

**OMB Control No. 0693-0043**  
**NIST Generic Clearance for Usability Data Collections**  
**Visual perception of color quality of light sources**

**FOUR STANDARD SURVEY QUESTIONS**

**1. Explain who will be surveyed and why the group is appropriate to survey.**

NIST is seeking approval for a demographic questionnaire related to the study described below.

The Sensor Science Division (SSD) of the Physical Measurement Laboratory (PML), of the National Institute of Standards and Technology (NIST) is proposing to conduct a study of the visual perception of color quality of light sources. The data collected from the study, will be used to make recommendations to help improve lighting design and to aid light source manufactures with the information necessary to create desirable products. Participants in the study will be recruited from the employees and guest researchers at NIST who are willing to participate. In this study, which will last three to four years, we expect a total of 85 participants with diversity in age, gender, and ethnicity.

In this study, participants will participate in vision experiments in our lighting experiment facility. Participants will be asked to compare many pair of lights presented in our lighting facility and evaluate colors of fruits and vegetables and/or skin tones and answer which light they prefer. Comparisons of fifteen to thirty pairs are made in an experiment session, which will last about 30 min. There will be four to six sessions depending on different types of experiments covered in this study. Thus experiments will take two to three hours for each participant. Based on these comparison results by participants, color quality preference on several different parameters of lighting will be derived. These verbal responses for the light comparisons will be recorded as a dialog by one of the Investigators for this study.

The group is appropriate because the group has the desired diversity in age, gender, and ethnicity, which is needed in this study. The experiment results will be analyzed with different demographics to identify if there are any trends in results. Without collecting this information, we cannot conduct such analyses of experiment results.

As a part of this study, participants will be required to complete the demographic questionnaire which is collecting three points – gender, age, and ethnicity, which will be associated with their data and will not include any personally identifying information.

**2. Explain how the survey was developed including consultation with interested parties, pre-testing, and responses to suggestions for improvement.**

The demographic questionnaire was developed by the PI and co-PIs. The questionnaire was designed to collect only the necessary content necessary for this collection.

**3. Explain how the survey will be conducted, how customers will be sampled if fewer than**

**all customers will be surveyed, expected response rate, and actions your agency plans to take to improve the response rate.**

The demographic questionnaire will be provided to the respondent during the instructional period. Each demographic questionnaire will be assigned a random identification number for each participant and will ask respondents to provide their age, gender, and ethnicity. For ethnicity, participant will select from two ethnic groups listed. There will be no key identifying the participants by the assigned random identification number. Participation of the participants is expected to be 100%. If the respondent chooses not to provide his/her demographic information, we will have him/her withdraw from participating in the experiment.

Participation in this study is voluntary and a respondent may choose not to participate at any time during the study, without penalty. The participants will sign an Informed Consent Form, which provides all the details regarding this study. A copy of the Informed Consent has been uploaded into ROCIS as a part of the submission package.

**4. Describe how the results of the survey will be analyzed and used to generalize the results to the entire customer population.**

The information collected in the demographic questionnaire will be used when the experiment results are analyzed, in an effort to determine or define any trends in results with respect to age, gender, and ethnicity. It is likely that there are some trends, for example with age, because it is known that the visual response changes more or less as people age. Given such result, the study results can then be reported publicly in scientific journals and/or presented to standards developing communities.