Test Report No.: Xxxx	001		Page 1 of xx
		Issue	Date: DD/MM/YYYY
Manufacturer:			
Test item:			
Identification:		Serial No.:	
Receipt No.:		Date of receipt:	DD/MM/YYYY
Testing laboratory and its address:			
Test IS 616: specification:	2010/ IEC 60065:2005		
Test Result: The te	t item Passed/Failed the test spec	rification	
Other Aspects: - This report consists	of xx pages.		
This test repo	t relates to the test sample submitted	and list of documents	attached.
Tested by:	Approved by/Authorize Signatory:	d Issued by:	
(Name / Designation)	(Name / Designation)	(Name / Des	signation)
Date:	Date:	Date:	
			<del>-</del> .

#### TEST REPORT IS 616:2010/ IEC 60065:2005

# Audio, video and similar electronic apparatus - Safety requirements "Plasma/LCD/LED Television, size 32" & Above"

Report Number. ....: xxxxx 001 Date of issue .....: (See cover page) Total number of pages .....: (See cover page) Testing Laboratory ..... Address....: Manufacturer's name ..... Address....: Test specification: Standard .....: IS 616: 2010 / IEC 60065:2005 Test procedure....:: Compliance Report Non-standard test method....:: N/A Test Report Form No.....: BIS AV/TV IS616 V1.2 Test Report Form(s) Originator....: Bureau of Indian Standards Test Report Form .....: 16/01/2015 Test item description .....: Trade Mark .....:: Model/Type reference.....: Ratings....:: Other Documents submitted............ Please refer to Table – List of Attachments at Page No. xx

Tested by:	Approved by/Authorized Signatory:	Issued by:
(Name / Designation)	(Name / Designation)	(Name / Designation)
Date:	Date:	Date:

Report No.: xxxxxx 001 IS 616: 2010 / Page 3 of 47

Dated: IEC 60065:2005

Test Code	Description	Measurement / testing	Total No. of Tests / Requirement	Total No. of Applicable Tests / Requirement	No. of Tests / Requirement Passed	Page No.
EL 2000	Marking Requirements	Marking and Instructions (Cl 5)	29			
EL 2001	Radiation Requirements	Hazardous radiations(CI 6)	05			
EL 2002	Heating Requirements	Heating under normal operating conditions(Cl 7)	08			
EL 2003	Electrical safety	Constructional requirements with regard to the protection against electric shock(Cl 8)	41			
EL 2004	Electrical safety	Electric shock hazard under normal operating condition (Cl 9)	18			
EL 2005	Electrical safety	Insulation requirements (Cl 10)	06			
EL 2006	Electrical safety	Fault conditions (Cl 11)	11			
EL 2007	Mechanical properties	Mechanical Strength (Cl 12)	17			
EL 2008	Mechanical properties	Clearances and creepage distances (Cl 13)	16			
EL 2009	Components	Components (Cl 14)	81			
EL 2010	Wiring	Terminals (Cl 15)	39			
EL 2011	Wiring	External flexible cords (CI 16)	14			
EL 2012	Wiring	Electrical connections and mechanical fixings (Cl 17)	14			
EL 2013	Physical properties	Mechanical strength of picture tubes and protection against the effect of implosion (Cl.18)	07			
EL 2014	Physical properties	Stability and mechanical hazards (Cl 19)	10			
EL 2015	Physical properties	Resistance to fire (Cl 20)	15			

Page 4 of 47

Dated:	IEC 60065:2005
<b>Certificate:</b> It is certified that the above tests requirement tested.	s were performed and found to be passing/failing in the
(Approving Authority)	

IS 616: 2010 /

Report No.: xxxxxx 001

Report No.: xxxxxx 001	IS 616: 2010 /	Page 5 of 47
Dated:	IEC 60065:2005	

## Table EL 2009-(01 to 80)

CI.14	CI.14 TABLE: list of components and materials						Р
Object / pa	art	Manufacturer/ trademark	Type / model	Technical data	Standard		k(s) of formity
Supplemen	Supplementary information:						

Tested by:	Approved by/ Authorized Signatory:
Name/Designation	Name/Designation

Page 6 of 47

Г			
Test item particula	nrs:		
Classification of in	stallation and use:	Class I / Class II	
0			
,	1:		
	:		
	ions:		
	ure:		
	<u>:</u>		
Testing:			
Date of receipt of t	est item:		
_	ance of tests:		
Date (s) of perioriii	iance of tests		
Table – List of Atta	achmente		
Table - List of Atta			
Attachment No.	Attachment Description		No. of pages in Attachment
Attachment – 1	Photo Document		xx
Possible test case	verdicts:		
- test case does not	apply to the test object:	N/A	
- test object does me	eet the requirement:	P (Pass)	
- test object does no	t meet the requirement:	F (Fail)	
General remarks:			
	esented in this report relate only	•	
This report shall no laboratory.	ot be reproduced, except in full,	without the written ap	pproval of the Issuing testing
General product in	nformation:		
Differences between	en the models:		
Model No. tested with-in the family series			
	•		

IS 616: 2010 /

IEC 60065:2005

Report No.: xxxxxx 001

Dated:

Report No.: xxxxxx 001	IS 616: 2010 /	Page 7 of 47
Dated:	IEC 60065:2005	

3	General requirements	
	Safety class of the apparatus	

4	General test conditions	
4.1.4	Ventilation instructions require the use of the test box	

Tested by:	Approved by/ Authorized Signatory:
Name/Designation	Name/Designation

Report No.: xxxxxx 001 IS 616: 2010 / Page 8 of 47

Dated: IEC 60065:2005

### **Tests relating to Marking Requirements**

## EL 2000-V1.2

Clause No.	Test / Requirement name	Test Code	Test result/ observation	Verdict
5	Marking and instructions*	EL 2000-00		
	a) Comprehensible and easily discernible*	EL 2000-01		
	b) Permanent durability against water and petroleum spirit	EL 2000-02		
5.1	Identification and supply ratings*			
	a) Identification , Make*	EL 2000-03		
	b) Model number or type reference*	EL 2000-04		
	c) Symbol for Class II, if applicable *	EL 2000-05		
	d) Nature of supply*	EL 2000-06		
	e) Rated supply voltage*	EL 2000-07		
	f) Rated mains frequency, if safety dependant *	EL 2000-08		
	g) Rated current or power consumption for apparatus supplied by supply apparatus for general use: i) Measured power consumption: ii) Deviation % (max 10%):	EL 2000-09		
	h) Power consumption marking for apparatus intended for connection to an a.c. mains supply other than single phase*	EL 2000-10		
	i) Rated current or power consumption for apparatus intended for connection to an a.c. mains supply  1- Measured current or power consumption for Television set	EL 2000-11		
5.2	Terminals*			
	a) Earth terminal*	EL 2000-12		
	b) Hazardous live terminals*	EL 2000-13		
	c) Markings on supply output terminals*	EL 2000-14		
5.3	Use of symbol to indicate replacement of specific component*	EL 2000-15		
5.4	Instructions*			

Report No.: xxxxxx 001 IS 616: 2010 / Page 9 of 47

Dated: IEC 60065:2005

Clause No.	Test / Requirement name	Test Code	Test result/ observation	Verdict
5.4.1	a) Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc. *	EL 2000-16		
	b) Hazardous live terminals, instructions for wiring *	EL 2000-17		
	c) Instructions for replacing lithium battery *	EL 2000-18		
	d) Class I earth connection warning *	EL 2000-19		
	e) Instructions for multimedia system connection *	EL 2000-20		
	f) Special stability warning for attachment of the apparatus to the floor/wall*	EL 2000-21		
	g) Warning for exposure of batteries*	EL 2000-22		
	h) Warning for the apparatus provided with a CRT *	EL 2000-23		
5.4.2	a) Instructions for disconnect devices i.e. Mains plug or an appliance coupler *	EL 2000-24		
	b) Instructions for disconnect devices i.e. an all-pole mains switch, its location and function shall be described *	EL 2000-25		
	c) Instructions for permanently connected equipment*	EL 2000-26		
	d) - Clear information shall be included about marking, signal lamps or similar means used for completely disconnection of the apparatus from the mains*	EL 2000-27		
	e) - Marking of the off-position by the relevant symbol shall be as per IEC 60417-5008 or IEC 60417-5010*	EL 2000-28		

<sup>\*</sup> Total number of Requirements to be observed / inspected= 27
Total No. of Applicable Requirement =
No of Requirements for which the sample passed =

[LAB LOGO]
Page 10 of 47

Report No.: xxxxxx 001	IS 616: 2010 /	Page 10 of 47				
Dated:	IEC 60065:2005					
Total number of tests to be conduct	ted = 02					
Total No. of Applicable Tests	. =					
No. of tests for which the sample pa	assed =					
Certificate: It is certified that the abrequirement tested.	Certificate: It is certified that the above tests were performed and found to be passing/failing in the requirement tested.					
(Approving Authority)						
(Approving Admonty)						

Report No.: xxxxxx 001	IS 616: 2010 /	Page 11 of 47
Dated:	IEC 60065:2005	

### Tests relating to Radiation Requirements

## EL 2001-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
6	Hazardous radiation*	EL 2001-00		
6.1	lonizing radiation			
	a) Exposure rate of radiation at normal operating conditions Not exceeding 36pA/kg(0.5mR/h or 5µSv/h)	EL 2001-01		
	b) Exposure rate of radiation under fault conditions :	EL 2001-02		
6.2	Laser Radiation			
6.2.1	Emission limits under normal operating conditions as per IEC 60825-1	EL 2001-03		
6.2.2	Emission limits under fault conditions as per IEC 60825-1	EL 2001-04		

	conditions as per IEC 00025-1				
Total No.	nber of Requirements to be observe of Applicable Requirement uirements for which the sample pas	·	= 01 = =		
Total No.	ber of tests to be conducted = 04 of Applicable Tests = s for which the sample passed =				
Certificate: It is certified that the above tests were performed and found to be passing/failing in the requirement tested.					
(Approvinç	g Authority)				

Report No.: xxxxxx 001 IS 616: 2010 / Page 12 of 47

Dated: IEC 60065:2005

#### **Tests relating to Heating Requirements**

### EL 2002-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
7.	Heating under normal operating conditions*	EL 2002-00		
7.1	Temperature rises not exceeding specified values; fuse links and other protective devices defeated	EL 2002-01		
7.1.1	Temperature rise of accessible parts	EL 2002-02		
7.1.2	Temperature rise of parts providing electrical insulation	EL 2002-03		
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier	EL 2002-04		
7.1.4	Temperature rise of windings	EL 2002-05		
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	EL 2002-06		
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0.2 A, shall be at least 150°C			

\*Total number of Requirements to be observed / inspected = 01
Total No. of Applicable Requirement =
No of Requirements for which the sample passed =

Total number of tests to be conducted = 07
Total No. of Applicable Tests =
No. of tests for which the sample passed =

Certificate: It is certified that the above tests were performed and found to be passing/failing in the requirement tested.

(Approving Authority)	

Report No.: xxxxxx 001	IS 616: 2010 /	Page 13 of 47	
Dated:	IEC 60065:2005		

### **Tests relating to Electrical Safety**

## EL 2003-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
8	Constructional requirements with regard to the protection against electric shock*	EL 2003-00		
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare *	EL 2003-01		
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.	EL 2003-02		
8.3	Insulation of hazardous live parts not provided by hygroscopic material	EL 2003-03		
8.4	No risk of electric shock from accessible parts or from parts rendered accessible following the removal of a cover which can be removed by hand	EL 2003-04		
8.5	For Class I apparatus*			
	a) - Basic insulation between hazardous live parts and earthed accessible parts *	EL 2003-05		
	b) -Resistors bridging basic insulation shall complying with 14.1 a) *	EL 2003-06		
	c) - Capacitors bridging basic insulation shall complying with 14.2.1 a) *	EL 2003-07		
	d) - Protective earthing terminal *	EL 2003-08		
8.6	a) - For Class II apparatus, the assessable parts shall be separated from hazardous live parts either by Double insulation or by Reinforced insulation*	EL 2003-09		
	b) - Components according to Cl.14.3.4.3 may bridge Basic insulation only*	EL 2003-10		
	c) - Basic and Supplementary insulation may each be bridged by a capacitor or RC-unit, having the same rated values, comply with Cl.14.2.1 (a).*	EL 2003-11		

Report No.: xxxxxx 001 IS 616: 2010 / Page 14 of 47

Dated: IEC 60065:2005

	d) - Double or Reinforced insulation may be bridged by two capacitors or	EL 2003-12	
	RC- units in series, having the same rated values , each comply with Cl.14.2.1(a) *		
	e) - Double or Reinforced insulation may be bridged by a single capacitor or RC-unit complying with 14.2.1 b) *	EL 2003-13	
	f) - If accessible parts are separated from Hazardous live parts by Basic and Supplementary insulation than each shall comply with Cl. 10 and Cl.13*	EL 2003-14	
	g) - If accessible parts are separated from Hazardous live parts by Reinforced insulation than it shall comply with Cl. 10 and Cl.13*	EL 2003-15	
8.7	Void		
8.8	a) - Basic or Supplementary insulation shall have a thickness: 0.4 mm (Min)	EL 2003-16	
	b) - Reinforced insulation shall have a thickness : 0.4 mm (Min)	EL 2003-17	
	c) - Thin sheet insulation (excluding non-separable thin sheet insulation. See 8.22)	EL 2003-18	
	d) - Basic or supplementary insulation, at least two layers, each of which will pass the dielectric strength test as per Cl.10.3	EL 2003-19	
	e) - Basic or supplementary insulation, three layers for which all combinations of two layers together will pass the dielectric strength test as per Cl.10.3	EL 2003-20	
	f) - Reinforced insulation, two layers each of which will pass the dielectric strength test as per Cl.10.3	EL 2003-21	
	g) - Reinforced insulation, three layers for which all combinations of two layers together will pass the dielectric strength test as per Cl.10.3	EL 2003-22	
8.9	a) -Thickness of insulation of internal wiring between hazardous live conductors in wires or cables and accessible parts shall be 0.4 mm(Min), if made of PVC	EL 2003-23	

Report No.: xxxxxx 001	IS 616: 2010 /	Page 15 of 47
Dated:	IEC 60065:2005	

	b) - Thickness of other insulating materials should be adequate to ensure an equivalent mechanical strength and shall withstand the dielectric strength test as per Cl.10.3	EL 2003-24	
8.10	a) - In case of Class II apparatus, Double insulation shall be provided between conductors connected to the mains and accessible parts.	EL 2003-25	
	b) - If Double insulation consists of two layers which cannot be tested separately, it shall withstand the dielectric strength test as per Cl.10.3	EL 2003-26	
8.11	a) - No undue reduction of Clearances and Creepage distances below the values specified in Cl.13, if wires become detached	EL 2003-27	
	b) - In case of doubt, Vibration test is carried out as per Cl.12.1.2	EL 2003-28	
8.12	Void		
8.13	Adequate fastening of windows, lenses, lamp covers etc. (apply a force of 20 N for 10 s)	EL 2003-29	
8.14	Adequate fastening of covers (push/pull test 50 N for 10 s)	EL 2003-30	
8.15	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges	EL 2003-31	
8.16	Only special supply equipment can be used*	EL 2003-32	
8.17	Requirements for insulated winding wires for use without additional interleaved insulation shall comply with Annex-H	EL 2003-33	
8.18	Endurance test for wound components with insulated winding wires without additional interleaved insulation	EL 2003-34	
8.19	Disconnection from the mains		
8.19.1	a) - Disconnect device used in apparatus	EL 2003-35	
	b) - If, all-pole switch or circuit breaker is used as the disconnect device, it shall have contact separation at least 3mm in each pole and shall disconnect all poles simultaneously.	EL 2003-36	

Report No.: xxxxxx 001	IS 616: 2010 /	Page 16 of 47
Dated:	IEC 60065:2005	

8.19.2	If, mains switch is used as a disconnect device , the ON position of the switch shall be indicated*	EL 2003-37	
8.20	A mains switch shall not be fitted in the mains flexible cable or cord *	EL 2003-38	
8.21	If, Resistors, Capacitors or RC-units are used for bridging contact gaps of switches conductively connected to the mains, the components shall comply with Cl. 14.1(a) or 14.2.2 respectively.		
8.22	Non-separable thin sheet material	EL 2003-40	

\*Total number of Requirements to be observed / inspected = 16
Total No. of Applicable Requirement =
No of Requirements for which the sample passed =

Total number of tests to be conducted = 25
Total No. of Applicable Tests =
No. of tests for which the sample passed =

Certificate: It is certified that the above tests were performed and found to be passing/failing in the requirement tested.

(Approving Authority)

Report No.: xxxxxx 001 IS 616: 2010 / Page 17 of 47

Dated: IEC 60065:2005

### **Tests relating to Electrical Safety**

## EL 2004-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
9	Electric shock hazard under normal operating conditions*	EL 2004-00		
9.1	Testing on the outside			
9.1.1	For determining whether a Hazardous live part is accessible, apply a voltage of >1000 V ac or >1500 V dc . For higher voltages , there shall be a clearance complies with clause 13.3.1 for basic insulation	EL 2004-01		
9.1.1.1	a) Open circuit voltages	EL 2004-02		
	b) Touch current measured from terminal devices using the network in annex D	EL 2004-03		
	c) The charge exceeds 45 µC or	EL 2004-04		
	d) The energy of discharge exceeds 350 mJ	EL 2004-05		
9.1.1.2	Determination of accessible parts: Testing with jointed test finger, test probe B, test probes 18 & 19, test probe 13	EL 2004-06		
9.1.2	No hazardous live shafts of knobs, handles or levers	EL 2004-07		
9.1.3	Ventilation holes and other holes tested by a metal test pin having a diameter of 4 mm and a length of 100 mm	EL 2004-08		
9.1.4	a) - Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032	EL 2004-09		
	b) -Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032	EL 2004-10		
9.1.5	Pre-set controls tested with 2.5 mm x 100 mm test pin (10 N); test probe C of IEC 61032	EL 2004-11		
9.1.6	a) No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2s	EL 2004-12		
	b) If the nominal capacitance across the mains poles is not more than 0.1 μF no test needed	EL 2004-13		

Report No.: xxxxxx 001	IS 616: 2010 /	Page 18 of 47
Dated:	IEC 60065:2005	

9.1.7	Resistance to external forces		
	a) Test probe 11 of IEC 61032 for 10 s (50 N)	EL 2004-14	
	b) Test hook of fig. 4 for 10 s (20 N)	EL 2004-15	
	c) 30 mm diameter test tool for 5 s (100 or 250 N)	EL 2004-16	
9.2	No hazard after removing a cover by hand	EL 2004-17	

Total number of requirements to be observed / inspected = 01
Total No. of Applicable Requirement =
No of requirements for which sample passed =

Total number of tests to be conducted = 17
Total No. of Applicable Tests =
No. of tests for which the sample passed =

Certificate: It is certified that the above tests were performed and found to be passing/failing in the requirement tested.

(Approving Authority)		

Report No.: xxxxxx 001 IS 616: 2010 / Page 19 of 47

Dated: IEC 60065:2005

#### **Tests relating to Electrical Safety**

### EL 2005-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
10	Insulation requirements*	EL 2005-00		
10.1	Surge Test			
	a) Insulation between desired terminals is subjected to 50 discharges at a maximum rate of 12/min, from 1 nF capacitor charged to 10 kV in a test circuit as per Fig.5a.	EL 2005-01		
	b) After surge test, the tested insulation shall comply with clause 10.3, Table 5: i) Insulation resistance : $2 M\Omega$ , Min. (for basic insulation), ii) Insulation resistance : $4 M\Omega$ , Min. (for reinforced insulation), iii) Dielectric strength test	EL 2005-02		
10.2	Humidity treatment 120 h(for apparatus to be used in tropical climates) - Indian climate 48 h ( for other apparatus)	EL 2005-03		
10.3	Insulation resistance and dielectric strength			
	Insulation Resistance and dielectric strength across BASIC or SUPPLEMENTARY insulation (Class I)	EL 2005-04		
	Insulation resistance and dielectric strength across REINFORCED insulation (Class II)	EL 2005-05		

Total number of requirement to be observed / inspected = 01
Total No. of Applicable Requirement =
No of requirement for which the sample passed =

Total number of tests to be conducted = 05
Total No. of Applicable Tests =
No. of tests for which the sample passed =

Certificate: It is certified that the above tests were	performed and found	d to be passing/failing	in the
requirement tested.			

(Approving	g Authori	ty)		

Report No.: xxxxxx 001 IS 616: 2010 / Page 20 of 47

Dated: IEC 60065:2005

#### **Tests relating to Electrical Safety**

### EL 2006-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
11	Fault conditions*	EL 2006-00		
11.1	Electric shock hazard			
	a) - The permissible values of Open circuit voltage [as per Cl.9.1.1.1(a)] for other than audio signals, are increased to 70 V(peak) a.c. and 120 V d.c.	EL 2006-01		
	b) - The permissible values of Touch Current [Cl.9.1.1.1(b)] are increased to $U_1$ =70V (peak) and $U_2$ =1.4V(peak) for a.c. and to $U_1$ =4 V for d.c.	EL 2006-02		
11.2	Heating			
	a) - Flames extinguish within 10 seconds	EL 2006-03		
	<ul><li>b) - Solder</li><li>i) No hazard from softening solder</li><li>ii) Soldered terminations not used as protective mechanism</li></ul>	EL 2006-04		
11.2.1	Measurement of temperature rises	EL 2006-05		
11.2.2	Temperature rise of accessible parts	EL 2006-06		
11.2.3	Temperature rise of parts, other than windings and printed boards, providing electrical insulation	EL 2006-07		
11.2.4	Temperature rise of parts acting as a support or mechanical barrier	EL 2006-08		
11.2.5	Temperature rise of windings	EL 2006-09		
11.2.6	Temperature rise of parts not subject to the limits of 11.2.1 to 11.2.5 shall not exceed the limits in table 3, item e),"Fault conditions".	EL 2006-10		

Total number of requirements to be observed / inspected = 01
Total No. of Applicable Requirement =
No of requirements for which the sample passed =

Total number of tests to be conducted = 10
Total No. of Applicable Tests =
No. of tests for which the sample passed =

Report No.: xxxxxx 001	IS 616: 2010 /	Page 21 of 47
Dated:	IEC 60065:2005	
Certificate: It is certified that the above requirement tested.	tests were performed and found t	o be passing/failing in the
(Approving Authority)		

Report No.: xxxxxx 001 IS 616: 2010 / Page 22 of 47

Dated: IEC 60065:2005

#### **Tests relating to Mechanical Properties**

### EL 2007-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
12	Mechanical strength*	EL 2007-00		
12.1.1	Bump test where mass >7 kg	EL 2007-01		
12.1.2	Vibration test	EL 2007-02		
12.1.3	Impact test	EL 2007-03		
	- Impact hammer test	EL 2007-04		
	- Steel ball test	EL 2007-05		
12.1.4	Drop test for portable appliance where mass ≤7 kg	EL 2007-06		
12.1.5	Stress relief test applicable for thermoplastic enclosures	EL 2007-07		
12.2	Fixing of actuating elements (knobs, push buttons, keys and levers)	EL 2007-08		
12.3	Remote control hazardous live parts	EL 2007-09		
12.4	Drawers ( pull test 50N,10s)	EL 2007-10		
12.5	Antenna coaxial sockets and providing isolation	EL 2007-11		
	a) - Endurance test,	EL 2007-12		
	b) - Impact test,	EL 2007-13		
	c) - Torque test	EL 2007-14		
12.6	Telescoping or rod antennas	EL 2007-15		
12.6.1	Telescoping a rod antennas securements	EL 2007-16		

Total number of requirements to be observed / inspected = 01
Total No. of Applicable Requirement = No of requirements for which the sample passed =

Total number of tests to be conducted = 16
Total No. of Applicable Tests = No. of tests for which the sample passed =

Certificate: It is certified that the above tests were performed and found to be passing/failing in the requirement tested.

(Approving Authority)

Report No.: xxxxxx 001 IS 616: 2010 / Page 23 of 47

Dated: IEC 60065:2005

### **Tests relating to Mechanical Properties**

## EL 2008-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
13	Clearances and creepage distances*	EL 2008-00		
13.1	General			
13.2	Determination of operating voltage	EL 2008-01		
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9:	EL 2008-02		
13.3.3	Circuits not conductively connected to the mains comply with table 10	EL 2008-03		
13.3.4	Measurement of transient voltages	EL 2008-04		
13.4	a) Creepage distances shall be not less than the appropriate minimum values specified in Table 11, taking into account the values of operating voltage, the pollution degree and the material group.	EL 2008-05		
	When determining the operating voltage for a TNV circuit connected to a telecommunication network whose characteristics are not known, the normal operating voltages shall be assumed to be as: 60 V dc for TNV-1 circuits, 120 V dc for TNV-2 & TNV-3 circuits	EL 2008-06		
	c) - Classification of Material groups : Material group I – 600 ≤CTI Material group II - 400≤ CTI < 600 Material group IIIa - 175≤CTI<400 Material group IIIb - 100≤CTI<175	EL 2008-07		
13.5.1	Clearances and creepage distances between conductors on printed circuit boards, one of which may be conductively connected to the mains, as in fig. 10	EL 2008-08		
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)	EL 2008-09		
13.6	a) - Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4	EL 2008-10		

Report No.: xxxxxx 001	IS 616: 2010 /	Page 24 of 47
Dated:	IEC 60065:2005	

	b) - Conductive parts along reliably cemented joints comply with 8.8	EL 2008-11	
	c) - Temperature cycle test ( 10 times):	EL 2008-12	
	d) - Dielectric strength test as per Cl.10.3	EL 2008-13	
13.7	a) - Enclosed, enveloped or hermetically sealed parts not conductively connected to the mains, clearances and creepage distances as in table 12 i) - Temperature cycle test (10 times), ii) - Dielectric strength test as per Cl.10.3	EL 2008-14	
13.8	Parts filled with insulating compound, meeting the requirements of 8.8	EL 2008-15	

Total number of requirements to be observed / inspected = 01
Total No. of Applicable Requirement =
No of requirement for which the sample passed =

Total number of tests to be conducted = 15
Total No. of Applicable Tests =
No. of tests for which the sample passed =

Certificate: It is certified that the above tests were performed and found to be passing/failing in the requirement tested.

(Approving Authority)

Report No.: xxxxxx 001	IS 616: 2010 /	Page 25 of 47
Dated:	IEC 60065:2005	

### **Tests relating to Components**

## EL 2009-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
14.	Components*	EL 2009-00	Verification of approvals with due correlation between the components used and the approval certificates submitted { Please see the table EL 2009-(01 to 80) }	
14.1	Resistors	EL 2009-01		
	a) Resistors connected between hazardous live parts and accessible conductive parts	EL 2009-02		
	b) Resistors, other than between hazardous live parts and accessible parts	EL 2009-03		
	c) For Resistors connected between hazardous live parts and accessible conductive parts, the clearance and Creepage distance between the terminations shall comply with Cl.13 for Reinforced insulation.	EL 2009-04		
14.2	Capacitors and RC units	EL 2009-05		
	Damp heat steady – state test as per Cl.4.12 of IEC 60384-1, Table-II, for 21 days	EL 2009-06		
14.2.1	Y capacitors tested to IEC 60384-14:2005	EL 2009-07		
14.2.2	X capacitors tested to IEC 60384-14:2005	EL 2009-08		
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2	EL 2009-09		
14.2.5	a) -Capacitors with volume exceeding 1750 mm³, where short-circuit current exceeds 0.2 A, shall comply with Cl.4.38 of IEC 60384-1, flammability category B or better	EL 2009-10		
	b) - Capacitors with volume exceeding 1750 mm³, mounted closer to a potential ignition source than these capacitors or RC-units shall comply with the relevant passive flammability test as per Cl.4.38 of IEC 60384-1	EL 2009-11		

Report No.: xxxxxx 001 IS 616: 2010 / Page 26 of 47

Dated: IEC 60065:2005

	Shielded by a barrier acc. To 20.1.4		
14.3	Inductors and windings	EL 2009-12	
	Comply with IEC 61558-1, IEC 61558-2(as relevant) and clause 20.1.4	EL 2009-13	
14.3.1	Marking: *	EL 2009-14	
14.3.2	General		
14.3.3	Constructional requirements	EL 2009-15	
14.3.3.1	All windings : Clearances and creepage distances shall comply with clause 13	EL 2009-16	
14.3.3.2	Designs with more than one winding*	EL 2009-17	
14.3.4	Separation between windings	EL 2009-18	
14.3.4.1	- Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation) as per Clause.8.8	EL 2009-19	
	- Thickness of coil formers and partition walls = 0.4 mm(Min)	EL 2009-20	
14.3.4.2	Class I transformers, with basic insulation and protective screening only if all 7 conditions are complied with,	EL 2009-21	
14.3.4.3	The separation between hazardous live windings and windings intended to be connected to parts separated from accessible parts by supplementary insulation only shall consist of at least basic insulation as per Cl.8.8	EL 2009-22	
14.3.5	Insulation between HAZARDOUS LIVE parts and ACCESSIBLE parts	EL 2009-23	
14.3.5.1	a) - Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)	EL 2009-24	
	b) - Thickness of coil formers and partition walls = 0.4 mm (Min)	EL 2009-25	

Report No.: xxxxxx 001	IS 616: 2010 /	Page 27 of 47
Dated:	IEC 60065:2005	

14.3.5.2	a) - Class I transformers have adequate insulation between hazardous live parts and accessible conductive parts or those conductive parts or protective screens connected to a protective earth terminal	EL 2009-26	
	b) - Winding wires connected to protective earth have adequate current-carrying capacity	EL 2009-27	
14.4	High voltage components and assemblies	EL 2009-28	
	- Components operated at voltages U > 4 kV (peak) and spark gaps provided to protect against over voltages, shall not give rise to danger of fire to the surroundings of the apparatus. It shall comply with category V-1 as per IEC 60707	EL 2009-29	
	or by test 14.4.1 and 14.4.2 respectively		
14.4.1	High voltage transformers and multipliers	EL 2009-30	
	a) Preconditioning	EL 2009-31	
	b) Flammability test	EL 2009-32	
14.4.2	High voltage assemblies and other parts :  a) Flammability test	EL 2009-33	
14.5	Protective devices	EL 2009-34	
	a) Protective devices used within their ratings	EL 2009-35	
	b) External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened	EL 2009-36	
14.5.1	Thermal Releases	EL 2009-37	
14.5.1.1	a) Thermal cut-outs when tested as a separate component, shall comply with requirements of IEC 60730	EL 2009-38	
	b) Thermal cut-outs when tested as a part of the apparatus	EL 2009-39	
14.5.1.2	a) Thermal links when tested as a separate component, shall comply with requirements of IEC 60691	EL 2009-40	

Report No.: xxxxxx 001 IS 616: 2010 / Page 28 of 47

Dated: IEC 60065:2005

	b) Thermal links when tested as a part of the apparatus	EL 2009-41	
14.5.1.3	Thermal interrupting devices which are re-settable by soldering shall be tested as per Cl.14.5.1.2(b)	EL 2009-42	
14.5.2	Fuse-links and fuse holders*	EL 2009-43	
14.5.2.1	Fuse-links directly connected to the mains, shall comply with relevant part of IEC 60127	EL 2009-44	
14.5.2.2	Correct marking of fuse-links adjacent to holder *	EL 2009-45	
14.5.2.3	Fuse holders, so designed that fuse links connected in parallel in the same circuit, shall not be used*	EL 2009-46	
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool	EL 2009-47	
14.5.3	a) PTC thermistors comply with IEC 60730-1:2007	EL 2009-48	
	b) PTC devices (>15 W) shall be of category V-1 or better	EL 2009-49	
14.5.4	Circuit protectors shall have adequate breaking capacity and their position is correctly marked	EL 2009-50	
14.6	Switches*	EL 2009-51	
14.6.1	a) When Switch tested as a separate component, shall comply with requirements of IEC 61058-1 including: i) 10000 operations ii) Suitable for use in a normal pollution situation iii) Switch shall conform to resistance to heat & fire of level 3	EL 2009-52	
	as per Cl.7.1.9.3 of IEC 61058-1 iv) Make and break speed independent of speed of		
	actuation and switches shall comply with the flammability category V-0 or as per G.1.1 of Annex-G		

Report No.: xxxxxx 001 IS 616: 2010 / Page 29 of 47

Dated: IEC 60065:2005

	T	1	
	b) When Switch tested as part of the apparatus:	EL 2009-53	
	i) Switches controlling currents		
	> 0.2A with open contact voltage		
	> 35 V (peak) ac/24 V dc , shall comply with Cl.14.6.3, Cl. 14.6.4 &		
	G.1.1		
	ii)Switches controlling currents		
	> 0.2A with open contact voltage		
	< 35 V (peak)ac/24 V dc, shall comply with Cl.14.6.3 and G.1.1		
	iii) Switch controlling currents <		
	0.2A with open contact voltage >		
	35 V (peak)ac/24 V dc, shall		
	comply with Cl.14.6.4 and G.1.1		
14.6.2	Switch tested to 14.6.1 b), shall	EL 2009-54	
	comply with requirements of IEC		
	61058-1, subclause 13.1 and has making/breaking action shall be		
	independent of speed of actuation		
14.6.3	Switch tested to 14.6.1 b) shall be	EL 2009-55	
	tested in the on-position as per		
	IEC 61058-1, sub clause 16.2.2 d), l) and m) not attaining		
	excessive temperature in use		
14.6.4	Switch tested to 14.6.1 b) shall	EL 2009-56	
	has adequate dielectric strength		
14.6.5	a) -If the switch is a Mains switch controlling mains socket- outlets,	EL 2009-57	
	additional tests to be conducted as		
	per IEC 61058-1 Fig.9 & Fig.10		
	b) - The total rated current of the	EL 2009-58	
	additional load shall correspond to the marking of socket outlet as per		
	Cl.5.2(c)		
14.7	Safety interlocks	EL 2009-59	
	Safety interlocks to 2.8 of		
44.0	IEC 60950-1	E	
14.8	Voltage setting devise and the like	EL 2009-60	
14.9	Motors*	EL 2009-61	
14.9.1	Tests under normal operating conditions:	EL 2009-62	
	a)For 48 h each at 1.1 times and		
	0.9 times of rated voltage		
	b) For 50 times started at 1.1 and 0.9 times of rated voltage		
	Dielectric strength test		
·	<u>.                                      </u>	•	

Report No.: xxxxxx 001	IS 616: 2010 /	Page 30 of 47
Dated:	IEC 60065:2005	

14.9.2	Wiring, windings, commutators, slip rings, insulation etc. shall be resistance to oil, grease	EL 2009-63	
14.9.3	Adequate protection against danger from moving parts	EL 2009-64	
14.9.4	Three phase, series motors shall be as per IEC 60950, Annex-B	EL 2009-65	
14.10	Batteries*	EL 2009-66	
14.10.1	Batteries mounted with no risk of accumulation of flammable gases	EL 2009-67	
14.10.2	No possibility of recharging non- rechargeable batteries	EL 2009-68	
14.10.3	Charging current for rechargeable batteries and discharge current for lithium batteries shall be within battery manufacturers limits	EL 2009-69	
14.10.4	Battery mould stress relief	EL 2009-70	
14.10.5	Battery drop test	EL 2009-71	
14.11	Opto couplers*	EL 2009-72	
	a) - Optocouplers shall comply with the constructional requirements of Clause-8	EL 2009-73	
	b) - Internal and external clearances and creepage distances of opto couplers shall comply with CI.13.1	EL 2009-74	
	c) - Alternatively, jointed insulation can be tested as per Cl.13.6	EL 2009-75	
14.12	Surge suppression varistors shall comply with IEC 61051-2*	EL 2009-76	
	a) - Such components shall not be connected between mains and accessible parts except for earthed parts of permanently connected apparatus	EL 2009-77	
	b) - Shall withstand a combination pulse of 6kV/3 kA with voltage waveform of 1.2/50 µs and current waveform of 8/20 µs.	EL 2009-78	
	c) - The coating of surge suppression varistors shall have a flammability category V-0 or better as per IEC 60707	EL 2009-79	

	IEC 60065:2005	
•		
Applicable Requirement	=	
er of tests to be conducted Applicable Test for which the sample passed	= 70 = =	
t is certified that the above test tested.	s were performed and found to be	e passing/failing in the
	14.12 Fault conditions as per of 11  er of requirement to be observed Applicable Requirement ement for which the sample part of tests to be conducted Applicable Test for which the sample passed tis certified that the above test	14.12 Fault conditions as per CI 11  er of requirement to be observed / inspected = 11 Applicable Requirement = ement for which the sample passed = er of tests to be conducted = 70 Applicable Test = for which the sample passed = et is certified that the above tests were performed and found to be

Report No.: xxxxxx 001 IS 616: 2010 / Page 32 of 47

Dated: IEC 60065:2005

### Test s relating to wiring

## EL 2010-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
15	Terminals *	EL 2010-00		
15.1	Plugs and Sockets*	EL 2010-01		
15.1.1	- Mains plug, appliance inlet, interconnection couplers and mains socket-outlet shall comply with the relevant standards.	EL 2010-02		
	- Overloading of plugs or appliance inlets prevented if the apparatus has mains socket outlets	EL 2010-03		
	-Overloading of internal wiring prevented if the apparatus has mains socket outlets	EL 2010-04		
15.1.2	- Connectors for antenna, earth, audio, video or data*	EL 2010-05		
	- No risk of insertion in mains socket – outlets*	EL 2010-06		
	- No risk of insertion into audio- or video- outlets marked with the symbol of 5.2 *	EL 2010-07		
15.1.3	Output terminals of a.c. adaptors or similar devices not compatible with household mains socketoutlets	EL 2010-08		
15.2	Provisions for protective earthing	EL 2010-09		
	-Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment	EL 2010-10		
	- Protective earth conductors correctly coloured	EL 2010-11		
	- Equipment with non- detachable mains cord provided with separate protective earth terminal near mains input	EL 2010-12		
	- Protective earth terminal resistant to corrosion	EL 2010-13		
	- Earth resistance test: < 0,1 Ω at 25 A	EL 2010-14		
15.3	Terminals for external flexible cords and for permanent connection to the mains supply*	EL 2010-15		
15.3.1	Adequate terminals for connection of permanent wiring*	EL 2010-16		

Report No.: xxxxxx 001	IS 616: 2010 /	Page 33 of 47
Dated:	IEC 60065:2005	

Reliable connection of non- etachable cords	EL 2010-17		
Not soldered to conductors of a inted circuit board	EL 2010-18		
Adequate clearances and reepage distances between onnections should a wire break way	EL 2010-19		
Wire secured by additional eans to the conductor	EL 2010-20		
crews and nuts clamping onductors have adequate reads conforming to ISO 261, SO 262 or similar *	EL 2010-21		
Soldered conductors wrapped round terminal prior to soldering held in place by additional eans*	EL 2010-22		
Clamping of conductor and sulation if not soldered or held y screws*	EL 2010-23		
erminals allow connection of oppropriate cross-sectional area conductors, for the rated current of the equipment	EL 2010-24		
erminals to 15.3.3 have sizes equired by table 16	EL 2010-25		
Terminals clamp conductors etween metal and have dequate pressure	EL 2010-26		
Terminals designed to avoid onductor slipping out when ghtened or loosened	EL 2010-27		
Terminals adequately fixed to void loosening when the amping is tightened or loosened and stress on internal wiring is voided	EL 2010-28		
erminals carrying a current ore than 0.2 A, contact ressure not transmitted by sulating material except eramic*	EL 2010-29		
Termination of non-detachable ords: wires terminated near to ach other	EL 2010-30		
Terminals located and nielded: test with 8 mm strand	EL 2010-31		
	Not soldered to conductors of a inted circuit board  Adequate clearances and eepage distances between onnections should a wire break way  Wire secured by additional eans to the conductor crews and nuts clamping onductors have adequate reads conforming to ISO 261, io 262 or similar *  Soldered conductors wrapped ound terminal prior to soldering held in place by additional eans*  Clamping of conductor and sulation if not soldered or held viscrews*  erminals allow connection of oppopriate cross-sectional area conductors, for the rated errent of the equipment erminals to 15.3.3 have sizes equired by table 16  Terminals clamp conductors etween metal and have dequate pressure  Terminals designed to avoid onductor slipping out when ightened or loosened  Terminals adequately fixed to void loosening when the amping is tightened or loosened  Terminals carrying a current ore than 0.2 A, contact essure not transmitted by sulating material except eramic*  Termination of non-detachable or contact wires terminated near to each other  Terminals located and	Not soldered to conductors of a inted circuit board  Adequate clearances and eepage distances between onnections should a wire break way  Wire secured by additional eans to the conductor crews and nuts clamping inductors have adequate reads conforming to ISO 261, io 262 or similar *  Soldered conductors wrapped ound terminal prior to soldering held in place by additional eans*  Clamping of conductor and sulation if not soldered or held a screws *  erminals allow connection of opropriate cross-sectional area conductors, for the rated arrent of the equipment erminals to 15.3.3 have sizes quired by table 16  Terminals clamp conductors are the equipment of the equipment erminals designed to avoid and conductor slipping out when ghtened or loosened or loosened and stress on internal wiring is voided  Perminals carrying a current ore than 0.2 A, contact ressure not transmitted by sulating material except eramic*  Terminals located and  EL 2010-29  EL 2010-30  EL 2010-30  EL 2010-30	Not soldered to conductors of a inted circuit board  Adequate clearances and eepage distances between official stances of the conductor crews and nuts clamping inductors have adequate reads conforming to ISO 261, O 262 or similar *  Soldered conductors wrapped ound terminal prior to soldering held in place by additional eans *  Clamping of conductor and sulation if not soldered or held of screws *  erminals allow connection of propriate cross-sectional area conductors, for the rated urrent of the equipment erminals to 15.3.3 have sizes quired by table 16  Terminals clamp conductors etween metal and have lequate pressure  Terminals adequately fixed to roid loosened or loosened distress on internal wiring is roid loosening when the amping is tightened or loosened the sampling is tightened or loosened distress on internal wiring is roided official stances are reminated pressure or transmitted by sulating material except examic*  Terminals located and EL 2010-31  EL 2010-31

Report No.: xxxxxx 001	IS 616: 2010 /	Page 34 of 47
Dated:	IEC 60065:2005	

15.4	Devices forming a part of the mains plug*	EL 2010-32	
15.4.1	No undue strain on mains socket-outlets Device shall be tested on the equipment as per Fig.11:	EL 2010-33	
	Torque to be applied : 0.25 Nm (Max)		
15.4.2	Dimensions of mains plug shall comply with relevant standard	EL 2010-34	
15.4.3	The device shall have adequate mechanical strength	EL 2010-35	
	a) Drop test	EL 2010-36	
	b) Torque test	EL 2010-37	
	c) Pull test	EL 2010-38	

Total number of requirements to be observed / inspected= 12
Total No. of Applicable Requirement: =
No of requirements for which the sample passed =

Total number of tests to be conducted = 27
Total No. of Applicable Tests: =
No. of tests for which the sample passed =

Certificate: It is certified that the above tests were performed and found to be passing/failing in the requirement tested.

(Approving Authority)	 	 ••••

Report No.: xxxxxx 001 IS 616: 2010 / Page 35 of 47

Dated: IEC 60065:2005

### Test s relating to wiring

## EL 2011-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
16	External flexible cords*	EL 2011-00		
16.1	a) - Mains supply flexible cords shall be sheathed type, complying with IEC 60227 for PVC cords or as per IEC 60245 for synthetic rubber cords	EL 2011-01		
	b) - Non-detachable cords for Class I have green/yellow core for protective earth	EL 2011-02		
16.2	Mains cords conductors shall have a nominal cross-sectional area not less than the values given in Table 18, for rated current consumption of the apparatus			
16.3	a) Flexible cords not complying with 16.1, used for interconnections between separate units of equipment used in combination and carrying hazardous live voltages, have adequate dielectric strength as per Cl.10.3			
	b) Flexible cords not complying with 16.1, withstand bending and mechanical stress as per 3.1 of IEC 60227-2 read with except that Table-19 of this ISS applies i)Flexing: 15000 times(30000 movements)			
	ii) Dielectric strength test as per Cl.10.3			
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions	EL 2011-06		
16.5	a) - Adequate strain relief on external flexible cords	EL 2011-07		
	b) - Not possible to push cord back into equipment	EL 2011-08		
	c) - Strain relief device unlikely to damage flexible cord	EL 2011-09		

Report No.: xxxxxx 001	IS 616: 2010 /	Page 36 of 47
Dated:	IEC 60065:2005	

	d) - For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor	EL 2011-10	
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use	EL 2011-11	
16.7	a) Transportable apparatus fitted with detachable cord sets with appliance inlet as per IEC 60320-1 or	EL 2011-12	
	b) Transportable apparatus shall have a means of stowage to protect the cord		

Total number of requirements to be observed / inspected = 01
Total No. of Applicable Requirement: =
No of requirements for which the sample passed =

Total number of tests to be conducted =13
Total No. of Applicable Tests =
No. of tests for which the sample passed =

Certificate: It is certified that the above tests were performed and found to be passing/failing in the requirement tested.

(Approving Authority)

Report No.: xxxxxx 001 IS 616: 2010 / Page 37 of 47

Dated: IEC 60065:2005

### Test s relating to wiring

## EL 2012-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
17	Electrical connections and mechanical fixings*	EL 2012-00		
17.1	a) - Screws are loosened and then tightened with a torque according to table 20	EL 2012-01		
	b) -5 times in the case of screws operating in a thread of metal	EL 2012-02		
	c) -10 times in the case of screws operating in wood or in a thread in insulating material:	EL 2012-03		
17.2	Correct introduction of screws into female threads in non-metallic material	EL 2012-04		
17.3	a) Screws or other fixing devices intended to fix Covers, legs, stands or the like, shall be captive in order to prevent replacement during servicing by screws or other fixing devices	EL 2012-05		
	b) Non-captive fixing screws: no hazard when replaced by a screw whose length is 10 times its diameter	EL 2012-06		
17.4	No loosening of conductive parts carrying a current > 0.2 A	EL 2012-07		
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0.2 A *	EL 2012-08		
17.6	Stranded conductors of flexible supply cords carrying a current > 0.2 A with screw terminals not consolidated by solder *	EL 2012-09		
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous	EL 2012-10		
17.8	Detachable legs or stands supplied by the manufacturer of the apparatus shall be delivered with the relevant fixing means *	EL 2012-11		
17.9	a) - Internal pluggable connections, affecting safety, unlikely to become disconnected	EL 2012-12		

Report No.:	xxxxxx 001	IS 616: 2010 /	Page 38 of 47
Dated:	II	EC 60065:2005	
	b) - By applying a 2N pull force in any direction to the connection, in case of doubt	EL 2012-13	
Total No. of A No of require Total number Total No. of A	er of requirements to be observed / Applicable Requirement ments for which the sample passe of tests to be conducted = 10 Applicable Tests = or which the sample passed =	· =	
Certificate: It requirement	is certified that the above tests we tested.	re performed and found to be pass	sing/failing in the
(Approving A	uthority)		

Report No.: xxxxxx 001 IS 616: 2010 / Page 39 of 47

Dated: IEC 60065:2005

#### **Tests relating to Physical Properties**

### EL 2013-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
18.	Mechanical strength of picture tubes and protection against the effect of implosion*	EL 2013-00		
	Picture tube separately approved to IEC 61965			
	Picture tube separately approved to 18.1			
18.1	General	EL 2013-01		
	Picture tubes >16 cm intrinsically protected			
	Non-intrinsically protected tubes >16 cm used with protective screen			
	Protective film as part of implosion protection: edges covered by enclosure			
18.2	Intrinsically protected picture tubes tests on 12 samples	EL 2013-02		
18.2.1	Ageing process: 6 samples	EL 2013-03		
18.2.2	Implosion test : 6 samples	EL 2013-04		
18.2.3	Mechanical strength test : 6 samples ( steel ball)	EL 2013-05		
18.3	Non-intrinsically protected picture tubes	EL 2013-06		

Number of requirements to be observed / inspected = 01
Total No. of Applicable Requirement =
No of requirements for which the sample passed =

Number of tests to be conducted = 06 Total No. of Applicable Tests = No. of tests to be conducted =

Certificate: It is certified that the above tests,	were performed and	found to be	passing/failing in	the
requirement tested.				

Approving Authority)	

Report No.: xxxxxx 001 IS 616: 2010 / Page 40 of 47

Dated: IEC 60065:2005

#### **Tests relating to Physical Properties**

### EL 2014-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
19	Stability and mechanical hazards*	EL 2014-00		
	Mass of the apparatus exceeding 7 kg	EL2014-01		
	Apparatus intended to be fastened in place is required to tested as per 19.3 only , if	EL2014-02		
	i) Mass of apparatus is 25 kg or more OR			
	ii) Height of 1m or more excluding loudspeaker systems, OR			
	iii) Total height of 1m or more combined with stand or cart excluding loudspeaker systems			
19.1	Test on a plane, inclined at 10° to the horizontal	EL2014-03		
19.2	100 N force applied vertically downwards	EL2014-04		
19.3	100 N force, or 13% of weight, applied horizontally to point of least stability	EL2014-05		
19.4	Edges or corners not hazardous*	EL2014-06		
19.5	Glass, with the exception of picture tubes and laminated shall with a surface area exceeding 0,1 m² or maximum dimension > 450 mm, shall comply with Cl.12.1.3  If glass breaks or cracks then	EL2014-07		
	additional test according to 19.5.1			
19.5.1	Fragmentation test	EL2014-08		
19.6	Wall or ceiling mountings adequate	EL2014-09		

\*Total number of requirement to be tested = 02 Total No. of Applicable Requirement = No of requirement for which the sample passed =

[LAB LOGO]
Page 41 of 47

Report No.: xxxxxx 001	IS 616: 2010 /	Page 41 of 47
Dated:	IEC 60065:2005	
Total No. of Applicable Tests No. of tests for which the sample pa	= assed =	
Certificate: It is certified that the aborequirement tested.	ove tests, were performed and found	to be passing/failing in the
(Approving Authority)		

Report No.: xxxxxx 001 IS 616: 2010 / Page 42 of 47

Dated: IEC 60065:2005

### **Tests relating to Physical Properties**

## EL 2015-V1.2

Clause No	Test / Requirement name	Code	Test result/ observation	Verdict
20	Resistance to fire*	EL2015-00		
20.1	Electrical components and mechanical parts	EL 2015-01		
	a) Exemption for components contained in an enclosure of material V-0 to IEC 60695-11-10 with openings not exceeding 1 mm in width	EL 2015-02		
	b) Exemption for small components as defined in 20.1	EL 2015-03		
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4	EL 2015-04		
20.1.2	Insulation of internal wiring working at voltages > 4 kV or leaving an internal fire enclosure, or located within the areas mentioned in Table 21, not contributing to the spread of fire	EL 2015-05		
20.1.3	a) Base material of printed boards on which the available power exceeds 15 W at a voltage between 50 V and 400 V (peak) a.c. or d.c. meets flammable category V-1 or better as per IEC 60707, unless used in a fire enclosure	EL 2015-06		
	b) Base material of printed boards on which the available power exceeds 15 W at a voltage >400 V (peak) a.c. or d.c. meets flammable category V-0 as per IEC 60707.	EL 2015-07		
20.1.4	a) Components and parts not covered by 20.1.1, 20.1.2 and 20.1.3 (other than fire enclosures) mounted nearer to a potential ignition source than the distances in Table 21 comply with the relevant flammability category in Table 21	EL 2015-08		
	b) Components and parts as above but shielded from a potential ignition source, with the barrier area in accordance with Table 21 and fig. 13	EL 2015-09		

Report No.: xxxxxx 001	IS 616: 2010 /	Page 43 of 47
Dated:	IEC 60065:2005	

	c) Apparatus with voltages >4kV under normal operating conditions and distances to the enclosure exceed those specified Table 21, flammability classification HB40 or better is required for the enclosure	EL 2015-10	
20.2	Fire enclosure*	EL 2015-11	
20.2.1	Potential ignition sources shall comply with the flammability category V-1 or better as per IEC 60707	EL 2015-12	
20.2.2	Internal fire enclosures shall not have openings for ventilation exceeding 1 mm in width	EL 2015-13	
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure	EL 2015-14	

Total number of requirements to be tested = 02
Total No. of Applicable Requirement =
No of requirement for which the sample passed =

Total number of tests to be conducted = 13
Total No. of Applicable Tests =
No. of tests for which the sample passed =

Certificate: It is certified that the above tests, were performed and found to be passing/failing in the requirement tested.

(Approving Authority)

Report No.: xxxxxx 001 IS 616: 2010 / Page 44 of 47

Dated: IEC 60065:2005

## **Table EL 2002-01**

7.1	TABLE: temperature rise measurements:							Р		
	Loudspea	aker impe	dance (Ω)			:				_
	Several le	oudspeak	er systems	3						_
	Marking	of loudspe	aker termi	inals						
	Power consumption in the OFF/Stand-by mode of the functional switch (W):									
Cond.	Un (V)	Hz	In (A)	Pn (W	V) U/I out (V/A) rms	Ро	ut (W)	Operat	ing Conditio	on / Status
Supplementary information:										
Temper	ature Ris	e dT of P	art			ď	T (K)		Limit max dT (K)	
Test Cor	ndition No				No			No		
			measurer			T		1		
						-				_
	·	<u> </u>			D (O)		(0)	AT (I/)	Limit may	- Inculation
Temperature rise dT of winding: $dT = (R_2 - R_1) \times (234.5 + t1) - (t2 - t1)$ $R_1$		R <sub>1</sub> (Ω)	R <sub>2</sub>	(12)	dT (K)	Limit max (K)	Insulation class			
			-t-t-> = 2:	/ > 45:5					<u> </u>	
Supplem	Supplementary information: **) Minus (-) 10K applied for thermo-couple method for windings									

Report No.: xxxxxx 001 IS 616: 2010 / Page 45 of 47

Dated: IEC 60065:2005

## **Table EL 2002-07**

7.2	TABLE: softening temperature of thermoplastics N/A						
Temperati	ure T of part	T - normal con- ditions (°C) T - fault condi- tions (°C)		Min T softening (°C)			
Supplemen	Supplementary information:						

## Table EL 2005-(04 to 05)

10.3	TABLE: insulation resistance measurements				
Insulation	Required R (MΩ)				
Between m	nain poles (Primary fuse disconnected)		Min 2		
Between painsulation	arts separated by basic or supplementary		Min 2		
Between pa	arts separated by double or reinforced insulation		Min 4		
Supplementary information:					

10.3	TABLE: electric strength measurements					
Test volt	age applied between:	Test voltage (V)	Breakdown			
Mains pol	les (primary fuse disconnected)					
Between insulation	parts separated by basic or supplementary					
Between	Between parts separated by double or reinforced insulation					
Suppleme	Supplementary information:					

## Table EL 2006-(04 to 10)

11.2	TABLE: su	TABLE: summary of fault condition tests				
	Voltage (V)	Voltage (V) 0,9 or 1,1 times rated voltage				
	Frequency (Hz)					_
	Ambient temperature (°C)					_
No.	Component	Fault	dT (K) / Component Other results (include description and test duration)			)

Report No.: xxxxxx 001	IS 616: 2010 /	Page 46 of 47
Dated:	IEC 60065:2005	

No.	Component	Fault	dT (K) / Component	Other results (include description and test duration)		
Supplementary information:						

### Table EL 2008-(01 to 15)

13	TABLES:	clearances ar	nd creep	age distar	nces						
Rated supply voltage: Pollution		n degree	: Material Group.		p:						
2 N force or	n internal pa	arts applied:									
30 N force on outside of conductive enclosure				applied:							
Location				Working	Voltage	Cleara	ance (mm)	Cree	paç	ge (mm)	
				V rms	V peak	Min	Actual	Min		Actual	
									T		
									$\exists$		
Circuits cor	ircuits conductively connected to the mains (use Tables 8, 9 and 11): see note below.										
Notes:											

- 1. Secondary circuits of Class II apparatus which have connector terminals that could be earthed (e.g. antenna signal input), are subjected to the requirements for circuits conductively connected to the mains in Tables 8 and 9.
- 2. Floating secondary circuits of Class I apparatus which have connector terminals that could be earthed (e.g. antenna signal input), are subjected to the requirements for circuits conductively connected to the mains in Tables 8 and 9 unless the floating secondary circuit is separated from the primary circuits by an earthed metal screen (e.g. in the power transformer), or the floating secondary circuit is connected to earth via a component such as a capacitor.
- 3. For insufficient clearances and creepage distances from secondary to secondary circuits and from secondary circuits to earth, see Cl. 4.3.1, 4.3.2 and 11.2.
- 4. If the minimum creepage distance in Table 11 is less than the minimum required clearance in Tables 8, 9 or 10 as required, then the value for clearance is used as the minimum creepage distance.
- "Min" = minimum required.

"Actual = Actual dimensions measured.

Supplementary information:

Report No.: xxxxxx 001	IS 616: 2010 /	Page 47 of 47
Dated:	IEC 60065:2005	

Photograph of marking plate and other photographs of the sample tested:

<sup>\*\*</sup>End of Test Report\*\*\*