Spot Check Evaluation

APPLICANT	:	**Xiaomi Communications Co., Ltd.**
EQUIPMENT	:	**Mobile Phone**
BRAND NAME	:	**Redmi**
MODEL NAME	:	**22031116BG**
FCC ID	:	**2AFZZ116BG**
STANDARD	:	**47 CFR Part 15 Subpart C §15.225** **47 CFR Part 15 Subpart C §15.247** **47 CFR Part 15 Subpart E §15.407**

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Reviewed by: Jason Jia / Supervisor

Alex Wang

Approved by: Alex Wang / Manager

ACCREDITED Cert #5145.02

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR180507-03	Rev. 01	Initial issue of report	Feb. 17, 2022

1 General Description

1.1 Applicant

Xiaomi Communications Co., Ltd.
#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.2 Manufacturer

Xiaomi Communications Co., Ltd.
#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	Redmi
Model Name	22031116BG
FCC ID	2AFZZ116BG
EUT supports Radios application	GSM/WCDMA/LTE/ 5G NR WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE GNSS/FM NFC
HW Version	P1
SW Version	MIUI 13
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

2 Re-use of Measured Data

2.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: 22031116BG, FCC ID: 2AFZZ116BG) is electrically identical to the reference device (Model: 21091116AG, FCC ID: 2AFZZ116AG) for the portions of the circuitry corresponding to the data being re-used. Based on their similarity, the FCC Part 15C (equipment class: DTS, DSS, DXX) and FCC Part 15E (equipment class: NII) reuse the original model's result and do spot-check, following the FCC KDB 484596 D01 v01.

The applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID: 2AFZZ116BG .

2.2 Model Difference Information

The **main** difference between FCC ID: 2AFZZ116AG and FCC ID: 2AFZZ116BG is that the two models support different WWAN bands for different markets, and some HW components for WWAN related bands are different, all the RF parts of Bluetooth/WLAN/NFC are the same.
The details of above information can be found in the confidential documents (22031116BG_Operational Description of Product Equality Declaration).

2.3 Reference detail Section:

Rule Part	Equipment Class	Frequency Band (MHz)	Reference FCC ID (Parent)	Type Grant/ Permissive Change	Reference Title	FCC ID Filling (Variant)	Report Title/Section
15C	DSS (BR/EDR)	2400~2483.5	2AFZZ116AG	Original Grant	FR181632A	2AFZZ116BG	All sections applicable
	DTS (BLE)	2400~2483.5	2AFZZ116AG	Original Grant	FR181632B	2AFZZ116BG	All sections applicable
	DTS (WLAN)	2400~2483.5	2AFZZ116AG	Original Grant	FR181632C	2AFZZ116BG	All sections applicable
	DXX (NFC)	13.56	2AFZZ116AG	Original Grant	FR181632D	2AFZZ116BG	All sections applicable
15E	U-NII-1	5150~5250	2AFZZ116AG	Original Grant	FR181632E	2AFZZ116BG	All sections applicable
	U-NII-2A	5250~5350	2AFZZ116AG	Original Grant		2AFZZ116BG	All sections applicable
	U-NII-2C	5470~5725	2AFZZ116AG	Original Grant		2AFZZ116BG	All sections applicable
	U-NII-3	5725~5850	2AFZZ116AG	Original Grant	FR181632F	2AFZZ116BG	All sections applicable
	DFS	5250~5350 5470~5725	2AFZZ116AG	Original Grant	FZ181632	2AFZZ116BG	All sections applicable

2.4 Spot Check Verification Data Section

Conducted power test and radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model

Summary for power and RSE spot check for each rule entry and technology is listed as below:

Test Item	Mode	2AFZZ116AG (Parent) Worst Result	2AFZZ116BG (Variant) Check Result	Difference (dB)
Conducted Power (dBm)	BT BR/EDR	11.63	10.62	1.01
	BT-LE-1M	-2.68	-2.77	0.09
	BT-LE-2M	-2.66	-2.71	0.05
	802.11b	19.9	19.82	0.08
	802.11g	23.10	22.98	0.12
	11n HT20	23.31	23.21	0.1
	11n HT40	23.60	23.54	0.06
	11a, 5.2GHz	15.40	15.13	0.27
	11n HT20, 5.2GHz	15.10	15.04	0.06
	11n HT40, 5.2GHz	15	14.95	0.05
	11ac VHT20, 5.2GHz	15	14.95	0.05
	11ac VHT40, 5.2GHz	14.9	14.82	0.08
	11ac VHT80, 5.2GHz	14.1	14.06	0.04
	11a, 5.3GHz	18.20	17.84	0.36
	11n HT20, 5.3GHz	16.70	16.69	0.01
	11n HT40, 5.3GHz	16.40	16.12	0.28
	11ac VHT20, 5.3GHz	16.5	16.06	0.44
	11ac VHT40, 5.3GHz	16.30	15.95	0.35
	11ac VHT80, 5.3GHz	14.5	14.48	0.02
	11a, 5.5GHz	18.10	17.82	0.28
	11n HT20, 5.5GHz	16.60	16.48	0.12
	11n HT40, 5.5GHz	16.5	15.97	0.53
	11ac VHT20, 5.5GHz	16.4	16.12	0.28
	11ac VHT40, 5.5GHz	16.4	15.96	0.44
	11ac VHT80, 5.5GHz	16.1	15.93	0.17
	11a, 5.8GHz	15.70	15.36	0.34
	11n HT20, 5.8GHz	15.5	15.45	0.05
	11n HT40, 5.8GHz	15.4	15.32	0.08
	11ac VHT20, 5.8GHz	15.4	15.38	0.02
	11ac VHT40, 5.8GHz	15.30	15.21	0.09
	11ac VHT80, 5.8GHz	15.5	15.40	0.1

Test Item	Mode	2AFZZ116AG (Parent) Worst Result	2AFZZ116BG (Variant) Check Result	Difference (dB)
Field Strength (dBuV/m) @ 30m	NFC 13.56MHz	21.48	16.09	5.39

Conclusion:

Radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

Based on the spot check test result, the test data from the original model is representative for the variant model. The power level spot check are shown within expected level compliant to limit line.

The same DFS detection is used in the variant. Hence, there is no spot check data for DFS

We confirm that the test data reuse policy of FCC KDB 484596 D01 Referencing Test Data v01 has been followed and the test data as referenced from the parent model report represents compliance with new FCC ID.

3 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 14, 2021	Jan. 26, 2022	Oct. 13, 2022	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 06, 2022	Jan. 26, 2022	Jan. 05, 2023	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 06, 2022	Jan. 26, 2022	Jan. 05, 2023	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	Aug. 26, 2021	Jan. 26, 2022	Aug. 25, 2022	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Max 30dBm	Oct. 16, 2021	Feb. 17, 2022	Oct. 15, 2022	Radiation (03CH02-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Feb. 17, 2022	Oct. 29, 2022	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6111D	44483	30MHz-1GHz	Dec. 22, 2021	Feb. 17, 2022	Dec. 21, 2022	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Feb. 17, 2022	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Feb. 17, 2022	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Feb. 17, 2022	NCR	Radiation (03CH02-KS)

NCR: No Calibration Required

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