PSCC Power Line Carrier – C93.5 Working Group Meeting Minutes

Leader: Craig Palmer (RFL)

Secretary: Tony Bell (Ametek)

Date: 9/22/16

Attendees: Craig Palmer, Tony Bell, Keith Houser & Mark Schroeder (Dominion), Don Lukach, Mark Majka, Addis Kifle, Rafael Garcia, Bruce Pickett, Jim O'Brien, Dom Fontana, Jeff Brown, Ian Tualla

C93.3 Line Trap Standard Update:
PAR expired at the end of 2015 and so a new PAR was applied for. We are up to ballot recirculation #4. Most of the comments were minor editorial comments. Erin of IEEE has instructed us to reject the comments as being out of scope as people were commenting on items that hadn't been commented on before. Bruce will send the standard to SA again within a couple of weeks.

C93.5 TX/RX PLC Standard Update:
The PAR was submitted about a week after the May meeting and we are awaiting the approval. The old draft of the ANSI standard has been moved into the new template by Craig and will be sent out after this meeting. Figures may need to be redone in Visio, if we can't obtain the figures from the old document from IEEE.

Discussed security and dependability parts of the standard. There needs to be a consistent specification that suppliers have in order for utilities to be able to compare equipment easily. Recommended changing the logic times from 1/3 and 2/3 of the max logic delay to be fixed values such as 4 and 8 msec. Also discussed the issue that if there is no occurrence of a false trip or missed trip in a certain minimum amount of time of continuous testing, to be determined (say 1 month), then other statistical methods could be used to come up with a value for security and dependability. Tony to present information on these methods before the next meeting. Finally discussed the statement in the existing document for Annex A appears to incorrectly state: *"Adding bulk delay to the channel increases the dependability for the same SNR at the expense of reduced security."* We agreed that the words dependability and security appear to be swapped and that this is probably a typo in the present standard.

C93.1 CCVT Standard Update: None available

New Business:
Distributed Generation Anti-Islanding Discussion
Keith Houser of Dominion presented the need in the distributed generation arena for a communications signal "heart-beat" for anti-islanding to see what help our group could offer in that area. The general consensus was that it would be difficult to do with power line carrier if the number of tapped lines is too great but PLC has been used in some applications with a limited number of taps. There was a lively discussion on other different technologies being tried with limited success. Discussed bringing this to the general committee to see if a task force should be assigned to this, or if this is either premature or outside scope of PSRC / PSCC.

Line Tuner bandwidth issue discussion – Jeff Brown of Georgia Transmission
Jeff reported finding that the frequency bandwidth for good reflected power is much lower than what is specified as the bandwidth of the line tuner. He was seeing 20-30% of reflected power after getting a few kHz away from center frequency for a single frequency line tuner when the stated bandwidth was as much as 80 kHz. He stated old Westinghouse manuals seemed to confirm the impedance getting worse

as you get away from the center frequency. Data to be presented at the next meeting and reviewed against C93.4.

Assignments (due by end of November)

Assignees to review the sections as listed below, for relevance and content. Is the section up-to-date? Could useful information be added? Have microprocessor-based transceivers added or made obsolete certain features? Could other IEEE documents be referenced for harmonization, clarity, etc? And any other comments or questions.

- Definitions of security/dependability – Don Lukach
- Unusual Service Conditions (section 4) – Mark Majka
- Security/Dependability (Ratings, testing, etc) – Tony Bell
- Ratings – Craig Palmer (Should IEEE 1613 be referenced or harmonized with?)
- New functionality/Migration from EM relays (Ratings) – Jeff Brown
- Testing (Section 6)– Tony Bell & Craig Palmer both to review whole section (including Production Testing)
- Manufacturing Requirements – Ian Tualla/Don Lukach
- Annex A – Tony Bell/Craig Palmer