

RF Exposure Evaluation

FCC ID: 2A3KR-KS070CH-D

1. Client Information

Applicant	:	SHENZHEN KINSTONE D&T DEVELOP CO. LTD.
Address	:	5th Floor, Building A2, Xinjianxing Technology Industrial Park, Fengxin Road, Guangming District, Shenzhen, China
Manufacturer	:	SHENZHEN KINSTONE D&T DEVELOP CO. LTD.
Address	:	5th Floor, Building A2, Xinjianxing Technology Industrial Park, Fengxin Road, Guangming District, Shenzhen, China

2. General Description of EUT

EUT Name	:	070CH-D
Model(s) No.	:	KS070CH-D
Product Description	Operation Frequency:	Bluetooth V4.2: 2402~2480 MHz 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
	Number of Channel:	Bluetooth 4.2 (BLE): 40 channels 802.11b/g/n(HT20):11 channels 802.11n(HT40): 7 channels
	RF Output Power:	802.11b: 7.7dbm(Max) 802.11g: 7.9dbm(Max) 802.11n(HT20): 7.06dbm(Max) 802.11n(HT40): 7.66dbm(Max) BLE:8.117dbm(Max)
	Antenna Gain:	1.6dBi FPC Antenna
	Modulation Type:	GFSK(1Mbps) 802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n:OFDM(BPSK,QPSK,16QAM,64QAM)
	Bit Rate of Transmitter:	Bluetooth 4.2:1Mbps 802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6 Mbps 802.11n:up to 150Mbps
Power Supply	:	Input: 5V, 1.5A Max
Software Version	:	N/A
Hardware Version	:	TZX C863-D4UA 210116
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:

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

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

2. Calculation:

Test separation: 5mm						
BLE (GFSK) 1Mbps						
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	8.117	8±1	9.0	7.94	2.46	3.0
2.442	7.898	8±1	9.0	7.94	2.48	3.0
2.480	7.204	7±1	8.0	6.31	1.99	3.0
2.4G WIFI 802.11 b						
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	7.7	7±1	8.0	6.31	1.96	3.0
2.437	7.5	7±1	8.0	6.31	1.97	3.0
2.462	6.8	7±1	8.0	6.31	1.99	3.0
2.4G WIFI 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	7.2	7±1	8.0	6.31	1.96	3.0
2.437	7.9	7±1	8.0	6.31	1.97	3.0
2.462	7.3	7±1	8.0	6.31	1.99	3.0
2.4G WIFI 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	6.72	7±1	8.0	6.31	1.96	3.0
2.437	7.06	7±1	8.0	6.31	1.97	3.0
2.462	6.88	7±1	8.0	6.31	1.99	3.0
2.4G WIFI 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	7.16	7±1	8.0	6.31	1.96	3.0
2.437	7.66	7±1	8.0	6.31	1.97	3.0
2.452	7.51	7±1	8.0	6.31	1.99	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.

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