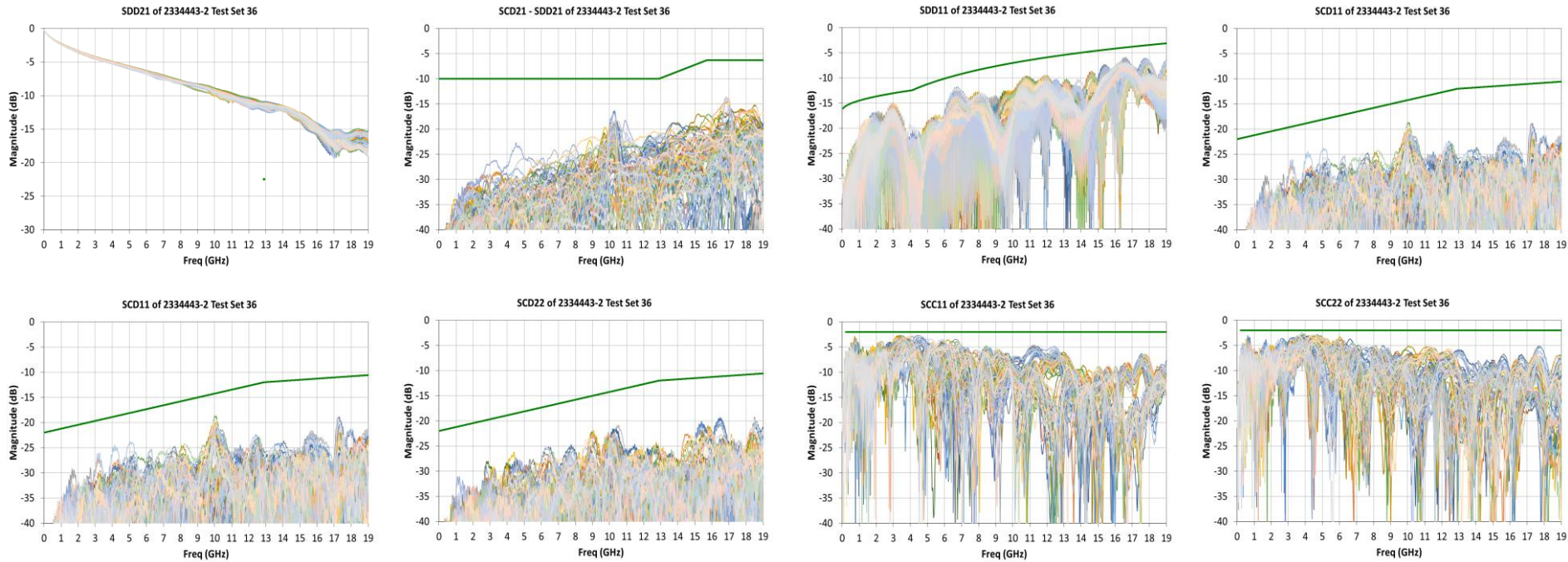
2324442-2 (O-4Q 1m 30awg): Temp Life Test Group 7, Test Set 35, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.8	5.8	5.8	6.0	5.6
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

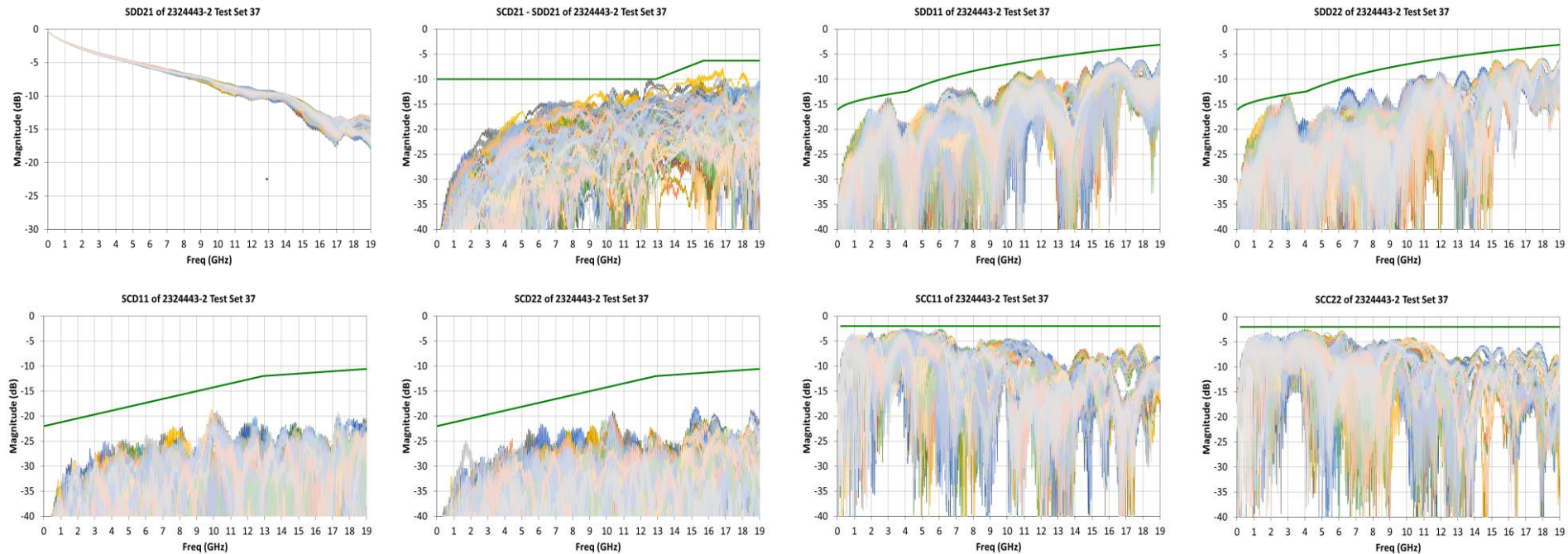
2336237-2 (O-8S 1m 32awg): Temp Life Test Group 7, Test Set 36, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.3	5.5	5.5	5.6	5.7
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

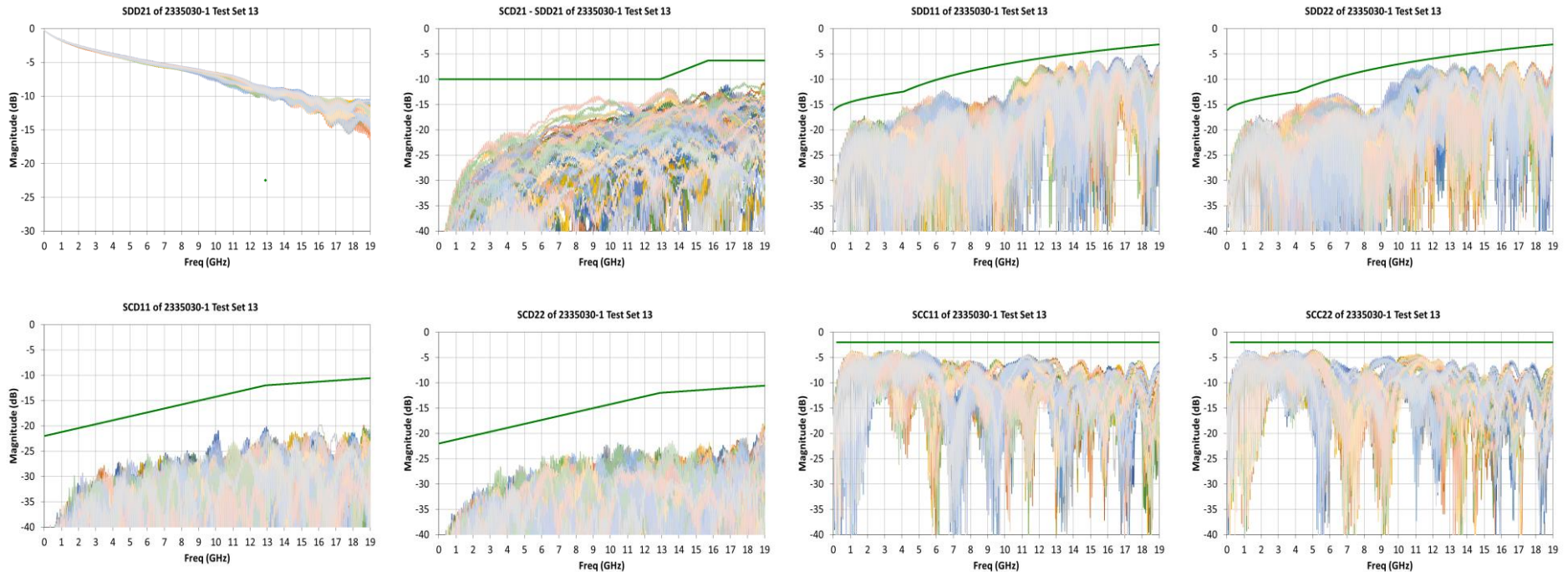
2324443-2 (O-8S 1m 30awg): Temp Life Test Group 7, Test Set 37, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.8	6.0	6.0	5.9	5.9
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

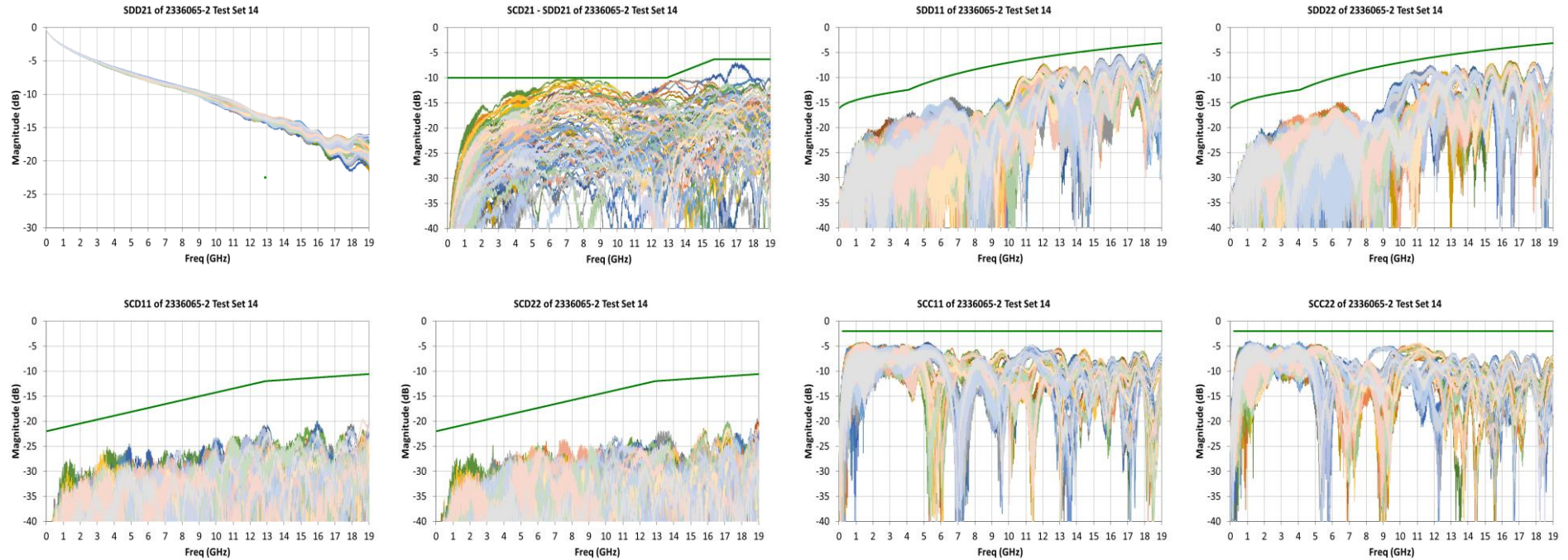
2335030-1 (O-O 1m 28awg): Temp Life Test Group 7, Test Set 13, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	6.1	6.0	6.1	6.1	6.2
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

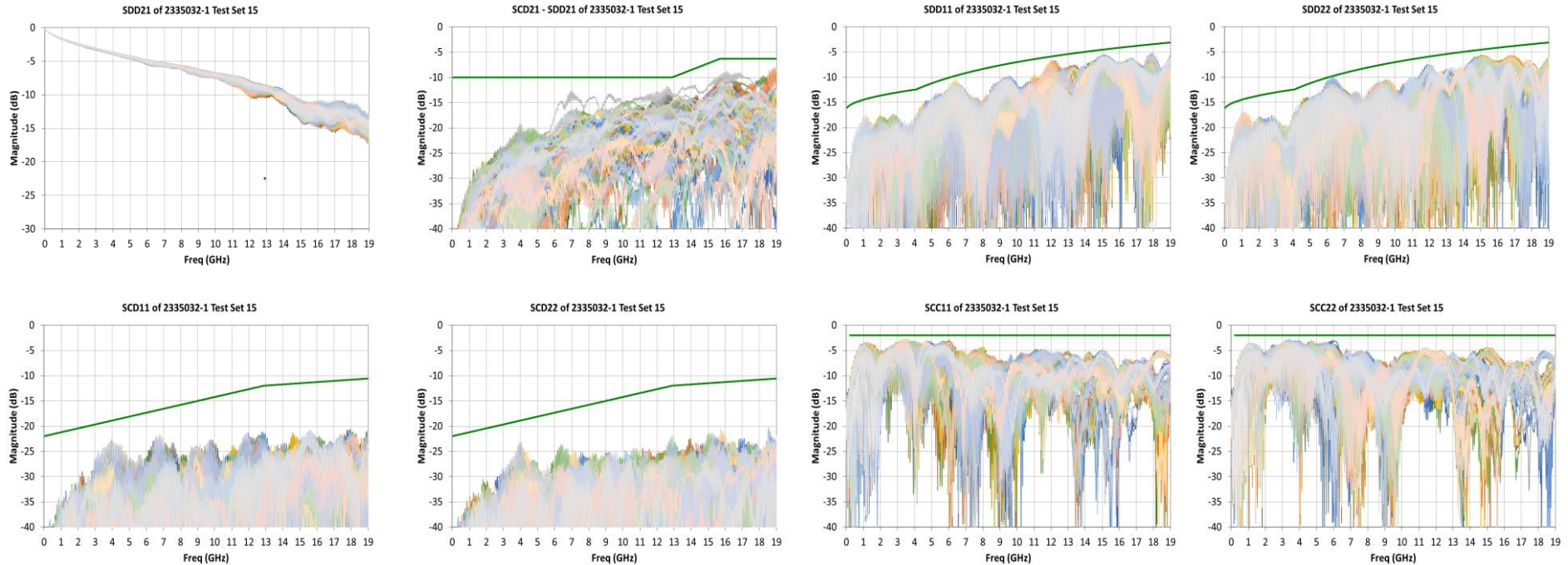
2336065-2 (O-O 2.5m 26awg): Temp Life Test Group 7, Test Set 14, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	4.1	4.2	4.5	4.2	4.4
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

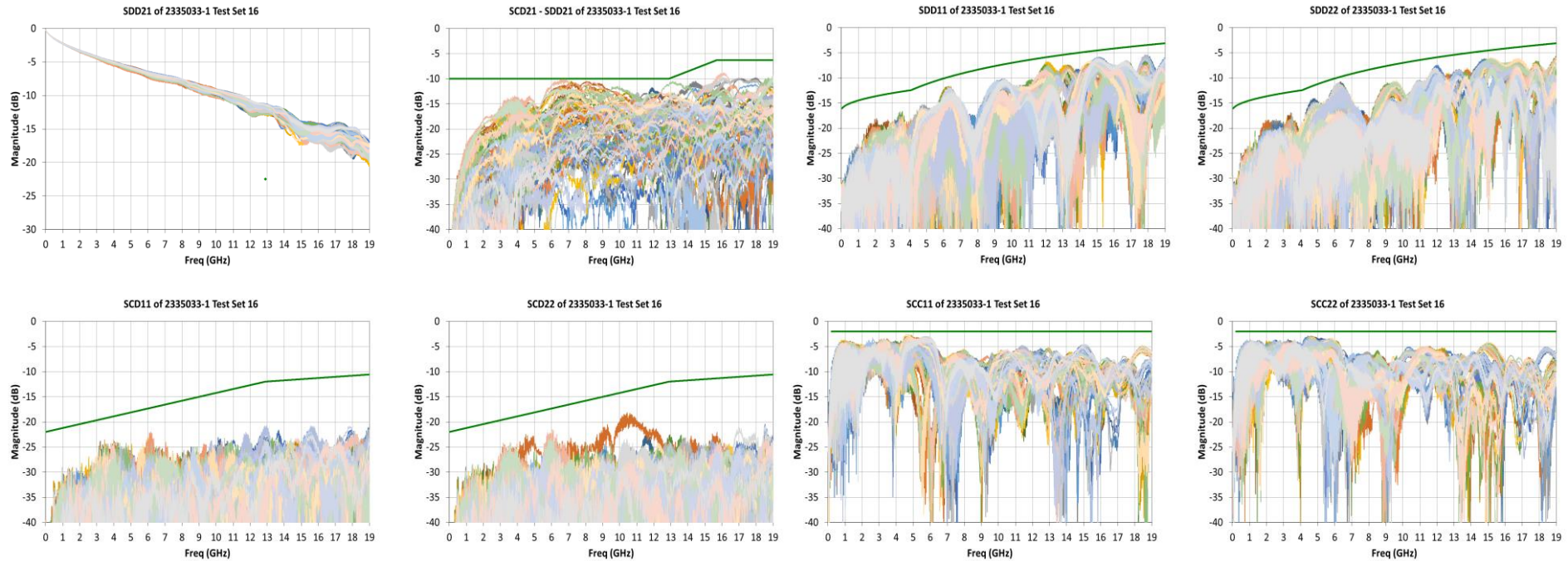
2335032-1 (O-2Q 1m 28awg): Temp Life Test Group 7, Test Set 15, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	5.8	5.8	5.9	5.8	6.0
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES

2335033-1 (O-2Q 2m 26awg): Temp Life Test Group 7, Test Set 16, Sequence 7



IEEE 802.3cd COM	SN1	SN2	SN3	SN4	SN5
Min COM (case 2)	4.1	3.9	4.2	4.6	4.7
LIMIT: 3.0 dB	PASS	PASS	PASS	PASS	PASS

DATA AND DEVICES