

RF Exposure Evaluation Report — RSS-102 Issue 6

Declaration of RF Exposure Compliance for Exemption from Routine Evaluation

Product:	RF-M1 — Wireless Irrigation Monitoring Transmitter
Model(s):	RF-M1-900HP RF-M1-LTE RF-M1-CAT1-NL
Manufacturer:	WiseConn IP GmbH
Applicable Standard:	RSS-102 Issue 6 (December 2023)
Exposure Environment:	General Public (Uncontrolled)
Device Classification:	Mobile device (separation distance > 20 cm)
Date:	2026-03-25

1. Device Description

The RF-M1 is a solar-powered monitoring node for agricultural applications. It is installed in open field on posts or structures, always at a distance greater than 20 cm from any person. It contains the following certified radio modules:

- Digi XBee-PRO 900HP — 900 MHz DigiMesh — IC: 1846A-XB900HP
- Digi XBee 3 Global LTE-M/NB-IoT (XB3-C-A2-UT-001) — LTE-M/NB-IoT — IC: 1846A-XB3M2 + IC: 5131A-ME310G1W1
OR NimbeLink Skywire CAT1 (NL-SW-LTE-TC1WWG) — LTE Cat 1 — IC: 5131A-LE910CXWWX (depending on variant)

2. Transmitter Parameters

Transmitter	Technology	Frequency Range	Max Conducted Power	Max Antenna Gain	Max EIRP
XBee-PRO 900HP	FHSS 900 MHz	902–928 MHz	0.250 W (24 dBm)	3.0 dBi	0.499 W (27.0 dBm)

XBee 3 Global LTE- M/NB-IoT	LTE-M	700–2100 MHz	0.200 W (23 dBm)	3.0 dBi	0.399 W (26.0 dBm)
NimbeLink Skywire CAT1 (alt.)	LTE Cat 1	700–2600 MHz	0.200 W (23 dBm)	3.0 dBi	0.399 W (26.0 dBm)

Note: Antenna gain estimated conservatively at 3.0 dBi. Actual gain may be lower.

3. Exemption Analysis per RSS-102 Section 6.6

3.1 XBee-PRO 900HP (915 MHz)

Parameter	Value
Frequency (f)	915 MHz
Exemption formula (300 MHz–6 GHz)	$EIRP \leq 1.31 \times 10^{-2} \times f^{0.6834} \text{ W}$
Exemption threshold	$1.31 \times 10^{-2} \times 915^{0.6834} = \mathbf{2.472 \text{ W}}$
Actual max EIRP	0.499 W
EIRP < Threshold?	YES — 0.499 W < 2.472 W → EXEMPT

3.2 XBee 3 Global LTE-M/NB-IoT (worst case 850 MHz)

Parameter	Value
Frequency (f)	850 MHz (worst case, lowest freq = lowest threshold)
Exemption threshold	$1.31 \times 10^{-2} \times 850^{0.6834} = 1.31 \times 10^{-2} \times$ $179.0 = \mathbf{2.345 \text{ W}}$
Actual max EIRP	0.399 W
EIRP < Threshold?	YES — 0.399 W < 2.345 W → EXEMPT

3.3 NimbeLink Skywire CAT1 (worst case 700 MHz)

Parameter	Value
Frequency (f)	700 MHz (worst case, lowest freq = lowest threshold)
Exemption threshold	$1.31 \times 10^{-2} \times 700^{0.6834} = \mathbf{1.985 \text{ W}}$

Actual max EIRP	0.399 W
EIRP < Threshold?	YES — 0.399 W < 1.985 W → EXEMPT

4. Simultaneous Transmission Assessment

The XBee 900HP radio and the cellular modem may transmit simultaneously. Combined worst-case EIRP: $0.499 + 0.447 = 0.946$ W. The lowest individual exemption threshold is 2.345 W. Even the combined power is well below any single threshold, confirming exemption.

5. Minimum Separation Distance

The RF-M1 is installed on posts in agricultural fields. Minimum separation distance: **> 20 cm** (typically > 100 cm).

6. Conclusion

The WiseConn RF-M1 meets the exemption limits per RSS-102 Issue 6, Section 6.6. All transmitters operate well below the applicable EIRP thresholds. No SAR, APD, or FRL testing is required.

7. User Manual Statement

English: This equipment complies with ISED RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

French: Cet équipement est conforme aux limites d'exposition aux rayonnements RSS-102 de l'ISDE établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.