

CINTEL

PHOTOCELLS

ABRIDGED DESIGN DATA



FOREWORD

The purpose of this brochure is to enable the photo-cell user to have in an easily assimilated form, the principal characteristics of a range of over 100 cells.

In these pages will be found cells suitable for almost every known application and having decided on a particular type, a fully comprehensive data sheet is available on each cell on request.

NOMENCLATURE

All cells in this publication are listed in a combined alphabetical and numerical order. The significance of this coding is as follows.

The 'number' portion indicates the basic cell type. This is preceded by two or more letters which have the following meaning:

- G — indicates a gas filled cell
- V — indicates a vacuum cell
- A — indicates Antimony-Caesium cathode
- B — indicates Bismuth-Silver-Oxygen-Caesium cathode
- S — indicates Silver-Oxygen-Caesium cathode
- Q — indicates all quartz envelope
- M — indicates Multiplier Cell.

In order to provide a comprehensive 'equivalents' service (see Equivalents List) a number of variations in the type number are provided to cover different bases etc. The significance of these suffixes is as below:

- 1 — indicates American 4 pin base
- SO — indicates Shell Octal base
- MO — indicates Mazda Octal base
- A — indicates American 4 pin base specially orientated
- X — indicates American 3 pin base
- Y — indicates Shortened American 3 pin base
- WB — indicates without base i.e. flying leads.
- T — indicates Top Cathode connexion
- TA — indicates Top Anode connexion
- M — indicates cell selected for Maximum Dimensions
- Spec — indicates specially selected cell.

The following two examples should serve to illustrate the use of this nomenclature:

Type VA17

Basic size 17 cell; Vacuum type with 'A' cathode; British 4 pin base.

Type VA117ATA

Basic size 17 cell; Vacuum type with 'A' cathode; American 4 pin base specially orientated to allow for direction of light; Top Anode Connexion.

CATHODES

Three basic type cathodes are used coded 'A', 'B' and 'S'. The following Table indicates the best cathode material for use with various light sources and Spectral Sensitivity Curves are shown on the next page.

| TYPE OF ILLUMINATION | CATHODE FOR MAX. RESPONSE |
|----------------------|---------------------------|
| Infra-red | S |
| Incandescent (red) | S |
| Incandescent (blue) | A |
| Carbon Arc (strong) | A |
| Carbon Arc (weak) | S |
| Sunlight | A |
| Daylight | A |
| Discharge Lamps | A |
| Mercury Lamps | A |
| C.R.T. Screen (blue) | A |
| Ultra-Violet | QA |

The 'B' type cathode should be used in all cases where a cell having a response similar to that of the human eye is required.

AMBIENT TEMPERATURE

The maximum ambient temperature for both 'A' and 'B' cathodes is 50°C and for the 'S' cathode 100°C. If the bulb temperature of the cell is allowed to exceed this maximum, evaporation of the cathode may result with a consequent reduction in sensitivity and life.

VACUUM OR GAS

Gas filled cells are suitable for all 'on-off' applications where the changes of light are relatively small or sudden. They are also used universally for Sound Film equipment. Frequency limit 12kc/s.

Vacuum cells are used for the majority of applications as they have the greatest stability. Over a small light change range the illumination characteristic is linear and the frequency response is limited only by the transit time.

Where a linear characteristic is required over a wide range and for all photometric applications, cells having a cylindrical wire mesh anode should be used.

CATHODE AREA & DIAMETER

Where a cathode area is given in the tables it indicates that the cathode is rectangular in shape and that the cell is cylindrical. Where diameter is given it indicates that the cell is spherical in shape and that the cathode is deposited on the glass.

OPERATING VOLTAGE

Where a range of voltages is quoted, i.e. 80-110V it means that the cell is available with a working voltage of 80, 90, 100 or 110 volts and that the required value should be specified on ordering.

SENSITIVITY

All sensitivities are measured with an incandescent tungsten filament lamp at a colour temperature of 2700°K .

OVERALL LENGTH

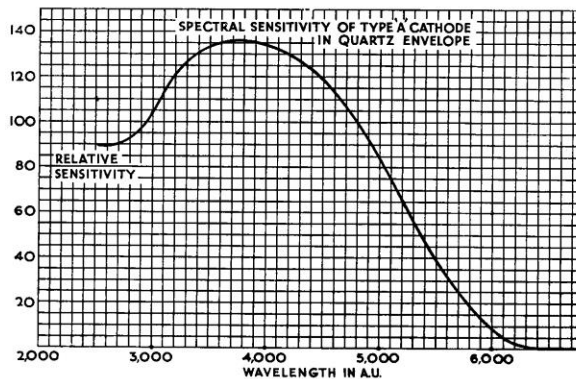
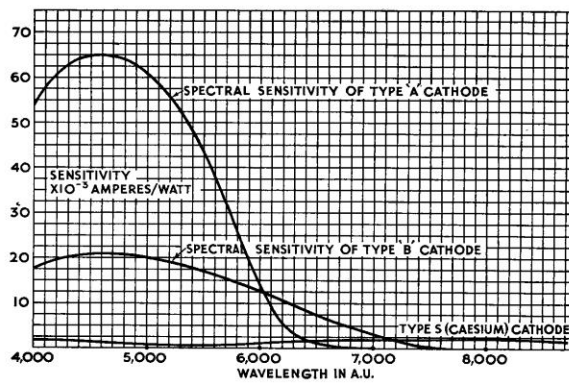
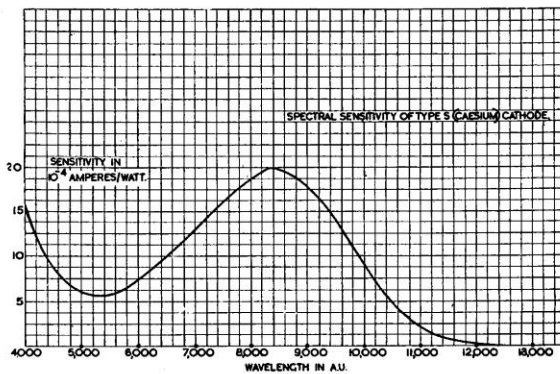
This figure includes the base and pins and is a true overall measurement.

BASE TYPE

A description of the type of base in relation to the code letter used is given in the following tables.

| CODE | DESCRIPTION OF BASE |
|------|-------------------------------|
| A | British 4 Pin + Top Cap |
| B | British Small 4 Pin + Top Cap |
| C | Two Caps. To B.S.S. 448/1953 |
| D | British 4 Pin |
| E | Flying Leads |
| F | Special Base |
| G | British Small 4 Pin |
| H | American 'Pee-Wee' 3 Pin |
| J | B.7G. |
| K | B.8G. |
| L | American 4 Pin |
| M | Special 11 contact |
| N | Special tag base |
| O | Shell Octal |
| P | Mazda Octal |
| Q | As H. but shortened |

SPECTRAL SENSITIVITY CURVES



| CINTEL TYPE NUMBER | Cathode Area | Cathode Diameter | Capacitance C _{ck} | Maximum Dark Current | Maximum Anode Current | Operating Voltage | Minimum Sensitivity | Gas Amplification Factor | Overall Length | Maximum Ball Bulb Diameter | Base Code |
|--------------------------|-----------------|---------------------|--------------------------------|----------------------------|-----------------------------|----------------------|------------------------|--------------------------------|-------------------|-------------------------------------|--------------|
| | mm ² | mm | pF | μA | μA | V | μA/l | — | mm | mm | — |
| GB.11 | — | 76 | 2 | 0.1 | 10 | 80-110 | 100 | 10 | 145 | 80 | A |
| GS.11 | — | 76 | 2 | 0.1 | 20 | 80-110 | 100 | 10 | 145 | 80 | A |
| VA.11 | — | 76 | 2 | 0.1 | 10 | 100 | 30 | — | 145 | 80 | A |
| VB.11 | — | 76 | 2 | 0.1 | 10 | 100 | 20 | — | 145 | 80 | A |
| VS.11 | — | 76 | 2 | 0.1 | 20 | 100 | 20 | — | 145 | 80 | A |
| GB.13 | — | 23 | 2 | 0.1 | 4 | 80-110 | 100 | 8 | 59 | 25 | B |
| GS.13 | — | 23 | 2 | 0.1 | 8 | 80-110 | 100 | 8 | 59 | 25 | B |
| VA.13 | — | 23 | 2 | 0.1 | 4 | 100 | 30 | — | 59 | 25 | B |
| VB.13 | — | 23 | 2 | 0.1 | 4 | 100 | 20 | — | 59 | 25 | B |
| VS.13 | — | 23 | 2 | 0.1 | 8 | 100 | 20 | — | 59 | 25 | B |
| VA.14 | 720 | — | 1.5 | 0.1 | 8 | 100 | 30 | — | 70 | 22 | C |
| GA.16 | 575 | — | 3 | 0.1 | 4 | 80-110 | 125 | 5 | 72 | 26 | D |
| GS.16 | 575 | — | 3 | 0.1 | 8 | 80-110 | 100 | 8 | 72 | 26 | D |
| VA.16 | 575 | — | 3 | 0.1 | 8 | 100 | 30 | — | 72 | 26 | D |
| VS.16 | 575 | — | 3 | 0.1 | 8 | 100 | 20 | — | 72 | 26 | D |
| GS.17 | 690 | — | 3 | 0.1 | 14 | 80-110 | 125 | 9 | 105 | 36 | D |
| VA.17 | 690 | — | 3 | 0.05 | 8 | 100 | 30 | — | 105 | 36 | D |
| VS.17 | 690 | — | 3 | 0.05 | 14 | 100 | 20 | — | 105 | 36 | D |
| GA.18 | 1150 | — | 4 | 0.1 | 8 | 80-110 | 125 | 5 | 102 | 26 | D |
| GS.18 | 1150 | — | 4 | 0.1 | 16 | 80-110 | 100 | 8 | 102 | 26 | D |
| VA.18 | 1150 | — | 4 | 0.1 | 12 | 100 | 30 | — | 102 | 26 | D |
| VS.18 | 1150 | — | 4 | 0.1 | 16 | 100 | 20 | — | 102 | 26 | D |
| GS.23 | 289 | — | 2.5 | 0.1 | 6 | 80-110 | 75 | 8 | 32 | 20 | E |

| CINTEL TYPE NUMBER | Cathode Area | Cathode Diameter | Capacitance C _{ck} | Maximum Dark Current | Maximum Anode Current | Operating Voltage | Minimum Sensitivity | Gas Amplification Factor | Overall Length | Maximum Ball Bulb Diameter | Base Code |
|--------------------------|-----------------|---------------------|--------------------------------|----------------------------|-----------------------------|----------------------|------------------------|--------------------------------|-------------------|-------------------------------------|--------------|
| | mm ² | mm | pF | μA | μA | V | μA/l | — | mm | mm | — |
| GS.33 | — | 50 | 1 | 0.1 | 40 | 80-110 | 100 | 8 | 115 | 50 | A |
| VA.33 | — | 50 | 1 | 0.05 | 20 | 100 | 30 | — | 115 | 50 | A |
| VB.33 | — | 50 | 1 | 0.05 | 20 | 100 | 20 | — | 115 | 50 | A |
| VS.33 | — | 50 | 1 | 0.05 | 40 | 100 | 20 | — | 115 | 50 | A |
| GS.34 | 459 | — | 3.5 | 0.1 | 8 | 80-110 | 100 | 8 | 59 | 26 | C |
| VS.34 | 459 | — | 3.5 | 0.1 | 8 | 100 | 20 | — | 59 | 26 | C |
| VA.35 ³ | 1920 | — | 3.5 | 0.1 | 16 | 100 | 30 | — | 102 | 36 | E |
| VA.36 ⁴ | 2880 | — | 4.5 | 0.1 | 28 | 100 | 30 | — | 115 | 36 | E |
| GB.37 | — | 125 | 2 | 0.1 | 30 | 80-110 | 100 | 10 | 210 | 130 | A |
| GS.37 | — | 125 | 2 | 0.1 | 60 | 80-110 | 100 | 10 | 210 | 130 | A |
| VA.37 | — | 125 | 2 | 0.1 | 30 | 150 | 30 | — | 210 | 130 | A |
| VB.37 | — | 125 | 2 | 0.1 | 30 | 150 | 20 | — | 210 | 130 | A |
| VS.37 | — | 125 | 2 | 0.1 | 60 | 150 | 20 | — | 210 | 130 | A |
| VA.39 ⁵ | 1200 | — | 8 | 5x10 ⁻⁶ | 12 | 30-50 | 20 | — | 155 | 42 | A |
| VB.39 ⁵ | 1200 | — | 8 | 10 ⁻⁵ | 12 | 30-50 | 15 | — | 155 | 42 | A |
| VS.39 ⁵ | 1200 | — | 8 | 5x10 ⁻⁵ | 12 | 30-50 | 15 | — | 155 | 42 | A |
| QVA.39 ⁵ | 1000 | — | 8 | 5x10 ⁻⁶ | 4 | 30-50 | 20 | — | 120 | 36 | F |
| GS.40 ⁶ | 264 | — | 3 | 0.1 | 4 | 80-110 | 75 | 8 | 81 | 27 | D |
| VA.40 ⁶ | 264 | — | 3 | 0.1 | 2 | 100 | 30 | — | 81 | 27 | D |
| VS.40 ⁶ | 264 | — | 3 | 0.1 | 4 | 100 | 20 | — | 81 | 27 | D |
| GS.41 | 80 | — | 2.5 | 0.1 | 2 | 80-110 | 75 | 8 | 35 | 16 | E |
| VS.41 | 80 | — | 2.5 | 0.1 | 2 | 100 | 15 | — | 35 | 16 | E |
| GS.42 | 54 | — | 1.75 | 0.1 | 2 | 80-110 | 50 | 8 | 16 | 11 | E |

| | | | | | | | | | | | |
|--------------------|------|----|-----|------|----|--------|-----|----|-----|----|---|
| VA.23 | 289 | — | 1.5 | 0.1 | 4 | 100 | 30 | — | 32 | 20 | E |
| VS.23 | 289 | — | 2.5 | 0.1 | 6 | 100 | 15 | — | 32 | 20 | E |
| GS.25 | 200 | — | 2.5 | 0.1 | 4 | 80-110 | 75 | 8 | 41 | 18 | E |
| VA.25 | 200 | — | 1.5 | 0.1 | 3 | 100 | 30 | — | 41 | 18 | E |
| VS.25 | 200 | — | 2.5 | 0.1 | 4 | 100 | 15 | — | 41 | 18 | E |
| GS.26 | 1000 | — | 8 | 0.1 | 20 | 80-110 | 100 | 8 | 105 | 36 | D |
| VA.26 | 1000 | — | 8 | 0.1 | 12 | 100 | 30 | — | 105 | 36 | D |
| VS.26 | 1000 | — | 8 | 0.1 | 20 | 100 | 20 | — | 105 | 36 | D |
| GS.26T | 1000 | — | 8 | 0.1 | 20 | 80-110 | 100 | 8 | 121 | 36 | A |
| VA.26T | 1000 | — | 8 | 0.05 | 12 | 100 | 30 | — | 121 | 36 | A |
| VS.26T | 1000 | — | 8 | 0.05 | 20 | 100 | 20 | — | 121 | 36 | A |
| GB.29 | — | 57 | 2 | 0.1 | 6 | 80-110 | 100 | 10 | 125 | 60 | A |
| GS.29 | — | 57 | 2 | 0.1 | 12 | 80-110 | 100 | 10 | 125 | 60 | A |
| VA.29 | — | 57 | 2 | 0.1 | 6 | 100 | 30 | — | 125 | 60 | A |
| VB.29 | — | 57 | 2 | 0.1 | 6 | 100 | 20 | — | 125 | 60 | A |
| VS.29 | — | 57 | 2 | 0.1 | 12 | 100 | 20 | — | 125 | 60 | A |
| GS.31 ¹ | 377 | — | 2.5 | 0.1 | 6 | 80-110 | 50 | 8 | 28 | 12 | E |
| VA.31 ¹ | 377 | — | 2.5 | 0.1 | 4 | 100 | 20 | — | 28 | 12 | E |
| VS.31 ¹ | 377 | — | 2.5 | 0.1 | 6 | 100 | 15 | — | 28 | 12 | E |
| GB.32 ² | — | 40 | 2.5 | 0.1 | 12 | 80-110 | 100 | 8 | 70 | 40 | A |
| GS.32 ² | — | 40 | 2.5 | 0.1 | 24 | 80-110 | 100 | 8 | 70 | 40 | A |
| VA.32 ² | — | 40 | 2.5 | 0.1 | 12 | 100 | 30 | — | 70 | 40 | A |
| VB.32 ² | — | 40 | 2.5 | 0.1 | 12 | 100 | 20 | — | 70 | 40 | A |
| VS.32 ² | — | 40 | 2.5 | 0.1 | 24 | 100 | 20 | — | 70 | 40 | A |
| GB.33 | — | 50 | 1 | 0.1 | 20 | 80-110 | 100 | 8 | 115 | 50 | A |

- NOTES: 1. End View Cell—Circular Cathode.
2. Cathode covers all spherical envelope with exception of two 20mm dia. windows at right angles to each other.
3. Common twin anodes. One each end.
4. Separate twin anodes. One each end.

| | | | | | | | | | | | |
|---------------------|-------|----|------|-------|------|--------|-----|---|-----|-----|---|
| VA.42 | 54 | — | 1.75 | 0.1 | 0.75 | 100 | 20 | — | 16 | 11 | E |
| VS.42 | 54 | — | 1.75 | 0.1 | 2 | 100 | 15 | — | 16 | 11 | E |
| VA.43 | 24000 | — | 4 | 0.1 | 60 | 100 | 30 | — | 308 | 101 | E |
| GS.44 | 312 | — | 2.5 | 0.1 | 6 | 100 | 75 | 8 | 70 | 18 | G |
| VS.44 | 312 | — | 2.5 | 0.1 | 6 | 100 | 20 | — | 70 | 18 | G |
| GS.47X | 187 | — | 2.5 | 0.1 | 2 | 80-110 | 75 | 8 | 63 | 18 | H |
| VS.47X | 187 | — | 2.5 | 0.1 | 2 | 100 | 20 | — | 63 | 18 | H |
| GS.49 | 190 | — | 3 | 0.1 | 6 | 80-110 | 75 | 8 | 115 | 27 | D |
| VS.49 | 190 | — | 3 | 0.1 | 8 | 100 | 20 | — | 115 | 27 | D |
| GS.50 | 300 | — | 0.9 | 0.1 | 6 | 80-110 | 75 | 8 | 53 | 19 | J |
| VA.50 | 450 | — | 0.6 | 0.05 | 8 | 100 | 30 | — | 53 | 19 | J |
| VS.50 | 300 | — | 0.9 | 0.05 | 8 | 100 | 15 | — | 53 | 19 | J |
| GS.51 | 720 | — | 1.5 | 0.1 | 12 | 80-110 | 100 | 8 | 74 | 29 | K |
| VA.51 | 925 | — | 0.2 | 0.05 | 20 | 100 | 30 | — | 77 | 29 | K |
| VS.51 | 720 | — | 1.5 | 0.05 | 20 | 100 | 15 | — | 74 | 29 | K |
| VS.54 ⁵ | 250 | — | 5 | 0.001 | 4 | 100 | 15 | — | 53 | 19 | J |
| GS.56 | 600 | — | 1.75 | 0.1 | 8 | 80-110 | 125 | 8 | 115 | 27 | D |
| GA.116A | 700 | — | 3 | 0.1 | 4 | 80-110 | 125 | 6 | 72 | 27 | L |
| GS.116A | 420 | — | 3 | 0.1 | 8 | 80-110 | 100 | 8 | 72 | 27 | L |
| GS.146 | 595 | — | 1.75 | 0.1 | 12 | 80-110 | 125 | 8 | 100 | 27 | L |
| VS.146 | 595 | — | 1.75 | 0.1 | 12 | 100 | 20 | — | 100 | 27 | L |
| GS.149 ⁷ | 192 | — | 3 | 0.1 | 4 | 80-110 | 75 | 8 | 100 | 27 | L |
| VS.149 ⁷ | 192 | — | 3 | 0.1 | 4 | 100 | 20 | — | 100 | 27 | L |
| VTA ⁸ | — | 25 | 5 | 0.05 | 3 | 100 | 20 | — | 76 | 30 | D |
| VTB ⁸ | — | 25 | 5 | 0.05 | 3 | 100 | 15 | — | 76 | 30 | D |

5. Cylindrical wire mesh anode.
6. Two separate cathodes each 264mm².
7. Cell contains two identical cathodes and anodes.
8. End-on Cell. Transparent Cathode.

MULTIPLIER CELLS

| CINTEL TYPE NUMBER | CATHODE | | | | MULTIPLIER SYSTEM | | | | | | SIZE | | BASE CODE | |
|--------------------------|----------|----------------------|-----------------|---------------------|-------------------|------------------|-------------------------|---------------------|--------------------|--------------------------------|----------------|-----------------------|-----------|---|
| | Material | Window | Area | Average Sensitivity | Type | Number of Stages | Maximum Volts Per Stage | Overall Sensitivity | Dark Current | Continuous Output Current Max. | Overall Length | Maximum Bulb Diameter | | |
| | — | — | cm ² | μA/l | — | — | V | μA/l | μA | mA | mm | mm | | — |
| MA.16 ⁹ | SbCs | Glass | 4 | 45 | SOLID FLAT | 1 | 500 | 250 | 0.1 | 8x10 ⁻³ | 81 | 27 | D | |
| MA.20 | SbCs | Glass | 20 | 40 | WEISS GRID | 9 | 100 | 8x10 ⁴ | 0.1 | 1 | 175 | 50 | M | |
| MB.20 | BiAgCs | Glass | 20 | 30 | | 9 | 100 | 6x10 ⁴ | 0.1 | 1 | 175 | 50 | M | |
| MS.20 | AgCsOCs | Glass | 20 | 30 | | 9 | 100 | 6x10 ⁴ | 0.1 | 1 | 175 | 50 | M | |
| QMA.20 | SbCs | Quartz ¹⁰ | 20 | 40 | | 9 | 100 | 8x10 ⁴ | 0.1 | 1 | 175 | 50 | M | |
| N.101 | SbCs | Glass | 10 | 50 | SOLID FLAT | 1 | 350 | 500 | 10 ⁻⁵ | 10 ⁻³ | 168 | 51 | E | |
| N 102/XI GRADES: | 1 | SbCs | Glass | 10 | 60* | VENETIAN BLEND | 6 | 150 | 5x10 ⁵ | 0.01 | 0.2 | 168 | 53 | N |
| | 2 | SbCs | Glass | 10 | 40* | | 6 | 150 | 15x10 ⁴ | 0.01 | 0.2 | 168 | 53 | N |
| | 3 | SbCs | Glass | 10 | 25* | | 6 | 150 | 5x10 ⁴ | 0.01 | 0.2 | 168 | 53 | N |

NOTES: 9. Multiplication Factor at 500V = 8, at 100V = 4.
 10. 26mm. dia. on 67mm. Tubulation.
 * Minimum Sensitivity.

C. V. NUMBERS

| CINTEL | CV. | CINTEL | CV. | CINTEL | CV. |
|-----------------|------|---------|------|------------------|------|
| GS.16 (90V) | 2896 | VS.18MO | 3625 | GS.50 | 2133 |
| GS.16 (80-110V) | 1473 | GS.26T | 1432 | VA.50 | 2132 |
| GS.16 (160V) | 248 | VS.26T | 161 | VS.50 | 2134 |
| GS.16.SO | 2694 | VA.35 | 285 | GS.56 (80-110V) | 1472 |
| VA.16 | 528 | GS.44X | 1913 | GS.118 | 1801 |
| VA.16.SO | 2693 | GS.47X | 405 | GS.146 (90V) | 2692 |
| GS.18 | 242 | GA.50 | 2270 | GS.146 (80-110V) | 584 |

EQUIVALENTS LIST

| CINTEL | R.C.A. | Visatron | G.E. | Westinghouse | Cetron | N.U. | Lumotron | Raytheon | Sylvania | Phillips | G.E.C. | Manza | Mullard | Base |
|----------------|--------|----------------|-------|--------------|--------|-------|-------------|----------|----------|----------|-----------------|-------|---------|------|
| GS16 (80/110V) | — | — | — | — | — | — | — | — | — | — | CMG22 (80/110V) | — | 52CG | D |
| GS16 (160V) | — | — | — | — | — | — | — | — | — | — | CMG22 (160V) | — | — | D |
| GS16.SO | 930 | R61A R64A | GL930 | — | CE30 | NU30 | — | — | — | — | — | — | — | O |
| GS16.WB | — | — | — | — | — | — | G5 | — | — | — | — | — | — | E |
| VA16.SO | 929 | — | GL929 | — | — | — | — | — | — | — | — | — | — | O |
| VS16.SO | 925 | R61AV R64AV | — | — | CE30V | NU30V | — | — | — | — | — | — | — | O |
| GS17 | — | — | — | — | — | — | — | — | — | 8533 | CMG17 | — | — | D |
| GS18 | — | — | — | — | — | — | — | — | — | — | CMG25 | — | — | D |
| VS18.MO | — | — | — | — | — | — | — | — | — | — | — | PE8 | — | P |
| GS23 | 921† | — | — | — | — | — | — | — | — | — | — | — | — | E |
| GS26.T | — | — | — | — | — | — | — | — | — | — | CMG8 | — | — | D |
| VA26.T | — | — | — | — | — | — | — | — | — | — | CAV35 | — | — | D |
| GS44 | — | — | — | — | — | — | — | — | — | — | CMG33 | — | — | D |
| GS44.X | — | R51A | — | — | — | NU5 | G15F G16 | — | — | 354PW/02 | CMG33X | — | — | H |
| GS44.Y | — | — | — | — | CE36 | NU36 | — | — | — | — | — | — | — | Q |
| VS44 | — | — | — | — | — | — | — | — | — | — | CMV33 | — | — | D |
| VS44.X | — | R51AV | — | — | CE25V | NU25V | — | — | — | — | CMV33X | — | — | H |
| VS44.Y | — | — | — | — | CE36V | NU36V | — | — | — | — | — | — | — | Q |
| GS47 | — | — | — | — | — | — | — | — | — | — | CMG34 | — | — | D |
| GS47.X | 927 | — | GL927 | — | CE25 | — | — | — | — | 3530 | CMG34X | — | — | H |
| VS47 | — | — | — | — | — | — | — | — | — | — | CMV34 | — | — | D |
| VS47.X | — | — | — | — | — | — | — | — | — | — | CMV34X | — | — | H |
| GS49 | — | — | — | — | — | — | — | — | — | — | CMG28 | — | — | D |
| VS49 | — | — | — | — | — | — | — | — | — | — | CMV28 | — | — | D |
| GA50 | — | — | — | — | — | — | — | — | — | — | CAG29 | — | 90AG | J |
| GS50 | — | — | — | — | — | — | — | — | — | — | CMG29 | — | 90CG | J |
| VA50 | — | — | — | — | — | — | — | — | — | — | CAV29 | — | 90AV | J |
| VS50 | — | — | — | — | — | — | — | — | — | — | CMV29 | — | 90CV | J |
| GS56 | — | — | — | — | — | — | — | — | — | — | — | PE7B | — | D |
| GS116.A | — | — | — | — | — | NU4 | — | — | — | — | — | — | — | L |
| GS116.AM | — | R58A | — | — | CE4 | — | G12 | — | — | — | — | — | — | L |

†Same cathode and electrical characteristics only

| CINTEL | R.C.A. | Visi- tron | G.E. | Westinghouse | Con- tron | N.U. | Lumatron | Raytheon | Sylvania | Philips | G.E.C. | Mazda | Mullard | Base |
|--------------|--------|---------------|-------|--------------|--------------|-------|----------|----------|----------|---------|--------|-------|---------|------|
| VS116.AM | — | R58AV | — | — | CE4V | — | — | — | — | — | — | — | — | L |
| GS117.A | — | R71A | — | WL737 | CE2 | NU2 | — | 4GC | 814A | — | — | — | — | L |
| GS117.ATA | — | R71TA | — | — | CE13 | NU13 | — | — | — | — | — | — | — | L |
| VA117.A | — | R71BV | — | — | — | — | — | — | — | — | — | — | — | L |
| VA117.ATA | — | R71TBV | — | — | — | — | — | — | — | — | — | — | — | L |
| VS117A | — | R71AV | — | — | CE2V | — | — | — | — | — | — | — | — | L |
| VS117.ATA | — | R71TAV | — | — | CE13V | NU13V | — | — | — | — | — | — | — | L |
| GS118.TA | — | R59TA | — | — | CE11 | — | — | — | — | — | — | — | — | L |
| VS118 | — | R59AV | — | WL734 | CE1V | — | — | — | — | — | — | — | — | L |
| VS118.T | 919 | R82AV | — | — | — | NU31V | — | — | — | — | — | — | — | L |
| VS118.TA | 917 | R59TAV | GL917 | — | CE11V | NU11V | — | — | — | — | — | — | — | L |
| GS126.A | — | — | — | — | CE7 | NU7 | — | — | — | — | — | — | — | L |
| GS146 | 868 | R59A | PJ23 | WL735 | CE1 | NU1 | G8 | 4GSM | 868 | 3554 | CMG32 | — | 50CG | L |
| GS146 (Spec) | 918 | — | GL918 | — | — | — | — | — | — | — | — | — | — | L |
| GS149 | 920 | — | GL920 | — | — | — | — | — | — | — | — | — | — | L |

WORSLEY BRIDGE ROAD
LOWER SYDENHAM LONDON SE26
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