Another EMC resource
from EMC Standards

CE + CE does not = CE - what to do instead for EMC

Helping you solve your EMC problems

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CE + CE *does not* = CE !

– what to do instead for EMC

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- **First issue**

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Good Electromagnetic (EM) Engineering…

- is cost-effective SI, PI and EMC engineering: well-proven to save time & money in all lifecycle stages, helping to increase profits & reduce financial risks…
- for PCBs, modules, sub-assemblies, devices, products, equipment, vehicles, sub-systems, systems, installations, etc., etc.; of any size, in all applications

see Module 1 especially 1.15 (also in Webinar 1c) and 1.16 (also in Webinar 1d)

- This Module contains many EM Engineering guidelines that should *also* be used as an initial design checklist: *any that can't or won't be followed identify a project risk!*

see Module 1, section 1.16 (also in Webinar 1d)

- to adapt any λ-based design guidelines to different EMC standards, *see Module 1, section 1.18* *(also in Webinar 1d)*

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Contents

Keep up to date with new versions of this course module!
Visit: www.emcstandards.co.uk/emc-for-systems-installations2

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Important note:
CE + CE *does not* equal CE for Safety compliance too

- The basic principles expressed in this course module, also apply to safety compliance…
  - for example, I have a version of this course module which replaces 'EMC' with 'safety'…
    - and replaces EMC standard numbers with safety standard numbers…
    - plus has a few other detailed changes, which do not affect the basic principles

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Selecting Commercial Off-the-Shelf (COTS) items for their EMC when integrating them into a new product

- This course module is equally applicable to:
  - systems and installations of any size or scale…
    - commercial, IT, industrial, residential, transportation, etc.
  - finished products…
    - machines, equipment, computers, vehicles, etc.
  - sub-assemblies and "components"
    - such as PLCs, power supplies, motor drives, pneumatic solenoids, valve islands, modules, assembled PCBs, etc.

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Why "CE+CE=CE" cannot achieve due diligence for EMC compliance

(an engineering approach is required instead)

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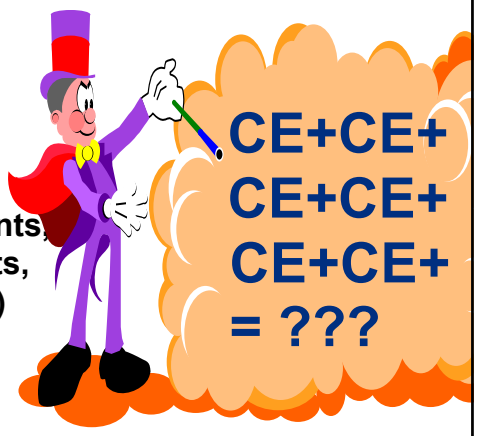
CE + CE = CE is a nice idea

- **It would be nice if we could simply use CE-marked "parts" to build our final "product"**
  (whether the "parts" are components, modules, sub-assemblies, products, or even systems in their own right)



- **But we need to have confidence that this would ensure actual EMC compliance for our "product"**
  - **e.g. compliance with its relevant EMC test standards**

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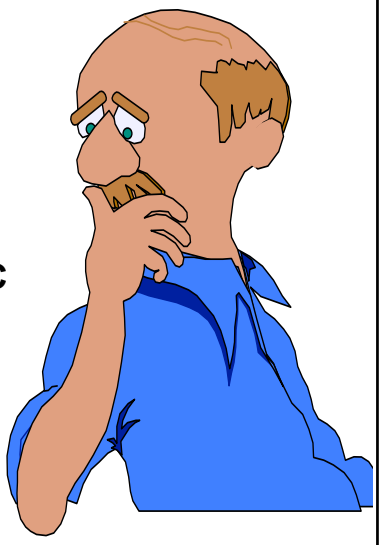
CE+CE is unreliable because:

- Some suppliers lie, or don't try very hard, or get it wrong
- Test set-ups can differ from actual assembly or installation
  - making nonsense of the part's EMC test data
- Some test labs get it wrong
- Emissions can add up



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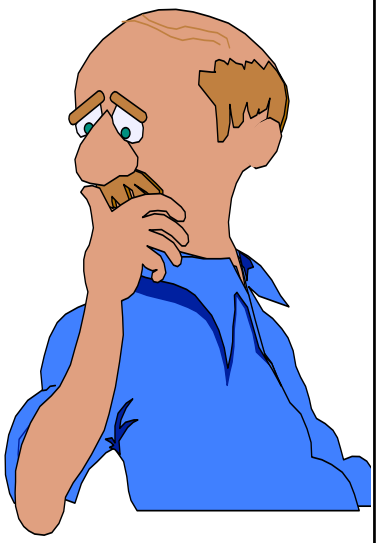
CE+CE is unreliable continued...

- Apparatus declared compliant by technical arguments instead of testing may never have been competently assessed…
  - or assessor's recommendations or warnings ignored
- When test purchases are made by enforcement authorities…
  - they generally find between 25% and 50% do not comply with all relevant Directives…



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