YAMAHA

SPEAKER SYSTEMS

S112IVN/S115IVN/S215IVN
SM10IVN/SM12IVN/SM15IVN

SUBWOOFER

SW118IVN/SW215IVN

CROSSOVER NETWORK

PN90

Owner's Manual

Mode d'emploi

Bedienungsanleitung

Manual de instrucciónes

Thank you for purchasing a YAMAHA product. To obtain maximum performance from your YAMAHA speaker system and ensure many years of trouble-free operation, we recommend that you read this Owner's Manual thoroughly before use.

Contents

Precautions

AVOID EXCESSIVE HEAT, HUMIDITY, DUST AND VIBRATION

When choosing a location for your speakers, avoid the following:

- Direct sunlight, high temperatures (such as near heaters), or excessively low temperatures.
- High humidity.
- Areas subject to excessive dust accumulation and vibration.
- Non-level or unstable surfaces.

HOW TO POWER UP YOUR SOUND SYSTEM

To avoid damage to your speakers and other parts of your system, when you turn on your system, ALWAYS turn the power amp on last! This will avoid loud, damaging pops that will annoy your audience, and blow your speakers. When you power down, the amplifier should ALWAYS be turned off first to avoid the same problems.

MAKE SURE THE POWER IS OFF BEFORE MAKING OR REMOVING CONNECTIONS

Always turn the power switches of system components OFF prior to connecting or disconnecting cables. Failure to do so may result in damage to speakers as well as to connected equipment.

DISCONNECT CABLES BEFORE MOVING THE SYSTEM

To prevent short circuits or breakage of cables, always disconnect cables prior to moving system equipment.

MATCH CONNECTOR POLARITY

When using two or more speaker systems, be sure match the polarity (+/–) of the speaker system connectors to those at the amplifier. If the polarities do not match, the sounds produced by the speakers will interfere with each other, making it impossible to achieve a well-balanced sound field.

KEEP THIS OWNER'S MANUAL IN A SAFE PLACE FOR FUTURE REFERENCE

To protect your speakers

When choosing a power amplifier to use with your speakers, make sure that its power output matches the speakers' power capacity (refer to the Specifications on page 6). Even if the amplifier's power output is lower than the speakers' PGM (program) power capacity, the speakers may be damaged when clipping of a high input signal occurs.

The following may cause damage to speakers:

- Feedback caused when using a microphone.
- Continuous high sound pressure level produced by electronic instruments.
- Continuous high-power output distorted signals.
- Popping noises caused by turning on equipment, or by connecting or disconnecting system components while the amplifier is turned on.

Poly Switch

All full-range loudspeakers are fitted with a self-resetting poly switch that protects the high-frequency driver from damage caused by excessive power.

If a loudspeaker cabinet loses high-frequency output, immediately remove power from the unit and wait for two to three minutes. They should allow the poly switch to reset. Re-apply power and check the performance of the high-frequency driver before continuing with the power reduced to a level that does not cause the poly switch to interrupt the signal.

On the SW118IVN/SW215IVN sub woofer, the Poly Switch protects the woofer and a similar routine should be followed if its output is lost.

This product, when used in combination with amplification and/or additional loudspeakers, may be capable of producing sound levels that could cause permanent hearing loss.

DO NOT operate at high volume levels or at a level that is uncomfortable. If you experience any discomfort or ringing in the ears, or suspect an hearing loss, you should consult an audiologist.

CAUTION!

For the five models, S112IVN, S115IVN, SM10IVN, SM12IVN, and SM15IVN, use the TS-30, TS-40, TS-80, or TS-90 speaker stand by Ultimate Support System, Inc. sold separately.

When using speaker stands, observe the following precautions to prevent the speaker stands from falling over or the speaker system being dropped.

- Use the speaker stands with their legs fully opened.
- Do not place more than one speaker on the same speaker stand.
- Tighten fastening screws securely.
- Remove the speakers from the stands before moving the stands or adjusting their height.
- Implement measures to prevent the speaker stands from falling over.
- Use the TS-30, TS-40 at no higher than 130 cm for the S112IVN, SM10IVN, SM12IVN and at no higher than 120 cm for the S115IVN and SM15IVN.
- Use the TS-80 and TS-90 at no higher than 140 cm for all speaker models.
- The top tube of the TS-30 and TS-40 speaker stands has a diameter of 1-1/2", but is tapered to 1-3/8" at the top to fit in the mounting holes on the five models named. If you should remove the top tube from a stand, be sure to insert it with the narrow end up when reassembling.

The SW118IVN, SW215IVN subwoofer has a metal socket to allow mounting of a satellite speaker. Do not use a pole longer than 56". Use a pole with an outer diameter of 1-3/8".

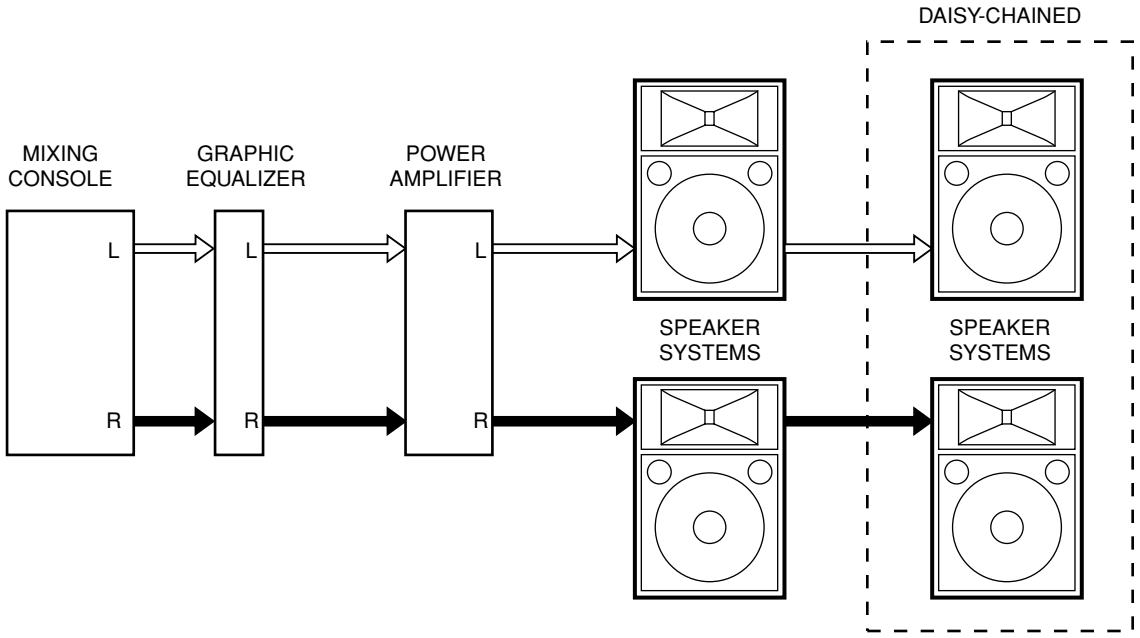
SPEAKER HANDLES

The handles on your speakers are for transportation. They are not designed for suspension or hanging.

Connecting the Speakers

CONNECTION EXAMPLE 1

The illustration below shows audio connections for a standard setup using two speaker systems.



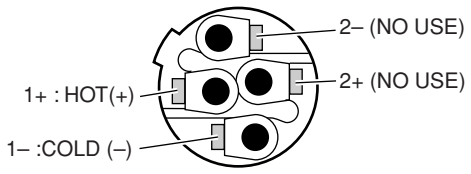
Daisy-Chaining Speakers

Since the speaker systems in this series are equipped with two input terminals that are internally connected in parallel, it is possible "daisy-chain" speakers by connecting the output from the power amplifier to one Neutrik connector, and a second speaker system to the other.

We do not recommend connecting more than two 8 speakers in parallel. Two parallel-connected 8 speakers have a total impedance of 4 , which is the minimum that should be connected to one amplifier output channel. The S112IVN, S115IVN, SM10IVN, SM12IVN, SM15IVN and SW118IVN are 8 speakers, and two of these can safely be paralleled on one output. The S215IVN and SW215IVN, however, have an impedance of 4 and should not be parallel-connected with another S215IVN / SW215IVN or any other model.

Neutrik NL4FC Plug Wiring

If you will be using the Neutrik connectors for speaker input, wire the plugs as shown below. Be sure to use proper speaker cable—NOT shielded instrument or line cable—for all speaker connections.

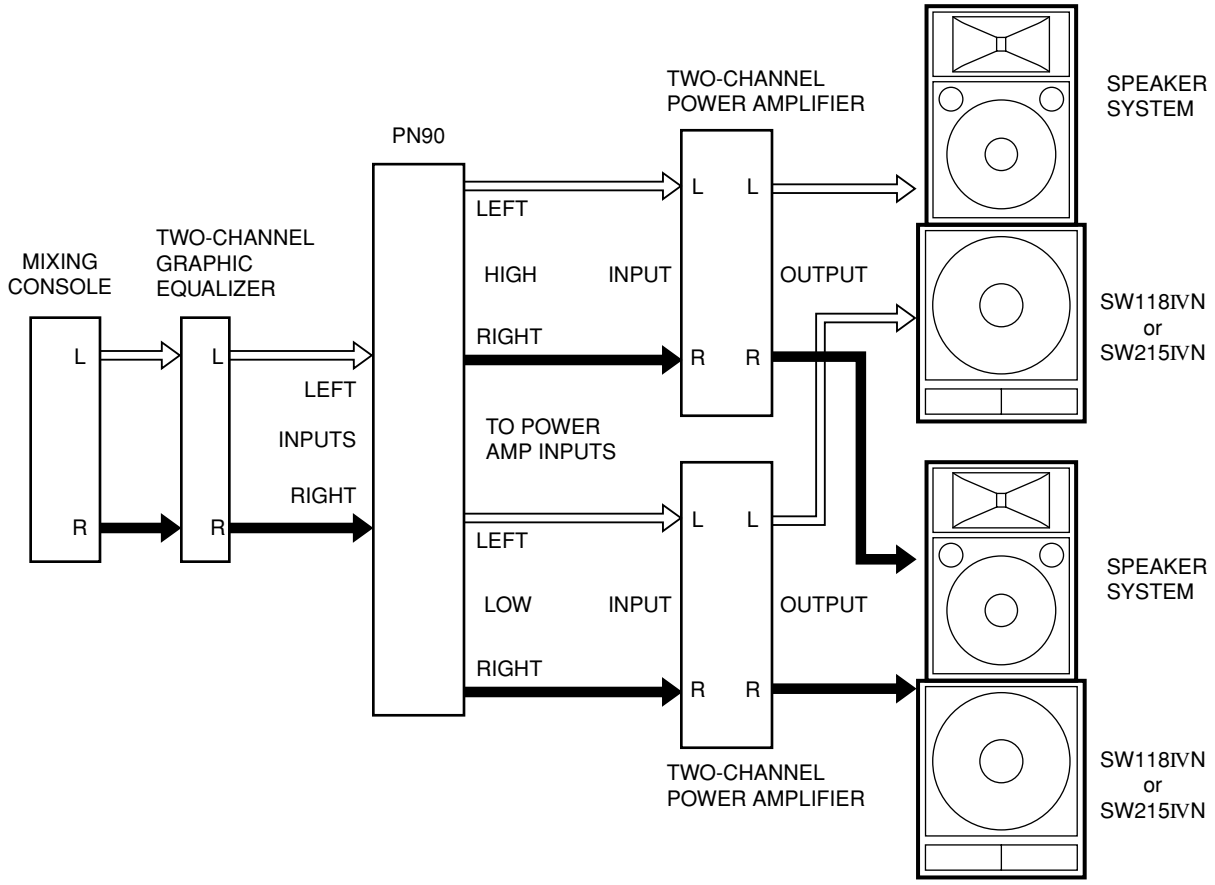


Neutrik NL4FC connector

Caution: Use only unshielded speaker cable with stranded conductors to connect speakers to the speaker terminals on a power amplifier. The use of audio cable not rated as sufficient for the amplifier's maximum output level can create a potential fire hazard.

CONNECTION EXAMPLE 2

This example shows audio connections for a system using SW118IVN or SW215IVN Subwoofers and a PN90 Crossover Network.



- Do not connect the PN90 between the power amplifiers and the SW118IVN, SW215IVN subwoofers, as doing so will damage the equipment.
- Although the PN90 has a standard load impedance of 15 k , it can be used with loads between 7.5 and 30 k , allowing use with most power amplifiers.
- Since the LOW signal polarity is inverted at the crossover point between the LOW and HIGH signals, be sure to reverse the polarity when connecting the SW118IVN, SW215IVN input connectors to the power amplifier output connectors.

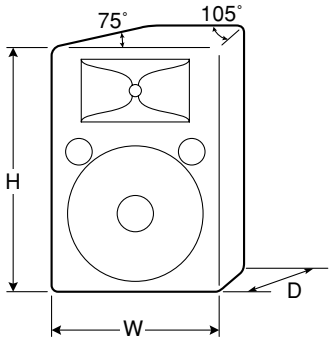
  This polarity correction must not be made by reversing the polarity of the connections between the PN90 and the power amplifiers, as doing so will damage the equipment. Please reverse the polarity between the power amplifiers and the SW118IVNs, SW215IVNs.
- The PN90 uses unbalanced connectors. Use shielded audio cable with high-quality phone plugs to connect the PN90.

The balance between the LOW and HIGH signal levels may be adjusted using the power amplifier volume controls. A good starting point is generally achieved for typical sound sources by raising the LOW signal level about 8 dB higher than that of the HIGH signal.

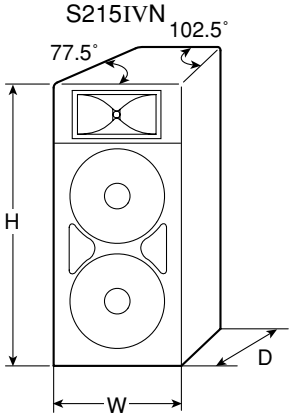
Specifications

Model		SM10IVN	S112IVN/SM12IVN	S115IVN/SM15IVN	S215IVN
Enclosure		Bass reflex type			
Speaker Unit	LF	10" cone	12" cone	15" cone	15" cone x 2
	HF	1" driver	2" driver		
Frequency Response		70 Hz to 20 kHz	60 Hz to 16 kHz	55 Hz to 16 kHz	42 Hz to 16 kHz
Power Capacity	NOISE*	100 W	150 W	250 W	500 W
	PGM	200 W	300 W	500 W	1000 W
	MAX	400 W	600 W	1000 W	2000 W
Nominal Impedance		8			4
Sensitivity		95 dB SPL (1W, 1m)	97 dB SPL (1W, 1m)	99 dB SPL (1W, 1m)	
Nominal Dispersion	Horizontal	60˚	90˚		
	Vertical	40˚			
Crossover Frequency		1.8 kHz	2 kHz	1.7 kHz	1.5 kHz
Input Connectors		Neutrik NL4MP x 2 (parallel input)			
Dimensions (W x H x D)		560 x 339 x 277 mm	S112IVN: 400 x 638 x 318 mm SM12IVN: 643 x 402 x 344 mm	S115IVN: 475 x 712 x 362 mm SM15IVN: 720 x 485 x 345 mm	500 x 1170 x 600 mm
Weight		12.2 kg	S112IVN: 19.3 kg, SM12IVN: 19.5 kg,	S115IVN: 27.5 kg, SM15IVN: 26 kg	46 kg

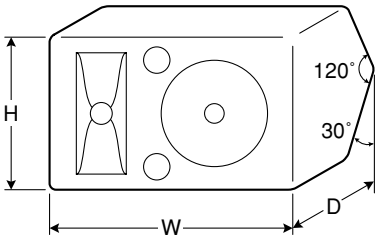
S112IVN, S115IVN



S215IVN



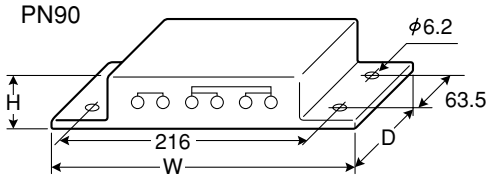
SM10IVN, SM12IVN, SM15IVN



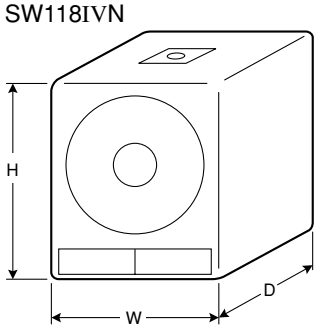
Model		SW118IVN	SW215IVN
Enclosure		Bass reflex type	
Speaker Unit		18" cone	15" cone x 2
Frequency Response		30 Hz to 2 kHz	33 Hz to 2 kHz
Power Capacity	NOISE*	250 W	500 W
	PGM	500 W	1000 W
	MAX	1000 W	2000 W
Nominal Impedance		8	4
Sensitivity		96 dB SPL (1W, 1m)	98 dB SPL (1W, 1m)
Recommended Crossover Frequency		90 Hz, 12 dB/octave	
Input Connectors		Neutrik NL4MP x 2 (parallel input)	
Dimensions (W x H x D)		542 x 654 x 791 mm	1115 x 520 x 600 mm
Weight		32.4 kg	63.5 kg

Model	PN90
Crossover Frequency	90 Hz, 12 dB/octave (at 15 k load)
Recommended Load Impedance	15 k
Insertion loss	3 dB
Input Connectors	1/4" phone jack x 2
Output Connectors	1/4" phone jack x 4
Dimensions (W x H x D)	227 x 38 x 76 mm
Weight	0.6 kg

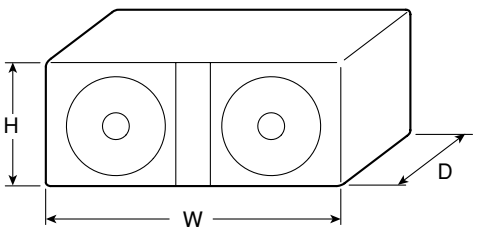
PN90



SW118IVN



SW215IVN



Unit: mm

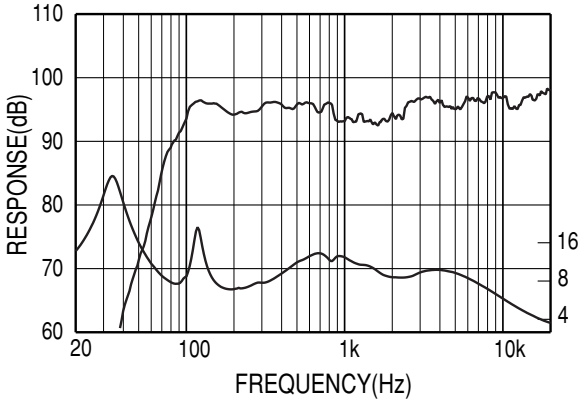
✻: EIA RS-426

Specifications subject to change without notice

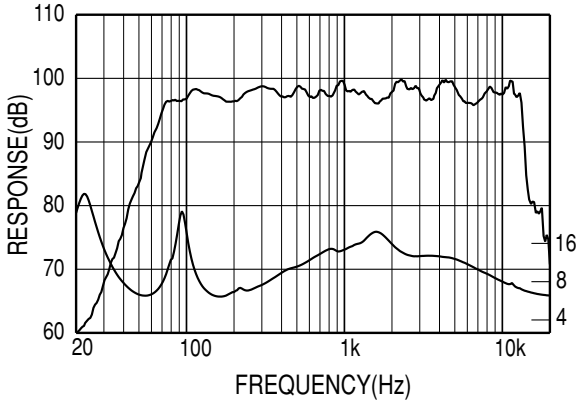
Technical Data / Données techniques
Technische Daten / Datos técnicos

Frequency Response / Impedance
Réponse en fréquence/impédance
Frequenzgang/Impedanz
Respuesta en frecuencia/Impedancia

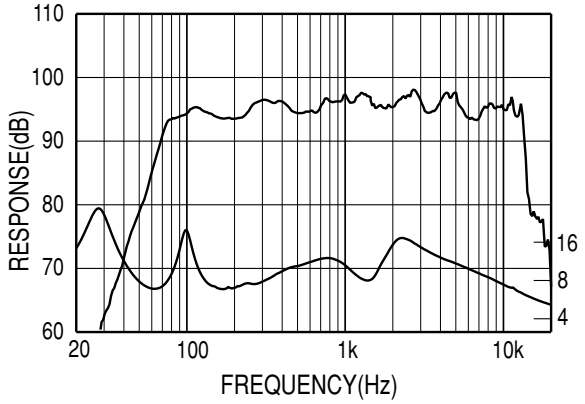
• SM10IVN



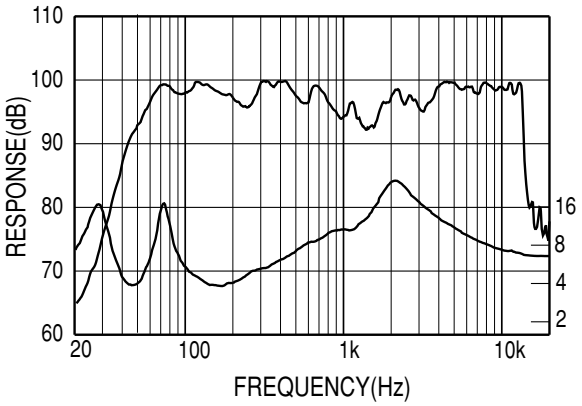
• S115IVN/SM15IVN



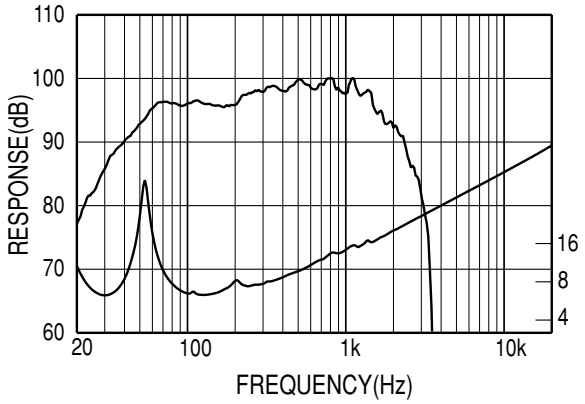
• S112IVN/SM12IVN



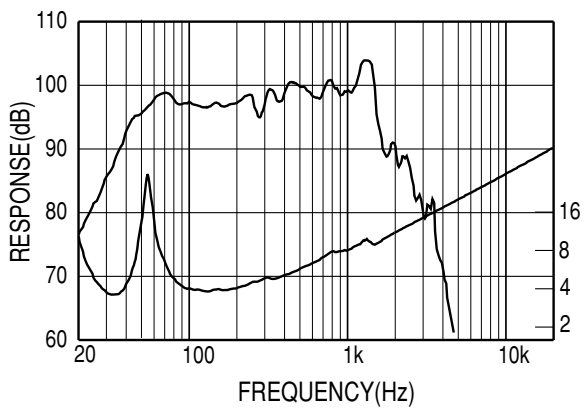
• S215IVN



• SW118IVN



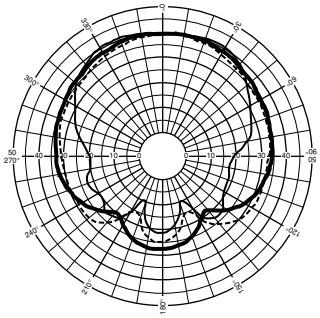
• SW215IVN



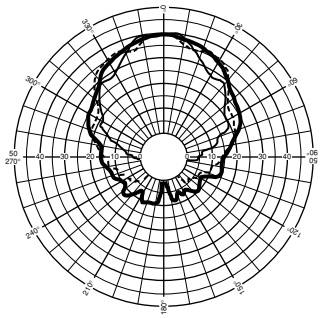
Horizontal Directivity / Directivité horizontale
Abstrahlung horizontal / Directividad horizontal

• SM10IVN

• 500Hz ▬▬
• 1kHz - - - - -
• 2kHz ——

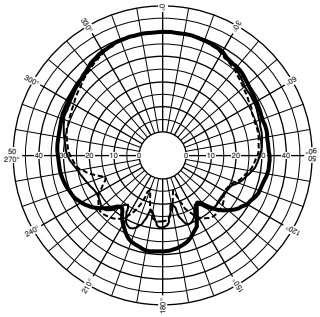


• 4kHz ▬▬
• 8kHz - - - - -
• 16kHz ——

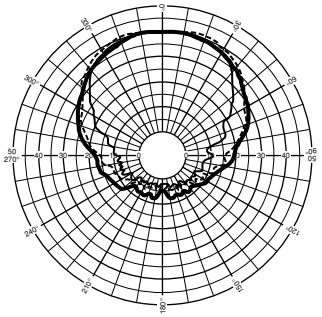


• S112IVN/SM12IVN

• 500Hz ▬▬
• 1kHz - - - - -
• 2kHz ——

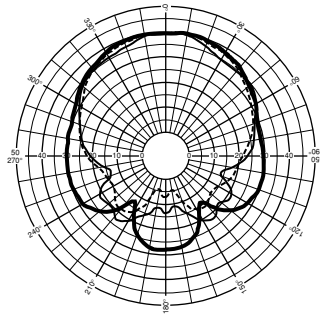


• 4kHz ▬▬
• 8kHz - - - - -
• 16kHz ——

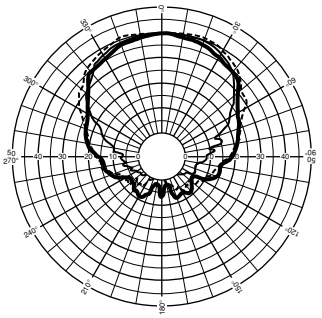


• S115IVN/SM15IVN

• 500Hz ▬▬
• 1kHz - - - - -
• 2kHz ——

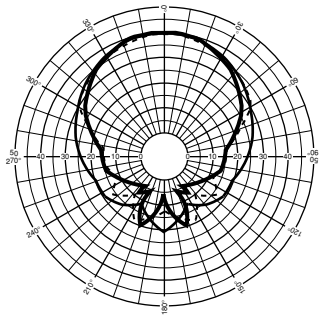


• 4kHz ▬▬
• 8kHz - - - - -
• 16kHz ——

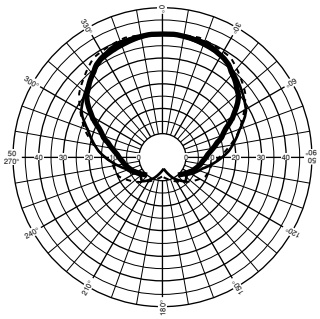


• S215IVN

• 500Hz ——
• 1kHz - - - - -
• 2kHz ▬▬



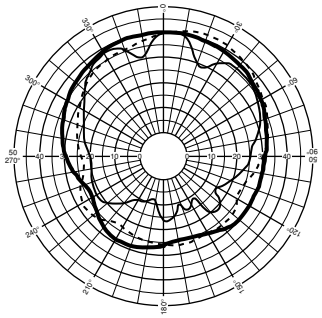
• 4kHz ——
• 8kHz - - - - -
• 16kHz ▬▬



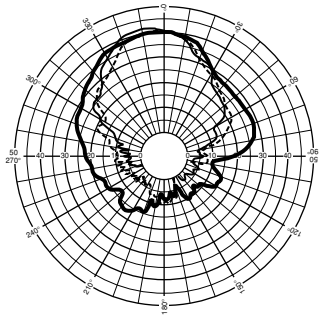
Vertical Directivity / Directivité verticale
Vertikale Richtcharkteristik / Directividad vertical

• SM10IVN

• 500Hz ▬▬
• 1kHz -----
• 2kHz ——

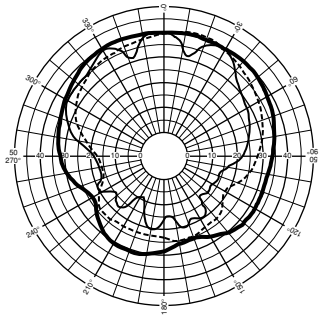


• 4kHz ▬▬
• 8kHz -----
• 16kHz ——

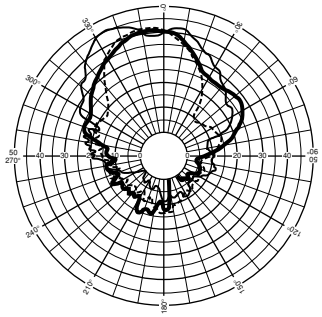


• S112IVN/SM12IVN

• 500Hz ▬▬
• 1kHz -----
• 2kHz ——

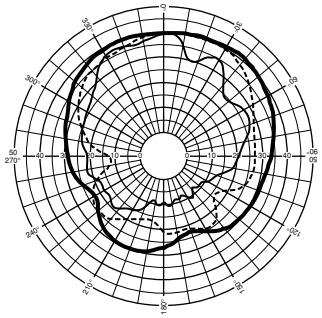


• 4kHz ▬▬
• 8kHz -----
• 16kHz ——

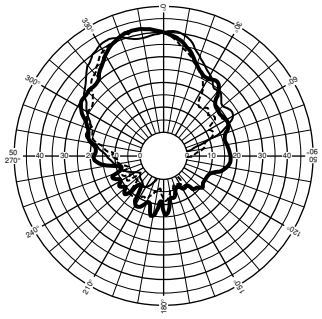


• S115IVN/SM15IVN

• 500Hz ▬▬
• 1kHz -----
• 2kHz ——

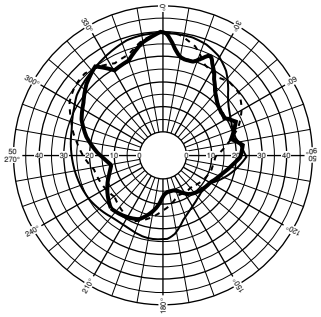


• 4kHz ▬▬
• 8kHz -----
• 16kHz ——

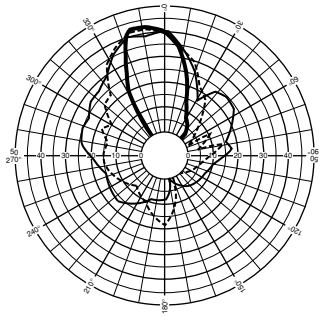


• S215IVN

• 500Hz ——
• 1kHz -----
• 2kHz ▬▬



• 4kHz ——
• 8kHz -----
• 16kHz ▬▬



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