



New York City Transit

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**SIEMENS**

Projet / Project

**NYL**  
**Canarsie Line CBTC System**  
**Contract S-32701**

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**TITRE / TITLE**

# **TRANSPONDER INTERROGATOR ANTENNAE (TIA)**

Mots clés descripteurs / Descriptors

Rédacteur / Author

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**9**

## **APPROBATION / APPROVAL**

Nom / Name	Fonction / Function	Date / Date	Signature / Signature
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**SUIVI D'EVOLUTIONS / REVISION RECORDS**

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01/00	09/11/01	All	Minor form corrections	
02/00	08/02/02	Annexe		FCC information



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## 1. ENVIRONMENT CLASSIFICATION

### Environment Classification

Vehicle Interior	<input type="checkbox"/>
Vehicle body Mounted	<input type="checkbox"/>
<b>Vehicle Truck Mounted</b>	<input checked="" type="checkbox"/>
Wayside Outdoors	<input type="checkbox"/>
Wayside Equipment cases and Relay Rooms	<input type="checkbox"/>
Computer Rooms	<input type="checkbox"/>

## 2. PRODUCT FUNCTION

TIA receives signals from the transponders installed on the track. Theses data are processed by the carborne controller computer unit to verify and update the localization of the train.

## 3. PRODUCT INSTALLATION CONSTRAINTS

**Location on the train** – The TIA is secured to the center of the first truck of A1-car.

### Positioning and mounting on the truck with reference to the TOR:

- × Nominal height: 5.5"
- × Maximum height: 5.82"
- × Minimum height: 1.98"

## 4. ELECTRICAL INTERFACE

Input	Yes
Output	Yes
Protection	None

The TIA is linked to the OBCU by one specific shielded cable, made of 4 twisted shielded pairs featuring a 50 Ohms impedance at 10 MHz.

The cable is connected to the TIA to a Leatton Veam socket type: CIR 07R20.11P.F80.T100.V0 by means of a plug type CIRG06SB 18-20.11S.F80.T100.V0.

## 5. MECHANICAL INTERFACE

The transponder consist of a rectangular box, mechanically attached to the truck by means of 4 screws (3/8" grade 5) with a tied torque of 15 to 16 N.M (20.3 to 21.7 FT\_LBF)..

The weight of a TIA is approximately 13 pounds.



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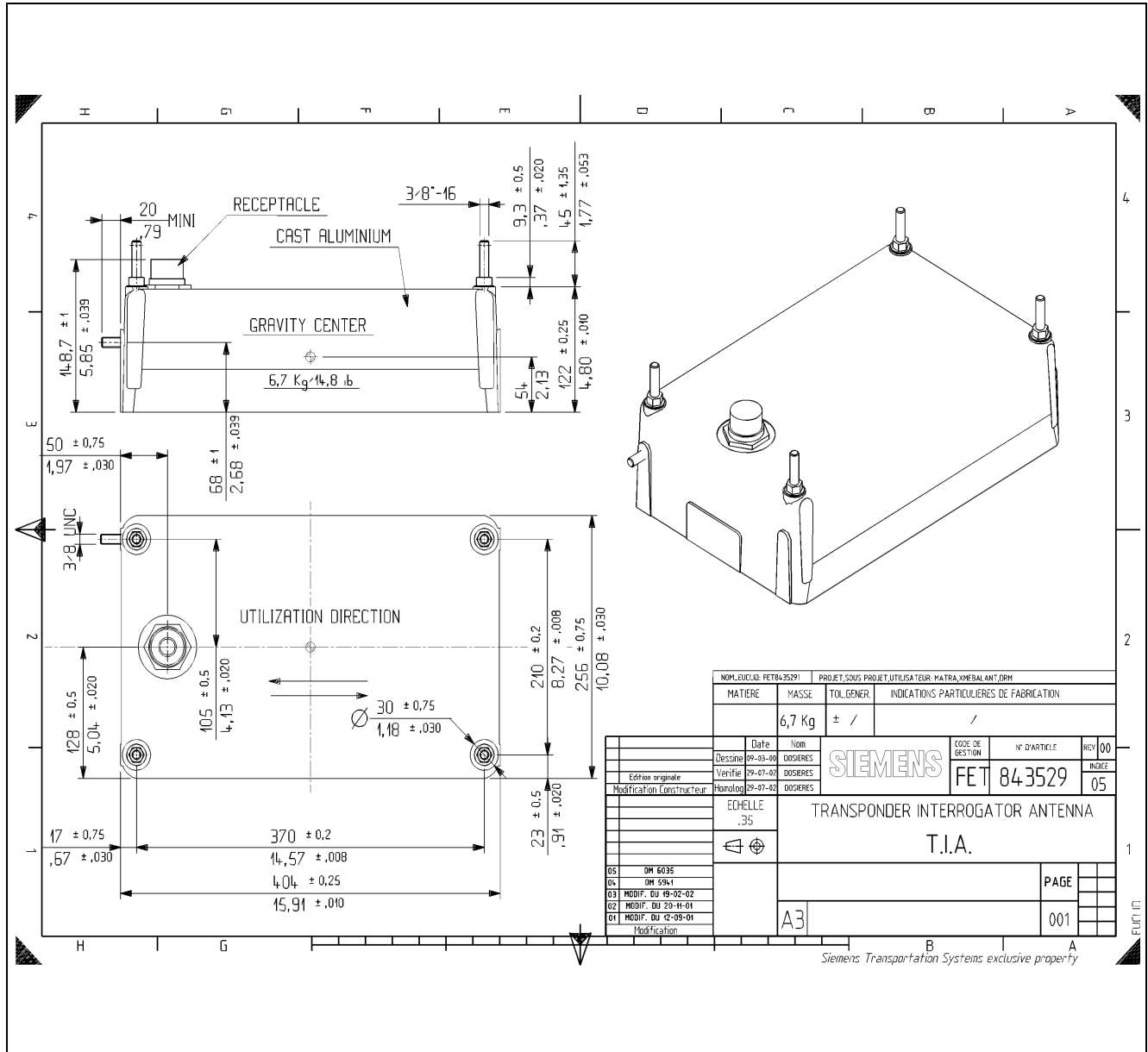
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**6. ILLUSTRATIONS**



**TIA Mechanical interface drawing**



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### 7. RAMS

Characteristic	Qualification standard or equivalent	Applied Level (when relevant)
MTBF	UTE C80 810	2 339 290 h
Electrical Insulation		500 V AC

### 8. ENVIRONMENTAL CHARACTERISTICS

Characteristic	Qualification standard or equivalent	Applied Level (when relevant)
Operating ambient temperature	MIL-STD-810F	-25°C / +70°C
Storage temperature	MIL-STD-810F	-40°C / +85°C
Shock (temperature)	N/A	
Humidity (non condensing)	MIL-STD-810F	95%
Sinusoidal vibration	N/A	
Random vibration	EN 61373	
Shock	EN 61373	30 g / 18 ms
Salt Fog	MIL-STD-810F	
Sand	EN 60529	IP65
Rain	EN 60529	IP65
Dust / Metallic Dust	EN 60529	IP65

### 9. EMI / EMC

Characteristic	Qualification standard or equivalent	Applied Level (when relevant)
Operating Frequencies	128 kHz and 9,984 MHz	
Emission	EN 50121-3-2	
Immunity	EN 50121-3-2	
FCC Part 15		



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## 10. GLOSSARY

CBTC	Communication Based Train Control
CC	Carborne Controller
EMC	ElectroMagnetic Compatibility
EMI	ElectroMagnetic Induction
IP	Degree of Protection
N/A	Not Applicable
OBCU	On Board Computing Unit
TIA	Transponder Interrogator Antenna
TOR	Top Of Rail

## 11. REFERENCES

Canarsie Line CBTC System Contract S-32701  
MIL-STD-810F  
EN 50121-3  
EN 60529  
EN 61373  
UTE C80 810



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## **ANNEXE A : FCC INFORMATION**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

In accordance with FCC requirements, changes or modifications not expressly approved by Siemens Transportation Systems could void the user's authority to operate this product.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.





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