

ANSI C63.12 History

**ANSI Accredited Standards Committee
C63®**

**ANSI C63® Web site:
www.c63.org**

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C63.12 Ancient History (1987)



- ⌘ **First issue approved December 2, 1983**
- ⌘ **Published as a 1984 document by the IEEE**
- ⌘ **Based on 1977 draft that was prepared due to the increasing interference that occurred during the 1970's with the proliferation of all forms of consumer and commercial electronic devices**
- ⌘ **It is a “Recommended Practice” which is informational only and fully voluntary**
- ⌘ **Second edition published December 31, 1987 in response to changes in both domestic and international EMC regulations and in response to the greatly increased awareness about EMC and improved receivers and measuring techniques embodied in various CISPR, FCC, and ANSI C63® documents**

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- ⌘ **Used internationally recognized studies of the existing ambient noise levels over the frequency range of 200 kHz to 200 MHz as the basis for protecting the then-current background noise levels from further contamination**
- ⌘ **Refers to both Industrial/Commercial and Residential/Domestic protection environments**
- ⌘ **Set the measuring distance at 10 m for residential/domestic and 30 m for commercial/industrial environments**
- ⌘ **Covered 10 kHz to 10 GHz with suggested radiated emission guidelines**
- ⌘ **Covered 10 kHz to 30 MHz with suggested conducted emission guidelines**

C63.12 Ancient History (1987)



- ⌘ **Had radiated limits for both Quasi-peak and Average detectors**
- ⌘ **Covered allocation of emissions for large systems comprised of many frames or building blocks of apparatus based on the power feeding the system; this unique approach is not used anywhere else**
- ⌘ **Briefly mentioned both conducted and radiated Immunity/Susceptibility for the frequency range of 10 kHz to 10 GHz**
- ⌘ **Radiated immunity levels were 1 V/m for “Normal”, 6 V/m for “High” and 30 V/m for “Severe” environments**
- ⌘ **Document was relatively unstructured compared to current ANSI C63® publications as it was intended as additional information on limit selection if there were no regulatory obligation**

C63.12 Modern? History (1999)



- ⌘ **Approved December 14, 1999**
- ⌘ **Reissued in response to changes in international emission requirements and in military immunity techniques and requirements**
- ⌘ **Considered interference to other than pure radio systems for the first time**
- ⌘ **Revised immunity requirements were 1 V/m for “Low”, 3 V/m for “Normal”, 10 V/m for “High and “X” for “Severe” environments**
- ⌘ **Added requirements for “Fast Transients and Surges”, “Electrostatic Discharge” (ESD), and “Voltage Dips”**
- ⌘ **Referenced IEC Documents current as of 1999.**

C63.12 Modern? History (1999)

Table 7—Generic immunity limits

	Frequency of time char.	Limits residential environment	Limits industrial environment	Limits severe environment	Performance degradation criteria ^a	Test method
Radiated H-field ^b	Pulse	—	—	100 A/m	A)	IEC 61000-4-9
Radiated H-field ^b	57 to 63 Hz	3 A/m ^c	30 A/m	—	A)	IEC 61000-4-8
Radiated E-field	N ^d MHz to 2.5 GHz 80% mod. 1 kHz	3 V/m ^e (unmod.)	10 V/m ^e	200 V/m	A)	RS103 ^f IEC 61000-4-3 ^g
ESD	Electrostatic discharge	4 kV contact 8 kV air	4 kV contact 8 kV air	6 kV contact 15 kV air	B)	IEC 61000-4-2
Voltage dips ^{h, i}	1/2 period 6 periods	30% reduction 60% reduction	30% reduction 60% reduction	30% reduction 60% reduction	B) for 1/2 period C) for 6 periods	IEC 61000-4-11
Voltage interruption	300 periods	>95% reduction	>95% reduction	>95% reduction	C)	IEC 61000-4-11
Surge common mode ^j	1.2/50 (8/20) 10/700 ^k μs	±2 kV ^l	±4 kV ^m	6 kV	B)	IEC 61000-4-5 C62.45 ⁿ
Surge differential mode ^j	1.2/50 (8/20) μs	±1 kV ^l	±2 kV ^m	3 kV	B)	C62.45 ⁿ IEC 61000-4-5
Fast transients power-port	5/50 ns 5kHz rep rate	±1 kV	±2 kV	2 kV	B)	IEC 61000-4-4
Fast transients signal port	5/50 ns 5kHz rep rate	±0.5 kV ^o	±2 kV ^p	1 kV ^o	B)	IEC 61000-4-4
Radio frequency common mode, 1 kHz, 80% AM ^j	150 kHz to X MHz ^d	3 V (rms) ^{e, o} 150 Ω source impedance	10 V (rms) ^{e, o, q} 150 Ω source impedance	30 V (rms) ^e 150 Ω source impedance	A)	CS114 ^f IEC 61000-4-6

C63.12 (1999) + Future



- ⌘ **1999 edition will be reaffirmed by C63® in 2009**
- ⌘ **Will be in effect for 10 more years unless there is interest to amend and a working group formed to do the work**
- ⌘ **Any volunteers? If so, contact the secretary at: m.kipness@ieee.org or the author**