SPOT CHECK EVALUATION

FCC ID	:	**A4RGEC77**
Equipment	:	**Phone**
Model Name	:	**GEC77 / GWVK6**
Applicant	:	**Google LLC** **1600 Amphitheatre Parkway,** **Mountain View, California, 94043 USA**
Standard	:	**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.

Louis Wu

Approved by: Louis Wu

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History of this test report

Version	Description	Issue Date
01	Initial issue of report	May 28, 2025
02	Include Appendix B	Jun. 09, 2025

1. Introduction Section

FCC ID: A4RGR83Y (Parent Device) and FCC ID: A4RGEC77 (Variant Device) 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: DXX, DCD, DSS, DTS), Part 15E (equipment class: NII, 6CD, VLP), Part 15F (equipment class: UWB), and FCC Part 22, 24, 25, 27, 90, 96 (equipment class: PCE, CBE, TNB) reuse the original model's result and do spot-check.

The spot check data in this report is used to justify the data reuse for VLP.

The applicant should take full responsibility that the test data as referenced in this report represent compliance for this FCC ID: A4RGEC77

2. Model Difference Information

A4RGR83Y and A4RGEC77 use the identical internal printed circuit board layout, and the difference in the components population:

- A4RGEC77: 5GNR FR2 mmWave related components are depopulated.
- A4RGEC77: 5GNR FR1 n79 related components are populated but SW is disabled in US.

The supported GSM/WCDMA/LTE bands are all identical between A4RGR83Y and A4RGEC77.

The supported NR FR1 band comparison table is listed as following

NR Band	A4RGR83Y	A4RGEC77
Same	n2, n5, n7, n12, n14, n25, n26, n30, n66, n71 n41 PC1.5, n77 PC1.5, n78 PC1.5	n2, n5, n7, n12, n14, n25, n26, n30, n66, n71 n41 PC1.5, n77 PC1.5, n78 PC1.5
Diff.	n48, n70	-

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	ANT	A4RGR83Y Parent Worst Result	A4RGEC77 Variant Check Result	Difference (dB)
Conducted Power (dBm)	WiFi 6GHz (EHT160 CH207 Full RU)	3+4	15.74	15.70	0.04

Test Item	Mode	ANT	A4RGR83Y Parent Worst Result	A4RGEC77 Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBuV/m)	WiFi 6GHz (EHT160 CH207 Full RU)	3+4	65.93	63.94	1.99

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. VLP TPC Spot check test result

4.1 Transmit Power Control (TPC)

4.1.1 Limit of Unwanted Emissions

<FCC 14-30 CFR 15.407>

(d)(10) Very low power devices operating in the 5.925-6.425 and 6.525-6.875 GHz bands shall employ a transmit power control (TPC) mechanism. A very low power device is required to have the capability to operate at least 6 dB below the maximum EIRP power spectral density (PSD) value of −5 dBm/MHz.

4.1.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

4.1.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section F) Maximum power spectral density.

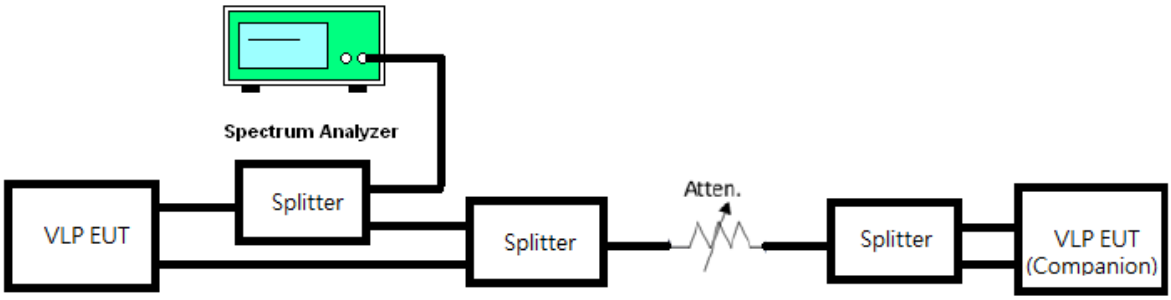
 # Method SA-2 #

(power averaging (rms) detection with max hold):

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW ≥ 3 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time ≤ (number of points in sweep) × T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
  Detector = power averaging (rms).
- Trace mode = max hold.
- Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

Measure the PPSD and record it.

4.1.4 Test Setup

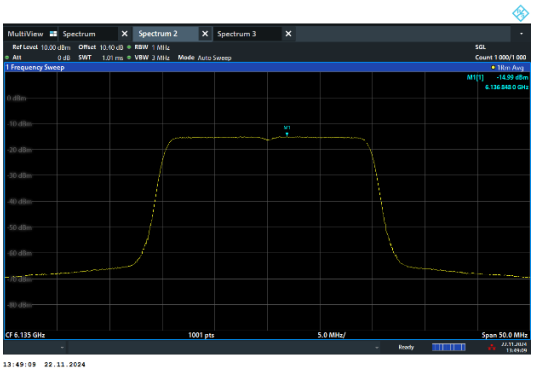
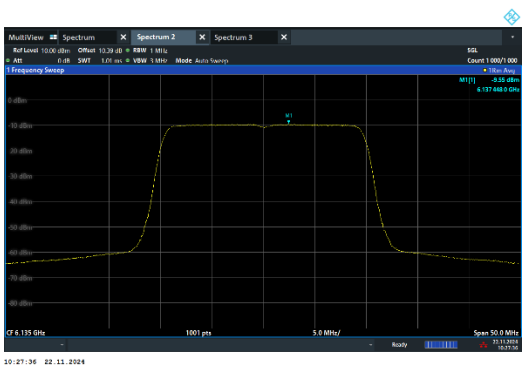


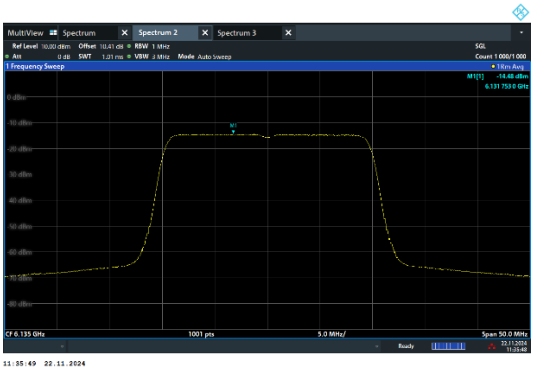
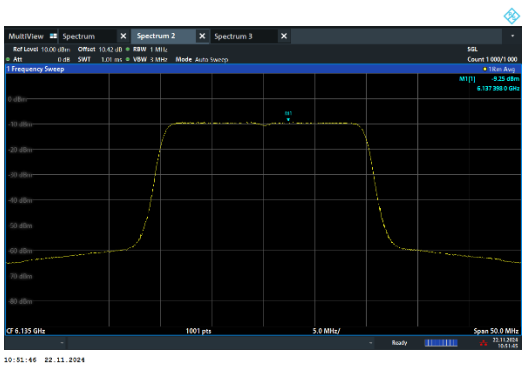
4.1.5 Test Result

The purpose of this test is to verify the relative power drop as the RSSI is increased.

If the conducted PSD delta is greater than 6dB then it ensures the EIRP PSD is at least 6 dB below the maximum EIRP power spectral density (PSD) value of −5 dBm/MHz.

UNII-5 MIMO 2TX	HE20 6135MHz	Conducted PSD Ant 3 (3+4) (dBm/MHz)	Conducted PSD Ant 4 (3+4) (dBm/MHz)	Conducted PSD Ant 3+4 (dBm/MHz)	Antenna Gain Ant 3+4 (dBi)	EIRP PSD Ant 3+4 (dBm/MHz)
Low RSSI		-9.55	-9.25	-6.39		
High RSSI		-14.99	-14.48	-11.72	-3.20	-14.92
Verdict [EIRP PSD < -11dBm/MHz]						Pass

Ant 3	
High RSSI	Low RSSI
	

Ant 4	
High RSSI	Low RSSI
	

5. 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)
15E	6VL	WiFi	§15.407 6GHz	A4RGR83Y	Original Grant	GR83Y_FCC Part 15E_WLAN B5-8 Very Low Power	Y	A4RGEC77

6. List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 12, 2023	Jan. 19, 2024~ Mar. 28, 2024	Sep. 11, 2024	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	1224	18GHz-40GHz	Jul. 10, 2023	Jan. 19, 2024~ Mar. 28, 2024	Jul. 09, 2024	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY57290111	3Hz~26.5GHz	Dec. 04, 2023	Jan. 19, 2024~ Mar. 28, 2024	Dec. 03, 2024	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N -06	47020 & 06	30MHz to 1GHz	Oct. 07, 2023	Jan. 19, 2024~ Mar. 28, 2024	Oct. 06, 2024	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02038	1G~18GHz	Jul. 31, 2023	Mar. 21, 2024~ Mar. 28, 2024	Jul. 30, 2024	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1GHz	Jul. 03, 2023	Jan. 19, 2024~ Mar. 28, 2024	Jul. 02, 2024	Radiation (03CH16-HY)
Preamplifier	EMEC	EM1G18G	060812	1GHz~18GHz	Dec. 25, 2023	Jan. 19, 2024~ Mar. 28, 2024	Dec. 24, 2024	Radiation (03CH16-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 27, 2023	Jan. 19, 2024~ Mar. 28, 2024	Jun. 26, 2024	Radiation (03CH16-HY)
Filter	Wainwright	WLK4-1000-1530-8000-40SS	SN17	1.53GHz Low Pass Filter	Jan. 15, 2024	Jan. 19, 2024~ Mar. 28, 2024	Jan. 14, 2025	Radiation (03CH16-HY)
Filter	Wainwright	WHKX8-5872.5-6750-18000-40ST	SN27	6.75GHz High Pass Filter	Nov. 13, 2023	Jan. 19, 2024~ Mar. 28, 2024	Nov. 12, 2024	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9K~30M	Mar. 07, 2023	Jan. 19, 2024~ Mar. 05, 2024	Mar. 06, 2024	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9K~30M	Mar. 06, 2024	Mar. 06, 2024~ Mar. 28, 2024	Mar. 05, 2025	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102/SUCOFLEX 104	EC-A5-300-5757,805935/4,802434/4	30MHz~18GHz	Aug. 08, 2023	Jan. 19, 2024~ Mar. 28, 2024	Aug. 07, 2024	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2,804012/2	18-40GHz	Jan. 02, 2024	Jan. 19, 2024~ Mar. 28, 2024	Jan. 01, 2025	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Jan. 19, 2024~ Mar. 28, 2024	N/A	Radiation (03CH16-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Jan. 19, 2024~ Mar. 28, 2024	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jan. 19, 2024~ Mar. 28, 2024	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jan. 19, 2024~ Mar. 28, 2024	N/A	Radiation (03CH16-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 01, 2024	Jan. 14, 2025	Oct. 30, 2025	Conducted (TH05-HY)
USB Power Sensor	DARE	RPR3008W	RPR8W-23010013 (NO:100)	10MHz~8GHz	Jul. 26, 2024	Jan. 14, 2025	Jul. 25, 2025	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV3044	101466	10HZ~44GHZ	Aug. 23, 2024	Jan. 14, 2025	Aug. 22, 2025	Conducted (TH05-HY)
Switch Control Mainframe	Burgeon	ETF-058	EC1300484 (BOX3)	N/A	May 20, 2024	Jan. 14, 2025	May 19, 2025	Conducted (TH05-HY)
Software	Sporton	BTWIFI_Final_version_240513	N/A	Conducted Other Test Item	N/A	Jan. 14, 2025	N/A	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV3013	101549	10Hz~13.6GHz	Jan. 30, 2024	Nov. 22, 2024	Jan. 29, 2025	TPC (DF02-HY)
Power Divider	MTJ	SMA 2Way Power Divider	MD10003	0.5GHz-6GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
Power Divider	MTJ	SMA 2Way Power Divider	MD10007	0.5GHz-6GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
Power Divider	MTJ	SMA 2Way Power Divider	MD10016	0.5GHz-6GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
Power Divider	MVE	MVE8546	A702438	0.5GHz-6GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
RF Cable	MTJ Cooperation	SBF405-105FLEX	MTJ-30cm-01	30 kHz~18GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
RF Cable	MTJ Cooperation	SBF405-105FLEX	MTJ-30cm-02	30 kHz~18GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
RF Cable	Woken	S05(100cm)	161202-04	30kHz~18GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
RF Cable	Woken	S05(100cm)	161202-05	30kHz~18GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
RF Cable	Woken	S05(100cm)	161202-06	30kHz~18GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
RF Cable	EC	SS405	SS405-100cm-05	30 kHz~18GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
RF Cable	EC	SS405	SS405-100cm-07	30 kHz~18GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
RF Cable	MVE	SPF141	MVE-150cm-01	30 kHz~18GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)
RF Cable	MVE	SPF141	MVE-150cm-02	30 kHz~18GHz	Calibration from System	Nov. 22, 2024	Calibration from System	TPC (DF02-HY)

————THE END————

Appendix B. Reference model reports