



RF Exposure Evaluation

FCC ID: 2AXQX-4001231

1. Client Information

Applicant	:	Marpac, LLC
Address	:	2015 Capital Drive, Wilmington, NC 28405
Manufacturer	:	Marpac, LLC
Address	:	2015 Capital Drive, Wilmington, NC 28405

2. General Description of EUT

EUT Name	:	Duet+	
Model(s) No.	:	4001231	
Product Description	:	Operation Frequency:	Bluetooth 5.0: 2402MHz~2480MHz
		Number of Channel:	Bluetooth 5.0: 79 channels
		Antenna Gain:	-0.58dBi PCB Antenna
		Modulation Type:	GFSK, Pi/4-DQPSK, 8-DPSK(3Mbps)
		Bit Rate of Transmitter:	1/2/3Mbps
Power Supply	:	Adapter (KA06E-0501000US) Input: 100-240V~ 50/60Hz 0.25A Max Output: 5V---1000mA DC 3.7V by 1200mAh Rechargeable Li-ion battery	
Software Version	:	----	
Hardware Version	:	----	
Remark: The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.			

Note: More test information about the EUT please refer the RF Test Report.

SAR Test Exclusion Calculations

1. FCC: According to KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.

- (1) Clause 4.3: General SAR test reduction and exclusion guidance

- Sub clause 4.31: Standalone SAR test exclusion considerations

- 1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance ≤ 5 mm are determined by:

- [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)] * $\sqrt{f_{\text{GHz}}}$] ≤ 3.0 for 1-g SAR

- [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)] * $\sqrt{f_{\text{GHz}}}$] $\leq 7.5.0$ for 10-g SAR



2. Calculation:

Test separation: 5mm						
Bluetooth Mode (GFSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	0.16	0±1	1	1.259	0.390	3.0
2.441	0.648	1±1	2	1.585	0.495	3.0
2.480	0.342	0±1	1	1.259	0.397	3.0
Bluetooth Mode (Pi/4-DQPSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	1.011	1±1	2	1.585	0.491	3.0
2.441	1.486	1±1	2	1.585	0.495	3.0
2.480	1.227	1±1	2	1.585	0.499	3.0
Bluetooth Mode (8-DQPSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	1.675	2±1	3	1.995	0.618	3.0
2.441	2.102	2±1	3	1.995	0.623	3.0
2.480	1.822	2±1	3	1.995	0.628	3.0

Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

-----END OF REPORT-----

