

TEST REPORT

Report Number : 14982479-E22V1

- Applicant : APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
 - Model : A3084 (Parent Model) A3295, A3296, A3297 (Variant Models)
 - Brand : APPLE
 - FCC ID : BCG-E8684A (Parent Model) BCG-E8685A, BCG-E8686A, BCG-E8687A (Variant Models)
- **EUT Description** : SMARTPHONE
- Test Standard(s) : FCC PART 96.47

Date Of Issue: JULY 16, 2024

Prepared by: UL VEIFICATION SERVICES INC. 47173 Benicia Street Fremont, CA 94538, U.S.A. TEL: (510) 319-4000 FAX: (510) 661-0888



REPORT NO: 14	4982479-E22V1
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Revision History

Rev.	lssue Date	Revisions	Revised By
V1	7/16/2024	Initial Issue	Steven Tran

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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	A3084 (Parent Model) A3295, A3296, A3297 (Variant Models)
Brand	APPLE
FCC ID	BCG-E8684A (Parent Model) BCG-E8685A, BCG-E8686A, BCG-E8687A (Variant Models)
EUT Description	SMARTPHONE
Serial Number	J6G0HWXCQ6
Sample Receipt Date	6/17/2024
Date Tested	6/18/2024
Applicable Standards	FCC Title 47 CFR PART 96.47
Test Results	COMPLIES

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document.

Approved & Released By: Tested By: Stevention Thu Chan Steven Tran Staff Engineer **Project Engineer** UL Verification Services Inc. UL Verification Services Inc.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC Part 96.47, KDB 940660 D01 Part 96 CBRS Eqpt v03 and WINNF-TS-0122-v1.0.2.

3. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA			
\boxtimes	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
	Building 3: 843 Auburn Court, Fremont, CA 94538 USA			
	Building 4: 47658 Kato Rd, Fremont, CA 94538 USA			
	Building 5: 47670 Kato Rd, Fremont, CA 94538 USA			

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4. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

4.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U _{Lab}
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB

Uncertainty figures are valid to a confidence level of 95%.

4.4. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

5.2. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List								
Description	Manufacturer	Model	Serial Number	FCC ID				
aptop and AC/DC adapte	Lenovo	20NYS1GL00	MJ0C6F8E	-				

I/O CABLES

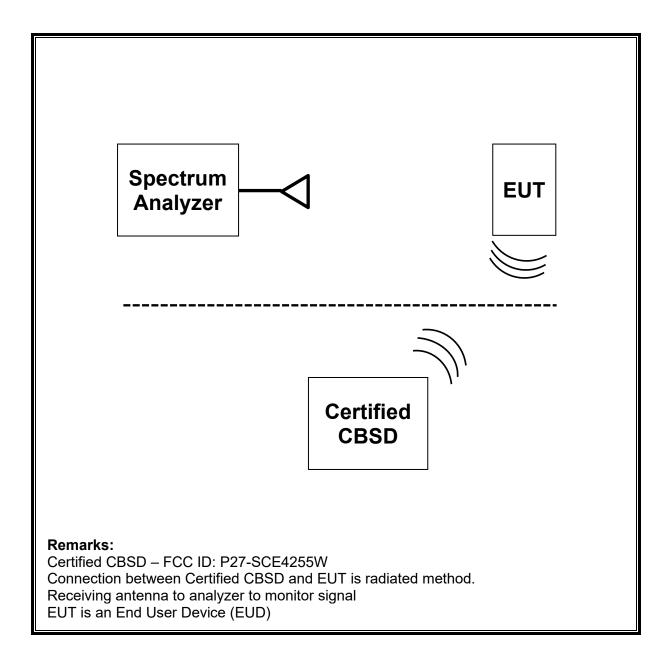
	I/O Cable List											
Cable No	Port	# of identical Connector ports Type		Cable Type	Cable Length (m)	Remarks						
1	AC	1	AC	Un-Shielded	1	N/A						
3	RJ45	3	Ethernet	Un-Shielded	1	N/A						
2	RF Port	2	SMA	Shielded	0.5	N/A						

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TEST SETUP

The standalone EUT connected to a certified CBSD and Spectrum Analyzer via air and an RF cable respectively.

SETUP DIAGRAM OF TEST SYSTEM



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List											
Description Manufacturer Model ID Num Ca											
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030B	248453	05/03/2025							
Mount Antenna	Wilson Amplifiers	301126	-	-							
Mosolabs Englewood B48 LTE AP	Mosolabs	SCE4255W	2206CW6000010	-							

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7. END USER DEVICE ADDITIONAL REQUIREMENT

7.1. TEST REQUIREMENT

FCC Part 96.47

- (a) End User Devices may operate only if they can positively receive and decode an authorization signal transmitted by a CBSD, including the frequencies and power limits for their operation.
- (1) An End User Device must discontinue operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD.

8. TEST PROCEDURE AND EUT CONFIGURATION

KDB 940660 D01 Part 96 CBRS v03, WINNF-TS-0122 V1.0.2

Additional requirements are required to End-User Device n48 device base on CBSD protocol. During the test, the EUT and its companion certified CBSD (FCC ID: P27-SCE4255W) device communicate with each other via air. Plots are captured and measurements are done over the air, in which the path loss is not accounted for the correction of the output power.

Configuration	Frequency (MHz)	Power (dBm/MHz)	Bandwidth (MHz)
1	3670	15	20
2	3690	10	20

Configuration 1

- a) Setup CBSD with 3670MHz and power level 15 dBm/MHz
- b) Enable B48 service from CBSD admin control panel
- c) Check EUT Transmitter Frequency and power
- d) Disable B48 service from CBSD admin control panel and check EUT stop transmission within 10s.

Configuration 2

- a) Enable B48 service on radio admin control panel, so that the frequency 3690MHz and power level 10 dBm/MHz come up automatically.
- b) Check EUT Transmitter Frequency and power
- c) Disable B48 service from CBSD admin control panel and check EUT stop transmission within 10s.

TEST RESULTS

8.1. END USER DEVICE CONFIGURATION 1 (3670MHz; MaxEIRP: 15 dBm/MHz)

Spectrum Analyzer 1 Channel Power	/ +						\mathbf{Q}	Frequency	/ ▼[€]
KEYSIGHT Input: RF Coupling: AC Align: Auto	Input Ζ: 50 Ω Freq Ref: Int (S) NFE: Adaptive	Atten: 10 dB µW Path: Standard #PNO: Fast	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: Avg Hold:>10 Radio Std: N	0/10) GHz		Frequency 000000 GHz	Settings
NI 1 Graph V	INFL. Adaptive						Span 25.00) MHz	
cale/Div 10.0 dB		Ref Value 0.00 dE	sm		,		CF Ste	р]
10.0							8.000	000 MHz	1
20.0								uto an	
	Mener hand marker	where a hornor where	May and marker	mantana	www.may		Freq O	ffset	
50.0							0 Hz		L
60.0					<u> </u>				
70.0					\u	nother and the			
80.0						Lin Anna a serificata dese			
-90.0									
Center 3.67000 GHz Res BW 240.00 kHz		Video BW 2.4000 N	IHz*	Swe		oan 25 MHz 3 (1001 pts)			
2 Metrics									
Total Channel Power	-20.16 dBm / 20	.0 MHz							
Total Power Spectral De	nsity -93.17 d	Bm/Hz							
	? Jun 18, 2024 11:50:30 AM								
		<u> </u>	peration I						_

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REPORT	NO: 1	4982	479-E	22V1									DATE: 7	/16/	2024
Spectrum Anal Swept SA	lyzer 1	•	+									₽	Frequency	v	; ;;
	T Input: Rf Coupling Align: Au	g: AC		2: 50 Ω Ref: Int (S) Adaptive	Atten: 10 dB µW Path: Star	ndard	PNO: Fast Gate: Off IF Gain: Lov Sig Track: C	w	#Avg Type: Po Trig: Free Rui	ower (RMS n	1 2 3 4 5 6		er Frequency 0000000 GHz	Settir	ngs
1 Spectrum		•									10.00 s	0.00	000000 Hz		
Scale/Div 10	dB				Ref Level 0.0)0 dB	im.				41.90 dB	· · ·	Swept Span		
-10.0						<u> </u>							Zero Span		
-20.0				<u> </u>	- <u> </u>								Full Span		
-30.0	- X ₂	$\neg +$				_						Start	Freq		
-50.0												3.670	0000000 GHz		
-60.0		614	12			3/	Δ4					Stop I	•		
-80.0					+	-					<u> </u>	3.670	0000000 GHz		
-90.0													AUTO TUNE		
Center 3.6700 Res BW 8 MH		HZ			#Video BW 5	-0 MH	iz*		Sv	veep 25.0 :	Span 0 Hz s (1001 pts)		tep		
5 Marker Table		•											0000 MHz		
Mode	Trace	Scale		x	Y		Function	Fun	ction Width	Functio	on Value		Auto Man		
1 Δ2 2 F	1	t	(Δ)	1.475 s 2.900 s								Freq	Offset		
<u>3</u> Δ4	1	t	(Δ)	10.00 s	(Δ) -41.90 d	dB		<u>+</u>				0 Hz			
4 F 5	1	t		2.900 s	-35.46 dB	m		+					s Scale		
6													Log Lin		
1 5	C			18, 2024 9:21 PM									al Track Zoom)		
				Sto	op Opera	atic	on With	າin 1	0 seco	nd Mo	ode				
NOTE:															
Marker 1: /															
Marker 2:	I ime e	lapse	d since	; signal †	to stop B4	8 tra	ansmissi	ion. E	UD has s	stopped	transmiss	sion.			

Marker 3-4 Delta: 10 seconds has elapsed since CBSD has sent a signal to stop B48 transmission to EUT.

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8.2. END USER DEVICE CONFIGURATION 2 (3690MHz; MaxEIRP: 10 dBm/MHz)

	trum Analyzer 1 nel Power	+						$\mathbf{\dot{\mathbf{v}}}$	Frequency	/
KEYSIGHT Input: RF Input Z: 50 Ω Coupling: AC Align: Auto Freq Ref: Int (S) INV NFE: Adaptive			Atten: 10 dB µW Path: Standard #PNO: Fast	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 3.690000000 GHz Avg Hold:>10/10 Radio Std: None			Center Frequency 3.69000000 GHz		Settings
LXI 1 Gra		INFE. Adaptive	Ref Value 0.00 dB					Span 25.000	MHz	
Log			Ref value 0.00 dB	<u>im</u>				CF Step	o 00 MHz	
-10.0 -20.0							[Aut	to	
-30.0 -40.0 -50.0	Ayalm	Marthurstanter Marthal	Myannahannahan	un war war war	war want of the	efore some men		Freq Of 0 Hz	fset	
-60.0 -70.0						- h	, who may			
-80.0 -90.0										
	Center 3.69000 GHz Video BW 2.4000 MHz* Span 25 MHz Res BW 240.00 kHz Sweep 1.00 ms (1001 pts)									
2 Met	trics v									
To	otal Channel Power	-24.42 dBm / 20.0) MHz							
Т	otal Power Spectral Dens	sity -97.43 df	3m/Hz							
			-							
		? Jun 18, 2024 2:20:19 PM					X X X X			
			<u>0</u>	peration	<u>Mode</u>					

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			Sto	p Operat	ion With	nin 10 seco	nd Mode					
NOTE:												
Marker 1: Authorized CBSD sends a signal to stop B48 transmission.												
Marker 2: Time elapsed since signal to stop B48 transmission. EUD h												
Spectrum Anal Swept SA	yzer 1	+						Freque	ncy v			
KEYSIGHT Input: RF		Input Z: 50 Ω		Atten: 10 dB	PNO: Fast	#Avg Type: Po		Center Frequency	Settings			
•••	Coupling: AC Align: Auto		Ref: Int (S)	µW Path: Standa	rd Gate: Off IF Gain: Low	Trig: Free Rur	₩₩₩₩₩	3.69000000 GHz	Settings			
L)A		NFE: Adaptive			Sig Track: O	ff	NNNN	Span				
1 Spectrum	ΔMkr3 10.0					ΔMkr3 10.00 s	0.00000000 Hz					
Scale/Div 10	dB			Ref Level 0.00	dBm		-29.93 dB	Swept Span				
-10.0								Zero Span				
-20.0								Full Span				
-30.0												
-40.0			X ₂					Start Freq 3.69000000 GHz				
-60.0									_			
-70.0				1∆2		∳3∆4		Stop Freq				
-80.0								3.69000000 GHz				
-90.0								AUTO TUNE				
Center 3.6900 Res BW 8 MH				#Video BW 50 I	VHz*	Su	Span 0 Hz (eep 25.0 s (1001 pts)					
5 Marker Table							1001 pt3/	8.000000 MHz				
								Auto				
Mode	Trace Sca		Х	Y	Function	Function Width	Function Value	Man Man				
1 Δ2 2 F	1 t 1 t	(Δ)	2.275 s 7.900 s					Freq Offset				
<u>3</u> Δ4	1 t	(Δ)	10.00 s	(Δ) -29.93 dB				0 Hz				
4 F 5	1 t		7.900 s	-45.89 dBm				X Axis Scale				
6								Log				
			n 18, 2024 🔽									
		2:4	49:28 PM					Signal Track (Span Zoom)				
as stopped Marker 3-4			ds has ela	apsed since	CBSD has	sent a signal	to stop B48 tran	smission to EU	T.			
						0	•					

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9. SETUP PHOTOS

Please refer to 14982479-EP1V1 for setup photos

END OF REPORT

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