User Acceptance Testing

The Soundoff software will be able to read in the following types of files:

1. Wav files of 16-bit, 24-bit and 48-bit size
2. Wav files with between 1 and 6 channels
3. Mp4 files of 16-bit, 24-bit, and 48-bit size
4. Mp4 files with between 1 and 6 channels

The Soundoff Software will then calculate the following values from types of files above:

1. The True Peak value in dbfs:
   1. Calculated by taking the median of the following 3 values found using taking a resampling factor of 4 and:
      1. Resampling using FFT
      2. Resampling using resampy
      3. Resampling using polynomial
2. The Integrated Loudness in LUFs:
   1. Calculated by the python library pyloudnorm which uses an algorithm that implements  [ITU-R BS.1770-4](https://www.itu.int/dms_pubrec/itu-r/rec/bs/R-REC-BS.1770-4-201510-I!!PDF-E.pdf)
   2. Note that pyloudnorm only works for up to 5 channels, in the case that a file with 6 channels is passed into the program, Soundoff will remove a channel and calculate the LUFs over the remaining 5. The user will be made aware of this.

The Soundoff Software will produce a report that details the following information about the input file.

1. The LUFs and True Peak value
2. The difference between the LUFs and True Peak value of the file and the LUFs and True Peak value standards of selected platforms
   1. The difference will be Green if the input file would pass the platform’s standard and be accepted without adjustment by the platform,
   2. The difference will be Yellow if the input file is within a certain margin of the platform’s standards but would still pass
      1. Within .5 dbfs of the platform’s True Peak standard
      2. Within 2 LUFs of the platform’s LUFs standard
   3. The difference will be in Red if the input file would not pass the platform’s standard and would not be accepted without being adjusted (either by the platform or the user).

The Soundoff Software will also have the following features:

1. The ability to add a new platform/standard for files to be compared against
2. The ability to modify/delete existing platforms/standards loaded into the software
3. The ability to view the existing platforms/standards loaded into the software