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Saari, C.Z.B.

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National Space Legislation Future Perspectives for Malaysian Space Law

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de graad van Doctor aan de Universiteit Leiden,
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volgens besluit van het College voor Promoties
te verdedigen op dinsdag 21 oktober 2014
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Che Zuhaida Binti Saari

geboren te Kota Bharu, Kelantan (Malaysia) in 1971

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Prof. dr. N.J. Schrijver
Prof. dr. S.M. Williams (University of Buenos Aires, Argentina)

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To my parent and family,
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I dedicate this work.

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List of Abbreviations and Acronyms

ABC	All Asia Broadcast Centre
ACMA	Australian Communications and Media Authority
ADCS	Spacecraft Attitude Determination & Control Subsystem
AEGRS	ASEAN Experts Group on Remote Sensing
AIT	Assembly, Integration and Test
ANGKASA	Malaysian National Space Agency
APEC	Asia-Pacific Economic Cooperation
APRSAF	Asia-Pacific Regional Space Agency Forum
APT	Asia Pacific Telecommunity
ARABSAT	Arab Corporation for Space Communication
ASEAN	Association of Southeast Asian Nations
ASPC	Asia Pacific Space Centre Pty Ltd
ASRI	Australian Space Research Institute
AST	Office of Commercial Space Transportation United States
ASTRO	Astro All Asia Network Plc.
ATSB	Astronautic Technology (M) Sdn. Bhd.
BAKSA	<i>Bahagian Kajian Sains Angkasa</i>
BIS	Department for Business, Innovation and Skills United Kingdom
BNSC	British National Space Centre
CEDEX	Cosmic-Ray Energy Deposition Experiment
CLP	Current Legal Problems
COMSTAC	Commercial Space Transportation Advisory Committee
COST	Committee on Science and Technology
CRCSS	Cooperative Research Centre for Satellite Systems
CRISP	Centre for Remote Imaging, Sensing, and Processing of Singapore
CSA	Canadian Space Agency
CTO	Commonwealth Telecommunications Organization
DAE	Department of Atomic Energy India
DAS	Disaster Alert System
DBS	Direct Broadcasting by Satellite
DGPS	Differential Global Positioning System

DID	Department of Irrigation and Drainage
DLR	<i>Deutsches Zentrum für Luft- und Raumfahrt</i>
DMT	Digital Multimedia Terminal
DOC	Department of Commerce United States
DOD	Department of Defense United States
DOF	Department of Fisheries Malaysia
DOS	Department of State United States
DOT	Department of Transportation United States
DSO	Defence Science Organization of Singapore
DTH	Direct-To-Home
EADS	European Aeronautic Defence and Space Company
ECER	East Coast Economic Region
e-CFR	Electronic Code of Federal Regulations
ECSL	European Centre for Space Law
ELDO	European Launcher Development Organization
ESA	European Space Agency
EUMETSAT	European Organization for the Exploitation of Meteorological Satellites
FAA	Federal Aviation Administration United States
FCC	Federal Communications Commission United States
FDPM	Forestry Department of Peninsular Malaysia
FLAS	Fixed-line Alert System
GBAS	Ground-Based Augmentation System
GIS	Geography Information System
GISTDA	Geo-Informatics and Space Technology Development Agency Thailand
GMDSS	Global Maritime Distress and Safety System
GNSS	Global Navigation Satellite Systems
GPS	Global Positioning System
GSLV	Geosynchronous Satellite Launch Vehicle
HSC	Hughes Space and Communications Company
IAA	International Academy of Astronautics
IAASS	International Association for the Advancement of Space Safety
IAF	International Astronautical Federation
IASL	Institute of Air and Space Law
ICAO	International Civil Aviation Organization

ICJ	International Court of Justice
ICLQ	International and Comparative Law Quarterly
IDA	Infocomm Development Authority of Singapore
IGDP	Integrated Geospatial Database and Planning
IIASL	International Institute of Air and Space Law
IISL	International Institute of Space Law
IIUM	International Islamic University of Malaysia
IKAM	Malaysian Institute of Aero and Space Studies
ILA	International Law Association
ILQ	International Law Quarterly
IMCO	Inter-Governmental Maritime Consultative Organization
IMO	International Maritime Organization
IMSO	International Mobile Satellite Organization
INCOSPAR	Indian National Committee for Space Research
INMARSAT	International Maritime Satellite Organization
INSAT	Indian National Satellites system
INTELSAT	International Telecommunications Satellite Organization
IRPS	Image Receiving and Processing Systems
IRS	Indian Remote Sensing satellites
ISAC	ISRO Satellite Centre India
ISRO	Indian Space Research Organization
ISS	International Space Station
ITSO	International Telecommunications Satellite Organization
ITU	International Telecommunication Union
JAXA	Japan Aerospace Exploration Agency
JBIS	Journal of British Interplanetary Society
JILT	Journal of Information, Law and Technology
JMCL	Journal of Malaysian and Comparative Law
JUPEM	Department of Surveying and Mapping Malaysia
KLIA	Kuala Lumpur International Airport
LKIM	Fisheries Development Authority of Malaysia
LRIT	Long Range Identification and Tracking of Ships
LSO	Launch Safety Officer
MAC	Medium-sized Aperture Camera

MACRES	Malaysian Centre for Remote Sensing
MADA	MUDA Agricultural Development Authority
MARDI	Malaysian Agricultural Research and Development Institute
MASTIC	Malaysian Science and Technology Information Centre
MBNS	MEASAT Broadcast Network Systems Sdn Bhd
MCA	Malayan Chinese Association
MCI	Ministry of Communications and Information of Singapore
MEASAT	Malaysia East Asia Satellite
MEXT	Ministry of Education, Culture, Sports, Science and Technology
MGRS	MACRES Ground Receiving Station
MIC	Malayan Indian Congress
MICA	Ministry of Information, Communications and the Arts Singapore
MICT	Ministry of Information and Communication Technology Thailand
MIMOS Berhad	Malaysian Institute of Microelectronic Systems
MMD	Malaysian Meteorological Department
MMU	Malaysia Multimedia University
MOC	Mission Operation Centre
MOST	Ministry of Science and Technology Thailand
MOSTE	Ministry of Science, Technology, and Environment Malaysia
MOSTI	Ministry of Science, Technology, and Innovation Malaysia
MPL	Maximum Probable Loss
M-R2D2	Malaysian Research for Rocket Plane Design & Development
MRSA	Malaysian Remote Sensing Agency
MSC	Mission Control System
MSC	Multimedia Super Corridor
MTBC	MEASAT Teleport and Broadcast Centre
MUT	Mahanakorn University of Technology Thailand
MyRTKnet	Malaysia Real-Time Kinematic Network System
NAREM	National Resources and Environmental Management
NASA	National Aeronautics and Space Administration
NEA	National Environment Agency of Singapore
NEKMAT	National Fishermen Association
NEqO	Near Equatorial Orbit
NRCT	Thailand National Research Council

NTU	Nanyang Technological University Singapore
Ofcom	Office of Communications
OFR	Office of the Federal Registrar
Oftel	Office of Telecommunications
PBN	Performance Based Navigation
PKNS	Selangor State Development Corporation
PSLV	Polar Satellite Launch Vehicle
RGDIP	<i>Revue Général De Droit International Public</i>
RKA	Russian Federal Space Agency
RMAF	Royal Malaysian Air Force
RTM	Radio Television Malaysia
S2S	Sea to Space Division
SAC	Space Application Centre India
SBAS	Space Based Augmentation System
SCOSA	Subcommittee on Space Technology and Applications
SDC	Boeing Satellite Development Center
SDSC	Satish Dhawan Space Centre India
SFC	Space Future Consulting
SIM	Satellite Image Map
SISPELSAT	<i>Sistem Pelayaran Satelit</i>
SLASO	Space Licensing and Safety Office
SOAs	Satellite Operating Agencies
SpaceX	Space Exploration Technologies Corporation
SPL	Swiss Propulsion Laboratory
SSTA	Singapore Space and Technology Association
SSTL	Surrey Satellite Technology Ltd.
STARs	Standard Terminal Arrival Routes
STC	Saudi Telecommunications Company
STS	Space Transportation System
STS-MC	Space Tourism Society Malaysia Chapter
SWANS	Suborbital Water-Aero N'Spaceplane
TelBru	Telekom Brunei Berhad
TERLS	Thumba Equatorial Rocket Launching Station India
THEOS	Thailand Earth Observation Satellite

TRSC	Thailand Remote Sensing Centre
UiTM	MARA University of Technology
UKM	National University of Malaysia
UM	University of Malaya
UMNO	United Malay National Organization
UN ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNCOPUOS	United Nations Committee on the Peaceful Uses of Outer Space
UNGA	United Nations General Assembly
UniMAP	Universiti Malaysia Perlis
UNIMAS	Universiti Malaysia Sarawak
UPM	University of Putra Malaysia
USAKA	U.S. Army Kwajalein Atoll
USC	United States Code
USM	University of Science Malaysia
UTeM	University of Technical Malaysia
UTM	University of Technology Malaysia
UUM	Universiti Utara Malaysia
VSSC	Vikram Sarabhai Space Centre India
VTOL	Vertical Take-off and Landing
WMO	World Meteorological Organization
ZLR	<i>Zeitschrift für Luftrecht</i>
ZLW	<i>Zeitschrift für Luft- und Weltraumrecht</i>