Test Report issued under the responsibility of:

TEST REPORT
IEC 62561-2
Lightning Protection System Components (LPSC) – Part 2: Requirements for Conductors and Earth Electrodes

Report Number. ..... :	**4786927780**
Date of issue ..... :	**2016-01-19**
Total number of pages ..... :	**15**
Name of Testing Laboratory preparing the Report ..... :	**UL LLC**
Applicant's name ..... :	**ERICO INTERNATIONAL CORPORATION**
Address ..... :	**34600 SOLON RD, SOLON , OH 44139-2631, US**
Test specification:	
Standard ..... :	IEC 62561-2:2012 (First Edition)
Test procedure ..... :	IEC 62561-2:2012 (First Edition)
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC 62561-2-US
Test Report Form(s) Originator .... :	3012CMEL:DP:UL
Master TRF ..... :	Dated January 2016

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
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Test item description ..... :	ERICO CU-BOND Round Conductor
Trade Mark ..... :	N/A
Manufacturer ..... :	ERICO INTERNATIONAL CORPORATION 34600 SOLON RD, SOLON , OH 44139-2631, US
Model/Type reference ..... :	Cat. Nos. CBSC8, CBSC10, CBSC13, CBSC14, CBSC16, CBSC18, may be followed by a single letter A-Z to indicate length
Ratings ..... :	N/A

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☐	**CB Testing Laboratory:**	N/A	
Testing location/ address..... :		N/A	
☐	**Associated CB Testing Laboratory:**	N/A	
Testing location/ address..... :		N/A	
Tested by (name, function, signature)..... :		N/A	N/A
Approved by (name, function, signature)... :		N/A	N/A
☐	**Testing procedure: CTF Stage 1:**	N/A	
Testing location/ address..... :		N/A	
Tested by (name, function, signature)..... :		N/A	N/A
Approved by (name, function, signature)... :			
☐	**Testing procedure: CTF Stage 2:**	N/A	
Testing location/ address..... :		N/A	
Tested by (name + signature) ..... :		N/A	N/A
Witnessed by (name, function, signature) . :		N/A	N/A
Approved by (name, function, signature)... :		N/A	N/A
☐	**Testing procedure: CTF Stage 3:**	N/A	
☐	**Testing procedure: CTF Stage 4:**	N/A	
Testing location/ address..... :			
Tested by (name, function, signature)..... :		N/A	N/A
Witnessed by (name, function, signature) . :		N/A	N/A
Approved by (name, function, signature)... :		N/A	N/A
Supervised by (name, function, signature) :		N/A	N/A

List of Attachments (including a total number of pages in each attachment):

Enclosure 1: Figures

Enclosure 2: Dimensions

Enclosure 3: Installation Instructions N/A

Enclosure 4: Datasheets Package 1-3

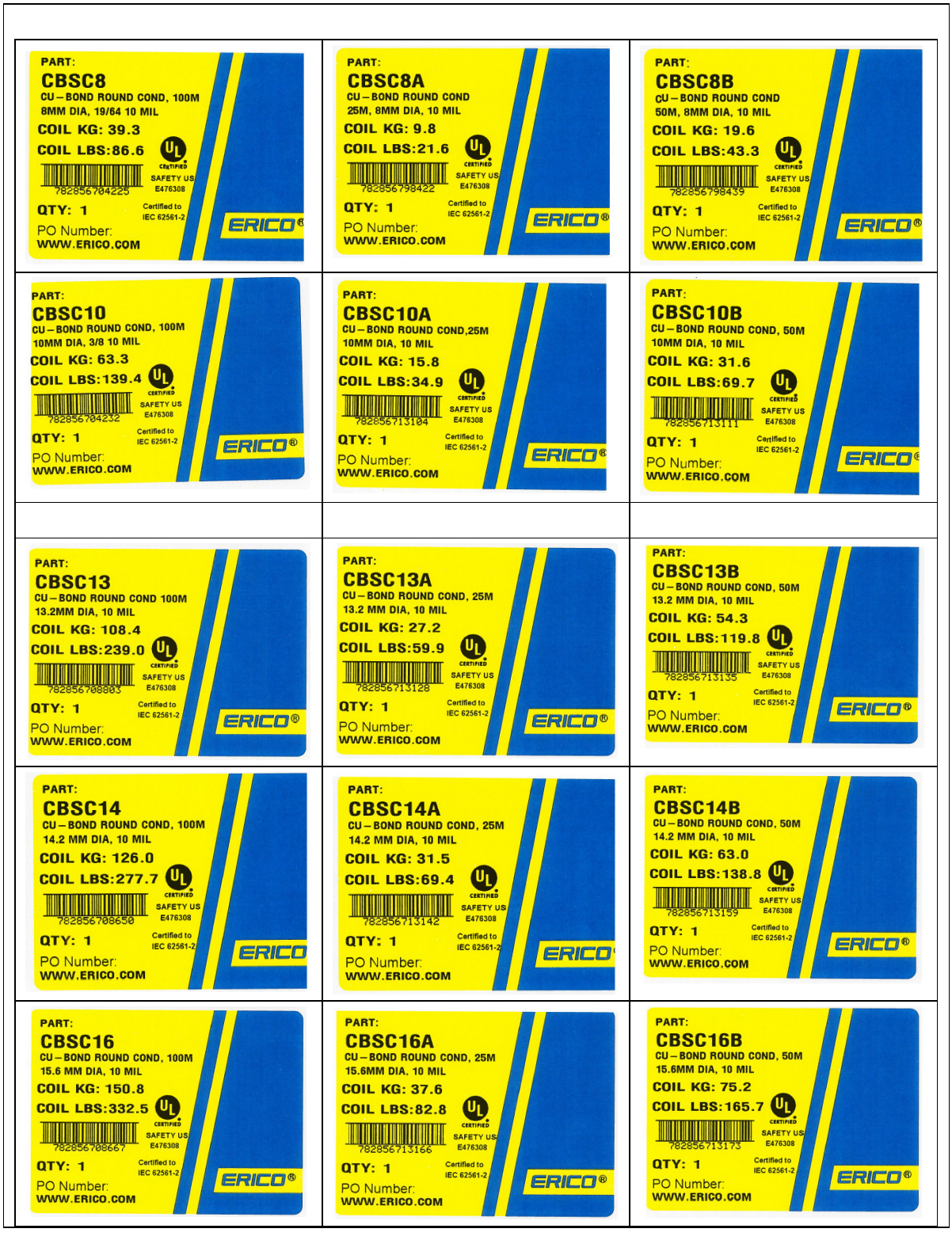
Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
Thickness Coating on Conductors Test (5.2.2) Electrical Resistivity Test (5.2.6) Tensile Test (5.2.5)	UL LLC - 333 Pfingsten Rd Northbrook, IL 60062
Bending Test Adhesion For Coated Conductors (5.2.3)	UL LLC – 1285 Walt Whitman Road, Melville, NY 11747
Environmental Test (5.2.4)	Intertek Testing Services – 8417 Murphy Drive, Middleton, WI 53562

Summary of compliance with National Differences (List of countries addressed):

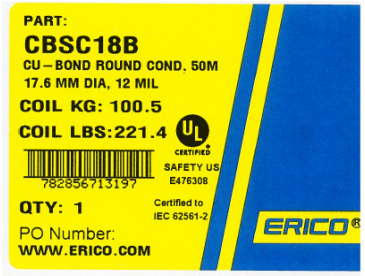
N/A

☒ **The product fulfils the requirements of IEC 62561-2:2012**


PART:
CBSC8
CU – BOND ROUND COND, 100M
8MM DIA, 19/64 10 MIL
COIL KG: 39.3
COIL LBS:86.6
782856704225
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC8A
CU – BOND ROUND COND
25M, 8MM DIA, 10 MIL
COIL KG: 9.8
COIL LBS:21.6
782856798422
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC8B
CU – BOND ROUND COND
50M, 8MM DIA, 10 MIL
COIL KG: 19.6
COIL LBS:43.3
782856798439
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC10
CU – BOND ROUND COND, 100M
10MM DIA, 3/8 10 MIL
COIL KG: 63.3
COIL LBS:139.4
782856704232
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC10A
CU – BOND ROUND COND,25M
10MM DIA, 10 MIL
COIL KG: 15.8
COIL LBS:34.9
782856713104
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC10B
CU – BOND ROUND COND, 50M
10MM DIA, 10 MIL
COIL KG: 31.6
COIL LBS:69.7
782856713111
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC13
CU – BOND ROUND COND 100M
13.2MM DIA, 10 MIL
COIL KG: 108.4
COIL LBS:239.0
782856708803
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC13A
CU – BOND ROUND COND, 25M
13.2 MM DIA, 10 MIL
COIL KG: 27.2
COIL LBS:59.9
782856713128
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC13B
CU – BOND ROUND COND, 50M
13.2 MM DIA, 10 MIL
COIL KG: 54.3
COIL LBS:119.8
782856713135
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC14
CU – BOND ROUND COND, 100M
14.2 MM DIA, 10 MIL
COIL KG: 126.0
COIL LBS:277.7
782856708650
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC14A
CU – BOND ROUND COND, 25M
14.2 MM DIA, 10 MIL
COIL KG: 31.5
COIL LBS:69.4
782856713142
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC14B
CU – BOND ROUND COND, 50M
14.2 MM DIA, 10 MIL
COIL KG: 63.0
COIL LBS:138.8
782856713159
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC16
CU – BOND ROUND COND, 100M
15.6 MM DIA, 10 MIL
COIL KG: 150.8
COIL LBS:332.5
782856708667
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC16A
CU – BOND ROUND COND, 25M
15.6MM DIA. 10 MIL
COIL KG: 37.6
COIL LBS:82.8
782856713166
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO
PART:
CBSC16B
CU – BOND ROUND COND, 50M
15.6MM DIA, 10 MIL
COIL KG: 75.2
COIL LBS:165.7
782856713173
SAFETY US E476308
QTY: 1
Certified to IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO


PART:
CBSC18
CU – BOND ROUND COND, 100M
17.6 MM DIA, 12 MIL
COIL KG: 193.7
COIL LBS:427.0
SAFETY US
E476308
782856708674
QTY: 1
Certified to
IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO®


PART:
CBSC18A
CU – BOND ROUND COND, 25M
17.6 MM DIA, 12 MIL
COIL KG: 50.2
COIL LBS:110.7
SAFETY US
E476308
782856713180
QTY: 1
Certified to
IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO®


PART:
CBSC18B
CU – BOND ROUND COND, 50M
17.6 MM DIA, 12 MIL
COIL KG: 100.5
COIL LBS:221.4
SAFETY US
E476308
782856713197
QTY: 1
Certified to
IEC 62561-2
PO Number:
WWW.ERICO.COM
ERICO®

Test item particulars.....:	CBSC8, CBSC18
Classification of installation and use.....:	**Lightning Protection System component used as an air termination conductor, air termination rod, earth lead-in rod, or down conductor.**
.....:	
.....:	
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing.....:	2015-07-21 (Environmental Test) 2015-07-2 (Thickness Coating on conductors test) 2015-07-2 (Electrical Resistivity Test) 2015-06-23(Tensile Test) 2015-05-27(Bending test Adhesion Test For Coated Conductors)
Date of receipt of test item .....:	2015-08-01
Date (s) of performance of tests.....:	2015-07-21 (Environmental Test) 2015-07-2 (Thickness Coating on conductors test) 2015-07-2 (Electrical Resistivity Test) 2015-06-23(Tensile Test) 2015-05-27(Bending test Adhesion Test For Coated Conductors)

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... :	**ERICO International Corporation** **188 Carolina Road** **Aberdeen, NC 28315** **USA**

General product information:

The product under test is an (Air termination conductors, Air termination rods, Earth lead-in rods, Down conductors, Earth Electrodes, Earth rods, Joints for earth rods) - **Air termination conductors**

1	GENERAL	Results	Pass or Fail
	Metallic conductors that form part of the air termination system and down conductors:		P
	Metallic earth electrodes that for part of the earth termination system		P
2	**NORMATIVE REFERENCES**		

4	**GENERAL**		
4.1	Conductors and Electrodes are designed and constructed so that in normal use their performance is reliable and without danger to persons and surrounding equipment.		P
	Materials are suitable for application		P
4.2	**Documentation**		
	Adequate information provided in the literature to ensure the installer of the conductors and earth electrodes can select and install the materials in a suitable and safe manner in accordance with IEC 62305-3 and IEC 62305-4		P
4.3	**Air termination conductors, air termination rods, earth lead-in rods and down conductors**		
	Conductors and rods: material, configuration and cross sectional area in accordance to Table 1		
	Material.....:	Copper, Tin plated copper / Aluminium / Copper Coated aluminium alloy / etc.	N/A
	Configuration.....:	Solid tape/solid round/stranded/	N/A
	Cross sectional area .....:	____ mm²	N/A
	Dimensions.....:	____ mm thick / diameter / diameter of each strand	N/A
	Conductors and rods: mechanical and electrical characteristics in accordance to Table 2		
	Material.....:	Copper / Aluminium / Aluminium alloy / Steel / Stainless steel	P
	Maximum electrical resistivity .....:	0.05 µΩm	P
	Tensile Strength .....:	536 N/mm²	F
	Corrosion resistant coated conductors and rods	See Cl. 5.2.2, 5.2.3 and 5.24	P
4.4	**Earth Electrodes**		N/A
4.4.1	Earth Electrodes: cross sectional area, material and configuration in accordance to Table 3		N/A

	Material ..... :	Copper, tin plated copper / Bare Steel / Stainless steel /	N/A
	Configuration ..... :	Stranded / Solid round / Solid tape / Pipe / Solid plate / Lattice plate / Profile	N/A
	Cross sectional area ..... :	Earth rod / Earth conductor / Earth plate: mm²/cm²	N/A
	Dimensions ..... :	___ mm diameter / thick /	N/A
	Earth Electrodes: mechanical and electrical characteristics in accordance to Table 4		N/A
	Material ..... :	Copper / Steel / Stainless steel	N/A
	Configuration ..... :	Stranded / Solid round / Solid tape, Pipe / Solid Plate / etc	N/A
	Tensile Strength ..... :	Earth rod / Earth conductor / Earth plate: _____ N/mm²	N/A
	Maximum electrical resistivity ..... :	____ μΩm	N/A
4.4.2	**Earth rods**		N/A
	Mechanically robust	Adequate for correct installation	N/A
	Material		N/A
	Sufficiently malleable to ensure no cracking during installation	Yes	N/A
	Threads on rods	Provided/Not provided	N/A
	Threads smooth and fully formed		N/A
	Coating extend over threads	Yes/no. Applicable for coated rods	N/A
	Thread provided with:	Lead-in chamfer / point to facilitate driving	N/A
	Electroplated rods	Thread roll provided – no copper is removed from the steel	N/A
4.4.3	**Joints for earth rods**		N/A
	Joint/coupling device material	Copper /	N/A
	Compatible with earth rod	Yes / No	N/A
	Mechanically robust for installation	Sufficient to withstand the driving forces	N/A
	Corrosion resistance	Provided / Not applicable	N/A
	Threaded external joints/couplers - threads not exposed on the earth rod after installation	Threads not exposed after installation	N/A
	Threaded internal joints/couplers – Mating faces of earth rods in contact after assembly	In contact	N/A
4.4.4	**Earth conductors and plates**		N/A

	Corrosion resistant	Corrosion resistance provided	N/A
	Coating and base material adherence	Adequate adherence provided	N/A
	Corrosion resistance suitable	See Cl. 5.2.2, 5.2.3 and 5.2.4	N/A
4.5	**MARKINGS**		P
	Manufacturer's or vendor's name or trademark		P
	Identifying symbol		P
	Marking method .....:	Moulding / pressing / engraving / printing adhesive labels / water slide transfer	P
	Marking location:	Top/Side, On smallest packaging unit	P
	.....:		
5	**TESTS**		
5.1	General conditions for tests		P
5.2	**Conductors, air termination rods and earth lead-in rods**		P
5.2.1	General		P
5.2.2	**Tests for thickness coating on conductors**		P
5.2.2.1	General conditions for tests		P
	Specimen / length	3 specimen, 200 mm	P
	Measuring method for zinc and copper coating on steel:	ISO 1460 / ISO 1461 / ISO 2178	P
5.2.2.2	Air termination conductors, air termination rods, earth lead-in rods or down conductors comply with Table 1		P
	Earth electrodes comply with Table 3		N/A
	Zinc galvanized coatings	Yes / N/A	N/A
	Coatings are smooth, continuous and free of flux stains	Yes / N/A	N/A
	Solid round material weight:	___ g/ m²	N/A
	Solid tape material weight:	___ g/ m²	N/A
5.2.3	**Bend and adhesion test for coated conductors**		
5.2.3.1	General Conditions for tests		P
	Specimens provided / Length / Angle	3 / 500 mm / 90°	P
	Bending radius	Round conductors: 5 times (± 1 mm) its diameter: Tape conductors: 5 times (± 1 mm) its thickness:	P
5.2.3.2	Acceptance criteria	No sharp edges, cracks or peeling.	P

5.2.4	**Environmental test**		P
5.2.4.1	General		P
	Specimens of air termination rods, earth lead-in rods, down conductors or earth conductors subjected to specified tests in A.1 followed by humid sulphurous atmosphere test specified in A.2		P
5.2.4.2	Acceptance criteria	Base material did not exhibit any visual corrosive deterioration.	P
5.2.5	**Tensile strength**		P
5.2.5.1	Test Methodology for tensile strength per ISO 6892-1.		P
	Air termination rods or earth lead-in rods un-machined per D.1 of ISO 6892-1:2009		P
5.2.4.2	Acceptance criteria	Complies with Table 1 and Table 4 for earth conductors	P
5.2.6	**Electrical resistivity test**		P
5.2.6.1	General conditions for tests		P
	Conductor specimen length and weight	1,2 m, 469/2342 g	P
	Resistivity	.010/.050	P
5.2.6.2	Acceptance criteria	Complies with Table 2 and Table 4 for earth conductors	P
5.3	**Earth rods**		N/A
5.3.1	General		N/A
	Earth rods other than copper coated steel earth rods exempt from tests of 5.3.3 and 5.3.4		N/A
5.3.2	**Tests for thickness coating on earth rods**		N/A
5.3.2.1	General conditions for tests		N/A
	Specimen quantity and length	3 samples / 500 mm	N/A
	Copper or zinc coat on steel cored earth rod measured using the magnetic method instrument complying with ISO 2178		N/A
	Zinc coating measured in accordance to ISO 1460 and ISO 1461		N/A
	Points of measurement according to Figure 1		N/A
5.3.2.2	Acceptance criteria	Complies with Table 3.	N/A
	Zinc coated earth rods	After the test, the coating was smooth, continuous and free from flux stains with a weight of ___ g/m² (minimum 350 g/m²)	N/A
5.3.3	**Adhesion test**		N/A
5.3.3.1	General conditions		N/A

	Copper coated steel earth rods specimens used and complying with 5.3.2 with end cut at 45° chamfer		N/A
	Test arrangement per Figure 2		N/A
5.3.3.2	Acceptance criteria	After the test, the coating of the specimens showed adherence to the parent metal. No separation occurred.	N/A
5.3.4	**Bend test**		N/A
5.3.4.1	General conditions for test		N/A
	Copper coated steel earth rods specimens used and complying with 5.3.3, bent through a radius equal to 5 times (± 1 mm) it diameter to an angle of 90° (±5°)		N/A
5.3.4.2	Acceptance criteria	After the test, the specimens showed no sharp edges, cracks or peeling around the bending area.	N/A
5.3.5	**Environmental test**		N/A
5.3.5.1	General conditions for tests: Copper coated steel earth rods specimens complying with 5.3.4 and zinc coated earth rods specimens used and complying with 5.3.2 subjected to specified tests in A.1 followed by humid sulphurous atmosphere test specified in A.2		N/A
5.3.5.2	Acceptance criteria: a)…… b)……	After the tests, the specimens appeared good with no rough edges or burrs throughout their length. The base material did not exhibit signs of corrosive deterioration	N/A
5.3.6	**Tensile strength test**		N/A
5.3.6.1	General conditions for tests		N/A
	Test Methodology for tensile strength tests per ISO 6892-1.		N/A
	Earth rods specimens are un-machined per D.1 of ISO 6892-1:2009		N/A
5.3.6.2	Acceptance criteria	Complies with requirements of Table 4	F
5.3.7	**Test for yield/tensile ratio**		N/A
5.3.7.1	General conditions for tests: Upper yield strength divided by the tensile strength (Per Figure 3)		N/A
5.3.7.2	Acceptance criteria	Complies with the requirements of Table 4	N/A
5.3.8	**Electrical resistivity test**		N/A
5.3.8.1	General conditions for tests		N/A

	Specimen quantity and length	3 specimen / 1,2m long	N/A
	Specimen weight	__ kg	N/A
5.3.8.2	Acceptance criteria	Complies with the requirements of Table 4	N/A
5.4	**Joints for earth rods**		N/A
5.4.1	General	Joints for earth rods suitable for application	N/A
5.4.2	**Compression tests by mechanical means**		N/A
5.4.2.1	General conditions for tests		N/A
	Driving heads and driving tools as specified by the manufacturer's or supplier's instructions		N/A
5.4.2.2	Acceptance criteria	The joint specimens did not break or show any cracking	N/A
5.4.3	**Environmental – Electrical tests**		N/A
5.4.3.1	General conditions for tests – Conditioning: Specimen assemblies used in and complying with 5.4.2 subjected to specified tests in A.1 followed by humid sulphurous atmosphere test specified in A.2 and an additional ammonia atmosphere treatment per A.3 for specimens of copper alloy with copper content less than 80%.		N/A
	After conditioning test and without cleaning, assembly subjected to an electrical test as per 6.3 of IEC 62561-1 followed by mechanical tensile force of 1000 N (± 10 N)		N/A
5.4.3.2	Acceptance criteria: a)…… b)…… c)……	The joints did not break or show any cracks. The contact resistance was ___ mΩ, current ___ A. The specimen remained intact.	N/A
5.5	**Marking**		N/A
5.5.1	General conditions for tests	15 sec with water and 15 sec with white spirit/mineral spirit	N/A
5.5.2	Acceptance criteria	The marking remained legible.	N/A
6	**ELECTROMAGNETIC COMPATIBILITY (EMC)**		N/A
	Products covered by this standard are, in normal use, passive in respect of electromagnetic influences – emissions and immunity	Devices are passive	N/A
7	**STRUCTURE AND CONTENT OF THE TEST REPORT**		Pass

A	**ANNEX A, ENVIRONMENTAL TEST FOR CONDUCTORS, AIR TERMINATION RODS AND EARTH LEAD-IN RODS**		P
A.1	**Salt mist test**		P

A.	Salt mist test conducted in accordance with IEC 60068-2-52:1996. Severity (2)		P
	Chamber maintained temperature conditions as specified in Clause 9.3 of IEC 60068-2-52:1996 and relative humidity of not less than 90%		P
A.2	**Humid sulphurous atmosphere test**		P
	Humid sulphurous atmosphere test conducted in accordance with ISO 6988:1985 with seven cycles with a concentration of sulphur dioxide of 667 x 10e-10 (in volume) ± 25 x 10e-6, except for Clauses 9 and 10.		P
	24 h for each cyle duration, with a heating period of 8 h at a temperature of 40°C ± 3°C in humid saturated atmosphere with a 16 h rest period followed by replacement of the humid sulphurous atmosphere.		P
	Chamber maintained temperature conditions as specified in 6.5.2 of ISO 6988:1985		P
A.3	**Ammonia atmosphere treatment**		P
A.3.1	Treatment in accordance with ISO 6957:1988 for a moderate atmosphere with pH value of 10 except for 8.4 and Clause 9		P

B	**ANNEX B, REQUIREMENTS FOR CROSS SECTIONAL AREA, MECHANICAL AND ELECTRICAL CHARACTERISTICS, TEST TO BE APPLIED (Table B.1 - Summary of requirements)**	N/A

C	**ANNEX C, REQUIREMENTS FOR DIMENSIONS, MECHANICAL AND ELECTRICAL CHARACTERISTICS, TEST TO BE APPLIED (Table C.1 - Summary of requirements)**	N/A

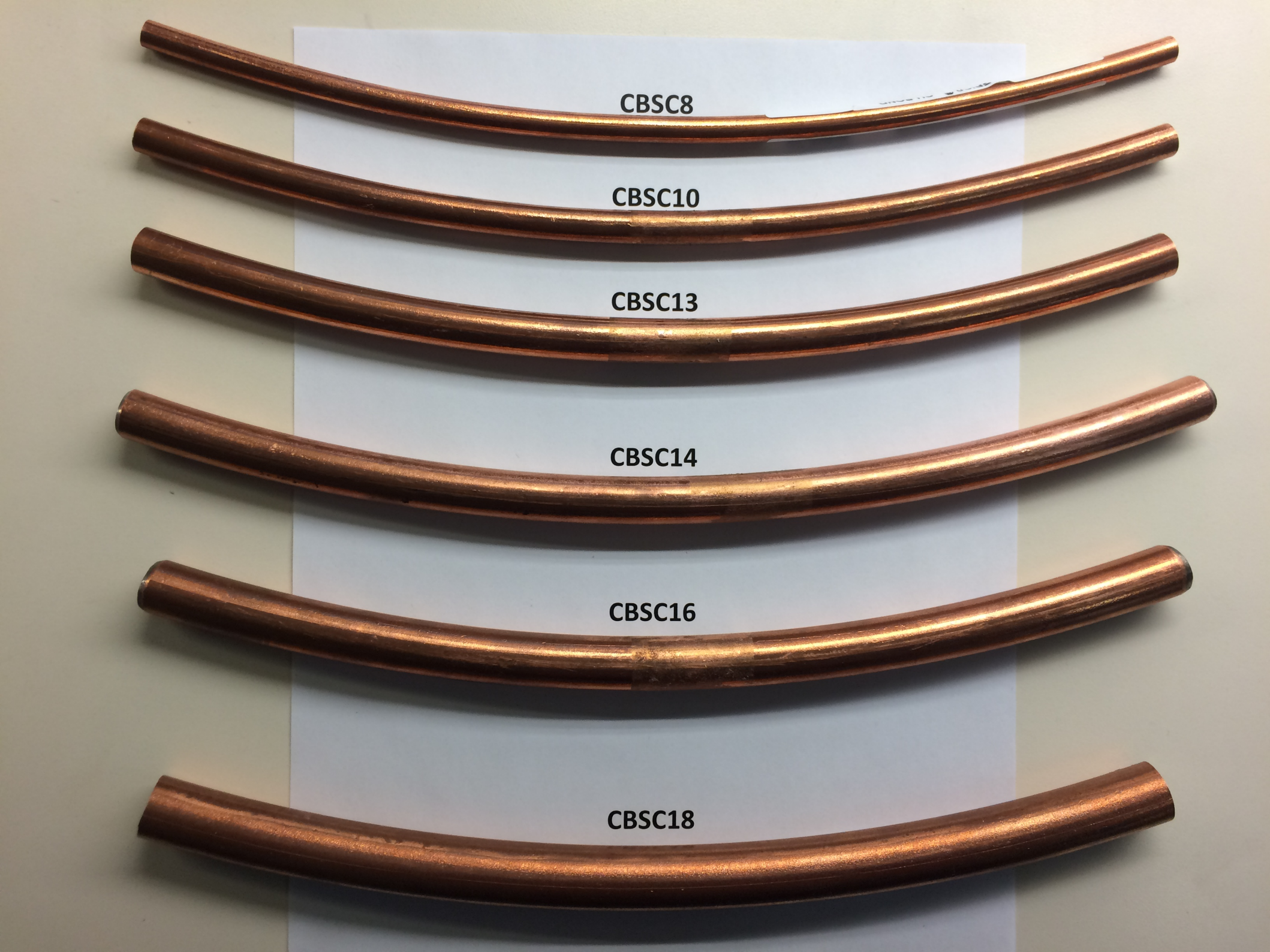
D	**ANNEX D, TYPICAL EXAMPLE CALCULATION OF CONDUCTOR RESISTIVITY**	P

E	**ANNEX E, TYPICAL EXAMPLE CALCULATION OF THE TENSILE STRENGTH OF COATED MATERIAL**	P

F	**ANNEX F, FLOW CHART OF TESTS FOR AIR TERMINATION CONDUCTORS, AIR TERMINATION RODS, EARTH LEAD-IN RODS AND DOWN CONDUCTORS**	P

G	**ANNEX G, FLOW CHART OF TESTS FOR EARTH RODS**	N/A

H	**ANNEX H, FLOW CHART OF TESTS OF JOINTS FOR EARTH RODS**	N/A


CBSC8
CBSC10
CBSC13
CBSC14
CBSC16
CBSC18

Model	Diameter (in; mm)
CBSC8	0.30 - 0.32 (7.6 - 8.1)
CBSC10	0.39 - 0.41 (9.9 - 10.4)
CBSC13	0.51 - 0.53 (13.0 - 13.5)
CBSC14	0.55 - 0.57 (14.0 - 14.5)
CBSC16	0.61 - 0.63 (15.5 - 16.0)
CBSC18	0.68 - 0.70 (17.3 - 17.8)