International Telecommunication Union

ITU-T

TELECOMMUNICATION
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K.44

Amendment 1

(04/2015)

SERIES K: PROTECTION AGAINST INTERFERENCE

Resistibility tests for telecommunication equipment exposed to overvoltages and overcurrents

Amendment 1

Recommendation ITU-T K.44 (2012) – Amendment 1

International Telecommunication Union

Recommendation ITU-T K.44

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Amendment 1

Summary

Amendment 1 to Recommendation ITU-T K.44 (2012) introduces changes to the following clauses:

- 3.1 Definitions
- 10 Tests
- A.3 Test generators
- A.6.2 Coaxial ports
- A.6.7 Ethernet ports

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T K.44	2000-02-25	5	11.1002/1000/4907
2.0	ITU-T K.44	2003-07-29	5	11.1002/1000/6496
3.0	ITU-T K.44	2008-04-13	5	11.1002/1000/9403
4.0	ITU-T K.44	2011-11-13	5	11.1002/1000/11422
5.0	ITU-T K.44	2012-05-29	5	11.1002/1000/11629
5.1	ITU-T K.44 (2012) Cor. 1	2013-03-16	5	11.1002/1000/11902
5.2	ITU-T K.44 (2012) Amd. 1	2015-04-22	5	11.1002/1000/12406

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* To access the Recommendation, type the URL http://handle.itu.int/ in the address field of your web browser, followed by the Recommendation's unique ID. For example, http://handle.itu.int/11.1002/1000/11830-en.

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Recommendation ITU-T K.44

Resistibility tests for telecommunication equipment exposed to overvoltages and overcurrents

Amendment 1

1) Clause 3.1 (Definitions)

Add the following definition:

3.1.36 1.2/50-8/20 combination wave generator (CWG): Generator producing a 1.2/50 open-circuit voltage waveshape and an 8/20 short-circuit current waveshape.

2) Clause 10 (Tests)

Replace the two rows corresponding to "Power induction and earth potential rise" of Table 2a with:

Table 2a – Applicable tests for external ports

Power induction and/or earth potential rise	Single	Transverse/ differential	No	10.1.3	10.2.4	10.3.3	n.a.
		Port to earth	No	10.1.3	n.a.	10.3.3	10.4.2 Under study
		Port to external port	No	10.1.3	n.a.	10.3.3	10.4.2 Under study
Power induction and/or earth potential rise	Single	Transverse/ differential	Yes	10.1.3	10.2.4	10.3.3	n.a.
		Port to earth	Yes	10.1.3	n.a.	10.3.3	Under study
		Port to external port	Yes	10.1.3	n.a.	10.3.3	Under study

3) Clause A.3 (Test generators)

Replace:

The test generator may be a combination wave generator according to [IEC 61000-4-5] (Figure A.3-5) or an equivalent 1.2/50 μs voltage surge generator.

With:

The test generator may be a 1.2/50-8/20 combination wave generator as detailed in Figure A.3-5 or an equivalent 1.2/50 voltage surge generator.

4) Clause A.3 (Test generators)

Replace:

– if suitable, a combination wave generator according to [IEC 61000-4-5] (Figure A.3-5).

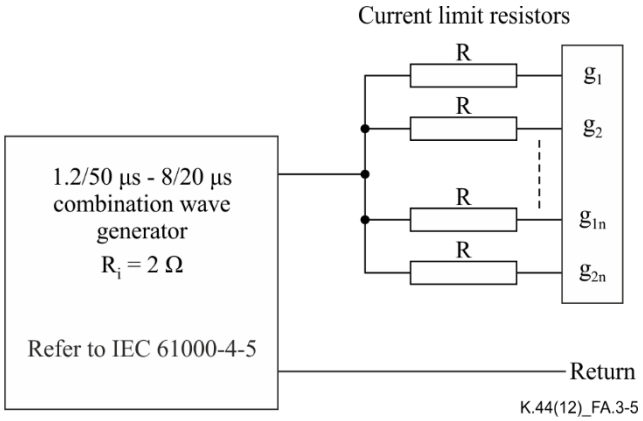
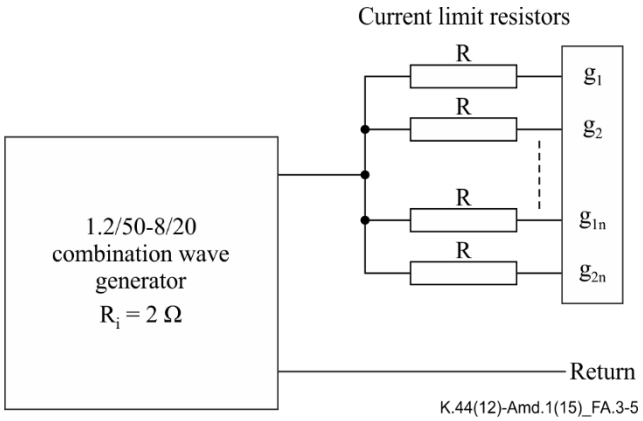


Figure A.3-5 – Combination wave generator

With:

– if suitable, a combination wave generator as detailed in Figure A.3-5.



NOTE 1 – The 1.2/50 open-circuit voltage waveshape shall be according to [IEC 60060-1] having a front time of 1.2 µs ± 30% and a time to half value of 50 µs ± 20%.

NOTE 2 – The 8/20 short-circuit current waveshape shall be according to [IEC 62475] having a front time of 8 µs ± 20% and a time to half value of 20 µs ± 20%. The opposite polarity current undershoot shall not exceed 30% of the peak current.

NOTE 3 – The ratio of peak open-circuit voltage to short-circuit current Ri shall be 2 Ω ± 10%.

Figure A.3-5 – Combination wave generator

5) Clause A.6.2 (Coaxial ports)

Replace:

See Figures A.6.2-2 and A.6.2-3.

With:

See Figures A.6.2-1, A.6.2-2 and A.6.2-3.

6) Clause A.6.7 (Ethernet ports)

Replace:

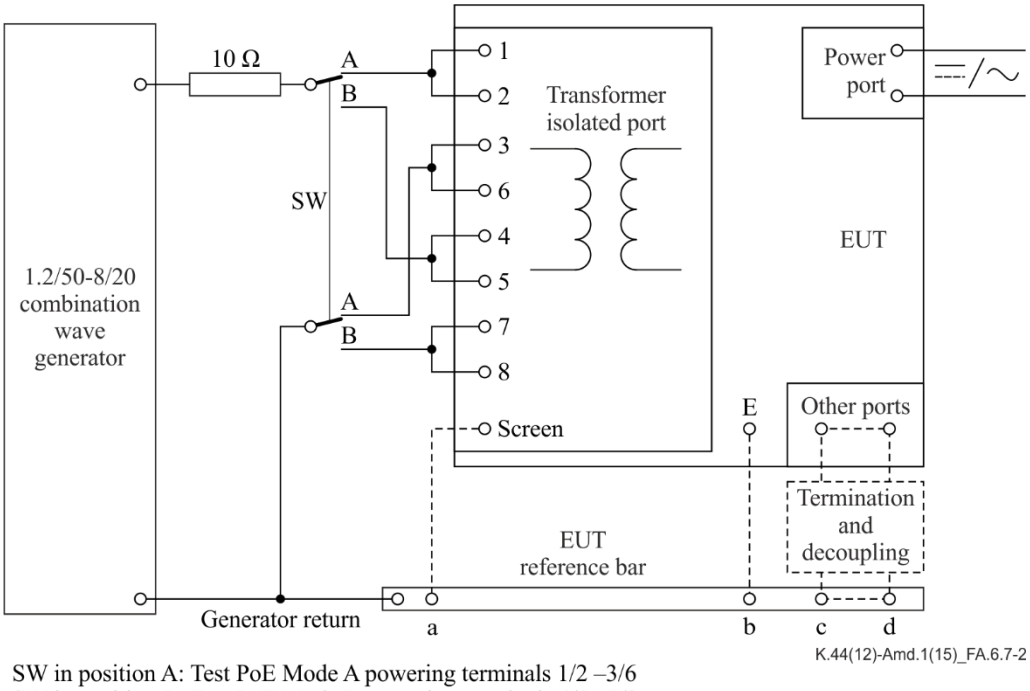
Figure A.6.7-3 gives the schematic for determining the d.c. insulation resistance.

With:

Figure A.6.7-3 gives the schematic for determining the d.c. insulation resistance and Figure A.6.7-3a provides the schematic for determining the Ethernet port rated impulse voltage.

7) Clause A.6.7 (Ethernet ports)

Replace Figure A.6.7-2 with the figure below (generator now labelled as 1.2/50-8/20 CWG):

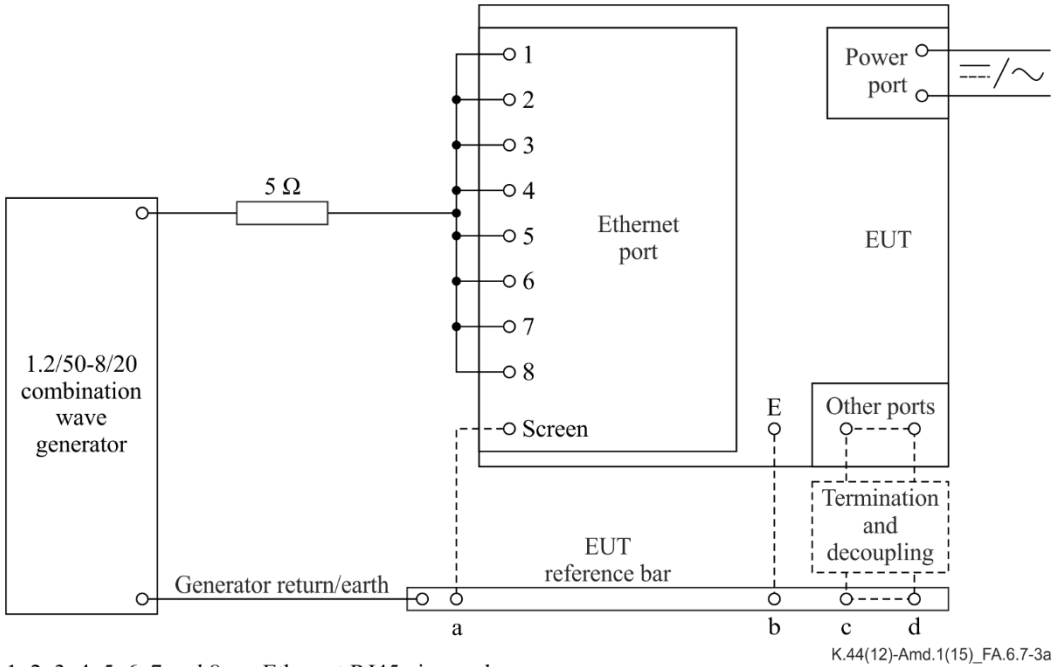


SW in position A: Test PoE Mode A powering terminals 1/2 –3/6
SW in position B: Test PoE Mode B powering terminals 4/5 –7/8
a = RJ45 screen cable connection
b = EUT protective or functional earth connection
c to d = Terminals of all other signal ports
1, 2, 3, 4, 5, 6, 7 and 8 are Ethernet RJ45 pin numbers

NOTE – For power sourcing equipment (PSE), midspan power insertion equipment and powered device (PD) ports, test in Switch (SW) positions A and B. If the power sourcing equipment specifies the powering pairs, then the testing is only done on those pairs.

8) Clause A.6.7 (Ethernet ports)

Add Figure A.6.7-3a to provide a test schematic for determining the Ethernet port longitudinal mode withstand level.

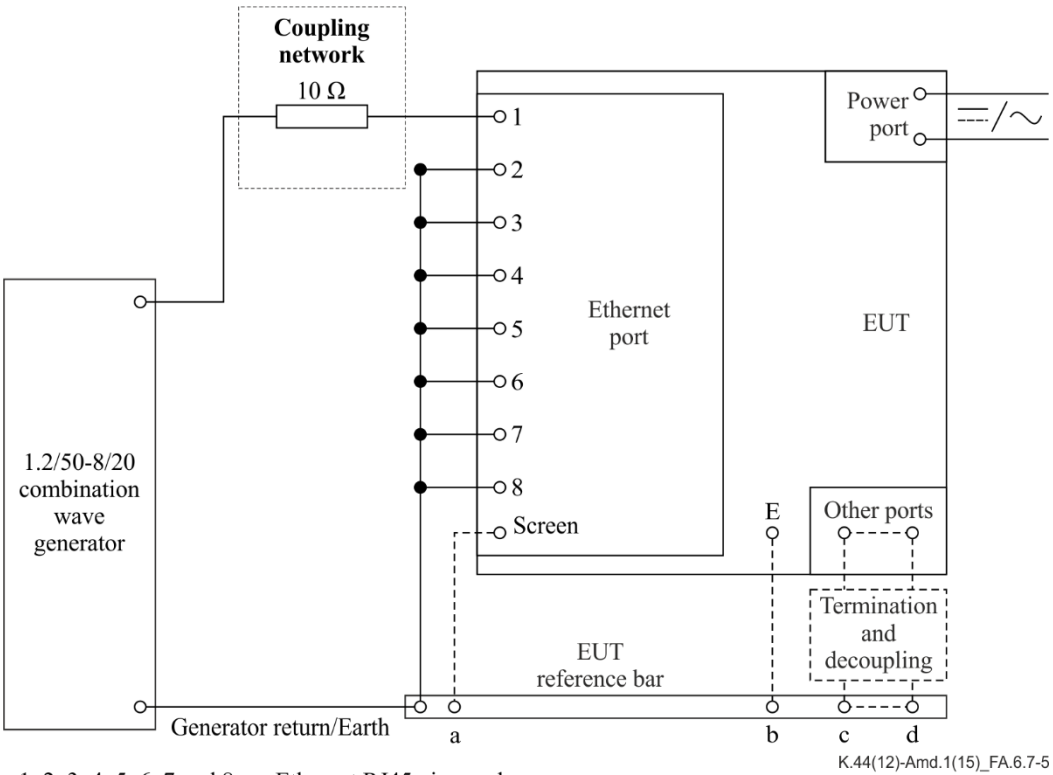


1, 2, 3, 4, 5, 6, 7 and 8 are Ethernet RJ45 pin numbers
a = RJ45 screen cable connection
b = EUT protective or functional earth connection
c to d = Terminals of all other signal ports

Figure A.6.7-3a – Ethernet port longitudinal/common mode withstand test circuit

9) Clause A.6.7 (Ethernet ports)

Add Figure A.6.7-5 to provide a test schematic for Ethernet port transverse/differential surge testing.



1, 2, 3, 4, 5, 6, 7 and 8 are Ethernet RJ45 pin numbers
a = RJ45 screen cable connection for STP connections
b = EUT protective or functional earth connection
c to d = Terminals of all other signal ports

NOTE – This test is conducted to each lead (1-8) separately connected to the generator one at a time, with all of the other leads grounded.

Figure A.6.7-5 – Ethernet port transverse/differential surge test circuit

10) Clause A.6.7 (Ethernet ports)

Add Figure A.6.7-6 to provide a shielded twisted pair (STP) shield testing configuration.

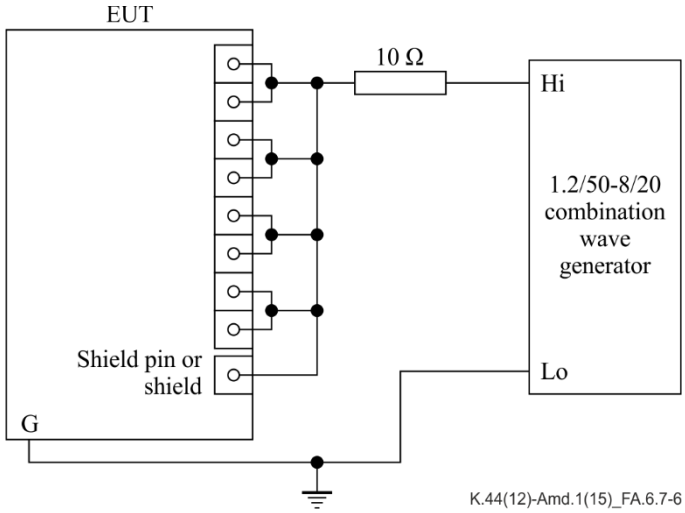


Figure A.6.7-6 – Shielded twisted pair (STP) Ethernet testing

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