យោបល់លើសេចក្តីព្រាងប្រកាសស្តីពីបទដ្ឋានបច្ចេកទេសនៃគ្រឿងសម្ភារៈបរិក្ខារទូរគមនាគមន៍

Comments on the Draft Prakas on Technical Standards of Telecommunications Equipment

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ឯកសារយោង៖ Reference:	

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ប្រកាសស្តីពីបទដ្ឋានបច្ចេកទេសនៃគ្រឿងសម្ភារៈបរិក្ខារទូរគមនាគមន៍ Prakas on Technical Standards of Telecommunication Equipment		
ចំណងជើង Title		
ជំពូកទី១		

អត្ថបទដើម Original Text	**យោបល់ និងហេតុផល** Comments and Reasons	**សំណើកែលំអ** Proposal for Improvement
Chapter 1		
ប្រការ ១ Article 1		
ប្រការ ២ Article 2		
ប្រការ ៣ Article 3		
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ប្រការ ៦ Article 6		
ជំពូកទី៤ Chapter 4		
ប្រការ ៧		

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Article 7		
ប្រការ ៨ Article 8		
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Annex1: TRC-TS-WTE Conformance Testing / Verification Checklist		
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បរិសិដ្ឋទី២៖ បទដ្ឋានបច្ចេកទេសនៃស្ថានីយអង់តែនទូរសព្ទចល័តនិងស្ថានីយបញ្ជូនបន្ត		

អត្ថបទដើម Original Text	យោបល់ និងហេតុផល Comments and Reasons	សំណើកែលំអ Proposal for Improvement
Appendix 2: Technical Standard of Cellular Base Station and Repeater System (TRC-TS-CBS)		
Title		
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Part 2. Reference Standards		
Part 3. Minimum Requirements for CBS Equipment		
3.1 Minimum Requirements for CBS Equipment		
3.2 Explanatory Notes		
Annex 1: CBS Conformance Testing / Verification Checklist		
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បរិសិដ្ឋទី៣៖ បទដ្ឋានបច្ចេកទេសនៃគ្រឿងសម្ភារៈបរិក្ខារទូរសព្ទចល័ត Appendix 3: Technical Standard of Cellular Mobile Terminal (TRC-TS-CMT)		
Title		
Abbreviations		
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Part 3. Minimum Requirement for CMT Devices		
3.1 Minimum Requirements for CMT Devices		
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Annex 1: CMT Conformance Testing / Verification Checklist		
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បរិសិដ្ឋទី៤៖ បទដ្ឋានបច្ចេកទេសនៃគ្រឿងសម្ភារៈបរិក្ខារវិទ្យុទាក់ទងចល័តលើគោក Appendix 4: Technical Standard of Land Mobile Radio Equipment (TRC-TS-LMR)		
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Abbreviations		
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Part 2. Reference Standards		
Part 3. Minimum Requirements for LMR Equipment		
3.1 Minimum Requirement for LMR Equipment		
3.2 Explanatory Note		
Annex1: TRC-TS-LMR Conformance Testing / Verification Checklist		
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Title		
Abbreviations		
Part 1. Introduction		
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Part 3. Minimum Requirements for SRD		
3.1 Minimum Requirement for SRD		
3.2 Explanatory Note		
Annex 1: TRC-TS-SRD Conformance Testing/ Verification Checklist		
Annex 2: Glossary		
បរិសិដ្ឋទី៦៖ បទដ្ឋានបច្ចេកទេសនៃគ្រឿងសម្ភារៈបរិក្ខារអ៊ីនធឺណិតនៃវត្ថុ Appendix 6: Technical Standard of Internet of Things (TRC-TS-IOT)		
Title		
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Part 3. Minimum Requirements for IOT Equipment		
3.1 Minimum Requirement for IOT Equipment		
3.2 Explanatory Note		
Annex 1: TRC-TS-IOT Conformance Testing / Verification Checklist		
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បរិសិដ្ឋទី៧៖ បទដ្ឋានបច្ចេកទេសនៃគ្រឿងសម្ភារៈបរិក្ខារអុលត្រាវ៉ាយដ៍ប៊ែន Appendix 7: Technical Standard of Ultra-Wideband Devices (TRC-TS-UWB)		
Title	The Ultra Wide Band (UWB) Alliance would like to thank the Ministry of Post and	

អត្ថបទដើម Original Text	យោបល់ និងហេតុផល Comments and Reasons	សំណើកែលំអ Proposal for Improvement
	Telecommunications and the Telecommunication Regulator of Cambodia for this proposal to introduce clear regulations for ultra-wideband (UWB) technology in the Kingdom of Cambodia and for the opportunity to provide comments. The Ultra Wide Band (UWB) Alliance is a global not-for-profit organization that works to collectively establish ultra-wideband (UWB) technology as an open-standards industry. A coalition made up of vendors that either design, manufacture, or sell products that use ultra-wideband technology, the UWB Alliance aims to promote and preserve the current allocation of bandwidth as well as promote the continuing globalization of the technology. As part of our mission, we advocate UWB technology and use cases to promote verticals showing the value of UWB for IoT and Industry 4.0 and to build a global ecosystem across the complete UWB value chain, from silicon to service. In addition, the Alliance is promoting and assuring interoperability through its work with Standards Development Organizations such as the IEEE and ETSI and then working with members to define upper layers and testing to assure compliance. For more information, please visit us at www.UWBAlliance.org.	

អត្ថបទដើម Original Text	យោបល់ និងហេតុផល Comments and Reasons	សំណើកែលំអ Proposal for Improvement
	Since very little background was provided on the choices made while drafting the Prakas, the UWB Alliance hopes that these comments are relevant. We would be delighted to organize a call between our organizations to gain further insight and to provide more details on UWB applications as they are used and envisaged today.	
Abbreviations		
Part 1. Introduction	UWB applications have evolved quite a lot since the first ideas and regulations in the early 2000s. The high throughput data communications that were envisaged then haven't yet materialized. Arguably, that market is captured by Wi-Fi now. Instead, UWB is primarily used for ranging and localization applications, as well as sensing. The addition of secure ranging provisions in IEEE 802.15.4z in 2020 has led to a big uptake in automotive and mobile devices. You can find more information in the ETSI system reference documents in the TR 102 495 series, TR 103 313, 103 314 as well as 103 750. While sharing and compatibility studies for the latter are still ongoing, the others have led to various updates to ECC Decision (06)04, with the latest version including fixed outdoor and enhanced indoor devices published in November 2022. Note that UWB material sensing applications are also included in ECC Decision (07)01.	The UWB Devices are designed for short range radiocommunication **and radiodetermination** employing the UWB technology which are integrated into portable and mobile equipment. The UWB Devices may comprise of Probing Radar Equipment and Vehicle Radar Equipment, as well as UWB Module Equipment. **UWB technology is primarily used for ranging and localization applications, as well as sensing. The addition of secure ranging provisions in IEEE 802.15.4z in 2020 has driven significant uptake in automotive and mobile device applications.** The Probing Radar Equipment is an application class of radio equipment that uses radio waves to detect, image, measure, or sense objects or materials. The Vehicle Radar Equipment is an application-specific system used in automotive contexts, such as Short-range radar (SRR), Medium/long-range radar (MRR/LRR), and Presence detection or in-cabin sensing. **UWB Devices also include fixed outdoor devices and enhanced indoor devices, as introduced in the latest version of ECC Decision (06)04 published in November 2022.** The UWB module implements ultra-

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		wideband radio technology and may be marketed either as a standalone radio device or as an integrated component within Probing Radar Equipment or Vehicle Radar Equipment. Its regulatory classification depends on how it is placed on the market and used. **Further details on UWB applications and system characteristics can be found in the relevant ETSI system reference documents, including the TR 102 495 series, TR 103 313, TR 103 314, and TR 103 750, the latter of which is subject to ongoing sharing and compatibility studies.**
Part 2. References Standards	On line 11, the EN 302 065 family of standards has been updated to the Radio Equipment Directive in 2016/17. Further refinements are currently being drafted by ETSI. We would like to suggest updating the title accordingly.	Short Range Devices (SRD) using Ultra Wide Band technology (UWB); Harmonised Standard covering the essential requirements of article 3.2 **of the Directive 2014/53/EU**.
	UWB material sensing applications based on ECC Decision (07)01 are included in the ETSI EN 302 065 family of harmonized standards in sub-part 4. We would like to suggest adding ECC Decision (07)01 to your list of reference standards.	Add a row for ECC/DEC/(07)01 of 30 March 2007 on the harmonised use, exemption from individual licensing and free circulation of Material Sensing Devices using Ultra-Wideband (UWB) technology latest updated on 1 July 2022 (ECC#59)
Part 3. Minimum Requirements for UWB Devices		
3.1 Minimum Requirement for UWB Devices	Again we would like to suggest adding ECC Decision (07)01 to the list of ECC Decisions in the radio frequency cells.	Electronic Communications Committee (ECC) ECC/DEC/(04)03, ECC/DEC/(04)10, ECC/DEC/(06)04, ECC/DEC/(06)08**, ECC/DEC(07)01**
3.2 Explanatory Note	In 3.2.2, Radio Frequency (RF) performance, we would like to add the option to provide	Compliance shall be verified through testing in accordance with ETSI EN 302 065, ETSI EN 302 066, FCC

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	compliance results with FCC Part 15, Subpart F (Ultra-Wideband Operation) and ANSI C.63	Part 15, **Subpart F (Ultra-Wideband Operation), ANSI C.63** or ITU-R SM.1754, where applicable.
	In 3.2.2.1 Transmission Activities, the emission mask and technical requirements don't fit the variety of the emission requirements for all applications under the ECC framework and miss the simplicity of the FCC regulations. In particular, we would like to suggest allowing transmissions at -41.3 dBm/MHz from 3.1 GHz to 10.6 GHz.	Given the variety of reference standards, we would suggest not to include an emission mask here, but to refer to the FCC and ECC regulations instead.
	Still in 3.2.2.1 Transmission Activities, bullet (c) introduces the so-called 10 second rule. Current UWB applications don't transmit continuously and will automatically cease transmission on a millisecond scale. This bullet is therefore superfluous and may safely be deleted. If you wish to impose a restriction, a duty cycle limit of 10% is probably more appropriate.	Delete 3.2.2.1 Transmission Activities, c.
Annex 1: TRC-TS-UWB Conformance Testing / Verification Checklist	Again we would like to suggest adding ECC Decision (07)01 to the list of ECC Decisions in the radio frequency cells.	Electronic Communications Committee (ECC) ECC/DEC/(04)03, ECC/DEC/(04)10, ECC/DEC/(06)04, ECC/DEC/(06)08**, ECC/DEC(07)01**
Annex 2: Glossary		
បរិសិដ្ឋទី៨៖ បទដ្ឋានបច្ចេកទេសនៃគ្រឿងសម្ភារៈបរិក្ខារប្រព័ន្ធដឹកជញ្ជូនឆ្លាត Appendix 8: Technical Standard of Intelligent Transport Systems (TRC-TS-ITS)		
Title		
Abbreviations		
Part 1. Introduction		

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3.2 Explanatory Note		
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Title		
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Part 3. Minimum Requirements for MAR Equipment		
3.1 Minimum Requirements for MAR Equipment		
3.2 Explanatory Notes		
Annex 1: TRC-TS-MAR Conformance Testing / Verification Checklist		
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អត្ថបទដើម Original Text	យោបល់ និងហេតុផល Comments and Reasons	សំណើកែលំអ Proposal for Improvement
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3.1 Minimum Requirements of Aeronautical Radio Equipment		
3.2 Explanatory Notes		
Annex 1: TRC-TS-AER Conformance Testing / Verification Checklist		
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Title		
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Part 2. Reference Standards		
Part 3. Minimum Requirements for AMR Equipment		
3.1 Minimum Requirement for AMR Equipment		
3.2 Explanatory Note		
Annex 1: TRC-TS-AMR Conformance Testing / Verification Checklist		

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Annex 2: Glossary		
បរិសិដ្ឋទី១២៖ បទដ្ឋានបច្ចេកទេសនៃទូរសព្ទចល័តសកលផ្កាល់ខ្លួនដែលដំណើរការដោយសេវាកម្មផ្កាយរណបគមនាគមន៍ Appendix 12: Technical Standard of Global Mobile Personal Communication Satellite (GMPCS) Terminals (TRC-TS-GMPCS)		
Title		
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Part 2. Reference Standards		
Part 3. Minimum Requirements for GMPCS Terminals		
3.1 Minimum Requirement for GMPCS Terminals		
3.2 Explanatory Note		
Annex 1: TRC-RTS- GMPCS Conformance Testing / Verification Checklist		
Annex 2: Glossary		
បរិសិដ្ឋទី១៣៖ **បទដ្ឋានបច្ចេកទេសនៃគ្រឿងសម្ភារៈបរិក្ខារចាប់ប៉ុស្តិ៍ទូរទស្សន៍សម្រាប់ការប្រើប្រាស់ជាមួយប្រព័ន្ធផ្សាយទូរទស្សន៍ឌីជីថលលើដីជំនាន់ទី ២** Appendix 13: Technical Standard of Integrated Receiver Decoder for Use with 2nd Generation Digital Terrestrial Television Broadcasting System (TRC-TS-DVB-T2-IRD)		
Title		
Abbreviations		
Part 1. Introduction		

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Part 2. Reference Standard		
Part 3. Minimum Requirements for IRD For Use with DVB-T2		
3.1 Minimum Requirement for IRD Equipment		
3.2 Explanatory Note		
Annex 1: TRC-TS-DVB-T2-IRD Conformance Testing / Verification Checklist		
Annex 2: Glossary		