



Antenna Gain Declaration – FCC & ISCED

Date: July 22, 2025
Product: XT-01-00
Model: XT01
Manufacturer: TWTG R&D B.V.

To Whom It May Concern,

This letter declares the antenna configuration and measured gain characteristics of the XT-01-00 product, which operates in the 902–928 MHz frequency band for LoRaWAN use in the United States and Canada.

The product integrates a fixed, embedded antenna (Ignion NN02-224) designed for sub-GHz use. The antenna is non-removable and enclosed in the final product housing. Tuning has been applied via a matching network optimized for this antenna and layout.

Radiated measurements were performed on the fully assembled product using a 3D test setup. The following peak gain values were recorded at 915 MHz:

Plane	Orientation	Peak Gain (dBi)
XZ ($\phi = 0^\circ$)	Vertical cut	+0.47
YZ ($\phi = 90^\circ$)	Side view	+0.58
XY ($\theta = 90^\circ$)	Top view	–1.48

The maximum peak gain observed was +0.58 dBi, which is the value declared for EIRP calculations under both FCC and ISCED certification. The average gain and radiation patterns were also evaluated to confirm overall compliance with radiated performance expectations.

This antenna configuration is fixed in production and representative of the tested device.

The antenna gain values presented above are based on the measurements from the report titled “Matching Network Service – TWTG Neon Blue”, prepared by Ignion S.L., dated February 12, 2025. The measurements were conducted on the final device configuration, including enclosure and battery, using a calibrated 3D antenna measurement system.

Sincerely,

A stylized signature of Dimer Schaefer.

Dimer Schaefer
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