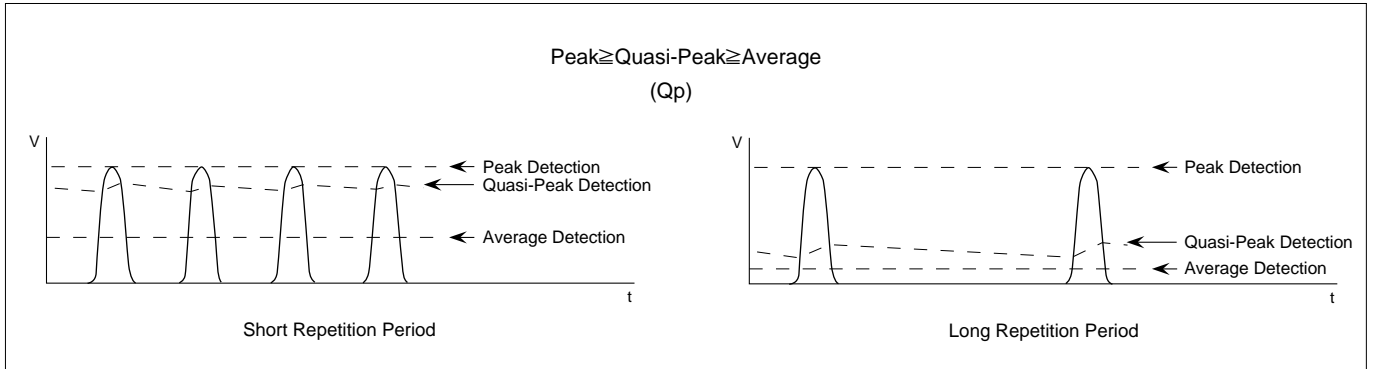


## Outlines of Major Noise Regulation Standards

☐ Continued from the preceding page.

### 2. Measurement Point and Noise Detection

Regulation	Measuring Item	Polarization and Measuring Point	Frequency (Hz)	Detection	Measuring Devices
CISPR 22/ EN55022	Radiated Interference	Horizontal Pol. Vertical Pol.	30M to 1GHz	Quasi-Peak Detection	Antenna
	Main Interference Voltage	AC Main Ports	150k to 30MHz	Quasi-Peak Detection Mean Detection	Artificial Main Network
VCCI	Radiated Interference	Horizontal Pol. Vertical Pol.	30M to 1GHz	Quasi-Peak Detection	Dipole Antenna
	Main Interference Voltage	AC Main Ports	150k to 30MHz	Quasi-Peak Detection Mean Detection	Artificial Main Network
FCC Part 15	Radiated Interference	Horizontal Pol. Vertical Pol.	30M to 40GHz	Quasi-Peak Detection Mean Detection	Antenna
	Main Interference Voltage	AC Main Ports	150k to 30MHz	Quasi-Peak Detection	Artificial Main Network



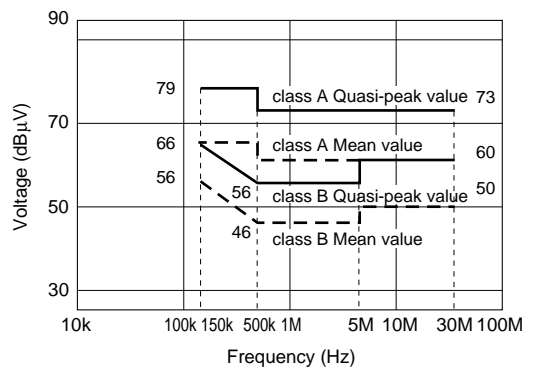
### 3. Limits of CISPR 22/EN55022

(1) CISPR 22 recommends measurement at 10m distance. However, other distance is acceptable if the limitation is converted according to the following calculation. Limitation shown left is converted to limitation for 3m distance.

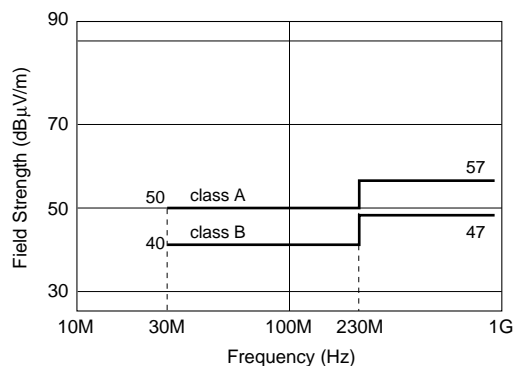
Conversion

Limitation for 10m Distance	→	Limitation for 3m Distance
R <sub>10</sub> (dB μ V/m)		R <sub>3</sub> (dB μ V/m)
r <sub>10</sub> (μ V/m)		r <sub>3</sub> (μ V/m)
R <sub>10</sub> = 20 log r <sub>10</sub>		R <sub>3</sub> = 20 log r <sub>3</sub>
		R <sub>3</sub> = R <sub>10</sub> + 20 (1 - log 3)
		$r_3 = \frac{10}{3} r_{10}$

[Main Terminal Interference Voltage (Power Supply)]



[Radiated Interference]



On the border frequency, lower limit should be applied.

Class A Equipment: The equipment which is used in light industrial commercial areas.

Class B Equipment: The equipment which is used in residential areas.

Continued on the following page. ☐

## Outlines of Major Noise Regulation Standards

☐ Continued from the preceding page.

### (2) Scope of CISPR 22 Regulation

This regulation applies to information technology equipment (ITE) which is defined as:

- (a) Equipment that receives data from external signal sources;
- (b) Equipment that processes received data;
- (c) Equipment that outputs data; and
- (d) Equipment that has less than 600V rated voltage in power supply.

### [CISPR Regulations]

- CISPR 10 Organization, Regulations and Procedures of CISPR
- CISPR 11 Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment
- CISPR 12 Vehicles, Motor Boats and Spark-Ignited Engine driven
- CISPR 13 Sound and Television Receivers
- CISPR 14 Household Electrical Appliances, Portable Tools and Similar Electrical Apparatus
- CISPR 15 Fluorescent Lamps and luminaries
- CISPR 16 Radio Interference Measuring Apparatus and Measurement Methods
- CISPR 17 Passive Radio Interference Filters and Suppression Components
- CISPR 18 Power Transmission Cables and High Voltage equipment
- CISPR 19 Microwave Ovens for Frequencies above 1GHz
- CISPR 20 Immunity of Sound and TV Broadcast Receivers and Associated Equipment
- CISPR 21 Interference to Mobile Radio communications in the Presence of Impulsive Noise
- CISPR 22 Information Technology Equipment
- CISPR 23 Industrial Scientific and Medical (ISM) Equipment
- CISPR 24 Immunity Regulation of Information Technology Equipment
- CISPR 25 Receiver used on board vehicles, boats, and on devices

### 4. Limits of VCCI Voluntary Regulation

- (1) VCCI recommends measurement at 10m distance; 3m or 30m distance measurements are also allowed.

### (2) Scope of VCCI Voluntary Regulation

This regulation applies to information technology equipment (same as CISPR Pub.22), but the application is excluded on the following equipment:

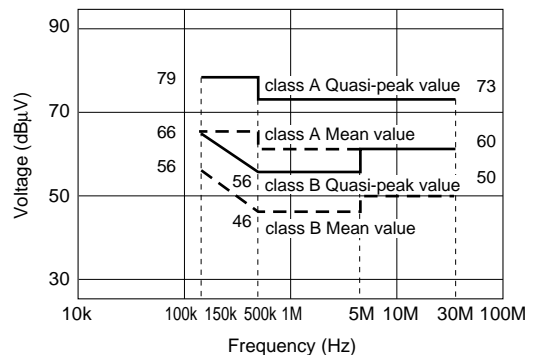
- Equipment for which other regulations already exist (e.g., household electrical appliances, radio and TV receivers)
- In station equipment principal purpose of which is electrical communication
- Industrial plant control system for which information processing is a secondary system function
- Industrial, commercial and medical testing and measuring systems for which data processing is a secondary system function
- Information equipment for which CISPR is conducting further deliberation

VCCI is the acronym of Voluntary Control Council for Interference by Data Processing Equipment and Electronic Office Machines.

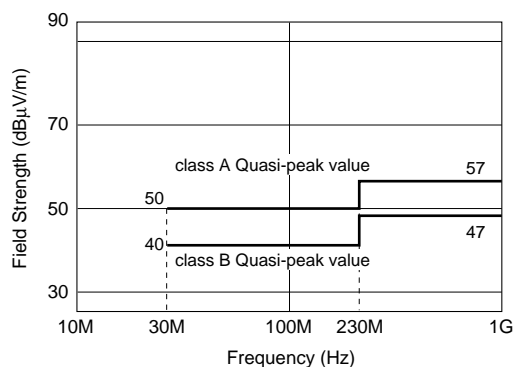
VCCI is organized by the following organizations:

- Japan Electronics and Information Technology Industries Association (JEITA)
- Japan Business Machine and Information System Industries Association (JBMA)
- Communication and Information Network Association of Japan (CIAJ)

### [Main Terminal Interference Voltage (Power Supply)]



### [Radiated Interference]



On the border frequency, lower limit should be applied.

Class B ITE: Equipment that is designed to be used at home.  
 Class A ITE: Equipment that does not meet interference limits of class B equipment, but satisfies interference limits of class A equipment.

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## Outlines of Major Noise Regulation Standards

☐ Continued from the preceding page.

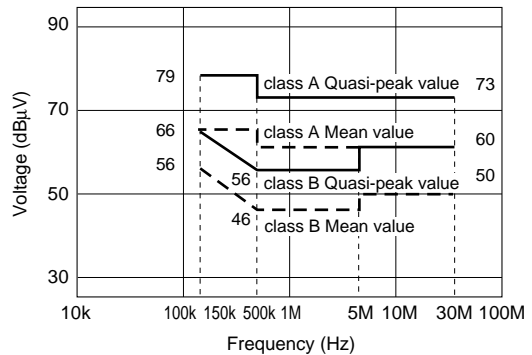
### 5. Limits of FCC Part 15 Subpart B

- (1) Class A recommended to be measured with 10m distance.  
Class B recommended to be measured with 3m distance.
- (2) The FCC Part 15 regulation controls radiated interference by establishing quasi-peak and mean value limits for frequencies ranging from 30MHz to 40GHz (or maximum frequency's fifth harmonic, whichever is lower).  
For AC main ports, the FCC Part 15 regulation controls main terminal interference voltage by establishing quasipeak value limits for frequencies ranging from 450kHz to 30MHz.

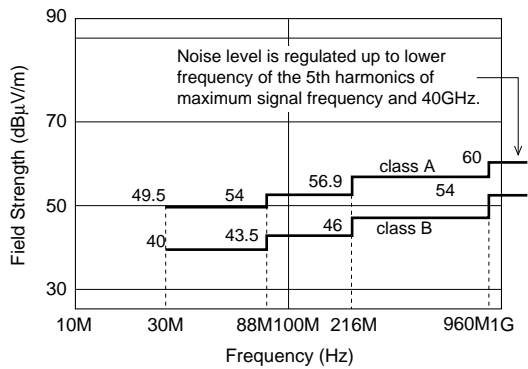
Measurement Frequency Range for Radiated Interference

Maximum Frequency the Equipment Internally Generates, Uses or Operates or Synchronizes (MHz)	Upper End of Measurement Frequency Range (MHz)
Less than 1.705	30
1.705 to 108	1000
108 to 500	2000
500 to 1000	5000
Over 1000	Maximum Frequency's Fifth Harmonic or 40GHz, Whichever is Lower

[Main Terminal Interference Voltage (Power Supply)]



[Radiated Interference]



On the border frequency, lower limit should be applied.

Class A Equipment: The digital equipment that is sold for commercial, industrial and office use.

Class B Equipment: The digital equipment that is sold to be used in residential areas.

- (3) There is no regulation on power interference.

[FCC Regulations]

- Part 1 Procedures
- Part 2 Frequency Division and Radio Wave Treaty Issues and General Rules
- Part 15 Radio Wave Equipment
  - Intentionally electromagnetic radiation equipment
  - Non-intentionally electromagnetic radiation equipment
  - Incidentally electromagnetic radiation equipment
- Part 18 Industrial, Scientific and Medical Equipment
- Part 22 Public Mobile Wireless Operations
- Part 68 Connecting Terminal Equipment to Telephone Circuit Network
- Part 76 Cable Television

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