

## Publications Cornelis Jan Kikkert

### PhD Thesis

Kikkert, C. J. 'Digital techniques in Delta Modulation' PhD thesis Adelaide University, February 1972.

### Book

Douglas A. Pucknell, 'Fundamentals of Digital Logic Design', Prentice Hall, 1989. Material on asynchronous sequential logic, pp. 246-254 and Appendix 1, 'The Design of phase detectors using the logic signal flow graph' pp. 439-446, by C. J. Kikkert.

### Patents

Kikkert, C. J. and the University of Adelaide, 'A method for improving modulation efficiency', Aust. Patent no. 34963/71, October 1971.

Kikkert, C. J. and Marconi Instruments, 'Improvements in or relating to modulated signal sources', GB Patent application No. 7942909, 12 December 1979. Patent GB2059697, 23 April 1981, published 20 July 1983. USA patent application 009899, USA patent 432036116, 16 Mar 1982, German Patent No2950935, 12 Feb 1981.

Kikkert, C. J. and GEC Avionics 'Beam Steering' US patent application 246335, European application 88307573.1, European Patent 305099, 1 March 1989, Canadian patent application 575850, UK Patent application No 8720339, 28 Aug. 1987. UK patent 2209247, 4 May 1989.

Kikkert, C. J. and GEC Avionics 'Weighting network' UK Patent application No 8818204, 30 July 1988. UK patent 221362, 31 January 1990.

Thomas N., Brown H and Kikkert C. J., 'A Spectrum Analyser', GB Patent Application, 962342.6, 7 November 1996.

Thomas N., Brown H and Kikkert C. J. (Inventors). Marconi Instruments Limited (Applicant) "A Spectrum Analyser", European Patent Application 97308476.7-2211, date 23.10.97, with priority GB/07.11.96/ GB 962342. This application has been filed in Japan, and the USA.

Kikkert C. J. and J. Kraus (Inventors), Rohde & Schwarz GmbH & Co. KG (Assignee and Applicant) European patent application 04 000 859.1 "Method and apparatus for determining the group delay caused by a device under test", Filing date 16 January 2004, priority 12 September 2003.

Kikkert C. J. (Inventor) Rohde & Schwarz GmbH & Co. KG (Assignee and Applicant) European patent application 04 013970.1 "Method and Apparatus for determining the phase distortion of a device under test using a spectrum analyser." Filing Date 15 June 2004, Priority Date 13 February 2004.

### Refereed Publications

Kikkert, C. J. 'Digital techniques in Delta Modulation', I.E. Aust. Data Transmission Conference, Brisbane, June 1970.

Kikkert, C. J. 'Digital techniques in Delta Modulation', IEEE Trans. Comm. Tech. Vol. Com 19, no. 4, Aug. 1971. pp. 570-574.

Kikkert, C. J. 'Measurements of quantisation distortion for random inputs', Proc. IREE (Aust) Vol.32, No. 12, December 1971, pp. 459-464.

Kikkert, C. J. 'Digital companding techniques', IE Aust and IREE Electronic Instrumentation Conference, Hobart, 1972. Conference Digest pp. 52-56

- Kikkert, C. J. 'Digital companding techniques', IEEE Trans. Comm. Vol. Comm 22, no. 1, Jan. 1974, pp. 75-78
- Kikkert, C. J. 'A comparison of code modulation systems', 14th National Radio and Electronics Convention, Melbourne, 1973.
- Kikkert, C. J. 'A comparison of Code Modulation Systems', Proc. IREE Vol. 36, No. 3, March 1975, pp. 44-48.
- Kikkert, C. J. and Miller, D.J. 'Asynchronous Delta Sigma Modulation (ADSM)', Radio Research Board symposium on Satellite Communications in Australia, Melbourne, May 1974.
- Kikkert, C. J. and Miller, D.J. 'Asynchronous Delta Sigma Modulation' Proc. IREE, Vol. 36, No. 4, April 1975, pp. 63-88.
- Kikkert, C. J. 'Binary processing of analogue signals', IREE International. Electronics '75 conference, Sydney, Aug. 1975.
- Kikkert, C. J. 'Digital processing of analogue signals', IREE International. Electronics '75 conference, Sydney, Aug. 1975, Conference Digest pp. 313-315.
- Kikkert, C. J. 'Binary processing of analogue signals', Monitor Proc. IREE, Vol. 37, No. 8, pp. 265-269, Aug. 1976.
- Kikkert, C. J. 'ADSM-FM - A new method for generating frequency modulation', IREE CON. International Melbourne, Aug. 1977, Conference Digest pp. 212-214.
- Kikkert, C. J. 'ADSM-FM - A new method for generating frequency modulation', Monitor Proc. IREE, vol 39, no. 10, pp. 151-156, November 1978.
- Kikkert, C. J. 'An AM/FM modulation standard', IEE Conference on Radio Transmitters and Modulation Techniques, London, March 1980.
- Kikkert, C. J. 'A new method for generating frequency modulation', IEE Conference on Radio Transmitters and Modulation Techniques, London, March 1980.
- Kikkert, C. J. 'Frequency modulation with low distortion', Australian Electronics Bulletin, October 1980, pp. 10-13.
- Kikkert, C. J. 'New method for generating frequency modulation', Proc. IEE, Vol. 128 P&F no. 3, June 1981, pp. 135-139.
- Kikkert, C. J. 'An AM/FM calibrator with a traceable accuracy', IREE CON. International, August 1981, Melbourne, Conference Digest pp. 341-343.
- Kikkert, C. J. and P. C. Grieshaber, 'The distortion of frequency modulated broadcast signals caused by intermediate frequency filters', IREE CON. International August. 1981, Melbourne, Conference digest pp. 135-137.
- Kikkert, C. J. 'AM/FM modulation standard', Proc. IEE Vol. 128 P&F no. 6, November 1981. pp. 379-384.
- Kikkert, C. J. 'An ultra low distortion FM exciter', Australian Electronics Engineering, Vol 15, no 10, October 1982, pp 56-64.
- Kikkert, C. J. 'Distortion produced by IF filters in FM receivers', IREE CON International Sydney '83, September 1983, Conference Digest pp. 180-182.
- Kikkert, C. J., G. Allen, and B. Bowthorpe, 'Satellite Transmission Rain Attenuation Project', National Space Engineering Symposium, Oct 1984, Canberra, Conference Digest pp 7.1.1-7.1.9.
- Kikkert, C. J. 'The measurement and calculation of distortion introduced by IF filters in FM radios', IE (Aust) Conference on Measurement Instrumentation and Digital Technology, Melbourne, November 1984, Conference Digest pp. 81-85.
- Bowthorpe, B. and C. J. Kikkert, 'Microwave phenomena in a tropical environment', paper presented IREE CON International Melbourne '85, September 1985, Conference Digest pp. 488-491.

- Kikkert, C. J. 'Vestigial sideband stereo coding for FM broadcasting' paper presented IREE CON International Melbourne '85, September 1985, Conference Digest pp. 409-412
- Kikkert, C. J. and G. Smith, 'FM Broadcasting System' IREE and IE (Aust) MicroElectronics Conference, Adelaide, May 1986, Conference Digest pp. 21-28.
- Kikkert, C. J., G.H. Allen and F. Chan, 'Design and Commissioning of Radiometer Logging equipment' ANZAAS congress, Townsville, August 1987.
- Kikkert, C. J. 'A Low Loss Low Cost Stripline Filter' Paper presented IEE Colloquium on advances in Microwave Filters and Multiplexers. London May 1987.
- Kikkert, C. J. 'The JCUMetSat Weather Satellite Receiving system. IREECON 89, Melbourne, Sept 1989, Conference Digest pp. 918-921.
- Kikkert, C. J. G. Woods, and J. Cutmore, 'The measurement of Molten Copper Levels during Casting' RadarCon 90, Adelaide, April 1990. Conference Digest pp. 399-405.
- Kikkert, C. J. 'The Design of a 12 GHz Beacon Receiver', Mobile Satellite Communication Conference, Adelaide August 1990
- Bowthorpe, B.J. F. B. Andrews, C. J. Kikkert, et al 'Elevation Angle Dependence in Tropical Regions' International Journal of Satellite Communications. Vol 8 1990.
- Bowthorpe, B.J. G. H. Allen, C. J. Kikkert, et al 'Frequency scaling of Slant-Path Attenuation in Tropical Regions' International Journal of Satellite Communications. Vol 8 1990.
- Arlett, P.L., B. J. Bowthorpe, C. J. Kikkert, and T. G. Snow, 'Site Diversity Performance at 11.6 GHz in an Area Subject to Cyclonic Conditions' URSI Commission F Special Open Symposium on Regional Factors in predicting Radiowave Attenuation due to Rain. Rio de Janeiro, December. 1990, pp 85-90.
- Kikkert, C. J. 'The Design of a 12 GHz Satellite Beacon Receiver', IREECON 91, Sydney, September 1991, Conference Digest pp 150-153.
- Woods G.S. Maskell, D.L. Kikkert, C. J. and J. Cutmore, 'Microwave Height Measurement Systems for Industrial Applications. IREECON 91, Sydney, September 1991, Conference Digest pp 337-380.
- Kikkert, C. J. and G. S. Woods, 'The Measurement of Molten Metal levels during Casting', Asia Pacific Microwave Conference, Adelaide, August 1992, Conference Digest pp 867-870
- Kikkert, C. J. 'The Design of a 12 GHz Narrowband, Low Noise Receiver', Asia Pacific Microwave Conference, Adelaide, August 1992, Conference Digest pp 809-812
- Kikkert C. J. 'Software for Receiving and Displaying Weather Satellite Pictures' Australian Computer Society 1993, Queensland Branch Conference, Townsville, July 1993, Conference Digest (ISBN 0 64615083 9), pp 93-98.
- Woods, G. C. J. Kikkert, and D. L. Maskell, 'Design of a microwave radiometer used for temperature measurements in harsh conditions.' Asia Pacific Microwave Conference, Tokyo, Japan, December 1994, Conference Digest pp 473-476.
- Kikkert C. J. 'Improving ADC performance by Adding Dither.', 13th Australian Microelectronics Conference, Adelaide, July 1995, pp 97-102
- Kikkert C. J., B. J. Bowthorpe and G. H. Allen, 'Satellite Beacon Receiver Improvement using Digital Signal Processing', The Fourth International Symposium on Signal Processing and its Applications( ISSPA96), Gold Coast, 25-30 August 1996, Conference Digest pp 517-520, ISBN 1-86435 209 4 (Vol1) and 1 86435 210 8 (Vol2).
- Twelves S. and C. J. Kikkert, 'A Digital Stereo FM Modulator', Electronic Letters, Vol 32, No18, 29 August 1996, pp 1641-1642,
- Twelves S. and C. J. Kikkert, 'A Digital Stereo Generator incorporating a Pilot Look-up Table', The 6<sup>th</sup> Australian Regional Convention of the Audio Engineering Society, Melb. 10-12 September. 96, Conference Digest pp 281-289.

- Twelves S. and C. J. Kikkert, 'Investigation into the Effects of Quantisation noise on a Digital FM Modulator' TENCON Digital Signal Processing Applications Conference, Perth, 27-29 Nov. 1996, Conference Digest pp 317-322, ISBN 0-7803-3679-8.
- Twelves, S. and C. J. Kikkert, 'Performance of a Digital Stereo FM Modulator with Reduced Output Resolution', IEEE Transactions on Broadcasting, Vol. No. 43, No 1, Conference Digest pp 292-298, March 1997.
- Kikkert, C. J. and A. Bigdeli, 'Hardware Additive Dither for Analogue to Digital Converters', 14th Australian microelectronics conference (Micro '97), 29 September-1 October 1997, Melbourne, Australia, pp. 156-161.
- Kikkert, C. J. and B. J. Bowthorpe, 'A Satellite Beacon Receiver Using Digital Signal Processing Techniques', 14th Australian microelectronics conference (Micro '97), 29 September-1 October 1997, Melbourne, Australia, Conference Digest pp 12-17.
- Kikkert, C. J., B. J. Bowthorpe, and J. T. Ong, 'A DSP based Satellite Beacon Receiver and Radiometer', 1998 Asia Pacific Microwave Conference, Yokohama, Japan, 8-11 December 1998. Conference Digest pp 443-446.
- Kikkert, C. J. "A Spread Spectrum Network Analyser" accepted for presentation at ISSPA99, Fifth International Symposium on Signal Processing and its Applications, August 22-25, 1999, Brisbane, Australia.
- Kikkert, C. J. and C. Blackburn "Demodulating Binary Phase Shift Keyed Signals Using Programmable Logic Devices" accepted for presentation at ISSPA99, Fifth International Symposium on Signal Processing and its Applications, August 22-25, 1999, Brisbane, Australia.
- Kikkert, C. J. and A. Bigdeli "Frequency Shift Dither For Analogue To Digital Converters" accepted for presentation at ISSPA99, Fifth International Symposium on Signal Processing and its Applications, August 22-25, 1999, Brisbane, Australia.
- Lawrey, E. and C. J. Kikkert "Peak to Average Power Ratio Reduction of OFDM Signals using Peak Reduction Carriers" accepted for presentation at ISSPA99, Fifth International Symposium on Signal Processing and its Applications, August 22-25, 1999, Brisbane, Australia.
- Kikkert, C. J., B. J. Bowthorpe and J. T. Ong, "Improvements To A DSP Based Satellite Beacon Receiver And Radiometer", ICICS99, Second International Conference on Information, Communications & Signal Processing, December 7-10, 1999, Singapore.
- Kikkert, C. J. and C. Blackburn "Digitally Demodulating Binary Phase Shift Keyed Data Signals." ICICS99, Second International Conference on Information, Communications & Signal Processing, December 7-10, 1999, Singapore.
- Lawrey, E. and C. J. Kikkert "Adaptive Frequency Hopping For Multiuser OFDM", ICICS99, Second International Conference on Information, Communications & Signal Processing, December 7-10, 1999, Singapore.
- Kikkert, C. J. and A. Bigdeli, "Reducing Distortion in Microwave Analogue to Digital Converters" 2000 Asia Pacific Microwave Conference, Sydney, December 2000.
- Lawrey, E. and C. J. Kikkert "Maximising Signal Strength Inside Buildings For Wireless LAN Systems Using OFDM, 2000 Asia Pacific Microwave Conference, Sydney, December 2000.
- Lawrey, E. and C. J. Kikkert "Maximising Signal Strength for OFDM Inside Buildings, IEEE Transactions MTT Vol49, No 11, pp2131-2136, November 2001.
- Kikkert, C. J, "Dynamic range improvements of a beacon receiver using DSP techniques" URSI Commission F Triennium Open Symposium, Cairns, Australia, 1-4 June 2004.

- Kikkert, C. J, and P. Fitch, "A Low Cost Multi Frequency Landmine Detector", URSI Commission F Triennium Open Symposium, Cairns, Australia, 1-4 June 2004.
- Willis, S, and C. J. Kikkert, "Radio Propagation Model for Long-Range Ad-hoc Wireless Sensor Network", WirelessCon 2005, Maui, Hawaii, USA, 13-16 June 2005.
- Kikkert, C. J. "Designing Low Cost Wideband Microstrip Bandpass Filters", IEEE Tencon '05, Melbourne, Australia, 21-24 November 2005.
- Kikkert, C. J. "Dual Coupled Resonator Local Oscillator", IEEE Tencon '05, Melbourne, Australia, 21-24 November 2005.

### Other Publications

- Kikkert, C. J. 'Properties of FM Exciters', PBAA Technical notes 1985.
- Kikkert, C. J. 'A phase detector suitable for digital communications', paper presented at RRB symposium on Digital Communications, Sydney, December 1977.
- Kikkert, C. J. 'The JCUMetSat Weather Satellite Receiving System', 5th Australasian Remote sensing conference. Perth, West Australia, October 1990.
- Piper B. and Kikkert C. J. 'The hardware design for the reception of GMS SVISSR Weather Satellite Signals', Paper presented at the workshop on Applications of Radio Science, Canberra, June 1995.
- C. J. Kikkert, Ong Jin Teong, "Fundamental Aspects Governing Beacon Receiver and Radiometer Measurements", Paper presented at Progress in Electromagnetics Research Symposium, PIERS 2003, January 7-10, Singapore.

### Technical Manuals for Commercial Products

- Kikkert, C. J. and TBC 'TBC-KIKKERT 30 Watt FM Exciter', Instruction Manual, 1982, 70 pages.
- Kikkert, C. J. and Reid, G. 'The JCU STRAP Beacon Receiving System Reference Manual' James Cook University of North Queensland, November 1990, 50 pages.
- Kikkert, C. J. Payne, M and Reid, G. 'The JCU STRAP Beacon Receiving System Reference Manual' James Cook University of North Queensland, (2<sup>nd</sup> Ed) June 1993, 69 pages.
- Kikkert, C.J 'The JCUMetSat Weather Satellite Receiving System Reference Manual (Version1.3)' James Cook University of North Queensland, March 1991, 50 pages
- Kikkert, C.J'The JCUWeatherView Reference Manual' James Cook University of North Queensland, June 1990, 32 pages
- Kikkert, C. J. 'The JCUWeatherViewPC Reference Manual (Version1.0)' James Cook University of North Queensland, October 1992, 60 pages
- Kikkert, C. J. 'The JCUMetSat Weather Satellite Receiving System Reference Manual (Version2.0)' James Cook University of North Queensland, September 1993.
- Kikkert, C. J. and Bowthorpe, B, 'The JCU STRAP Satellite Beacon Receiver Reference Manual', DSP Receiver Supplement, March 1998.

### Reports for Industry

(only reports with more than 30 pages are included)

- Kikkert, C. J. 'Measurements of intermodulation distortion in IF filters and FM radios', To Department of Communications, Aug. 1984. 80 pages.
- Kikkert, C. J. 'Report on the Selection of a Mobile Radio System and Flood Reporting System for the Burdekin Shire Council', May 1985, 38 pages.
- Kikkert, C. J. 'Modern Digital Modulation Techniques and their applications in Communication Systems', For Marconi Instruments. (Company Confidential), February 1994, 33 pages.

- Kikkert, C. J. 'AD9026 12 bit 31 Msps ADC Evaluation', For Marconi Instruments. (Company Confidential), 2 Aug 1994, 73 pages.
- Kikkert, C. J. 'Modulation Dither for Analogue to Digital Converters', For Marconi Instruments. (Company Confidential), 14 Nov 1994, 64 pages.
- Woods, G. and C. J. Kikkert, 'Radio Communications for Burdekin Cane Transport', For CSR Ltd, 24 March 1996, 40 pages.
- Kikkert, C. J. and A. Bigdeli 'Analogue to Digital Converter Studies' For Marconi Instruments (IFR Ltd), 11 reports covering the period July 1996 to July 1999. These reports are part of IFR's sponsorship of the research on Analogue to Digital Converters. About 800 pages.
- Kikkert, C. J. "SMU predistortion implementation" Report for Rohde&Schwarz, Munich, Germany, 13 September 2003, 40 pages.

### **Electronic Publications (70 per week)**

The JCUMetSat Weather Satellite Receiving system operated by me at James Cook University produces weather satellite pictures 8 times per day and places 1820 of these pictures per week in a public domain area on the university's ftp area at [ftp.jcu.edu.au](ftp:jcu.edu.au) and [ftp.ece.jcu.edu.au](ftp:ece.jcu.edu.au). These Weather Satellite images are accessible from <http://www.jcu.edu.au> and <http://www.ece.jcu.edu.au>. Currently there are in excess of 33,000 accesses per week of the [www.ece.jcu.edu.au](http://www.ece.jcu.edu.au) area alone. The above web pages are linked to by more than two hundred other web pages around the world, as can be verified by putting *link JCUMetSat* in the search expression at google.

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