MALAYSIAN STANDARD

MS 2232-2:2021

Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields - Part 2: For frequency from 100 kHz to 300 GHz (First revision)

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Contents

Contents *(continued)*

Page

Committee representation

The National Standards Committee on Generation, Transmission and Distribution of Energy (NSC E) under whose authority this Malaysian Standard was developed, comprises representatives from the following organisations:

Association of Consulting Engineers Malaysia
Department of Standards Malaysia (Secretariat)
Federation of Malaysian Manufacturers
Jabatan Kerja Raya
Malaysia Nuclear Power Corporation
Malaysian Cable Manufacturers Association
Malaysian Electrical Appliances and Distributors Association
Malaysian Green Technology and Climate Change Centre
Persatuan Kontraktor Elektrikal dan Mekanikal Melayu Malaysia
Sabah Electricity Sdn Bhd
Sarawak Energy Berhad
SIRIM QAS International Sdn Bhd
Suruhanjaya Komunikasi dan Multimedia Malaysia
Suruhanjaya Tenaga
Sustainable Energy Development Authority Malaysia
Tenaga Nasional Berhad
The Electrical and Electronics Association of Malaysia
The Institution of Engineers, Malaysia
Universiti Malaya
Universiti Teknologi Malaysia

The Technical Committee on Electromagnetic Field (NSC E/TC 6) which supervised the development of this Malaysian Standard consists of representatives from the following organisations:

Department of Standards Malaysia (Secretariat)
Malaysian Medical Association
Malaysian Nuclear Agency
Ministry of Health Malaysia (Engineering Services Division)
Ministry of Health Malaysia (Medical Radiation Surveillance Division)
Suruhanjaya Komunikasi dan Multimedia Malaysia
Suruhanjaya Tenaga
Tenaga Nasional Berhad (Transmission Division)
The Institution of Engineers, Malaysia
TM Research and Development Sdn Bhd
Universiti Malaya (Department of Biomedical Engineering)
Universiti Malaya (Department of Electrical Engineering
Universiti Malaysia Perlis (School of Computer and Communication Engineering)
Universiti Putra Malaysia (Department of Electrical and Electronic Engineering)
Universiti Teknologi Malaysia (School of Electrical Engineering)
Universiti Teknologi MARA (Faculty of Electrical Engineering)
Universiti Tenaga Nasional (College of Engineering)

The Working Group on Radiofrequency for Electromagnetic Field (NSC E/TC 6/WG 2) which developed this Malaysian Standard consists of representatives from the following organisations:

Department of Standards Malaysia (Secretariat)
Malaysian Nuclear Agency
Ministry of Health Malaysia (Engineering Services Division)
Ministry of Health Malaysia (Medical Radiation Surveillance Division)
Suruhanjaya Komunikasi dan Multimedia Malaysia
TM Research & Development Sdn Bhd
Universiti Malaya (Faculty of Electrical Engineering)
Universiti Malaysia Perlis
Universiti Teknologi Malaysia (School of Electrical Engineering)
Universiti Teknologi MARA
Universiti Tenaga Nasional

Foreword

This Malaysian Standard was developed by the Working Group on Extremely Low Frequency for Electromagnetic Field (NSC E/TC 6/WG 2) under the authority of the National Standards Committee on Generation, Transmission and Distribution of Energy (NSC E).

This Malaysian Standard is the first revision of MS 2232-2:2010, Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields - Part 2: For frequency from 3 kHz to 300 GHz.

Major modifications in this revision are as follows:

a) the title has been changed to “Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields - Part 2: For frequency from 100 kHz to 300 GHz (First revision)”;

b) update on scope;

c) added definition as follows:

   i) controlled area;

   ii) general public; and

   iii) workers.

d) update on basic restriction, reference levels and guidance for contact currents based on ICNIRP Guidelines - For Limiting Exposure to Electromagnetic Fields (100 kHz to 300 GHz):2020;

e) update tables 1 until 8 as in the revised ICNIRP document;

f) update figures 1 and 2 on reference levels for time averaged occupational and general public exposure of ≥6 min, to electromagnetic fields from 100 kHz to 300 GHz;

g) update on simultaneous exposure to multiple frequency fields as in the revised ICNIRP document;

h) added new subclause on radiofrequency (RF) radiation and children health;

i) insertion of equation numbers on clause 6: Simultaneous exposure to multiple frequency fields;

j) remove on precautionary principles;

k) update on normative references; and

l) update on Annex B regarding measurement and evalution of RF fields and Annex D regarding summary of biological effects and epidemiological studies (100 kHz to 300GHz).