

## Summary of NeuroLynQ Reliability Study

### Study Goal

To understand sample-size requirements to generate reliable and repeatable results using NeuroLynQ.

### Study Description

Shimmer monitored 51 people during a standard ~20-minute TV sitcom using NeuroLynQ. A total of seven different sessions were run in a standard focus group facility. Between 4 and 10 people participated in each session. The participants were recruited by mall intercept with broad demographics – general population, male and female, between 18 and 60 years old. This study was designed to evaluate reliability in a real-world and highly cost-effective data collection setting.

Specific questions included:

- How big a sample size is needed to ensure the data will accurately represent a much larger data set?
- Can useful information be obtained from smaller sample sizes?

In evaluating these questions, our criterion was whether we would make similar decisions based on subsets of sessions as we would if it were based on the entire sample. Since NeuroLynQ's key metric is based on the percent of the audience responding, we looked at times where a relatively high percentage of the audience was responding and defined those as peaks.

### Summary Conclusions

**Running 3+ sessions with a total of ~20 people will provide a good representation of the data that would be obtained in running a sample that is 2-3 times as large.**

Some specific data points:

- Major peaks in the total sample are evident in subsets of sessions containing 17-23 people (average 20.3 people) ~98% percent of the time.
- Conversely, about 9% of peaks in the ~20-person subset data were not reflected in the total sample. It is not surprising that this “false positive” rate is higher than the “missed peak” rate. With fewer people and fewer sessions, the data will be more likely be affected by extraneous events (e.g., someone coughing, a loud laugh, etc).
- When we selected 2-3 people at random from each of the sessions to build a 20-person sample, the false positive rate dropped to 3%. More sessions will result in fewer false positives.
- On average, major peaks in the total sample are evident in each of the *individual* sessions (4-10 people) ~90% of the time.
- Finally, there was *never* a significant response in the total sample when response rate was low in subset samples down to 14 people.