

APPENDIX B

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1. INTRODUCTION

- 1.1 The Home Office Centre for Applied Science and Technology (CAST) require an organisation to unify and update the Home Office's current Electromagnetic Compatibility (EMC) standards.

2. PURPOSE

- 2.1 Before being used by the police, all breath alcohol equipment must be type approved by the Secretary of State for the Home Office. This requires it to pass a series of tests mandated by guides to type approval for each piece of equipment (evidential testers or screeners). This includes some environmental testing, including radio frequency interference.
- 2.2 Starting in 2016, UK emergency services is likely to begin migration from the current TETRA (Terrestrial Trunked Radio) system, to a proposed 4G LTE (4th Generation Long-Term Evolution) based system, referred to as the ESN (Emergency Services Network). This will result in a very different electromagnetic landscape that will look vastly different from when the current standards were drafted.
- 2.3 Current EMC requirements are outlined in three separate Home Office Standards (Spec 5, FSS and Speedmeter Handbook) and CAST requires that these must be consolidated in a single updated EMC standard. The current standards can be found at annexes 1-6.

3. BACKGROUND TO THE AUTHORITY

- 3.1 CAST are a unique team of scientists and engineers at the heart of the Home Office providing expert advice, innovation and frontline support. They are the primary science and technology interface between Home Office ministers and policy makers, frontline delivery partners, and the suppliers of science and technology. Understanding the policy and operational context of Home Office business allows them to operate where others cannot for reasons of impartiality, national security or market failure.
- 3.2 CAST supports the full range of Home Office interests in policing and tackling crime, counterterrorism, border security and controlling immigration. Their extensive in-house skills and expertise, coupled with access to industrial, academic and international networks, ensures that they are able to provide the right advice and support, irrespective of the problem.
- 3.3 They have a diverse work environment including offices, and a variety of technical facilities and laboratories.

4. BACKGROUND TO REQUIREMENT/OVERVIEW OF REQUIREMENT

- 4.1 CAST require an impartial and recognised authority ("The Author") to unify and update the current EMC standards. The Author will also be required to provide support as an expert witness on the updated EMC standard in a UK court of law.

5. SCOPE OF REQUIREMENT

- 5.1 The existing EMC requirements, currently addressed in three separate Home Office standards, must be consolidated into a single updated standard

- 5.1.1 The updated standard shall replace the existing disparate test methods and compliance requirements, with one common requirement. This requirement shall aim to afford the same level of operational reliability and evidential integrity that electronic equipment currently enjoy, but with the least stringent test levels possible under EU and OIML standards. Where less stringent levels are not possible, it shall be supported by recognised technical evidence.
- 5.1.2 The updated standard shall take account of the current and long term electromagnetic environment that UK emergency services will operate in. This is likely to involve the Author to undertake a brief assessment of the transmitter and receiver technology, as well as its implementation, to be used by the emergency services over the coming years. The analysis should involve aspects like the identification of receive and transmit frequency bands, maximum power outputs, modulation schemes, interference tolerance, susceptibility to high field strengths, etc.
- 5.1.3 The updated standard shall provide adequate guidance to the reader. It should do this by elaborating extensively on the correct test setup and exercising of a variety of product types. It should explain the objective of each test and how the EUT (equipment under test) is to be laid out during testing, citing examples with diagrams whenever possible. It shall also provide guidance on the type of product changes that could require a product to be re-tested.
- 5.2 The updated standard shall also aim to alleviate any additional cost and administrative burden to applicants, to only the cost required to meet European Union (EU) and International Organisation for Legal Metrology (OIML) EMC standards.
- 5.2.1 This is to be achieved through harmonisation with existing EU and OIML test methods. Where full harmonisation is not possible, testing shall be kept to the minimum required to achieve the primary objectives of operational reliability and evidential integrity.
- 5.2.2 Where appropriate, and with the necessary safeguards in place, the new standard should in some cases allow for self-certification.
- 5.2.3 Where possible, tests that require laboratories to procure or rent expensive or unusually specialised test equipment, shall be re-evaluated for acceptable alternatives.
- 5.2.4 The standard shall specify a desired laboratory report format. This should outline aspects like section headings, diagrams, photos, data, report layout, file format, etc. This standardisation is aimed at alleviating issues surrounding language translation, online data storage, data transfer and entry, proprietary software applications, level of technical skill required to interpret test results, etc.
- 5.2.5 The standard must provide a simple, yet meaningful and up to date, overview of UK and international EMC standards, explaining how each compares with the Home Office EMC standard. The aim of this is to assist both national and international suppliers to understand the differences in
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EMC requirements, thereby enabling them to plan for appropriate EMC testing early on in their test regime.

5.2.6 The standard shall provide an overview of the UK and International laboratory accreditations applicable to this standard. It shall also include guidance on how such accreditations can be verified as being valid and up to date. A list of verified UK accredited test laboratories shall also be made available for inclusion into this standard. The list shall contain the laboratory name, address, accreditation level, accreditation reference, date accreditation obtained and the date accreditation expires.

5.3 Home Office CAST holds a seat on OIML meetings and as such it might be necessary for The Author to attend some of the EMC related meetings. This could allow CAST to support the OIML committee in a manner that would automatically align CAST's EMC specification with the international standard.

5.4 The Author must be able to support as an expert witness on the updated EMC standard in a UK court of law.

6. SERVICE LEVELS AND PERFORMANCE

6.1 The Authority will measure the quality of the service provider by:

6.1.1 Submission of a final report formatted in Microsoft word within one month of receiving all the required information from CAST. It is anticipated all information will be provided within 3 days of the contract being agreed by the supplier. Any corrections or resubmissions required upon reviewing the final report must be completed within one month of notification of any changes required by CAST. Extensions will only be granted with prior approval of both parties.

6.1.2 Attendance all relevant progress meetings when requested by CAST (90% compliance). These meetings will not always require the author to attend in person and facilities such as teleconferences and videoconferences will be utilised. It is expected that these meetings will be twice a week during the production of the new standard however this is subject to change.

7. ADDITIONAL REQUIREMENTS

7.1 Full copies of all current Home Office EMC standards will be provided.

7.2 The updated standard will be Home Office owned and the Home Office will reserve its right to amend or copy or distribute the standard in line with its policies.

7.3 The report must be submitted in Microsoft word format.

7.4 Payment will be made via purchase order.

8. LOCATION

8.1 The CAST offices are located at

St Albans
Woodcock Hill,

Sandridge,
St Albans,
Herts
AL4 9HQ.

9. SECURITY REQUIREMENTS

- 9.1 All current specifications are public documents and it is anticipated the new one would also be public.