



WETS D'15 Workshop

Organization: Jicable and Prospective 2100

Palais des Congrès de Versailles, France

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Part 1 - General data of the network

THE 4 TOPICS OF WETS D'15

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➤ **General data of the network**

Roger TAMBRUN + Guillaume PELTON : **ERDF** & Yves BRUMENT : **R&D**

➤ **Technologies**

Roger TAMBRUN : **ERDF** & Yves BRUMENT + Christophe TOURCHER : **R&D**

1 – Câbles

2 – Accessories

➤ **Diagnosis of ageing and estimation of the residual life**

Roger TAMBRUN : **ERDF** & Hervé DIGARD + Thierry ESPILIT : **R&D**

➤ **Renewal of the distribution networks**

Roger TAMBRUN : **ERDF** & Emanuela BUCCAFURRI + Adrien RESMOND : **R&D**

1-1-1 General data of the network

Length of overhead and underground lines (kilometers) (French Network) : By Y BRUMENT

20-kV MV underground grids in 2014

290 000- km grid 266 000-km cable with synthetic insulation & 24 500-km cable with impregnated paper insulation

Essentially Principal lines

grid failure rate: number for 100km/year:

0,4 on synthetic cables : end in 1980 & **0,4** on synthetic cables end in 2014

1,7 on paper cables : end in 1980 & **1,7** on paper cables: end in 2014

20-kV MV overhead lines in 2014

337 000- km ; Principal lines :200 000 km, Branch :137 000 km + isolated 1416 km

230/400 V BT total BT 706 000 km

underground grids in 2014

302 500 km; 250 000-km cable with synthetic insulation & 52 500-km cable with impregnated paper insulation

Principal lines : 150 000 km, Branch : 152 500 km

230/400 V BT overhead lines

conductor 79 500 km, twisted 324 000 soit 403 500

Principal lines : 150 000 km, Branch : 150 000 km

1-1-2 General data of the network

Synthésis Length underground lines (kilometres) : By Y BRUMENT

INSERT APPROXIMATE 3-PHASE CIRCUIT LENGTH (km) FOR EACH VOLTAGE AND INSTALLATION YEAR RANGE				
All technologies				
Installation year / Voltage	< 10 kV	10 - 15 kV	15,5 - 20 kV	20,5 - 50 kV
Your Voltage			20kV	
2000			220 000	
2005			240 000	
2010			270 000	
2015 estimation			290 500	
PAPER CABLES				
since first date instal	1930	to (end date)	1980	
INSERT APPROXIMATE 3-PHASE CIRCUIT LENGTH (km) FOR EACH VOLTAGE AND INSTALLATION YEAR RANGE				
Installation year / Voltage	< 10 kV	10 - 15 kV	15,5 - 20 kV	20,5 - 50 kV
Your Voltage				
2000			42 000	
2005			39 000	
2010			31 000	
2015 estimation			24 500	
POLYMERIC CABLES				
since first date instal			1980	
INSERT APPROXIMATE 3-PHASE CIRCUIT LENGTH (km) FOR EACH VOLTAGE & INSTAL. BY YEAR				
Installation year / Voltage	< 10 kV	10 - 15 kV	15,5 - 20 kV	20,5 - 50 kV
Your Voltage				
2000			150 000	
2005			190 000	
2010			230 000	
2015 estimation			266 000	
"COMMENTS"		renewal	2 000 km/year	

1-1-3 General data of the network

Synthésis number underground accesories: By Y BRUMENT

INSERT APPROXIMATE NUMBER OF JOINTS FOR EACH VOLTAGE AND INSTALLATION BY YEAR				
Installation year / Voltage	< 10 kV	10 - 15 kV	15,5 - 20 kV	20,5 - 50 kV
Your Voltage			20	
2000			29300 + 3500	
2005			32100 + 3700	
2010			40800 + 5435	
2015 estimation			45200 + 8000	

"COMMENTS"

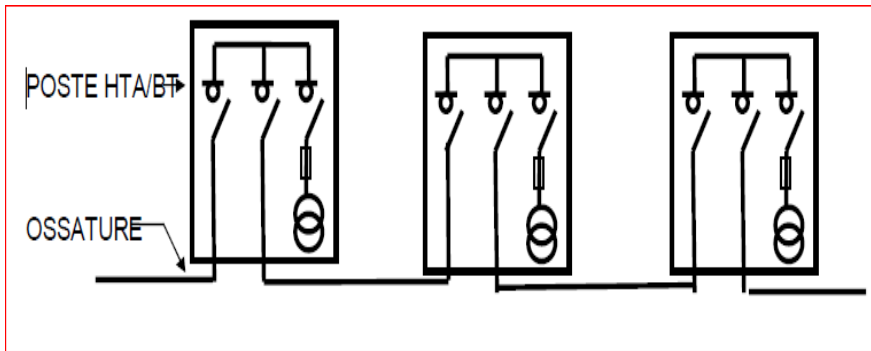
Joint + Branch

INSERT APPROXIMATE NUMBER OF TRANSITION JOINTS FOR EACH VOLTAGE & INSTAL. BY YEAR				
Installation year / Voltage	< 10 kV	10 - 15 kV	15,5 - 20 kV	20,5 - 50 kV
Your Voltage			20	
2000			11 700	
2005			16 360	
2010			14 530	
2015 estimation			15 500	

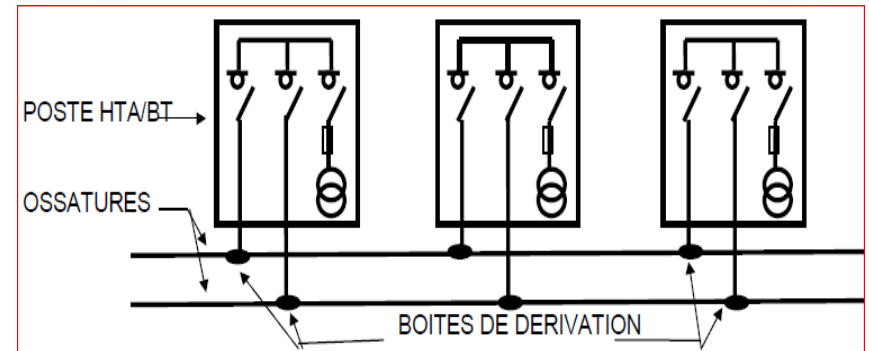
INSERT APPROXIMATE NUMBER OF TERMINATIONS FOR EACH VOLTAGE AND INSTALLATION BY YEAR				
Installation year / Voltage	< 10 kV	10 - 15 kV	15,5 - 20 kV	20,5 - 50 kV
Your Voltage			20	
2000			54 950	
2005			44 686	
2010			40 864	
2015 estimation			53 500	

1-2-1 General data of the network

General Network topology : By Y BRUMENT

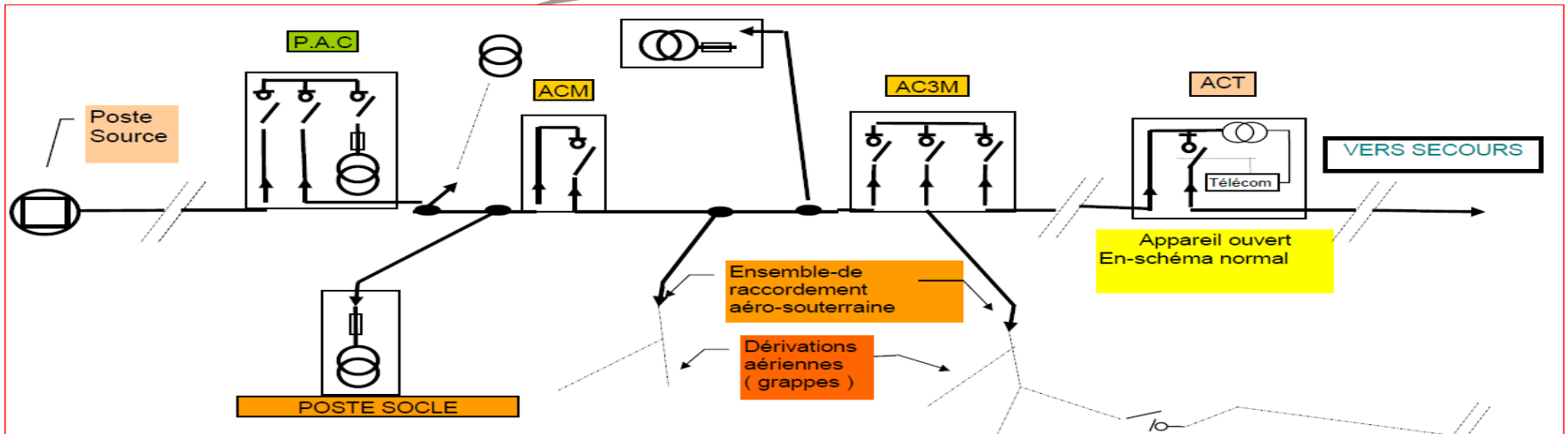


Urban Zone



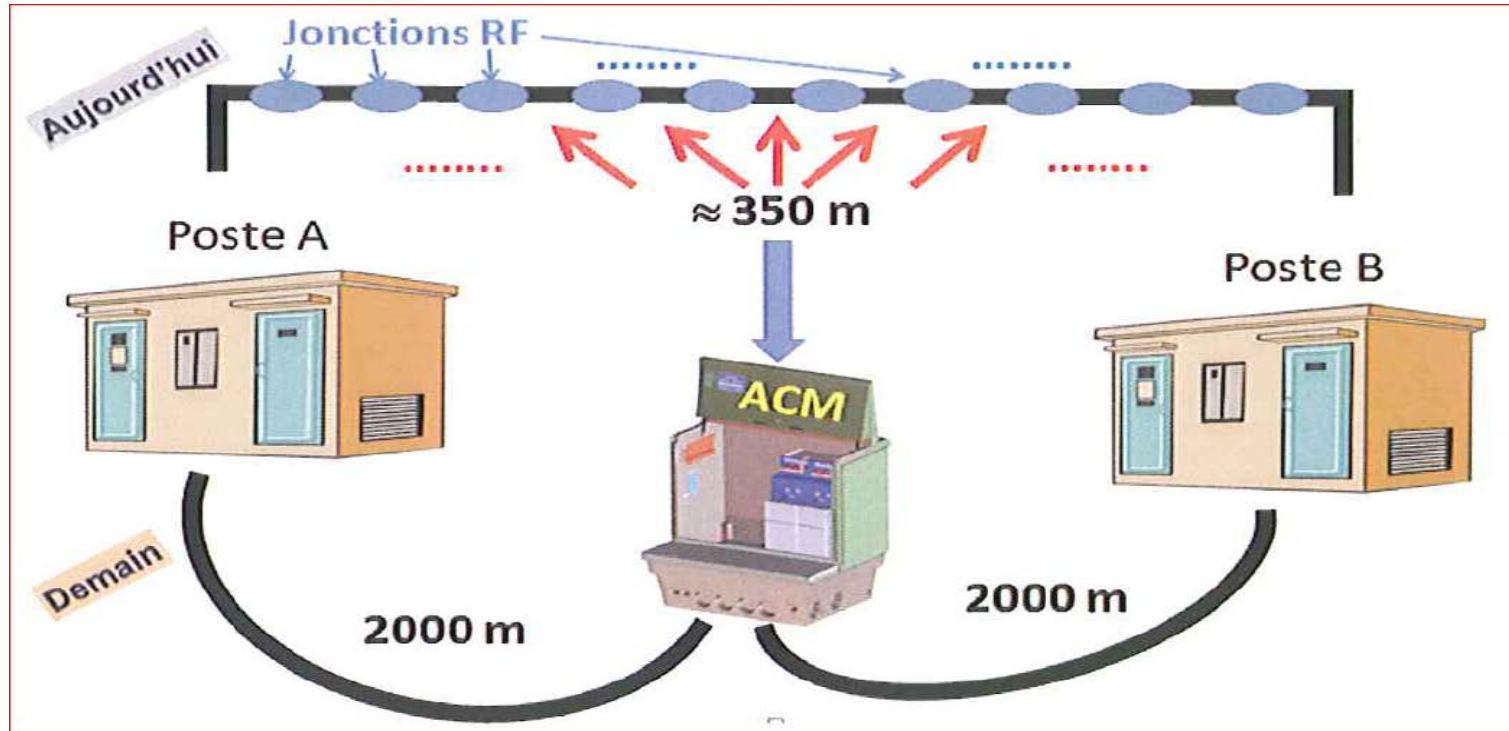
Standart Zone

Hight quality Zone



1-2-2 General data of the network

new long length Network topology : By Y BRUMENT



comment

1-3 General data of the network

MV networks, in urban zones and in rural areas : By Y BRUMENT

