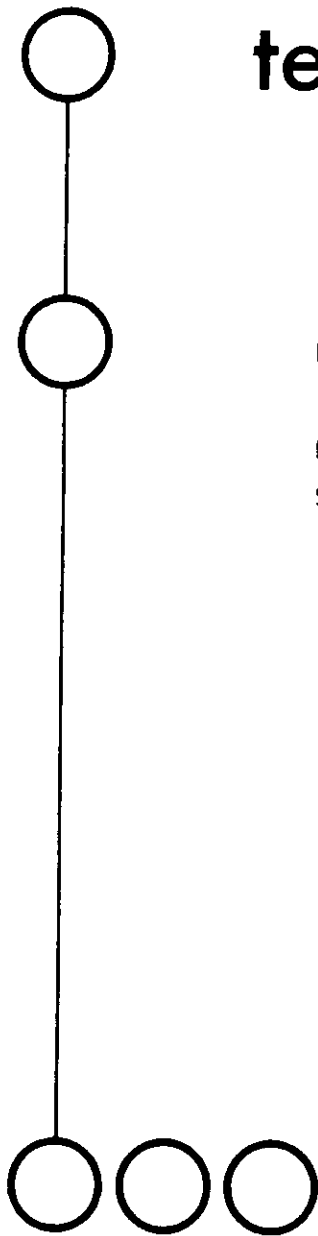




technical report

QUALIFICATION TEST
OF
ULTRA FAST ".250" Series
AWG 16-14 Fully Insulated
FASTON Receptacle Terminal

ELR 121-11 April 14, 1980
S-241 Unrestricted



**Environmental
Testing
Department**

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Rev 0

Technical Services Division
AMP Incorporated · Harrisburg, Pennsylvania

Unrestricted



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ENVIRONMENTAL TESTING DEPARTMENT

April 14, 1980

Qualification Test of ULTRA FAST*
."250" Series, AWG 16-14 Fully
Insulated FASTON* Receptacle Terminal
AMP Specification 108-1043, Rev. B

INTRODUCTION:

ULTRA FAST Fully Insulated FASTON Receptacle Terminals were tested in the Environmental Laboratory to determine if they comply with the performance requirements of AMP Product Spec. 108-1043, Rev. B.

SCOPE:

ULTRA FAST Fully Insulated FASTON Receptacle Terminals crimped to wire in accordance with the procedures of the ULTRA FAST applicator were subjected to the qualification test sequence listed in paragraph 3.4 of the specification.

CONCLUSION:

ULTRA FAST Fully Insulated FASTON Receptacle Terminals part number 3-520116-2 meet those performance requirements of AMP Product Spec. 108-1043, Rev. B.

Product Description:

ULTRA FAST Fully Insulated FASTON Receptacle Terminals consist of a FASTON body enclosed in a fully insulated housing. They mate with FASTON tabs which are used on business and commercial equipment.

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Wire Characteristics:

Stranded, tin plated wire, with 600 volt black insulation, conforming to UL 1015 and as described in AMP Spec. 116-1142 was used for testing.

Test Sample:

<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
225	3-520116-2	Receptacle
20	60447	.250" X .032" Tab
20	61691-1	.250" X .032" Tab

Qualification Test Sequence:

The test sequence of paragraph 3.5 contained in AMP Spec. 108-1043 Rev. B was followed as shown below:

<u>Examination or Test Nomenclature</u>	<u>Requirement & Method Paragraph</u>
<u>Test Group I</u>	
Examination of Product	3.4
<u>Test Group II</u>	
Secureness	3.4
Heating	3.4
Pull Out	3.4
<u>Test Group III</u>	
Dielectric Withstand, Test Cond. A	3.4
<u>Test Group IV</u>	
Heat Age 136 ⁰ C	3.4
Dielectric Withstand, Cond. A	3.4
<u>Test Group V</u>	
Heat Age 100 ⁰ C	3.4
Dielectric Withstand, Cond. A	3.4

Qualification Test Sequence - (cont'd)

<u>Examination or Test Nomenclature</u>	<u>Requirement & Method Paragraph</u>
<u>Test Group VI</u>	
Dielectric Withstand, Receptacle	3.4
<u>Test Group VII</u>	
Dielectric Withstand, Cond. C	3.4
<u>Test Group VIII</u>	
Engagement & Disengagement	3.4
<u>Test Group IX</u>	
Secureness	3.4
Heating	3.4
Pull Out	3.4
<u>Test Group X</u>	
Dielectric Withstand, Cond. A	3.4
<u>Test Group XI</u>	
Heat Age 136 ^o C	3.4
Dielectric Withstand, Cond. A	3.4
<u>Test Group XII</u>	
Heat Age 100 ^o C	3.4
Dielectric Withstand, Cond. A	3.4
<u>Summary of Test Results:</u>	
<u>Test Group I - (5 samples tested)</u>	
<u>Examination of Product - 3.4</u>	

All receptacles selected for test were found to comply with the material, construction, functional dimensions, and workmanship requirements of the specification.

Summary of Test Results: (cont'd)

Test Group II - (20 samples tested)

Secureness - 3.4

Twenty receptacles each, crimped to AWG #14 wire were subjected to two hours of mechanical flexing under load in accordance with the specification. Load used was 3.0 pounds for the AWG #14 wire.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. The joint between the receptacle and the wire remained intact.

Heating - 3.4

Twenty receptacles each, crimped to AWG #14 wire were subjected to a heating (temperature rise) test in accordance with the specification. Samples were stabilized at the specified current and temperature rise was measured and recorded. Specification maximum temperature rise is 20°C.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. Maximum individual temperature rise value is recorded below:

<u>Wire</u>	<u>Current, amperes DC</u>	<u>Max. Individual Temp. Rise</u>
AWG #14	15.0	18.0°C

Pull Out - 3.4

Twenty receptacles each, crimped to AWG #14 wire were subjected to a one minute direct pull in accordance with the specification. Specified load value is 60 pounds for AWG #14 wire.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. The joint between the receptacle and the wire remained intact after one minute, at the specified load.

Summary of Test Results: (cont'd)

Test Group III (20 samples tested)

Dielectric Withstand, Test Cond. A - 3.4

Twenty receptacles each, crimped to AWG #14 wire were subjected to dielectric withstand, test condition A, for a duration of one minute in accordance with the specification. A 3400 volt AC potential was applied between the wire and a container of #12 lead shot in which the receptacle was embedded.

Summary of results

All receptacles were found to comply with the requirements of the specification. There was no breakdown or flashover noted.

Test Group IV (20 samples tested)

Heat Age - 3.4

Twenty receptacles were subjected to an elevated temperature of 136^oC for seven days.

Dielectric Withstand, Test Cond. A - 3.4

After heat age, twenty receptacles were subjected to dielectric withstand, test condition A for a duration of one minute, in accordance with the specification. A 3,400 volt AC potential was applied between the wire and a container of #12 lead shot in which the receptacle was embedded.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. There was no breakdown or flashover noted.

Test Group V (20 samples tested)

Heat Age - 3.4

Twenty uncrimped receptacles were subjected to an elevated temperature of 100^oC for seven days.

Humidity - 3.4

Twenty uncrimped receptacles were subjected to a humidity test for 24 hours. The R.H. was 85% and the temperature was 30^oC. After humidity the samples were crimped to the appropriate wires.

Test Group V (cont'd)

Dielectric Withstand, Test Cond. A - 3.4

After heat age and humidity, twenty receptacles were subjected to dielectric withstand, test condition A, for a duration of one minute in accordance with the specification. A 3,400 volt AC potential was applied between the wire and a container of #12 lead shot in which the receptacle was embedded.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. There was no breakdown or flashover noted.

Test Group VI (20 samples tested)

Dielectric Withstand, Receptacle, Tab Entry Portion - 3.4

Twenty receptacles were subjected to dielectric withstand for a duration of one minute in accordance with the specification. A 1,000 volt AC potential was applied between the receptacle and a flat metal plate, as shown in figure 5 of the specification.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. There was no breakdown or flashover noted.

Test Group VII (20 samples tested)

Dielectric Withstand, Test Cond C - 3.4

Twenty receptacles with tabs inserted were subjected to dielectric withstand test, condition C, for a duration of one minute in accordance with the specification. A 3,000 volt AC potential was applied to the wire and the receptacle on a flat metal plate, as shown in figure 4 of the specification.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. There was no breakdown or flashover noted.

Summary of Test Results (cont'd)

Test Group VIII - (20 samples tested)

Engagement/Disengagement - 3.4

Receptacles and tabs were engaged and disengaged six times in accordance with the specification. Specification requirements are as tabulated below:

1st Engagement, Individual maximum	17 lbs.
1st Disengagement, Individual maximum	17 lbs.
Average minimum	5 lbs.
Individual minimum	3 lbs.
6th Disengagement, Average minimum	4 lbs.
Individual minimum	3 lbs.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. Applicable values are as tabulated below:

	<u>AWG #16-14</u>
1st Engagement, Individual maximum	13.0 lbs.
1st Disengagement, Individual maximum	12.0 lbs.
Average minimum	9.7 lbs.
Individual minimum	6.0 lbs.
6th Disengagement, Average minimum	8.0 lbs.
Individual minimum	4.5 lbs.

Test Group IX (20 samples tested)

Secureness - 3.4

Twenty receptacles each, crimped to AWG #16 wire, were subjected to one hour of mechanical flexing under load in accordance with the specification. The load used was two pounds for AWG #16 wire.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. The joint between the receptacle and the wire remained intact.

Test Group IX (cont'd)

Heating - 3.4

Twenty receptacles each, crimped to AWG #16 wire were subjected to a heating (temperature rise) test in accordance with the specification. Samples were stabilized at the specified current and temperature rise was measured and recorded. Specification maximum temperature rise is 20⁰C.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. Maximum individual temperature rise value is recorded below:

<u>Wire</u>	<u>Current, amperes DC</u>	<u>Maximum Individual Temperature Rise</u>
AWG #16	10.0	13.3 ⁰ C

Pull Out - 3.4

Twenty receptacles each, crimped to AWG #16 wire subjected to a one minute direct pull in accordance with the specification. Specified load value is 30 pounds for AWG #16 wire.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. The joint between the receptacle and the wire remained intact after one minute, at the specified load.

Test Group X (20 samples tested)

Dielectric Withstand, Test Cond. A - 3.4

Twenty receptacles each, crimped to AWG #16 wire were subjected to dielectric withstand, test condition A, for a duration of one minute in accordance with the specification. A 3,400 volt AC potential was applied between the wire and a container of #12 lead shot in which the receptacle was embedded.

Summary of results

All receptacles were found to comply with the requirements of the specification. There was no breakdown or flashover noted.

Summary of Test Results: (cont'd)

Test Group XI (20 samples tested)

Heat Age - 3.4

Twenty receptacles were subjected to an elevated temperature of 136°C for seven days.

Dielectric Withstand, Test Cond. A - 3.4

After heat age, twenty receptacles were subjected to dielectric withstand, test condition A, for a duration of one minute, in accordance with the specification. A 3,400 volt AC potential was applied between the wire and a container of #12 lead shot in which the receptacle was embedded.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. There was no breakdown or flashover noted.

Test Group XII (20 samples tested)

Heat Age - 3.4

Twenty uncrimped receptacles were subjected to an elevated temperature of 100°C for seven days.

Humidity - 3.4

Twenty uncrimped receptacles were subjected to a humidity test for 24 hours. The R.H. was 85% and the temperature was 30°C. After humidity samples were crimped to the appropriate wire.

Dielectric Withstand, Test Cond. A - 3.4

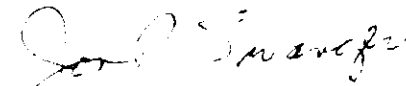
After heat age and humidity, twenty receptacles were subjected to dielectric withstand, test condition A, for a duration of one minute, in accordance with the specification. A 3,400 volt AC potential was applied between the wire and a container of #12 lead shot in which the receptacle was embedded.

Summary of results

All receptacles tested were found to comply with the requirements of the specification. There was no breakdown or flashover noted.

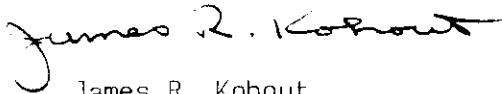
VALIDATION:

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