



SPOT CHECK EVALUATION

FCC ID : A4RG576D
Equipment : Phone
Applicant : Google LLC
1600 Amphitheatre Parkway,
Mountain View, California, 94043 USA
Standard : 47 CFR Part 2, 22(H), 24(E), 27
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.

Approved by: Louis Wu

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History of this test report

Version	Description	Issue Date
01	Initial issue of report	Dec. 20, 2023
02	Remove Part 90s band info which is not supported	Jan. 09, 2024



1. Introduction Section

FCC ID: A4RG8HHN (parent model) and FCC ID: A4RGKV4X (Variant model) and FCC ID: A4RG6GPR (variant model) and FCC ID: A4RG576D (variant model) use the same identical internal printed circuit board layouts, while the variant model mmWave radio and antenna module are depopulated, details are available in the operational description.

Based on their similarity, the FCC Part 15C (equipment class: DSS, DTS), FCC Part 15E (equipment class: NII, 6CD) and FCC Part 22, 27 (equipment class: PCE) reuse the FCC ID: A4RGKV4X result and do spot-check.

Based on their similarity, the FCC Part 15C (equipment class: DXX) and FCC Part 22, 27 (equipment class: PCE) reuse the FCC ID: A4RG8HHN result and do spot-check.

Based on their similarity, the FCC Part 24, 27 (equipment class: PCE) reuse the FCC ID: A4RG6GPR result and do spot-check.

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: A4RG576D.



2. Model Difference Information

A4RG8HHN, A4RGKV4X, A4RG6GPR and A4RG576D use the identical internal printed circuit board layout, and the difference in the components population:

- A4RG576D: 5GNR FR2 mmWave related components are depopulated.
- A4RG576D: The MHB and MHB ENDC module is different from A4RG8HHN and A4RGKV4X.
- A4RG576D: Additional non-US n79 module HW is populated.

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 test 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.

Based on the RF parameter is still identical so the EBW from original model remains representative for the variant model.

Summary for power and RSE spot check for each FCC rule part is listed as below:

Test Item	Mode	A4RGKV4X Parent Worst Result	A4RG576D Variant Check Result	Difference (dB)
Conducted Power (dBm)	BT / HR2 (BR 1Mbps)	20.96	20.82	0.14
	BLE / HR4 / HR8 (BLE 2Mbps CH00)	20.80	20.74	0.06
	BLE CS GFSK (2Mbps CH38)	10.40	10.30	0.10
	BLE CS ASK_FHSS (2Mbps CH38)	10.58	10.39	0.19
	WiFi 2.4GHz (HE20 CH06 Full RU)	23.61	23.48	0.13
	WiFi 5GHz (11a CH36)	22.71	22.69	0.02
	WiFi 6GHz (11a CH49)	22.77	22.59	0.18

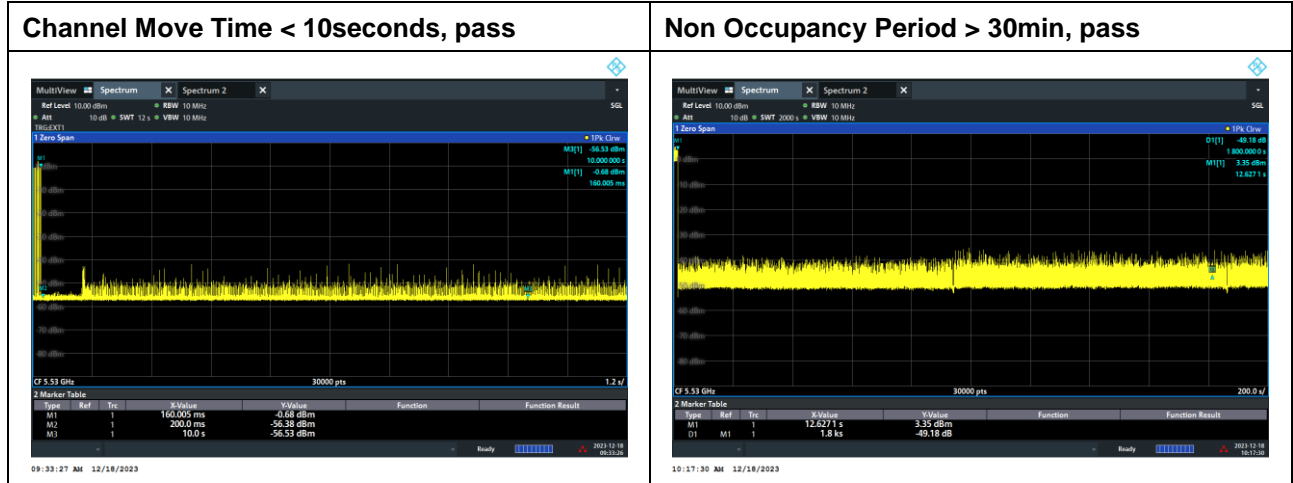
Test Item	Mode	ANT	A4RGKV4X Parent Worst Result	A4RG576D Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBuV/m)	BT / BT HR2 (BT BR 1Mbps CH78)	4	33.41	33.06	0.35
	BLE / BT HR4 / HR8 (BT HR 8Mbps CH76)	3	52.35	50.61	1.74
	BLE CS GFSK_DTS (1Mbps CH38)	4	43.04	41.06	1.98
	BLE CS ASK_FHSS (1Mbps CH38)	4	49.13	46.74	2.39
	WiFi 2.4GHz (HE20 CH01 Full RU)	3+4	72.46	71.43	1.03
	WiFi 5GHz (11a CH36)	3+4	52.30	49.90	2.40
	WiFi 6GHz (HE20 CH01 Full RU)	3+4	65.48	63.78	1.70

Note: BLE CS means BLE Channel Sounding



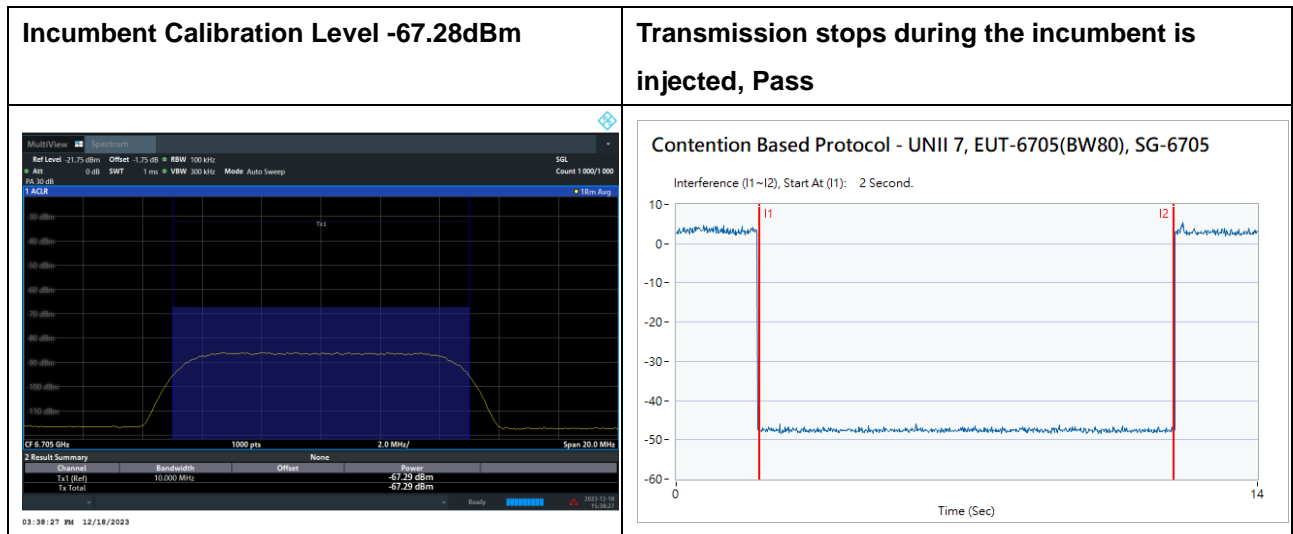
Client DFS spot check

802.11ax HE80 5530MHz



CBP worst mode spot check

802.11ax HE80 6705MHz





Test Item	Mode	A4RGKV4X Parent Worst Result	A4RG6GPR Variant Check Result	Difference (dB)
Conducted Power (dBm)	WWAN NR n12 BPSK 10MHz 25RB12 Mid	24.69	24.52	0.17
	WWAN NR n41 QPSK 100MHz 1RB1 High	26.66 (HPUE)	24.69 (non HPUE)	1.97

Test Item	Mode	ANT	A4RGKV4X Parent Worst Result	A4RG6GPR Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBm)	WWAN NR n12 10M 1RB1 BPSK Low	0	-25.90	-26.10	0.20
	WWAN NR n41 20M 1RB1 BPSK Mid	0	-39.34	-41.62	2.28



Test Item	Mode	A4RG8HHN Parent Worst Result	A4RG576D Variant Check Result	Difference (dB)
Conducted Power (dBm)	WWAN GPRS 850 Class 8 CH251	32.28	32.24	0.04
	WWAN WCDMA Band V RMC 12.2K CH4132	24.21	24.19	0.02
	WWAN LTE Band 5 5MHz 1RB12 QPSK Mid	24.21	24.20	0.01
	WWAN LTE Band 7 20MHz 1RB0 QPSK Mid	24.93	24.89	0.04
	WWAN LTE Band 41 20MHz 1RB0 QPSK Low	24.80 (non HPUE)	24.70 (non HPUE)	0.10
	WWAN NR n5 10MHz 1RB50 BPSK Mid	24.83	24.73	0.10
	WWAN NR n7 50MHz 1RB1 QPSK Mid	24.88	24.80	0.08
	WWAN NR n77 50MHz 1RB1 BPSK High	26.77 (HPUE)	24.88 (non HPUE)	1.89

Test Item	Mode	ANT	A4RG8HHN Parent Worst Result	A4RG576D Variant Check Result	Difference (dB)
Field Strength (dBuV/m)	NFC 13.56MHz	-	19.87	18.35	1.52
Radiated Spurious Emission (dBuV/m)	NFC 13.56MHz	-	30.15	29.46	0.69
Radiated Spurious Emission (dBm)	WWAN GSM 850 CH128	0	-34.63	-36.65	2.02
	WWAN GSM 850 CH251	1	-40.05	-41.01	0.96
	WWAN WCDMA Band V CH4233	0	-45.07	-47.08	2.01
	WWAN LTE Band 5 10MHz 1RB0 QPSK Low	0	-34.27	-34.85	0.58
	WWAN LTE Band 7 10MHz 1RB0 QPSK Mid	0	-43.85	-45.12	1.27
	WWAN LTE Band 41 10MHz 1RB0 QPSK High	2	-35.72	-38.39	2.67
	WWAN NR n5 10MHz 1RB1 BPSK High	1	-53.65	-54.07	0.42
	WWAN NR n7 20MHz 1RB1 BPSK High	2	-39.96	-40.25	0.29
	WWAN ENDC B5+n77 (27O mode 4) Low	5	-33.37	-33.60	0.23
	WWAN ENDC B5+n77 (27O mode 3) Low	1	-33.55	-36.04	2.49
	WWAN NR n77 HPUE 20M 1RB1 Low	6	-42.27	-44.80	2.53



Test Item	Mode	A4RG6GPR Parent Worst Result	A4RG576D Variant Check Result	Difference (dB)
Conducted Power (dBm)	WWAN GPRS 1900 Class 8 CH661	29.95	29.92	0.03
	WWAN WCDMA Band II RMC 12.2K CH9538	24.30	24.22	0.08
	WWAN WCDMA Band IV RMC 12.2K CH1513	24.71	24.42	0.29
	WWAN LTE Band 2 20MHz 1RB0 QPSK Mid	23.38	23.31	0.07
	WWAN LTE Band 66 20MHz 1RB0 QPSK Mid	23.60	23.45	0.15
	WWAN NR n2 10MHz 25RB12 BPSK High	25.20	25.18	0.02
	WWAN NR n66 5MHz 1RB1 QPSK High	25.69	25.62	0.07

Test Item	Mode	ANT	A4RG6GPR Parent Worst Result	A4RG576D Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBm)	WWAN GSM 1900 10M CH512	0	-54.94	-55.06	0.12
	WWAN WCDMA Band II 10M CH9262	2	-49.55	-50.56	1.01
	WWAN WCDMA Band IV 10M CH1312	2	-49.42	-51.94	2.52
	WWAN LTE Band 2 10MHz 1RB0 QPSK Low	2	-46.75	-48.71	1.96
	WWAN LTE Band 66 10MHz 1RB0 QPSK High	2	-45.21	-46.99	1.78
	WWAN NR n2 20MHz 1RB1 BPSK High	2	-43.95	-46.29	2.34
	WWAN NR n66 20MHz 1RB1 BPSK High	2	-43.07	-44.48	1.41

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	Rule Part & Frequency Band	Reference FCC ID (Parent)	Type Grant/ Permissive Change	Reference Exhibit	Full report referenced	FCC ID Filling (Variant)
15C	DXX	NFC	§15.255 13.56MHz	A4RG8HHN	Original Grant	G8HHN_FCC Part 15C NFC	Y	A4RG576D
15C	DSS	BT BT HR2	§15.247 2.4GHz	A4RGKV4X	Original Grant	GKV4X_FCC Part 15C BT	Y	A4RG576D
	DTS	BLE BT HR4 BT HR8	§15.247 2.4GHz	A4RGKV4X	Original Grant	GKV4X_FCC Part 15C BLE	Y	A4RG576D
	DSS	BLE CS ASK	§15.247 2.4GHz	A4RGKV4X	Original Grant	GKV4X_FCC Part 15C BLE channel sounding FHSS	Y	A4RG576D
	DTS	BLE CS GFSK	§15.247 2.4GHz	A4RGKV4X	Original Grant	GKV4X_FCC Part 15C BLE channel sounding DTS	Y	A4RG576D
	DTS	WiFi	§15.247 2.4GHz	A4RGKV4X	Original Grant	GKV4X_FCC Part 15C WLAN2.4G	Y	A4RG576D
15E	NII	WiFi	§15.407 5GHz	A4RGKV4X	Original Grant	GKV4X_FCC Part 15E WLAN UNII-1-3 GKV4X_FCC Part 15E General DFS GKV4X_FCC Part 15E P2P DFS GKV4X_FCC Part 15E UNII-4	Y	A4RG576D
	6CD	WiFi	§15.407 6GHz	A4RGKV4X	Original Grant	GKV4X_FCC Part 15E_WLAN B5-8 Indoor Client GKV4X_FCC Part 15E_WLAN B5-8 Standard Client GKV4X_FCC Part 15E Co-location	Y	A4RG576D

Note: BLE CS means BLE Channel Sounding



Rule Part	Equipment Class	Wireless Technology	Rule Part & Frequency Band	Reference FCC ID (Parent)	Type Grant/ Permissive Change	Reference Exhibit	Full report referenced	FCC ID Filling (Variant)
22, 24, 27	PCE	GSM	Part 22 GSM 850	A4RG8HHN	Original Grant	G8HHN_FCC Part 22.24.27 GSM, WCDMA	Y	A4RG576D
		GSM	Part 24 GSM 1900	A4RG6GPR	Original Grant	A4RG6GPR_FCC Part 22.24.27 GSM, WCDMA	Y	A4RG576D
		WCDMA	Part 22 Band V	A4RG8HHN	Original Grant	G8HHN_FCC Part 22.24.27 GSM, WCDMA	Y	A4RG576D
		WCDMA	Part 24, 27 Band II, IV	A4RG6GPR	Original Grant	A4RG6GPR_FCC Part 22.24.27 GSM, WCDMA	Y	A4RG576D
		LTE	Part 22/27 5/7/12/17 /38/41	A4RG8HHN	Original Grant	G8HHN_FCC Part 22.24.27.90 LTE	Y	A4RG576D
		LTE	Part 24/27 2/4/66 7C/41C	A4RG6GPR	Original Grant	G6GPR_FCC Part 22.24.27.90 LTE	Y	A4RG576D
		NR	Part 27 n12 /n38/n41	A4RGKV4X	Original Grant	GKV4X_FCC Part22.24.27.90 5G NR	Y	A4RG576D
		NR	Part 22/27 n5/n7/n77	A4RG8HHN	Original Grant	G8HHN_FCC Part 22.24.27 5G NR G8HHN_FCC Part 270 5G NR G8HHN_FCC Part 27Q 5G NR	Y	A4RG576D
		NR	Part 22/27 n2/n66	A4RG6GPR	Original Grant	G6GPR_FCC Part 22.24.27 5G NR	Y	A4RG576D

* Only references the bands listed in Rule Part & Frequency Band column



5. List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECEPEL	DTM-303A	TP201996	N/A	Nov. 07, 2023	Dec. 06, 2023	Nov. 06, 2024	Conducted (TH05-HY)
Power Sensor	DARE	RPR3006W	16I00054SNO 12 (NO:113)	10MHz~6GHz	Dec. 13, 2022	Dec. 06, 2023	Dec. 12, 2023	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101905	10Hz - 40GHz(amp)	Jul. 14, 2023	Dec. 06, 2023~ Dec. 18, 2023	Jul. 13, 2024	Conducted (TH05-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Feb. 28, 2023	Dec. 06, 2023~ Dec. 11, 2023	Feb. 27, 2024	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	37059 & 01	30MHz~1GHz	Nov. 03, 2023	Dec. 06, 2023~ Dec. 11, 2023	Nov. 02, 2024	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1241	1GHz~18GHz	Jul. 31, 2023	Dec. 06, 2023~ Dec. 11, 2023	Jul. 30, 2024	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	1224	18GHz~40GHz	Jul. 10, 2023	Dec. 06, 2023~ Dec. 11, 2023	Jul. 09, 2024	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PAM-103	161075	10MHz~1GHz	Mar. 21, 2023	Dec. 06, 2023~ Dec. 11, 2023	Mar. 20, 2024	Radiation (03CH12-HY)
Preamplifier	Agilent	8449B	3008A02375	1GHz~26.5GHz	May 23, 2023	Dec. 06, 2023~ Dec. 11, 2023	May 22, 2024	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 27, 2023	Dec. 06, 2023~ Dec. 11, 2023	Jun. 26, 2024	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Jan. 10, 2023	Dec. 06, 2023~ Dec. 11, 2023	Jan. 09, 2024	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9kHz~30MHz	Mar. 07, 2023	Dec. 06, 2023~ Dec. 11, 2023	Mar. 06, 2024	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 20, 2022	Dec. 06, 2023~ Dec. 11, 2023	Dec. 19, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Dec. 20, 2022	Dec. 06, 2023~ Dec. 11, 2023	Dec. 19, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803953/2	30MHz~40GHz	Dec. 20, 2022	Dec. 06, 2023~ Dec. 11, 2023	Dec. 19, 2023	Radiation (03CH12-HY)
Hygrometer	TECEPEL	DTM-303B	TP161250	N/A	Jul. 26, 2023	Dec. 06, 2023~ Dec. 11, 2023	Jul. 25, 2024	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Dec. 06, 2023~ Dec. 11, 2023	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Dec. 06, 2023~ Dec. 11, 2023	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Dec. 06, 2023~ Dec. 11, 2023	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8- 24	RK-000989	N/A	N/A	Dec. 06, 2023~ Dec. 11, 2023	N/A	Radiation (03CH12-HY)

—THE END—