Abstract: The contrast sensitivity function (CSF) provides a fundamental characterization of spatial vision, important for basic and clinical applications, but its long testing times have prevented easy, widespread assessment. The original quick CSF method was developed using a two-alternative forced choice (2AFC) grating orientation identification task (Lesmes, Lu, Baek, & Albright, 2010), and obtained precise CSF assessments while reducing the testing burden to only 50 trials. In this study, we attempt to further improve the efficiency of the quick CSF method by exploiting the properties of psychometric functions in multiple-alternative forced choice (m-AFC) tasks. A simulation study evaluated the effect of the number of alternatives m on the efficiency of the sensitivity measurement by the quick CSF method, and a psychophysical study validated the quick CS method in a 10AFC task. We found that increasing the number of alternatives of the forced-choice task greatly improved the efficiency of CSF assessment in both simulation and psychophysical studies. The quick CSF method based on a 10-letter identification task can assess the CSF with an averaged standard deviation of 0.10 decimal log unit in less than 2 minutes.