

# RF Exposure Evaluation

## FCC ID: 2ABES-KR7013

### 1. Client Information

<b>Applicant</b>	:	Pathway Innovations and Technologies, Inc
<b>Address</b>	:	9985 Pacific Heights Blvd., Suite 100, San Diego, CA 92121, USA
<b>Manufacturer</b>	:	ShenZhen Kerun Visual Technology Co., LTD
<b>Address</b>	:	AUnit A, F/11, Bldg.1, Senyang Electronic Technology Park, Tianliao Community, Guangming High Tech Zone, Guangming New District, Shenzhen, China

### 2. General Description of EUT

<b>EUT Name</b>	:	G-BOOK
<b>Models No.</b>	:	KR7013, KR0512, G-BOOK, G1300
<b>Model Difference</b>	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is appearance color.
<b>Product Description</b>	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz Bluetooth 4.2(BT): 2402MHz~2480MHz
	RF Output Power:	802.11b: 9.36dBm 802.11g: 9.83dBm 802.11n (HT20): 8.83dBm GFSK: 0.78dBm π/4-DQPSK: 0.316dBm 8-DPSK: 0.427dBm BLE:-0.714
	Antenna Gain:	4.5dBi FPC Antenna
<b>Power Supply</b>	:	DC Voltage Supply from USB Port. DC Voltage supplied by Li-ion battery.
<b>Power Rating</b>	:	DC 5.0V by USB cable DC 3.7V by 7000mAh Li-ion battery
<b>Software Version</b>	:	Q410801620180409
<b>Hardware Version</b>	:	V2.0
<b>Connecting I/O Port(S)</b>	:	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  $\leq 5$  mm are determined by:

- [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)] \*  $[\sqrt{f_{\text{GHz}}}] \leq 3.0$  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						
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	8.87	$8 \pm 1$	9	7.943	2.467	3.0
2.437	8.96	$8 \pm 1$	9	7.943	2.480	3.0
2.462	8.41	$8 \pm 1$	9	7.943	2.493	3.0
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	8.49	$8 \pm 1$	9	7.943	2.467	3.0
2.437	8.83	$8 \pm 1$	9	7.943	2.480	3.0
2.462	8.29	$8 \pm 1$	9	7.943	2.493	3.0
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	8.36	$8 \pm 1$	9	7.943	2.467	3.0
2.437	8.83	$8 \pm 1$	9	7.943	2.480	3.0
2.462	8.37	$8 \pm 1$	9	7.943	2.493	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	0.78	0±1	1	1.259	0.390	3.0
2.441	0.50	0±1	1	1.259	0.393	3.0
2.480	0.37	0±1	1	1.259	0.397	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	0.316	0±0.5	0.5	1.122	0.348	3.0
2.441	0.143	0±0.5	0.5	1.122	0.351	3.0
2.480	-0.451	0±0.5	0.5	1.122	0.353	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	0.427	0±0.5	0.5	1.122	0.348	3.0
2.441	0.327	0±0.5	0.5	1.122	0.351	3.0
2.480	-0.436	0±0.5	0.5	1.122	0.353	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	-0.714	-1±0.5	-0.5	0.891	0.276	3.0
2.442	-1.061	-1±0.5	-0.5	0.891	0.279	3.0
2.480	-1.492	-1±0.5	-0.5	0.891	0.281	3.0

Test separation: 5mm			
The worst RF Exposure Evaluation			
Worst Calculation Value		Total Calculation Value	Threshold Value
WiFi Mode	Bluetooth Mode		
2.493	0.397	2.89	3.0

Because the WiFi and Bluetooth can be operated simultaneously, So the worst RF Exposure Evaluation is calculated as  $2.493+0.397=2.89 / cm^2 < limit 3.0$ , So standalone SAR measurements are not required.

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