Job Number	Project Number:	Date of issue:
E98.01.08	96-69002	March 1998

Description:

COAXICON

Series Mobile Phone Connector

Part numbers:
619013 rev. F
619022 rev. A
619028 rev. O1

Scope:
To determine the electrical and mechanical performance of the COAXICON connector-system consisting of a Front Contact Cable Plug 90 ° and a Switching SMD-Jack, when the COAXICON connector-system is tested according to the design objectives (AMP Product Specification 108-71000 rev. B).

Conclusions:
The electrical and mechanical performance of the COAXICON connector-system was found to be as described in the design objectives (AMP Product Specification 108-71000 Rev.B) except for the following items:
- the Dust test, that was found to be inappropriate for the Switching SMD-Jack.
- the Salt Mist test, that was found to be inappropriate for the Switching SMD-Jack.
Two additional corrosion tests were done that showed good results:
- An Artificial Perspiration test and - a Mixed Gas test.

Some contact resistances were higher than specified in Revision B. This dispersion was also seen later in the production, and it was quite acceptable.
As RF-measurements showed no influence of these high values on the RF-performance, the specified values were increased accordingly in Revision C.

To prevent interruptions > 1µsec during the Bump test, the Cable Plugs with High Spring Force (P/N 619028) had to be used. The Cable Plug P/N 619022 hasn't been tested under random vibrations.

Test Specification: - Design Objectives (AMP Product Specification 108-71000 Rev. B)
- AMP Product Specification 108-71000 Rev. C

Test Carried Out: 1 See page 6 to 8
2
3

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

Test Engineer: S. Kempter/ J. Peetjens	**Requested by:** DSM
Laboratory Manager: D.M.J. Jooren.	**Classification:** Unrestricted
Disposal of Samples: Returned	**Report Number:** 501-19007
Appendices:	**Page** 1 **of** 36 **Pages**

CONTENTS:

SUMMARY:

	Results	Notes
Mechanical stress:		
Mechanical operation (durability) (C4)	✓	
Shock (C10)	✓	
Random vibrations (C11)	✓	only Cable Plug P/N 619028 was tested.
Bumps (C12)	✓	only Cable Plug P/N 619028 showed no discontinuity.
Environmental stress:		
Resistance to soldering heat (C3)	✓	
Dry heat (C6)	✓	
Cold (C7)	✓	
Damp heat steady state (C8)	✓	
Rapid change of temperature (C9)	✓	
Dust test (C13)	-	This test is inappropriate for such kind of parts.
Salt mist (C14)	-	This test is inappropriate for such kind of parts.
Characteristics:		
Contact resistance (C1a)	✓	With updated values of Rev. C
Voltage proof (C1b)	✓	
Insulation resistance (C1c)	✓	
VSWR (C1d1, C1d3)	✓	
Insertion loss (C1d2, C1d4)	✓	
Isolation (C1f)	✓	
Coupling and retention force (C2)	✓	

UPDATE OF AMP PRODUCT SPECIFICATION 108-71000:

Changes from Revision B to Revision C:

Rev.B	Rev.C	
-	S.2	- New: Changes from Revision B to Revision C:
S.2	S.3	- Suppression of the foreword. - P/N 619014 is obsolete. - New: P/N 619022, Protected Front Contact Cable Plug - New: P/N 619028, Protected Front Contact Cable Plug with High Spring Force - New in 2.3 Other documents: MIL-STD-801
S.3	S.4	- New in 3.2 Material and Finish, B. Other parts: Brass or GD-ZnAl4Cu1 - New in 3.3 Ratings: Position tolerance center lines (previously C15 in Group C) Position tolerance axial (previously C16 in Group C)
S.4	S.5	- Characteristics to be measured after stress: Examination of product (A1) Contact resistance (C1a1, C1a2, C1a3) - New: see Test Sequence in Appendix 2.
S.5	S.6	- Coplanarity, stand off (A3): Meets requirements of product and customer drawings. - Contact resistance C1a1: After stress: New: 200mOhm (Previously: 100mOhm) - Contact resistance C1a2: Initial: New: 150mOhm (Previously: 100mOhm) After stress: New: 250mOhm (Previously: 120mOhm) - Insulation resistance after stress: New: >= 1 Gohm (Previously: >= 500 Mohm) - Insertion loss (C1d2): After stress (DC - 1GHz): New: <= 0.21 dB (Previously: <= 0.2 dB) - VSWR (C1d3): After stress: (1GHz - 2GHz): New: <= 1.25 (Previously: <= 1.22) - New: (**): See Para. 3.4.7 for influence of mating angle on RF performance.
S.6	S.7	- Resistance to soldering heat: New: 1 cycle (Previously: 3 cycles) - Suppression of C15 as Position tolerance center lines. - New C15: Artificial perspiration in acc. with NF S 80-77. - Suppression of C16 as Position tolerance axial. - New C16: Mixed gas test in acc. with IEC 68-2-60-Ke/2. - New: (a) Shall show no evidence of damage, cracking or chipping. - New: (a) in C4, C6 to C12.
S.7, 8	S.8, 9	- New: Measurement points (Previously: solder point)
S.11	S.12	- The SMD-Jack is mated with the Cable Plug. (Previously: use of a plastic piece)
-	S.13	- New: 3.4.7 Influence of mating angle on RF performance.
S.12	S.14	- The detailed description of the critical dimensions is replaced by the sentence: "For all the critical dimensions".
S.13	-	- Suppression of Appendix 1 as: Definition of Coplanarity and Stand Off, because it is part of customer drawing Nr. 619013.
S.15	S.16	New: Appendix 2: Test Sequence

SAMPLE DESCRIPTION:

Testgroups Lot #1..#9, #11, #12 consist of 16 COAXICON connector systems. Each connector system consists of a Front Contact Cable Plug 90 °
(P/N: 619022, rev. A for Lot #1, #2, #4.. #9, #11, #12)
(P/N: 619028, rev. O1 for Lot #2, #3)
and a Switching SMD-Jack (P/N: 619013, rev. F) mounted on a PCB.
Lot #10 consists of 16 Switching SMD-Jacks (P/N: 619013, rev. F).

TESTPROCEDURES:

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.
See figures 3.4.2.1 (C1a1), 3.4.2.2 (C1a2) and 3.4.3 (C1a3) on pages 8 and 9 in AMP Product spec. 108-71000 Rev.C.

IEC 512-2-3a:

Insulation resistance:
This measurement was done with a programmable electrometer. The measuring voltage was 100 Volt DC during one minute.

IEC 512-2-4a:

Voltage proof:
This measurement was done with a high voltage tester. The test duration was one minute at 250 V_{rms}.

IEC 68-2-36:

Random Vibrations:
The samples were mounted on a vibration table and vibrated in each of 3 mutually perpendicular directions during 4 hours.
Frequency range: 10-500 Hz
Spectral density power: 0.0027 g^2/Hz.
Acceleration of 1.15 g eff.
During this vibration test the samples were connected to a discontinuity tester to detect contact interruptions longer than 1 micro-second.
Spring compression of Cable Plug: 0.6mm

IEC 512-5-9a:

Mechanical operation:
The samples were mated and unmated for 30.000 times.

IEC 512-4-6c:

Shock test:
The fixture with the connector system was mounted on the shock table.
Acceleration 500g, half sinewave pulses of 11 msec.
3 shocks in each of six mutually perpendicular directions were executed.
Spring compression of Cable Plug: 0.6mm

IEC 512-4-6b:

Bump test:

Acceleration 40g, half sinewave pulses of 11 msec.
1000 bumps in each direction were executed.
The samples were provided with a circuit to detect interruptions of continuity longer than 1 micro-second.
Spring compression of Cable Plug: 0.6mm

IEC 68-2-56 Cb:

Damp heat, steady state:

The samples were subjected to a damp heat steady state test under the following conditions:

Temperature	: 40° C.
Rel. humidity	: 95%.
Condition	: unmated.
Duration	: 96 hours.

IEC 68-2-2 Ba:

Dry heat:

The samples were subjected to a dry heat test under the following conditions:

Temperature	: 85°C.
Condition	: mated. (Spring compression: 0.6mm)
Duration	: 96 hours.

IEC 512-6-11j:

Cold:

The samples were subjected to a temperature of -40°C during 96 hours.

IEC 512-6-11d:

Rapid change of temperature:

The samples were subjected to a rapid change of temperature test under the following conditions:
One cycle consists of:

Upper temperature	: 85°C for 60 minutes.
Lower temperature	: -40°C for 60 minutes.
Condition	: unmated.
Number of cycles	: 32.

IEC 512-6-11f:

Salt mist:

The samples were placed in a salt spray chamber during 48 hours at a temperature of 35°C and with a salt mist produced of a 5% salt solution

MIL-STD 810E TM510.3 **Dust test:**

The samples were subjected to a three-step dust test, see table below for the dust severity.

Step number	Temperature °C	Dust concentration gramms/cubic meter	Air velocity meters/second	Duration hours
1	23	10,5	8,9	6
2	63	0	1,53	16
3	23	10,5	8,9	6

IEC 68-2-20, Tb **Resistance to soldering heat:** (Method 1a)

The samples were 1 times subjected to a IR reflow soldering curve, see curve in AMP Product spec. 108-71000 Rev. C, page 15.

NF S 80-77 **Artificial perspiration:**

Cottons moisted with artificial perspiration were placed near/on the contacts and this whole was placed in an oven with a temperature of 55°C.

The artificial perspiration consists of:
- distilled water (85%)
- Sodium chloride (10%)
- Lactic acid (5%)

IEC 68-2-60-Ke/2 **Industrial atmosphere:**

The test samples were placed in a climatic chamber under the following conditions:

Temperature	: 30°C.
Relative humidity	: 70%.
Cl_2 concentration	: 10 ppb.
NO_2 concentration	: 200 ppb.
H_2S concentration	: 10 ppb.
Condition	: unmated
Duration	: 21 days.

TESTSEQUENCES:

Lot #1

Visual inspection
Mechanical operation (durability), C4
Visual inspection
Termination resistance, C1a1, C1a2, C1a3
VSWR (SMD-Jack), C1d1
Insertion loss (SMB-Jack), C1d2
VSWR (SMD-Jack and Cable-Plug), C1d3
Insertion loss (SMD-Jack and Cable-Plug), C1d4
Isolation (SMD-Jack), C1f1
Coupling and Retention force, C2

Lot #2

Visual inspection
Bump, C12
Shock, C10
Visual inspection
Termination resistance, C1a1, C1a2, C1a3

Lot #3

Visual inspection
Random vibration, C11
Visual inspection
Termination resistance, C1a1, C1a2, C1a3

Lot #4

Visual inspection
Dry heat, C6
Visual inspection
Termination resistance, C1a1, C1a2, C1a3
VSWR (SMD-Jack), C1d1
Insertion loss (SMB-Jack), C1d2
VSWR (SMD-Jack and Cable-Plug), C1d3
Insertion loss (SMD-Jack and Cable-Plug), C1d4
Isolation (SMD-Jack), C1f1

Lot #5

Visual inspection
Cold, C7
Visual inspection
Termination resistance, C1a1, C1a2, C1a3

Lot #6

Visual inspection
Damp heat, steady state, C8
Visual inspection
Termination resistance, C1a1, C1a2, C1a3
Voltage proof, C1b

Lot #7

Visual inspection
Rapid change of temperature, C9
Visual inspection
Termination resistance, C1a1, C1a2, C1a3
Insulation resistance, C1c

Lot #8

Visual inspection
Dust, C13
Visual inspection
Termination resistance, C1a1, C1a2, C1a3

Lot #9

Visual inspection
Salt mist, C14
Visual inspection
Termination resistance, C1a1, C1a2, C1a3

Lot #10

Visual inspection
Resistance to soldering heat, C3
Visual inspection

Lot #11

Visual inspection
Artificial perspiration, C15
Visual inspection
Termination resistance, C1a1, C1a2, C1a3

Lot #12

Visual inspection
Industrial atmosphere, C16
Visual inspection
Termination resistance, C1a1, C1a2, C1a3

EQUIPMENT USED:

Equipment	Producer	Type	Series Nb	Cal Due.
Micro-ohmmeter	Keithley	580	374687	11-98.
Electrometer	Keithley	617	325475	11-98.
High voltage tester	Sefelec	PR-12-NN	264	03-98.
Shock tester	MTS-Monterey	IMPAC66	Mark II, 980.28	
Accelero meter	Endevco	AQ 20	F101024	12-98.
Bump tester	Env.Equipm.	BT-50	PR 3456	
Climatic chamber	Weiss	125SBDU70	200776	11-98.
Oven	Heraeus	UT6060	9102050	11-98.
Climatic chamber (TS)	Weiss	64/80DUST	224/17413	11-98.
Dust chamber	PTL	P14.18	9702049	
Saltmist chamber	Weiss	S450SSC	264347	12-99.
IR-oven	DIMA	SMRO-0232		
Corrosion chamber	Weiss	SB111-500	239/18093	11-98.
Network Analyser	Hewlett Packard	HP 8753C		
S-Parameter Test Set	Hewlett Packard	HP 85047A		
Network Analyser	Hewlett Packard	HP 8510B	2643A03501	
S-Parameter Test Set	Hewlett Packard	HP 8515A	2820A01753	
Sweep Oscillator	Hewlett Packard	HP 8350B	2851A11404	

SUMMARY OF TESTRESULTS:

NOTES: - All samples were initial visually inspected.
- All requirements come from AMP Product spec. 108-71000 Rev. C

REQUIREMENT	MEASURED RESULTS
- Lot #1:	*The testresults of the termination resistance after the mechanical operation test are presented in listed form on page 19.*
Termination resistance after mechanical operation:	
C1a1,	
maximum R=200 mΩ	**max. R=95.42 mΩ.**
C1a2,	
maximum R=250 mΩ	**max. R=109.99 mΩ.**
C1a3,	
maximum R=14 mΩ	**max. R=1.72 mΩ.**

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.

Continuation of the summary of testresults (Lot #1).

REQUIREMENT		MEASURED RESULTS
		The testresults of the VSWR after the mechanical operation test are presented in listed form on page 20.
VSWR (SMD-Jack):		
Max. 1.15	**DC-1GHz**	**max. 1.118.**
Max. 1.22	**1-2 GHz**	**max. 1.182.**
		The testresults of the insertion loss after the mechanical operation test are presented in listed form on page 20.
Insertion loss (SMB-Jack):		
Max. 0.21 dB	**DC-1GHz**	**max. 0.202 dB.**
Max. 0.35 dB	**1-2 GHz**	**max. 0.333 dB.**
Max. 0.05 dB discontinuity in DCS and PCS bands		**not measurable but much below 0.05 dB.**
		The testresults of the VSWR after the mechanical operation test are presented in listed form on page 20.
VSWR (SMD-Jack and Cable-Plug):		
Max. 1.17	**DC-1GHz**	**max. 1.165.**
Max. 1.25	**1-2 GHz**	**max. 1.236.**
		The testresults of the insertion loss after the mechanical operation test are presented in listed form on page 20.
Insertion loss (SMD-Jack and Cable-Plug):		
Max. 0.30 dB	**DC-1GHz**	**max. 0.216.**
Max. 0.45 dB	**1-2 GHz**	**max. 0.399.**
Max. 0.05 dB discontinuity in DCS and PCS bands		**not measurable but much below 0.05 dB.**
		The testresults of the isolation after the mechanical operation test are presented in listed form on page 20.
Isolation (SMD-Jack):		
Min. 30.6 dB	**DC-1GHz**	**min. 32.982 dB.**
Min. 25.4 dB	**1-2 GHz**	**min. 27.940 dB.**
		The testresults of the coupling and Retention force after the mechanical operation test are presented in listed form on page 21.
Coupling and Retention force:		
Max. 2N		**Max. 1.52N (Coupling), Max. 1.03N (Retention)**

Continuation of the summary of testresults.

REQUIREMENT **MEASURED RESULTS**

-Lot #2

The testresults of the termination resistance after the bump and shock test are presented in listed form on page 22.

Bump:
During the Bump test some interruptions of continuity > 1µsec were detected with the Cable Plugs P/N 619022. The test was repeated with a new lot of Cable Plugs with High Spring Force P/N 619028 with which no interruptions of continuity > 1µsec were detected.

Termination resistance after bump and shock test:
C1a1,
maximum R=200 mΩ **max. R=126.05 mΩ.**
C1a2,
maximum R=250 mΩ **(Lot #2*) max. R=179.35 mΩ.**
C1a3,
maximum R=14 mΩ **max. R=2.06 mΩ.**

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

-Lot #3

The testresults of the termination resistance after the random vibration test are presented in listed form on page 24.

Random vibration:
Only the Cable Plugs with High Spring Force P/N 619028 were tested.
During the Random vibration test no interruptions of continuity > 1µsec were detected.

Termination resistance after Random vibration test:
C1a1,
maximum R=200 mΩ **max. R=94.5 mΩ.**
C1a2,
maximum R=250 mΩ **max. R=120.0 mΩ.**
C1a3,
maximum R=14 mΩ **max. R=1.9 mΩ.**

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

Continuation of the summary of testresults.

REQUIREMENT	MEASURED RESULTS
-Lot #4	
	The testresults of the termination resistance after the dry heat test are presented in listed form on page 25.
Termination resistance after Dry heat:	
C1a1,	
maximum R=200 mΩ	**max. R=189.55 mΩ.**
C1a2,	
maximum R=250 mΩ	**max. R=245.00 mΩ.**
C1a3,	
maximum R=14 mΩ	**max. R=1.6 mΩ.**

VSWR and Insertion loss:
The measurements of the entire lot were made to detect any consequences of the too high contact resistances on the RF characteristics. All samples met the requirements.

		The testresults of the VSWR after the dry heat test are presented in listed form on page 26.
VSWR (SMD-Jack):		
Max. 1.15	**DC-1GHz**	**max. 1.065.**
Max. 1.22	**1-2 GHz**	**max. 1.113.**
		The testresults of the insertion loss after the dry heat test are presented in listed form on page 26.
Insertion loss (SMB-Jack):		
Max. 0.21 dB	**DC-1GHz**	**max. 0.179 dB.**
Max. 0.35 dB	**1-2 GHz**	**max. 0.263 dB.**
		The testresults of the VSWR after the dry heat test are presented in listed form on page 26.
VSWR (SMD-Jack and Cable-Plug):		
Max. 1.17	**DC-1GHz**	**max. 1.103.**
Max. 1.25	**1-2 GHz**	**max. 1.159.**
		The testresults of the insertion loss after the dry heat test are presented in listed form on page 26.
Insertion loss (SMD-Jack and Cable-Plug):		
Max. 0.30 dB	**DC-1GHz**	**max. 0.253.**
Max. 0.45 dB	**1-2 GHz**	**max. 0.382.**
		The testresults of the isolation after the dry heat test are presented in listed form on page 26.

Continuation of the summary of testresults (Lot #4).

REQUIREMENT		MEASURED RESULTS
Isolation (SMD-Jack):		
Min. 30.6 dB	**DC-1GHz**	**min. 33.303 dB.**
Min. 25.4 dB	**1-2 GHz**	**min. 28.207 dB.**

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

-Lot #5

The testresults of the termination resistance after the cold test are presented in listed form on page 27.

Termination resistance after Cold:
C1a1,
maximum R=200 mΩ **max. R=98.56 mΩ.**
C1a2,
maximum R=250 mΩ **max. R=139.81 mΩ.**
C1a3,
maximum R=14 mΩ **max. R=1.83 mΩ.**

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

-Lot #6

The testresults of the termination resistance after the damp heat, steady state test are presented in listed form on page 28.

Termination resistance after Damp heat, steady state:
C1a1,
maximum R=200 mΩ **max. R=97.66 mΩ.**
C1a2,
maximum R=250 mΩ **max. R=114.85 mΩ.**
C1a3,
maximum R=14 mΩ **max. R=1.63 mΩ.**
Voltage proof:
All tested connectors, passed the voltage proof, no breakdown or flashover was detected.

Visual inspection:
After the Damp heat, steady state test, no deformation or defects, that are detrimental to the connector functions, were found. The samples showed no evidence of damage, cracking or chipping.

Continuation of the summary of testresults.

REQUIREMENT	MEASURED RESULTS

-Lot #7

The testresults of the termination resistance after the rapid change of temperature test are presented in listed form on page 29.

Termination resistance after Rapid change of temperature:
C1a1,
maximum R=200 mΩ — **max. R=95.51 mΩ.**
C1a2,
maximum R=250 mΩ — **max. R=118.21 mΩ.**
C1a3,
maximum R=14 mΩ — **max. R=1.54 mΩ.**

Insulation resistance after Rapid change of temperature:
minimum 1 GΩ. — All tested connectors: **> 1 GΩ.**

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

-Lot #8

The testresults of the termination resistance after the dust test are presented in listed form on page 30.

Termination resistance after Dust:
C1a1,
maximum R=200 mΩ — **max. R>500 mΩ.**
C1a2,
maximum R=250 mΩ — **max. R>500 mΩ.**
C1a3,
maximum R=14 mΩ — **max. R=1.64 mΩ.**

Visual inspection:
Some dust could be seen anywhere inside the SMD-Jack. It prevented the connector from working correctly.

Continuation of the summary of testresults.

REQUIREMENT	MEASURED RESULTS

-Lot #9

The testresults of the termination resistance after the salt mist test are presented in listed form on page 31.

Termination resistance after Salt mist:

C1a1,
maximum R=200 mΩ — **max. R>500 mΩ.**

C1a2,
maximum R=250 mΩ — **max. R>500 mΩ.**

C1a3,
maximum R=14 mΩ — **max. R=2.48 mΩ.**

Visual inspection:
After the Salt test no base metal was visible on interface or mating surface.
Some salt deposits were still inside the SMD-Jacks and on the contact surface of the stamped contacts and of the center contact.

- 6 part had no corrosion.
- 8 parts had some corrosion, but not on the contact surfaces.
- 2 part had some small corrosion spot on the spring contact on the contact side.

All the parts having no contact had only salt on the contact surface, but no corrosion in this area.

To avoid the difficulty of washing the parts after the test, two more appropriate corrosion tests for such parts could be an artificial perspiration test (see Lot #11) and a mixed gas test (see Lot #12).

-Lot #10

Visual inspection after Resistance to soldering heat:
After the resistance to soldering heat no deformation or defects, that are detrimental to the connector functions, were found.

Continuation of the summary of testresults.

REQUIREMENT	MEASURED RESULTS
- Lot #11:	*The testresults of the termination resistance after the artificial perspiration test are presented in listed form on page 33.*
Termination resistance after artificial perspiration:	
C1a1,	
maximum R=200 mΩ	**max. R=96.20 mΩ.**
C1a2,	
maximum R=250 mΩ	**max. R=123.71 mΩ.**
C1a3,	
maximum R=14 mΩ	**max. R=1.79 mΩ.**

Visual inspection:
After the Artificial perspiration test no base metal was visible on interface or mating surface.

- Lot #12:	*The testresults of the termination resistance after the Industrial atmosphere are presented in listed form on page 34.*
Termination resistance after mixed gas:	
C1a1,	
maximum R=200 mΩ	**max. R=98.37 mΩ.**
C1a2,	
maximum R=250 mΩ	**max. R=172.90 mΩ.**
C1a3,	
maximum R=14 mΩ	**max. R=2.16 mΩ.**

Visual inspection:
After the Industrial atmosphere no base metal was visible on interface or mating surface.

TESTRESULTS:

Lot #1

All values represented in milli-ohms.

Product name:	COAXICON SERIES MOBILE PHONE
Lot #1	Measurements after **Durability (C4)** 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-:	C1a3	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated

Part	(C1a1) *-1-*	(C1a2) *-2-*	(C1a3) *-3-*
1	60.39	83.44	1.09
2	86.93	88.48	1.27
3	60.67	86.76	1.22
4	71.48	109.99	1.41
5	73.62	97.95	1.34
6	64.34	81.50	1.42
7	91.58	82.92	1.42
8	87.26	84.14	1.53
9	95.42	95.79	1.53
10	73.66	87.49	1.22
11	86.03	86.46	1.44
12	88.07	83.56	1.33
13	88.69	93.91	1.35
14	72.46	88.64	1.72
15	61.91	89.83	1.22
16	85.70	82.64	1.48
Max.	**95.42**	**109.99**	**1.72**
Min.	**60.39**	**81.50**	**1.09**
Mean.	**78.01**	**88.97**	**1.37**

Lot #1

Product name: COAXICON SERIES MOBILE PHONE

Max values

Frequency	Part	Mated VSWR (C1d3)	Mated Ins. Loss dB (C1d4)	Unmated VSWR (C1d1)	Unmated Ins. Loss dB (C1d2)	Unmated Isol. SMD-Jack dB (C1f)
DC-1 GHz	**Requir.**	**<=1.17**	**<=0.30**	**<=1.15**	**<=0.21**	**>=30.6**
	#1	1.094	0.199	1.106	0.154	33.191
	#2	1.133	**0.216**	1.112	0.172	33.719
	#3	1.148	0.195	**1.118**	0.182	33.844
	#4	1.133	0.196	1.084	0.147	34.293
	#5	1.135	0.206	1.042	0.145	33.545
	#6	1.161	0.212	1.059	**0.202**	33.637
	#7	1.143	0.202	1.070	0.149	**32.982**
	#8	1.144	0.192	1.073	0.155	34.029
	#9	1.119	0.203	1.074	0.162	33.148
	#10	**1.165**	0.201	1.056	0.155	33.078
	#11	1.128	0.211	1.048	0.153	33.053
	#12	1.142	0.193	1.082	0.163	33.631
	#13	1.127	0.196	1.025	0.152	33.426
	#14	1.124	0.207	1.034	0.148	33.336
	#15	1.158	0.198	1.114	0.165	33.113
	#16	1.140	0.195	1.081	0.169	34.115
1GHz-2GHz	**Requir.**	**<=1.25**	**<=0.45**	**<=1.22**	**<=0.35**	**>=25.4**
	#1	1.143	0.291	1.172	0.268	28.088
	#2	1.169	0.355	1.170	0.255	28.730
	#3	1.204	0.355	1.179	0.301	28.790
	#4	1.168	0.309	1.117	0.237	29.254
	#5	1.211	0.364	1.057	0.287	28.328
	#6	1.230	0.379	1.084	**0.333**	28.445
	#7	1.203	0.390	1.096	0.276	**27.940**
	#8	1.197	0.322	1.102	0.248	28.942
	#9	1.151	0.296	1.096	0.300	28.106
	#10	1.227	**0.399**	1.089	0.307	27.988
	#11	1.174	0.360	1.066	0.323	28.075
	#12	1.183	0.321	1.107	0.264	28.621
	#13	1.187	0.356	1.041	0.282	28.201
	#14	1.176	0.350	1.051	0.278	28.104
	#15	**1.236**	0.392	**1.182**	0.291	28.042
	#16	1.192	0.333	1.117	0.258	29.019

Measurement device:	Network Analyser HP 8753C 300kHz-6GHz S-Parameter Test Set HP 85047A Cables: SUCOFLEX 104PE for Port 1 SN 1449/4PE SUCOFLEX 104PE for Port 2 SN 1440/4PE

Lot #1

All values represented in Newtons

Product name: COAXICON SERIES MOBILE PHONE

Lot #1 **Coupling & Retention Force (C2)** after **Durability (C4)** test

Part	Coupling Force	Retention Force	Date
1	1.44	0.71	31-Oct-97
2	1.45	0.82	31-Oct-97
3	1.17	0.62	31-Oct-97
4	1.52	0.68	31-Oct-97
5	1.33	0.50	03-Nov-97
6	1.35	0.58	03-Nov-97
7	1.15	0.53	03-Nov-97
8	1.05	0.53	03-Nov-97
9	1.21	0.41	03-Nov-97
10	1.49	0.60	03-Nov-97
11	1.31	1.03	03-Nov-97
12	1.49	0.96	03-Nov-97
13	1.08	0.29	04-Nov-97
14	1.18	0.56	04-Nov-97
15	1.19	0.58	04-Nov-97
16	1.12	0.49	04-Nov-97

Measurement device: Dynamometer Nr. DSM 0007595 L002

Lot #2

All values represented in milli-ohms.				
Product name:		COAXICON SERIES MOBILE PHONE		
Lot #2		Measurements after **Bump (C12)** and **Shock (C10)** tests		
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-:	C1a3	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated		
	(C1a1)	(C1a2)	(C1a3)	
Part	***-1-***	***-2-***	***-3-***	
1	72.70	148.12	2.06	
2	72.83	101.69	1.19	
3	74.47	113.20	1.64	
4	64.28	120.08	1.67	
5	60.12	111.15	1.66	
6	64.88	97.81	1.73	
7	67.93	123.50	1.05	
8	81.43	105.63	1.39	
9	81.53	105.35	1.06	
10	71.76	108.93	1.66	
11	68.68	-	1.60	see Note 1
12	93.62	153.78	1.84	
13	63.86	256.49	1.70	
14	70.69	-	1.74	see Note 1
15	126.05	172.20	1.63	
16	68.90	-	1.23	
Max.	**126.05**	**256.49**	**2.06**	
Min.	**60.12**	**97.81**	**1.05**	
Mean.	**75.23**	**132.15**	**1.55**	

Visual inspection:

All the plastic washers have come out of their position after the shock test, because the cable plugs have moved a long way back. A dead stop behind the cable plug should be used.

Note 1: Some flux deposit can be seen in the contact area of the two stamped contacts, what increases the contact resistance above the 500mOhm range of the measurement device.
Cause: a too large quantity of solderpaste was manually (with a syringe) deposited on the printed-circuit-board. These were particular instances.
During the bump test no interruptions of continuity longer than 1 micro-second were recorded.

The Shock test has been repeated with 2 more lots (Lots #2* and #2**), with which a measurement of the contact resistance was done before and after the test, in order to show the influence of the Shock test on this parameter.
For these lots a dead end 0.2mm behind the cable plugs was used to prevent the plastic washers from falling.

Lots #2* and #2**

All values represented in milli-ohms.

Product name:	COAXICON SERIES MOBILE PHONE
Lot #2*, #2**	Measurements before and after **Shock (C10)** tests

Column.	Lot	Measur.	Description
-1-:	#2* before test	C1a2	Contact resistance spring contact and 2nd signal contact of SMD-Jack unmated
-2-:	#2* after test	C1a2	Contact resistance spring contact and 2nd signal contact of SMD-Jack unmated
-3-:	#2** before test	C1a2	Contact resistance spring contact and 2nd signal contact of SMD-Jack unmated
-4-:	#2** after test	C1a2	Contact resistance spring contact and 2nd signal contact of SMD-Jack unmated

Part	Lot #2* Before test *-1-*	Lot #2* After test *-2-*	Lot #2** Before test *-3-*	Lot #2** After test *-4-*
1	94.73	92.44	86.28	116.92
2	94.49	99.34	104.25	133.59
3	87.33	97.69	91.90	100.83
4	106.41	91.38	87.96	101.28
5	91.72	92.84	90.83	107.20
6	91.20	90.60	83.35	110.92
7	91.54	92.73	86.07	109.69
8	102.81	124.70	86.36	99.57
9	92.67	95.52	91.78	103.92
10	112.25	111.09	84.74	113.92
11	115.80	113.89	82.10	91.44
12	93.72	90.69	108.14	139.64
13	96.73	92.60	84.75	97.62
14	103.37	105.84	81.83	88.40
15	151.40	179.35	90.74	105.93
16	94.60	85.19	84.44	118.54
Max.	**151.40**	**179.35**	**108.14**	**139.64**
Min.	**87.33**	**85.19**	**81.83**	**88.40**
Mean.	**101.30**	**103.49**	**89.10**	**108.71**

There is no significant influence of the Shock test on the contact resistance values (C1a2).

Lots #3

All values represented in milli-ohms	
Product name:	COAXICON SERIES MOBILE PHONE
Lot #3	Measurements after **Random Vibration (C3)** 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-:	C1a3	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated

Part	(C1a1) *-1-*	(C1a2) *-2-*	(C1a3) *-3-*
1	74.50	97.00	1.90
2	92.30	109.60	1.40
3	74.50	120.00	1.40
4	94.50	107.50	1.60
5	74.50	88.90	1.80
6	76.50	89.40	1.10
7	78.20	94.70	1.50
8	84.80	93.00	1.70
9	61.10	99.30	1.90
10	80.50	95.60	1.80
11	80.60	95.90	1.60
12	85.90	101.30	1.90
13	73.80	88.10	1.40
14	82.10	92.20	1.90
15	67.10	99.50	1.90
16	83.10	101.70	1.40
Max.	**94.50**	**120.00**	**1.90**
Min.	**61.10**	**88.10**	**1.10**
Mean.	**79.30**	**98.36**	**1.64**

Lot #4

All values represented in milli-ohms.		
Product name:		COAXICON SERIES MOBILE PHONE
Lot #4		Measurements after **Dry heat (C6)** 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-:	C1a3	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated

	(C1a1)	(C1a2)	(C1a3)
Part	***-1-***	***-2-***	***-3-***
1	96.17	130.25	1.52
2	83.19	171.19	1.39
3	95.66	171.77	1.37
4	175.32	208.50	1.38
5	141.30	245.00	1.47
6	152.14	244.62	1.60
7	119.75	141.97	1.34
8	109.01	154.25	1.33
9	96.68	171.64	1.33
10	117.47	177.47	1.22
11	123.77	146.10	1.46
12	189.55	243.16	1.25
13	78.70	245.00	1.37
14	123.63	157.08	1.28
15	119.53	215.37	1.11
16	146.26	150.19	1.25
Max.	**189.55**	**245.00**	**1.60**
Min.	**78.70**	**130.25**	**1.11**
Mean.	**123.01**	**185.85**	**1.35**

Due to the high resistance values measured in this lot, subsequent RF-measurements were made:

VSWR and Insertion loss:
The measurement of the entire showed no consequences of the too high contact resistances on the RF characteristics. All samples met the requirements.

Lot #4

Product name: COAXICON SERIES MOBILE PHONE

Max values

Frequency	Part	Mated VSWR (C1d3)	Mated Ins. Loss dB (C1d4)	Unmated VSWR (C1d1)	Unmated Ins. Loss dB (C1d2)	Unmated Isol. SMD-Jack dB (C1f)
DC-1 GHz	**Requir.**	**<=1.17**	**<=0.30**	**<=1.15**	**<=0.21**	**>=30.6**
	#1	1.090	0.189	1.028	0.151	33.799
	#2	1.091	0.205	1.065	0.132	**33.303**
	#3	1.094	0.224	1.056	0.145	33.461
	#4	**1.103**	0.211	1.036	0.144	33.453
	#5	1.092	0.199	1.056	0.148	33.736
	#6	1.075	0.190	1.052	0.158	33.357
	#7	1.079	0.208	1.038	0.142	33.566
	#8	1.089	0.222	1.027	0.150	33.482
	#9	1.072	0.223	1.021	0.165	33.576
	#10	1.078	0.186	1.049	**0.179**	33.611
	#11	1.099	**0.253**	1.064	0.167	33.500
	#12	1.067	0.186	1.041	0.122	33.545
	#13	1.078	0.177	**1.065**	0.160	33.555
	#14	1.081	0.247	1.028	0.140	33.584
	#15	1.094	0.224	1.053	0.158	33.756
	#16	1.098	0.234	1.064	0.168	33.408
1GHz-2GHz	**Requir.**	**<=1.25**	**<=0.45**	**<=1.22**	**<=0.35**	**>=25.4**
	#1	1.135	0.283	1.064	0.215	28.606
	#2	1.140	0.301	1.110	0.204	28.365
	#3	1.151	0.316	1.096	0.221	28.335
	#4	1.154	0.301	1.082	0.222	28.313
	#5	1.148	0.289	1.094	0.222	28.675
	#6	**1.159**	0.291	1.084	0.240	28.237
	#7	1.130	0.305	1.070	0.200	28.298
	#8	1.142	0.335	1.058	0.236	28.370
	#9	1.146	0.346	1.037	0.242	28.307
	#10	1.133	0.294	1.062	**0.263**	**28.207**
	#11	1.151	0.380	1.102	0.254	28.291
	#12	1.143	0.292	1.069	0.188	28.348
	#13	1.143	0.285	**1.113**	0.238	28.414
	#14	1.132	**0.382**	1.086	0.205	28.387
	#15	1.145	0.320	1.088	0.244	28.935
	#16	1.155	0.352	1.107	0.247	28.582

Measurement device: Network Analyser HP 8510B 45MHz-26.5GHz
S-Parameter Test Set HP 8515A
Sweep Oscillator HP 8350B
Cables: for Port 1: 3.5 mm Flexible Test Port Cable
HP 085131-60013
SER 00841

for Port 2: 3.5 mm Flexible Test Port Cable
HP 085131-60012
SER 00846

Lot #5

All values represented in milli-ohms.

Product name:	COAXICON SERIES MOBILE PHONE
Lot #5	Measurements after **Cold (C7)** 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-:	C1a3	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated

	(C1a1)	(C1a2)	(C1a3)
Part	***-1-***	***-2-***	***-3-***
1	70.08	118.40	0.78
2	83.61	99.45	1.27
3	90.01	103.39	1.09
4	92.70	111.51	1.18
5	93.51	123.22	1.37
6	89.90	109.38	1.24
7	96.91	118.43	1.26
8	89.49	121.25	1.37
9	93.42	117.02	1.36
10	75.31	110.36	1.61
11	88.81	120.92	1.50
12	90.61	118.65	1.23
13	96.69	139.81	1.38
14	95.44	112.22	1.06
15	98.56	121.49	1.83
16	88.61	109.48	1.51
Max.	**98.56**	**139.81**	**1.83**
Min.	**70.08**	**99.45**	**0.78**
Mean.	**89.60**	**115.94**	**1.32**

Lot #6

All values represented in milli-ohms.

Product name:	COAXICON SERIES MOBILE PHONE
Lot #6	Measurements after **Damp Heat, Steady State (C8)** 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-:	C1a3	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated

Part	(C1a1) *-1-*	(C1a2) *-2-*	(C1a3) *-3-*
1	79.50	90.88	1.23
2	93.45	109.08	1.17
3	89.94	114.85	1.37
4	89.02	111.18	1.47
5	76.15	113.75	1.26
6	86.47	106.10	1.15
7	94.96	106.60	1.31
8	85.39	92.09	1.31
9	94.93	104.41	1.07
10	85.35	94.13	1.31
11	85.59	93.09	1.63
12	81.50	107.27	1.03
13	88.68	104.28	1.41
14	79.37	95.50	1.29
15	97.66	98.57	1.16
16	77.90	105.89	1.28
Max.	**97.66**	**114.85**	**1.63**
Min.	**76.15**	**90.88**	**1.03**
Mean.	**86.62**	**102.98**	**1.28**

Lot #7

All values represented in milli-ohms.

Product name: COAXICON SERIES MOBILE PHONE

Lot #7 Measurements after **Rapid Change of Temperature (C9)** 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-:	C1a3	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated

Part	(C1a1) *-1-*	(C1a2) *-2-*	(C1a3) *-3-*
1	87.17	98.18	0.98
2	85.15	95.76	1.41
3	93.30	118.21	1.09
4	80.30	107.55	1.15
5	74.09	102.97	1.28
6	92.34	91.14	1.54
7	89.55	94.88	1.21
8	93.38	88.66	1.24
9	85.51	98.58	1.15
10	87.30	93.72	1.03
11	94.46	88.30	1.08
12	77.54	84.25	1.18
13	77.42	81.64	1.21
14	87.65	100.75	1.25
15	95.51	110.63	1.23
16	86.71	91.54	1.14
Max.	**95.51**	**118.21**	**1.54**
Min.	**74.09**	**81.64**	**0.98**
Mean.	**86.71**	**96.67**	**1.20**

Lot #8

All values represented in milli-ohms.

Product name:	COAXICON SERIES MOBILE PHONE
Lot #8	Measurements after **Dust (C13)** 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-:	C1a3	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated

	(C1a1)	(C1a2)	(C1a3)
Part	***-1-***	***-2-***	***-3-***
1	-	-	1.43
2	-	-	1.64
3	-	-	0.93
4	-	-	1.61
5	-	95.56	1.07
6	-	-	1.19
7	106.59	92.25	0.86
8	-	110.74	1.00
9	-	-	1.02
10	119.44	-	1.28
11	-	-	1.17
12	94.35	103.09	1.50
13	-	138.84	0.90
14	-	125.35	1.05
15	114.01	-	1.37
16	-	-	1.30
Max.	**>500**	**>500**	**1.64**
Min.	**94.35**	**92.25**	**0.86**
Mean.	**108.60**	**110.97**	**1.21**

Visual inspection:

After unsoldering the part 1, and after removing the spring contact, it could be seen that some dust remained on the contact surface between the stamped contacts, and between the spring contact and the center contact, what prevented the electrical contacts between these parts.

Some dust could be seen anywhere inside the SMD-Jack.

Lot #9

All values represented in milli-ohms.

Product name:	COAXICON SERIES MOBILE PHONE
Lot #9	Measurements after **Salt mist (C14)** 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-:	C1a3	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated

Part	(C1a1) *-1-*	(C1a2) *-2-*	(C1a3) *-3-*
1	102.00	119.84	1.06
2	149.60	151.79	1.41
3	101.96	196.94	1.70
4	126.55	112.38	1.64
5	-	-	1.74
6	188.45	-	1.55
7	169.78	113.97	1.74
8	96.22	-	1.59
9	337.79	-	2.46
10	212.04	198.92	2.01
11	282.89	171.96	1.42
12	272.88	181.56	1.82
13	303.96	-	1.58
14	213.73	128.33	1.50
15	-	-	2.06
16	174.05	88.05	1.38
Max.	**>500**	**>500**	**2.46**
Min.	**96.22**	**88.05**	**1.06**
Mean.	**195.14**	**146.37**	**1.67**

Visual inspection:

No base metal was visible on interface or mating surface of the Cable Plug and of the SMD-Jack.

The parts were washed and dried a second time after it was found that some of them had no contacts.

After unsoldering the parts, and after removing the spring contact, it could be seen that some salt deposits were still inside the SMD-Jacks and on the contact surfaces of the stamped contacts and of the center contact.
These remaining salt deposits had the following consequences:

- they prevented the evaluation of the influence of corrosion on the contact resistances.
- corrosion could go on after the end of the salt mist test.
(The parts were inspected and measured 2 weeks after the test was finished)

It was decided to make the two following additional tests to evaluate the corrosion resistance:
- Artificial perspiration test (C15) on lot #11.
- Mixed gas test (C16) on lot #12.

Detailed visual inspection of the SMD-Jacks:

Part 1: No corrosion.
Part 2: Corrosion of the "V" of the stamped contacts.
Part 3: Corrosion of the "V" of the stamped contacts.
Part 4: No corrosion, but a lot of salt deposits.
Part 5: No corrosion, but a lot of salt deposits.
Part 6: A little bit of corrosion on one of the "V" of the second signal contact.
Part 7: Corrosion of the spring contact on the opposite side of the contact surface.
Part 8: Corrosion of the "V" of the stamped contacts.
Corrosion of the spring contact on the opposite side of the contact surface.
Small corrosion spot on the spring contact near the contact surface with the center contact. Salt deposit on the contact area between the two stamped contacts.
Part 9: No corrosion, but a lot of salt deposits.
Part 10: Corrosion on both sides of the spring contact. A lot of salt deposits.
Corrosion of the "V" of the second signal contact.
Part 11: Some corrosion spots on the spring contact. A lot of salt deposits.
Part 12: Corrosion of the spring contact on the opposite side of the contact surface.
Some corrosion spots on the "V" of the second signal contact.
Part 13: Some corrosion spots on the "V" of the stamped contacts.
Part 14: No corrosion, but very large salt deposits.
Part 15: Some corrosion spots on the "V" of the second signal contact.
Part 16: No corrosion.

Lot #11

All values represented in milli-ohms

Product name:	COAXICON SERIES MOBILE PHONE
Lot #11	Measurements before and after **Artificial perspiration (C15)** 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-:	C1a3	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated

Part	(C1a1) *-1-* Before test	(C1a2) *-2-* Before test	(C1a3) *-3-* Before test	(C1a1) *-1-* After test	(C1a2) *-2-* After test	(C1a3) *-3-* After test
1	84.75	89.87	1.27	82.08	111.76	1.48
2	86.93	104.18	1.65	89.55	115.64	1.71
3	93.58	117.57	1.53	96.20	120.43	1.26
4	87.53	98.66	1.68	87.83	105.04	1.58
5	70.58	104.55	1.51	78.79	117.93	1.62
6	92.48	109.63	1.63	91.34	100.72	1.68
7	82.79	107.08	1.79	86.71	109.34	1.52
8	90.46	108.11	1.68	88.74	104.40	1.79
9	94.95	104.08	1.56	94.39	111.59	1.64
10	87.39	93.49	1.59	86.29	123.71	1.71
11	88.47	101.96	1.63	86.30	108.92	1.63
12	95.17	117.78	1.59	94.69	115.36	1.51
13	90.55	112.06	1.58	89.49	108.88	1.79
14	88.92	109.35	1.49	89.21	118.75	1.79
15	88.53	113.59	1.52	86.92	109.64	1.73
16	87.88	116.41	1.64	91.39	113.82	1.50
Max.	**95.17**	**117.78**	**1.79**	**96.20**	**123.71**	**1.79**
Min.	**70.58**	**89.87**	**1.27**	**78.79**	**100.72**	**1.26**
Mean.	**88.19**	**106.77**	**1.58**	**88.75**	**112.25**	**1.62**

Lot #12

All values represented in milli-ohms.

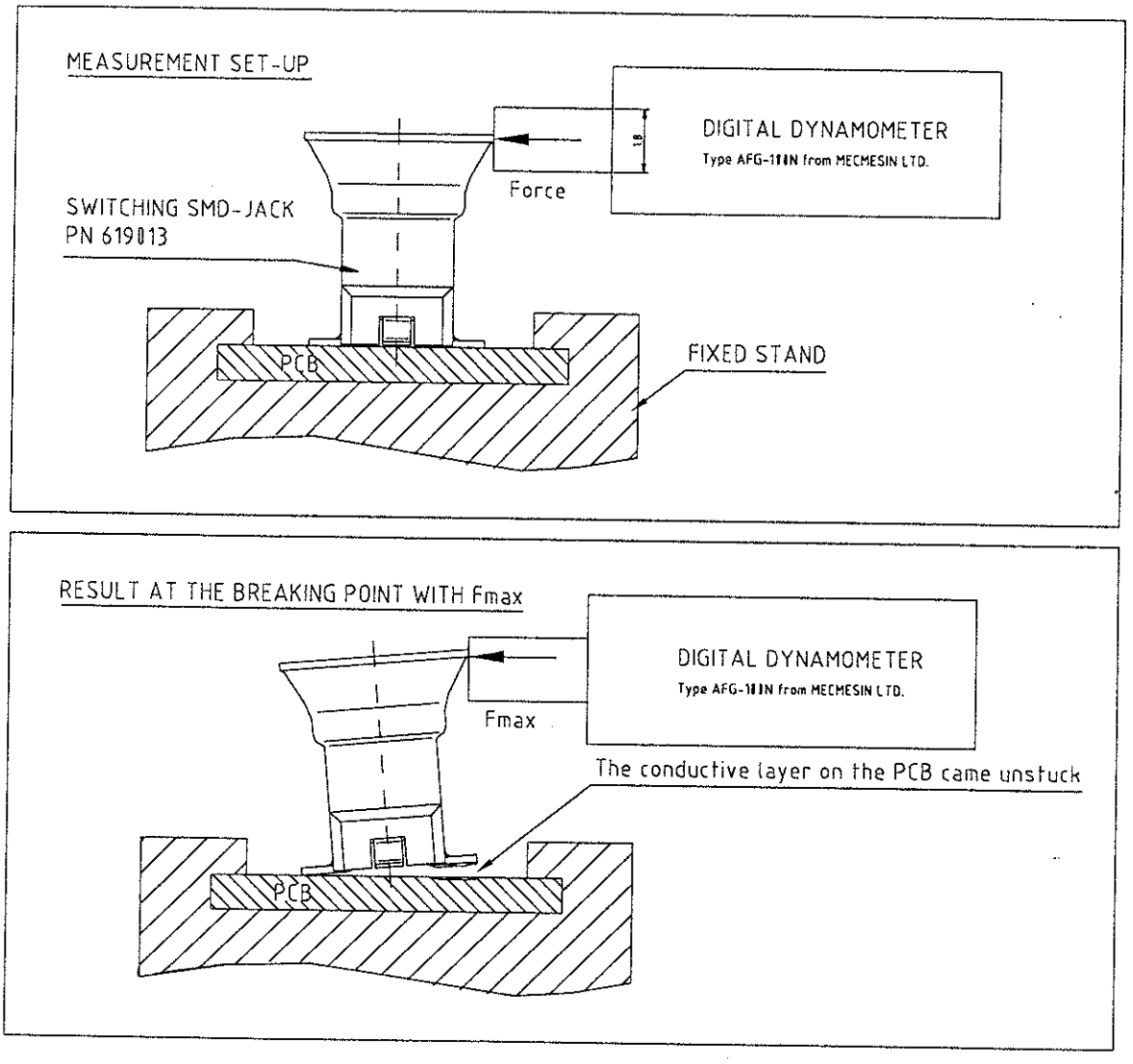
Product name:	COAXICON SERIES MOBILE PHONE
Lot #12	Measurements before and after **Mixed gas (C16)** test

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-:	C1a3	Contact resistance outer contact of CABLE PLUG and SMD-JACK mated

Part	(C1a1) *-1-* Before test	(C1a2) *-2-* Before test	(C1a3) *-3-* Before test	(C1a1) *-1-* After test	(C1a2) *-2-* After test	(C1a3) *-3-* After test
1	81.97	96.84	1.63	83.10	96.87	2.16
2	93.35	99.14	1.69	98.37	98.96	1.84
3	80.88	124.91	1.56	79.82	172.90	1.86
4	95.37	90.63	1.62	94.51	82.75	1.49
5	86.63	93.39	1.78	81.34	100.94	1.82
6	79.61	89.91	1.68	87.96	95.77	1.70
7	93.85	96.04	1.64	98.14	96.13	1.70
8	79.19	93.66	1.68	86.36	88.35	1.79
9	93.20	97.42	1.63	88.80	101.50	1.64
10	85.62	111.81	1.60	94.79	108.12	1.69
11	89.44	87.38	1.70	97.53	91.16	1.63
12	94.86	82.52	1.58	96.93	84.95	1.82
13	72.54	81.86	1.70	83.91	92.30	1.59
14	82.33	94.21	1.79	90.84	91.47	1.68
15	74.04	96.88	1.76	89.03	108.01	1.80
16	87.19	96.84	1.61	87.90	90.06	1.71
Max.	**95.37**	**124.91**	**1.79**	**98.37**	**172.90**	**2.16**
Min.	**72.54**	**81.86**	**1.56**	**79.82**	**82.75**	**1.49**
Mean.	**85.63**	**95.84**	**1.67**	**89.96**	**100.02**	**1.75**

OTHER TESTS:

Maximum lateral force applicable to the Switching SMD-Jack PN 619013



Measurement method:

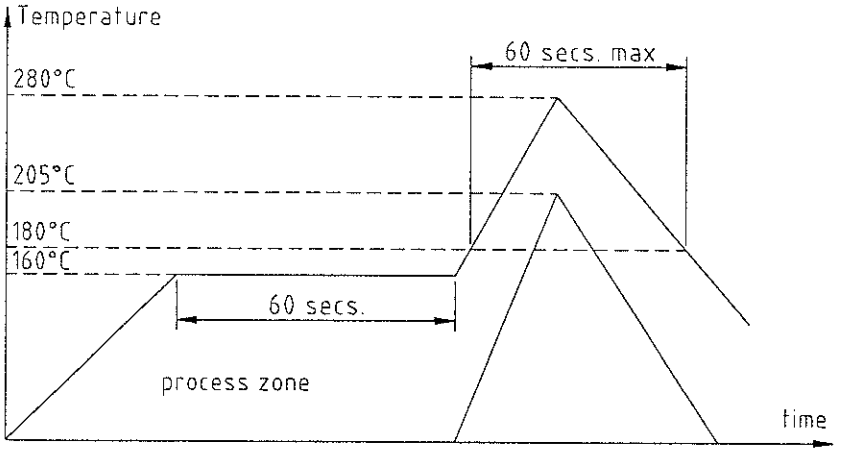
The horizontal lateral force is applied by a digital dynamometer at the top of the conical outer shell of the sample, while the PCB is stiffly held inside a fixed stand. The force of the dynamometer is slowly increased until the fixation of the sample with the PCB breaks. The memory of the dynamometer shows the maximum force applied to the sample.

- Number of samples tested: 4
- Test speed: ~0 (static)
- Solder paste: Philips SP029

- Thickness of solder paste: 150 µm
- SMD pattern dim. of test PCB: as shown on customer drawing 619013 Rev. F

- Reflow profile (curve in AMP Product spec. 108-71000 Rev.C, page 15.):
  The standard profile is:

  - pre-heat up at 160°C maximum
  - soak zone of 1 min maximum (at 160°C)
  - heat up for reflow zone to minimum 205°C (coldest point)
  - maximum time above melting temperature 60 seconds



Oven temperature profile

Remark: maximum temperature of component is 250°C.

Measurement results:

All 4 samples broke at an applied force **Fmax > 30 N**. The conductive layer on the PCB came unstuck.

Stiffness of the spring of the Protected Front Contact Cable Plug with High Spring Force PN 619028 (Typical characteristic)