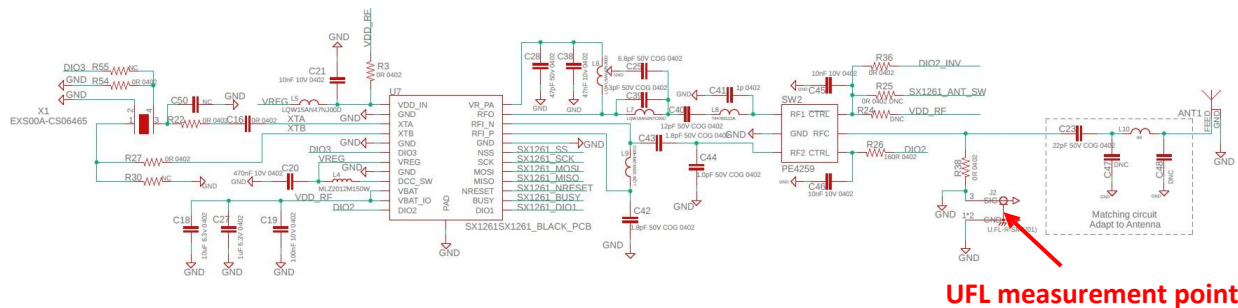


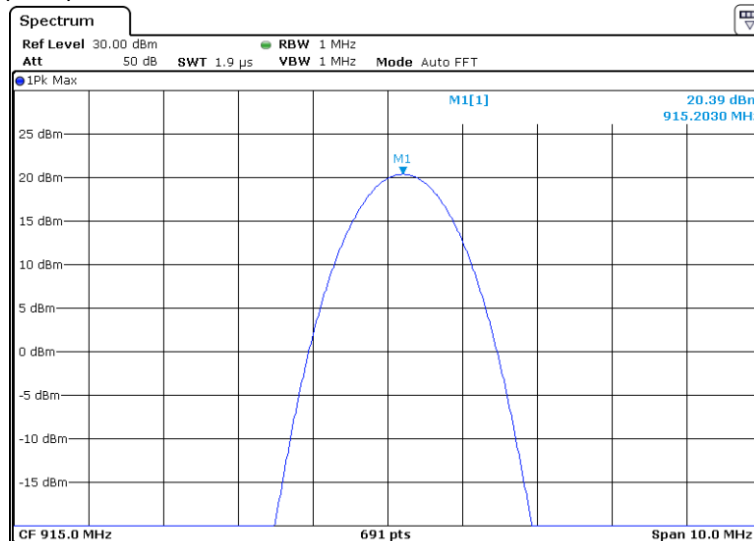
## 8.3 US BAND 915 MHz

### 8.3.1 Measurement of conducted power at the antenna feed point

A resistor  $R = 0\ \Omega$  was added on R38 to perform the measurement on the UFL connector:



Conducted power (dBm) :



→ The conducted power at the antenna matching circuit input is +20.39 dBm at 915.2 MHz.

Note: The measurement of the available conducted power, combined with the radiation pattern, makes it possible to determine the antenna gain. The antenna gain measurement assesses the radiated performance while excluding the influence of available conducted power.

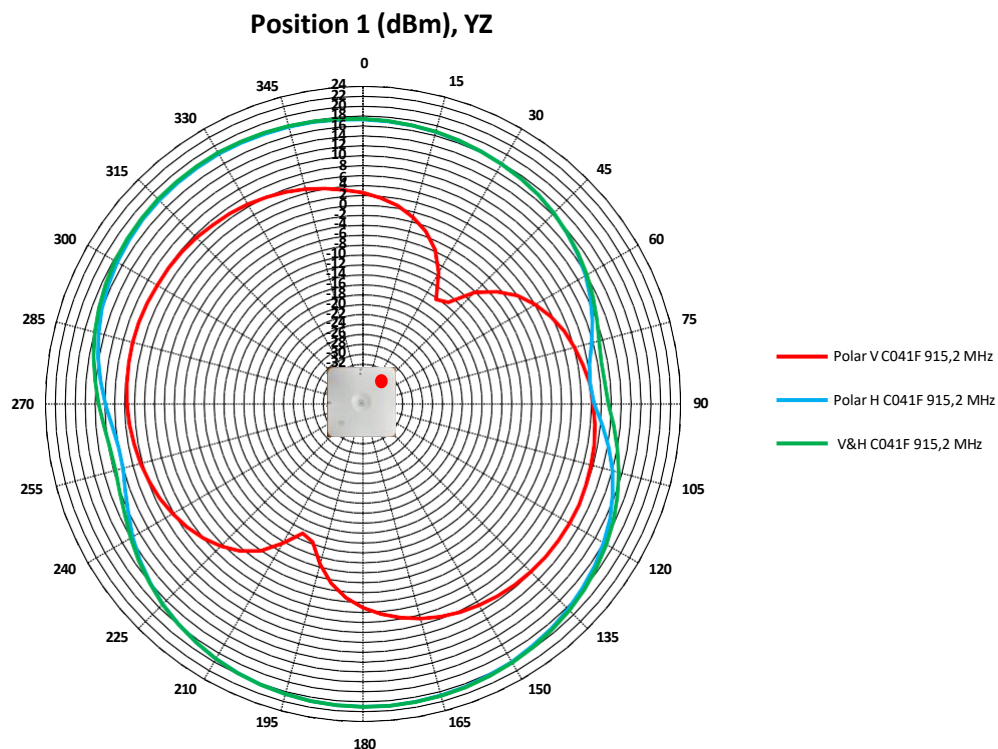
Manufacturer: Nexelec

16C - Park Avenue, Rue Léon Griffon, 56890 Saint-Avé, France

## 8.3.2 Radiation pattern measurements of the product

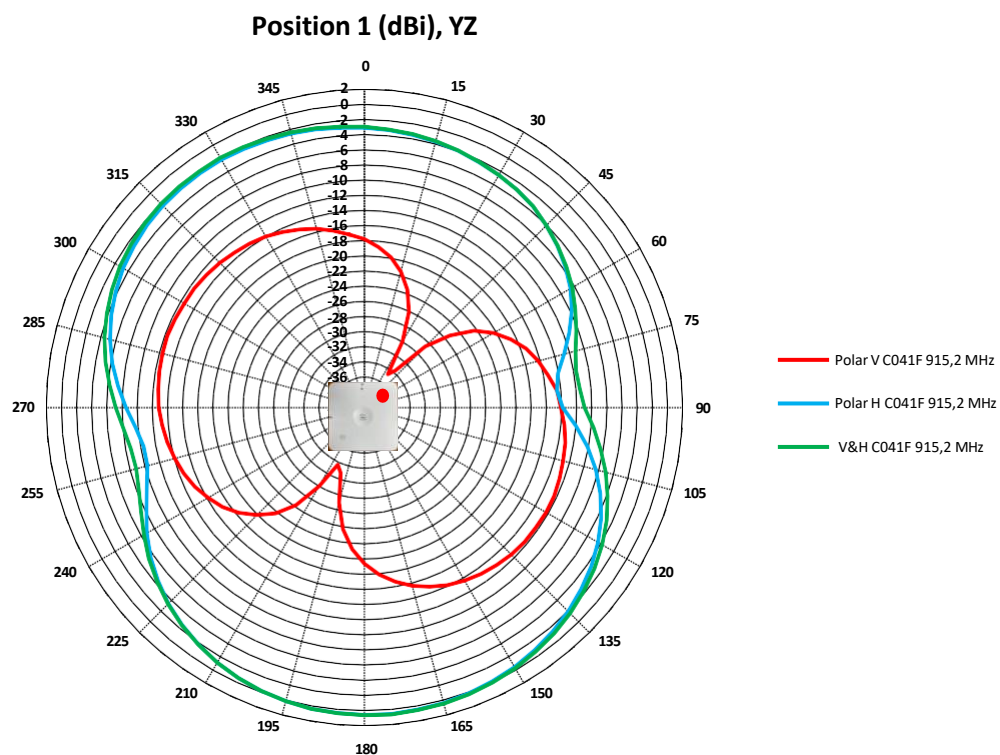
### 8.3.2.1 Central Frequency of the Band – 915 MHz

#### 8.3.2.1.1 Position 1 (dBm)



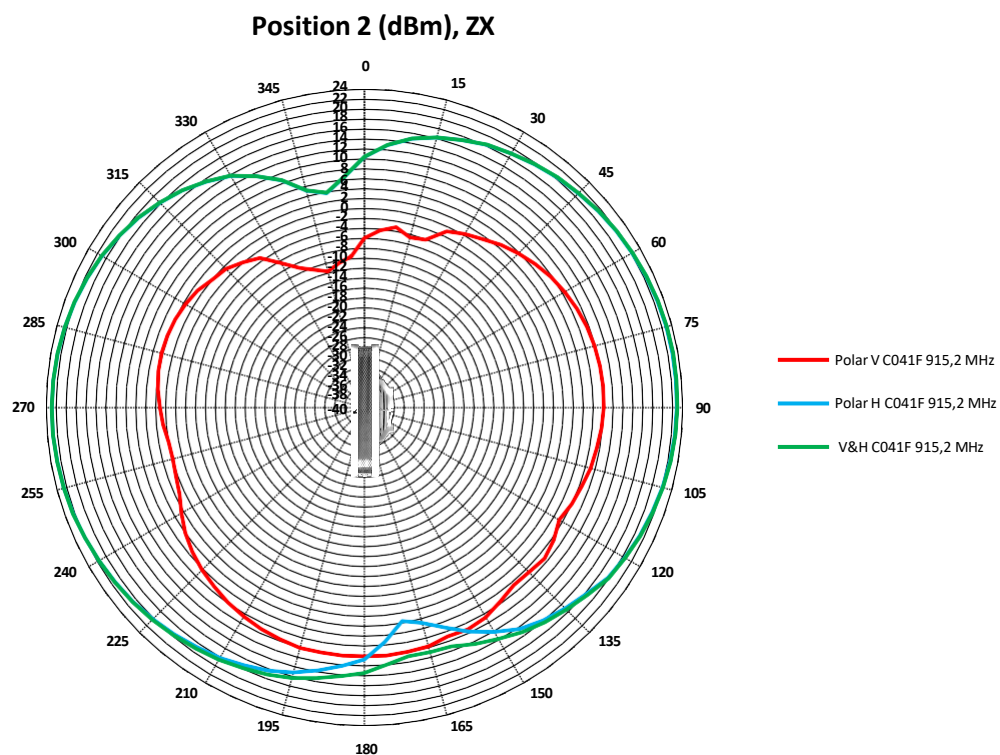
The maximum power in vertical polarization is approximately 8.1 dBm at 120°.  
 The minimum power in vertical polarization is approximately -14,3 dBm at 35°.  
 The maximum power in horizontal polarization is approximately 21 dBm at 175°.  
 The minimum power in horizontal polarization is approximately 5,9 dBm at 85°.

## 8.3.2.1.2 Position 1 (dBi)



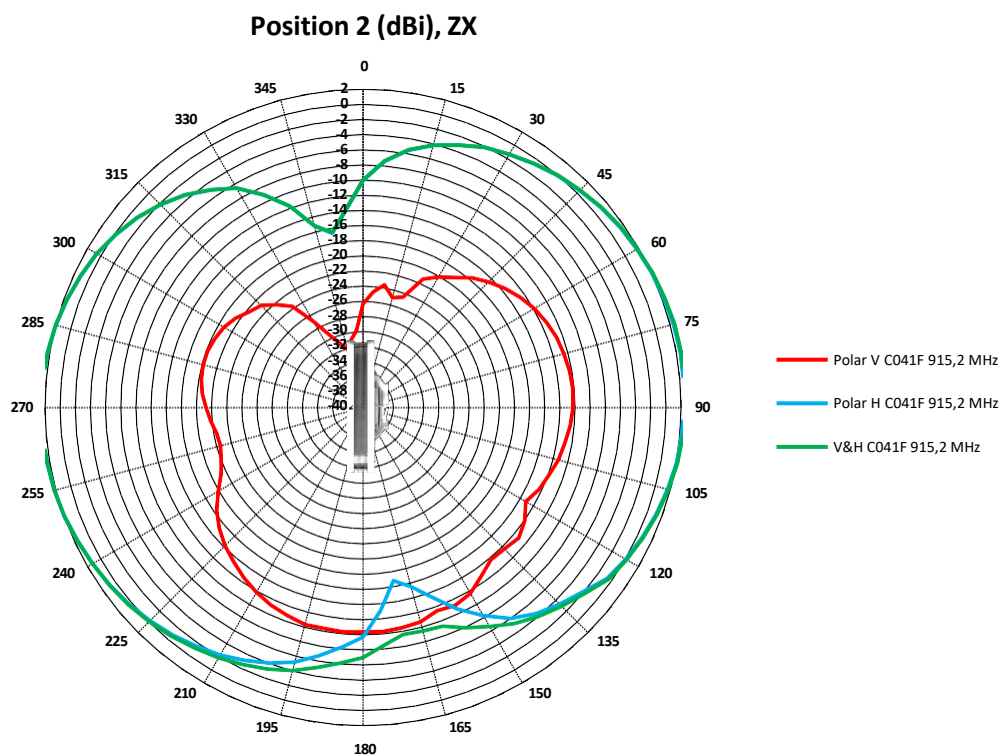
The maximum gain in vertical polarization is approximately -12,3 dBi at 120°.  
 The minimum gain in vertical polarization is approximately -34,7 dBi at 35°.  
 The maximum gain in horizontal polarization is approximately 0,6 dBi at 175°.  
 The minimum gain in horizontal polarization is approximately -14,5 dBi at 85°.

## 8.3.2.1.3 Position 2 (dBm)



The maximum power in vertical polarization is approximately 10,1 dBm at 185°.  
 The minimum power in vertical polarization is approximately -11,6 dBm at 345°.  
 The maximum power in horizontal polarization is approximately 22,9 dBm at 80°.  
 The minimum power in horizontal polarization is approximately 3,6 dBm at 170°.

## 8.3.2.1.4 Position 2 (dBi)



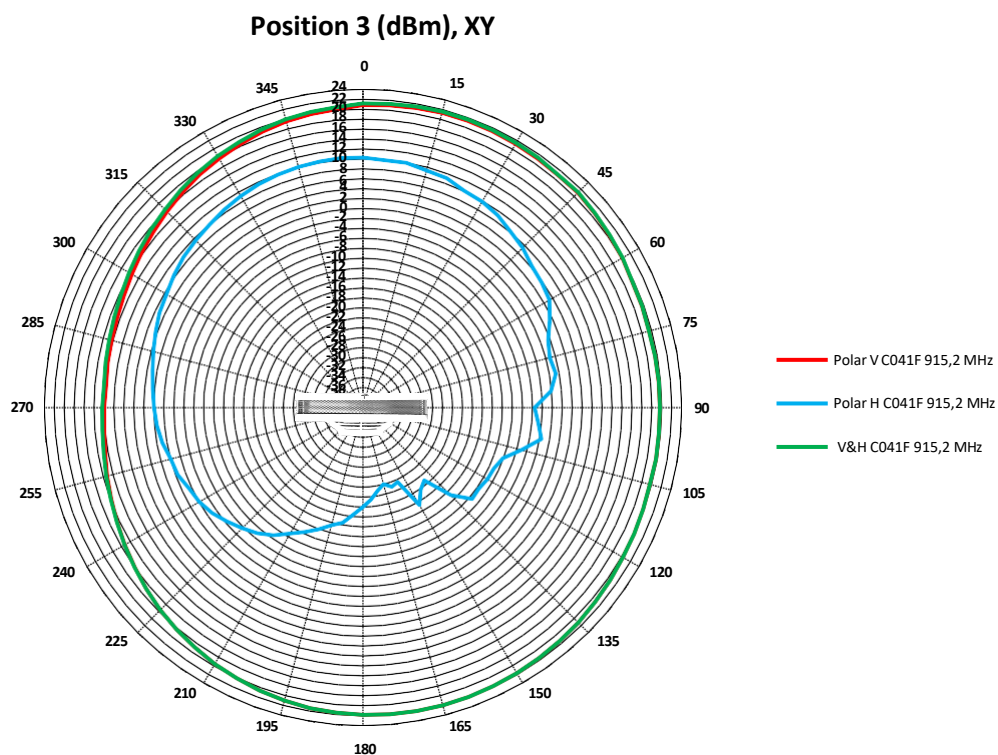
The maximum gain in vertical polarization is approximately -10,3 dBi at 185°.

The minimum gain in vertical polarization is approximately -32 dBi at 345°.

The maximum gain in horizontal polarization is approximately 2,5 dBi at 80°.

The minimum gain in horizontal polarization is approximately -16,8 dBi at 170°.

## 8.3.2.1.5 Position 3 (dBm)



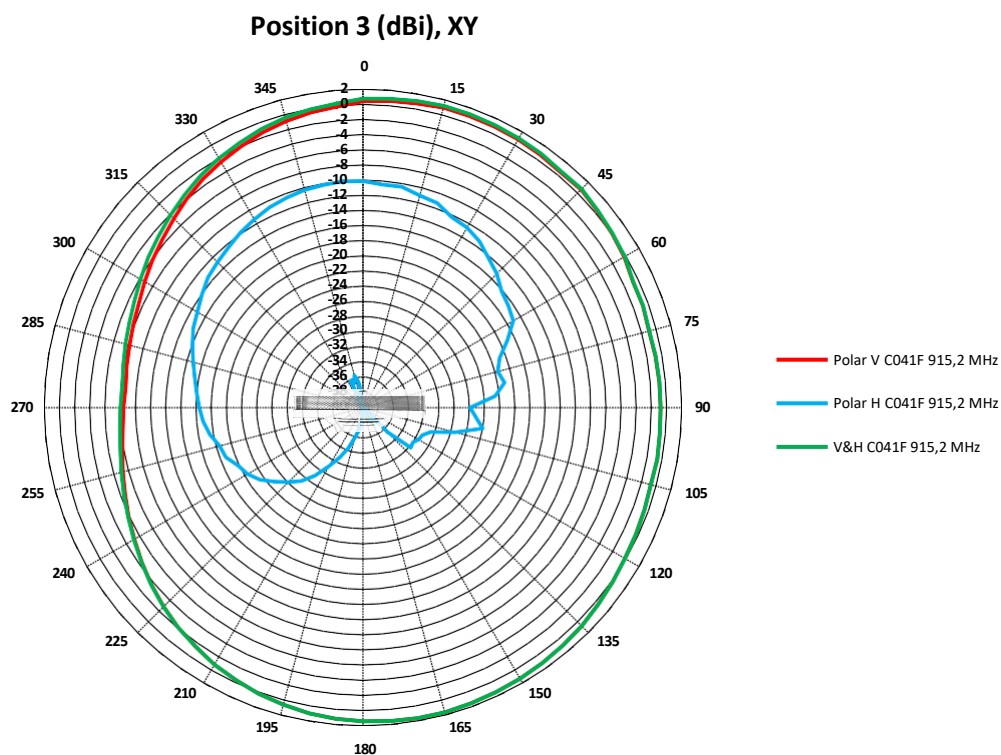
The maximum power in vertical polarization is approximately 22,1 dBm at 165°.

The minimum power in vertical polarization is approximately 11,8 dBm at 275°.

The maximum power in horizontal polarization is approximately 10,4 dBm at 355°.

The minimum power in horizontal polarization is approximately -24 dBm at 165°.

## 8.3.2.1.6 Position 3 (dBi)



The maximum gain in vertical polarization is approximately 1,7 dBi at 165°.

The minimum gain in vertical polarization is approximately -8,6 dBi at 275°.

The maximum gain in horizontal polarization is approximately -10 dBi at 355°.

The minimum gain in horizontal polarization is approximately -44,4 dBi at 165°.

### 8.3.2.2 Conclusion

Radiated power summary (dBm) :

| Bilan                   | Polar V<br>Position 1,<br>915,2 MHz | Polar H<br>Position 1,<br>915,2 MHz | V&H Position<br>1, 915,2 MHz | Polar V<br>Position 2,<br>915,2 MHz | Polar H<br>Position 2,<br>915,2 MHz | V&H Position<br>2, 915,2 MHz | Polar V<br>Position 3,<br>915,2 MHz | Polar H<br>Position 3,<br>915,2 MHz | V&H Position<br>3, 915,2 MHz |
|-------------------------|-------------------------------------|-------------------------------------|------------------------------|-------------------------------------|-------------------------------------|------------------------------|-------------------------------------|-------------------------------------|------------------------------|
| Average power (dBm)     | 5,1                                 | 17,1                                | 17,4                         | 5,8                                 | 19,8                                | 19,9                         | 19,5                                | 4,4                                 | 19,7                         |
| Maximum power (dBm)     | 8,1                                 | 21,0                                | 21,1                         | 10,1                                | 22,9                                | 23,1                         | 22,1                                | 10,4                                | 22,1                         |
| Minimum power (dBm)     | -14,3                               | 5,9                                 | 8,7                          | -11,6                               | 3,6                                 | 3,9                          | 11,8                                | -24,0                               | 12,3                         |
| Omnidirectionality (dB) | 22,4                                | 15,1                                | 12,4                         | 21,7                                | 19,3                                | 19,2                         | 10,3                                | 34,4                                | 9,8                          |

Antenna gain summary (dBi) :

| Bilan                   | Polar V<br>Position 1,<br>915,2 MHz | Polar H<br>Position 1,<br>915,2 MHz | V&H Position<br>1, 915,2 MHz | Polar V<br>Position 2,<br>915,2 MHz | Polar H<br>Position 2,<br>915,2 MHz | V&H Position<br>2, 915,2 MHz | Polar V<br>Position 3,<br>915,2 MHz | Polar H<br>Position 3,<br>915,2 MHz | V&H Position<br>3, 915,2 MHz |
|-------------------------|-------------------------------------|-------------------------------------|------------------------------|-------------------------------------|-------------------------------------|------------------------------|-------------------------------------|-------------------------------------|------------------------------|
| Average gain (dBi)      | -15,3                               | -3,3                                | -3,0                         | -14,6                               | -0,6                                | -0,5                         | -0,9                                | -16,0                               | -0,7                         |
| Maximum gain (dBi)      | -12,3                               | 0,6                                 | 0,7                          | -10,3                               | 2,5                                 | 2,7                          | 1,7                                 | -10,0                               | 1,7                          |
| Minimum gain (dBi)      | -34,7                               | -14,5                               | -11,7                        | -32,0                               | -16,8                               | -16,5                        | -8,6                                | -44,4                               | -8,1                         |
| Omnidirectionality (dB) | 22,4                                | 15,1                                | 12,4                         | 21,7                                | 19,3                                | 19,2                         | 10,3                                | 34,4                                | 9,8                          |

- ➔ The radiation pattern of the product is most omnidirectional in vertical polarization, Position 3 (nominal product position), with an average gain around  $-0.9$  dBi.
- ➔ The average antenna gain ranges between  $-3$  dBi and  $-0.5$  dBi (V&H).
- ➔ The maximum gain is observed in Position 2, reaching  $+2.5$  dBi in horizontal polarization.

Note: The presence of the grid limits the omnidirectionality of the product's radiation in vertical polarization.

## Antenna dimension

Dimensions are in mm

