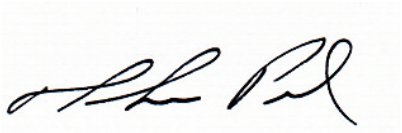
MARCH 9, 2022

TEST REPORT #221238A, REV.1.1

QUALIFICATION TESTING
SERIES K804 CONNECTOR

OMNETICS CONNECTOR CORPORATION



APPROVED BY: THOMAS PEEL
PRESIDENT AND
DIRECTOR OF TEST PROGRAM DEVELOPMENT
CONTECH RESEARCH, INC.
RUMFORD, RI

REVISION HISTORY

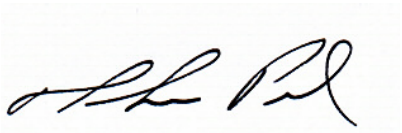
DATE	REV. NO.	DESCRIPTION	ENG.
3/9/2022	1.0	Initial Issue	TP
1/27/2023	1.1	Replaced Report in Appendix B	TP

CERTIFICATION

This is to certify that the evaluation described herein was designed and executed by personnel of Contech Research, Inc. It was performed with the concurrence of Omnetics Connector Corporation, of Minneapolis, MN who was the test sponsor.

All equipment and measuring instruments used during testing were calibrated and traceable to ISO/IEC17025:2017 as applicable.

All data, raw and summarized, analysis and conclusions presented herein are the property of the test sponsor. No copy of this report, except in full, shall be forwarded to any agency, customer, etc., without the written approval of the test sponsor and Contech Research.



APPROVED BY: THOMAS PEEL
PRESIDENT AND
DIRECTOR OF TEST PROGRAM DEVELOPMENT
CONTECH RESEARCH, INC.
RUMFORD, RI

TP:cf

SCOPE

To perform Qualification testing on high performance ultraminiature circular connectors as manufactured and submitted by the test sponsor Omnetics Connector Corporation.

APPLICABLE DOCUMENTS

0. Unless otherwise specified, the following documents of issue in effect at the time of testing performed form a part of this report to the extent as specified herein. The requirements of sub-tier specifications and/or standards apply only when specifically referenced in this report.

2. KILO 360 Series K804 Test Plan

3. Standards:

a) MIL-STD-810
b) EIA Publication 364
c) MIL-DTL-38999

TEST SAMPLES AND PREPARATION

0. The following test samples were submitted by the test sponsor, Omnetics Connector Corporation, for the evaluation to be performed by Contech Research, Inc.

Test Group/Part Number

Group 1:
K804-001-6-7-A / K804-003-6-7-A
K804-001-9-19-A / K804-003-9-19-A
K804-001-10-26-A / K804-003-10-26-A
Group 2:
K804-001-6-7-B / K804-003-6-7-B
K804-001-9-19-B / K804-003-9-19-B
K804-001-10-26-B / K804-003-10-26-B
Group 3:
K804-001-6-7-C / K804-003-6-7-C
K804-001-9-19-C / K804-003-9-19-C
K804-001-10-26-C / K804-003-10-26-C
Group 4 (uncabled):
K804-001-6-7-D / K804-003-6-7-D
K804-001-10-26-D / K804-003-10-26-D

TEST SAMPLES AND PREPARATION –continued

2. The following additional materials were supplied by the test sponsor to assist and perform the testing of items listed in #1 above.

   Description

   a) 3 Jaw Clamp (R-CJ-3)
   b) Alignment Fixture

3. The test samples as submitted were supplied by the manufacturer as being fabricated and assembled utilizing normal production techniques common for this type of product and inspected in accordance with the quality criteria as established for the product involved.

4. Connectors were supplied with the appropriate conductors terminated in place by the test sponsor.

5. All test samples were coded and identified by Contech Research to maintain continuity throughout the test sequences. Upon initiating testing, mated test samples remained with each other throughout the test sequences for which they were designated.

6. Figure #1 illustrates the test sample used for the evaluation.

7. All equipment and measuring instruments used during testing were calibrated and traceable to ISO/IEC17025:2017, as applicable.

8. Unless otherwise specified in the test procedures used, no further preparation was used.

TEST SELECTION

1. See Test Plan Flow Diagram, Figure #2, for test sequences used.

–continued on next page.

TEST SELECTION–continued

2. Test set ups and/or procedures which are standard or common are not detailed or documented herein provided they are certified as being performed in accordance with the applicable (industry or military) test methods, standards and/or drawings as specified in the detail specification.

SAMPLE CODING

1. All samples were coded. Mated test samples remained with each other throughout the test group/sequences for which they were designated. Coding was performed in a manner which remained legible for the test duration.

2. The test samples were coded in the following manner:

Group 1:

K804-001-6-7-A / K804-003-6-7-A	ID# 1, 2
K804-001-9-19-A / K804-003-9-19-A	ID# 3, 4
K804-001-10-26-A / K804-003-10-26-A	ID# 5, 6

Group 2:

K804-001-6-7-B / K804-003-6-7-B	ID# 7, 8
K804-001-9-19-B / K804-003-9-19-B	ID# 9, 10
K804-001-10-26-B / K804-003-10-26-B	ID# 11, 12

Group 3:

K804-001-6-7-C / K804-003-6-7-C	ID# 13, 14
K804-001-9-19-C / K804-003-9-19-C	ID# 15, 16
K804-001-10-26-C / K804-003-10-26-C	ID# 17, 18

Group 4 (uncabled):

K804-001-6-7-D / K804-003-6-7-D	ID# 19, 20
K804-001-10-26-D / K804-003-10-26-D	ID# 21, 22

FIGURE #1

TYPICAL TEST SAMPLES

FIGURE #2

TEST PLAN FLOW DIAGRAM

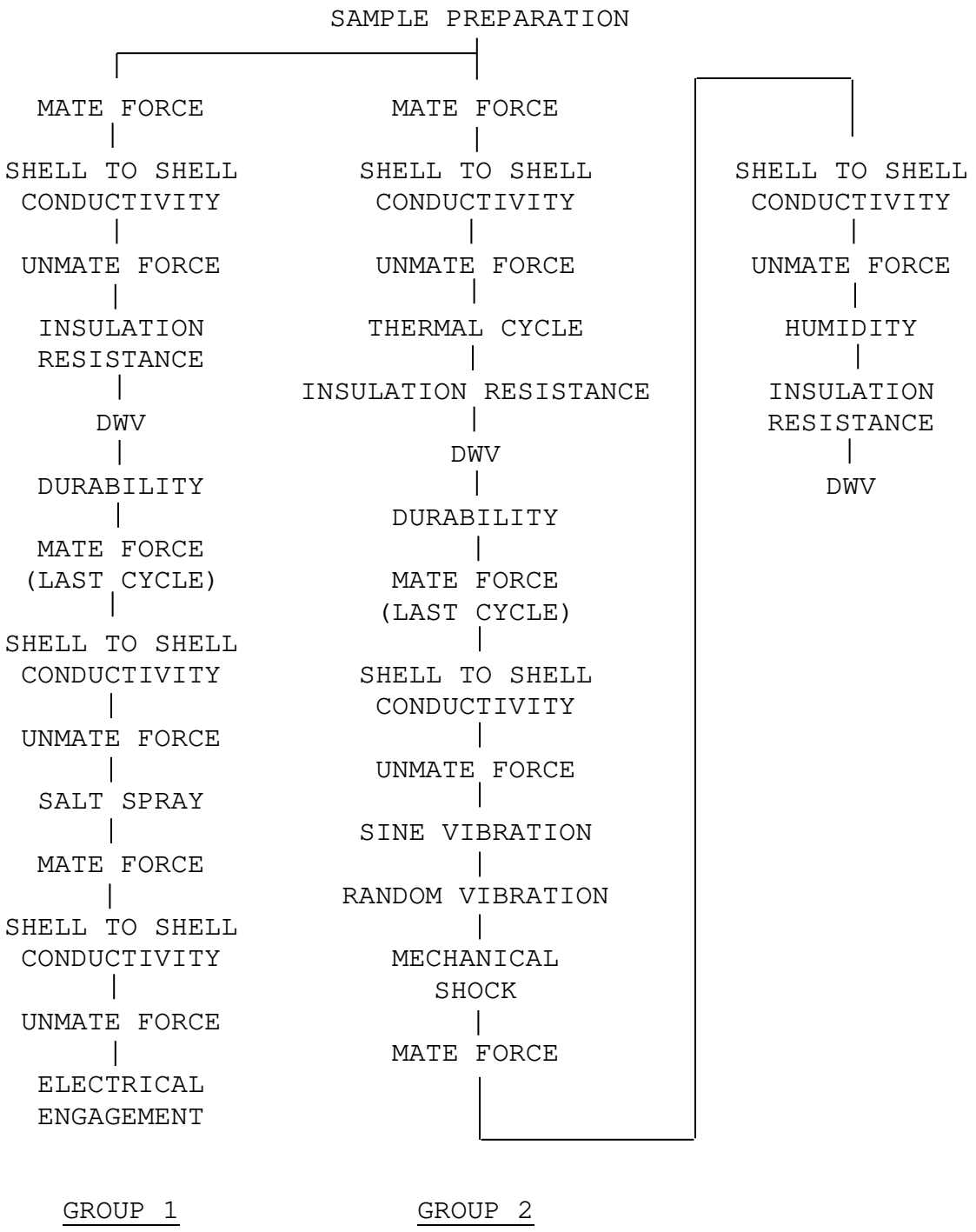
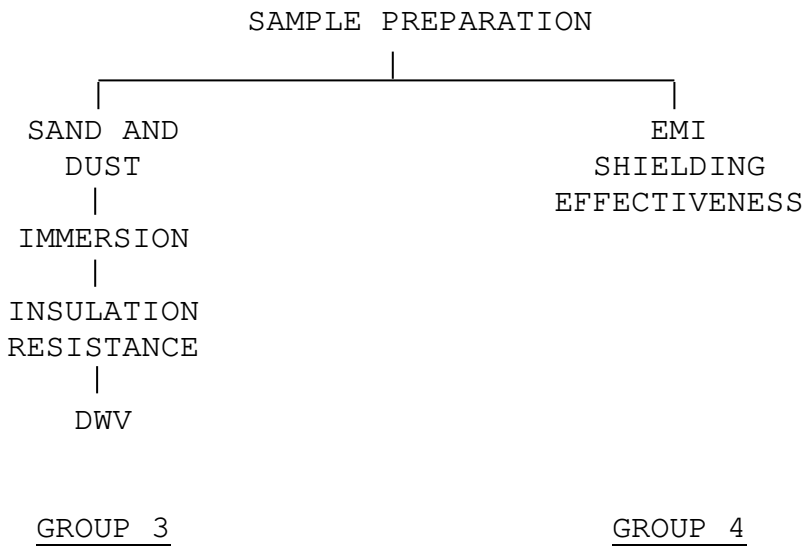


FIGURE #2 -continued

TEST PLAN FLOW DIAGRAM



DATA SUMMARY

TEST	REQUIREMENT	RESULTS
GROUP 1		
MATE FORCE		
-7 POSITION	RECORD	11.4 LBS.MAX.
-19 POSITION	RECORD	18.0 LBS.MAX.
-26 POSITION	RECORD	23.7 LBS.MAX.
SHELL TO SHELL CONDUCTIVITY		
-7 POSITION	2.5 mV MAX.	1.2 mV MAX.
-19 POSITION	2.5 mV MAX.	1.3 mV MAX.
-26 POSITION	2.5 mV MAX.	1.3 mV MAX.
UNMATE FORCE		
-7 POSITION	RECORD	11.0 LBS.MAX.
-19 POSITION	RECORD	12.9 LBS.MAX.
-26 POSITION	RECORD	16.0 LBS.MAX.
INSULATION RESISTANCE		
-7 POSITION	5,000 MEGHOMS MIN.	>10,000 MEGHOMS
-19 POSITION	5,000 MEGHOMS MIN.	>10,000 MEGHOMS
-26 POSITION	5,000 MEGHOMS MIN.	>10,000 MEGHOMS
DWV		
-7 POSITION	NO BREAKDOWN, ETC.	PASSED
-19 POSITION	NO BREAKDOWN, ETC.	PASSED
-26 POSITION	NO BREAKDOWN, ETC.	PASSED
DURABILITY		
-7 POSITION	NO DAMAGE	PASSED
-19 POSITION	NO DAMAGE	PASSED
-26 POSITION	NO DAMAGE	PASSED
MATE FORCE		
-7 POSITION	RECORD	14.0 LBS.MAX.
-19 POSITION	RECORD	18.9 LBS.MAX.
-26 POSITION	RECORD	22.2 LBS.MAX.

-continued on next page.

DATA SUMMARY-continued

TEST	REQUIREMENT	RESULTS
GROUP 1 -continued		
SHELL TO SHELL CONDUCTIVITY		
-7 POSITION	2.5 mV MAX.	1.1 mV MAX.
-19 POSITION	2.5 mV MAX.	1.3 mV MAX.
-26 POSITION	2.5 mV MAX.	1.6 mV MAX.
UNMATE FORCE		
-7 POSITION	RECORD	12.9 LBS.MAX.
-19 POSITION	RECORD	16.4 LBS.MAX.
-26 POSITION	RECORD	20.0 LBS.MAX.
SALT SPRAY		
-7 POSITION	NO DAMAGE	PASSED
-19 POSITION	NO DAMAGE	PASSED
-26 POSITION	NO DAMAGE	PASSED
MATE FORCE		
-7 POSITION	RECORD	11.0 LBS.MAX.
-19 POSITION	RECORD	15.6 LBS.MAX.
-26 POSITION	RECORD	21.4 LBS.MAX.
SHELL TO SHELL CONDUCTIVITY		
-7 POSITION	5.0 mV MAX.	1.4 mV MAX.
-19 POSITION	5.0 mV MAX.	1.2 mV MAX.
-26 POSITION	5.0 mV MAX.	1.3 mV MAX.
UNMATE FORCE		
-7 POSITION	RECORD	10.4 LBS.MAX.
-19 POSITION	RECORD	15.0 LBS.MAX.
-26 POSITION	RECORD	19.6 LBS.MAX.
ELECTRICAL ENGAGEMENT		
-7 POSITION	RECORD	0.093 INCH.MIN.
-19 POSITION	RECORD	0.081 INCH.MIN.
-26 POSITION	RECORD	0.093 INCH.MIN.

-continued on next page.

DATA SUMMARY-continued

TEST	REQUIREMENT	RESULTS
GROUP 2		
MATE FORCE		
-7 POSITION	RECORD	10.5 LBS.MAX.
-19 POSITION	RECORD	16.2 LBS.MAX.
-26 POSITION	RECORD	23.2 LBS.MAX.
SHELL TO SHELL CONDUCTIVITY		
-7 POSITION	2.5 mV MAX.	1.3 mV MAX.
-19 POSITION	2.5 mV MAX.	1.2 mV MAX.
-26 POSITION	2.5 mV MAX.	1.3 mV MAX.
UNMATE FORCE		
-7 POSITION	RECORD	9.0 LBS.MAX.
-19 POSITION	RECORD	12.9 LBS.MAX.
-26 POSITION	RECORD	16.9 LBS.MAX.
THERMAL CYCLE		
-7 POSITION	NO DAMAGE	PASSED
-19 POSITION	NO DAMAGE	PASSED
-26 POSITION	NO DAMAGE	PASSED
INSULATION RESISTANCE		
-7 POSITION	5,000 MEGHOMS MIN.	>10,000 MEGHOMS
-19 POSITION	5,000 MEGHOMS MIN.	>10,000 MEGHOMS
-26 POSITION	5,000 MEGHOMS MIN.	>10,000 MEGHOMS
DWV		
-7 POSITION	NO BREAKDOWN, ETC.	PASSED
-19 POSITION	NO BREAKDOWN, ETC.	PASSED
-26 POSITION	NO BREAKDOWN, ETC.	PASSED
DURABILITY		
-7 POSITION	NO DAMAGE	PASSED
-19 POSITION	NO DAMAGE	PASSED
-26 POSITION	NO DAMAGE	PASSED

-continued on next page.

DATA SUMMARY-continued

TEST	REQUIREMENT	RESULTS
GROUP 2 -continued		
MATE FORCE		
-7 POSITION	RECORD	12.7 LBS.MAX.
-19 POSITION	RECORD	18.4 LBS.MAX.
-26 POSITION	RECORD	22.9 LBS.MAX.
SHELL TO SHELL CONDUCTIVITY		
-7 POSITION	2.5 mV MAX.	1.5 mV MAX.
-19 POSITION	2.5 mV MAX.	1.1 mV MAX.
-26 POSITION	2.5 mV MAX.	1.3 mV MAX.
UNMATE FORCE		
-7 POSITION	RECORD	10.8 LBS.MAX.
-19 POSITION	RECORD	16.9 LBS.MAX.
-26 POSITION	RECORD	23.6 LBS.MAX.
SINE VIBRATION		
-7 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED
-19 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED
-26 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED
RANDOM VIBRATION		
-7 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED
-19 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED
-26 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED
MECHANICAL SHOCK		
-7 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED
-19 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED
-26 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED

DATA SUMMARY-continued

TEST	REQUIREMENT	RESULTS
GROUP 2 -continued		
MECHANICAL SHOCK		
-7 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED
-19 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED
-26 POSITION	NO DAMAGE 1.0 MICROSECOND	PASSED
MATE FORCE		
-7 POSITION	RECORD	11.4 LBS.MAX.
-19 POSITION	RECORD	17.2 LBS.MAX.
-26 POSITION	RECORD	19.6 LBS.MAX.
SHELL TO SHELL CONDUCTIVITY		
-7 POSITION	2.5 mV MAX.	1.2 mV MAX.
-19 POSITION	2.5 mV MAX.	1.3 mV MAX.
-26 POSITION	2.5 mV MAX.	1.0 mV MAX.
UNMATE FORCE		
-7 POSITION	RECORD	9.8 LBS.MAX.
-19 POSITION	RECORD	15.4 LBS.MAX.
-26 POSITION	RECORD	23.5 LBS.MAX.
HUMIDITY		
-7 POSITION	NO DAMAGE	PASSED
-19 POSITION	NO DAMAGE	PASSED
-26 POSITION	NO DAMAGE	PASSED
INSULATION RESISTANCE		
-7 POSITION	5,000 MEGHOMS MIN.	>50,000 MEGHOMS
-19 POSITION	5,000 MEGHOMS MIN.	>50,000 MEGHOMS
-26 POSITION	5,000 MEGHOMS MIN.	>15,500 MEGHOMS
DWV		
-7 POSITION	NO DAMAGE	PASSED
-19 POSITION	NO DAMAGE	PASSED
-26 POSITION	NO DAMAGE	PASSED

DATA SUMMARY-continued

TEST	REQUIREMENT	RESULTS
GROUP 3		
SAND AND DUST		
-7 POSITION	NO DAMAGE	PASSED
-19 POSITION	NO DAMAGE	PASSED
-26 POSITION	NO DAMAGE	PASSED
IMMERSION		
-7 POSITION	NO DAMAGE	PASSED
-19 POSITION	NO DAMAGE	PASSED
-26 POSITION	NO DAMAGE	PASSED
INSULATION RESISTANCE		
-7 POSITION	5,000 MEGHOMS MIN.	>50,000 MEGHOMS
-19 POSITION	5,000 MEGHOMS MIN.	>50,000 MEGHOMS
-26 POSITION	5,000 MEGHOMS MIN.	>5,500 MEGHOMS
DWV		
-7 POSITION	NO BREAKDOWN, ETC.	PASSED
-19 POSITION	NO BREAKDOWN, ETC.	PASSED
-26 POSITION	NO BREAKDOWN, ETC.	PASSED
GROUP 4		
EMI SHIELDING EFFECTIVENESS		
-7 POSITION	RECORD	SEE REPORT
-26 POSITION	RECORD	SEE REPORT

EQUIPMENT LIST

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq. Cal
18	N/A	N/A	Bench Oven	Blue M Co.	POM7-256C	P38-1452	N/A	N/A
34	N/A	N/A	Shock Machine	Avco	SM110-3	1047	N/A	N/A
118	N/A	N/A	Salt Spray Chamber	Harshaw	21	21-0010	N/A	N/A
222	4/16/2022	4/16/2021	PCB Power Supply	PCB Piezotronics	482A	3782	See Manual	12 mon
315	N/A	N/A	X-Y Table	NE Affiliated Tech.	XY-6060	N/A	N/A	N/A
488	N/A	N/A	X-Y Table	N.E.Affiliated Tech.	XY-6060	932021	N/A	N/A
562	XX1/22/2022	12/22/2020	Programmable Test Stand	Chatillon	TCD 1000	25051	N/A	12 mon
568	10/1/2022	10/1/2021	Temp Humid Chamber	Cincinnati Sub-Zero	ZH-8-1-1 H	2F9522194	See Cal Cert	12 mon
568A	10/1/2022	10/1/2021	Chart Recorder	Honeywell	DR4300	0334Y360186500001	See Cal Cert	12 mon
628	4/15/2022	4/15/2021	Digital Thermometer	Omega Eng.	DP 116	6210125	±1.1DegC	12 mon
653	8/25/2022	8/25/2021	Thermocouple Scanner Card	Keithley	7014	0658085	See Manual	12 Mon
666	4/1/2022	4/1/2021	Digital Thermometer	Omega Eng.	DP116-KC2	7380236	±1.1DegC	12 MON
682	12/15/2022	12/15/2021	P.H. Meter	Omega Eng.Inc.	PHB-305	1875	±.02	12 mon
689	9/3/2022	9/3/2021	DC Power Supply 30Amps	Hewlett Packard	6033A	2548A01848	See Cal Cert	12 mon
1010	N/A	N/A	Plotter	Hewlett Packard	7225B	2160A2293	N/A	N/A
1127RA	6/7/2022	6/7/2021	Chart Recorder	Honeywell	DR4200	9604Y624263400004	See Cal Cert	12 mon
1127	6/7/2022	6/7/2021	Temp/Humid/Chamber	Thermotron	SM-8-C	29503	See Cal Cert	12 mon
1288	9/30/2022	9/30/2021	Digital Multimeter	Fluke	75-III	75980081	See Cal Cert	12 mon
1339	11/9/2022	11/9/2021	Hipot Tester A/C-DC	Quad Tech	Sentry 30	2052040	See Cal Cert	12mon

EQUIPMENT LIST –continued

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq. Cal
1380	N/A	N/A	Scanner Main Frame w/ card 7014	Keithley	7001	0672970	See Manual	N/A
1488	3/9/2022	3/9/2021	Digital Multimeter	Agilent	34401A	3146A49056	See Cal Cert	12 mon
1588	9/16/2022	9/16/2021	Digital Multimeter	Hewlett Packard	34401A	36060076	See Cal Cert	12 mon
1592	12/23/2022	12/23/2021	Digital Multimeter	Hewlett Packard	34401A	36082522	See Cal Cert	12 mon
1609	10/1/2022	10/1/2021	Vert Thermal Shock Chamber	C.S.Z.	VTS-1.0-2-2-H/AC	07-VT14810	See Manual	12 mon
1689	XX1/22/2022	12/22/2020	Programmable Test Stand	Chatillon	TCD 1000-MS	25010	N/A	12 mon
1736	10/4/2022	10/4/2021	Digital Thermometer	Omega	DP116-JC1-GR	1400401	±1.1DegC	12 mon
1752	4/26/2022	4/26/2021	Digital Multimeter	Agilent	34401A	MY47054034	See Cal Cert	12 mon
1790	N/A	N/A	Power Amplier	Unholtz Dickie	SAI30F	4860	N/A	N/A
1791	N/A	N/A	Vibration Shaker Table	Unholtz Dickie	S452-12	314	N/A	N/A
1832	10/4/2022	10/4/2021	1usec Discontinuity Detector	Contech Research	CRL-364TP46-DET1	0001	See Cal Cert	12 mon
1873	5/19/2022	5/19/2021	Digital Caliper	Starrett	EC799A-8/200	16/080429	±0.001"	12 mon
1876	4/7/2022	4/7/2021	Dig O'Scope	HP	54200A	2813A02896	See Cal Cert	12 mon
1902	7/14/2022	7/14/2021	Accelerometer	PCB	353B04	LW211255	See Cal Cert	12 mon
1909	N/A	N/A	Immersion Tube	Contech Research	1 Meter	N/A	N/A	N/A
1914	12/9/2023	12/9/2021	Vibrunner 24	M & P International	Vib Pilot E4	A160031	See Cal Cert	24 months
1915	N/A	N/A	Computer	Dell	Insperion 3668	1CODBN2	N/A	N/A
1934	9/27/2022	9/27/2021	Force Gauge	Chatillon	DFE-050	TOO206	See Cal Cert	12 Months

EQUIPMENT LIST –continued

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq. Cal
1949	9/29/2022	9/29/2021	Pressure Gauge	Ashworth	33HR93	8910	See Cal Cert	12 mons
1951	11/10/2022	11/10/2021	Resistor Reference	Contech Research	CR-RR-01	001	+/- 1%	12 mons
1983	N/A	N/A	Computer	Del	Z600 Workstation	2UA208150R	N/A	N/A
2011	3/15/2022	3/15/2021	Precision Hydrometer	Vee Gee	20KL56	6602-7S	See Cal Cert	12 Mon
2019	3/30/2022	3/30/2021	Shear Accelerometer	PCB	353B04	LW236599	See Cal Cert	12 mons
2038	10/25/2022	10/25/2021	Electrical Safety Analyzer	Chroma	19032(GB-F4)	19032G403425	See manual	12 mon

TEST RESULTS

GROUP 1

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See page 4	PART DESCRIPTION: Circular Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: DWR
START DATE: 12/14/22	COMPLETE DATE: 12/22/21
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 25%
EQUIPMENT ID#: 488, 562, 1934, Omnetics Fixture	

MATING FORCE

PURPOSE:

To determine the mechanical forces required to mate the connectors.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 13.

2. The following part numbers were assembled to the R-CJ-3 JAW clamp fixture as shown below:

    a) K804-001-6-7
    b) K804-001-9-19
    c) K804-001-10-26

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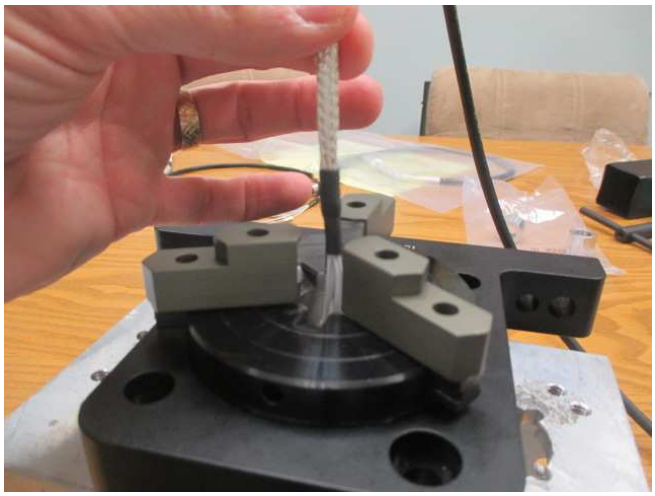
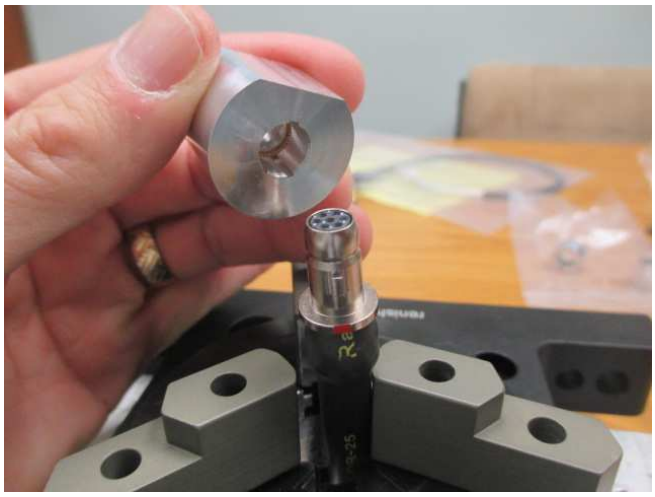
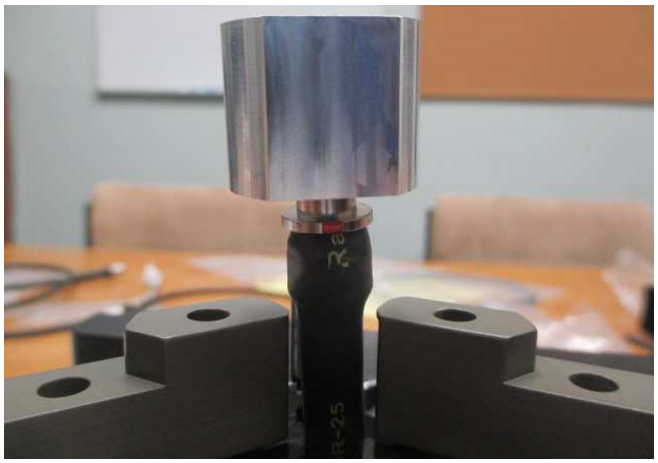
PROCEDURE: -continued



Open the jaws of the fixture and insert the cable through the top of the fixture and through the base.



Insert the alignment block over the top of the connector and push down to lock in place.



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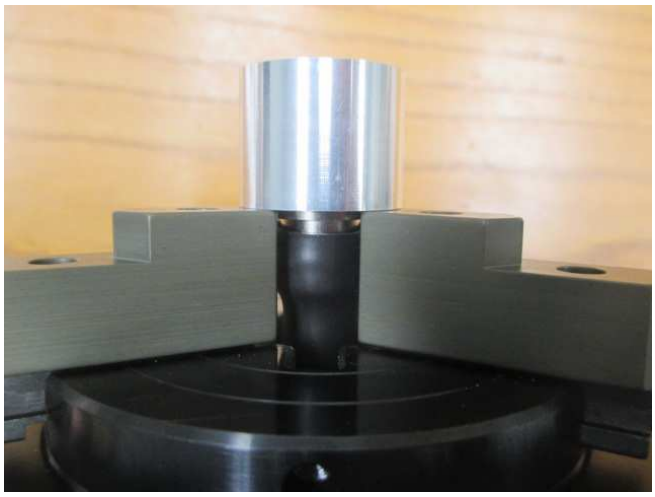
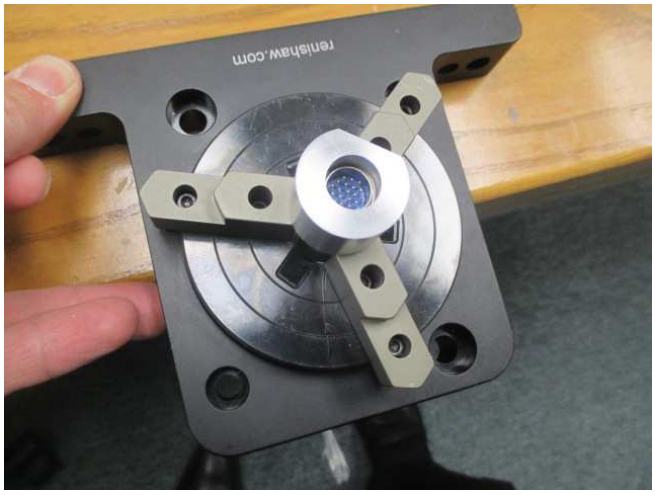
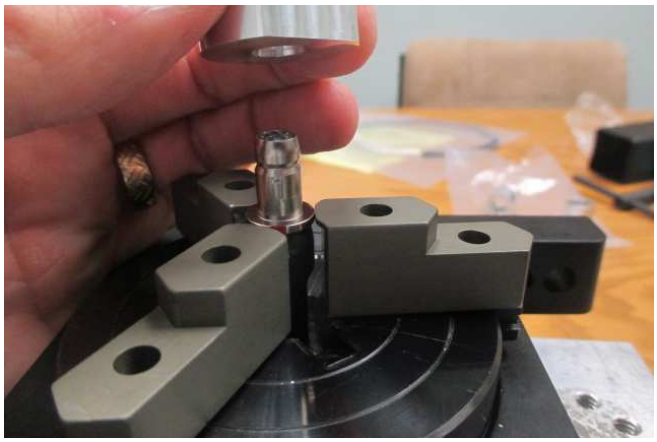
PROCEDURE: -continued







Insert the connector/alignment tool until it bottoms out on the fixture jaws.

Once inserted, rotate the circular ring to lock the connector in place.

Once locked in place, remove the alignment tool.

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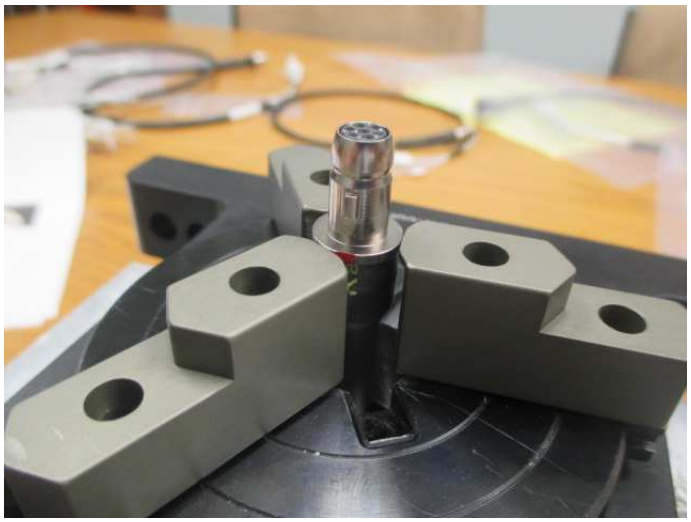
PROCEDURE: -continued



The sample is ready for test.

NOTE: THE MATING HALF CONNECTORS ARE BULKHEAD STYLE AND WILL BE SECRURED TO THE TOP PLATE VIA THE SUPPLIED NUTS.

3. Figure #3 illustrates the final test set-up.

REQUIREMENTS:

The force required to mate the connectors shall be measured and recorded.

RESULTS:

The following is a summary of the observed data:

Part Number/Sample ID#	MATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#1	9.2
ID#2	11.4

-continued on next page.

RESULTS: -continued

Part Number/Sample ID#	MATING FORCE (Pounds)
K804-001-9-19/K804-003-9-19	
ID#3	16.0
ID#4	18.0
K804-001-10-26/K804-003-10-26	
ID#5	19.7
ID#6	23.7

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See page 4	PART DESCRIPTION: Circular Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: DWR
START DATE: 12/14/22	COMPLETE DATE: 12/22/21
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 25%
EQUIPMENT ID#: 689, 1588	

SHELL TO SHELL CONDUCTIVITY

PURPOSE:

To determine shell conductivity of mated connectors.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 83 with the following conditions.

2. Test Conditions:

    a) Test Current : 1.0 Amp
    b) Open Circuit Voltage : 1.5 Millivolts

3. The points of application are shown in Figure #4.

REQUIREMENTS:

The shell to shell conductivity shall not exceed 2.5 millivolts.

RESULTS: See Next Page

RESULTS:

1. The following is a summary of the data observed:

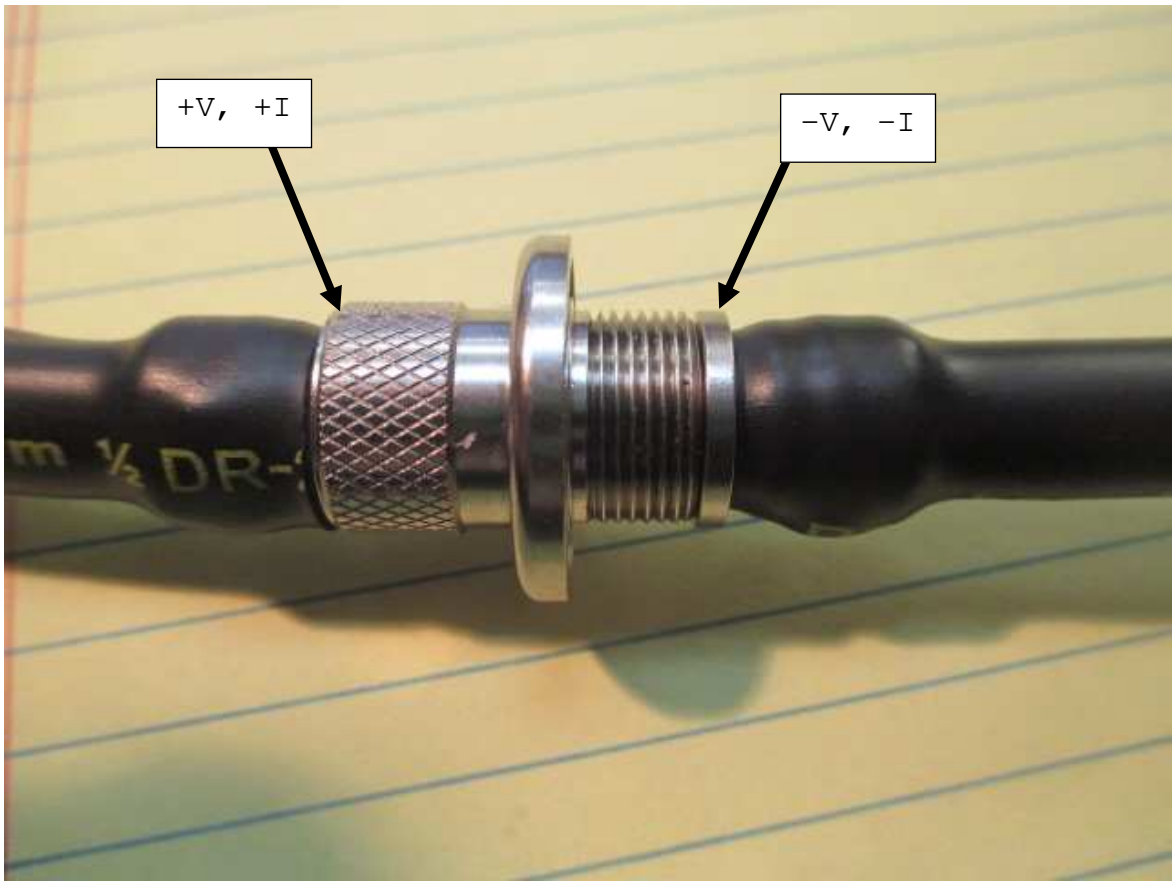
SHELL TO SHELL CONDUCTIVITY
(millivolts)

Part Number/Sample ID#	
K804-001-6-7/K804-003-6-7	
ID#1	1.2
ID#2	1.0
K804-001-9-19/K804-003-9-19	
ID#3	1.3
ID#4	1.0
K804-001-10-26/K804-003-10-26	
ID#5	1.2
ID#6	1.3

2. See data files 221238A01 through 221238A06 for individual data points.

FIGURE #4

SHELL TO SHELL CONDUCTIVITY SET-UP



PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See page 4	PART DESCRIPTION: Circular Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: DWR
START DATE: 12/14/22	COMPLETE DATE: 12/22/21
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 25%
EQUIPMENT ID#: 488, 562, 1934	

UNMATING FORCE

PURPOSE:

To determine the mechanical forces required to unmate the connectors.

PROCEDURE:

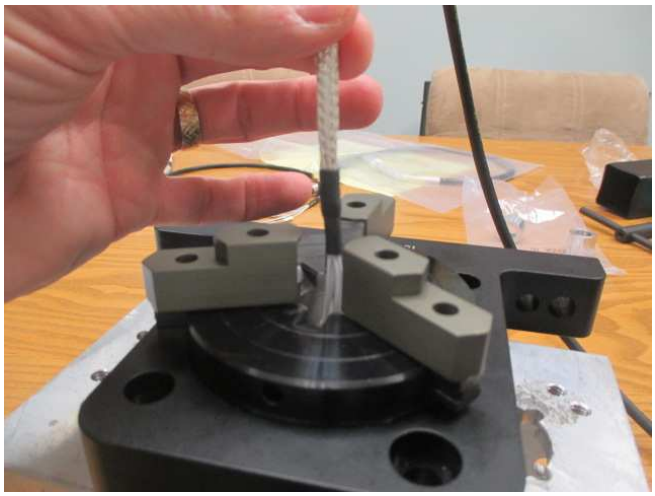
1. The test was performed in accordance with EIA 364, Test Procedure 13.

2. The following part numbers were assembled to the R-CJ-3 JAW clamp fixture as shown below:

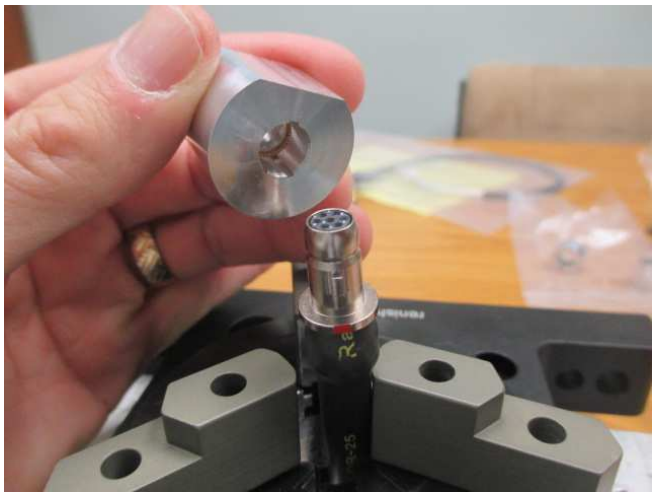
    a) K804-001-6-7
    b) K804-001-9-19
    c) K804-001-10-26

-continued on next page.

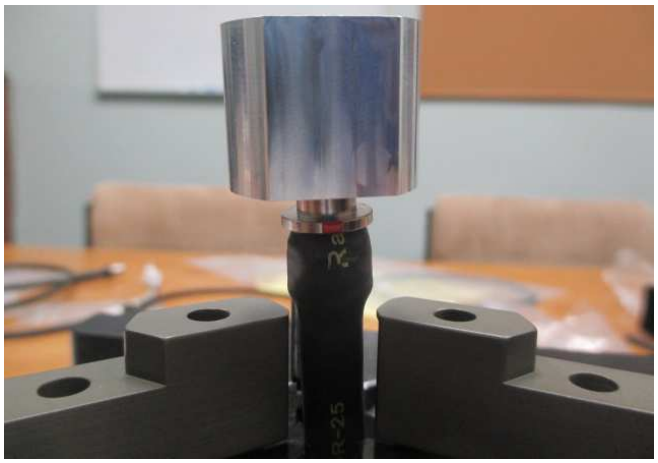
PROCEDURE: -continued



Open the jaws of the fixture and insert the cable through the top of the fixture and through the base.



Insert the alignment block over the top of the connector and push down to lock in place.



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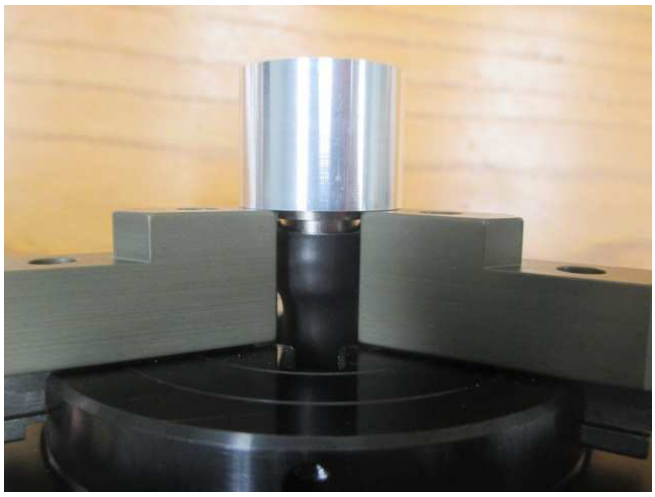
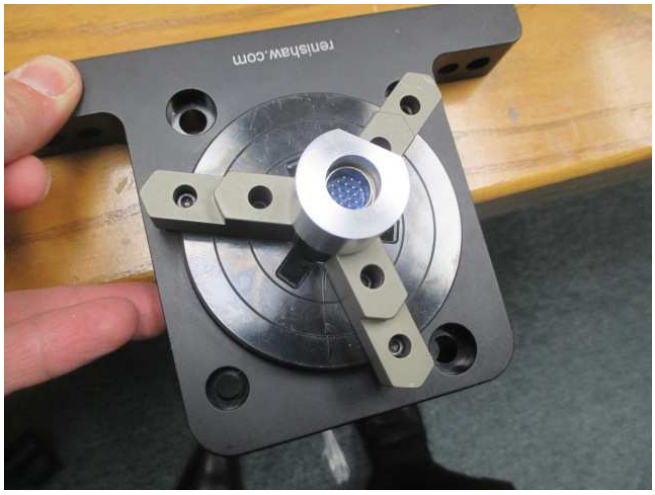
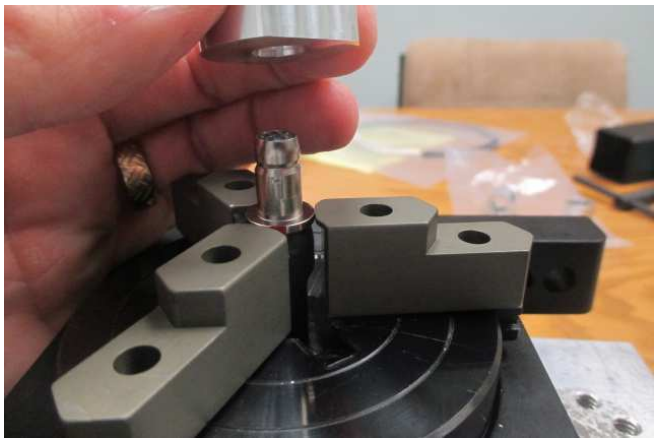
PROCEDURE: -continued







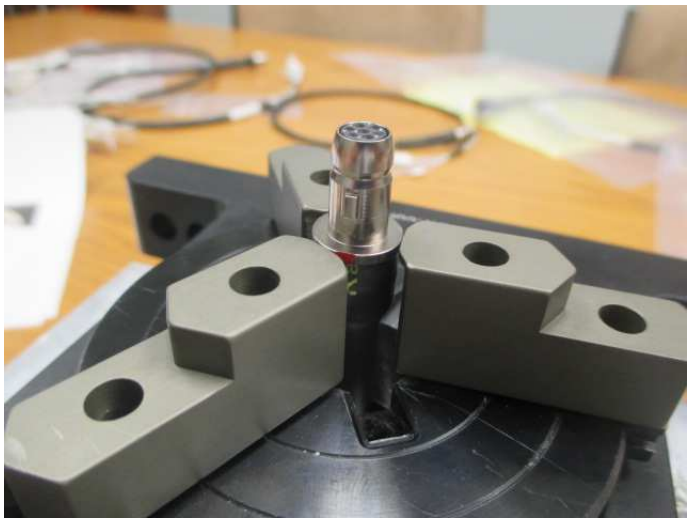
Insert the connector/alignment tool until it bottoms out on the fixture jaws.

Once inserted, rotate the circular ring to lock the connector in place.

Once locked in place, remove the alignment tool.

-continued on next page.

PROCEDURE: -continued



The sample is ready for test.

NOTE: THE MATING HALF CONNECTORS ARE BULKHEAD STYLE AND WILL BE SECRURED TO THE TOP PLATE VIA THE SUPPLIED NUTS.

3. Figure #3 illustrates the final test set-up.

REQUIREMENTS:

The force required to mate the connectors shall be measured and recorded.

RESULTS:

The following is a summary of the observed data:

Part Number/Sample ID#	UNMATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#1	10.0
ID#2	11.0

-continued on next page.

RESULTS: -continued

Part Number/Sample ID#	UNMATING FORCE (Pounds)
K804-001-9-19/K804-003-9-19	
ID#3	12.9
ID#4	12.0
K804-001-10-26/K804-003-10-26	
ID#5	16.0
ID#6	15.5

PROJECT NO.: 221238A SPECIFICATION: K804 Test Plan

PART NO.: See page 4 PART DESCRIPTION: Circular Conn.

SAMPLE SIZE: 6 Samples TECHNICIAN: DWR

START DATE: 12/14/22 COMPLETE DATE: 12/22/21

ROOM AMBIENT: 20°C RELATIVE HUMIDITY: 25%

EQUIPMENT ID#: 1339, 1951

INSULATION RESISTANCE (IR)

PURPOSE:

To determine the resistance of insulation materials to leakage of current through or on the surface of these materials when a DC potential is applied.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 21.

2. Test Conditions:

    a) Between Adjacent Contacts : Yes
    b) Between Contacts and Shell : Yes
    c) Mated Condition : Mated
    d) Electrification Time : 2.0 Minutes
    e) Test Voltage : 100 VDC

REQUIREMENTS:

When the specified test voltage is applied, the insulation resistance shall not be less than 5,000 Megohms.

RESULTS: See Next Page

RESULTS:

The insulation resistance as observed was as follows:

	INSULATION RESISTANCE (Megohms)	
	ADJ Contact	Contact to Shell
Part Number/Sample ID#		
K804-001-6-7/K804-003-6-7		
ID#1	>10,000	>10,000
ID#2	>10,000	>10,000
K804-001-9-19/K804-003-9-19		
ID#3	>10,000	>10,000
ID#4	>10,000	>10,000
K804-001-10-26/K804-003-10-26		
ID#5	>10,000	>10,000
ID#6	>10,000	>10,000

PROJECT NO.: 221238A SPECIFICATION: K804 Test Plan

PART NO.: See page 4 PART DESCRIPTION: Circular Conn.

SAMPLE SIZE: 6 Samples TECHNICIAN: DWR

START DATE: 12/14/22 COMPLETE DATE: 12/22/21

ROOM AMBIENT: 20°C RELATIVE HUMIDITY: 25%

EQUIPMENT ID#: 488, 562, 1934

DIELECTRIC WITHSTANDING VOLTAGE (SEA LEVEL)

PURPOSE:

To determine if the connectors can operate at its rated voltage and withstand momentary overpotentials due to switching, surges and other similar phenomenon.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 20.

2. Test Conditions:

    a) Between Adjacent Contacts : Yes
    b) Between Contacts and Shell : Yes
    c) Hold Time : 60 Seconds
    d) Rate of Application : 500 volts/sec.
    e) Test Voltage : 750 VAC

REQUIREMENTS:

When the specified test voltage is applied, there shall be no evidence of breakdown, arcing, etc or leakage exceeding 2.0 milliamps.

RESULTS:

All test samples as tested met the requirements as specified.

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See page 4	PART DESCRIPTION: Circular Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: DWR
START DATE: 12/14/22	COMPLETE DATE: 12/27/21
ROOM AMBIENT: 21°C	RELATIVE HUMIDITY: 22%
EQUIPMENT ID#: 488, 562, 689, 1588, 1934	

DURABILITY

PURPOSE:

This is a conditioning sequence which is used to induce the type of wear on the contacting surfaces which may occur under normal service conditions. The connectors are mated and unmated a predetermined number of cycles. Upon completion, the units being evaluated are exposed to the environments as specified to assess any impact on electrical stability resulting from wear or other wear dependent phenomenon.

PROCEDURE:

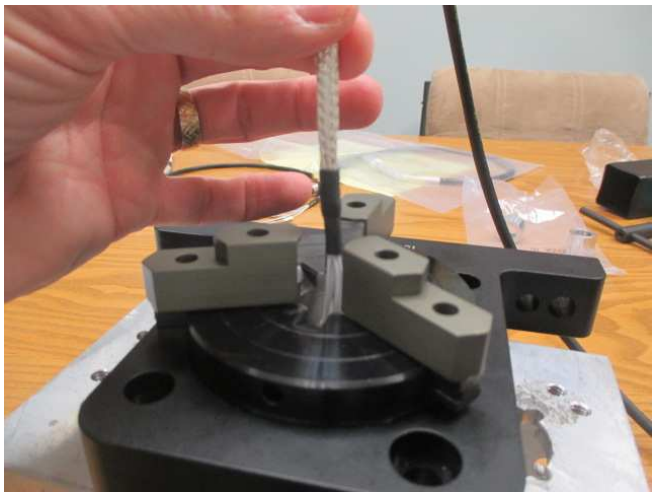
1. The test was performed in accordance with EIA 364, Test Procedure 09.

2. Test Conditions:

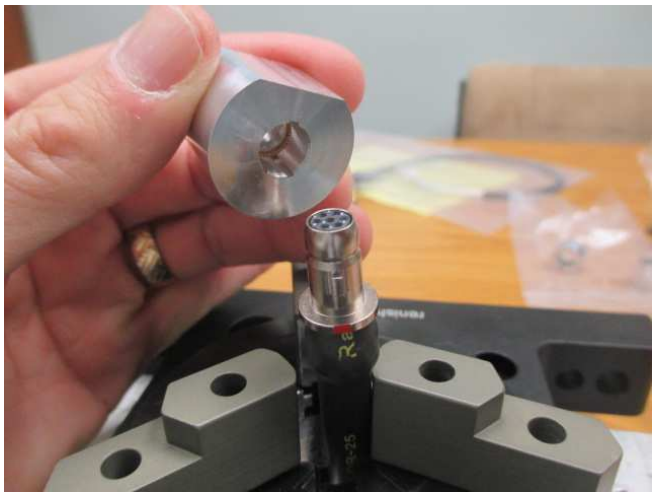
    a) No. of Cycles : 2000 cycles
    b) Rate : 1.0 inch per minute

-continued on next page.

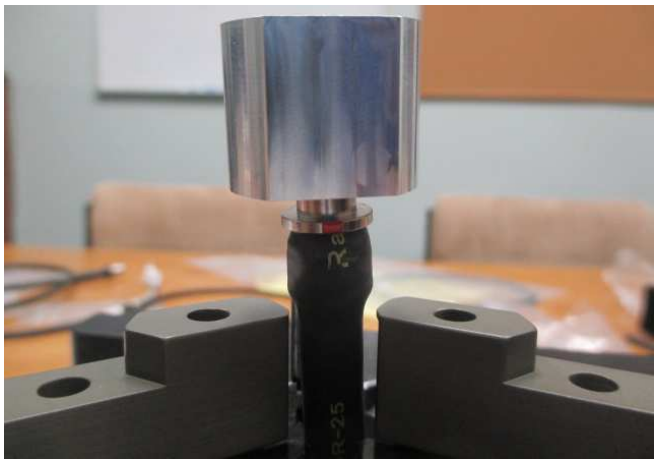
PROCEDURE: -continued



Open the jaws of the fixture and insert the cable through the top of the fixture and through the base.



Insert the alignment block over the top of the connector and push down to lock in place.



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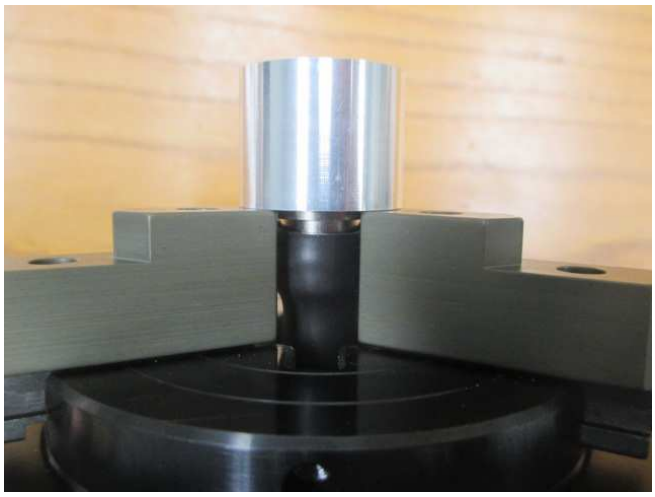
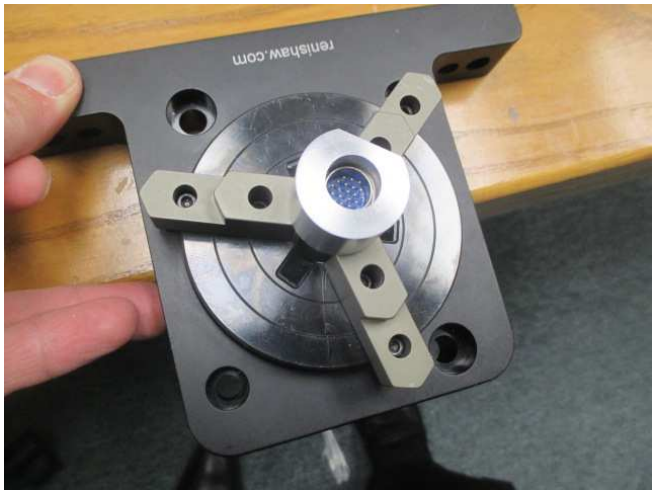
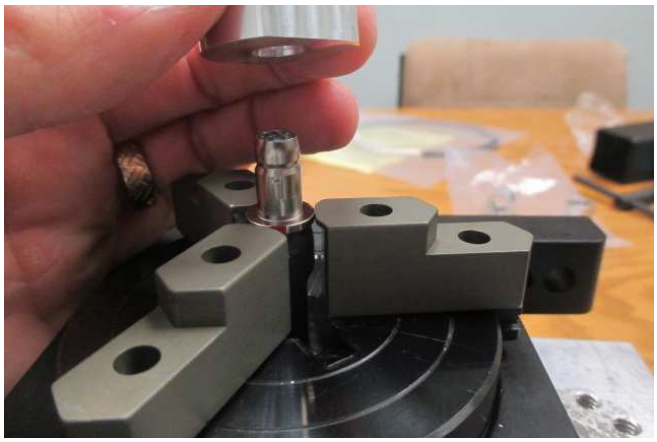
PROCEDURE: -continued







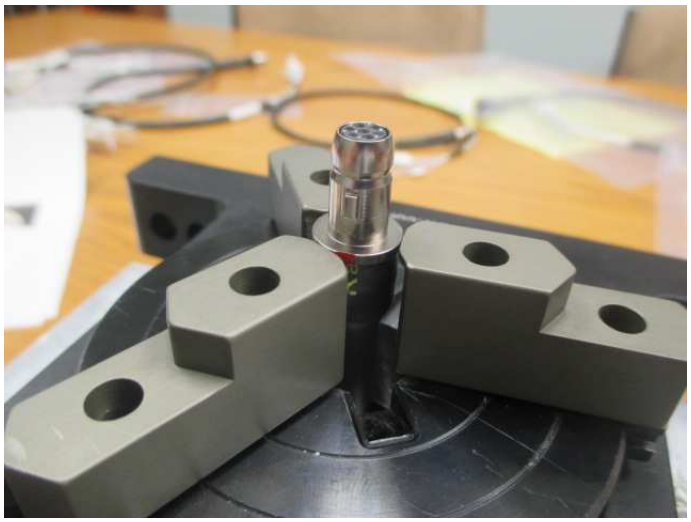
Insert the connector/alignment tool until it bottoms out on the fixture jaws.

Once inserted, rotate the circular ring to lock the connector in place.

Once locked in place, remove the alignment tool.

-continued on next page.

PROCEDURE: -continued



The sample is ready for test.

NOTE: THE MATING HALF CONNECTORS ARE BULKHEAD STYLE AND WILL BE SECRURED TO THE TOP PLATE VIA THE SUPPLIED NUTS.

3. The test samples were assembled to special holding devices and attached to the automatic cycling equipment utilizing constant speed control and counter systems.

4. Figure #5 illustrates the test set-up.

5. All subsequent variable testing was performed in accordance with the procedures previously indicated.

REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples so tested.

2. The force required to mate and unmate the connectors shall be measured and recorded.

3. The shell to shell conductivity shall not exceed 2.5 millivolts.

RESULTS: SEE NEXT PAGE

RESULTS:

1. There was no evidence of physical damage to the test samples as tested.

2. The following is a summary of the data observed:

Part Number/Sample ID#	MATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#1	14.0
ID#2	11.9
K804-001-9-19/K804-003-9-19	
ID#3	16.4
ID#4	18.9
K804-001-10-26/K804-003-10-26	
ID#5	21.3
ID#6	22.2

3. The following is a summary of the data observed:

Part Number/Sample ID#	SHELL TO SHELL CONDUCTIVITY (millivolts)
K804-001-6-7/K804-003-6-7	
ID#1	1.1
ID#2	1.0
K804-001-9-19/K804-003-9-19	
ID#3	1.1
ID#4	1.3
K804-001-10-26/K804-003-10-26	
ID#5	1.6
ID#6	1.3

-continued on next page.

RESULTS: -continued

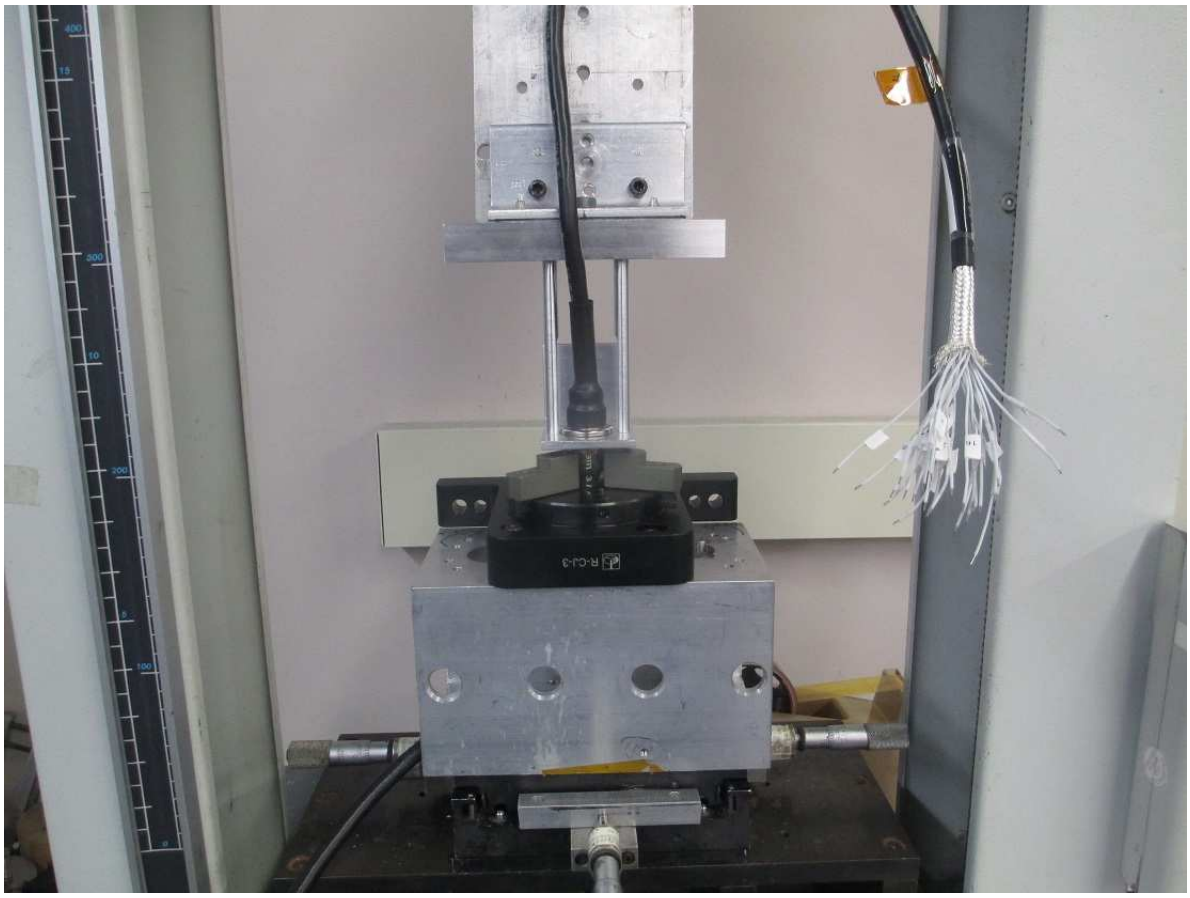
4. See data files 221238A01 through 221238A06 for individual data points.

5. The following is a summary of the data observed:

Part Number/Sample ID#	UNMATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#1	12.9
ID#2	9.9
K804-001-9-19/K804-003-9-19	
ID#3	16.4
ID#4	15.4
K804-001-10-26/K804-003-10-26	
ID#5	18.8
ID#6	20.8

FIGURE #5

DURABILITY SET-UP



PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See page 4	PART DESCRIPTION: Circular Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: DWR
START DATE: 1/4/22	COMPLETE DATE: 1/10/22
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 25%
EQUIPMENT ID#: 118, 488, 562, 666, 682, 1488, 1949, 2011	

SALT SPRAY

PURPOSE:

To expose test samples to an environment simulating a marine atmosphere. Said environment is considered aggressive and is used to determine if degradation has occurred as a result of:

a) Penetration of the atmosphere to the contact surfaces.
b) Surface finish degradation.
c) Galvanic reaction of dissimilar metals.
d) Imperfections in the finish system due to gross porosity or wear.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 26 with the following conditions.

2. Test Conditions:

a) Salt Solution	:	5%
b) Temperature	:	95°F +2°F/-3°F
c) Duration	:	48 Hours
d) Post Cleaning	:	Yes
e) Mated Condition	:	Unmated
f) Collection Rate	:	0.51 to 1.37 ml/hr actual (Spec 0.5 to 3.0 ml/hr)

-continued on next page.

PROCEDURE: -continued

3. The unmated test samples were suspended from the top of the chamber with Teflon string, waxed string or other non-reactive equivalent materials.

4. Prior to performing variable measurements, the test samples were allowed to recover to room ambient conditions.

5. All subsequent variable testing was performed in accordance with the procedures as previously indicated.

REQUIREMENTS:

1. There shall be no evidence of corrosion due to exposure of the underplate or base metal that may degrade electrical or mechanical performance.

2. The force required to mate and unmate the connectors shall be measured and recorded.

3. The shell to shell conductivity shall not exceed 5.0 millivolts.

RESULTS:

1. There was no exposure of the underplate or base metal that would degrade electrical or mechanical performance.

2. The following is a summary of the data observed:

Part Number/Sample ID#	MATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#1	11.0
ID#2	9.1

-continued on next page.

RESULTS: -continued

Part Number/Sample ID#	MATING FORCE (Pounds)
K804-001-9-19/K804-003-9-19	
ID#3	15.6
ID#4	15.2
K804-001-10-26/K804-003-10-26	
ID#5	18.7
ID#6	21.4

3. The following is a summary of the data observed:

Part Number/Sample ID#	SHELL TO SHELL CONDUCTIVITY (millivolts)
K804-001-6-7/K804-003-6-7	
ID#1	1.3
ID#2	1.4
K804-001-9-19/K804-003-9-19	
ID#3	1.1
ID#4	1.2
K804-001-10-26/K804-003-10-26	
ID#5	1.2
ID#6	1.3

4. See data files 221238A01 through 221238A06 for individual data points.

Part Number/Sample ID#	UNMATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#1	9.2
ID#2	10.4

-continued on next page.

RESULTS: -continued

Part Number/Sample ID#	UNMATING FORCE (Pounds)
K804-001-9-19/K804-003-9-19	
ID#3	15.0
ID#4	13.7
K804-001-10-26/K804-003-10-26	
ID#5	17.8
ID#6	19.6

SALT SPRAY

Project	221238A	Group #	1	Tech.	DWR	Eng.	TP
Customer	Omnetics			Spec		Par.No.	
Started	¼/22	Completed	1/6/22	Temp. °C	19	R.H. %	22

MIL-STD-1344, METHOD 1001		EIA 364, TP26			
TC A 96 Hrs		TC B 48 Hrs	X	TC C 500 Hrs		TC D 1000 Hrs		Other	
Samples Tested(ID No.)					
Equipment ID	118, 1949, 666, 682, 2011	File Name	221238A Salt Spray		

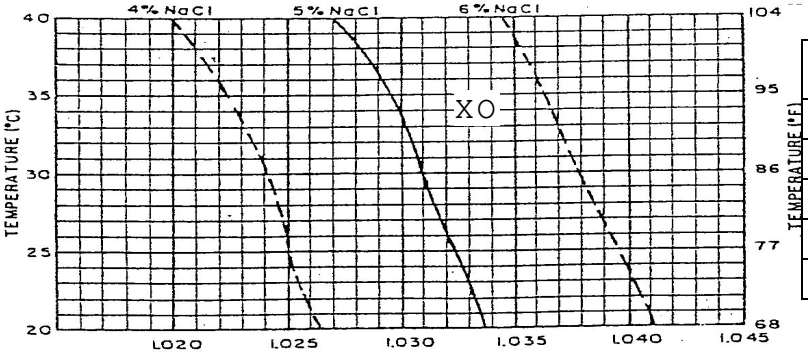
Prepared Solution Conditions:		
	Actual	**Specification**
Temperature:	35 °C	34.0 - 36.0°C
PH @ Temp:	7.1	6.5 - 7.2
Spec. Gravity:	1033	N/A
% Salt:	5.4 %	5% ± 1%
(X - See Chart)		

Chamber Conditions:		
	Actual	**Specification**
Temperature:	35 °C	33.0 - 36.0°C
Orifice Diam:	0.022 In.	0.020 to 0.030
Nozzle Pres:	16 psi	12-18 psi

Sample Preparation and Measurements				
Preclean:	Yes		No	X
Wax Coating:	Yes		No	X
Remove Salt Dep:	Yes	X	No	
Measurements:	Yes	X	No	

Collected Solution Conditions:		
	Actual	**Spec**
A Collection Surface Area:	38.9 cm^2	N/A
B1 Solution Beaker 1	12 ml	N/A
B2 Solution Beaker 2	13 ml	N/A
B3 Solution Beaker 3	32 ml	N/A
B4 Solution Beaker 4	12ml	N/A
C Length of Test:	48 hrs	See above
Collection Rate = [(80/A) x B]/C		
D1 Rate Beaker 1 (ml/hr)	0.51	0.5 - 3.0
D2 Rate Beaker 2 (ml/hr)	0.56	0.5 - 3.0
D3 Rate Beaker 3 (ml/hr)	1.37	0.5 - 3.0
D4 Rate Beaker 4 (ml/hr)	0.5	0.5 - 3.0
E Temperature:	35 °C	33.0-36.0
F spec Gravity @ Temp:	1034	Record
G % Salt:	5.5 %	5% ± 1%
H pH @ Temp:	6.2	Record
(O - See Chart)		

NOTE: The above formula is based on using 4 Kimax 14000 beakers.
If other beakers are used Surface Area is to be adjusted accordingly.



Dry Time		Temp.	
	1 hr		°C
	12 hrs		°C
	24 hrs		°C
	hrs		°C
	hrs	Ambient	

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SHELL TO SHELL CONDUCTIVITY
DATA FILES

FILE NUMBERS

221238A01
221238A02
221238A03
221238A04
221238A05
221238A06

Shell to Shell Conductivity - Actual Values				
Project:	221238A		Spec:	EIA 364, TP 83
Customer:	Omnetics		Subgroup:	Group 1 #1
Product:	Series K804 connectors		File #:	221238A01
Description:	K804-001-6-7-A/K804-003-6-7-A			
Open circuit voltage :		1.5 volts	Current:	1 amps
Units:	millivolts			
Temp ºC	20°C	21°C	20°C	
R.H. %	25%	22%	25%	
Date:	14Dec21	15Dec21	10Jan22	
Pos. ID	Initial	Durability	Salt Spray	
		2000X		
Shell to Shell	1.2	1.1	1.3	
Tech	DWR	DWR	DWR	
Equip ID	1588	1588	1588	
	689	689	689	

Shell to Shell Conductivity - Actual Values				
Project:	221238A		Spec:	EIA 364, TP 83
Customer:	Omnetics		Subgroup:	Group 1 #2
Product:	Series K804 connectors		File #:	221238A02
Description:	K804-001-6-7-A/K804-003-6-7-A			
Open circuit voltage :		1.5 volts	Current:	1 amps
Units:	millivolts			
Temp ºC	21°C	22°C	20°C	
R.H. %	22%	30%	25%	
Date:	15Dec21	17Dec21	10Jan22	
Pos. ID	Initial	Durability	Salt Spray	
		2000X		
Shell to Shell	1.0	1.1	1.40	
Tech	DWR	DWR	DWR	
Equip ID	1588	1588	1588	
	689	689	689	

Shell to Shell Conductivity - Actual Values				
Project:	221238A		Spec:	EIA 364, TP 83
Customer:	Omnetics		Subgroup:	Group 1 #3
Product:	Series K804 connectors		File #:	221238A03
Description:	K804-001-9-19-A/K804-003-9-19-A			
Open circuit voltage :		1.5 volts	Current:	1 amps
Units:	millivolts			
Temp ºC	22°C	22°C	20°C	
R.H. %	30%	16%	25%	
Date:	17Dec21	20Dec21	10Jan22	
Pos. ID	Initial	Durability	Salt Spray	
		2000X		
Shell to Shell	1.3	1.1	1.1	
Tech	DWR	DWR	DWR	
Equip ID	1588	1588	1588	
	689	689	689	

Shell to Shell Conductivity - Actual Values				
Project:	221238A		Spec:	EIA 364, TP 83
Customer:	Omnetics		Subgroup:	Group 1 #4
Product:	Series K804 connectors		File #:	221238A04
Description:	K804-001-9-19-A/K804-003-9-19-A			
Open circuit voltage :		1.5 volts	Current:	1 amps
Units:	millivolts			
Temp ºC	22°C	20°C	20°C	
R.H. %	16%	22%	25%	
Date:	20Dec21	21Dec21	10Jan22	
Pos. ID	Initial	Durability	Salt Spray	
		2000X		
Shell to Shell	1.0	1.3	1.2	
Tech	DWR	DWR	DWR	
Equip ID	1588	1588	1588	
	689	689	689	

Shell to Shell Conductivity - Actual Values				
Project:	221238A		Spec:	EIA 364, TP 83
Customer:	Omnetics		Subgroup:	Group 1 #5
Product:	Series K804 connectors		File #:	221238A05
Description:	K804-001-10-26-A/K804-003-10-26-A			
Open circuit voltage :		1.5 volts	Current:	1 amps
Units:	millivolts			
Temp ºC	20°C	21°C	20°C	
R.H. %	22%	27%	25%	
Date:	21Dec21	22Dec21	10Jan22	
Pos. ID	Initial	Durability	Salt Spray	
		2000X		
Shell to Shell	1.2	1.6	1.2	
Tech	DWR	DWR	DWR	
Equip ID	1588	1588	1588	
	689	689	689	

Shell to Shell Conductivity - Actual Values				
Project:	221238A		Spec:	EIA 364, TP 83
Customer:	Omnetics		Subgroup:	Group 1 #6
Product:	Series K804 connectors		File #:	221238A06
Description:	K804-001-10-26-A/K804-003-10-26-A			
Open circuit voltage :		1.5 volts	Current:	1 amps
Units:	millivolts			
Temp ºC	21°C	20°C	20°C	
R.H. %	27%	24%	25%	
Date:	22Dec21	27Dec21	10Jan22	
Pos. ID	Initial	Durability	Salt Spray	
		2000X		
Shell to Shell	1.3	1.3	1.3	
Tech	DWR	DWR	DWR	
Equip ID	1588	1588	1588	
	689	689	689	

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See page 4	PART DESCRIPTION: Circular Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: DWR
START DATE: 1/12/22	COMPLETE DATE: 1/12/22
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 20%
EQUIPMENT ID#: 315, 1288, 1689, 1873	

ELECTRICAL ENGAGEMENT

PROCEDURE:

1. The test was performed in accordance with Paragraph 4.5.15 of Specification MIL-DTL-38999.

2. Plugs and receptacles were wired to provide a complete series circuit through all contacts of the mated connector.

3. A power source and indicator were provided such that the earliest point at which the circuit was completed, during normal connector mating, was established.

4. Connector halves were slowly mated by the normal mating means until first indication of a completed circuit was observed.

5. The mating operation was held at that point and the overall connector length was measured from solid reference points on the connector halves.

6. The mating operation was then be continued until the connector halves were in the completely mated position. A second overall length measurement was then taken from the same reference points.

7. The difference of these two measurements was measured and recorded.

-continued on next page.

PROCEDURE: -continued

8. The test was performed 21 times per sample.

REQUIREMENTS:

The Electrical Engagement shall be measured and recorded

RESULTS:

The following is a summary of the data observed:

	ELECTRICAL ENGAGEMENT (Inches)		
Part Number/Sample ID#	Avg.	Max.	Min.
K804-001-6-7/K804-003-6-7			
ID#1	0.099	0.103	0.093
ID#2	0.098	0.104	0.093
K804-001-9-19/K804-003-9-19			
ID#3	0.086	0.090	0.081
ID#4	0.088	0.092	0.083
K804-001-10-26/K804-003-10-26			
ID#5	0.099	0.104	0.093
ID#6	0.099	0.104	0.093

2. See data files 221238A13 through 221238A18 for individual data points.

ELECTRICAL ENGAGEMENT DATA FILES

FILE NUMBERS

221238A13
221238A14
221238A15
221238A16
221238A17
221238A18

Electrical Engagement				
Project:	221238A		Spec:	MIL-DTL-38999
Customer:	Omnetics		Subgroup:	Group 1 / ID #1
Product:	Series K804 connectors		File No:	221238A13
Description:	K804-001-6-7-A / K804-003-6-7-A		Tech:	DWR
Units:	Inches			
Temp ºC	20°C			
R.H. %	20%			
Date:	12Jan22			
Pos. ID				
Measurement #				
	@ Continuity	Fully Mated	Engagement =	
1	0.565	0.472	0.093	
2	0.569	0.471	0.098	
3	0.570	0.471	0.099	
4	0.568	0.474	0.094	
5	0.571	0.468	0.103	
6	0.566	0.467	0.099	
7	0.567	0.464	0.103	
8	0.565	0.468	0.097	
9	0.569	0.466	0.103	
10	0.567	0.468	0.099	
11	0.567	0.466	0.101	
12	0.569	0.468	0.101	
13	0.571	0.469	0.102	
14	0.570	0.467	0.103	
15	0.565	0.468	0.097	
16	0.569	0.468	0.101	
17	0.570	0.472	0.098	
18	0.568	0.469	0.099	
19	0.566	0.471	0.095	
20	0.570	0.470	0.100	
MAX	0.571	0.474	0.103	
MIN	0.565	0.464	0.093	
AVG	0.568	0.469	0.099	
Equip ID	1288			
	1689			
	315			
	1873			

Electrical Engagement				
Project:	221238A		Spec:	MIL-DTL-38999
Customer:	Omnetics		Subgroup:	Group 1 / ID #2
Product:	Series K804 connectors		File No:	221238A14
Description:	K804-001-6-7-A / K804-003-6-7-A		Tech:	DWR
Units:	Inches			
Temp ºC	20°C			
R.H. %	20%			
Date:	12Jan22			
Measurement #				
	@ Continuity	Fully Mated	Engagement =	
1	0.563	0.469	0.094	
2	0.567	0.472	0.095	
3	0.565	0.465	0.100	
4	0.565	0.465	0.100	
5	0.571	0.469	0.102	
6	0.570	0.468	0.102	
7	0.572	0.468	0.104	
8	0.568	0.468	0.100	
9	0.566	0.471	0.095	
10	0.567	0.468	0.099	
11	0.571	0.469	0.102	
12	0.568	0.470	0.098	
13	0.566	0.472	0.094	
14	0.569	0.469	0.100	
15	0.570	0.468	0.102	
16	0.565	0.472	0.093	
17	0.569	0.472	0.097	
18	0.569	0.471	0.098	
19	0.566	0.470	0.096	
20	0.569	0.472	0.097	
MAX	0.572	0.472	0.104	
MIN	0.563	0.465	0.093	
AVG	0.568	0.469	0.098	
Equip ID	1288			
	1689			
	315			
	1873			

Electrical Engagement				
Project:	221238A		Spec:	MIL-DTL-38999
Customer:	Omnetics		Subgroup:	Group 1 / ID #3
Product:	Series K804 connectors		File No:	221238A15
Description:	K804-001-9-19-A / K804-003-9-19-A		Tech:	DWR
Units:	Inches			
Temp ºC	20°C			
R.H. %	20%			
Date:	12Jan22			
Pos. ID				
Measurement #				
	@ Continuity	Fully Mated	Engagement =	
1	0.556	0.470	0.086	
2	0.553	0.472	0.081	
3	0.558	0.472	0.086	
4	0.557	0.471	0.086	
5	0.556	0.468	0.088	
6	0.554	0.469	0.085	
7	0.556	0.469	0.087	
8	0.557	0.467	0.090	
9	0.553	0.469	0.084	
10	0.559	0.472	0.087	
11	0.557	0.472	0.085	
12	0.560	0.471	0.089	
13	0.555	0.472	0.083	
14	0.557	0.470	0.087	
15	0.558	0.471	0.087	
16	0.559	0.473	0.086	
17	0.556	0.470	0.086	
18	0.559	0.471	0.088	
19	0.557	0.472	0.085	
20	0.555	0.469	0.086	
MAX	0.560	0.473	0.090	
MIN	0.553	0.467	0.081	
AVG	0.557	0.471	0.086	
Equip ID	1288			
	1689			
	315			
	1873			

Electrical Engagement				
Project:	221238A		Spec:	MIL-DTL-38999
Customer:	Omnetics		Subgroup:	Group 1 / ID #4
Product:	Series K804 connectors		File No:	221238A16
Description:	K804-001-9-19-A / K804-003-9-19-A		Tech:	DWR
Units:	Inches			
Temp ºC	20°C			
R.H. %	20%			
Date:	12Jan22			
Pos. ID				
Measurement #				
	@ Continuity	Fully Mated	Engagement =	
1	0.556	0.471	0.085	
2	0.558	0.467	0.091	
3	0.553	0.470	0.083	
4	0.559	0.471	0.088	
5	0.554	0.470	0.084	
6	0.558	0.470	0.088	
7	0.558	0.472	0.086	
8	0.560	0.470	0.090	
9	0.559	0.468	0.091	
10	0.562	0.472	0.090	
11	0.555	0.470	0.085	
12	0.558	0.470	0.088	
13	0.559	0.470	0.089	
14	0.561	0.472	0.089	
15	0.554	0.468	0.086	
16	0.557	0.470	0.087	
17	0.556	0.466	0.090	
18	0.560	0.468	0.092	
19	0.554	0.470	0.084	
20	0.558	0.469	0.089	
MAX	0.562	0.472	0.092	
MIN	0.553	0.466	0.083	
AVG	0.557	0.470	0.088	
Equip ID	1288			
	1689			
	315			
	1873			

Electrical Engagement				
Project:	221238A		Spec:	MIL-DTL-38999
Customer:	Omnetics		Subgroup:	Group 1 / ID #5
Product:	Series K804 connectors		File No:	221238A17
Description:	K804-001-10-26-A / K804-003-10-26-A		Tech:	DWR
Units:	Inches			
Temp ºC	20°C			
R.H. %	20%			
Date:	12Jan22			
Measurement #				
	@ Continuity	Fully Mated	Engagement =	
1	0.562	0.461	0.101	
2	0.564	0.461	0.103	
3	0.560	0.460	0.100	
4	0.561	0.464	0.097	
5	0.558	0.465	0.093	
6	0.563	0.463	0.100	
7	0.560	0.464	0.096	
8	0.563	0.459	0.104	
9	0.561	0.462	0.099	
10	0.563	0.461	0.102	
11	0.561	0.464	0.097	
12	0.560	0.459	0.101	
13	0.566	0.467	0.099	
14	0.571	0.471	0.100	
15	0.565	0.472	0.093	
16	0.569	0.472	0.097	
17	0.571	0.475	0.096	
18	0.573	0.472	0.101	
19	0.573	0.473	0.100	
20	0.571	0.470	0.101	
MAX	0.573	0.475	0.104	
MIN	0.558	0.459	0.093	
AVG	0.565	0.466	0.099	
Equip ID	1288			
	1689			
	315			
	1873			

Electrical Engagement				
Project:	221238A		Spec:	MIL-DTL-38999
Customer:	Omnetics		Subgroup:	Group 1 / ID #6
Product:	Series K804 connectors		File No:	221238A18
Description:	K804-001-10-26-A / K804-003-10-26-A		Tech:	DWR
Units:	Inches			
Temp ºC	20°C			
R.H. %	20%			
Date:	12Jan22			
Pos. ID				
Measurement #				
	@ Continuity	Fully Mated	Engagement =	
1	0.569	0.468	0.101	
2	0.570	0.473	0.097	
3	0.571	0.467	0.104	
4	0.565	0.467	0.098	
5	0.566	0.469	0.097	
6	0.570	0.470	0.100	
7	0.572	0.469	0.103	
8	0.569	0.472	0.097	
9	0.571	0.470	0.101	
10	0.569	0.472	0.097	
11	0.565	0.472	0.093	
12	0.569	0.470	0.099	
13	0.567	0.471	0.096	
14	0.566	0.469	0.097	
15	0.571	0.470	0.101	
16	0.567	0.470	0.097	
17	0.569	0.470	0.099	
18	0.572	0.471	0.101	
19	0.568	0.468	0.100	
20	0.569	0.471	0.098	
MAX	0.572	0.473	0.104	
MIN	0.565	0.467	0.093	
AVG	0.569	0.470	0.099	
Equip ID	1288			
	1689			
	315			
	1873			

TEST RESULTS

GROUP 2

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See Page 4	PART DESCRIPTION: Series K804 Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: DWR
START DATE: 12/28/21	COMPLETE DATE: 12/29/21
ROOM AMBIENT: 21°C	RELATIVE HUMIDITY: 26%
EQUIPMENT ID#: 488, 562, 1934	

MATING FORCE

PURPOSE:

To determine the mechanical forces required to mate the connectors.

PROCEDURE:

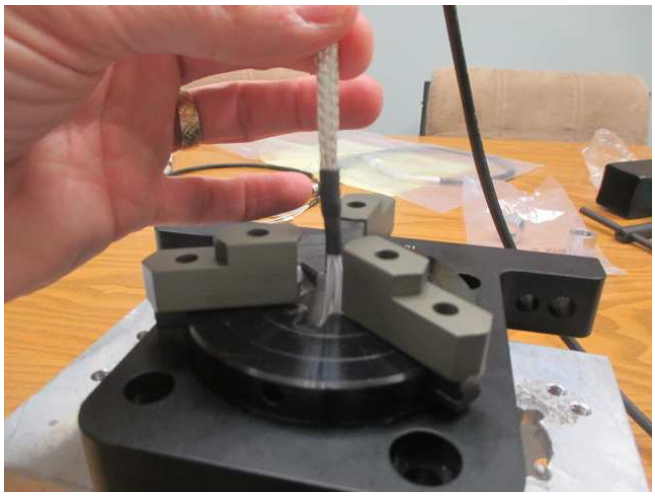
1. The test was performed in accordance with EIA 364, Test Procedure 13.

2. The following part numbers were assembled to the R-CJ-3 JAW clamp fixture as shown below:

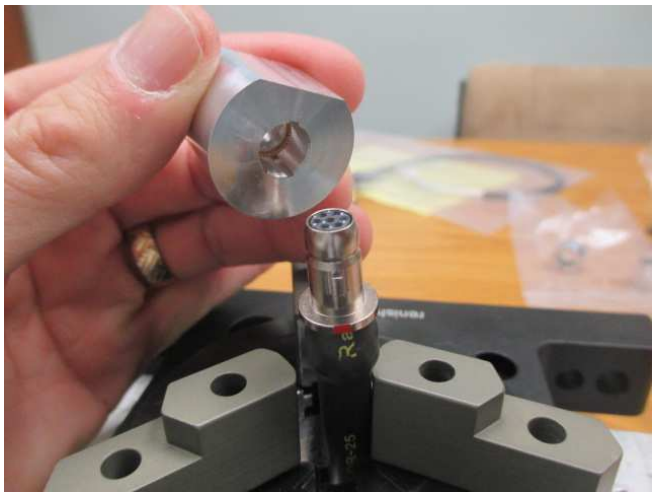
    a) K804-001-6-7
    b) K804-001-9-19
    c) K804-001-10-26

-continued on next page.

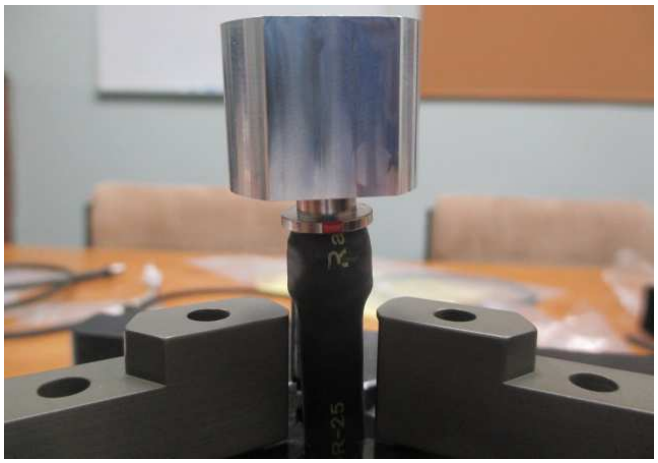
PROCEDURE: -continued



Open the jaws of the fixture and insert the cable through the top of the fixture and through the base.



Insert the alignment block over the top of the connector and push down to lock in place.



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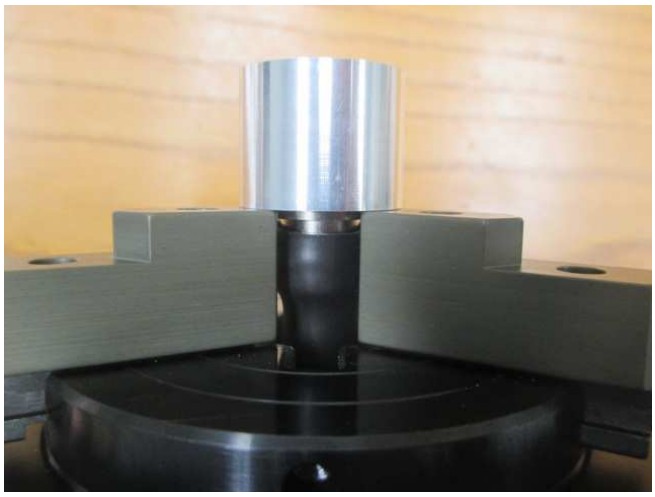
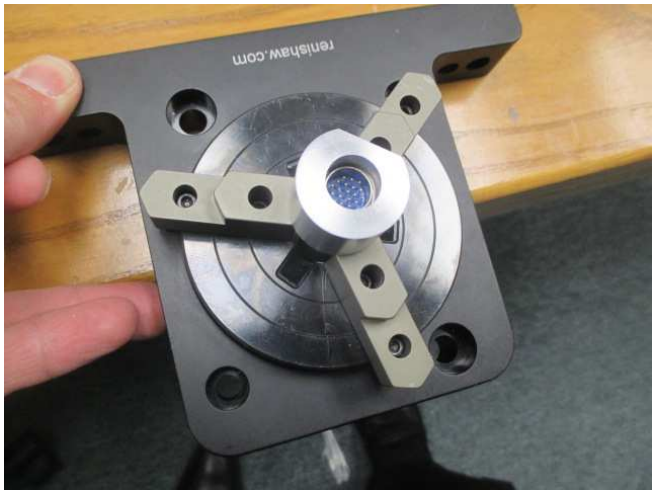
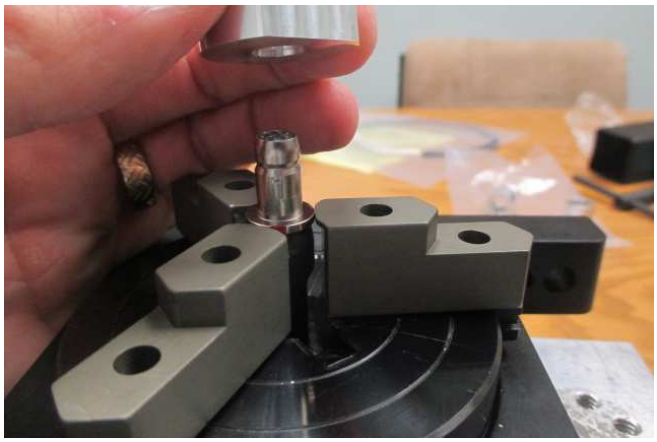
PROCEDURE: -continued







Insert the connector/alignment tool until it bottoms out on the fixture jaws.

Once inserted, rotate the circular ring to lock the connector in place.

Once locked in place, remove the alignment tool.

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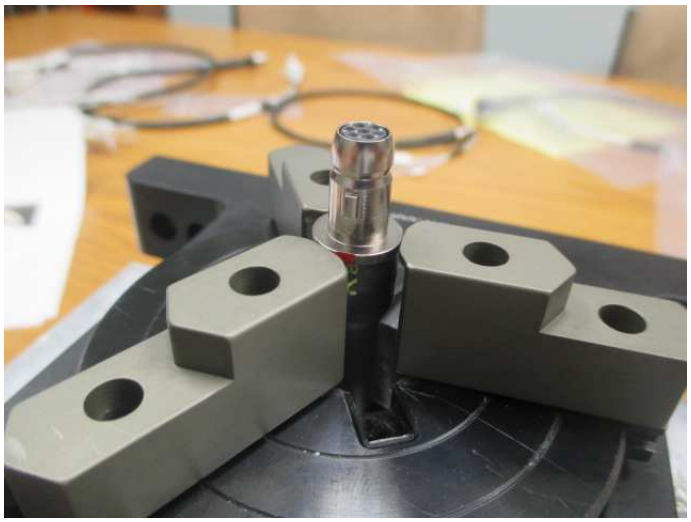
PROCEDURE: -continued



The sample is ready for test.

NOTE: THE MATING HALF CONNECTORS ARE BULKHEAD STYLE AND WILL BE SECRURED TO THE TOP PLATE VIA THE SUPPLIED NUTS.

3. Figure #3 illustrates the final test set-up.

REQUIREMENTS:

The force required to mate the connectors shall be measured and recorded.

RESULTS:

The following is a summary of the observed data:

Part Number/Sample ID#	MATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#7	9.5
ID#8	10.5

-continued on next page.

RESULTS: -continued

Part Number/Sample ID#	MATING FORCE (Pounds)
K804-001-9-19/K804-003-9-19	
ID#9	16.2
ID#10	15.5
K804-001-10-26/K804-003-10-26	
ID#11	23.2
ID#12	20.6

PROJECT NO.: 221238A SPECIFICATION: K804 Test Plan

PART NO.: See Page 4 PART DESCRIPTION: Series K804 Conn.

SAMPLE SIZE: 6 Samples TECHNICIAN: DWR

START DATE: 12/28/21 COMPLETE DATE: 12/29/21

ROOM AMBIENT: 21°C RELATIVE HUMIDITY: 26%

EQUIPMENT ID#: 689, 1588

SHELL TO SHELL CONDUCTIVITY

PURPOSE:

To determine shell conductivity of mated connectors.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 83 with the following conditions.

2. Test Conditions:

    a) Test Current : 1.0 Amp
    b) Open Circuit Voltage : 1.5 Millivolts

3. The points of application are shown in Figure #4.

REQUIREMENTS:

The shell to shell conductivity shall not exceed 2.5 millivolts.

RESULTS: See Next Page

RESULTS:

1. The following is a summary of the data observed:

Part Number/Sample ID#	SHELL TO SHELL CONDUCTIVITY (millivolts)
K804-001-6-7/K804-003-6-7	
ID#7	1.3
ID#8	1.3
K804-001-9-19/K804-003-9-19	
ID#9	1.0
ID#10	1.2
K804-001-10-26/K804-003-10-26	
ID#11	1.3
ID#12	1.0

2. See data files 221238A07 through 221238A12 for individual data points.

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See Page 4	PART DESCRIPTION: Series K804 Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: DWR
START DATE: 12/28/21	COMPLETE DATE: 12/29/21
ROOM AMBIENT: 21°C	RELATIVE HUMIDITY: 26%
EQUIPMENT ID#: 488, 562, 1934	

UNMATING FORCE

PURPOSE:

To determine the mechanical forces required to unmate the connectors.

PROCEDURE:

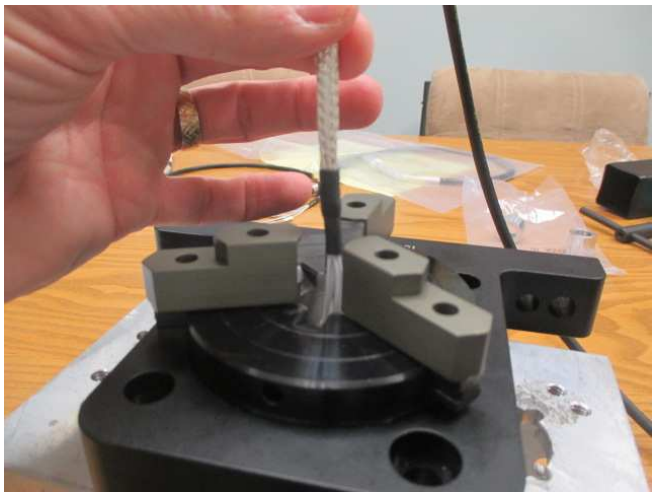
1. The test was performed in accordance with EIA 364, Test Procedure 13.

2. The following part numbers were assembled to the R-CJ-3 JAW clamp fixture as shown below:

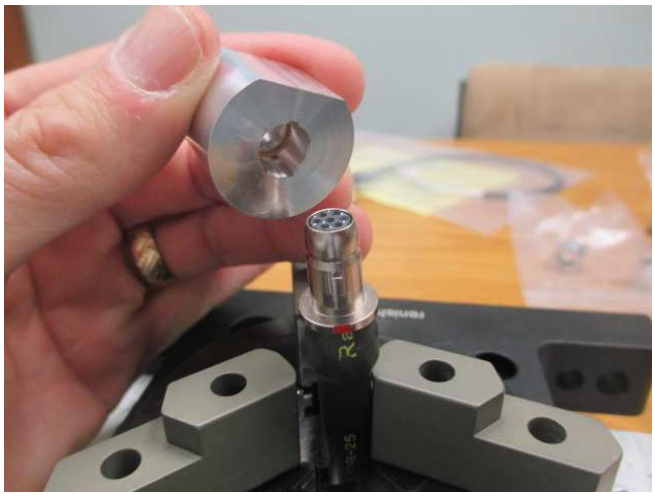
    a) K804-001-6-7
    b) K804-001-9-19
    c) K804-001-10-26

-continued on next page.

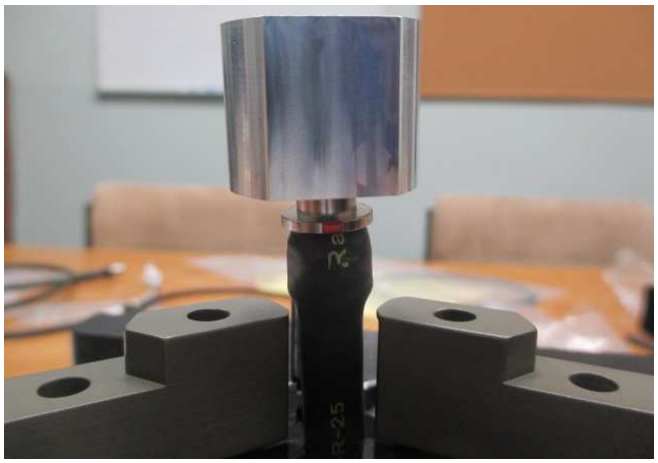
PROCEDURE: -continued



Open the jaws of the fixture and insert the cable through the top of the fixture and through the base.



Insert the alignment block over the top of the connector and push down to lock in place.



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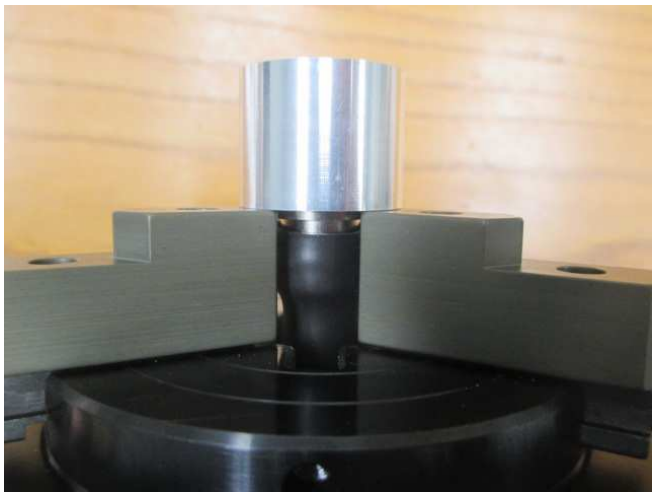
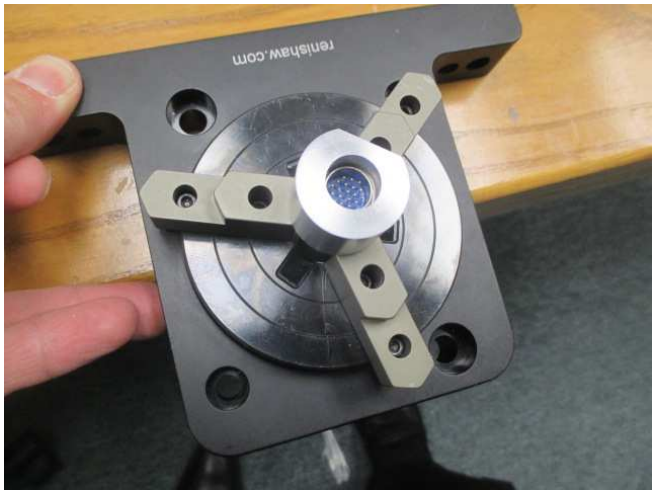
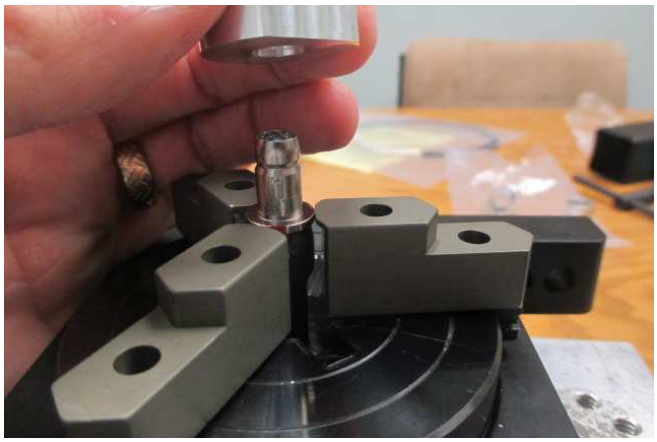
PROCEDURE: -continued







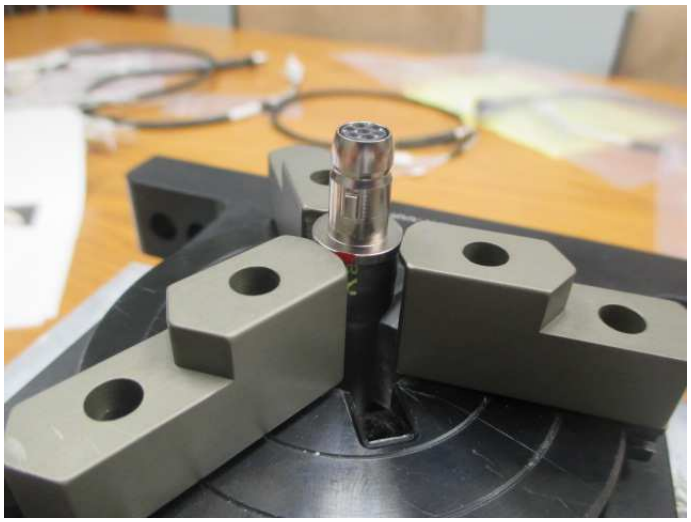
Insert the connector/alignment tool until it bottoms out on the fixture jaws.

Once inserted, rotate the circular ring to lock the connector in place.

Once locked in place, remove the alignment tool.

-continued on next page.

PROCEDURE: -continued



The sample is ready for test.

NOTE: THE MATING HALF CONNECTORS ARE BULKHEAD STYLE AND WILL BE SECRURED TO THE TOP PLATE VIA THE SUPPLIED NUTS.

3. Figure #3 illustrates the final test set-up.

REQUIREMENTS:

The force required to mate the connectors shall be measured and recorded.

RESULTS:

The following is a summary of the observed data:

Part Number/Sample ID#	UNMATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#7	8.7
ID#8	9.0

-continued on next page.

RESULTS: -continued

Part Number/Sample ID#	UNMATING FORCE (Pounds)
K804-001-9-19/K804-003-9-19	
ID#9	12.9
ID#10	11.5
K804-001-10-26/K804-003-10-26	
ID#11	15.9
ID#12	16.9

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See Page 4	PART DESCRIPTION: Series K804 Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: DWR
START DATE: 1/5/22	COMPLETE DATE: 1/5/22
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 22%
EQUIPMENT ID#: 653, 1380, 1609, 1752, 1983	

THERMAL CYCLING

PURPOSE:

To determine the resistance of a given electrical connector to exposure at extremes of high and low temperatures and the shock of alternate exposures to these extremes, simulating the worst probable conditions of storage, transportation and application.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 32, with the following conditions.

2. Test Conditions:

    a) Number of Cycles : 5 Cycles
    b) Hot Extreme : +175°C +3°C/-0°C
    c) Cold Extreme : -65°C +0°C/-3°C
    d) Time at Temperature : 60 Minutes
    e) Mating Conditions : Mated

3. The total number of cycles were performed continuously.

REQUIREMENTS: See Next Page

REQUIREMENTS:

There shall be no evidence of physical damage to the test samples as tested.

RESULTS:

All test samples so tested met the requirements as specified.

PROJECT NO.: 221238A SPECIFICATION: K804 Test Plan

PART NO.: See Page 4 PART DESCRIPTION: Series K804 Conn.

SAMPLE SIZE: 6 Samples TECHNICIAN: DWR

START DATE: 1/6/22 COMPLETE DATE: 1/6/22

ROOM AMBIENT: 20°C RELATIVE HUMIDITY: 31%

EQUIPMENT ID#: 1339, 1951

INSULATION RESISTANCE(IR)

PURPOSE:

To determine the resistance of insulation materials to leakage of current through or on the surface of these materials when a DC potential is applied.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 21.

2. Test Conditions:

    a) Between Adjacent Contacts : Yes
    d) Between Contacts and Shell : Yes
    e) Mated Condition : Mated
    j) Electrification Time : 2.0 Minutes
    k) Test Voltage : 100 VDC

REQUIREMENTS:

When the specified test voltage is applied, the insulation resistance shall not be less than 5,000 Megohms.

RESULTS: See Next Page

RESULTS:

The insulation resistance as observed was as follows:

INSULATION RESISTANCE
(Megohms)

Part Number/Sample ID#	ADJ Contact	Contact to Shell
K804-001-6-7/K804-003-6-7		
ID#7	>10,000	>10,000
ID#8	>10,000	>10,000
K804-001-9-19/K804-003-9-19		
ID#9	>10,000	>10,000
ID#10	>10,000	>10,000
K804-001-10-26/K804-003-10-26		
ID#11	>10,000	>10,000
ID#12	>10,000	>10,000

PROJECT NO.: 221238A SPECIFICATION: K804 Test Plan

PART NO.: See Page 4 PART DESCRIPTION: Series K804 Conn.

SAMPLE SIZE: 6 Samples TECHNICIAN: DWR

START DATE: 12/14/21 COMPLETE DATE: 12/22/21

ROOM AMBIENT: 20°C RELATIVE HUMIDITY: 25%

EQUIPMENT ID#: 1339, 1951, 2038

DIELECTRIC WITHSTANDING VOLTAGE (SEA LEVEL)

PURPOSE:

To determine if the connectors can operate at its rated voltage and withstand momentary overpotentials due to switching, surges and other similar phenomenon.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 20.

2. Test Conditions:

    a) Between Adjacent Contacts : Yes
    b) Between Contacts and Shell : Yes
    c) Hold Time : 60 Seconds
    d) Rate of Application : 500 volts/sec.
    e) Test Voltage : 750 VAC

REQUIREMENTS:

When the specified test voltage is applied, there shall be no evidence of breakdown, arcing, etc. or leakage exceeding 2.0 milliamps.

RESULTS:

All test samples as tested met the requirements as specified.

PROJECT NO.: 221238A | SPECIFICATION: K804 Test Plan

PART NO.: See Page 4 | PART DESCRIPTION: Series K804 Conn.

SAMPLE SIZE: 6 Samples | TECHNICIAN: DWR

START DATE: 1/6/22 | COMPLETE DATE: 1/20/22

ROOM AMBIENT: 20°C | RELATIVE HUMIDITY: 31%

EQUIPMENT ID#: 488, 562, 689, 1588, 1934

DURABILITY

PURPOSE:

This is a conditioning sequence which is used to induce the type of wear on the contacting surfaces which may occur under normal service conditions. The connectors are mated and unmated a predetermined number of cycles. Upon completion, the units being evaluated are exposed to the environments as specified to assess any impact on electrical stability resulting from wear or other wear dependent phenomenon.

PROCEDURE:

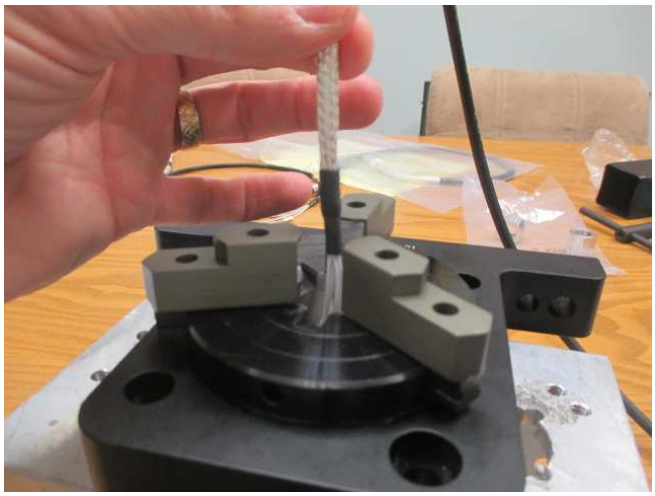
1. The test was performed in accordance with EIA 364, Test Procedure 09.

2. Test Conditions:

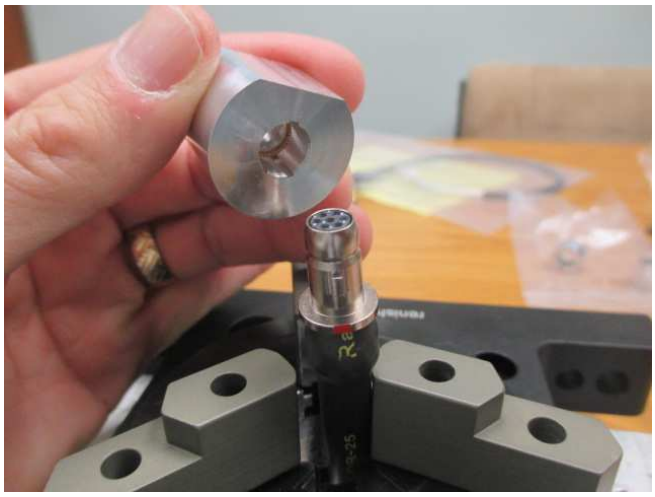
   a) No. of Cycles : 2000 cycles
   b) Rate : 1.0 inch per minute

-continued on next page.

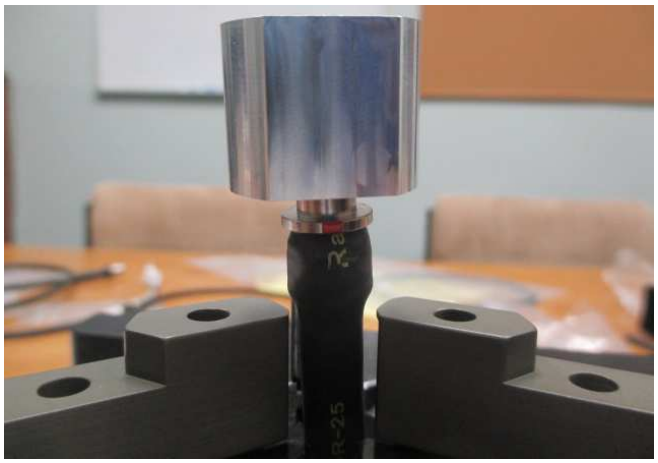
PROCEDURE: -continued



Open the jaws of the fixture and insert the cable through the top of the fixture and through the base.

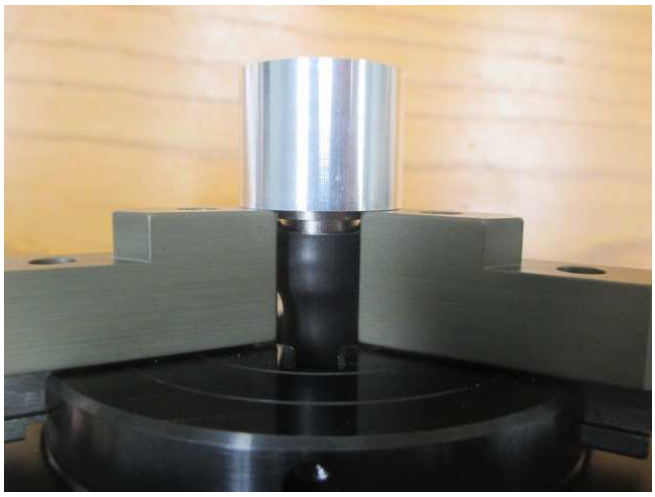


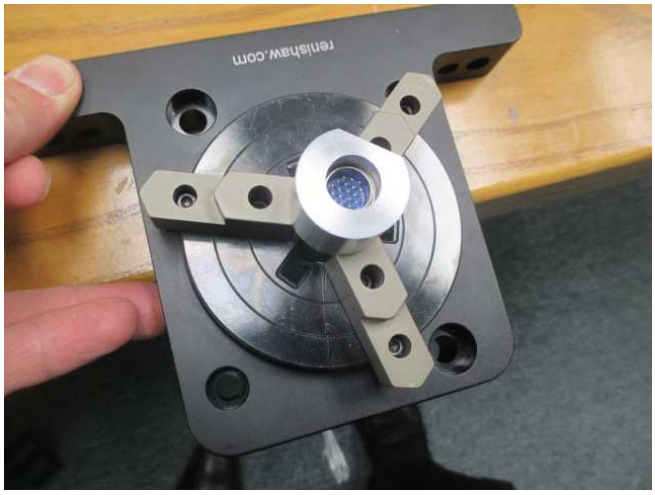
Insert the alignment block over the top of the connector and push down to lock in place.

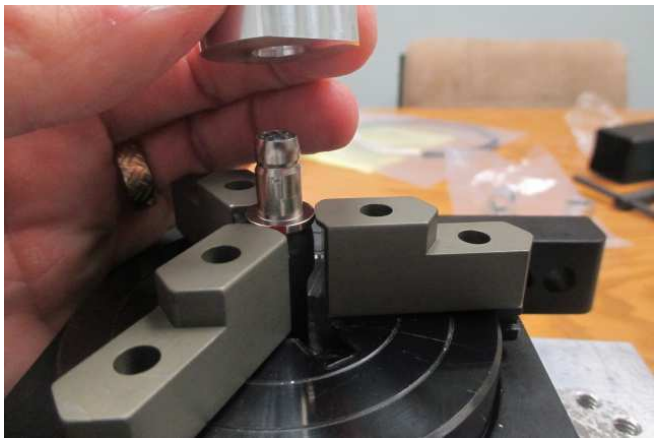


-continued on next page.

PROCEDURE: -continued







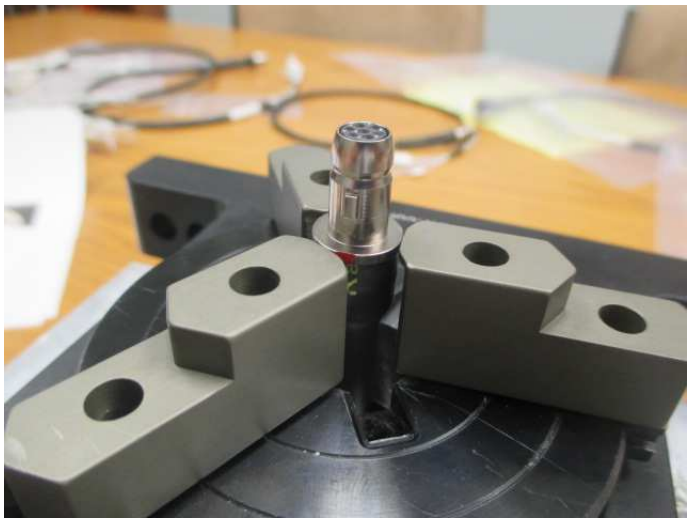
Insert the connector/alignment tool until it bottoms out on the fixture jaws.

Once inserted, rotate the circular ring to lock the connector in place.

Once locked in place, remove the alignment tool.

-continued on next page.

PROCEDURE: -continued



The sample is ready for test.

NOTE: THE MATING HALF CONNECTORS ARE BULKHEAD STYLE AND WILL BE SECRURED TO THE TOP PLATE VIA THE SUPPLIED NUTS.

3. The test samples were assembled to special holding devices and attached to the automatic cycling equipment utilizing constant speed control and counter systems.

4. Figure #5 illustrates the test set-up.

5. All subsequent variable testing was performed in accordance with the procedures previously indicated.

REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples so tested.

2. The force required to mate and unmate the connectors shall be measured and recorded.

3. The shell to shell conductivity shall not exceed 2.5 millivolts.

RESULTS: See Next Page

RESULTS:

1. There was no evidence of physical damage to the test samples as tested.

2. The following is a summary of the data observed:

Part Number/Sample ID#	MATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#7	10.3
ID#8	12.7
K804-001-9-19/K804-003-9-19	
ID#9	17.2
ID#10	18.4
K804-001-10-26/K804-003-10-26	
ID#11	22.9
ID#12	21.7

3. The following is a summary of the data observed:

Part Number/Sample ID#	SHELL TO SHELL CONDUCTIVITY (millivolts)
K804-001-6-7/K804-003-6-7	
ID#7	1.2
ID#8	1.5
K804-001-9-19/K804-003-9-19	
ID#9	1.1
ID#10	1.1
K804-001-10-26/K804-003-10-26	
ID#11	1.5
ID#12	1.3

4. See data files 221238A07 through 221238A12 for individual data points.

-continued on next page.

RESULTS: -continued

5. The following is a summary of the data observed:

Part Number/Sample ID#	UNMATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#7	8.0
ID#8	10.8
K804-001-9-19/K804-003-9-19	
ID#9	16.9
ID#10	14.6
K804-001-10-26/K804-003-10-26	
ID#11	23.6
ID#12	18.6

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See Page 4	PART DESCRIPTION: Series K804 Conn.
SAMPLE SIZE: 3 Samples	TECHNICIAN: DWR
START DATE: 1/25/22	COMPLETE DATE: 1/27/22
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 23%
EQUIPMENT ID#: 1790, 1791, 1832, 1902, 1914, 1915	

VIBRATION, SINUSOIDAL

PURPOSE:

1. To determine if the contact system is susceptible to fretting corrosion.

2. To establish the mechanical integrity of the test samples exposed to external mechanical stresses.

3. To determine if electrical discontinuities at the level specified exist.

PROCEDURE:

1. The test was performed in accordance with Paragraph 4.5.23.2.1 of Specification MIL-DTL-38999.

2. Test Conditions:

    a) Frequency : 10 to 2000 to 10 Hz
    b) Amplitude : 0.06" da or 30 G's
    c) Duration : 4.0 hrs./axis, 3 axis total
    d) Test Current : 100 ma

3. Figure #6 illustrates the test sample fixturing utilized during the test.

1. Group 2 sample ID#'s 7, 8 and 9 were tested.

-continued on next page.

PROCEDURE:

2. Discontinuity monitoring was performed in accordance with EIA 364, Test Procedure 46.

REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples as tested.

2. There shall be no contact interruption greater than 1.0 microsecond.

RESULTS:

1. There was no evidence of physical damage to the test samples as tested.

2. There was no interruption greater than 1.0 microsecond.

3. The sine vibration profiles are shown in Figure #'s 7 (X-axis), 8 (Y-axis) and 9 (Z-axis).

FIGURE #6

TYPICAL SINE VIBRATION SET-UP

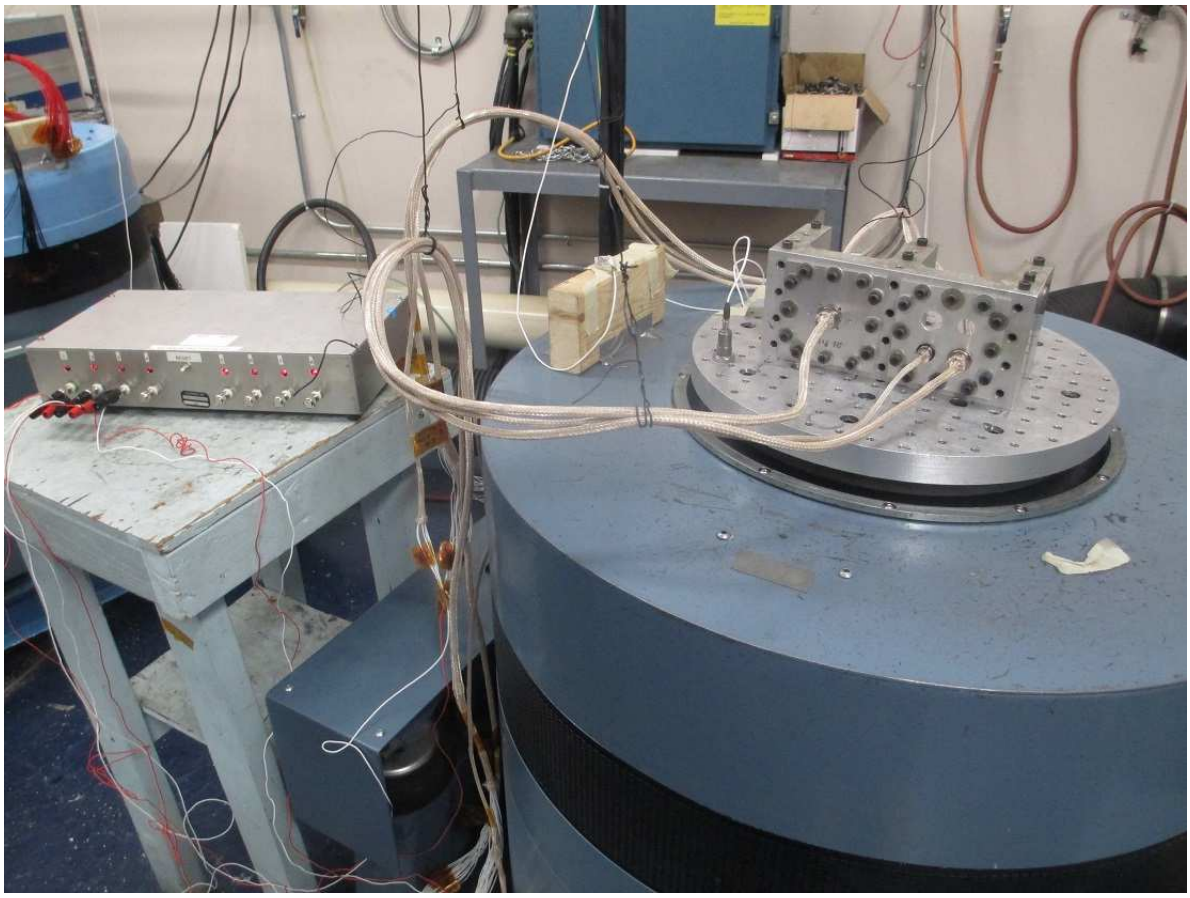
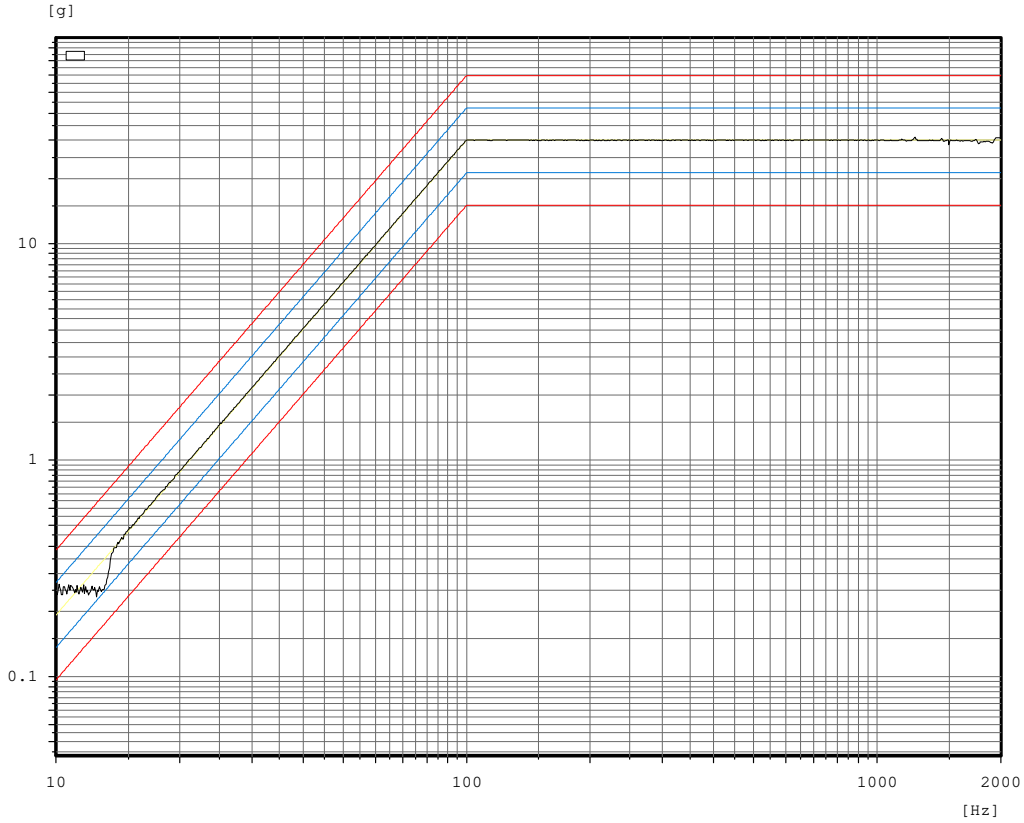


FIGURE #7

Sine

Channel 1

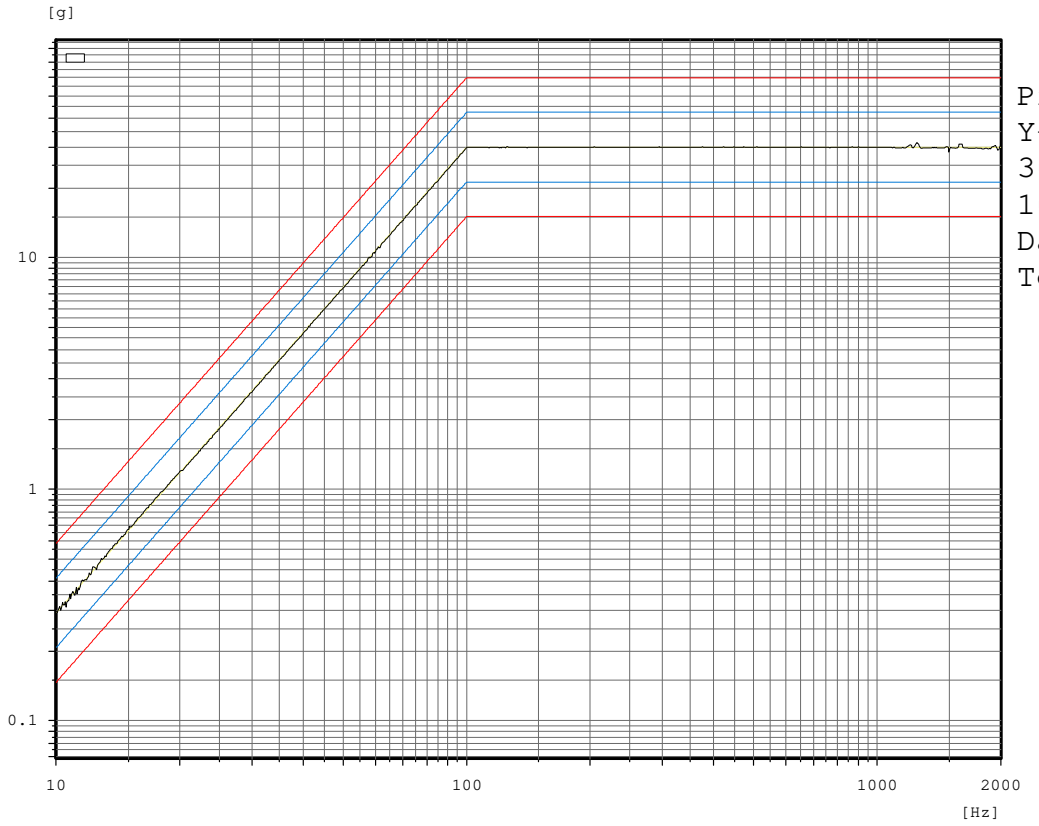


Project#221238A
X-Axis
30 G's
10-2000-10 Hz
Date: 1/28/22
Tech: DWR

FIGURE #8

Sine

Channel 1

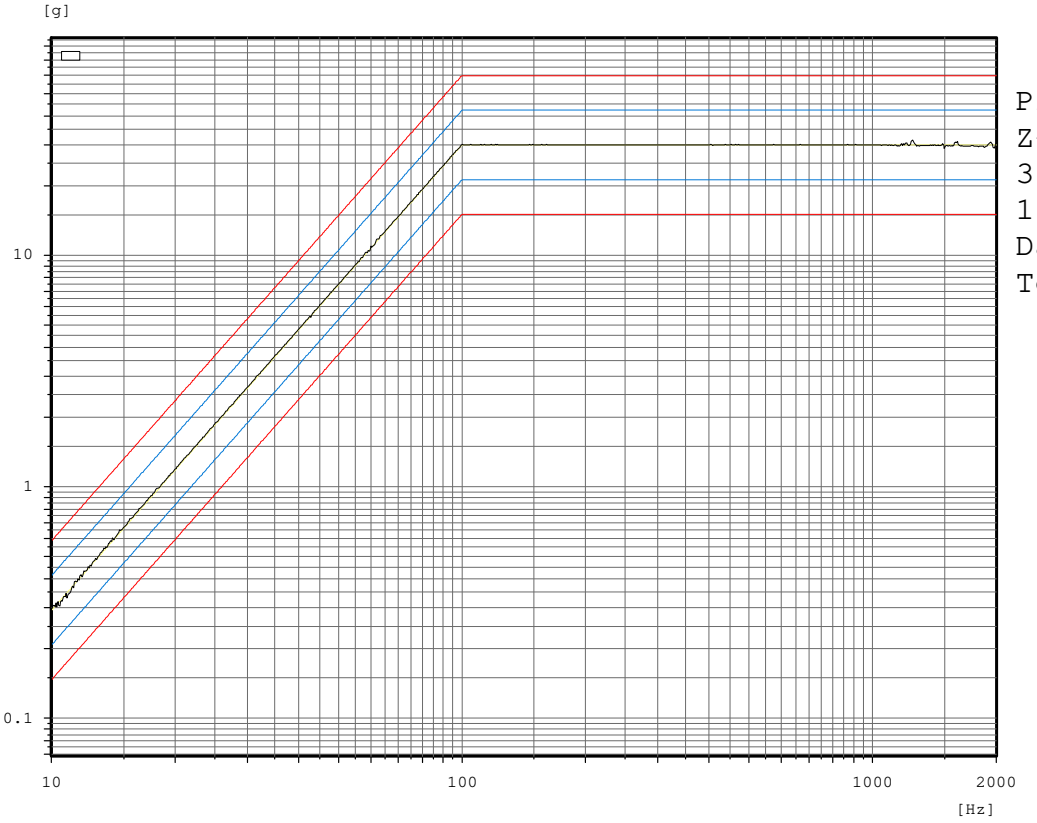


Project#221238A
Y-Axis
30 G's
10-2000-10 Hz
Date: 1/28/22
Tech: DWR

FIGURE #9

Sine

Channel 1



Project#221238A
Z-Axis
30 G's
10-2000-10 Hz
Date: 1/28/22
Tech: DWR

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See Page 4	PART DESCRIPTION: Series K804 Conn.
SAMPLE SIZE: 3 Samples	TECHNICIAN: DWR
START DATE: 1/27/22	COMPLETE DATE: 1/28/22
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 20%
EQUIPMENT ID#: 1790, 1791, 1832, 1902, 1914, 1915	

VIBRATION, RANDOM

PURPOSE:

1. To determine if the contact system is susceptible to fretting corrosion.

2. To establish the mechanical integrity of the test samples exposed to external mechanical stresses.

3. To determine if electrical discontinuities at the level specified exist.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 28, Test Condition V, Letter I.

2. Test Conditions:

    a) Power Spectral Density : 1.0 G^2/Hz
    b) G 'RMS' : 37.8
    c) Frequency : 50 to 2000 Hz
    e) Duration : 4 HRS/axis, 3 axis total
    f) Test Current : 100 milliamps

3. Figure #10 illustrates the test sample fixturing utilized during the test.

-continued on next page.

PROCEDURE: -continued

4. Group 2 sample ID#s 8, 10 and 12 were tested.

5. Discontinuity monitoring was performed in accordance with EIA 364, Test Procedure 46.

REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples as tested.

2. There shall be no contact interruption greater than 1.0 microsecond.

RESULTS:

1. There was no evidence of physical damage to the test samples as tested.

2. There was no interruption greater than 1.0 microsecond.

3. The random vibration profiles are shown in Figure #'s 11 (X-axis), 12 (Y-axis) and 13 (Z-axis).

FIGURE #10

TYPICAL RANDOM VIBRATION SET-UP

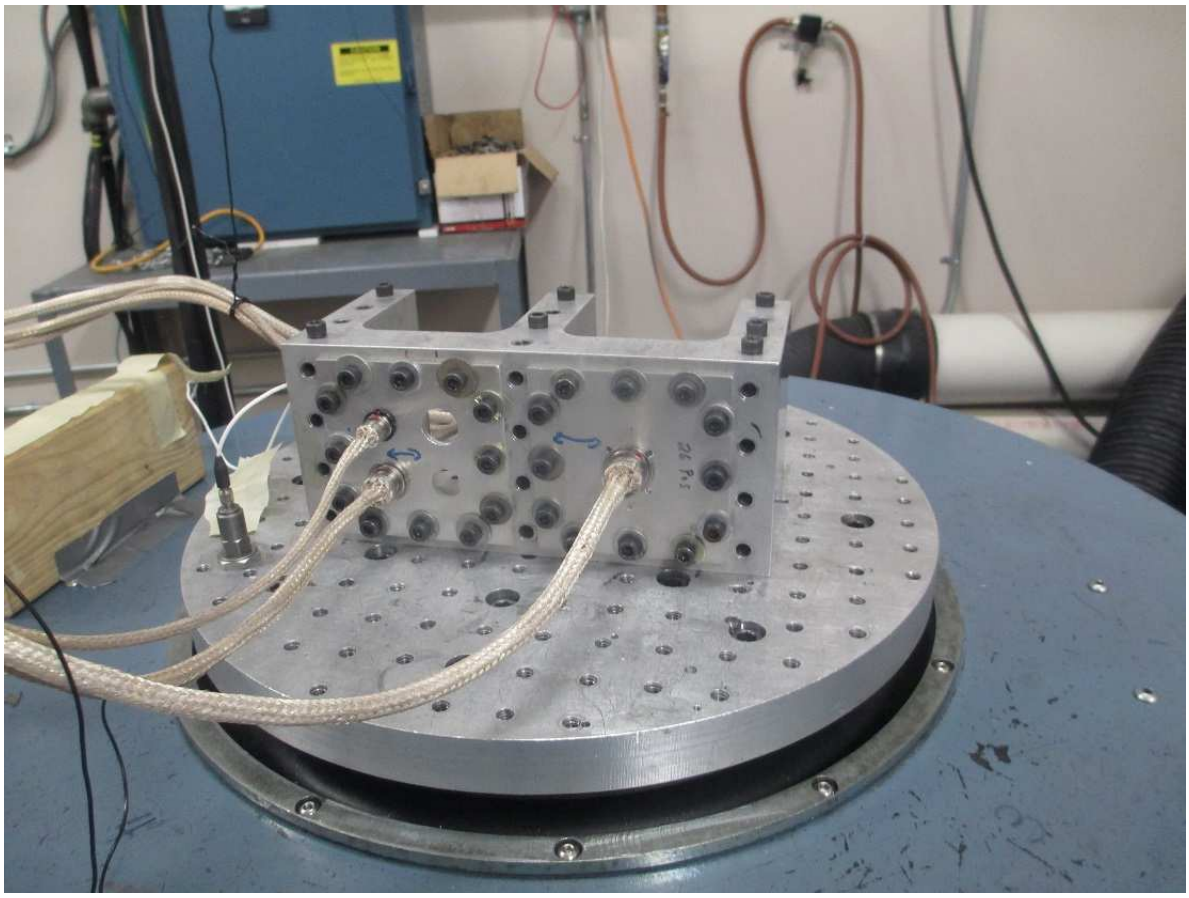
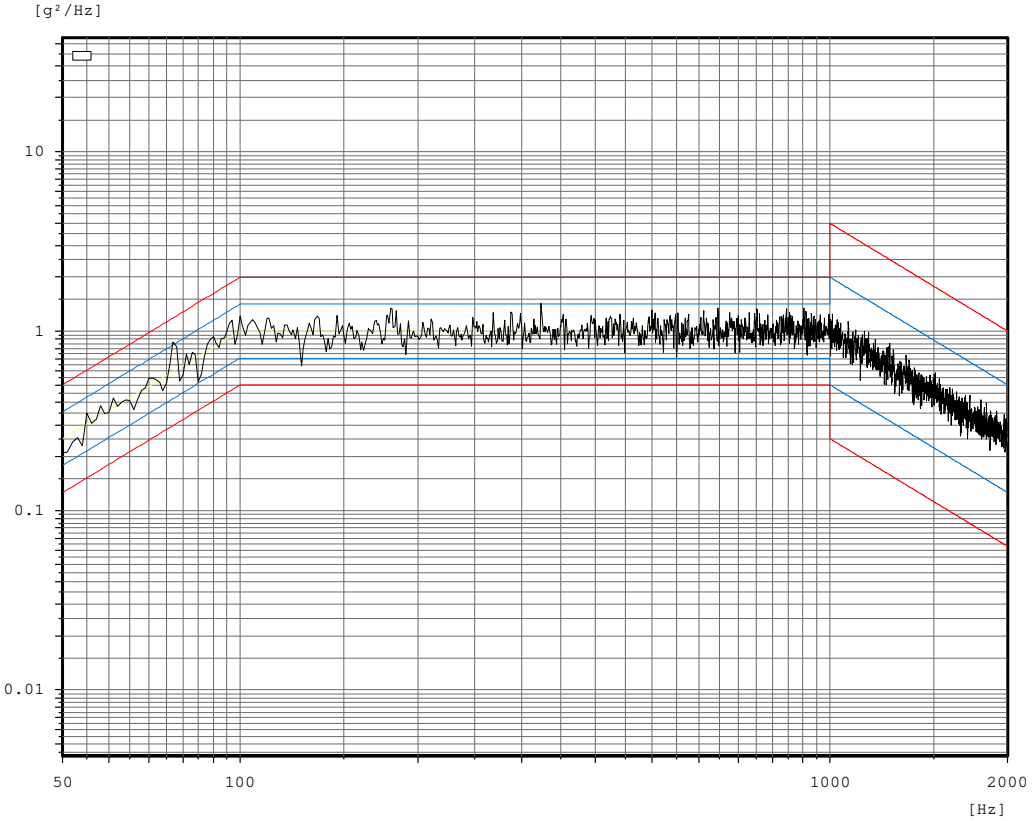


FIGURE #11

Random

Channel 1

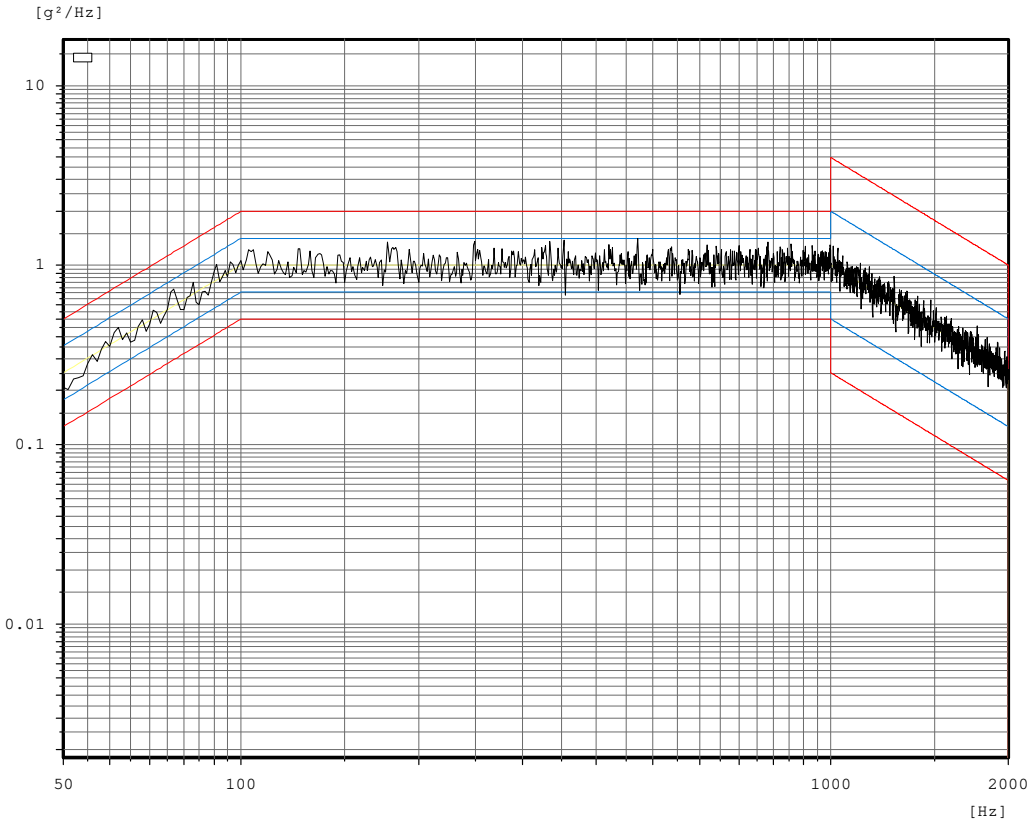


Project#221238A
X-Axis
37.8 G'rms
50-2000 Hz
Date: 1/28/22
Tech: DWR

FIGURE #12

Random

Channel 1

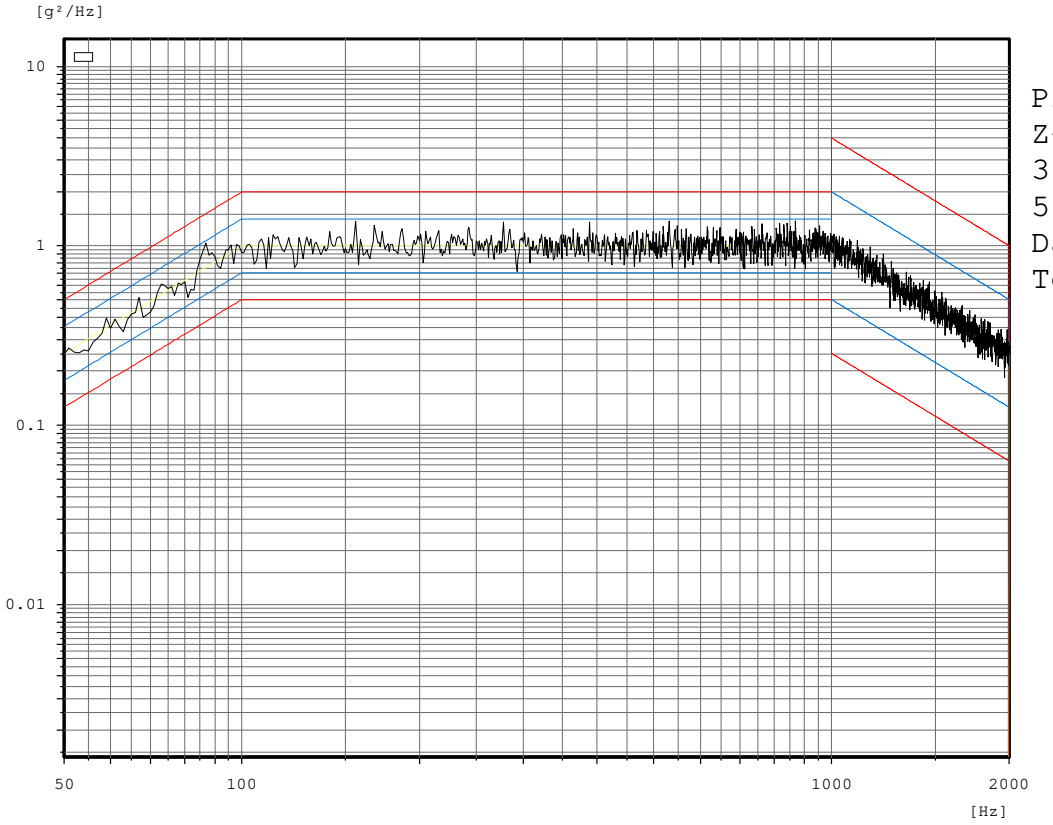


Project#221238A
Y-Axis
37.8 G'rms
50-2000 Hz
Date: 1/28/22
Tech: DWR

FIGURE #13

Random

Channel 1



Project#221238A
Z-Axis
37.8 G'rms
50-2000 Hz
Date: 1/28/22
Tech: DWR

PROJECT NO.: 221238A SPECIFICATION: K804 Test Plan

PART NO.: See Page 4 PART DESCRIPTION: Series K804 Conn.

SAMPLE SIZE: 6 Samples TECHNICIAN: DWR

START DATE: 2/2/22 COMPLETE DATE: 2/3/22

ROOM AMBIENT: 20°C RELATIVE HUMIDITY: 21%

EQUIPMENT ID#: 34, 222, 488, 562, 689, 1010, 1592, 1832, 1876, 1934, 2019

MECHANICAL SHOCK (SPECIFIED PULSE)

PURPOSE:

To determine the mechanical and electrical integrity of connectors for use with electronic equipment subjected to shocks such as those expected from handling, transportation, etc.

PROCEDURE:

1. The test was performed in accordance with EIA 364, Test Procedure 27, Test Condition D.

2. Test Conditions:

    a) Peak Value : 300 G
    b) Duration : 3 Milliseconds
    c) Wave Form : Half Sine
    d) Velocity : 18.4 feet Per Second
    e) No. of Shocks : 3 Shocks/Direction, 3 Axis (18 Total)

3. Figure #14 illustrates the test sample fixturing utilized during the test.

4. Discontinuity monitoring was performed in accordance with EIA 364, Test Procedure 46.

-continued on next page.

PROCEDURE: -continued

5. All subsequent variable testing was performed in accordance with the procedures previously indicated.

REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples as tested.

2. There shall be no contact interruption greater than 1.0 microsecond.

3. The force required to mate/unmate the connectors shall be measured and recorded.

4. The shell to shell conductivity shall not exceed 5.0 millivolts.

RESULTS:

1. There was no evidence of physical damage to the test samples as tested.

2. There was no contact interruption greater than 1.0 microsecond.

3. The following is a summary of the data observed:

Part Number/Sample ID#	MATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#7	11.4
ID#8	10.3
K804-001-9-19/K804-003-9-19	
ID#9	17.2
ID#10	15.7

-continued on next page.

RESULTS: -continued

Part Number/Sample ID# -continued	MATING FORCE (Pounds)
K804-001-10-26/K804-003-10-26	
ID#11	19.6
ID#12	18.0

4. The following is a summary of the data observed:

Part Number/Sample ID#	SHELL TO SHELL CONDUCTIVITY (millivolts)
K804-001-6-7/K804-003-6-7	
ID#7	0.9
ID#8	1.2
K804-001-9-19/K804-003-9-19	
ID#9	1.3
ID#10	1.1
K804-001-10-26/K804-003-10-26	
ID#11	1.0
ID#12	0.8

5. See data files 221238B07 through 221238B12 for individual data points.

6. The following is a summary of the data observed:

Part Number/Sample ID#	UNMATING FORCE (Pounds)
K804-001-6-7/K804-003-6-7	
ID#7	9.8
ID#8	9.7
K804-001-9-19/K804-003-9-19	
ID#9	15.4
ID#10	15.2

-continued on next page.

RESULTS: -continued

Part Number/Sample ID#	UNMATING FORCE (Pounds)
K804-001-10-26/K804-003-10-26	
ID#11	23.0
ID#12	23.5

7. The following are the shock characteristics as shown in Figure #15 (calibration pulse), and #16 (test pulse):

	Calibration	Test
X-Axis (Duration)		
Delay 1 to 1: Duration Time	2.72 ms	2.68 ms
Milliseconds per Division	2.00 ms	2.00 ms
Y-Axis (G Level)		
MV/div x 0.1 G: G's/Division	100.0 G's	100.0 G's
Vamp 1 ÷ 0.01: G Level	297.0 G's	297.0 G's

FIGURE #14

TYPICAL MECHANICAL SHOCK SET-UP

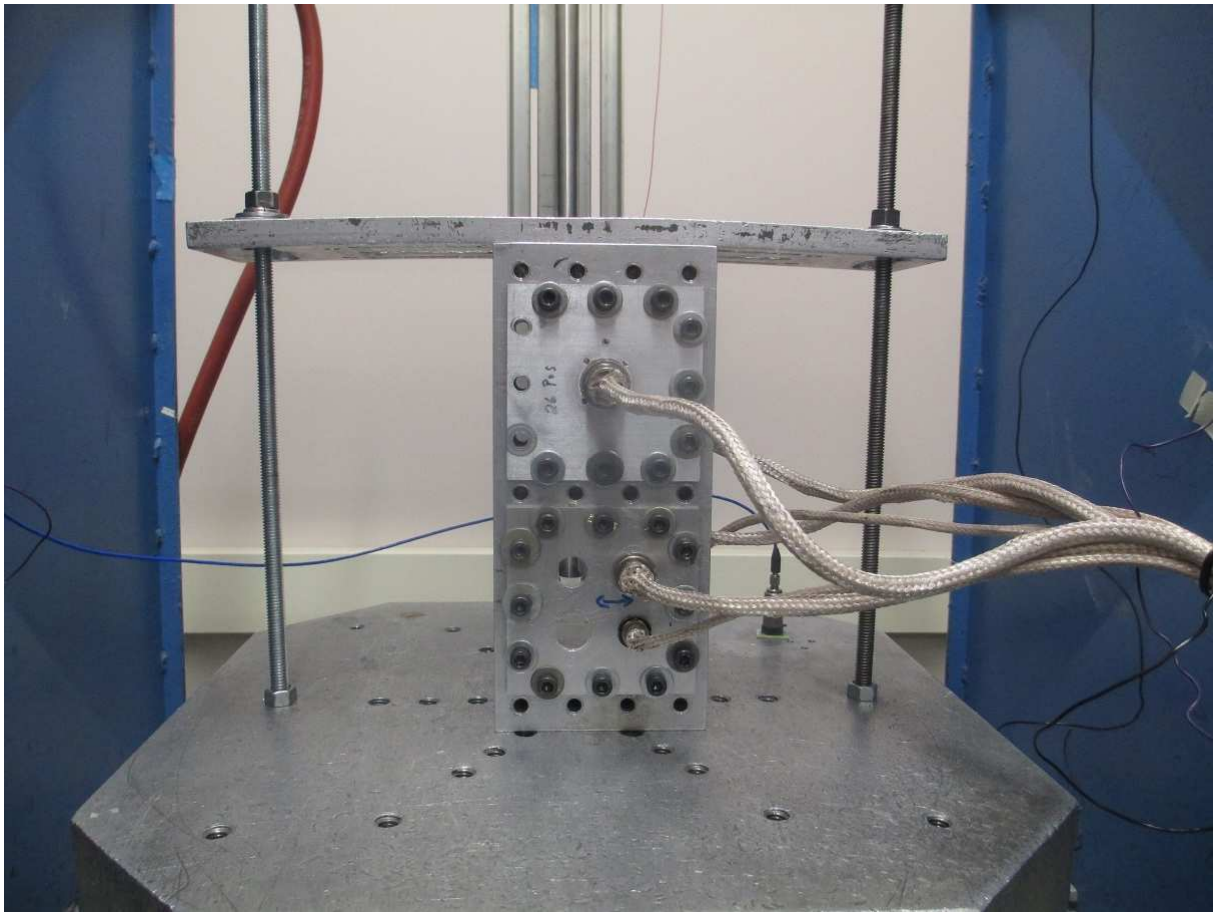


FIGURE #15

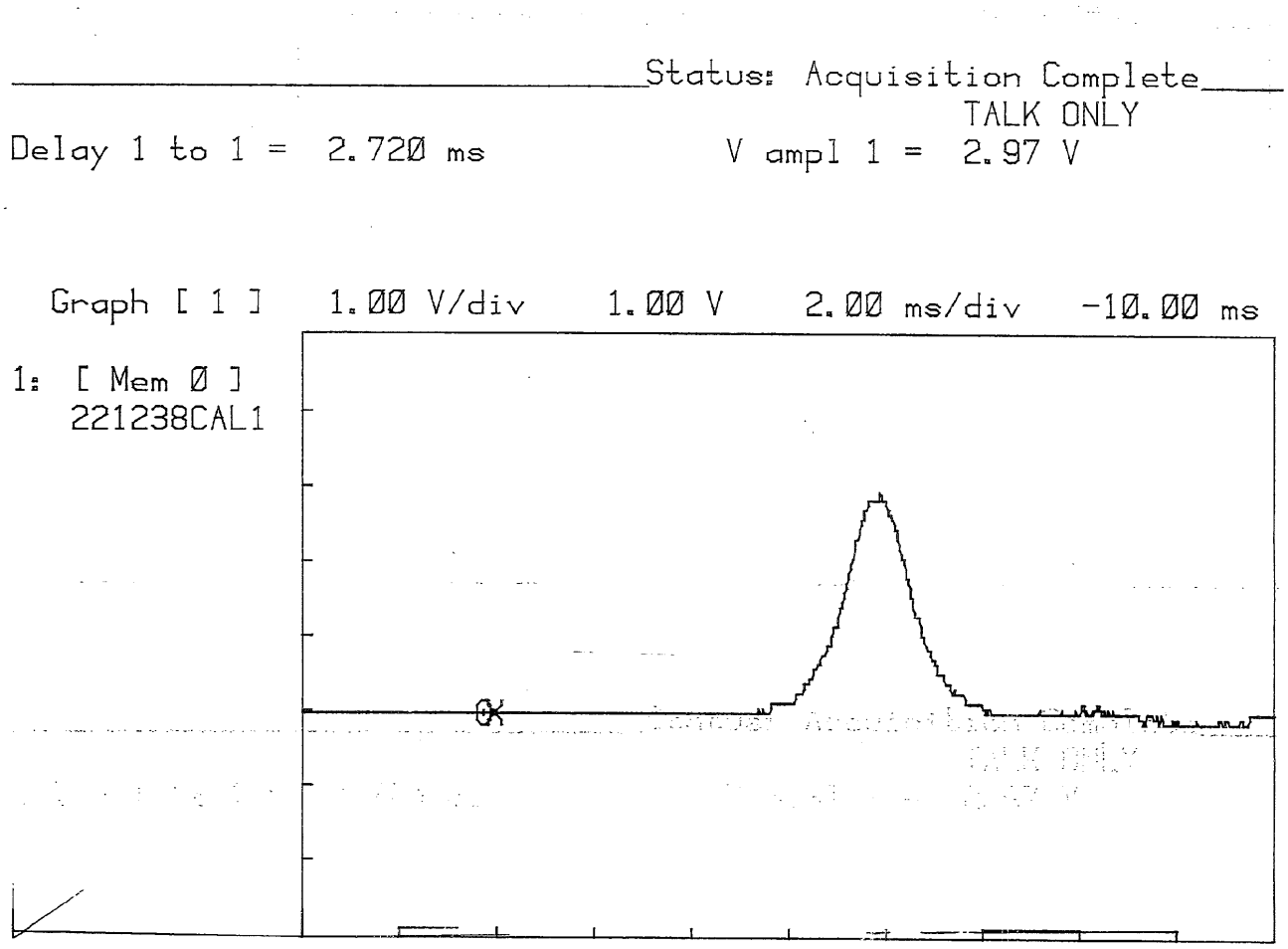
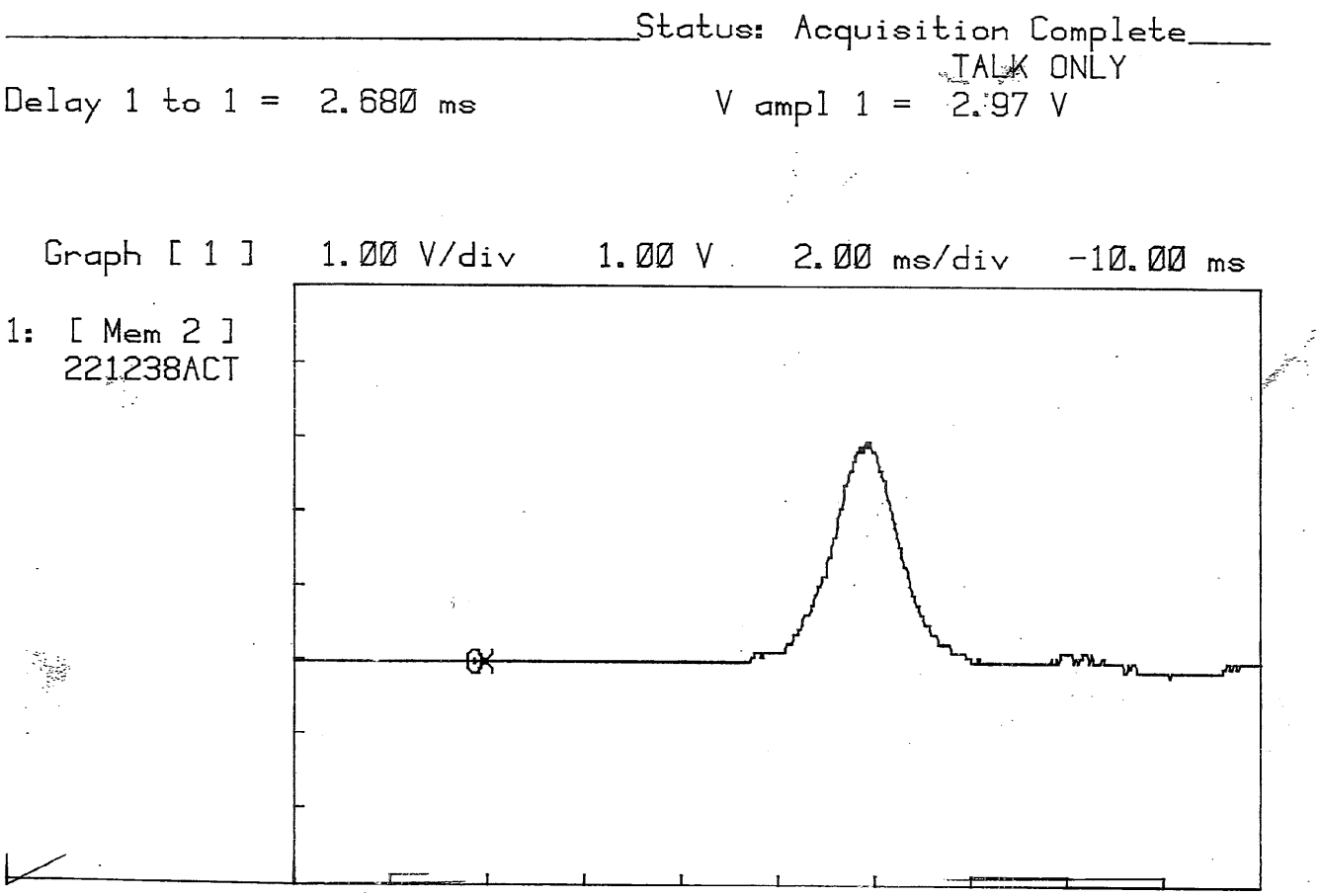

Status: Acquisition Complete
TALK ONLY
Delay 1 to 1 = 2.720 ms
V ampl 1 = 2.97 V
Graph [1] 1.00 V/div 1.00 V 2.00 ms/div -10.00 ms
1: [Mem 0]
221238CAL1

FIGURE #16



SHELL TO SHELL CONDUCTIVITY
DATA FILES

FILE NUMBERS

221238A07
221238A08
221238A09
221238A10
221238A11
221238A12

Shell to Shell Conductivity - Actual Values				
Project:	221238A		Spec:	EIA 364, TP 83
Customer:	Omnetics		Subgroup:	Group 2 #7
Product:	Series K804 connectors		File #:	221238A07
Description:	K804-001-6-7-B/K804-003-6-7-B			
Open circuit voltage :		1.5 volts	Current:	1 amps
Units:	millivolts			
Temp ºC	21°C	20°C	20°C	
R.H. %	26%	25%	29%	
Date:	28Dec21	10Jan22	03Feb22	
Pos. ID	Initial	Durability	Vibe/Shock	
		2000X		
Shell to Shell	1.3	1.2	0.9	
Tech	DWR	DWR	DWR	
Equip ID	1588	1588	1592	
	689	689	689	

Shell to Shell Conductivity - Actual Values					
Project:	221238A			Spec:	EIA 364, TP 83
Customer:	Omnetics			Subgroup:	Group 2 #8
Product:	Series K804 connectors			File #:	221238A08
Description:	K804-001-6-7-B/K804-003-6-7-B				
Open circuit voltage :		1.5 volts		Current:	1 amps
Units:	millivolts				
Temp ºC	21°C	20°C	20°C		
R.H. %	26%	20%	29%		
Date:	28Dec21	11Jan22	03Feb22		
Pos. ID	Initial	Durability	Vibe/Shock		
		2000X			
Shell to Shell	1.3	1.5	1.2		
Tech	DWR	DWR	DWR		
Equip ID	1588	1588	1592		
	689	689	689		

Shell to Shell Conductivity - Actual Values					
Project:	221238A			Spec:	EIA 364, TP 83
Customer:	Omnetics			Subgroup:	Group 2 #9
Product:	Series K804 connectors			File #:	221238A09
Description:	K804-001-9-19-B/K804-003-9-19-B				
Open circuit voltage :		1.5 volts		Current:	1 amps
Units:	millivolts				
Temp ºC	21°C	20°C	20°C		
R.H. %	26%	23%	29%		
Date:	28Dec21	13Jan22	03Feb22		
Pos. ID	Initial	Durability	Vibe/Shock		
		2000X			
Shell to Shell	1.0	1.1	1.3		
Tech	DWR	DWR	DWR		
Equip ID	1588	1588	1592		
	689	689	689		

Shell to Shell Conductivity - Actual Values					
Project:	221238A			Spec:	EIA 364, TP 83
Customer:	Omnetics			Subgroup:	Group 2 #10
Product:	Series K804 connectors			File #:	221238A10
Description:	K804-001-9-19-B/K804-003-9-19-B				
Open circuit voltage :		1.5 volts		Current:	1 amps
Units:	millivolts				
Temp ºC	21°C	20°C	20°C		
R.H. %	27%	26%	29%		
Date:	29Dec21	14Jan22	03Feb22		
Pos. ID	Initial	Durability	Vibe/Shock		
		2000X			
Shell to Shell	1.2	1.1	1.1		
Tech	DWR	DWR	DWR		
Equip ID	1588	1588	1592		
	689	689	689		

Shell to Shell Conductivity - Actual Values					
Project:	221238A			Spec:	EIA 364, TP 83
Customer:	Omnetics			Subgroup:	Group 2 #11
Product:	Series K804 connectors			File #:	221238A11
Description:	K804-001-10-26-B/K804-003-10-26-B				
Open circuit voltage :		1.5 volts		Current:	1 amps
Units:	millivolts				
Temp ºC	21°C	20°C	20°C		
R.H. %	27%	20%	29%		
Date:	29Dec21	19Jan22	03Feb22		
Pos. ID	Initial	Durability	Vibe/Shock		
		2000X			
Shell to Shell	1.3	1.5	1.0		
Tech	DWR	DWR	DWR		
Equip ID	1588	1588	1592		
	689	689	689		

Shell to Shell Conductivity - Actual Values					
Project:	221238A			Spec:	EIA 364, TP 83
Customer:	Omnetics			Subgroup:	Group 2 #12
Product:	Series K804 connectors			File #:	221238A12
Description:	K804-001-10-26-B/K804-003-10-26-B				
Open circuit voltage :		1.5 volts		Current:	1 amps
Units:	millivolts				
Temp ºC	21°C	20°C	20°C		
R.H. %	27%	26%	29%		
Date:	29Dec21	20Jan22	03Feb22		
Pos. ID	Initial	Durability	Vibe/Shock		
		2000X			
Shell to Shell	1.0	1.3	0.8		
Tech	DWR	DWR	DWR		
Equip ID	1588	1588	1592		
	689	689	689		

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See Page 4	PART DESCRIPTION: Series K804 Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: DWR
START DATE: 2/8/22	COMPLETE DATE: 2/15/22
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 20%
EQUIPMENT ID#: 568, 653, 1127, 1380, 1752, 1951, 1983, 2038	

HUMIDITY (THERMAL CYCLING)

PURPOSE:

To evaluate the impact on electrical stability of the contact system when exposed to any environment which may generate thermal/moisture type failure mechanisms such as:

a) Fretting corrosion due to wear resulting from micromotion, induced by thermal cycling. Humidity accelerates the oxidation process.

b) Oxidation of wear debris or from particulates from the surrounding atmosphere which may have become entrapped between the contacting surfaces.

c) Failure mechanisms resulting from a wet oxidation process.

PROCEDURE:

1. The test environment was performed in accordance with EIA 364, Test Procedure 31, Method IV, with the following conditions.

-continued on next page.

PROCEDURE: -continued

2. Test Conditions:

a) Preconditioning (24 hours)	:	50°C ± 5°C
b) Relative Humidity	:	90% to 95%
c) Temperature Conditions	:	25°C to 65°C
d) Cold Cycle	:	No
e) Polarizing Voltage	:	No
f) Mating Conditions	:	Mated
g) Duration	:	120 hours

3. Insulation resistance was measured and recorded in accordance with EIA 364, Test Procedure 21, with a test potential of 100 VDC.

4. The dielectric withstanding voltage test was performed in accordance with EIA 364, Test Procedure 20.

5. Prior to performing variable measurements, the test samples were allowed to recover to room ambient conditions.

6. All subsequent variable testing was performed in accordance with the procedures previously indicated.

REQUIREMENTS:

1. There shall be no evidence of physical deterioration of the test samples as tested.

2. The final insulation resistance shall not be less than 5,000 Megohms.

3. There shall be no evidence of arcing or breakdown when a 750 VAC test voltage is applied or leakage that exceeds 2.0 milliamps.

RESULTS: See Next Page

RESULTS: -continued

1. The insulation resistance as observed was as follows:

	INSULATION RESISTANCE	
	ADJ Contact	Contact to Shell
Part Number/Sample ID#		
K804-001-6-7/K804-003-6-7		
ID#7	>50,000	>50,000
ID#8	>50,000	>50,000
K804-001-9-19/K804-003-9-19		
ID#9	>50,000	>50,000
ID#10	>50,000	>50,000
K804-001-10-26/K804-003-10-26		
ID#11	15,500	>50,000
ID#12	34,000	>50,000

2. There was no evidence of breakdown, arcing, etc. or leakage that exceeded 2.0 milliamps, when a 750 VAC test voltage was applied.

TEST RESULTS

GROUP 3

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See Page 4	PART DESCRIPTION: Series K804 Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: Dayton T. Brown
START DATE: 1/6/22	COMPLETE DATE: 1/11/22
ROOM AMBIENT: Unknown	RELATIVE HUMIDITY: Unknown
EQUIPMENT ID#: See Appendix A	

SAND AND DUST

PROCEDURE:

1. The test was performed in accordance with MIL-STD-810F, Method 510.4.

2. Testing was subcontracted to Dayton T. Brown of Bohemia, Long Island, NY.

RESULTS:

See Appendix A for test report.

APPENDIX A

SAND AND DUST REPORT

DAYTON T. BROWN INC.
Founded 1950

ENGINEERING AND TEST DIVISION
1175 CHURCH STREET, BOHEMIA, LONG ISLAND, NEW YORK 11716 (631) 589-6300

TEST REPORT NO.: 418144-99-04-R22-0038

DAYTON T. BROWN, INC. JOB NO.: 418144-99-000

CUSTOMER: CONTECH RESEARCH INC.
750 NARRAGANSETT PARK DRIVE
RUMFORD, RI 02916

SUBJECT: BLOWING DUST AND BLOWING SAND TESTING PERFORMED ON SIX PUSH/PULL PLUG AND PUSH/PULL RECEPTACLE RP'S, SERIAL NOS. 13, 14, 15, 16, 17 AND 18

PURCHASE ORDER NO.: 16626

ATTENTION: MR. TOM PEEL

THIS REPORT CONTAINS: THREE PAGES AND TWO ENCLOSURES

PREPARED BY	T. CULLEN
TEST ENGINEER	J. M. LONG
QUALITY DEPARTMENT	D. THORNE
DATE	26 JANUARY 2022

THE DATA CONTAINED IN THIS REPORT WAS OBTAINED BY TESTING IN COMPLIANCE WITH THE APPLICABLE TEST SPECIFICATION AS NOTED

TABLE OF CONTENTS

1.0 ABSTRACT

This test report details the results of the blowing dust and blowing sand testing performed on six Push/Pull Plug and Push/Pull Receptacle RP's, Serial Nos. 13, 14, 15, 16, 17 and 18, under reference (a) to the requirements of references (c) and (d). Any deviations are detailed in the applicable enclosure herein.

Results of the tests are detailed in the following text.

The test items were nonoperating during testing.

The test results recorded in this report apply only to the sample(s) as received and relate only to those items tested.

This test report shall not be reproduced, except in full, without the written approval of Dayton T. Brown, Inc.

2.0 REFERENCES

(a)	Customer Purchase Order No.:	16626
(b)	Dayton T. Brown, Inc. Job No.:	418144-99-000
(c)	Test Specification:	MIL-STD-810G with Change 1, Method 510.6, Procedures I and II.
(d)	Test Specification:	Email correspondence from Mr. Tom Peel at Contech Research, Inc. to J.M. Long of Dayton T. Brown, Inc dated 4 through 10 January 2022

3.0 ADMINISTRATIVE INFORMATION

Customer	Contech Research Inc. 750 Narragansett Park Drive Rumford, RI 02916	
Test Item Description	Push/Pull Plug and Push/Pull Receptacle RP's	
Quantity Received	Six	
Set Nos.	1	2
*Serial Nos.	13, 15 and 18	14, 16 and 17
Date Received	4 January 2022	
Dates Tested	6 through 11 January 2022	
Date Shipped	12 January 2022	

*Serial Nos. assigned by customer.

4.0 TEST PROGRAM OUTLINE

Test	Test Item Description	Results
Blowing Dust	Push/Pull Plug and Push/Pull Receptacle RP's, Serial Nos. 13, 14, 15, 16, 17 and 18	See test results in Enclosure 1.
Blowing Sand	Push/Pull Plug and Push/Pull Receptacle RP's, Serial Nos. 13, 14, 15, 16, 17 and 18	See test results in Enclosure 2.

Enclosure 1

Blowing Dust Test and Results

22-0038

TEST REQUIREMENT

The blowing dust test shall be conducted in accordance with references (c) and (d).

TEST RESULTS

A pretest visual inspection of the test items revealed no anomalies.

All testing was performed in accordance with the referenced specifications. Test items were mated coiled to a minimum of 6-inch diameter and the high temperature testing specified as 71°C as per customer instruction.

The test items were split into two sets to accommodate spatial limitations within the test chamber. Set 1 consisted of Serial Numbers 13, 15 and 18 and Set 2 consisted of Serial Numbers 14, 16 and 17.

Refer to the following pages of this enclosure for the test data.

The test items completed all phases of testing.

A post-test visual inspection revealed a coating of dust on the test items.

DAYTON T. BROWN Inc. Founded 1950

BLOWING DUST DATA

JOB NO: 418144-01-001 DATE: 6 Jan 22

REQUIRED NUMBER OF SIDES: 3

REQUIRED DURATION PER SIDE: 2 hr

PRETEST TEMPERATURE OF TEST ITEM: 70.3 °F (Required: 59 - 95°F)

TIME	HOURS INTO TEST	AIR TEMP °F TOL. ± 18		RELATIVE HUMIDITY %		AIR FLOW VELOCITY (FT/MIN) TOL. ± 250		DUST DENSITY (GRAMS PER CUBIC FOOT) TOL. ± 0.2		REMARKS	TECH
		REQ	ACTUAL	REQ	ACTUAL	REQ	ACTUAL	REQ	ACTUAL		
2130	0	77	72.6	0 - 30	11.0	1750	1764	0.3	0.500	Begin	C
2330	2	77	77.1	0 - 30	6.5	1750	1728	0.3	0.165	Rotate	C
2315			24.4		7.1		1715		0.120	Begin Stab	C
0135	4	77	76.9	0 - 30	6.4	1750	1780	0.3	0.175	Rotate	M
0140			78.1		6.5		1728		0.120	Begin Stab	M
0340	6	77	77.1	0 - 30	6.6	1750	1718	0.3	0.330	End Stab	M
0955	0	160	161.8	0 - 30	5.9	1750	1788	0.3	0.500	Begin	M
0955			179.9		5.8		1728		0.181	Rotate	M
0800	2	160	158.4	0 - 30	5.8	1750	1782	0.3	0.330	Resume	M
1000			159.8		5.8		1767		0.300	Rotate	TE
1015	4	160	158.4	0 - 30	5.8	1750	1765	0.3	0.175	Resume	TE
1215	6	160	160.1	0-30	5.7	1750	1780	0.3	0.250	End.	TE

REMARKS:

ENGINEER

Dept 04 Standard Test Paperwork, RELEASED 6 MAY 2021
FILE NAME: Dept 04 Std Test Ppwk - 6 MAY 2021

SHEET: DSHT, DUST, 810G thru H

Test equipment utilized for the program reported herein was within its assigned interval of calibration.
Details are on file at Dayton T. Brown, Inc. and will be made available upon request.

DAYTON T. BROWN INC.
Founded 1950

Job Sub: **418144-01** **TEST: BLOWING DUST**

ITEM	MANUFACTURER	MODEL	DTB NO.	ACCURACY	CAL DUE DATE
RECORDER, CHART TRULINE 4 CHANNEL	HONEYWELL	DR4500	12-2	RTD ± 0.5°F, RH ± 0.2 RH, Volts ± 0.05% + 1 dig, Opacity ± 0.2 %	06/19/2022
Monitor, Dust and Opacity	DURAG	D-R 290	13-2	± 2% of full scale Opacity	07/03/2022
TAPE MEASURE, 25 FT	STANLEY	33-425	15-41	± 1/16"	12/04/2022
CONTROLLER, ENVIRONMENTAL SYSTEM	TIDAL ENGINEERING	TE1858-1	25-222	MFR	06/19/2022
INDICATOR, TEMPERATURE 10 CHANNEL	OMEGA	DP460	25-228	± 1.9°F	04/24/2022
PROBE, TEMPERATURE/HUMIDITY	ROTRONIC	HT255D	31-12	± 2% RH from 10 to 95%	01/30/2022
PROBE, RTD 3-WIRE 100 OHMS	OMEGA	PR-13-2-100-1/4-24-E	39-56	IEC Class A ± 0.15°C + 0.2%	09/11/2022
PROBE, RTD 3-WIRE 100 OHMS	OMEGA	PR-13-2-100-1/4-24-E	39-57	IEC Class A ± 0.15°C + 0.2%	09/11/2022
Meter, Air Velocity	TSI	9545	43-13	±3% of reading or ±3 ft/min whichever is greater	06/12/2022

Photo 1 – File No. 0821-0005
Pretest setup

Photo 2 – File No. 0821-0006
Pretest, test item identification, Serial No. 17

22-0038 Enc 1 Pg 4

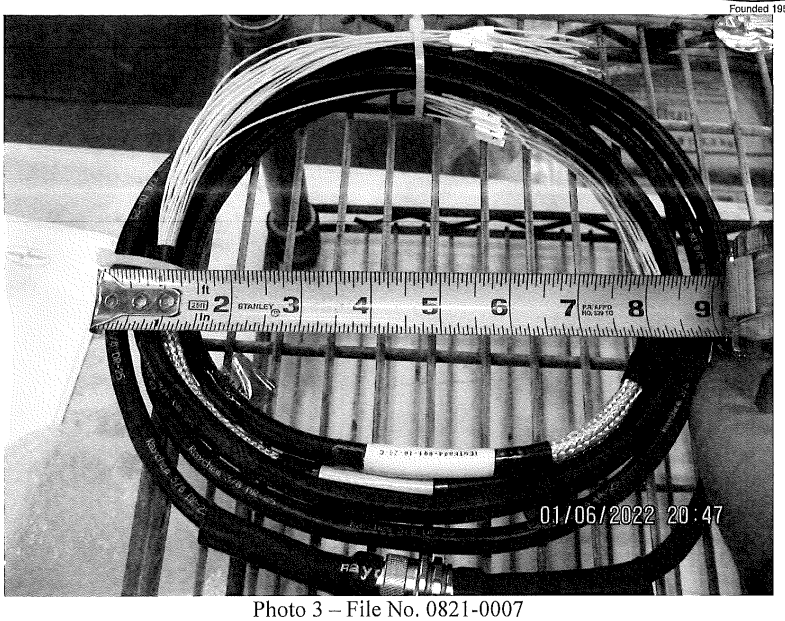


Photo 3 – File No. 0821-0007
Pretest and setup

Photo 4 – File No. 0821-0008
Pretest, test item identification, Serial No. 18

22-0038 Enc 1 Pg 5

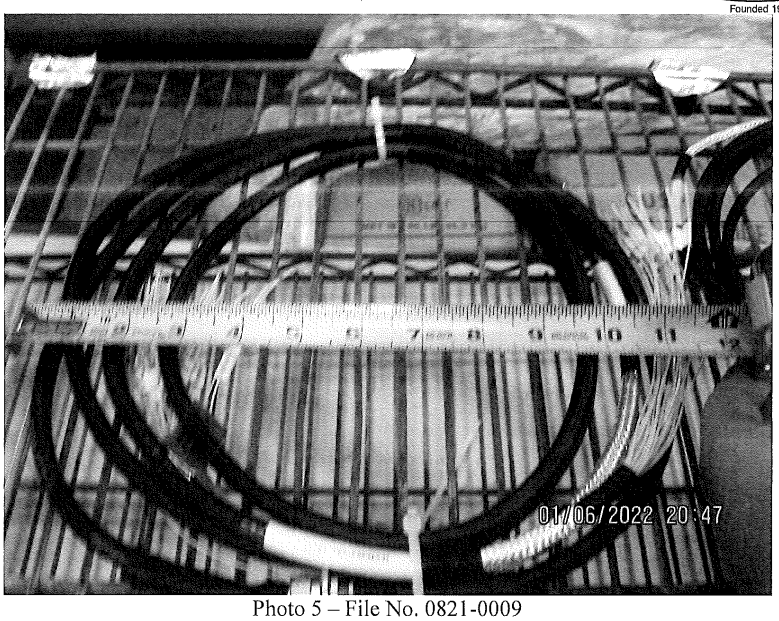


Photo 5 – File No. 0821-0009
Pretest and setup

Photo 6 – File No. 0821-0010
Pretest, test item identification Serial No. 13

22-0038 Enc 1 Pg 6

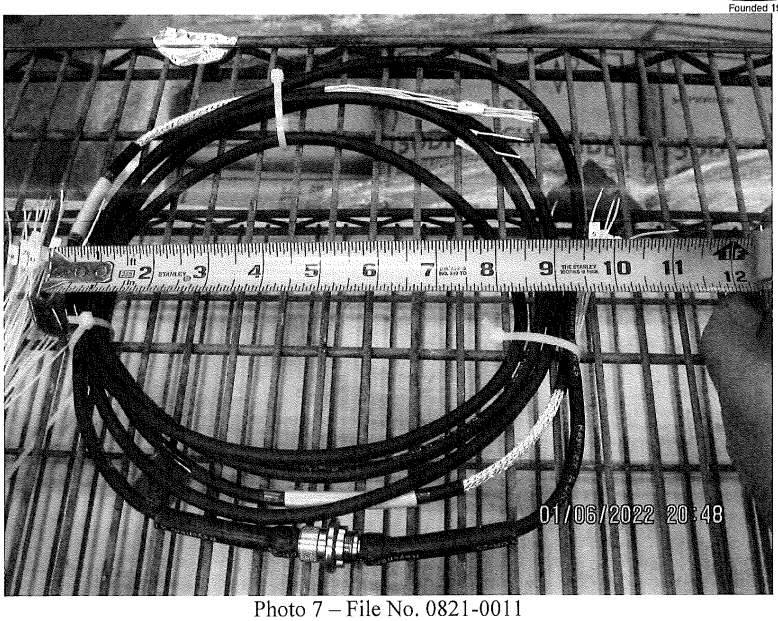


Photo 7 – File No. 0821-0011
Pretest and setup

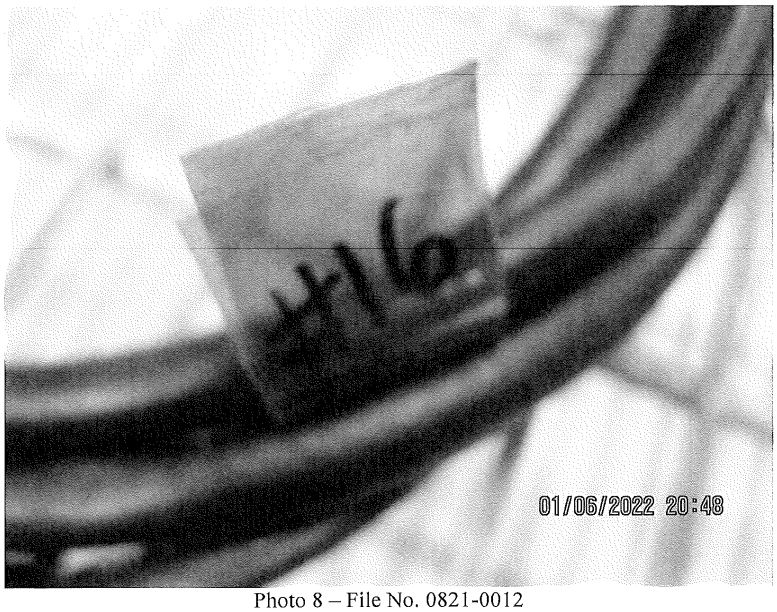


Photo 8 – File No. 0821-0012
Pretest, test item identification Serial No. 16

22-0038 Enc 1 Pg 7

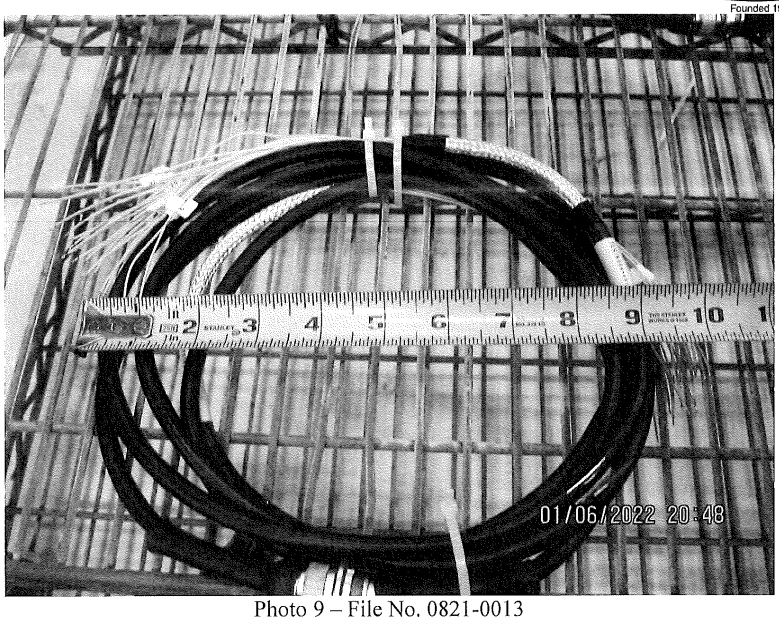


Photo 9 – File No. 0821-0013
Pretest and setup

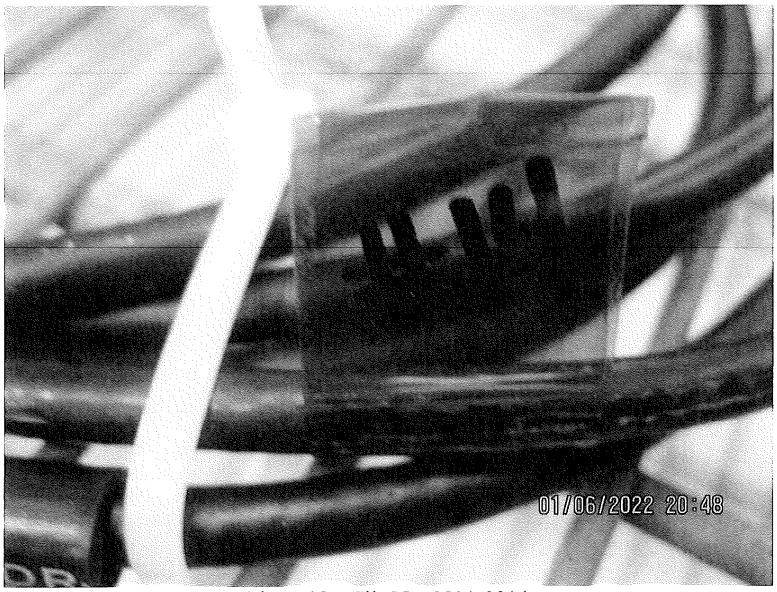


Photo 10 – File No. 0821-0014
Pretest, test item identification Serial No. 14

22-0038 Enc 1 Pg 8

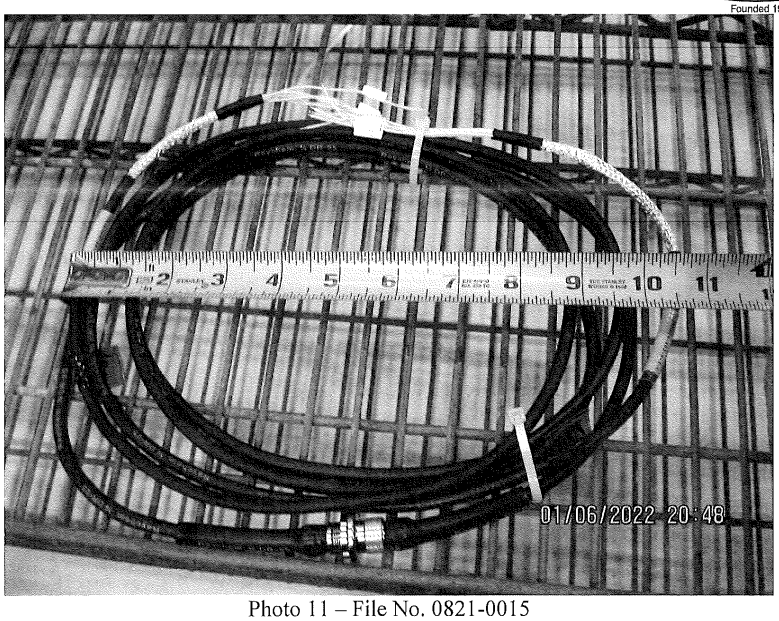


Photo 11 – File No. 0821-0015
Pretest and setup

Photo 12 – File No. 0821-0016
Pretest, test item identification Serial No. 15

22-0038 Enc 1 Pg 9

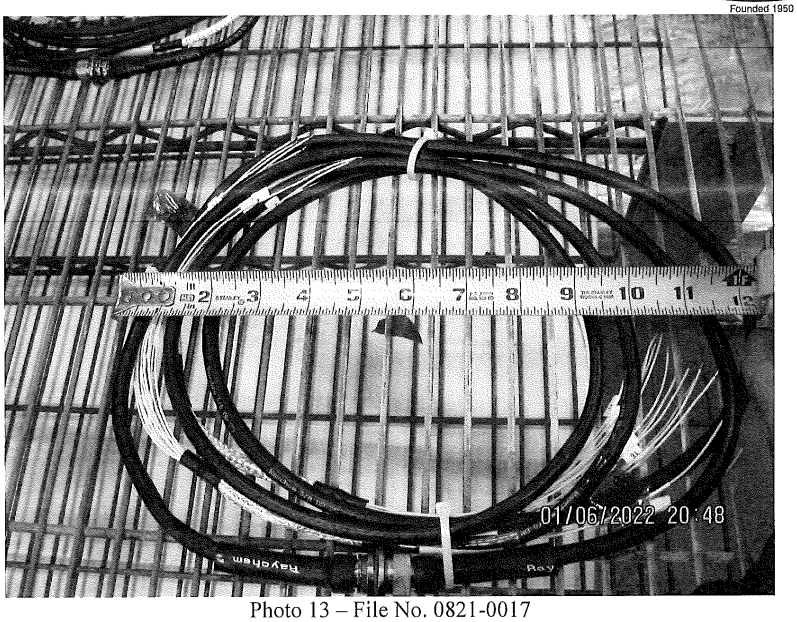


Photo 13 – File No. 0821-0017
Pretest and setup

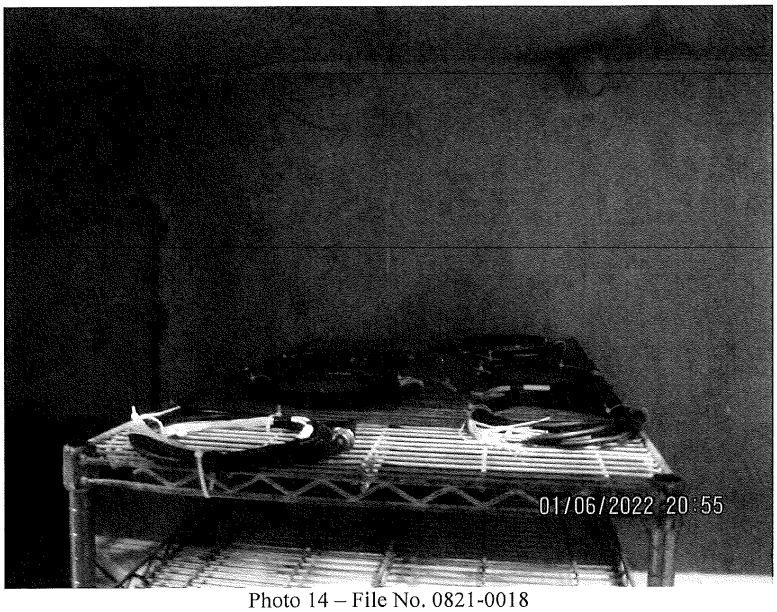


Photo 14 – File No. 0821-0018
Pretest and setup

22-0038 Enc 1 Pg 10

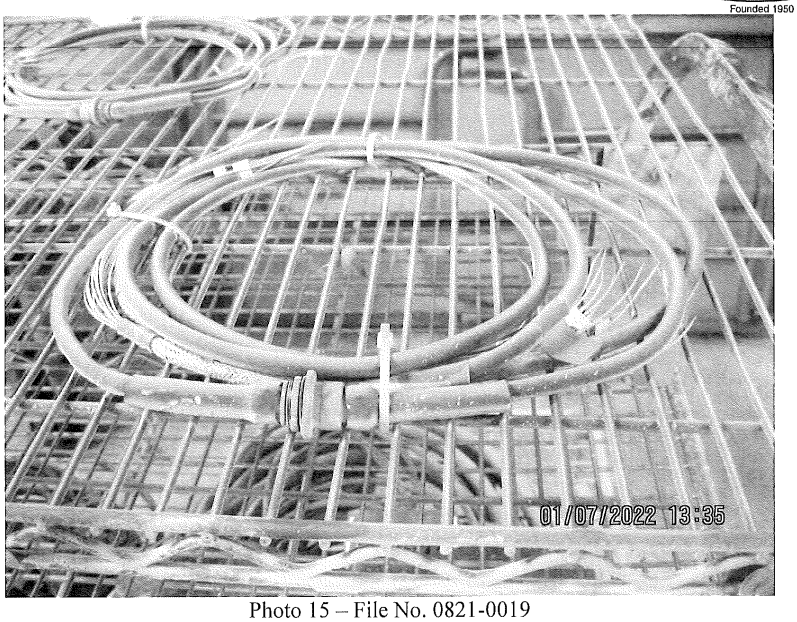


Photo 15 – File No. 0821-0019
Post-test photo

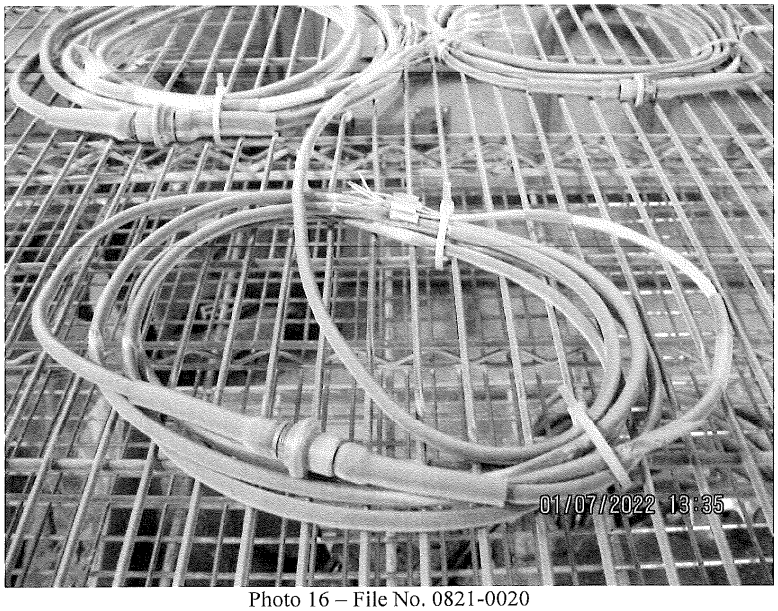


Photo 16 – File No. 0821-0020
Post-test photo

22-0038 Enc 1 Pg 11

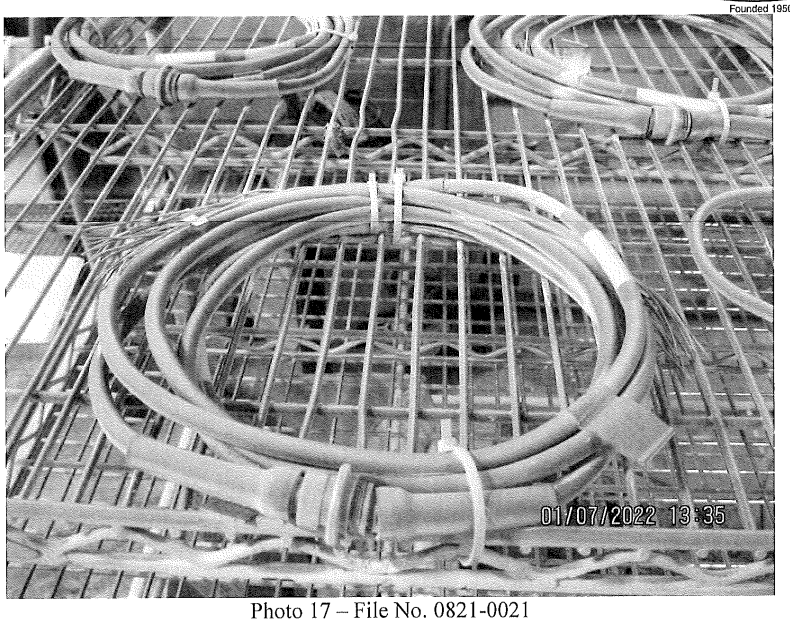


Photo 17 – File No. 0821-0021
Post-test photo

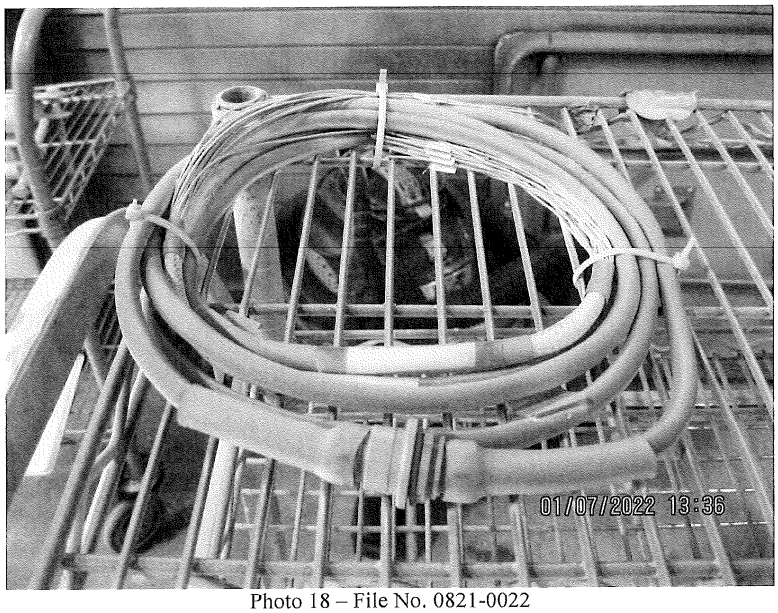


Photo 18 – File No. 0821-0022
Post-test photo

22-0038 Enc 1 Pg 12

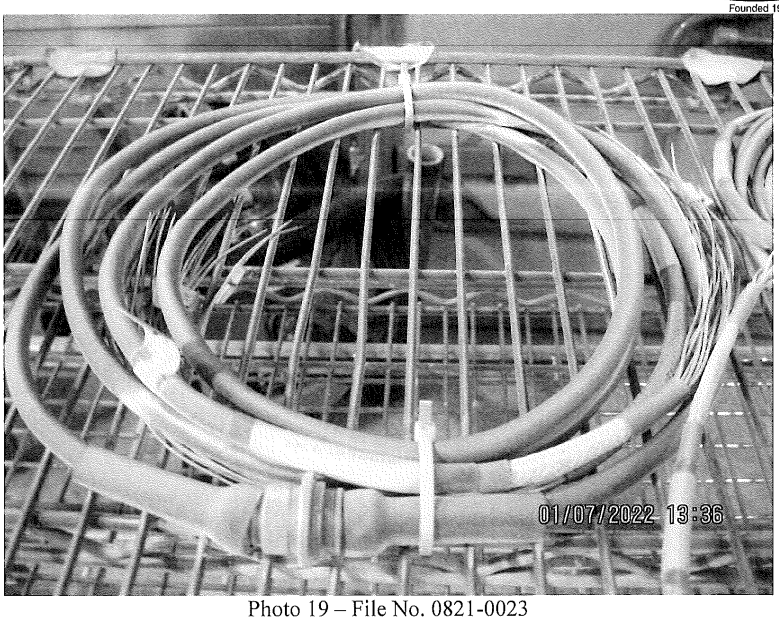


Photo 19 – File No. 0821-0023
Post-test photo

Photo 20 – File No. 0821-0024
Post-test photo

22-0038 Enc 1 Pg 13

Enclosure 2

Blowing Sand Test and Results

22-0038

TEST REQUIREMENT

The blowing sand test shall be conducted in accordance with references (c) and (d).

TEST RESULTS

A pretest visual inspection of the test items revealed a coating of dust on the test items from previous testing.

All testing was performed in accordance with the referenced specifications. Test items were mated coiled to a minimum of 6-inch diameter and high temperature specified as 71°C as per customer instruction.

Refer to the following pages of this enclosure for the test data.

The test items completed all phases of testing.

A post-test visual inspection revealed a coating of sand and dust on the test items.

SAND TEST DATA

PAGE 1

DAYTON T. BROWN INC. Founded 1950

JOB NO.: 418144-02-001

DATE: 10 JAN 22

REQUIRED TEMPERATURE: 160 +/- 3.6 °F

REQUIRED HUMIDITY: 30% OR LESS

REQUIRED AIR VELOCITY: 3540 - 5700 ft/min

ACTUAL AIR VELOCITY: 5200 ft/min (Avg) @ Unit

REQUIRED SAND DENSITY: 0.06 g/ft³ ± 0.015 g/ft³ (2.2 g/m³ ± 0.5 g/m³)

ACTUAL SAND DENSITY: 0.06 g/ft³

TIME	TEST TIME (MIN)	CHAMBER TEMP °F	UNIT TEMP °F	CHAMBER HUMIDITY %RH	SIDE TESTED	REMARKS	TECH
1355	0	153.4	160.0	7.7	1	Begin set # 1	MP
1425	30	160.3	162.5	6.7	1		MP
1455	60	159.0	160.6	6.3	1		MP
1525	90	160.3	161.3	6.1	1	End	MP
—	0 MP Jan 07	—			—	Rotate units	MP
1540	0	157.6	159.1	4.9	2	Begin	MP
1610	30	160.0	161.7	4.8	2		MP
1640	60	159.9	160.1	4.8	2		C
1710	90	160.2	160.1	4.6	2	end	C
—					—	Rotate	C
1730	0	158.4	159.3	3.3	3	Begin	C
1800	30	160.2	159.9	3.0	3		C
1830	60	161.3	160.2	2.9	3		C
1900	90	159.8	160.1	2.5	3	end set # 1	C
—					—	Rotate	MP
0940	0	159.0	160.0	2.3	1	Begin set # 2	MP

ENGINEER

Dept 04 Standard Test Paperwork, RELEASED 6 MAY 2021
FILE NAME: 418144 Contech Research

SHEET: DSHT, SAND

SAND TEST DATA

DAYTON T. BROWN INC. Founded 1950

JOB NO.: 418144-02-001

DATE: 11 Jan 22

REQUIRED TEMPERATURE: 160 +/- 3.6 °F

REQUIRED HUMIDITY: 30% OR LESS

REQUIRED AIR VELOCITY: 3540 - 5700 ft/min

ACTUAL AIR VELOCITY: 5200 ft/min (Avg) @ Unit

REQUIRED SAND DENSITY: 0.06 g/ft³ ± 0.015 g/ft³ (2.2 g/m³ ± 0.5 g/m³)

ACTUAL SAND DENSITY: 0.06 g/ft³

TIME	TEST TIME (MIN)	CHAMBER TEMP °F	UNIT TEMP °F	CHAMBER HUMIDITY %RH	SIDE TESTED	REMARKS	TECH
1010	30	161.2	162.2	2.6	1		MP
1040	60	159.0	159.1	2.9	1		MP
1111	90	158.2	160.2	2.7	1		MP
						Rotate	MP
1145	0	159.4	160.9	2.3	2	Begin	MP
1215	30	160.5	161.3	2.6	2		MP
1245	60	161.0	161.8	2.6	2		MP
1315	90	160.1	159.7	2.4	2	End	MP
						Rotate	MP
1415	0	159.8	159.2	2.1	3	Begin	MP
1445	30	160.0	159.6	2.3	3	MP 11 Jan 22	MP
1515	60	158.7	159.4	2.2	3		MP
1545	90	159.0	159.4	2.2	3	End set # 2	MP

ENGINEER

Dept 04 Standard Test Paperwork, RELEASED 6 MAY 2021
FILE NAME: 418144 Contech Research

SHEET: DSHT, SAND

Test equipment utilized for the program reported herein was within its assigned interval of calibration.
Details are on file at Dayton T. Brown, Inc. and will be made available upon request.

Job Sub: 418144-02 **TEST: BLOWING SAND**

ITEM	MANUFACTURER	MODEL	DTB NO.	ACCURACY FIELD NOT ACTIVE	CAL DUE DATE N.C.R.
SAND BOX	DAYTON T. BROWN	40 FT	04e-025		
TAPE MEASURE, 25 FT	STANLEY	33-425	15-85	± 1/16"	01/16/2022
CONTROLLER, UNIVERSAL DIGITAL	HONEYWELL	UDC 3200	25-205	± 1.5° F	01/30/2022
TRANSMITTER, TEMPERATURE & HUMIDITY	VAISALA	HMT335	31-173	± 1% RH (0 to 90 % RH) ± 1.7% RH (90 to 100 % RH)	02/13/2022
SCALE, DIGITAL 8200 GRAMS	ACCULAB	ATL-8201-I	38-56	± 0.3 grams	07/03/2022
Meter, Air Velocity	TSI	9545	43-12	±3% of reading or ±3 ft/min whichever is greater	08/14/2022
TIMER, DIGITAL 4-CHANNEL	CONTROL COMPANY	5004	47-88	± 8.64 Sec/24 hr	07/09/2023

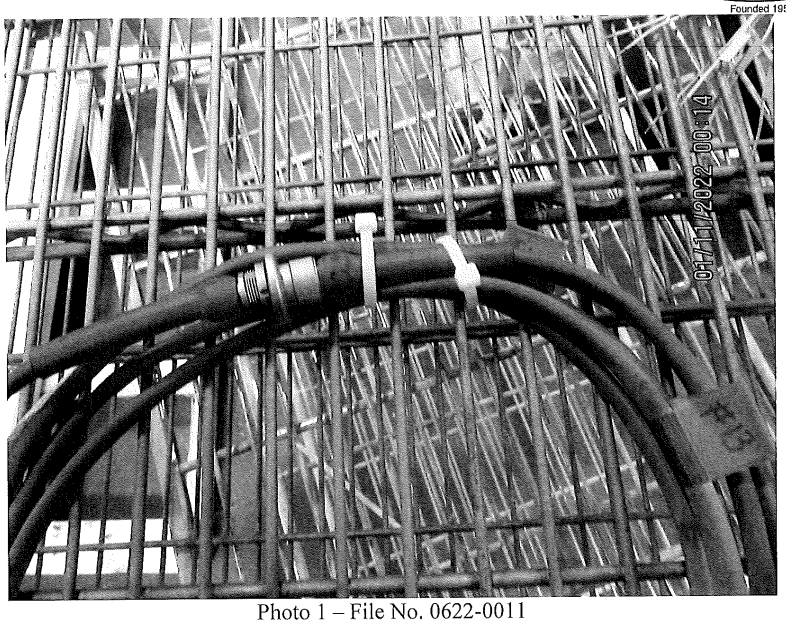


Photo 1 – File No. 0622-0011
Post-test photo Set 1

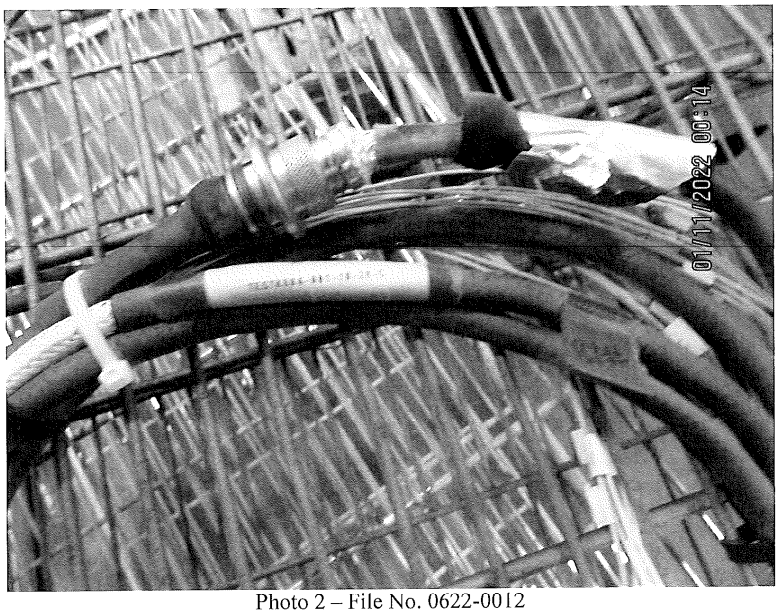


Photo 2 – File No. 0622-0012
Post-test photo Set 1

22-0038 Enc 2 Pg 5

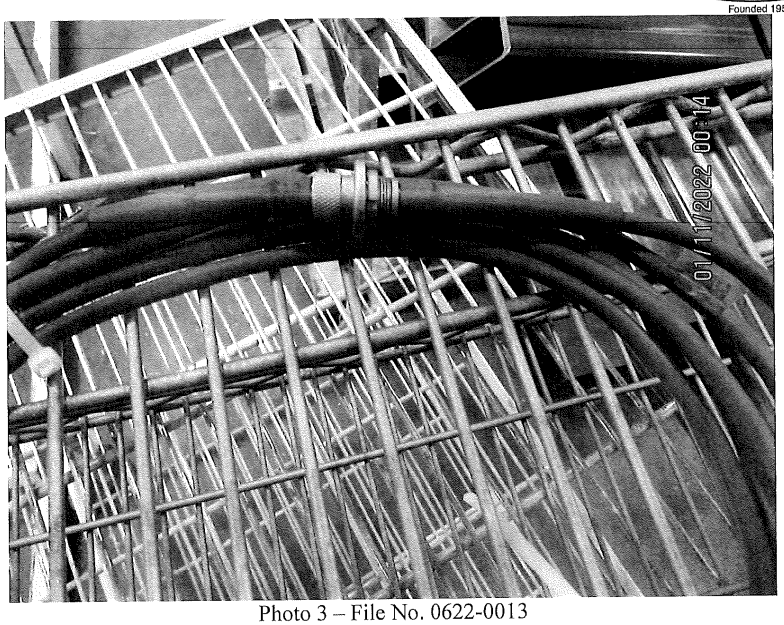


Photo 3 – File No. 0622-0013
Post-test photo Set 1

Photo 4 – File No. 0622-0014
Setup photo of 2nd Set 1st Side

22-0038 Enc 2 Pg 6

Photo 5 – File No. 0622-0015
Setup photo of 2nd Set 1st Side

Photo 6 – File No. 0622-0017
Setup photo of 2nd Set 2nd Side

22-0038 Enc 2 Pg 7

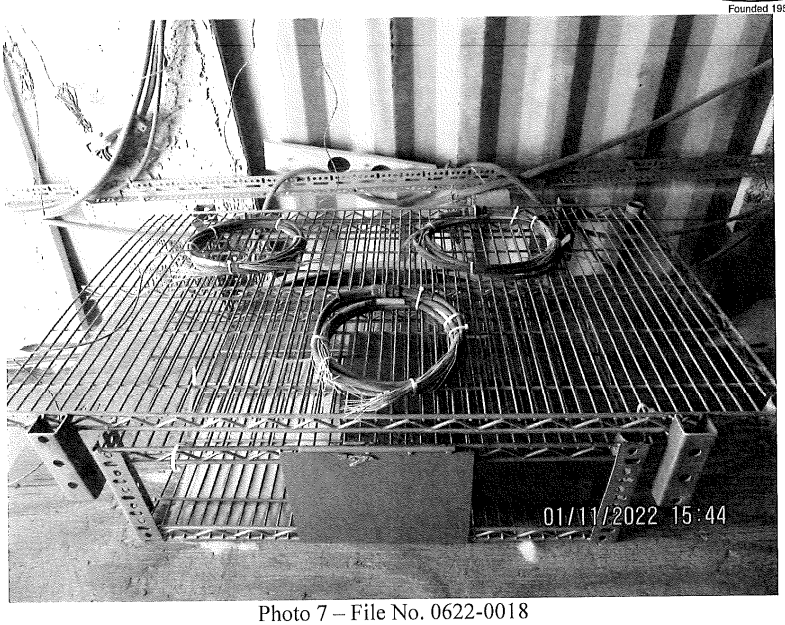


Photo 7 – File No. 0622-0018
Setup photo of 2nd Set 3rd Side

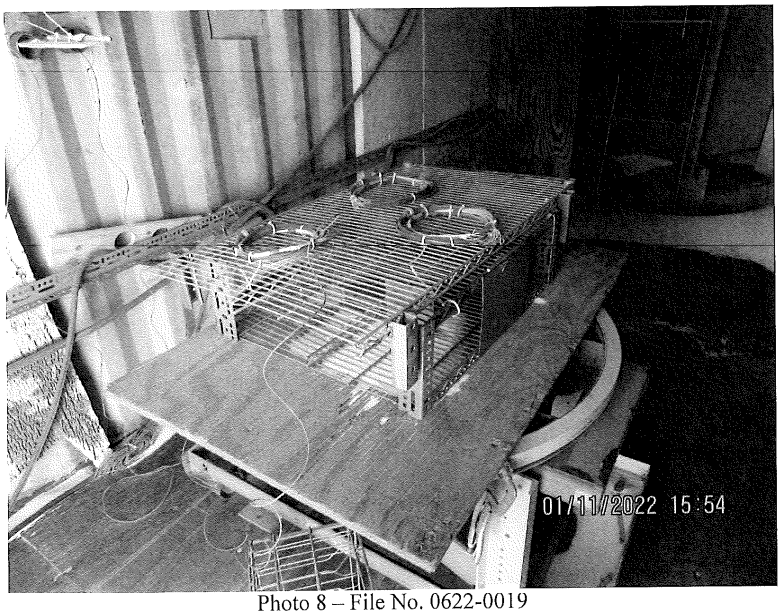


Photo 8 – File No. 0622-0019
Setup photo of 2nd Set 3rd Side

22-0038 Enc 2 Pg 8

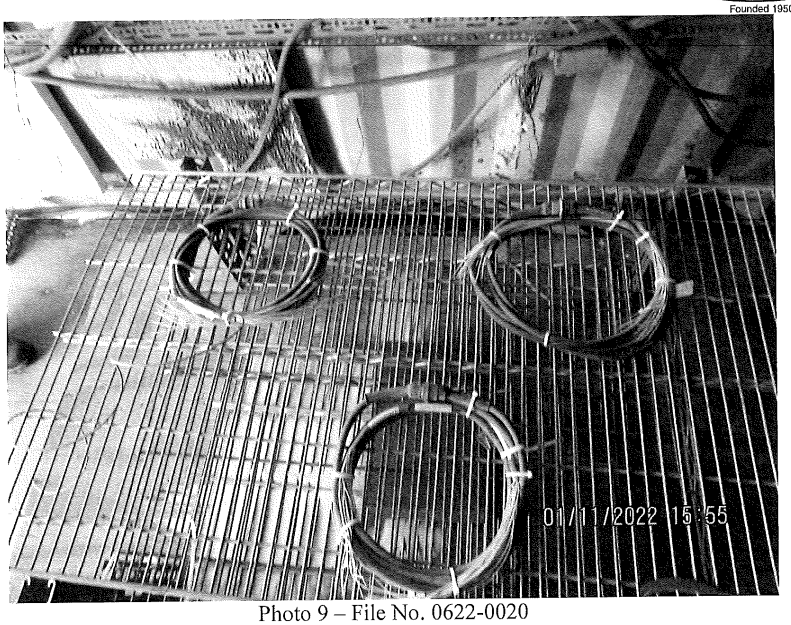


Photo 9 – File No. 0622-0020
Post-test photo

Photo 10 – File No. 0622-0021
Post-test photo

22-0038 Enc 2 Pg 9

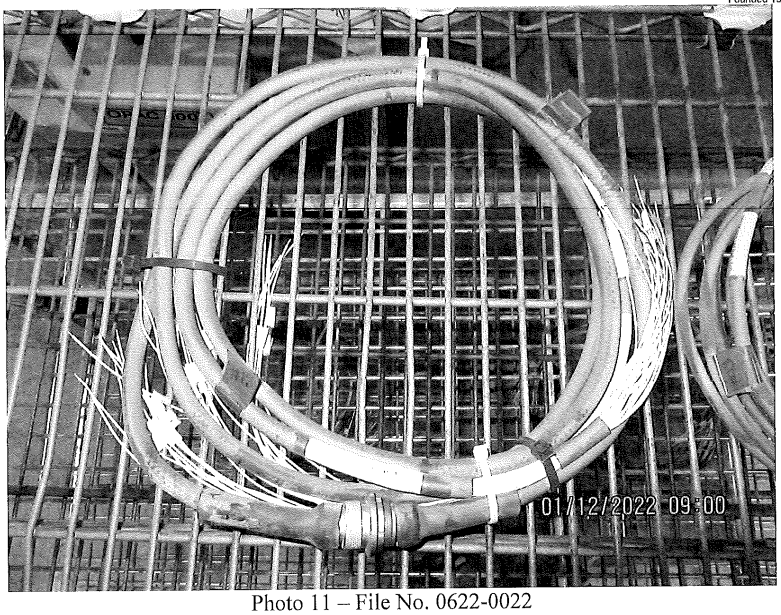


Photo 11 – File No. 0622-0022
Post-test photo

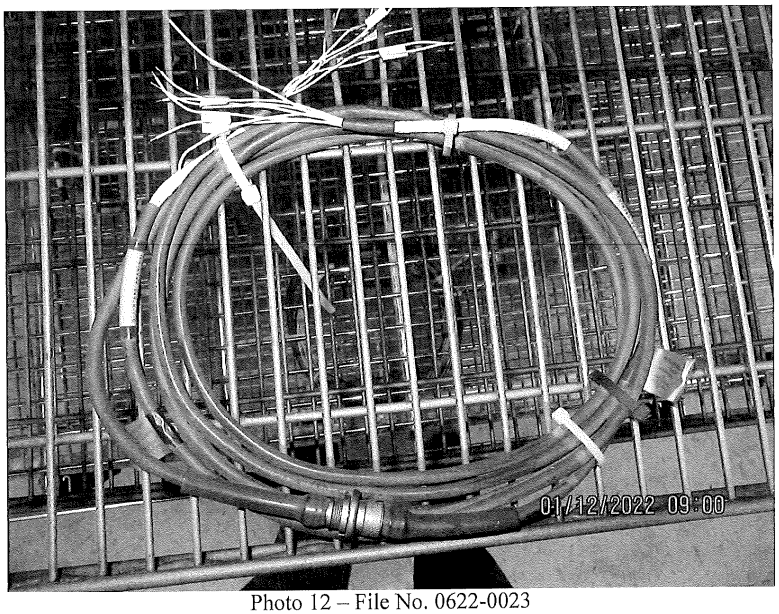


Photo 12 – File No. 0622-0023
Post-test photo

22-0038 Enc 2 Pg 10

Photo 13 – File No. 0622-0024
Post-test photo

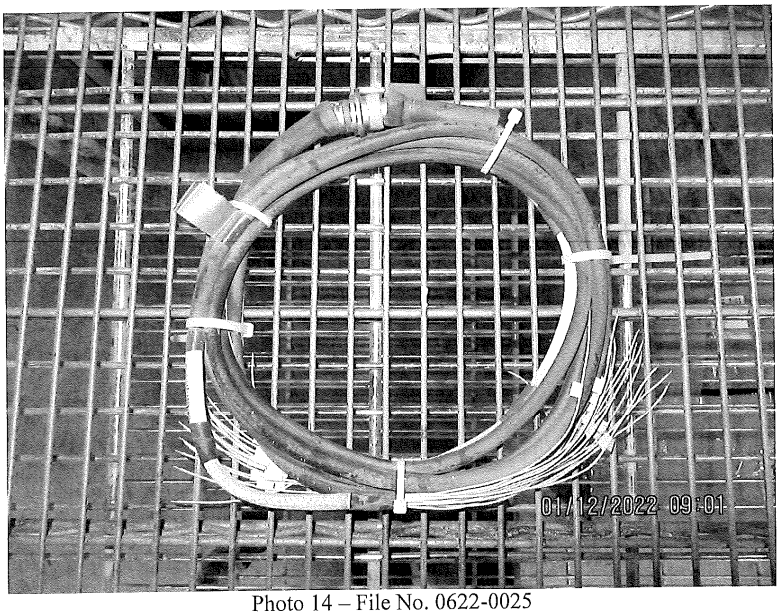


Photo 14 – File No. 0622-0025
Post-test photo

22-0038 Enc 2 Pg 11

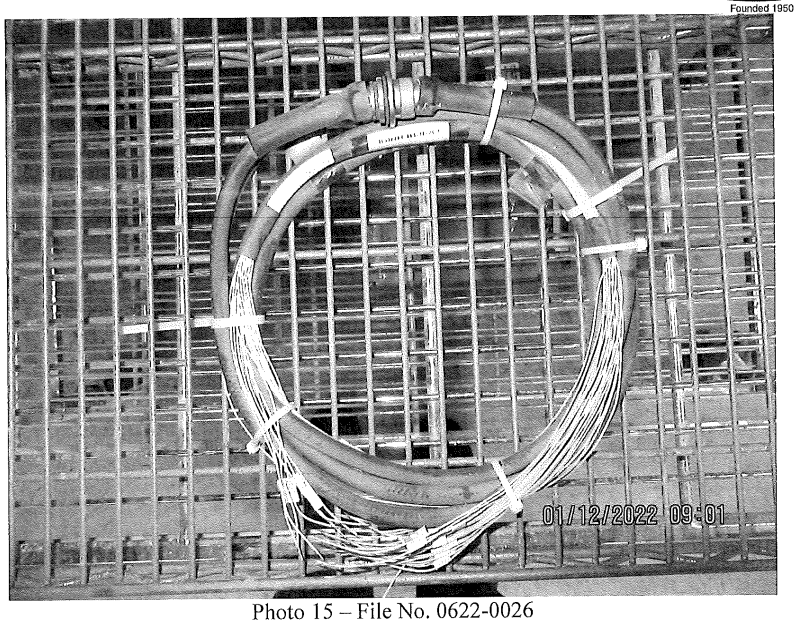


Photo 15 – File No. 0622-0026
Post-test photo

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See Page 4	PART DESCRIPTION: Series K804 Conn.
SAMPLE SIZE: 6 Samples	TECHNICIAN: DWR
START DATE: 1/25/22	COMPLETE DATE: 1/25/22
ROOM AMBIENT: 20°C	RELATIVE HUMIDITY: 23%
EQUIPMENT ID#: 18, 628, 1736, 1909, 1951, 2038	

IMMERSION

PROCEDURE:

1. The test was performed in accordance with MIL-STD-810F, Method 512.4.

2. Per the test sponsor, the samples were back potted with Epoxy to seal the wires.

3. Testing was performed as follows:

a) Tape off the exposed cable ends with Kapton tape.
b) Mate the connectors.
c) Place the samples in a chamber.
   at 27°C, +2°C/-0°C for 2 hours.
d) Fill a tank with 1 meter of water. Record the water temp.
e) Immerse the entire sample in 1 meter of water.
f) Hold for 30 minutes.
g) Remove from the water and wipe down the samples, remove the Kapton tape wipe down the exposed cables.
h) Perform IR/DWV in the mated condition.
i) Unmate the samples and inspect for water.
j) See Figure #17 for test set-up.

4. Final dielectric withstanding voltage was performed in accordance with MIL-STD-1344, Method 2001 with a test voltage of 750 VAC.

5. Final insulation resistance was performed in accordance with MIL-STD-1344 with a 100 VDC test voltage.

-continued on next page.

PROCEDURE: -continued

6. All subsequent attribute testing was performed in accordance with the procedures as previously indicated.

7. Prior to performing attribute measurements, the test samples were allowed to recover to room ambient conditions.

REQUIREMENTS:

1. There shall be no evidence of swelling, softening or other physical damage to the test samples.

2. When the 750 VAC test voltage is applied, there shall be no evidence of arcing, breakdown, etc or leakage that exceeds 2.0 milliamps.

3. Insulation resistance shall exceed 1,000 megohms.

RESULTS:

1. There was no evidence of swelling, softening or other physical damage to the test samples as exposed.

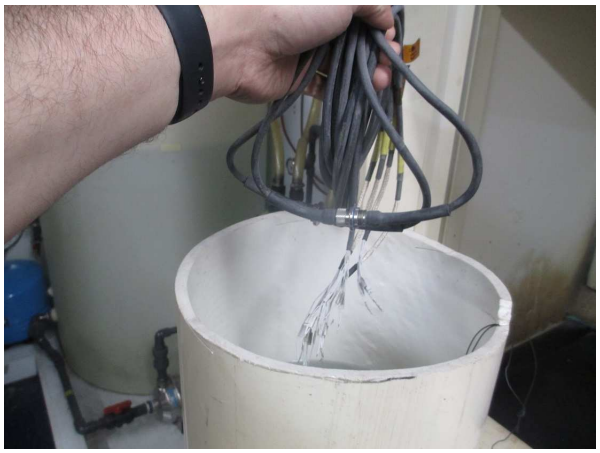
2. There was no evidence of breakdown, arcing, etc. or leakage that exceeded 2.0 milliamps when the specified test voltage was applied.

3. The following is a summary of the observed data:

	INSULATION RESISTANCE (Megohms)	
Part Number/Sample ID#	ADJ Contact	Contact to Shell
K804-001-6-7/K804-003-6-7		
ID#13	>50,000	>50,000
ID#14	>50,000	>50,000
K804-001-9-19/K804-003-9-19		
ID#15	>50,000	>50,000
ID#16	>50,000	>50,000
K804-001-10-26/K804-003-10-26		
ID#17	14,300	20,400
ID#18	8,000	5,500

FIGURE #17

IMMERSION



TEST RESULTS

GROUP 4

PROJECT NO.: 221238A	SPECIFICATION: K804 Test Plan
PART NO.: See Page 4	PART DESCRIPTION: Series K804 Conn.
SAMPLE SIZE: 4 Samples	TECHNICIAN: DNB Engineering
START DATE: 1/1/22	COMPLETE DATE: 2/8/22
ROOM AMBIENT: Unidentified	RELATIVE HUMIDITY: Unidentified
EQUIPMENT ID#: See Appendix B	

EMI SHIELDING EFFECTIVENESS

PROCEDURE:

1. The test was performed in accordance with IEEE-299 (Modified) and the Kilo 360 Test Plan with the following conditions.

2. Testing was subcontracted to DNB Engineering, Inc. of Fullerton, CA.

RESULTS:

See Appendix B for the DNB Engineering test report.

APPENDIX B

EMI SHIELDING EFFECTIVENESS REPORT

REVISIONS		
LTR	DESCRIPTION	DATE
-	INITIAL RELEASE	02-08-2022

PREPARED BY: K. BOYKO	DATE 2/8/22	**DNB ENGINEERING, INC.** FULLERTON, CA 92833 U.S.A.
TEST ENGINEER: D. RATLIFF	2/8/22	SHIELDING EFFECTIVENESS TEST REPORT FOR THE
TEST DEPT. MGR.: T. VU	2/08/22	Kilo 360 push-pull Electrical Connectors
QUAL. ASSURANCE: M. NEIS.	2/8/22	PREPARED FOR: CONTECH RESEARCH, INC.
		PURCHASE ORDER NO. 16624

SIZE	CAGE CODE	DRAWING NO.
A	63242	TR046384
SCALE: NONE	REV LTR -	SHEET 1

DNB ENGINEERING, INC. 1750 RAYMER AVE. FULLERTON, CA 92833 (714) 888-0010 FAX (714) 888-0020 www.dnbenginc.com

TABLE OF CONTENTS

SIZE	CAGE CODE	DRAWING NO.
A	63242	TR046384
SCALE: NONE	REV LTR -	SHEET 2

DNB ENGINEERING, INC. 1750 RAYMER AVE. FULLERTON, CA 92833 (714) 888-0010 FAX (714) 888-0020 www.dnbenginc.com

APPENDICES

SIZE	CAGE CODE	DRAWING NO.
A	63242	TR046384
SCALE: NONE	REV LTR -	SHEET 3

DNB ENGINEERING, INC. 1750 RAYMER AVE. FULLERTON, CA 92833 (714) 888-0010 FAX (714) 888-0020 www.dnbenginc.com

SHIELDING EFFECTIVENESS TEST COMPLETION RECORD

For

CONTECH RESEARCH, INC.

Kilo 360 push-pull Electrical Connectors

SERIES III, CLASS M

Item	Shell Size	Connector
1	6	TESTK804-001-6-7D / TESTK804-003-6-7D
2	10	TESTK804-001-10-26D / TESTK804-003-10-26D

Test Start Date: 01-11-22 **Test Completion Date: 01-26-22**

Test Completion Record: The following tests were performed in accordance with the requirements of IEEE-299 (Modified) and MIL-DTL-38999M (Modified).

Shielding Effectiveness, High Frequency: The EUT passed the requirements for this test.

Shielding Effectiveness, Low Frequency: The EUT passed the requirements for this test

DNB TEST ENGINEER Dan Ratner DATE 2/8/22

DNB QUALITY ASSURANCE [signature] DATE 2/8/2022

CUSTOMER TEST ENGINEER _____ DATE _____

SIZE	CAGE CODE	DRAWING NO.	
A	63242	TR046384	
SCALE: NONE	REV LTR -	SHEET 4	

1.0 INTRODUCTION

Shielding Effectiveness tests were performed on Kilo 360 push-pull Electrical Connectors, SERIES III, Shell Size 6 and 10, Class M, manufactured by CONTECH RESEARCH, INC., 750 Narragansett Park Drive, Rumford, RI 02916-1035. Testing of the EUT (Equipment Under Test) began on 01-11-22 and was completed on 01-26-22. The purpose of this test was to demonstrate compliance with the applicable sections of IEEE-299 (Modified) and MIL-DTL-38999M (Modified). All test results have been summarized herein, and all data sheets have been incorporated in Appendices A and B.

Note: Testing was performed at the DNB Engineering Inc., Anaheim Facility, 2311 W. La Palma Avenue, Anaheim, CA 92801.

2.0 TEST REQUIREMENTS

The test requirements for the tests performed as outlined in this document are defined by the applicable sections of IEEE-299 (Modified) and MIL-DTL-38999M (Modified).

3.0 TEST EQUIPMENT

The test equipment log in Appendices A and B lists information on test equipment used, along with current calibration status. DNB's calibration service providers use procedures provided by the manufacturers and by other widely recognized bodies (for example, GIDEP). Standards used during calibration are traceable to NIST.

4.0 SUMMARY OF TEST RESULTS

See Appendices A and B for details concerning all Shielding Effectiveness testing.

5.0 TEST DESCRIPTION

The test method and description, including details of the test set-up and test figures are described in IEEE-299 (Modified) and MIL-DTL-38999M (Modified) for each of the tests. A list of the test equipment used in the performance of each of these tests, along with current calibration information is included in Appendices A and B. Photographs of each test set-up were taken and are included in Appendices A and B.

SIZE	CAGE CODE	DRAWING NO.
A	63242	TR046384
SCALE: NONE	REV LTR -	SHEET 6

DNB ENGINEERING, INC. 1750 RAYMER AVE. FULLERTON, CA 92833 (714) 888-0010 FAX (714) 888-0020 www.dnbenginc.com

6.0 CONCLUSIONS

The CONTECH RESEARCH, INC. Kilo 360 push-pull Electrical Connectors, SERIES III, Shell Size 6 and 10, Class M concluded all Shielding Effectiveness testing in accordance with the requirements of the purchase agreement. Upon the completion of testing, the EUT and all CONTECH RESEARCH, INC. support equipment were returned to representatives of CONTECH RESEARCH, INC.

The results listed in this report relate only to the item(s) tested as listed on the Test Completion Record herein.

SIZE	CAGE CODE	DRAWING NO.
A	63242	TR046384
SCALE: NONE	REV LTR -	SHEET 7

APPENDIX A

Shielding Effectiveness, High Frequency

SIZE	CAGE CODE	DRAWING NO.	
A	63242	TR046384	
SCALE: NONE		REV LTR -	SHEET A1

DNB ENGINEERING, INC. 1750 RAYMER AVE. FULLERTON, CA 92833 (714) 888-0010 FAX (714) 888-0020 www.dnbenginc.com

A.1 Shielding Effectiveness,

IEEE-299 Modified;

Shielding Effectiveness testing was performed for CONTECH RESEARCH, INC. on Kilo 360 push-pull Electrical Connectors, SERIES III, Shell Size 6 and 10, Class M at the DNB Engineering's La Palma Avenue facility between the dates of January 11th, 2022 and January 12th, 2022. Testing was performed as required by PO # 16624 and in accordance with IEEE-299 Modified. Data was acquired from 1 GHz to 18 GHz at DNB Raymer facility in a RF shielded room. The table below provides the test article nomenclature.

Item	Shell Size	Connector (Plug - Receptacle)	Connector Class	Pass/Fail
1	6	TESTK804-001-6-7D / TESTK804-003-6-7D	M	Pass
2	10	TESTK804-001-10-26D / TESTK804-003-10-26D	M	Pass

Test Measurements

Measurements were performed in multiple frequency ranges using an Agilent E4448A Spectrum Analyzer. From 1 GHz – 18 GHz small DRG antennas are used. Receive antennas are placed inside an anechoic shielded chamber and a transmission antenna is placed outside facing a transmission port at a 1m distance.

A noise floor measurement is done prior to testing to ensure that the room is capable of providing enough attenuation over the whole frequency range. This is done by placing an aluminum cover plate over the port in place of the test sample using the same reference values and antenna positions as the test setup.

Reference measurements are performed and recorded prior to EUT testing. Attenuation is added prior to the preamplifier to increase dynamic range of our measurements. The attenuator is then removed during all other measurements.

The shielding effectiveness is calculated by performing the reference measurement, adding the attenuation value to this number, and then subtracting the measured level from the test article.

All measured data was plotted and those plots are included in Appendix A.

SIZE	CAGE CODE	DRAWING NO.
A	63242	TR046384
SCALE: NONE	REV LTR -	SHEET A2

EMC TEST LOG

Customer: Contech | **Customer Rep:** NA
EUT: Connectors | **Test Procedure:** Shielding Effectiveness
Model / Part #: See Report | **Test Specification:** IEEE-299
Serial #: See Report | **Test Engineer:** Devin Ratliff

DATE	TIME	DESCRIPTION
1/11/22	8:00	Setup Shielding effectiveness 1-18GHz
		Run Reference measurement 1-18GHz
		Run SS6 Sample measurement 1-18GHz, Pass
1/11/22	17:00	End of day
1/12/22	8:00	Start of day
		Run SS10 Sample measurement 1-18GHz, Pass
		Run Noise Floor measurement 1-18GHz
1/12/22	15:00	Test complete

FORM 0001

TEST EQUIPMENT LOG

Customer: Contech
EUT: Connectors
Model / Part #: See Report
Serial #: See Report

Customer Rep: NA
Test Procedure: Shielding Effectiveness
Test Specification: IEEE-299
Test Engineer: Devin Ratliff

DESCRIPTION	MANUFACTURER	MODEL # / SERIAL #	CAL. DUE DATE
Spectrum Analyzer	Agilent	E4448A / US42510303	8/3/22
Signal Generator	Agilent	83640B / 3844A00868	CPT
Signal Generator	IFN	2023A / 202308/581	NCR
Pre-Amp	DNB	S-21GBA / 13982	11/16/22
Antenna	Emco	3115 / 2280	12/9/23
Antenna	ETS	3115 / 6435	2/17/23
Attenuator	Weinschel	48-40-43 / BZ2805	7/31/22
Cable	Storm	90-077-096 / 06-03-762	5/3/22
Cable	Storm	90-077-096 / S4240	7/13/22
Cable	Storm	90-077-072 / 05-06-110	5/3/22
Cable	Storm	MFR-57500 / 03-03-030	11/15/22
Cable	Storm	90-206-144 / 12-06-801	5/3/22

Notes: CPT – Calibration performed prior to test

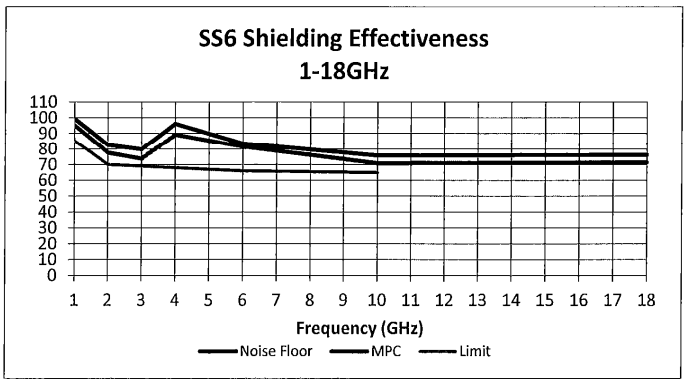
FORM 0005

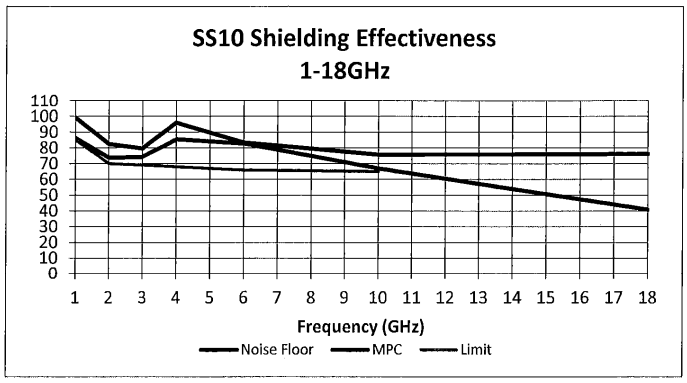
SS6 (Mated-pair Connector)

Frequency (Hz)	Attenuation (dB)	Measured Reference (dBm)	Corrected Reference (dBm)	Measured Noise Floor (dBm)	Corrected Noise Floor (dB)	Measured Sample (dBm)	Corrected Sample (dB)
1.00E+09	40	-21.22	18.78	-80.51	99.29	-76.43	95.21
2.00E+09	40	-18.56	21.44	-61.04	82.48	-56.04	77.48
3.00E+09	40	-23.27	16.73	-62.93	79.66	-56.88	73.61
4.00E+09	40	-22.92	17.08	-78.88	95.96	-72.08	89.16
6.00E+09	40	-17.02	22.98	-60.38	83.36	-58.38	81.36
1.00E+10	40	-24.52	15.48	-60.23	75.71	-55.28	70.76
1.80E+10	40	-38.03	1.97	-74.2	76.17	-69.39	71.36

SS10 (Mated-pair Connector)

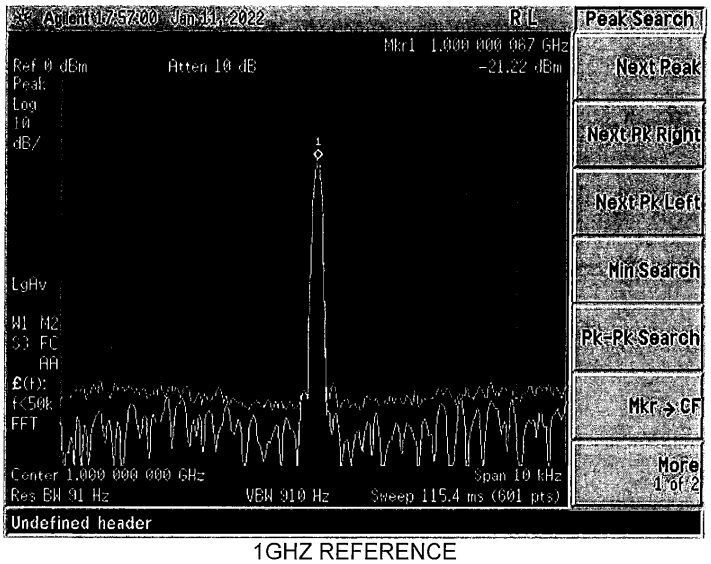
Frequency (Hz)	Attenuation (dB)	Measured Reference (dBm)	Corrected Reference (dBm)	Measured Noise Floor (dBm)	Corrected Noise Floor (dB)	Measured Sample (dBm)	Corrected Sample (dB)
1.00E+09	40	-21.22	18.78	-80.51	99.29	-67.49	86.27
2.00E+09	40	-18.56	21.44	-61.04	82.48	-52.37	73.81
3.00E+09	40	-23.27	16.73	-62.93	79.66	-57.43	74.16
4.00E+09	40	-22.92	17.08	-78.88	95.96	-68.33	85.41
6.00E+09	40	-17.02	22.98	-60.38	83.36	-59.83	82.81
1.00E+10	40	-24.52	15.48	-60.23	75.71	-51.43	66.91
1.80E+10	40	-38.03	1.97	-74.2	76.17	-38.82	40.79



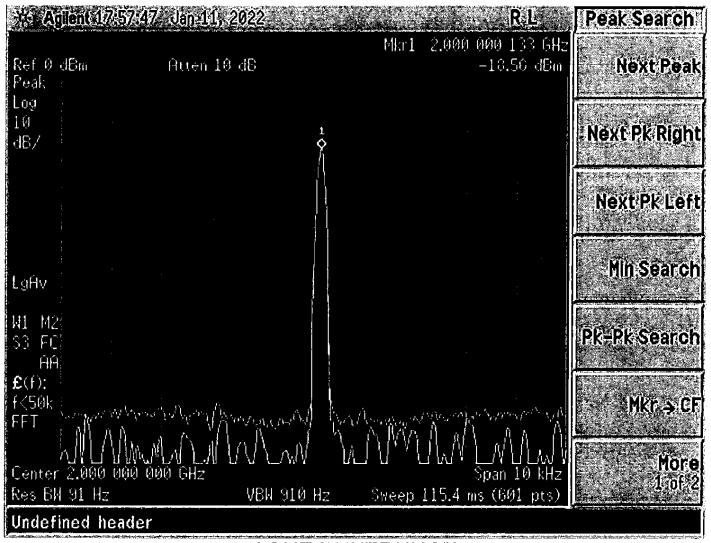


Shielding Effectiveness

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: IEEE-299
Serial #: See Report	Test Engineer: Devin Ratliff



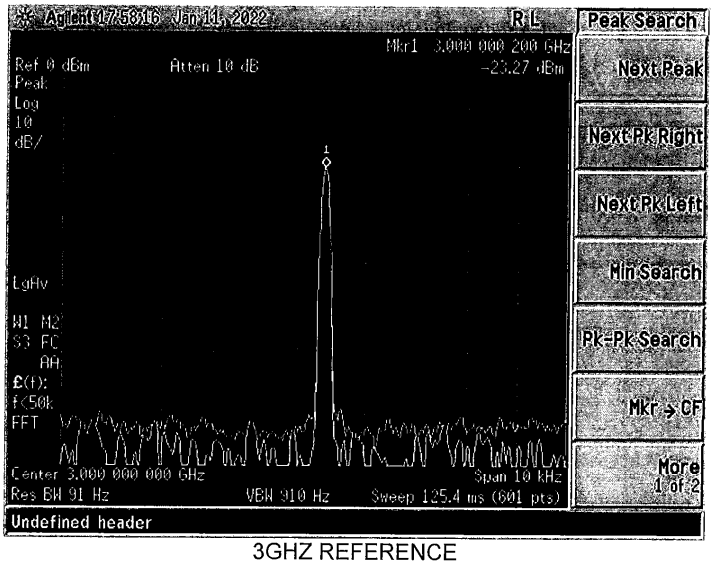
1GHZ REFERENCE



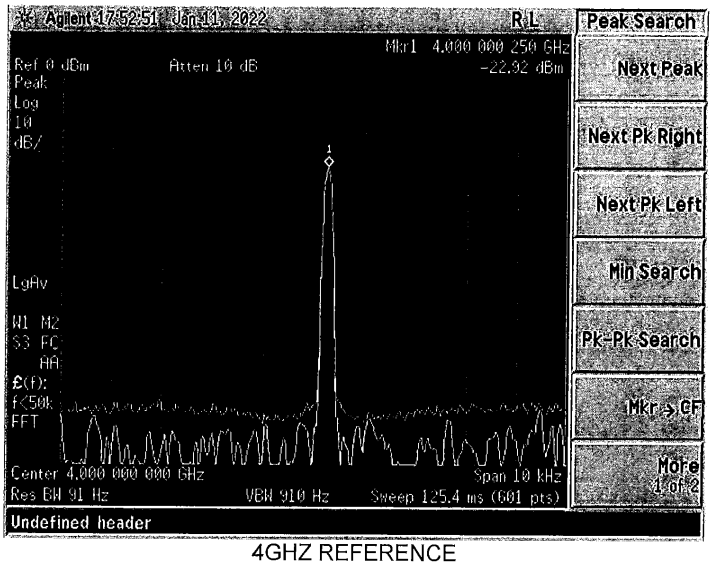
2GHZ REFERENCE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



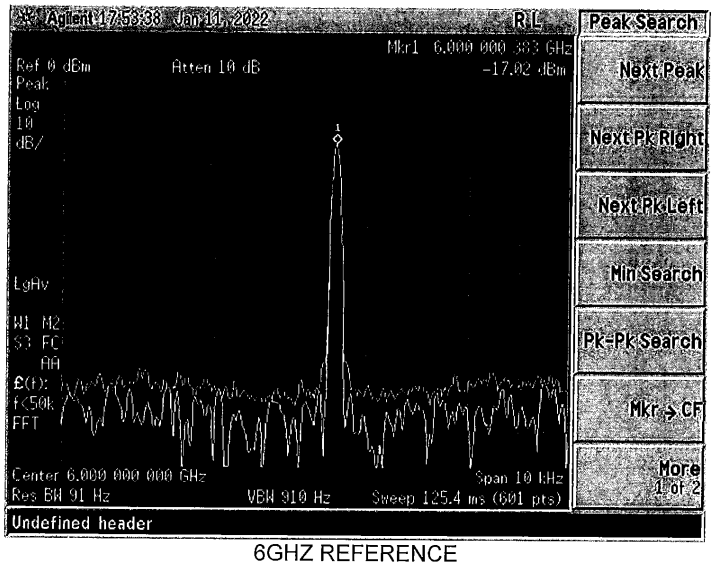
3GHZ REFERENCE



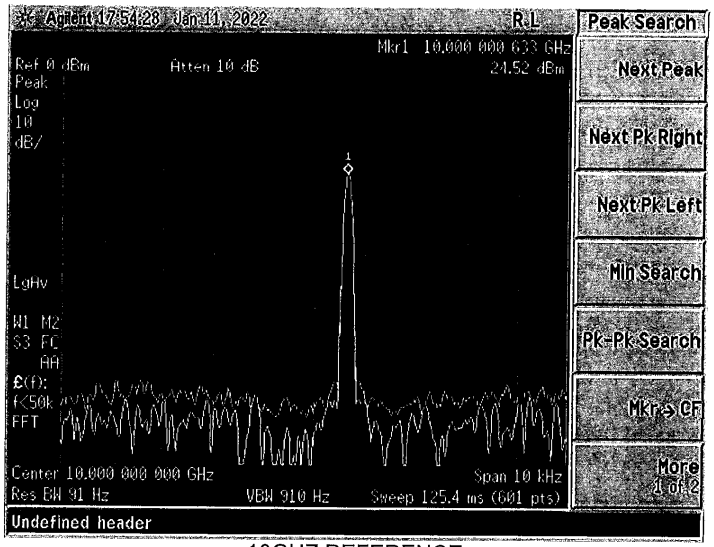
4GHZ REFERENCE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



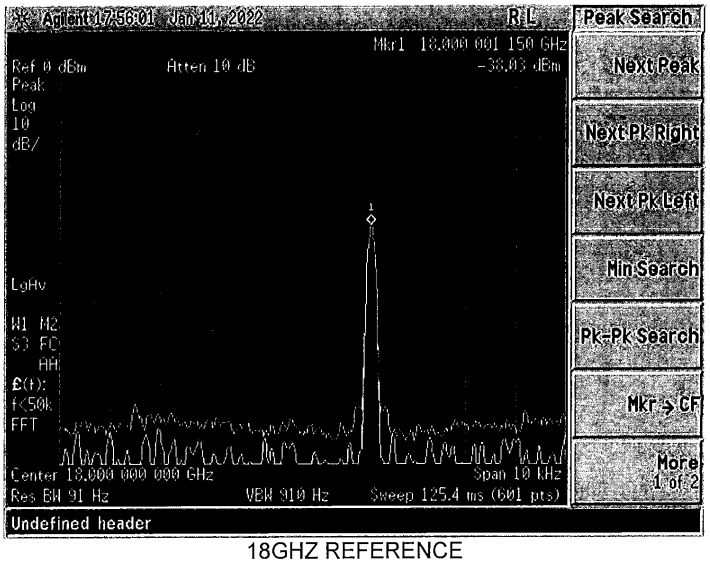
6GHZ REFERENCE



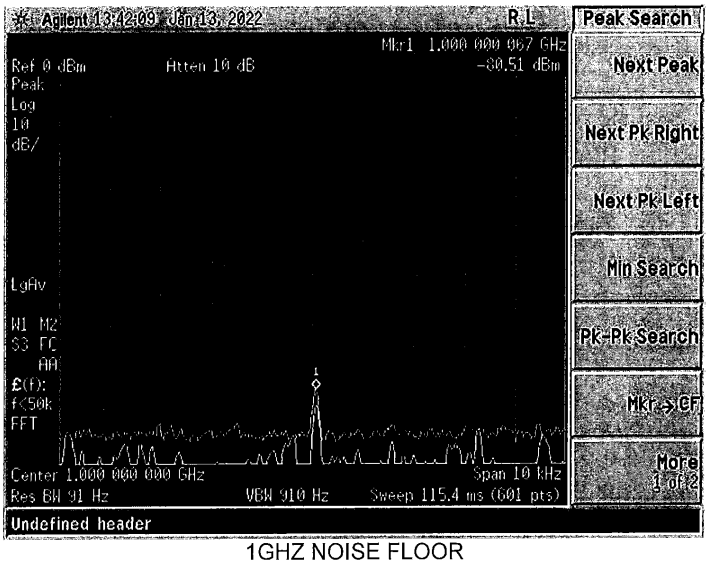
10GHZ REFERENCE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



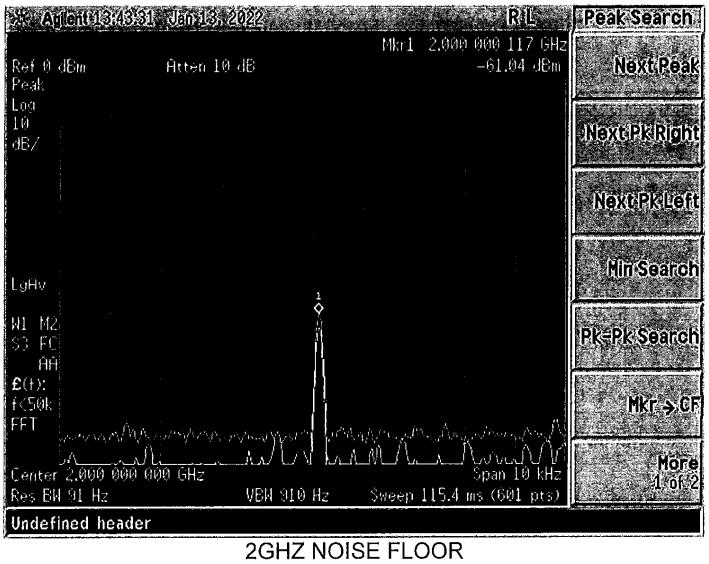
18GHZ REFERENCE



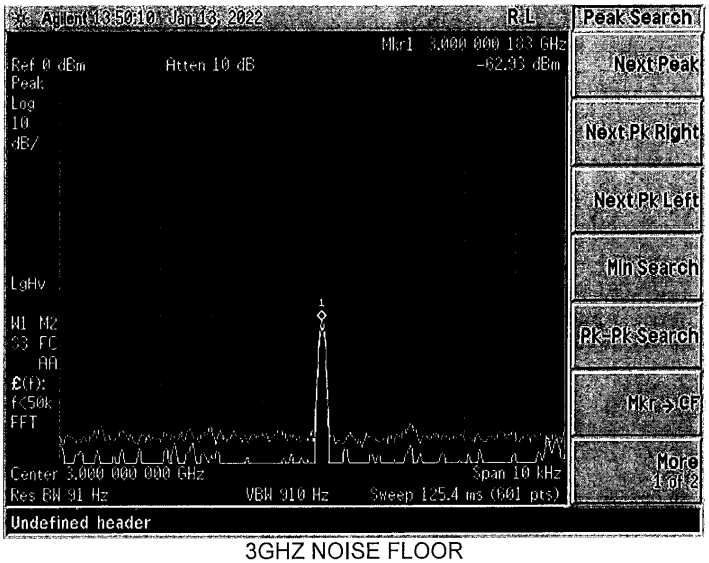
1GHZ NOISE FLOOR

Shielding Effectiveness

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: IEEE-299
Serial #: See Report	Test Engineer: Devin Ratliff



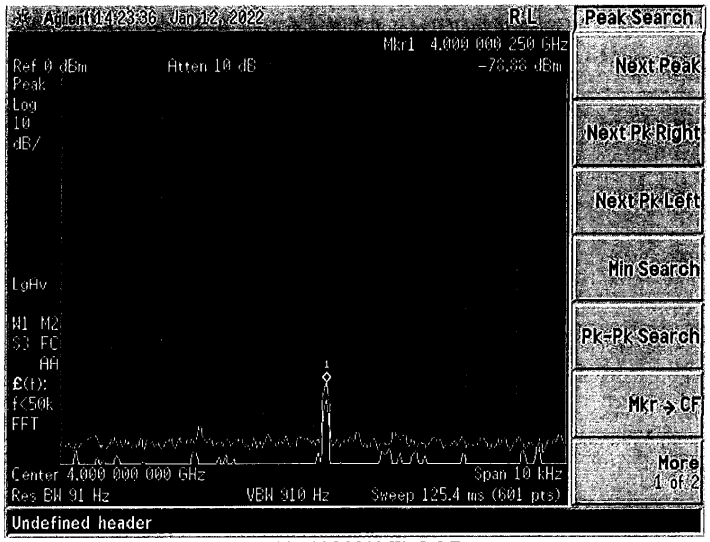
2GHZ NOISE FLOOR



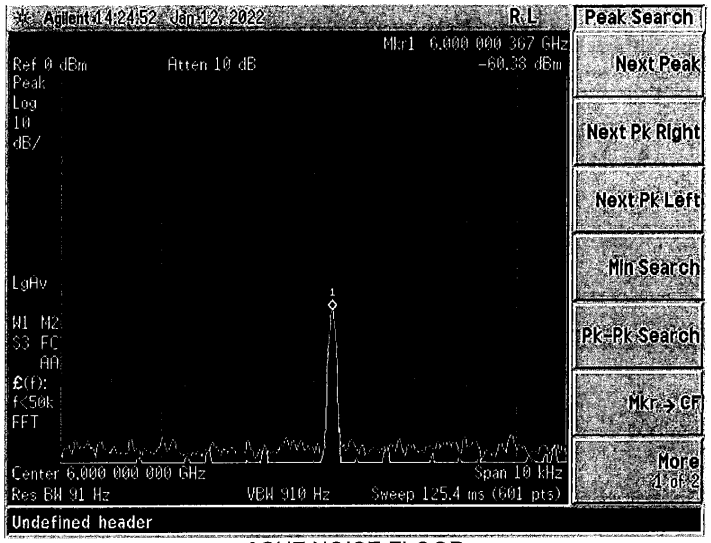
3GHZ NOISE FLOOR

Shielding Effectiveness

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: IEEE-299
Serial #: See Report	Test Engineer: Devin Ratliff



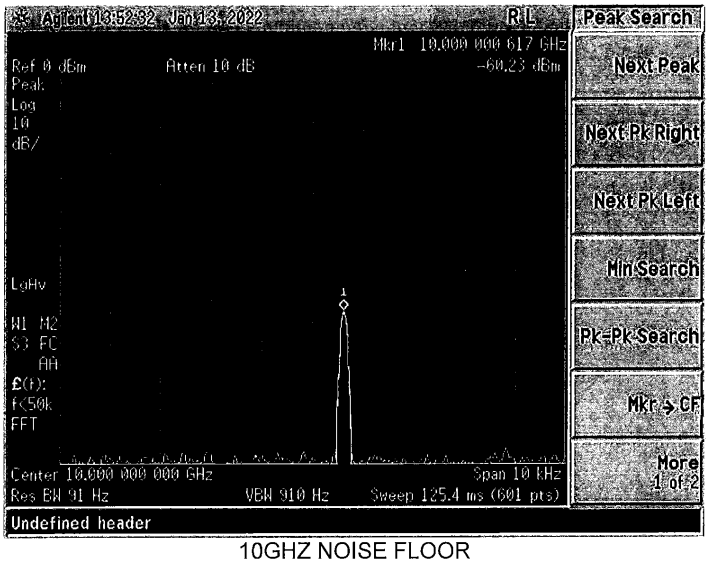
4GHZ NOISE FLOOR



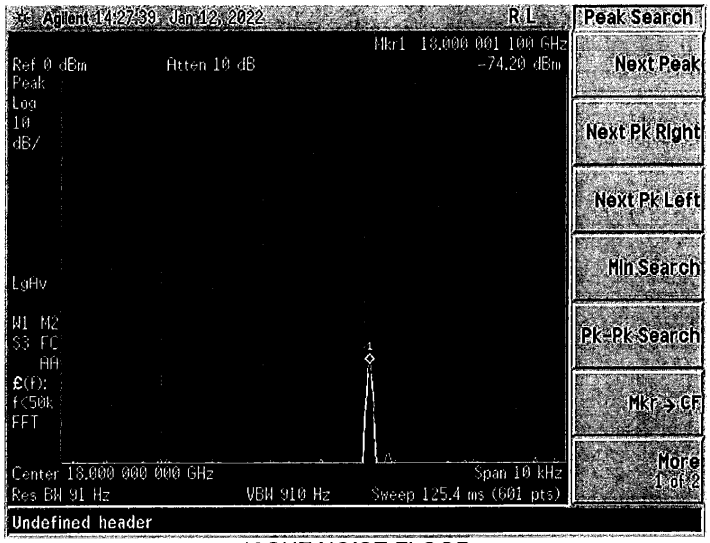
6GHZ NOISE FLOOR

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



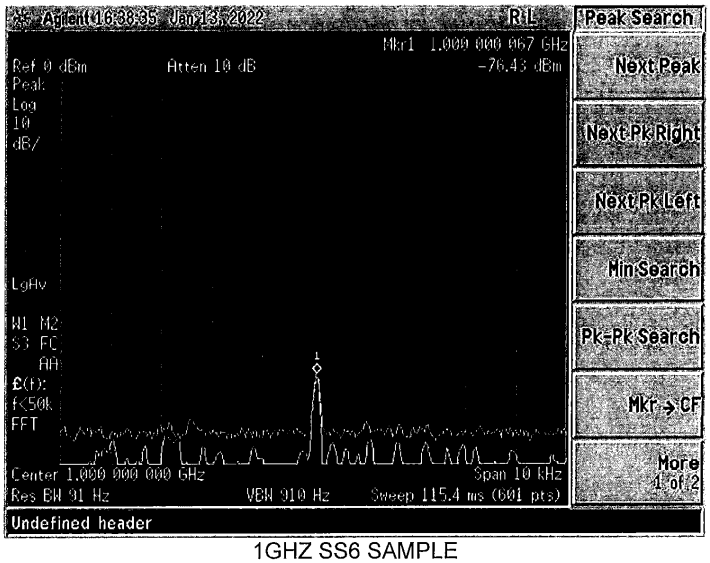
10GHZ NOISE FLOOR



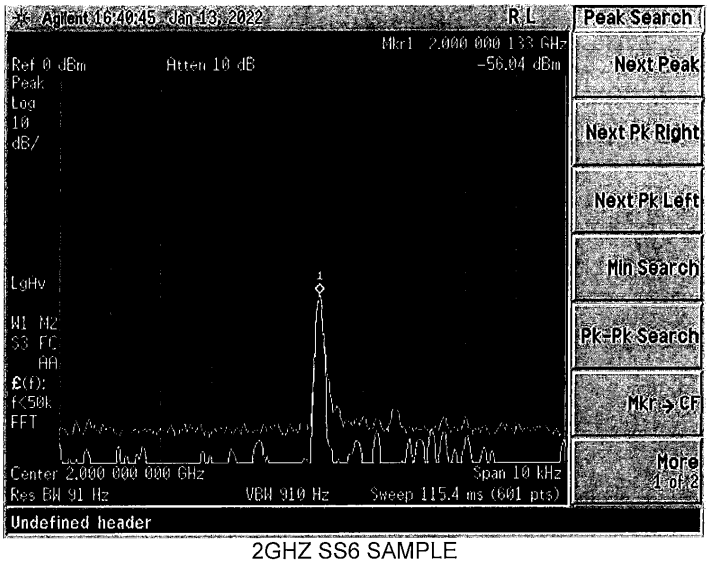
18GHZ NOISE FLOOR

Shielding Effectiveness

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: IEEE-299
Serial #: See Report	Test Engineer: Devin Ratliff



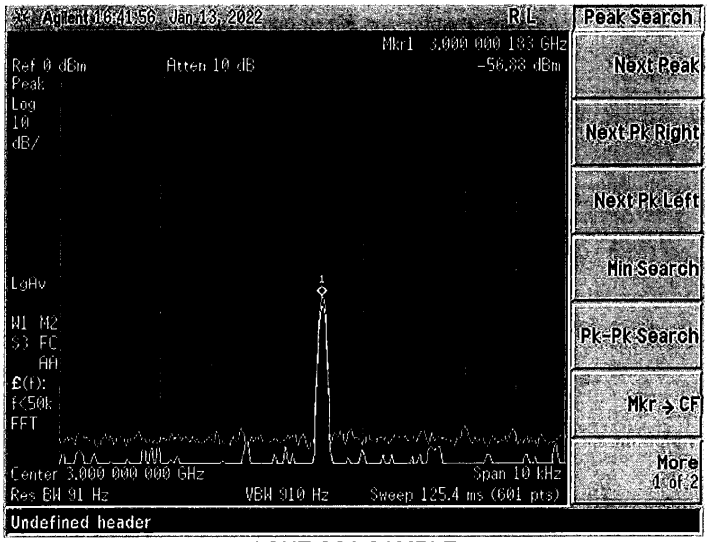
1GHZ SS6 SAMPLE



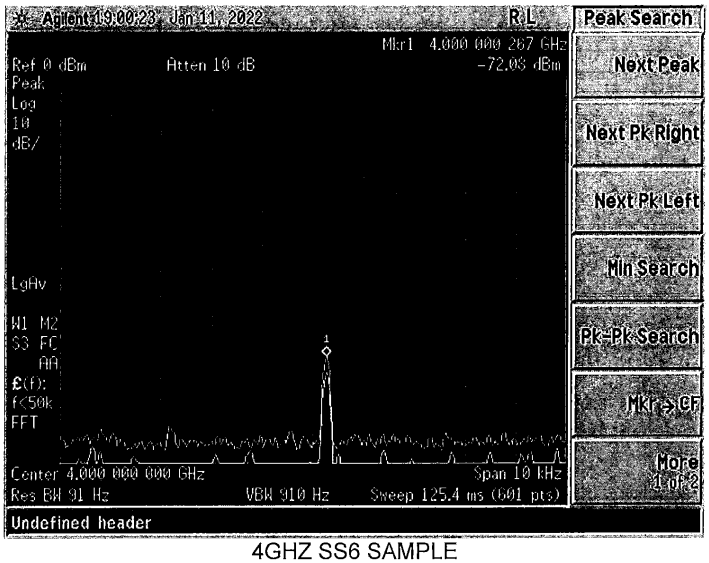
2GHZ SS6 SAMPLE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



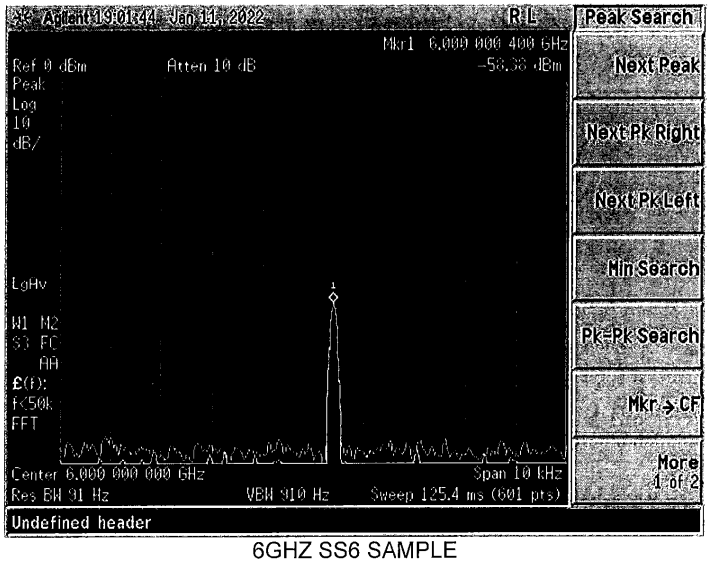
3GHZ SS6 SAMPLE



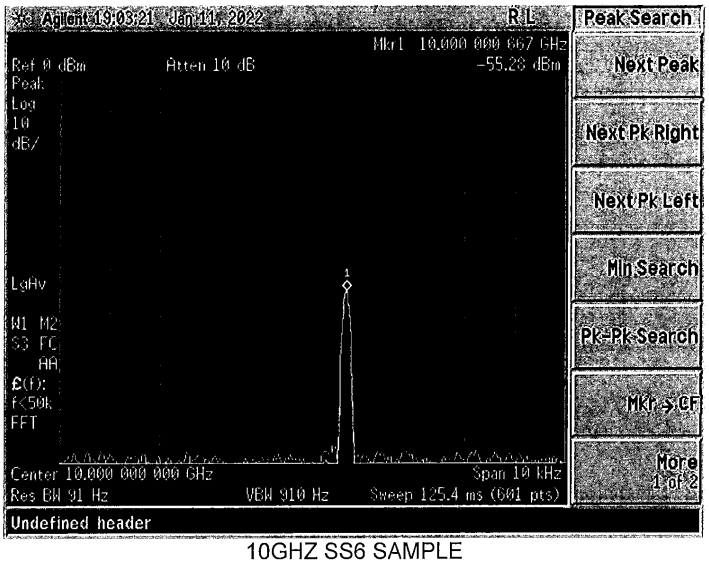
4GHZ SS6 SAMPLE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



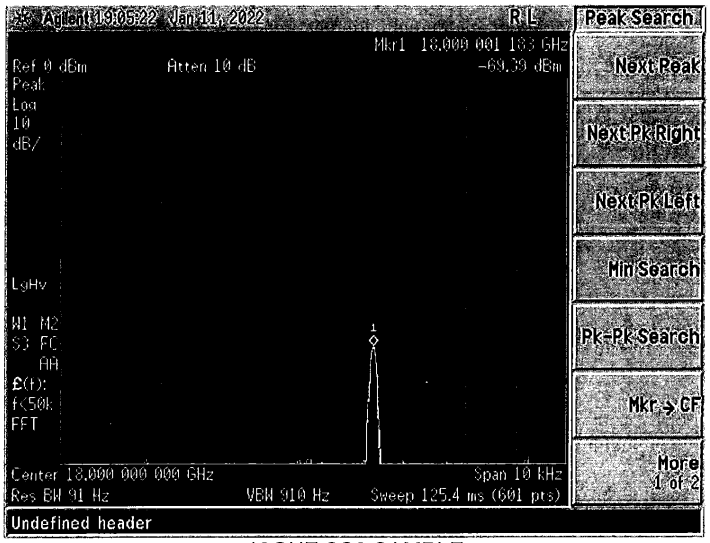
6GHZ SS6 SAMPLE



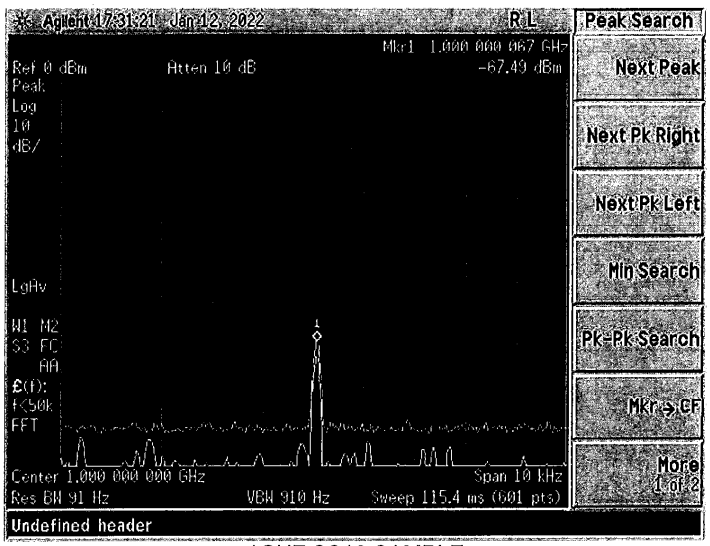
10GHZ SS6 SAMPLE

Shielding Effectiveness

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: IEEE-299
Serial #: See Report	Test Engineer: Devin Ratliff



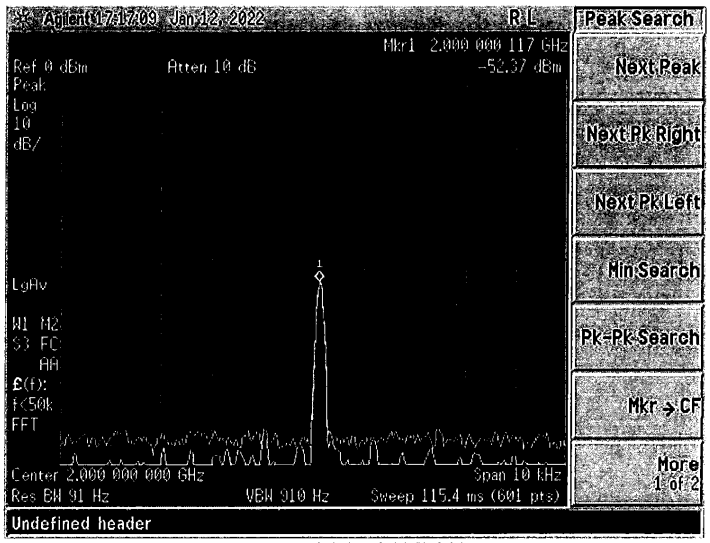
18GHZ SS6 SAMPLE



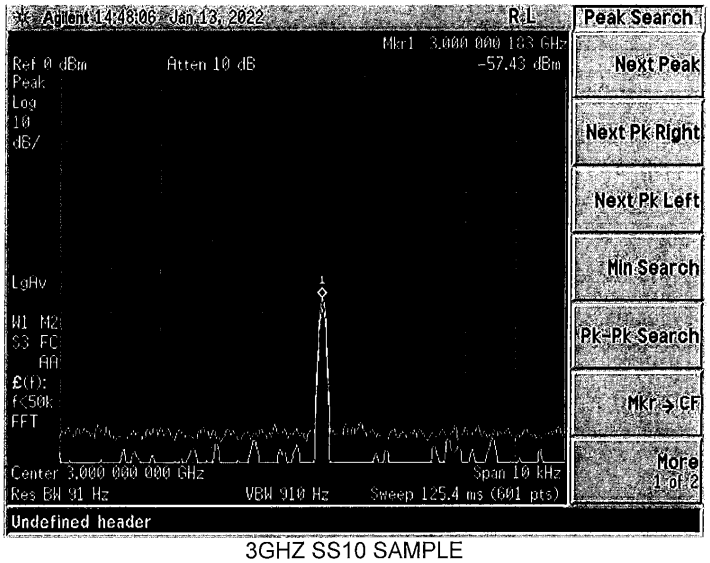
1GHZ SS10 SAMPLE

Shielding Effectiveness

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: IEEE-299
Serial #: See Report	Test Engineer: Devin Ratliff



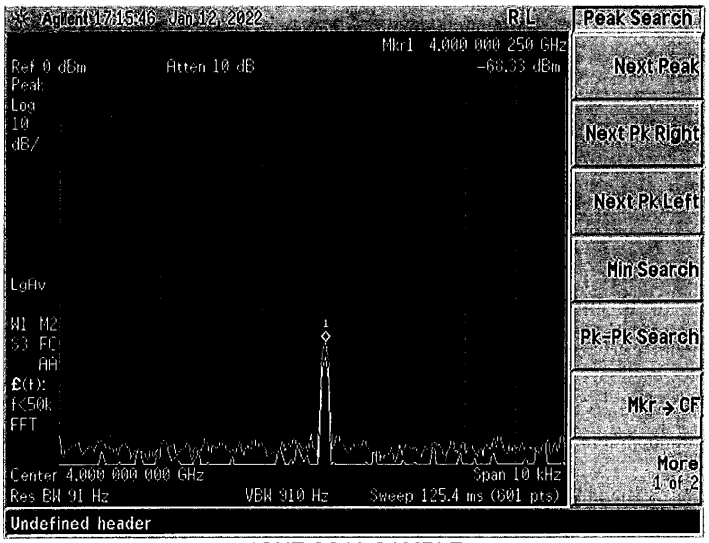
2GHZ SS10 SAMPLE



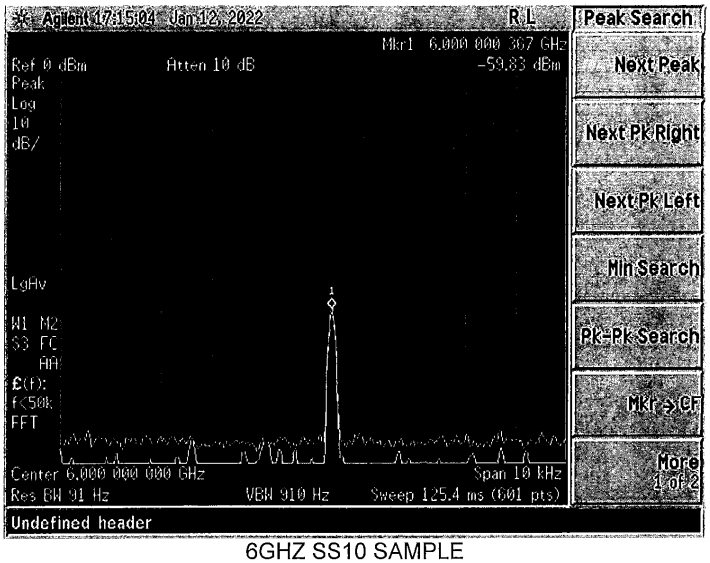
3GHZ SS10 SAMPLE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



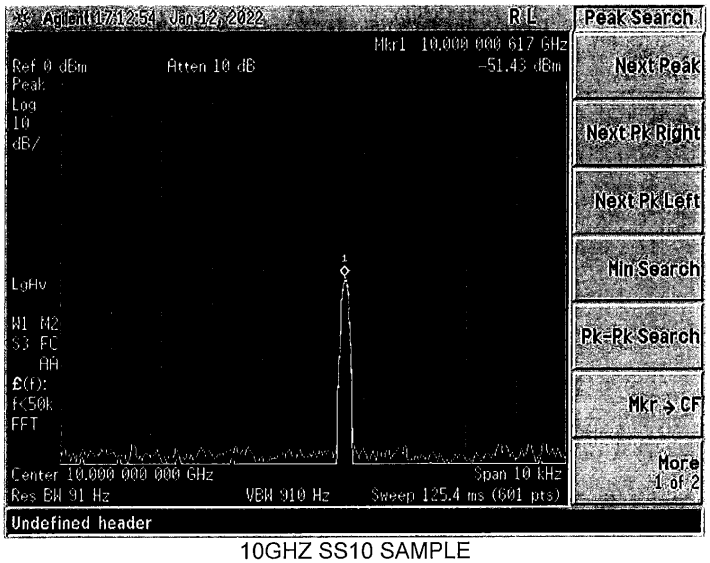
4GHZ SS10 SAMPLE



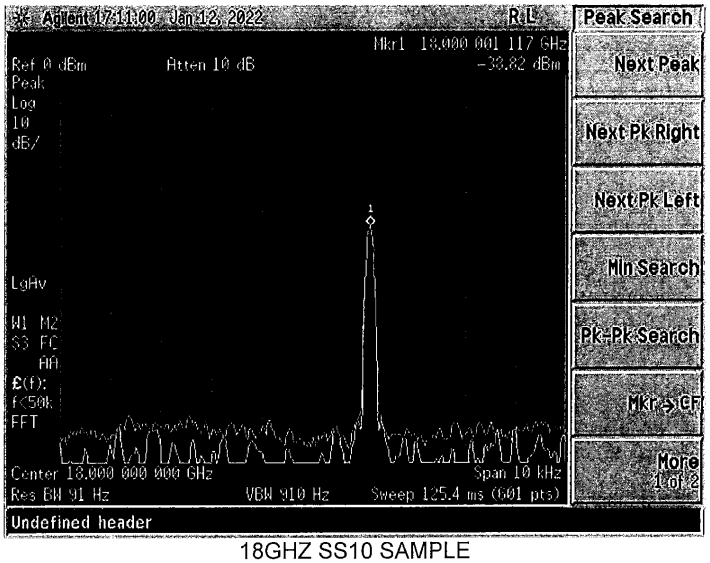
6GHZ SS10 SAMPLE

Shielding Effectiveness

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: IEEE-299
Serial #: See Report	Test Engineer: Devin Ratliff



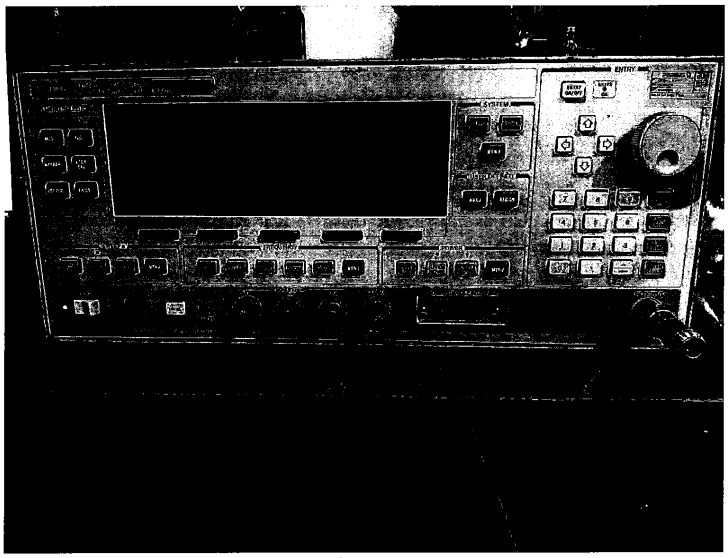
10GHZ SS10 SAMPLE



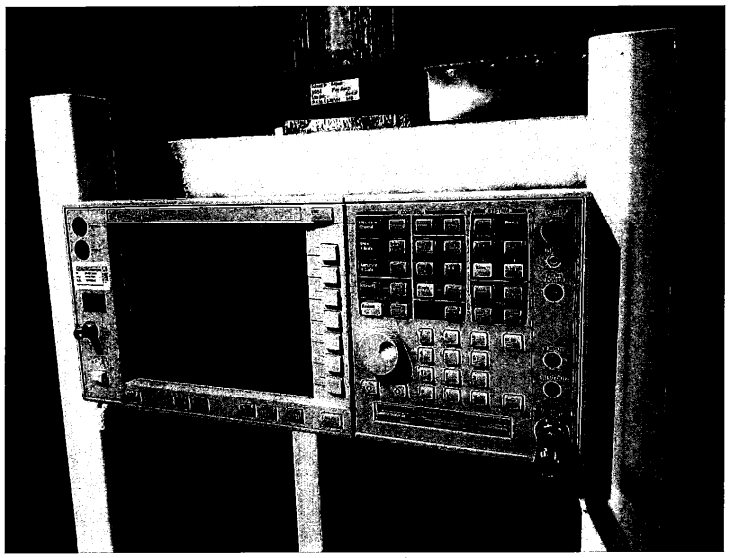
18GHZ SS10 SAMPLE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



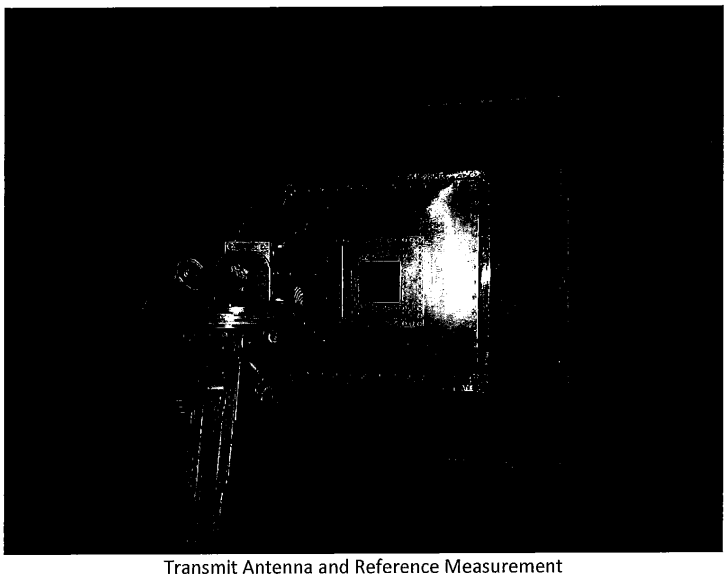
Signal Generator



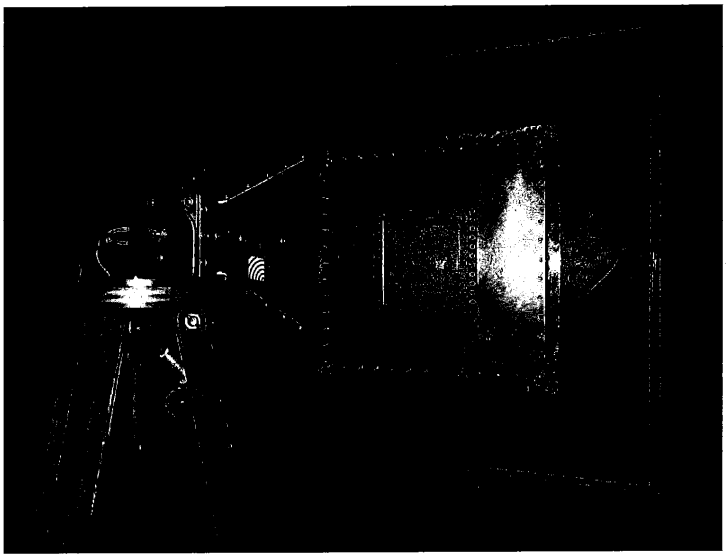
Spectrum Analyzer

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



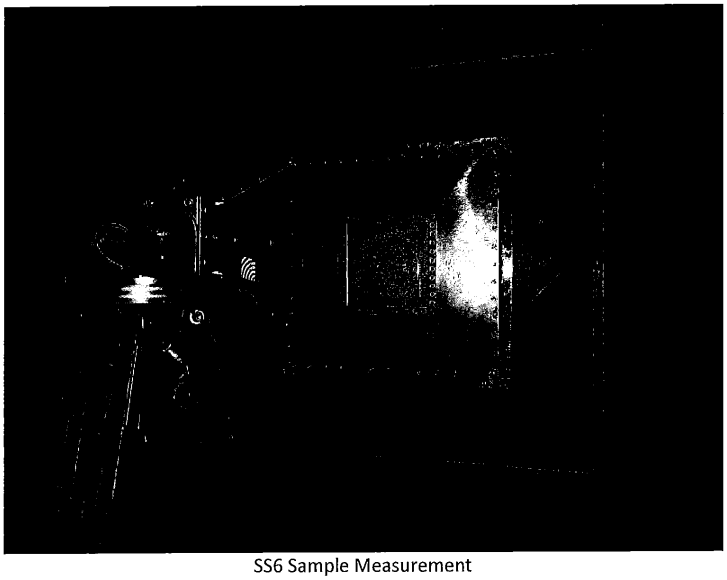
Transmit Antenna and Reference Measurement



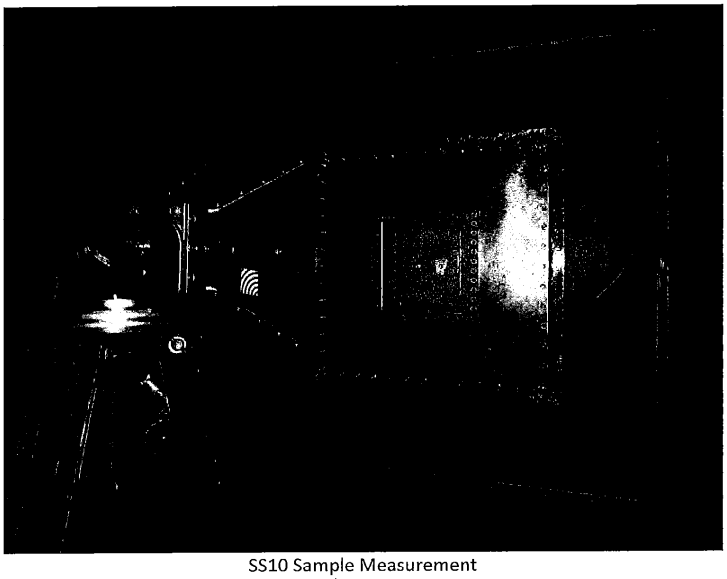
Noise Floor Measurement

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



SS6 Sample Measurement



SS10 Sample Measurement

APPENDIX B

Shielding Effectiveness, Low Frequency

SIZE	CAGE CODE	DRAWING NO.	
A	63242	TR046384	
SCALE: NONE		REV LTR -	SHEET B1

DNB ENGINEERING, INC. 1750 RAYMER AVE. FULLERTON, CA 92833 (714) 888-0010 FAX (714) 888-0020 www.dnbenginc.com

B.1 Shielding Effectiveness,

MIL-DTL-38999M (Modified);

Shielding Effectiveness testing was performed for CONTECH RESEARCH, INC. on Kilo 360 push-pull Electrical Connectors, SERIES III, Shell Size 6 and 10, Class M at the DNB Engineering's La Palma Avenue facility between the dates of January 20th through January 26th, 2022. Testing was performed as required by PO # 16624 and in accordance with MIL-DTL-38999M (Modified) for Series III connectors. The table below provides the test article nomenclature.

Item	Shell Size	Series	Class	Connector	Pass/Fail
1	6	III	M	TESTK804-001-6-7D / TESTK804-003-6-7D	Pass
2	10	III	M	TESTK804-001-10-26D / TESTK804-003-10-26D	Pass

Each of the two sizes was also tested while wrapped in aluminum foil to provide a noise-floor measurement.

The shielding effectiveness requirements are listed in the table below. The requirements are provided in MIL-DTL-38999M, Table X

Frequency (MHz)	Leakage attenuation (dB) minimum				
	Series II	Series III and IV			Series I
	Finishes B, F, N, R, T, and Z	Classes H, K, and Y	Classes F, G, L, N, M, R, and S	Classes J, T, W, X, and Z	Finishes B, F, N, R, T and Z
100	65	80	75	90	90
200	60	75	70	88	88
300	55	73	65	88	88
400	55	71	63	87	87
800	45	66	58	85	85
1000	45	65	55	85	85
1500	---	59	---	69	69
2000	---	55	---	65	65
3000	---	52	69	61	61
4000	---	50	---	58	58
5000	---	---	66	---	---
10000	---	45	65	50	50

Testing is also performed at 600 MHz for completeness because it is a requirement for some connector standards. All measured data was plotted and those plots are included in Appendix B.

SIZE	CAGE CODE	DRAWING NO.	
A	63242	TR046384	
SCALE: NONE	REV LTR -		SHEET B2

TEST LOG

Customer: Contech
EUT: Connectors
Model / Part #: See Report
Serial #: See Report

Customer Rep: NA
Test Procedure: Shielding Effectiveness
Test Specification: MIL-DTL-38999M
Test Engineer: Devin Ratliff

DATE	TIME	DESCRIPTION
1/20/22	14:00	Setup Tri-Axial fixture for shielding effectiveness testing. 100MHz – 1GHz
		Run Pre-Amp calibration
		Run Reference measurement
		Prepare SS10 Sample for testing
		SS10 Sample VSWR measurement, Pass
		SS10 Sample TDR measurement, Pass
1/20/22	17:00	End of day
1/21/22	8:00	Start of day
		SS10 Sample Shielding measurement, Pass
		SS10 Noise Floor Shielding measurement, Pass
		Adjusting SS10 adapters
		Prepare SS6 Sample for testing
1/21/22	17:00	End of day
1/24/22	8:00	Start of day
		SS6 Sample VSWR measurement, Pass
		SS6 Sample TDR measurement, Pass
1/24/22	17:00	End of day
1/25/22	8:00	Start of day
		SS6 Noise Floor Shielding measurement, Pass
		SS6 Sample Shielding measurement, Pass
		SS10 Noise Floor Shielding measurement, Pass
1/25/22	17:00	End of day
1/26/22	8:00	Start of day

FORM 0001

TEST LOG

Customer: Contech
EUT: Connectors
Model / Part #: See Report
Serial #: See Report

Customer Rep: NA
Test Procedure: Shielding Effectiveness
Test Specification: MIL-DTL-38999M
Test Engineer: Devin Ratliff

DATE	TIME	DESCRIPTION
		SS10 Sample Shielding measurement, Pass
1/26/22	14:00	Shielding effectiveness testing, 100MHz – 1GHz, completed.

TEST EQUIPMENT LOG

Customer: Contech **Customer Rep:** NA

EUT: Connectors **Test Procedure:** MIL-DTL-38999M

Model / Part #: See report **Test Specification:** MIL-DTL-38999M

Serial #: See report **Test Engineer:** Devin Ratliff

DESCRIPTION	MANUFACTURER	MODEL # / SERIAL #	CAL. DUE DATE
Tri-Axial Fixture	DNB	TATF100A / 13863	CPT
Spectrum Analyzer	Agilent	E4402B / MY45103162	1/15/23
Signal Generator	IFN	2023B / 202308/867	NCR
Pre Amplifier	DNB	ZKL-1R5+ / 13964	4/1/22
Attenuator, 3 dB	Midwest Microwave	MOD 219	CPT
Attenuator, 3 dB	Mini-Circuits	NAT-3	CPT
HF Cable	Gore	G3N01N010 / 89P50592	CPT
HF Cable	Gore	G3N01N010 / P20533	CPT
VSWR / TDR Bridge	Rig Expert	AA-1400 / 13858	2/1/23

FORM 0005

Reference Calibration

Frequency (MHz)	VSWR	Signal Generator Reference (dBm)	Measured Reference (dBm)
100	1.02	5.0	-0.274
200	1.04	5.0	-0.375
300	1.07	5.0	-0.339
400	1.05	5.0	-0.417
600	1.17	5.0	-0.632
800	1.28	5.0	-0.861
1000	1.18	5.0	-0.931

COMBINED PREAMP, SEMI-RIGID CABLE AND COUPLER CALIBRATION

M/N: ZKL-1R5+
S/N: 13964
Cal due: 4/1/2022

Frequency (MHz)	Ref (dBm) @ SG	Ref (dBm) @ SA	Measured (dBm)	Gain (dB)
100	-50	-54.93	-14.71	40.22
200	-50	-55.28	-15.07	40.21
300	-50	-55.25	-15.27	39.98
400	-50	-55.26	-15.33	39.93
600	-50	-55.20	-15.7	39.50
800	-50	-55.40	-16.2	39.20
1000	-50	-55.65	-16.78	38.87

SS6 (Noise Floor)

Frequency (MHz)	VSWR	Signal Generator Reference (dBm)	Measured Reference (dBm)	Measured (dBm)	Gain Factor	Corrected Measurement (dB)	Requirement (dB)	Delta (dB)
100	n/a	5.0	-0.274	-74.95	40.22	114.90	90	24.90
200	n/a	5.0	-0.375	-75.81	40.21	115.65	88	27.65
300	n/a	5.0	-0.339	-75.63	39.98	115.27	88	27.27
400	n/a	5.0	-0.417	-75.28	39.93	114.79	87	27.79
600	n/a	5.0	-0.632	-77.14	39.50	116.01	86	30.01
800	n/a	5.0	-0.861	-75.84	39.20	114.18	85	29.18
1000	n/a	5.0	-0.931	-78.25	38.87	116.19	85	31.19

SS6 (Mated-pair connector)

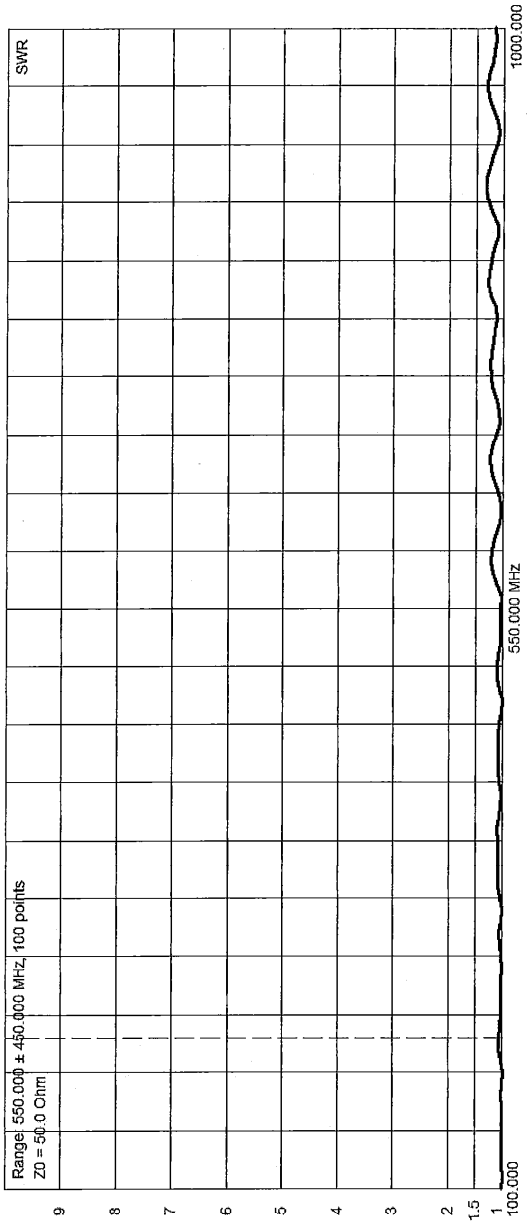
Frequency (MHz)	VSWR	Signal Generator Reference (dBm)	Measured Reference (dBm)	Measured (dBm)	Gain Factor	Corrected Measurement (dB)	Requirement (dB)	Delta (dB)
100	1.03	5.0	-0.274	-53.56	40.22	93.51	90	3.51
200	1.04	5.0	-0.375	-52.84	40.21	92.68	88	4.68
300	1.04	5.0	-0.339	-52.33	39.98	91.97	88	3.97
400	1.10	5.0	-0.417	-51.12	39.93	90.63	87	3.63
600	1.12	5.0	-0.632	-54.06	39.50	92.93	86	6.93
800	1.02	5.0	-0.861	-51.49	39.20	89.83	85	4.83
1000	1.49	5.0	-0.931	-54.81	38.87	92.75	85	7.75

SS10 (Noise Floor)

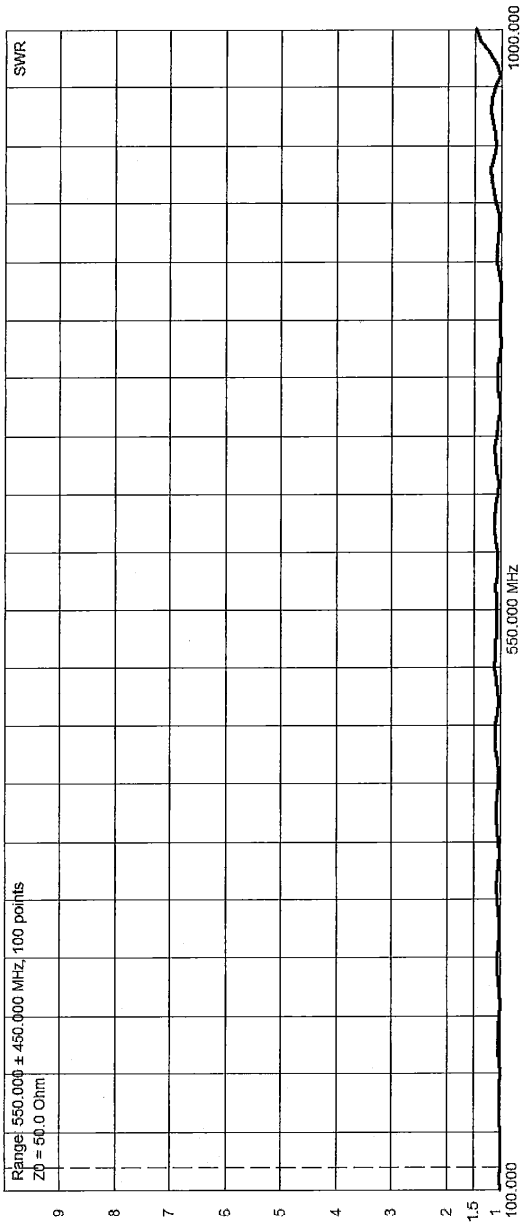
Frequency (MHz)	VSWR	Signal Generator Reference (dBm)	Measured Reference (dBm)	Measured (dBm)	Gain Factor	Corrected Measurement (dB)	Requirement (dB)	Delta (dB)
100	n/a	5.0	-0.274	-74.12	40.22	114.07	90	24.07
200	n/a	5.0	-0.375	-75.19	40.21	115.03	88	27.03
300	n/a	5.0	-0.339	-76.29	39.98	115.93	88	27.93
400	n/a	5.0	-0.417	-76.68	39.93	116.19	87	29.19
600	n/a	5.0	-0.632	-79.30	39.50	118.17	86	32.17
800	n/a	5.0	-0.861	-78.87	39.20	117.21	85	32.21
1000	n/a	5.0	-0.931	-80.72	38.87	118.66	85	33.66

SS10 (Mated-pair connector)

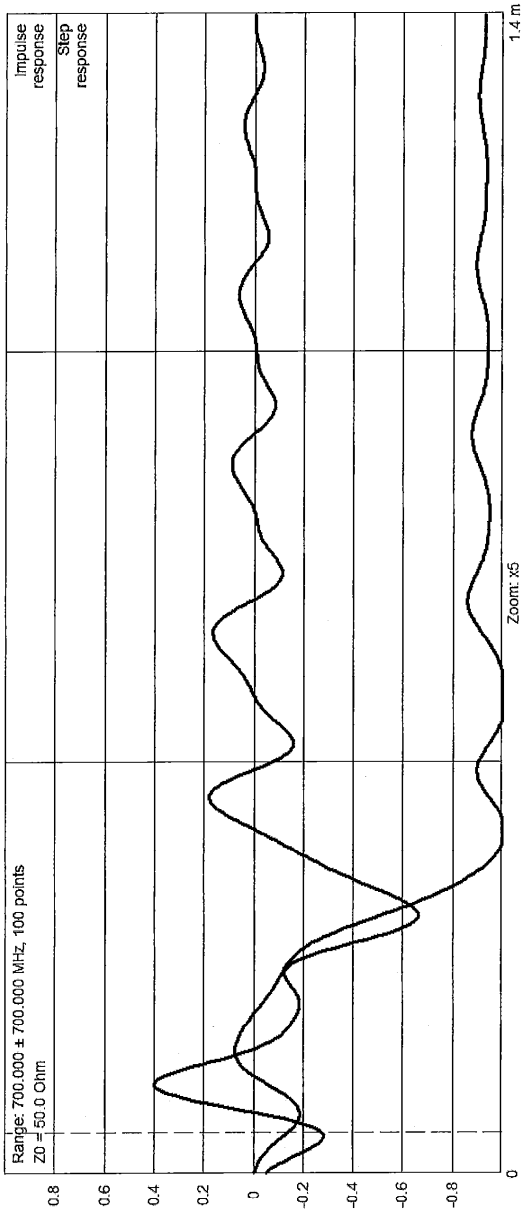
Frequency (MHz)	VSWR	Signal Generator Reference (dBm)	Measured Reference (dBm)	Measured (dBm)	Gain Factor	Corrected Measurement (dB)	Requirement (dB)	Delta (dB)
100	1.03	5.0	-0.274	-42.76	40.22	82.71	90	-7.29
200	1.06	5.0	-0.375	-38.29	40.21	78.13	88	-9.88
300	1.11	5.0	-0.339	-36.2	39.98	75.84	88	-12.16
400	1.06	5.0	-0.417	-33.61	39.93	73.12	87	-13.88
600	1.07	5.0	-0.632	-35.68	39.50	74.55	86	-11.45
800	1.19	5.0	-0.861	-34.3	39.20	72.64	85	-12.36
1000	1.40	5.0	-0.931	-33.7	38.87	71.64	85	-13.36



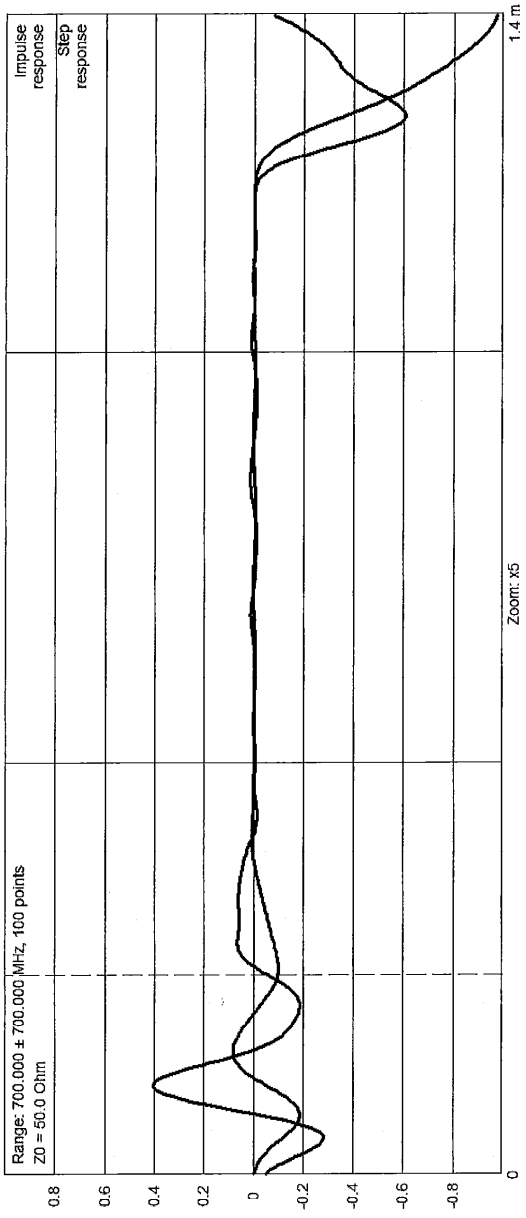
VSWR Calibration Reference



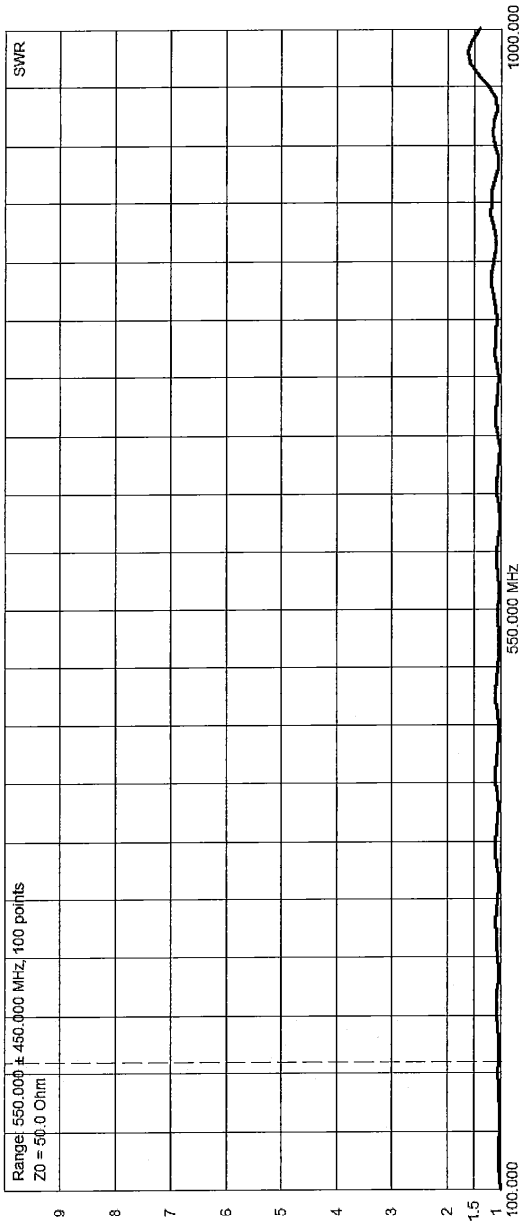
VSWR SS6 Mated Pair Sample



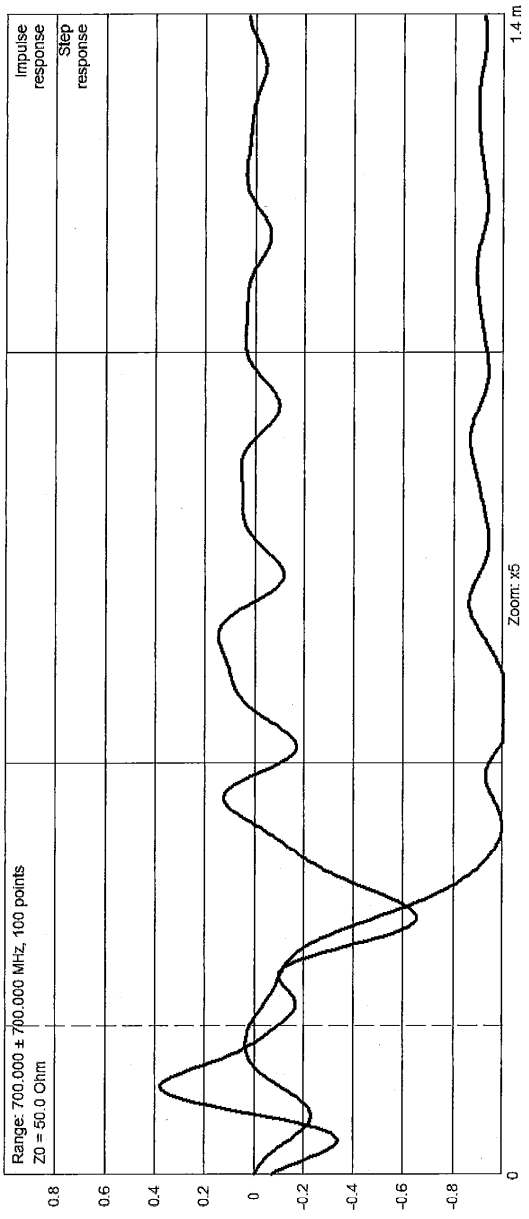
TDR SS6 Mated Pair Sample Full Right



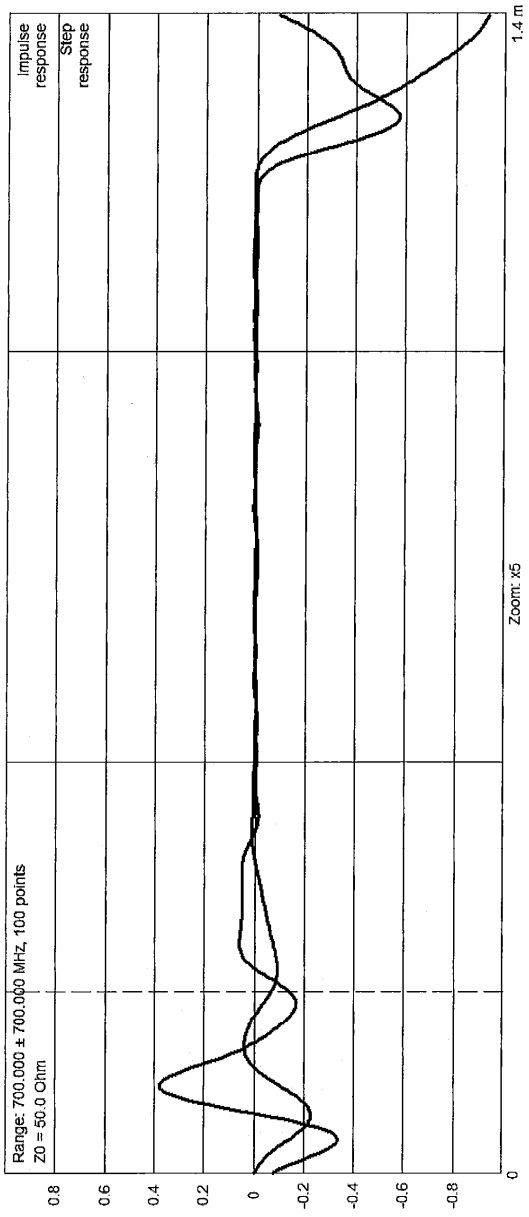
TDR SS6 Mated Pair Sample Full Left



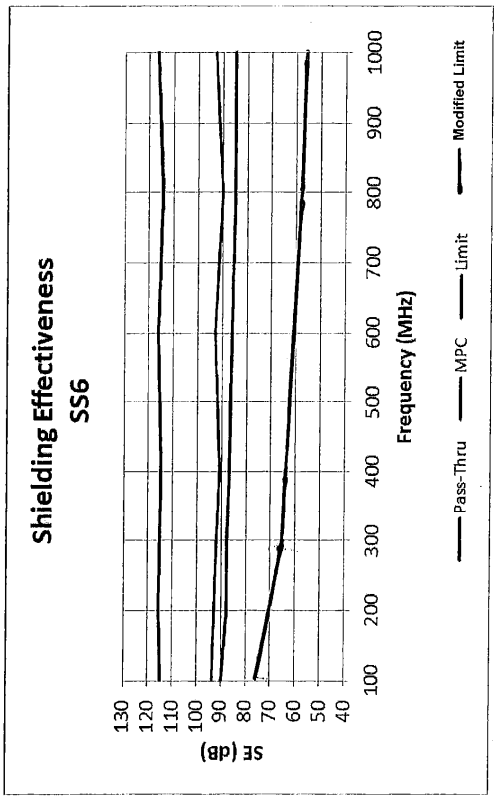
VSWR SS10 Mated Pair Sample

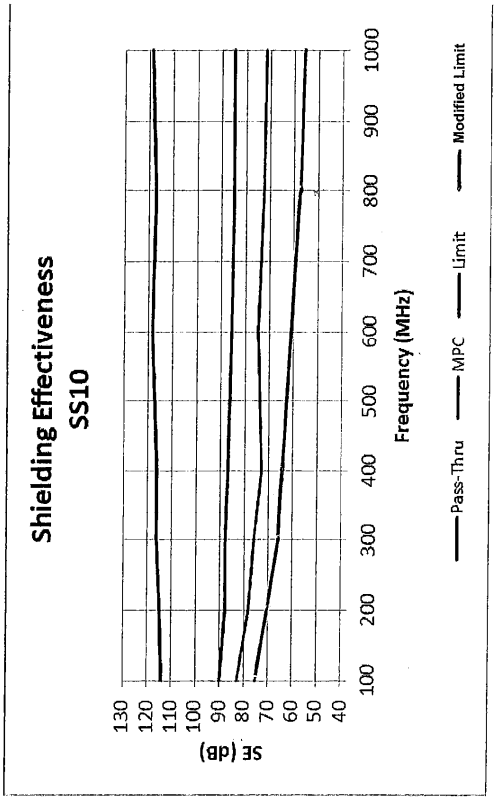


TDR SS10 Mated Pair Sample Full Right



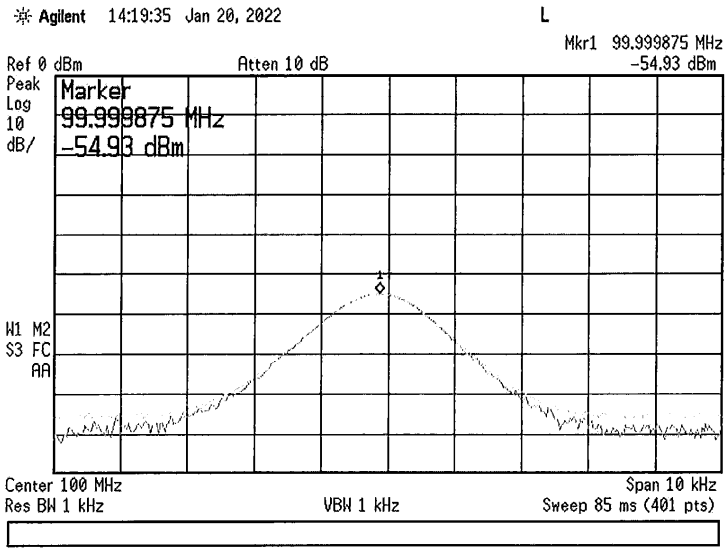
TDR SS10 Mated Pair Sample Full Left


Shielding Effectiveness
SS6
SE (dB)
130
120
110
100
90
80
70
60
50
40
100
200
300
400
500
600
700
800
900
1000
Frequency (MHz)
Pass-Thru
MPC
Limit
Modified Limit

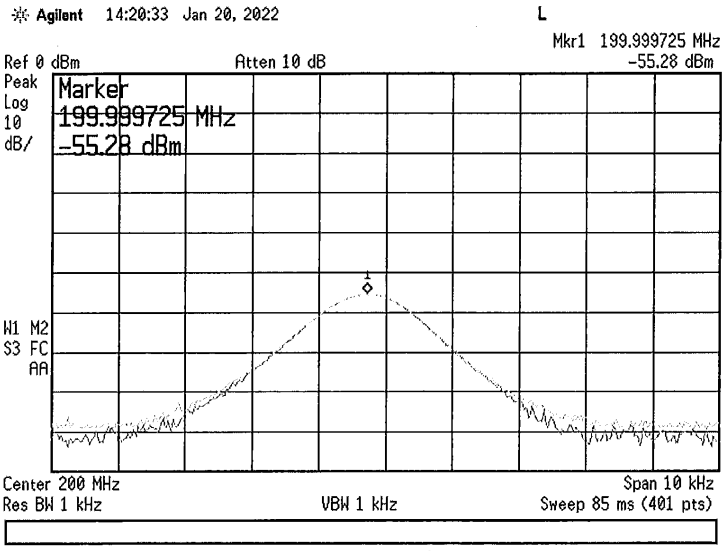

Shielding Effectiveness
SS10
SE (dB)
130
120
110
100
90
80
70
60
50
40
100
200
300
400
500
600
700
800
900
1000
Frequency (MHz)
Pass-Thru
MPC
Limit
Modified Limit

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: MIL-DTL-38999M
Serial #: See Report	Test Engineer: Devin Ratliff



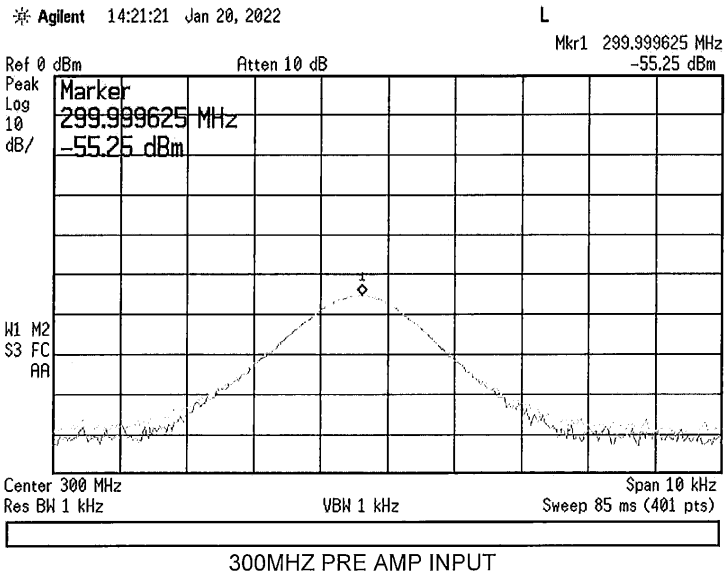
100MHZ PRE AMP INPUT



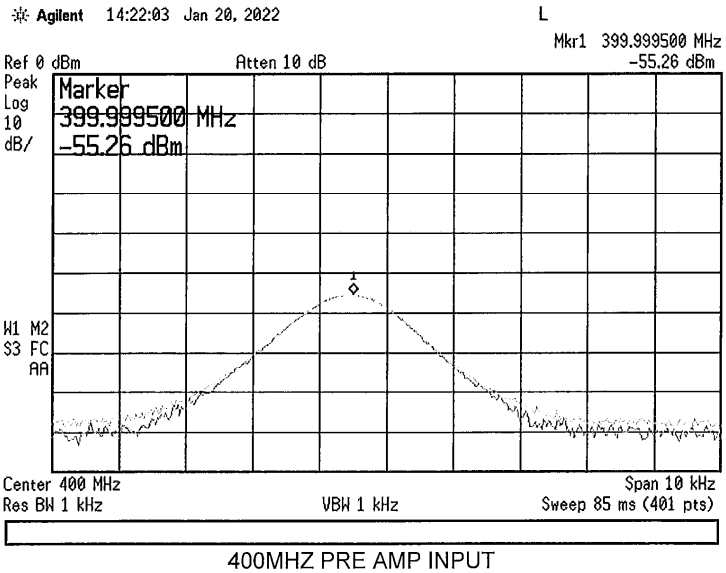
200MHZ PRE AMP INPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



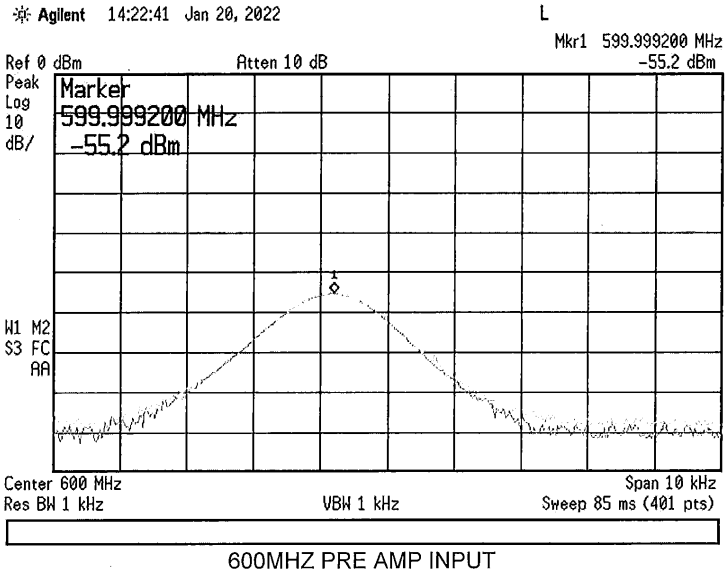
300MHZ PRE AMP INPUT



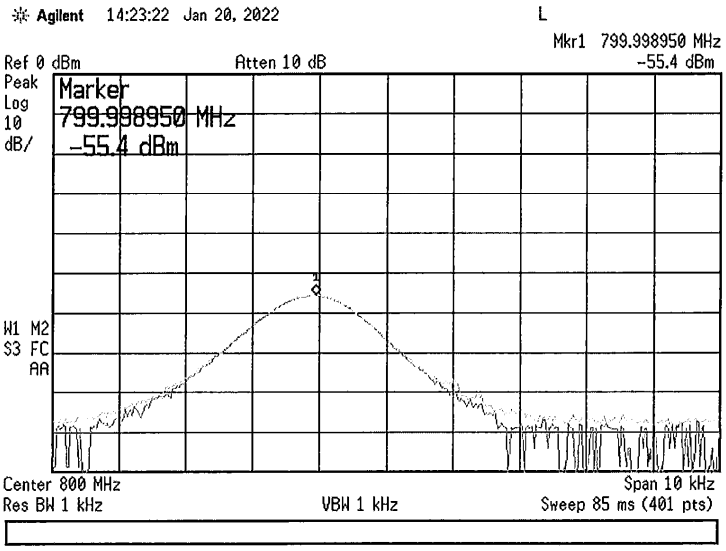
400MHZ PRE AMP INPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



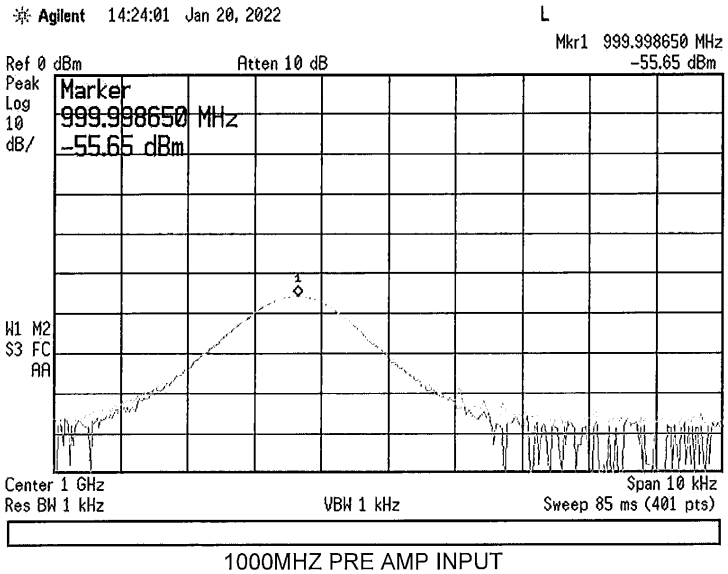
600MHZ PRE AMP INPUT



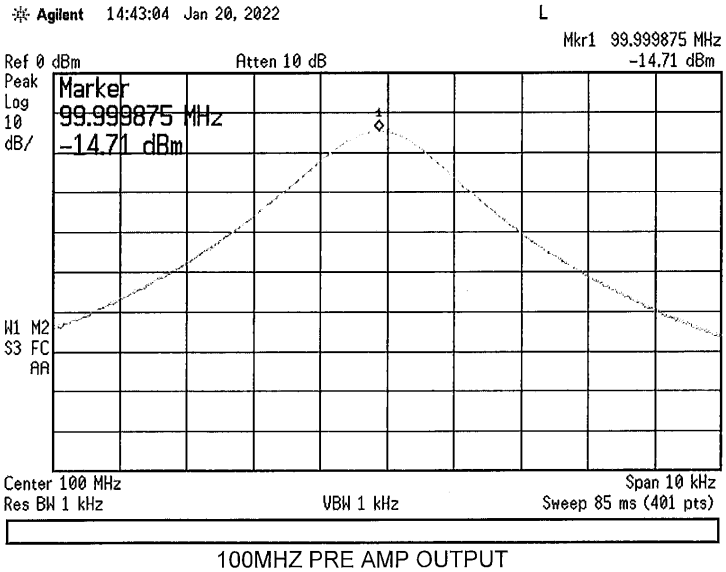
800MHZ PRE AMP INPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



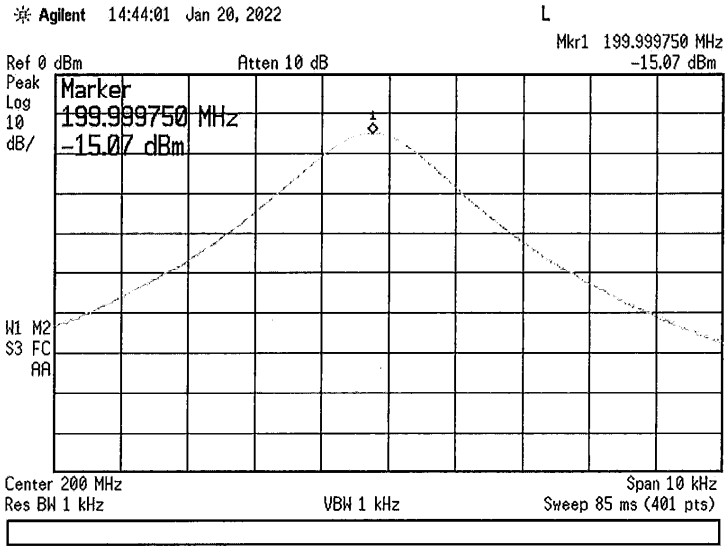
1000MHZ PRE AMP INPUT



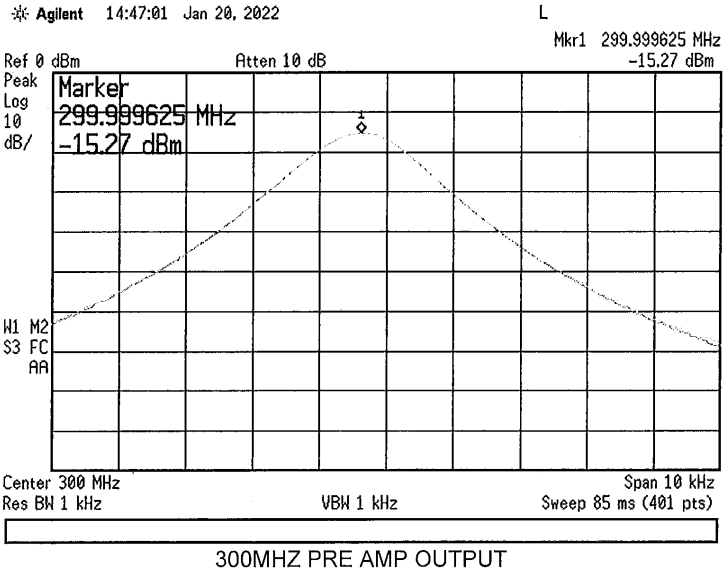
100MHZ PRE AMP OUTPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



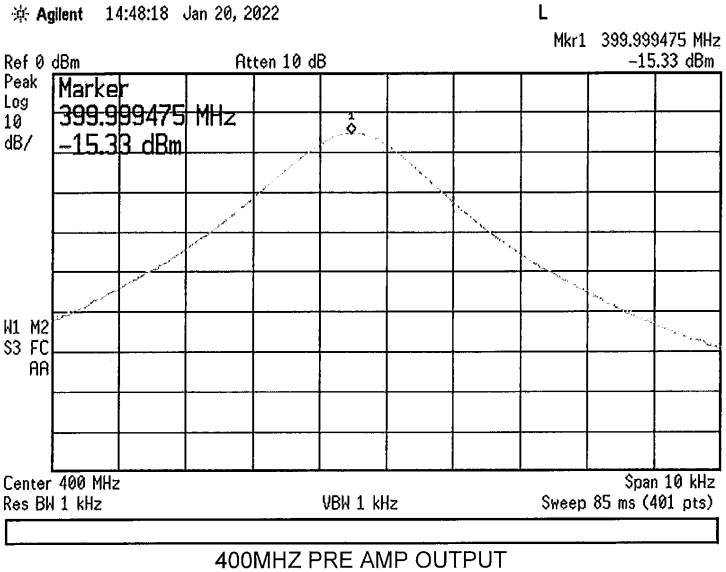
200MHZ PRE AMP OUTPUT



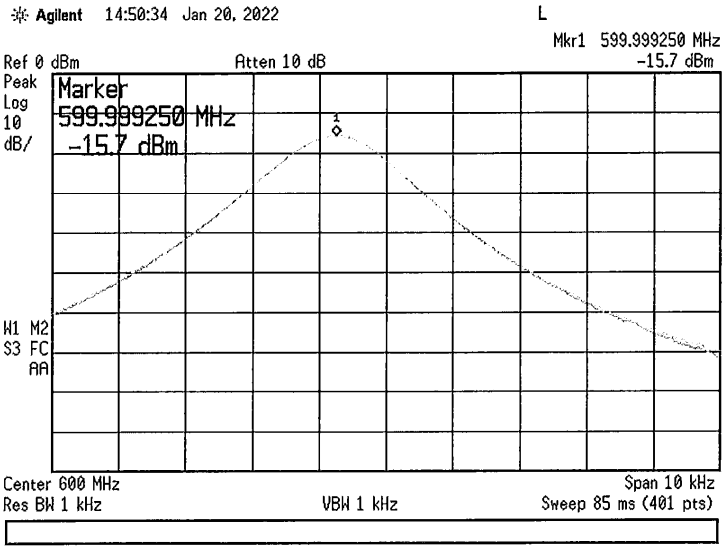
300MHZ PRE AMP OUTPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



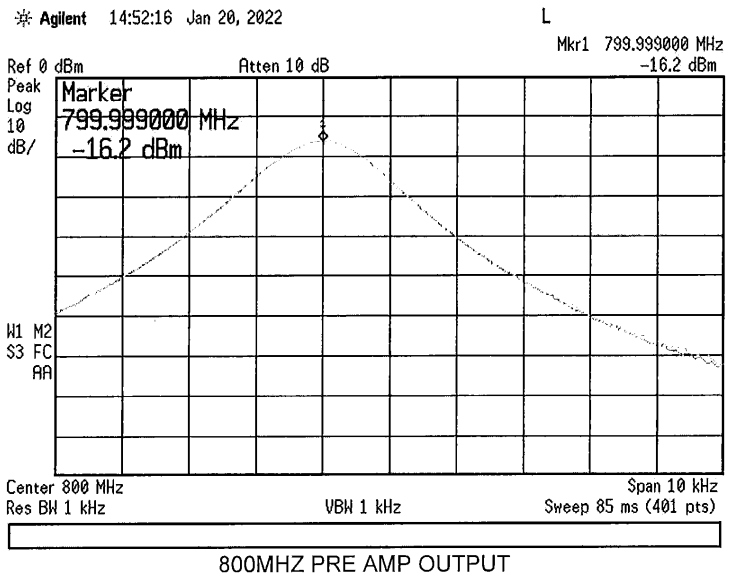
400MHZ PRE AMP OUTPUT



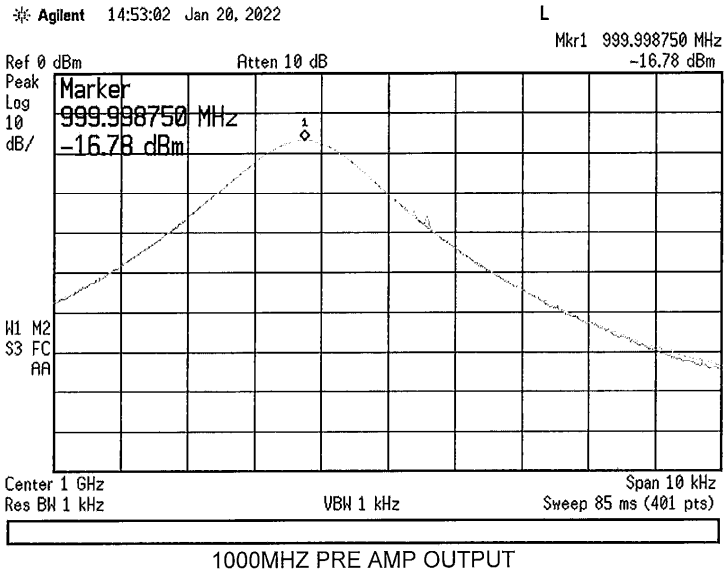
600MHZ PRE AMP OUTPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



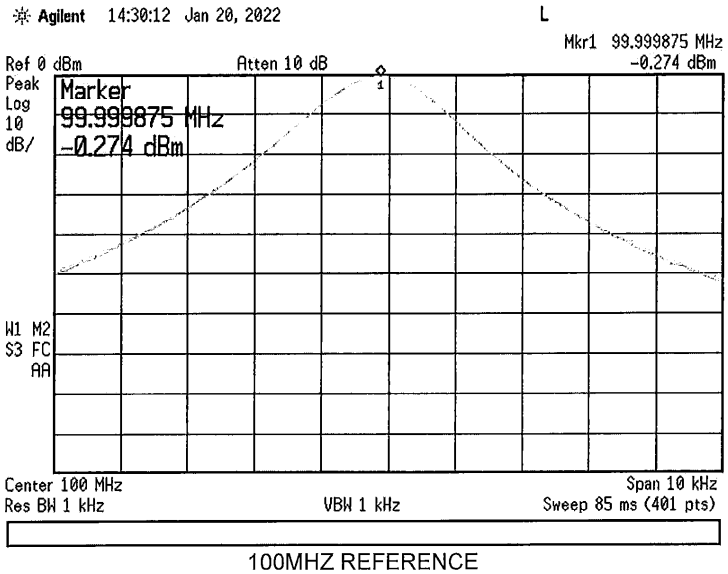
800MHZ PRE AMP OUTPUT



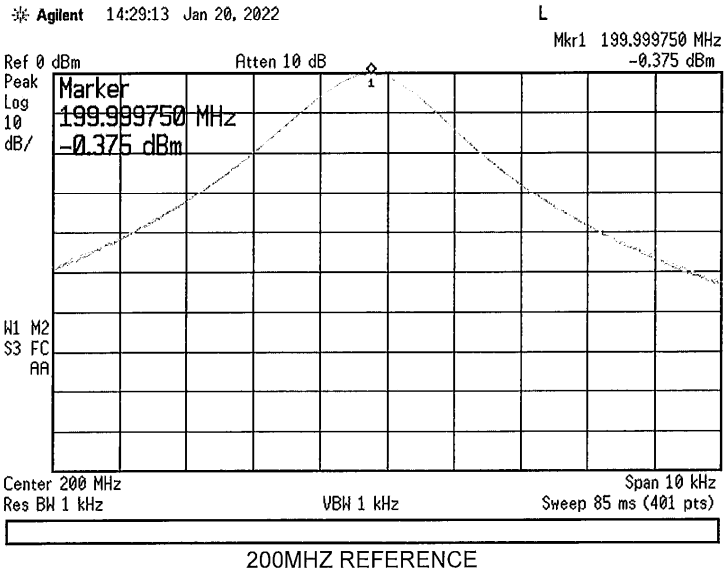
1000MHZ PRE AMP OUTPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



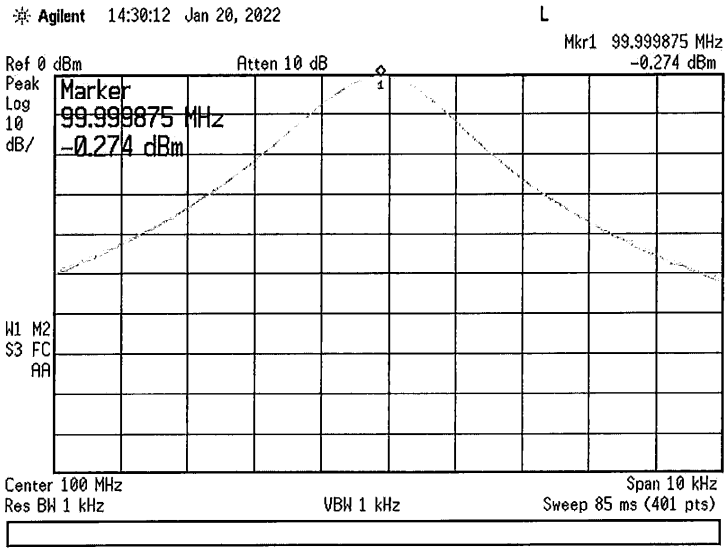
100MHZ REFERENCE



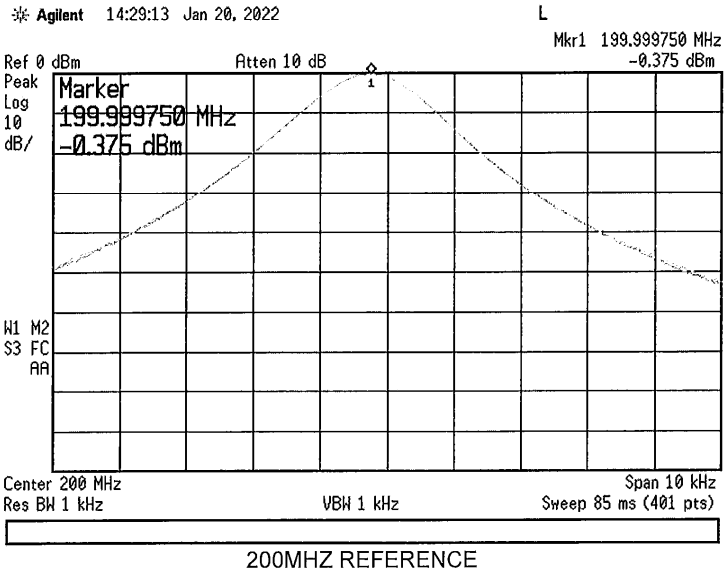
200MHZ REFERENCE

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



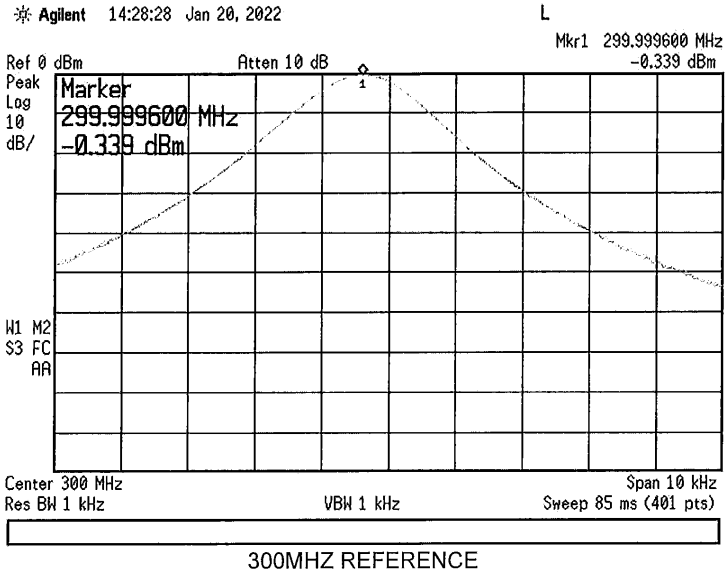
100MHZ REFERENCE



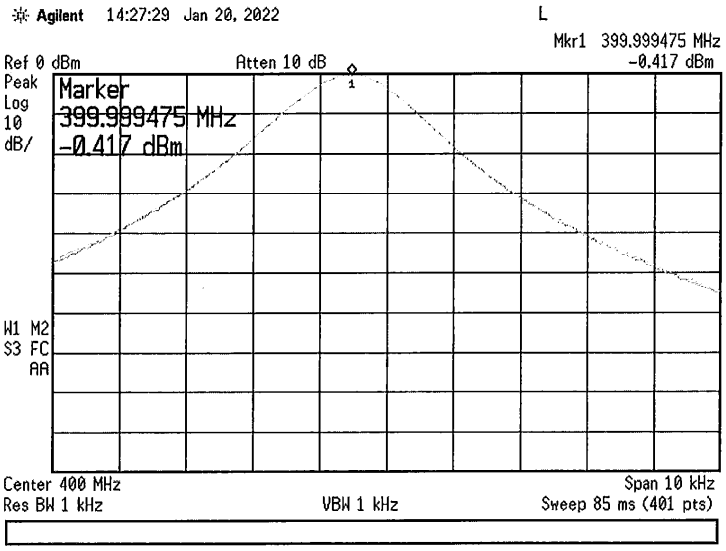
200MHZ REFERENCE

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



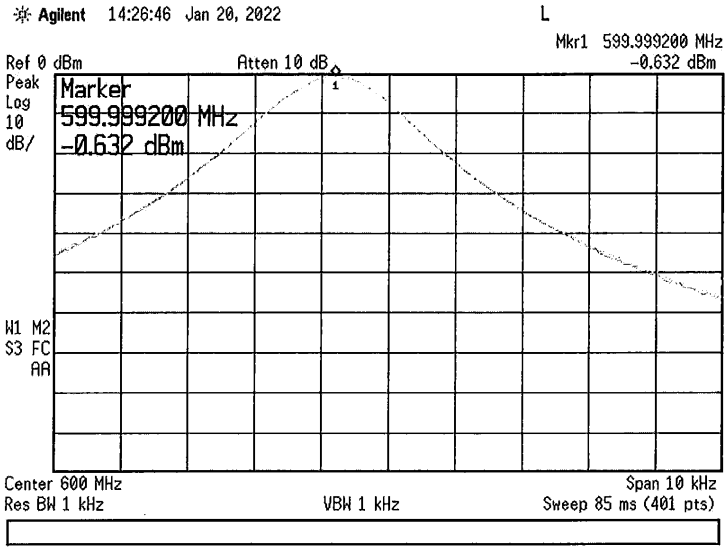
300MHZ REFERENCE



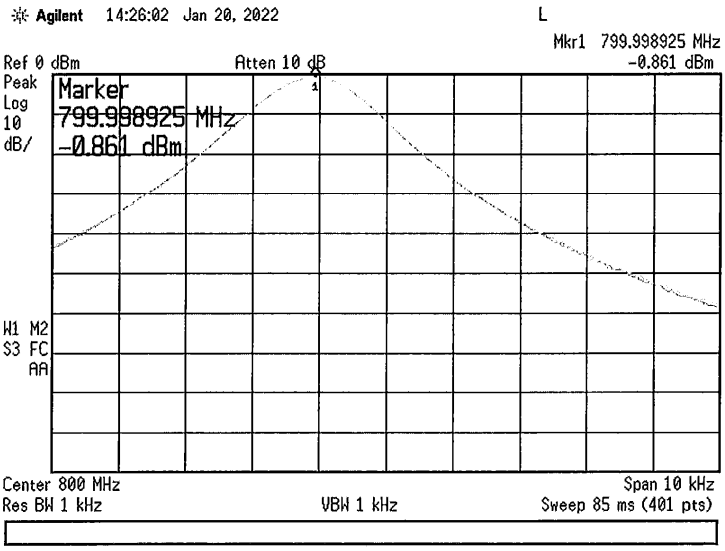
400MHZ REFERENCE

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



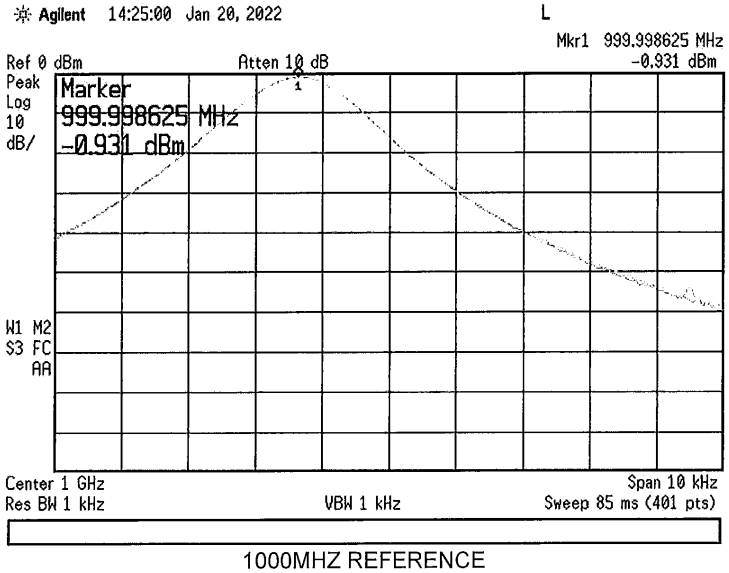
600MHZ REFERENCE



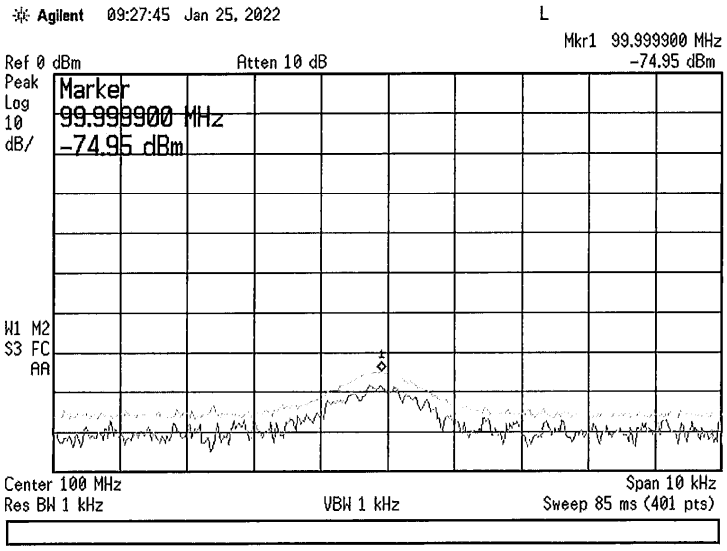
800MHZ REFERENCE

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



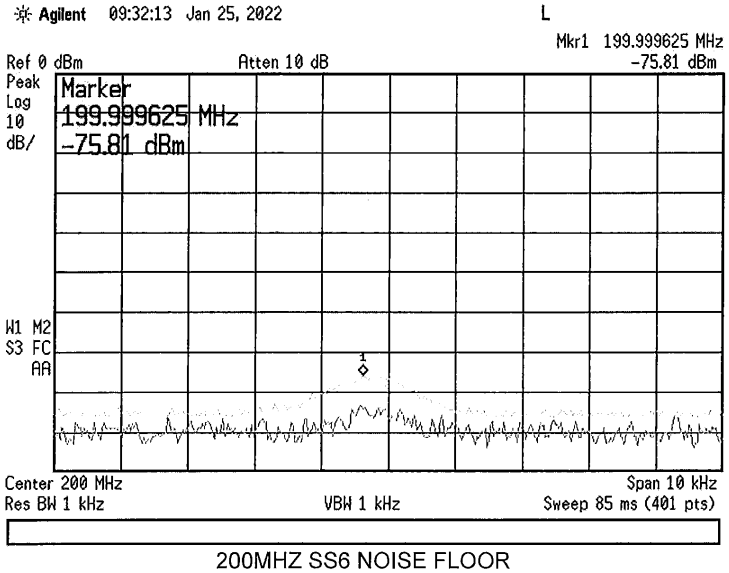
1000MHZ REFERENCE



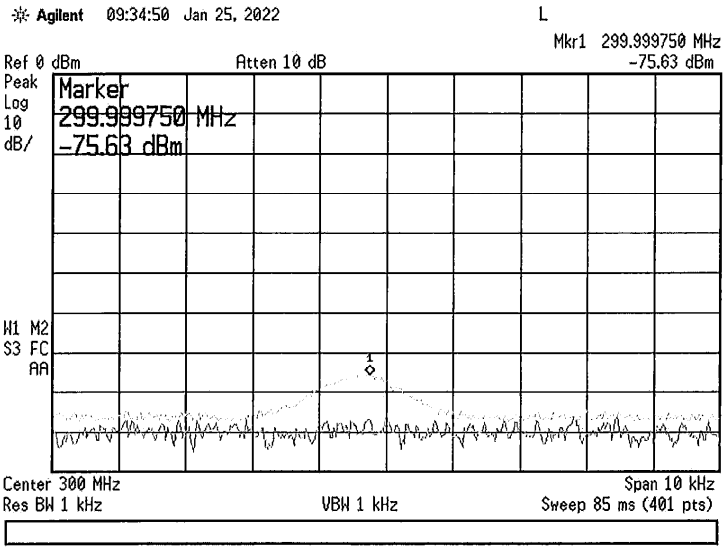
100MHZ SS6 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: MIL-DTL-38999M
Serial #: See Report	Test Engineer: Devin Ratliff



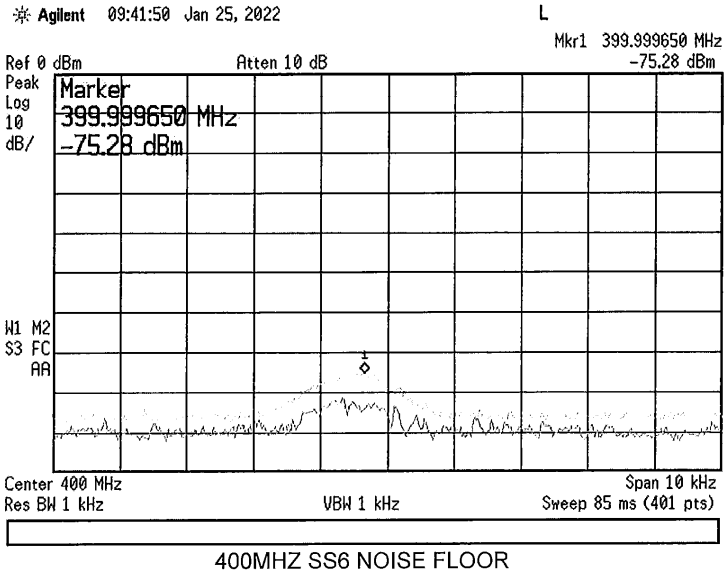
200MHZ SS6 NOISE FLOOR



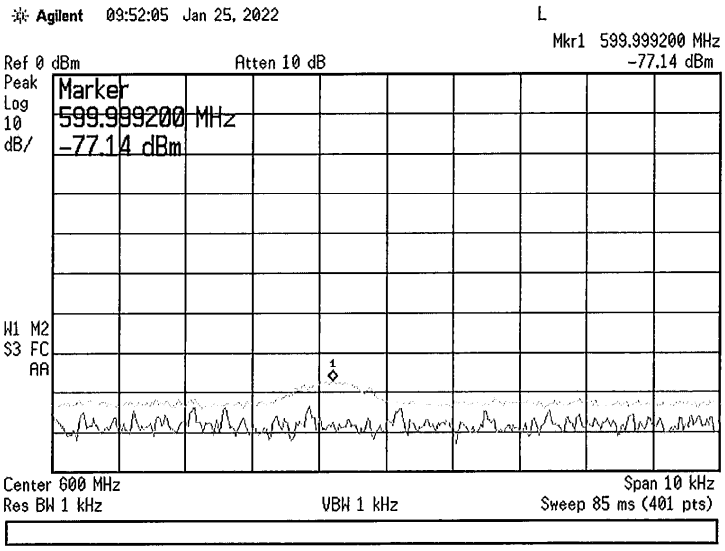
300MHZ SS6 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



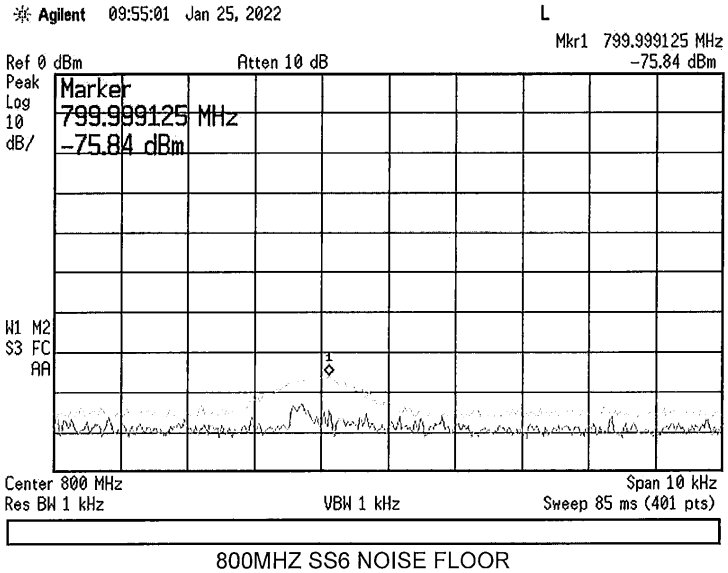
400MHZ SS6 NOISE FLOOR



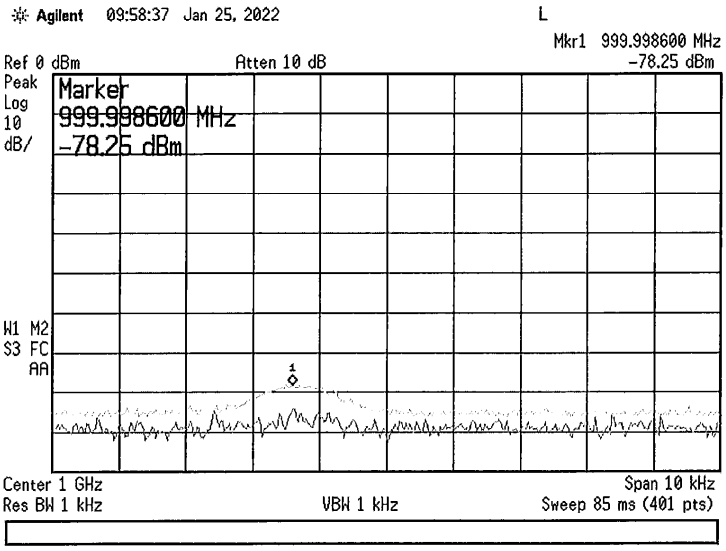
600MHZ SS6 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



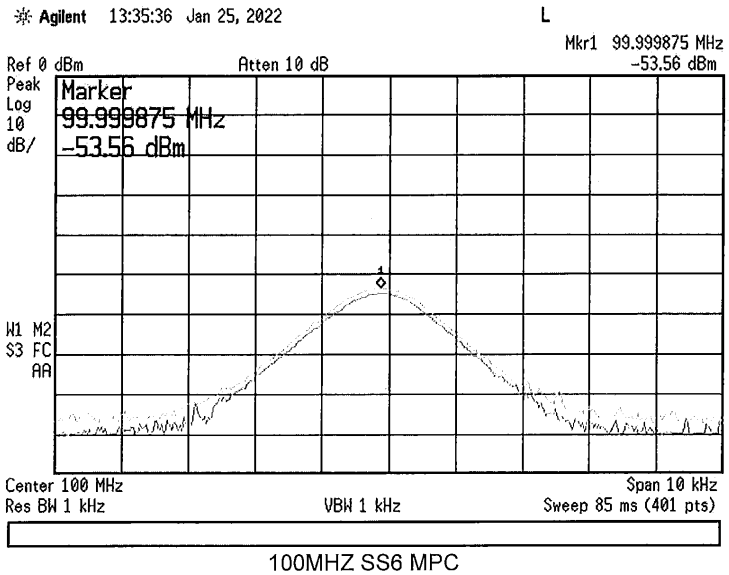
800MHZ SS6 NOISE FLOOR



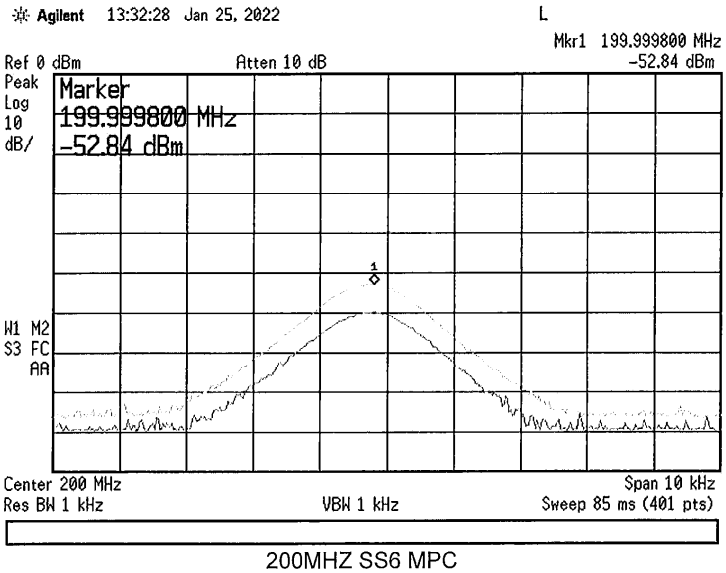
1000MHZ SS6 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



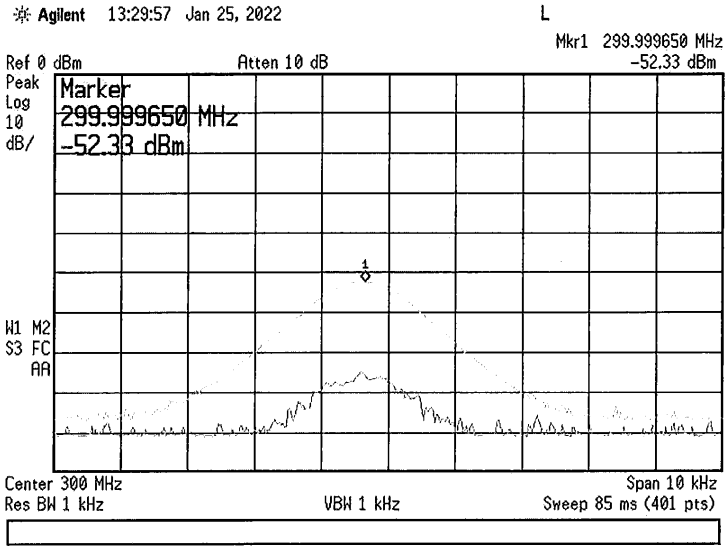
100MHZ SS6 MPC



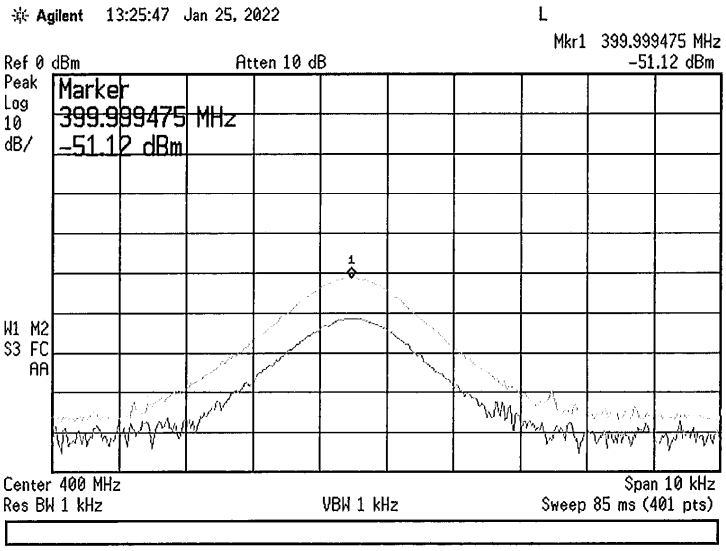
200MHZ SS6 MPC

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



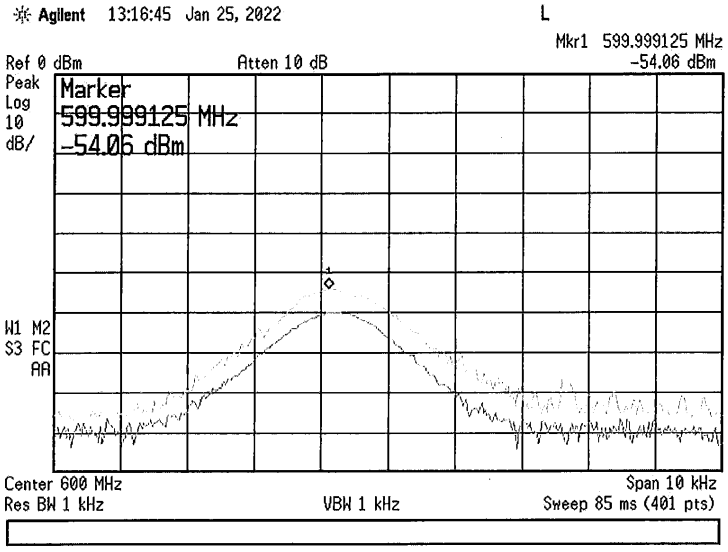
300MHZ SS6 MPC



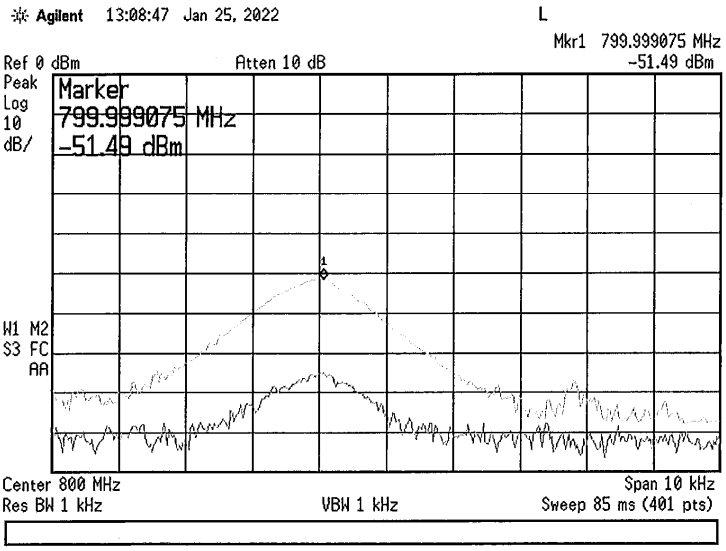
400MHZ SS6 MPC

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



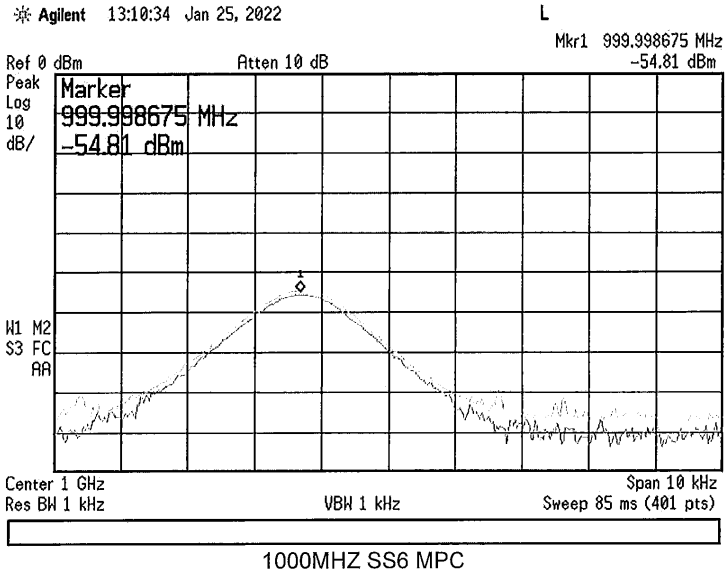
600MHZ SS6 MPC



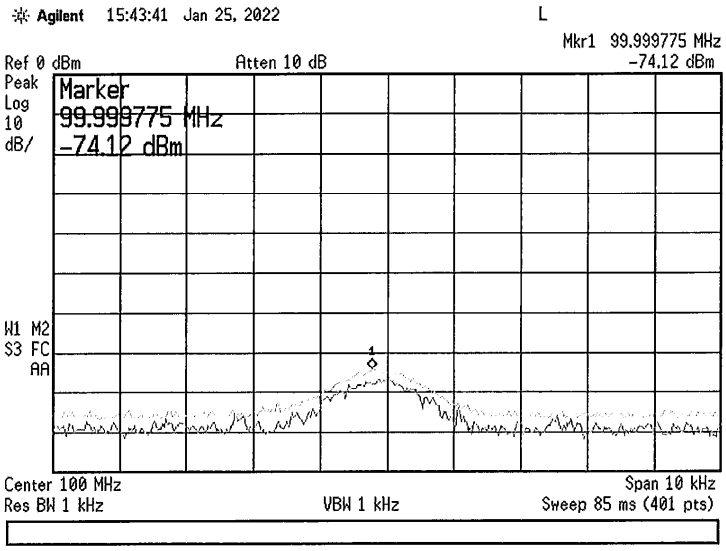
800MHZ SS6 MPC

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



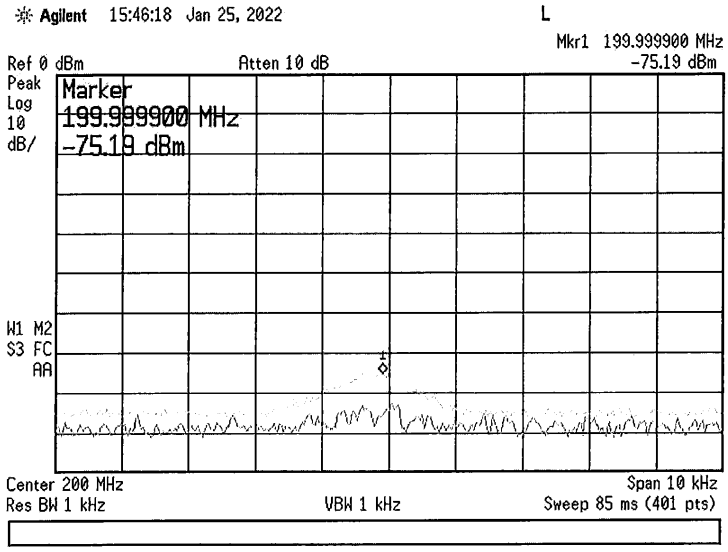
1000MHZ SS6 MPC



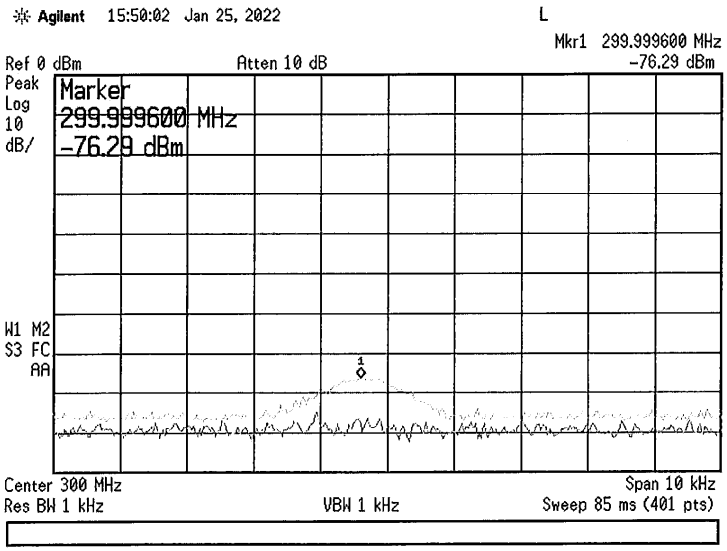
100MHZ SS10 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



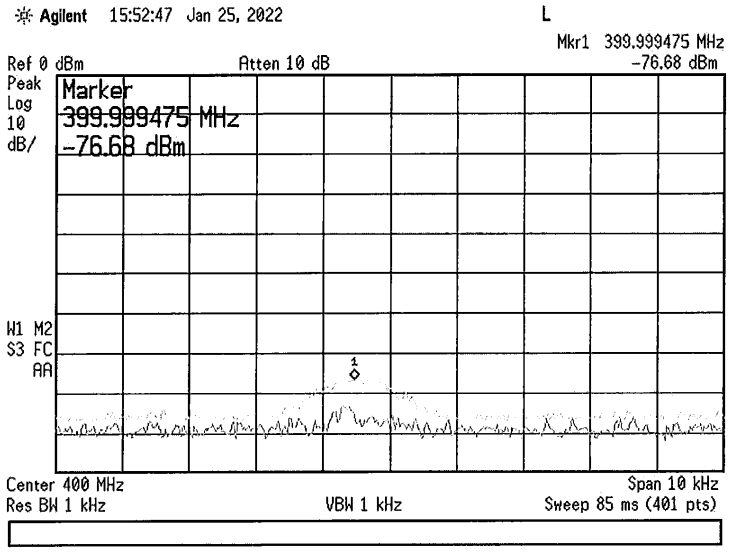
200MHZ SS10 NOISE FLOOR



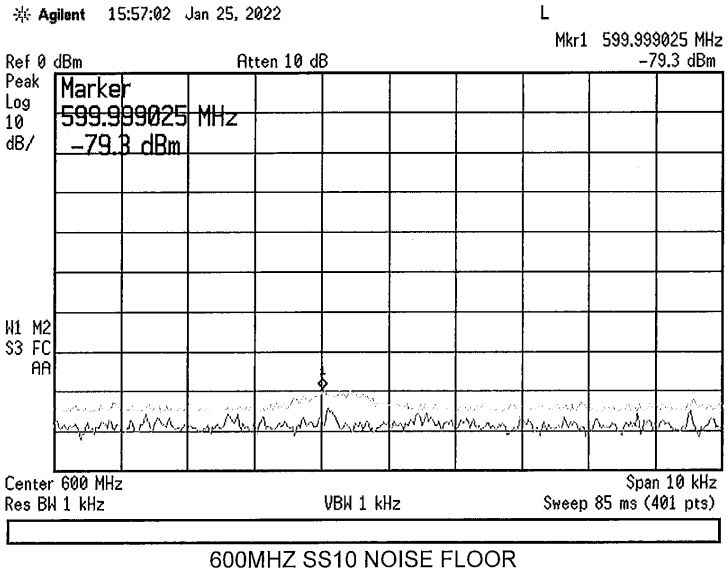
300MHZ SS10 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



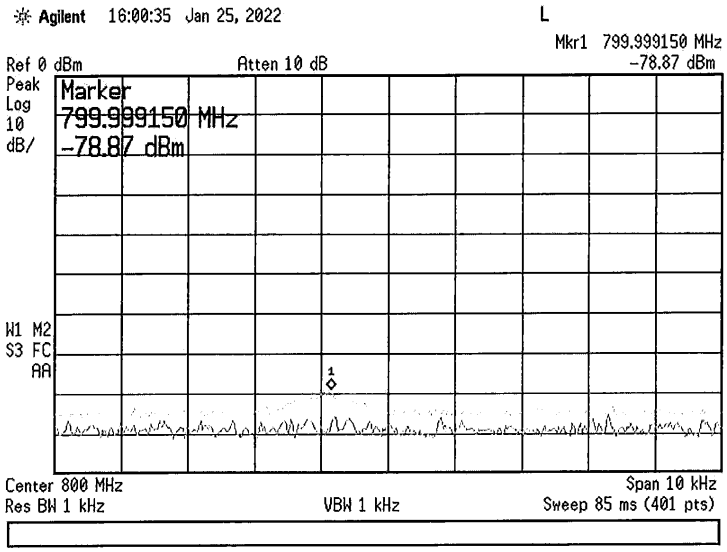
400MHZ SS10 NOISE FLOOR



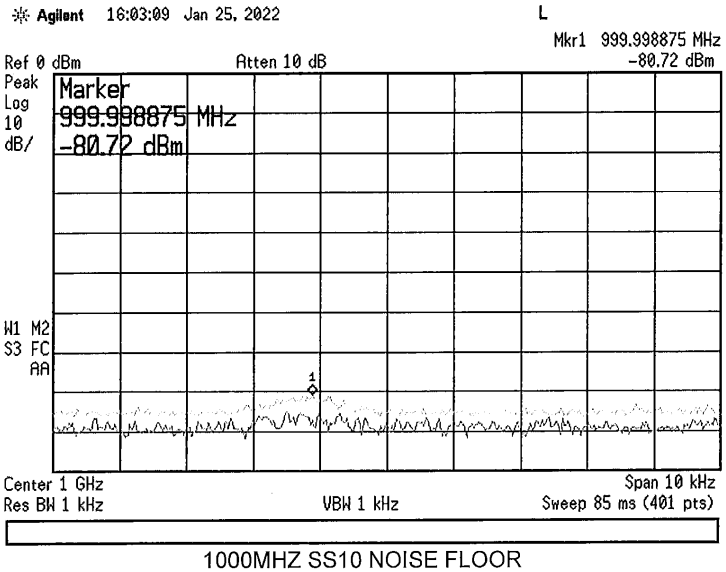
600MHZ SS10 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



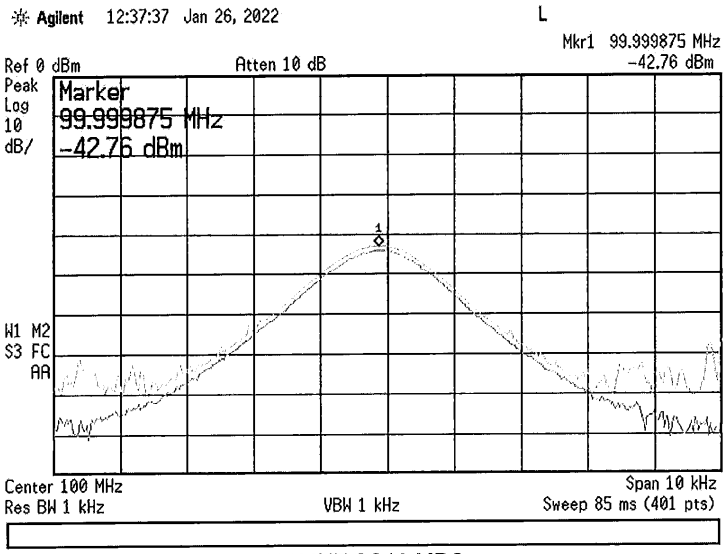
800MHZ SS10 NOISE FLOOR



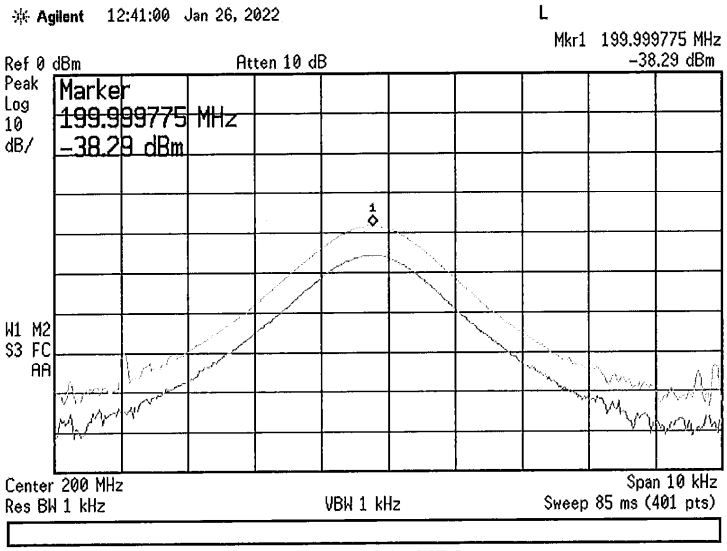
1000MHZ SS10 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: MIL-DTL-38999M
Serial #: See Report	Test Engineer: Devin Ratliff



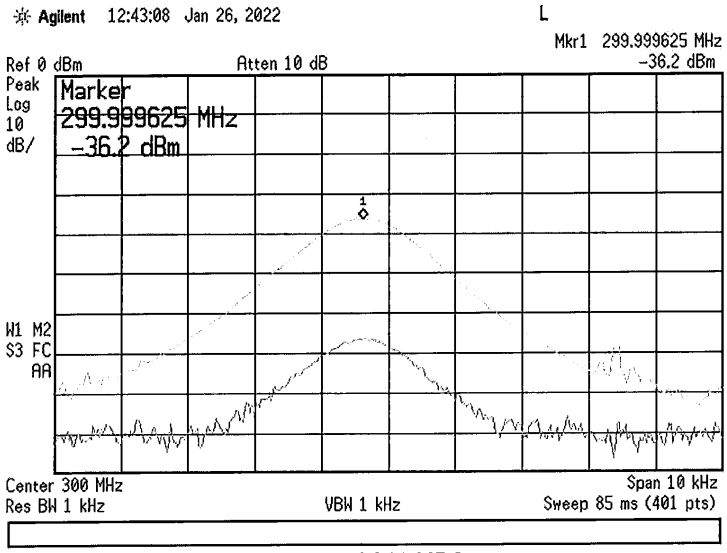
100MHZ SS10 MPC



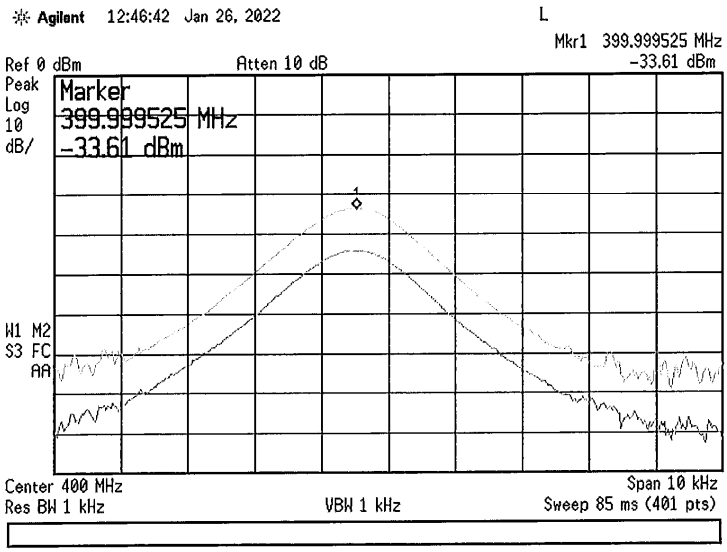
200MHZ SS10 MPC

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: MIL-DTL-38999M
Serial #: See Report	Test Engineer: Devin Ratliff



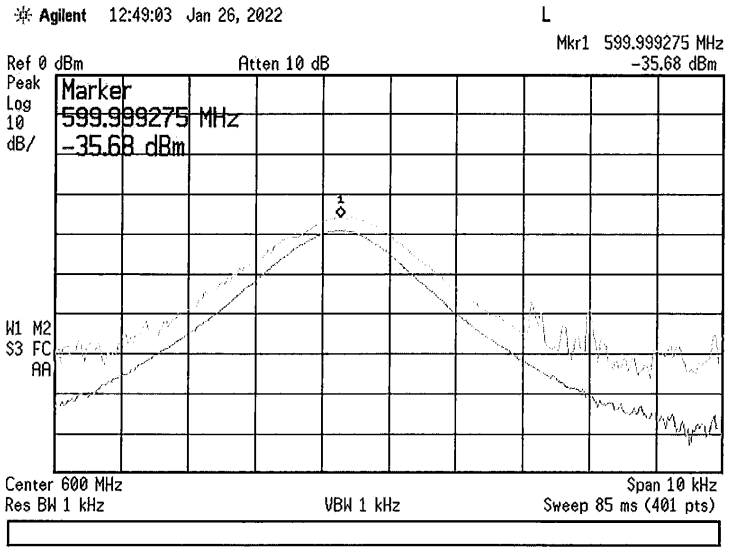
300MHZ SS10 MPC



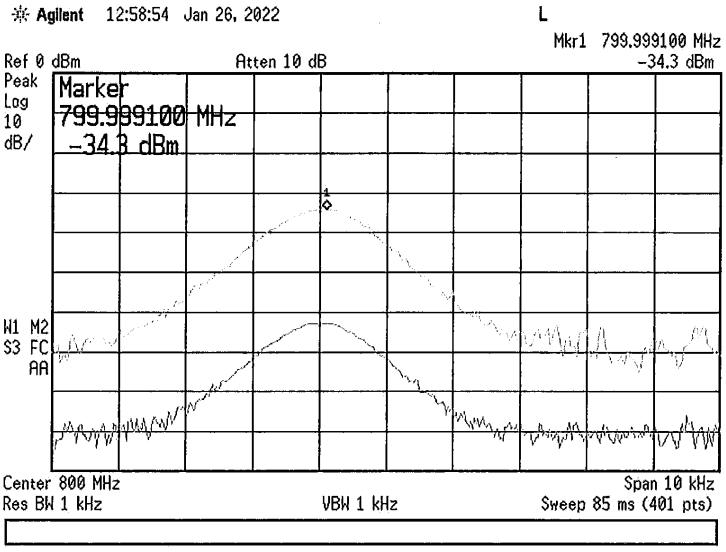
400MHZ SS10 MPC

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: MIL-DTL-38999M
Serial #: See Report	Test Engineer: Devin Ratliff



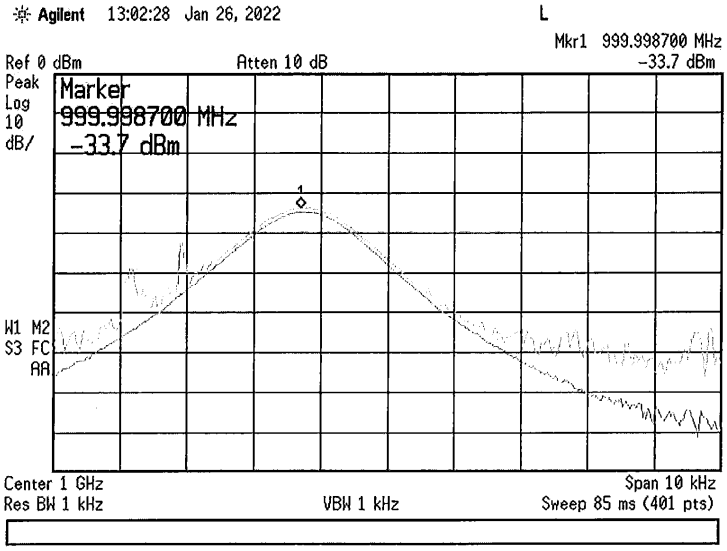
600MHZ SS10 MPC



800MHZ SS10 MPC

Shielding Effectiveness
100 MHz – 1 GHz

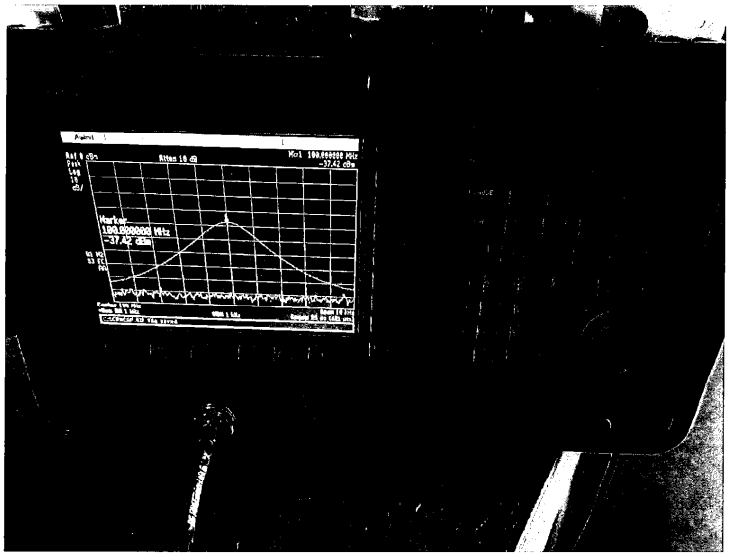
EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: MIL-DTL-38999M
Serial #: See Report	Test Engineer: Devin Ratliff



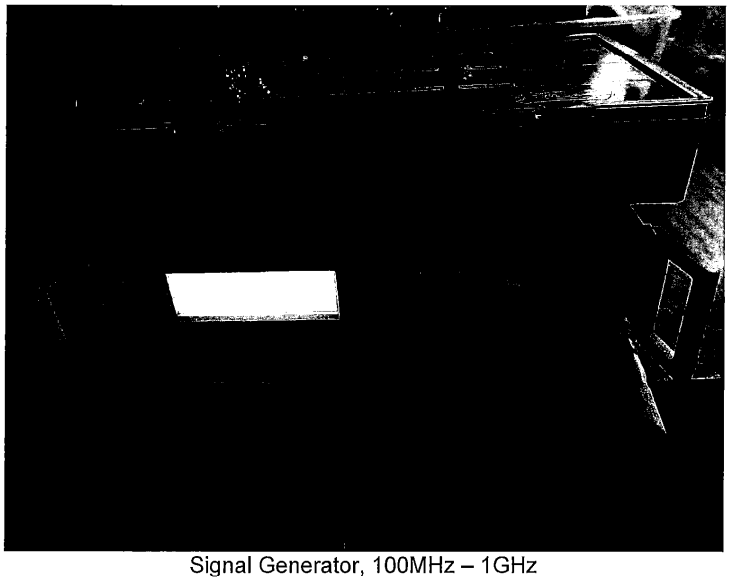
1000MHZ SS10 MPC

Shielding Effectiveness
100MHz – 1GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



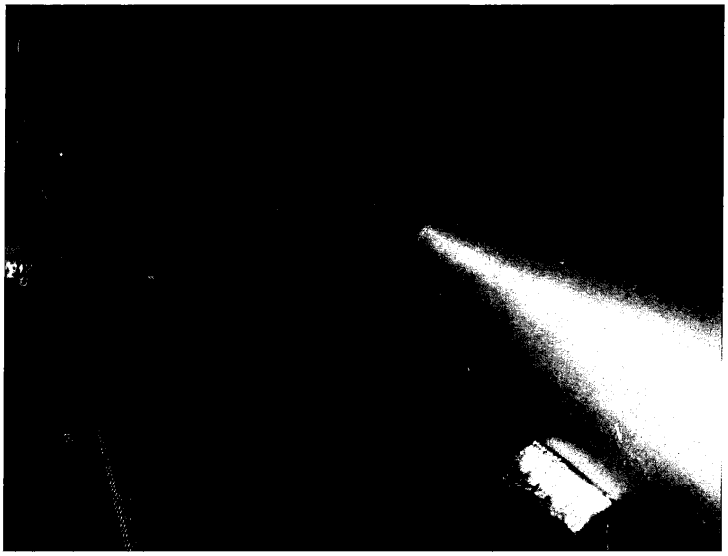
Spectrum Analyzer, 100MHz – 1GHz



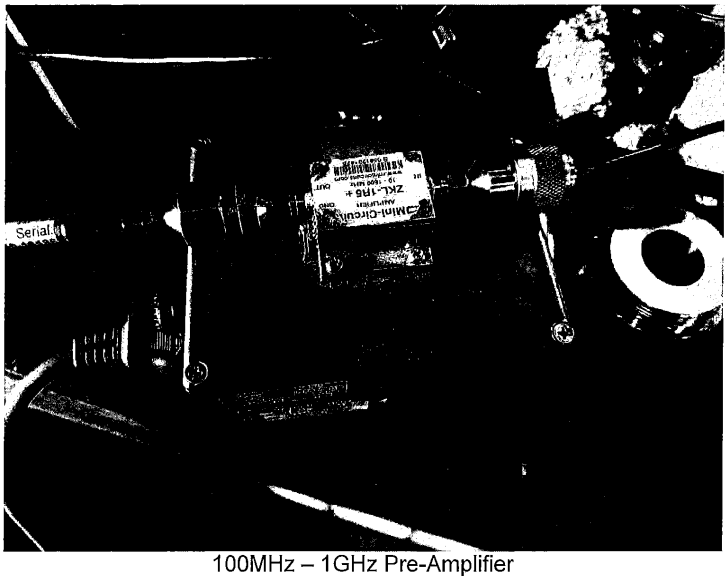
Signal Generator, 100MHz – 1GHz

Shielding Effectiveness
100MHz – 1GHz

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: MIL-DTL-38999M
Serial #: See Report	Test Engineer: Devin Ratliff



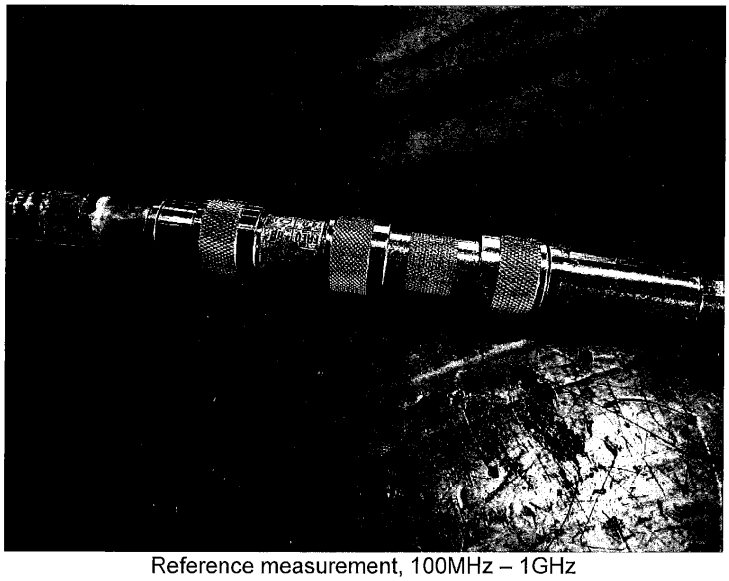
Tri-axial Fixture



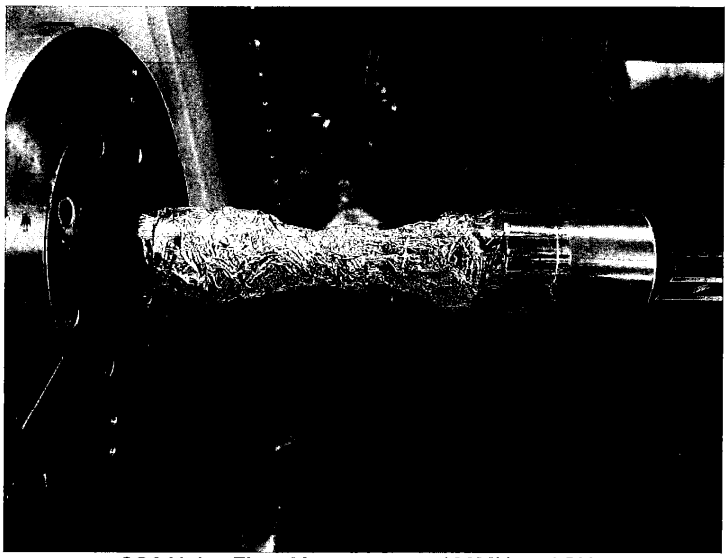
100MHz – 1GHz Pre-Amplifier

Shielding Effectiveness
100MHz – 1GHz

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: MIL-DTL-38999M
Serial #: See Report	Test Engineer: Devin Ratliff



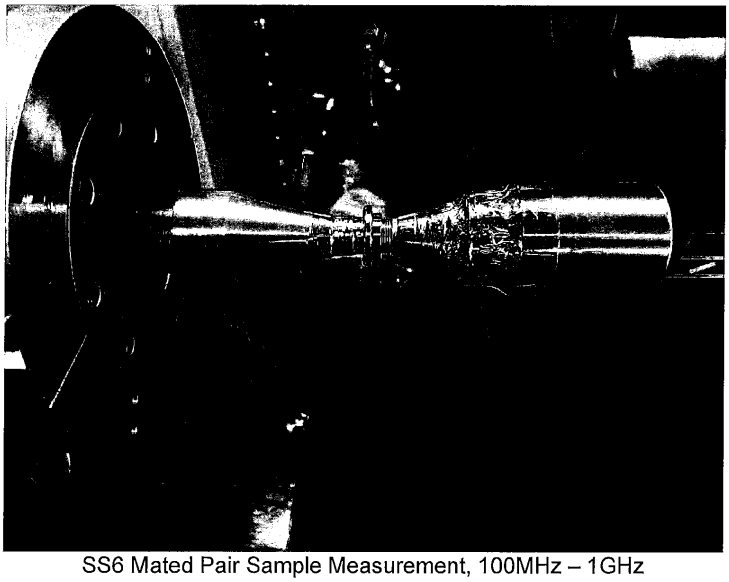
Reference measurement, 100MHz – 1GHz



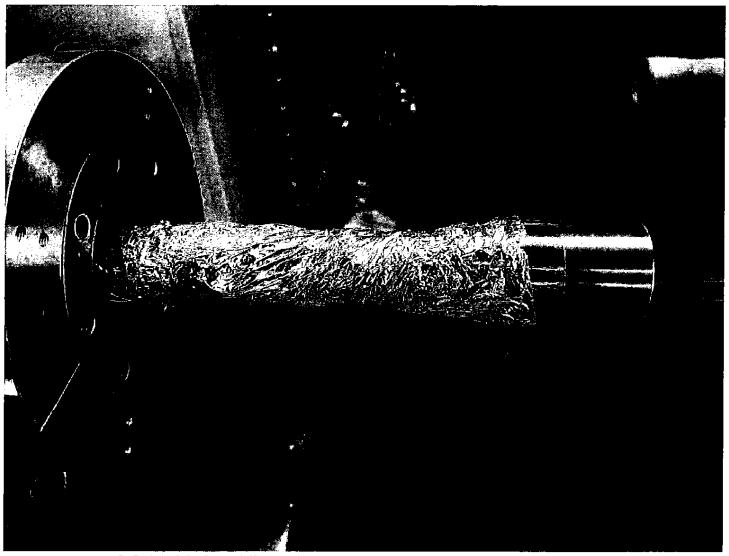
SS6 Noise Floor Measurement, 100MHz – 1GHz

Shielding Effectiveness
100MHz – 1GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



SS6 Mated Pair Sample Measurement, 100MHz – 1GHz



SS10 Noise Floor Measurement, 100MHz – 1GHz

Shielding Effectiveness
100MHz – 1GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**

SS10 Mated Pair Sample Measurement, 100MHz – 1GHz

END OF REPORT

SIZE	CAGE CODE	DRAWING NO.
A	63242	TR046384
SCALE: NONE	REV LTR -	FINAL SHEET

DNB ENGINEERING, INC. 1750 RAYMER AVE. FULLERTON, CA 92833 (714) 888-0010 FAX (714) 888-0020 www.dnbenginc.com

REVISIONS		
LTR	DESCRIPTION	DATE
-	INITIAL RELEASE	02-08-2022

PREPARED BY: K. BOYKO Boyko	DATE 2/8/22	**DNB ENGINEERING, INC.** FULLERTON, CA 92833 U.S.A.
TEST ENGINEER: D. RATLIFF Doug Ratliff	2/8/22	SHIELDING EFFECTIVENESS TEST REPORT FOR THE
TEST DEPT. MGR.: T. VU	2/08/22	Kilo 360 push-pull Electrical Connectors
QUAL. ASSURANCE: M. NEIS.	2/8/22	PREPARED FOR: CONTECH RESEARCH, INC. PURCHASE ORDER NO. 16624

SIZE	CAGE CODE	DRAWING NO.
A	63242	TR046384
SCALE: NONE	REV LTR -	SHEET 1

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DNB ENGINEERING, INC. 1750 RAYMER AVE. FULLERTON, CA 92833 (714) 888-0010 FAX (714) 888-0020 www.dnbenginc.com

APPENDICES

DNB ENGINEERING, INC. 1750 RAYMER AVE. FULLERTON, CA 92833 (714) 888-0010 FAX (714) 888-0020 www.dnbenginc.com

SHIELDING EFFECTIVENESS TEST COMPLETION RECORD

For

CONTECH RESEARCH, INC.

Kilo 360 push-pull Electrical Connectors

SERIES III, CLASS M

Item	Shell Size	Connector
1	6	TESTK804-001-6-7D / TESTK804-003-6-7D
2	10	TESTK804-001-10-26D / TESTK804-003-10-26D

Test Start Date: 01-11-22 **Test Completion Date: 01-26-22**

Test Completion Record: The following tests were performed in accordance with the requirements of IEEE-299 (Modified) and MIL-DTL-38999M (Modified).

Shielding Effectiveness, High Frequency: The EUT passed the requirements for this test.

Shielding Effectiveness, Low Frequency: The EUT passed the requirements for this test

DNB TEST ENGINEER _____ DATE 2/8/22

DNB QUALITY ASSURANCE _____ DATE 2/8/2022

CUSTOMER TEST ENGINEER _____ DATE _____

SIZE	CAGE CODE	DRAWING NO.	
A	63242	TR046384	
SCALE: NONE	REV LTR -		SHEET 4

1.0 INTRODUCTION

Shielding Effectiveness tests were performed on Kilo 360 push-pull Electrical Connectors, SERIES III, Shell Size 6 and 10, Class M, manufactured by CONTECH RESEARCH, INC., 750 Narragansett Park Drive, Rumford, RI 02916-1035. Testing of the EUT (Equipment Under Test) began on 01-11-22 and was completed on 01-26-22. The purpose of this test was to demonstrate compliance with the applicable sections of IEEE-299 (Modified) and MIL-DTL-38999M (Modified). All test results have been summarized herein, and all data sheets have been incorporated in Appendices A and B.

Note: Testing was performed at the DNB Engineering Inc., Anaheim Facility, 2311 W. La Palma Avenue, Anaheim, CA 92801.

2.0 TEST REQUIREMENTS

The test requirements for the tests performed as outlined in this document are defined by the applicable sections of IEEE-299 (Modified) and MIL-DTL-38999M (Modified).

3.0 TEST EQUIPMENT

The test equipment log in Appendices A and B lists information on test equipment used, along with current calibration status. DNB's calibration service providers use procedures provided by the manufacturers and by other widely recognized bodies (for example, GIDEP). Standards used during calibration are traceable to NIST.

4.0 SUMMARY OF TEST RESULTS

See Appendices A and B for details concerning all Shielding Effectiveness testing.

5.0 TEST DESCRIPTION

The test method and description, including details of the test set-up and test figures are described in IEEE-299 (Modified) and MIL-DTL-38999M (Modified) for each of the tests. A list of the test equipment used in the performance of each of these tests, along with current calibration information is included in Appendices A and B. Photographs of each test set-up were taken and are included in Appendices A and B.

DNB ENGINEERING, INC. 1750 RAYMER AVE. FULLERTON, CA 92833 (714) 888-0010 FAX (714) 888-0020 www.dnbenginc.com

6.0 CONCLUSIONS

The CONTECH RESEARCH, INC. Kilo 360 push-pull Electrical Connectors, SERIES III, Shell Size 6 and 10, Class M concluded all Shielding Effectiveness testing in accordance with the requirements of the purchase agreement. Upon the completion of testing, the EUT and all CONTECH RESEARCH, INC. support equipment were returned to representatives of CONTECH RESEARCH, INC.

The results listed in this report relate only to the item(s) tested as listed on the Test Completion Record herein.

APPENDIX A

Shielding Effectiveness, High Frequency

SIZE	CAGE CODE	DRAWING NO.	
A	63242	TR046384	
SCALE: NONE		REV LTR -	SHEET A1

A.1 Shielding Effectiveness,

IEEE-299 Modified;

Shielding Effectiveness testing was performed for CONTECH RESEARCH, INC. on Kilo 360 push-pull Electrical Connectors, SERIES III, Shell Size 6 and 10, Class M at the DNB Engineering's La Palma Avenue facility between the dates of January 11th, 2022 and January 12th, 2022. Testing was performed as required by PO # 16624 and in accordance with IEEE-299 Modified. Data was acquired from 1 GHz to 18 GHz at DNB Raymer facility in a RF shielded room. The table below provides the test article nomenclature.

Item	Shell Size	Connector (Plug - Receptacle)	Connector Class	Pass/Fail
1	6	TESTK804-001-6-7D / TESTK804-003-6-7D	M	Pass
2	10	TESTK804-001-10-26D / TESTK804-003-10-26D	M	Pass

Test Measurements

Measurements were performed in multiple frequency ranges using an Agilent E4448A Spectrum Analyzer. From 1 GHz – 18 GHz small DRG antennas are used. Receive antennas are placed inside an anechoic shielded chamber and a transmission antenna is placed outside facing a transmission port at a 1m distance.

A noise floor measurement is done prior to testing to ensure that the room is capable of providing enough attenuation over the whole frequency range. This is done by placing an aluminum cover plate over the port in place of the test sample using the same reference values and antenna positions as the test setup.

Reference measurements are performed and recorded prior to EUT testing. Attenuation is added prior to the preamplifier to increase dynamic range of our measurements. The attenuator is then removed during all other measurements.

The shielding effectiveness is calculated by performing the reference measurement, adding the attenuation value to this number, and then subtracting the measured level from the test article.

All measured data was plotted and those plots are included in Appendix A.

EMC TEST LOG

Customer: Contech
Customer Rep: NA
EUT: Connectors
Test Procedure: Shielding Effectiveness
Model / Part #: See Report
Test Specification: IEEE-299
Serial #: See Report
Test Engineer: Devin Ratliff

DATE	TIME	DESCRIPTION
1/11/22	8:00	Setup Shielding effectiveness 1-18GHz
		Run Reference measurement 1-18GHz
		Run SS6 Sample measurement 1-18GHz, Pass
1/11/22	17:00	End of day
1/12/22	8:00	Start of day
		Run SS10 Sample measurement 1-18GHz, Pass
		Run Noise Floor measurement 1-18GHz
1/12/22	15:00	Test complete

FORM 0001

TEST EQUIPMENT LOG

Customer: Contech **Customer Rep:** NA

EUT: Connectors **Test Procedure:** Shielding Effectiveness

Model / Part #: See Report **Test Specification:** IEEE-299

Serial #: See Report **Test Engineer:** Devin Ratliff

DESCRIPTION	MANUFACTURER	MODEL # / SERIAL #	CAL. DUE DATE
Spectrum Analyzer	Agilent	E4448A / US42510303	8/3/22
Signal Generator	Agilent	83640B / 3844A00868	CPT
Signal Generator	IFN	2023A / 202308/581	NCR
Pre-Amp	DNB	S-21GBA / 13982	11/16/22
Antenna	Emco	3115 / 2280	12/9/23
Antenna	ETS	3115 / 6435	2/17/23
Attenuator	Weinschel	48-40-43 / BZ2805	7/31/22
Cable	Storm	90-077-096 / 06-03-762	5/3/22
Cable	Storm	90-077-096 / S4240	7/13/22
Cable	Storm	90-077-072 / 05-06-110	5/3/22
Cable	Storm	MFR-57500 / 03-03-030	11/15/22
Cable	Storm	90-206-144 / 12-06-801	5/3/22

Notes: CPT – Calibration performed prior to test

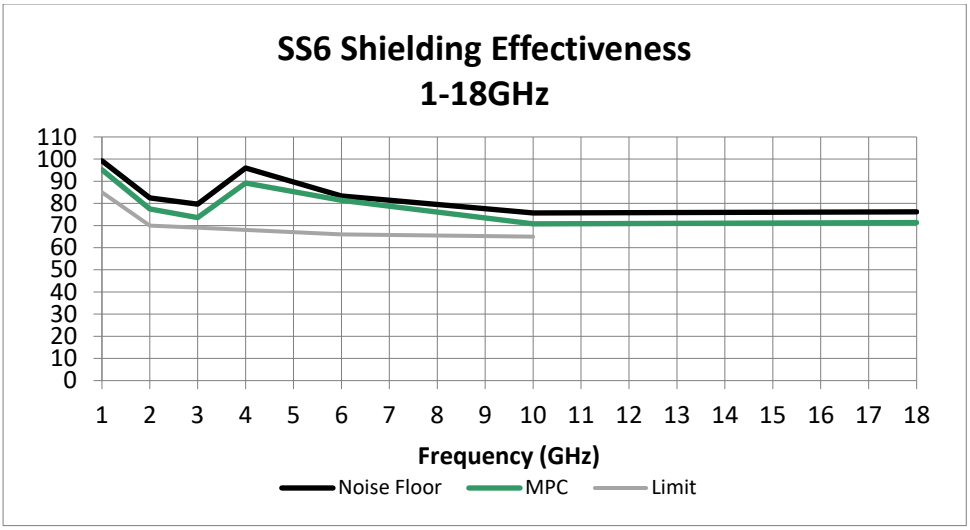
FORM 0005

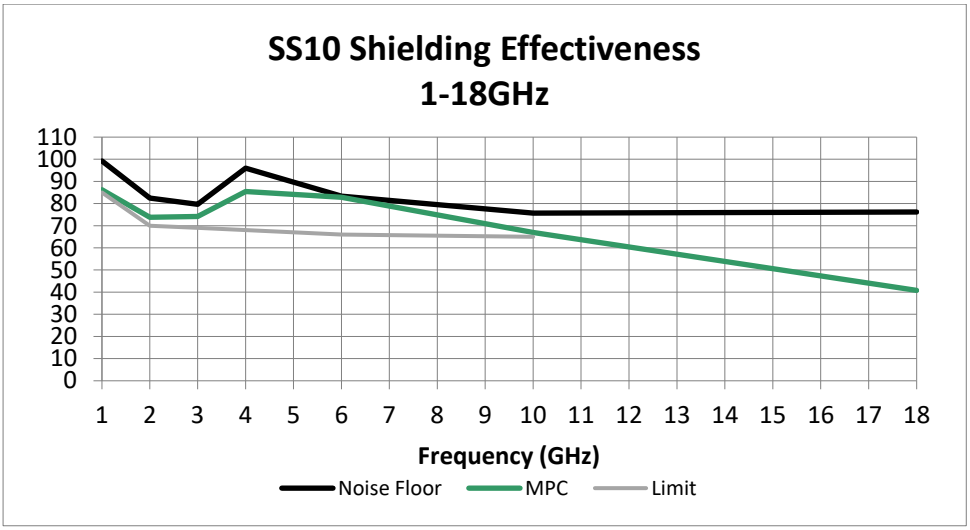
SS6 (Mated-pair Connector)

Frequency (Hz)	Attenuation (dB)	Measured Reference (dBm)	Corrected Reference (dBm)	Measured Noise Floor (dBm)	Corrected Noise Floor (dB)	Measured Sample (dBm)	Corrected Sample (dB)
1.00E+09	40	-21.22	18.78	-80.51	99.29	-76.43	95.21
2.00E+09	40	-18.56	21.44	-61.04	82.48	-56.04	77.48
3.00E+09	40	-23.27	16.73	-62.93	79.66	-56.88	73.61
4.00E+09	40	-22.92	17.08	-78.88	95.96	-72.08	89.16
6.00E+09	40	-17.02	22.98	-60.38	83.36	-58.38	81.36
1.00E+10	40	-24.52	15.48	-60.23	75.71	-55.28	70.76
1.80E+10	40	-38.03	1.97	-74.2	76.17	-69.39	71.36

SS10 (Mated-pair Connector)

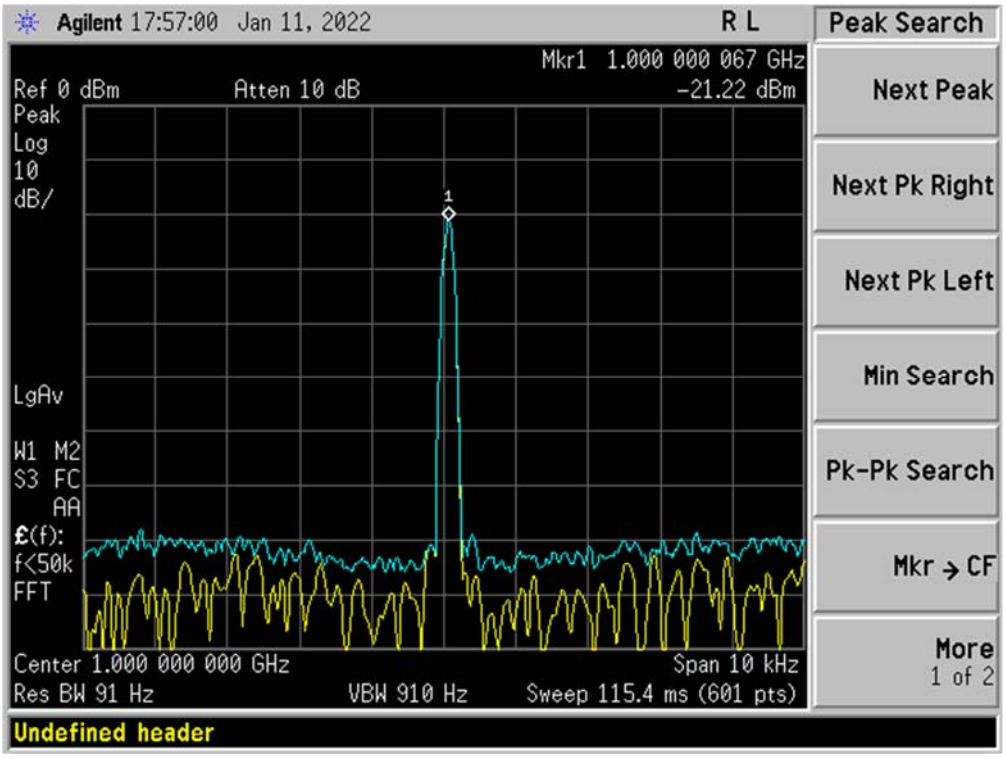
Frequency (Hz)	Attenuation (dB)	Measured Reference (dBm)	Corrected Reference (dBm)	Measured Noise Floor (dBm)	Corrected Noise Floor (dB)	Measured Sample (dBm)	Corrected Sample (dB)
1.00E+09	40	-21.22	18.78	-80.51	99.29	-67.49	86.27
2.00E+09	40	-18.56	21.44	-61.04	82.48	-52.37	73.81
3.00E+09	40	-23.27	16.73	-62.93	79.66	-57.43	74.16
4.00E+09	40	-22.92	17.08	-78.88	95.96	-68.33	85.41
6.00E+09	40	-17.02	22.98	-60.38	83.36	-59.83	82.81
1.00E+10	40	-24.52	15.48	-60.23	75.71	-51.43	66.91
1.80E+10	40	-38.03	1.97	-74.2	76.17	-38.82	40.79


SS6 Shielding Effectiveness
1-18GHz
110
100
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Frequency (GHz)
Noise Floor
MPC
Limit

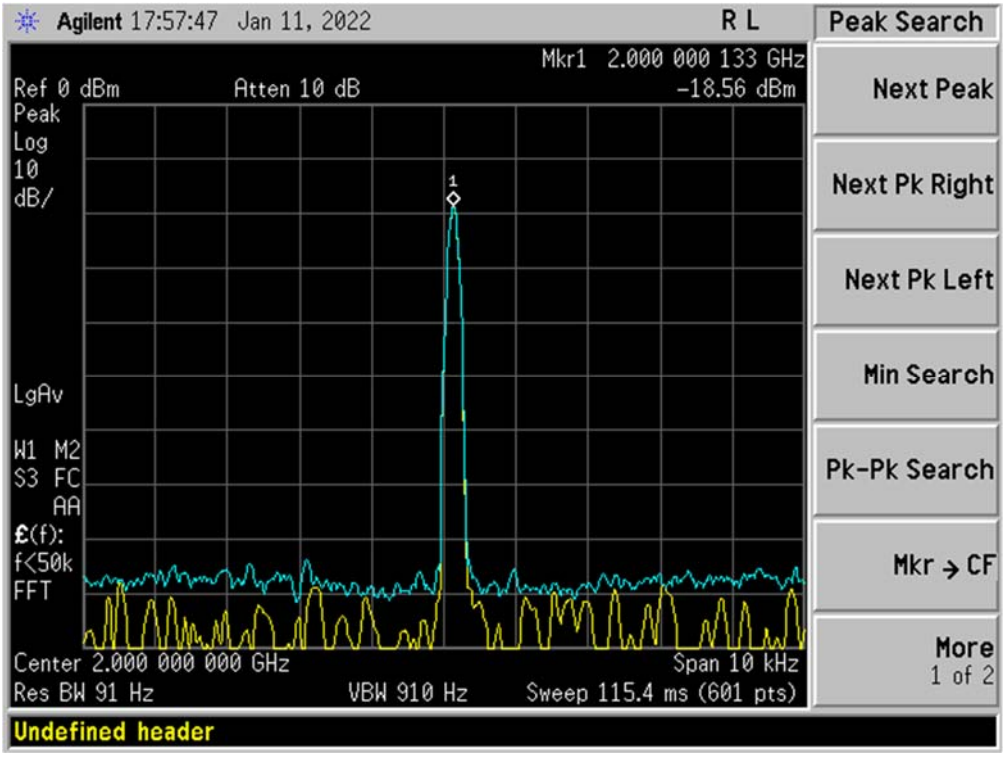

SS10 Shielding Effectiveness
1-18GHz
110
100
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Frequency (GHz)
Noise Floor
MPC
Limit

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



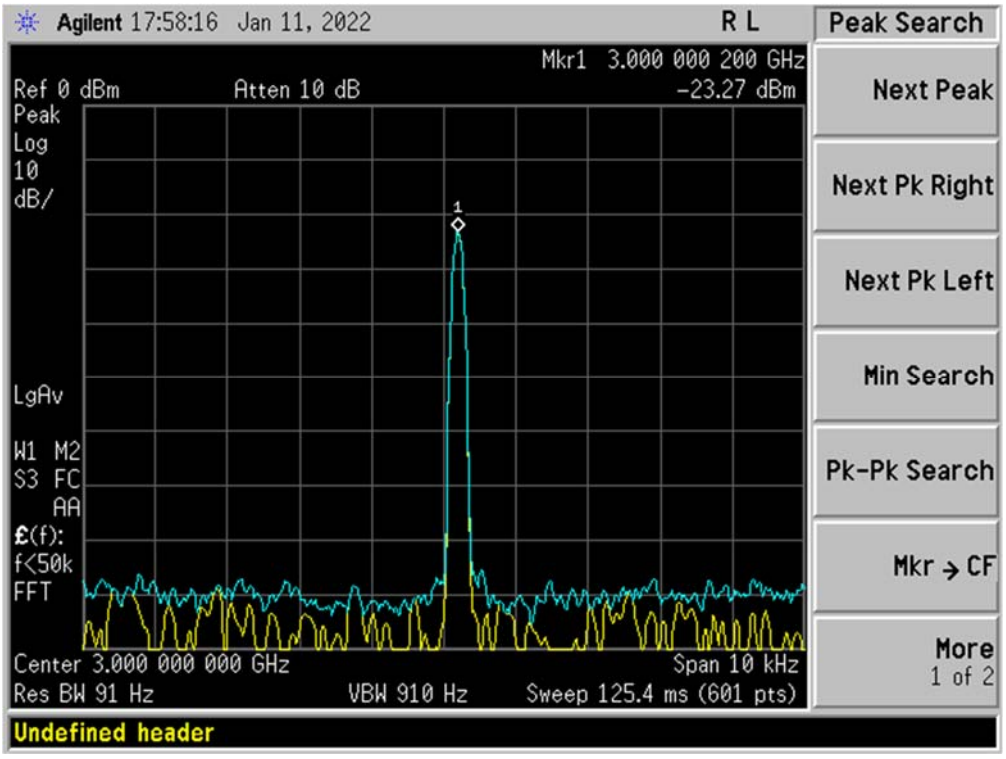
1GHZ REFERENCE



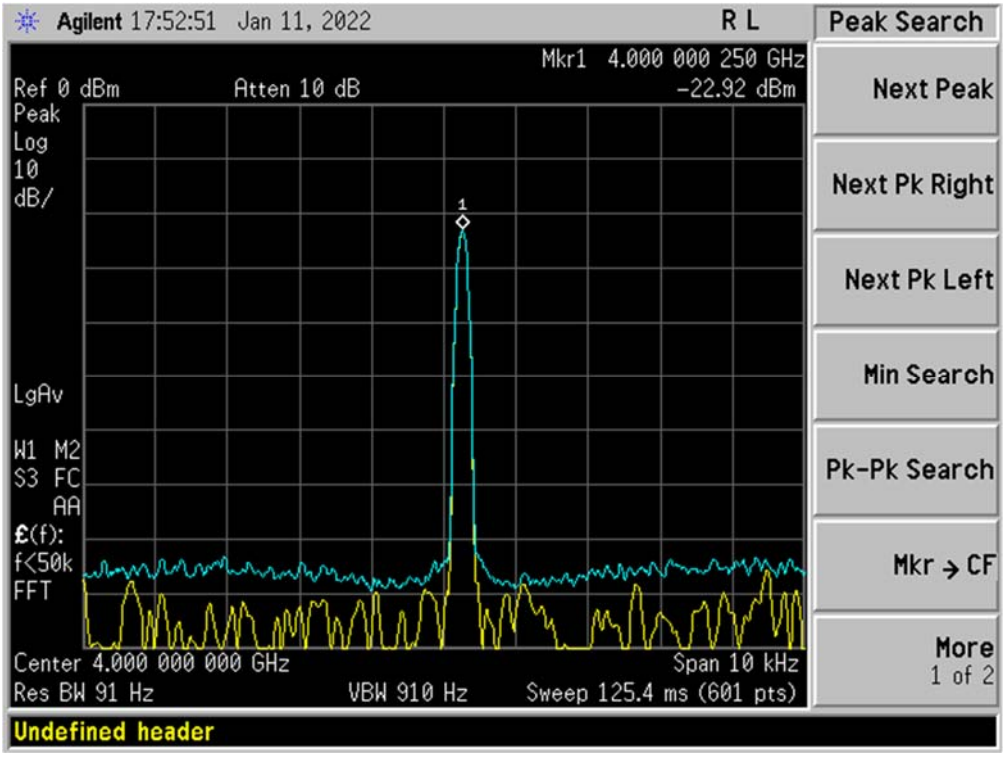
2GHZ REFERENCE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



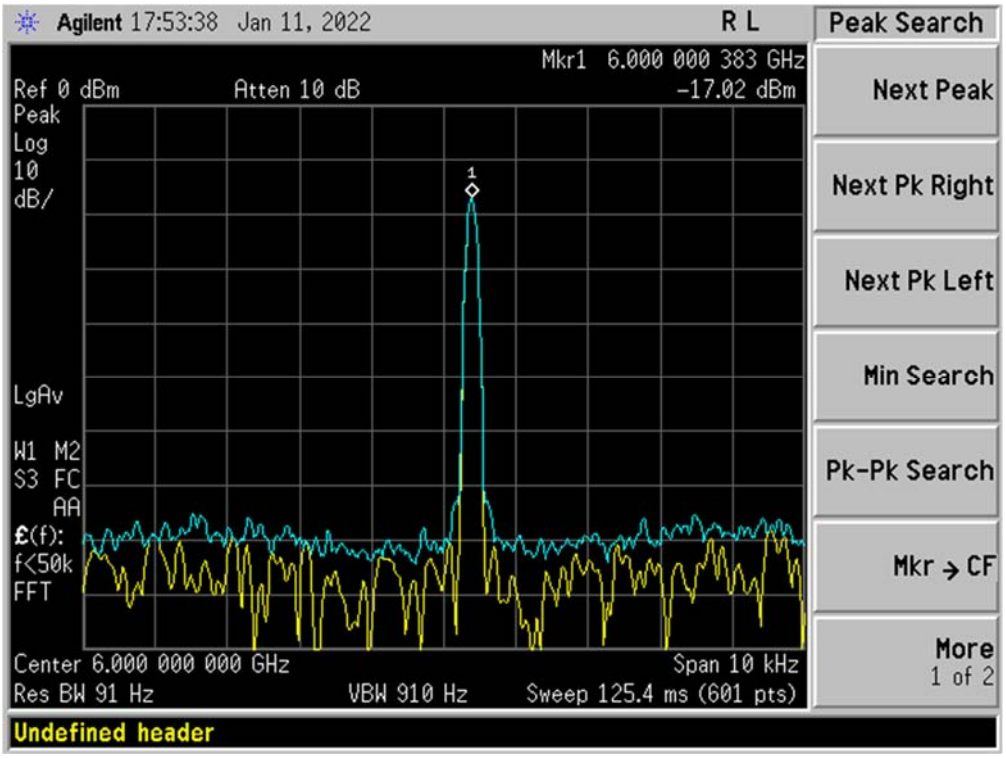
3GHZ REFERENCE



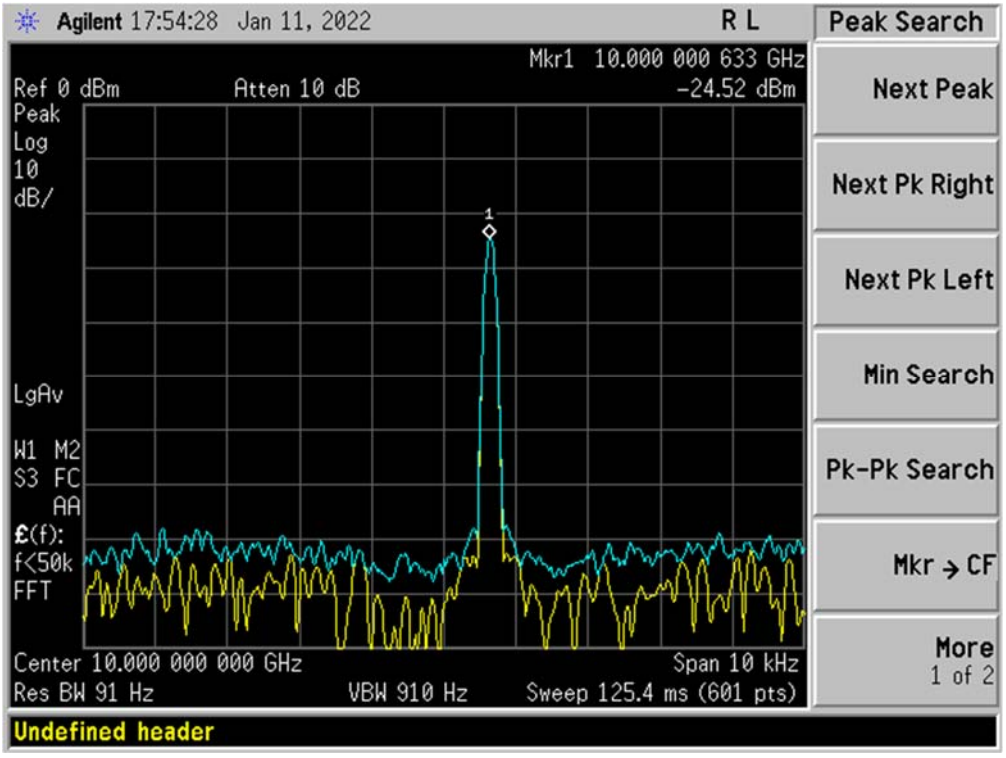
4GHZ REFERENCE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



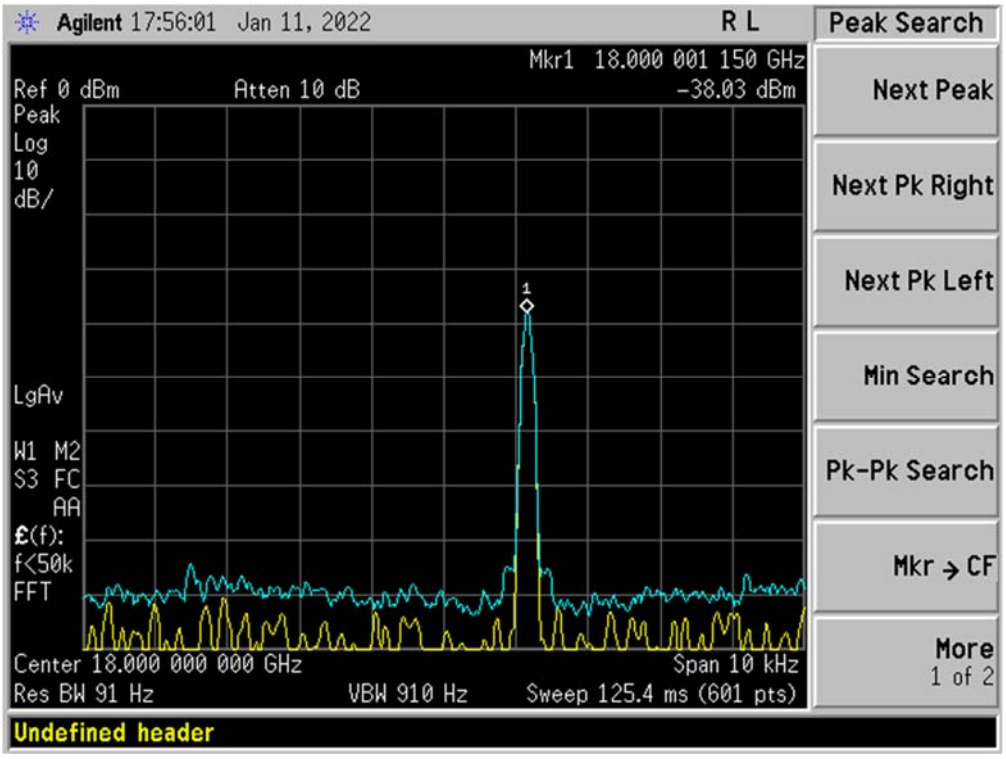
6GHZ REFERENCE



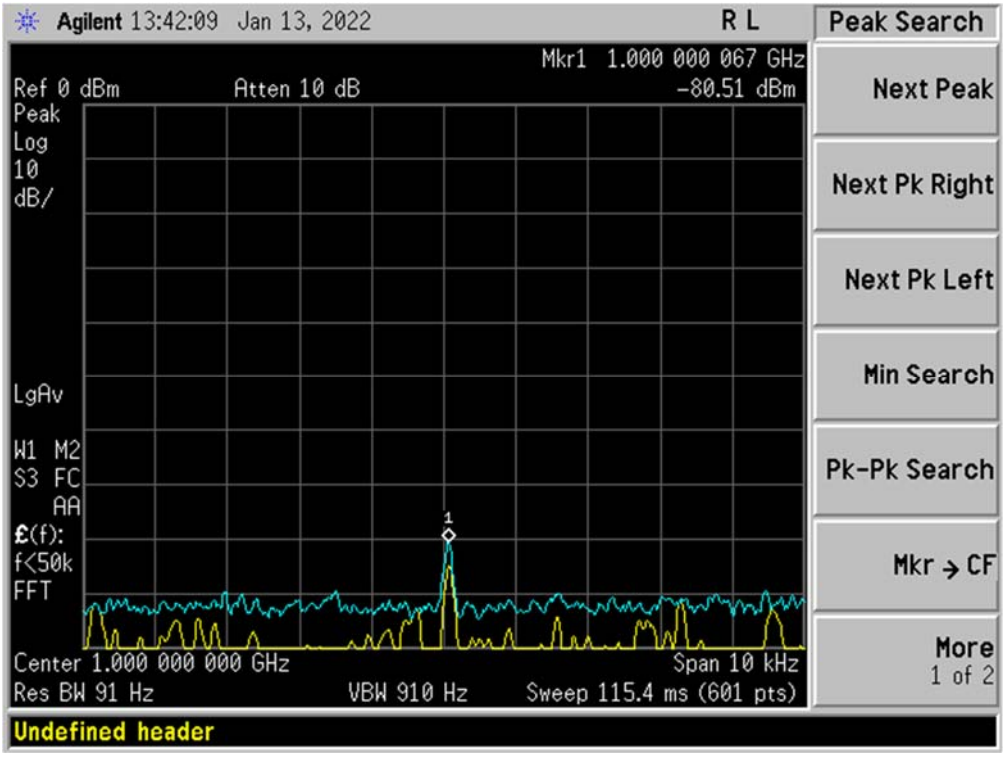
10GHZ REFERENCE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



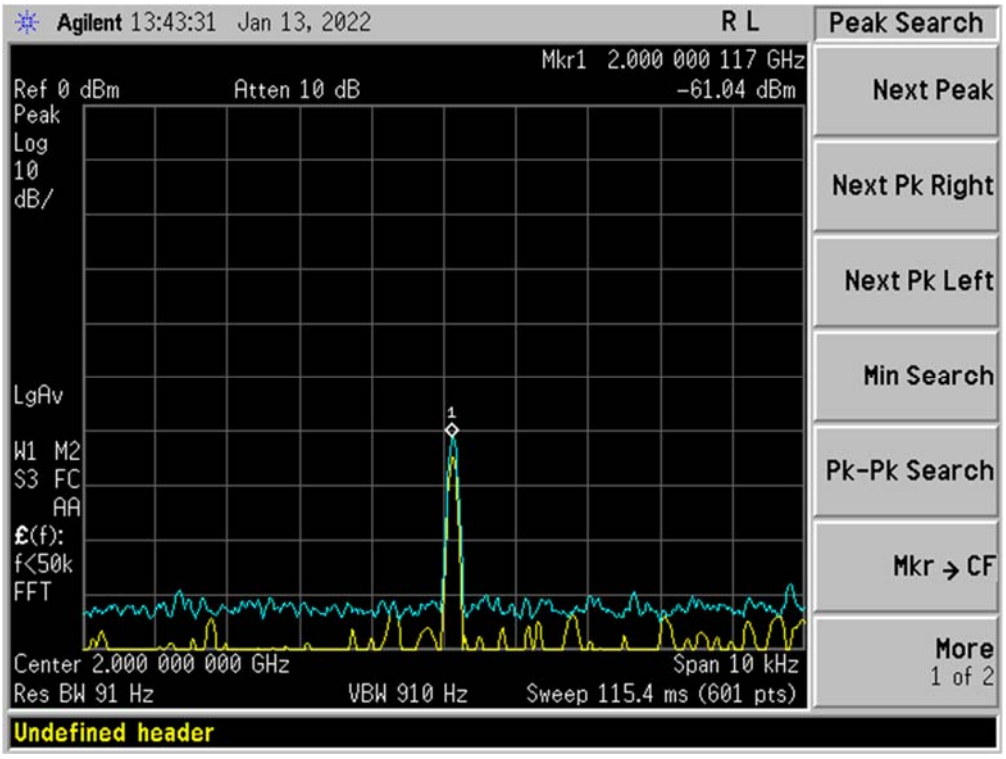
18GHZ REFERENCE



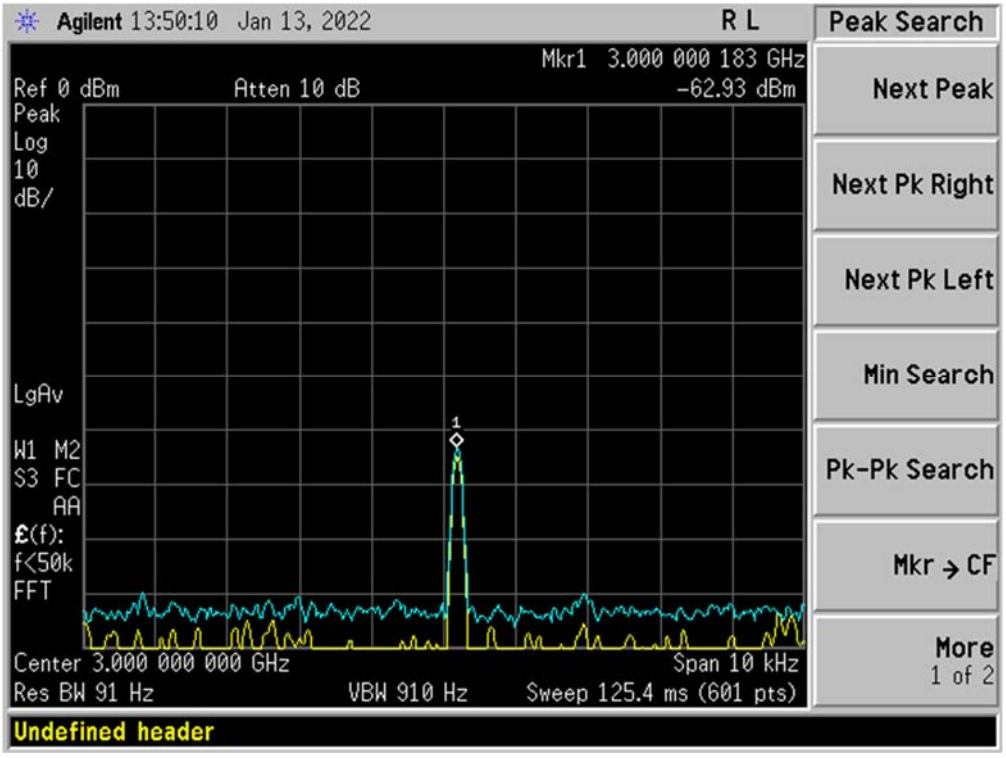
1GHZ NOISE FLOOR

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



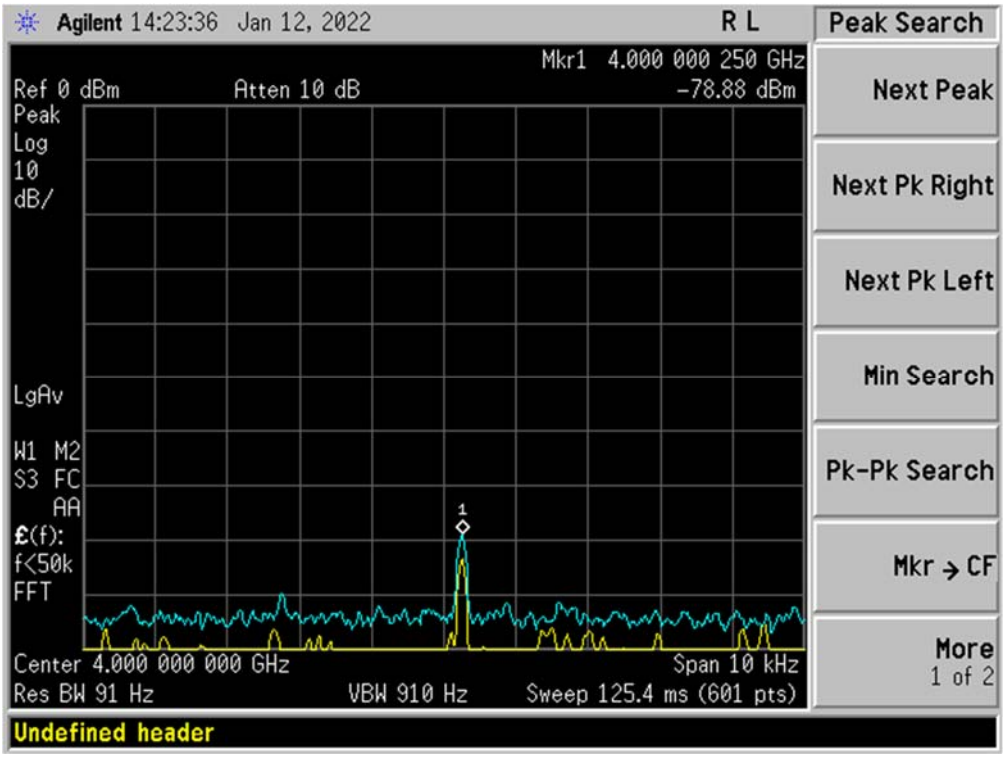
2GHZ NOISE FLOOR



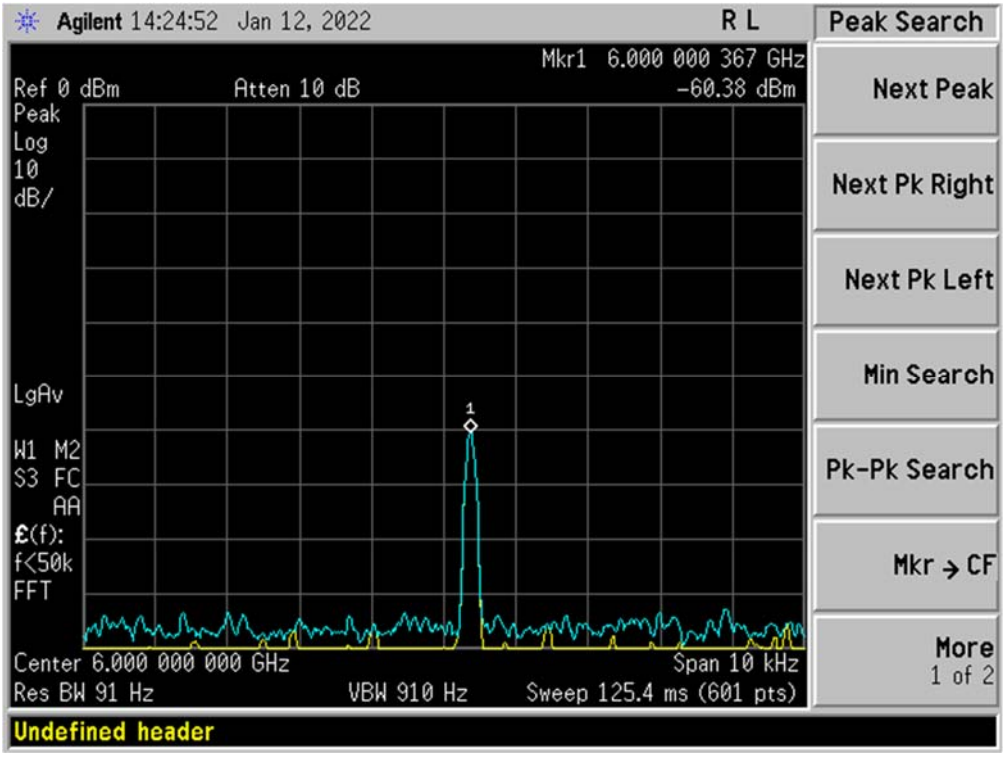
3GHZ NOISE FLOOR

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



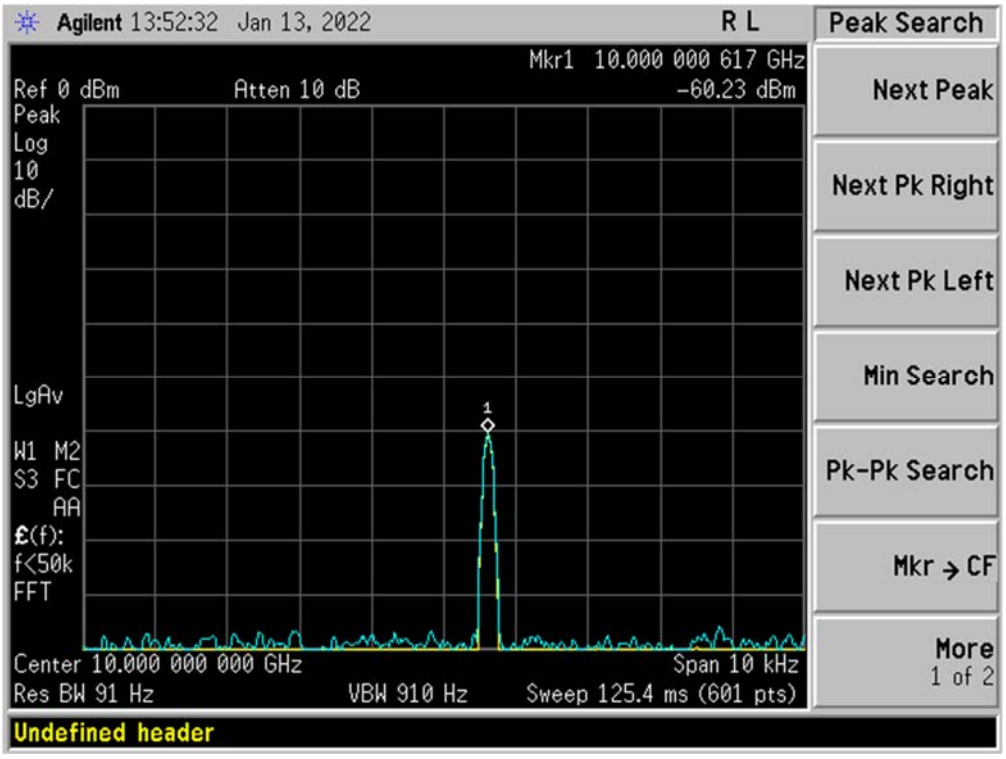
4GHZ NOISE FLOOR



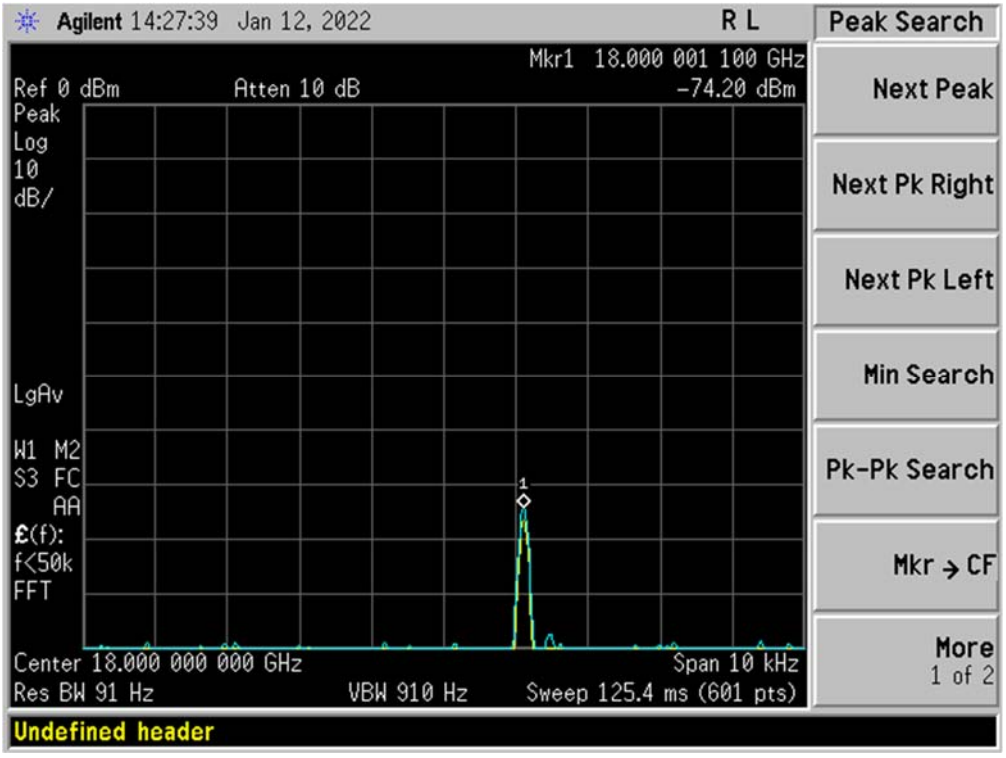
6GHZ NOISE FLOOR

Shielding Effectiveness

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: IEEE-299
Serial #: See Report	Test Engineer: Devin Ratliff



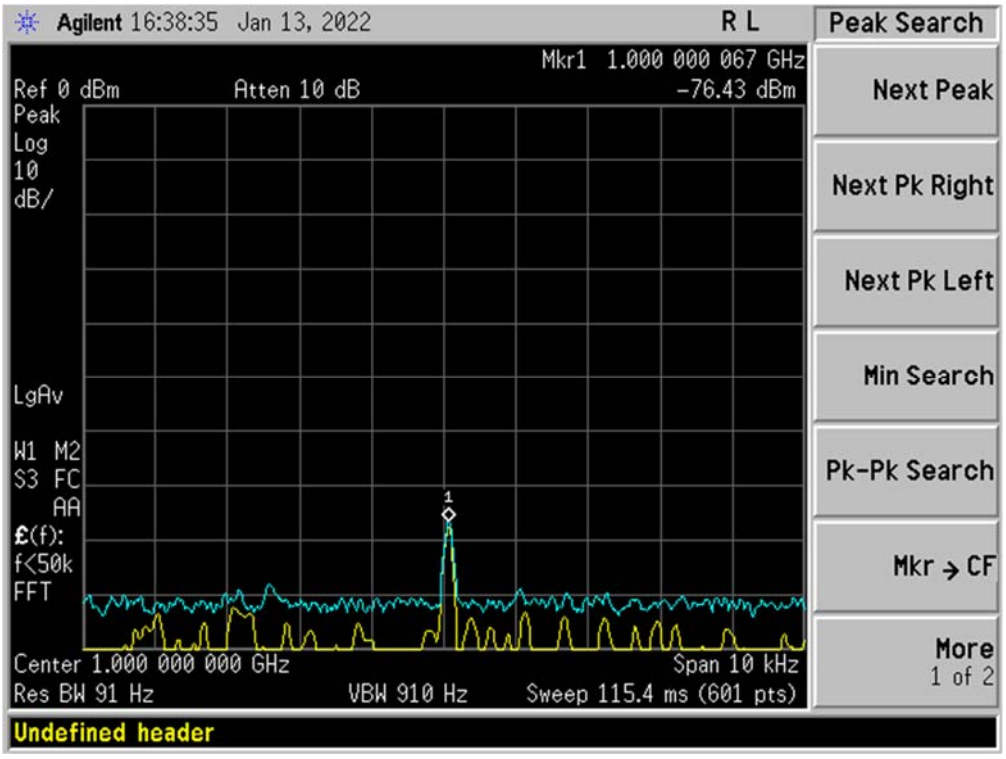
10GHZ NOISE FLOOR



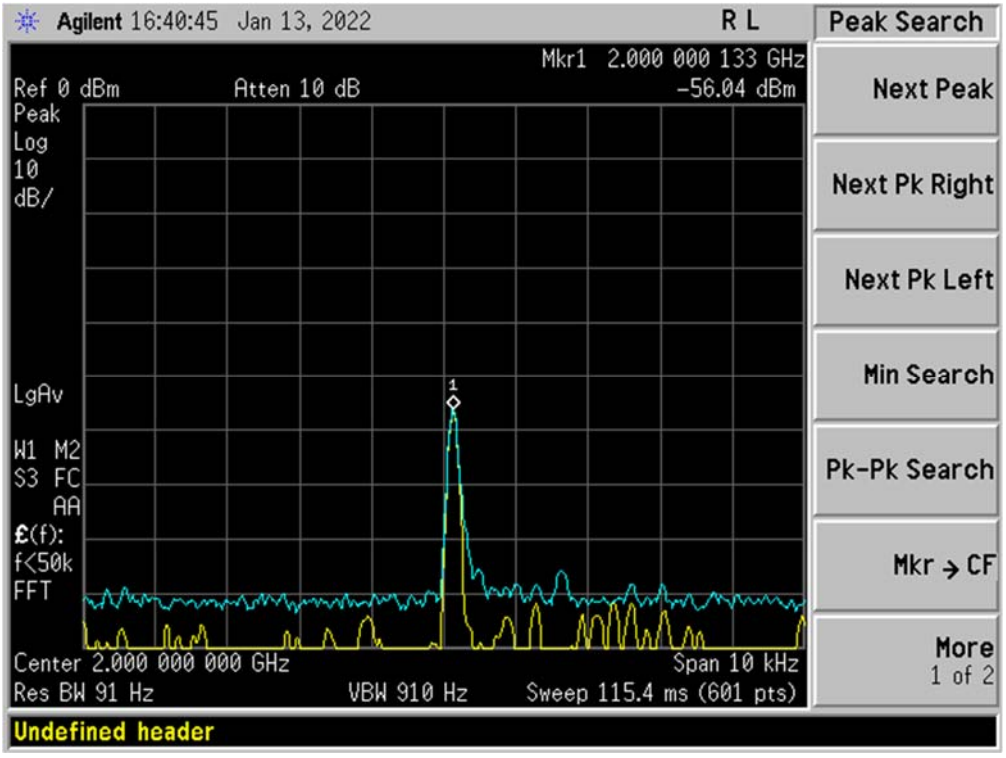
18GHZ NOISE FLOOR

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



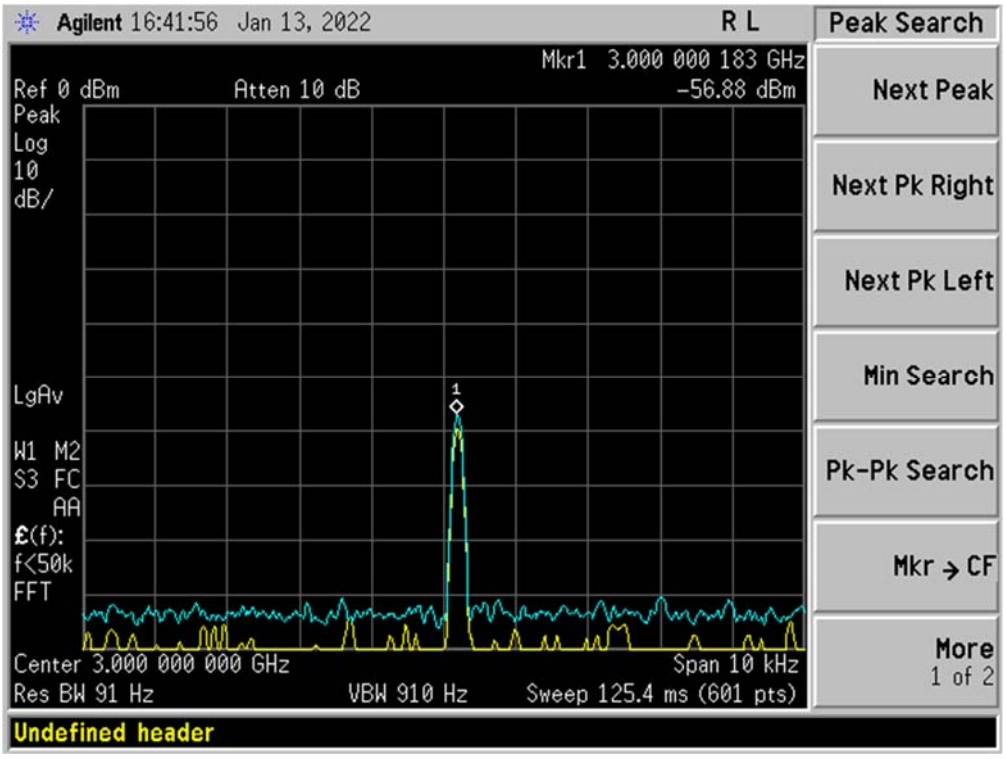
1GHZ SS6 SAMPLE



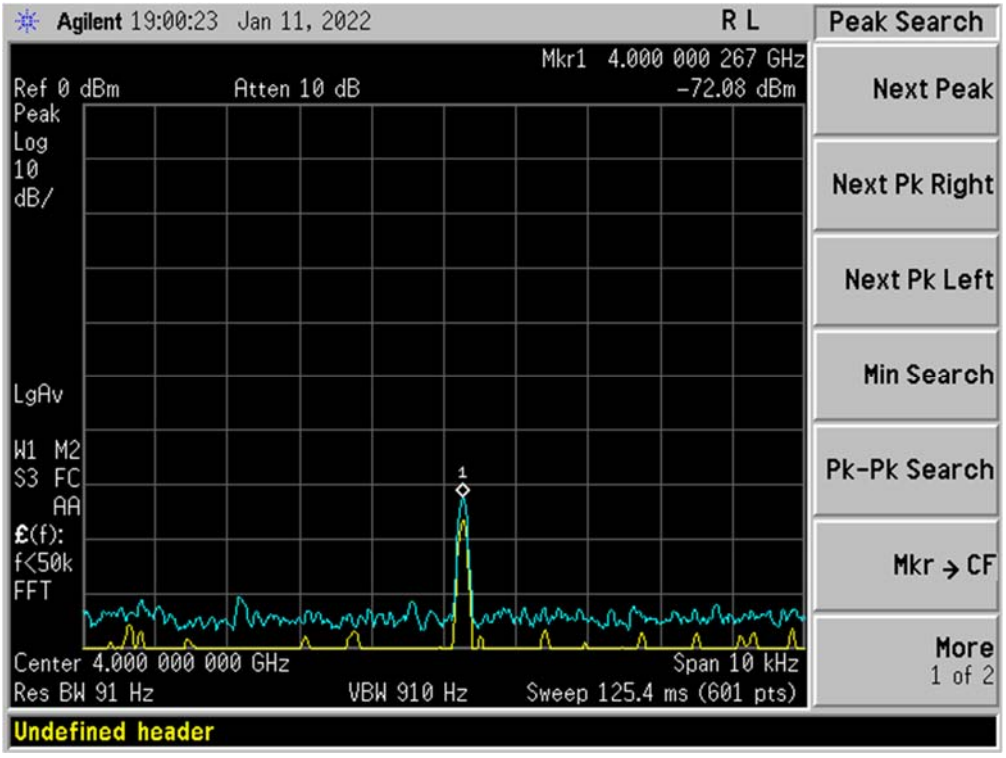
2GHZ SS6 SAMPLE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



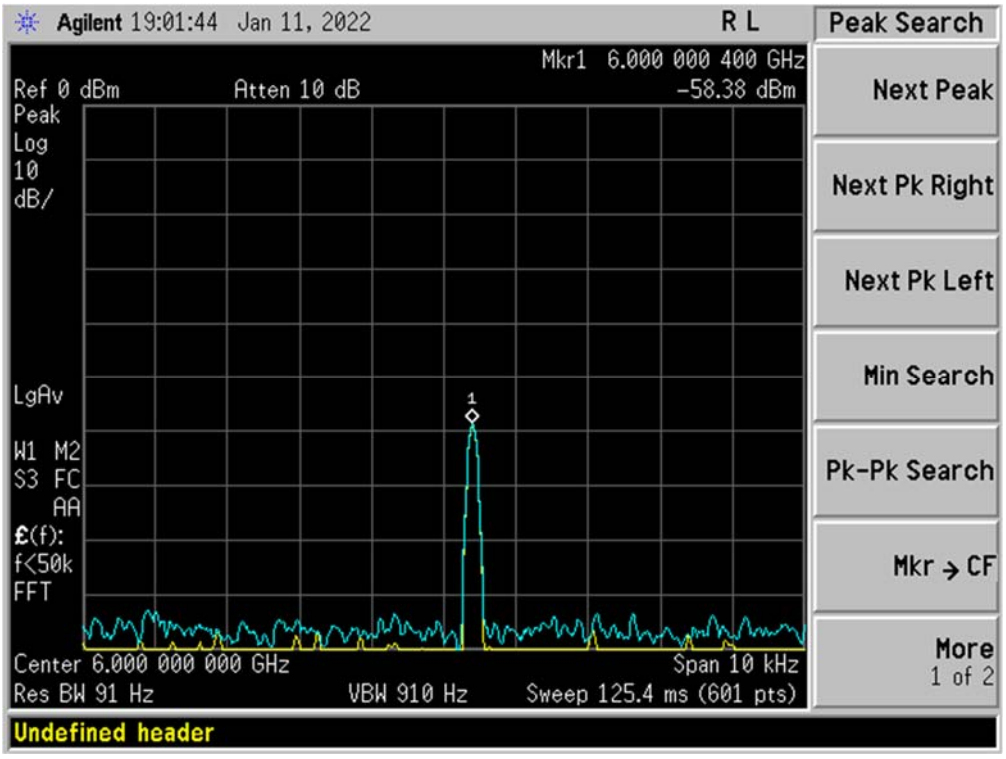
3GHZ SS6 SAMPLE



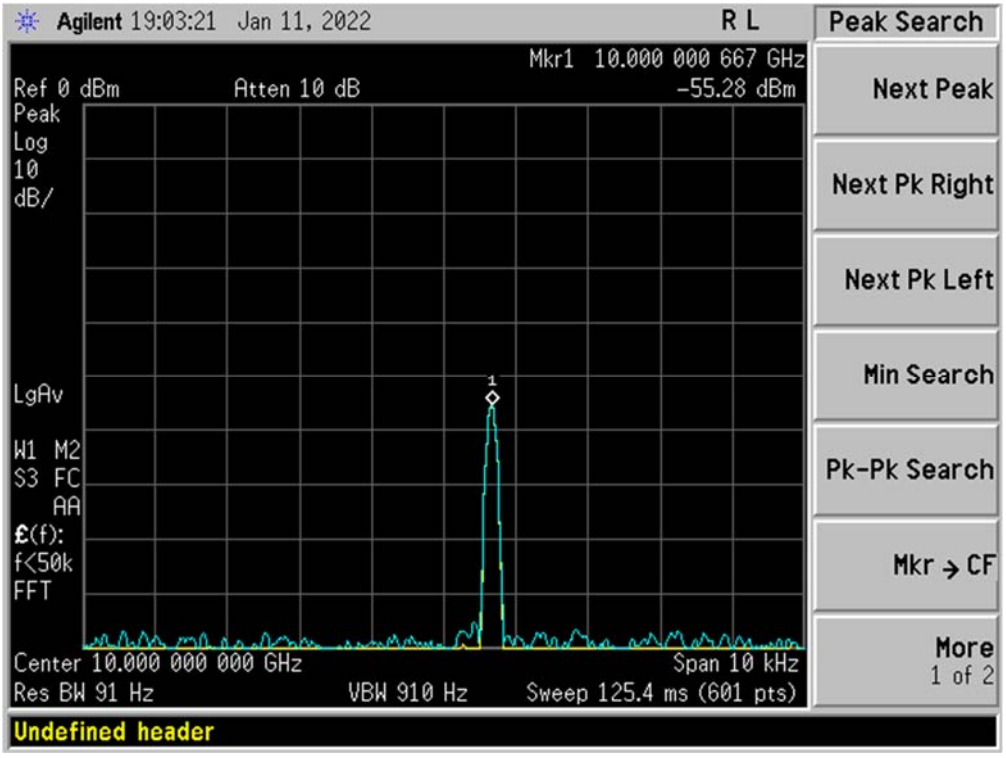
4GHZ SS6 SAMPLE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



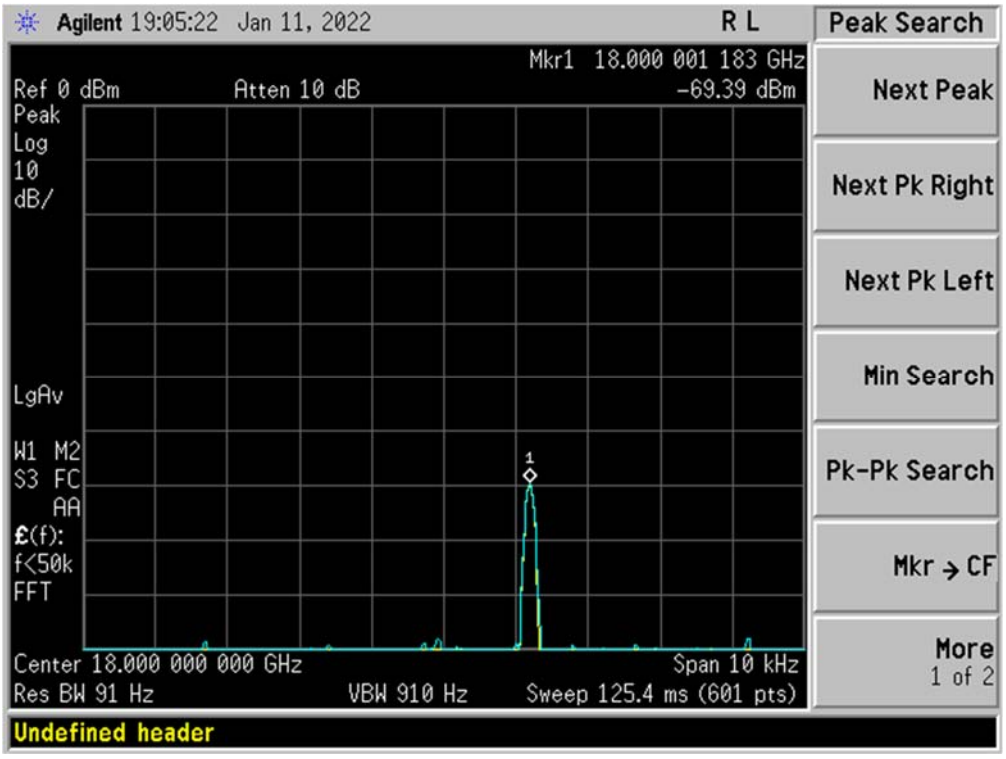
6GHZ SS6 SAMPLE



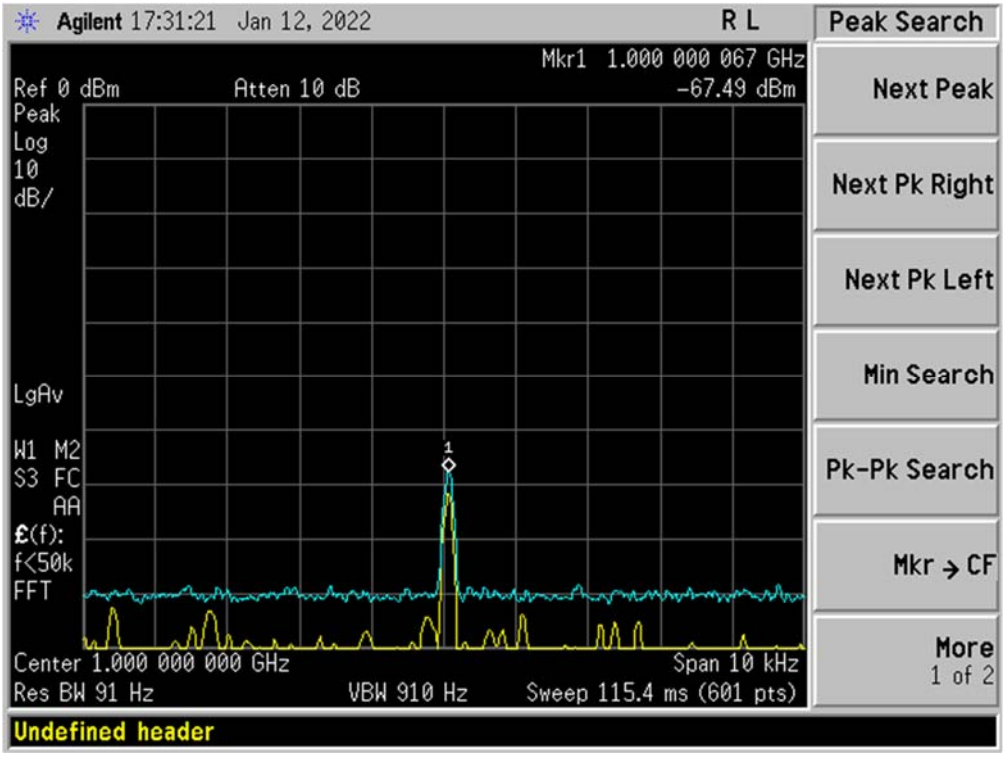
10GHZ SS6 SAMPLE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



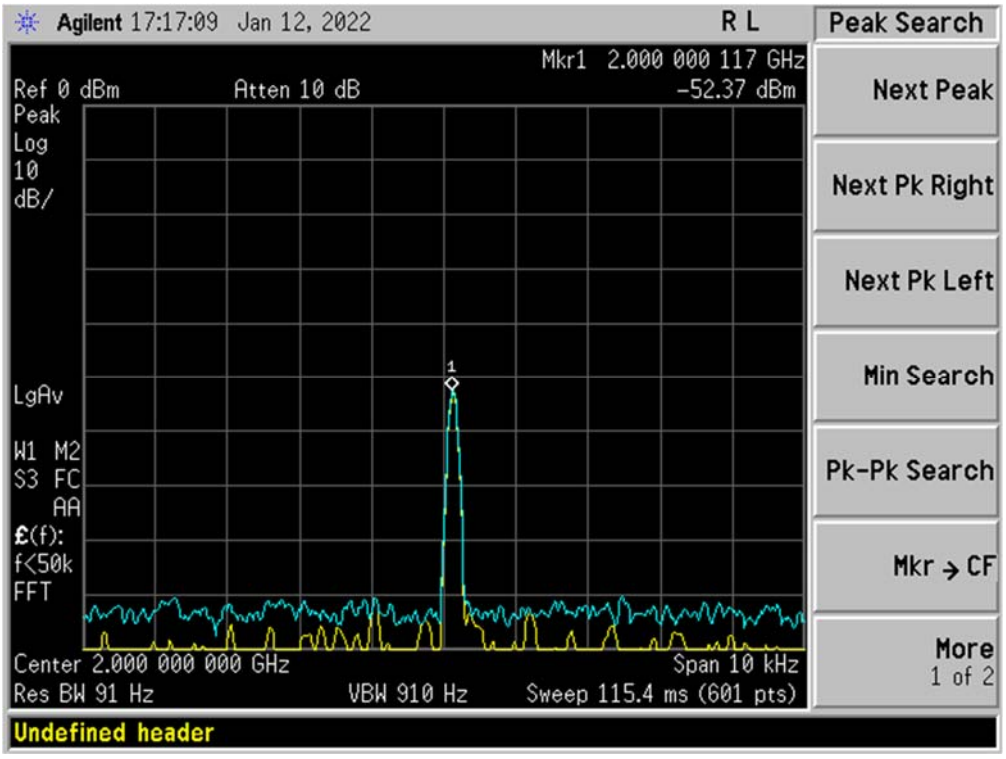
18GHZ SS6 SAMPLE



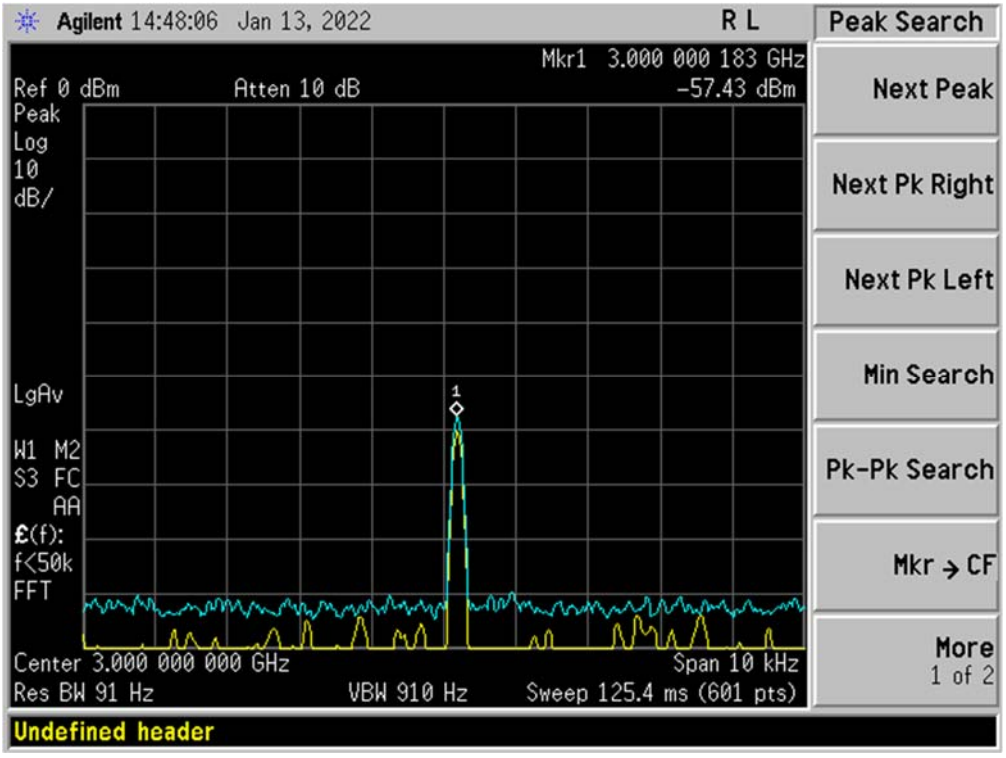
1GHZ SS10 SAMPLE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



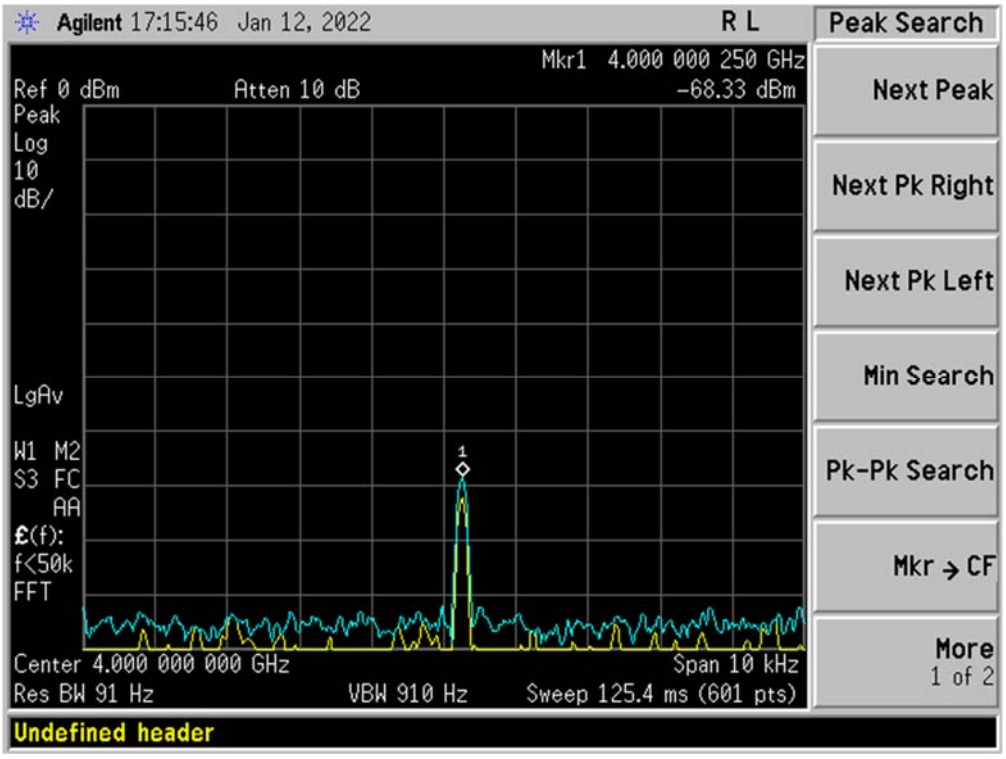
2GHZ SS10 SAMPLE



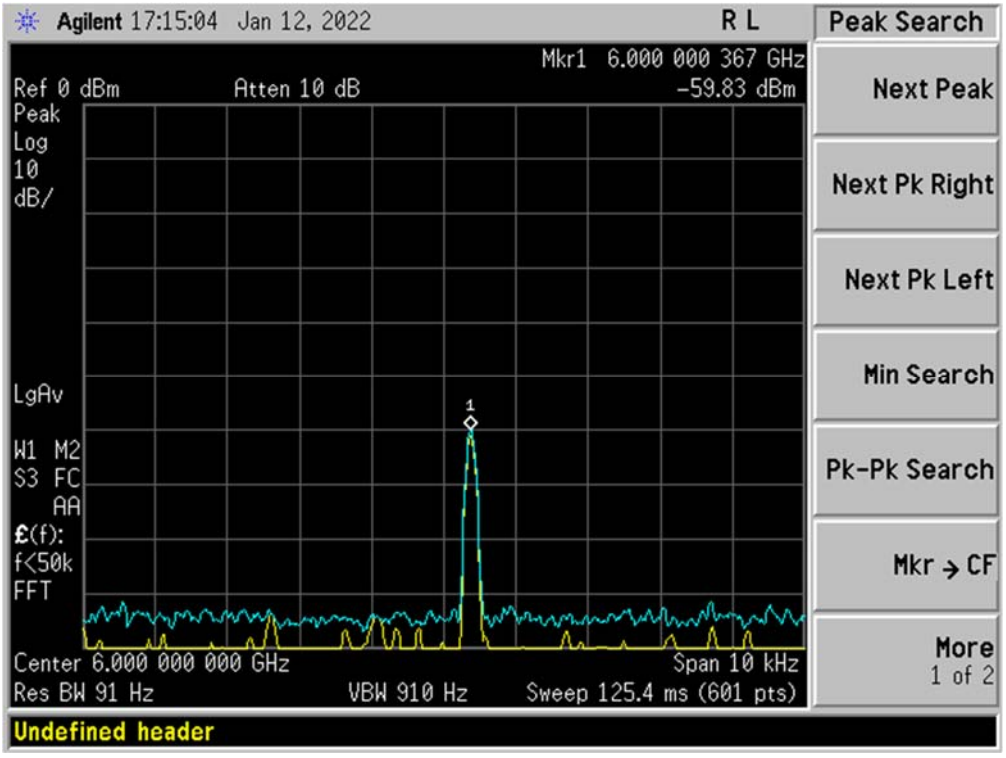
3GHZ SS10 SAMPLE

Shielding Effectiveness

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: IEEE-299
Serial #: See Report	Test Engineer: Devin Ratliff



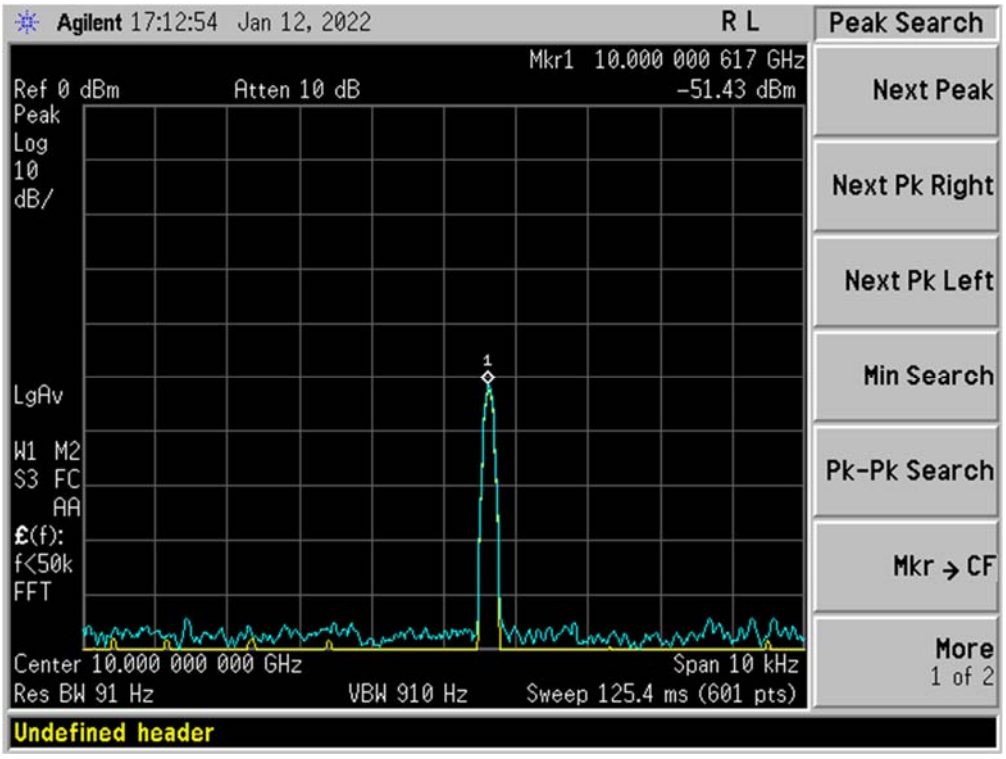
4GHZ SS10 SAMPLE



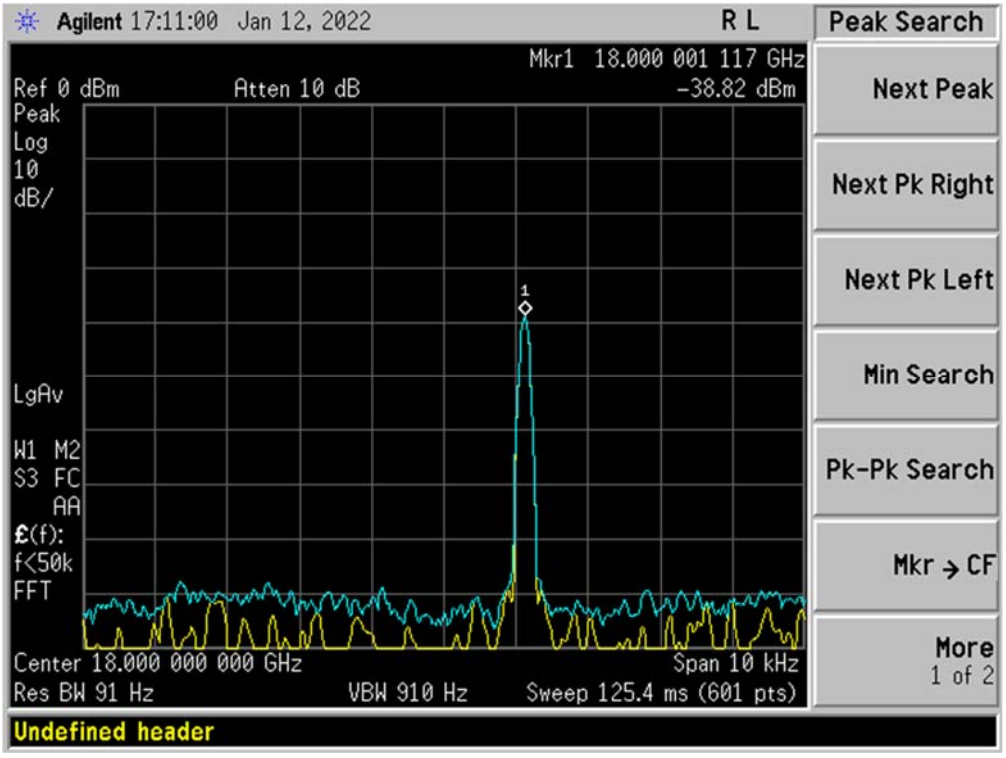
6GHZ SS10 SAMPLE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**



10GHZ SS10 SAMPLE



18GHZ SS10 SAMPLE

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**

Signal Generator

Spectrum Analyzer

Shielding Effectiveness

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: IEEE-299**
Serial #: See Report	**Test Engineer: Devin Ratliff**

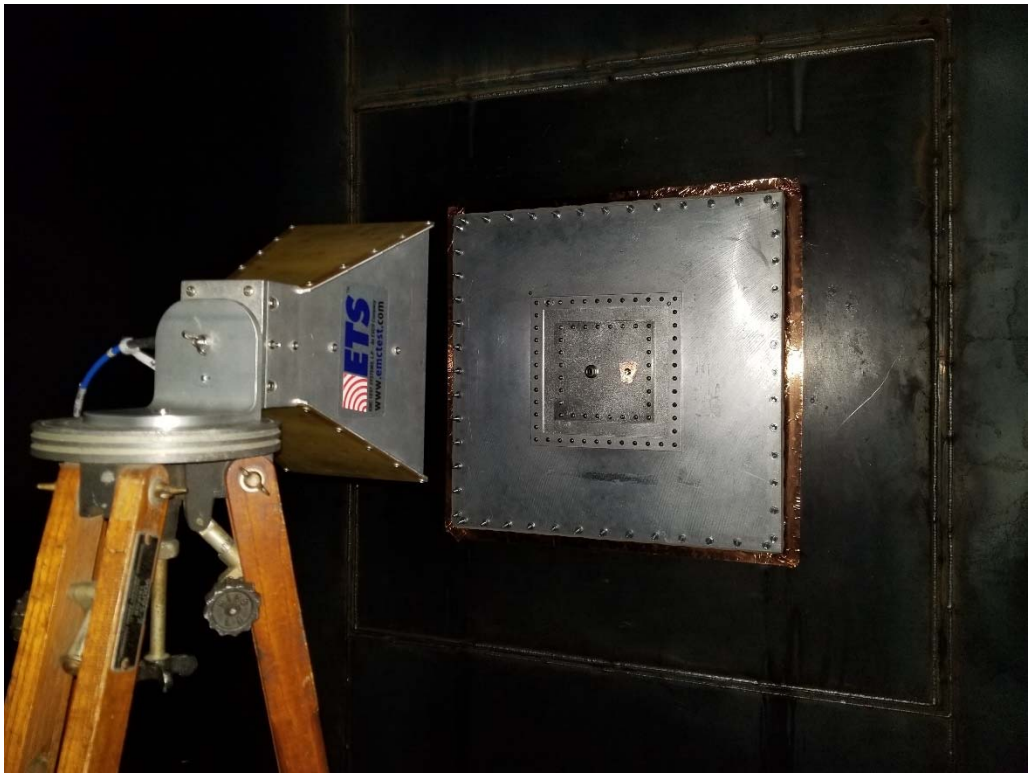
Transmit Antenna and Reference Measurement

Noise Floor Measurement

Shielding Effectiveness

EUT: Connectors	Test Procedure: Shielding Effectiveness
Model / Part #: See Report	Test Specification: IEEE-299
Serial #: See Report	Test Engineer: Devin Ratliff

SS6 Sample Measurement



SS10 Sample Measurement

APPENDIX B

Shielding Effectiveness, Low Frequency

SIZE	CAGE CODE	DRAWING NO.	
A	63242	TR046384	
SCALE: NONE		REV LTR -	SHEET B1

B.1 Shielding Effectiveness,

MIL-DTL-38999M (Modified);

Shielding Effectiveness testing was performed for CONTECH RESEARCH, INC. on Kilo 360 push-pull Electrical Connectors, SERIES III, Shell Size 6 and 10, Class M at the DNB Engineering's La Palma Avenue facility between the dates of January 20th through January 26th, 2022. Testing was performed as required by PO # 16624 and in accordance with MIL-DTL-38999M (Modified) for Series III connectors. The table below provides the test article nomenclature.

Item	Shell Size	Series	Class	Connector	Pass/Fail
1	6	III	M	TESTK804-001-6-7D / TESTK804-003-6-7D	Pass
2	10	III	M	TESTK804-001-10-26D / TESTK804-003-10-26D	Pass

Each of the two sizes was also tested while wrapped in aluminum foil to provide a noise-floor measurement.

The shielding effectiveness requirements are listed in the table below. The requirements are provided in MIL-DTL-38999M, Table X

Frequency (MHz)	Leakage attenuation (dB) minimum				
	Series II	Series III and IV			Series I
	Finishes B, F, N, R, T, and Z	Classes H, K, and Y	Classes F, G, L, N, M, R, and S	Classes J, T, W, X, and Z	Finishes B, F, N, R, T and Z
100	65	80	75	90	90
200	60	75	70	88	88
300	55	73	65	88	88
400	55	71	63	87	87
800	45	66	58	85	85
1000	45	65	55	85	85
1500	---	59	---	69	69
2000	---	55	---	65	65
3000	---	52	69	61	61
4000	---	50	---	58	58
5000	---	---	66	---	---
10000	---	45	65	50	50

Testing is also performed at 600 MHz for completeness because it is a requirement for some connector standards. All measured data was plotted and those plots are included in Appendix B.

TEST LOG

Customer: Contech
Customer Rep: NA
EUT: Connectors
Test Procedure: Shielding Effectiveness
Model / Part #: See Report
Test Specification: MIL-DTL-38999M
Serial #: See Report
Test Engineer: Devin Ratliff

DATE	TIME	DESCRIPTION
1/20/22	14:00	Setup Tri-Axial fixture for shielding effectiveness testing. 100MHz – 1GHz
		Run Pre-Amp calibration
		Run Reference measurement
		Prepare SS10 Sample for testing
		SS10 Sample VSWR measurement, Pass
		SS10 Sample TDR measurement, Pass
1/20/22	17:00	End of day
1/21/22	8:00	Start of day
		SS10 Sample Shielding measurement, Pass
		SS10 Noise Floor Shielding measurement, Pass
		Adjusting SS10 adapters
		Prepare SS6 Sample for testing
1/21/22	17:00	End of day
1/24/22	8:00	Start of day
		SS6 Sample VSWR measurement, Pass
		SS6 Sample TDR measurement, Pass
1/24/22	17:00	End of day
1/25/22	8:00	Start of day
		SS6 Noise Floor Shielding measurement, Pass
		SS6 Sample Shielding measurement, Pass
		SS10 Noise Floor Shielding measurement, Pass
1/25/22	17:00	End of day
1/26/22	8:00	Start of day

FORM 0001

TEST LOG

Customer: Contech
Customer Rep: NA
EUT: Connectors
Test Procedure: Shielding Effectiveness
Model / Part #: See Report
Test Specification: MIL-DTL-38999M
Serial #: See Report
Test Engineer: Devin Ratliff

DATE	TIME	DESCRIPTION
		SS10 Sample Shielding measurement, Pass
1/26/22	14:00	Shielding effectiveness testing, 100MHz – 1GHz, completed.

TEST EQUIPMENT LOG

Customer: Contech **Customer Rep:** NA

EUT: Connectors **Test Procedure:** MIL-DTL-38999M

Model / Part #: See report **Test Specification:** MIL-DTL-38999M

Serial #: See report **Test Engineer:** Devin Ratliff

DESCRIPTION	MANUFACTURER	MODEL # / SERIAL #	CAL. DUE DATE
Tri-Axial Fixture	DNB	TATF100A / 13863	CPT
Spectrum Analyzer	Agilent	E4402B / MY45103162	1/15/23
Signal Generator	IFN	2023B / 202308/867	NCR
Pre Amplifier	DNB	ZKL-1R5+ / 13964	4/1/22
Attenuator, 3 dB	Midwest Microwave	MOD 219	CPT
Attenuator, 3 dB	Mini-Circuits	NAT-3	CPT
HF Cable	Gore	G3N01N010 / 89P50592	CPT
HF Cable	Gore	G3N01N010 / P20533	CPT
VSWR / TDR Bridge	Rig Expert	AA-1400 / 13858	2/1/23

FORM 0005

Reference Calibration

Frequency (MHz)	VSWR	Signal Generator Reference (dBm)	Measured Reference (dBm)
100	1.02	5.0	-0.274
200	1.04	5.0	-0.375
300	1.07	5.0	-0.339
400	1.05	5.0	-0.417
600	1.17	5.0	-0.632
800	1.28	5.0	-0.861
1000	1.18	5.0	-0.931

COMBINED PREAMP, SEMI-RIGID CABLE AND COUPLER CALIBRATION

M/N: ZKL-1R5+
S/N: 13964
Cal due: 4/1/2022

Frequency (MHz)	Ref (dBm) @ SG	Ref (dBm) @ SA	Measured (dBm)	Gain (dB)
100	-50	-54.93	-14.71	40.22
200	-50	-55.28	-15.07	40.21
300	-50	-55.25	-15.27	39.98
400	-50	-55.26	-15.33	39.93
600	-50	-55.20	-15.7	39.50
800	-50	-55.40	-16.2	39.20
1000	-50	-55.65	-16.78	38.87

SS6 (Noise Floor)

Frequency (MHz)	VSWR	Signal Generator Reference (dBm)	Measured Reference (dBm)	Measured (dBm)	Gain Factor	Corrected Measurement (dB)	Requirement (dB)	Delta (dB)
100	n/a	5.0	-0.274	-74.95	40.22	114.90	90	24.90
200	n/a	5.0	-0.375	-75.81	40.21	115.65	88	27.65
300	n/a	5.0	-0.339	-75.63	39.98	115.27	88	27.27
400	n/a	5.0	-0.417	-75.28	39.93	114.79	87	27.79
600	n/a	5.0	-0.632	-77.14	39.50	116.01	86	30.01
800	n/a	5.0	-0.861	-75.84	39.20	114.18	85	29.18
1000	n/a	5.0	-0.931	-78.25	38.87	116.19	85	31.19

SS6 (Mated-pair connector)

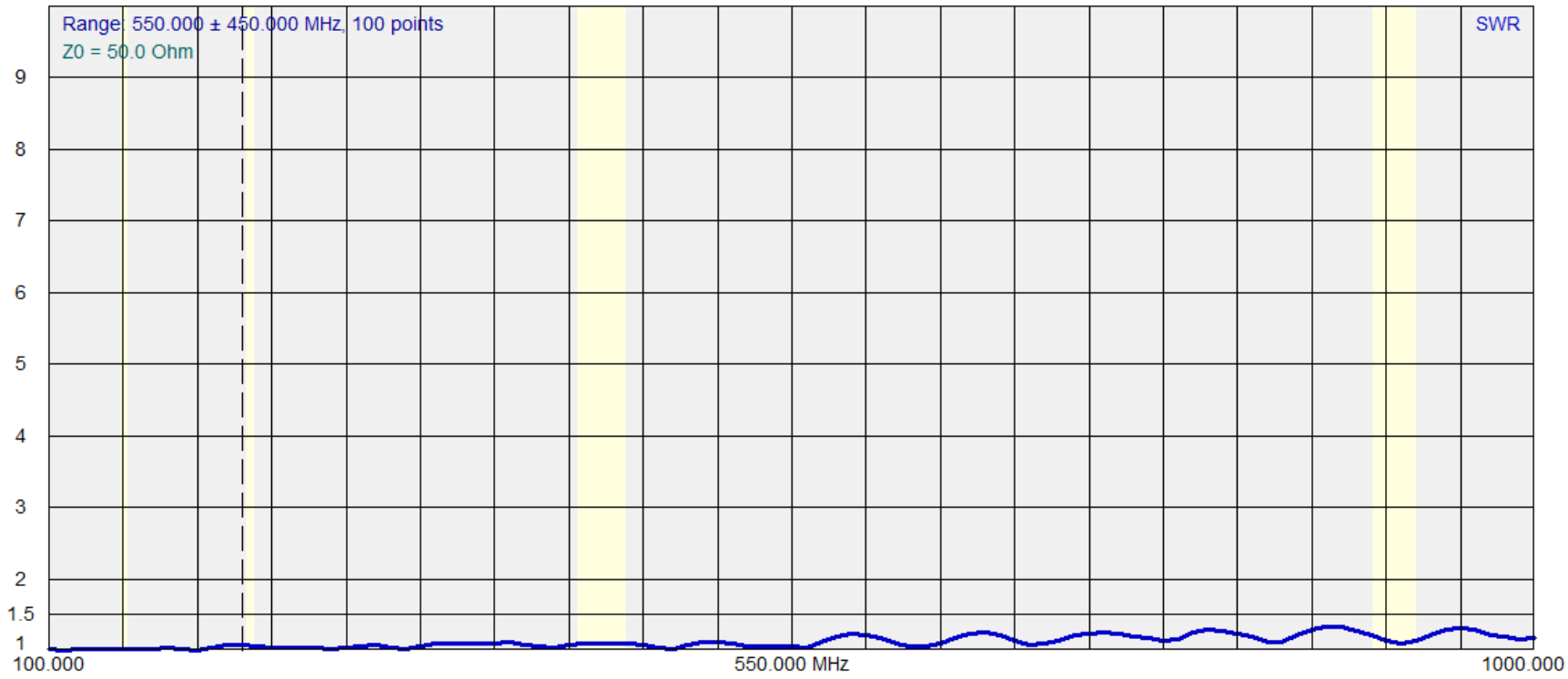
Frequency (MHz)	VSWR	Signal Generator Reference (dBm)	Measured Reference (dBm)	Measured (dBm)	Gain Factor	Corrected Measurement (dB)	Requirement (dB)	Delta (dB)
100	1.03	5.0	-0.274	-53.56	40.22	93.51	90	3.51
200	1.04	5.0	-0.375	-52.84	40.21	92.68	88	4.68
300	1.04	5.0	-0.339	-52.33	39.98	91.97	88	3.97
400	1.10	5.0	-0.417	-51.12	39.93	90.63	87	3.63
600	1.12	5.0	-0.632	-54.06	39.50	92.93	86	6.93
800	1.02	5.0	-0.861	-51.49	39.20	89.83	85	4.83
1000	1.49	5.0	-0.931	-54.81	38.87	92.75	85	7.75

SS10 (Noise Floor)

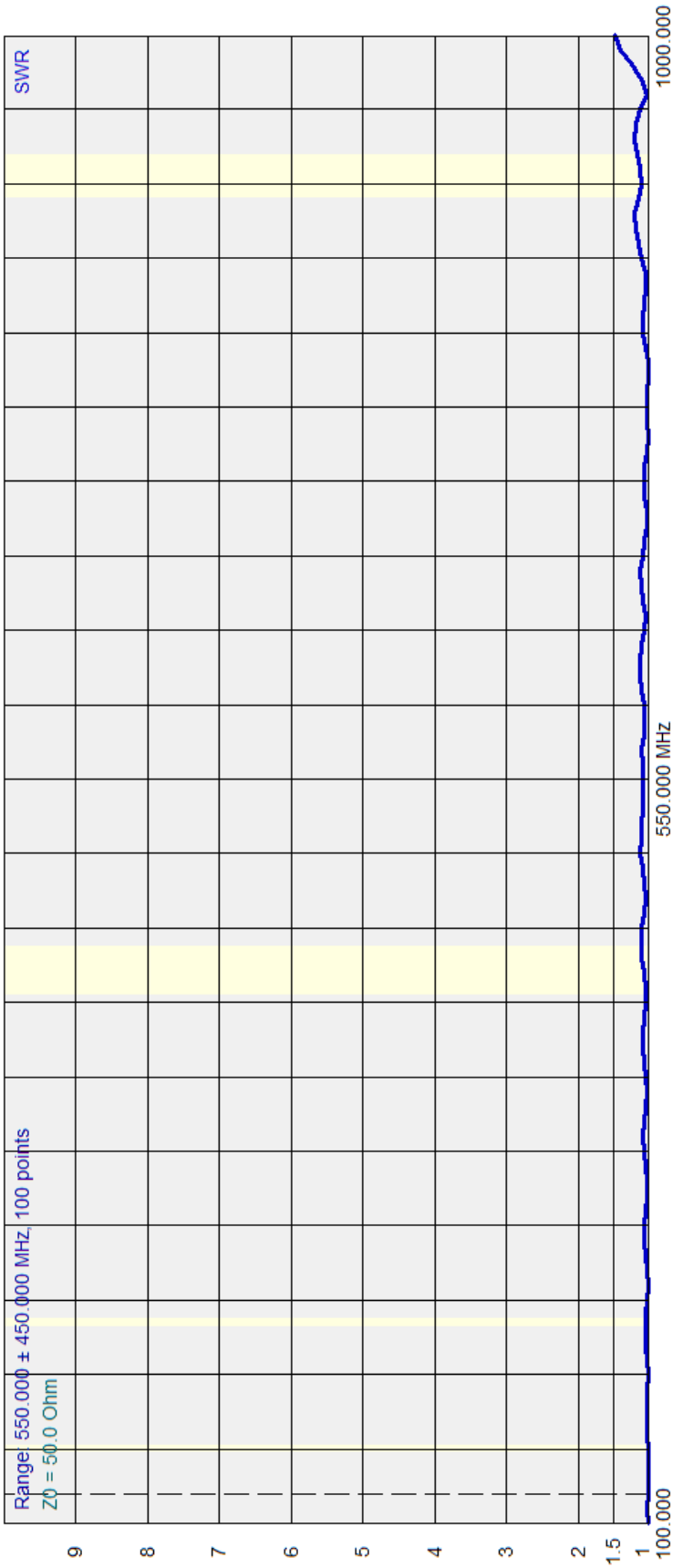
Frequency (MHz)	VSWR	Signal Generator Reference (dBm)	Measured Reference (dBm)	Measured (dBm)	Gain Factor	Corrected Measurement (dB)	Requirement (dB)	Delta (dB)
100	n/a	5.0	-0.274	-74.12	40.22	114.07	90	24.07
200	n/a	5.0	-0.375	-75.19	40.21	115.03	88	27.03
300	n/a	5.0	-0.339	-76.29	39.98	115.93	88	27.93
400	n/a	5.0	-0.417	-76.68	39.93	116.19	87	29.19
600	n/a	5.0	-0.632	-79.30	39.50	118.17	86	32.17
800	n/a	5.0	-0.861	-78.87	39.20	117.21	85	32.21
1000	n/a	5.0	-0.931	-80.72	38.87	118.66	85	33.66

SS10 (Mated-pair connector)

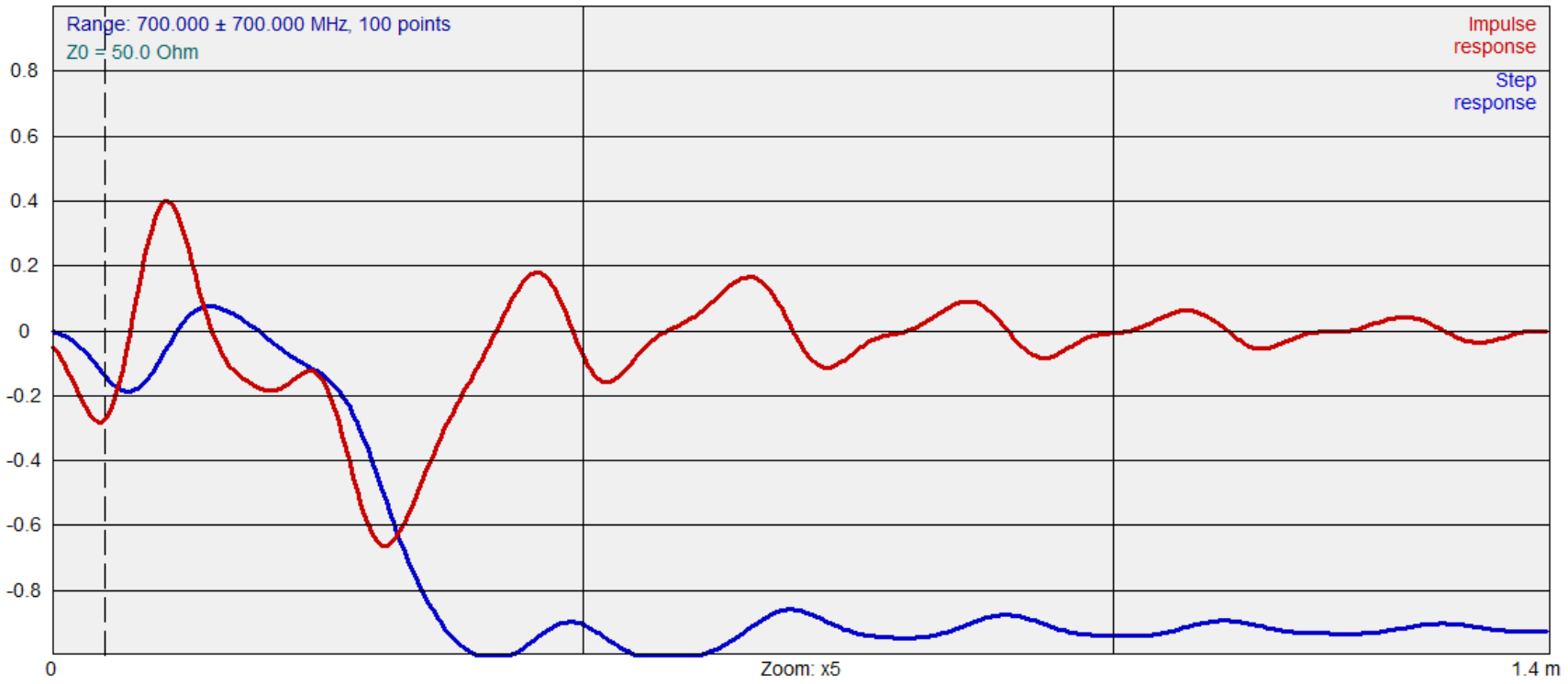
Frequency (MHz)	VSWR	Signal Generator Reference (dBm)	Measured Reference (dBm)	Measured (dBm)	Gain Factor	Corrected Measurement (dB)	Requirement (dB)	Delta (dB)
100	1.03	5.0	-0.274	-42.76	40.22	82.71	90	-7.29
200	1.06	5.0	-0.375	-38.29	40.21	78.13	88	-9.88
300	1.11	5.0	-0.339	-36.2	39.98	75.84	88	-12.16
400	1.06	5.0	-0.417	-33.61	39.93	73.12	87	-13.88
600	1.07	5.0	-0.632	-35.68	39.50	74.55	86	-11.45
800	1.19	5.0	-0.861	-34.3	39.20	72.64	85	-12.36
1000	1.40	5.0	-0.931	-33.7	38.87	71.64	85	-13.36



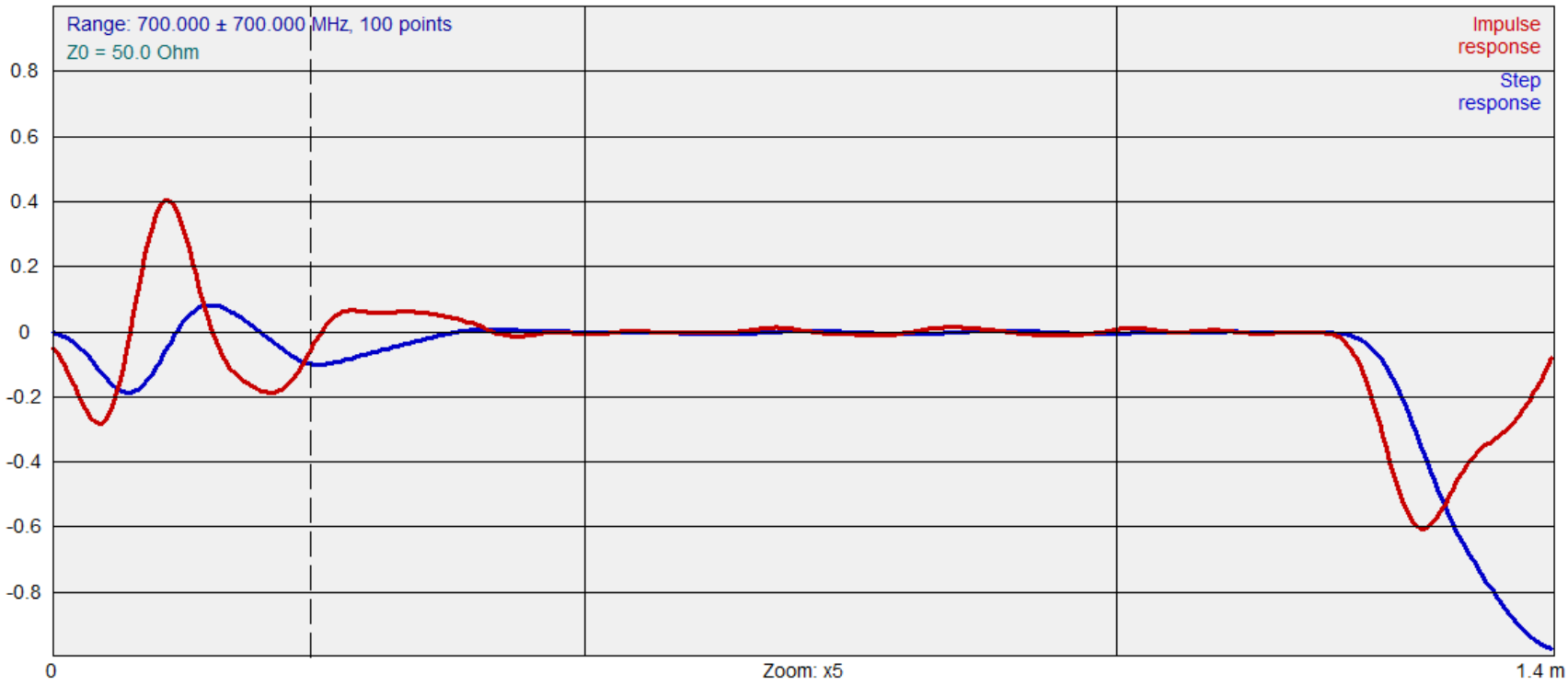
VSWR Calibration Reference



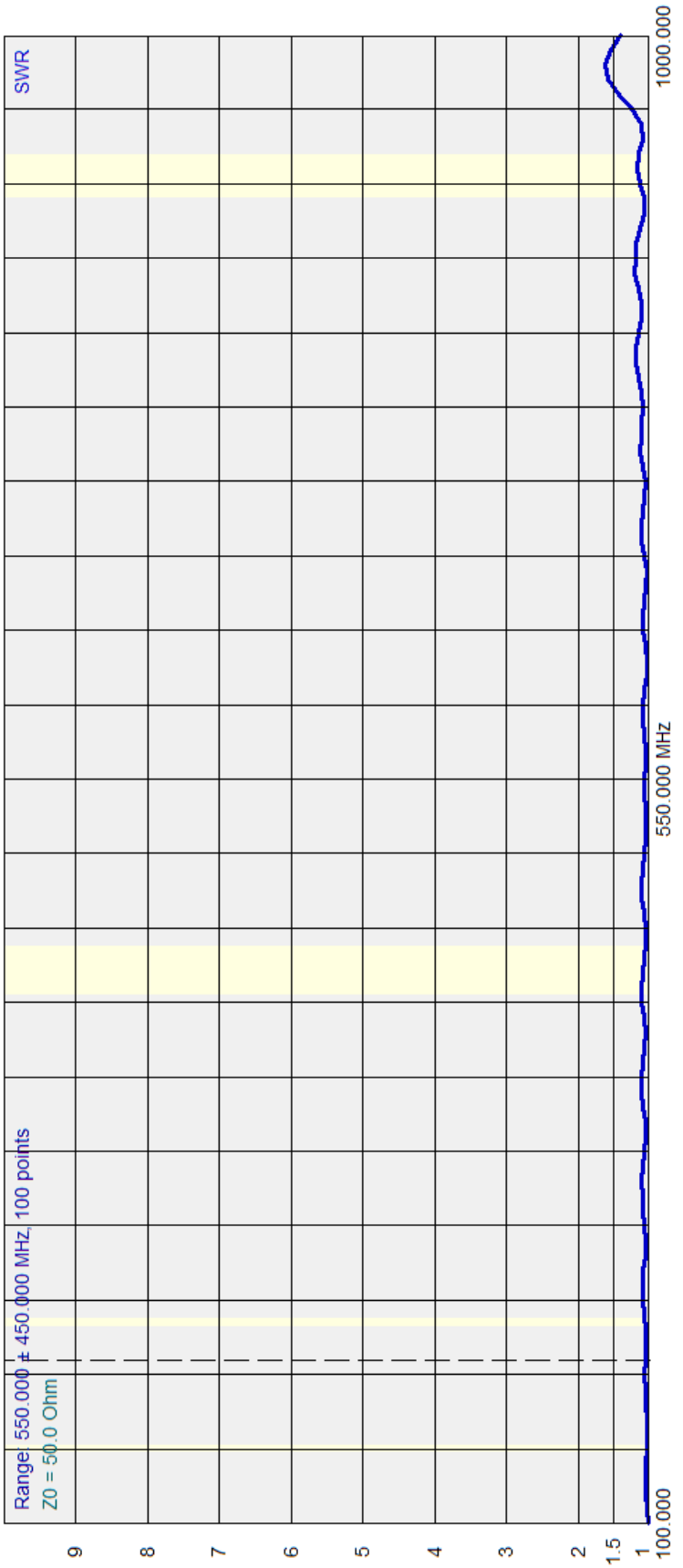
VSWR SS6 Mated Pair Sample



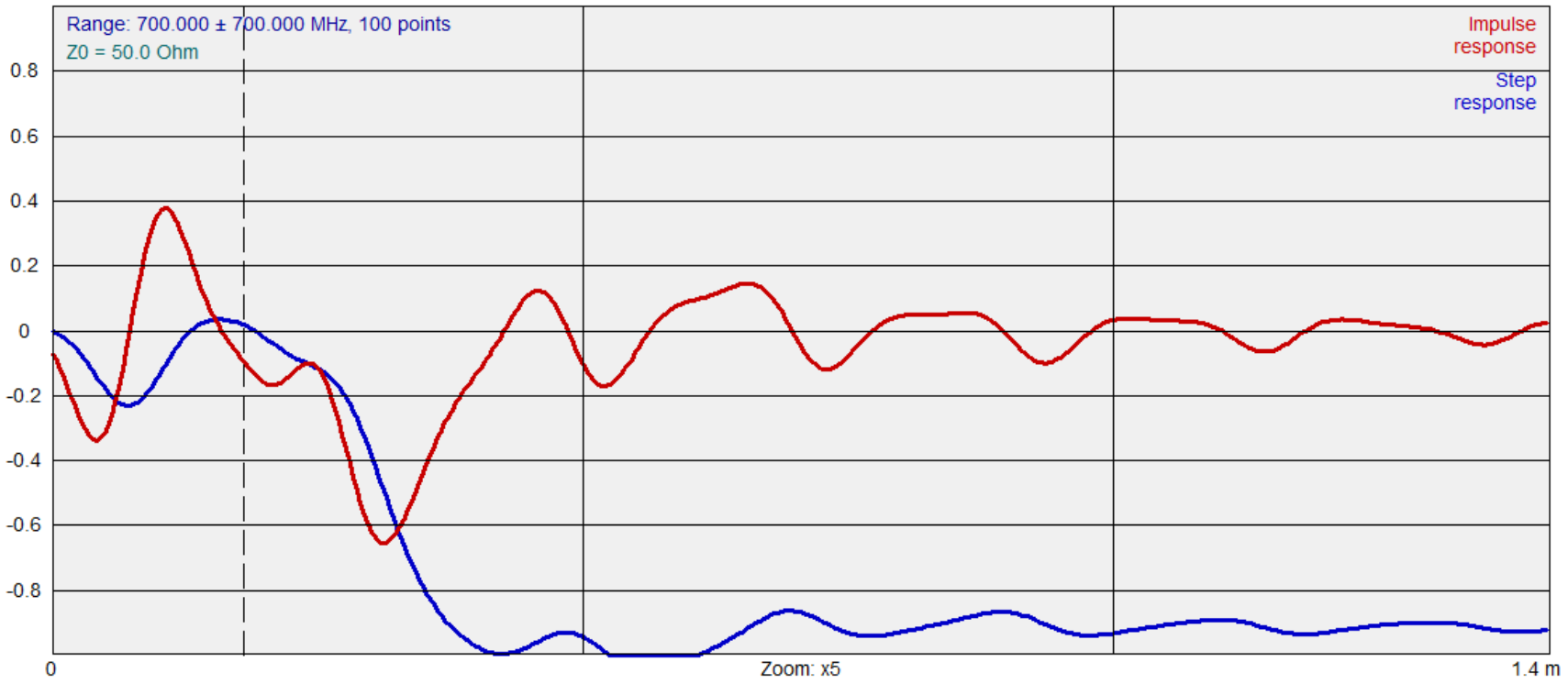
TDR SS6 Mated Pair Sample Full Right



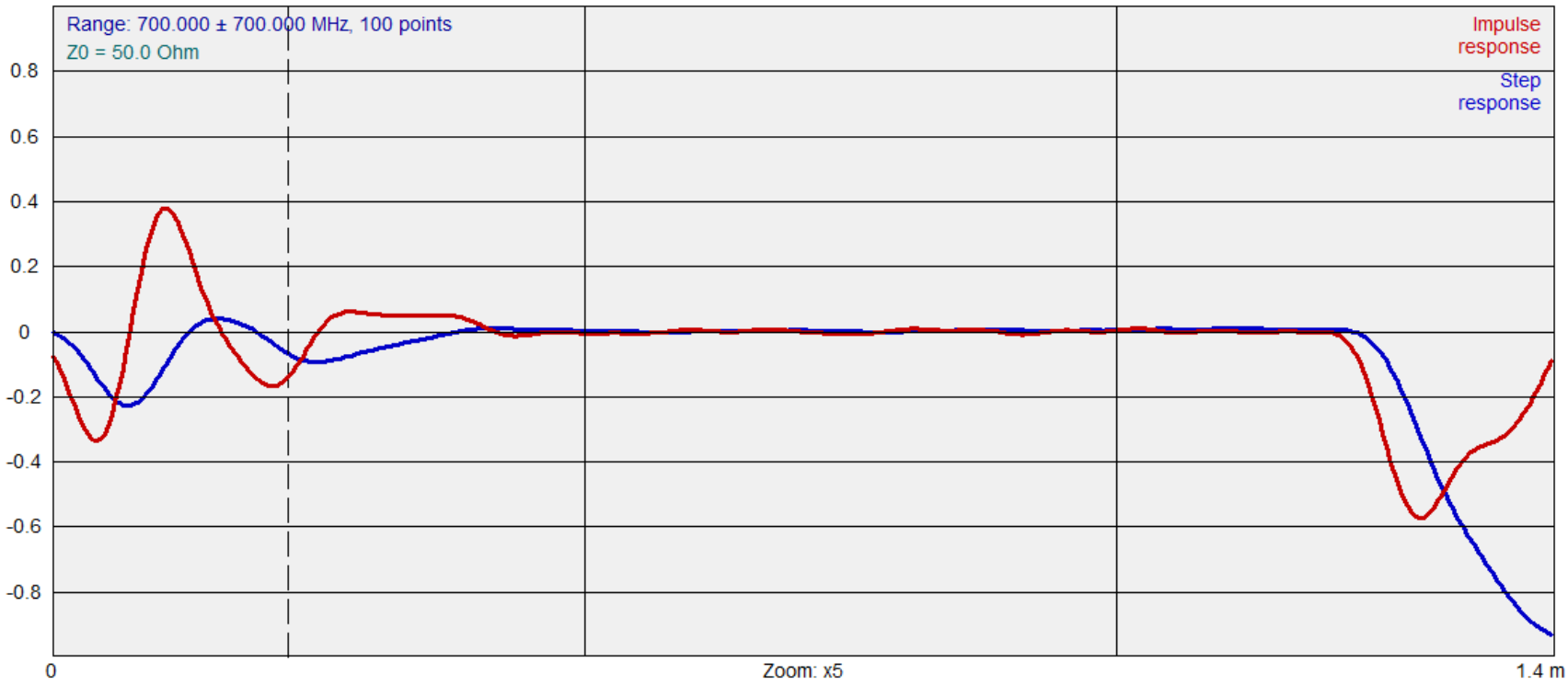
TDR SS6 Mated Pair Sample Full Left



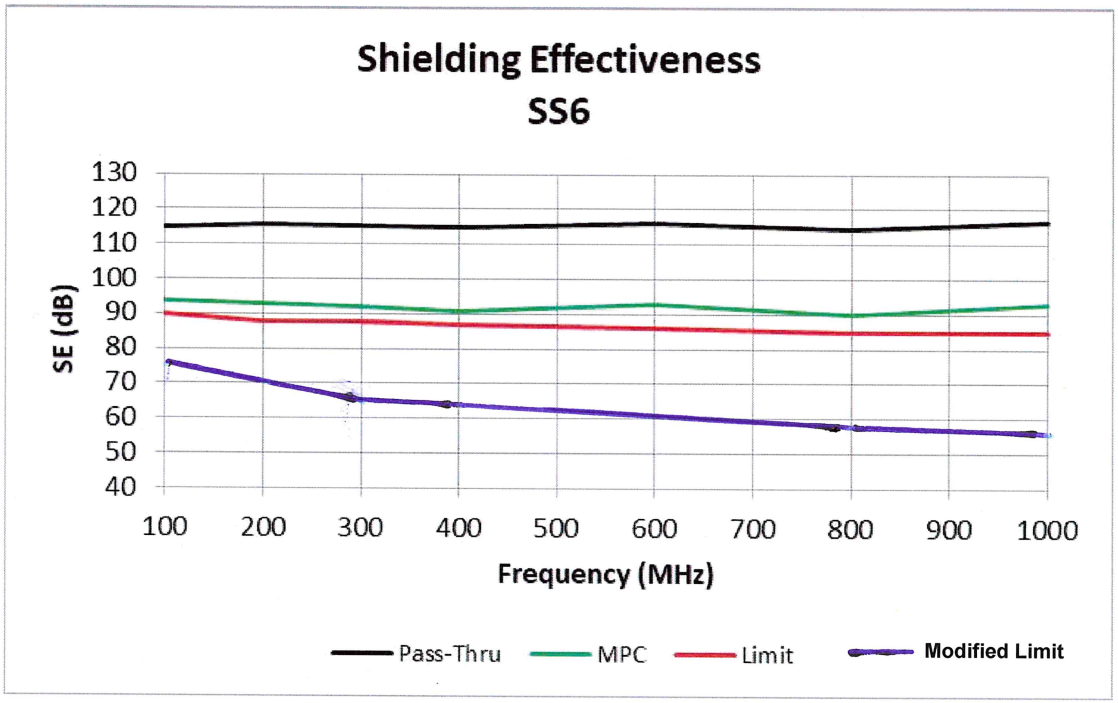
VSWR SS10 Mated Pair Sample

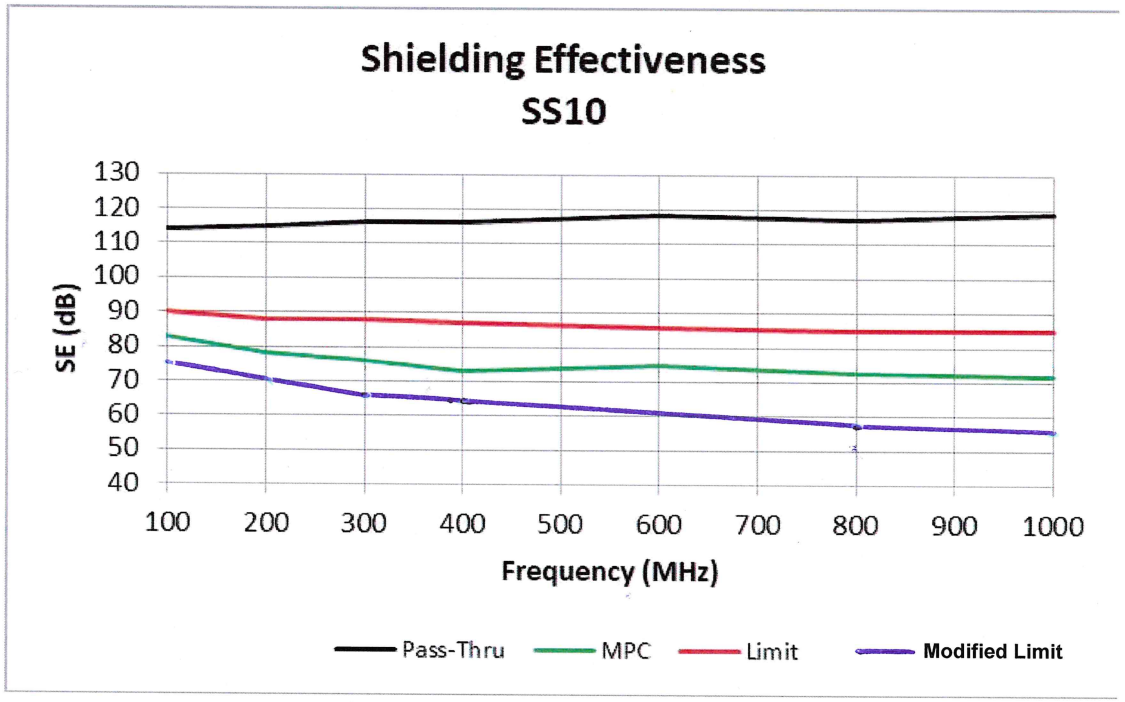


TDR SS10 Mated Pair Sample Full Right



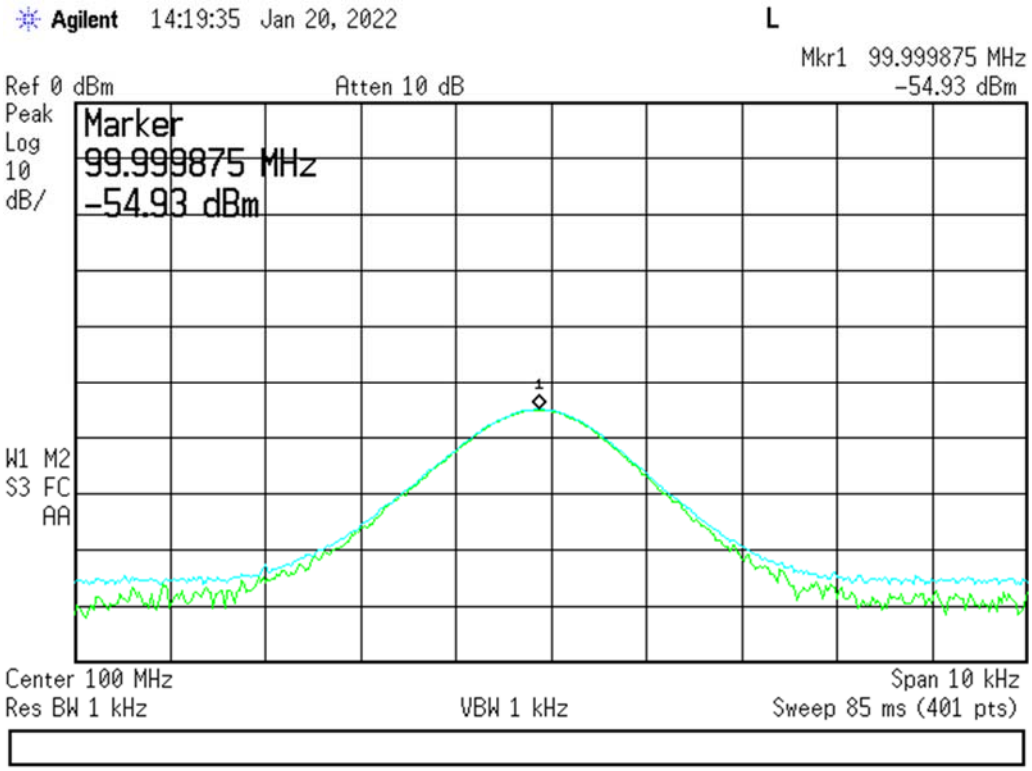
TDR SS10 Mated Pair Sample Full Left


Shielding Effectiveness
SS6
SE (dB)
130
120
110
100
90
80
70
60
50
40
100
200
300
400
500
600
700
800
900
1000
Frequency (MHz)
Pass-Thru
MPC
Limit
Modified Limit

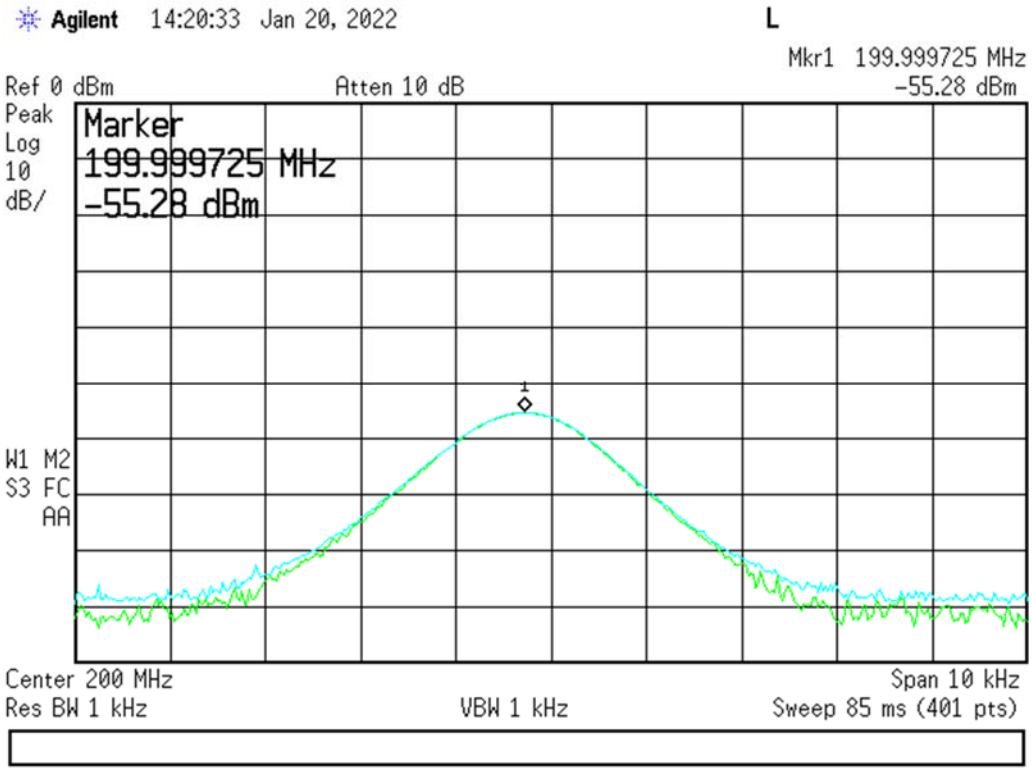

Shielding Effectiveness
SS10
SE (dB)
130
120
110
100
90
80
70
60
50
40
100
200
300
400
500
600
700
800
900
1000
Frequency (MHz)
Pass-Thru
MPC
Limit
Modified Limit

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



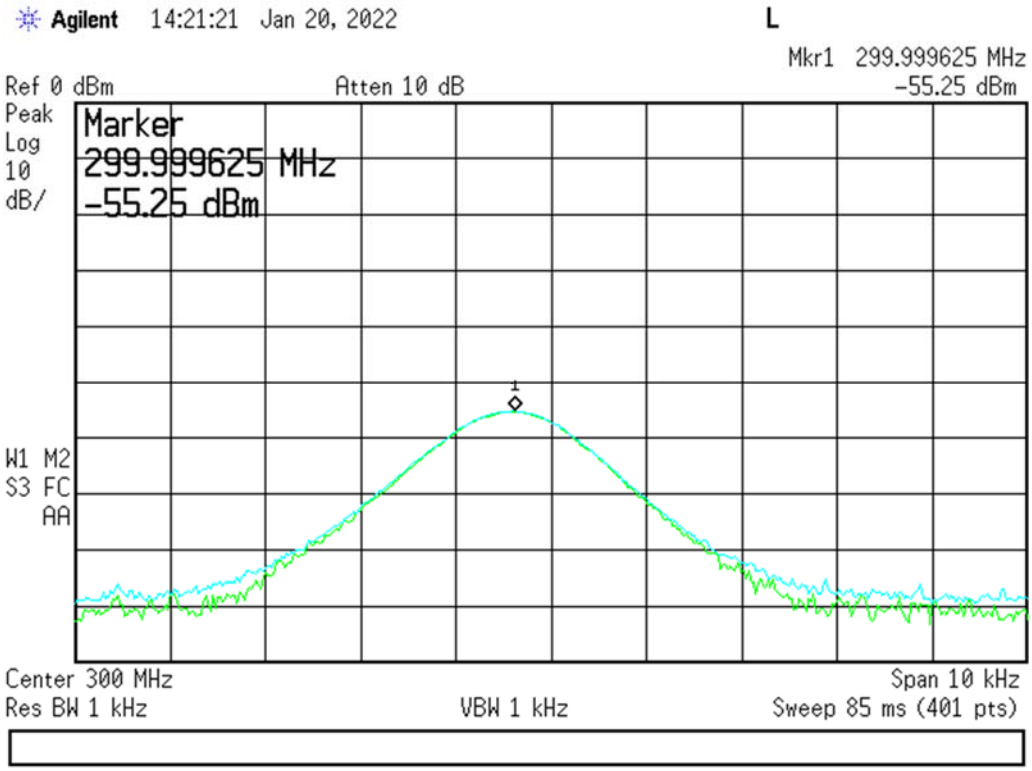
100MHZ PRE AMP INPUT



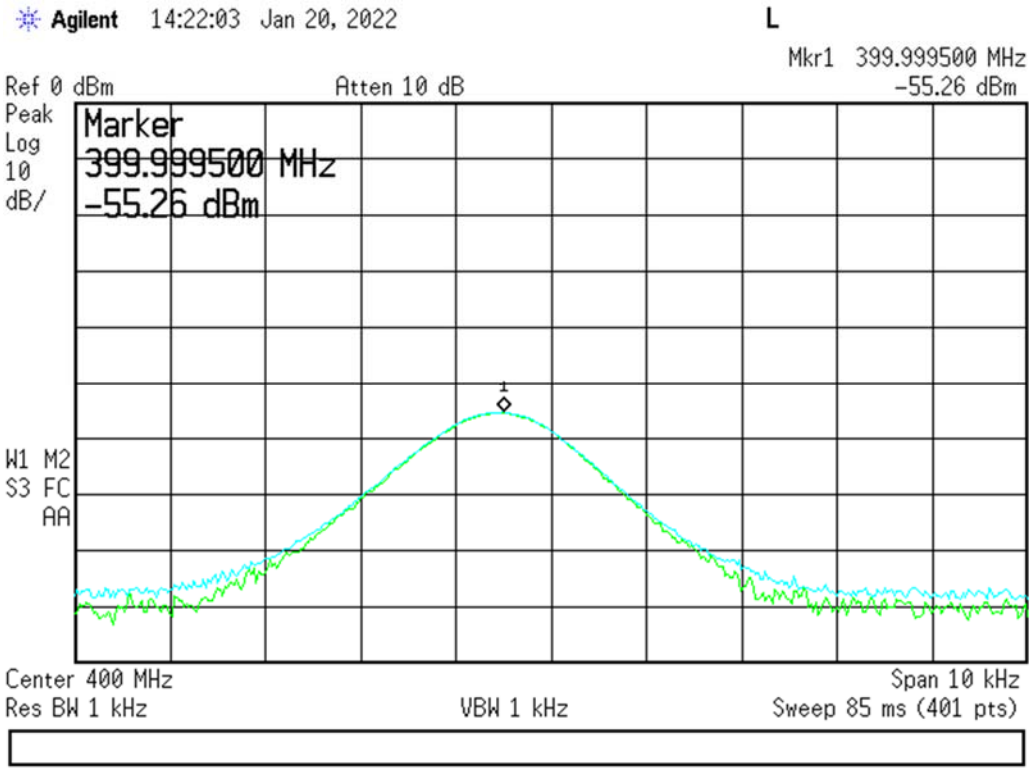
200MHZ PRE AMP INPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



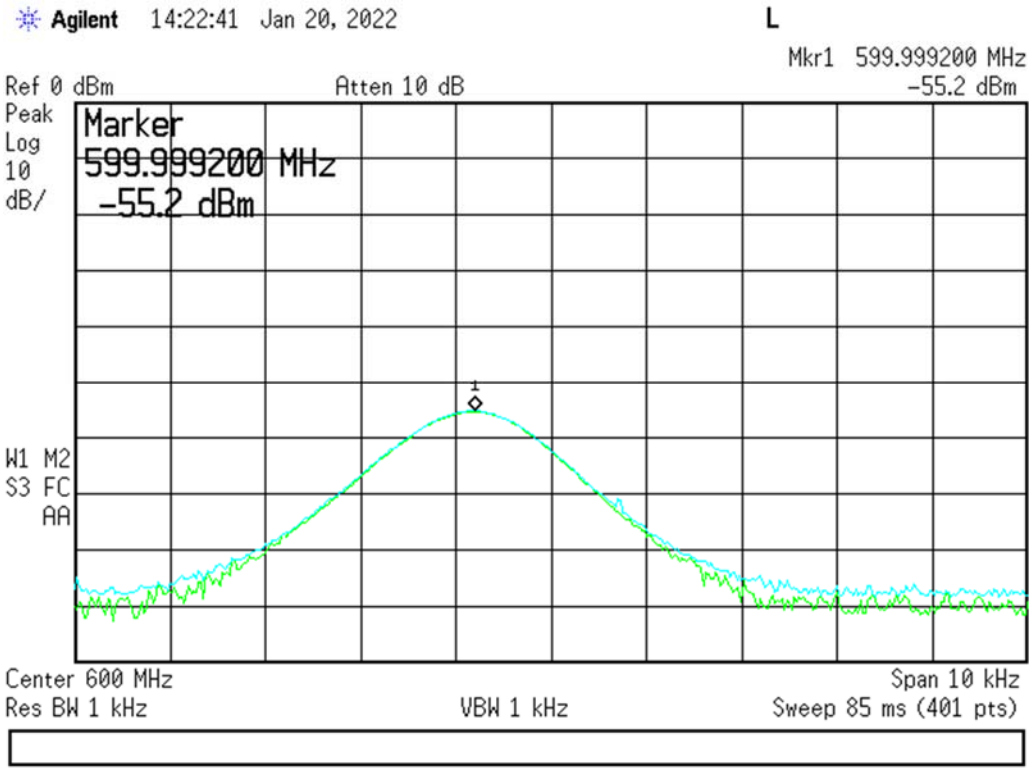
300MHZ PRE AMP INPUT



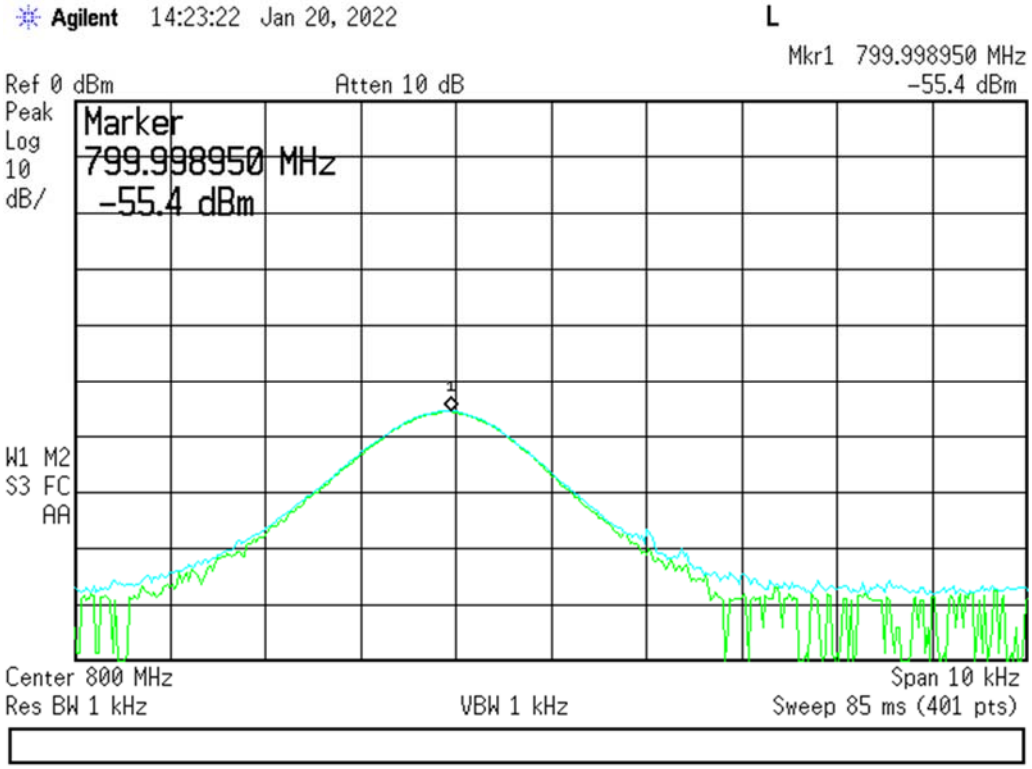
400MHZ PRE AMP INPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



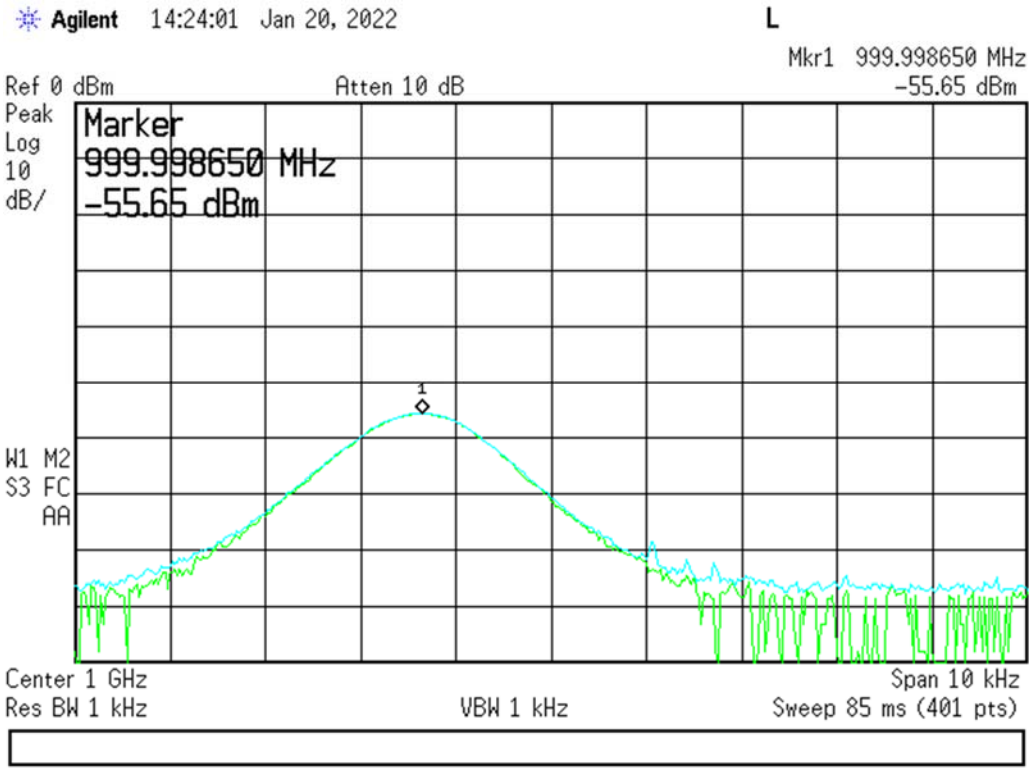
600MHZ PRE AMP INPUT



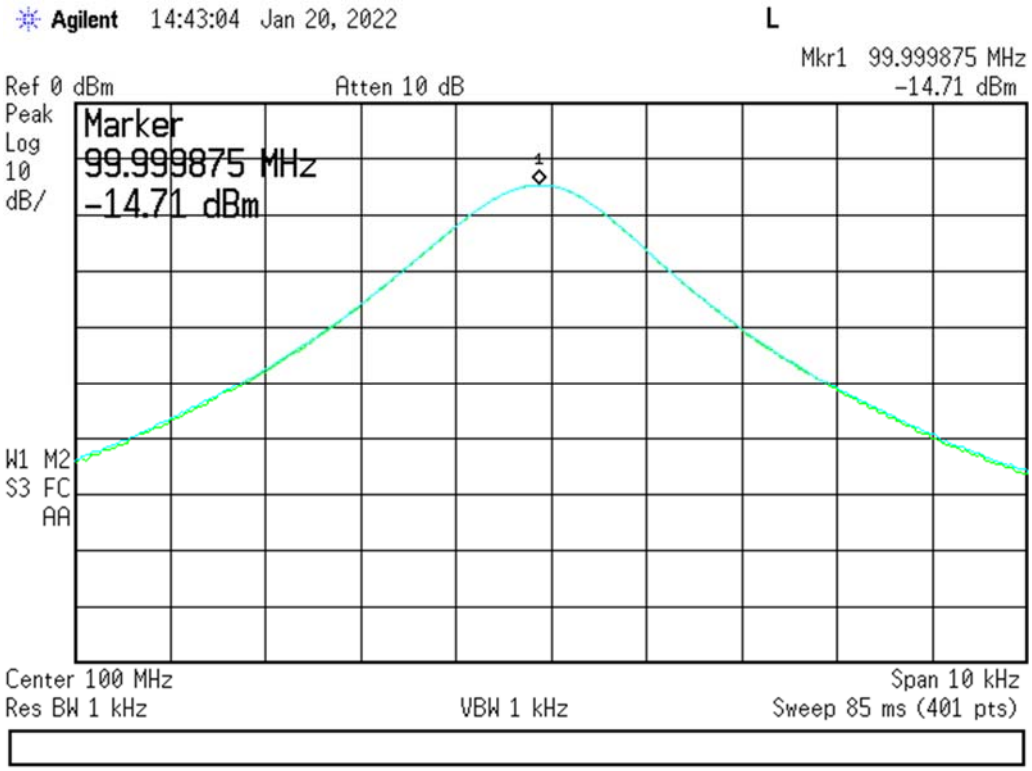
800MHZ PRE AMP INPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



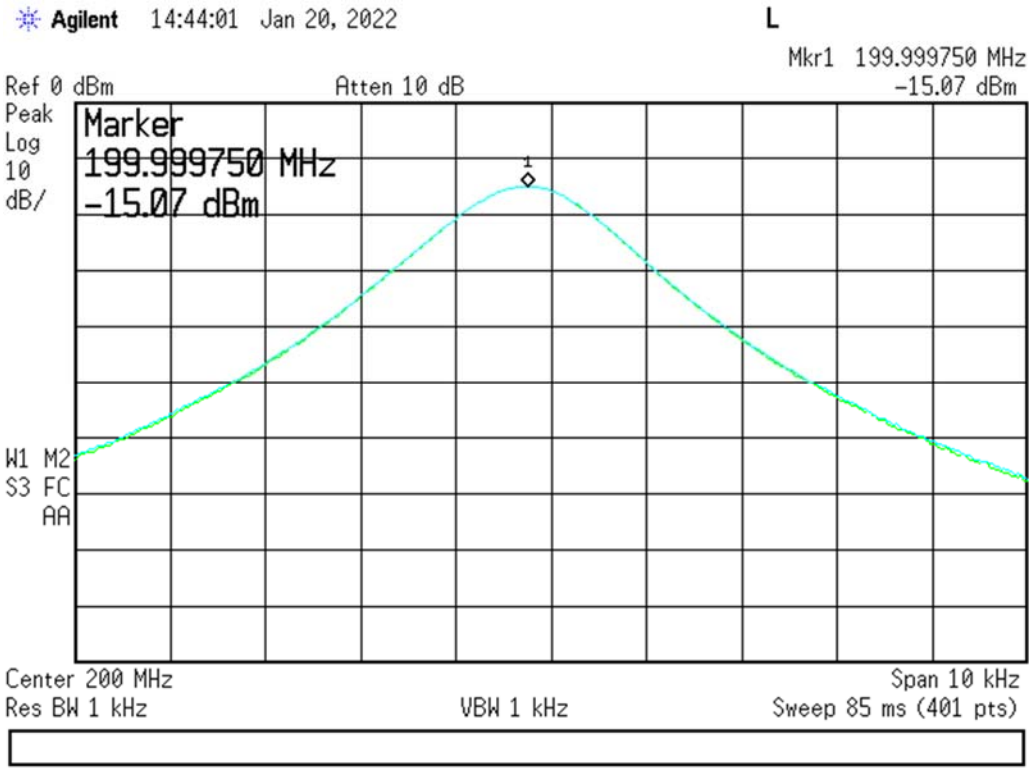
1000MHZ PRE AMP INPUT



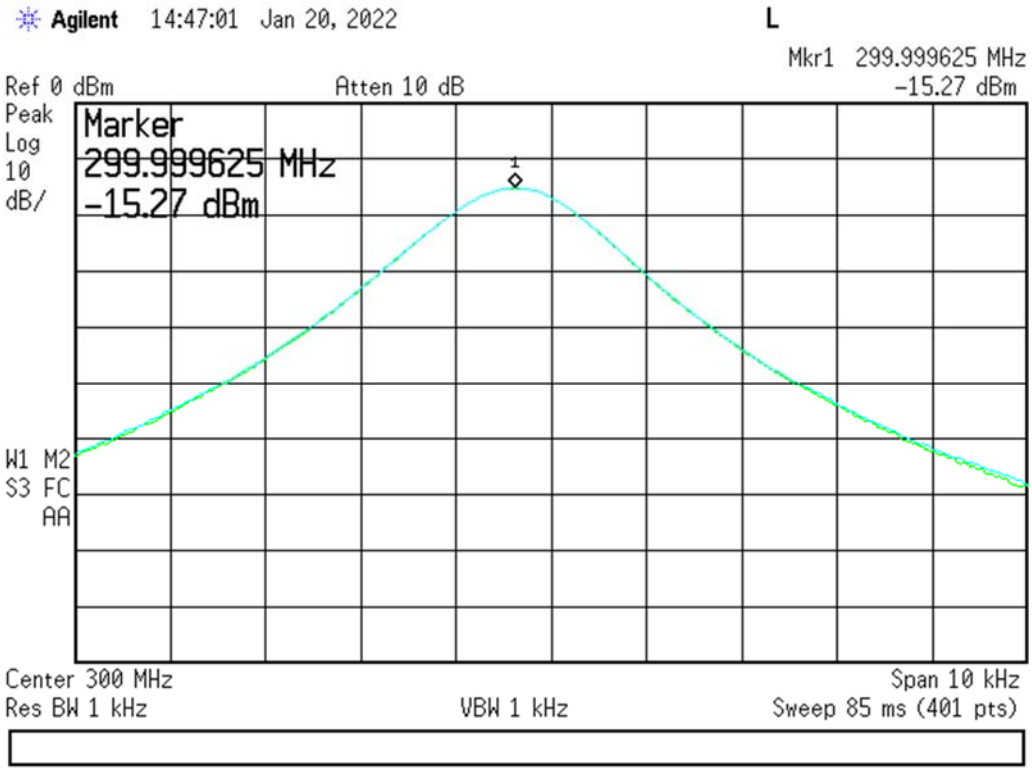
100MHZ PRE AMP OUTPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



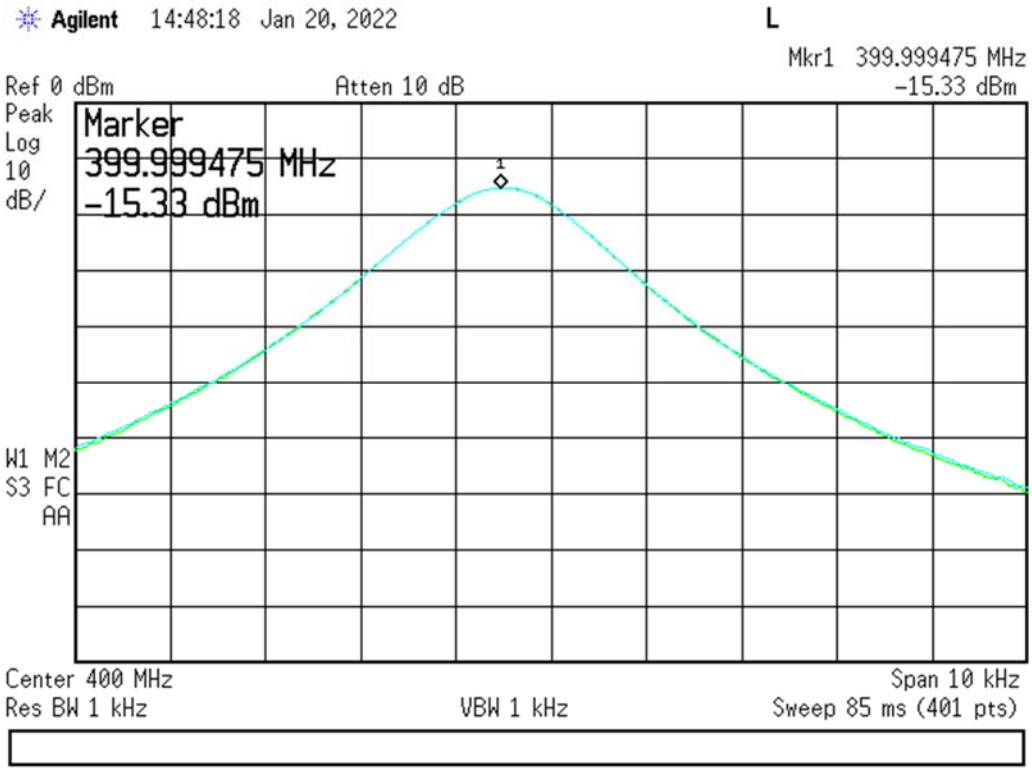
200MHZ PRE AMP OUTPUT



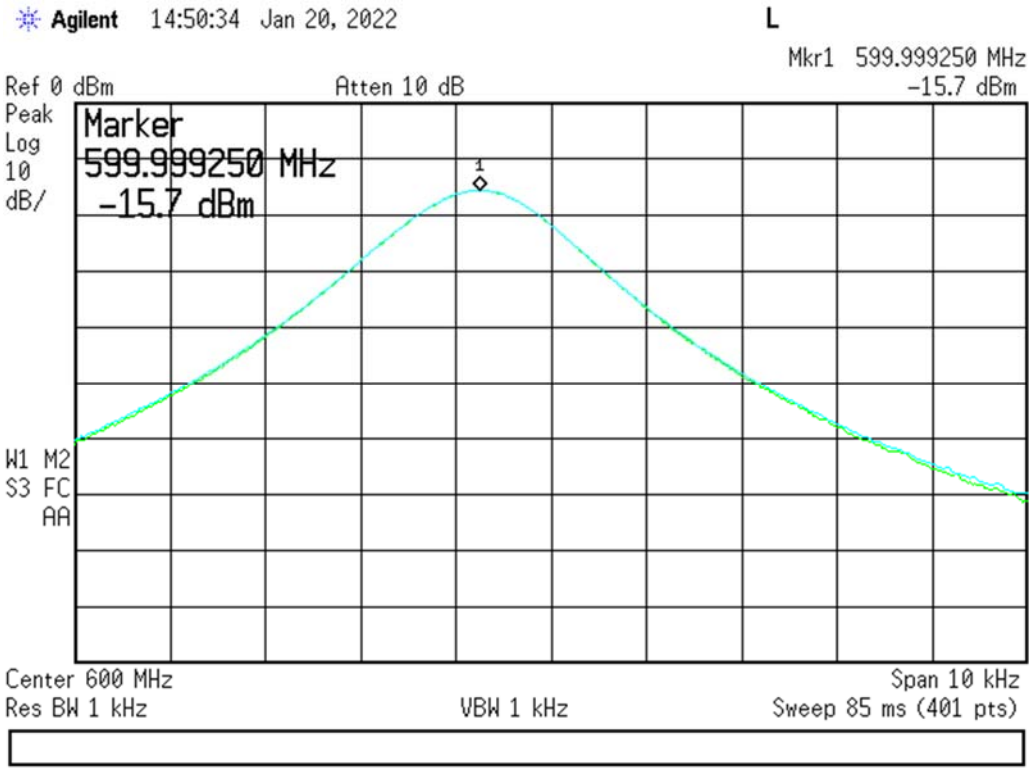
300MHZ PRE AMP OUTPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



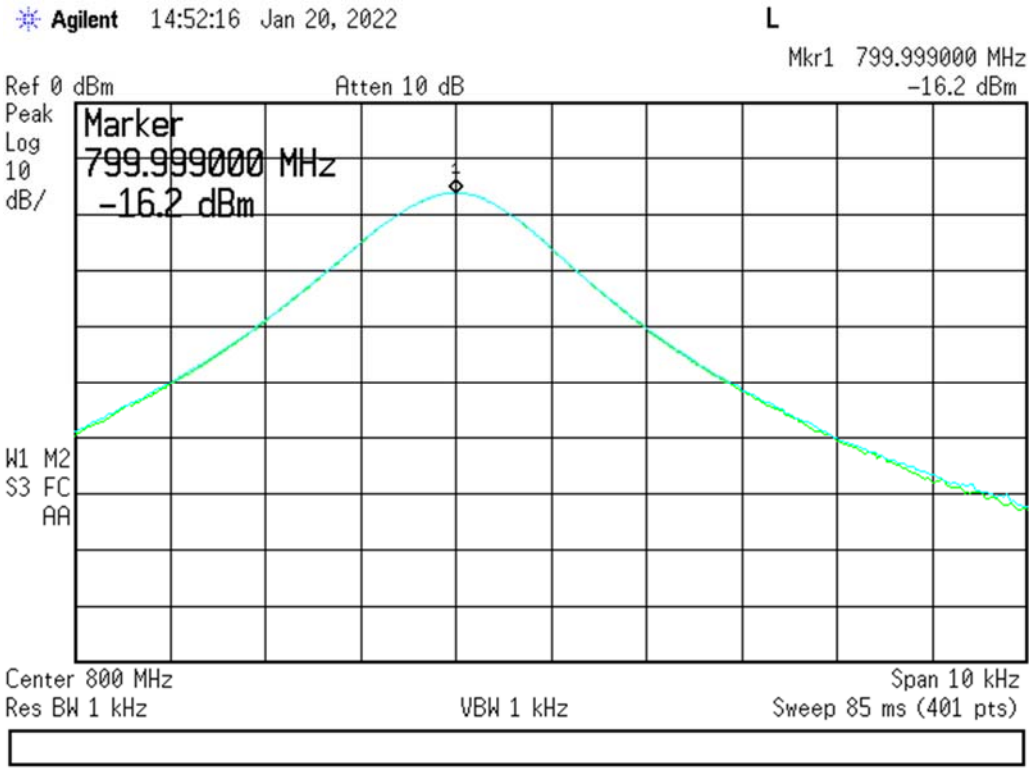
400MHZ PRE AMP OUTPUT



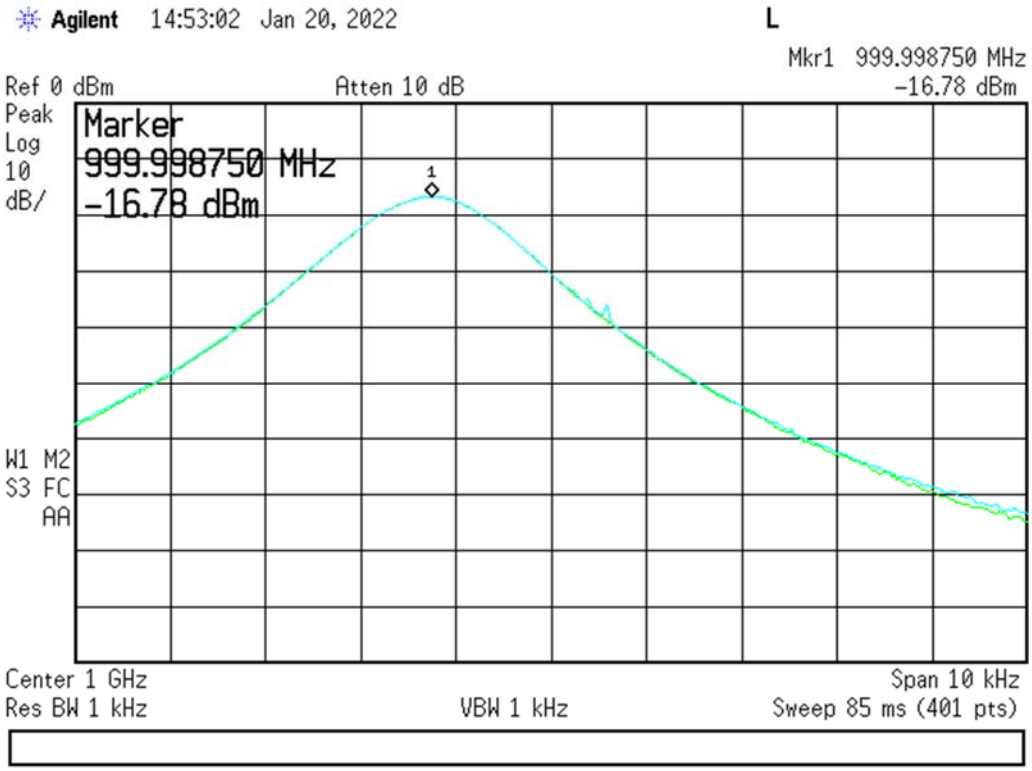
600MHZ PRE AMP OUTPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



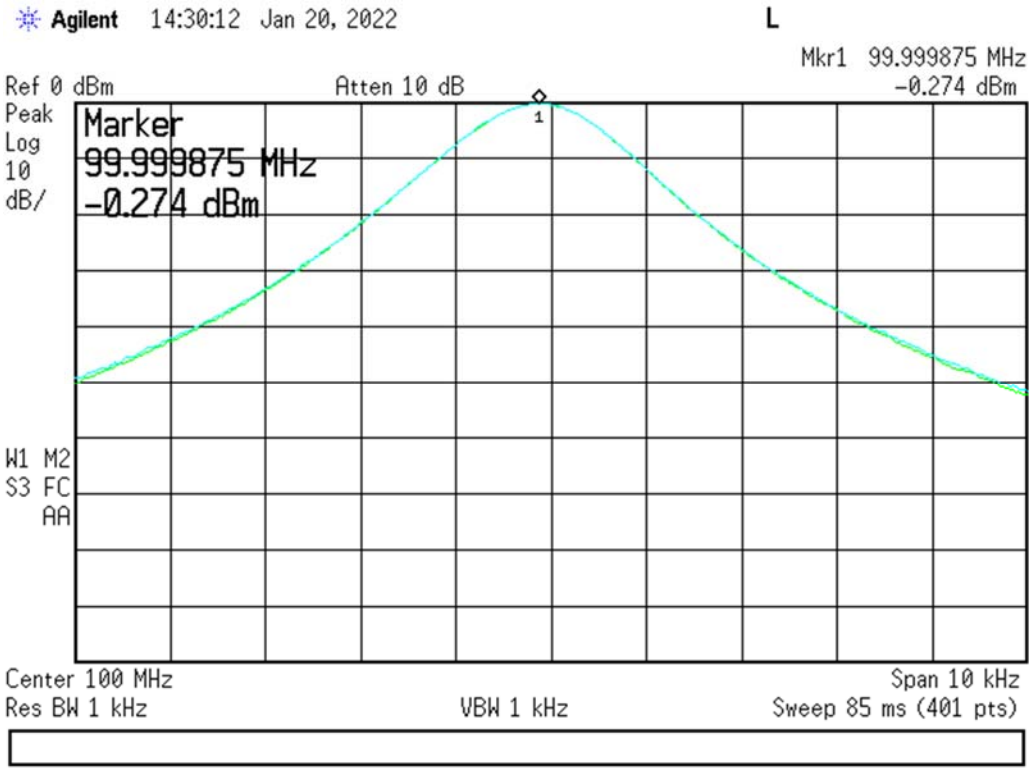
800MHZ PRE AMP OUTPUT



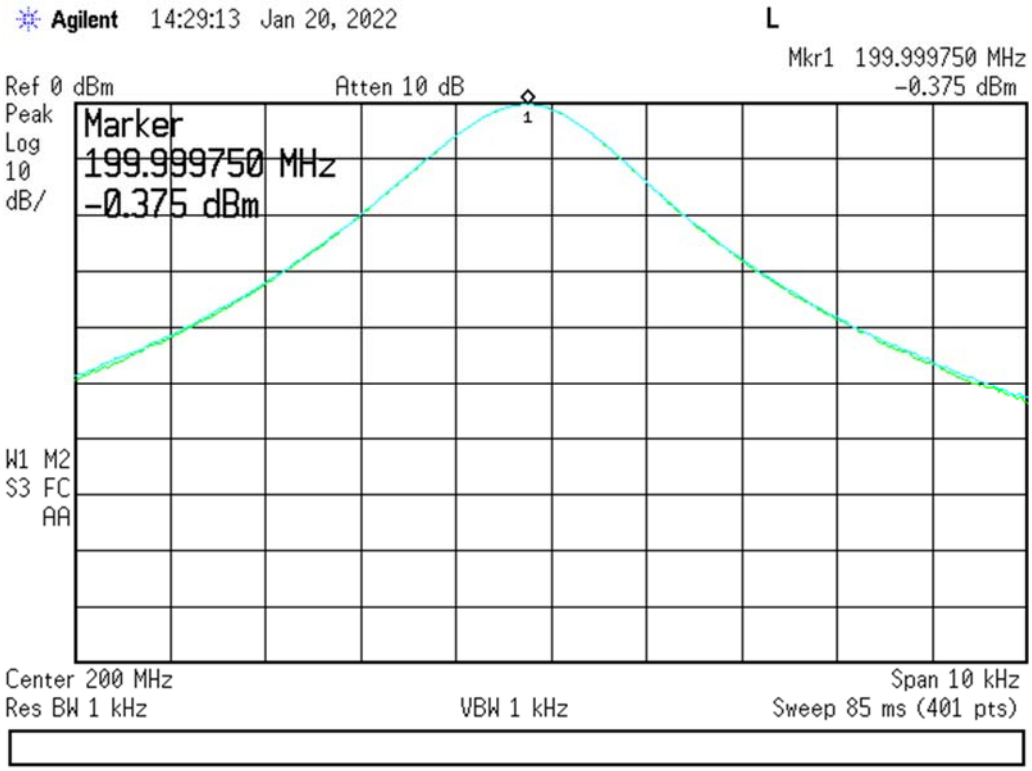
1000MHZ PRE AMP OUTPUT

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



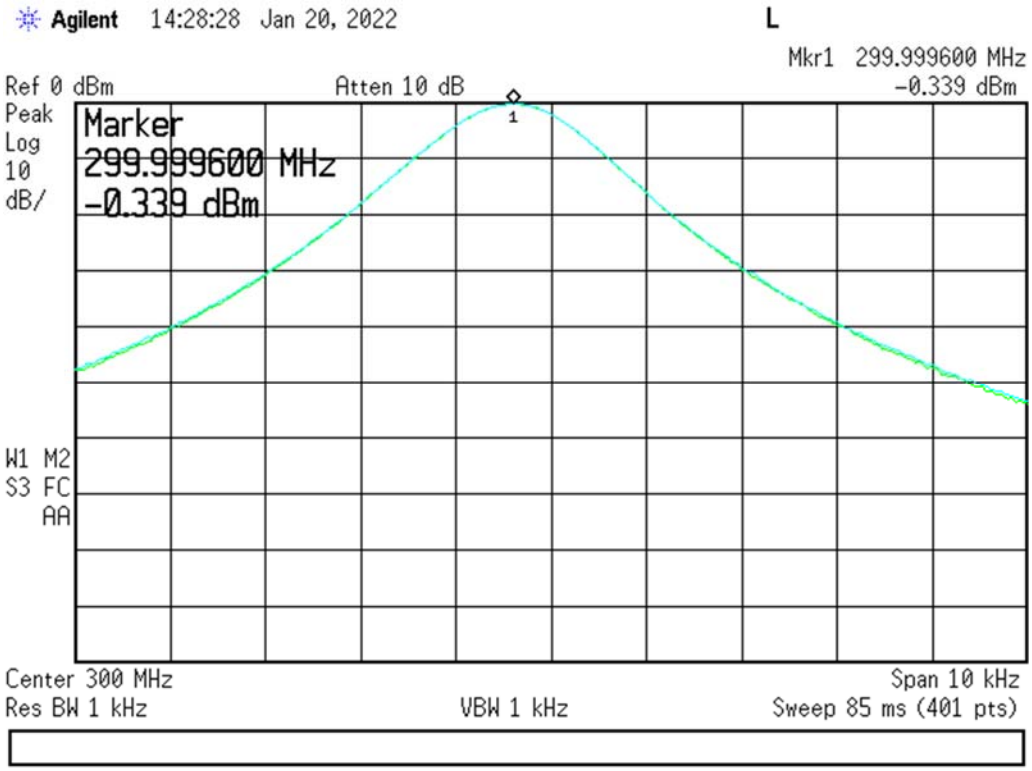
100MHZ REFERENCE



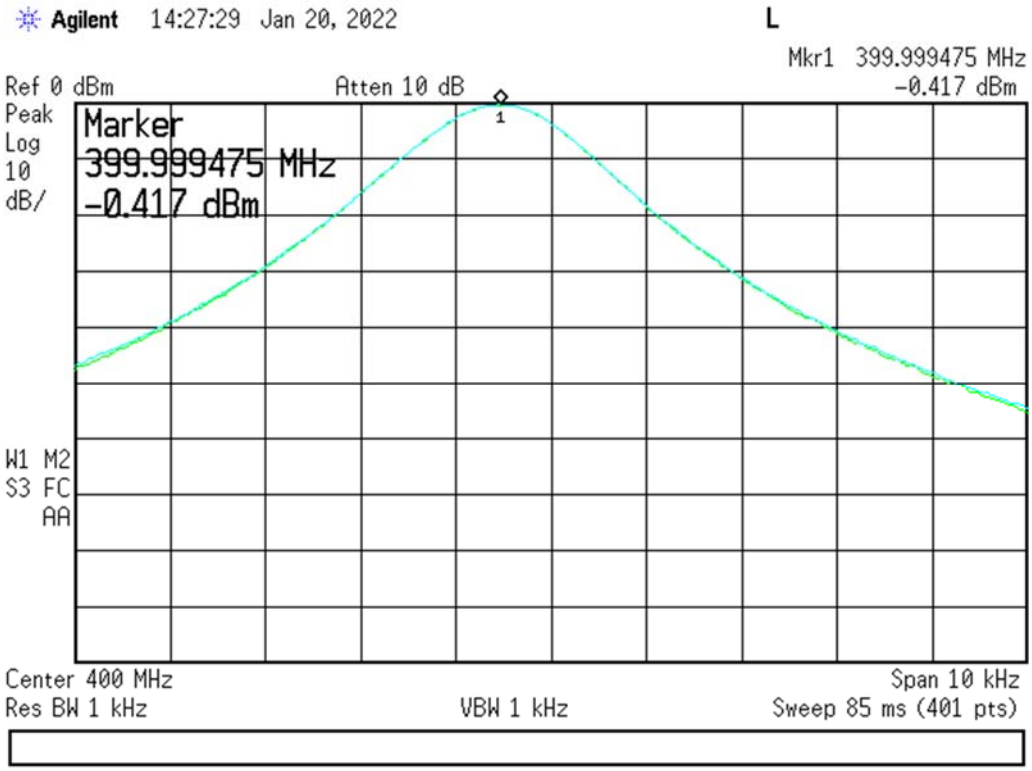
200MHZ REFERENCE

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



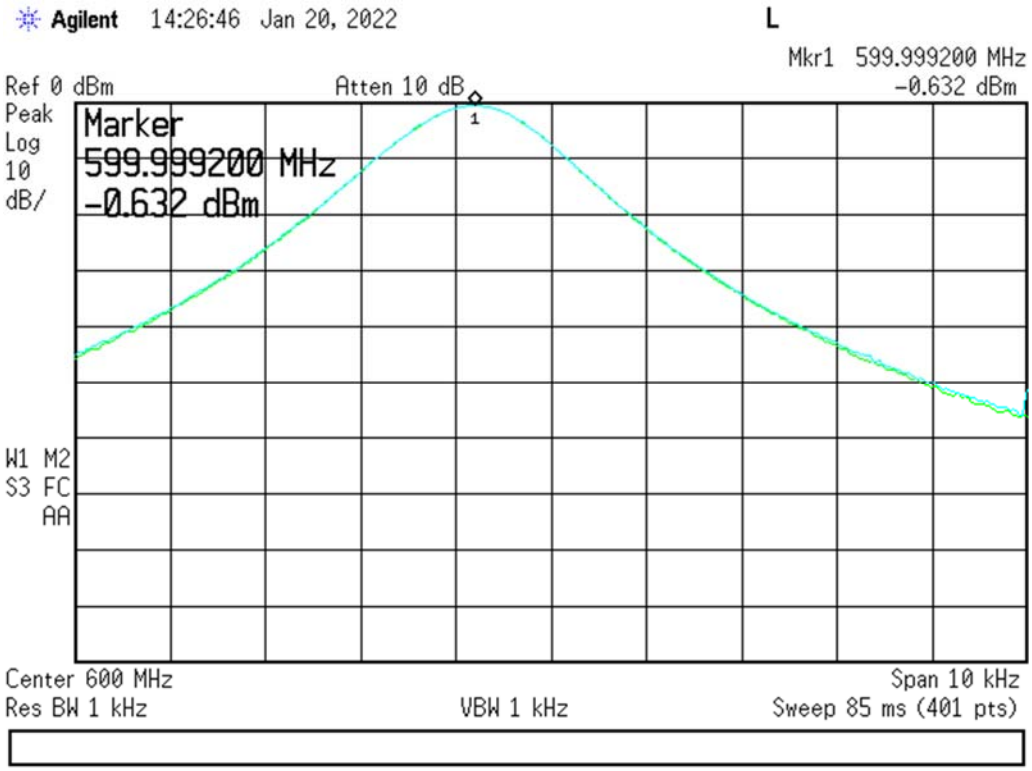
300MHZ REFERENCE



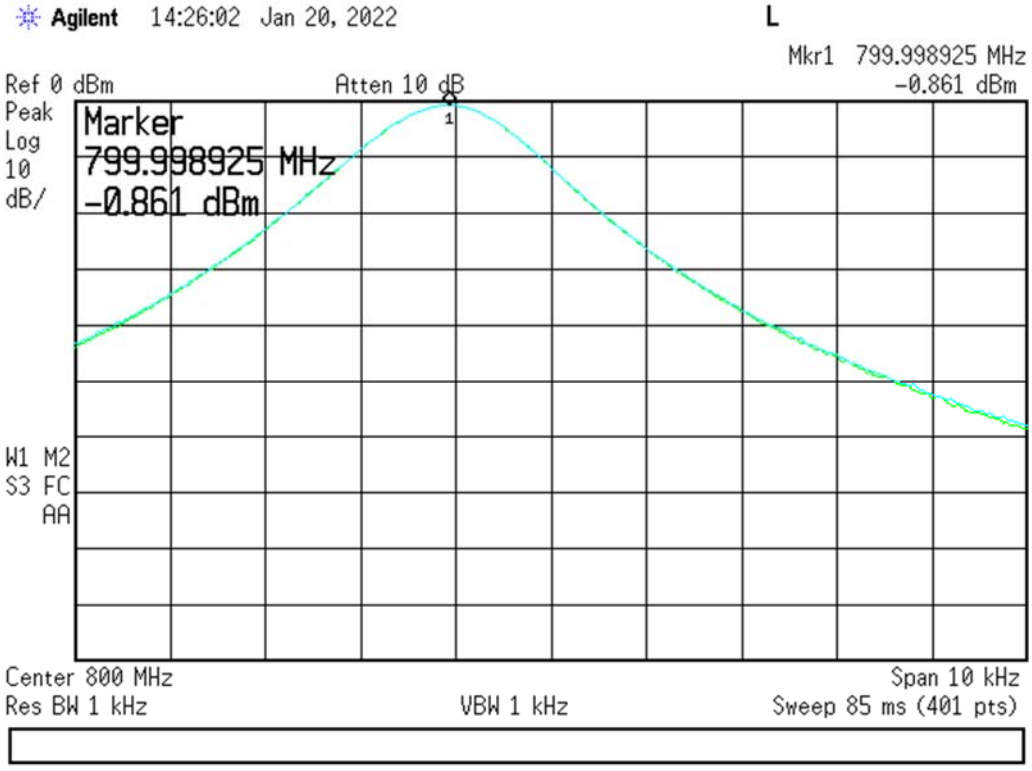
400MHZ REFERENCE

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



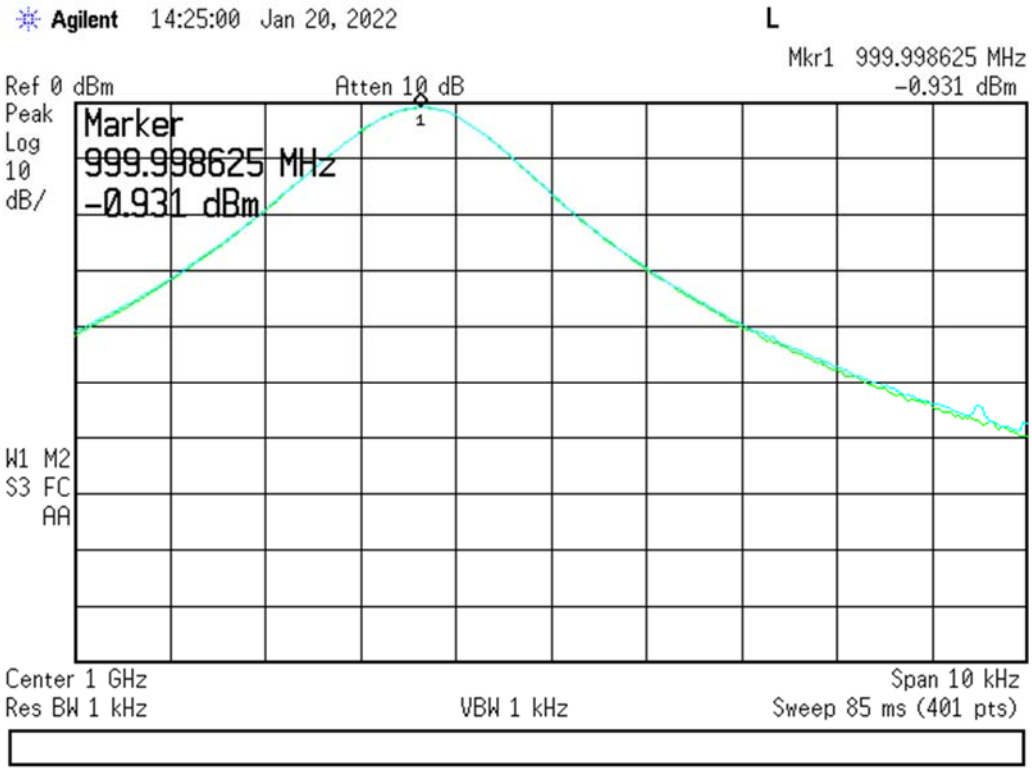
600MHZ REFERENCE



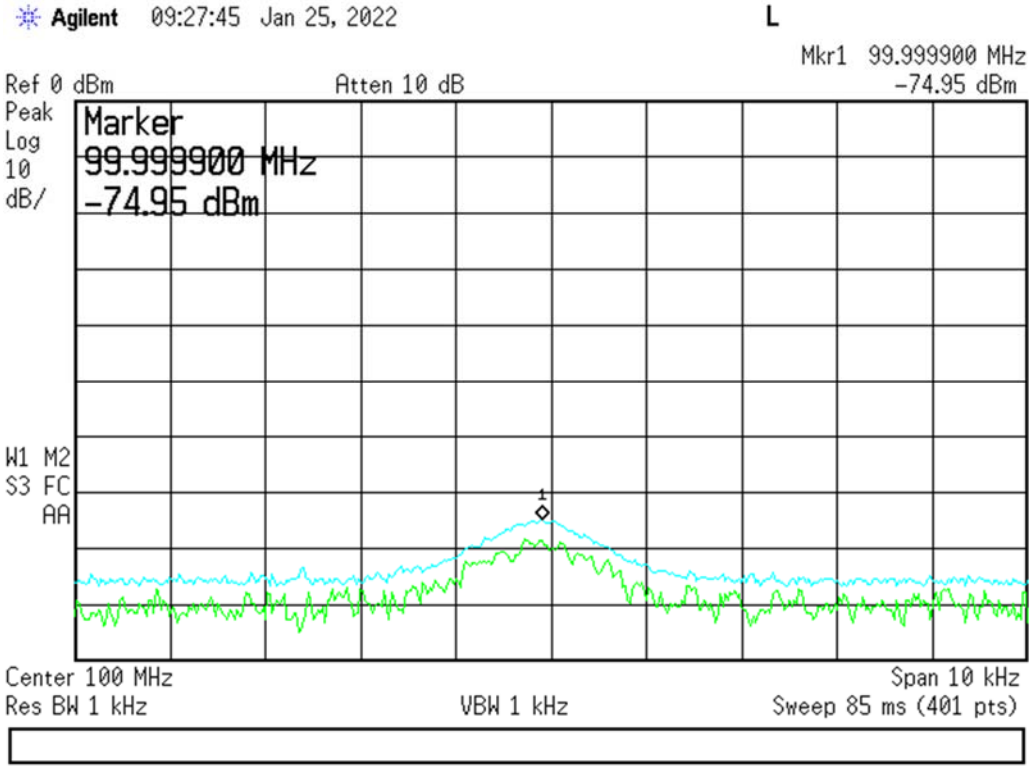
800MHZ REFERENCE

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



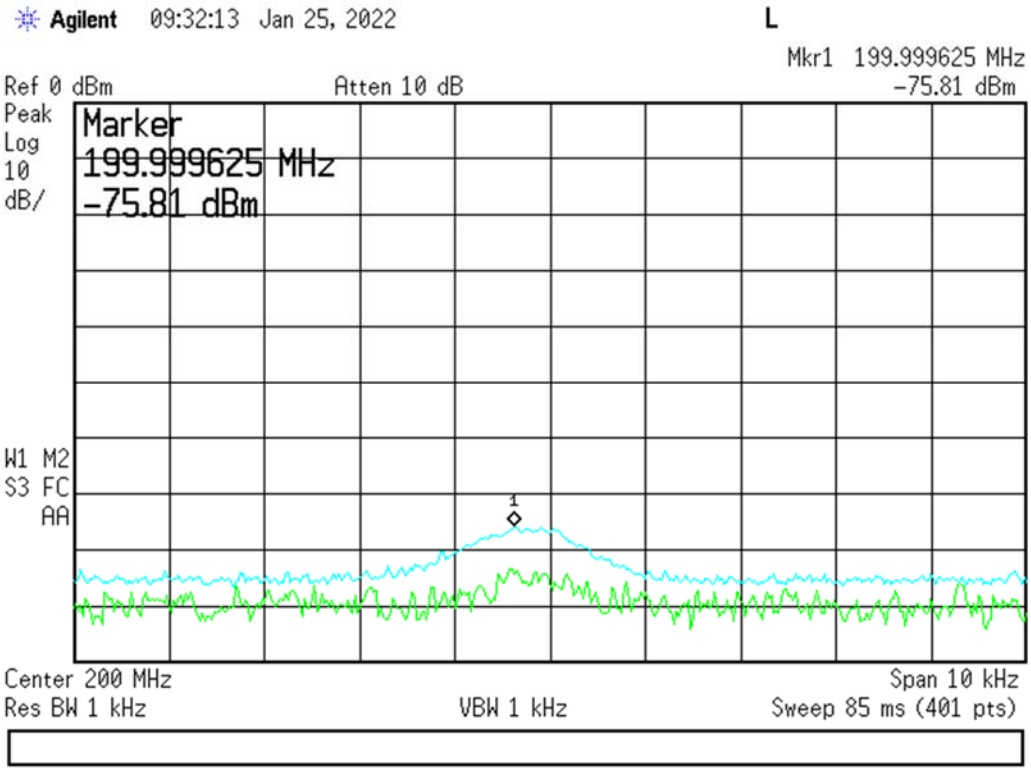
1000MHZ REFERENCE



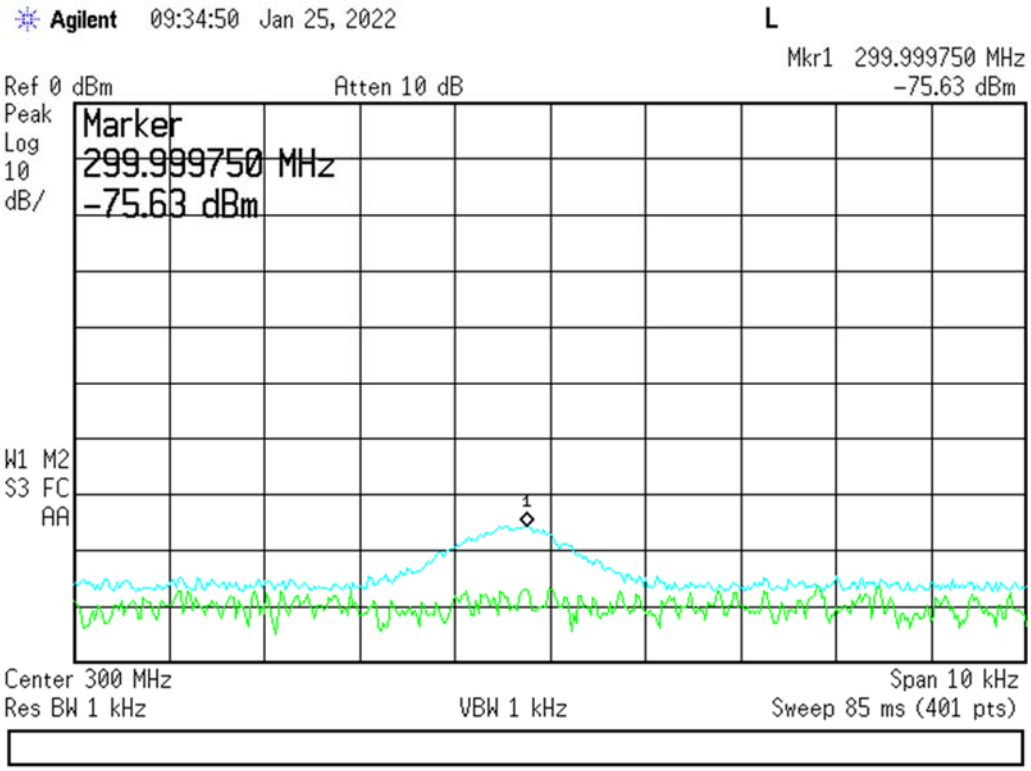
100MHZ SS6 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



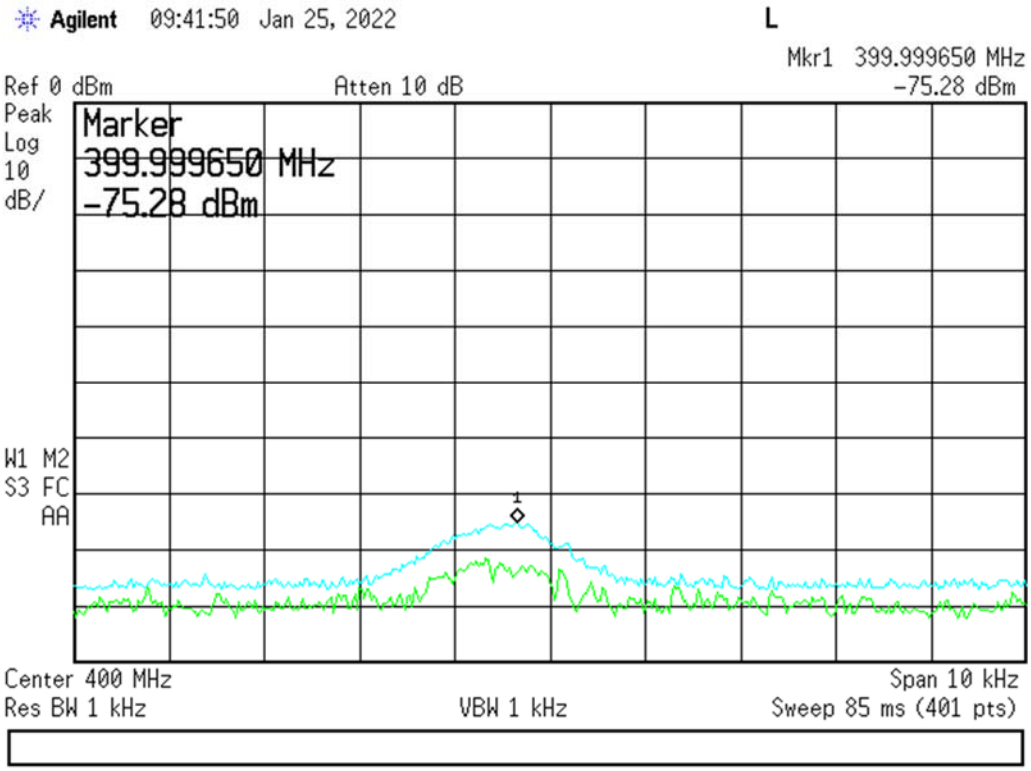
200MHZ SS6 NOISE FLOOR



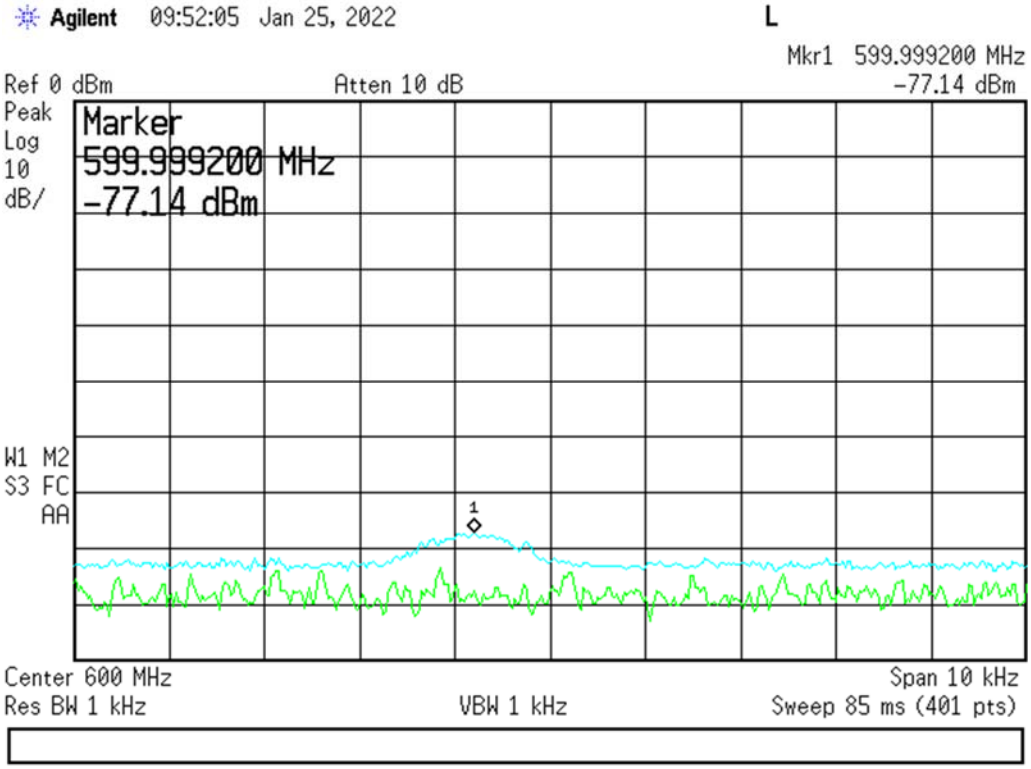
300MHZ SS6 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



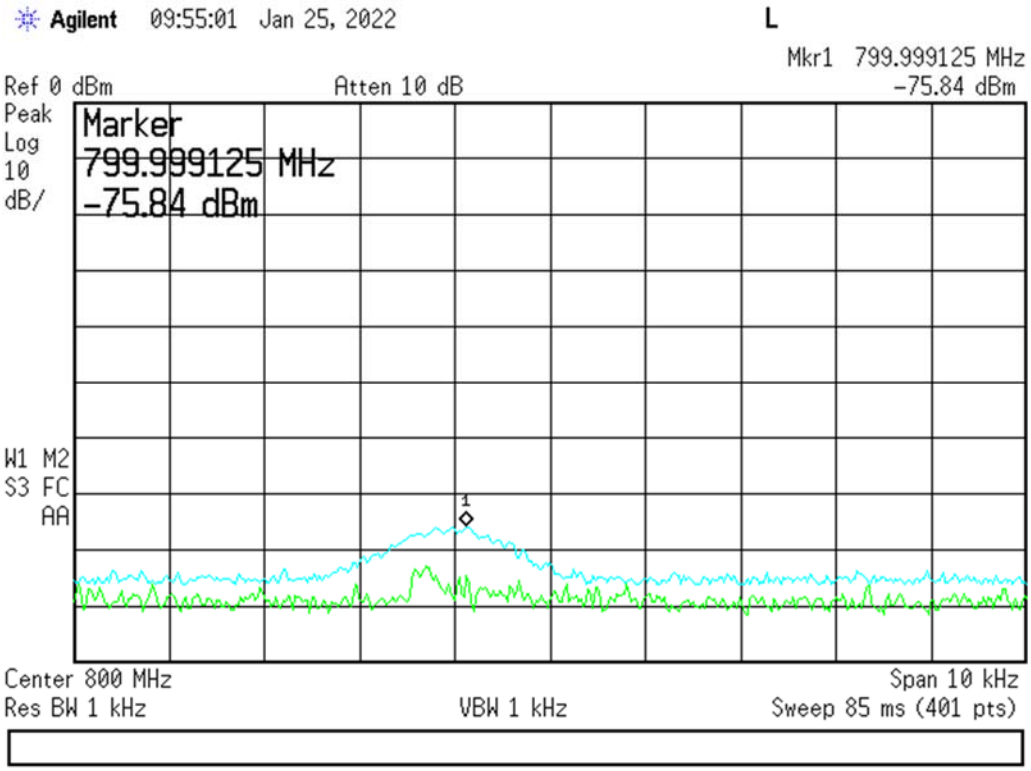
400MHZ SS6 NOISE FLOOR



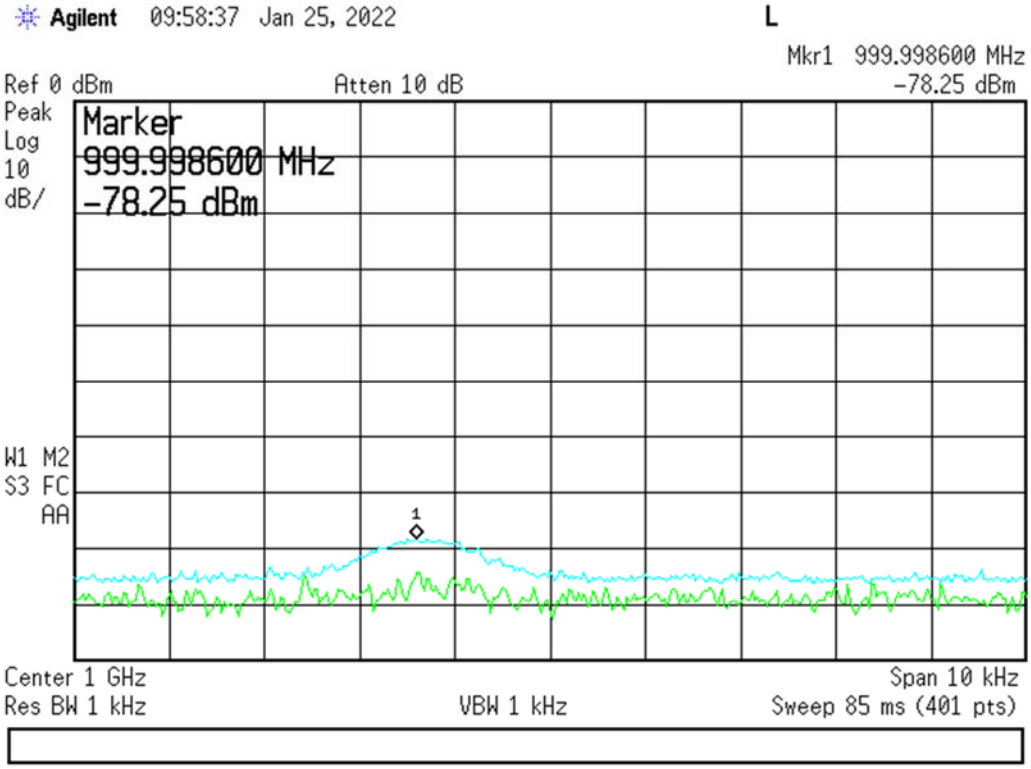
600MHZ SS6 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



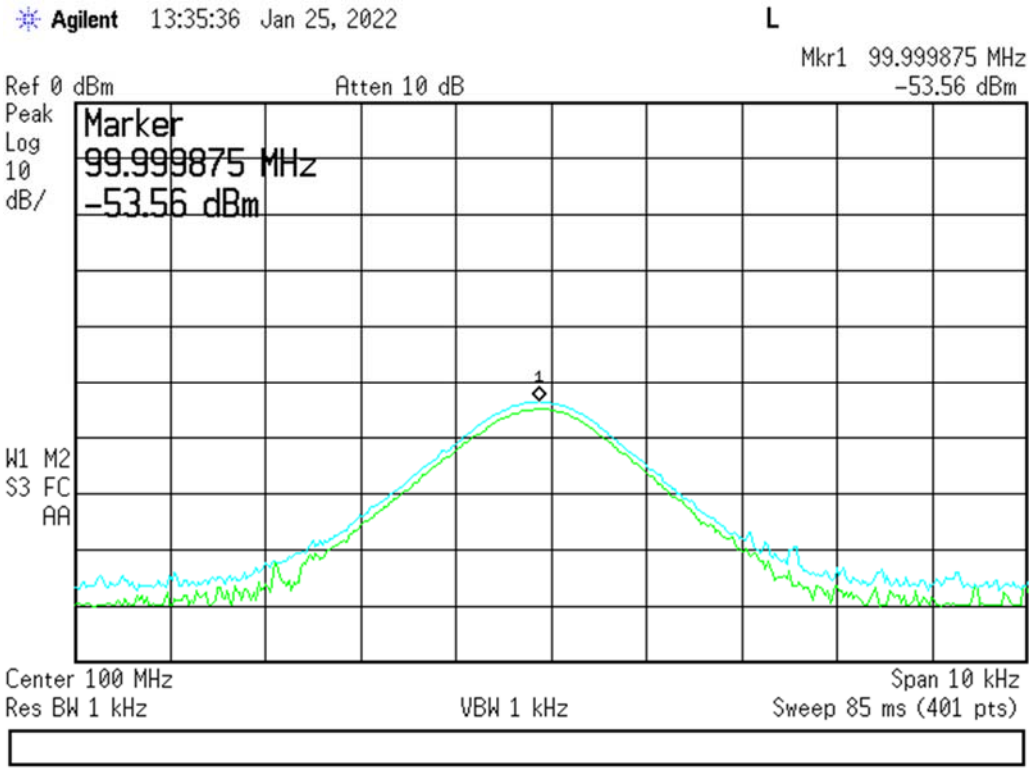
800MHZ SS6 NOISE FLOOR



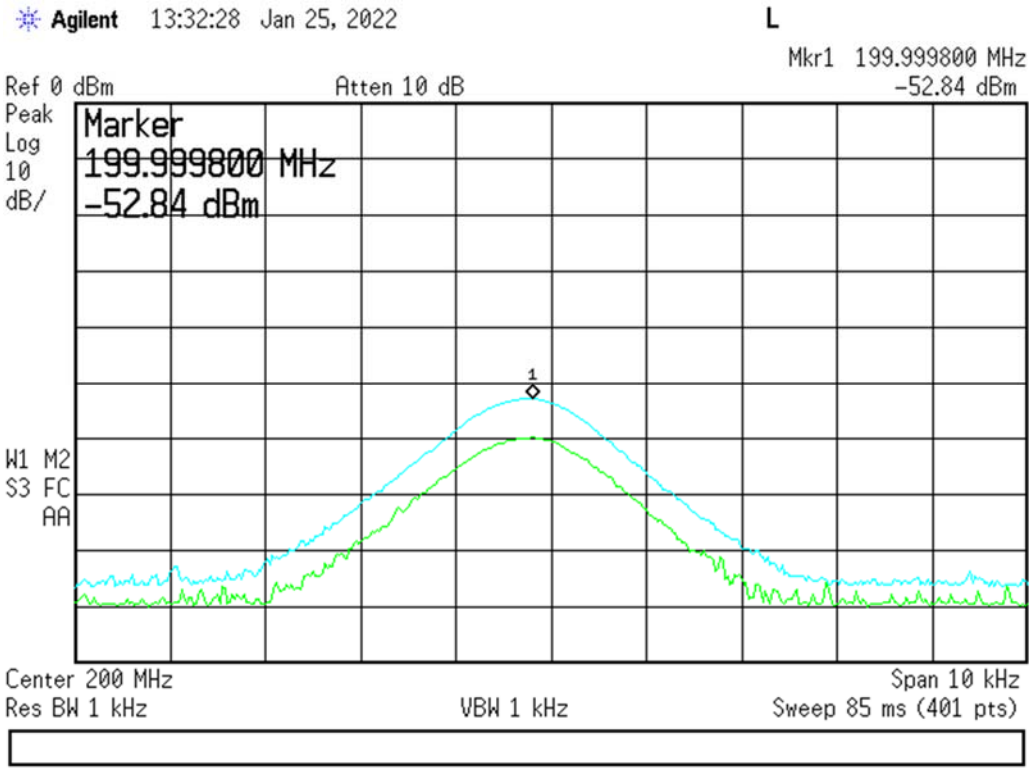
1000MHZ SS6 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



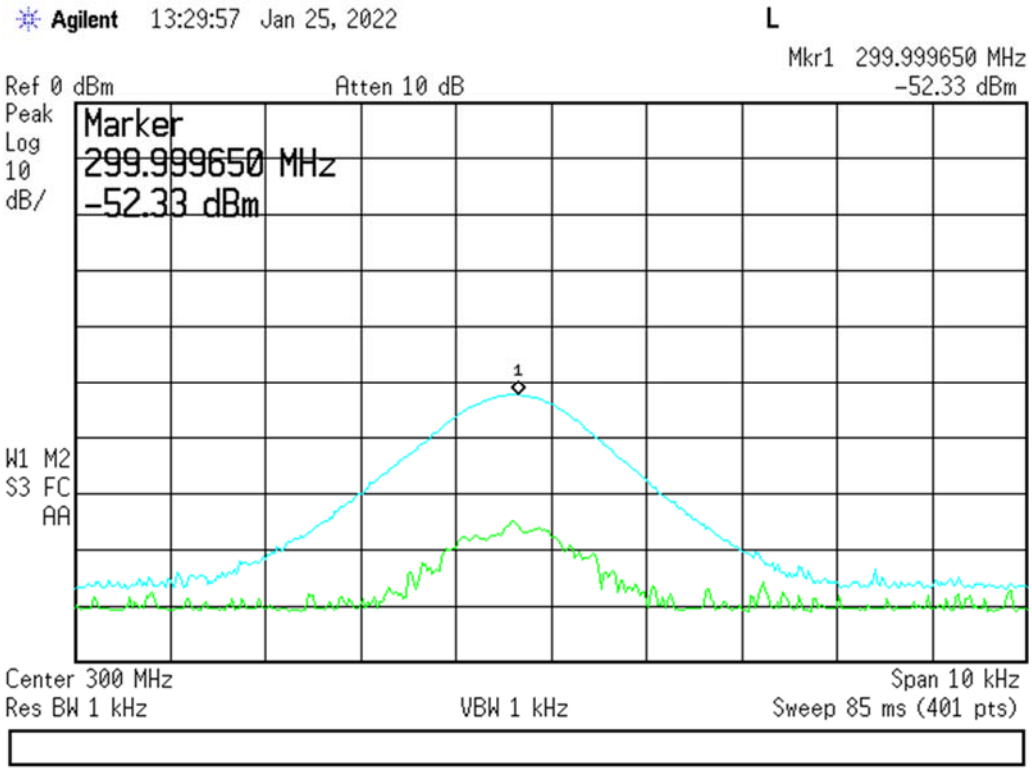
100MHZ SS6 MPC



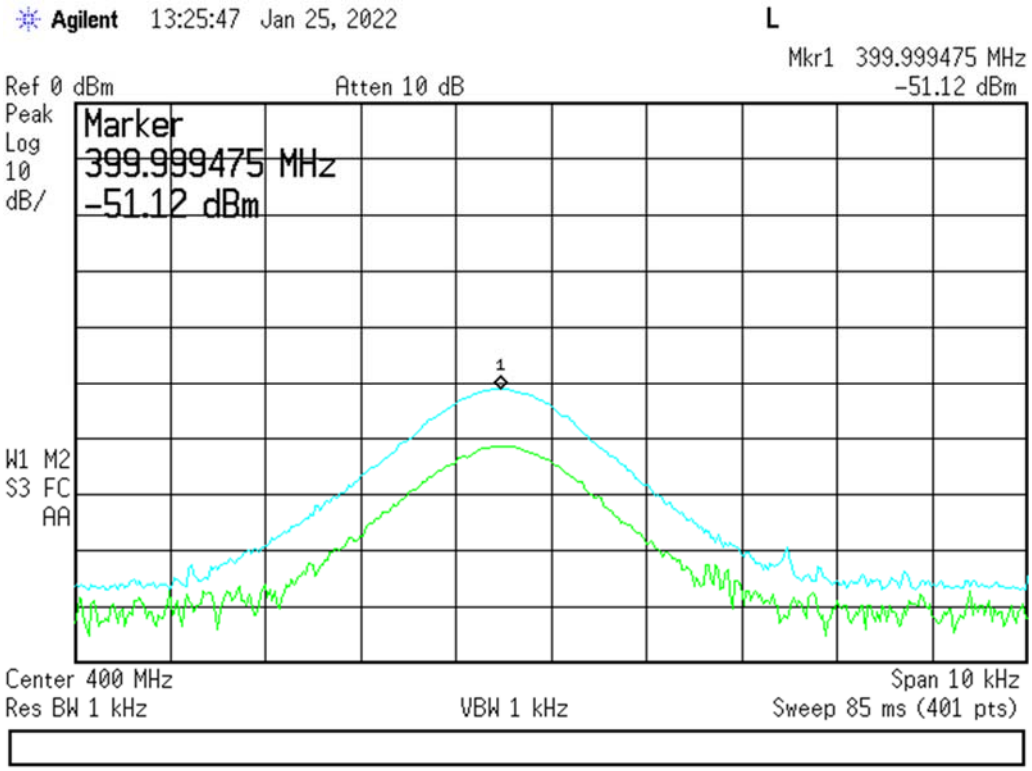
200MHZ SS6 MPC

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



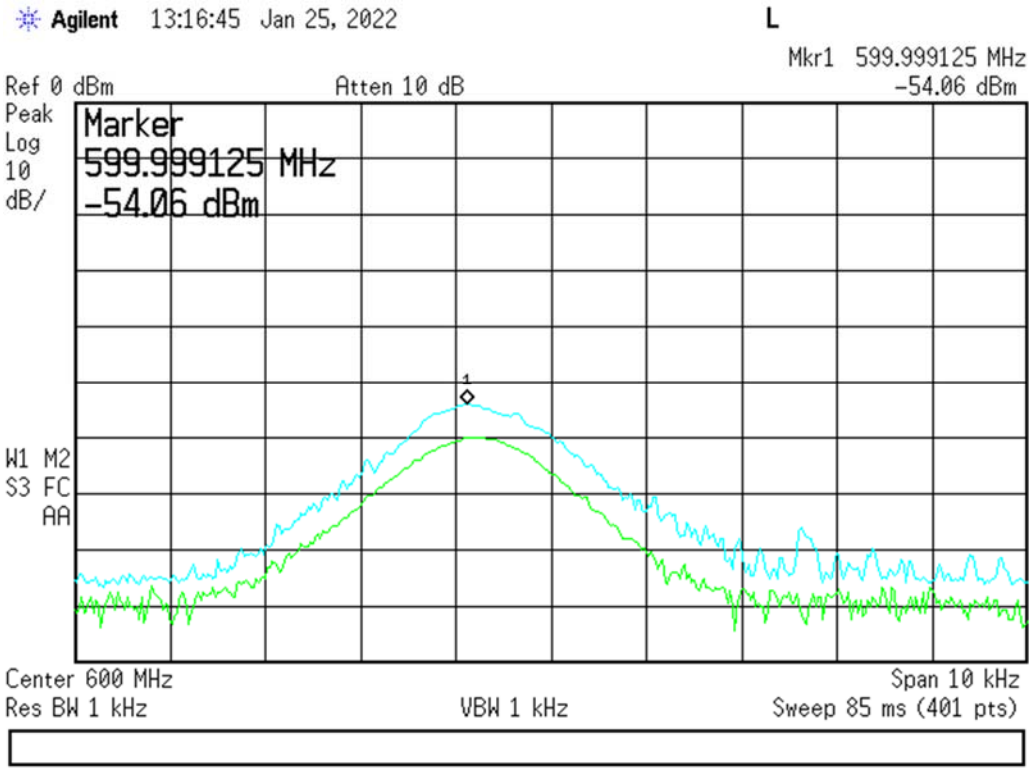
300MHZ SS6 MPC



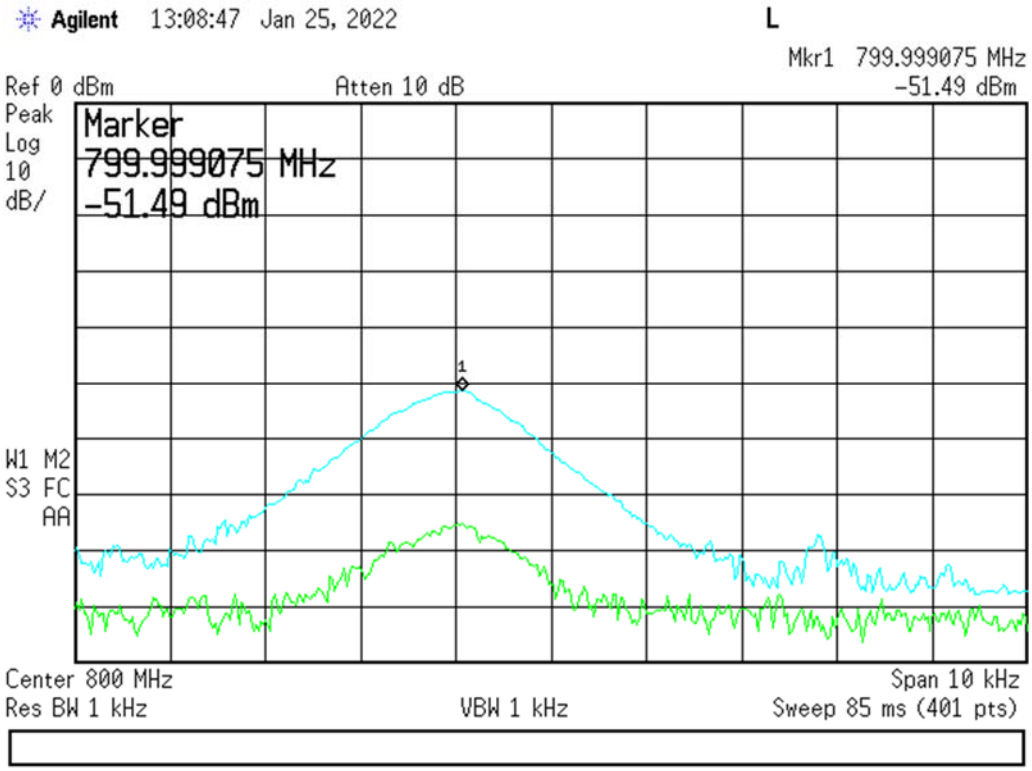
400MHZ SS6 MPC

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



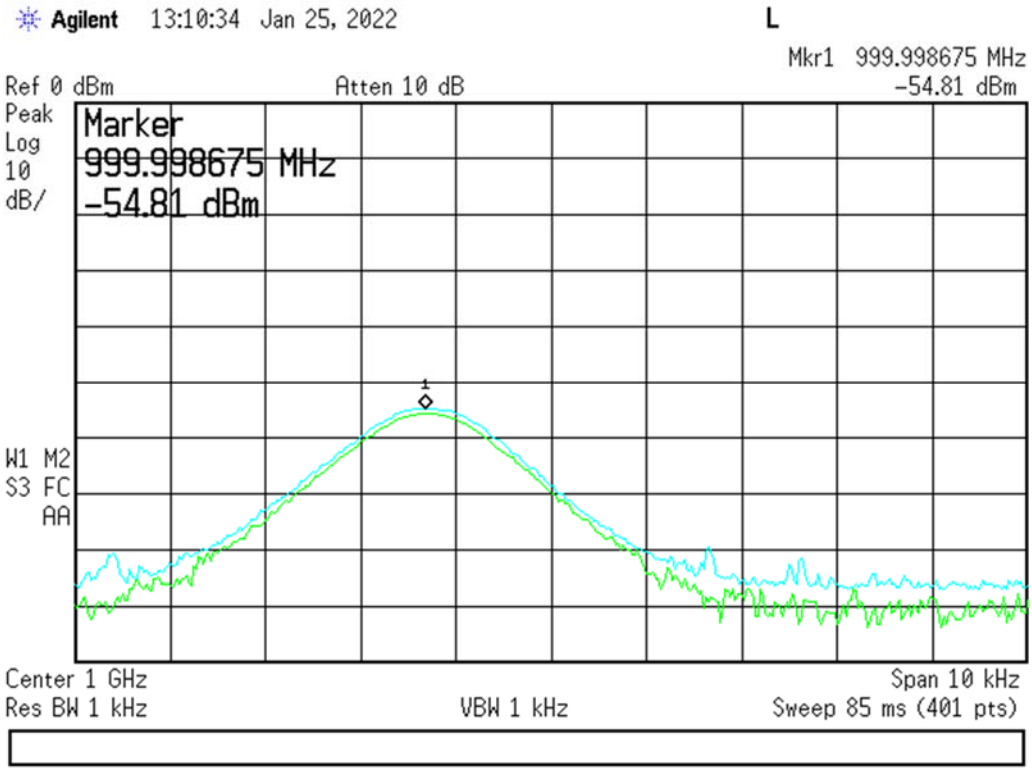
600MHZ SS6 MPC



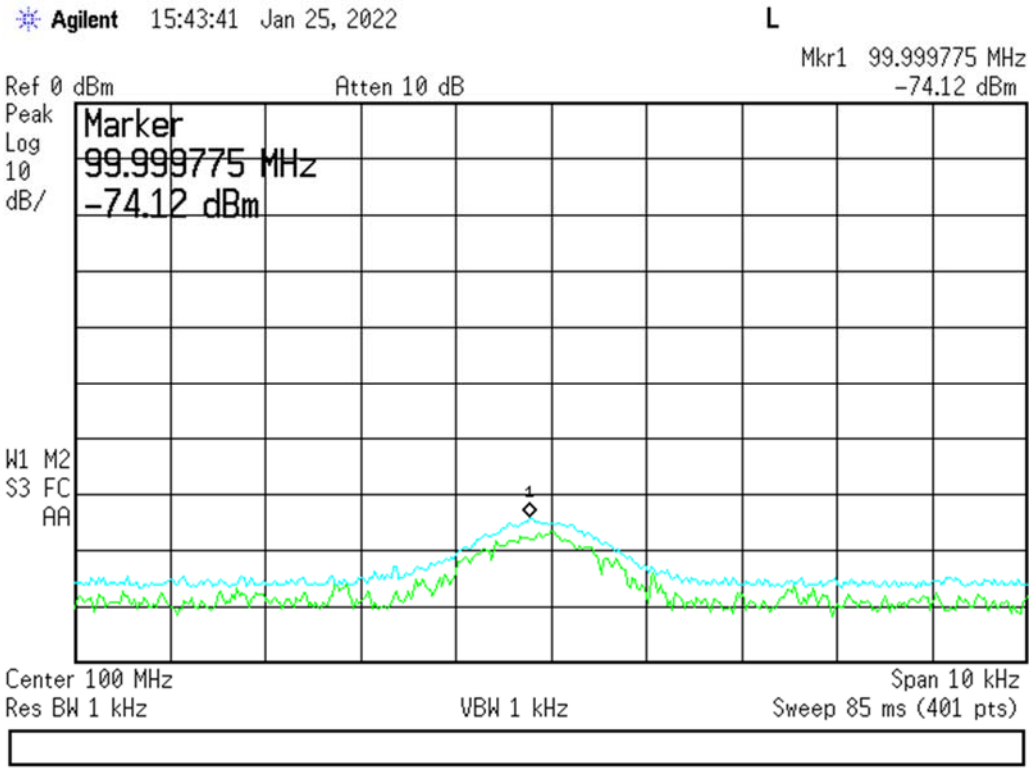
800MHZ SS6 MPC

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



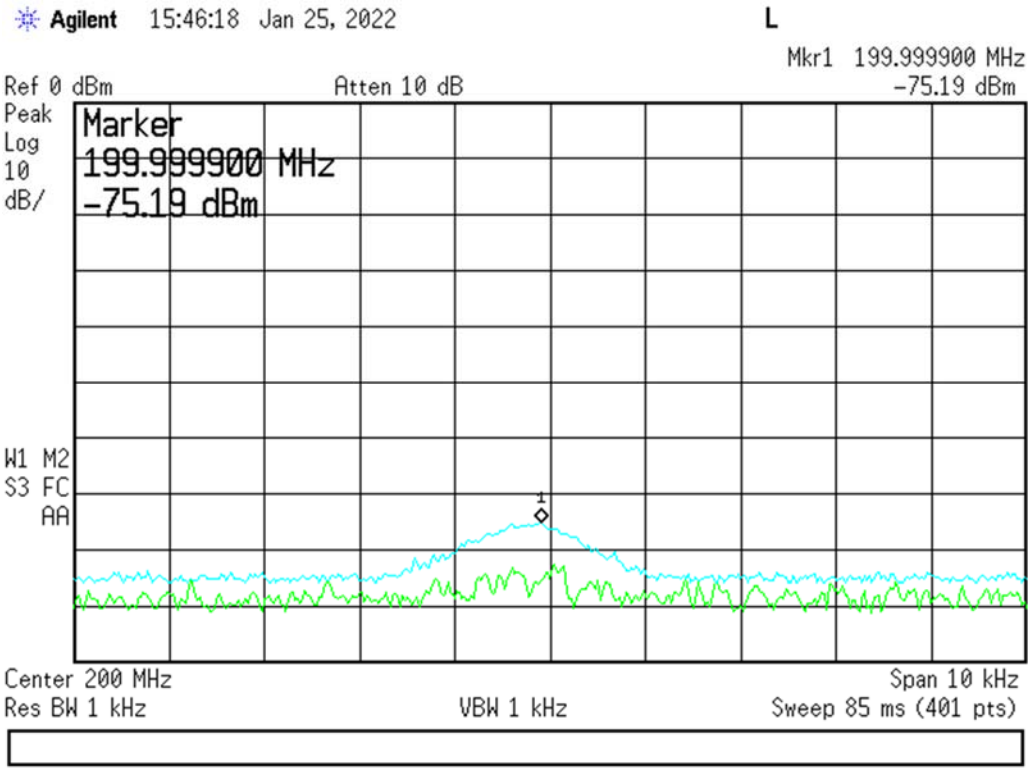
1000MHZ SS6 MPC



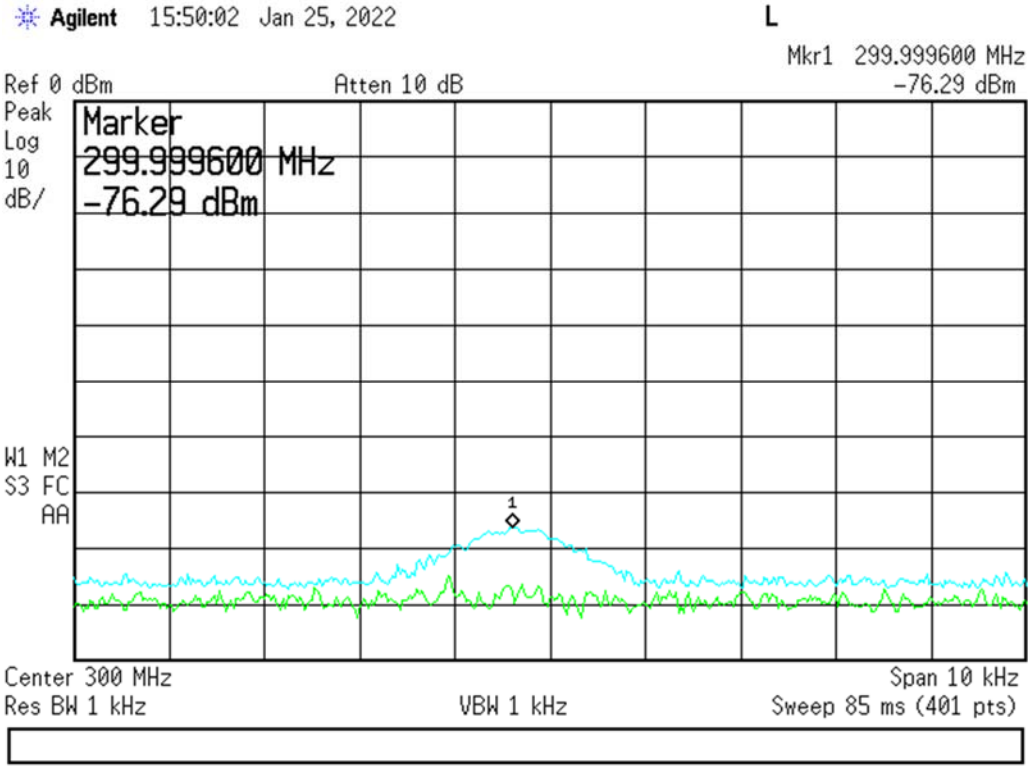
100MHZ SS10 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



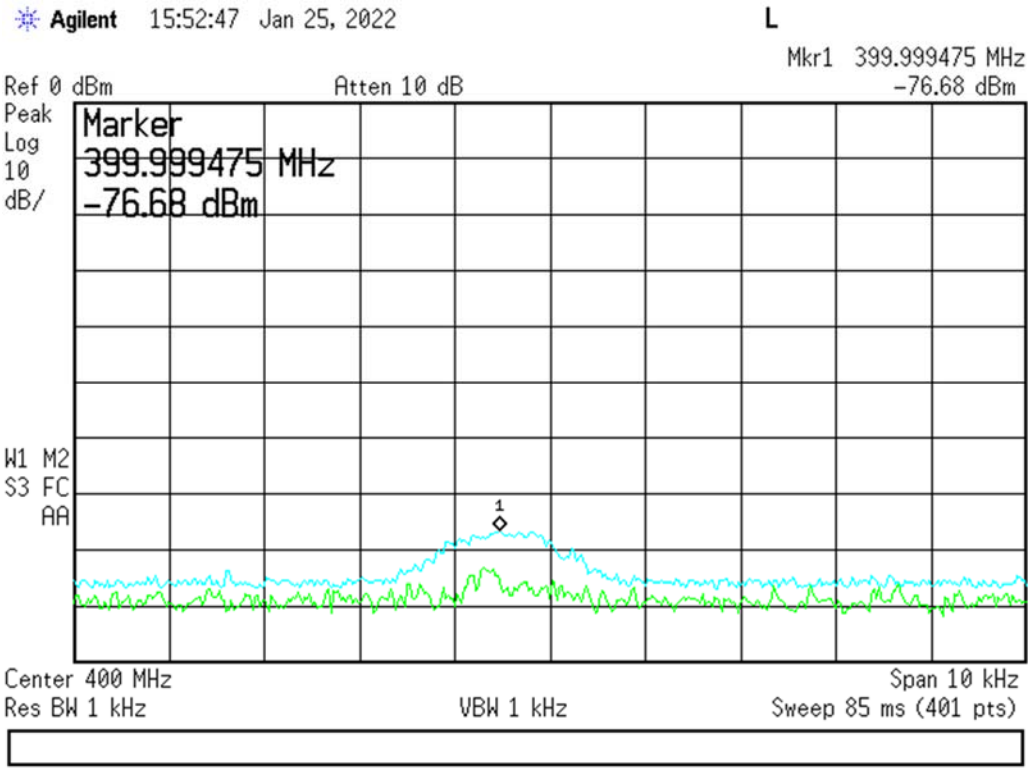
200MHZ SS10 NOISE FLOOR



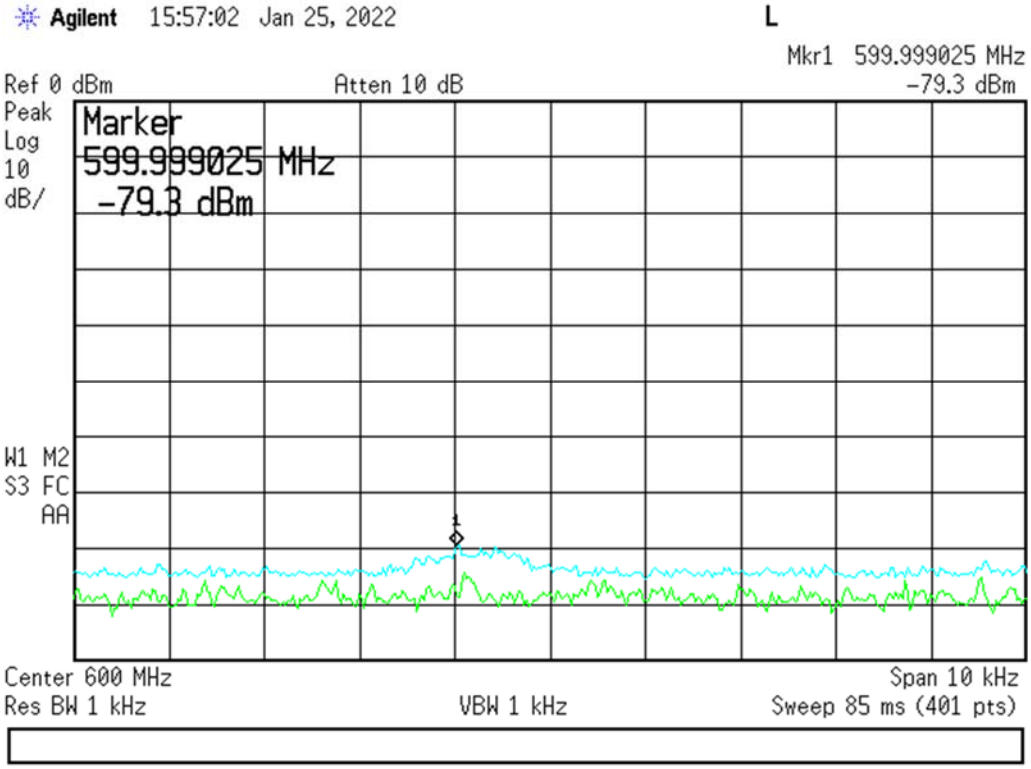
300MHZ SS10 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



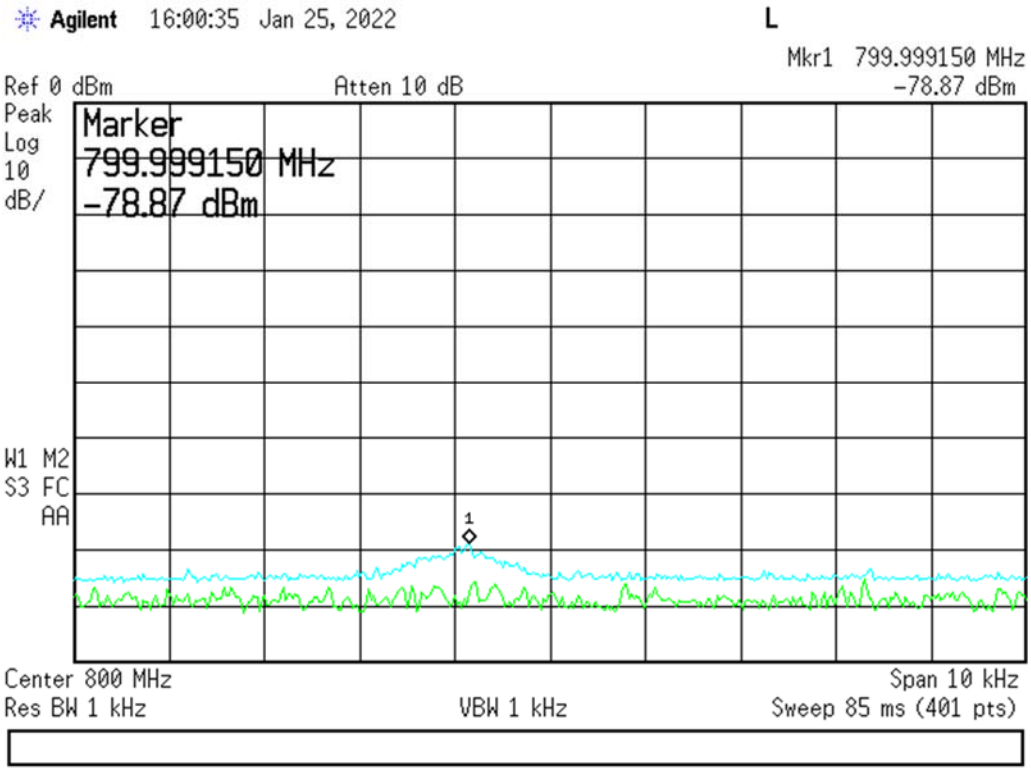
400MHZ SS10 NOISE FLOOR



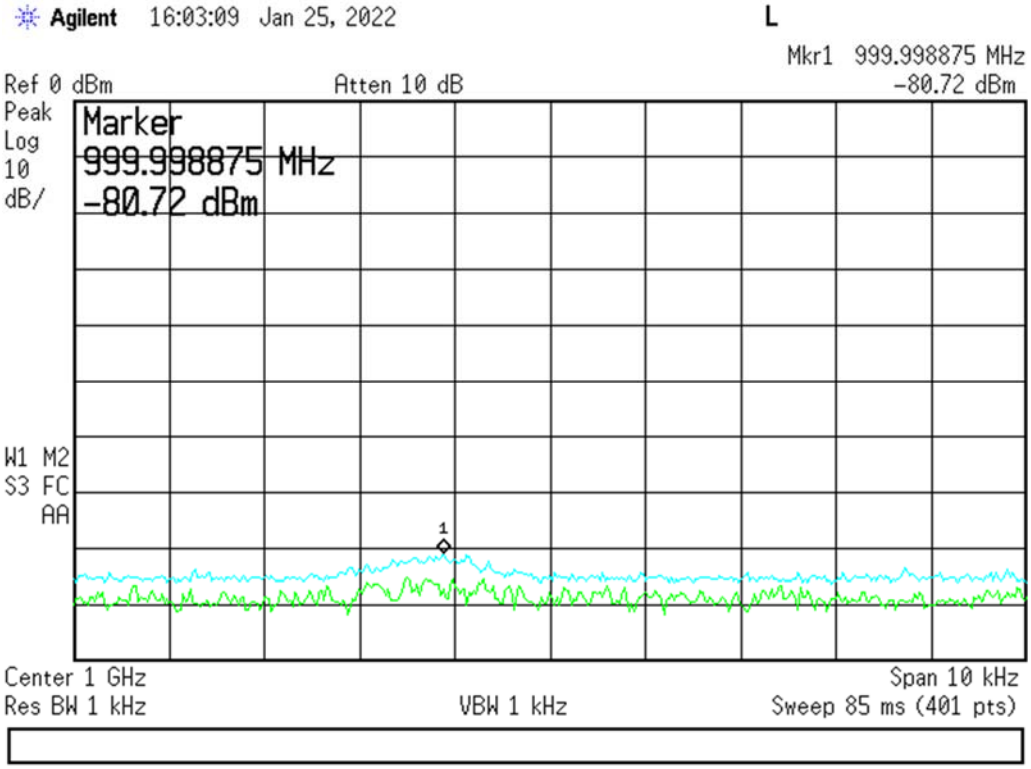
600MHZ SS10 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



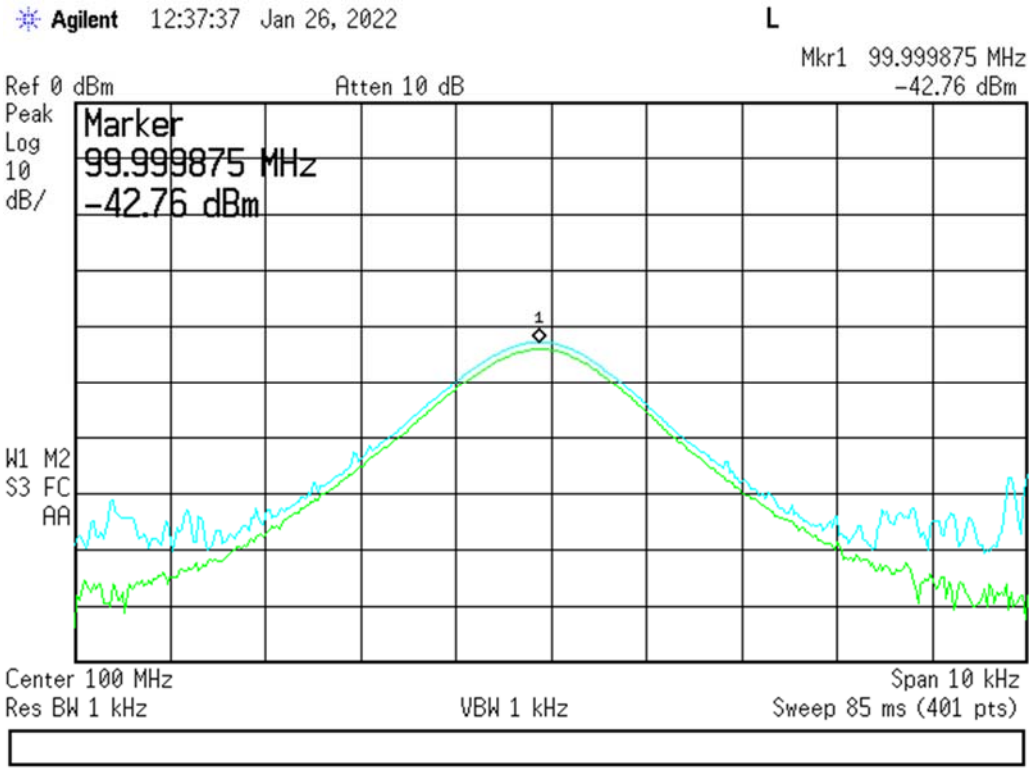
800MHZ SS10 NOISE FLOOR



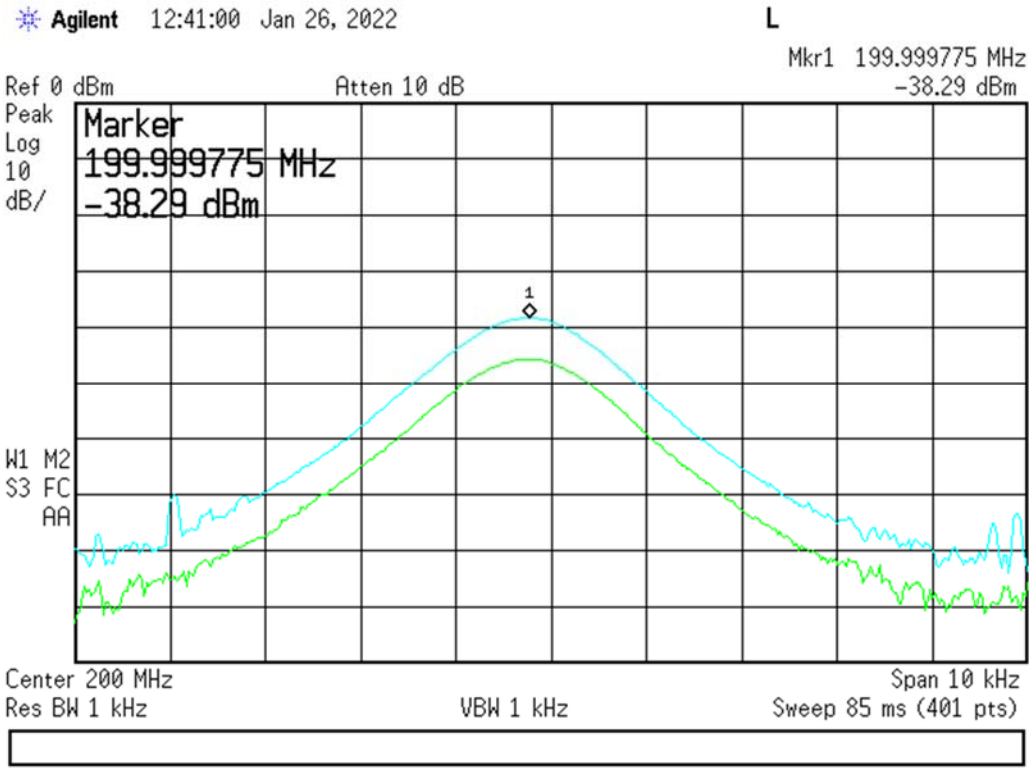
1000MHZ SS10 NOISE FLOOR

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



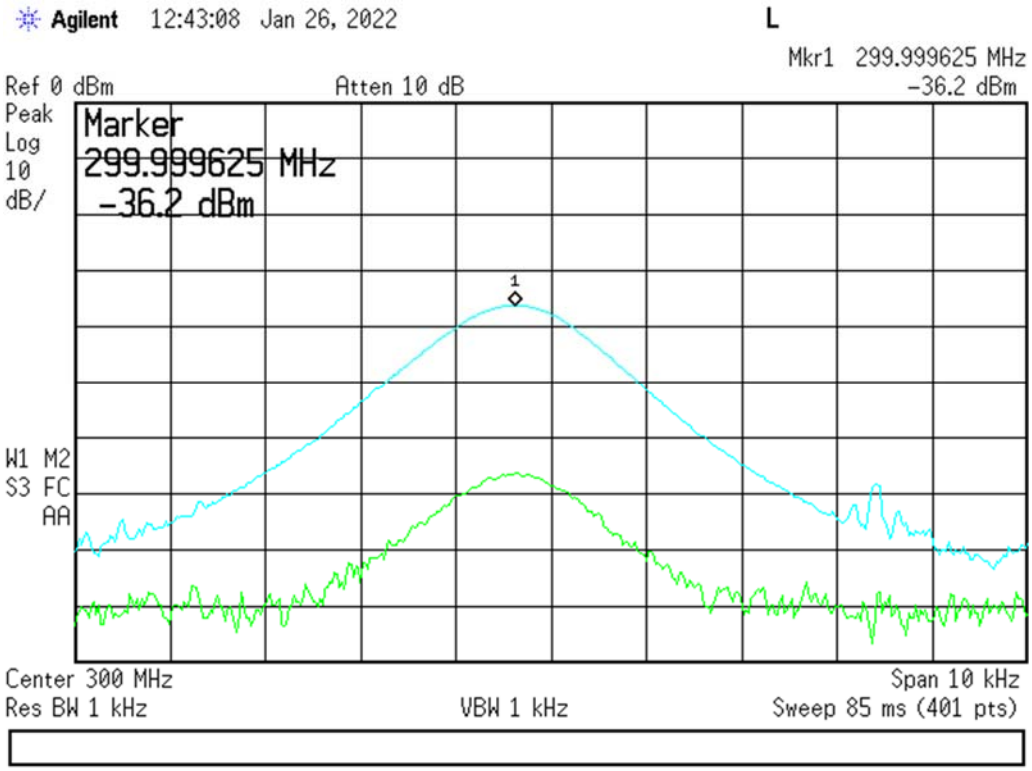
100MHZ SS10 MPC



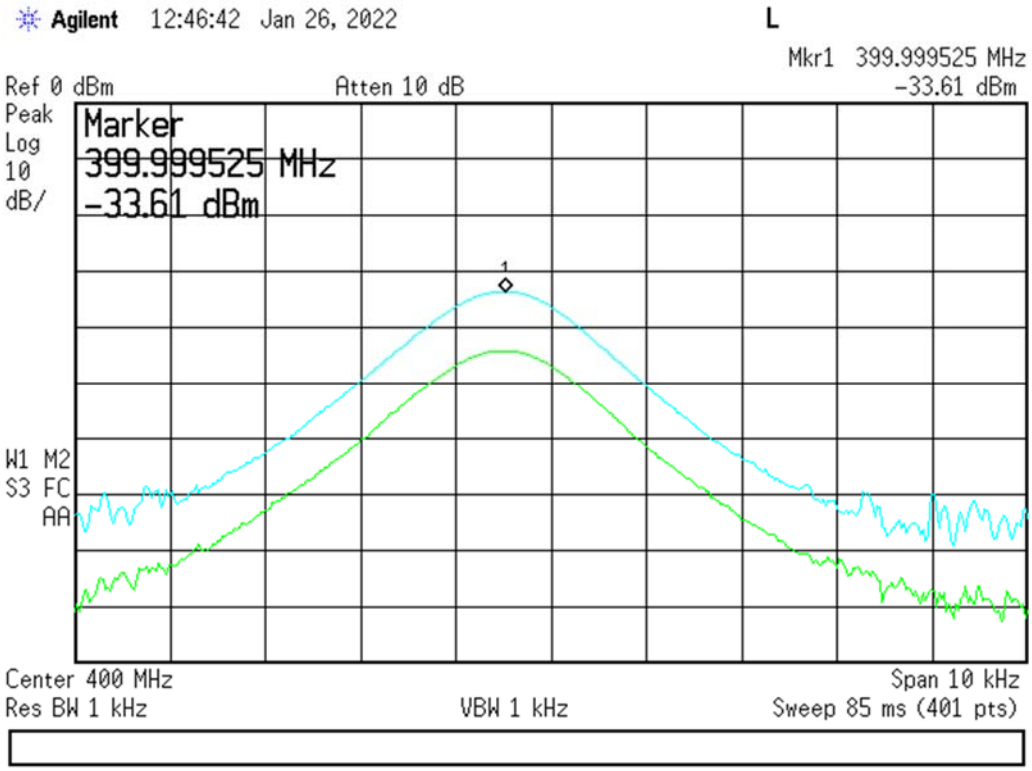
200MHZ SS10 MPC

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



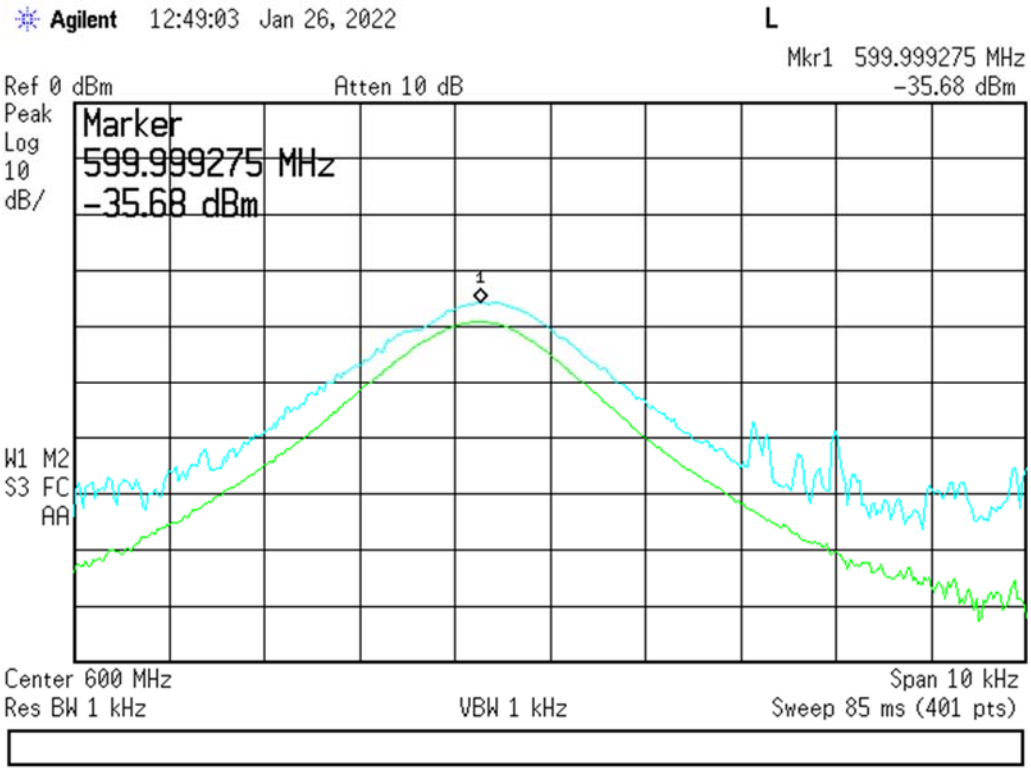
300MHZ SS10 MPC



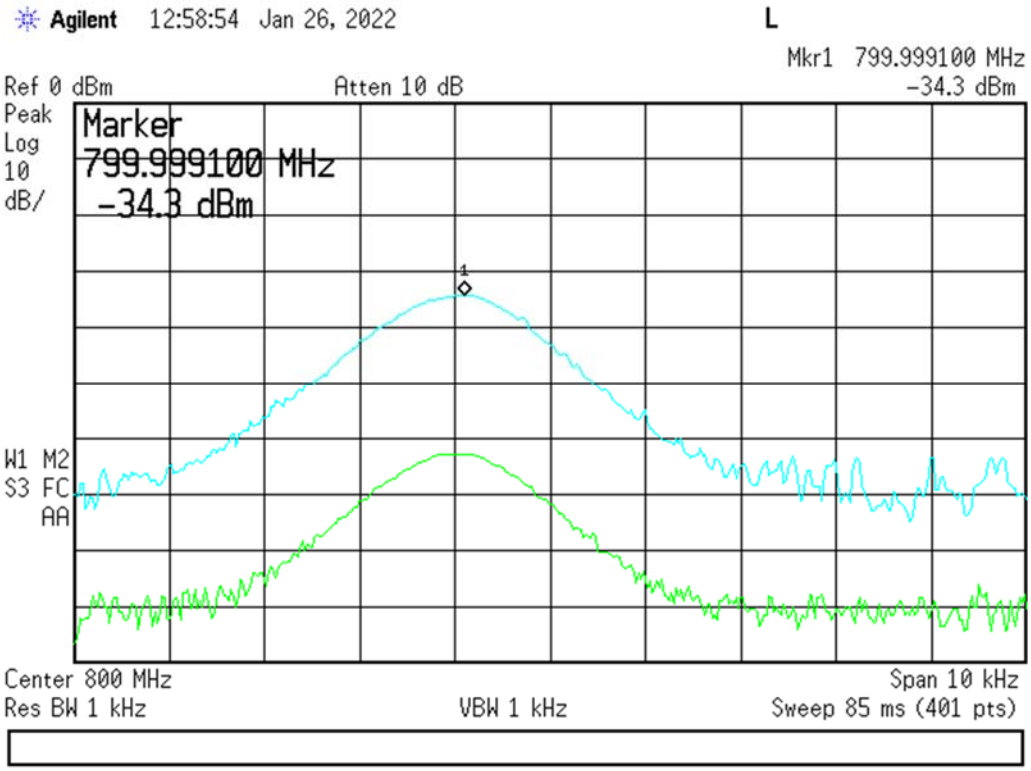
400MHZ SS10 MPC

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



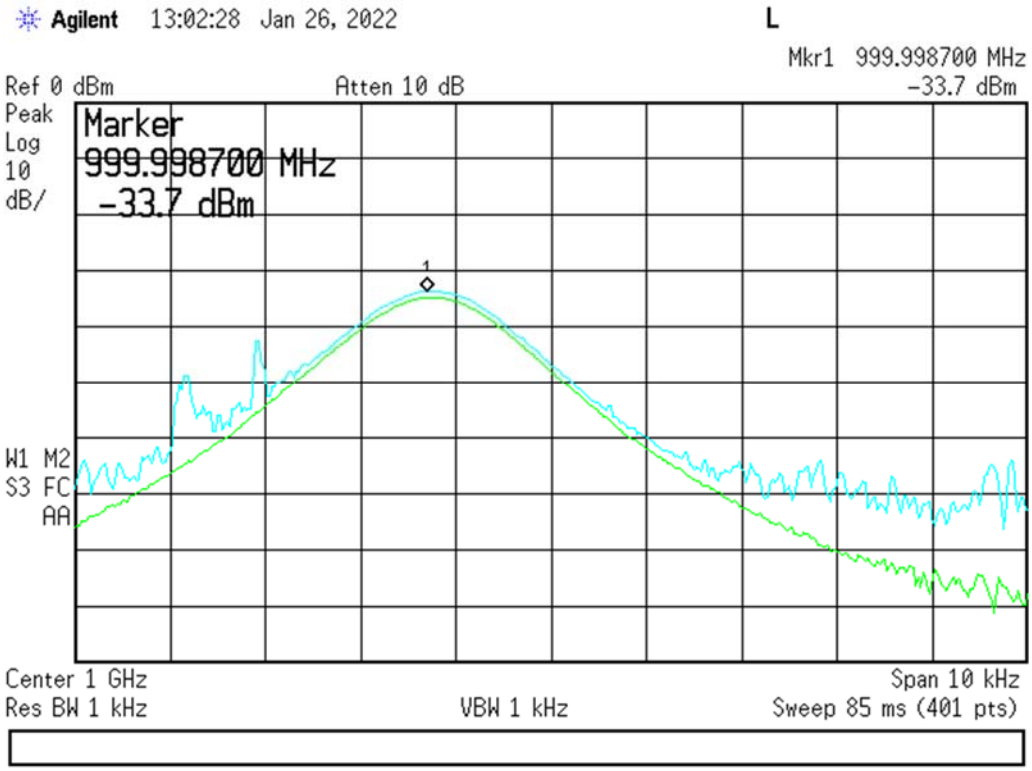
600MHZ SS10 MPC



800MHZ SS10 MPC

Shielding Effectiveness
100 MHz – 1 GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



1000MHZ SS10 MPC

Shielding Effectiveness
100MHz – 1GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**

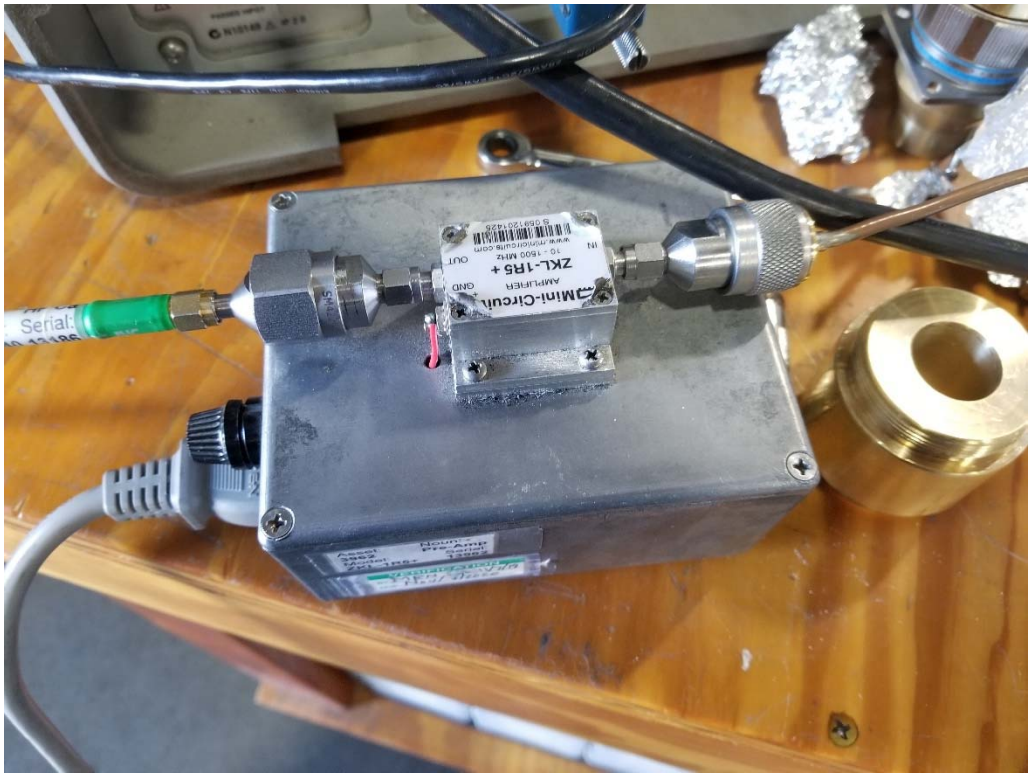
Spectrum Analyzer, 100MHz – 1GHz

Signal Generator, 100MHz – 1GHz

Shielding Effectiveness
100MHz – 1GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**

Tri-axial Fixture



100MHz – 1GHz Pre-Amplifier

Shielding Effectiveness
100MHz – 1GHz

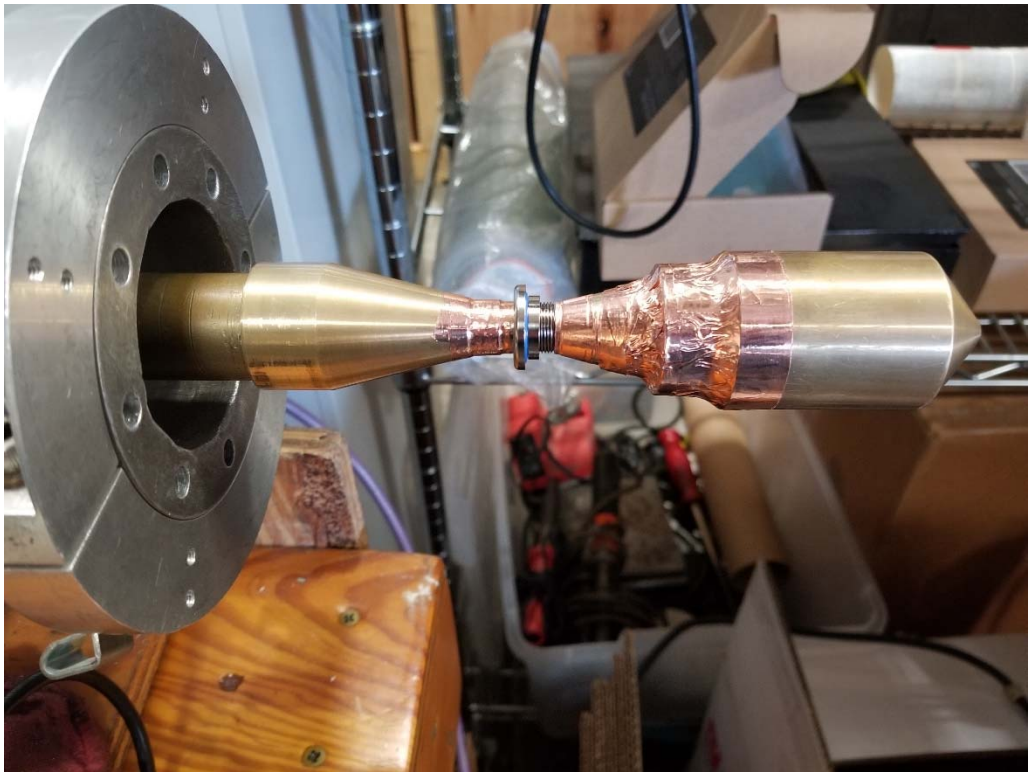
EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**

Reference measurement, 100MHz – 1GHz


SS6 Noise Floor Measurement, 100MHz – 1GHz

Shielding Effectiveness
100MHz – 1GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**



SS6 Mated Pair Sample Measurement, 100MHz – 1GHz

SS10 Noise Floor Measurement, 100MHz – 1GHz

Shielding Effectiveness
100MHz – 1GHz

EUT: Connectors	**Test Procedure: Shielding Effectiveness**
Model / Part #: See Report	**Test Specification: MIL-DTL-38999M**
Serial #: See Report	**Test Engineer: Devin Ratliff**

SS10 Mated Pair Sample Measurement, 100MHz – 1GHz

END OF REPORT

SIZE	CAGE CODE	DRAWING NO.	
A	63242	TR046384	
SCALE: NONE		REV LTR -	FINAL SHEET