


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p>Accredited to ISO/IEC 17025:2005</p>	CS & Environment Centre of Samsung Electronics Co Ltd	
	Issue No: 004 Issue date: 15 April 2011	
	416 Maetan 3-Dong Yeongtong-Gu Suwon-Si Gyeonggi-Do Korea 443-742	Contact: Mr Kyeong Dong Kim Tel: +82 (0)31 277 77512 Fax: +82 (0)31 277 7753 E-Mail: jesus100@samsung.com Website: www.samsung.com

Testing performed by the Organisation at the locations specified below

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details	Activity	Location code
Address R3 Samsung Electronics Co Ltd 416 Maetan 3-Dong Yeongtong-Gu Suwon-Si Gyeonggi-Do Korea 443-742	Local contact Mr Dong Min Lee Tel: + (82)-(0)31-279-1750 Fax: + (82)-(0)31-279-1745 Email: dm1.lee@samsung.com	Testing: EMC
Address R4 Samsung Electronics Co Ltd 416 Maetan 3-Dong Yeongtong-Gu Suwon-Si Gyeonggi-Do Korea 443-742	Local contact Mr Kyeong Dong Kim Tel: + (82)-(0)31-277-7745 Fax: + (82)-(0)31-277-7753 Email: jesus100@samsung.com	Testing: EMC
Address R4 Samsung Electronics Co Ltd 416 Maetan 3-Dong Yeongtong-Gu Suwon-Si Gyeonggi-Do Korea 443-742	Local contact Mr Sang Kyung Ra Tel: + (82)-(0)31-277-7846 Fax: + (82)-(0)31-277-7753 Email: raaaa@samsung.com	Testing: Environmental Battery Testing



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DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
Audio-Video Equipment Computers and Peripherals Digital IT Equipment Office Equipment - Electrical Radio and TV Equipment Alarm systems Home Appliances ISM Equipment	1 EMC Tests 1.1 Conducted Emissions 150 kHz to 30 MHz excluding discontinuous interference	EN 55011:2007 including Amendment 2:2007 EN 55011: 2009 EN 55013:2001 including Amendment 1:2003 and Amendment 2:2006 EN 55014-1:2006 including Amendment 1: 2009 EN 55022:2006 AS/NZS CISPR 11:2004 AS/NZS CISPR 13:2004 AS/NZS CISPR 14.1:2003 AS/NZS CISPR 22:2006 AS/NZS CISPR 22:2009	R4 R4 R4 R4 R3, R4
	1.2 Radiated Emissions E-field: 30 MHz to 18 GHz H-field: 9 kHz to 30 MHz E-field: 30 MHz to 3 GHz E-field: 30 MHz to 6 GHz	EN 55011:2007 including Amendment 2:2007 EN 55011:2009 EN 55013:2001 including Amendment 1:2003 and Amendment 2:2006 EN 55022:2006 including Amendment 1:2007 EN 55014-1:2006 including Amendment 1:2009 AS/NZS CISPR 11:2004 AS/NZS CISPR 13:2004 AS/NZS CISPR 22:2006 AS/NZS CISPR 22:2009	R4 R4 R4 R3, R4
	1.3 Disturbance Power 30 to 300 MHz	EN 55013:2001 including Amendment 1:2003 and Amendment 2:2006 EN 55014-1:2006 including Amendment 1:2009 AS/NZS CISPR 13:2004 AS/NZS CISPR 14.1:2003	R4



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As listed on Page 2	1 EMC Tests (cont'd)		
	1.4 Discontinuous Emissions Clicks 150 kHz to 30 MHz	EN 55014-1:2006 including Amendment 1: 2009 AS/NZS CISPR 14.1:2003	R4
	1.5 Harmonics and Flicker	EN 61000-3-2:2006 including Amendment 1: 2009 EN 61000-3-3:1995 including Amendment 1:1998 and Amendment 2:2005 EN 61000-3-3:2008	R3, R4
	1.6 Electrostatic Discharge 0.25 to 16 kV	EN 61000-4-2:1995 including Amendment 1:1998 and Amendment 2:2001 EN 61000-4-2:2009	R3, R4 R3, R4
	1.7 Radiated Immunity 80 MHz to 1 GHz 10 V/m 1.4 GHz to 3 GHz 10 V/m	EN 61000-4-3:1996 EN 61000-4-3:2002 including Amendments 1:2002 EN 61000-4-3:2006 including Amendment 1:2008 EN 55020:2007	R3, R4 R3, R4 R3, R4 R4
	1.8 Fast Transient/Burst Immunity 0.25 to 4.0 kV	EN 61000-4-4:1995 including Amendment 1:2001 and Amendment 2:2001 EN 61000-4-4:2004	R3, R4 R3, R4
	1.9 Surge 0.5 kV to 2 kV	EN 61000-4-5:1995 including Amendment 1:2001 EN 61000-4-5:2006	R3, R4 R3, R4
	1.10 Conducted Immunity 100 kHz to 250 MHz 85 W max	EN 61000-4-6:1996 including Amendment 1:2001 EN 61000-4-6:2007 EN 61000-4-6: 2009 EN 55020:2007	R3, R4 R3, R4 R3, R4 R4



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As listed on Page 2	1 EMC Tests (cont'd)		
	1.11 Power-Frequency Magnetic Fields (Immunity) Frequency: 50 Hz to 60 Hz Field strength: up to 100 A/m	EN 61000-4-8:1993 including Amendment 1:2001	R3
	1.12 Voltage Dips and Interruptions Max inrush capability:- R3 53A R4 84A	EN 61000-4-11:1994 including Amendment 1:2001 EN 61000-4-11:2004	R3, R4 R3, R4
	1.13 Shielding Effectiveness	EN 55020:2007	R4
	1.14 Harmonics Immunity	EN 61000-4-13: 2002 Including Amendment 1:2009	R4
1.15 Generic and Product Specific Standards These Generic and Product specific tests are included in this Schedule, but limited to those referred basic standards that are explicitly listed in Sections 1.1 to 1.14	EN 50130-4:1995 including Amendment 1:1998 Amendment 2:2003 EN 61000-6-1:2007 EN 61000-6-2:2005 EN 61000-6-3:2007 EN 61000-6-4:2007 EN 61204-3:2000 EN 55014-2:1997 including Amendment 1:2001 and Amendment 2: 2008 EN 55024:1998 including Amendment 1:2001 and Amendment 2:2003 Excluding Annexes: A.2 (TTE with Digital Interface) & F (ATMs) EN 301 489-1 V1.6.1 (2005-09) EN 301 489-1 V1.8.1 (2008-04) EN 301 489-7 V1.3.1 (2005-11)	R3, R4	



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As listed on page 2	1 EMC Tests (cont'd) 1.15 Generic and Product Specific Standards	EN 301 489-17 V1.2.1 (2002-08) EN 301 489-17 V2.1.1 (2009-05) EN 301 489-24 V1.4.1 (2007-09)	
	<p><u>EMC Facilities</u></p> <p><u>In R3 location:</u> Fully Anechoic Chamber, 7.9 m x 4.3 m x 4.2 m, Fully Anechoic Chamber, 7.9 m x 4.0 m x 3.3 m, 10m Semi-Anechoic Chamber, 19.6 m x 12.4 m x 7.5 m Shielded Rooms, (No.1, No.3), 7.0 m x 5.4 m x 3.3 m, Shielded Room (No.2), 7.0 m x 5.5 m x 3.3 m</p>		
	<p><u>In R4 location:</u> Fully Anechoic Chamber 7.9 m x 4.6 m x 3.3 m (RS/S5/S6) , 10m Semi-Anechoic Chamber (2ea) 25.6 m x 18.4 m x 11.1m 3m Semi-Anechoic Chamber 12.1 m x 10.0 m x 6.9 m, Shielded Room No 1 (CE/Dips/DD) 9.1 m x 4.6 m x 3.3 m Shielded Room No.2 (CS/EFT), 7.9 m x 4.6 m x 3.3 m Shielded Room No.3 (ESD/Surge/Harmonics), 7.9 m x 4.6 m x 3.3 m Shielded Room No.4 (DP/S4/Ant. terminal) 10.9 m x 4.9 m x 3.3 m Shielded Room No.5(DP) 10.9 m x 4.9 m x 3.3 m Shielded Room (S1/S2a/S2b) 6.1 m x 4.9 m x 3.3 m Shield Room Jacky Room (S3) 4.3 m x 4.9 m x 3.3 m</p> <p>Max EUT size: 1.5 m x 1.8 m x 1.5 m Max EUT weight: 2000 Kg</p> <p>Power supplies available: 1phase: Up to AC 270 V, 20~5 kHz, 63 A 3 phase: Up to AC 470 V, 20~5 kHz, 48 A</p>		



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Mobile Phone Batteries, Laptop, Notebook, Portable Computer Batteries.	2 Environmental Tests (non explosive items) and associated Electrical and Teardown Tests	CTIA Certification Requirements for Battery System Compliance to : IEEE 1725 : Rechargeable Batteries for Cellular Telephones IEEE 1625 : Rechargeable Batteries for Multi-Cell Mobile Computing Devices Revision 1.0	
	2.1 Isolation Properties	Clause 4.2, IEEE 1725	R4
	2.2 Shrinkage Allowance, Room Temperature	Clause 4.4, IEEE 1725	R4
	2.3 Shrinkage Allowance, Elevated Temperature	Clause 4.5, IEEE 1725	R4
	2.4 Electrode Geometry	Clause 4.9, IEEE 1725 Clause 4.8, IEEE 1625	R4
	2.5 Electrode Tabs (connection to cell terminals)	Clause 4.11, IEEE 1725 Clause 4.9, IEEE 1625	R4
	2.6 Application of Insulation	Clause 4.13, IEEE 1725 Clause 4.10, IEEE 1625	R4
	2.7 Application of Supplementary Insulation	Clause 4.14, IEEE 1725	R4
	2.8 Cell Vent Mechanism	Clause 4.16, IEEE 1725 Clause 4.13, IEEE 1625	R4
	2.9 Retention of Cell Contents and Projectile Testing	Clause 4.17, IEEE 1725	R4
	2.10 Cell Thermal Test	Clause 4.50, IEEE 1725 Clause 4.53, IEEE 1625	R4
	2.11 Evaluation of Excess Lithium Plating and Short-Circuit Test on Cycled Cells	Clause 4.52, IEEE 1725 Clause 4.50, IEEE 1625	R4
	2.12 External Shorting of Cell Terminals	Clause 4.53, IEEE 1725 Clause 4.55, IEEE 1625	R4



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Mobile Phone Batteries Laptop, Notebook, Portable Computer Batteries.	2 Environmental Tests (non explosive items) and associated Electrical and Teardown Tests (cont'd)		
	Battery Management Circuit Design	Clause 5.6, IEEE 1625	R4
	Cell connections	Clause 5.8, IEEE 1625	R4
	2.13 Ambient Consideration	Clause 5.8, IEEE 1725	R4
	2.14 Limit output Current	Clause 5.11, IEEE 1725 Clause 5.11, IEEE 1625	R4
	Fault Handling	Clause 5.13, IEEE 1625	R4
	2.15 Thermal Protection Design	Clause 5.14, IEEE 1725	R4
	2.16 Action, Thermal Protection	Clause 5.15, IEEE 1725 Clause 5.33, 6.13, IEEE 1625	R4
	Cell Sourcing	Clause 5.16, IEEE 1625	R4
	Old and Fresh Cells	Clause 5.17, IEEE 1625	R4
	Diiferent Cell Manufacturere Checks	Clause 5.18, IEEE 1625	
	2.17 Pack Overcurrent Protection Requirement	Clause 5.22, IEEE 1725 Clause 5.7, IEEE 1625	R4
	2.18 Mechanical Considerations (Steady Force)	Clause 5.23, IEEE 1725	R4
	Cell Orientation	Clause 5.38, IEEE 1625	R4
	Vent Mechanism	Clause 5.39, IEEE 1625	R4
Cell Insulation	Clause 5.40, IEEE 1625	R4	
Cell Connections	Clause 5.41, IEEE 1625	R4	



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	Marking of Battery Pack	Clause 5.50, IEEE 1625	R4
	2.19 Pack Overvoltage Protection, Verification and Testing	Clause 5.47, IEEE 1725	R4
	2.20 Pack Drop Test 1.5 m drop height Surface = concrete	Clause 5.48, IEEE 1725	R4
	Input Surge	Clause 6.2, IEEE 1625 Clause 6.2, IEEE 1725	R4
	2.21 Overvoltage	Clause 6.3, IEEE 1725 Clause 6.3, IEEE 1625	R4
	2.22 Overcurrent	Clause 6.4, IEEE 1725 Clause 6.4, 6.5, IEEE 1625	R4
	2.23 Fault Isolation and Tolerance	Clause 6.7, IEEE 1725 Clause 6.7, IEEE 1625	R4
	2.24 Pack Identification	Clause 6.10, IEEE 1725 Clause 6.10, IEEE 1625	R4
	2.25 Charge Algorithm Verification	Clause 6.11, IEEE 1725 Clauses 5.23, 5.25, 5.26, 5.32, IEEE 1625	R4
	2.26 Timer Fault	Clause 6.12, IEEE 1725	R4
	2.27 Communication Fault	Clause 6.13, IEEE 1725 Clause 6.12, IEEE 1625	R4
	2.28 Initiation of Charging Above Specified Voltage Threshold	Clause 6.15, IEEE 1725 Clause 6.14, 6.17, IEEE 1625	R4



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	2.29 Initiation of Charging Below Specified Voltage Threshold	Clause 6.16, IEEE 1725 Clauses 6.15, 6.14, IEEE 1625	R4
	2.30 Overdischarge Protection	Clause 6.17, IEEE 1725 Clauses 5.30, 6,14, 6.16, IEEE 1625	R4
	2.31 Thermal Shock - 40 °C/+ 75 °C	UL 1642, Sep 19, 2005 4 th	R4
	2.32 Shock 150 g, 6 ms, ½ Sine	UL 2054, Oct 29, 2004:16 UL 1642, Sep 19, 2005 4 th	R4
	2.33 Crushing Battery Pack Battery Cell	UL 2054, Oct 29, 2004:14 UL 1642, Sep 19, 2005 4 th	R4
	2.34 Impact Drop ht: 610 ± 25 mm	UL 1642, Sep 19, 2005 4 th	R4
	2.35 Projectile	UL 1642, Sep 19, 2005 4 th UL 2054, Oct 29 2004:	R4
END			