



## **Bluebox UHF TX Power and RX Sensitivity**

iDTRONIC GmbH  
Ludwig-Reichling-Straße 4  
67059 Ludwigshafen  
Germany/Deutschland

Phone: +49 621 6690094-0  
Fax: +49 621 6690094-9  
E-Mail: [info@idtronic.de](mailto:info@idtronic.de)  
Web: [idtronic.de](http://idtronic.de)

Issue 0.2  
– 15. September 2022 –

Subject to alteration without prior notice.  
© Copyright iDTRONIC GmbH 2022  
Printed in Germany

## Contents

1	Determining the Required Transmission Power .....	3
2	Determining the Required Receiving Sensitivity .....	4

## 1 Determining the Required Transmission Power

The screenshot shows the BlueBox UHF software interface. On the left, a 'Commands' menu lists various functions, with 'RF Power Test' highlighted in blue. The main area is titled 'RF Power Test' and contains two dropdown menus: 'RF antenna #' set to 'Antenna 1' and 'RF channel #' set to '1 - 865.7 MHz'. Below these, the text 'RF power: xx dBm' is displayed in a large font.

First, they use the test function “RF Power Test” to find out how much transmission power is needed to detect the RFID tags on different channels. Then select this value + reserve of 2 dB as transmission power.

Please check the required transmission power with several RFID tags and on these 4 channels. Only these channels are used in Europe. You can use this table to find the values with up to 8 RFID tags:

Channel	Frequency	#1	#2	#3	#4	#5	#6	#7	#8
1	902.75								
17	910.75								
24	919.25								
50	927.25								

## 2 Determining the Required Receiving Sensitivity

Then you can use “RF Sensitivity Test” to determine the reception field strength for several channels and set the value for RF input sensitivity to this value plus a reserve of 3 dB. Larger negative numerical values are a higher sensitivity.

Please check the required transmission power with several RFID tags and on these 4 channels.

You can use this table to find the values with up to 8 RFID tags:

Channel	Frequency	#1	#2	#3	#4	#5	#6	#7	#8
1	902.75								
17	910.75								
24	919.25								
50	927.25								

You can intentionally set them lower (smaller negative numerical value) to get only near media. This can also speed up the recognition process for many RFID tags in the detection range.