

## Loudspeaker Test Report

Manufacturer: Next Two

Type: Ceiling

Model: MC4FT/FD

For: MEDC Ltd

Report No.: 1208/LS/MC4FT/FD

Prepared By: A. N. Stacey B.Sc., AMIOA

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## 1.00 Object

- 1.1. The object of this Report is to present measurements of the acoustic performance of the MC4FT/FD device.

## 2.00 Scope

- 2.1. The following characteristics were measured

- On-axis frequency response
- Polar response
- Impedance
- Applied voltage
- On-axis 3<sup>rd</sup> octave band sound pressure level

from which the following are calculated

- a) Directivity Index (dB), tabulated and graphical
- b) Directivity factor, Q
- c) Effective octave band impedance
- d) Octave band Sensitivity (dB @ 1m, 1W/oct)
- e) Overall Sensitivity:
  - dBA @ 1m, 1W
  - dBlin @ 1m, 1W
  - 250Hz-4kHz @ 1m, 1W
  - Speech shape @ 1m, 1W
- f) Acoustic Power (dB-PWL @ 1W), tabulated and graphical
- g) Octave band Power Apportionment (%)
- h) Impedance bode plot
- i) Maximum Sound pressure level (dB @ 1m)
- j) Frequency response chart
- k) Polar response charts

### 3.00 Method

- 3.1. The device was mounted in Free Space as shown in figure 1 – Mounting method A.
- 3.2. The measurements were made in an anechoic chamber.
- 3.3. Measurements were made as detailed in AMS Test Method document No. IR/1a/LS/Meth.
- 3.4. All measurements were made in general accordance with BS 6840: Part 5: 1995.

### 4.00 Results

- 4.1. The On-axis 3<sup>rd</sup> octave frequency response of the device is shown graphically in the appendix.
- 4.2. The Impedance bode plot of the device is shown graphically in the appendix.
- 4.3. Polar plots of the device are shown graphically in the appendix.
- 4.4. Tabulated values of Directivity index, Directivity factor, Sensitivity, Acoustic Power, Power Apportionment, Impedance and Maximum SPL are shown in the Summary data sheet given in the appendix.
- 4.5. The Directivity Index has been calculated using Gerzon' equal angle, weighted area method.

### 5.00 Notes

#### 5.1. Sensitivity

The octave band sensitivity is produced in its useful form for calculations. It should be noted that the octave band sensitivity is given as dB @ 1m, 1W/Oct. To determine the output when only the overall power is known, then only the overall dBA or dBlin values should be used. For more detailed information refer to AMS Acoustics Data Sheet 'Loudspeaker Sensitivity – Interpretation of Results'.

#### 5.2. Polar Plots

For convenience each polar plot has been normalized to 0dB. For this reason caution is advised when comparison of levels between octave bands is made. The On-axis frequency response should be used for comparison purposes.

## **6.00 Observations**

6.1. The following general observations are made:

The Frequency response of the unit is uneven.

The frequency response exhibits a considerable dip at approximately 1kHz.

Frequency response exhibits low frequency roll-off below 315Hz.

## **7.00 Engineers Notes**

7.1. The following Engineers notes are made:

Measurement centre taken as concentric to driver and flush with the baffle.

Measurement axis taken as concentric to driver.

### Loudspeaker Information

Manufacturer : Next Two  
Model Code : MC4FT/FD  
Type : Ceiling  
Colour : White  
Serial No. : None  
Batch No. : None  
Other Markings : Tapping label on Transformer  
Backbox : Firedome  
Grille : As Supplied  
Weight (grammes) : 1450  
Depth (mm) : 120 mm  
Width (mm) : 134 mm  
Height (mm) : 134 mm  
Special Features : Ceramic Terminal Block

#### Internal Details

Driver Types/Sizes : 1 x 75mm dual concentric cone  
Driver Serial No.(s) : None  
Driver Markings : None  
Damping Material : None  
Available Tappings : 10W, 6W, 3W, 1.5W, 0.75W

#### Electrical Details

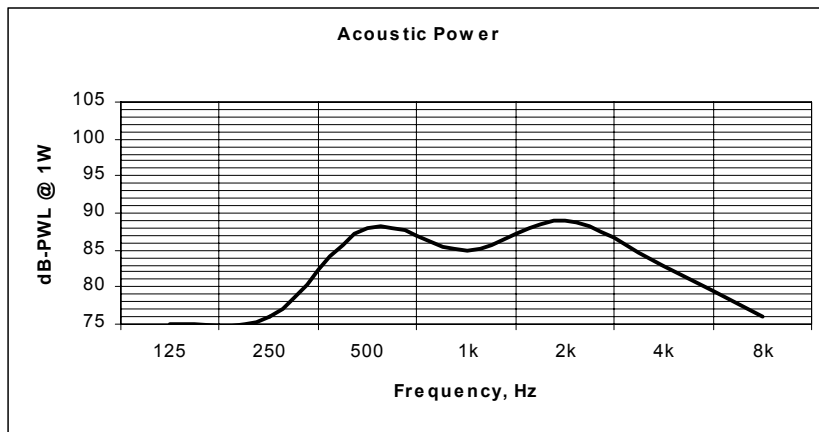
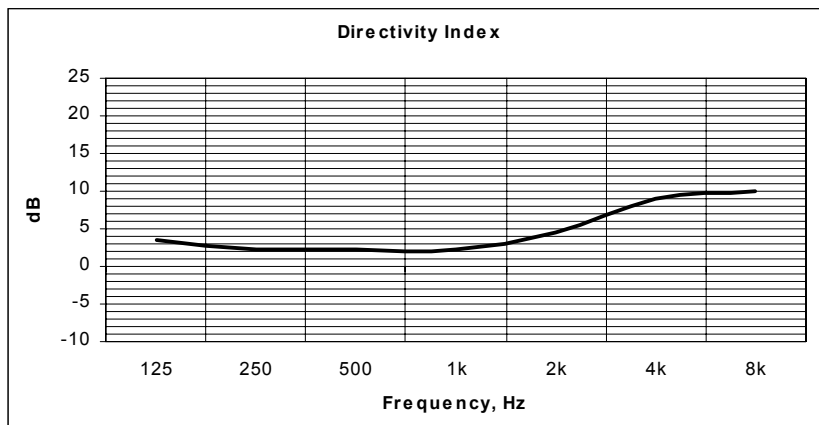
Resonant Frequency(s) : See Impedance Plot  
Cross-Over Frequency(s) : N/A  
Nominal Impedance : 8  
(ohms):  
Inductance : NM  
Capacitance : NM

Manufacturer : Next Two  
 Model Code : MC4FT/FD  
 Mounting : Half Space, Free Field  
 Transformer Tapping : 10W

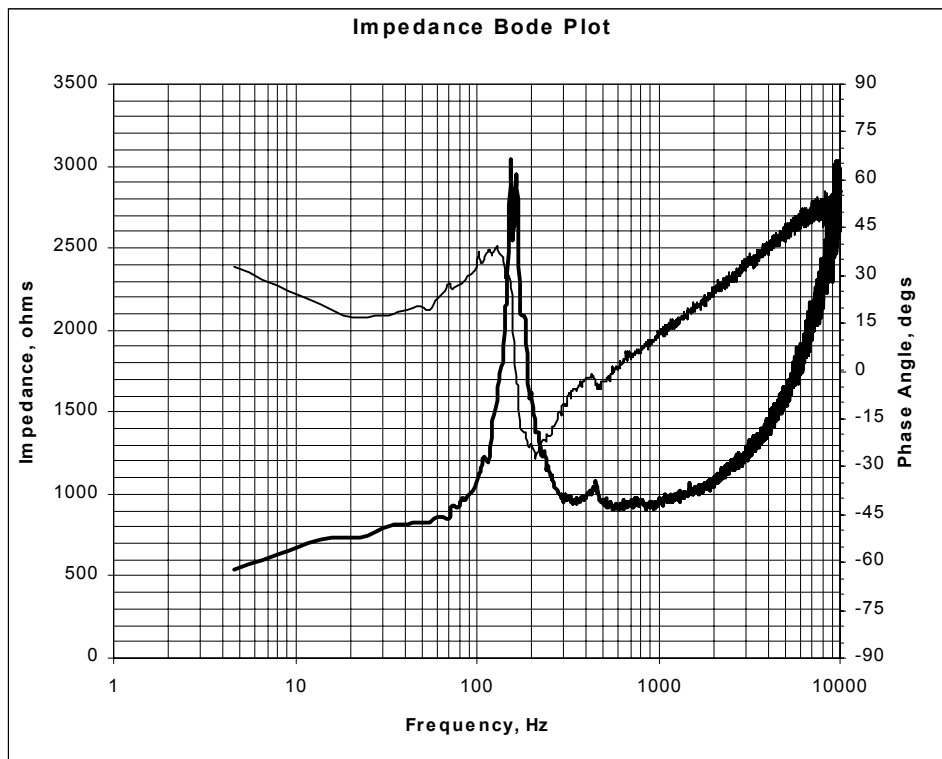
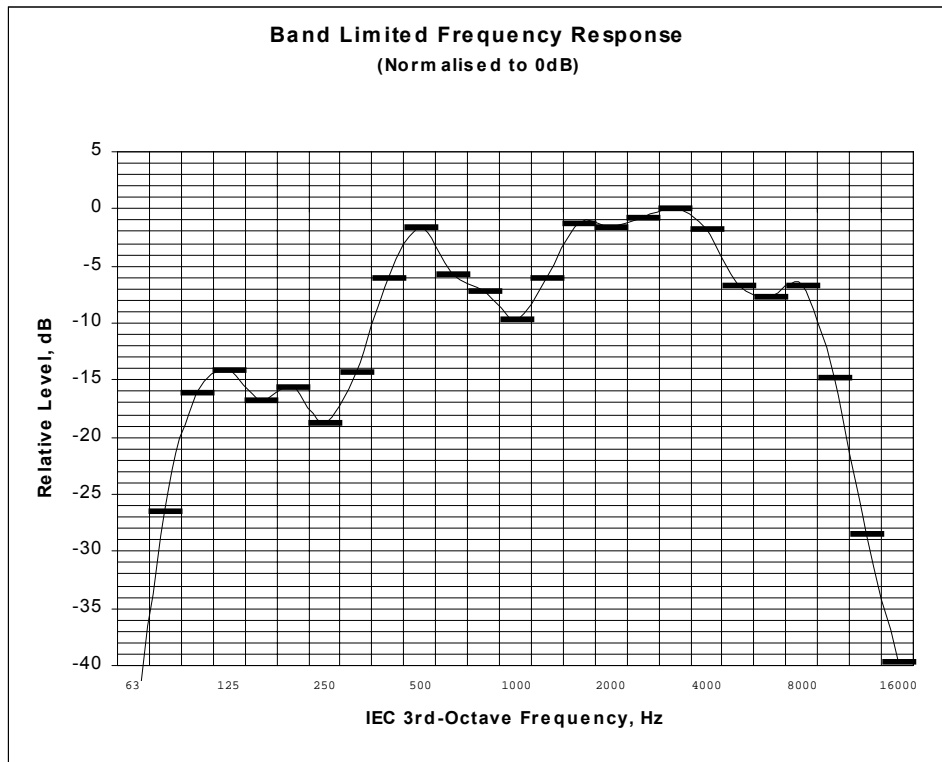
Measurement Axis Located at : 0 degrees

Parameter	Frequency (Hz)							dB	dBA
	125	250	500	1k	2k	4k	8k		
Axial Q	2.3	1.7	1.7	1.7	2.8	7.7	10.0		
Directivity Index (dB on Axis)	3.6	2.3	2.3	2.3	4.5	8.9	10.0		
Sensitivity (dB @ 1m, 1W/Oct)	77	76	87	84	90	90	85	87	87
Sensitivity(dB @ 1m, 1W)250Hz-4kHz								88	88
Sensitivity(dB @ 1m, 1W)Speech Shape								84	82
Acoustic Power (dB-PWL @ 1W)	75	76	88	85	89	83	76		
Apportioned Power (%)	12	14	16	16	15	14	10		
Effective Impedance (Ohms)	1281	1140	958	937	984	1102	1412		
Maximum SPL (dB @ 1m)	78	77	89	86	92	91	85	97	97

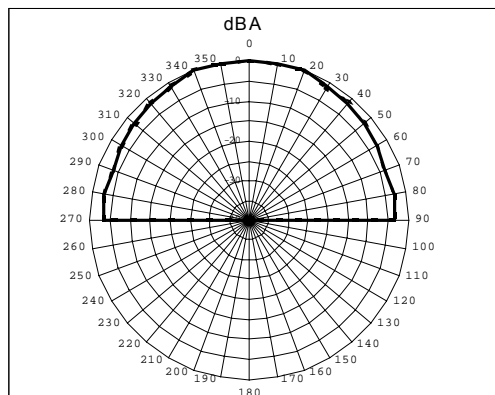
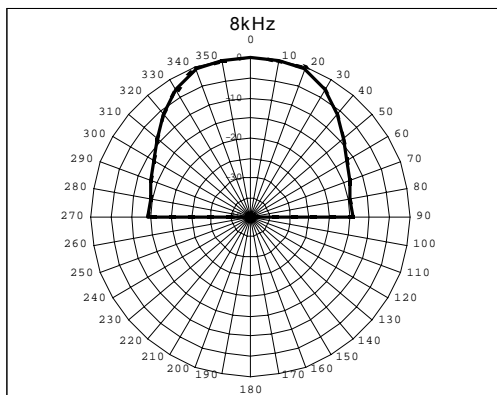
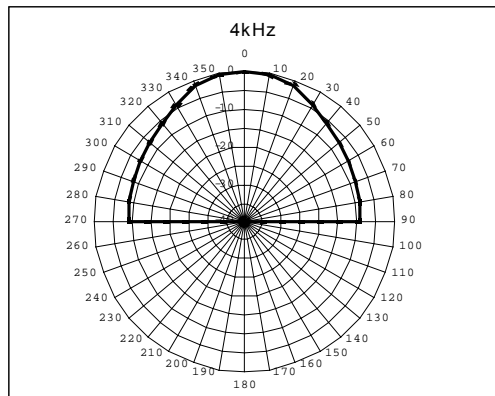
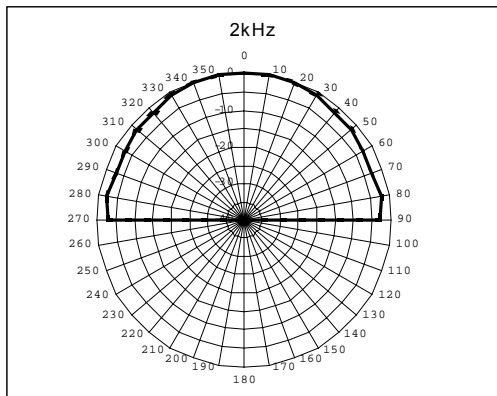
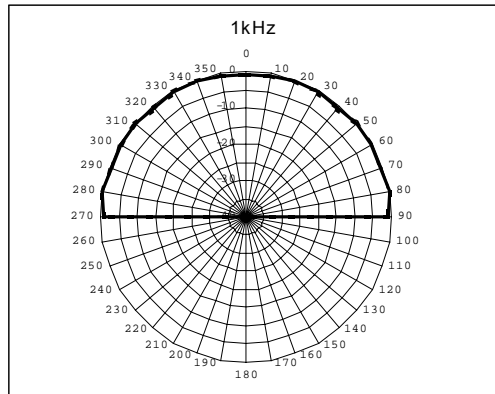
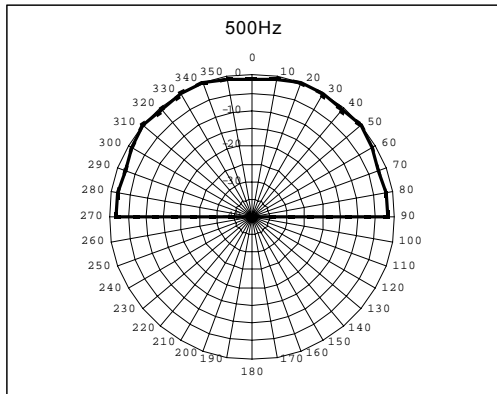
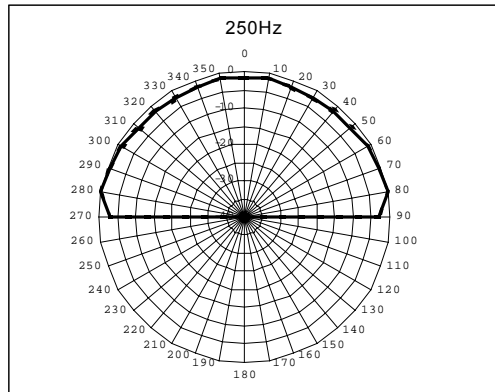
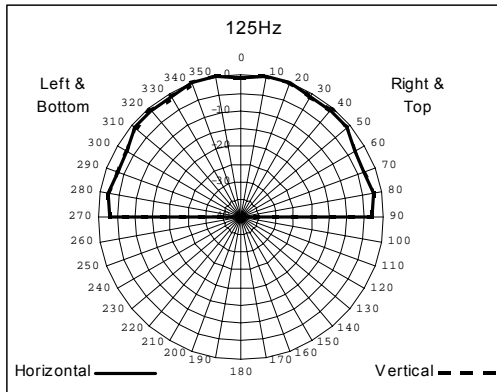
Test Signal: Pink Noise(100Hz-10kHz)



MC4FT/FD

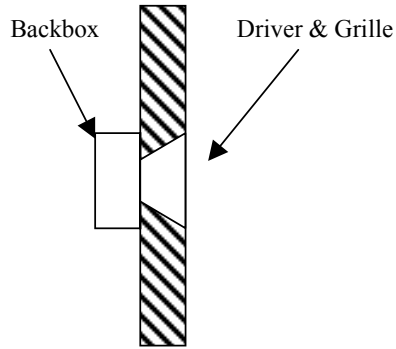


# MC4FT/FD

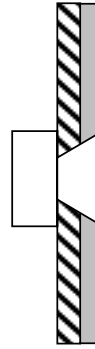




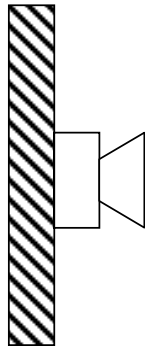
## Loudspeaker Mounting Methods



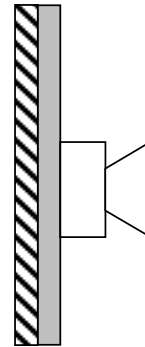
**Mounting Method A**  
Loudspeaker Mounted  
in a Reflective Baffle



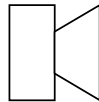
**Mounting Method B**  
Loudspeaker Mounted  
in an Absorbent Baffle



**Mounting Method C**  
Loudspeaker Mounted  
on a Reflective Baffle



**Mounting Method B**  
Loudspeaker Mounted  
on an Absorbent Baffle



**Mounting Method E**  
Loudspeaker not Attached to any  
Surface and Radiation Unaffected by  
nearby Reflecting Surfaces