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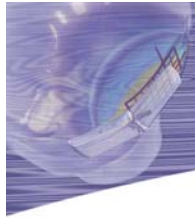
Specific Absorption Rate (SAR) Standards Status

RABC Meeting June 2007

Presented by Stuart Nicol

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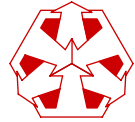
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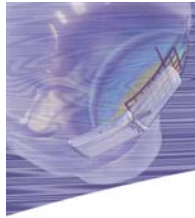
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Some of the Known RF Exposure and Measurement Standards

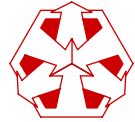
- IEEE (USA & International)
- ICNRP, NCRP
- IEC (International)
- CENELEC (Europe)
- HC, IC, RABC, Spectrum Sciences Institute (Canada)
- Australia/New Zealand Standards(Australia)
- MIC (Korea)
- ARIB (Japan)
- IDA (Singapore)
- Other “derivative” country standards (China, Taiwan, Russia, Mexico, Brazil...)



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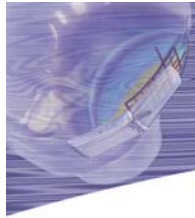
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Published Experimental Measurement Methodology Standards

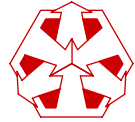
- IEEE 1528 “Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques” (APREL Laboratories have 4 staff members recoded in the standard as technical contributors)
- IEC 62209 “Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 1: Procedure to determine the Specific Absorption Rate (SAR) for hand-held devices used in close proximity of the ear (frequency range of 300 MHz to 3 GHz)”



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IEEE P1528b ICES TC34 SC2

PAR's Approved 22nd September 2005

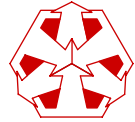
- P1528b - Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques. Amendment 2: Additional Procedures for SAR Measurement at 3 - 6 GHz



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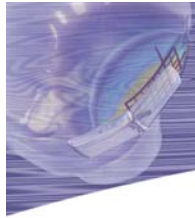


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IEEE P1528 Part II

PAR's Approved 22nd September 2005

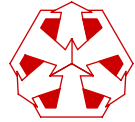
- P1528.2 - Recommended Practice for Determining the Peak Spatial Average Specific Absorption Rate (SAR) in the Human Body from Wireless Communications Devices, 30 MHz - 6 GHz: Specific Requirements for Finite Difference Time Domain (FDTD) Modeling of Vehicle Mounted Antenna Configurations



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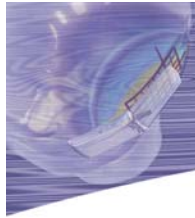
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IEEE P1528 Part II

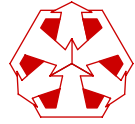
- P1528.2 - Recommended Practice for Determining the Peak Spatial Average Specific Absorption Rate (SAR) in the Human Body from Wireless Communications Devices, 30 MHz - 6 GHz: Specific Requirements for Finite Difference Time Domain (FDTD) Modeling of Vehicle Mounted Antenna Configurations



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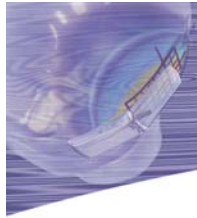
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IEEE P1528b Status

- Draft was issued for ballot February 2007
- Ballot was registered on April 10th 2007
- Draft was approved with comments which were both technical and editorial
- FCC issued a formal critique which was released by the chairman on 16th April 2007 of both experimental and computational standards



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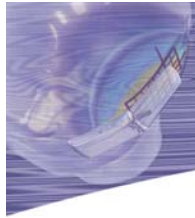
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IEEE P1528b Status

- 16th April 2007 ballot results are released
 - Approve with comments = 21
 - Abstain = 2
 - Object with comments = 1



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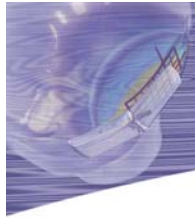
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IEEE P1528b Status

- FCC reject P1528b draft standard
 - FCC issue 80% of comments relating to draft
 - FCC do not accept that the standard is ready to be released
 - FCC have concerns over 1528 published standard
 - FCC state that the frequency extension from 3GHz to 6GHz should be delayed
 - FCC want focus of working group to be on resolving issues from the published 1528 standard



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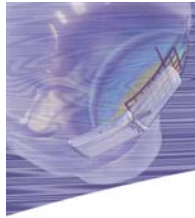
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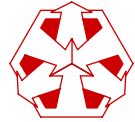
- FCC issues concerning standard
 - Tissue types used
 - Probe calibration methodologies for UMTS, WCDMA, OFDM and other high BW signals
 - Frequency response for probes
 - Noise floor uncertainty
 - Measurement process and hardware (probes etc)
 - Averaging and extrapolation used for calculations



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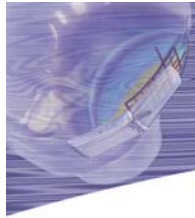
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FCC Stance

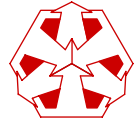
- FCC have stated that if the standards communities and manufacturers can not resolve the issues brought forward by them in the comments issued with regards the draft standard they will issue methodologies developed within the FCC and expect all parties who want approvals for product in the USA to follow them



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1528b Way Forward

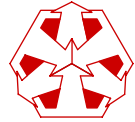
- Chairman has held weekly calls to try and resolve FCC concerns
- Some changes concerning methodologies have been fast tracked through i.e. probe diameter
- An invitation to hold a round table meeting with the FCC and industry has been made
- Face to face meeting in Kanazawa Japan 15th and 16th June 2007



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1528 Forth Coming Meetings

TC34/SC2 Meeting Schedule

- Aug. 21, 2007 8-10 EDT conference call
- 1st or 2nd week of October 2007, Washington DC at the new FDA Campus
- Dec. 2007, 8-10 EDT conference call
- Feb. 2008, FCC labs, Columbia
- 1st week of April 2008, 8-10 EDT conference call
- End of May or begin of June 2008, Shanghai, China, in conjunction with the 2nd International Conference on Bioinformatics and Biomedical Engineering (ICBBE 2008)
- Aug., 2008 8-10 EDT conference call