CIN No. U99999MH1970GAPO14629

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Cir No.:08/DIV/CAB/05 **11th July 2022**

To members of IEEMA Cable division, all SEBs, Utilities & listed purchasing organisations

Sub: Missing tables for weight factors for various types of Cables

IEEMA Cable division members have decided to evolve factors for LV and HV Cables which were missing in the existing tables of factors since some of the users were procuring such types of Cables and demanding these factors.

After collecting and compiling inputs from leading manufacturers and receiving approval from IEEMA Cable division; we are publishing the following factors and enclosed for your perusal and records.

Tables:

a. Additional weight factors for LV Control cable PV formula effective from Nov 2017
b. Additional table (L2) for **Polymer (CCFAl/CCFCu) for Single core armed XLPE insulated 1.1 KV Power Cable with Aluminium/Copper conductor** for LV Cable PV formula effective from Nov 2017
c. Additional table H5(a) for **Polymer (CCFAL/CCFCu) for SINGLE CORE UN-ARMOURED XLPE INSULATED 3.3 to 33 kV POWER CABLES WITH AL / Cu conductor** for MV Cable PV formula effective from Sep 2019
d. Updated Table (P2) **PVC Compound (CCFAI/CCFCu) for PVC insulated 1.1 KV Power Cables With Copper/Aluminium Conductor** and additional table (H2) for **Polymer (CCFAI / CCFCu) Single core XLPE insulated 3.3. to 33 KV Power cables with Copper/Aluminium Conductor (**Common factor for Round or flat wire) as per formula effective from Nov 2017.

Director

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Additional Tables

a. Additional factors for LV Control cable PV formula effective from Nov 2017

ITEM DETAILS	Copper	PVC	Steel
	CuF	CCFCU	FeF
2 CORE X 4 SQ. MM. CU/ARD - WIRE (PVC)	0.075	0.1792	0.2546
4 CORE X 4 SQ. MM. CU/ARD - WIRE (PVC) - FRLS	0.1494	0.2256	0.3188
5 CORE X 4 SQ. MM. CU/ARD - WIRE (PVC)	0.1879	0.2594	0.3453
8 CORE X 4 SQ. MM. CU/ARD - WIRE (PVC)	0.3009	0.3531	0.4811
14 CORE X 4 SQ. MM. CU/ARD - STRIP (PVC)	0.5261	0.4866	0.3438
20 CORE X 2.5 SQ. MM. CU/ARD - WIRE (PVC)	0.4583	0.5276	0.6417
28 CORE X 2.5 SQ. MM. CU/ARD - STRIP (PVC)	0.6529	0.6935	0.4374
5 CORE X 4 SQ. MM. CU/ARD - STRIP (PVC)	0.189	0.2585	0.205

b. Additional table (L2) **Polymer (CCFAI/CCFCu) for Single core armed XLPE insulated 1.1 KV Power Cable with Aluminium/Copper conductor** for LV Cable PV formula effective from Nov 2017

TABLE (L2)
VARIATION FACTOR FOR POLYMER (CCFAI / CCFCu)
XLPE INSULATED 1.1 KV POWER CABLES WITH COPPER / ALUMINIUM CONDUCTOR

Nominal Cross Sectional Area (in Sq. mm)	1 core
	Arm
2.5	0.060
4	0.064
6	0.069
10	0.077
16	0.084
25	0.098
35	0.107
50	0.119
70	0.137
95	0.168
120	0.184
150	0.204
185	0.227
240	0.261
300	0.301
400	0.369
500	0.413
630	0.497
800	0.577
1000	0.723

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Additional Tables

c. Additional table H5(a) for MV Cable PV formula effective from Sep 2019

TABLE : H5 (a)

Variation Factor for Polymer (CCFAL/CCFCu)

Single Core Un-Armoured XLPE Insulated 3.3 to 33 kV Power Cable with AL / Cu conductor

Nominal Cross Sectional Area	3.3 KV(E)	6.6 KV (E)	6.6 KV (UE) / 11 KV (E)	11 KV (UE)	22 KV (E)	33 KV (E)
(in Sq. mm)	Unscreened					
35	0.158	0.224	0.252	0.323	0.342	0.361
50	0.177	0.240	0.269	0.342	0.361	0.520
70	0.198	0.265	0.296	0.370	0.391	0.551
95	0.233	0.288	0.318	0.396	0.450	0.582
120	0.253	0.310	0.342	0.454	0.477	0.613
150	0.269	0.328	0.361	0.476	0.500	0.638
185	0.292	0.354	0.420	0.508	0.532	0.719
240	0.322	0.419	0.455	0.547	0.572	0.766
300	0.355	0.461	0.490	0.585	0.610	0.863
400	0.423	0.524	0.539	0.683	0.711	0.932
500	0.477	0.629	0.635	0.743	0.825	1.059
630	0.548	0.691	0.697	0.866	0.898	1.144
800	0.672	0.826	0.833	1.016	1.051	1.320
1000	0.789	0.964	0.964	1.099	1.200	1.488

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Additional Tables

d. Updated Table P2 and additional Table H2 as per formula effective from Nov 2017

TABLE-P2

VARIATION FACTOR FOR PVC COMPOUND (CCFAI/CCFCu)

PVC INSULATED 1.1 KV POWER CABLES WITH COPPER/ALUMINIUM CONDUCTOR

Nominal cross Sectional Area (In Sq.mm)	1Core		2Core		3Core		3.5Core		4Core	
	Unarm	Arm	Unarm	Arm	Unarm	Arm	Unarm	Arm	Unarm	Arm
2.5	0.079	0.098	0.125	0.139	0.141	0.157	-	-	0.161	0.179
4	0.094	0.111	0.14	0.156	0.164	0.182	-	-	0.188	0.209
6	0.101	0.120	0.154	0.171	0.179	0.199	-	-	0.198	0.22
10	0.114	0.135	0.194	0.216	0.214	0.238	-	-	0.249	0.277
16	0.142	0.140	0.234	0.246	0.279	0.29	-	-	0.328	0.345
25	0.171	0.169	0.288	0.303	0.364	0.383	0.422	0.444	0.443	0.466
35	0.189	0.185	0.321	0.338	0.403	0.429	0.489	0.515	0.498	0.524
50	0.211	0.219	0.411	0.433	0.508	0.535	0.613	0.645	0.647	0.681
70	0.241	0.267	0.508	0.535	0.613	0.645	0.707	0.744	0.887	0.821
95	0.284	0.319	0.670	0.675	0.795	0.811	0.908	0.927	1.137	1.053
120	0.339	0.351	0.716	0.743	0.866	0.884	1.024	1.045	1.259	1.211
150	0.388	0.402	0.873	0.881	1.07	1.092	1.289	1.315	1.524	1.450
185	0.45	0.463	1.035	1.086	1.31	1.337	1.499	1.53	1.871	1.773
225	0.521	-	-	-	-	-	-	-	-	-
240	0.534	0.567	1.272	1.330	1.649	1.683	1.99	2.031	2.278	2.178
300	0.653	0.649	1.528	1.593	2.007	2.048	2.361	2.409	2.836	2.692
400	0.77	0.780	1.932	2.000	2.437	2.487	2.616	2.669	3.374	3.222
500	0.936	0.992	2.390	2.529	3.117	3.181	3.687	3.762	4.332	4.064
630	1.175	1.253	3.000	3.107	4.162	3.909	4.649	4.354	5.235	4.922
800	1.433	1.380	-	-	-	-	-	-	-	-
1000	1.642	1.580	-	-	-	-	-	-	-	-

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Additional Tables

TABLE H2

VARIATION FACTOR FOR POLYMER (CCFAI / CCFCu)

SINGLE CORE XLPE INSULATED 3.3 to 33 KV POWER CABLES WITH COPPER / ALUMINIUM CONDUCTOR (Common factor for Round or flat wire)

Nominal Cross Sectional Area (in Sq. mm)	3.3 KV (UNSCREENED) ARM	6.6 KV (E) ARM	6.6 KV (UE) / 11 KV (E) ARM	11 KV (UE) ARM	22 KV (E) ARM	33 KV (E) ARM	**33 KV (UE) ARM**
35	0.153	0.239	0.257	0.305	0.358	0.468	--
50	0.177	0.251	0.270	0.347	0.362	0.464	--
70	0.197	0.274	0.293	0.371	0.385	0.478	0.554
95	0.212	0.293	0.312	0.400	0.422	0.533	0.581
120	0.227	0.311	0.360	0.428	0.443	0.554	0.603
150	0.243	0.357	0.378	0.446	0.461	0.573	0.661
185	0.263	0.381	0.417	0.470	0.518	0.661	0.703
240	0.312	0.426	0.448	0.534	0.550	0.696	0.772
300	0.334	0.459	0.474	0.562	0.578	0.788	0.839
400	0.381	0.543	0.551	0.669	0.687	0.840	0.957
500	0.421	0.658	0.661	0.782	0.800	0.991	1.045
630	0.512	0.716	0.718	0.842	0.870	1.112	1.154
800	0.560	0.863	0.865	1.023	1.046	1.206	1.316
1000	0.682	1.026	1.026	1.148	1.171	1.413	1.518

Remarks : We have considered cables with PVC Inner covering & PVC outer sheath to calculate above PV factors (Copper tape acts as a metallic insulation screen).

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