



Spot Check Evaluation

APPLICANT : Xiaomi Communications Co., Ltd.
EQUIPMENT : Mobile Phone
BRAND NAME : Redmi
MODEL NAME : 2303ERA42L
FCC ID : 2AFZZRA42L
STANDARD : 47 CFR Part 2, 22(H), 24(E), 27(M), 27(L), 27(H), 27(F)
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

Approved by: Jason Jia



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1N1601-06	Rev. 01	Initial issue of report	Feb. 23, 2023



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	2303ERA42L
FCC ID	2AFZZRA42L
IMEI Code	Conducted: 865153060013589/865153060013597 Radiation : 865153060015808/865153060015816
HW Version	P1
SW Version	MIUI14
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: 2303ERA42L, FCC ID: 2AFZZRA42L) is electrically identical to the reference device (Model: 2201117SL, FCC ID: 2AFZZ117SL) and (Model: 2201117SY, FCC ID: 2AFZZ117SY) 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) and FCC Part 15E (equipment class: NII) and FCC Part 22, 24, 27 (equipment class: PCE) 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: 2AFZZRA42L .

2.2 Model Difference Information

The **main** difference between FCC ID: 2AFZZ117SY and FCC ID: 2AFZZ117SL is as below:

- Remove LTE Band 32.
- Add LTE Band 12/13/17/66/38/41(2496MHz~2690MHz).

The **main** difference between FCC ID: 2AFZZ117SL and FCC ID: 2AFZZRA42L is as below:

- Add LTE Band 26.

Other differences and all the details of similarity and difference can be found in the confidential documents (2303ERA42L_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	2AFZZ117SY	Original Grant	FR1N3028A	2AFZZRA42L	All sections applicable
	DTS (BLE)	2400~2483.5	2AFZZ117SY	Original Grant	FR1N3028B	2AFZZRA42L	All sections applicable
	DTS (WLAN)	2400~2483.5	2AFZZ117SY	Original Grant	FR1N3028C	2AFZZRA42L	All sections applicable
15E	U-NII-1	5180~5240	2AFZZ117SY	Original Grant	FR1N3028E	2AFZZRA42L	All sections applicable
	U-NII-2A	5260~5320	2AFZZ117SY	Original Grant	FR1N3028E	2AFZZRA42L	All sections applicable
	U-NII-2C	5500~5720	2AFZZ117SY	Original Grant	FR1N3028E	2AFZZRA42L	All sections applicable
	U-NII-3	5745~5825	2AFZZ117SY	Original Grant	FR1N3028F	2AFZZRA42L	All sections applicable
	DFS	5260~5320 5500~5720	2AFZZ117SY	Original Grant	FZ1N3028	2AFZZRA42L	All sections applicable
22, 24, 27	PCE (GSM)	GSM 850/1900	2AFZZ117SY	Original Grant	FG1N1601A	2AFZZRA42L	All sections applicable
	PCE (WCDMA)	Band II, IV, V	2AFZZ117SY	Original Grant	FG1N1601A	2AFZZRA42L	All sections applicable
	PCE (LTE)	B2/5/7/7C	2AFZZ117SY	Original Grant	FG1N1601B	2AFZZRA42L	All sections applicable
	PCE (LTE)	B4/12/13/17/3 8/38C/41/41C/ 66	2AFZZ117SL	Original Grant	FG1N1601-01	2AFZZRA42L	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	2AFZZ117SY Parent Worst Result	2AFZZRA42L Variant Check Result	Difference (dB)
Conducted Power (dBm)	BT BR/EDR	9.63	9.23	0.40
	BT-LE1M	-1.9	-2.71	0.81
	BT-LE2M	-1.8	-2.96	1.16
	802.11b	17.40	17.01	0.39
	802.11g	15.00	14.53	0.47
	11n HT20	13.60	12.98	0.62
	5.2GHz	13.80	13.39	0.41
	5.3GHz	13.70	13.49	0.21
	5.5GHz	13.50	12.69	0.81
	5.8GHz	13.70	12.50	1.20
	Part 22H GSM850	32.38	32.15	0.23
	Part 24E GSM1900	29.69	29.52	0.17
	Part 22H WCDMA Band V	24.55	24.43	0.12
	Part 24E WCDMA Band II	24.82	24.29	0.53
	Part 27L WCDMA Band IV	24.73	24.27	0.46
	LTE Band 2	24.32	24.11	0.21
LTE Band 5	24.46	24.35	0.11	



	LTE Band 7	24.36	24.23	0.13
	LTE Band 7_CA	24.14	23.89	0.25

Test Item	Mode	2AFZZ117SL Parent Worst Result	2AFZZRA42L Variant Check Result	Difference (dB)
Conducted Power (dBm)	LTE Band 4	24.35	24.16	0.19
	LTE Band 12	24.53	24.38	0.15
	LTE Band 13	24.51	24.45	0.06
	LTE Band 17	24.43	24.30	0.13
	LTE Band 38	24.27	24.17	0.10
	LTE Band 38C	24.17	24.05	0.12
	LTE Band 41	24.34	24.22	0.12
	LTE Band 41C	24.25	24.11	0.14
	LTE Band 66	24.37	24.20	0.17

Test Item	Mode	2AFZZ117SY/2AFZZ117SL Parent Worst Result	2AFZZRA42L Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBm)	Part 22H GSM 850	-20.76	-36.54	15.78
	Part 27L WCDMA 1700	-42.82	-42.41	0.41
	Part 24E LTE Band 2	-16.68	-40.68	24
	Part 27M LTE Band 7	-25.54	-36.3	10.76

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 and RSE spot check are shown within expected level compliant to limit line.

We are using power and ERP/EIRP measurements from the original parent model reports to list on the grant.

The same DFS detection mechanism/software is used in the variant. Hence, there is no spot check data for DFS EUD hand-shaking mechanism.

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. 12, 2022	Feb. 10, 2023	Oct. 11, 2023	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 05, 2023	Feb. 10, 2023	Jan. 04, 2024	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 05, 2023	Feb. 10, 2023	Jan. 04, 2024	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 12, 2022	Feb. 03, 2023	Oct. 11, 2023	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 29, 2022	Feb. 03, 2023	Oct. 28, 2023	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	May 24, 2022	Feb. 03, 2023	May 23, 2023	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1284	1GHz~18GHz	Oct. 16, 2022	Feb. 03, 2023	Oct. 15, 2023	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 08, 2023	Feb. 03, 2023	Jan. 07, 2024	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	May 24, 2022	Feb. 03, 2023	May 23, 2023	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GG A	060728	18~40GHz	Jan. 05, 2023	Feb. 03, 2023	Jan. 04, 2024	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18GA	060840	1Ghz-18Ghz	Oct. 12, 2022	Feb. 03, 2023	Oct. 11, 2023	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz-18Ghz	Oct. 12, 2022	Feb. 03, 2023	Oct. 11, 2023	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Feb. 03, 2023	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Feb. 03, 2023	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Feb. 03, 2023	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required.



4 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Power	±0.46 dB

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.3dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.8dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.8dB
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-THE END-