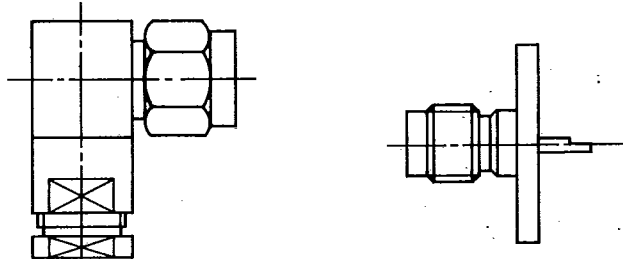


BRITISH STANDARDS INSTITUTION 2 PARK STREET, LONDON W1A 2BS		BS 9210 N0006: Part 1 Issue 2 NOVEMBER 1985	
SPECIFICATION AVAILABLE FROM BRITISH STANDARDS INSTITUTION LINFORD WOOD MILTON KEYNES MK14 6LE TELEPHONE 0908 320066 TELEX 825777		PAGE 1 OF 27 PAGES	
ELECTRONIC COMPONENTS OF ASSESSED QUALITY: DETAIL SPECIFICATION IN ACCORDANCE WITH BS 9210		For ordering information see clause 6	
TYPICAL OUTLINES, STYLES 08-02 AND 02-03 ZZ  STYLE 08-02 STYLE 02-03-ZZ FOR OTHER STYLES AND DIMENSIONS SEE PART 3 APPENDIX A		Radio frequency coaxial connector series SMA 50 Ω, unsealed, soldered centre contact, clamp outer for flexible cables, solder outer for semi-rigid cables Climatic Category: 55/155/21 FULL ASSESSMENT LEVEL	
Refer to Qualified Products List PD 9002 and/or CECC 00200 for details of manufacturers approved to this specification.			

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1. PHYSICAL CHARACTERISTICS

1.1 The control drawings for mating face details and gauge information are to be found in Part 2 of this specification. The styles and variants, outline drawings and the drawings for panel piercings are to be found in Part 3 of this specification.

1.2 Body and centre contact finish, A, C or D:

A for nickel or nickel-alloy plated body and gold plated contact;

C for gold-plated body and gold-plated contact;

D for passivated stainless steel body and gold plated contact.

NOTE 1. Galvanic corrosion may occur when connectors are in contact with dissimilar metals.

NOTE 2. Connectors for semi-rigid cable using the centre conductor of the cable as the male contact are not covered by this specification.

1.3 Cable entry finish

This requirement applies to direct solder styles for cable variants PK, PM and PO only. The letter designations E, F, G and J used in addition to those in 1.2 apply to the cable entry feature only:

E for gold;

F for gold cadmium alloy;

G for bright nickel alloy;

H for electro-deposited tin.

J for other finishes provided that the solderability requirements of subgroups B2 (D) of clause 8 of this specification are met to the satisfaction of the NSI.

2. RATINGS (INCLUDING LIMITING CONDITIONS OF USE) AND CHARACTERISTICS

NOTE. The following ratings and characteristics are for general guidance. The precise value for a particular style may be found in the detail specification in Part 3 of this specification. Working voltage and proof voltage are defined at 40 Hz - 60 Hz for the convenience of test houses. In practice working voltage and proof voltage are influenced by frequency, duty cycle, altitude and service conditions which should be taken into consideration. Voltages greater than those specified below may be applied in appropriate applications.

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<u>Style</u>	<u>2 GHz - 18 GHz</u>	<u>2 GHz - 12.4 GHz</u>
STRAIGHT OUTLET		
For use with semi-rigid cable	(0.034 + 0.004f)	
For use with flexible cable		(0.09 + 0.01f)
<u>Style</u>	<u>2 GHz - 18 GHz</u>	<u>2 GHz - 12.4 GHz</u>
RIGHT ANGLE OUTLET		
For use with semi-rigid cable		(0.048 + 0.004f)
For use with flexible cable		(0.09 + 0.01f)
Adaptors straight	(0.048 + 0.004f)	
Adaptors right angle		
High performance version	(0.09 + 0.01f)	
Standard version		(0.09 + 0.01f)
Solder bucket and PCB mounting	Not measured	

NOTE. f is the frequency in GHz.

VSWR max.

NOTE. These values are an approximate conversion from the reflection factor and are included for information purposes only. Precise values of VSWR at a given frequency may be calculated from the expression $VSWR = \frac{1 + \rho}{1 - \rho}$

<u>Style</u>	<u>2 GHz - 18 GHz</u>	<u>2 GHz - 12.4 GHz</u>
STRAIGHT OUTLET		
For use with semi-rigid cable	(1.07 + 0.01f)	
For use with flexible cable		(1.2 + 0.03f)
RIGHT ANGLE OUTLET		
For use with semi-rigid cable		(1.1 + 0.01f)
For use with flexible cable		(1.2 + 0.03f)
Adaptors straight	(1.1 + 0.01f)	
Adaptors right angle		
High performance version	(1.2 + 0.03f)	
Standard version		(1.2 + 0.03f)

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Solder bucket and
PCB mounting

Not measured

NOTE. f is the frequency in GHz.

Inner conductor to shell

*Working voltage (d.c. or a.c. peak)

(a) At sea level 450 V

(b) At altitude of 20 km (44 mbar[†]) 60 V

*Proof voltage (d.c. or a.c. peak)

(a) At sea level 1400 V

(b) At altitude of 20 km (44 mbar) 180 V

Screening effectiveness

Not measured: method for future
consideration

Contact resistance max.
Outer conductor continuity max.

Before conditioning	After conditioning
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3 m Ω	8 m Ω
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2 m Ω	7 m Ω
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Insulation resistance min.

5 G Ω	200 M Ω
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Vibration severity

frequency range
displacement
acceleration
duration

10 Hz to 2 kHz
0.75 mm) crossover at
98 m/s²) approximately 60 Hz
6 h

* Some cables usable with these connectors have ratings lower than the values given here. For precise values refer to Part 3 and the relevant Cable specification.

[†] 1 mbar = 100 N/m² = 0.1 kPa.

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Shock severity	490 m/s ² for 11 ms
Bump	4000 total at 390 m/s ²
Climatic category*	55/155/21. See note 3 of this specification
Damage by test prod	Not applicable
Impact severity (free specimens only)	5 impacts at 1 m
Engagement and separation torque	0.25 N·m max.
Normal coupling torque	0.8 N·m to 1.1 N·m
Proof coupling torque	1.65 N·m
Endurance	
Mechanical	500 operations
High temperature*	1000 h at 155 °C

3. RELATED DOCUMENTS

- BS 192 Open-ended wrenches (not including B.A. sizes)
- BS 308 Engineering drawing practice
- BS 1580 Unified screw threads
- BS 2011 Basic environmental testing procedures
- BS 2316 Radio-frequency cables
- BS 6000 Guide to the use of BS 6001. Sampling procedures and tables for inspection by attributes
- BS 6001 Sampling procedures and tables for inspection by attributes
- BS 9000 General requirements for electronic components of assessed quality
- BS 9210 Radio frequency connectors of assessed quality: generic data and methods of test
- PD 9002 BS 9000 Component selection guide

* Some cables usable with these connectors have ratings lower than the values given here. For precise values refer to Part 3 and the relevant cable specification.

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4. ADDITIONAL INFORMATION (not for inspection purposes)

For recommended piercings for metal panels and printed boards, and overlap dimensions see appendix B of Part 3 of this specification.

5. MARKINGS OF CONNECTORS AND PACKAGES

The marking of the component and package shall be in accordance with 1.1.6 of BS 9210. Assembly and cable mounting instructions shall be included in every primary package of connector piece parts or as requested by the customer.

6. ORDERING INFORMATION

In accordance with the requirements of 1.1.15 of BS 9210, orders for connectors and their accessories covered by this specification shall contain the following information:

- (a) the number of this specification, i.e. BS 9210 N0006;
- (b) style as in Part 3 of this specification, e.g. 06-02;
- (c) connector variant code as in Part 3 of this specification, e.g. PK or ZZ;
- (d) variant number, if only one variant exists then assume 01;
- (e) body finish, e.g. passivated stainless steel, D;
- (f) any additional information, e.g. any special marking or packaging requirements or cable entry finish - electro-deposited tin, H.

Example: BS 9210 N0006/06-02/PK/01/D/H.

7. DRAWINGS

7.1 Control drawings, BS 9210 N0006: Part 2, are available from BSI.

NOTE. Normally required by manufacturers and inspectorates only.

7.2 Outline drawings, BS 9210 N0006: Part 3, are available from BSI.

8. INSPECTION REQUIREMENTS

8.1 Unless otherwise stated in the table of tests, the provisions of 8.2, 8.3 and 8.4 of this specification shall apply.

8.2 Contact resistance and outer conductor continuity for each mated pair shall be measured using the 'light current' method, specified in 1.2.4.3.3(a) of BS 9210. When testing the outer conductor continuity of panel mounted styles where the connector shell is electrically connected to a mounting plate (see 1.2.1.1 of BS 9210), the continuity test shall include a measurement between the outer conductor(s) and the mounting plate. The initial contact resistances for each mated pair of contacts and for any outer conductor path shall not exceed $3\text{ m}\Omega$ and $2\text{ m}\Omega$ respectively. Resistances after conditioning shall not exceed $8\text{ m}\Omega$ and $7\text{ m}\Omega$ respectively unless the continuity measurements 1.2.4.4 of BS 9210 are applied.

8.3 Insulation resistance measurements between inner conductor and shell shall be made at $500 \pm 50\text{ V d.c.}$ on mated connectors. See note 7 of this specification.

8.4 Voltage proof measurements at sea level (at 860 mbar to 1060 mbar) shall be made at $1.4 \pm 0.1\text{ kV d.c.}$ or a.c. peak (40 Hz to 60 Hz). There shall be no breakdown or flashover. See note 7 of this specification.

8.5 For tests in subgroups C3, C5, D3 (iii), and D3 (v), involving exposure to the upper temperature category, it is essential that cables having a compatible temperature capability shall be used.

8.6 Owing to the nature of the accessories referred to in note 1 at the end of this table, certain tests are not possible, e.g. contact resistance tests are not applicable to protective covers, styles 98-12 and 99-12, either before or after conditioning.

8.7 Samples subjected to tests which are marked '(D)' shall not be accepted for release under BS 9000 (see 20.2 of BS 9000: Part 1).

8.8 The tests or measurements specified in BS 9210 after environmental conditionings are omitted between the environmental conditionings where these form part of a sequence in accordance with 1.2.6 of BS 9210. The appropriate tests are included at the end of each test sequence.

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Inspection	BS 9210 reference and conditions of test		Performance requirements
GROUP A		To be applied on a sampling basis lot-by-lot. Subgroups A0, A2, A3 and A4 are not applicable.	
<u>Subgroup A1</u>		<u>Inspection level S-3, AQL 1.5 %</u> (See note 1 of this specification.)	
Visual examination	1.2.2	Either on assembled components or on contents of packages	As in 1.2.2 of BS 9210
<u>Subgroup A5</u>			
CTR information	1.1.11	Attributes information for subgroup A1	
GROUP B		To be applied on a sampling basis lot-by-lot. Subgroups B3, B5, B6 and B7 are not applicable. (The specimens used for subgroups B1 and B2 may also be used for subgroup B4.) Connectors shall be assembled in accordance with the instructions supplied by the manufacturer	
<u>Subgroup B1</u>		<u>Inspection level S-2, AQL 1.0 %</u> (See note 1 of this specification.)	
Mechanical compatibility	1.2.5.9	Using compatibility gauges specified in the control drawings of BS 9210 N0006: Part 2	As in 1.2.5.9 of BS 9210
<u>Subgroup B2 (D)</u>		<u>Inspection level S-3, AQL 4 %</u>	
Solderability	1.2.6.1.1	Soldering iron method. Iron size (B). Centre contact for all styles; also mounting spills for printed board styles, for body parts for direct soldering styles use iron size (A). The bit surface may be concave	Wetting shall occur as follows: (a) Centre contacts 2 s (b) P.B mounting spills 3 s (c) body parts 5 s

Notes. See end of table.

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Inspection	BS 9210 reference and conditions of test		Performance requirements
<u>Subgroup B2 (D) (cont'd)</u>			
Insulation resistance	1.2.4.6	As in 8.3 of this specification	≥ 5 GΩ
Voltage proof	1.2.4.7	As in 8.4 of this specification	As in 8.4 of this specification
<u>Subgroup B4 (D)</u>			
		<u>Inspection level S-3, AQL 4 %</u>	
Engagement and separation	1.2.5.5	See note 1 of this specification	As in clause 2 of this specification
Gauge retention force	1.2.5.2	See control drawings BS 9210 N0006: Part 2, for details of gauges	As in 1.2.5.2 of BS 9210.
<u>Subgroup B8</u>			
CTR information	1.1.11	Attributes information for subgroups B1, B2 and B4	
GROUP C		Applied at 6-monthly intervals except when group D tests are due. In addition the issue number of the manufacturer's drawing list shall be checked against that in the qualification approval application or certificate. Specimens used for subgroup C1 may also be used for subgroups C3 and C5. Subgroups C2 and C4 are not applicable	
<u>Subgroup C1</u>			
Outline dimensions and mass*	1.2.3.1	See note 1 of this specification	As in appendix A to Part 3 of this specification

Notes. See end of table.

* Mass is not inspected.