



# STAR® 210 Evolution

## EARLY STREAMER EMISSION (ESE) AIR TERMINAL – TESTING REMOTE

### Reference

### STAR210 Evo

### Technical specifications

Power $\Delta t$	10 - microseconds boot time ( $\mu s$ )
Lightning shock	Wave 10/350 microseconds
Test 100 kA	NFC 17102
Streamer	<ul style="list-style-type: none"> <li>• System technology with controlled priming technology®</li> <li>• High impulse voltage</li> </ul>
Structure	<ul style="list-style-type: none"> <li>• Electromagnetic cage, with electromechanical crimping</li> <li>• 2 stainless steel 316 differential fins</li> </ul>

### Fonctionnement

Ascending Tracer Detection	• Continuous measurement of ambient natural electric field
Power Management	<ul style="list-style-type: none"> <li>• Totally autonomous</li> <li>• No external power supply</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>• Modular parts interchangeable in factory</li> <li>• Dimension - <math>\varnothing</math> 100 x 200 mm - M20 thread</li> <li>• Tightening torque</li> </ul>

### Test system

### Satellit self test

### Specific remote control

### Fixing lug

### Lightning down connection

### Universal mounting bracket

### Instructions for use

- Star Evolution Tester
- Photovoltaic autonomy (no battery)
- Included (Reference S1205)
- Stainless steel
- Included (Reference RAPC01)
- Included (Reference MANR01)
- included

### Impact on the environment

- 100% recyclable

### Guarantee

- 5 years manufacturer

### Conditioning

### Packaging

- Adapted to the size of the STAR
- Dedicated custom cradles

### Size of the box

- 300 x 200 x 150 mm

### Net weight

- 1,824 Kgs

### Gross weight

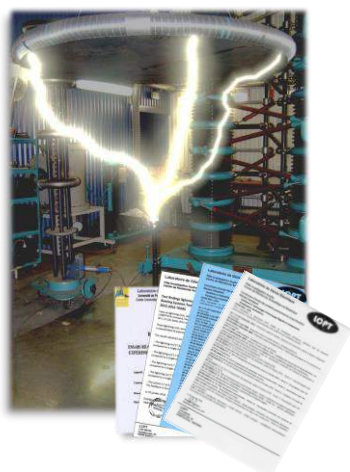
- 1,944 Kgs (with specific box)

### Certifications

Traceability / Control	<ul style="list-style-type: none"> <li>• Laser marking or specific engraving</li> <li>• Indestructible self-labeling system</li> <li>• Authentication by serial number</li> <li>• Certified reference to the order</li> </ul>
Conformity	<ul style="list-style-type: none"> <li>• NFC17102/1995</li> <li>• NFC17102/2009</li> <li>• NFC17102/2011</li> </ul>
Customs Code	• 85 36 90 85



Solar segment





**Early Streamer Emission (ESE). Air Terminal STAR210®**

**Lightning Rod - STAR® Evolution - Testing remote.**



## STAR® 210 Evolution

### ► Testing Remote

**Function test included.**

Reference : STAR210 evo

Description: **Lightning rod - Air Terminal  
Early Streamer Emission  
Autonomous photovoltaic system.  
Remote control tests.**

Power : **( $\Delta I = 10 \mu s$ )**  
► 2 stainless steel 316 differential fins

Net weight: 1.824 kgs  
Gross weight: 1.944 kgs (Package included)  
Dimensions: 240x150 mm



**Included in the STAR® 210 Evo pack.**

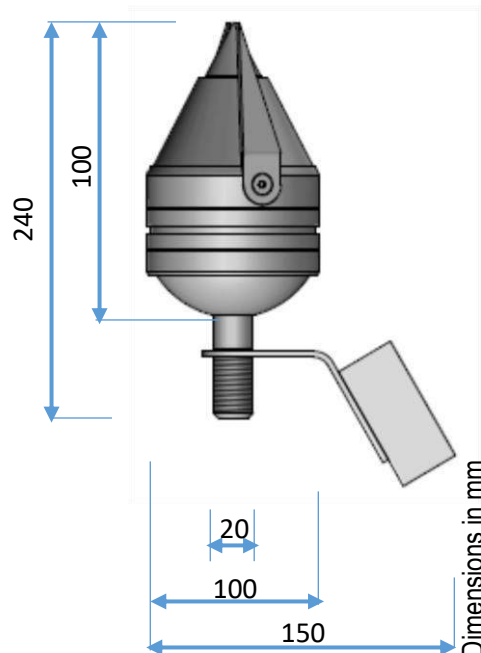
- ✓ **STAR®210 Evolution Photovoltaic,**
- ✓ **Remote test remote control,**
- ✓ **Conductor fixing connection,**
- ✓ **Adaptation all supports,**
- ✓ **Technical assistance,**
- ✓ **Warranty 5 years manufacturer.**

(Ref. STAR210 evo)

(Ref. S1205)

(Ref. RAPC02)

(Ref. MANR01)



**www.llamptech.com – info@llamptech.com**



Early Streamer Emission (ESE). Air Terminal STAR210®

Lightning Rod - STAR® Evolution - Testing remote.

### STAR® 210 Evolution - PROTECTION RADIUS EFFICIENCY **+10µs**

H meters	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
2	8	13	15	17
3	12	19	20	24
4	17	26	34	38
<b>5</b>	<b>21</b>	<b>32</b>	<b>41</b>	<b>49</b>
10	23	37	48	53
20	24	41	52	55

Protection distances in meters

#### ► Advantages of the STAR® Evolution ESEAT Testing remote :

- ✓ Stand-alone Photovoltaic Power Supply,
- ✓ Remote control tests,
- ✓ Function tests,
- ✓ Product recognition,
- ✓ Electrical continuity test,
- ✓ Dating of the impacts of the lightning,
- ✓ List of lightning strikes,
- ✓ Respect of the environment,
- ✓ 5 years manufacturer's warranty.



#### THE **+** SAFETY

► The test system is used to interrogate the **STAR® Evolution lightning rod**, and to know its operating status without moving.

Manage the **"health"** and history of your STAR in real time.

This advanced technology is for the user, through a gain in security after information processing.







# STAR® 325 Evolution

## EARLY STREAMER EMISSION (ESE) AIR TERMINAL – TESTING REMOTE

### Reference

### STAR325 Evo

### Technical specifications

Power $\Delta t$	25 - microseconds boot time ( $\mu s$ )
Lightning shock	Wave 10/350 microseconds
Test 100 kA	NFC 17102
Streamer	<ul style="list-style-type: none"> <li>• System technology with controlled priming technology®</li> <li>• High impulse voltage</li> </ul>
Structure	<ul style="list-style-type: none"> <li>• Electromagnetic cage, with electromechanical crimping</li> <li>• 3 stainless steel 316 differential fins</li> </ul>

### Fonctionnement

Ascending Tracer Detection	• Continuous measurement of ambient natural electric field
Power Management	<ul style="list-style-type: none"> <li>• Totally autonomous</li> <li>• No external power supply</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>• Modular parts interchangeable in factory</li> <li>• Dimension - 242 x 151 mm - M20 thread</li> <li>• Tightening torque</li> </ul>

### Test system

### Satellit self test

### Specific remote control

### Fixing lug

### Lightning down connection

### Universal mounting bracket

### Instructions for use

- Star Evolution Tester
- Photovoltaic autonomy (no battery)
- Included (Reference S1205)
- Stainless steel
- Included (Reference RAPC01)
- Included (Reference MANR01)
- included

### Impact on the environment

- 100% recyclable

### Guarantee

- 5 years manufacturer

### Conditioning

### Packaging

- Adapted to the size of the STAR
- Dedicated custom cradles

### Size of the box

- 300 x 200 x 150 mm

### Net weight

- 1,848 Kgs

### Gross weight

- 1,968 Kgs (with specific box)

### Certifications

### Traceability / Control

- Laser marking or specific engraving
- Indestructible self-labeling system
- Authentication by serial number
- Certified reference to the order

### Conformity

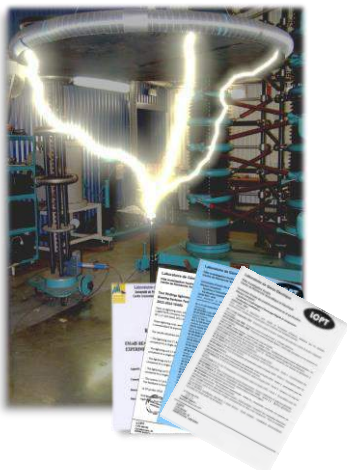
- NFC17102/1995
- NFC17102/2009
- NFC17102/2011

### Customs Code

- 85 36 90 85



Solar segment





**Early Streamer Emission (ESE). Air Terminal STAR325®**

**Lightning Rod - STAR® Evolution - Testing remote.**



## STAR® 325 Evolution

### ► Testing Remote

**Function test included.**

Reference : STAR325 evo

Description: **Lightning rod - Air Terminal  
Early Streamer Emission  
Autonomous photovoltaic system.  
Remote control tests.**

Power : **( $\Delta I = 25 \mu s$ )**  
► 3 stainless steel 316 differential fins

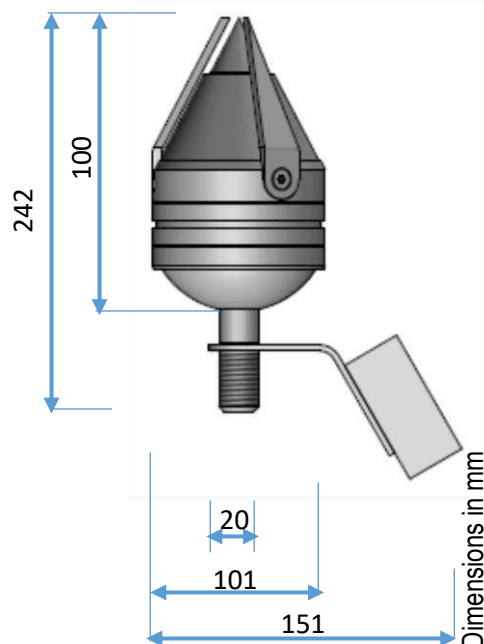
Net weight: 1.848 kgs  
Gross weight: 1.968 kgs (Package included)  
Dimensions: 242x151 mm



**Included in the STAR® 325 Evo pack.**

- ✓ STAR®325 Evolution Photovoltaic,
- ✓ Remote test remote control,
- ✓ Conductor fixing connection,
- ✓ Adaptation all supports,
- ✓ Technical assistance,
- ✓ Warranty 5 years manufacturer.

(Ref. STAR325 evo)  
(Ref. S1205)  
(Ref. RAPC02)  
(Ref. MANR01)



**www.llamptech.com – info@llamptech.com**



Early Streamer Emission (ESE). Air Terminal STAR325®

Lightning Rod - STAR® Evolution - Testing remote.

### STAR® 325 Evolution - PROTECTION RADIUS EFFICIENCY **+25µs**

H meters	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
2	17	23	26	28
3	25	34	37	39
4	31	46	49	51
<b>5</b>	<b>42</b>	<b>57</b>	<b>63</b>	<b>67</b>
10	44	61	70	74
20	45	65	72	77

Protection distances in meters

#### ► Advantages of the STAR® Evolution ESEAT Testing remote :

- ✓ Stand-alone Photovoltaic Power Supply,
- ✓ Remote control tests,
- ✓ Function tests,
- ✓ Product recognition,
- ✓ Electrical continuity test,
- ✓ Dating of the impacts of the lightning,
- ✓ List of lightning strikes,
- ✓ Respect of the environment,
- ✓ 5 years manufacturer's warranty.



#### THE **+** SAFETY

► The test system is used to interrogate the **STAR® Evolution lightning rod**, and to know its operating status without moving.

Manage the **"health"** and history of your STAR in real time.

This advanced technology is for the user, through a gain in security after information processing.







# STAR® 645 Evolution

EARLY STREAMER EMISSION (ESE)  
AIR TERMINAL – TESTING REMOTE

## Reference

STAR645 Evo

## Technical specifications

Power $\Delta t$	45 - microseconds boot time ( $\mu s$ )
Lightning shock	Wave 10/350 microseconds
Test 100 kA	NFC 17102
Streamer	<ul style="list-style-type: none"> <li>• System technology with controlled priming technology®</li> <li>• High impulse voltage</li> </ul>
Structure	<ul style="list-style-type: none"> <li>• Electromagnetic cage, with electromechanical crimping</li> <li>• 6 stainless steel 316 differential fins</li> </ul>

## Fonctionnement

Ascending Tracer Detection	• Continuous measurement of ambient natural electric field
Power Management	<ul style="list-style-type: none"> <li>• Totally autonomous</li> <li>• No external power supply</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>• Modular parts interchangeable in factory</li> <li>• Dimension - 244 x 151 mm - M20 thread</li> <li>• Tightening torque</li> </ul>

Test system	• Star Evolution Tester
Satellit self test	• Photovoltaic autonomy (no battery)
Specific remote control	• Included (Reference S1205)
Fixing lug	• Stainless steel
Lightning down connection	• Included (Reference RAPC01)
Universal mounting bracket	• Included (Reference MANR01)
Instructions for use	• included

Impact on the environment	• 100% recyclable
---------------------------	-------------------

Guarantee	► 5 years manufacturer
-----------	------------------------

## Conditioning

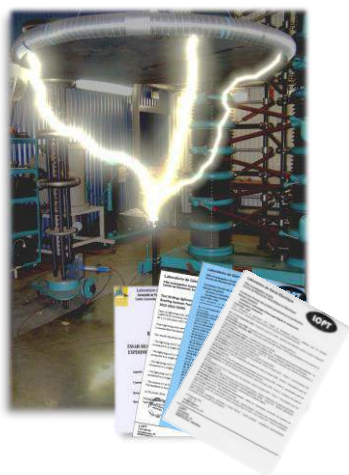
Packaging	<ul style="list-style-type: none"> <li>• Adapted to the size of the STAR</li> <li>• Dedicated custom cradles</li> </ul>
Size of the box	• 300 x 200 x 150 mm
Net weight	• 1,925 Kgs
Gross weight	• 2,045 Kgs (with specific box)

## Certifications

Traceability / Control	<ul style="list-style-type: none"> <li>• Laser marking or specific engraving</li> <li>• Indestructible self-labeling system</li> <li>• Authentication by serial number</li> <li>• Certified reference to the order</li> </ul>
Conformity	<ul style="list-style-type: none"> <li>• NFC17102/1995</li> <li>• NFC17102/2009</li> <li>• NFC17102/2011</li> </ul>
Customs Code	• 85 36 90 85



Solar segment





PROTECTION **LLAMP**  
TECH®

- Early Streamer Emission (ESE). Air Terminal STAR645®
- Lightning Rod - STAR® Evolution - Testing remote.



## STAR® 645 Evolution

### ► Testing Remote

**Function test included.**

Reference : STAR645 evo

Description: **Lightning rod - Air Terminal  
Early Streamer Emission  
Autonomous photovoltaic system.  
Remote control tests.**

Power : **( $\Delta I = 45 \mu s$ )**  
► 6 stainless steel 316 differential fins

Net weight: 1.925 kgs  
Gross weight: 2.045 kgs (Package included)  
Dimensions: 244x151 mm



Included in the STAR® 645 Evo pack.

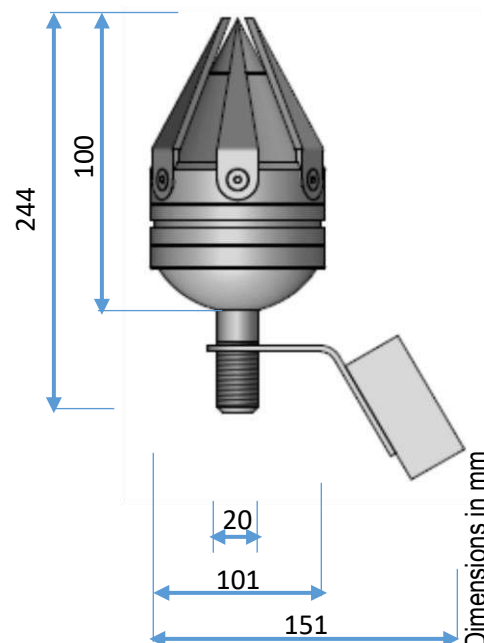
- ✓ STAR®645 Evolution Photovoltaic,
- ✓ Remote test remote control,
- ✓ Conductor fixing connection,
- ✓ Adaptation all supports,
- ✓ Technical assistance,
- ✓ Warranty 5 years manufacturer.

(Ref. STAR645 evo)

(Ref. S1205)

(Ref. RAPC02)

(Ref. MANR01)



[www.llamptech.com](http://www.llamptech.com) – [info@llamptech.com](mailto:info@llamptech.com)





Early Streamer Emission (ESE). Air Terminal STAR645®

Lightning Rod - STAR® Evolution - Testing remote.

### STAR® 645 Evolution - PROTECTION RADIUS EFFICIENCY **+45µs**

H meters	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
2	25	32	34	36
3	38	48	51	55
4	51	65	70	73
<b>5</b>	<b>62</b>	<b>80</b>	<b>83</b>	<b>89</b>
10	64	83	91	94
20	65	86	97	99

Protection distances in meters

#### ► Advantages of the STAR® Evolution ESEAT Testing remote :

- ✓ Stand-alone Photovoltaic Power Supply,
- ✓ Remote control tests,
- ✓ Function tests,
- ✓ Product recognition,
- ✓ Electrical continuity test,
- ✓ Dating of the impacts of the lightning,
- ✓ List of lightning strikes,
- ✓ Respect of the environment,
- ✓ 5 years manufacturer's warranty.



#### THE **+** SAFETY

► The test system is used to interrogate the **STAR® Evolution** lightning rod, and to know its operating status without moving.

Manage the **"health"** and history of your STAR in real time.

This advanced technology is for the user, through a gain in security after information processing.





# STAR® 660 Evolution

## EARLY STREAMER EMISSION (ESE) AIR TERMINAL – TESTING REMOTE

### Reference

### STAR660 Evo

### Technical specifications

Power $\Delta t$	60 - microseconds boot time ( $\mu s$ )
Lightning shock	Wave 10/350 microseconds
Test 100 kA	NFC 17102
Streamer	<ul style="list-style-type: none"> <li>• System technology with controlled priming technology®</li> <li>• High impulse voltage</li> </ul>
Structure	<ul style="list-style-type: none"> <li>• Electromagnetic cage, with electromechanical crimping</li> <li>• 6 stainless steel 316 differential fins</li> </ul>

### Fonctionnement

Ascending Tracer Detection	• Continuous measurement of ambient natural electric field
Power Management	<ul style="list-style-type: none"> <li>• Totally autonomous</li> <li>• No external power supply</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>• Modular parts interchangeable in factory</li> <li>• Dimension - 244 x 151 mm - M20 thread</li> <li>• Tightening torque</li> </ul>

### Test system

### Satellit self test

### Specific remote control

### Fixing lug

### Lightning down connection

### Universal mounting bracket

### Instructions for use

- Star Evolution Tester
- Photovoltaic autonomy (no battery)
- Included (Reference S1205)
- Stainless steel
- Included (Reference RAPC01)
- Included (Reference MANR01)
- included

### Impact on the environment

- 100% recyclable

### Guarantee

- 5 years manufacturer

### Conditioning

### Packaging

- Adapted to the size of the STAR
- Dedicated custom cradles

### Size of the box

- 300 x 200 x 150 mm

### Net weight

- 1,962 Kgs

### Gross weight

- 2,082 Kgs (with specific box)

### Certifications

### Traceability / Control

- Laser marking or specific engraving
- Indestructible self-labeling system
- Authentication by serial number
- Certified reference to the order

### Conformity

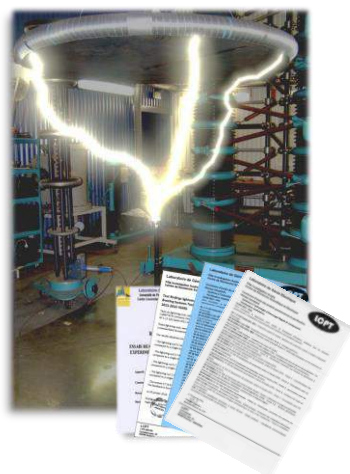
- NFC17102/1995
- NFC17102/2009
- NFC17102/2011

### Customs Code

- 85 36 90 85



Solar segment





- Early Streamer Emission (ESE). Air Terminal STAR660®  
Lightning Rod - STAR® Evolution - Testing remote.



## STAR® 660 Evolution

### ► Testing Remote

**Function test included.**

Reference : STAR660 evo

Description: **Lightning rod - Air Terminal  
Early Streamer Emission  
Autonomous photovoltaic system.  
Remote control tests.**

Power : **( $\Delta I = 60 \mu s$ )**  
► 6 stainless steel 316 differential fins

Net weight: 1.962 kgs  
Gross weight: 2.082 kgs (Package included)  
Dimensions: 244x151 mm



**Included in the STAR® 660 Evo pack.**

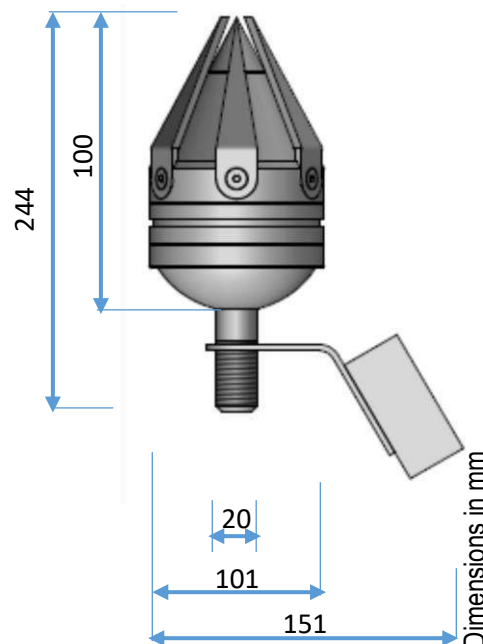
- ✓ STAR®660 Evolution Photovoltaic,
- ✓ Remote test remote control,
- ✓ Conductor fixing connection,
- ✓ Adaptation all supports,
- ✓ Technical assistance,
- ✓ Warranty 5 years manufacturer.

(Ref. STAR660 evo)

(Ref. S1205)

(Ref. RAPC02)

(Ref. MANR01)







Early Streamer Emission (ESE). Air Terminal STAR660®

Lightning Rod - STAR® Evolution - Testing remote.

### STAR® 660 Evolution - PROTECTION RADIUS EFFICIENCY **+60µs**

H meters	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
2	32	40	42	44
3	48	59	61	65
4	64	78	82	87
<b>5</b>	<b>79</b>	<b>97</b>	<b>99</b>	<b>107</b>
10	80	99	101	109
20	82	101	103	111

Protection distances in meters

#### ► Advantages of the STAR® Evolution ESEAT Testing remote :

- ✓ Stand-alone Photovoltaic Power Supply,
- ✓ Remote control tests,
- ✓ Function tests,
- ✓ Product recognition,
- ✓ Electrical continuity test,
- ✓ Dating of the impacts of the lightning,
- ✓ List of lightning strikes,
- ✓ Respect of the environment,
- ✓ 5 years manufacturer's warranty.



#### THE **+** SAFETY

► The test system is used to interrogate the **STAR® Evolution lightning rod**, and to know its operating status without moving.

Manage the **"health"** and history of your STAR in real time.

This advanced technology is for the user, through a gain in security after information processing.

