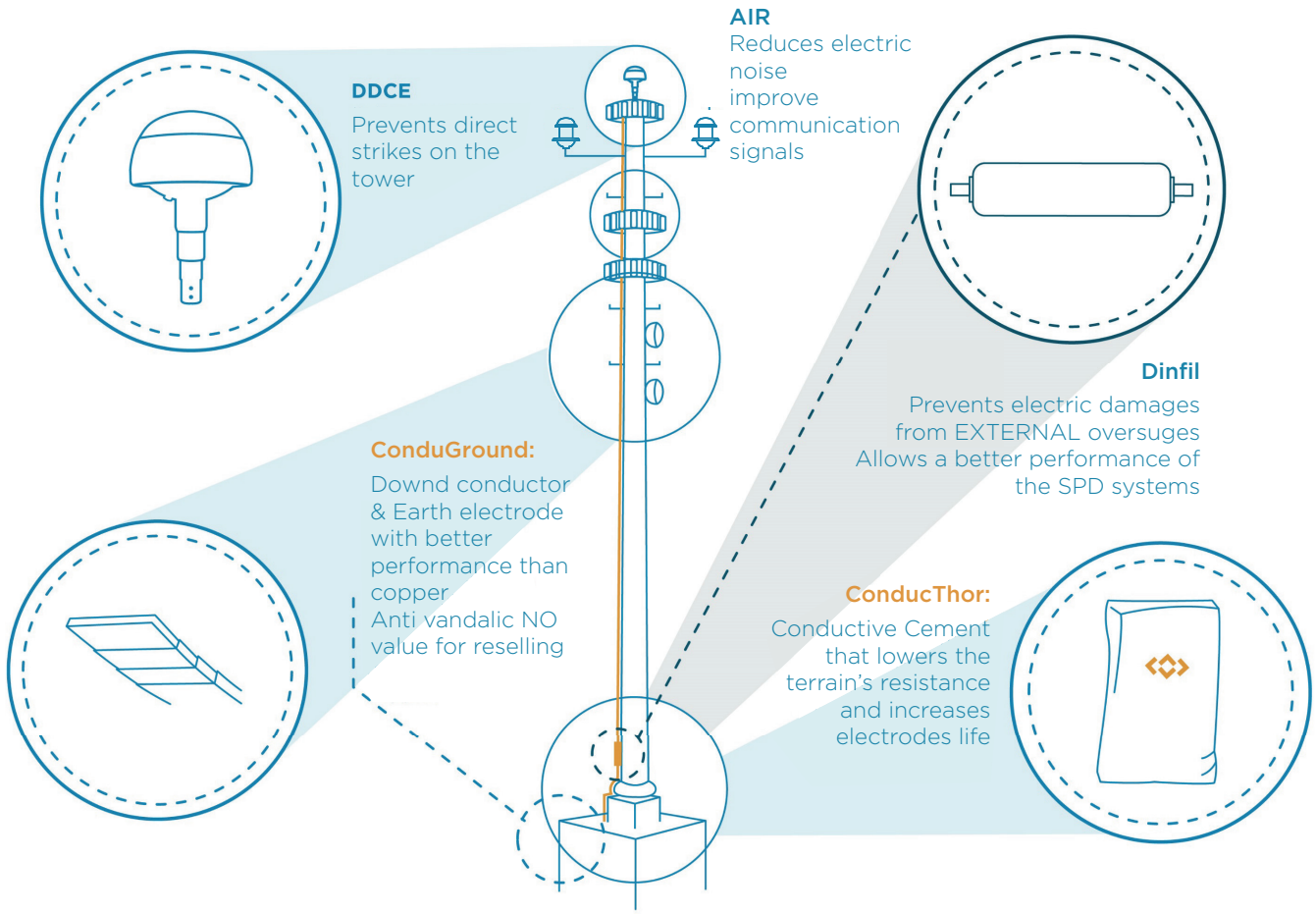
STOP lightning Damages

dinntecospain
prevent lightning from striking

GLOBAL PROTECTION AGAINST LIGHTING STRIKES



DINNTECO: PREVENTS LIGHTING STRIKES

	CONVENTIONAL	DINNTECO
Compensation of the electric field	IMMEDIATE	CONTINUOUS & VARIABLE
Ascending Tracer	YES	NO
Lightning Strike	YES	NO
Current leakage	VERY HIGH (3kA to 250kA)	VERY LOW (0.05 A to 3 A)

DDCE: HOW DOES IT WORKS

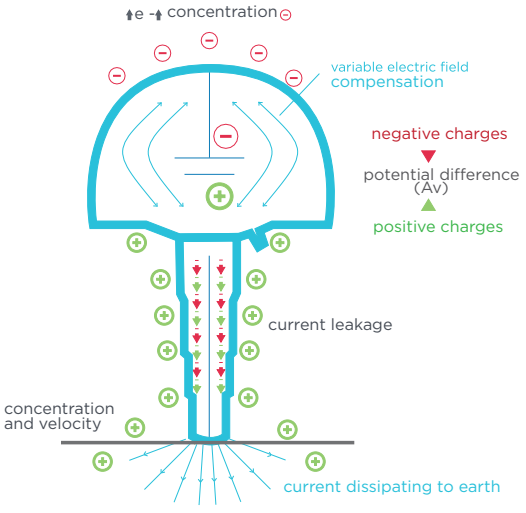
It constantly compensates for electrostatic charges in the environment by directing them to the ground

Acts as a sink, absorbing electrostatic charges from the environment and draining them to the ground through a low current flow (maximum 3 A).

As a result:

The protected structure does NOT become electrified, and therefore, NO upward leader is generated.

The downward leader from the cloud cannot close the circuit with the DDCE or the protected structure



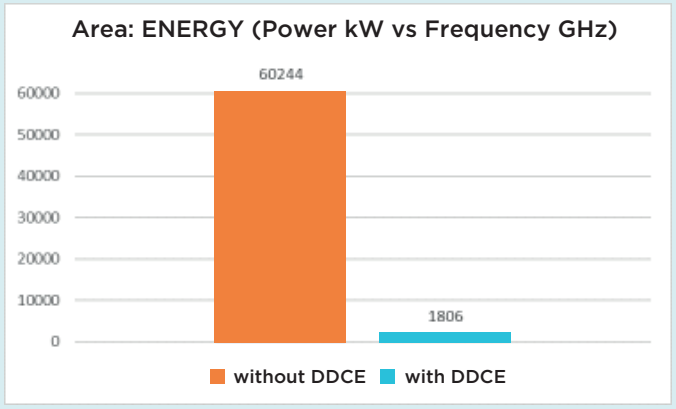
REDUCE ELECTRIC NOISE & IMPROVE COMMUNICATION SIGNALS

AXION

Mijas Tower: 1 **DDCE** + 3 **DINEOL**

The implementation of DDCE and DINEOL leads to a reduction in electromagnetic noise in the vicinity of protected facility, enabling the detection of extremely weak signals previously obscured by noise.

Jesús Alberto Hernández
Head of Axion's base in Malaga



VIESGO

The installation of the **DDCE** has improved RCO communications by an average of 10db.
Some of them were out due to lack of communication with the repeater and now all of them are operational. Even others who were saturated are now working at an optimal range, which is a success.

VIESGO Technical Department

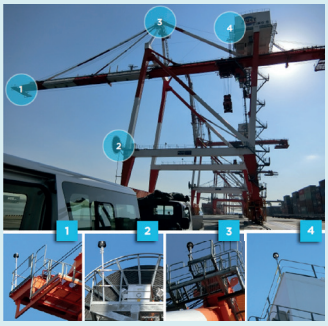
Jano 22-05-2018

	DENOMINACION	TIPO	ESTADO	NIVEL
1	OCR_1	REMOTE		-65
2	REP_1	REPEATER		-77
3	OCR_2	REMOTE		-96
4	OCR_3	REMOTE		-83
5	OCR_4	REMOTE		-94
6	OCR_5	REMOTE		-96
7	OCR_6	REMOTE		-75
8	OCR_7	REMOTE		-106
9	OCR_8	REMOTE		-65
10	OCR_9	REMOTE		-81
11	OCR_10	REMOTE		-86
12	OCR_11	REMOTE		-49
13	OCR_12	REMOTE		-76
14	REP_2	REPEATER		-102
15	OCR_13	REMOTE		-100
16	OCR_14	REMOTE		-76
17	OCR_15	REMOTE		-96
18	OCR_16	REMOTE		-84
19	OCR_17	REMOTE		-76
20	OCR_18	REMOTE		-79
21	OCR_19	REMOTE		-70
22	OCR_20	REMOTE		-79
23	OCR_21	REMOTE		-84
24	OCR_22	REMOTE		-96

Jano 13-02-2019

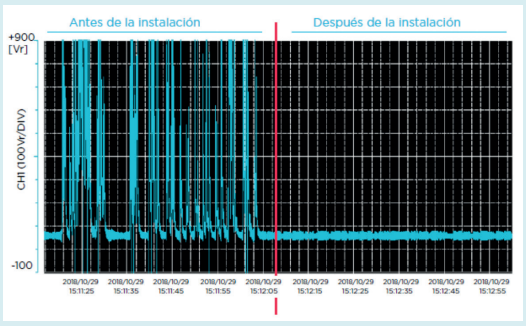
	DENOMINACION	TIPO	ESTADO	NIVEL	DIF. NIVEL
1	OCR_1	REMOTE		-51	-14
2	REP_1	REPEATER		-67	-10
3	OCR_2	REMOTE		-62	-34
4	OCR_3	REMOTE		-68	-15
5	OCR_4	REMOTE		-63	-31
6	OCR_5	REMOTE		-81	-15
7	OCR_6	REMOTE		-	-
8	OCR_7	REMOTE		-92	-14
9	OCR_8	REMOTE		-57	-8
10	OCR_9	REMOTE		-66	-15
11	OCR_10	REMOTE		-51	-35
12	OCR_11	REMOTE		-48	-1
13	OCR_12	REMOTE		-60	-16
14	REP_2	REPEATER		-75	-27
15	OCR_13	REMOTE		-	-
16	OCR_14	REMOTE		-67	-9
17	OCR_15	REMOTE		-76	-20
18	OCR_16	REMOTE		-73	-11
19	OCR_17	REMOTE		-63	-13
20	OCR_18	REMOTE		-65	-14
21	OCR_19	REMOTE		-62	-8
22	OCR_20	REMOTE		-66	-13
23	OCR_21	REMOTE		-64	-20
24	OCR_22	REMOTE		-78	-18

Protected installations exhibit a significant decrease in interference and noise floor reduction over 50 orders of magnitude.



NAGOYA UNITED CONTAINER TERMINAL

Problem: Electrified crane due to a radio Tower at 1.2 km.
Action: installation of 4 **DDCE**
Result: reduction from 900V to 70 V



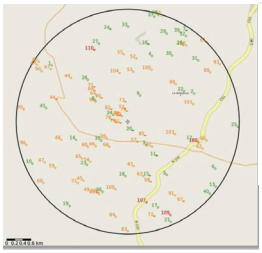
TESTIMONIALS

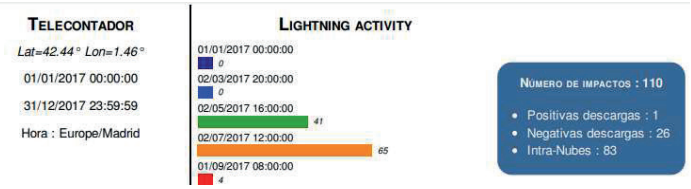
If we look at the level of lightning incidence/impact prior to the date of installation,
we can see that the results are ideal, and therefore, based on budget availability,
there is the intention to continue installing this type of equipment.

Román Odriozola
ITELZPI Technical Director

SUMMARY FILED TEST AT LAS PARDINAS IN ANDORRA

exemple of report of lighting strikes, 2Km around Las Pardinas tower provided by Météorage

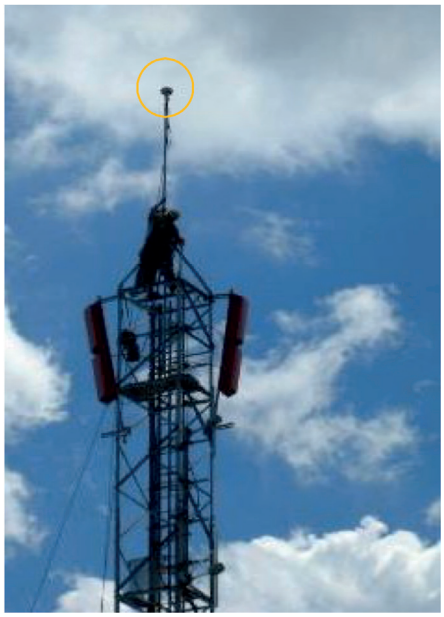




Météorage

	CONVENTIONAL system	DINNTECO system
	1987- 2002	2003-2023
direct strikes	21	0

ANDORRA TELECOM



PT XL AIXATA TBK (Indonesia)

Year 2014:
34% of 1,500 telecommunications towers suffer direct strikes
February 2015 to February 2018
838 towers protected with 3 different systems:

Nº	Technology	Before	After
248	DDCE	**34%**	0%
350	Hitachi (DAS System)	**34%**	26%
240	ESE System	**34%**	36%

CONCLUSION: The installation programme of the **DDCE** continues