

RF Exposure Evaluation

FCC ID: 2ARPN-3210

1. Client Information

Applicant	:	AUTOPHIX TECH CO.,LTD
Address	:	West Gate, Floor 9, Block C, Baoshan Industry Park, Minzhi Road, Longhua, Shenzhen, Guangdong China
Manufacturer	:	AUTOPHIX TECH CO.,LTD
Address	:	West Gate, Floor 9, Block C, Baoshan Industry Park, Minzhi Road, Longhua, Shenzhen, Guangdong China

2. General Description of EUT

EUT Name	:	Wireless OBD scanner	
Models No.	:	3210,3310,3710,3700,3800,3810,3900,3910	
Model Difference	:	All these models are identical in the same PCB layout and electrical circuit, the only difference is model name and color for commercial.	
Product Description	:	Operation Frequency:	Bluetooth: 2402~2480 MHz
		RF Output Power:	Bluetooth: -0.270 dBm(Max) BLE: -0.917 dBm(Max)
		Antenna Gain:	1.63 dBi PCB Antenna
Power Rating	:	DC 12V	
Software Version	:	N/A	
Hardware Version	:	N/A	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

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:

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

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

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	-0.794	-1±1	0	1	0.310	3.0
2.441	-0.954	-1±1	0	1	0.312	3.0
2.480	-1.073	-1±1	0	1	0.315	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	-0.921	-1±1	0	1	0.310	3.0
2.441	-1.003	-1±1	0	1	0.312	3.0
2.480	-1.120	-1±1	0	1	0.315	3.0
Bluetooth Mode (8-DPSK)						
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	-0.270	-1±1	0	1	0.310	3.0
2.441	-0.406	-1±1	0	1	0.312	3.0
2.480	-0.490	-1±1	0	1	0.315	3.0

BLE 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	-0.917	-1±1	0	1	0.310	3.0
2.442	-0.959	-1±1	0	1	0.313	3.0
2.480	-1.108	-1±1	0	1	0.315	3.0

Test separation: 5mm	
The worst RF Exposure Evaluation	
Worst Calculation Value	Threshold Value
0.315	3.0

The worst RF Exposure Evaluation is **0.315 / cm2 < limit 3.0**, So standalone SAR measurements are not required.

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