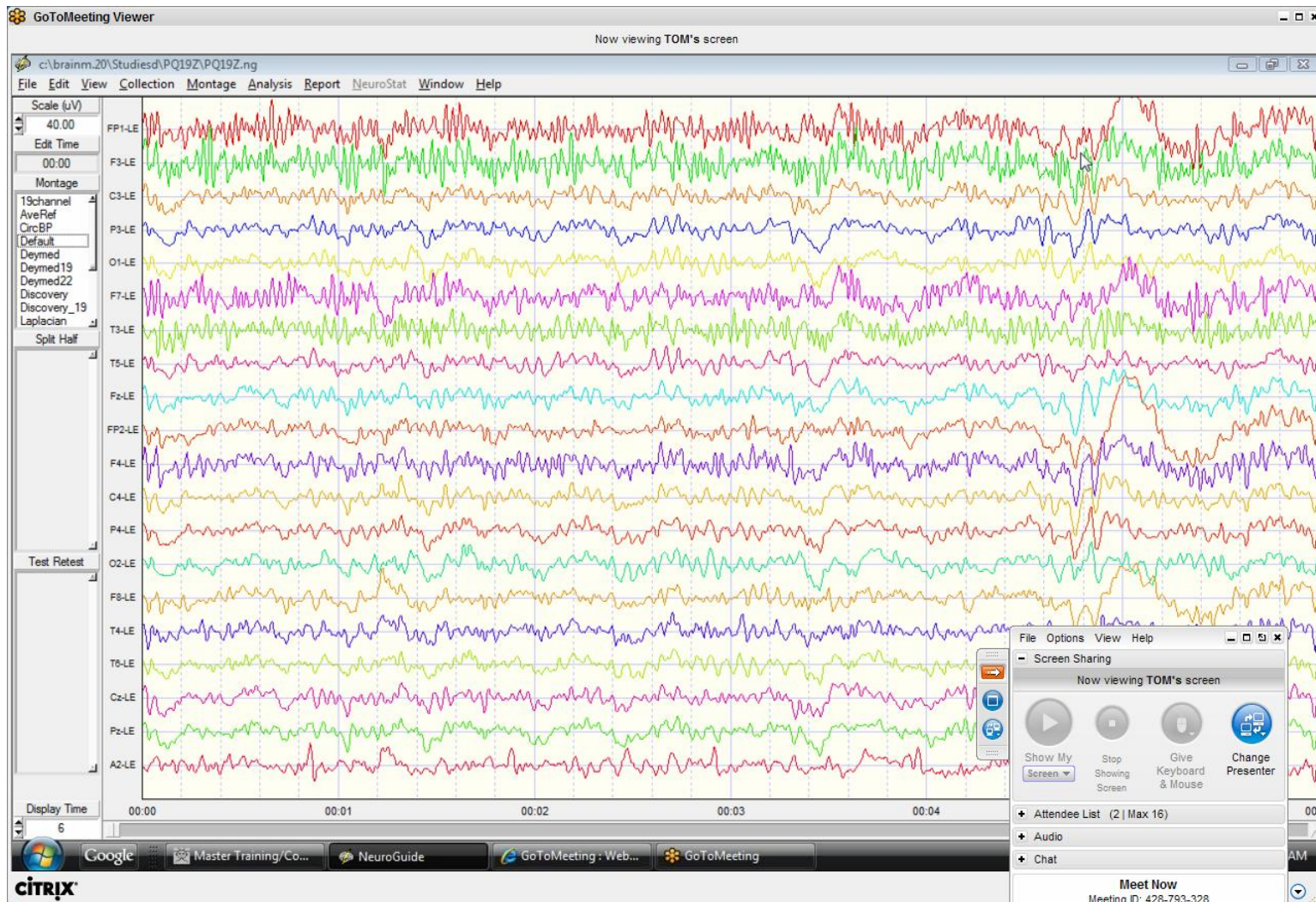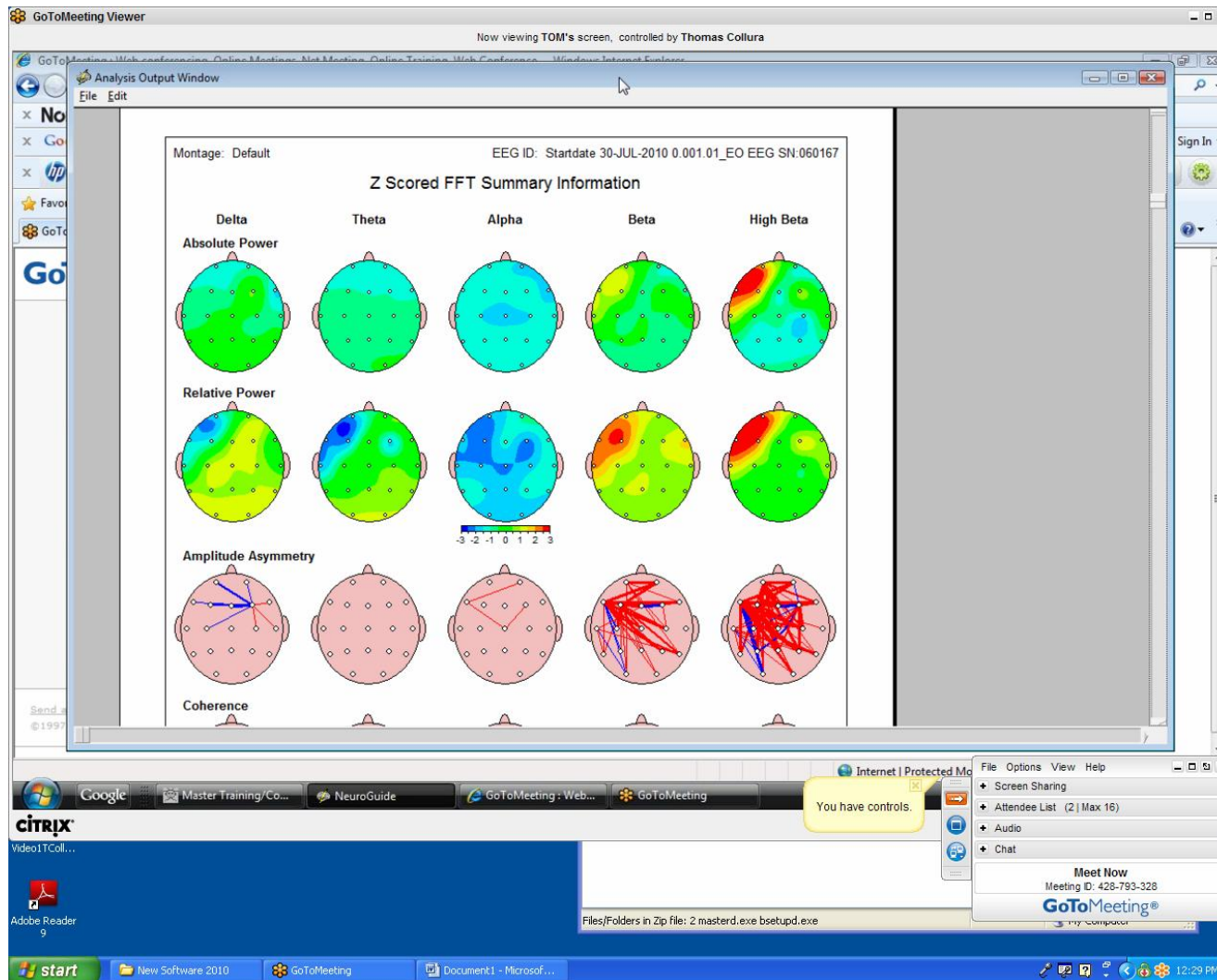Case Study from Dr. Tom Boone – August 8. 2010. This EEG has visible excess beta left frontal, and an overall deficit of alpha.

The left frontal beta excess and the overall alpha deficit are clearly shown in the topographic maps:

In the asymmetry maps, we see asymmetries that simply correlate with the amplitude abnormalities seen above. In the coherence maps, we see beta hypocoherence. However, this is only due to the fact that there is excess beta left frontal, and that this is disconnected with the rest of the brain. It is not necessarily an issue that there is any deficit of beta connectivity.
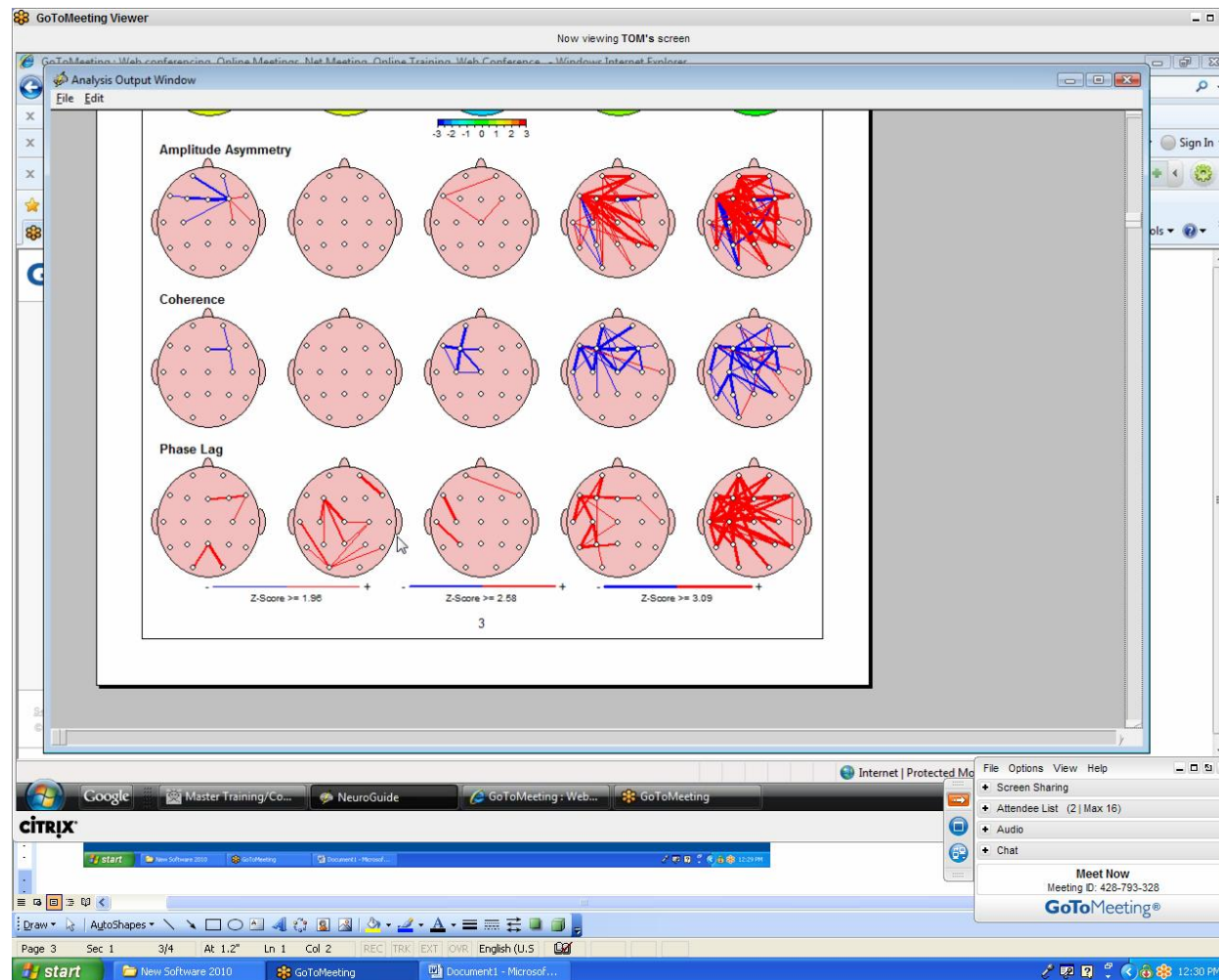
In the absolute power maps below, it is clear that the alpha deficit is mainly in the slow (8.0-10.0 Hz) alpha. The beta excess is also clearly shown to be between 25 and 30 Hz, consistent with the EEG tracings.
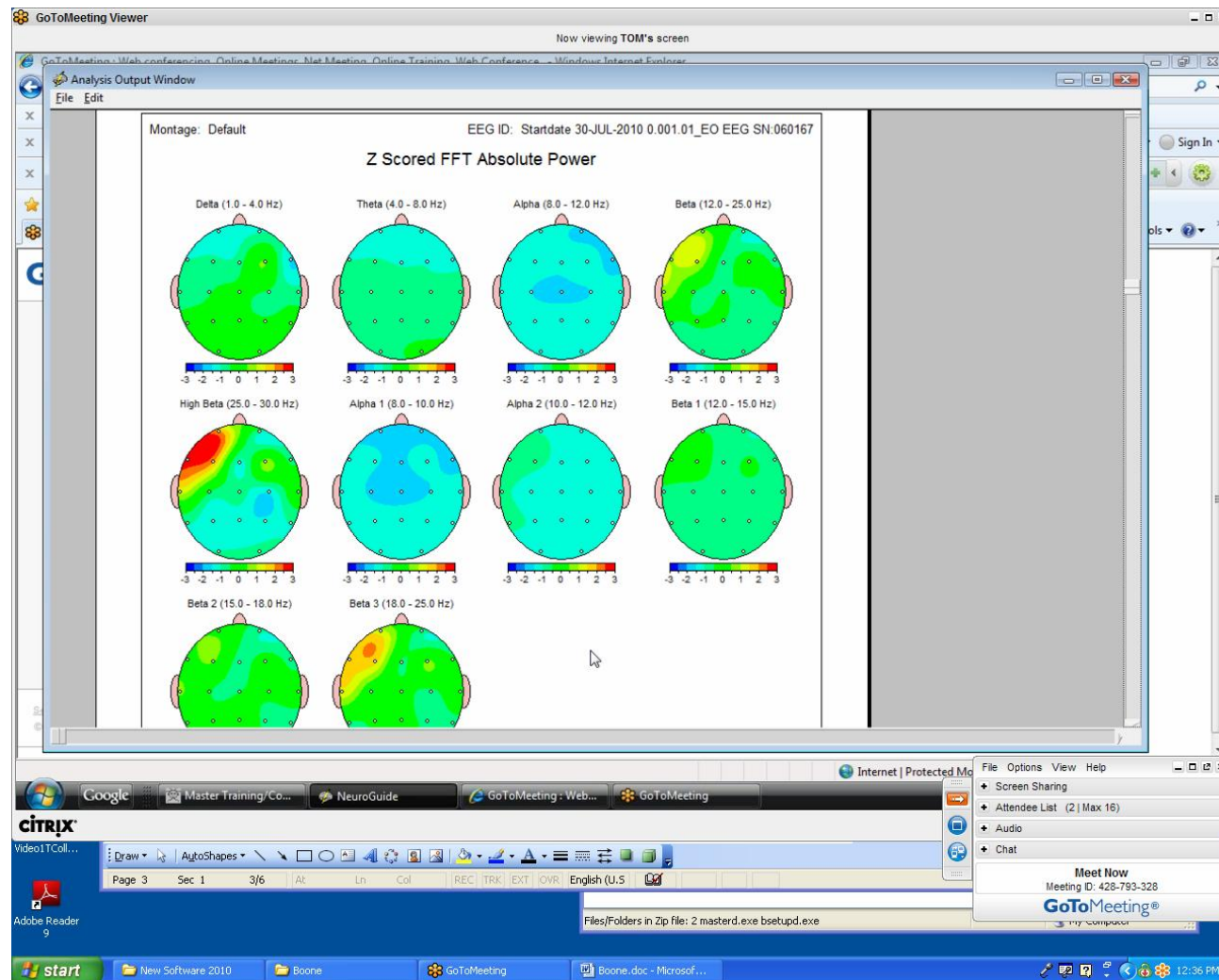
Recommendations:

Live Z-Score training will effectively normalize the amplitude abnormalities.

Using the 19-channel LZT software, sites and parameters can be chosen for training.

One can address the power abnormalities frontally by training absolute power toward normal using Live Z-Scores at the affected sites: Fp1 Fp2 F3 F4 F7 F8 C3 C4 P3 P4

If it is preferred to avoid the frontal mood and attention areas initially, one could start training more posteriorly: C3 C4 P3 P4 to normalize alpha first. In earlier neurofeedback with this client, emphasis was on the frontal areas, stabilizing beta on left and alpha on right. This resulted in an escalation of anxiety. This indicates that merely trying to re-establish the balance frontally is not a comprehensive approach.

The main goal of neurofeedback training should be to lower beta in the front, and raise alpha in back.

A simple approach would be to train F7 F8 C3 C4 Absolute Power in alpha and beta only.

It is recommended that coherence be NOT included in the training, as this could cause the brain to increase coupling in beta when the real goal is to reduce the beta excess in the left frontal area.