

Prepared by Andrei Sazonov		Product name/number DRC-DR D3, DRC-BM D3		
Document responsible (approved by) Kristofer Hylén	Checked JEH	Date: YYYY-MM-DD 2014-11-12	Release A	File Name SCANRECO - DRC-DR_BM D3 RF Exposure Exemption Analysis 2.docx

## DRC-DR D3 and DRC-BM D3 RF Exposure Exemption Analysis

**Products:** 2,4 GHz Radio modules DRC-10 D3 and DRC-10 2ST D3

**Company:** Scanreco AB, Box 47144/Årsta Skolgränd 22,  
S-10074, Stockholm, Sweden

The radio module is designed for use in Scanreco industrial remote controls that are permanently installed to provide a separation distance of at least 20 cm from the user.

The maximum duty cycle is 88,78%. The duty cycle is hardly coded in the firmware under production and cannot be changed by the user.

From the pictures below the duty cycle is :

Period:  $6,4 \text{ s} / 83 \text{ hits} = 77,1 \text{ ms}$

Pulse length: 4,278ms

Duty cycle:  $(4,278 \text{ ms} / 77,1 \text{ ms}) * 16 \text{ channels} = 88,78\%$ .

### Scanreco AB

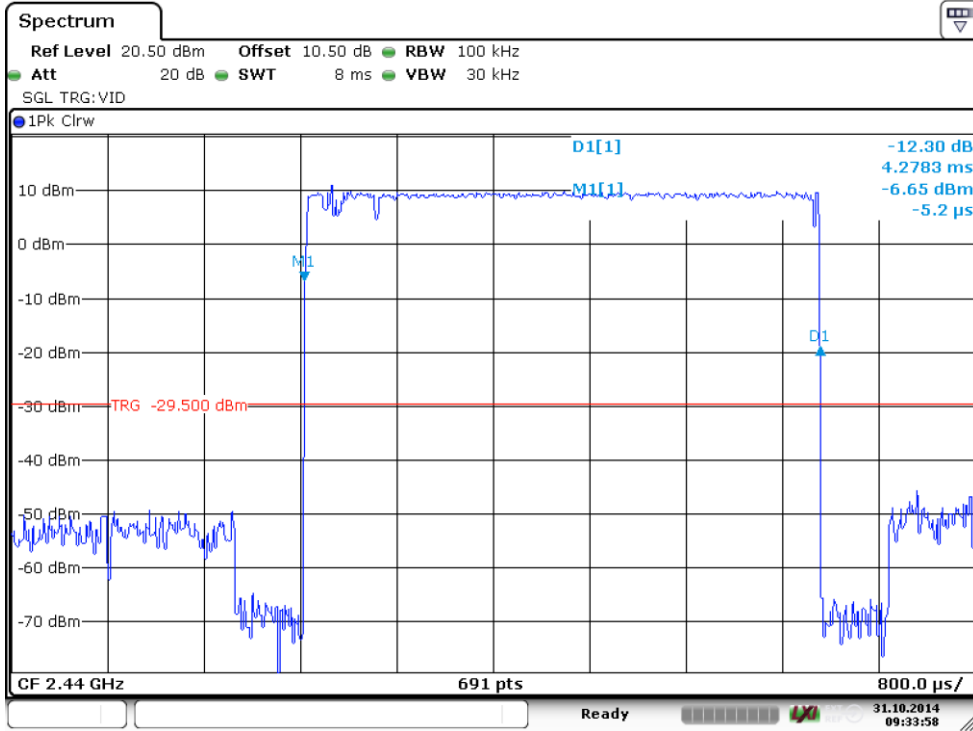
Årsta Skolgränd 22, Box 47144

SE-100 74, Stockholm, Sweden

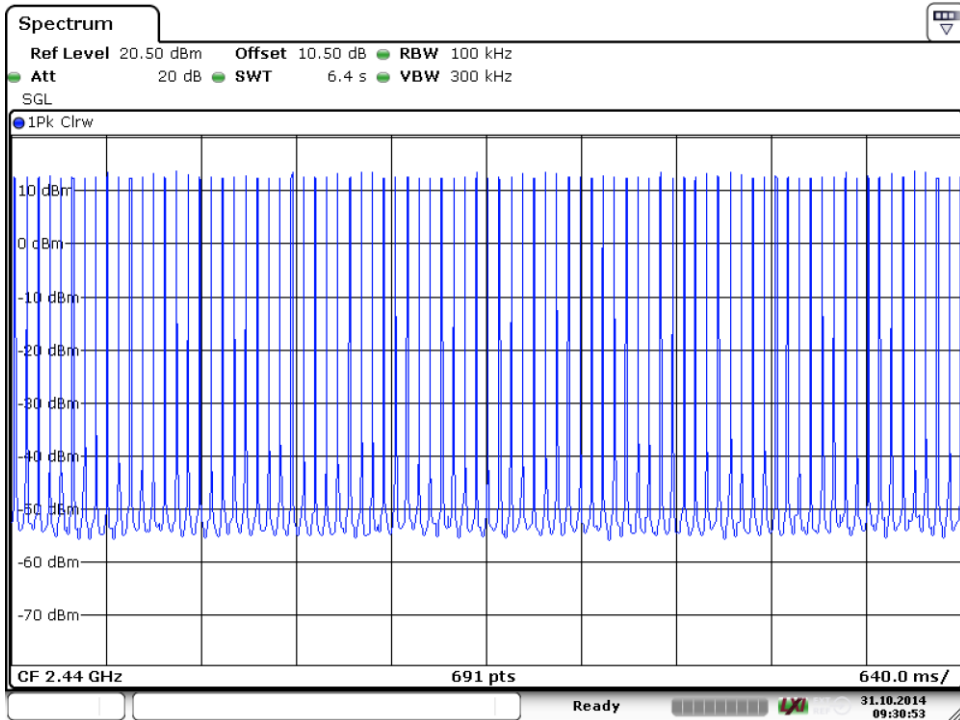
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[www.scanreco.com](http://www.scanreco.com)

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**Prediction of MPE limit at a given distance**

$$S = \frac{PG}{4\pi R^2}$$

S = power density  
P = power input to the antenna  
G = antenna gain  
R = distance

Conducted output power:	<b>19,84</b>	(dBm)
Tune up tolerance	<b>0,5</b>	(dB)
Number of carriers	<b>1</b>	(N)
	<b>108,1</b>	(mW)
	<b>0,1081</b>	(W)
P Average	<b>0,0960</b>	(W)
Antenna gain:	<b>4,0</b>	(dBi)
Maximum antenna gain:	<b>2,51</b>	(numeric)
EIRP Average	<b>0,241</b>	(W)
ERP Average	<b>0,1474</b>	(W)
Distance:	<b>20</b>	(cm)
Duty Cycle:	<b>88,78</b>	(%)
Frequency:	<b>2400</b>	(MHz)
MPE Limit:	<b>1</b>	(mW/cm <sup>2</sup> )
Power density:	<b>0,0480</b>	(mW/cm <sup>2</sup> )
	<b>0,480</b>	(W/m <sup>2</sup> )
Margin	<b>13,2</b>	(dB)

**Revision history**

Release	Date: YYYY-MM-DD	Edited By	Changes
A	2014-11-12	Andrei Sazonov	First creation of document

**Scanreco AB**

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