

***Response to iDA's Public
Consultation on Proposed
Regulatory Framework for 60 GHz
Frequency Band***

Submitted by

*iDA Telecommunications Standards
Technical Committee*

Working Group 2 – Home Networking

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1. General

- 1.1. The WG2 welcomes iDA's proposal on the addition of the 60 GHz frequency band for home networking applications.
- 1.2. The 60 GHz band offers significant advantages with the availability of large spectral bandwidth to deliver high bit rate data. New applications such as wireless uncompressed video delivery in home will facilitate ease of Audio-Video networking, and eliminate the clutters of wires connecting multitude of equipment to the television set, for example.
- 1.3. However, the WG notes that the harmonisation of 60 GHz activities for home networking is far from mature. Industry leading groups such as Wireless HD and WiGig are competing, whilst the 802.11ad standard is work in progress, and not expected to complete before 2012.
- 1.4. With this in mind, the regulatory framework will need to accommodate these technologies and minimise mutual interference when the technologies co-exist in a home.
- 1.5. The WG's response submitted herewith is focused on the use of 60 GHz frequency band for home networking and in that regard, any interference concerns from outdoor usage in the same spectrum.

2. Views and Comments on iDA's Proposed Regulatory Framework

2.1 Compatibility Report with ITS (63~64 GHz).

CEPT/ECC has designated the 63~64 GHz band for ITS applications with limits set at 40 dBm (E.I.R.P.). The CEPT/ECC Report 113 concludes that ITS systems are affected by other Fixed Services operating close to the ITS band.

In addition, interference from low radiation devices may need to be considered, given that the proposed operating frequency band spans the ITS band with similar power limits.

2.2 Proposed Frequency Bands

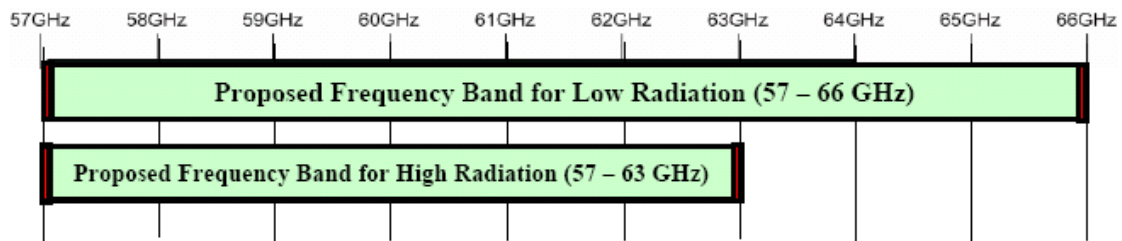


Figure 1: Proposed Frequency Allocation¹

The WG supports the allocation of the full 57~66 GHz band for low-power radiating equipment, but submits that interference with ITS band will need to be further studied and addressed, if use of ITS applications are expected in Singapore.

Guard bands of 100 MHz at each end of the spectrum will safeguard operations of other services in the adjacent frequencies.

¹ Ref: iDA Consultation Paper on Proposed Regulatory Framework for 60 GHz Frequency Band, 19 Feb 2010.

2.3 Proposed Channel Plan

The WG notes that no channel plan has been proposed for low-power radiating devices.

WG is unable to propose a channel plan at this time, and proposed to work jointly with iDA to look into a feasible channel plan.

2.4 Proposed Technical Framework

Applications	Authorised Frequency Band	RF Output Power (EIRP)	Key Requirements
MGWS WPAN/WLAN	57 – 66 GHz	Not to exceed 25dBm (0.3W)	Maximum mean e.i.r.p density is limited to -2 dBm/MHz
		Not to exceed 40dBm (10W)	Maximum mean e.i.r.p density is limited to 13 dBm/MHz
Non-specified SRDs	61.0 - 61.5 GHz	Not to exceed 20dBm (100 mW)	For industrial, scientific and medical (ISM) applications as defined in ITU Radio Regulations.

Figure 2: Proposed Spectral Limits¹

The WG seeks clarification on the usage conditions on the two differing power limits cited (25dBm and 40 dBm).

The WG is of the opinion that the setting aside of the “Non-Specified SRDs” may not be required if the entire band is allocated for unlicensed usage. The “Non-Specified SRD” band may potentially increase complexity for 60 GHz systems due to the need to avoid the ISM band, and may also hinder the performance of the wideband systems.

The WG also recommends to standardise the use of Maximum Mean E.I.R.P. or Maximum Transmit Output PSD for both low and high power limits to avoid any confusion.

¹ Ref: iDA Consultation Paper on Proposed Regulatory Framework for 60 GHz Frequency Band, 19 Feb 2010.

2.5 Cap on RF Output Power

The WG supports imposing a cap on the RF output power. The detailed value will need to be further studied with considerations on the application and health impacts.

2.6 License Exemption for Low-radiated Power Devices (≤ 40 dBm)

The WG supports the exemption of low-radiated power devices (< 40 dBm EIRP) from licensing. This will encourage innovation and allow better spectrum utilization. Conditions of interference mitigating techniques should however be included as with the use of 2.4GHz ISM or 5 GHz UNII bands.

2.7 Full Licensing Approach for High Radiation Equipment

The WG supports the full licensing approach for high radiation equipment.

2.8 Safety Aspects of 60 GHz Wireless Systems

The WG would like to highlight that the report cited by Sibeam is more applicable for low-power radiation devices. The safety limits for high power radiation equipment should be verified and the appropriate capped on power limit should be specified.

The WG further suggests the inclusion of human body safety guidelines in the proposed regulatory framework, for example, the International Commission on Non-ionizing Radiation Protection (ICNIRP) guideline: Guidelines for Limiting Exposure to Time-varying Electric, Magnetic, and Electromagnetic Fields (up to 300GHz).

The WG further submits that close collaboration between IDA and National Environment Agency (NEA) to ensure RF radiation from high radiation equipment within safety limits is important.