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ISO 17025
IVNAB
ACCREDITED
TESTING
DETAILED IN SCOPE REG NO.088T

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Test Report By	Michael Kirby
FCC Test Firm Registration	409640
IC Site Registration	8517-A2, 8517-A1
Date	19th Feb 2019
IC Equipment Authorisation	Test Report
EUT Description	RFID Module
FCC ID	SCCNUR0W1
IC ID	5137A-NUR0W1
Authorised by	**Paul Reilly**
Authorised Signature:	

RF Exposure Exhibit– Technical Report

1.0 Overview
Manufacturer declaration
2 alternative antennas are available

Antenna #1 = Nordic ID Sampo S0   max gain 7.0 dBiC / 4dBi
Antenna #2 = Nordic ID SA0408 max gain -4dBi

Max rated output power for the module is 20dBm conducted

The RFID module is designed for fixed / mobile applications application environments.

1.1 Fixed / Mobile Application

MPE for bystanders which are considered to be ≥20cm away from the front of the transmit antenna

1.0 Overview   FCC MPE

47 CFR Sections 1.1307, 1.1310, 2.1091,

447498 D01 General RF Exposure Guidance v06

2.1 Maximum Permissible Exposure Max Antenna Gain antenna #1 (+7 dBiC)

where:

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

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Conducted Output Power	20	dBm
Antenna Gain	7	dB
Time Averaging Factor	0	dB
EIRP Peak	27	dBm
EIRP Peak	501	mW
Prediction distance:	20	cm
Prediction frequency:	902	MHz
MPE limit for exposure at prediction frequency:	0.600	mW/cm^2
Power density at prediction frequency:	0.100	mW/cm^2
Power density at prediction frequency:	0.997	W/m^2
Test Result	Pass	
Exempt from RF Exposure evaluation		

Notes

The table above shows that for a prediction distance of 20cm, RF exposure evaluation is not required.

2.2 Maximum Permissible Exposure Max Antenna Gain antenna #2 (-4dBi)

where:

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

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Conducted Output Power	20	dBm
Antenna Gain	-4	dB
Time Averaging Factor	0	dB
EIRP Peak	16	dBm
EIRP Peak	40	mW
Prediction distance:	20	cm
Prediction frequency:	902	MHz
MPE limit for exposure at prediction frequency:	0.601	mW/cm^2
Power density at prediction frequency:	0.008	mW/cm^2
Power density at prediction frequency:	0.079	W/m^2
Test Result	Pass	
Exempt from RF Exposure evaluation		

Notes

The table above shows that for a prediction distance of 20cm, RF exposure evaluation is not required.

3.0 Maximum Permissible Exposure   IC

Limits for Routine Evaluation — RF Exposure Evaluation

Limits as per RSS 102 Section 2.5.2

3.1 Antenna Gain 7 dBiC   (IC)

Conducted Output Power	20	dBm
Antenna Gain	7	dB
EIRP Peak	27	dBm
Time Averaging Factor	0.00	dB
Tune up factor	0	dB
EIRP Peak	27.000	dBm
EIRP Peak	501.19	mW
Prediction distance:	20	cm
Prediction frequency:	902	MHz
Source based Time-Averaged Max EIRP	0.50	W
Exemption limit for Routine Evaluation :	1.37	W
Exempt from RF Exposure Evaluation		

Notes

The table above shows that for a prediction distance of 20cm, RF exposure evaluation is not required.

3.2 Antenna Gain -4dBi   (IC)

Conducted Output Power	20	dBm
Antenna Gain	-4	dB
EIRP Peak	16	dBm
Time Averaging Factor	0.00	dB
Tune up factor	0	dB
EIRP Peak	16.000	dBm
EIRP Peak	39.81	mW
Prediction distance:	20	cm
Prediction frequency:	902	MHz
Source based Time-Averaged Max EIRP	0.04	W
Exemption limit for Routine Evaluation :	1.37	W
Exempt from RF Exposure Evaluation		

Notes

The table above shows that for a prediction distance of 20cm, RF exposure evaluation is not required.

End of Report