SPOT CHECK EVALUATION

FCC ID	:	**A4RG1AZG**
Equipment	:	**Phone**
Model Name	:	**G1AZG**
Applicant	:	**Google LLC** **1600 Amphitheatre Parkway,** **Mountain View, California, 94043 USA**
Standard	:	**47 CFR Part 2, 22(H), 24(E), 27(D), 27(L) , 27(O) , 27(Q) , 90(R), 90(S), 96** **FCC Part 15 Subpart C §15.225** **FCC Part 15 Subpart C §15.247** **FCC Part 15 Subpart E §15.407**

We, Sporton International Inc. Wensan Laboratory, 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. Wensan Laboratory, the test report shall not be reproduced except in full.

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History of this test report

Version	Description	Issued Date
01	Initial issue of report	Feb. 22, 2022

1. Introduction Section

FCC ID: A4RGX7AS (WLAN parent model) and FCC ID: A4RG1AZG (variant model) use identical internal printed circuit board layouts, while the HW component for NR n41/n38 is removed.
FCC ID: A4RGB62Z (WWAN parent model) and FCC ID: A4RG1AZG (variant model) use identical internal printed circuit board layouts, while the variant model depopulates mmWave related components and the BT/WiFi antenna performance is changed.
The details are available in the operational description.

Based on their similarity, the FCC Part 15C (equipment class: DTS, DSS, DXX) and FCC Part 15E (equipment class: NII, 6XD) reuse the WLAN parent model result and do spot-check; Besides, FCC Part 22, 24, 27, 90, 96 (equipment class: PCE, CBE) reuse the WWAN parent model result and do spot-check, following the FCC KDB 484596 D01 v01. The spot check data in this report is used to justify the data reuse

The applicant should take full responsibility that the test data as referenced in this report represent compliance for this FCC ID: A4RG1AZG.

2. Model Difference Information

FCC ID: A4RGX7AS (WLAN parent model) and FCC ID: A4RG1AZG (variant model) use identical internal printed circuit board layouts, and the difference in the components population:

- A4RGX7AS: 5GNR n41/n38 related components are depopulated.

FCC ID: A4RGB62Z (WWAN parent model) and FCC ID: A4RG1AZG (variant model) use identical internal printed circuit board layouts, and the difference in the components population:

- A4RG1AZG: 5GNR FR2 mmWave related components are depopulated.

  Besides, the BT/WiFi antenna gain performance are affected.

The details are available in the operational description.

The detail of similarity and difference is illustrated in the operational description, and based on the information spot check on conducted power and emission was performed for ensure compliance

3. Spot Check Verification Data Section

Conducted power and radiated spurious emission test configurations were selected from the worst cases identified in the parent model and tested 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	A4RGX7AS WLAN Parent Worst Result	A4RG1AZG Variant Check Result	Difference (dB)
Conducted Power (dBm)	BT	20.84	20.66	0.18
	BLE	18.89	18.65	0.24
	WLAN 2.4GHz	24.11	23.86	0.25
	WLAN 5GHz	22.96	22.77	0.19
	WLAN 6GHz	20.16	20.04	0.12

Test Item	Mode	A4RGB62Z WWAN Parent Worst Result	A4RG1AZG Variant Check Result	Difference (dB)
Conducted Power (dBm)	WWAN GPRS 850	32.40	32.27	0.13
	WWAN GPRS 1900	29.68	29.38	0.30
	WWAN WCDMA Band V	24.66	24.59	0.07
	WWAN WCDMA Band II	24.54	24.31	0.23
	WWAN WCDMA Band IV	24.30	24.06	0.24
	WWAN LTE Band 2	24.11	23.85	0.26
	WWAN LTE Band 4	24.15	24.04	0.11
	WWAN LTE Band 5	24.71	24.68	0.03
	WWAN LTE Band 7	24.40	24.33	0.07
	WWAN LTE Band 12	24.34	24.09	0.25
	WWAN LTE Band 13	24.26	23.98	0.28
	WWAN LTE Band 14	24.44	24.29	0.15
	WWAN LTE Band 17	24.32	24.20	0.12
	WWAN LTE Band 25	24.16	23.87	0.29
	WWAN LTE Band 26	24.62	24.54	0.08
	WWAN LTE Band 30	23.66	23.44	0.22
	WWAN LTE Band 38 HPUE	26.22	25.99	0.23
	WWAN LTE Band 41 HPUE	26.57	26.28	0.29
	WWAN LTE Band 48	22.87	22.63	0.24
	WWAN LTE Band 66	23.92	23.81	0.11
	WWAN LTE Band 71	24.50	24.22	0.28
	WWAN NR n2	25.69	25.67	0.02
	WWAN NR n5	24.96	24.89	0.07
	WWAN NR n7	25.09	25.03	0.06
	WWAN NR n12	24.98	24.90	0.08
	WWAN NR n25	25.69	25.44	0.25
	WWAN NR n66	25.68	25.44	0.25
	WWAN NR n71	24.89	24.64	0.25
	WWAN NR n77 (27O) HPUE	26.85	26.78	0.07
	WWAN NR n77 (27Q) HPUE	26.78	26.67	0.11

Test Item	Mode	ANT	A4RGX7AS WLAN Parent Worst Result	A4RG1AZG Variant Check Result	Difference (dB)
Field Strength (dBuV/m)	NFC 13.56MHz	-	21.00	20.79	0.21
Radiated Spurious Emission (dBuV/m)	BT	4+3	62.81	60.05	2.76
	BLE	4	50.16	48.46	1.70
	WLAN 2.4GHz	4+3	51.95	50.42	1.53
	WLAN 5GHz	4+3	52.31	51.79	0.52
	WLAN 6GHz	4+3	48.30	45.68	2.62
	NFC 13.56MHz	-	33.33	31.85	1.48

Test Item	Mode	ANT	A4RGB62Z WWAN Parent Worst Result	A4RG1AZG Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBm)	WWAN GPRS 850	0	-40.81	-41.42	0.61
	WWAN GPRS 850	1	-37.74	-37.08	-0.66
	WWAN GPRS 1900	0	-44.87	-44.52	-0.35
	WWAN WCDMA Band V	1	-48.19	-49.46	1.27
	WWAN WCDMA Band II	0	-41.08	-40.21	-0.87
	WWAN WCDMA Band IV	2	-45.29	-45.83	0.54
	WWAN LTE Band 7	0	-43.82	-43.60	-0.22
	WWAN LTE Band 12	0	-26.16	-27.52	1.36
	WWAN LTE Band 13	1	-59.97	-61.50	1.53
	WWAN LTE Band 14	1	-29.58	-28.73	-0.85
	WWAN LTE Band 25	0	-43.50	-43.80	0.30
	WWAN LTE Band 26	0	-33.96	-34.28	0.32
	WWAN LTE Band 30	2	-56.24	-56.01	-0.23
	WWAN LTE Band 41	0	-45.42	-47.16	1.74
	WWAN LTE Band 48	0	-47.76	-49.02	1.26
	WWAN LTE Band 66	0	-37.91	-39.01	1.10
	WWAN LTE Band 71	0	-32.22	-34.16	1.94
	WWAN NR n5	1	-33.95	-35.08	1.13
	WWAN NR n7	0	-41.16	-40.98	-0.18
	WWAN NR n12	0	-41.20	-42.65	1.45
	WWAN NR n25	0	-40.76	-42.58	1.82
	WWAN NR n66	0	-35.22	-34.90	-0.32
	WWAN NR n71	1	-45.41	-45.15	-0.26
	WWAN NR n77 (27O)	6	-34.37	-34.39	0.02
	WWAN NR n77 (27Q)	6	-33.21	-34.76	1.55

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.

The spot check emission level is not degraded more than 3dB, and the margin to the limit is greater than 1.5dB, data referencing is justified according to the guidance in the KDB inquiry

4. Reference detail Section

Rule Part	Equipment Class	Wireless Technology	Frequency Band (MHz)	Reference FCC ID (Parent)	Type Grant/ Permissive Change	Reference Title	FCC ID Filling (Variant)
15C	DSS	Bluetooth	2400~2483.5	A4RGX7AS	Original Grant	FR161608-05A	A4RG1AZG
	DTS	BLE Wi-Fi	2400~2483.5	A4RGX7AS	Original Grant	FR161608-05B FR161608-05C	A4RG1AZG
	DXX	NFC	13.56	A4RGX7AS	Original Grant	FR161608-05D	A4RG1AZG
15E	NII	Wi-Fi	5150~5250 5250~5350 5470~5725 5725~5850 5850~5925	A4RGX7AS	Original Grant	FR161608-05E FR161608-05F FR161608-05G FR161608-05H	A4RG1AZG
		DFS	5250~5350 5470~5725	A4RGX7AS	Original Grant	FZ161608-05	A4RG1AZG
	6XD	WiFi	5925~7125	A4RGX7AS	Original Grant	FR161608-05I	A4RG1AZG
22, 24, 27, 90, 96	PCE CBE	GSM	GSM 850/1900	A4RGB62Z	Original Grant	FG161608-03A	A4RG1AZG
		WCDMA	Band II, IV, V	A4RGB62Z	Original Grant	FG161608-03A	A4RG1AZG
		LTE	2/4/5/7/12/13 /14/17/25/26 /30/38/41 /48/66/71 ULCA 5B/7C/ 41C/66B/66C	A4RGB62Z	Original Grant	FG161608-03B FG161608-03D FG161608-03E FG161608-03F FG161608-03G FG161608-03L	A4RG1AZG
		NR	n2/n5/n7/ n12/n25/n30/ n66/n71/n77	A4RGB62Z	Original Grant	FG161608-03C FG161608-03H FG161608-03I FG161608-03J	A4RG1AZG

5. Equipment List

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date
USB Power Meter	Raditeq	RPR3006W #010	RPR6W-2101002 (NO:123)	10MHz~8GHz	Jan. 13, 2022	Jan. 14, 2022 ~ Feb. 07, 2022	Jan. 12, 2023
Base Station(Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Jul. 13, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Jul. 12, 2022
Base Station (Measure)	Anritsu	MT8821C	6262116733	LTE	Jul. 19, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Jul. 18, 2022
Base Station (Measure)	Anritsu	MT8000A	6262134933	FR1	Apr. 27, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Apr. 26, 2022
Signal Analyzer	Rohde & Schwarz	FSV40	101566	10Hz~40GHz	Aug. 30, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Aug. 29, 2022
Switch Box & RF Cable	EM Electronics	EMSW18SE	SW191204(BOX9)	N/A	Mar. 17,2021	Jan. 14, 2022 ~ Feb. 07, 2022	Mar. 16,2022
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 07, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Sep. 06, 2022
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N-06	47020 & 06	30MHz to 1GHz	Oct. 09, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Oct. 08, 2022
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1522	1G~18GHz	Oct. 12, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Oct. 11, 2022
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	00991	18GHz ~40GHz	May 12, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	May 11, 2022
Amplifier	SONOMA	310N	371607	9kHz~1GHz	Jul. 05, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Jul. 04, 2022
Preamplifier	Jet-Power	JPA0118-55-303	1710001800054001	1-18GHz	Jun. 16, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Jun. 15, 2022
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec.09,.2021	Jan. 14, 2022 ~ Feb. 07, 2022	Dec.08,.2022
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Jun. 21, 2022
EMI Test Receiver	Keysight	N9038A(MXE)	MY59053012	3Hz~26.5GHz	Nov. 18, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Nov. 17, 2022
EMI Test Receiver	Keysight	N9010A	MY54200485	3Hz ~40GHz	Mar. 05, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Mar. 04, 2022

RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11680/4PE	NA	Aug. 28, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Aug. 27, 2022
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11688/4PE	NA	Aug. 28, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Aug. 27, 2022
RF Cable	HUBER + SUHNER	SUCOFLEX 102	EC-A5-300-5757	NA	Aug. 28, 2021	Jan. 14, 2022 ~ Feb. 07, 2022	Aug. 27, 2022
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Jan. 14, 2022 ~ Feb. 07, 2022	N/A
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Jan. 14, 2022 ~ Feb. 07, 2022	N/A
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jan. 14, 2022 ~ Feb. 07, 2022	N/A
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jan. 14, 2022 ~ Feb. 07, 2022	N/A

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