Wetting and spreading of molten brazing filler material are important factors that influence the brazing ability of a joint to be brazed. Several investigations into the wetting ability of a brazing filler alloy and its spreading area in the molten state, in addition to effects of brazing temperature on the contact angle, have been carried out. Generally, the composition of copper-based filler and temperature affect spreading of molten brazing filler material during brazing. Wetting by and interfacial reactions of the molten brazing filler material with the metallic substrate, especially, affect strongly the spreading of the filler material. In this study, the effects of filler composition and brazing temperature on the spreading of molten brazing filler metallic alloys were investigated. MBF 2005 (Cu, 5.7wt.%Ni, 9.7wt.%Sn, 7.0wt.%P), MBF 2002 (Cu, 9.9wt.%Ni, 4.0wt.%Sn, 7.8wt.%P) and VZ 2250 (Cu, 7.0wt.%Ni, 9.3wt.%Sn, 6.3wt.%P) alloys were used as brazing filler materials. Pure copper block and a rectangular plate were employed as the base metal. Brazing filler material and metallic base plate were first washed with acetone. Brazing was performed at 750°C and 800°C under Ar gas for 30 minutes using an electrically heated furnace, after which, the original spreading area, defined as the sessile drop area, and the apparent spreading area were both evaluated. It was observed that the spreading area and wetting angle influenced by the composition of copper-based filler.