

RF Exposure Report

Report No.: SA181205C09

FCC ID: 2AP3D-CT001

Test Model: CT001

Received Date: Dec. 05, 2018

Date of Evaluation: Mar. 04, 2019

Issued Date: Mar. 08, 2019

Applicant: Spotify USA, Inc.

Address: 45 West 18th Street, New York, NY 10011, USA

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

Test Location: No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil, Kwei Shan Dist., Taoyuan City 33383, Taiwan (R.O.C)

**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SA181205C09	Original Release	Mar. 08, 2019

1 Certificate of Conformity

Product: Music Streaming Device

Brand: Spotify

Test Model: CT001

Sample Status: Engineering Sample

Applicant: Spotify USA, Inc.

Date of Evaluation: Mar. 04, 2019

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by :



Date: Mar. 08, 2019

Ivonne Wu / Supervisor

Approved by :



Date: Mar. 08, 2019

Dylan Chiou / Project Engineer

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

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

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

2.3 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**.

2.4 Calculation Result of Maximum Conducted Power

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WCDMA II	1850-1910	25	0.1	20	0.064	1.00
WCDMA IV	1710-1755	25	-0.1	20	0.061	1.00
WCDMA V	824-849	25	-0.5	20	0.056	0.55
LTE 2	1850-1910	24	0.1	20	0.051	1.00
LTE 4	1710-1755	24	-0.1	20	0.049	1.00
LTE 5	824-849	24	-0.5	20	0.045	0.55
LTE 12	699-716	24	0	20	0.050	0.47
WLAN	2412-2462	19	0.4	20	0.017	1.00
BT	2402-2480	5.5	0.4	20	0.001	1.00

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

$WWAN + WLAN + BT = 0.05 / 0.47 + 0.034 / 1 + 0.017 / 1 = 0.124$

Therefore the maximum calculations of above situations are less than the “1” limit.

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