CURRICULUM VITAE

OF

ROBERT HARPER (M.I.E.T).

6 PAGES (INCLUSIVE OF HEADER)

SUMMARY:

1. RF DESIGN & DEVELOPMENT ENGINEER
2. HV POWER SUPPLY DESIGN EXPERTISE
3. ANTENNA DESIGNER
4. SWITCH MODE POWER SUPPLY DESIGNER
5. CAD/CAM COMPUTER FAMILIARITY
6. EMC & ETSI SPECIFICATION COMPLIANCE
7. PCN/GSM/PCS/TETRA/LTE EXPERIENCED
8. DEFENCE AQAP 1 & BS5750/ISO 9000 FAMILIARITY
9. SUBSTANTIAL MOD EXPERIENCE
10. GUITAR AMPLIFIER AND PA TECHNICIAN
11. ENGLISH BORN, BI-LINGUAGAL (ENGLISH/PORTUGESE)

PLEASE CONTACT

(24 HOURS)

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Curriculum Vitae

# Robert William Harper D.O.B 20/08/56

## Qualifications

City & Guilds Telecomm Practice Credit

City & Guilds Part 1 Radio TV & Electronics Credit

City & Guilds Radio & Line A for Telecomm Tech Credit

City & Guilds Radio Amateur Examination Credit

Feb ’19 – May’19

**Thales Land and Air Div, Longwater Ave, Green Park, Reading, RG2 6GF**

SC cleared working on armaments fuze Multi Bomb Safe Arming Unit (MBSAU) and Next Generation SAU (NGSAU). Verifying design, recommending changes, building test equipment, PCB component level fault find, working with software engineer to prove hardware OK. I2C test and verify. Soldering to IPC standards etc. Using test equipment, Oscilloscope, DMM.etc.

Sept ’18 – Nov ‘18

**SAFRAN Electrical, Pitstone Green, Aylesbury, Bucks**

Schematic capture and layout modifications using Cadence Orcad/Allegro of Power Control Unit (PCU). Project, Sikorsky CH-53K (King Stallion). Design for EMC.

Oct ’17- March ‘18

**Ultra-CSS Ltd, Knaves Beech IndEst, Loudwater, High Wycombe, Bucks** **Video Design Engineer**

Design of video cross-point switch matrix using Cadence Orcad, Allegro, AltiumPCB schematic capture and layout to enable different cameras to be switched to different monitors, Video Recorders, monitors etc. These chips used I2C generated by a microprocessor to program the switch matrix. This project is to enable an aircraft to land on board an aircraft carrier more safely.Autocad.Def Stan 59-41, Def Stan 59-411, Mil Std 461D, EMC.

Feb ’17 – June ‘17

**Chess Dynamics Ltd**, Horsham, West Sussex, **EMC Engineer**

Working to MIL-STD461 on BART (Big Antenna Rotating Turntable) for SAAB, Gotenberg. Designing new PCB with layout screening for controlling 3 phase 460volt power supply. (Cadence, Orcad, Altium Designer) Reducing EMI from 3KV isolation SMPSU and 28 volt SMPSU for brake supply. Advising on wiring layout for the whole Power Electronics Unit (PEU). Progressing ECR’s, Using Allegro Physical viewer for PCB artworks, resolving obsolescence issues. Cable design of complex multi-purpose cables using D38999 connectors for video and control.

Jun ’16 – November ‘16

**AMS**, Premstatten, Graz, Austria **Evaluation Engineer**

Evaluation, verification and validation of new audio chips for mobile handsets using noise cancelling techniques. Writing Evaluation Specifications and liaising with design teams on performance of mixed signal IC’s.

Jun ’15 – Jun ‘16

**Valvetek Electronics**, Northolt, Middx Sept ’14 – Jun’15 **Audio Amplifier Technician**

Customisation and servicing of guitar and PA amplifiers for the music industry. Working with thermionic tube technology. High Voltage, audio. Working with musicians to realise customer requirements.

Sept 14 – June ‘15

**Ultra –PALS Ltd,**Arle Court, Hatherley La, Cheltenham, Glocs. **Obsolescence Engineer**

Obsolescence issues on military and civil aircraft and vehicles. Use of Teamcentre software for managing parts lists, drawings etc. Use of Wise-Image version 14 for modifying tif drawings and BOM’s. Avcom data base for managing obsolescence issues.

Sept ’13 - Sept ’14

**UTC,UTAS, Maylands Av**, Hemel Hempstead, Herts **Qualification Test Engineer**

EMC tests on (ETRAC) for Airbus A-350. Working to DO-160 and Mil Std 461. Liaising with test houses etc.

Working on EMC for Embraer on the KC-390.

Dec’12-August ‘13

**Aero Engine Controls**. (Rolls-Royce AEC Systems Ltd) York Rd, Hall Green, Birmingham.

**Obsolescence Engineer**

Progress/Project Management of production obsolescence issues on Trent jet engine electronic engine controller (EEC) (FADEC). Electronic component engineering issues. Low frequency analogue. SMPSU. KANBAN. DO-160 etc.

May ’12 – Dec ‘12

**NXP,** Hamburg, Germany **Evaluation Engineer**

Test and validation of R.F. mixed signal I.C. for car radio. R.F. measurements of Sensitivity, Adjacent channel rejection, lock range of LO, LO Phase Noise, Microphony, Spurious response, Temperature testing, I2C, ITS, SPI bus. Excel, Word, Office. Characterization of R.F. parameters including, IP3, P1dB, SFDR, ACPR etc. Proprietary software for automatic testing.

September’11 – May ‘12.

**Audio Ltd,** High Wycombe, Bucks. **Audio Amplifier Technician**

Production test and fault-find Wireless Microphones to component level. Programme synthesiser using proprietary software etc. Frequency bands are UHF (400 – 900 MHz). Use of HP audio analyser, Spectrum analysers, oscilloscopes, DMM, etc.

Aug ’11 – September ‘11

**Ericsson,** Gothenburg, Sweden **R.F. Design Engineer**

Prototype test of type approval WCDMA modules for laptop and iPad devices. I was brought in to design a system for LTE but the budget was delayed. Use of Network Analysers, Spectrum analysers, oscilloscopes, DMM, etc. Characterization of R.F. parameters including 3OIP, IP3, P1dB, SFDR, ACPR etc.

October ’10 – May ‘11

**Frontier Silicon Ltd,** Sawston, Cambs **R.F. Development Engineer**

R.F. development of DAB radio for mobile applications. Prototype testing of R.F. front end for sensitivity, blocking, Large Signal, adjacent channel rejection etc. Use of HPVNA for VSWR and complex impedance measurements. Use of oscilloscopes for audio measurements and fault finding. Labview.

March ’10 – May ‘10

**Trimerix Ltd,** High Wycombe, Bucks **R.F. Design Engineer**

Design of Zigbee ring antenna at 2.4 GHz using Sonnet and Ansoft (HFSS) analysis software. Use of HPVNA. Development of R.F. section (antenna) for card reader at 13.54 MHz.Labview.

R.F. measurement and characterization of coaxial connectors from 1 MHz to 6 GHz.

Nov ’09 – Jan ‘10

**Axell Wireless,** Chesham, Bucks **R.F. Development Engineer**

Production testing and fault finding of TETRA and cellular bi-directional amplifiers for in-building and tunnel coverage. Use of HP 8753 VNA for filter measurements and gain measurements on R.F. amplifiers. Initialisation of software over Ethernet and RS232 links. Testing and fault finding of R.F. over fibre links.

June ’09 – Nov ‘09

**Valvetek Electronics**, Northolt, Middx. **Audio Amplifier Technician**

Customisation and servicing of guitar and PA amplifiers for the music industry. Working with thermionic tube technology. High Voltage, audio. Working with musicians to realise customer requirements.

Feb ’08 – June ‘09

**Indra Systems Ltd**, Kingston-Upon-Thames **R.F. Design Engineer**

Design of Distance Measuring Equipment (DME) for aircraft at 960 MHz to 1215 MHz. Specify requirements and locate suppliers of antennas that meet stringent FAA specifications regarding DME equipment. Design of monitor electronics that forms part of the BITE system to show system integrity. Using AWR Microwave Office for Analysis, PCB Layout and Schematic Capture. Design of class D, 1 MHz, 1KW transmitter beacon using switching techniques. Design of Frequency Synthesiser to cover 960 - 1215MHz in 100KHz steps. R.F. pulse modulator, 90dB step attenuator, logarithmic detector and R.F. switching using GasFets.

Oct ’05 – Oct ‘06

**Mott Macdonald**, Sydenham Rd, Croydon **R.F. Design Engineer**

Design of Radio Infrastructure for Blackwall Tunnel Northbound and the proposed A3 Hindhead Tunnel for use by the emergency services, (Police TETRA, Fire Brigade and Ambulance). My design used R.F. over radiating cable (Leaky Feeder) which I had to specify the particular characteristics of longitudinal loss and coupling loss and had to allow seamless use of DAB and FM broadcast band within the tunnels.

Nov ’04 - Oct ’05 & Oct ’06 – Feb ‘08

**Valvetek Electronics**, Northolt, Middx. **Audio Amplifier Technician**

Customisation and servicing of guitar and PA amplifiers for the music industry. Working with thermionic tube technology. High Voltage, audio. Working with musicians to realise customer requirements.

Oct ’03 – Nov ‘04

**MBD.A Ltd**, Filton, Bristol, Avon. **Radiation Engineer**

Radiation Hardening of electronic defence hardware for Skynet V. Circuit analysis to determine photocurrents induced into various electronic components at circuit level for Dose Rate. Analysing trial data obtained from Linear Accelerator and YaG Laser to induce fields in the order of 1 MeV (L.E.T.). Security Cleared.

Jan ’02 – Oct ‘03

**Valvetek Electronics**, Northolt, Middx. **Audio Amplifier Technician**

Customisation and servicing of guitar and PA amplifiers for the music industry. Working with thermionic tube technology. High Voltage, audio. Working with musicians to realise customer requirements.

Jan ’01 – Oct ‘01

**BAE Systems**, Great Baddow, Chelmsford, Essex, (later working at the Basildon site)

**R.F. Design Engineer**

CabinCall project. Allowing safe use of GSM portable phones onboard civilian aircraft. 400 MHz to 2400 MHz. Using radiating coaxial cable rather than point source antennas. Designing noise source, mobile detectors and R.F. system for above using mmic amplifiers, schottky detectors, SAW filters, RF switches and programmable attenuators. Talking to suppliers of radiating cable for a cable design that meets my system requirement specs. Using Mentor Design Architect for schematic capture use and PCB layout. PCB design. HP-ADS (Agilent) for simulation.

#### Jan ’00 – Dec ’00

### **Remec-Airtech Ltd**, Smeaton Close, Aylesbury, Bucks **R.F. Design Engineer**

Design and development of Bi-directional amplifiers for cellular ‘in building’ coverage applications. Design of antennas for indoor use and specify installation locations in order to obtain maximum ‘in building’ coverage.

June’99 – Dec’99

### **Racal Telecom Ltd**, Clerkenwell Green, London, EC1 **R.F. Design Engineer**

Connect project, system level design of Tetra based system for London Underground Ltd. Radio surveys of sidings, Depots and stations for radio coverage. Specifying antennas and antenna locations to improve coverage. The company used my extensive knowledge and familiarity with existing radio comms on the existing network to overlay a Tetra system onto it, based on two previous contracts which are detailed below.

June ’98 – June’99

**British Aerospace Defence Systems Ltd**, (Formerly Siemens – Plessey), Ilford, Essex.

**Electromagnetic Wave Engineer**

Design of covert Meteorological weather station for gun sound ranging, the system used no moving parts to pass a flow of air across the three sensors of Humidity, Temp and Barometric Pressure. Interfacing sensors to data bus. Testing, trailing, test and design specification writing and report writing on performance of the above.

Jan ‘97 – June ‘98

**Motorola GSM div,**Euroway, Swindon, Wiltshire. **R.F. Design Engineer**

P.D.S work on PCN Base Station, 1.8 – 1.9 GHz. Improving performance and reliability of frequency synthesiser.

July ’96 – Jan ’97

**Matra – Marconi Space Ltd,** Filton, Bristol. **R.F. Design Engineer**

Design and development of double helix antenna for a search and rescue satellite at 460 MHz.Working on 1/8th scale model of METOP satellite in an anechoic chamber, to improve performance of SARSAT antenna at 3.3GHz.

May ’95 – June ‘96

**PMR div, Marconi Comms Ltd,** New Street, Chelmsford, Essex **R.F. Design Engineer**

Re – Banding exercise on RC 848 base station, To 400 – 420 MHz from 420 – 450 MHz.

Later working on EMC in G – TEM cell for self certification, writing test plans for test houses to ETSI 300279 and setting up an “in house” test range at Great Baddow for radiated far field results. Liasing with test houses to agree test procedures and booking time in them. Sorting out teething problems with test house equipment and agreeing methods of test.

March ’95 – June ’95

**Ericsson Radio Systems,**Kista, Stockholm, Sweden. **R.F. Design Engineer**

RBS 2000 PCN, PCS and GSM series base station development. R.F. measurements Identification and elimination of in – band spurii in both transmitter and receiver at component level.

Sept ’94 – Feb ’95

**Marconi Defence Systems Ltd,**Addlestone, Weybridge, Surrey. **R.F. Design Engineer**

Design of antenna for submarine distress beacon type 639, replacing existing 9MHz system with COSPAS/SARSAT system at 406MHz and receiving type approval on working prototype at Assessment Services, Titchfield. Design of antenna test range for the above.

April ’94 – Sept ’94

**D.S.C. Communications Ltd,** 5 New Square, Feltham, Middlesex. **Design Engineer**

Development of 2.2 GHz spread spectrum communications system for wireless in the local loop.

Mainly working on the combiner rack, prototype testing 2.2GHz power amplifiers and the combiner unit. Other duties included sourcing appropriate switch – mode power supplies for the combiner rack.

Design of EPI (Exchange Power Interface) and development of the subscribers UPS.

Jan ’94 – April ’94

**J.E.T. Fusion Program,** Culham, Oxfordshire. **R.F. Design Engineer**

Phase locked loop design of 16 transmitters, each of 2 M watt output power 20 – 55MHz, coupled to gas plasma for nuclear fusion experiment. Working at low levels to phase the sources together so that they may be phase adjusted with respect to a reference oscillator. Also involved in sorting out the previous system, which had a number of design shortfalls.

July ’93 – Dec ’93

**Nokia Communication Systems Ltd,** Admiralty Way, Camberley, Surrey. **R.F. Design Engineer**

Development of 50 Watt 1.8 – 1.9 GHz PCN DCS transmitter using two M/A COM 30 Watt devices, PHI 1819 – 30 transistors, phased together using sage wire line couplers.

Sept ’92 – July ’93

**London Underground Ltd,** Telstar House, Paddington, London. **R.F. Design Engineer**

Design complete station radio infrastructure of Oxford Circus and Baker Street stations from first principles for three radio services, Police, Station staff and Fire brigade. Designing for minimum field strength of 35dBuV/m, for hand – held operation. Infrastructure used Andrew RXL4 – 50A radiating cable at frequencies up to 470MHz.

May ’92 – Sept ’92

**Siemens – Plessey Defence Systems Ltd,** Christchurch, Dorset. **R.F. Design Engineer**

PDS work on Raven frequency agile military radio. Suggesting and implementing improvements to overcome design shortfalls.

Sept ’90 – April ’92

**London Underground Ltd,** Telstar House, Paddington, London. **R.F. Design Engineer**

Train Radio enhancements. PDS work on an existing “leaky feeder” VHF radio system. Improving radio coverage in sidings, stations and trackside.

***The following is a summary of relevant experience before 1990:***

**Transinstruments Ltd,** Basingstoke, Hants **EMC Engineer**

Hardening pressure transducers used in the water industry to EMC. Using DeJongstripline to create even field for Lloyds spec, CEGB specs, British Standards, and VDE (German) specs in the absence of a definitive European spec to show due diligence by the company in compliance.

The tests were for conducted and radiated susceptibility, and conducted and radiated emissions.

**Plessey Naval Systems,**Templecombe, Somerset. **R.F. Design Engineer**

VHF RF design of sonar buoy transmitter using MRF 237 device 2.5 Watt @135 – 175MHz. Re-design of folded λ/2 wave antenna to wide band λ/4 wave antenna for better matching to P.A. under rough sea conditions.

PCB Design using Vutrax software. Involved in testing and trails, large volume production.

June ’89 – Oct ’89

**Hadland Photonics Ltd,** Newhouse Road, Bovingdon, Herts. **R.F. Design Engineer**

Design of 150 Watt 25MHz RF power amplifier using MRF 140 device. Design of crystal oscillator, PIN diode switch and drivers for the above.

June ’88 – Oct ’88

**Motorola Communications Ltd,** Jays Close, Basingstoke, Hants. **Audio Amplifier Technician**

Design of Benneton F1 car to pits radio system, employing noise-cancelling techniques.

Feb ’85 – Dec ’87

**Hadland Photonics Ltd,** Newhouse Road, Bovingdon, Herts. **R.F. Design Engineer**

Design and development of 3Kv 35ns rise time pulse generator using Marx configuration with VMOS transistors. Design of 3Kv pulse gen isolated to 17Kv with 5 volt accuracy using series connection of 4 X BUZ50A Vmos transistors.

Fault find and cure Corona discharge and cable surface static discharge problems associated with altitude.

Design of Switch Mode Power supply isolated to 25 Kv at 7,000 feet, design incorporated toroidal transformer and potting techniques. 1 GHz prescaler divide by 8 using ECL to 125MHz, surface mount, then drivers and amplifiers to 30 Watts driving an image converter tube. Working with optical bench using pumped dye laser and pockell cell.

Nov ’82 – Jan ’84

**Weston Simfire Ltd,** Enfield, Middlesex. **SMPSU Design Engineer**

Design of switch – mode power supplies for use in chieftain tanks, design of laser drivers for rifle simulators. Design of SMPSU for rifle laser driver.

June ’81 – Nov ’82

**Kenure Developments,** Camberley, Surrey. **R.F. Design Engineer**

Development of 7KHz -- 2GHz wideband surveillance receiver for detection of eavesdropping equipment.

Jan ’81 – April ’81

**Multitone Ltd,** Islington, London. **R.F. Design Engineer**

Re – banding exercise on paging receiver @ 512MHz. Involved changing helical filters,

Front end, matching, local oscillator, multiplier and antenna.

May ’79 – Dec ‘80

**Marconi Space and Defence Systems Ltd,** Wembley & Stanmore, Middx.

**R.F. Design Engineer**

Improving Performance of NATO III satellite ground station 6.8 – 8.4 GHz. Up and down converter racks. EMC testing to AQAP 1. Development of stingray torpedo and test equipment.