

CURRICULUM VITAE

Timothy Paul Jarvis BSc CEng MIET MIEEE
Chartered Engineer

31 January 2012

OF

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KEY EXPERTISE SUMMARY

Radio Frequency Design
Design for EMC Compliance
RF & EMC Troubleshooting
ETSI EN drafting and committee work
Small Business Management

Analogue Electronics Design
Digital Signal Processing (DSP)
Antenna Design
RF system specification
Project Leadership and Technical Management

1 GENERAL INTRODUCTION

I am fifty years old! I'm remarried with six children, all grown up. I was born in central Birmingham in August 1961. I grew up on a farm in rural Somerset. I obtained my bachelors degree at the University of Hull, graduating in 1983.

I have worked in the electronics industry for twenty-eight years. I am member of the IET and IEEE and a chartered engineer.

During my career I have resisted pressure to migrate from engineering to a purely management role and operate best either as a team leader or solo engineer. Currently I am an independent Radio and EMC engineer having founded my company RadioCAD (www.radiocad.com) ten years ago.

In the first five years of my career I was an RF and analogue electronics engineer working on various sonar systems. As these analogue systems migrated to DSP in the late eighties so I migrated to high-speed computer design and thereby the telecommunications industry. From there I became an embedded 'C' programmer writing protocol stacks and other code for radio-telecom systems. In 1997, following the failure of my first company J.E.T; I needed a change of direction. I brushed up my RF skills at Bradford University (part MSc course) and returned to my first love, RF. Now I refuse to entertain software development, sub-contracting all the software work I get to others. I find contentment developing radio modules, tuners, etc. and troubleshooting other people's radio and EMC problems.

My hobbies include: poetry, music, motorcycling (especially vintage motor cycles), swimming and cycling. I play piano and sing. I am a dedicated Christian and the worship leader at my local church.

In 1977 I was a finalist of the "Young Engineer of Britain" at the age of 16.

2 EDUCATIONAL SUMMARY

School qualifications: 9 Ordinary Level passes.
 3 Advanced level passes.
 Churchill Comprehensive, AVON. 1972→1979.

University qualifications: BSc (hons) Electronic Engineering.
 The University of Hull. 1979→1983

3 CONTINUING PROFESSIONAL DEVELOPMENT

- 3.1** RF Design and CAD Techniques. Part of the RF MSc course at University of Bradford, June 1998.
- 3.2** EMC Directive TCF Route to Compliance. Assessment Services. April 1996.
- 3.3** Author of "Designing for EMC" a one-day training course.
- 3.4** Author of ETSI EN 302 961.

4 IN PRINT

- 4.1 Bringing License Free Wireless Products to Market in the EU; (parts 1 & 2). EMC Journal Issues 98 & 99, January and March 2012.
- 4.2 ETSI EN 302 961 - Electromagnetic compatibility and Radio spectrum Matters (ERM); Maritime Personal Homing Beacon intended for use on the frequency 121,5 MHz for search and rescue purposes only; (parts 1 & 2).
- 4.3 T.P.Jarvis – Designing to Meet ISO7637 Pulse 5 (Load Dump), Auto EMC Conference 2007 (EMC UK 2007).
- 4.4 T.P.Jarvis – Designing PCBs with RF and EMC issues in mind, Southern Manufacturing 2007.
- 4.5 T.P.Jarvis – Designing ESAs to meet PITO5, Auto EMC Conference 2006.
- 4.6 T.P.Jarvis – Practical Power Planes for EMC, Automotive EMC Conference 2004*. (* winner best paper)
- 4.7 T.P.Jarvis – Integrating Wireless Communications with Microprocessor Based Products, IEE Proceedings New EMC Issues in design, April 2004
- 4.8 T.P.Jarvis – “E is for Automobile Electronics” *Compliance Engineering Annual Reference Guide 2003*
- 4.9 T.P.Jarvis – Designing Telephone Equipment for Immunity *Compliance Engineering Nov 2001*
- 4.10 T.P.Jarvis – Eliminating Tetra Interference *Compliance Engineering May 2000*
- 4.11 T.P.Jarvis – Best Practice in PCB Design *presented at Approval 99 Conference.*
- 4.12 T.P.Jarvis – EMC Design: Enclosures *Approval Magazine Sep 1999*
- 4.13 T.P.Jarvis and I.R.Marriott – Improving the immunity of sensitive analogue electronics *EMC Journal Vol 9. Feb 1997.*

All papers can be downloaded at <http://www.radiocad.com/Downloads/Articles/>. ETSI standards can be downloaded here: <http://pda.etsi.org/pda/queryform.asp>

5 EMPLOYMENT HISTORY

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|-----|---|---|
| 5.1 | RadioCAD
44 Frodsham Street
Marfleet
Hull HU9 5QU | Principal
April 2001 to present day |
|-----|---|---|

I started RadioCAD in April 2001 and was officially working full-time from 13 May 2001 following redundancy from KTL. RadioCAD specialises in RF design and EMC Troubleshooting and employs myself and my wife Annette. We've amassed an impressive client list over the last ten years http://www.radiocad.com/About_Radiocad/Client_List/

Projects undertaken by RadioCAD include:

Antenna Design: Several internal GPS, GSM, WiFi antennae for handheld computer terminals, TV antennae to meet CAI specifications.

Transmitter modules: 500mW synthesised UHF paging transmitter. 30W VHF marine-band DSC transmitter. 500/100mW VHF personnel EPIRB transmitter (man overboard beacon).

DVB tuners etc: US CATV & EU DVB modulators (both digital and analogue), Multi-channel COFDM DVB tuner, UK-PAL CATV re-broadcaster (digital input, multi-channel analogue output).

RFID: 125 KHz and 13.56 MHz tags and readers including WiFi connected automatic tag readers.

ADSL splitters: consumer premises and exchange end splitter modules.

EMC troubleshooting and approvals: far too many projects to list here. Worked with IT equipment approvals, wireless devices, alarm systems, UPS, power supplies, etc.

5.1	KTL Worldwide Priory Park West Saxon Way Hull HU13 9PB	Senior Design Consultant Apr 1999 to May 2001
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I took over the development group within KTL and built the two-man team up to a full compliment of five engineers and one project manager. Initially the team concentrated on developing test instruments for the internal use of the four KTL test laboratories Worldwide. It then moved into consulting on design issues for KTL's clients and under my direction into direct sub-contract electronics product design. Three major contracts were executed: (i) development of a DVB de-modulator receiver for a major set-top box manufacturer, (ii) development of a CT0 cordless telephone for a far-eastern client, (iii) development of a PMR446 two-way radio for manufacture in Southern China.

Following its flotation on the London Stock Exchange Kingston Communications (Hull) plc took a strategic decision to dispose of KTL. The overseas laboratories were sold off and the Hull operation was scaled down. This 'restructuring' lead to the developing group being disbanded.

5.2	Midland Mobile Radio Temple Normanton Business Park Chesterfield S41 0JS	Research and Development Manager Apr 1997 to March 1999
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I was brought in to set up and operate the R&D department responsible for developing fixed radio infrastructure and mobile radios, two-way, push-to-talk and trunked. Over two years my four-man team developed a 400 MHz MPT1327 trunked hand-portable and completed the initial development work on a MPT1327 site controller.

I personally executed all the electronics design, both digital, analogue and RF. I also executed some of the embedded 'C' software development.

As far as I am aware Midland Mobile Radio has now effectively ceased trading.

5.3	J.E.T. limited 8 Roper Street "Quaywest" Hull HU1 2PZ	Director Dec 1989 to Feb 1997
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I founded Jarvis Engineering as a sole trader and then incorporated under the name Jarvis Engineering & Technology (J.E.T) Limited in Feb 1994. Starting as "engineer for hire" I successfully executed development contracts for many blue-chip UK electronics companies. The company grew to employ three other engineers, a financial and general manager and a sales person by 1995. At this time we decided to develop our own range of mobile data products to extend the company beyond purely contract work. I obtained the necessary funding to begin this work as a mixture of private finance, government grants and retained profits. Although this work

was completed successfully the company collapsed due to two cancelled contracts. These cancellations caused a cash-flow crisis at a time when cash was already tight due to the aforementioned internal development. Our bankers became nervous and withdrew the company's overdraft facility.

Projects undertaken by J.E.T. include:

Work on the channel tunnel project with Motorola radio division.
 Radio-telecommunications exchange software development with Simoco (formerly Philips radio).
 Mobile Radio programming software for Motorola and Ranger Europe.
 Scientific Instrumentation hardware and software development for Philip Harris plc.
 Confectionery machine development with DMC moulding for Thorntons plc and Mars plc.
 Mobile radio data solution for British Gas South East with Marconi Communications.
 EMC re-development work for GEC Alsthom T&D and Dexion plc.
 Radio telemetry unit for GPT Payphones division.

5.4 **APD Communications** **Senior Electronics Engineer.**
 Newlands Centre. June 1987 to Nov 1989
 Inglemire Lane.
 Hull. HU6 7TQ.

My initial role at APD was computer architect /digital hardware designer. I wrote the microcode for the APD MF1640 CPU. From March 1989 I worked on a number of telecommunications projects as designer /design authority and team leader. These were basically fixed price consultancy and software development contracts for larger OEMs.

5.5 **Ulvertech Ltd.** **Electronics Engineer.**
 North Lonsdale Road. April 1985 to May 1987.
 Ulverston.
 Cumbria.
 LA12 9DL.

Whilst at Ulvertech I only really worked on one large project, the HRTS (High Resolution Target Sonar) development project. This involved leading edge DSP design (30 MIPS on one board in 1985!) and some analogue RF design. I wrote the software for the DSP (image processing) in machine code.

5.6 **SRD Ltd.** **Electronics Engineer.**
 Grovehill Ind. Est. June 1983 to March 1985
 Beverley.
 North Humberside.
 HU17 0JW.

This was my first full time electronics job after graduating. At Sonar Research and Development (SRD) I worked on low noise RF receivers and high power RF transmitters. At SRD I learned how to engineer electronics properly, it has proved time and again an invaluable and fortunate grounding.

6 REFERENCES

Available on application.