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SAR EXCLUSION DOCUMENT

Document 75951634-06 Issue 01

2400 - 2483.5 MHz Transmitter:

FCC Standalone SAR Test Exclusion Considerations (KDB 447498 D01) Section 4.3.1 b)

100 MHz – 6 GHz – Separation Distance >50 mm

The SAR Test exclusion thresholds for 1500 MHz to 6 GHz test separation distances >50 mm are determined by:

Step a) Threshold result from Formula in Section 4.3.1 a):

The Step a) formula has to be re-arranged to give power allowed at numeric threshold at 50 mm test separation distance as required by Step b):

Power Allowed At Numeric Threshold = {(Numeric Threshold / $\sqrt{f_{(GHz)}}$) x 50 mm Separation Distance} mW

- Numeric threshold = 3 for Head/Body or 7.5 for Extremities
- f (GHz) is the RF channel transmit frequency in GHz.
- Power and distance are rounded to the nearest mW and mm before calculation.
- The result is rounded to one decimal place for comparison

Step b) 2) 1500MHz to 6GHz

Power threshold = {[Power allowed at numeric threshold for 50 mm {Formula Step A})] + [(test separation distance – 50 mm)·10]} mW

- Power and distance are rounded to the nearest mW and mm before calculation.
- The result is rounded to one decimal place for comparison

Approved by ..... **Date** 16 June 2021

Matt Russell
Authorised Signatory

SAR Exclusion Result:

Frequency (MHz)	Power Output mW	Duty Cycle %	Maximum Power (Tune up Value) * (mW)	Test Separation Distance (mm)	SAR Exclusion Power Threshold (mW)	SAR Test Exclusion (Yes/No)
2400	5.19	100	5.19	200	1596.8	Yes

* Maximum power including tolerance of the time averaged declared conducted output power of the device.

The SAR exclusion threshold has been evaluated using the formula described above from information supplied by the manufacturer below. Based on the calculation above, the EUT is categorically excluded from SAR testing.

Manufacturer's Declaration of Product information:

Equipment Description

Technical Description: *(Please provide a brief description of the intended use of the equipment)*	The MSR module can be used in products for different types of wireless connectivity. The Bluetooth function can be used for smart devices and 802.15.4 based protocols e.g. Thread, GLoWPAN, etc. for monitoring, control or cloud services
Manufacturer:	Grundfos Holding A/S
Model:	MSR – Multistandard Radio module
Part Number:	BLE Module 92542810 ; MSR Module 92542811

If more than one frequency band is supported, please confirm which combinations of bands are capable of Simultaneous Transmit.	

Frequency Band 1: Please detail (one entry for each band), e.g GSM 900 / WCDMA FDD I etc .

Antenna Model:	Integrated F-type PCB antenna in host product, solder-connected to the module	
Antenna length:	2.14	cm
Bottom frequency:	2400	MHz
Middle frequency:	2442	MHz
Top frequency:	2483.5	MHz

Maximum power (input to the antenna including a tolerance):	7.15	dBm
Antenna gain (or maximum gain allowed):	2.15	dBi

Or

Field Strength Measurement:		dBuA/M
Measurement Distance:		cm

Separation distance from antenna to the user/bystander	>20	cm
Transmitter Duty Cycle:	100	%

I hereby declare that the information supplied is correct and complete.

Name: Nikolaj Haahr Korshøj
Position held: Lead Digital Compliance Specialist
Date: 14.06.2021