

G5/4-1 Review Group

A Joint GCRP/DCRP Working Group

Date: Wednesday 2 March 2016

Time: 10:00 to 14:30

Location: Warwick Hilton - Stratford Rd, Warwick CV34 6RE

Attendees:

Attendee	Affiliation
Graham Stein	National Grid
Forooz Ghassemi	National Grid
Ben Gomersall	National Grid
Simon Scarbro	Western Power
Garry Cotter	Dong Energy
Andrew Oliver	TNEI
Lee Holdsworth	RES
Abram Perdana	RES
Frank Griffith	ABB
Steve Mould	UKPN
Roshan Bhattarai	Northern Power Grid
Ahmed Shafiu	Siemens
Will Monnaie	SSE
Patrick Osakue	National Grid
Sarath Wijesinghe	RWE
Ian Povey	ENWL
David Lyon	Blue Transmission
Davor Vujatovic	Vanda

Agenda

1. Introductions and Apologies
2. Progress Report and Way Forward
3. Review of Draft Document
4. Next Steps
5. Date and Time of Next Meeting
6. AOB

Minutes

1. Introductions and Apologies

- Welcome everybody.
- Apologies for delay since last meeting.
- Update on progress of G5/5. Danson has now left National Grid, FG restarted working on G5/5 based on comments submitted by working group members and National Grid's use of January 2015 draft.
- Discuss effect of ER G97.

2. Progress Report and Way Forward

- The aim of the presentation by FG was to:
 - Update on progress in NGET sub working group.
 - Review comments submitted.
 - Discuss the main objective of G5/5.
- FG presented the slide pack. A summary of the discussions is recorded here; any decisions by the working group or actions are highlighted.
- Modification of background at LV: single phase and three phase interaction not captured in G5/4. Also backgrounds impact on spectrum of emissions.
- Does G5/4 discuss modification of background? Not explicitly in document but is in supporting technical report ETR122. **Working Group decided modification of the background should be explicitly stated in G5/5.**
- Data exchange was a problem. This should be captured in ER G97. Including outage condition when background is measured. G97 has now been published. **Working Group noted ER G5/5 should not contradict ER G97.**
- FG clarifies when he talks about data exchange he is referring to reducing data needed from connectee to set limits.
- Similar issue about PCC not existing when setting limits.[hold until stage 3 discussion]
- FG proposal short standard and to put methodology in ETR122. Counter views also expressed. No decision reached.
- Way forward
 - Stage 1 & 2 from G5/4 still applicable with small modifications
 - Stage 1 same as G5/4 **[general agreement]** [comment to used older draft of G5/4]
 - Stage 2 follow same theme as G5/4 **[general agreement]**
 - Stage 3 re-written **[general agreement]**
- Time line [possibly optimistic]
- Discussion of how the new standard will affect "in flight" projects. **Working Group decided to include in final version a method that takes into account "in flight" projects.** Until G5/5 approved G5/4 stands.
- There needs to be more DNO input on stage 1 and 2. Is NGET best to write it? It was proposed that it was better to have something to present to the working group. All input is welcome.

- Stage 1
 - Why go up to 100th? 61000-3-12 says consider high order harmonics.
 - Network is non-linear at these frequencies
 - There is a IEC working group looking at high order harmonics
 - There are no compatibility levels at his frequency
 - Any compatibility levels would not be based on immunity levels.
 - **FG to produce proposal on going up to 100th at LV. Working Group to review. Compatibility level to be included in this document.**
- FG presented slides he asked for the work group to come to a decision or to provide comments after the meeting. **Comments Requested.**
 - Aggregation
 - How should 5th be treated?
 - Linear or 1.4?
 - Do we want to align with IEC or is UK different?
 - If stage 1 & 2 are “quick and dirty” should we use conservative value i.e. linear addition
 - **Working Group decided ~~suggested to keep~~ keeping current (G5/4) practice in stage 1. Review method for stage 2 & 3 later.**
 - Definition of PoC
 - Conflict between definitions
 - **Working Group decided to remove PoC and use PCC**
 - Intermediate voltage
 - Propose to remove IV in line with 61000-3-6
 - Do we want to define planning levels for all voltage levels explicitly?
 - **Working Group decided to use PLs that are the higher of IEC or G5/4.**
 - **Working group decided to explicitly define PL at different common voltage levels.**
 - Can we use the same PL at 132 and 400 kV?
 - Can CL and PL be the same?
 - How do we apportion the PL for different voltage levels?
 - Compatibility and planning levels
 - **Slide Accepted**
 - Non-compliant nodes
 - What to do if compatibility level is breached?
 - Is G5 a planning or power quality standard?
 - Does the NO have to comply with PL?
 - Who pays when CL are breached before connection?
 - **Unresolved. Comments welcome.**
 - Magnification factor
 - **Comments welcome**
 - Stage 3
 - **Method developed by RWE to be taken to into account. SW to submit method used.**
 - Is apportionment the preferred methodology?
 - **Not conclusive. Thoughts on how to determine the appropriate option welcome.**

Comment [NG1]: Comment received:
This was suggested not agreed.

3. Review of Draft Document

- Due to time limitations the document was not reviewed in the working group meeting.
Comments on the draft requested by end of March.

4. Next Steps

Request comments by all on:

- Slides presented in working group meeting
- Latest draft of G5/5

5. Date and Time of Next Meeting

- Next working group in 10-12 weeks [mid May]
- **BG to send doodle poll for date of next meeting. Proposed dates: 10/11/12 May**

6. AOB

Volunteers to take more active role in writing the text of the document:

- Davor Vujatovic
- Simon Scarbro
- Forooz Ghassemi