

INTRODUCTION

EAW's specification sheets contain a wealth of information and data. The intent is to assist both designers and buyers in their decision-making about what product to use and how to use it.

SPECIFICATION CRITERIA

To be meaningful, specifications should satisfy the various needs of customers, users, engineering, marketing and sales:

- 1. Relate to "real world" performance.
- 2. Provide information for integration with the rest of the audio system.
- 3. Be comparable to the specifications of other products.
- 4. Satisfy the needs of sales and marketing to successfully present products.
- 5. Provide accurate representations of measured performance.
- 6. Provide appropriate data, with sufficient resolution and accuracy for the above purposes.

Included in the specification sheets are extensive notes that explain what was measured, the units of measurement, the measurement conditions, the measurement equipment, and how specifications are determined from the measured data.

WHAT ARE SPECIFICATION SHEETS FOR?

Professional loudspeaker specification sheets are used mostly for two purposes.

- 1. Comparison to other loudspeaker products
- 2. Predictions about performance in actual use

Comparisons

Acoustical performance is usually a primary focus for comparison purposes. Unfortunately, there are many possible procedures and methods for measuring and processing acoustical data. Unless these are known, comparing specifications at face value may be inaccurate or incorrect.

Predictions

Typically a loudspeaker specification sheet has a section listing "one-number" specifications, such as frequency response, beamwidth, and impedance. In almost all cases, these singular numbers do not fully describe a loudspeaker's performance. This is because most of these parameters vary with frequency and/or with program content. At best, performance predictions using the one-number specifications are only approximate. One-number specifications are most useful for generally classifying loudspeakers within a performance range rather than for accurate performance predictions. Graphical data provides more appropriate details for predictive purposes.

Sound Quality

Sometimes specifications are used in an attempt to evaluate sound quality. Without elaboration, it can be stated that sound quality cannot be determined from a specification sheet.



GOALS FOR SPECIFICATION SHEETS

Some of the specific goals for the content and format of EAW's specification sheets are:

1. *S3* (*System Specification Standard*): A document detailing definitions, methods, and procedures for generating the specifications.

2. Scientific accuracy: Terminology, data formats, and units of measurement that are scientifically accurate, regardless of audio industry practices.

3. Elimination of human errors: Automation of the process from producing engineering designs and gathering acoustic data to generating specification sheets.

4. Elimination of redundancy: This eliminates errors and inconsistencies in copying and maintaining the same information in several places.

5. Consistent format: Providing the same information and way of stating it for all types of loudspeakers to make product comparisons easier.

6. Display of frequency-dependent data: Inclusion of detailed graphs to show both physical and performance characteristics best represented by graphical means.

7. Stylistic features: Using fonts and graphics that provide good readability, quality display on various computer platforms, and high quality print copies.

8. A & E Specifications: Architects & Engineers specifications no longer appear on EAW's specifications sheets. This eliminates redundancy as well as the archaic A & E format traditionally used by the audio industry.

9. Up-to-date publishing format: Use of Adobe[®] Acrobat[®] as the primary publishing format, allowing color to be used to enhance the information.



A TOUR OF EAW'S SPECIFICATION SHEET

BASIC LAYOUT

Page 1: Overview and nominal specifications

Page 2: Enclosure details

Page 3: Graphs of performance

Page 4: Electrical information and notes

DETAILS

PAGE 1

Photo

This is typically a perspective photograph of the product showing its visual characteristics.

Features

This section highlights key design attributes that distinguish the product.

Description

This section highlights the product's purpose and function. It is intended to provide narrative information about capabilities, performance, applications, and usability that are neither obvious nor detailed elsewhere on the specification sheet. Typical applications are listed for which the product has been designed and where it is commonly used. However, the nature of loudspeakers means other uses are certainly possible.

Configuration

This is a tabular listing of the loudspeaker's electro-acoustic design. It includes:

Subsystems: The passbands employed in the design.

Transducer: Driver complement for each subsystem.

Loading: The acoustical loading for the transducers.

Operating Mode: The user-selectable operating modes.

Amplifier Channels: For each Operating Mode the number of channels needed and Subsystem for each.

Crossover points: Indicated by a comma "," between passbands.

External Signal Processing: User-supplied signal processing required for the loudspeaker in order to achieve the specified performance.







Performance

This is a tabular listing of the loudspeaker's acoustical and electrical performance specifications, including typical "one-number" specifications. Because the issues behind the specifications in this section are relatively complex, see "Specification Details" for particulars about the Performance specifications.

Ordering Data

This provides the model number, description, and part number used for sales orders. Normally, the listed part number is for the standard model finished in black. Contact EAW Sales Department for ordering information about optional colors or other product variations.

Optional Accessories

These are accessory items that can be used with the loudspeaker for certain applications. Typically, these include mounting hardware kits and transport

KF730 Specifications			group · S
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accessories. Listed is the model number, description, and part number used for sales orders.

PAGE 2

Enclosure

This section details the mechanical specifications including the engineering CAD drawing for the finished product. Using standard drafting views, this drawing shows a full set of dimensions, enclosure hardware, center of gravity, finishes, weights, manufacturing tolerances, and more.



PAGE 3

Performance Data

These are graphic plots of measured data showing performance that varies with frequency. For example, the horizontal and vertical Nominal Beamwidths are normally listed as single number specifications. Contrarily, the beamwidth graph shows how this parameter varies with frequency. Only the applicable graphs appear for each product.



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Graphs

Upper Left:

Frequency response with all signal processing for the main user-selectable Operating Mode.

Upper Right:

Frequency response with all signal processing for the alternate user-selectable Operating mode.

Center left:

Frequency response with no signal processing for each passband.

Center right:

Frequency response of the Signal Processing (DSP) for each passband.

Lower left:

Impedance for each passband.

Lower right:

Horizontal and vertical beamwidths.

PAGE 4

Input Panel

This is the CAD drawing for the input panel showing the connectors, their wiring information, and any user controls.

Signal Diagram

This show the basic signal connections for each userselectable Operating Mode, including required signal processing and amplifier channels. Passive crossovers integral to the loudspeaker are also shown.

Notes

The Notes explain how the various specifications were determined. They list what was measured, the units of measurement, the measurement conditions, the measurement equipment, what was calculated from the measured data, and data tolerances. This information allows specifications to be compared to





other loudspeakers with specifications similarly determined. Unless this information is known for a particular specification, such comparisons may result in incorrect conclusions.

Part Number

Found in the footer, the Part Number identifies the revision number of the specification sheet. Because specifications can and do change, this part number can be used to verify with EAW whether the sheet is the most up-to-date version.



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