

THARANGA PREMATHILAKE

Compliance Manager & Senior Hardware Engineer Specialization: EMC/EMI Mitigation • RF Exposure (SAR) • Global Product Certification

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PROFESSIONAL SUMMARY

Strategic Compliance Lead and Electronics Engineer with 7+ years of experience specialized in navigating global regulatory landscapes (FCC, CE, RED, ACMA). Expert in "Certification by Design," utilizing ANSYS HFSS for antenna modeling and Altium for high-speed PCB layout to eliminate EMI/EMC failures at the source. Proven track record of managing end-to-end regulatory roadmaps for wireless IoT and wearable technologies, ensuring 100% compliance with international SAR and safety standards. Licensed Radio Amateur (4S6TMP) and current President of the Radio Society of Sri Lanka.

CORE COMPETENCIES

- Regulatory Frameworks:** FCC Part 15, CE (RED), RCM (Australia/NZ), SAR, RoHS/WEEE.
- Technical Standards:** EN 62209/50566 (SAR), EN 301 489 (EMC), CISPR 32, EN 62133 (Battery).
- Design & Simulation:** High-Speed Multilayer PCB Design (Altium, KiCad, Eagle, etc.), Antenna Modeling (ANSYS HFSS).
- Testing & Automation:** Python-based automation, Spectrum/Network Analysis, VNA.
- Leadership:** Global Lab Coordination (Intertek/TUV/SGS/UL), Spectrum Management, Team Mentoring.

TECHNICAL STANDARDS MATRIX

Compliance Domain	Regulatory Standards & Frameworks	Technical Scope
RF Exposure (SAR)	EN 62209, EN 50360, EN 50566	Human exposure to RF fields for headworn & wearable devices.
EMC & Emissions	EN 301 489, EN 55032 (CISPR 32), FCC Part 15	Electromagnetic compatibility for Multimedia & Radio equipment.
Radio Spectrum	EN 300 328, EN 301 893, RED (2014/53/EU)	Wideband transmission (2.4GHz/5GHz), WiFi, BLE, & LoRa.
Product Safety	EN 62133, EN 62368-1	Safety of Lithium batteries and Audio/Video/ICT equipment.
Simulation & Design	ANSYS HFSS, Altium Designer	Antenna modeling, Signal Integrity (SI), and EMI mitigation.

PROFESSIONAL EXPERIENCE

TECHLABS GLOBAL PVT LTD | *Associate Tech Lead (Compliance & Hardware)* | **Apr 2025 - Present**

- **Global Certification Strategy:** Orchestrate the regulatory roadmap for wireless IoT platforms. Lead the preparation of Technical Construction Files (TCF) and Declaration of Conformity (DoC) for FCC and CE markets.
- **Pre-Compliance Framework:** Established an in-house pre-compliance lab using **Python automation** for conducted/radiated emission testing, reducing external lab costs by 40% and ensuring 100% first-pass rates.
- **Product Lead – Divolgo Sports Display:** Managed the end-to-end hardware lifecycle for a headworn wireless display. Conducted complex SAR mitigation using **ANSYS HFSS** to comply with **EN 50360**.
- **Hardware Architecture:** Design multilayer PCBs focusing on signal integrity for high-speed interfaces (DDR, USB). Implement advanced shielding and grounding techniques to meet **CISPR 32** requirements.

TECHLABS GLOBAL PVT LTD | *Senior Electronics Engineer* | **Feb 2018 – Apr 2025**

- Developed low-power wireless IoT systems using LoRa, BLE, and Wi-Fi, focusing on "Certification by Design" to prevent late-stage design changes.
- Led hardware debugging and Root Cause Analysis (RCA) for RF interference issues in wearable electronics.
- Coordinated with international test labs for electrical safety audits under **EN 62368-1**.

WAYAMBA UNIVERSITY OF SRI LANKA | *Visiting Instructor* | **July 2016 – Feb 2018**

- Assisted undergraduate labs in Digital/Analog Electronics and Semiconductor Theory.

LEADERSHIP & PROFESSIONAL AFFILIATIONS

THE RADIO SOCIETY OF SRI LANKA (RSSL) | *President* | **2023 – Present**

- Represent the national amateur radio community to the Telecommunications Regulatory Commission of Sri Lanka (TRCSL).
- Lead spectrum management initiatives and represent the society at international ITU-related forums.

EDUCATION & INTERNSHIPS

- **B.Sc (Special) in Applied Electronics** | Wayamba University of Sri Lanka
 - *Awarded: Best Undergraduate Research Project (RF/Antenna focus).*
- **Laboratory Internship (Electronics Engineering)** | Shibaura Institute of Technology, Japan
- **Telecommunications Engineering (Diploma)** | City & Guilds, UK

TECHNICAL TOOLS

- **EDA:** Altium Designer, KiCad, Autodesk Eagle
- **Simulation:** ANSYS HFSS, LTSpice, MMANA-GAL & NEC tools
- **Software:** Python (Test Automation), Embedded C
- **Equipment:** Spectrum Analyzers, Signal Generators, VNA, EMC Probes