Job Number	Project Number:	Date of issue:
E 99.07.03.	B915086	August 1999

Description:

Coaxicon series mobile phone

Part numbers:
619055
619028

Scope:

To determine the performance of the SMD-Jack (PN 619055) and Cable Plug (PN 619028) when tested according to AMP Design Objectives 108-71011.

Conclusions:

All requirements were met.

Test Specification: AMP Design Objectives 108-71011

Test Carried Out:
1 Mechanical operation
2 RF tests
3

Distribution:
1 S. Kempter
2 Doc. center
3 File Lab.

Test Engineer: A. Smulders	**Requested by:** Product Engineering	
Laboratory Manager: D.M.J. Jooren.	**Classification:** Unrestricted	
Disposal of Samples: Destroyed	**Report Number:** 501-19032	**Rev. 0**
Appendices:	**Page 1 of 9 Pages**	

CONTENTS

SAMPLE DESRIPTION

Tested were 2 groups of Coaxicon series mobile phone connector switching SMD-Jacks (3.5 mm height) and Coaxicon Series Mobile Phone Protected Contact Cable Plug with High Spring Force.

Group 1
16 SMD-Jacks
16 Cable Plugs

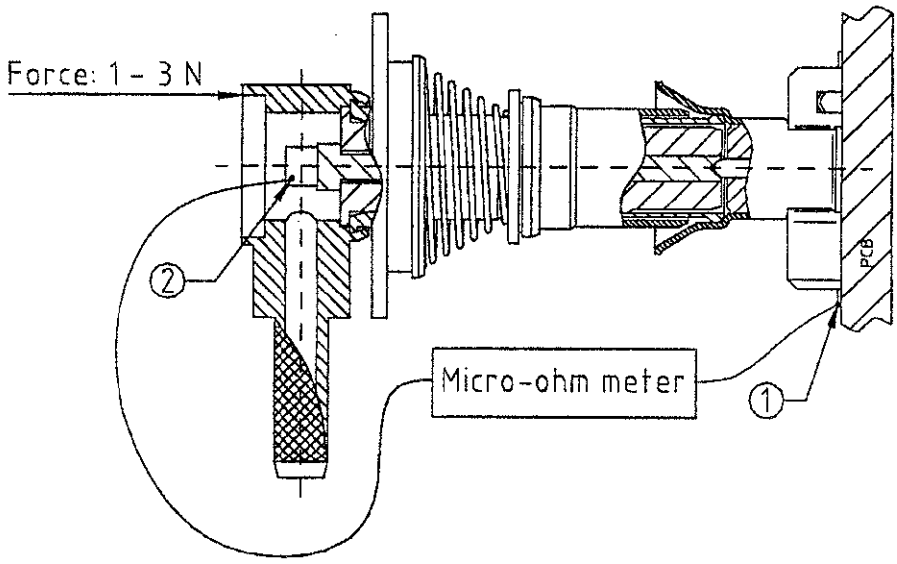
Group 2
4 SMD-Jacks
4 Cable Plugs

TEST PROCEDURES

IEC 512-2-2a:

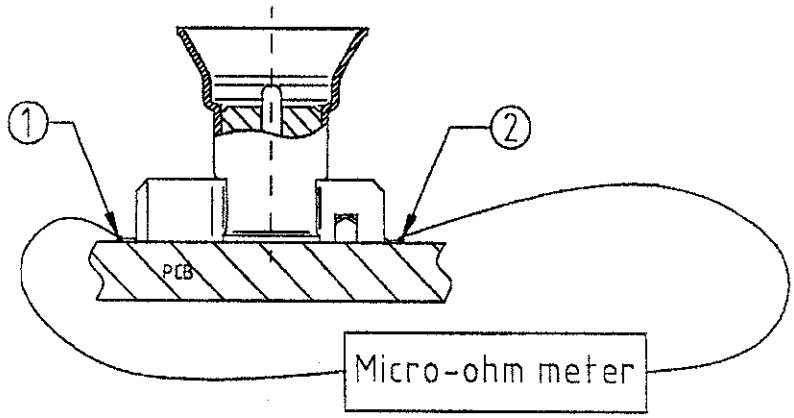
TERMINATION RESISTANCE:

The termination resistance was measured with an open circuit voltage of 20 mVolt and a maximum current of 100 mA DC.
For measuring points see figures 1 to 3.



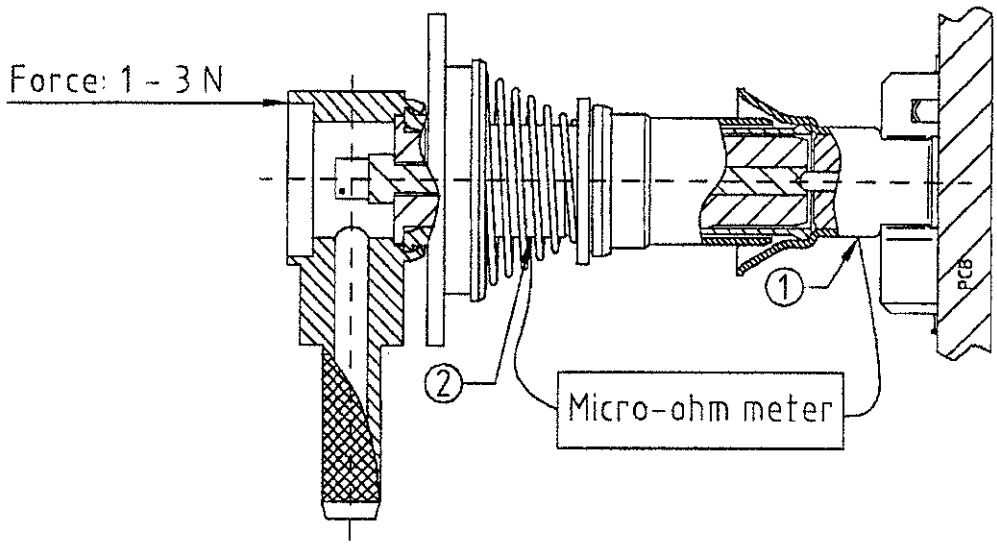
① : measurement point on spring
② : measurement point on center contact of CABLE PLUG

Figure 1 Contact resistance center contact Cable Plug and center contact of SMD-Jack



① : measurement point on spring
② : measurement point on contact switching function

Figure 2 Contact resistance spring contact and second signal contact

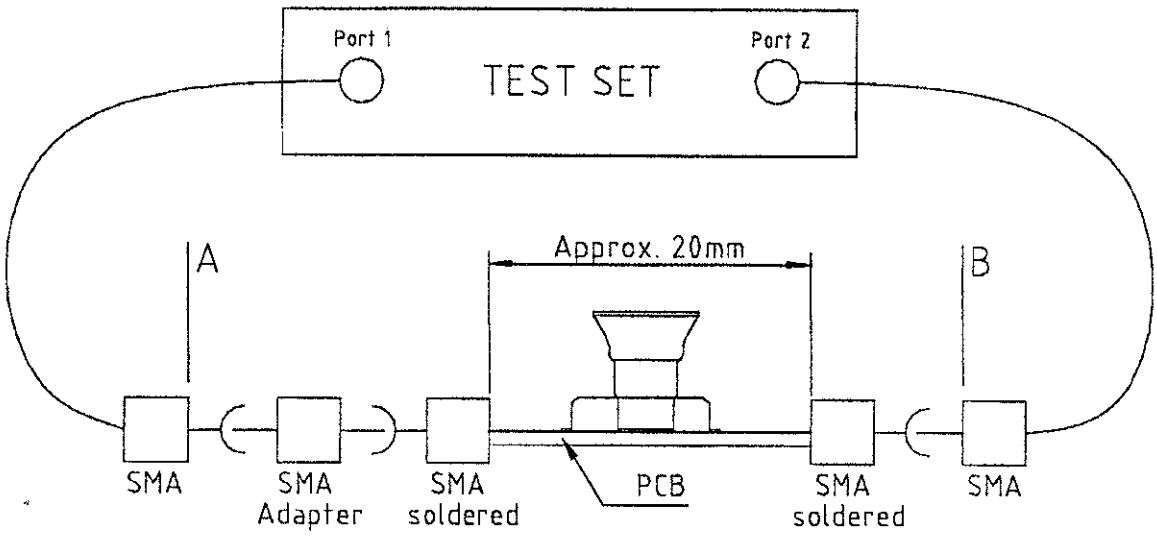


① : measurement point on SMD-JACK outer-shell
② : measurement point on CABLE PLUG outer-shell

Figure 3 Contact resistance outer contact Cable Plug connected

VSWR AND INSERTION LOSS

VSWR and insertion loss was measured according to figures 4 and 5.



• 50 OHM Strip line on PCB

Figure 4 VSWR and insertion loss for SMD-Jack

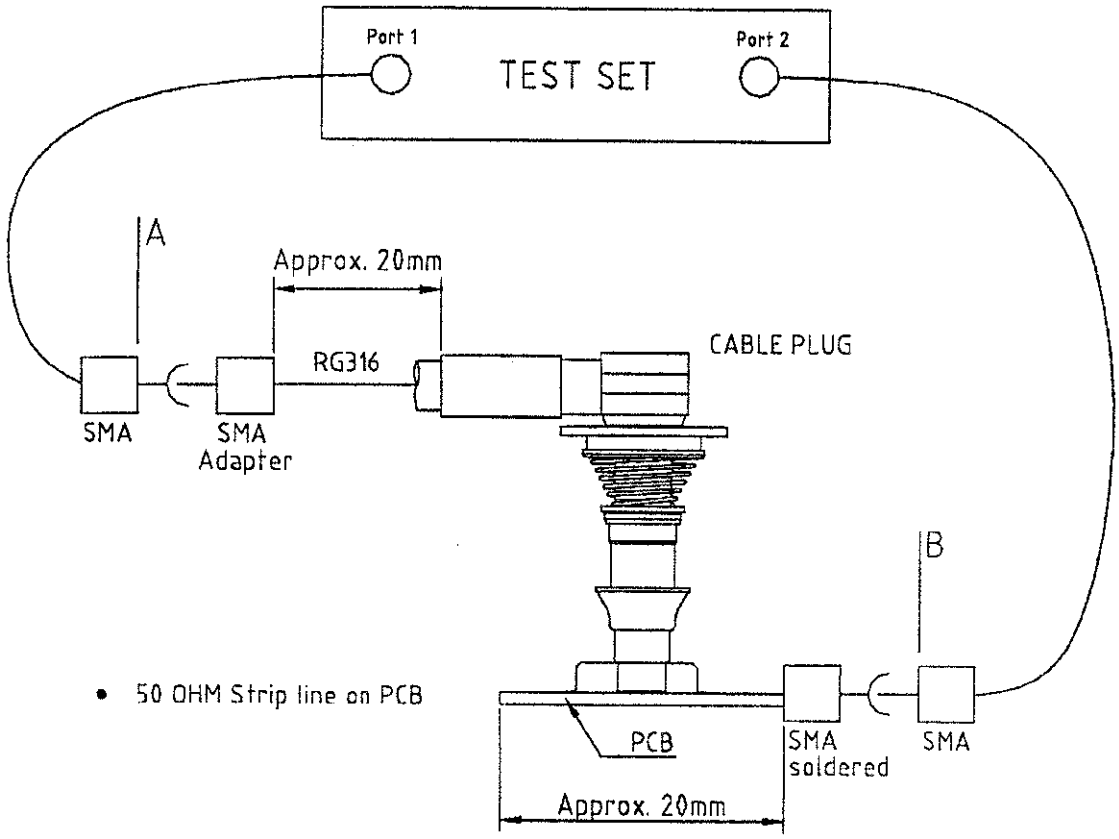


Figure 5 VSWR and insertion loss for SMD-Jack and Cable Plug

IEC 512-5-9a: **MECHANICAL OPERATION: (Enduration)**
The samples were mated and unmated for 30,000 times at a rate of 600 cycles per hour.

TEST SEQUENCE

Group 1

1. Examination of product
2. Contact resistance:
   center contact of Cable Plug and center contact of SMD-Jack
   spring contact and 2nd signal contact
   outer contact Cable Plug connected
3. Mechanical operation
4. Examination of product
5. Contact resistance:
   center contact of Cable Plug and center contact of SMD-Jack
   spring contact and 2nd signal contact
   outer contact Cable Plug connected

Group 2
1. Examination of product
2. VSWR for SMD-Jack
3. Insertion loss for SMD-Jack
4. VSWR for SMD-Jack and Cable Plug
5. Insertion loss for SMD-Jack and Cable Plug

EQUIPMENT USED

Equipment	Producer	Type	Series Nb
Network Analyser	Hewlett Packard	HP 8510B	2643A03501
S-Parameter Test Set	Hewlett Packard	HP 8515A	2820A01753
Sweep Oscillator	Hewlett Packard	HP 8350B	2851A11404
3.5 mm Flexible Test Port Cable	Hewlett Packard	HP 085131-60013	SER 00841
3.5 mm Flexible Test Port Cable	Hewlett Packard	HP 085131-60012	SER 00846
Micro-ohmmeter	Keithley	580	685125
Dynamometer	MECMESIN LTD.	AFG 100N	0007595

SUMMARY OF TESTRESULTS

Required	Measured	
Group 1		
Contact resistance center contact of CABLE PLUG and center contact of SMD-JACK mated		
< 200 mΩ	Maximum: 70 mΩ	**OK**
Contact resistance spring contact and 2nd signal contact of SMD-Jack unmated		
< 250 mΩ	Maximum: 120 mΩ	**OK**
Contact resistance outer contact of CABLE PLUG and SMD-JACK mated		
< 14 mΩ	Maximum: 2.2 mΩ	**OK**

Visual inspection:
After the mechanical operation no deformation or defects, that are detrimental to the connector functions, were found. The samples showed no evidence of damage, cracking or chipping.

Group 2

VSWR SMD-Jack		
DC-1GHz		
<=1.15 dB	Maximum: 1.10 dB	**OK**
1GHz-2GHz		
<=1.22	Maximum: 1.14 dB	**OK**
Insertion loss SMD-Jack		
DC-1GHz		
<=0.21 dB	Maximum: 0.14 dB	**OK**
1GHz-2GHz		
<=0.35 dB	Maximum: 0.21 dB	**OK**
VSWR SMD-Jack and Cable Plug		
DC-1GHz		
<=1.17	Maximum: 1.14 dB	**OK**
1GHz-2GHz		
<=1.22	Maximum: 1.16 dB	**OK**
Insertion loss SMD-Jack and Cable Plug		
DC-1GHz		
<=0.30	Maximum: 0.15 dB	**OK**
1GHz-2GHz		
<=0.45	Maximum: 0.22 dB	**OK**

TESTRESULTS

Group 1

Product name:	COAXICON SERIES MOBILE PHONE
Lot #1	Measurements **30,000 mating cycles** test

Column.	**Measur.**	**Description**
-1-:	C1a1	Contact resistance center contact of CABLE PLUG and center contact of SMD-JACK mated
-2-:	C1a2	Contact resistance spring contact and 2nd signal contact of SMD-Jack unmated
-3-:	C1a2	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated
-4-:	C4	Coupling and Retention force after test

	(C1a1) ***Initial*** **(mOhm)**	(C1a2) ***Initial*** **(mOhm)**	(C1a3) ***Initial*** **(mOhm)**	(C1a1) ***Final*** **(mOhm)**	(C1a2) ***Final*** **(mOhm)**	(C1a3) ***Final*** **(mOhm)**	Coupling **force (N)**	Retent. **force (N)**
Part	***-1-***	***-2-***	***-3-***	***-1-***	***-2-***	***-3-***	***-4-***	***-4-***
1	60	120	1.8	68	114	1.6	1.25	0.74
2	63	106	1.7	60	99	1.7	1.13	0.47
3	64	95	1.7	61	93	1.7	1.17	0.56
4	65	99	1.8	59	95	1.7	1.02	0.58
5	58	84	2.2	54	78	1.8	1.25	0.54
6	59	89	1.4	64	84	1.6	1.26	0.59
7	66	117	1.6	68	92	1.8	1.15	0.56
8	60	103	1.7	64	108	1.7	1.37	0.54
9	61	94	1.7	63	94	1.4	1.19	0.62
10	62	103	1.8	58	99	1.4	0.97	0.57
11	58	104	1.6	61	102	1.5	1.29	0.58
12	60	93	1.5	62	89	1.7	1.07	0.40
13	62	110	1.6	64	103	1.5	1.03	0.59
14	60	110	1.6	63	103	1.5	1.38	0.74
15	63	103	1.6	57	98	1.5	1.04	0.30
16	64	103	1.7	70	99	1.6	1.07	0.56
Max.	**66**	**120**	**2.2**	**70**	**114**	**1.8**	**1.38**	**0.74**
Min.	**58**	**84**	**1.4**	**54**	**78**	**1.4**	**0.97**	**0.30**
Mean.	**61.6**	**102.1**	**1.7**	**62.3**	**96.9**	**1.6**	**1.17**	**0.56**
Spec. values	**< 200**	**< 250**	**< 14**	**< 200**	**< 250**	**< 14**	**< 2**	**< 2**

Group 2

RF measurements

Max values

Frequency	Part	Mated VSWR (C1d3)	Mated Ins. Loss dB (C1d4)	Unmated VSWR (C1d1)	Unmated Ins. Loss dB (C1d2)
DC-1GHz	**Spec. values**	**<=1.17**	**<=0.30**	**<=1.15**	**<=0.21**
	#1	1.14	0.15	1.10	0.13
	#2	1.11	0.14	1.06	0.12
	#3	1.12	0.14	1.08	0.14
	#4	1.11	0.14	1.06	0.13
1GHz-2GHz	**Spec. values**	**<=1.22**	**<=0.45**	**<=1.22**	**<=0.35**
	#1	1.16	0.21	1.14	0.20
	#2	1.12	0.22	1.08	0.19
	#3	1.13	0.22	1.12	0.21
	#4	1.12	0.22	1.08	0.19