

# Application Note 0164

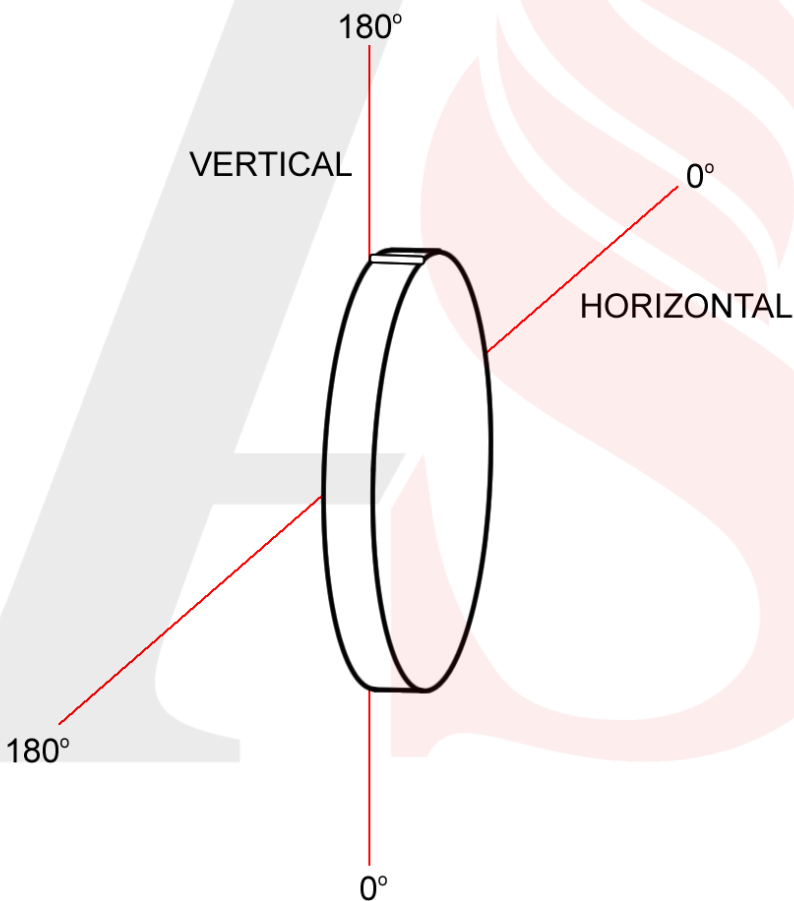
## YBO-BS2 & YBO-BS2(SCI) Tones and Volumes

### Description

The YBO-BS2 Base Sounder is designed to fit onto either a Standard Mounting Base (YBN-R/3 & YBV-R/4) or a Short-Circuit Isolator Mounting Base (YBN-R/3(SCI)) with the facility to accommodate any of the ESP Range of Sensors, Beacon devices or Cap (for use as a wall sounder). The YBO-BS2 is an EN 54-3 Type A audible alarm device.

### EN54-3 Approved Tones

The following tables give the minimum sounder performance (dB(A)@1m) of each Tone when tested under EN54-3 test conditions. Figures are given for six horizontal and six vertical directions, measured when the YBO-BS2 mounting base is installed as shown in Fig. 1.



Mounting orientation with sensor alignment mark on base positioned vertically, at top.

NOTE: The sound pressure level (SPL) is dependent on current setting selected for the sounder, and also on the tone setting.

| TONE 1 (CHQ-BS2 Tone 1) |            |             |                   |      |      |      |      |      |                 |      |      |     |      |      |
|-------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|-----|------|------|
| 925Hz/0.25s 628Hz/0.25s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |     |      |      |
| dB (norm)               | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105 | 135  | 165  |
| 98                      | 16         | 0F          | 92                | 86.9 | 89.4 | 88.7 | 85.5 | 87.9 | 92              | 92.1 | 91.4 | 90  | 87.6 | 91.3 |

| TONE 2 (CHQ-BSB2 Tone 2) |            |             |                   |      |      |      |      |      |                 |      |      |      |     |      |
|--------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|-----|------|
| 925Hz                    |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |     |      |
| dB (norm)                | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135 | 165  |
| 98                       | 16         | 0F          | 92                | 86.9 | 89.6 | 89.1 | 81.3 | 88.1 | 92.8            | 92.6 | 91.8 | 90.6 | 88  | 91.8 |

| TONE 3 (CHQ-BS2 Tone 3) |            |             |                   |      |    |      |      |      |                 |      |      |      |     |      |
|-------------------------|------------|-------------|-------------------|------|----|------|------|------|-----------------|------|------|------|-----|------|
| 628Hz                   |            |             | HORIZONTAL Angle° |      |    |      |      |      | VERTICAL Angle° |      |      |      |     |      |
| dB (norm)               | Current mA | Volume Code | 15                | 45   | 75 | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135 | 165  |
| 98                      | 16         | 0F          | 84.1              | 85.9 | 85 | 84.9 | 85.7 | 83.2 | 83.7            | 84.7 | 84.7 | 84.1 | 84  | 81.8 |

| TONE 4 (CHQ-BSB2 Tone 4) |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|--------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 554Hz/0.1s 440Hz/0.4s    |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)                | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                       | 16         | 0F          | 85.9              | 84.6 | 85.3 | 85.9 | 84.4 | 85.1 | 85.8            | 84.8 | 85.3 | 84.7 | 82.6 | 85.4 |

| TONE 5 (CHQ-BS2 Tone 5) |            |             |                   |      |      |      |      |      |                 |    |      |      |      |      |
|-------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|----|------|------|------|------|
| 660Hz/0.15s 0Hz/0.15s   |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |    |      |      |      |      |
| dB (norm)               | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45 | 75   | 105  | 135  | 165  |
| 98                      | 16         | 0F          | 83.4              | 84.9 | 83.2 | 83.4 | 84.5 | 84.1 | 83.2            | 83 | 81.8 | 82.1 | 81.9 | 81.7 |

| TONE 6 (CHQ-BSB2 Tone 6) |            |             |                   |      |      |      |     |      |                 |      |      |      |      |     |
|--------------------------|------------|-------------|-------------------|------|------|------|-----|------|-----------------|------|------|------|------|-----|
| 925Hz/0.15s 0Hz/0.6s     |            |             | HORIZONTAL Angle° |      |      |      |     |      | VERTICAL Angle° |      |      |      |      |     |
| dB (norm)                | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135 | 165  | 15              | 45   | 75   | 105  | 135  | 165 |
| 98                       | 16         | 0F          | 91.8              | 86.5 | 89.2 | 88.8 | 81  | 88.1 | 90.7            | 90.5 | 89.7 | 88.8 | 96.3 | 90  |

| TONE 7 (CHQ-BS2 Tone 7) |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|-------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 670Hz/0.25s 845Hz/0.37s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)               | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                      | 16         | 0F          | 83.6              | 84.2 | 83.4 | 83.3 | 84.5 | 84.2 | 84.4            | 83.4 | 82.7 | 82.9 | 82.6 | 82.5 |

| TONE 8                   |            |             |                   |    |      |     |      |      |                 |      |      |      |      |      |
|--------------------------|------------|-------------|-------------------|----|------|-----|------|------|-----------------|------|------|------|------|------|
| 500Hz-1200Hz/3s 0Hz/0.5s |            |             | HORIZONTAL Angle° |    |      |     |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)                | Current mA | Volume Code | 15                | 45 | 75   | 105 | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                       | 16         | 0F          | 92.3              | 88 | 89.9 | 88  | 86.8 | 90.9 | 90.2            | 89.9 | 88.4 | 88.5 | 86.3 | 89.8 |

| TONE 9                 |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 1200Hz/0.5s 500Hz/0.5s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)              | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                     | 16         | 0F          | 85.6              | 81.6 | 85.6 | 84.8 | 81.2 | 86.2 | 86.5            | 84.9 | 84.5 | 83.6 | 81.4 | 84.4 |

| TONE 10             |            |             |                   |      |    |     |      |      |                 |      |    |      |      |      |
|---------------------|------------|-------------|-------------------|------|----|-----|------|------|-----------------|------|----|------|------|------|
| 970Hz/0.5s 0Hz/0.5s |            |             | HORIZONTAL Angle° |      |    |     |      |      | VERTICAL Angle° |      |    |      |      |      |
| dB (norm)           | Current mA | Volume Code | 15                | 45   | 75 | 105 | 135  | 165  | 15              | 45   | 75 | 105  | 135  | 165  |
| 98                  | 16         | 0F          | 92.4              | 88.1 | 90 | 87  | 83.3 | 89.7 | 91.3            | 90.6 | 91 | 89.1 | 86.9 | 91.4 |

| TONE 11               |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|-----------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 800-970Hz/0.14s Sweep |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)             | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                    | 16         | 0F          | 90.7              | 86.4 | 88.4 | 87.1 | 82.8 | 88.4 | 87.9            | 87.3 | 87.4 | 86.7 | 83.8 | 88.3 |

| TONE 12            |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|--------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 800-970Hz/1s Sweep |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)          | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                 | 16         | 0F          | 92.6              | 88.2 | 89.6 | 87.9 | 84.6 | 91.1 | 90.1            | 89.9 | 89.8 | 88.4 | 86.5 | 89.7 |

| TONE 13               |            |             |                   |    |      |      |     |      |                 |      |      |      |      |      |
|-----------------------|------------|-------------|-------------------|----|------|------|-----|------|-----------------|------|------|------|------|------|
| 800-970Hz/0.02s Sweep |            |             | HORIZONTAL Angle° |    |      |      |     |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)             | Current mA | Volume Code | 15                | 45 | 75   | 105  | 135 | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                    | 16         | 0F          | 90.2              | 86 | 88.1 | 86.3 | 83  | 88.2 | 89.1            | 88.1 | 88.6 | 87.3 | 85.2 | 88.1 |

| TONE 14                 |            |             |                   |      |      |      |     |      |                 |      |      |      |      |      |
|-------------------------|------------|-------------|-------------------|------|------|------|-----|------|-----------------|------|------|------|------|------|
| 2400-2850Hz/0.14s Sweep |            |             | HORIZONTAL Angle° |      |      |      |     |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)               | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135 | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                      | 16         | 0F          | 93.1              | 88.6 | 90.3 | 90.8 | 85  | 91.2 | 90.4            | 89.8 | 90.2 | 89.7 | 85.9 | 91.5 |

| TONE 15              |            |             |                   |      |      |      |      |      |                 |      |    |      |     |      |
|----------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|----|------|-----|------|
| 2400-2850Hz/1s Sweep |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |    |      |     |      |
| dB (norm)            | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75 | 105  | 135 | 165  |
| 98                   | 16         | 0F          | 87.8              | 83.6 | 84.3 | 83.6 | 79.4 | 86.4 | 83.7            | 84.2 | 85 | 82.7 | 80  | 83.3 |

| TONE 16             |            |             |                   |      |      |      |      |      |                 |      |      |      |      |     |
|---------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|-----|
| 300-1200Hz/1s Sweep |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |     |
| dB (norm)           | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165 |
| 98                  | 16         | 0F          | 89.5              | 85.8 | 87.4 | 86.6 | 83.7 | 88.1 | 88.1            | 87.3 | 87.4 | 86.3 | 84.4 | 87  |

| TONE 17             |            |             |                   |      |      |      |      |      |                 |      |      |      |     |      |
|---------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|-----|------|
| 970Hz/0.5s 0Hz/0.5s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |     |      |
| dB (norm)           | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135 | 165  |
| 98                  | 16         | 0F          | 93.2              | 89.7 | 91.3 | 87.6 | 84.3 | 90.7 | 91.5            | 90.7 | 91.1 | 89.2 | 87  | 91.6 |

| TONE 18              |            |             |                   |      |      |      |      |      |                 |      |      |      |     |      |
|----------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|-----|------|
| 2850Hz/0.5s 0Hz/0.5s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |     |      |
| dB (norm)            | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135 | 165  |
| 98                   | 16         | 0F          | 96.3              | 91.4 | 92.5 | 91.2 | 88.7 | 94.6 | 89.8            | 89.4 | 91.4 | 89.3 | 88  | 91.3 |

| TONE 19                 |            |             |                   |      |      |      |      |      |                 |      |      |      |      |     |
|-------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|-----|
| 800Hz/0.25s 970Hz/0.25s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |     |
| dB (norm)               | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165 |
| 98                      | 16         | 0F          | 92.1              | 88.1 | 89.8 | 86.4 | 83.2 | 89.6 | 90.9            | 90.1 | 90.6 | 88.9 | 86.5 | 91  |

| TONE 20   |            |             |                   |      |      |      |      |      |                 |      |    |      |      |      |
|-----------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|----|------|------|------|
| 2850Hz    |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |    |      |      |      |
| dB (norm) | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75 | 105  | 135  | 165  |
| 98        | 16         | 0F          | 96.1              | 91.4 | 92.3 | 91.1 | 88.5 | 94.5 | 89.8            | 89.3 | 92 | 89.3 | 87.9 | 91.2 |

| TONE 21                   |            |             |                   |      |      |      |      |      |                 |    |      |      |      |     |
|---------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|----|------|------|------|-----|
| 2400Hz/0.25s 2850Hz/0.25s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |    |      |      |      |     |
| dB (norm)                 | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45 | 75   | 105  | 135  | 165 |
| 98                        | 16         | 0F          | 95.9              | 91.1 | 92.4 | 90.9 | 88.3 | 94.2 | 89.6            | 89 | 91.8 | 89.3 | 87.7 | 91  |

| TONE 22               |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|-----------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 800Hz/0.5s 970Hz/0.5s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)             | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                    | 16         | 0F          | 92.8              | 89.5 | 91.1 | 87.9 | 84.3 | 90.4 | 91.1            | 89.7 | 89.5 | 89.3 | 86.2 | 90.4 |

| TONE 23              |            |             |                   |      |      |      |      |      |                 |      |    |     |      |     |
|----------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|----|-----|------|-----|
| 2850Hz/0.5s 0Hz/0.5s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |    |     |      |     |
| dB (norm)            | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75 | 105 | 135  | 165 |
| 98                   | 16         | 0F          | 96.3              | 91.4 | 92.4 | 90.9 | 88.6 | 94.4 | 90.8            | 88.3 | 91 | 91  | 88.8 | 81  |

| TONE 24            |            |             |                   |      |      |      |      |      |                 |      |    |      |      |      |
|--------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|----|------|------|------|
| 925Hz/0.25s 0Hz/1s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |    |      |      |      |
| dB (norm)          | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75 | 105  | 135  | 165  |
| 98                 | 16         | 0F          | 92.7              | 88.4 | 89.9 | 90.2 | 80.9 | 91.1 | 88.7            | 90.2 | 90 | 88.9 | 86.7 | 89.9 |

| TONE 25   |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|-----------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 970Hz     |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm) | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98        | 16         | 0F          | 92.7              | 89.2 | 90.8 | 85.6 | 83.6 | 90.2 | 90.3            | 89.1 | 89.2 | 88.9 | 86.3 | 90.8 |

| TONE 26             |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|---------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 660Hz/1.8s 0Hz/1.8s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)           | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                  | 16         | 0F          | 82.4              | 83.2 | 82.4 | 83.8 | 82.9 | 83.2 | 83.3            | 84.4 | 83.3 | 83.2 | 83.2 | 81.7 |

| TONE 27            |            |             |                   |    |      |      |      |      |                 |      |      |      |      |      |
|--------------------|------------|-------------|-------------------|----|------|------|------|------|-----------------|------|------|------|------|------|
| 660Hz/6.5s 0Hz/13s |            |             | HORIZONTAL Angle° |    |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)          | Current mA | Volume Code | 15                | 45 | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                 | 16         | 0F          | 83.4              | 85 | 83.3 | 83.5 | 84.7 | 84.1 | 83.3            | 84.4 | 83.3 | 83.2 | 83.2 | 81.7 |

| TONE 28   |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|-----------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 660Hz     |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm) | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98        | 16         | 0F          | 83.3              | 84.9 | 83.2 | 83.5 | 84.6 | 84.1 | 83.2            | 84.4 | 83.3 | 83.3 | 83.2 | 81.7 |

| TONE 29               |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|-----------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 554Hz/0.5s 440Hz/0.5s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)             | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                    | 16         | 0F          | 86.1              | 84.8 | 85.6 | 86.1 | 84.7 | 85.1 | 86.7            | 86.9 | 86.6 | 86.4 | 84.6 | 86.1 |

| TONE 30             |            |             |                   |      |      |      |      |     |                 |      |      |      |      |      |
|---------------------|------------|-------------|-------------------|------|------|------|------|-----|-----------------|------|------|------|------|------|
| 660Hz/0.5s 0Hz/0.5s |            |             | HORIZONTAL Angle° |      |      |      |      |     | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)           | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165 | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                  | 16         | 0F          | 83.2              | 84.9 | 83.3 | 83.5 | 84.7 | 84  | 83.1            | 84.3 | 83.2 | 83.2 | 83.2 | 81.6 |

| TONE 31               |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|-----------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 2850Hz/0.15s 0Hz/0.1s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)             | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                    | 16         | 0F          | 94.8              | 89.7 | 90.3 | 89.9 | 87.6 | 93.2 | 90.2            | 88.5 | 90.2 | 89.1 | 87.5 | 87.5 |

| TONE 32                 |            |             |                   |      |      |      |      |      |                 |      |      |      |      |     |
|-------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|-----|
| 2400-2850Hz/0.02s Sweep |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |     |
| dB (norm)               | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165 |
| 98                      | 16         | 0F          | 93                | 88.6 | 89.6 | 88.5 | 88.5 | 90.9 | 90.5            | 89.3 | 89.8 | 88.9 | 86.3 | 88  |

| TONE 33              |            |             |                   |      |    |     |     |      |                 |      |      |      |      |      |
|----------------------|------------|-------------|-------------------|------|----|-----|-----|------|-----------------|------|------|------|------|------|
| 800-970Hz/0.5s Sweep |            |             | HORIZONTAL Angle° |      |    |     |     |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)            | Current mA | Volume Code | 15                | 45   | 75 | 105 | 135 | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                   | 16         | 0F          | 92.1              | 87.7 | 89 | 88  | 84  | 90.4 | 89.2            | 88.9 | 88.8 | 87.1 | 84.9 | 87.9 |

| TONE 34                 |            |             |                   |      |      |      |      |      |                 |    |      |      |      |      |
|-------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|----|------|------|------|------|
| 988Hz/0.25s 645Hz/0.25s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |    |      |      |      |      |
| dB (norm)               | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45 | 75   | 105  | 135  | 165  |
| 98                      | 16         | 0F          | 91.4              | 86.4 | 90.1 | 88.8 | 88.8 | 89.7 | 89.7            | 89 | 89.3 | 87.4 | 84.8 | 88.3 |

| TONE 35                 |            |             |                   |    |      |      |      |      |                 |      |      |      |      |      |
|-------------------------|------------|-------------|-------------------|----|------|------|------|------|-----------------|------|------|------|------|------|
| 510Hz/0.25s 610Hz/0.25s |            |             | HORIZONTAL Angle° |    |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)               | Current mA | Volume Code | 15                | 45 | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                      | 16         | 0F          | 84.7              | 84 | 85.3 | 84.8 | 84.6 | 84.4 | 86.9            | 85.3 | 86.1 | 85.1 | 84.1 | 84.9 |

| TONE 36               |            |             |                   |      |      |      |     |      |                 |      |      |      |      |      |
|-----------------------|------------|-------------|-------------------|------|------|------|-----|------|-----------------|------|------|------|------|------|
| 800-970Hz/0.11s Sweep |            |             | HORIZONTAL Angle° |      |      |      |     |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)             | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135 | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                    | 16         | 0F          | 91                | 86.7 | 88.4 | 86.7 | 83  | 88.6 | 88.4            | 87.4 | 87.4 | 86.4 | 84.2 | 87.4 |

| TONE 37               |            |             |                   |      |      |      |      |     |                 |      |      |      |      |      |
|-----------------------|------------|-------------|-------------------|------|------|------|------|-----|-----------------|------|------|------|------|------|
| 800-970Hz/0.33s Sweep |            |             | HORIZONTAL Angle° |      |      |      |      |     | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)             | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165 | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                    | 16         | 0F          | 91.9              | 87.6 | 88.9 | 87.8 | 83.9 | 90  | 88.9            | 88.4 | 88.3 | 86.8 | 84.6 | 87.6 |

| TONE 38   |            |             |                   |      |      |      |      |      |                 |      |      |      |      |     |
|-----------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|-----|
| 845Hz     |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |     |
| dB (norm) | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165 |
| 98        | 16         | 0F          | 83.7              | 80.9 | 81.9 | 81.4 | 80.8 | 81.3 | 84.5            | 82.5 | 83.3 | 82.8 | 79.7 | 83  |

| TONE 39         |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|-----------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 970Hz/1s 0Hz/1s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)       | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98              | 16         | 0F          | 92.3              | 88.1 | 89.5 | 86.7 | 83.3 | 89.8 | 90.5            | 89.4 | 89.4 | 88.2 | 85.2 | 90.8 |

| TONE 40                 |            |             |                   |      |      |      |      |      |                 |      |      |      |     |      |
|-------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|-----|------|
| 800Hz/0.15s 970Hz/0.15s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |     |      |
| dB (norm)               | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135 | 165  |
| 98                      | 16         | 0F          | 92.2              | 88.3 | 89.6 | 86.7 | 83.5 | 89.7 | 90              | 88.7 | 88.8 | 87.4 | 85  | 89.7 |

| TONE 41                 |            |             |                   |    |      |      |     |      |                 |    |      |      |      |      |
|-------------------------|------------|-------------|-------------------|----|------|------|-----|------|-----------------|----|------|------|------|------|
| 2400-2850Hz/0.11s Sweep |            |             | HORIZONTAL Angle° |    |      |      |     |      | VERTICAL Angle° |    |      |      |      |      |
| dB (norm)               | Current mA | Volume Code | 15                | 45 | 75   | 105  | 135 | 165  | 15              | 45 | 75   | 105  | 135  | 165  |
| 98                      | 16         | 0F          | 92.7              | 88 | 89.9 | 90.4 | 95  | 90.7 | 90.6            | 89 | 89.8 | 89.5 | 87.2 | 91.2 |

| TONE 42                 |            |             |                   |      |      |      |      |      |                 |      |      |     |      |      |
|-------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|-----|------|------|
| 2400-2850Hz/0.33s Sweep |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |     |      |      |
| dB (norm)               | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105 | 135  | 165  |
| 98                      | 16         | 0F          | 94                | 89.1 | 90.7 | 91.8 | 85.9 | 91.8 | 91.5            | 90.2 | 90.6 | 90  | 88.2 | 92.7 |

| TONE 43          |            |             |                   |      |      |     |      |      |                 |      |      |      |      |     |
|------------------|------------|-------------|-------------------|------|------|-----|------|------|-----------------|------|------|------|------|-----|
| 2850Hz/1s 0Hz/1s |            |             | HORIZONTAL Angle° |      |      |     |      |      | VERTICAL Angle° |      |      |      |      |     |
| dB (norm)        | Current mA | Volume Code | 15                | 45   | 75   | 105 | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165 |
| 98               | 16         | 0F          | 95.2              | 90.4 | 91.2 | 90  | 87.7 | 93.4 | 90.5            | 88.3 | 90.8 | 90.2 | 88.3 | 89  |

| TONE 44                   |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|---------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 2400Hz/0.15s 2850Hz/0.15s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)                 | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                        | 16         | 0F          | 95.5              | 90.4 | 91.2 | 89.9 | 87.7 | 93.3 | 90              | 88.2 | 90.2 | 89.4 | 87.3 | 87.6 |

| TONE 45                 |            |             |                   |      |      |      |      |      |                 |      |      |     |     |      |
|-------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|-----|-----|------|
| 1200-500Hz/1s 0Hz/0.01s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |     |     |      |
| dB (norm)               | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105 | 135 | 165  |
| 98                      | 16         | 0F          | 91.1              | 86.8 | 88.1 | 86.9 | 84.9 | 89.1 | 89              | 87.5 | 87.7 | 86  | 84  | 87.3 |

| TONE 46             |            |             |                   |    |      |      |      |      |                 |      |      |      |      |      |
|---------------------|------------|-------------|-------------------|----|------|------|------|------|-----------------|------|------|------|------|------|
| 440Hz/0.6s 0Hz/0.6s |            |             | HORIZONTAL Angle° |    |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)           | Current mA | Volume Code | 15                | 45 | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                  | 16         | 0F          | 84.6              | 79 | 83.4 | 81.6 | 77.8 | 84.7 | 86.7            | 83.6 | 85.7 | 83.4 | 82.6 | 85.3 |

| TONE 47                    |            |             |                   |      |      |     |      |      |                 |    |      |      |      |      |
|----------------------------|------------|-------------|-------------------|------|------|-----|------|------|-----------------|----|------|------|------|------|
| 500-1200Hz/3.75s 0Hz/.025s |            |             | HORIZONTAL Angle° |      |      |     |      |      | VERTICAL Angle° |    |      |      |      |      |
| dB (norm)                  | Current mA | Volume Code | 15                | 45   | 75   | 105 | 135  | 165  | 15              | 45 | 75   | 105  | 135  | 165  |
| 98                         | 16         | 0F          | 92.2              | 88.5 | 90.1 | 89  | 86.8 | 90.3 | 91              | 90 | 89.9 | 88.4 | 86.1 | 89.2 |

| TONE 48                  |            |             |                   |      |      |      |      |      |                 |      |    |      |      |      |
|--------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|----|------|------|------|
| 925/628Hz/0.25s 0Hz/0.5s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |    |      |      |      |
| dB (norm)                | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75 | 105  | 135  | 165  |
| 98                       | 16         | 0F          | 92.6              | 88.2 | 89.9 | 89.3 | 83.8 | 91.1 | 90.9            | 91.4 | 91 | 89.4 | 85.8 | 89.5 |

| TONE 49                        |            |             |                   |      |      |      |      |      |                 |      |      |      |     |      |
|--------------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|-----|------|
| 300-1200Hz/0.5s 0Hz/0.5s Sweep |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |     |      |
| dB (norm)                      | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135 | 165  |
| 98                             | 16         | 0F          | 88.5              | 84.8 | 86.6 | 85.9 | 83.3 | 87.1 | 87.9            | 86.5 | 86.8 | 85.7 | 84  | 86.2 |

| TONE 50                        |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|--------------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 1200-300Hz/0.5s 0Hz/0.5s Sweep |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)                      | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                             | 16         | 0F          | 86                | 82.7 | 84.3 | 83.6 | 81.7 | 84.6 | 85.9            | 84.5 | 84.4 | 83.5 | 82.3 | 83.9 |

| TONE 51                  |            |             |                   |      |      |     |      |      |                 |      |      |      |      |      |
|--------------------------|------------|-------------|-------------------|------|------|-----|------|------|-----------------|------|------|------|------|------|
| 500-1200Hz/3.5s 0Hz/0.5s |            |             | HORIZONTAL Angle° |      |      |     |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)                | Current mA | Volume Code | 15                | 45   | 75   | 105 | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                       | 16         | 0F          | 92.7              | 88.4 | 90.2 | 89  | 85.8 | 90.7 | 91.2            | 89.8 | 89.9 | 88.4 | 85.4 | 89.2 |

| TONE 53                                            |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|----------------------------------------------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| Marine 1000Hz (1s ON 1s OFF)x7<br>+ (7s On 1s OFF) |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)                                          | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                                                 | 16         | 0F          | 91.1              | 87.6 | 88.7 | 87.5 | 80.6 | 90.2 | 91.7            | 89.9 | 89.9 | 87.7 | 83.6 | 89.7 |

| TONE 54         |            |             |                   |      |      |      |      |      |                 |      |      |      |      |      |
|-----------------|------------|-------------|-------------------|------|------|------|------|------|-----------------|------|------|------|------|------|
| 1200-500Hz : 1s |            |             | HORIZONTAL Angle° |      |      |      |      |      | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)       | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165  |
| 98              | 16         | 0F          | 90.1              | 85.6 | 87.5 | 86.5 | 83.8 | 88.6 | 89.3            | 87.7 | 87.9 | 86.2 | 84.1 | 87.3 |

| TONE 55                                                              |            |             |                   |      |      |      |      |     |                 |      |      |      |      |      |
|----------------------------------------------------------------------|------------|-------------|-------------------|------|------|------|------|-----|-----------------|------|------|------|------|------|
| Ramp up 150-1000Hz : 10s. 1000Hz 40s.<br>Ramp down 1000-150Hz : 10s. |            |             | HORIZONTAL Angle° |      |      |      |      |     | VERTICAL Angle° |      |      |      |      |      |
| dB (norm)                                                            | Current mA | Volume Code | 15                | 45   | 75   | 105  | 135  | 165 | 15              | 45   | 75   | 105  | 135  | 165  |
| 98                                                                   | 16         | 0F          | 91.2              | 87.4 | 88.9 | 87.5 | 81.6 | 90  | 91.6            | 89.9 | 89.9 | 87.7 | 86.1 | 89.6 |

| TONE 56          |            |             |                   |      |      |     |      |      |                 |      |      |      |      |     |
|------------------|------------|-------------|-------------------|------|------|-----|------|------|-----------------|------|------|------|------|-----|
| 725Hz Continuous |            |             | HORIZONTAL Angle° |      |      |     |      |      | VERTICAL Angle° |      |      |      |      |     |
| dB (norm)        | Current mA | Volume Code | 15                | 45   | 75   | 105 | 135  | 165  | 15              | 45   | 75   | 105  | 135  | 165 |
| 98               | 16         | 0F          | 82                | 82.7 | 82.4 | 82  | 82.5 | 82.9 | 85.2            | 83.5 | 83.1 | 82.5 | 82.6 | 84  |



| TONE 57                   |            |             |                   |      |      |     |      |      |                 |      |    |      |      |     |
|---------------------------|------------|-------------|-------------------|------|------|-----|------|------|-----------------|------|----|------|------|-----|
| 725Hz : 0.7s / OFF : 0.3s |            |             | HORIZONTAL Angle° |      |      |     |      |      | VERTICAL Angle° |      |    |      |      |     |
| dB (norm)                 | Current mA | Volume Code | 15                | 45   | 75   | 105 | 135  | 165  | 15              | 45   | 75 | 105  | 135  | 165 |
| 98                        | 16         | 0F          | 82                | 82.7 | 82.5 | 82  | 82.5 | 83.1 | 85.3            | 83.5 | 83 | 82.5 | 82.6 | 84  |

- ▶ CHQ-BS tone equivalents (in brackets): this is the tone that corresponds to the previous version of Base Sounder, and applies to the first 7 tones listed. The other tone patterns are new to the YBO-BS sounder device, and tones 53 to 57 are new to just the YBO-BS2.
- ▶ dB (nom): this is the nominal or target SPL level expected.
- ▶ Current: this is the current in mA drawn from the loop by the sounder, when sounding.
- ▶ Volume code: this is the volume code required to set the current level and overall SPL.
- ▶ Sound output: this is the minimum sound output that the YBO-BS2 Base Sounder will produce, taking into account manufacturing tolerances, temperature and conditions of operation.