

HARMAN

Harman Connected Services, Inc.

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Date: 1st July 2020

Declaration of Spark1.0 and Spark2.0 Wi-Fi design

Hereby we declare that, the Wi-Fi design and hardware between Spark1.0 [Model No: HSA-15UA-AA] and Spark2.0 [Model No: HSA-15UA-BR] are identical.

FCC id is different for both Device model which is :

Spark1.0 [HSA-15UA-AA] is having FCC id : 2AHPN-HSA-15UA-AA

Spark2.0 [HSA-15UA-BR] is having FCC id : 2AHPN-HSA-15UA-BR

Further details can be found in the following sections:

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**1) Part list of Wi-Fi parts are identical:****Spark1.0**

SIPM3. DTYPE2	SIPM3. VALUE	SIPM3. BNUM	SIPM3. WH
magnetic bead	220 Ω @100MHz-700mA	1	B3801
resistance	-0 $\Omega \pm 5\%$	1	C67
cap	25V-82pF	1	C3802
inductor	1. 5nH $\pm 0. 2$ nH	1	C3804
cap	25V-18pF	1	C3805
cap	25V-0. 5pF	1	C3808
cap	6. 3V-4. 7uF	1	C3810
cap	6. 3V-10uF	1	C3812
cap	25V-100pF	2	C3813, C3816
cap	25V-0. 01uF	3	C3814, C3821, C3822
cap	6. 3V-1uF	1	C3817
cap	6. 3V-0. 1uF	1	C3818
cap	6. 3V-0. 022uF	1	C3819
cap	10V-0. 47uF	1	C3820
inductor	15nH $\pm 5\%$	1	L3803
WLAN/BT/GNSS/FM	WCN-3610-0-47WLNSP-TR-04-0	1	U3801

Spark2.0

SIPM3. DTYPE2	SIPM3. VALUE	SIPM3. BNUM	SIPM3. WH
magnetic bead	220 Ω @100MHz-700mA	1	B3801
resistance	-0 $\Omega \pm 5\%$	1	C67
cap	25V-82pF	1	C3802
inductor	1. 5nH $\pm 0. 2$ nH	1	C3804
cap	25V-18pF	1	C3805
cap	25V-0. 5pF	1	C3808
cap	6. 3V-4. 7uF	1	C3810
cap	6. 3V-10uF	1	C3812
cap	25V-100pF	2	C3813, C3816
cap	25V-0. 01uF	3	C3814, C3821, C3822
cap	6. 3V-1uF	1	C3817
cap	6. 3V-0. 1uF	1	C3818

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cap	6.3V-0.022uF	1	C3819
cap	10V-0.47uF	1	C3820
inductor	15nH ± 5%	1	L3803
WLAN/BT/GNSS/FM	WCN-3610-0-47WLNTP-TR-04-0	1	U3801

2) Wi-Fi Conducted Power

Spark1.0

WLAN Conducted Power

For 2.4GHz WLAN SAR testing, highest average RF output power channel for the lowest data rate for 802.11b were for SAR evaluation. 802.11g/n were not investigated since the average putput powers over all channels and data rates were not more than 0.25dB higher than the tested channel in the lowest data rate of 802.11b mode.

WIFI 2.4G			
Mode	Channel	Frequency (MHz)	Conducted Average Power (dBm)
802.11b	01	2412	11.81
	06	2437	11.85
	11	2462	11.49
802.11g	01	2412	13.22
	06	2437	13.79
	11	2462	13.75
802.11n(HT20)	01	2412	12.71
	06	2437	12.17
	11	2462	12.51

Note: The output power was test all data rate and recorded worst case at recorded data rate.

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Spark2.0

7.4 WIFI Conducted Power

WLAN 2.4GHz Band Conducted Power

Channel/Freq.(MHz)	Average Conducted Out Power (dBm)		
	802.11b	802.11g	802.11n(HT20)
1(2412)	12.65	12.51	11.83
6(2437)	12.87	12.83	11.58
11(2462)	12.79	12.74	11.69

Sincerely,

A photograph of a white piece of paper with a handwritten signature in blue ink that reads "Dhanaji Khade".

By:

(Signature/Title)

Dhanaji Khade
Senior Director, Engineering
(Print name)