

EM·PHASER

EMPHASER EM-BMWF1 & R1 • TEST REPORT CAR&HIFI 3/2022

Emphaser EM-BMWF1 + EM-BMWR1: new door speakers for BMW and Mini

Sound in BMW

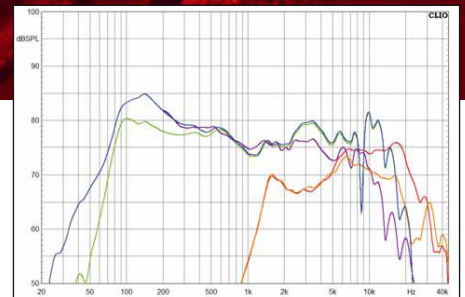


► Many new BMWs and Minis have OEM speakers with a sound that is not really convincing. However, thanks to suitable after-market systems a sound upgrade is fairly easy.

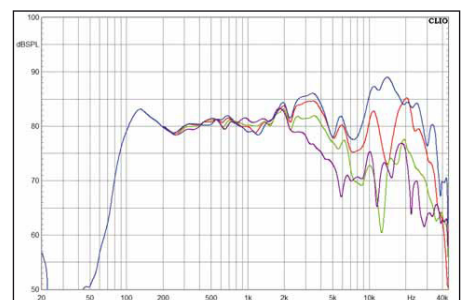


25 mm woven fabric dome is connected to the cable harness using the BMW connector

If you have just bought a used BMW then it is not surprising that the sound is not right. Especially in the low spec variants there is not even a tweeter present and a meager full-range speaker in the door is expected to provide the main part of the music. Help in this comes from Emphaser, which has recently relaunched its aftermarket speakers for front and rear doors. The two systems EM-BMWF1 and R1 fit perfectly in almost all models of the F and G series as well as many models of Mini of the BMW Group. The BMWF1 front system is very elaborately made and is right off a joy to see. The woofer comes in an injection molded basket and BMW three-point mount — complete with moss rubber seal and BMW connector. The little speaker radiates via an aluminum cone driven by a 25



Below 500 Hz the optionally switched high pass filter (green) restrains the 10 cm speaker of F1 so that it is more resilient and is a better match for the underseat woofer. As a whole the response is rather unsettled, but works very well soundwise



The BMWR1 coaxial system shows even and harmonic matching over the crossover. The little tweeter works up to almost 30 kHz

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millimeter voice coil. The driver works with a ferrite ring for the magnetic field, and details like the finely planed and turned (in lieu of mere stamped) pole plates are a pleasure for the eye and engineer's heart. The BMWF1 is naturally a two-way system with a tweeter that fits into the original mirror triangle — BMW dealers have this if there is no installation opening present. The associated crossover is very elaborately made: in addition to the separation of tweeter and woofer, it includes a switched high pass filter to relieve the little 10 cm speaker at low frequencies. Separation is achieved for the tweeter in the conventional manner using a capacitor; for the woofer we find principally a low pass second order filter with a small tweak for frequency response correction. As expected, the rear system is similarly made with injection molded basket and aluminum cone, though it is a coaxial system with a little but fine woven tweeter (instead of plastic dome) in the center. The driver works with neodymium, and the crossover is similarly split into a system high pass as a cable crossover and separation of the tweeter directly at the speaker.

The 10 cm speaker of the front system works with a ferrite ring; the rear coax system requires neodymium for reasons of space



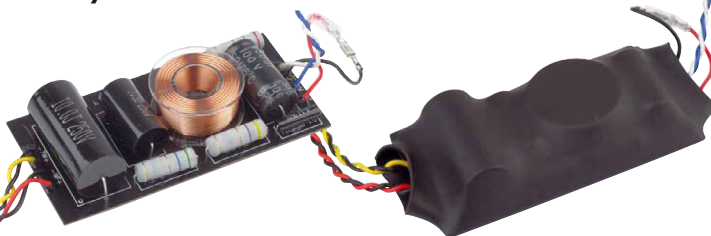
Measurements and Sound

The BMWF1 front system really lets rip from 100 Hz, and when the high pass is switched in it is an optimum match for the existing underseat woofers. The tweeter is set at a quiet level because in the mirror triangle it is nearer to the ear than the woofer. The distortion figures of the little system turn out to be excellent. Levels can be achieved that are very respectable for the tiny cone surface of 83 square centimeters, and the woofer produces extremely little distortion. The rear system also works well, the mid-high range at the crossover being at the level of the woofer, as it should. Both have a pleasing sound, crisp and detail-rich: drums and percussion are reproduced full of vigor, while vocals are not robbed of any of their character, but rather emphasized. In the case of the front system the tweeter does a superb job, delivering without sounding annoyingly harsh. The little 13 millimeter tweeter of the rear system also performs brilliantly, up among the best that you can find for the highs in a small coaxial system.

Summary

If you are looking for really well made speakers for your BMW or Mini you will find what you need at Emphaser. The EM-BMWF1 and EM-BMWR1 systems are finished to a very high standard, providing a crisp sound with their elaborate crossovers and aluminum cones.

Elaborate crossover with the option to high pass filter the entire system



BMW-loudspeaker	Emphaser EM-BMWF1	Emphaser EM-BMWR1
Price	about 280 Euro	about 230 Euro
Distributor	ACR	ACR
Hotline	CH-Zürzach	CH-Zürzach
Internet	info@acr.eu	info@acr.eu
	www.acr.eu	www.acr.eu

Summary			
▶ Sound quality	55 %	1,2	1,2
Bass foundation	11 %	1,5	1,5
Neutrality	11 %	1,5	1,0
Transparency	11 %	1,0	1,5
Soundstaging	11 %	1,0	1,0
Dynamics	11 %	1,0	1,0
▶ Lab	30 %	1,3	1,5
Frequency response	10 %	1,5	1,5
max. volume	10 %	1,5	1,5
Distortion	10 %	1,0	1,5
▶ Practice	15 %	1,2	1,3
Installation	5 %	1,0	1,0
Crossover	5 %	1,5	2,0
Workmanship	5 %	1,0	1,0

Technical data

Diameter TT	100 mm	100 mm
Mounting depth with ring	30 mm	29 mm
Diameter magnet	70 mm	50 mm
Tweeter dome diameter	25 mm	16 mm
Tweeter housing diameter	43 mm	-
Slope	12/6 dB	-/6 dB
Tweeter protection	-	-
Tweeter volume adjustment	-	-
Fits in here *	E-, F- and G-models	E-, F- and G-models
other	highpass switchable	highpass
Nominal impedance	4 ohms	4 ohms
DC resistance Rdc	3,60 ohms	3,57 ohms
Coil inductivity Le	0,08 mH	0,13 mH
Coil diameter	25 mm	25 mm
Cone surface Sd	83cm ²	83 cm ²
Resonance frequency fs	107 Hz	122 Hz
Mechanical quality Qms	5,91	5,45
Electrical quality Qes	1,67	1,31
Total quality Qts	1,30	1,06
Equivalent volume Vas	1,7 l	1,4 l
Moving mass Mms	5,4 g	5,1 g
Rms	0,61 kg/s	0,71 kg/s
Cms	0,41 mm/N	0,34 mm/N
B*1	2,79 Tm	3,24 Tm
Pressure 2 V, 1 m	81 dB	80 dB
Power handling	20 – 80 W	20 – 80 W

BMW-loudspeaker 1,2 <small>Price/performance: very good</small> <i>"High quality plug and play upgrade for BMW and Mini."</i>	BMW-loudspeaker 1,3 <small>Price/performance: very good</small> <i>"High quality plug and play upgrade for BMW and Mini."</i>
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