

RF Exposure Evaluation

FCC ID: 2ABES-KR0319

1. Client Information

Applicant : Pathway Innovations and Technologies, Inc.
Address : 10211 Pacific Mesa Blvd., #412, San Diego, CA 92121, USA
Manufacturer : ShenZhen KerunVisual Technology Co., Ltd.
Address : 6/F, Building 2, Zone S2, 1213 Liuxian Blvd Honghualing Industrial Park
Nanshan District, Shenzhen City, China

2. General Description of EUT

EUT Name	:	Pilot
Models No.	:	KR0319, KR0318, Pilot, Pilot2, Pilot3, Pilot4
Model Difference	:	All these models are identical in the same PCB layout and electrical circuit, the only difference is model name for commercial.
Product Description	:	Operation Frequency: 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz Bluetooth 3.0+EDR&BLE: 2402MHz~2480MHz
Power Rating	:	Input: AC 100~240V, 50/60Hz, 0.5A.
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						
2.4G WiFi Mode(802.11b)						
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
2.412	8.96	8 ± 1	9	7.943	2.467	3.0
2.437	8.95	8 ± 1	9	7.943	2.480	3.0
2.462	8.93	8 ± 1	9	7.943	2.493	3.0
2.4G WiFi Mode(802.11g)						
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
2.412	8.86	8 ± 1	9	7.943	2.467	3.0
2.437	8.79	8 ± 1	9	7.943	2.480	3.0
2.462	8.87	8 ± 1	9	7.943	2.493	3.0
2.4G WiFi Mode(802.11n(HT20))						
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
2.412	8.63	8 ± 1	9	7.943	2.467	3.0
2.437	8.62	8 ± 1	9	7.943	2.480	3.0
2.462	8.58	8 ± 1	9	7.943	2.493	3.0
2.4G WiFi Mode(802.11n(HT40))						
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
2.422	8.59	8 ± 1	9	7.943	2.472	3.0
2.437	8.53	8 ± 1	9	7.943	2.480	3.0
2.452	8.55	8 ± 1	9	7.943	2.488	3.0

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	1.364	1±1	2	1.585	0.491	3.0
2.441	0.959	1±1	2	1.585	0.495	3.0
2.480	0.312	1±1	2	1.585	0.499	3.0
Bluetooth Mode (π/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	0.219	0±1	1	1.259	0.390	3.0
2.441	0.032	0±1	1	1.259	0.393	3.0
2.480	-0.554	0±1	1	1.259	0.397	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	0.344	0±1	1	1.259	0.390	3.0
2.441	0.140	0±1	1	1.259	0.393	3.0
2.480	-0.500	0±1	1	1.259	0.397	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	-4.242	-4±1	-3	0.501	0.155	3.0
2.442	-3.856	-4±1	-3	0.501	0.157	3.0
2.480	-4.126	-4±1	-3	0.501	0.158	3.0

Test separation: 5mm			
The worst RF Exposure Evaluation			
Worst Calculation Value		Total Calculation Value	Threshold Value
2.4G WiFi Mode	Bluetooth Mode		
2.493	0.499	2.992	3.0

Because the 2.4G WiFi and Bluetooth can be operated simultaneously, So the worst RF Exposure Evaluation is calculated as $2.493+0.499=2.992 / cm^2 < limit 3.0$, So standalone SAR measurements are not required.

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