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COMMERCIAL-IN-CONFIDENCE

SAR EXCLUSION DOCUMENT

Document 75952927-03 Issue 01

902.2 MHz to 927.8 MHz Transmitter SAR Exclusion

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

100 MHz – 6 GHz – Separation Distance ≤50 mm

The 1g SAR Test exclusion thresholds for 100 MHz to 6 GHz test separation distances ≤ 50 mm are determined by:

$[(\text{max power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] [\sqrt{f} (\text{GHz})] \leq 3.0$ for 1g SAR and ≤ 7.5 for 10g extremity SAR.

- 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
- When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied.

SAR Exclusion Result: (use spreadsheet calculator)

Frequency (GHz)	Power Output mW	Duty Cycle %	Maximum Power (Tune up Value) * (mW)	Test Separation Distance (mm)	SAR Test Exclusion Threshold	Limit**	SAR Test Exclusion (Yes/No)
0.9022	1	0.5	0.005	5	0.001	3.0	Yes
0.9278	1	0.5	0.005	5	0.001	3.0	Yes

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

** Select ≤ 3.0 for 1g SAR and ≤ 7.5 for 10g extremity SAR.

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.

Approved by 
 Matt Russell
 Authorised Signatory

Date 20 August 2021



Manufacturer's Declaration of Product Information:

Equipment Description

Technical Description: <i>(Please provide a brief description of the intended use of the equipment including the technologies the product supports)</i>	The SH202165 Sensium/Vitals Patch is a disposable device which is worn on the body and measures heart rate, respiratory rate, axillary temperature, posture and activity every 2 minutes. It measures the heart rate using standard ECG electrodes. The respiratory rate is measured using impedance pneumography, which is a standard technique that is widely used in patient monitors in hospitals. The temperature is measured using an NTC thermistor temperature probe in the axilla.
Manufacturer:	Sensium
Model:	Vitals Patch US
Part Number:	SH202165-US

If more than one frequency band is supported, please confirm which combinations of bands are capable of Simultaneous Transmit.	
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Frequency Band 1: Please detail (one entry for each band), e.g GSM 900 / WCDMA FDD I etc .

Antenna Model:	Custom Printed Flex Antenna	
Antenna length:	10	cm
Bottom frequency:	902.2	MHz
Middle frequency:	915	MHz
Top frequency:	927.8	MHz

Maximum power (input to the antenna including a tolerance):	-4	dBm
Antenna gain (or maximum gain allowed):	0.45	dBi

Or

Field Strength Measurement:		dBµA/M
Measurement Distance:		cm

Separation distance from antenna to the user/bystander	0.5	cm
Transmitter Duty Cycle:	0.5	%

Name: Paul Dodds
 Position held: RF Compliance Engineer
 Date: 31/07/2021

Note: Conducted power output in mW is; $P_{mW} = 10^{(-4 \text{ dBm}/10)} = 0.398 \text{ mW}$
 Rounded to the nearest mW gives 1 mW.