

## Contents

1. Specification
  - 1.1 Overview
  - 1.2 Product function
  - 1.3 Product appearance
  - 1.4 Operation conditions
  - 1.5 BLE communication
2. Electrical Characteristics
  - 2.1 Electrical Performance
  - 2.2 BLE (transmission)
  - 2.3 BLE (Receiver)

## SPECIFICATION

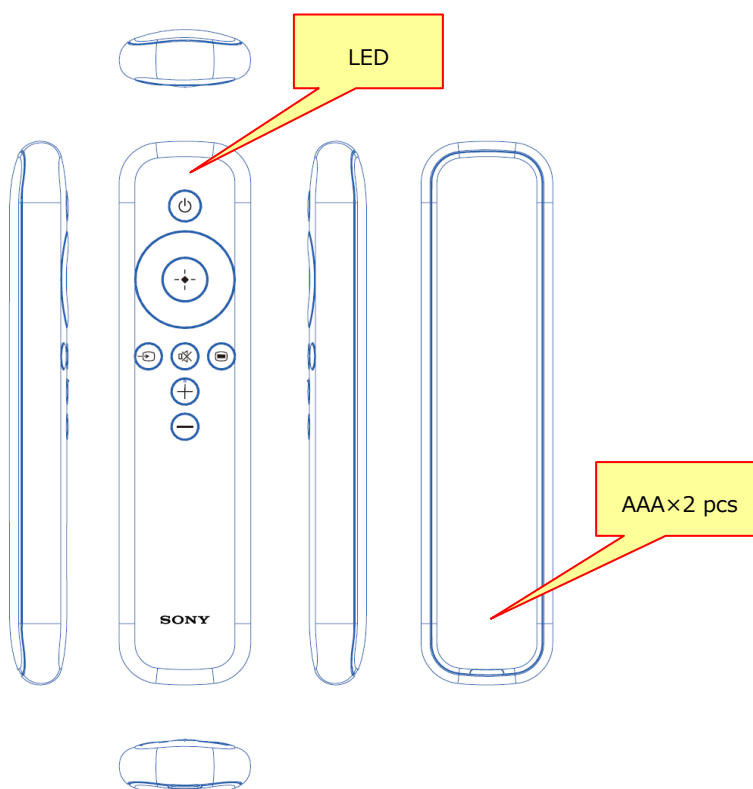
Model Name : LSPX-A1R

**1. Specification****1.1 Overview**

Bluetooth 4.2 support controller with AAA battery x 2pcs

**1.2 Product function**

1. BLE communication
2. Key Code transmission
3. LED Indication

**1.3 Product appearance****1.4 Operation conditions**

No	ITEM	Unit	
1	Voltage range	V	DC 2.0~3.6 (Typ: DC 3.0)
2	Temperature range	°C	-10 ~ +45
4	Humidity range	%RH	20~95

**1.5 BLE communication**

No	ITEM	Unit	
1	Bluetooth Ver	—	Bluetooth 4.2
2	Frequency range	GHz	2.402~2.483(ISM band)
3	Channel center frequency	GHz	2402 + k×2MHz(k=0,1,2,...39)
4	Modulation method	—	GFSK
5	Data rate	Mbps	1.0(Max)

## SPECIFICATION

Model Name : LSPX-A1R

**2. Electrical Characteristics**

## 2.1 Electrical Performance

No	Item 項 目	Rating 規 格	Note 備考
1	Circuit Leakage Current	Less than 10uA	$V_b = 3.2V$
2	Operating Current	Press Key: 0.5mA or less	$V_b = 3.2V$
3	Oscillation Frequency(1)	32MHz $\pm$ 10ppm (BLE Micom)	$V_b = 3.2V$
4	Oscillation Frequency(2)	32.768KHz $\pm$ 20ppm(BLE Micom)	$V_b = 3.2V$
5	Operating Distance	More than 10m	$V_b = 3.2V$
6	Actual Performance Test	Check to make sure that the correct operations are performed when each key is pressed	-

## SPECIFICATION

Model Name : LSPX-A1R

## 2.2 BLE (transmission)

No	Item	Unit	Min.	Typ.	Max.	Bluetooth Spec
1	Output power $P_{AV}$ <sup>(1)</sup>	dBm	-3	0	1.8	-20 to 10
2	Leakage Power Avg <sup>(1)</sup>	dBm	-100	-65	100	< 100
3	Output power $P_{PK}$ <sup>(1)</sup>	dBm	–	4.5	10	< 10
4	Peak-Pavg Avg <sup>(1)</sup>	dBm	–	0.5	3	< 3
5	Frequency range	MHz	2402	–	2480	2400 to 2482
6	Frequency Accuracy Avg <sup>(1)</sup>	kHz	-150	8	150	< $\pm 150$
7	Frequency Offset Avg <sup>(1)</sup>	kHz	-150	11	150	< $\pm 150$
8	Frequency Drift Avg <sup>(1)</sup>	kHz	-50	3	50	< $\pm 50$
9	Initial Frequency Drift Avg <sup>(1)</sup>	kHz	-20	-0.1	20	< $\pm 20$
10	Max Drift Rate Avg <sup>(1)</sup>	kHz	-20	3	20	< $\pm 20$
11	Avg Frequency Deviation Avg <sup>(1)</sup>	kHz	185	225	275	185 to 275
12	Min Frequency Deviation Avg <sup>(1)</sup>	kHz	185	210	275	185 to 275
13	Max Frequency Deviation Avg <sup>(1)</sup>	kHz	-1000	240	1000	-1000 to 1000
14	Delta F1 Avg <sup>(2)</sup>	kHz	225	250	275	225 to 275
15	Delta F2 Avg / Delta F1 Avg <sup>(2)</sup>	–	0.8	–	–	> 0.8
16	Delta F2 Max Threshold: 185.0 kHz <sup>(2)</sup>	%	99.9	–	–	> 99.9

Note :

<sup>(1)</sup> Payload: 10101010, Length: 37 Bytes<sup>(2)</sup> Payload: 11110000 & 10101010, Length: 37 Bytes

## 2.3 BLE (Sensitivity)

No	Item	Unit	Min.	Typ.	Max.	Bluetooth Spec
1	Sensitivity at 30.8% PER <sup>(1) (2)</sup>	dBm	–	-80	-70	$\leq -70$
2	Maximum received signal at 30.8% PER <sup>(1) (2)</sup>	dBm	–	-10	–	$\geq -10$

Note :

<sup>(1)</sup> Packets: 1500, Payload: PRBS 9, Length: 37 Bytes<sup>(2)</sup> Measured at  $F_0 = 2442\text{MHz}$ .