

Project: C5667

Report number: 14191TR4

Date: 7th July 2021

Customer Details

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Customer Representative(s) present during testing	Testing was not witnessed

Equipment Under Test: HAVwear Module with BLE

Operating frequency band: 2400MHz to 24835MHz

FCC ID of module: QOQBGM12LMA

FCC ID of product integrating module: (New application) 2AYGFHVW001.

SAR Exclusion Calculation - FCC

The calculation is according to the FCC Knowledge Database (KDB) document KDB 447498 D01 General RF Exposure Guidance V06.

Section 4.3.1 General SAR Test Exclusion Bands was applied. Section 4.3.1 a) for 100MHz to 6GHz and test separation distances $\leq 50\text{mm}$ was specifically applied. According to this section the SAR test exclusion thresholds are determined by the following:

$$\text{Threshold} = \left[\frac{P(\text{mW})}{d(\text{mm})} \right] \cdot \sqrt{f(\text{GHz})}$$

Where

P is the maximum measured power of the channel including tune-up tolerance in mW

d is the minimum test separation distance in mm

f is the RF channel frequency in GHz

The minimum test separation distance was considered to be 5mm in consultation with Section 4.2.2 Body-worn accessory exposure conditions.

This evaluation of the test exclusion threshold is compared to the threshold limit.

a. Limit for 1-g head or body worn devices: threshold limit ≤ 3

b. Limit for 10-g extremity worn devices: threshold limit ≤ 7.5

Since the device is body worn the limit “a” applies.

1) Worst case output power measurement results (see test report SGS 287370-1):

Channel (MHz)	Antenna port (dBm)
2402	9.23
2440	8.92
2480	8.65

2) The calculated threshold for test exclusion was determined while using a distance of 5mm, and the results are tabulated in the table below (stand-alone test exclusion in accordance with KDB publication 447498 D01 General RF Exposure Guidance v06, section 4.3.1 a).

Channel (MHz)	Separation distance (mm)	Calculated threshold	Threshold limit
2402	5	2.6	3
2440	5	2.4	3
2480	5	2.3	3

Conclusion: The HAVwear Module with BLE meets the exemption limit requirements for test exclusion in a stand-alone configuration.