

# UK GTEM User Group

## Minutes of the meeting held at Schaffner Ltd on 28th Oct 2003

### **1. Present**

Roger Dixon (RD)	IFR Ltd [Chairman]
Ian Alderman	Consultant [Secretary]
Andy Perkins	Schaffner
Joe Wilkinson	University of Paisley
Richard Neyton	Apollo
Michael Davies	MTL
Angela Nothofer (AN)	NPL
Catherine Coomber	GCHQ
Gordon Young	Cooper Securities
Gill Phillips	Cooper Securities
Neil Coote	Nokia
Dave Riley (DR)	SAR
David Whiteley	RCA

### **2. Apologies received**

Phil Merewood  
Eddie Veater  
Farquhar Galbraith  
Tim Hague  
Prof Andy Marvin  
Howard Chetwin  
Harbinder Bharj [joint secretary]  
Martin Alexander  
Dennis Burns  
Alan Hutley  
John Wombwell  
John Birkett  
Derek Barlow  
Colin Howes

### **3. Chairman opens meeting**

The Chairman (RD) opened the meeting and welcomed all attending members, especially in view of the IEE and EMCTLA meetings which had also accidentally coincided that day.

### **4. Minutes Of The Last Meeting**

The minutes of the last meeting were accepted

Notes since that meeting included:

- Update mailing list
- Dave Imeson – SLIM Initiative publication date expected 2005/6 (for copy of original document with timetable for implementation email to RD)
- 61000-4-3 revision issue which would effectively disallow the use of GTEM's to be accredited to the standard if it is voted through - Dave Imeson proposed to take to EMCTLA WG(C) which is also meeting today.
- 61326 Revisions proposals – Jim Duck says the Standard will be split in 3 parts; Part 1 General, Part 2 Product Specific, Part 3 Functional Safety. The draft part 1 includes frequencies up to 2.7GHz (two point seven) and says that this is based on proposals for the Generic Standards (subject to approval)

## 5. Exchange of news and update on previous meeting topics

**Emissions Testing** – The previous meeting had discussed the idea of circulating emissions test procedures of those companies willing to do this as a means of creating within the group a common approach agreeing a GTEM UG procedure. There had been no procedures forthcoming so far but the issue surrounding emissions testing was discussed such as size constraints, cable layout and the use of ferrites. Joe Wilkinson commented on the test equipment operation bias of their procedure and thought we needed something different - the Chairman took a copy to consider.

### RF Immune materials

- Dave Riley mentioned 'Rohacell' a material which he had used.
- 'Floormate 500' Nokia use this material. AN will try to get the dielectric properties of this Styrofoam material measured. It is cheap and light weight.
- Try samples in a microwave oven! (protect the oven with a styrofoam cup of water)
- Howard Chetwin had submitted some measurements he had made on several materials and in particular the effects of wooden jigs in the GTEM. The results clearly showed a marked effect above 600MHz with significant variation in the field strength of the order of 5V/m and more.

**Best Practice Guide** – is freely available from January 2004. Prior to this date copies are available from NPL (email Sara Fletcher). Paper copies £50 from NPL.

### NPL New Work Program

Angela Nothofer described the proposed 3 year program to refine GTEM measurements < 1GHz emissions and immunity including cabling effects  
> 1GHz – 10GHz ideas welcome from the group!

### Functional safety

Proposals for testing...

80MHz to 1GHz	@	20V/m
1GHz to 2GHz	@	10V/m
2GHz to 2.7GHz	@	3V/m

### Moving the NPL GTEM

TDR measurements were taken before the GTEM was moved by Schaffner and were seen to be very flat up to 1GHz but after the move NPL's TDR revealed disturbances at regular distances apparently due to joint contact quality.

## 6. FIELD MEASURING PROBES - PAST, PRESENT AND NEW POSSIBILITIES FOR SAR/EMC

DAVID RILEY formerly of Chase now working in SAR – Specific Absorption Rate – special field probes. DR described a new development of a field probe with fast (2ms) access time, independent and simultaneous xyz reading and zero phase shift. The probe has correspondingly good isotropy both axially and radial.

Performance so far is good to 1GHz, with uncertainty increasing to around  $\pm 2$ dB at 2GHz and at 3GHz increases to around  $\pm 6$ dB. Performance approaches a true spherical plot and its speed of response at 2ms is an order of magnitude better than some of the best probes on the market at the moment.

Availability is expected to be around 2 months. The probe can at the moment cope with modulation frequencies up to 400Hz but will need a faster cpu to achieve 1kHz mod. Costs will be competitive with other similar spec field probes.

## **7. POWER FLUX DENSITY – BEST PRACTICE GUIDE.**

Phil Merewood was unable to attend from NPL but AN gave an outline of this latest publication due from NPL. The guide will be published before the next meeting and the suggestion is that Phil Merewood be invited to talk about this at a future meeting.

## **8. IEEE Project on GTEM Cells**

Farquhar Galbraith is hoping to attend the forthcoming IEEE committee meetings, also Angela Nothofer intends to be a correspondent. This is expected to be a major project that we need to monitor in coming years.

## **9. THE FUTURE AND AIM OF THE GROUP**

After some discussion, and in the light of the new work program being undertaken by the NPL, it was agreed that the group could anticipate a useful function for a possible further 3 years.

## **10. THE USE AND MAINTENANCE OF THE WEB SITE**

Alan Hutley had sent his apologies but with the kind offer to redesign the web site. He had also sent a video presentation on the New Exhibition and Conference that he is promoting for this year EMC UK 2004 Tue 13<sup>th</sup> and Wed 13<sup>th</sup> October. He went further in offering us a meeting venue in London if we were ever stuck. The meeting received all these items with interest and thanks. We will take up some of these kind offers in the future.

## **11. Exchange of information from commerce, industry and academia.**

Schaffner have produced a paper on the discrepancies between FAR's

Standards

- No proposals currently to extend the emissions upper limit beyond 1GHz
- Changes to drop-outs and dips – 80% dip
- No change to ESD
- EFT Burst standard to change repetition frequency from 5kHz to 100kHz.

## **12. Next meetings**

The next two meetings were provisionally set for Tuesday 3<sup>rd</sup> February 2004, and Tuesday 1<sup>st</sup> June 2004.

## **13. Close**

The Chairman on behalf of the group thanked Andy Perkins and Schaffner EMC for their kind hospitality in hosting the meeting.