

WS SERIES

WS-15T/30T/50T/80T

Professional Compact
Indoor/Outdoor Loudspeaker
for Background/Foreground Music





inter M



WS Series is...

All new WS Series is the Installation Speaker which is weather resistant and it also brightens the venue with its elegant design. The speakers can be used in various applications from small-sized venues to mid/large-sized venues.
It particularly fits in facilities that needs to play high quality of background music (cafe, hotel lobby, etc.), educational facilities (auditorium, conference room, etc.), and cultural facilities (exhibition hall, etc.)

WS Series is composed of 4 models from 2.5” Full-Range unit installed compact-sized WS-15T to 6.5” 2way model WS-80T. The WS Series has been applied with newly developed Full-Range unit, HF and LF driver unit to provide powerful and clear sound without distortion. Moreover, 2 way model adopts asymmetrical horn design to cover listening area perfectly. With a speaker terminal on the rear panel of all WS Series models, 100V / 70V line (separate models) and low impedance (8Ω) output can be adjusted by user. WS Series has obtained 54 IP grade which enables to be used in various indoor and outdoor applications. Install with steel-made durable U bracket or rotatable Knuckle bracket by user's demand. Now, experience Inter-M’s WS Series speaker with both eyes and ears.

Professional Compact Indoor/Outdoor Loudspeaker for Background/Foreground Music





FEATURES

A Selection of Line-up

The WS Series is 4 models with different sizes and output ranges to suit various purposes. Sizes are from 2.5” to 4”, 5” and 6.5” and output of 15W, 30W, 50W and 80W are available. Plus, there are black and white color available which even gives you more options to satisfy your needs!



WS-15T
15W, 2.5”, 79dB SPL
1Way Full Range



WS-30T
30W, 4”, 84dB SPL
2Way Passive



WS-50T
50W, 5”, 87dB SPL
2Way Passive



WS-80T
80W, 6.5”, 86dB SPL
2Way Passive

70V/100V Multi-tap Transformer

It is designed of high/low impedance to be used in any countries around the world.
Using a speaker terminal, 100V / 70V line(separate models) and low impedance(8Ω) output can be selected. When user uses 100V / 70V line, the rated power can be adjusted 100% to 50%. The WS Series can provide clear background music and paging sound for any type of applications.



		WS-15T	WS-30T	WS-50T	WS-80T
Power Select	8Ω	15W	30W	50W	80W
	70V	5/10/15W	30/15/7.5/3.8W	50/25/13/6.5W	80/40/20/10W
	100V	15/10/5/3W	30/15/7.5/3.8/1.9W	50/25/13/6.5/3.3W	80/40/20/10/5W

Compact Size with High Power

Depending on the sizes, the series provides high output just with a small unit using 1Way Full Range(WS-15T) or 2Way Passive(WS-30T/50T/80T) speaker system.

Weather Resistant Design

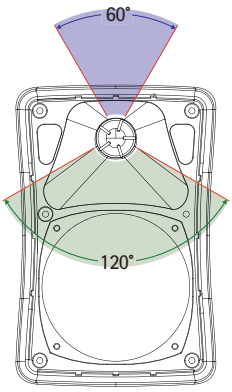
The design of WS Series is made to deliver output of the speaker most efficiently. It brightens the venues not only with its supreme quality sound but also elegant and modern design. Plus, WS Series has obtained IP rate of 54 which enables flexible installation indoors and outdoors.



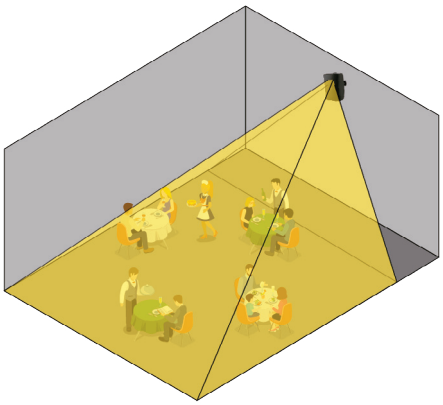


Asymmetric Horn for the Optimized Sound System

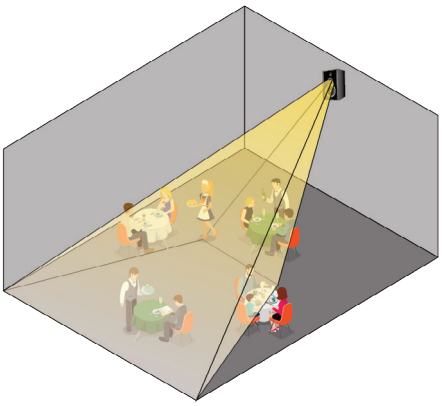
By the asymmetrical horn design of WS series (except WS-15T), people in a larger space can enjoy clear sound. Through Horizontal Coverage Near Field 120° and Far Field 60° for long distance and Vertical Coverage 60° a clear sound can be transmitted uniformly without unnecessary downward installation, and it can be transmitted through Far Field 60° to remote area. Also, by providing EASE and EASE Focus simulation data, you can design an optimized acoustic environment through 3D space simulation and by predicting sound pressure distribution and articulation.



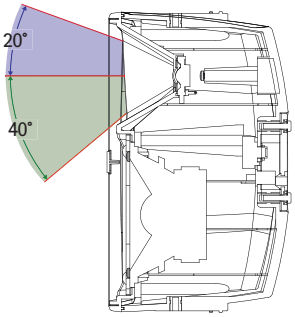
Horizontal Coverage



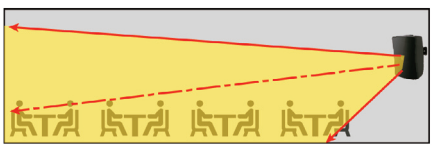
WS Speaker



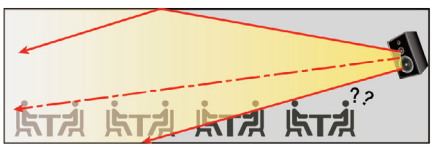
Ordinary Speaker



Vertical Coverage



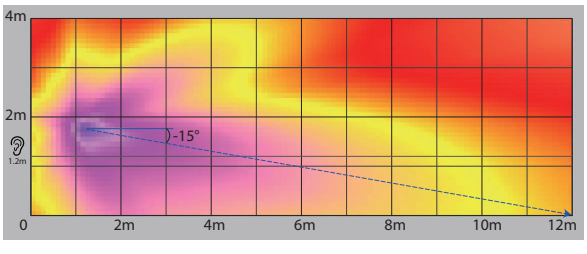
WS Speaker



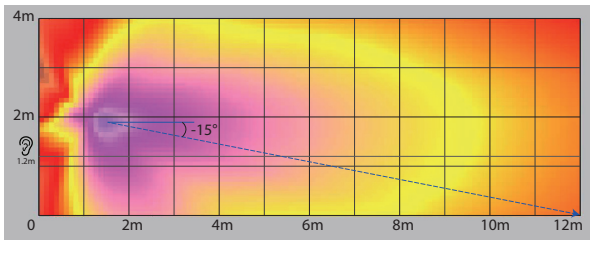
Ordinary Speaker

Simulation of sound pressure distribution with EASE Data

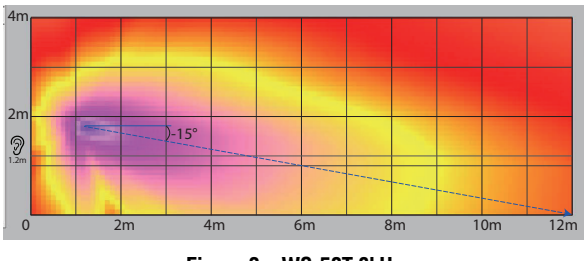
The WS Series provide optimal coverage for listening space by controlling the directivity of the high frequencies with asymmetrical horns (except WS-15T). By restraining the reflecting sound of Ceiling and wall, you can respond to more distinctive music, announcements and speech requirements solving the problems of reflections and reverberations.
The asymmetric horn has a vertical lower -40 ° and widened to 120 ° in the horizontal direction, and it can provide sufficient sound pressure for a front-line audience in a short distance. By concentrating acoustic energy, and with its directional characteristics for vertical upward + 20°, it can effectively cover distant audiences.
In vertical orientation characteristics of <Figure 1 WS-50T 4kHz>, the sound pressure distribution is almost uniform from just below the speaker, and it can provide clear sound quality and there are few reflections and reverberations in the ceiling as reflections are suppressed.
In <Figure 2 Third-party 2Way speaker 4kHz>, it has similar power and efficiency to the WS-50T, and this is a vertical orientation characteristic of a compact speaker with typical 90 ° x 90 ° directivity.
Although it is easy to cover the entire area in wide directional space, at the front and rear the sound pressure is noticeably different. The front side is noisy and the rear side is not audible, so articulation tends to be missed, and half of the acoustic energy above the axis is reflected on the ceiling, so the reflections and reverberations increase.
Likewise, one of the influential factors for sound quality in replaying music is the vertical directivity characteristic at 8kHz, and it is shown in <Figure 3 WS-50T 8kHz> and <Figure 4 2Way speaker 8kHz>. The asymmetric horn is dominant even at 8kHz, similar to 4kHz. <Figure 5> shows the horizontal orientation of the WS-50T. Even though the distance from the speaker to the listening position is short due to the spread of 120 ° in front, it can cover a wide range of left and right. It provides good sound quality for listening because unnecessary sound is not reflected on the wall by suppressing excessive diffusion of the left and right at a long distance. But, in a general third party typical speaker with horizontal 60 ° diffusion as in <Figure 5>, in the front distance near from the speaker, the spread of the left and right is narrow and there is a space that cannot be covered. Also, with 90 ° directivity even in the long distance and due to the spread of sound, the farther the distance away from the speaker, the wider the width of the sound energy becomes. As a result of this, the sound degradation due to wall reflection and the sound pressure level due to distance attenuation are degraded far more.



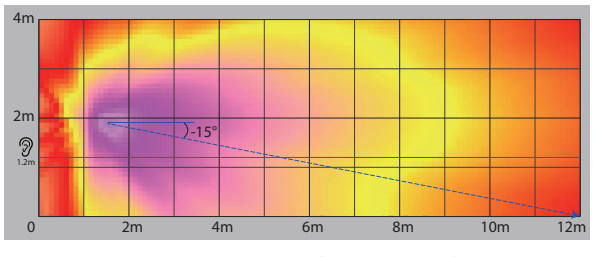
<Figure 1 – WS-50T 4kHz>



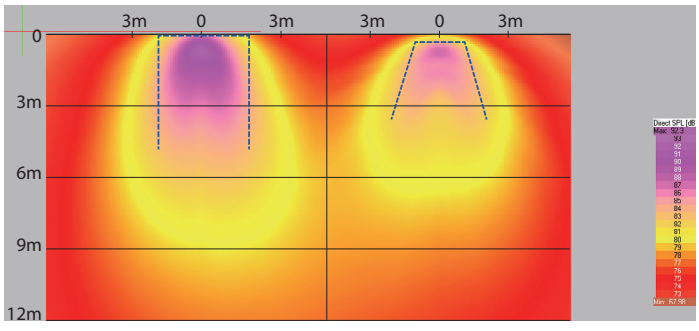
<Figure 2 - Third party 2Way speaker 4kHz>



<Figure 3 – WS-50T 8kHz>



<Figure 4 - Third party 2Way speaker 8kHz>



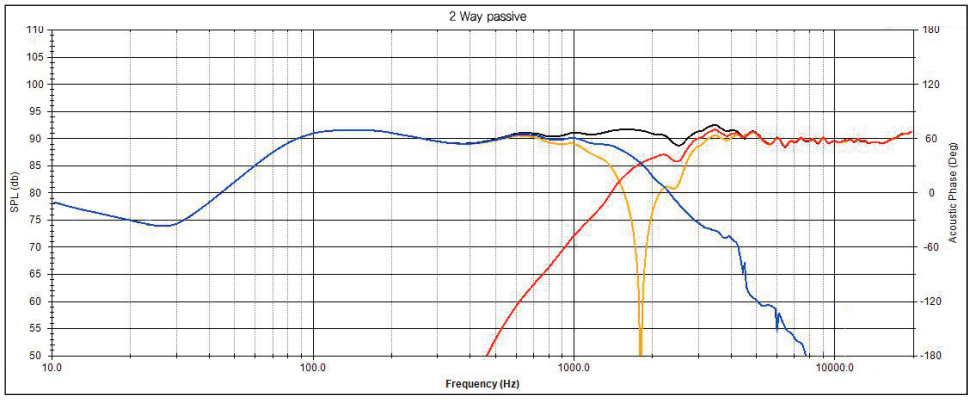
<Figure 5 - WS-50T from above, 3rd party 2Way speaker 4kHz>

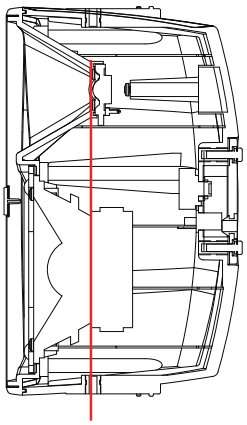
When installing a speaker, EASE is simulation software that is commonly used in professional markets for speaker cover range, sound pressure level, articulation and including architectural sound. An accurate simulation is applied at the design level.

Sound Quality of Professional Audio

WS Series provides clear and accurate sound with professional audio sound quality. The 2way loudspeaker of the woofer and tweeter are located in the same physical plane which increases time alignment shifts, lobeing and comb filter distortion, decreasing intelligibility. In the WS Series, the voice coil part of the woofer and the tweeter is physically offset. In this technique of the physical time alignment, the system eliminates the cause of lobe or small shift in polar response on axis at the crossover point.

Simulation Graph



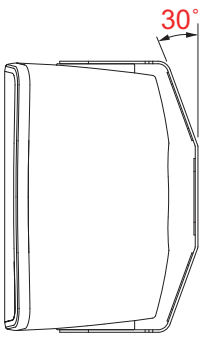


Physical Time Alignment Design

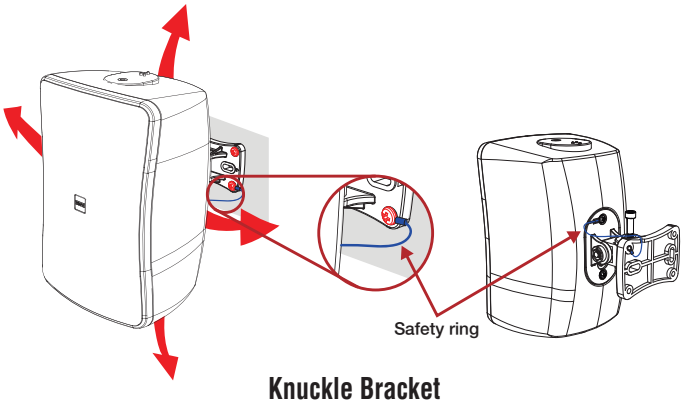
Ease of Installation

With the steel-made durable U bracket(30° tilted), the users can firmly place the speaker as they want. Moreover, Knuckle Bracket is supplied to turn the speaker left to right and up and down to better suit the needs. In that way, it can be flexibly installed in various venues and used in numerous applications.

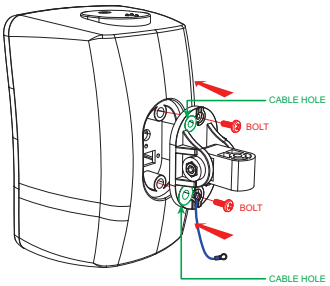
※WS-15T: Only Knuckle bracket is provided. U-bracket for WS-15T is not available.



U Bracket



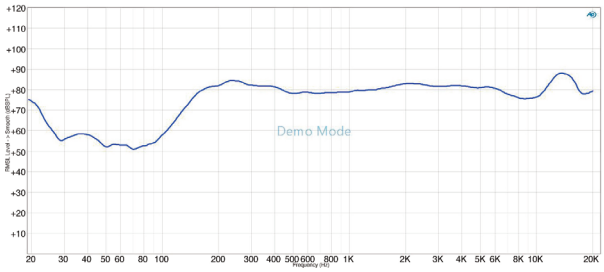
Knuckle Bracket



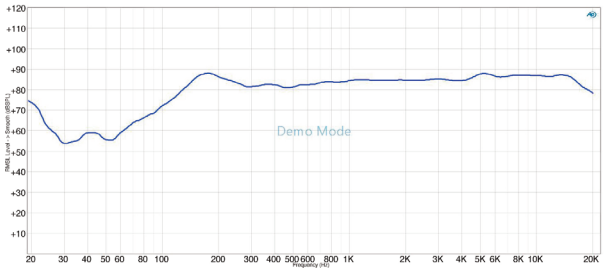
Back Cover

TECHNICAL DATA

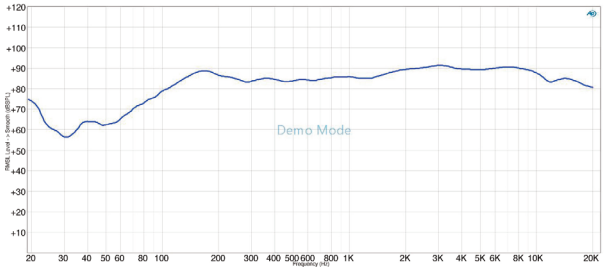
FREQUENCY RANGE & IMPEDANCE



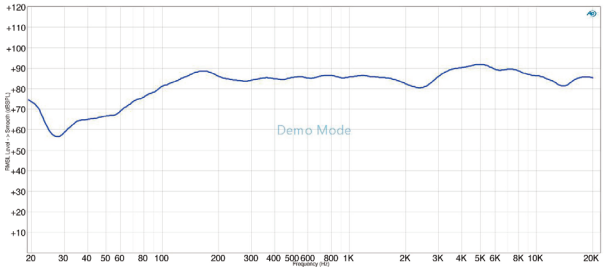
WS-15T



WS-30T

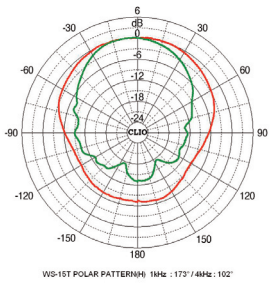


WS-50T

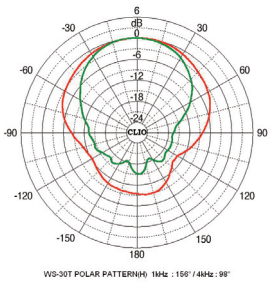


WS-80T

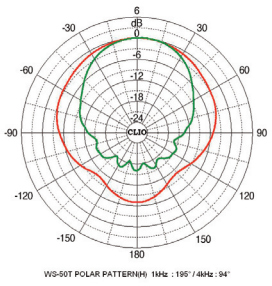
POLAR PATTERN(1kHz/4kHz)



WS-15T(H)



WS-30T(H)



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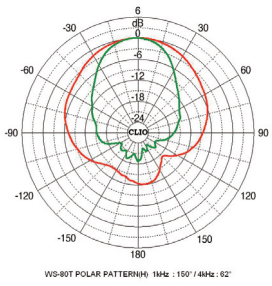
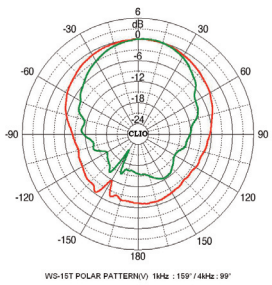
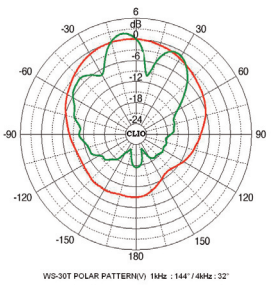


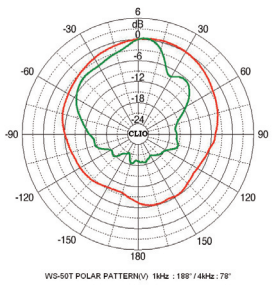
WS-80T(H)



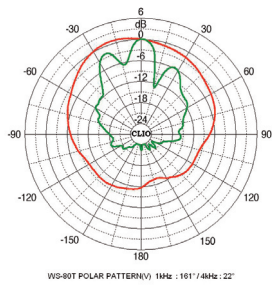
WS-15T(V)



WS-30T(V)



WS-50T(V)



WS-80T(V)

1kHz

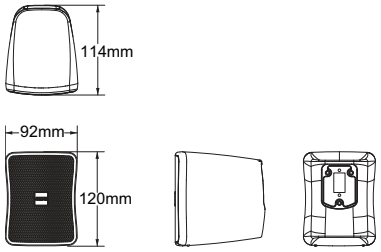
4kHz

SPECIFICATION

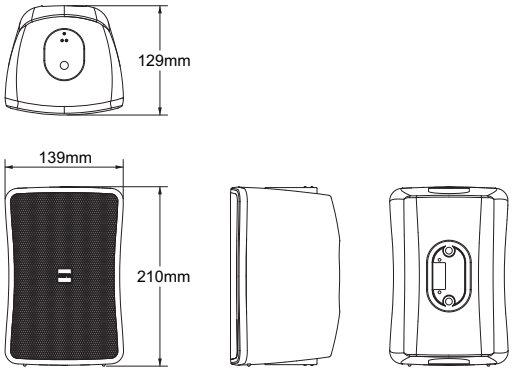
Model		WS-15T	WS-30T	WS-50T	WS-80T
Type		2.5" Full-range Wall Mount Speaker	4" 2Way Passive Wall Mount Speaker	5" 2Way Passive Wall Mount Speaker	6.5" 2Way Passive Wall Mount Speaker
Driver		2.5"	WF : 4", TW : 13mm	WF : 5", TW : 13mm	WF : 6.5", TW : 13mm
Power Handling (IEC)		15W	30W	50W	80W
Input Power	100V	15W	30/15W	50/25W	80/40W
Nominal Impedance	100V	660Ω	330/660Ω	200/400Ω	125/250Ω
	LOW	8Ω	8Ω	8Ω	8Ω
Power Selection		By Terminal	By Terminal	By Terminal	By Terminal
Frequency Range (-20%)		111Hz ~ 20kHz	100Hz ~ 20kHz	69Hz ~ 20kHz	60Hz ~ 20kHz
Sensitivity (1W/1m, 1kHz)		79dB	85dB	87dB	86dB
Maximum SPL		90dB	103dB	104dB	105dB
Nominal Coverage	1kHz	180° x 180°	Asymmetric Horn Horizontal Coverage : Far Field 60°, Near Field 120° Vertical Coverage : upward +20°, downward -40° (On Axis)		
Input connection		3P Screw Terminal	4P Screw Terminal	4P Screw Terminal	4P Screw Terminal
Enclosure Material		ABS 일반	ABS 일반	ABS 일반	ABS 일반
Enclosure Color		Black/White	Black/White	Black/White	Black/White
Grille Material		Metal Grille	Metal Grille	Metal Grille	Metal Grille
Grille Color		Black/White	Black/White	Black/White	Black/White
Weight (Net)		0.9kg	1.7kg	2.3kg	3.6kg
Dimensions (Net, WxHxD, mm)		92 x 120 x 114	139 x 210 x 129	173 x 250 x 150	210 x 311 x 169
Weather Resistant		IP54	IP54	IP54	IP54
Flame Resistant		-	-	-	-
Certification		KS	KS	KS	KS
Included Accessories		Knuckle Bracket	Knuckle Bracket	Knuckle Bracket	Knuckle Bracket

DIMENSIONS

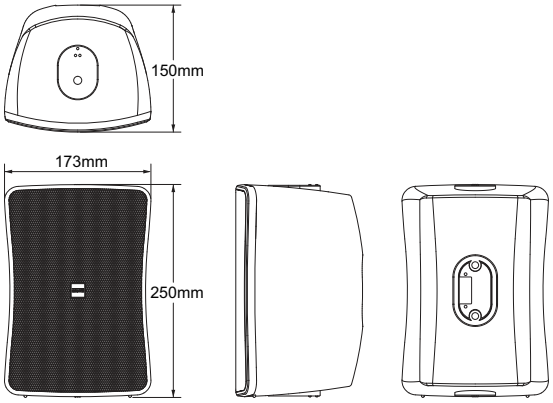
WS-15T



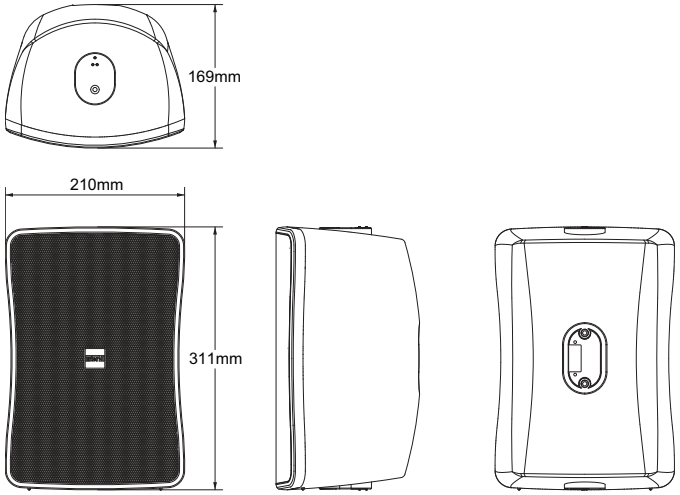
WS-30T



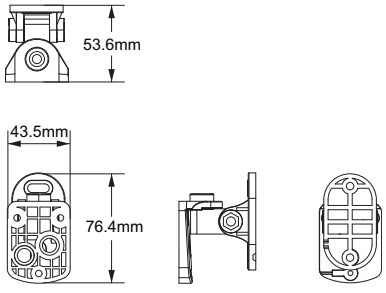
WS-50T



WS-80T

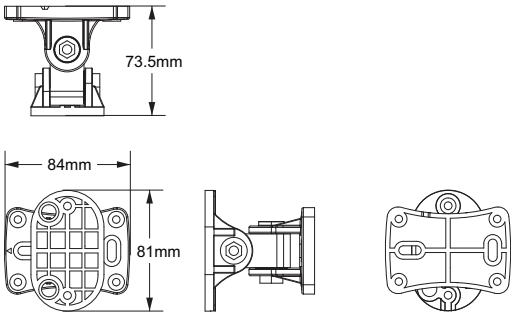


K-BKT-15 (Knuckle Bracket for WS-15T)



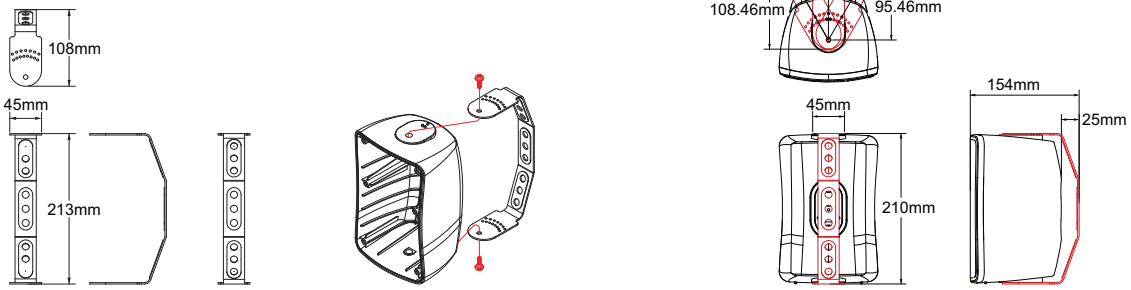
Tilt angle			
Upper	Lower	Left	Right
60°	30°	56°	56°

K-BKT-30 (Knuckle Bracket for WS-30T/50T/80T)

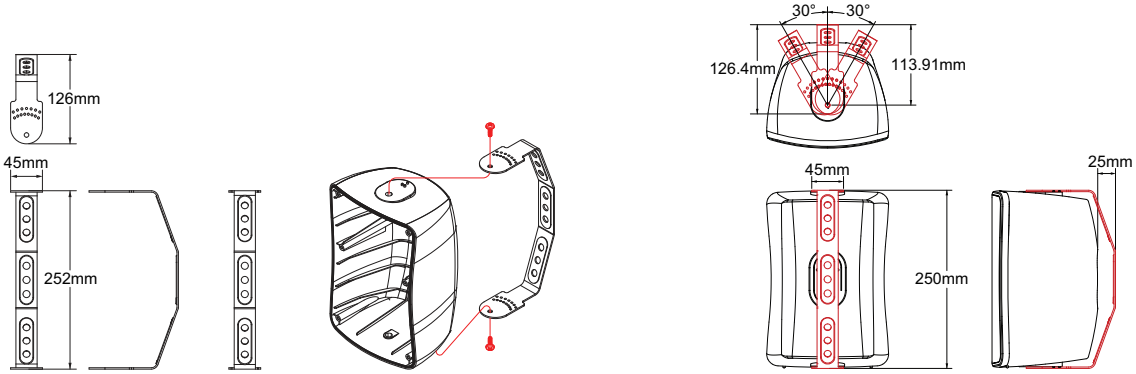


Tilt angle			
Upper	Lower	Left	Right
35°	35°	55°	55°

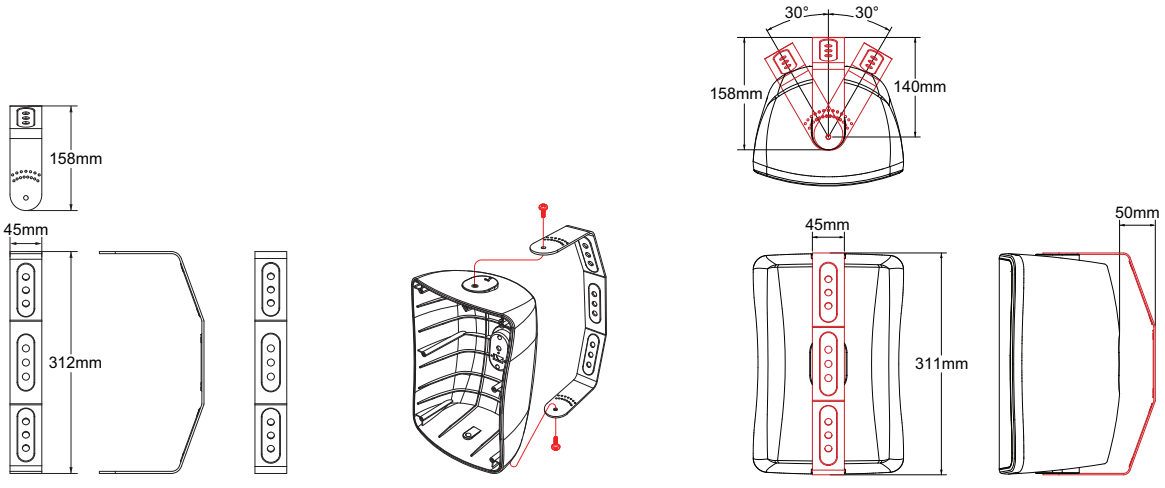
U-BKT-30 (U-Bracket for WS-30T)



U-BKT-50 (U-Bracket for WS-50T)



U-BKT-80 (U-Bracket for WS-80T)





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※ Design and specification are subject to be changed for the improvement of product quality without pre notice.

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