



Spot Check Evaluation

APPLICANT : Xiaomi Communications Co., Ltd.
EQUIPMENT : Mobile Phone
BRAND NAME : Redmi
MODEL NAME : 2201117TL
FCC ID : 2AFZZ117TL
STANDARD : 47 CFR Part 2, 22(H), 24(E), 27(L), 27(M)
47 CFR Part 15 Subpart C §15.247
47 CFR Part 15 Subpart E §15.407
TEST DATE(S) : Jan. 10, 2022 ~ Jan. 12, 2022

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.

Reviewed by: Jason Jia / Supervisor

Approved by: Alex Wang / Manager



Sporton International Inc. (Kunshan)

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1O2304-01	Rev. 01	Initial issue of report	Jan. 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	2201117TL
FCC ID	2AFZZ117TL
HW Version	P1.1
SW Version	MIUI13
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.

1.5 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	TH01-KS 03CH04-KS 03CH06-KS	CN1257	314309



1.6 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24a
2.	03CH06-KS	AUDIX	E3	6.2009-8-24al



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: 2201117TL, FCC ID: 2AFZZ117TL) is electrically identical to the reference device (Model: 2201117TY, FCC ID: 2AFZZ117TY) 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: 2AFZZ117TL .

2.2 Model Difference Information

The **main** difference between FCC ID: 2AFZZ117TY and FCC ID: 2AFZZ117TL is as below:

- Remove LTE Band 32 and NFC function.
- Add WCDMA Band 6/19 and LTE Band 12/13/17/18/19/26/66.
- Update the frequency range of LTE Band 41.

Other differences and all the details of similarity and difference can be found in the confidential documents (2201117TL_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	2AFZZ117TY	Original Grant	FR1O2304A	2AFZZ117TL	All sections applicable
	DTS (BLE)	2400~2483.5	2AFZZ117TY	Original Grant	FR1O2304B	2AFZZ117TL	All sections applicable
	DTS (WLAN)	2400~2483.5	2AFZZ117TY	Original Grant	FR1O2304C	2AFZZ117TL	All sections applicable
15E	U-NII-1	5150~5250	2AFZZ117TY	Original Grant	FR1O2304E	2AFZZ117TL	All sections applicable
	U-NII-2A	5250~5350	2AFZZ117TY	Original Grant	FR1O2304E	2AFZZ117TL	All sections applicable
	U-NII-2C	5470~5725	2AFZZ117TY	Original Grant	FR1O2304E	2AFZZ117TL	All sections applicable
	U-NII-3	5725~5850	2AFZZ117TY	Original Grant	FR1O2304F	2AFZZ117TL	All sections applicable
	DFS	5250~5350 5470~5725	2AFZZ117TY	Original Grant	FZ1O2304	2AFZZ117TL	All sections applicable
22, 24, 27	PCE (GSM)	GSM 850/1900	2AFZZ117TY	Original Grant	FG1O2304A	2AFZZ117TL	All sections applicable
	PCE (WCDMA)	Band II, IV, V	2AFZZ117TY	Original Grant	FG1O2304A	2AFZZ117TL	All sections applicable
	PCE (LTE)	B2/4/5/7 ULCA 7C	2AFZZ117TY	Original Grant	FG1O2304B	2AFZZ117TL	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	2AFZZ117TY Parent Worst Result	2AFZZ117TL Variant Check Result	Difference (dB)
Conducted Power (dBm)	BT BR/EDR	9.82	9.42	0.40
	BLE	1.56	1.02	0.54
	WLAN 2.4GHz	18.26	17.86	0.40
	WLAN 5.2GHz	14.24	14.09	0.15
	WLAN 5.3GHz	13.78	13.20	0.58
	WLAN 5.5GHz	14.38	13.87	0.51
	WLAN 5.8GHz	14.20	13.66	0.54
	GSM850	33.39	33.37	0.02
	GSM1900	30.20	30.35	0.15
	WCDMA II	24.27	24.43	0.16
	WCDMA IV	24.17	24.32	0.15
	WCDMA V	24.53	24.72	0.19
	LTE Band 2	24.15	24.59	0.44
	LTE Band 4	24.01	24.68	0.67
LTE Band 5	24.63	24.73	0.10	
LTE Band 7 / 7C	23.39	23.39	0	

Test Item	Mode	2AFZZ117TY Parent Worst Result	2AFZZ117TL Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBuV/m) @ 3m	BT	62.61	62.12	0.49
	BLE	45.54	45.21	0.33
	WLAN 2.4GHz	50.90	47.91	2.99
	WLAN 5.5GHz	51.45	50.32	1.13
	WLAN 5.8GHz	52.00	51.81	0.19
Radiated Spurious Emission (dBm)	GSM850/1900	-16.86	-18.70	1.84
	WCDMA B5/B2/B4	-30.32	-32.63	2.31
	LTE B2/B4/B5/B7/CA_7C	-37.66	-34.66	3.00

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 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. 11, 2022	Oct. 13, 2022	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 06, 2022	Jan. 11, 2022	Jan. 05, 2023	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 06, 2022	Jan. 11, 2022	Jan. 05, 2023	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	Aug. 26, 2021	Jan. 11, 2022	Aug. 25, 2022	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 12, 2021	Jan. 11, 2022	Jul. 11, 2022	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 16, 2021	Jan. 10, 2022	Oct. 15, 2022	Radiation (03CH06-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44GHz	Apr. 12, 2021	Jan. 10, 2022	Apr. 11, 2022	Radiation (03CH06-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Jan. 10, 2022	Oct. 29, 2022	Radiation (03CH06-KS)
Bilog Antenna	TeseQ	CBL6111D	49921	30MHz~1GHz	May 27, 2021	Jan. 10, 2022	May 26, 2022	Radiation (03CH06-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 25, 2021	Jan. 10, 2022	Apr. 24, 2022	Radiation (03CH06-KS)
SHF-EHF Horn	Com-power	AH-840	101093	18GHz~40GHz	Jan. 05, 2022	Jan. 10, 2022	Jan. 04, 2023	Radiation (03CH06-KS)
Amplifier	SONOMA	310N	187289	9KHz ~1GHZ	Apr. 12, 2021	Jan. 10, 2022	Apr. 11, 2022	Radiation (03CH06-KS)
Amplifier	MITEQ	EM18G40GG A	060728	18~40GHz	Jan. 05, 2022	Jan. 10, 2022	Jan. 04, 2023	Radiation (03CH06-KS)
high gain Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	2025788	1Ghz-18Ghz	Jan. 05, 2022	Jan. 10, 2022	Jan. 04, 2023	Radiation (03CH06-KS)
Amplifier	Keysight	83017A	MY53270203	500MHz~26.5GHz	Apr. 13, 2021	Jan. 10, 2022	Apr. 12, 2022	Radiation (03CH06-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jan. 10, 2022	NCR	Radiation (03CH06-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jan. 10, 2022	NCR	Radiation (03CH06-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jan. 10, 2022	NCR	Radiation (03CH06-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44G,MAX 30dB	Apr. 13, 2021	Jan. 10, 2022	Apr. 12, 2022	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz~1GHz	May 30, 2021	Jan. 10, 2022	May 29, 2022	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1356	1GHz~18GHz	Apr. 18, 2021	Jan. 10, 2022	Apr. 17, 2022	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Jan. 10, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 05, 2022	Jan. 10, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GG A	060728	18~40GHz	Jan. 06, 2022	Jan. 10, 2022	Jan. 05, 2023	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	2025788	1Ghz-18Ghz	Jan. 05, 2022	Jan. 10, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 13, 2021	Jan. 10, 2022	Oct. 12, 2022	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jan. 10, 2022	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jan. 10, 2022	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jan. 10, 2022	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required.

-THE END-