

Contents

Cooperating organisations	7
Acknowledgements	8
Preface	9
Introduction	11
Chapter 1 General requirements	13
1.1 Safety	13
1.2 Required competence	14
1.3 The client	14
1.3.1 Certificates and Reports	14
1.3.2 Rented domestic and residential accommodation	14
1.4 Alterations and additions	15
1.5 Record keeping	15
Chapter 2 Initial verification	17
2.1 Purpose of initial verification	17
2.2 Certificates	18
2.3 Required information	18
2.4 Scope	19
2.5 Frequency of subsequent inspections	19
2.6 Initial inspection	19
2.6.1 General procedure	19
2.6.2 Comments on individual items to be inspected	20
2.6.3 Inspection checklist	27
2.7 Initial testing	33
2.7.1 Initial testing	33
2.7.2 Electrical Installation Certificate	33
2.7.3 Model forms	33
2.7.4 The sequence of tests	33
2.7.5 Continuity of protective conductors including main and supplementary bonding	34
2.7.6 Continuity of ring final circuit conductors	36
2.7.7 Insulation resistance	37
2.7.8 Protection by SELV, PELV or electrical separation	40
2.7.9 Protection by barriers or enclosures provided during erection	42
2.7.10 Insulation resistance/impedance of floors and walls (Protection by a non-conducting location)	43

2.7.11	Polarity	45
2.7.12	Earth electrode resistance	46
2.7.13	Protection by automatic disconnection of supply	48
2.7.14	Earth fault loop impedance	49
2.7.15	Additional protection	52
2.7.16	Prospective fault current	52
2.7.17	Phase sequence	54
2.7.18	Functional testing	55
2.7.19	Verification of voltage drop	57

Chapter 3 Periodic inspection and testing 59

3.1	Purpose of periodic inspection and testing	59
3.2	Necessity for periodic inspection and testing	59
3.3	Electricity at Work Regulations	60
3.4	Design	60
3.5	Routine checks	61
3.6	Required information	61
3.7	Frequency of inspection	62
3.8	Requirements for inspection and testing	64
	3.8.1 General procedure	64
	3.8.2 Sampling when carrying out inspection and testing	64
	3.8.3 Scope	65
	3.8.4 Isolation of supplies	66
3.9	Periodic inspection	66
	3.9.1 Comments on individual items to be inspected	66
3.10	Periodic testing	72
	3.10.1 Periodic testing general	72
	3.10.2 Tests to be made	73
	3.10.3 Detailed periodic testing	74
	3.10.4 Periodic Inspection Report	77
3.11	Thermographic surveying	78

Chapter 4 Test instruments 81

4.1	Instrument standard	81
4.2	Instrument accuracy	81
4.3	Low-resistance ohmmeters	82
4.4	Insulation resistance ohmmeters	83
4.5	Earth fault loop impedance testers	83
4.6	Earth electrode resistance testers	84
4.7	RCD testers	84
4.8	Phase rotation instruments	84

Chapter 5 Forms 85

5.1	Initial inspection and testing	85
5.2	Minor works	85
5.3	Periodic inspection	85
5.4	Model forms for certification and reporting	86

Appendix A	Resistance of copper and aluminium conductors	103
A.1	Standard overcurrent devices	105
Appendix B	Maximum permissible measured earth fault loop impedance	107
B.1	Methods of adjusting tabulated values of Z_s	113
Index		115