JOINT SERVICE SPECIFICATION K1001

APPENDIX II

ABBREVIATIONS AND SYMBOLS

1. The symbols given in British Standard 1409 :1950 "Letter Symbols for Electronic Valves" are used in K.1001 Test Specifications as far as possible but they do not cover all the requirements of those specifications. Many additional abbreviations and symbols are used and these are given in this Appendix together with those of B.S.1409.

2. Many K 1001 Test Specifications were issued before B.S.1409 was published and they contain a number of abbreviations which conflict with the meanings given in the British Standard. Although appropriate changes are made, if practicable, when these specifications are revised it is unlikely that the amendment of conflicting symbols will be complete in the foreseeable future. The alternative meanings will be found in this Appendix and the correct ones should be easily understood from the context in the Test documents.

3. The symbolic names for valve bases are in general those given by the British Radio Valve Manufacturers' Association.

4. Subscripts in printed documents such as B.S.1509 and manufacturers' catalogues are usually printed slightly below the line of the print. This "dropping" of subscripts cannot be readily done with a typewriter; therefore, as Test Specifications are generally reproductions of typed papers, the symbols in this appendix are given with the subscripts on the same line as the main lettering.

ABBREVIATIONS AND SYMBOLS

B.S.1409	K1001 (prior to adoption of BS 1409)	
	A	Ampere. Anode
a		Anode
	A1 etc.	First anode etc. (See Note 1, Page 8)
	Aa,Ab	Anodes in a multiple valve (See Note 2, Page 9)
	AC	Alternating current
	Ad	Diode anode
	AF	Audio frequency
Ag		Gas amplification in phototubes
	Ao	Oscillator anode (See Note 3, Page 9)
ASE		Overall amplification in secondary emission amplifiers
	B	Beam forming plates. Energy bandwidth of a receiver
B		Brightness in cathode-ray tubes
b		(Used as a subscript) Battery or other source
	B2A	2-pin base used on G.M. Counter tubes
	B2B	2-pin base for photo-conductive cells
	B3A	American Pee-Wee 3-pin base (See App. IV, Drawing No. 28)
	B3B/A	
	B3D	
	B3D/F	Transistor base with flying in-line leads
	B3G	3-pin in-line lead glass base (See App. IV, Drawing No.10)
	B4	Original British 4-pin base (See App. IV. Drawing No. 5)
	B4A	American 4-pin base used on CV398, CV2752, CV2814 etc. (See App. IV, Drawing No. 29)
	B4B	4-pin base for phototubes (See App. IV, Drawing No. 30)
	B4D	American Super Jumbo 4-pin base with bayonet (See App. IV, Drawing No. 22)
	B4E	4-clip base for cathode-ray tubes
	B4F	American Jumbo 4-pin base (See App. IV, Drawing Bo. 23)
	Bc4	4-pin base with bayonet (See App. IV, Drawing No. 41)
	B5	British 5-pin base (See App. IV, Drawing No. 5)
	B5A	B5A/F base with leads cut short for insertion in a valveholder
	B5A/F	5-lead, in-line, subminiature base with flying leads (See App. I, Drawing No. 10) (Mullard and M.O.V.)
	B5B	B5B/F base with leads cut short for insertion in a valveholder
	B5B/F	5-lead button base with flying leads for subminiature valves (See App. I, Drawing No. 10)
	B5D	American Giant 5-pin base (See App. IV, Drawing No. 33)
	B5E	Alternative version of B5D (with metal shell) (Eimac and R.C.A., See App. IV, Drawing No. 34)
	B5F	Alternative version of B5D (Mullard and Phillips, See App. IV, Drawing No. 35)
	B5G	B5G/F base with leads cut short for insertion in a valveholder.
	B5G/F	American 5-lead, in-line, subminiature base with flying leads
	B5H	
	B5H/F	5-lead, in-line, flat miniature base (Hivac)
	B5J	
	B5J/F	Pressed glass electrometer base (Mullard)

B.S.1409	K1001 (prior to adoption of BS1409)	
	B5K	5-pin Super Giant Base (Philips)
	B7	British 7-pin base (See App. IV, Drawing No. 5)
	B7A	American Septar 7-pin base (See App. IV, Drawing No. 24)
	B7B	7-pin CRT base (E.M.I.) (See App. IV, Drawing No. 54)
	B7D	American Medium Shell Giant 7-pin base with bayonet (See App. IV, Drawing No. 25)
	B7E/F	American 7-lead, in-line, flat subminiature base
	B7G	Small button miniature 7-pin base (See App. IV, Drawing No. 9)
	B7G/A	Welded lead version of B7G base (S.T.C.)
	B7G/B	Welded lead version of B7G base (G.P.O.)
	B7G/F	B7G base with flying leads instead of pins
	B8A	Rimlock 8-pin base with location boss
	B8B	8-pin glass base
	B8D	B8D/F base with leads cut short for insertion in a valveholder.
	B8D/F	8-lead circular subminiature base with flying leads (See App. I, Drawing No. 10)
	B8E	8-pin CRT base (Formerly E.M.8, See App. IV, Drawing No. 17)
	B8F	American 8-pin base used on CV2519 (4X150 A)(See MIL-E-1 spec.)
	B8G	8-pin locking-in base (See App. IV, Drawing No. 12)
	B8G/F	B8G base with flying leads
	B9	British 9-pin base (See App. IV, Drawing No. 5)
	B9A	9-pin Noval base (See App. IV, Drawing No. 26)
	B9A/B	Welded lead version of B9A base (G.P.O.)
	B9A/D	B9 base with central exhaust tubulation (Mullard)
	B9A/F	B9A base with flying leads
	B9B	9-pin base for vibrators
	B9G	9-pin glass base (See App. IV, Drawing No. 8)
	B9G/B	Welded lead version of B9G base (G.P.O.)
	B10A	
	B10A/A	10-pin glass base with welded leads (S.T.C.)
	B11A	American 11-pin Sub-Magnal base (See App. IV, Drawing No. 27)
	B12A	American 12-pin Duodecal base (See App. IV, Drawing No. 39)
	B12B	12-pin spigot base (See App. IV, Drawing No. 16)
	B12D	12-pin side contact CRT base with key (See App. IV, Drawing No. 15)
	B12E	B12A base with cap on spigot (See App. IV, Drawing No. 47)
	B12F	12-pin glass base for CRT (Electronic Tubes Ltd.)
	B12G	12-pin glass base for CRT (E.M.I. Ltd.)
	B14A	American Diheptal 14-pin base (See App. IV, Drawing No. 40)
	B14B	14-pin pressed glass base for CRT (E.M.I. Ltd.)
	B15A3	3-pin base (formerly 3-pin Quindecal) used on CV339 (See App. IV, Drawing No. 21)
	B15B	15-pin glass base (E.M.I., used on photomultipliers)
	B22	Bayonet Lamp Cap (See App. IV, Drawing No. 14)
	BC4	Medium 4-pin bayonet base (See App. IV, Drawing No. 41)
bp		Beam forming plate
C		Capacitance (for associated circuits)
c		Capacitance (for valve)
C in	(Input Cap.)	Grid to all electrodes except anode
C out	(Output Cap.)	Anode to all electrodes except grid

B.S.1409	K1001 (prior to adoption of BS 1409)	
	C	Capacitance, cathode, centigrade (^{o}C)
	C-all	Capacitance between cathode and all other electrodes
	Ca-all	Capacitance between anode and all other electrodes
	Cac	Anode to cathode capacitance (See Note 5, Page 9)
	Cae	Capacitance between anode and all other electrodes except the grid
	Cag	Anode to grid capacitance
	CC	Internal conductive coating
	Cgc	Grid to anode capacitance
	Cge	Capacitance between grid and all other electrodes except the anode
	CK12	See B12D
cf		Switch, fixed contact
	CL3	3-clip base (See App. IV, Drawing No. 11)
	CL6	6-clip base (See App. IV, Drawing No. 18)
	CL7	7-clip base (See App. IV, Drawing No. 19)
cm	cm	Switch, moving contact. Centimetre
C.M.F.		Cross-modulation factor
CRT	CRT	Cathode Ray Tube
	c/s	Cycles per second
cw		Capacitance, working
	Cx-all	Capacitance between one X plate and all other electrodes
	Cxy	Capacitance between one X plate and one Y plate
	Cy-all	Capacitance between one Y plate and all other electrodes
D	D	Distortion. Diode anode.
d	d	(Used as a subscript) Diode. Deci-
	db	Decibel
	DC	Direct current
Δf		Bandwidth
D.F.		Duty factor
	dia	Diameter
	Dy	Dynode
	EFC	Equivalent foot candles
	E	Earth
	EL4B	Large-4-pin base
	EM8	8-pin base, now B8E (See App. IV, Drawing No. 17)
eq		(Used as a subscript) Equivalent
	ES	Medium Edison Screw Base (See App. IV, Drawing No. 13)
ESD	ESD	Electrostatic deflection
ESF	ESF	Electrostatic focus
ext		(Used as a subscript) (Extinction (Voltage)
	F	Farad. Filament
f(-)	F-	Filament terminal connected to negative side of supply
f(+)	F+	Filament terminal connected to positive side of supply
f	f	Filament (emitting). Frequency
f max		Frequency limit, maximum
f min		Frequency limit, minimum
	G	Grid (See Note 4, Page 9)
	G1 etc.	First grid etc. (See Note 4, page 9)
	G1-all	Capacitance between G1 and all other electrodes
	G1a etc.	See Note 2, page 9
g		Grid
gc	gc	Conversion conductance

B.S.1409	K1001 (prior to adoption of BS1409)	
	GES	Goliath Edison Screw base (See App. IV, Drawing No. 13)
gm	gm	Mutual conductance. Slope
	Go	Oscillator grid (See Note 3, page 9)
	H	Henry, Oersted. Heater
h		Heater. (Used as a subscript) Hexode. Heptode. etc.
	HCT	Heater centre tap
het		(Used as a subscript) Heterodyne
	HF	High Frequency
	Hg	Mercury
H.M.F.		Hum-modulation factor
	hr	Hour
	HT	High tension
I		Direct current
	Ia	Anode current
	Ia peak	Peak anode current
Iav		Average value of the direct component of a complex current wave
	Ib	Beam current (Cathode Ray Tube)
IC		Pin with an unspecified internal connection which must not be used for an external connection
	Ic	Total cathode current
	Ie	Cathode emission current
	IF	Intermediate frequency
	If	Filament current
	Ig, Igl etc.	Grid Current (See Note 4, page 9)
ign		(Used as a subscript) Ignition (Voltage)
	Ih	Heater current
	Ihc	Heater-cathode current
in		(Used as a subscript) Input.
inv		(Used as a subscript) Inverse (voltage or current)
	Ins	Insulation
	IO	International Octal base. Now known as the Octal base with the symbol O or B8-O (See App. IV, Drawing No. 2)
Io		No-signal current
ipk		Peak current
I r.m.s.		Alternating current (r.m.s.)
	Ish	Internal shield or coating current
	K	Kelvin. Boltzmann's constant
k	k	Cathode. Kilo-
k1		Primary cathode
k2 etc.		Secondary cathodes of secondary emission valves
	kc/s	Kilocycles per second
	kW	Kilowatt
L	L	(Used as a subscript) Total effective working load Inductance. Conversion loss in decibels
	L4	4-pin low loss base(See App. IV, Drawing No. 6)
	LF	Low frequency
	LO	Local oscillator
	λ	Wavelength
M	M	External conductive coating forming an integral part of the valve (e.g. metallizing, metal shell or can). Mega-. Meg-. Magnetic. Mutual inductance of circuit.

B.S. 1409	K1001 (prior to adoption of BS 1409)	
m	m	Internal conducting coating. Mutual inductance of valve. Metra. Milli-
μ	μ	Amplification factor. Micro-
	μS	Microsecond
	mA	Milliampere
	max	Maximum
	Mc/s	Megacycles per second
MD	MD	Magnetic deflection
	MES	Miniature Edison Screw base (See App. IV. Drawing No. 13)
MF	MF	Magnetic focus
	mm	millimetres
	min.	Minimum. Minute
	MO	Mazda Octal base (See App. IV, Drawing No. 3)
mod		(Used as a subscript) Modulation
	MΩ	Megohm
NC		Pin with no internal connection
	NIF	Noise factor of I.F. Amplifier
	Nom	Nominal
NP		No pin
NR		Noise factor of receiver
NSE		Secondary emission ratio, in S.E. Amplifiers
	O	Octal base. Formerly International Octal with the symbol I.O. (See App. IV, Drawing No. 2)
	Ω	ohm
out		(Used as a subscript) Output
P		Power (for associated circuit)
p		Power. (Used as a subscript) Pentode. Pico-
	PB8	8-pin Bayonet base (See App. IV, Drawing No. 20)
	PEC	Photoelectric cell. Photocell
pdr		Driving power
	pF	Picofarad
P.I.V.	PIV	Peak inverse voltage
P.R.F.	PRF	Pulse recurrence or repetition frequency
	PS10	Spigot base (See B12B)
	PS12	Spigot base (See B12B)
q		(Used as a subscript) Tetrode
R	R	Resistance of associated circuit
r		Resistance of valve. (Used as a subscript) Rectifier
	Ra	Anode AC resistance or impedance
	Rad	Radius
	Ref	Reflector
Res	Res	Resonator
	RF	Radio Frequency
	Rl	Load resistance
r.m.s.	RMS	Root mean square
	RO	I.F. Impedance of a mixer
S	S	Sensitivity of cathode ray tube or photocell.
s		Internal shield
SC	SC	Pin connection for the shell of certain metal valves. Side contact
	SC8	8-pin side contact base

B.S. 1409	K1001 (prior to adoption of BS1409)	
	Sec	Second
	SES	Small Edison Screw base (See App. IV, Drawing No. 13)
	Sh	Internal Shield
sig		(Used as a subscript) Signal
	Sp	Special
stab		(Used as a subscript) Stabilized
sur		(Used as a subscript) Surge voltage or current
	SWR	Standing wave ratio
	Sx	Deflection sensitivity of C.R. tube X-plates
	Sy	Deflection sensitivity of C.R. tube Y-plates
	T	Temperature. Target
t		(Used as a subscript) Triode. Fluorescent screen or other target. Noise temperature ratio
T bulb		Bulb temperature
THg		Condensed mercury temperature
T pin		Pin temperature
Trad		Radiator temperature
Tseal		Seal temperature
tap		(Used as a subscript) Tapping on filament or heater
td		Deionization time
thk		Cathode heating time
ti		Ionization time
tp		pulse duration
tsd		Switching delay time
tc	TC	Top contact. Top cap
	Tp	Pulse duration
	T4	4-pin metal shell base (See App. IV, Drawing No. 7)
	UHF	Ultra high frequency
	USD12)	American Diheptal base. Now B14A (See App. IV,
	USD14)	Drawing No. 40)
	USG5	American Giant 5-pin base with bayonet. Now B5D (See App. IV, Drawing No. 33)
	USG7	American Giant 7-pin base with bayonet. Now B7D (See App. IV, Drawing No. 25)
	USL4	American Large 4-pin base, (See CV1506 specification)
	USM4	American Medium 4-pin base, No. A4-9 (See App. IV, Drawing No. 48)
	USM4B	American Medium 4-pin bayonet base. No. A4-10 (See App. IV, Drawing No. 49)
	USM5	American Medium 5-pin base, No. A5-11 (See App. IV, Drawing No. 50)
	USM5B	American USM5 base with bayonet pin (See CV2595 specification)
	USM6	American Medium 6-pin base. No. A6-12 (See App. IV, Drawing No. 51)
	USM7	American Medium 7-pin base. No. A7-13 (See App. IV, Drawing No. 52)
	USM11	American Magnal 11-pin base, Nos. B11 - 33 and B11 - 66 (See App. IV, Drawing No. 45)
	USS4	American Small 4-pin base, No. A4 - 5 (See App. IV, Drawing No. 48)

B.S.1409	K1001 (prior to adoption of BS1409)	
	USS5	American Small 5-pin base, No. A5-6 (See App. IV, Drawing No. 50)
	USS6	American Small 6-pin base, No. A6-7 (See App. IV, Drawing No. 51)
	USS7	American Small 7-pin base, No. A7-18 (See App. IV, Drawing No. 52)
	USSM11	American Sub-Magnal base. Now B11A (See App. IV, Drawing No. 27)
V	V	Direct Voltage. Volt
	Va	Anode Voltage
	Vao	Oscillator anode voltage
	Va1 etc.	First anode voltage, etc.
Vav		Average value of the direct component of complex voltage wave
	Vcc	Internal conductive coating voltage
	Vf	Filament voltage
	Vg	Grid voltage
	Vg1 etc.	First grid voltage, etc, (See Note 4, page 9)
	Vh	Heater voltage
	Vhc	Voltage between heater and cathode
	VHF	Very high frequency
	Vht	H.T. supply voltage
	VM	Velocity modulated
	Vr	Reflector voltage
Vr.m.s.		Alternating voltage (r.m.s.)
	Vsh	Internal shield voltage
	Vt	Target voltage
Vpk		Peak voltage
	W	Watts
	Wa	Anode dissipation, anode wattage
	Wg	Grid dissipation
	Wg1 etc.	First grid dissipation (See Note 4, page 9)
wr		Wave retardation electrode
X		Reactance of associated circuit
x		Reactance of valve. Deflector electrode
	X1, X2	X-plates of cathode ray tube
	Y1, Y2	Y-plates of cathode ray tube
Y		Admittance of associated circuit
y		Admittance of valve. Deflector electrode
Z		Impedance of associated circuit
z		Impedance of valve

NOTES

1. Anodes are numbered sequentially along the direction of electron flow. When a C.R.T. specification allows for a given number of anodes and a design of tube is accepted which has no separate A1 connection, the anodes will always be numbered as if, in fact, there were an A1. For example if a tube without a separate A1 connection be accepted to a specification for a three anode tube, the final anode will be known as A3 and the focussing anode as A2.

2. When similar electrodes are equidistance from the filament, or occur in two or more identical structures they are differentiated by the addition of the letters "a" and "b". This rule applies to all electrodes, but does not hold for frequency changers. (See Note 3).

3. In a self oscillating frequency changer valve which employs an independent grid and anode in the oscillator section, these are designated by the suffix o.

4. Where a valve contains more than one grid, they are numbered G1, G2, G3, etc., commencing with the grid nearest the filament or cathode.

5. Cag, Cge, Cac are "direct" capacitances with the unmenticned electrodes earthed.