PLB-400 and PLB-425 Standalone SAR test Exclusion Assessment

SUMMARY: This document provides calculations confirming that the PLB-400 and PLB-425 complies with FCC's RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES, Section 4.3.1. Standalone SAR test exclusion considerations.

Table 1: Summary of Results

Frequency	Limit for 10-g extremity SAR	SOS-300 Calculation	Distance	Conclusion
406.031 MHz	≤ 7.5	1.86	20mm	Within SAR Test exclusion limit
121.5 MHz	≤ 7.5	1.66	20mm	Within SAR Test exclusion limit

Per FCC's RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES, Section 4.3.1, SAR Test exclusion limit is:
- ≤ 7.5 for 10-g extremity SAR
- Distance used in calculations is 2 cm (20 mm)

406.031 MHZ PLB CALCULATION:
From the TUV test report 75943114 Report 01, the Peak Effective Radiated Power (PERP) is 37.36 dBm, however maximum declared power is 37.5 dBm = 5.62341 W = 5623.41 mW.

The 406 MHz transmission is 0.52 seconds long every 50 seconds. This equates to a 1.04% duty cycle. Thus, the average power is 58.48 mW.

The 10-g SAR test exclusion threshold is:
(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm) * √f(GHz)
        (58.48 mW / 20mm) * (√.406031 GHz) = 1.86

Conclusion: the calculated SAR Test exclusion limits is 1.86 is well within the SAR Test exclusion limit of 7.5.

121.5 MHZ PLB CALCULATION:
From the TUV Test report 75943114 Report 01, the Peak Effective Radiated Power (PERP) is 16.6 dBm, however maximum declared power is 20 dBm = 0.100 W = 100 mW.

The 121.5 MHz homing transmission has a 94.8% duty cycle, however declared maximum duty cycle is 95%. Thus, the average power is 95.0 mW.

The 10-g SAR test exclusion threshold is:
(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm) * √f(GHz)
        (95.0 mW / 20mm) * (√.1215 GHz) = 1.66

Conclusion: the calculated SAR Test exclusion limits is 1.66 is well within the SAR Test exclusion limit of 7.5.