

# RF EXPOSURE REPORT

Applicant	Mr. Christmas Ltd.
Address	Flat/Rm.901-3,9/F.,Railway Plaza, 39 Chatham Road South, Tsim sha Tsui, Kowloon, Hong kong



Manufacturer or Supplier	Mr. Christmas Ltd.
Address	Flat/Rm.901-3,9/F.,Railway Plaza, 39 Chatham Road South, Tsim sha Tsui, Kowloon, Hong kong
Product	Mr. Drive-in Complete Outdoor Home Theatre
Brand Name	N/A
Model	61353
Additional Model & Model Difference	N/A
Date of tests	Mar. 09, 2018 ~ Apr. 24, 2018

☒ **FCC Part 2 (Section 2.1091)**

☒ **KDB 447498 D01**

☒ **IEEE C95.1**

**CONCLUSION: The submitted sample was found to COMPLY with the test requirement**

Tested by Breeze Jiang Project Engineer / EMC Department	Approved by Glyn He Supervisor / EMC Department
	  Date: Apr. 26, 2018

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FM180309N010	Original release	Apr. 26, 2018

## 1. CERTIFICATION

<b>FCC ID:</b>	SHV61353
<b>PRODUCT:</b>	Mr. Drive-in Complete Outdoor Home Theatre
<b>BRAND NAME:</b>	N/A
<b>MODEL NO.:</b>	61353
<b>ADDITIONAL NO.:</b>	N/A
<b>TEST SAMPLE:</b>	Engineering Sample
<b>APPLICANT:</b>	Mr. Christmas Ltd.
<b>STANDARDS:</b>	FCC Part 2 (Section 2.1091)
	KDB 447498 D01
	IEEE C95.1

## 2. RF EXPOSURE LIMIT

### 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 (minutes)
LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

## 3. MPE CALCULATION FORMULA

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

## 4. CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 5. ANTENNA GAIN

The antennas provided to the EUT, please refer to the following table:

Mode	Transmitter Circuit	Peak Gain (dBi)	Antenna Type
BT/WIFI	Chain 0	2.0	FPCB Antenna

## 6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

The tuned conducted Average Power (declared by client)

Mode	Frequency (MHz)	Target Power (dBm)	Tolerance (dBm)	Lower Tolerance (dBm)	Upper Tolerance (dBm)
BT-LE (GFSK)	2402-2480MHz	4	+2	2	6
802.11b	2412-2462MHz	11	+2	9	13
802.11g	2412-2462MHz	7	+2	5	9
802.11n HT20	2412-2462MHz	6	+2	4	8
802.11n HT40	2422-2452MHz	5	+2	3	7

The measured conducted Average Power

Mode	Frequency (MHz)	Averaged Power (dBm)
BT-LE (GFSK)	2402	4.02
802.11b	2462	11.15
802.11g	2462	7.64
802.11n HT20	2462	6.67
802.11n HT40	2452	5.29

FREQUENCY BAND (MHz)	MAX AVERAGE POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
BT 2402-2480	6	2.0	20	0.00126	1.0
WiFi 2412-2462	13	2.0	20	0.00629	1.0



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## CONCLUSION:

The BT and WLAN can transmit simultaneously, the formula of calculated the MPE is:

$$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$(0.00126/1) + (0.00629/1) = 0.00755 < 1, \text{ which is less than the "1" limit.}$$

--- END ---