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Pages 1 to 23

RF COAXIAL CONNECTORS, TYPE SSMA

(MALE CONTACT)

ESA/SCC Detail Specification No. 3402/004



**space components
coordination group**

Issue/Rev.	Date	Approved by	
		SCCG Chairman	ESA Director General or his Deputy
Issue 3	August 1995	<i>P. Hommel</i>	<i>[Signature]</i>
Revision 'A'	November 1995	<i>P. Hommel</i>	<i>[Signature]</i>

**ES/SCC**

ESA/SCC Detail Specification
No. 3402/004

Rev. 'A'

PAGE 2

ISSUE 3

DOCUMENTATION CHANGE NOTICE

Rev. Letter	Rev. Date	Reference	CHANGE Item	Approved DCR No.
		This Issue supersedes Issue 2 and incorporates all modifications defined in Revision 'A' to Issue 2 and the changes agreed in the following DCR's:-		
		Cover page		None
		DCN		None
		Para. 2	: Additional reference document added	23761
		Table 1(a)	: Type Variant added	23761
		Table 1(b)	: Renumbered from old Table 1	23761
		Figure 2(a)	: Redrawn and Table added	23761
		Figure 3(b)	: Redrawn and Table added	23761
		Para. 4.2.2(a)	: Text amended to "Contact Engagement and Separation Forces"	23556
		Para. 4.2.3	: Heading revised	23761
		Para. 4.3.4.2	: Reference to MIL-C-17/133 added	23761
		Para. 4.3.5	: Heading amended to "Mating and Unmating Forces"	23556
		Para. 4.3.6	: Heading amended to "Endurance"	23556
		Para. 4.3.8	: Heading amended to "Contact Engagement and Separation Forces"	23556
		Para. 4.5.1	: First paragraph rewritten	23761
		Para. 4.5.5	: Deleted in toto	23761
		Para. 4.8	: Section rewritten	23761
		Table 6	: Restructured	23761
			: "Engage/Separation Forces" amended to "Mating and Unmating Forces"	23556
			: "Connector Durability" amended to "Endurance"	23556
		Figure 2(b)	: Drawings redrawn and associated dimension tables added	23761
			: Variant 05, Maximum weight changed	23739
			: Variants 09 and 12, Rapid change of temperature - peak value changed to read "115°C". Operating temperature range changed to read "- 65°C to + 105°C"	221278
'A'	Nov. '95	P1. Cover page		None
		P2. DCN		None
		P6. Table 1(b)	: No. 7, Maximum Ratings amended	23776
		P17. Para. 4.8.6	: Second sentence amended	23776



TABLE OF CONTENTS

	<u>Page</u>
1. <u>GENERAL</u>	5
1.1 Scope	5
1.2 Type Variants	5
1.3 Maximum Ratings	5
1.4 Parameter Derating Information	5
1.5 Physical Dimensions	5
1.6 Standard Test Connector Interface	5
2. <u>APPLICABLE DOCUMENTS</u>	11
3. <u>TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS</u>	11
4. <u>REQUIREMENTS</u>	11
4.1 General	11
4.2 Deviations from Generic Specification	11
4.2.1 Deviations from Special In-process Controls	11
4.2.2 Deviations from Final Production Tests	11
4.2.3 Deviations from Burn-in and Electrical Measurements	11
4.2.4 Deviations from Qualification Tests	11
4.2.5 Deviations from Lot Acceptance Tests	11
4.3 Mechanical Requirements	12
4.3.1 Dimension Check	12
4.3.2 Weight	12
4.3.3 Coupling Proof Torque	12
4.3.4 Cable Retention Force	12
4.3.5 Mating and Unmating Forces	12
4.3.6 Endurance	12
4.3.7 Residual Magnetism	12
4.3.8 Contact Engagement and Separation Forces	13
4.3.9 Contact Retention	13
4.4 Materials and Finishes	13
4.4.1 Gold-plated Versions	13
4.4.2 Stainless Steel Versions	13
4.5 Marking	14
4.5.1 General	14
4.5.2 The SCC Component Number	14
4.5.3 Characteristics	15
4.5.4 Traceability Information	15
4.6 Electrical Measurements	15
4.6.1 Electrical Measurements at Room Temperature	15
4.6.2 Electrical Measurements at High and Low Temperatures	15
4.6.3 Circuits for Electrical Measurements	15
4.7 Burn-in Tests	15
4.8 Environmental and Endurance Tests	17
4.8.1 Measurements and Inspections on Completion of Environmental Tests	17
4.8.2 Measurements and Inspections at Intermediate Points during Endurance Tests	17
4.8.3 Measurements and Inspections on Completion of Endurance Tests	17
4.8.4 Conditions for Operating Life Tests	17
4.8.5 Electrical Circuits for Operating Life Tests	17
4.8.6 Conditions for High Temperature Storage Test	17

**TABLES**

	<u>Page</u>
1(a) Type Variants	6
1(b) Maximum Ratings	6
2 Electrical Measurements at Room Temperature	16
3 Not applicable	N/A
4 Not applicable	N/A
5 Not applicable	N/A
6 Measurements and Inspections on Completion of Environmental and Endurance Tests	18

FIGURES

1 Parameter Derating Information	7
2 Physical Dimensions	9
2(a) Connector Interface, Male Contact	9
2(b) Variants	20
3 Standard Test Connector Interface, Female Contact	10

APPENDICES (Applicable to specific Manufacturers only)

None.

**1. GENERAL****1.1 SCOPE**

This specification details the ratings, physical and electrical characteristics, test and inspection data for RF Coaxial Connectors, Type SSMA (Male Contact). It shall be read in conjunction with ESA/SCC Generic Specification No. 3402, the requirements of which are supplemented herein.

1.2 TYPE VARIANTS

A list of the type variants of the connectors specified herein, which are also covered by this specification, is given in Table 1(a).

For each type variant, the full electrical and physical characteristics are given in individual Figures 2(b) at the end of this specification.

1.3 MAXIMUM RATINGS

The maximum ratings, which shall not be exceeded at any time during use or storage, applicable to the connectors specified herein, are as scheduled in Table 1(b).

1.4 PARAMETER DERATING INFORMATION (FIGURE 1)

The derating information applicable to the connectors specified herein is shown in Figure 1

1.5 PHYSICAL DIMENSIONS

The physical dimensions of the connectors specified herein are shown in Figures 2(a) and 2(b).

1.6 STANDARD TEST CONNECTOR INTERFACE

Whenever gauges are required for mating with the connectors under test, their physical dimensions shall be in accordance with those specified in Figure 3.



 	<p style="text-align: center;">ESA/SCC Detail Specification No. 3402/004</p>	<p style="text-align: center;">Rev. 'A'</p>	<p>PAGE 6 ISSUE 3</p>
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TABLE 1(a) - TYPE VARIANTS

VARIANT	DESCRIPTION
01	Straight Plug, Solder Type, for Semi-Rigid Cable \varnothing 2.20mm
05	Straight Plug, Crimp Type
09	Right Angle Plug, Solder Type, for Semi-Rigid Cable \varnothing 2.20mm
12	Right Angle Plug, Crimp Type

NOTES

1. The Variants are described in Figure 2(b).
2. For finishes, see Para. 4.4.

TABLE 1(b) - MAXIMUM RATINGS

No.	CHARACTERISTICS	SYMBOL	MAXIMUM RATINGS	UNIT	REMARKS
1	Peak Power at +25°C	P _{max}	1.0	kW	1.0 μ s max.
2	Power	P	0.8	kW	See Figures 1(a) and 1(b)
3	Nominal Impedance	Z	50	Ω	-
4	Frequency Range	f	See Figure 2(b)	GHz	-
5	Voltage Rating	U _R	See Figure 2(b) (Voltage Proof)	V _{rms}	See Figure 1(c)
6	Operating Temperature Range	T _{op}	See Figure 2(b)	°C	-
7	Storage Temperature Range	T _{stg}	As per Operating Temperature Range	°C	-



FIGURE 1 - PARAMETER DERATING INFORMATION

FIGURE 1(a) - POWER VERSUS TEMPERATURE

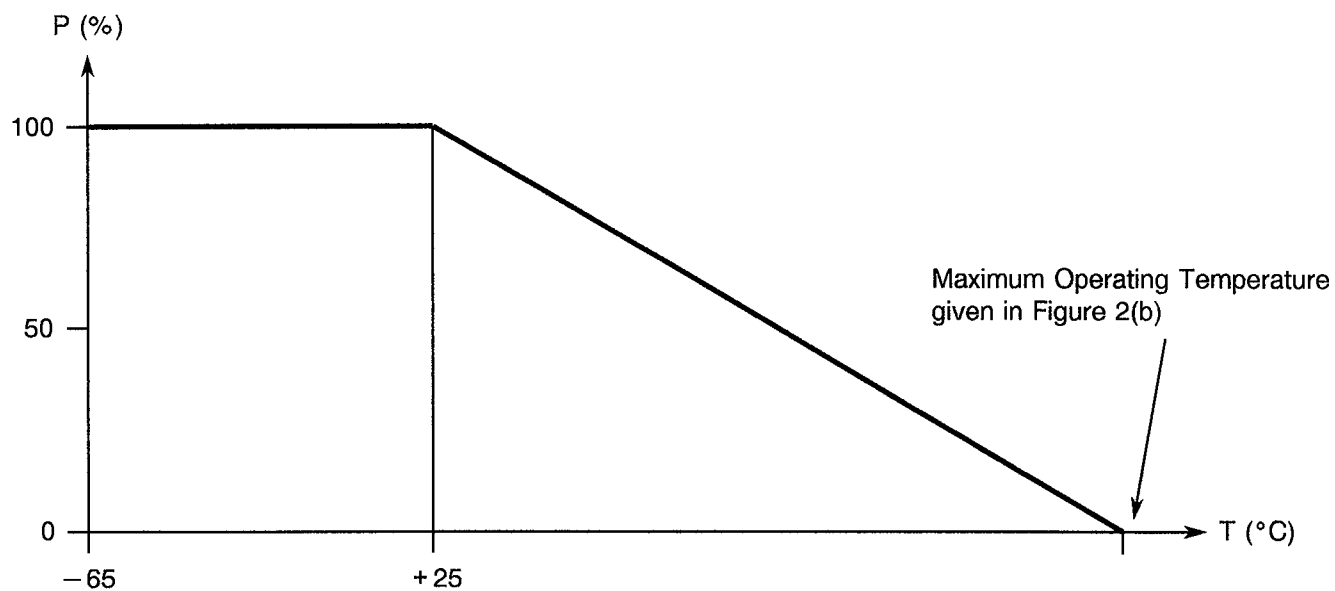
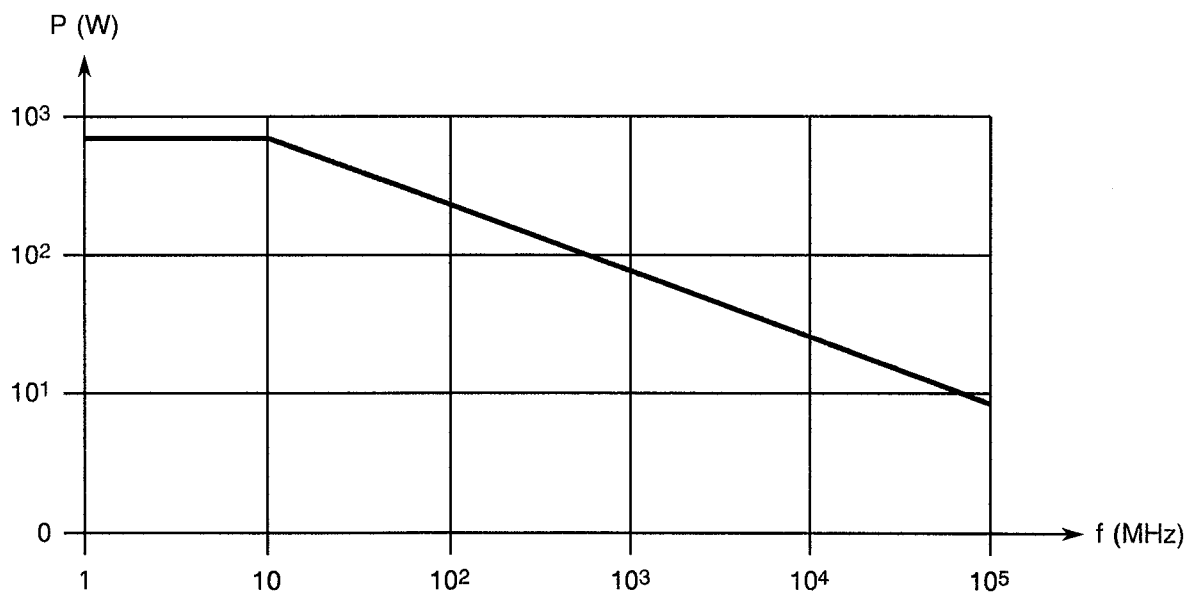


FIGURE 1(b) - POWER VERSUS FREQUENCY



POWER (VSWR in line 1) at T_{amb} = +40°C.



FIGURE 1 - PARAMETER DERATING INFORMATION (CONTINUED)

FIGURE 1(c) - VOLTAGE DERATING AT LOW AIR PRESSURE

Equivalent
Altitude

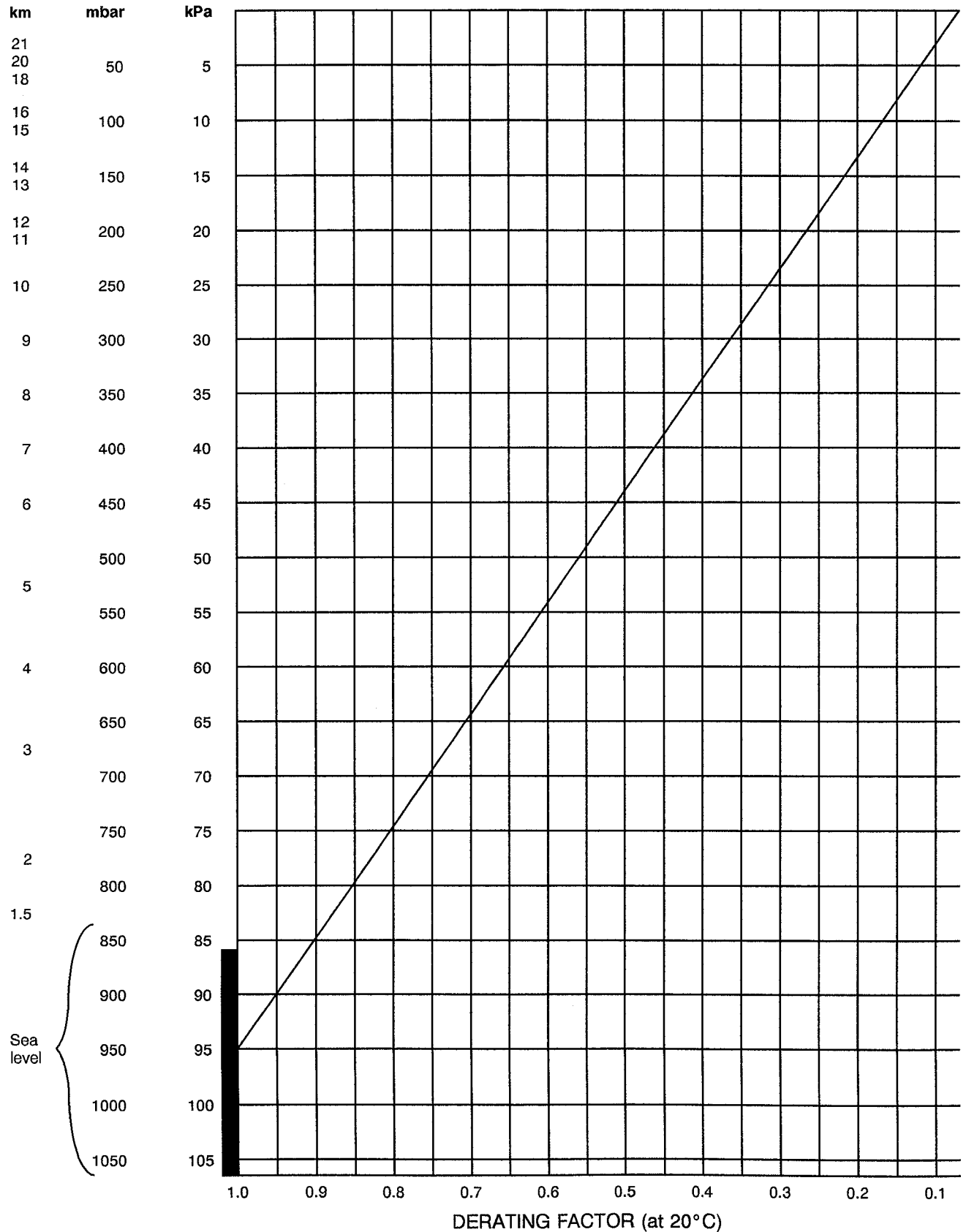
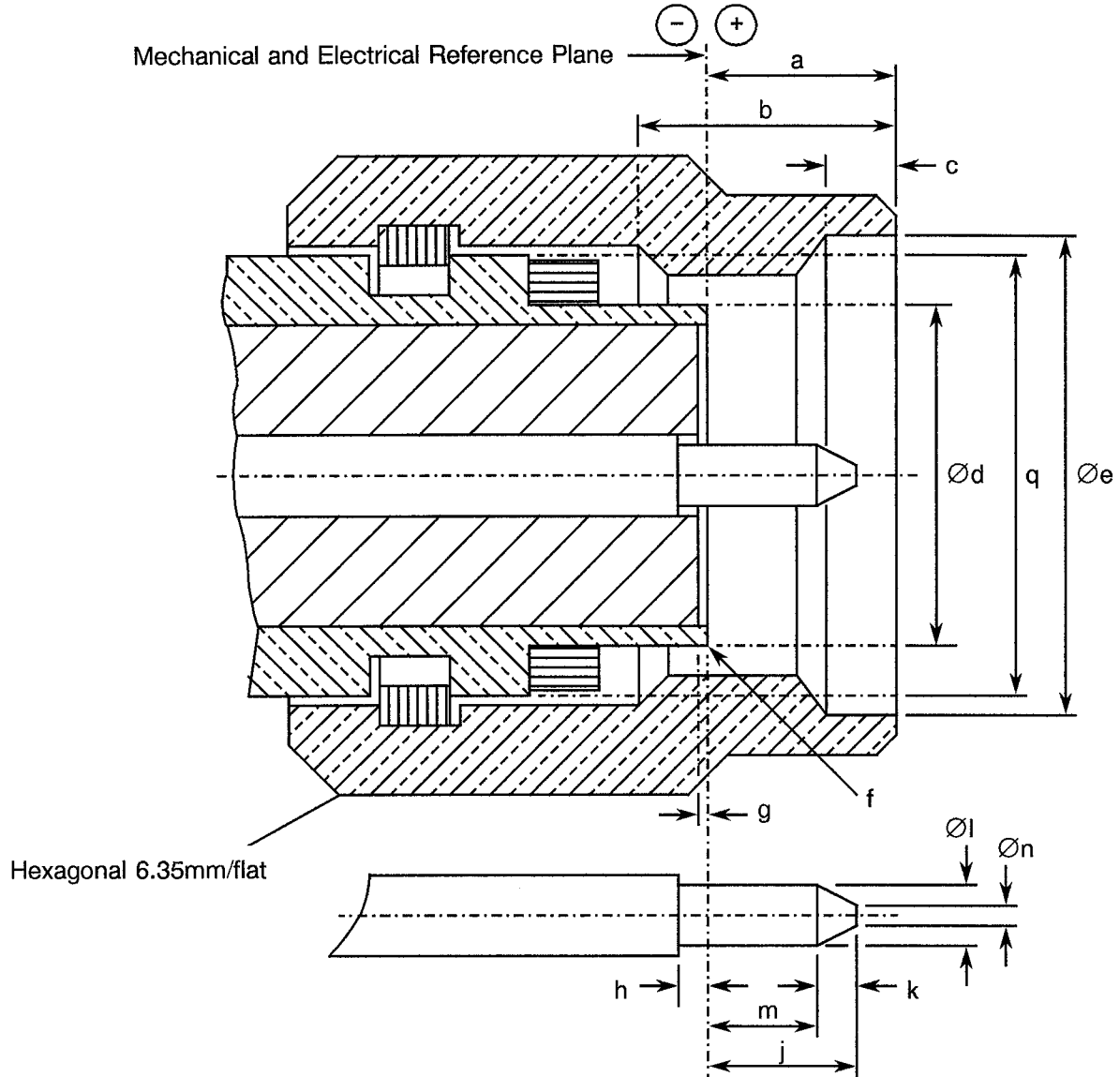




FIGURE 2 - PHYSICAL DIMENSIONS

FIGURE 2(a) - CONNECTOR INTERFACE, MALE CONTACT

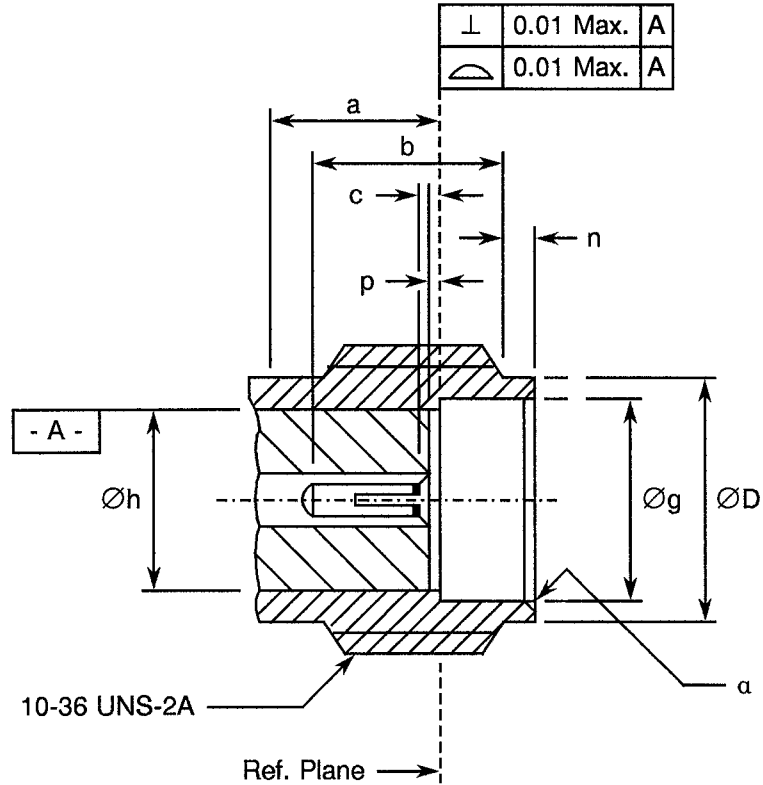


SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	-	3.43	
b	2.54	-	
c	0.38	1.14	
Ød	-	3.22	
Øe	4.98	-	
f	-	0.08	Radius or 45° chamfer
g	+0.00	-0.18	

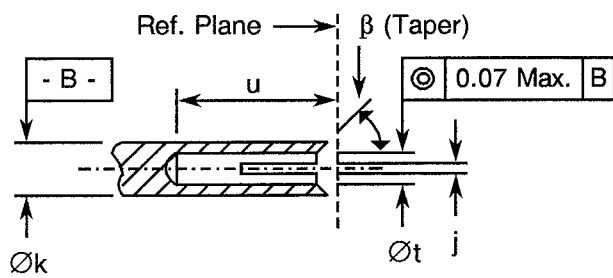
SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
h	0.00	-	
j	-	1.65	
k	0.20	-	
Øl	0.495	0.528	
m	1.00	-	
Øn	-	0.25	
q	10 36 UNS 2 B		Thread



**FIGURE 3 - STANDARD TEST CONNECTOR INTERFACE
FEMALE CONTACT**



DETAIL OF INNER CONTACT



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	3.89	-	Contact recess
b	3.81	-	
c	0.00	0.076	
ØD	3.89	4.04	
Øg	3.23	3.28	Insert recess
Øh	2.79 NOM.		
j	0.15	0.20	4 slots Note 1
Øk			
n	0.38	1.14	Note 2
p	0.00	0.05	
u	3.03	3.30	45° Chamfer 42/45° Chamfer
Øt			
α	-	0.13	
β			

NOTES

1. Choose to give required performance.
2. Dimension to meet reflection factor requirement mating characteristics and conductor durability when mated with a 0.498/0.518Ø pin.

**2. APPLICABLE DOCUMENTS**

The following documents form part of this specification and shall be read in conjunction with it:-

- (a) ESA/SCC Generic Specification No. 3402 for RF Coaxial Connectors.
- (b) MIL-G-45204, Gold Plating, Electrodeposited.
- (c) MIL-C-17/133, Cables, Radio Frequency, Coaxial, 0.0865 inch (2.20mm) Diameter, Semirigid, 50 Ohms.

3. TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS

For the purpose of this specification, the terms, definitions, abbreviations, symbols and units specified in ESA/SCC Basic Specification No. 21300 shall apply.

4. REQUIREMENTS**4.1 GENERAL**

The complete requirements for procurement of the connectors specified herein are stated in this specification and ESA/SCC Generic Specification No. 3402. Deviations from the Generic Specification applicable to this specification only, are listed in Para. 4.2.

Deviations from the applicable Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESA/SCC requirements and do not affect the components' reliability, are listed in the appendices attached to this specification.

4.2 DEVIATIONS FROM GENERIC SPECIFICATION**4.2.1 Deviations from Special In-process Controls**

None.

4.2.2 Deviations from Final Production Tests (Chart II)

- (a) Para. 9.3, Contact Engagement and Separation Forces: Not applicable.

4.2.3 Deviations from Burn-in and Electrical Measurements (Chart III)

Not applicable.

4.2.4 Deviations from Qualification Tests (Chart IV)

None.

4.2.5 Deviations from Lot Acceptance Tests (Chart V)

None.



4.3 MECHANICAL REQUIREMENTS

4.3.1 Dimension Check

The dimensions of the connectors specified herein shall be verified in accordance with the requirements set out in Para. 9.25 of ESA/SCC Generic Specification No. 3402 and shall conform to those shown in Figures 2(a) and 2(b) of this specification.

4.3.2 Weight

The maximum weight of the connectors specified herein shall be as specified in Figure 2(b).

4.3.3 Coupling Proof Torque

The requirements for testing of the coupling proof torque are specified in Section 9 of ESA/SCC Generic Specification No. 3402. The applied torque shall be 110N.cm.

4.3.4 Cable Retention Force

The requirements for testing of the cable retention force are specified in Section 9 of ESA/SCC Generic Specification No. 3402. Figure 2(b) specifies the values for axial loads. Torque shall be applied as follows:-

4.3.4.1 Flexible Cables

Flexible cables shall be rotated 180° in both directions.
Rotational movement shall be applied at 15cm from the connector.

4.3.4.2 Semi-rigid Cables

The torque value shall be as follows:-
M17/133-RG 405/U (MIL-C-17/133) : 11.28N.cm.

4.3.5 Mating and Unmating Forces

The applicable measurement requirements are specified in Section 9 of ESA/SCC Generic Specification No. 3402. The maximum torque during mating and unmating shall not exceed 12N.cm.

Whenever a test is performed on mated pairs of connectors, the pairs shall be torqued at 60-80N.cm.

4.3.6 Endurance

The applicable test requirements are specified in Section 9 of ESA/SCC Generic Specification No. 3402. The test conditions shall be as follows:-

- (a) Number of cycles : 500 for qualification; 100 for lot acceptance.
- (b) Rate : 12 cycles maximum/minute.

4.3.7 Residual Magnetism

The applicable measurement requirements are specified in Section 9 of ESA/SCC Generic Specification No. 3402.

4.3.7.1 Beryllium copper, copper underplate, gold-plated connectors. The maximum allowable value shall not exceed 20 gammas.



4.3.7.2 Beryllium copper, nickel underplate, gold-plated connectors. There are no requirements in respect of residual magnetism. This version is made such that the residual magnetism does not exceed 2000 gammas.

4.3.7.3 Residual magnetism is not applicable to stainless steel versions.

4.3.8 Contact Engagement and Separation Forces

Not applicable.

4.3.9 Contact Retention

The requirements for this test are specified in Section 9 of ESA/SCC Generic Specification No. 3402. The test conditions are given in Figure 2(b). After testing, the connector interface dimensions shall be within the limits of Figure 2(a).

4.4 MATERIALS AND FINISHES

The materials and finishes shall be as specified herein. Where a definite material is not specified, a material which will enable the connectors specified herein to meet the performance requirements of this specification shall be used. Acceptance or approval of any constituent material does not guarantee acceptance of the finished product.

4.4.1 Gold-plated Versions

4.4.1.1 Normal Types

(a) Shell, Coupling Nut, Centre Contact

Material : Beryllium copper.
Underplate : Nickel, 2.0µm minimum, or copper, 2.5µm minimum.
Plating : Gold, 2.5µm minimum, Class 2, Type 2 of MIL-G-45204.

(b) Inserts

Material : PTFE.
Baking conditions : 10 cycles (–10, +55 °C). 1 cycle = 15 minutes minimum at each temperature with 5 minutes maximum transfer time.

(c) Gaskets

Material : Silicone rubber.

(d) Accessories (ferrule, crimping sleeve and nut)

Material : Brass.
Underplate : Nickel, 2.0µm minimum, or copper, 2.5µm minimum.
Plating : Gold, 2.5µm minimum, Class 2, Type 2 of MIL-G-45204.

4.4.1.2 Hermetic Types

Not applicable.

4.4.2 Stainless Steel Versions

(a) Shell, Coupling Nut

Material : Amagnetic stainless steel, electro-passivated.
For solder-type connectors: rear part of shell shall be protected by an adequate coating for solderability.

(b) Centre Contact

Material : Beryllium copper.
Underplate : Nickel, 2.0µm minimum.
Plating : Gold, 2.5µm minimum; Class 2, Type 2 of MIL-G-45204.

(c) Inserts

Material : PTFE.
Baking conditions : 10 cycles (−10, +55 °C). 1 cycle = 15 minutes minimum at each temperature with 5 minutes maximum transfer time.

(d) Gaskets

Material : Silicone.

(e) Accessories

- Crimping elements:-

Material : Brass.
Underplate : Nickel, 2.0µm minimum.
Plating : Adequate for good solderability.

- Nut:-

Material : Amagnetic stainless steel, electro-passivated.

- Washers:-

Material : Beryllium copper.
Plating : Nickel, 2.0µm minimum.

4.5 MARKING

4.5.1 General

The marking of components delivered to this specification shall be in accordance with the requirements of ESA/SCC Basic Specification No. 21700 and the following paragraphs. When the component is too small to accommodate all of the marking specified, as much as space permits shall be marked and the marking information, in full, shall accompany the component in its primary package.

The information to be marked and the order of precedence, shall be as follows:-

- (a) The SCC Component Number.
- (b) Electrical Characteristics and Ratings.
- (c) Traceability Information.

4.5.2 The SCC Component Number

Each component shall bear the SCC Component Number which shall be constituted and marked as follows:-

340200401B

Detail Specification Number _____

Type Variant (see Table 1(a)) _____

Testing Level (B or C, as applicable) _____



4.5.3 Characteristics

Each component shall be marked in respect of:-

- (a) Type of plating/material.
- (b) Subvariant.

The information shall be constituted and marked as follows:-

Plating/Material Type _____¹⁰¹
Subvariant _____

4.5.3.1 Type of Plating/Material

The type of plating/material shall be identified by means of the following code:-

CODE	TYPE OF PLATING/MATERIAL	PARA.
1	Gold plate, copper underplate	4.4.1
2	Gold plate, nickel underplate	4.4.1
3	Amagnetic stainless steel	4.4.2

4.5.3.2 Subvariants

Subvariants are identified by 2 digits and are specified where applicable in Figure 2(b). When no subvariant is shown, the 2 digits shall be '01'.

4.5.4 Traceability Information

Each component shall be marked in respect of traceability information in accordance with the requirements of ESA/SCC Basic Specification No. 21700.

4.6 ELECTRICAL MEASUREMENTS

4.6.1 Electrical Measurements at Room Temperature

The parameters to be measured in respect of electrical characteristics are scheduled in Table 2. Unless otherwise specified, the measurements shall be performed at $T_{amb} = +22 \pm 3$ °C.

4.6.2 Electrical Measurements at High and Low Temperatures (Table 3)

Not applicable.

4.6.3 Circuits for Electrical Measurements

Not applicable.

4.7 BURN-IN TESTS (TABLES 4 AND 5)



Not applicable.

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE

No.	CHARACTERISTICS	SYMBOL	SPEC. AND/OR TEST METHOD	TEST CONDITIONS	LIMITS		UNIT
					MIN	MAX	
1	Insulation Resistance	Ri	ESA/SCC 3402, Para. 9.1	500 Vdc	5000	-	MΩ
2	Voltage Proof	Vp	ESA/SCC 3402, Para. 9.2	-	See Figure 2(b)		

TABLES 3, 4 AND 5

Not applicable

 	<p style="text-align: center;">ESA/SCC Detail Specification No. 3402/004</p>	<p style="text-align: center;">Rev. 'A'</p>	<p>PAGE 17 ISSUE 3</p>
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4.8 ENVIRONMENTAL AND ENDURANCE TESTS (CHARTS IV AND V OF ESA/SCC GENERIC SPECIFICATION NO. 3402)

4.8.1 Measurements and Inspections on Completion of Environmental Tests

The parameters to be measured and inspections to be performed on completion of environmental tests are scheduled in Table 6 of this specification. Unless otherwise stated, the measurements shall be performed at $T_{amb} = +22 \pm 3 \text{ }^\circ\text{C}$.

4.8.2 Measurements and Inspections at Intermediate Points during Endurance Tests

Not applicable.

4.8.3 Measurements and Inspections on Completion of Endurance Tests

The parameters to be measured and inspections to be performed on completion of endurance tests are scheduled in Table 6 of this specification. Unless otherwise stated, the measurements shall be performed at $T_{amb} = +22 \pm 3 \text{ }^\circ\text{C}$.

4.8.4 Conditions for Operating Life Tests (Part of Endurance Testing)

Not applicable.

4.8.5 Electrical Circuits for Operating Life Tests

Not applicable.

4.8.6 Conditions for High Temperature Storage Test (Part of Endurance Testing)

The requirements for the high temperature storage test are specified in Section 9 of ESA/SCC Generic Specification No. 3402. The conditions for high temperature storage shall be the maximum operating temperature as specified in Figure 2(b).



TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL AND ENDURANCE TESTS

NO.	ESA/SCC GENERIC SPEC. NO. 3402		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN.	MAX.	
01	Coupling Proof Torque	Para. 9.4	Final Measurements Interface Dimensions Visual Examination	- Para. 9.4 of ESA/SCC 3402	- -	Figure 2(a)		- -
02	Mating and Unmating Forces	Para. 9.5	During Test Torque	Para. 4.3.5	-	-	12	N.cm
03	Seal Test	Para. 9.7	Hermeticity Leakage	If applicable As applicable	- -	-	1.10 ⁻⁸ No Bubbles	cm ³ /s -
04	Contact Resistance	Para. 9.9 6V 10mA	During Test Contact Resistance	Centre Contact Shell Hermetic Centre Contact	- - -	-	6.5 2.0 N/A	mΩ mΩ mΩ
05	Vibration	Para. 9.10 Full Engagement	During Test Electrical Measurements Final Measurements Contact Resistance Visual Examination	Last cycle in each direction No open or short circuits Centre Contact 6V 10mA No evidence of damage	- - -	-	- 6.5 -	- mΩ -
06	Shock or Bump	Para. 9.11 Full Engagement	Final Measurements Contact Resistance Visual Examination	Centre Contact 6V 10mA No evidence of damage	- -	-	6.5 -	mΩ -
07	Rapid Change of Temperature	Para. 9.12	Final Measurements Contact Resistance Voltage Proof Visual Examination	After a recovery period of 24 ± 2 hrs Centre Contact 6V 10mA Table 2 Item 2 -	- Vp -	-	6.5 Figure 2(b) -	mΩ - -
08	Climatic Sequence	Para. 9.13	During Test Voltage Proof Final Measurements Insulation Resistance Voltage Proof External Visual Inspection	At Low Air Pressure No flashover/breakdown After final Damp Heat cycle (within 1 to 24 hrs recovery) Table 2 Item 1 Table 2 Item 2 Para. 9.8 of ESA/SCC 3402	- Ri Vp -	200	- Figure 2(b) -	MΩ - -
09	Cable Retention Force	Para's. 9.14 and this spec 4.3.4	During Test Continuity	-	-	-	-	-
10	Cabling and Crimping Capability	Para. 9.15	Visual Examination Dimensions Insulation Resistance Voltage Proof	Para. 9.15 of ESA/SCC 3402 Para. 9.15 of ESA/SCC 3402 Table 2 Item 1 Table 2 Item 2	- - Ri Vp	Fig. 2(a) & 2(b) 5000	- -	- MΩ -

NOTES

1. The tests in this Table refer to either Chart IV or V and shall be used as applicable.



TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL AND ENDURANCE TESTS (CONT'D)

NO.	ESA/SCC GENERIC SPEC. NO. 3402		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN.	MAX.	
11	VSWR or Reflection Coefficient	Para. 9.16	VSWR	Para. 9.16 of ESA/SCC 3402	-	Figure 2(b)		-
12	Corona Level	Para. 9.17	Corona	Para. 9.17 of ESA/SCC 3402	-	Figure 2(b)		-
13	Endurance	Para's. 9.18 and this spec 4.3.6	Final Measurements Mating/Unmating Forces Contact Res. (6V 10mA) Visual Examination	Para. 4.3.5 Centre Contact Shell Hermetic Centre Contact Para. 9.18 of ESA/SCC 3402	- - - -	- - - -	12 9.0 3.0 N/A	N.cm mΩ mΩ -
14	RF Insertion Loss	Para. 9.19	Insertion Loss	Para. 9.19 of ESA/SCC 3402	-	Figure 2(b)		-
15	Corrosion	Para. 9.20	Visual Examination	Para. 9.20 of ESA/SCC 3402 No exposure of base metal	-	-	-	-
16	Residual Magnetism	Para. 9.21	Magnetism	-	-	Para. 4.3.7		-
17	Soldering Proof	Para. 9.22	Final Measurements Interface Dimensions Mating/Unmating Forces Insulation Resistance Voltage Proof Contact Resistance External Visual Inspection	- Para. 4.3.5 Table 2 Item 1 Table 2 Item 2 Centre Contact Shell Hermetic Centre Contact Para. 9.8 of ESA/SCC 3402	- - Ri Vp - - -	- - 5000 Figure 2(b) - - -	12 - Figure 2(b) 6.5 2.0 N/A	- N.cm MΩ - mΩ mΩ -
18	RF Leakage	Para. 9.23	Leakage	-	-	Figure 2(b)		-
19	High Temperature Storage	Para's. 9.24 and this spec 4.8.6	Final Measurements Mating/Unmating Forces Insulation Resistance Voltage Proof Contact Retention Visual Examination Contact Resistance External Visual Inspection	Para. 4.3.5 Table 2 Item 1 Table 2 Item 2 Para. 4.3.9 - Centre Contact Shell Hermetic Centre Contact Para. 9.8 of ESA/SCC 3402	- Ri Vp - - - - -	- 5000 Figure 2(b) Para. 4.3.9 - - - -	12 - - Para. 4.3.9 - - 18 7.5 N/A	N.cm MΩ - - - mΩ mΩ -

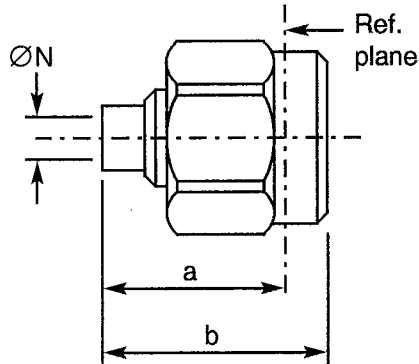
NOTES

1. The tests in this table refer to either Chart IV or V and shall be used as applicable.



FIGURE 2(b) - VARIANTS

VARIANT 01 - STRAIGHT PLUG, SOLDER TYPE, FOR SEMI-RIGID CABLE Ø2.20mm (0.085")



SYMBOL	MILLIMETRES	
	MIN.	MAX.
a	8.50 NOM.	
b	11.30 NOM.	
ØN	2.25 NOM.	

NOTES

1. Removable coupling nut.

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	$1.07 + 0.01 f$ (GHz)	
Maximum reflection coefficient	$0.034 + 0.004 f$ (GHz)	
Maximum insertion loss	$0.03 \sqrt{f}$ (GHz)	dB
RF leakage	$- [100 - f]$ (GHz)	dB
Voltage proof	750	Vrms
Corona level	190	Vrms

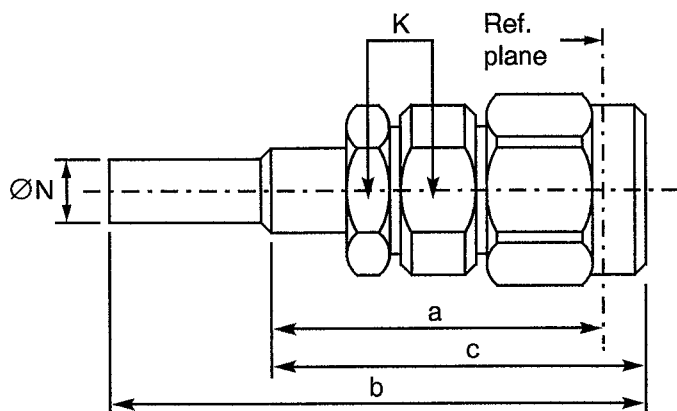
MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	Not applicable	N
Mini centre contact retention torque	Not applicable	N.cm
Mini cable retention force	200	N
Mini cable retention torque value	11.5	N.cm
Maximum weight	1.5	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature - peak value	+ 200 (see cable used)	°C
Operating temperature range	-55 to +105	°C
Maxi leakage (panel sealed connectors)	Not applicable	
Maxi leakage (hermetic sealed connector)	Not applicable	
Solderability	Applicable	
Soldering proof	Not applicable	
Cables used	KS 1, RG 405/U, (Ø2.20mm)	



FIGURE 2(b) - VARIANTS (CONTINUED)

VARIANT 05 - STRAIGHT PLUG, CRIMP-TYPE



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	22.50 NOM.		2 flats
b	37.20 NOM.		
c	25.20 NOM.		
K	-	6.35	
ØN	NOTE 1		

NOTES

1. Shall accept cables specified in the table hereafter.

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	$1.20 + 0.025 f$ (GHz)	
Maximum reflection coefficient	$0.090 + 0.01 f$ (GHz)	
Maximum insertion loss	$0.03 \sqrt{f}$ (GHz)	dB
RF leakage	$- [95 - f$ (GHz)]	dB
Voltage proof	750	Vrms
Corona level	190	Vrms

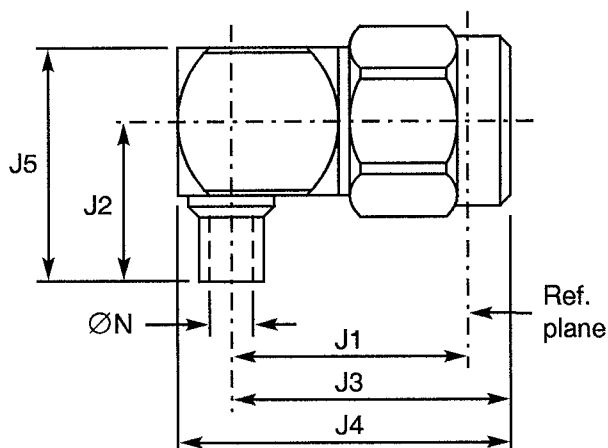
MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	22	N
Mini centre contact retention torque	0.5	N.cm
Mini cable retention force	(1) 80; (2) 110	N
Mini cable retention torque value	$2 \times 180^\circ$ applic. point $50 \times \text{ØN}$	
Maximum weight	3.8	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature - peak value	+ 200 (see cables used)	°C
Operating temperature range	- 55 to + 155	°C
Maxi leakage (panel sealed connectors)	Not applicable	
Maxi leakage (hermetic sealed connector)	Not applicable	
Solderability	Applicable	
Soldering proof	Not applicable	
Cables used	(1) Filotex 50 CIS (2) KX 3B - KX 22A RG 174/U - RG 316/U	$\text{ØN} = 2.10 \pm 0.10$ $\text{ØN} = 3.25 \pm 0.10$ mm



FIGURE 2(b) - VARIANTS (CONTINUED)

VARIANT 09 - RIGHT ANGLE PLUG, SOLDER TYPE FOR SEMI-RIGID CABLE Ø2.20mm (0.085")



SYMBOL	MILLIMETRES	
	MIN.	MAX.
J1	9.15 NOM.	
J2	5.20 NOM.	
J3	11.85 NOM.	
J4	14.30 NOM.	
J5	8.80 NOM.	
ØN	2.25 NOM.	

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 12.4	GHz
Maximum voltage standing wave ratio (VSWR)	$1.10 + 0.01 f$ (GHz)	
Maximum reflection coefficient	$0.048 + 0.004 f$ (GHz)	
Maximum insertion loss	$0.03 \sqrt{f}$ (GHz)	dB
RF leakage	$- [95 - f]$ (GHz)	dB
Voltage proof	750	V _{rms}
Corona level	190	V _{rms}

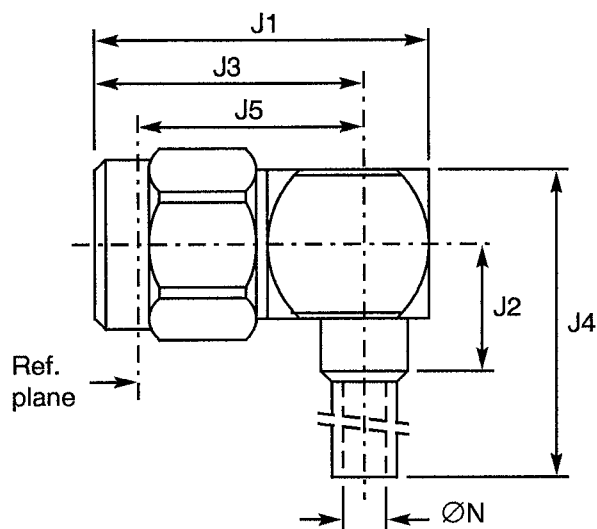
MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	22	N
Mini centre contact retention torque	Not applicable	N.cm
Mini cable retention force	200	N
Mini cable retention torque value	11.5	N.cm
Maximum weight	2.3	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature - peak value	+ 115 (see cable used)	°C
Operating temperature range	- 65 to + 105	°C
Maxi leakage (panel sealed connectors)	Not applicable	
Maxi leakage (hermetic sealed connector)	Not applicable	
Solderability	Applicable	
Soldering proof	Applicable	
Cables used	KS 1, RG 405/U (Ø2.20mm)	



FIGURE 2(b) - VARIANTS (CONTINUED)

VARIANT 12 - RIGHT ANGLE PLUG, CRIMP TYPE



SYMBOL	MILLIMETRES	
	MIN.	MAX.
J1	14.30 NOM.	
J2	11.00 NOM.	
J3	11.85 NOM.	
J4	28.10 NOM.	
J5	9.15 NOM.	
ØN	NOTE 1	

NOTES

1. Shall accept cables specified in the table hereafter

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ratio (VSWR)	$1.20 + 0.03 f$ (GHz)	
Maximum reflection coefficient	$0.09 + 0.011 f$ (GHz)	
Maximum insertion loss	$0.03 \sqrt{f}$ (GHz)	dB
RF leakage	$- [95 - f$ (GHz)]	dB
Voltage proof	750	V _{rms}
Corona level	250	V _{rms}
MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	22	N
Mini centre contact retention torque	Not applicable	N.cm
Mini cable retention force	(1) 80; (2) 110	N
Mini cable retention torque value	$2 \times 180^\circ$ applic. point $50 \times \text{ØN}$	
Maximum weight	3.4	g
OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature - peak value	+ 115 (see cables used)	°C
Operating temperature range	- 65 to + 105	°C
Maxi leakage (panel sealed connectors)	Not applicable	
Maxi leakage (hermetic sealed connector)	Not applicable	
Solderability	Applicable	
Soldering proof	Applicable	
Cables used	(1) Filotex 50 CIS (2) KX 3B - KX 22A RG 174/U - RG 316/U	$\text{ØN} = 2.10 \pm 0.10$ $\text{ØN} = 3.25 \pm 0.10$ mm