



# CTC Laboratories, Inc.

1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China  
Tel: +86-755- 27521059 Fax: +86-755- 27521011 Http://www.sz-ctc.org.cn

## Maximum Permissible Exposure Evaluation

FCC ID: WNA-HP46H

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

### EUT Specification

Product Name:	4K UHD Streaming TV Box
Trade Mark:	SKYWORTH, STRONG, QVWI, MECOOL, XG500, Next, NEXT, 9MAX, coocaa, COOCOA, TESLA, SVI studio, QQBOX
Model/Type reference:	HP46H
Listed Model(s):	Leap-S3, LEAP-S3, Leap S3, MECOOL, THOMSON, KM7 PLUS, THA 200, THA200, XG500, Start-4K, 9MAX, ATBOX001 THE ULTRA, atbox001 the ultra, QQBOX s100
Model Difference:	All these models are identical in the same PCB, layout and electrical circuit, Different is Trade Mark and model number.
Frequency band (Operating)	<input checked="" type="checkbox"/> BT: 2.402GHz ~ 2.480GHz <input checked="" type="checkbox"/> BLE: 2.402GHz ~ 2.480GHz <input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input checked="" type="checkbox"/> RLAN: 5.150GHz ~ 5.250GHz <input checked="" type="checkbox"/> RLAN: 5.250GHz ~ 5.350GHz <input checked="" type="checkbox"/> RLAN: 5.470GHz ~ 5.725GHz <input checked="" type="checkbox"/> RLAN: 5.725GHz ~ 5.850GHz <input type="checkbox"/> Others _____
Device category	<input type="checkbox"/> Portable (<5mm separation) <input type="checkbox"/> Mobile (>20cm separation) <input checked="" type="checkbox"/> fixed (>20cm separation) <input type="checkbox"/> Others _____
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S=5mW/cm2) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm2)
Antenna diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antenna <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
Antenna gain (Max)	BT/BLE: 1.2dBi WLAN: 2.6dBi RLAN: 4.2dBi
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation

### Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm <sup>2</sup> )	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				

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300-1500	--	--	F/1500	30
1500-100000	--	--	1	30



Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

$P_d$  = Power density in  $mW/cm^2$

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

$P_d$  the limit of MPE  $1mW/cm^2$ . If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

Only show the value of the worst antenna

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Average Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Power Density at 20cm ( $mW/cm^2$ )	Limit ( $mW/cm^2$ )
BT/ EDR	2441	1.2	7.57	/	$7 \pm 1$	8	0.00165	1.000
BLE	2440	1.2	8.05	/	$8 \pm 1$	9	0.00208	1.000
WLAN 802.11b	2437	2.6	/	14.03	$14 \pm 1$	15	0.01145	1.000
RLAN U-NII-1 802.11a	5240	4.2	/	16.76	$16 \pm 1$	17	0.02623	1.000
RLAN U-NII-2A 802.11a	5280	4.2	/	16.69	$16 \pm 1$	17	0.02623	1.000
RLAN U-NII-2C 802.11a	5580	4.2	/	17.99	$17 \pm 1$	18	0.03302	1.000
RLAN U-NII-3 802.11a	5825	4.2	/	16.89	$16 \pm 1$	17	0.02623	1.000

The WLAN and BT can transmit simultaneously

WLAN Power density at 20cm ( $mW/cm^2$ )	BT Power density at 20cm ( $mW/cm^2$ )	Total Power density at 20cm	Power density Limits
0.03302	0.00208	0.0351	1

Note:

1. Calculate by Worst-case mode
2. Max. Tune Up Power by Manufacturer's Declaration, and Max. Tune Up Power is used to calculate.
3. For a more detailed features description, please refer to the RF Test Report.

\*\*\*\*\*THE END\*\*\*\*\*