Project Notes August 6th 2021

The end goal of this project is to get the digital certificate and a pdf certificate produced by your software program. This is a very big project and is complicated, so the fact that there are so many of you should make this achievable.

**Part 1: The RAW Data**

We perform calibrations of chambers (also called dosimeters) for our clients. Our clients send us their dosimeters and we perform the measurements etc and then send back their dosimeters with a certificate that outlines their calibration values.

To perform a calibration, we hook up the client’s dosimeter to our equipment and take a bunch of measurements. We already have code that records these output measurements and produces a .csv file. An example of client dosimeter output is:

Raw MEX measurement data 1Client.csv

Then, we connect our standard reference dosimeter to our equipment and repeat the measurement to produce another .csv file:

Raw MEX measurement data 1Lab.csv

Both of these measurements are performed on day 1 (hence the file name 1Client and 1Lab). These two files need to be known for linking or matching later.

Now, these measurements can take up to 4 hours! So we typically have a set (Client and Lab) of measurements done per day, however, sometimes we have keen people working for us and they stay late and might perform another set of measurements on the same day – what I’m trying to get across to you is that you cannot identify the measurements by the date!

We also need to take multiple sets of measurements to make sure we are doing things correctly (we need to QA – quality assurance check). We can take anywhere from 3 sets to 20 sets of measurements for one client and one dosimeter.

So for a typical “run” or dosimeter check for a client, we could have:

Day 1 Raw 1Client, Raw 1Lab

Day 2 Raw 2Client, Raw 2Lab

Day 3 Raw 3Client, Raw 3Lab

We need your program/app to be able to read in these .csv files and load this information into a database so we can then analyse this information. Keep in mind, the data in these files is the RAW data.

We are thinking that the group that is in charge of this should also be in responsible for the “back end”??? stuff? I’m not sure how to describe this part of the project, but if you think an online solution will accommodate our needs, then how is this going to be done? You will need to work with us to make sure we can use it. Another option is to have this as a stand alone system on our network – if this is the route you want to take, then how are we going to install and run your program? Don’t forget that we will need to continue to develop this ourselves, so we need to be able to use it on our systems too.

If you decide an online solution is the best option, we will need to discuss this because there may be security issues associated with us using it? I would need to get our DTS department and security team involved (which is okay!) but this might make things complicated.

**Part 2: Analysis**

Please refer to the **MEX analysis for 1Client and 1Lab.xlsm** Excel spreadsheet

Each set or pair of Raw data files (for example, Raw 1Client and Raw 1Lab), analysis is performed in this spreadsheet. The first thing we do is copy and paste the two .csv files into the two tabs: Input-Chamber and Input-MEFAC. Input-Chamber is the Raw 1Client and Input-MEFAC is the Raw 1Lab data.



The “Data” and “Beams” tabs are data that is required to perform analysis in the other tabs. These can be hard-coded into your program and the user doesn’t need to see it. We only change this data when it gets republished (like once every 5-10 years). As you look at the other tabs for the analysis, you will see values from the “Data” and “Beams” tabs being used for calculations.

Please note that we only need the numbers and info a few columns in the “Beams” tab! All of the other numbers there are just there to calculate the value in Column U.

You’ll have to give me another couple of days to give you more info on the other analysis tabs! Sorry.

**Part 3: The GUI**

This needs to be designed such that we can dump or load our Raw .csv files into the program so they are stored. Then, at some other time (for example), be able to pick and choose from the list which sets of data we want to compare and analyse.

Then, once the pairs or sets have been analysed, we then need to be able to combine the sets we want to use to get a final summary or result.

The GUI will also need to have visualization for the user to see the QA processes for each step of the process (described in Part 2).

The last part of the GUI is to be able to click a button to produce the PDF certificate and say another button to produce the digital certificate.

I will draw up some pictures and mock-ups as to how we are thinking to use it. Again – I just need more time!