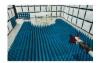


Element Washington DC LLC

18855 Adams Court, Morgan Hill, CA 95037 USA Tel. 410.290.6652 / Fax 410.290.6654 http://www.element.com



PART 27 MEASUREMENT REPORT

Applicant	Name:
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Apple Inc. One Apple Park Way Cupertino, CA 95014 United States Date of Testing: 7/3/2022 - 9/15/2022 Test Site/Location: Element Washington DC LLC Lab Morgan Hill, CA, USA Test Report Serial No.: 1C2205090023-04-R2.BCG

FCC ID:	BCGA2757
Applicant Name:	Apple Inc.
Application Type:	Certification
Model:	A2757(A2777)
EUT Type:	Tablet Device
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part:	27
Test Procedure(s):	ANSI C63.26-2015, TIA-603-E-2016, KDB 971168 D01 v03r01

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

This revised Test Report (S/N: 1C2205090023-04-R2.BCG) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

RJ Ortanez Executive Vice President



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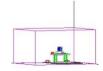


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				EIRP			
Mode	Bandwidth	Modulation	Tx Frequency	OBW [MHz]	Max. Power	Max. Power	Emission Designator
	Bandwidth	inculation	Range [MHz]	0.517 [11112]	[W]	[dBm]	
		QPSK	2307.5 - 2312.5	4.5590	0.196	22.92	4M56G7W
LTE Band 30	5 MHz	16QAM	2307.5 - 2312.5	4.5228	0.168	22.26	4M52D7W
		64QAM	2307.5 - 2312.5	4.5346	0.134	21.26	4M53D7W
		256QAM	2307.5 - 2312.5	4.5291	0.068	18.33	4M53D7W
		QPSK	2310	9.0292	0.200	23.00	9M03G7W
	10MHz	16QAM	2310	9.0089	0.173	22.39	9M01D7W
	10IVII IZ	64QAM	2310	8.9921	0.146	21.65	8M99D7W
		256QAM	2310	8.9932	0.073	18.64	8M99D7W
		QPSK	2502.5 - 2567.5	4.5699	0.585	27.67	4M57G7W
	5 MHz	16QAM	2502.5 - 2567.5	4.5211	0.504	27.02	4M52D7W
	0.111.12	64QAM	2502.5 - 2567.5	4.5482	0.405	26.07	4M55D7W
		256QAM	2502.5 - 2567.5	4.5312	0.202	23.06	4M53D7W
		QPSK	2505 - 2565	9.0184	0.575	27.60	9M02G7W
	10 MHz	16QAM	2505 - 2565	9.0283	0.497	26.96	9M03D7W
		64QAM	2505 - 2565	8.9977	0.424	26.27	9M00D7W
LTE Band 7		256QAM	2505 - 2565	8.9940	0.213	23.29	8M99D7W
		QPSK	2507.5 - 2562.5	13.5217	0.600	27.78	13M5G7W
	15 MHz	16QAM	2507.5 - 2562.5	13.5235	0.509	27.07	13M5D7W
	10 111 12	64QAM	2507.5 - 2562.5	13.4779	0.437	26.40	13M5D7W
		256QAM	2507.5 - 2562.5	13.5121	0.214	23.30	13M5D7W
		QPSK	2510 - 2560	18.0153	0.603	27.80	18M0G7W
	20 MHz	16QAM	2510 - 2560	18.0091	0.502	27.01	18M0D7W
	20 11112	64QAM	2510 - 2560	18.0571	0.439	26.42	18M1D7W
		256QAM	2510 - 2560	18.0190	0.207	23.15	18M0D7W
	5 MHz	QPSK	2498.5 - 2687.5	4.5281	1.047	30.20	4M53G7W
		16QAM	2498.5 - 2687.5	4.5076	0.975	29.89	4M51D7W
	3 IVIE12	64QAM	2498.5 - 2687.5	4.5172	0.899	29.54	4M52D7W
		256QAM	2498.5 - 2687.5	4.5275	0.424	26.27	4M53D7W
		QPSK	2501 - 2685	9.0341	1.047	30.20	9M03G7W
	10 MHz	16QAM	2501 - 2685	8.9952	0.959	29.82	9M00D7W
		64QAM	2501 - 2685	8.9897	0.723	28.59	8M99D7W
LTE Band 41 (PC2)		256QAM	2501 - 2685	9.0353	0.378	25.77	9M04D7W
LTE Ballu 41 (FG2)		QPSK	2503.5 - 2682.5	13.4727	1.047	30.20	13M5G7W
	15 MHz	16QAM	2503.5 - 2682.5	13.5072	0.927	29.67	13M5D7W
		64QAM	2503.5 - 2682.5	13.4843	0.708	28.50	13M5D7W
		256QAM	2503.5 - 2682.5	13.5202	0.376	25.75	13M5D7W
		QPSK	2506 - 2680	17.9722	1.047	30.20	18M0G7W
		16QAM	2506 - 2680	17.9383	0.935	29.71	17M9D7W
	20 MHz	64QAM	2506 - 2680	17.9423	0.769	28.86	17M9D7W
		256QAM	2506 - 2680	18.0028	0.429	26.32	18M0D7W
		QPSK	2498.5 - 2687.5	4.5281	0.723	28.59	4M53G7W
	5 N# 1-	16QAM	2498.5 - 2687.5	4.5076	0.571	27.57	4M51D7W
	5 MHz	64QAM	2498.5 - 2687.5	4.5172	0.490	26.90	4M52D7W
		256QAM	2498.5 - 2687.5	4.5275	0.240	23.80	4M53D7W
		QPSK	2501 - 2685	9.0341	0.731	28.64	9M03G7W
		16QAM	2501 - 2685	8.9952	0.603	27.80	9M00D7W
	10 MHz	64QAM	2501 - 2685	8.9897	0.454	26.57	8M99D7W
LTE Dead 44(DOO)		256QAM	2501 - 2685	9.0353	0.233	23.68	9M04D7W
LTE Band 41(PC3)		QPSK	2503.5 - 2682.5	13.4727	0.708	28.50	13M5G7W
	15.141	16QAM	2503.5 - 2682.5	13.5072	0.581	27.64	13M5D7W
	15 MHz	64QAM	2503.5 - 2682.5	13.4843	0.443	26.46	13M5D7W
		256QAM	2503.5 - 2682.5	13.5202	0.231	23.63	13M5D7W
		QPSK	2506 - 2680	17.9722	0.700	28.45	18M0G7W
		16QAM	2506 - 2680	17.9383	0.592	27.72	17M9D7W
	20 MHz	64QAM	2506 - 2680	17.9423	0.448	26.51	17M9D7W
		256QAM	2506 - 2680	18.0028	0.256	24.08	18M0D7W

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					EIRP			
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	Max. Power [W]	Max. Power [dBm]	Emission Designator	
		QPSK	2510 - 2560	37.4625	0.583	27.66	37M5G7W	
ULCA LTE Band 7	20 + 20 MHz	16QAM	2510 - 2560	37.4999	0.299	24.76	37M5D7W	
	201 2010112	64QAM	2510 - 2560	37.4318	0.295	24.70	37M4D7W	
		256QAM	2510 - 2560	37.4493	0.191	22.81	37M4D7W	
		QPSK	2506 - 2680	37.5116	1.119	30.49	37M5G7W	
JLCA LTE Band 41(PC2)	20 + 20 MHz	16QAM	2506 - 2680	37.5249	0.578	27.62	37M5D7W	
		64QAM	2506 - 2680	37.4708	0.569	27.55	37M5D7W	
		256QAM	2506 - 2680	37.4930	0.358	25.54	37M5D7W	
		QPSK 16QAM	2506 - 2680 2506 - 2680	37.5116 37.5249	0.741 0.377	28.70 25.76	37M5G7W 37M5D7W	
ULCA LTE Band 41(PC3)	20 + 20 MHz	64QAM	2506 - 2680	37.3249	0.377	25.77	37M5D7W	
		256QAM	2506 - 2680	37.4708	0.237	23.75	37M5D7W	
		T/2 BPSK	2307.5 - 2312.5	4.5069	0.237	23.75	4M51G7W	
		QPSK	2307.5 - 2312.5	4.5291	0.169	22.36	4M53G7W	
	5 MHz	16QAM	2307.5 - 2312.5	4.5291	0.172	22.30	4M52D7W	
	5 10112	64QAM	2307.5 - 2312.5	4.5136	0.099	19.97	4M51D7W	
		256QAM	2307.5 - 2312.5	4.5088	0.099	17.81	4M51D7W	
NR Band n30		π/2 BPSK	2307.5 - 2312.5	9.0013	0.060	22.28	9M00G7W	
		QPSK	2310	9.3186	0.169	22.28	9M00G7W 9M32G7W	
	10MHz	16QAM	2310	9.3400	0.171	21.53	9M32G7W	
	TOWINE	64QAM	2310	9.3347	0.106	20.24	9M33D7W	
		256QAM	2310	9.3192	0.061	17.88	9M32D7W	
		π/2 BPSK	2502.5 - 2567.5	4.5062	0.610	27.85	4M51G7W	
	5 MHz	QPSK	2502.5 - 2567.5	4.5155	0.617	27.90	4M52G7W	
		16QAM	2502.5 - 2567.5	4.5336	0.475	26.77	4M53D7W	
		64QAM	2502.5 - 2567.5	4.5001	0.356	25.52	4M50D7W	
		256QAM	2502.5 - 2567.5	4.5356	0.330	23.27	4M54D7W	
		π/2 BPSK	2505 - 2565	9.0086	0.612	27.87	9M01G7W	
		QPSK	2505 - 2565	9.3429	0.617	27.90	9M34G7W	
	10MHz	16QAM	2505 - 2565	9.3347	0.507	27.05	9M33D7W	
	1010112	64QAM	2505 - 2565	9.3700	0.346	25.39	9M37D7W	
		256QAM	2505 - 2565	9.3312	0.340	23.46	9M37D7W	
		π/2 BPSK	2507.5 - 2562.5	13.4818	0.616	27.90	13M5G7W	
	15 MHz	QPSK	2507.5 - 2562.5	14.2247	0.617	27.90	14M2G7W	
		16QAM	2507.5 - 2562.5	14.1859	0.486	26.86	14M2D7W	
		64QAM	2507.5 - 2562.5	14.2158	0.344	25.36	14M2D7W	
		256QAM	2507.5 - 2562.5	14.1488	0.215	23.33	14M1D7W	
		π/2 BPSK	2510 - 2560	17.9839	0.597	27.76	18M0G7W	
	0.01	QPSK	2510 - 2560	19.0360	0.605	27.82	19M0G7W	
NR Band n7	20MHz	16QAM	2510 - 2560	19.0418	0.510	27.08	19M0D7W	
		64QAM	2510 - 2560	19.1149	0.359	25.55	19M1D7W	
		256QAM	2510 - 2560	19.0258	0.218	23.39	19M0D7W	
		π/2 BPSK	2512.5 - 2557.5	23.0118	0.617	27.90	23M0G7W	
		QPSK	2512.5 - 2557.5	23.8813	0.615	27.89	23M9G7W	
	25MHz	16QAM	2512.5 - 2557.5	23.9120	0.518	27.14	23M9D7W	
		64QAM	2512.5 - 2557.5	23.9363	0.359	25.55	23M9D7W	
		256QAM	2512.5 - 2557.5	23.9292	0.219	23.41	23M9D7W	
		π/2 BPSK	2515 - 2555	28.7204	0.617	27.90	28M7G7W	
		QPSK	2515 - 2555	28.8309	0.597	27.76	28M8G7W	
	30MHz	16QAM	2515 - 2555	28.6524	0.486	26.87	28M7D7W	
		64QAM	2515 - 2555	28.7694	0.348	25.42	28M8D7W	
		256QAM	2515 - 2555	28.7902	0.208	23.19	28M8D7W	
		π/2 BPSK	2520 - 2550	38.7742	0.597	27.76	38M8G7W	
		QPSK	2520 - 2550	38.8563	0.611	27.86	38M9G7W	
	40MHz	16QAM	2520 - 2550	38.7042	0.545	27.36	38M7D7W	
		64QAM	2520 - 2550	38.5853	0.343	25.67	38M6D7W	
		256QAM	2520 - 2550	38.7149			38M7D7W	
					0.227	23.56	301070710	

EUT Overview

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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				EIRP			
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	Max. Power [W]	Max. Power [dBm]	Emission Designato
		π/2 BPSK	2506 - 2680	17.9565	1.170	30.68	18M0G7V
	20 MHz	QPSK 16QAM	2506 - 2680 2506 - 2680	18.3274 18.3750	1.175 0.975	30.70 29.89	18M3G7V 18M4D7V
	20 10112	64QAM	2506 - 2680	18.3650	0.665	28.23	18M4D7V
		256QAM	2506 - 2680	18.3076	0.459	26.62	18M3D7V
		π/2 BPSK	2511 - 2675	26.9486	1.175	30.70	26M9G7V
		QPSK	2511 - 2675	28.0415	1.169	30.68	28M0G7V
	30MHz	16QAM	2511 - 2675	27.9597	1.036	30.15	28M0D7V
		64QAM	2511 - 2675	28.0300	0.708	28.50	28M0D7V
		256QAM	2511 - 2675	27.8920	0.478	26.80	27M9D7V
		π/2 BPSK QPSK	2516 - 2670 2516 - 2670	35.8869 37.9918	1.175 1.123	30.70 30.50	35M9G7V 38M0G7V
	40 MHz	16QAM	2516 - 2670	38.0445	0.954	29.80	38M0D7\
		64QAM	2516 - 2670	38.0087	0.718	28.56	38M0D7\
		256QAM	2516 - 2670	38.0232	0.459	26.62	38M0D7\
		π/2 BPSK	2521 - 2665	46.0849	1.175	30.70	46M1G7
		QPSK	2521 - 2665	47.7266	1.166	30.67	47M7G7\
	50 MHz	16QAM	2521 - 2665	47.8293	0.981	29.92	47M8D7\
		64QAM	2521 - 2665	47.8024	0.694	28.42	47M8D7
NR Band n41 (PC2)		256QAM	2521 - 2665	47.7986	0.456	26.59	47M8D7
		π/2 BPSK QPSK	2526 - 2660 2526 - 2660	58.2317 58.2557	1.175 1.170	30.70 30.68	58M2G7 58M3G7
	60 MHz	16QAM	2526 - 2660	58.4034	0.924	29.66	58M4D7
		64QAM	2526 - 2660	58.3147	0.691	28.40	58M3D7
		256QAM	2526 - 2660	58.4268	0.450	26.54	58M4D7
		π/2 BPSK	2536 - 2650	77.7346	1.161	30.65	77M7G7
		QPSK	2536 - 2650	78.0890	1.175	30.70	78M1G7
	80 MHz	16QAM	2536 - 2650	77.9217	0.959	29.82	77M9D7
		64QAM 256QAM	2536 - 2650 2536 - 2650	78.2337 77.8962	0.697	28.43 26.53	78M2D7 77M9D7
		T/2 BPSK	2536 - 2650	87.5568	1.175	30.70	87M6G7
		QPSK	2541 - 2645	88.3019	1.159	30.64	88M3G7
	90 MHz	16QAM	2541 - 2645	88.1932	0.927	29.67	88M2D7
		64QAM	2541 - 2645	88.2167	0.674	28.29	88M2D7
		256QAM	2541 - 2645	88.2143	0.445	26.49	88M2D7
		π/2 BPSK	2546 - 2640	97.0827	1.175	30.70	97M1G7
		QPSK	2546 - 2640	98.2083	1.166	30.67	98M2G7
	100 MHz	16QAM	2546 - 2640	98.3032	0.942	29.74	98M3D7
		64QAM 256QAM	2546 - 2640 2546 - 2640	98.3878 98.0820	0.670	28.26 26.34	98M4D7 98M1D7
		T/2 BPSK	2506 - 2680	17.9565	0.741	28.70	18M0G7
		QPSK	2506 - 2680	18.3274	0.739	28.69	18M3G7
	20 MHz	16QAM	2506 - 2680	18.3750	0.631	28.00	18M4D7
		64QAM	2506 - 2680	18.3650	0.433	26.36	18M4D7
		256QAM	2506 - 2680	18.3076	0.284	24.53	18M3D7
		π/2 BPSK	2511 - 2675	26.9486	0.741	28.70	26M9G7
	00141	QPSK	2511 - 2675	28.0415	0.738	28.68	28M0G7
	30MHz	16QAM	2511 - 2675	27.9597	0.597	27.76	28M0D7
		64QAM 256QAM	2511 - 2675 2511 - 2675	28.0300 27.8920	0.409 0.269	26.12 24.29	28M0D7 27M9D7
		π/2 BPSK	2516 - 2670	35.8869	0.269	24.29	35M9G7
		QPSK	2516 - 2670	37.9918	0.724	28.60	38M0G7
	40 MHz	16QAM	2516 - 2670	38.0445	0.601	27.79	38M0D7
		64QAM	2516 - 2670	38.0087	0.425	26.28	38M0D7
		256QAM	2516 - 2670	38.0232	0.277	24.43	38M0D7
		T/2 BPSK	2521 - 2665	46.0849	0.741	28.70	46M1G7
	50 MU-	QPSK 1604M	2521 - 2665	47.7266	0.734	28.66	47M7G7
	50 MHz	16QAM 64QAM	2521 - 2665 2521 - 2665	47.8293 47.8024	0.606	27.83 26.33	47M8D7 47M8D7
		256QAM	2521 - 2665	47.7986	0.429	24.42	47M8D7
NR Band n41 (PC3)		π/2 BPSK	2526 - 2660	58.2317	0.741	28.70	58M2G7
		QPSK	2526 - 2660	58.2557	0.729	28.63	58M3G7
	60 MHz	16QAM	2526 - 2660	58.4034	0.614	27.88	58M4D7
		64QAM	2526 - 2660	58.3147	0.460	26.63	58M3D7
		256QAM	2526 - 2660	58.4268	0.280	24.47	58M4D7
		TT/2 BPSK	2536 - 2650	77.7346	0.732	28.64	77M7G7
	90 MIL-	QPSK 1604M	2536 - 2650	78.0890	0.741	28.70	78M1G7
	80 MHz	16QAM 64QAM	2536 - 2650 2536 - 2650	77.9217 78.2337	0.597 0.415	27.76 26.18	77M9D7 78M2D7
		256QAM	2536 - 2650	77.8962	0.415	24.35	77M9D7
		π/2 BPSK	2541 - 2645	87.5568	0.732	28.64	87M6G7
		QPSK	2541 - 2645	88.3019	0.741	28.70	88M3G7
	90 MHz	16QAM	2541 - 2645	88.1932	0.640	28.06	88M2D7
		64QAM	2541 - 2645	88.2167	0.445	26.48	88M2D7
		256QAM	2541 - 2645	88.2143	0.276	24.42	88M2D7
		π/2 BPSK	2546 - 2640	97.0827	0.740	28.69	97M1G7
		QPSK	2546 - 2640	98.2083	0.741	28.70	98M2G7
	100 MHz	16QAM	2546 - 2640	98.3032	0.616	27.90	98M3D7
		64QAM 256QAM	2546 - 2640	98.3878 98.0820	0.419	26.22 24.52	98M4D7\ 98M1D7\
		2000/10	2546 - 2640	30.0620	0.283	24.02	301/11/17

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 Element Washington DC LLC Test Location

These measurement tests were conducted at the Element facility located at 18855 Adams Court, Morgan Hill, CA 95037. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

1.3 Test Facility / Accreditations

Measurements were performed at Element Washington DC LLC located in Morgan Hill, CA 95037, U.S.A.

- Element Washington DC LLC is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.02 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- Element Washington DC LLC TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- Element Washington DC LLC facility is a registered (22831) test laboratory with the site description on file with ISED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Apple Tablet Device FCC ID:BCGA2757**. The test data contained in this report pertains only to the emissions due to the EUT's licensed transmitters that operate under the provisions of Part 27.

Test Device Serial No.: YG6YDYXRKQ, F32YWYM00Y, DLX216700E11KXN1M

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 WCDMA/HSPA, Multi-band LTE, 5G NR (FR1), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE1M, LE2M, HDR4, HDR8)

This device supports BT Beamforming

Measurements for LTE-Band41/n41 and ULCA CA_41C were performed with NS04 for all antenna ports.

This device supports simultaneous transmission operations, which allows for multiple transmitters to transmit simultaneously on the same antenna. The table below shows all configurations possible.

		WiFi 2.4GHz	Bluetooth	WiFi 5GHz	WC	DMA / LTE / FR1	l NR
Antenna	Simultaneous Tx Config	802.11 b/g/n/ax	BDR, EDR, HDR4/8, LE1/2M	802.11 a/n/ac/ax	Mid Band	High Band	Ultra High Band
3a	Config 1	×	✓	✓	×	×	×
3a	Config 2	✓	*	×	\checkmark	×	×
3a	Config 3	✓	×	×	×	\checkmark	×
3a	Config 4	×	~	~	✓	×	×
3a	Config 5	×	~	~	×	~	×
1b	Config 6	×	×	\checkmark	✓	×	×
1b	Config 7	×	×	✓	×	✓	×
1a	Config 8	✓	×	×	×	×	\checkmark
1a	Config 9	×	\checkmark	×	×	×	\checkmark

Table 2-1. Simultaneous Transmission Configurations

 \checkmark = Support; * = Not Support

Note:

 Wi-Fi 2.4GHz and Bluetooth 2.4 GHz can transmit simultaneously on separate antennas. Specific 2.4GHz Wi-Fi antenna that can only transmit simultaneously with 2.4 GHz Bluetooth antenna is listed in the SAR test report. For BT (2.4 GHz) in connected mode and Wi-Fi (2.4 GHz) – Wi-Fi max power will not exceed minimum of (13.5dBm, SAR max cap, Reg max cap) power. For BT (2.4 GHz) in disconnected mode and Wi-Fi (2.4 GHz) – BT will be using iPA only and Wi-Fi max power will not exceed minimum of (SAR max cap, Reg max cap) power.

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2.3 Antenna Description

Band			Antenna 3a	Antenna 1b	
LTE Band 30	1.2	-1.6	0.8	-4.5	
LTE Band n30	1.2	-1.0	0.0	-4.5	
LTE Band 7	2.2	-0.9	3.0	-4.4	
LTE Band n7	2.2	-0.9	3.0	-4.4	
LTE Band 41	3.0	-0.9	2.8	-3.9	
LTE Band n41	3.0	-0.9	2.0	-3.9	

Following antenna gains provided by manufacturer were used for testing.

Table 2-	2. Highest	Antenna	Gain
	2. 111911030	Antonna	Guill

2.4 Test Support Equipment

		· ·	•	
1	Apple MacBook Pro	Model: A2141	S/N:	C02DV7VKMD6T
	w/AC/DC Adapter	Model: A2166	S/N:	N/A
2	Apple USB-C Cable	Model: Spartan	S/N:	000MKTR02U
3	USB-C Cable	Model: A246	S/N:	N/A
	w/ AC Adapter	Model: A2305	S/N:	N/A
4	DC Power Supply	Model: KPS3010D	S/N:	N/A
		able 0.2. Test Cumment Faul		

Table 2-3. Test Support Equipment

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2.5 Test Configuration

The EUT was tested per the guidance of ANSI C63.26 2015, TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

For emissions from 1GHz – 18GHz, low, mid, and high channels were tested with highest power and worst case configuration. The emissions below 1GHz and above 18GHz were tested with the highest transmitting power and the worst case channel.

The EUT was manipulated through three orthogonal planes of X-orientation (flatbed), Y-orientation (landscape), and Z-orientation (portrait) during the testing. Only the worst case emissions were reported in this test report.

All possible simultaneous transmission configurations have been investigated and the worst case config has been reported.

Description	WLAN	LTE Band 30
Antenna	3a	3a
Channel	1	27710
Operating Frequency (MHz)	2412	2310MHz
Mode/Modulation	b / 11Mbps	QPSK/1RB/10MHz

 Table 2-4. Worst Case Simultaneous Transmission Configuration

2.6 Software and Firmware

The test was conducted with firmware version 20A32640u installed on the EUT.

2.7 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

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3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI C63.26 2015, TIA-603-E-2016) and "Measurement Guidance for Certification of Licensed Digital Transmitters" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

Deviation from Measurement Procedure.....None

3.2 Radiated Spurious Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

For radiated spurious emissions measurements and calculations, conversion method is used per the formulas in KDB 971168 Section 5.8.4. Field Strength (EIRP) is calculated using the following formulas:

E[dBµV/m] = Measured amplitude level[dBm] + 107 + Cable Loss[dB] + Antenna Factor[dB/m]

And

 $EIRP_{[dBm]} = E_{[dB\mu V/m]} + 20logD - 104.8$; where D is the measurement distance in meters.

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014.

Per KDB 414788 D01 v01r01, radiated emission test sites other than open-field test sites (e.g., shielded anechoic chambers), may be employed for emission measurements below 30MHz if characterized so that the measurements correspond to those obtained at an open-field test site. To determine test site equivalency, a reference sample transmitting at 149kHz was measured on an open field test site (asphalt with no ground plane) and then measured in the 3m semi-anechoic chamber. A calibrated 60cm loop antenna was used while the reference device was rotated through the X, Y and Z axis in order to capture the worst case level. A maximum deviation of 2.77dB at 149kHz was measured when comparing the 3 meter semi-anechoic chamber to the open field site.

Radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI C63.26-2015 and TIA-603-E-2016.

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4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.23-2012. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±dB)
Conducted Bench Top Measurements	1.77
Radiated Disturbance (<30MHz)	4.38
Radiated Disturbance (30MHz-1GHz)	4.75
Radiated Disturbance (1-18GHz)	5.20
Radiated Disturbance (>18GHz)	4.72

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5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	6/10/2022	Annual	6/10/2023	MY49430244
Agilent Technologies	N9020A	MXA Signal Analyzer	4/26/2022	Annual	4/26/2023	MY56470202
ATM	180-442A-KF	20dB Nominal Gain Horn Antenna	1/19/2022	Annual	1/19/2023	T058701-02
ETS-Lindgren	3142E	Biconilog Antenna (26-6000MHz)	10/21/2021	Annual	10/21/2022	208204
ETS-Lindgren	3117	Double Ridged Guide Horn Antenna (1-18GHz)	10/25/2021	Annual	10/25/2022	227597
ETS-Lindgren	SU-241	Table Top Temperature Chamber	10/6/2021	Annual	10/6/2022	92009574
Keysight Technology	N9040B	UXA Signal Analyzer	2/8/2022	Annual	2/8/2023	MY57212015
Rohde & Schwarz	TS-PR8	Pre-Amplifier (30MHz-6GHz)	1/6/2022	Annual	1/6/2023	102328
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	10/11/2021	Annual	10/11/2022	161616
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	11/4/2021	Annual	11/4/2022	151888
Rohde & Schwarz	ESW26	EMI Test Receiver	5/19/2022	Annual	5/19/2023	101299
Rohde & Schwarz	ESW44	EMI Test Receiver	12/2/2021	Annual	12/2/2022	101570
Rohde & Schwarz	FSV40	Signal Analyzer (10Hz-40GHz)	3/4/2022	Annual	3/4/2023	101619
Rohde & Schwarz	FSVA3044	Signal Analyzer (up to 44 GHz)	5/12/2022	Annual	5/12/2023	101098
Rohde & Schwarz	HFH2-Z2	Loop Antenna	4/3/2022	Annual	4/3/2023	100546
Rohde & Schwarz	TC-TA18	Cross-Polarized Antenna 400MHz-18GHz	1/25/2022	Annual	1/25/2023	101063
Rohde & Schwarz	TS-PR18	Pre-Amplifier (1GHz-18GHz)	1/6/2022	Annual	1/6/2023	101639
Rohde & Schwarz	TS-PR1840	Pre-Amplifier (18GHz-40GHz)	4/18/2022	Annual	4/18/2023	100050

Table 5-1. Test Equipment

Notes:

For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

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6.0 SAMPLE CALCULATIONS

Emission Designator

π/2 BPSK / QPSK Modulation

Emission Designator = 8M62G7W BW = 8.62 MHz G = Phase Modulation 7 = Quantized/Digital Info W = Combination of Any

QAM Modulation

Emission Designator = 8M45D7W BW = 8.45 MHz D = Amplitude/Angle Modulated 7 = Quantized/Digital Info W = Combination of Any

Spurious Radiated Emission

Example: Spurious emission at 3700.40 MHz

The receive spectrum analyzer reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3700.40 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.50 dBm so this harmonic was 25.50 dBm -(-24.80) = 50.3 dBc.

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7.0 TEST RESULTS

7.1 Summary

Company Name:	<u>Apple Inc.</u>
FCC ID:	BCGA2757
FCC Classification:	PCS Licensed Transmitter (PCB)
Mode(s):	LTE/NR/ULCA

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
	Occupied Bandwidth	2.1049	N/A	N/A	Section 7.2
	Conducted Band Edge / Spurious Emissions (LTE Band 30)	2.1051, 27.53(a)	Undesirable emissions must meet the limits detailed in 27.53(a)	PASS	Sections 7.3, 7.4
	Conducted Band Edge / Spurious Emissions (LTE Band 7)			PASS	Sections 7.3, 7.4
Conducted B Emissions (LTE Band 4' Conducted B Emissions (NR Band n4 Transmitter C Additional Ma (A-MPR) Effective Rad Isotropic Rad	Conducted Band Edge / Spurious Emissions (LTE Band 41)	2.1051, 27.53(m)	Undesirable emissions must meet the limits detailed in 27.53(m)	PASS	Sections 7.3, 7.4
	Conducted Band Edge / Spurious Emissions (NR Band n41)			PASS	Sections 7.3, 7.4
	Transmitter Conducted Output Power	2.1046	N/A	N/A	See RF Exposure Report
	Additional Maximum Power Reduction (A-MPR)	2.1046	N/A	N/A	Section 7.5
	Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 30)	27.50(a)(3)	< 0.25 Watts max. EIRP	PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 7)			PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 41)	27.50(h)(2)	< 2 Watts max. EIRP	PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band n41)			PASS	Section 7.6
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block over the temperature and voltage range as tested	PASS	Section 7.8
	Radiated Spurious Emissions (LTE Band 30)	2.1053, 27.53(a)	> 70 + 10log10(P[Watts])	PASS	Section 7.7
RADIATED	Radiated Spurious Emissions (LTE Band 7)			PASS	Section 7.7
	Radiated Spurious Emissions (LTE Band 41)	2.1053, 27.53(m)	Undesirable emissions must meet the limits detailed in 27.53(m)	PASS	Section 7.7
	Radiated Spurious Emissions (NR Band n41)			PASS	Section 7.7

Table 7-1. Summary of Test Results

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Notes:

- 1. All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2. The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3. All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4. All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized was Element EMC Software Tool v1.1.

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7.2 Occupied Bandwidth §2.1049

Test Overview

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section. All ports were tested and only the worst case data were reported.

Test Procedure Used

KDB 971168 D01 v03r01 - Section 4.2

Test Settings

- 1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 1 5% of the expected OBW
- 3. VBW \ge 3 x RBW
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep = auto couple
- 7. The trace was allowed to stabilize
- 8. If necessary, steps 2 7 were repeated after changing the RBW such that it would be within

1-5% of the 99% occupied bandwidth observed in Step 7

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

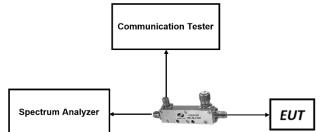


Figure 7-1. Test Instrument & Measurement Setup

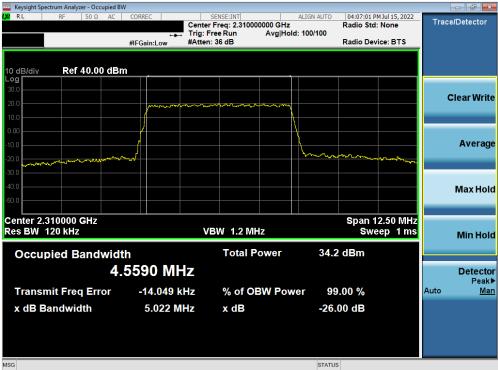
Test Notes

None.

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LTE Band 30



Plot 7-1. Occupied Bandwidth Plot (LTE Band 30 - 5MHz QPSK - Full RB)



Plot 7-2. Occupied Bandwidth Plot (LTE Band 30 - 5MHz 16-QAM - Full RB)

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Keysight Spectrum Analyzer - Occupied B	N				
LX/ RL RF 50 Ω AC	CORREC	SENSE:INT	ALIGN AUTO	04:07:28 PM Jul 15, 2022 Radio Std: None	Trace/Detector
	ц. Т	rig: Free Run /	Avg Hold: 100/100		
	#IFGain:Low #	Atten: 36 dB		Radio Device: BTS	-
10 dB/div Ref 40.00 dBr	n				
Log 30.0					
20.0					Clear Write
10.0	monum	- man mar	m		
0.00	1				
					Average
-10.0					Average
-20.0 -30.0	~~~ (marge bern	more and a	
-40.0					Max Hold
-50.0					
Center 2.310000 GHz				Span 12.50 MH	
Res BW 120 kHz		VBW 1.2 MHz		Sweep 1 ms	
				-	WIITHOID
Occupied Bandwidt	th	Total Pov	ver 32.2	2 dBm	
4	5346 MHz	,			Detector
					Peak►
Transmit Freq Error	4.136 kHz	z % of OBV	V Power 99	9.00 %	Auto <u>Man</u>
x dB Bandwidth	5.033 MHz	z xdB	-26.	.00 dB	
MSG			STATU	s	
			UNIO		

Plot 7-3. Occupied Bandwidth Plot (LTE Band 30 - 5MHz 64-QAM - Full RB)



Plot 7-4. Occupied Bandwidth Plot (LTE Band 30 - 5MHz 256-QAM - Full RB)

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Keysight Spectrum Analyzer - Occupied B\	N				
LXIRL RF 50Ω AC	CORREC	SENSE:INT Center Freg: 2.31000	ALIGN AUTO	04:00:29 PM Jul 15, 2 Radio Std: None	022 Trace/Detector
	• • •	Trig: Free Run	Avg Hold: 100/100		
	#IFGain:Low	#Atten: 36 dB		Radio Device: BT	5
10 dB/div Ref 40.00 dBr	n				
30.0					
20.0					Clear Write
10.0	/		N		
0.00	/		↓ ↓		
-10.0	_/		\		Average
-20.0	~			man	~~
-30.0					
-40.0					Max Hold
-50.0					Maxilola
Center 2.31000 GHz Res BW 240 kHz		#VBW 750 k	U 7	Span 25.00 N Sweep 1	
Res DW 240 KHZ		#8044 730 K	.112	Sweep i	ms Min Hold
Occupied Bandwidt	th	Total P	ower 34	.5 dBm	
q	0292 MH	7			Detector
					Peak►
Transmit Freq Error	14.332 kH	z % of O	BW Power S	99.00 %	Auto <u>Man</u>
x dB Bandwidth	10.02 MH	z xdB	-2	6.00 dB	
MSG			STAT	rus	

Plot 7-5. Occupied Bandwidth Plot (LTE Band 30 - 10MHz QPSK - Full RB)



Plot 7-6. Occupied Bandwidth Plot (LTE Band 30 - 10MHz 16-QAM - Full RB)

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Keysight Spectrum Analyzer - Occupied BW							
LXU RE 50Ω AC	CORREC	SENSE:INT	ALIGN AUTO		M Jul 15, 2022	Trac	e/Detector
		nter Freq: 2.31000000 ig: Free Run Av	GHz /g Hold:>100/100	Radio Std	None	in act	
		tten: 36 dB	/g 11010.>100/100	Radio Dev	ice: BTS		
	an ounicon						
10 dB/div Ref 40.00 dBm							
Log							
30.0							Clear Write
20.0	manhow	an of the south	m				
10.0							
0.00			Υ.				
	/						Average
-10.0							Average
-20.0	พ		Mr. Myronya	why hallow and	15.11 and a st		
-30.0 wardellung apart hope for the father	ν ν				- no survey of the survey of t		
-40.0							
							Max Hold
-50.0							
Center 2.31000 GHz				Enon 2	5.00 MHz		
Res BW 240 kHz		#VBW 750 kHz			ep 1 ms		
Res BW 240 KHZ				SWG	ep mis		Min Hold
Occupied Dendwidth		Total Pow	or 32/	4 dBm			
Occupied Bandwidth			51 52.	+ ubm			
8.9	921 MHz						Detector
							Peak▶
Transmit Freq Error	18.511 kHz	% of OBW	Power 99	9.00 %		Auto	<u>Man</u>
x dB Bandwidth	9.878 MHz	x dB	-26	00 dB			
	5.070 11112	A UD	-20				
MSG			STATU	s			

Plot 7-7. Occupied Bandwidth Plot (LTE Band 30 - 10MHz 64-QAM - Full RB)

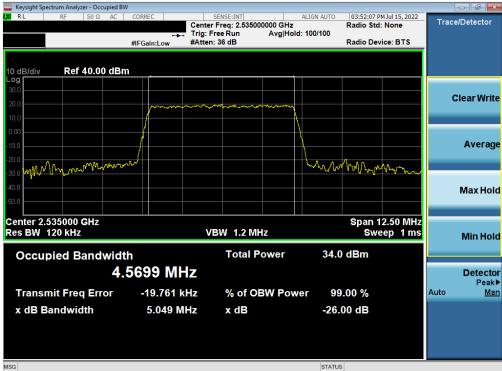


Plot 7-8. Occupied Bandwidth Plot (LTE Band 30 - 10MHz 256-QAM - Full RB)

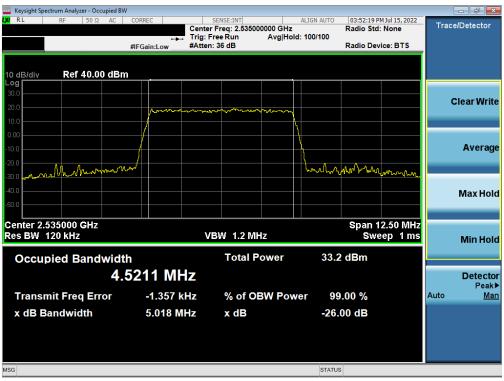
FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 20 of 284
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LTE Band 7



Plot 7-9. Occupied Bandwidth Plot (LTE Band 7 - 5MHz QPSK - Full RB)



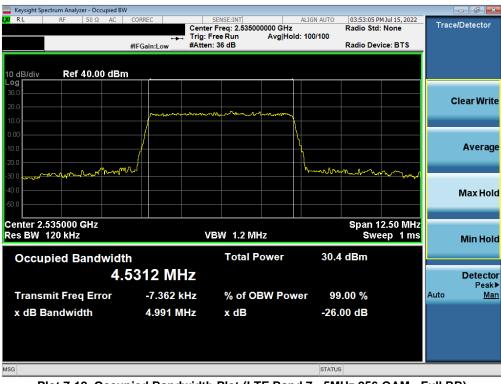
Plot 7-10. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 16-QAM - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 21 of 294
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🚾 Keysight Spectrum Analyze											
XIRL RF	50 Ω	AC	CORREC		SENSE:INT nter Freg: 2.535	000000 GH-	ALIGN AUTO	03:52:53 P	M Jul 15, 2022	Trace	/Detector
			#IFGain:Lo	🛶 Tri	ig: Free Run tten: 36 dB		ld: 100/100	Radio Dev			
10 dB/div Ref 4	10.00	dBm				_					
20.0				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				c	lear Write
10.0											Average
-20.0 -30.0 -40.0 -50.0	~~~~~								M. Marton		Max Hold
Center 2.535000 G Res BW 120 kHz	SHz				VBW 1.2	ЛНz			2.50 MHz ep 1 ms		Min Hold
Occupied Ba	andv	vidth			Total	Power	32.6	i dBm			
		4.5	482	MHz							Detector Peak▶
Transmit Freq	Erro	or	-4.9	93 kHz	% of (DBW Pov	ver 99	.00 %		Auto	Mar
x dB Bandwid	th		5.02	1 MHz	x dB		-26.	00 dB			
ISG							STATUS	3			

Plot 7-11. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 64-QAM - Full RB)



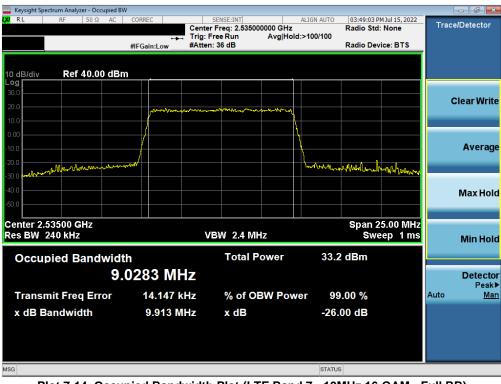
Plot 7-12. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyze		oied BW									- 6
RL RF	50 Ω	AC (CORREC		SENSE:INT enter Freg: 2.535	000000 CH-	ALIGN AUTO	03:48:56 P Radio Std	M Jul 15, 2022	Trac	e/Detector
		ŧ	#FGain:Lo	TI tak	rig: Free Run Atten: 36 dB		d: 100/100	Radio Std			
odB/div Ref 4	0.00	dBm						1			
0.0					and an an and and	www.www.				c	Clear Writ
0.0 00 0.0											Averac
).0 Martin Marthalton	wahally	manhort	<u></u>				- when for which	ma Wala	MMM MARINA		
I.O											Max Ho
enter 2.53500 GH es BW 240 kHz	Ηz				VBW 2.4 N	ЛНz			25.00 MHz ep 1 ms		Min Ho
Occupied Ba	Indv	vidth			Total	Power	34.1	dBm			
		9.0	184	MHz							Detect Peak
Transmit Freq	Erro	r	8.4	85 kHz	% of (OBW Pow	/er 99	.00 %		Auto	M
x dB Bandwid	th		10.(00 MHz	x dB		-26.	00 dB			
							STATUS	5			_

Plot 7-13. Occupied Bandwidth Plot (LTE Band 7 - 10MHz QPSK - Full RB)



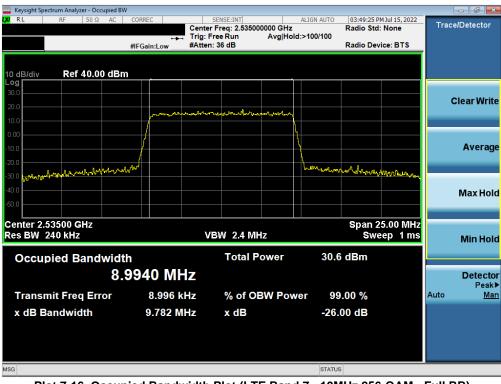
Plot 7-14. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 16-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 22 of 294	
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Keysight Spectrum Analyzer - Occupie					
🗶 RL RF 50Ω A		SENSE:INT	ALIGN AUTO	03:49:16 PM Jul 15, 2022 Radio Std: None	Trace/Detector
		rig: Free Run Atten: 36 dB	Avg Hold:>100/100	Radio Device: BTS	
10 dB/div Ref 40.00 d	Bm				
20.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	amhennen		Clear Write
10.0 0.00 					Average
20.0 30.0 mboort Markov Markov and Andrewsky 40.0			- hardyly	montenliter	Max Hold
Center 2.53500 GHz Res BW 240 kHz		VBW 2.4 M	Hz	Span 25.00 MHz Sweep 1 ms	Min Hold
Occupied Bandwi		Total F	Power 32.	5 dBm	
Transmit Freq Error	8.9977 MHz 19.028 kHz		BW Power 99	9.00 %	Detector Peak Auto <u>Mar</u>
x dB Bandwidth	9.858 MH			00 dB	
ISG			STATU	c	

Plot 7-15. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 64-QAM - Full RB)



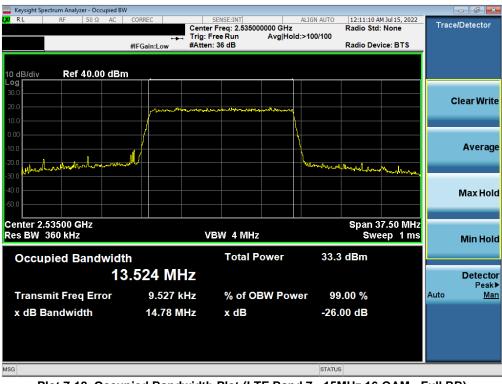
Plot 7-16. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyzer	50 Ω AC	CORREC	SENSE:INT			10-10-50.4	M 3-415 - 2022		
KL RF	SU SZ AC	CURREC	Center Freg: 2.535		IGN AUTO	Radio Std	M Jul 15, 2022	Trac	e/Detector
		↔	Trig: Free Run	Avg Hold: 10	00/100	Ruulo Sta	· Hone		
		#IFGain:Low	#Atten: 36 dB			Radio Dev	rice: BTS		
dB/div Ref 4	0.00 dB	20							
og Rei 4	0.00 UB								
0.0									
0.0			A						Clear Wri
).0		1							
00									
I.O									Avera
1.0 ator had the low to	Anna	h. W		\		the section			
1.0					1. A 1.	^{ประ} ถาวงใช่ไว่ใ _{เส}	www.		
0.0									Max Ho
).0									
enter 2.53500 GH	Z			-			7.50 MHz		
es BW 360 kHz			VBW 4 MH	IZ		SWG	eep 1 ms		Min Ho
	n du di d	41-	Total	Power	3/ 9	dBm			
Occupied Ba					04.0	ubm			
	1	3.522 MI	Hz						Detect
	_								Peal
Transmit Freq	Error	-4.882	KHZ % of (OBW Power	99	.00 %		Auto	<u>M</u> :
x dB Bandwidt	h	14.74 N	MHz xdB		-26.	00 dB			
					STATUS	3			

Plot 7-17. Occupied Bandwidth Plot (LTE Band 7 - 15MHz QPSK - Full RB)



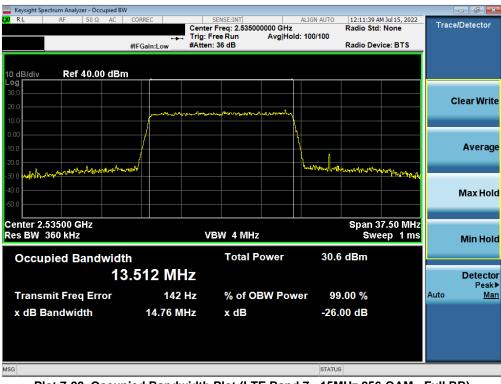
Plot 7-18. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 16-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyze	r - Occupied B	N								
XIRL RF	50 Ω AC	CORREC		E:INT q: 2.5350000		ALIGN AUTO	12:11:27 A	M Jul 15, 2022	Trace	/Detector
		₩ #IFGain:Low		Run		:>100/100	Radio Dev			
10 dB/div Ref 4	0.00 dBr	n								
30.0			an ground age for	ข างการสาชริสาสไปแรงเราะ					с	lear Write
10.0 0.00 -10.0 -20.0						mana	and all and all and			Average
-30.0 Annukan and Annukan -40.0 -50.0 							ս, եսիստ, տինսյիլ հն	tell-aventered		Max Hold
Center 2.53500 GH Res BW 360 kHz	lz		VBW	4 MHz				7.50 MHz ep 1 ms		Min Hold
Occupied Ba	ndwid	th	1	Total Po	wer	32.7	dBm			
	1;	3.478 M	Hz							Detector Peak▶
Transmit Freq	Error	6.097	kHz 🤗	% of OB	W Pow	er 99	.00 %		Auto	Mar
x dB Bandwidt	th	14.55 N	//Hz >	(dB		-26.	00 dB			
ISG						STATUS	5			

Plot 7-19. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 64-QAM - Full RB)



Plot 7-20. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyzer - C									- 6
(RL RF 50)	Ω AC	CORREC	SENSE:	2.535000000 GH	ALIGN AUTO	03:44:46 Pl Radio Std:	M Jul 15, 2022	Trace	Detector
		↔ #IFGain:Low		ın Avg H	12 Iold: 100/100	Radio Std.			
0 dB/div Ref 40.	00 dBm				_				
20.0			Prawyophangarowendarowen	Mananalungoranoomaanalka	~			с	lear Writ
10.0 5.00		_/							
0.0 20.0 10.0 Mar humber	here and a constraint of the	M				ana an	-alimport paras		Averag
0.0									Max Hol
enter 2.53500 GHz es BW 470 kHz			VBW	5 MHz			0.00 MHz ep 1 ms		Min Hol
Occupied Ban	dwidt	า	Т	otal Power	34.6	i dBm			
	18	.015 M	Hz						Detecto Peak
Transmit Freq E	rror	7.608	kHz %	of OBW Po	ower 99	.00 %		Auto	Ma
x dB Bandwidth		19.61 M	∬Hz x	dB	-26.	00 dB			
G					STATUS	3			

Plot 7-21. Occupied Bandwidth Plot (LTE Band 7 - 20MHz QPSK - Full RB)



Plot 7-22. Occupied Bandwidth Plot (LTE Band 7 - 20MHz 16-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager	
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Keysight Spectrum Analyze											- 0 ×
XIRL RF	50 Ω AC	CORRE	C		NSE:INT req: 2.53500	0000 GHz	ALIGN AUTO	03:47:08 P Radio Std	M Jul 15, 2022	Trace	e/Detector
			- -	Trig: Free	e Run		d:>100/100	Raulo Stu	. None		
		#IFGa	in:Low	#Atten: 3	6 dB			Radio Dev	rice: BTS		
10 dB/div Ref 4	10.00 dB	m									
Log											
30.0											lear Write
20.0			man	,	and a mark to be a	menter					
10.0											
0.00							<u>\</u>				
-10.0		/					<u> </u>				Average
-20.0	1	- Aserbarrow					When the second	A more a mar			
-20.0								money and	www.www.		
-40.0											
											Max Hold
-50.0											
Center 2.53500 GI	lz							Span 5	0.00 MHz		
Res BW 470 kHz				VBI	N∕5 MHz				eep 1 ms		Min Hold
											Minition
Occupied Ba	andwid	lth			Total P	ower	32.6	i dBm			
	1	8 05	7 M⊦	7							Detector
	-	0.00									Peak
Transmit Freq	Error	-2	5.679 k	Hz	% of O	BW Pov	ver 99	.00 %		Auto	Mar
x dB Bandwid	th		9.73 M	Hz	x dB		-26	00 dB			
							20.				
SG							STATU	5			

Plot 7-23. Occupied Bandwidth Plot (LTE Band 7 - 20MHz 64-QAM - Full RB)

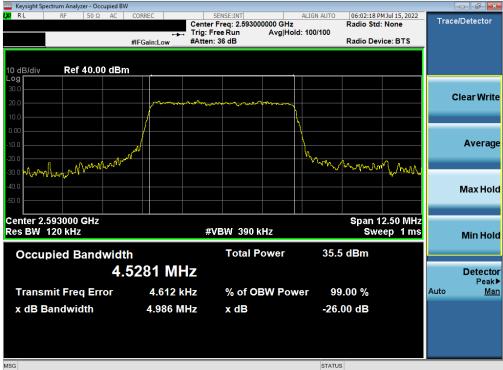


Plot 7-24. Occupied Bandwidth Plot (LTE Band 7 - 20MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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LTE Band 41



Plot 7-25. Occupied Bandwidth Plot (LTE Band 41 - 5MHz QPSK - Full RB)



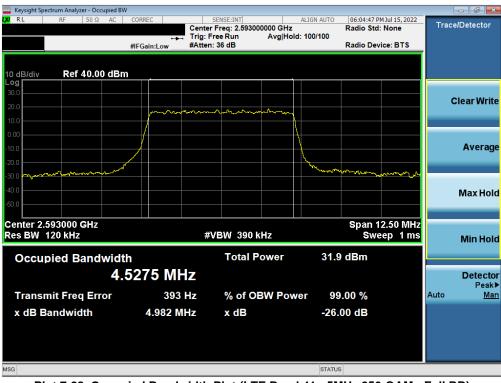
Plot 7-26. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 16-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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www.www.com analyzer - Occupied BW								
LXX RL RF 50Ω AC 0	CORREC	SENSE:INT nter Freg: 2.59300			6:03:58 PM Jul dio Std: No		Trac	e/Detector
		g: Free Run	Avg Hold: 1		1010 310. 140	ne		
	FGain:Low #At	ten: 36 dB		Ra	dio Device:	BTS		
10 dB/div Ref 40.00 dBm								
Log 30.0								
								Clear Write
20.0	hundren	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m					
10.0								
0.00								
-10.0	$\land \vdash $			1				Average
-20.0					0			
-30.0 And many more				mour	J WWW	m		
-40.0								
-50.0								Max Hold
-50.0							_	_
Center 2.593000 GHz				s	span 12.5	0 MHz		
Res BW 120 kHz		#VBW 390 k	Hz		Sweep			Min Hold
Occupied Bandwidth		Total P	ower	33.7 di	Bm			
4.5	172 MHz							Detector Peak▶
Transmit Freq Error	-5.818 kHz	% of O	BW Power	r 99.00) %		Auto	Man
x dB Bandwidth	5.031 MHz	x dB		-26.00	dB			
MSG				STATUS				

Plot 7-27. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 64-QAM - Full RB)



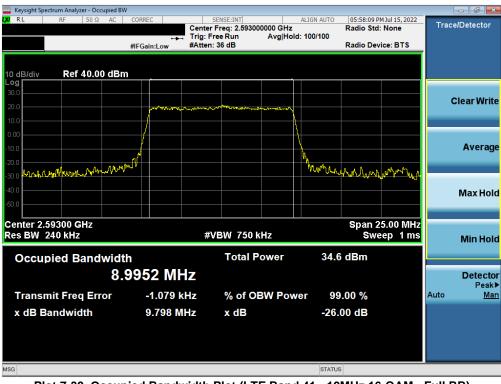
Plot 7-28. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Occupied BV					
RL RF 50Ω AC	CORREC	SENSE:INT	ALIGN AUTO	05:57:58 PM Jul 15, 2022 Radio Std: None	Trace/Detector
		rig: Free Run Atten: 36 dB	Avg Hold:>100/100	Radio Std: None	
0 dB/div Ref 40.00 dBr	n				
20.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Clear Writ
0.0					
					Averag
).0 				ᢏ᠇ᠯᠰ᠕ᡊ᠊ᠧ᠋᠆ᡎᢍᢛᢩᡘᡃᠰᠰ᠋᠋᠆ᡫᠬᢤᠬ	
J.O					Max Ho
enter 2.59300 GHz				Span 25.00 MHz	
es BW 240 kHz		#VBW 750	(Hz	Sweep 1 ms	Min Hol
Occupied Bandwidt		Total P	ower 36.0) dBm	
9.	0341 MHz				Detector Peak
Transmit Freq Error	-220 Hz	z % of Ol	BW Power 99	.00 %	Auto <u>M</u>
x dB Bandwidth	9.943 MHz	z xdB	-26.	00 dB	
3			STATUS	3	

Plot 7-29. Occupied Bandwidth Plot (LTE Band 41 - 10MHz QPSK - Full RB)



Plot 7-30. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 16-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Occupied E	BW						
💢 RL RF 50Ω AC	CORREC	SENSE:INT	ALIGN AUT		M Jul 15, 2022	Trac	e/Detector
		enter Freq: 2.593000 ig: Free Run	Avg Hold: 100/100	Radio Std	: None		
		tten: 36 dB		Radio Dev	/ice: BTS		
10 dB/div Ref 40.00 dB	m						
30.0							
20.0						(Clear Write
	harmont	me-my - or deversion for the	mon				
10.0							
0.00	/						
-10.0							Average
-20.0	AN		<u>h</u> R				
-20.0 M. Mr. Mar M. Sha Mar	~/u ^{/11}		\ A\line \	montain	Mr. Row Matrice		
00.0							
-40.0							Max Hold
-50.0							
Center 2.59300 GHz Res BW 240 kHz		41/DW 750 L	u-		5.00 MHz		
Res BW 240 RH2		#VBW 750 kl	nZ	SW	eep 1 ms		Min Hold
Occupied Renducid	14b	Total Po	wer 33	.8 dBm			
Occupied Bandwid			JW61 55	.o ubm			
8	.9897 MHz						Detector
							Peak►
Transmit Freq Error	-1.593 kHz	% of OB	W Power	99.00 %		Auto	<u>Man</u>
x dB Bandwidth	9.880 MHz	x dB	-2	6.00 dB			
MSG			STA	rus			

Plot 7-31. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 64-QAM - Full RB)



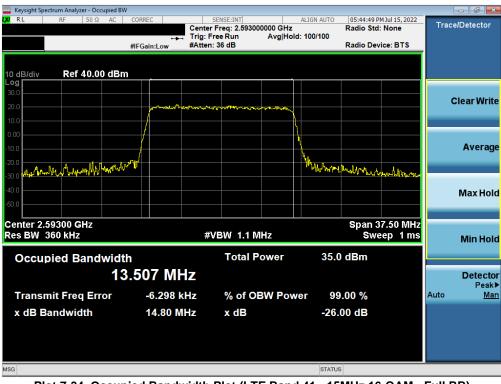
Plot 7-32. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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🔤 Keysight Spectrum Analyzer - Occu	upied BW										
L <mark>XI</mark> RL RF 50Ω	AC CORR	EC		ISE:INT eq: 2.59300		ALIGN	AUTO	05:44:35 P Radio Std	M Jul 15, 2022	Trac	e/Detector
					Avg Hol	d: 100/ [,]	100	Radio Sta	None		
	#IFG	ain:Low	#Atten: 36	6 dB	<u>.</u>			Radio Dev	ice: BTS		
10 dB/div Ref 40.00	dBm										
Log											
30.0											Clear Write
20.0		manne	- menoperate	ᠬᠰᡎᢇᡗᡅᠬᡎᠰ							
10.0		/+									
0.00						<u>۱</u>					
-10.0	/					<u>\</u>					Average
-20.0						1.					-
-20.0 -30.0	مسالا المرام الم					14	มหันที่เสม	wyww.pl	Mar Maria		
-40.0											Max Hold
-50.0											
Center 2.59300 GHz								Snan 3	7.50 MHz		
Res BW 360 kHz			#VB	W 1.1 M	H7				ep 1 ms		
											Min Hold
Occupied Bandy	width			Total P	ower		35.9	dBm			
		73 MH									Detector
	13.4/										Detector Peak▶
Transmit Freq Erro	or	-6.039 k	Hz	% of OE	SW Pow	/er	99.	.00 %		Auto	Man
x dB Bandwidth		14.77 M	47	x dB			-26 (00 dB			
		14.// W	112	A UD			-20.0				
MSG							STATUS				

Plot 7-33. Occupied Bandwidth Plot (LTE Band 41 - 15MHz QPSK - Full RB)



Plot 7-34. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 16-QAM - Full RB)

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Keysight Spectrum Analyze		pied BW									
🗶 RL RF	50 Ω	AC	CORREC	Con	SENSE:INT ter Freq: 2.5930	00000 GH7	ALIGN AUTO	05:45:14 P Radio Std	M Jul 15, 2022	Trace	/Detector
		į	#FGain:Low	+ Trig	: Free Run en: 36 dB		d: 100/100	Radio Dev			
10 dB/div Ref 4	10.00	dBm									
30.0				hand and the second	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Jan Marana				c	lear Write
10.0		n f (. h. f)A.									Average
-20.0 -30.0 -40.0 -50.0	Weyf 11,711	ምብ ሲያ እና በዚያ እን						really the part of	halpine the and		Max Hold
Center 2.59300 GH Res BW 360 kHz	lz				#VBW 1.1	MHz			7.50 MHz ep 1 ms		Min Hold
Occupied Ba	andv	vidth			Total	Power	34.2	dBm			_
		13.	484 I	MHz							Detector Peak▶
Transmit Freq	Erro	r	-14.10	9 kHz	% of C	BW Pov	ver 99	.00 %		Auto	Mar
x dB Bandwid	th		14.7	8 MHz	x dB		-26.	00 dB			
ISG							STATUS	3			

Plot 7-35. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 64-QAM - Full RB)



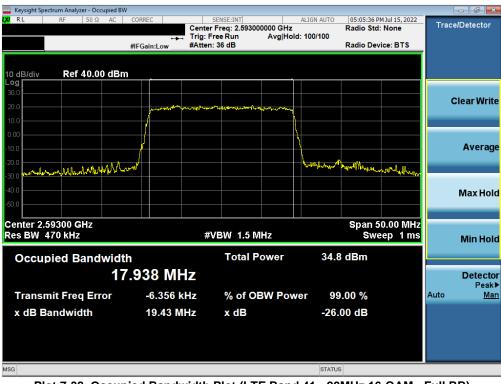
Plot 7-36. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 34 of 284
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Keysight Spectrum Analyzer	- Occupied BV	٧						_	
🗶 RL RF	50 Ω AC	CORREC	SENSE	:INT : 2.593000000 GH	ALIGN AUTO	05:05:27 PI Radio Std:	M Jul 15, 2022	Tracel	Detector
		⊶ _#IFGain:Low		un Avg ⊦	lold:>100/100	Radio Dev			
	0.00 dBn	n							
20.0		Jawanan	hallow and the second	**************************************				CI	lear Write
10.0 0.00 10.0 20.0	. h. h. h.				h	mar la prove	have all to be		Average
30.0 ***********************************									Max Hold
Center 2.59300 GH Res BW 470 kHz	z		#VBW	/ 1.5 MHz			0.00 MHz ep 1 ms		Min Hold
Occupied Ba	ndwidt	h	1	otal Power	35.5	5 dBm			
	17	7.972 M	Hz						Detector Peak
Transmit Freq	Error	-8.492	% kHz	6 of OBW Po	ower 99	9.00 %		Auto	Mar
x dB Bandwidt	h	19.50 I	MHz x	dB	-26.	00 dB			
ISG					STATUS	S			

Plot 7-37. Occupied Bandwidth Plot (LTE Band 41 - 20MHz QPSK - Full RB)



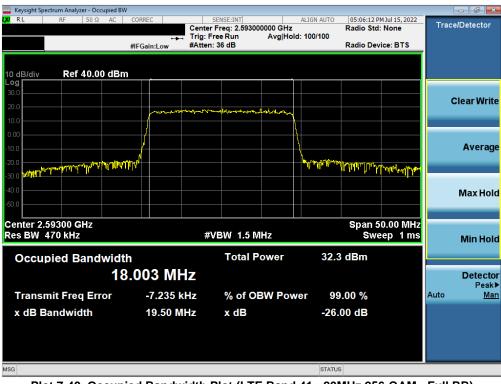
Plot 7-38. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 16-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 25 of 294
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www. Keysight Spectrum Analyzer - Occupied E	3W						- d X
LXU R.L RF 50Ω AC	CORREC	SENSE:INT	ALIGN AUTO	05:05:54 PM Ju		Trace	/Detector
		enter Freq: 2.593000000 GHz ig: Free Run Avg Ho	ld: 100/100	Radio Std: No	one		Betterter
		tten: 36 dB		Radio Device	BTS		
10 dB/div Ref 40.00 dB	m						
30.0							
20.0		And a Mark and				c	lear Write
10.0	Provide Space of the local	and the second				_	
	/						
0.00							•
-10.0							Average
-20.0			Lens Hall	Landhallha	linna a	_	
-30.0 manufactul March Million Will Will	JM2		- AN NO AMOUNT	area and an international states of the second s	i VI NI MAR		
-40.0							Max Hold
-50.0							Μάλ Πυία
-30.0							
Center 2.59300 GHz				Span 50.	00 MHz		
Res BW 470 kHz		#VBW 1.5 MHz			o 1 ms		Min Hold
							Milling
Occupied Bandwid	th	Total Power	33.6	dBm			
1	7.942 MHz						Detector
							Peak►
Transmit Freq Error	-7.901 kHz	% of OBW Pov	wer 99.	00 %		Auto	<u>Man</u>
x dB Bandwidth	19.35 MHz	x dB	-26.0	0 dB			
	19.JJ MITZ	X UD	-20.0	U U D			
MSG			STATUS				

Plot 7-39. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 64-QAM - Full RB)

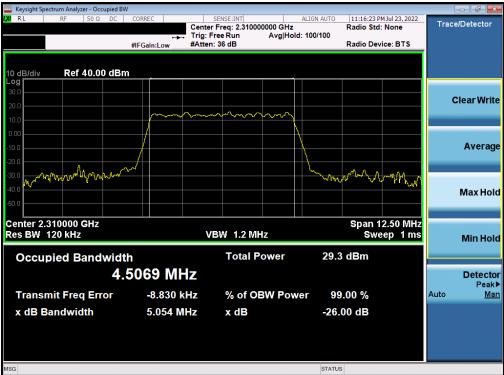


Plot 7-40. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 256-QAM - Full RB)

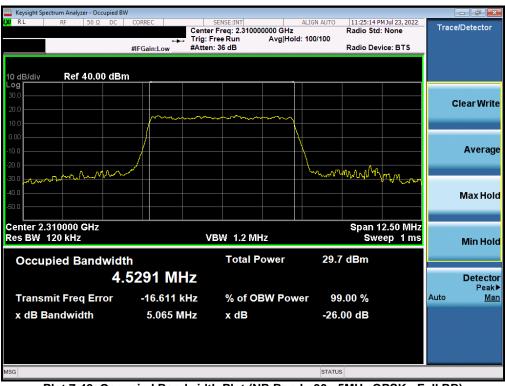
FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 26 of 294
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NR Band n30



Plot 7-41. Occupied Bandwidth Plot (NR Band n30 - 5MHz π/2 BPSK - Full RB)



Plot 7-42. Occupied Bandwidth Plot (NR Band n30 - 5MHz QPSK - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Occupied BW									- • •
LX/RL RF 50Ω DC C	ORREC	SENS Center Fre	SE:INT	0000 GHz	ALIGN AUTO	11:17:59 P Radio Std	M Jul 23, 2022	Trac	e/Detector
	• • •	Trig: Free	Run		d: 100/100				
#1	FGain:Low	#Atten: 36	dB			Radio Dev	rice: BTS		
10 dB/div Ref 40.00 dBm									
20.0									
20.0								(Clear Write
	\sim	$\sim\sim\sim$	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						
10.0					L I				
0.00					\langle				A
-10.0									Average
-20.0 -30.0 - Anton Marchand					An Angan	n.h.a			
-30.0 And and Wind with	+					MMMM	hunder		
-40.0									Max Hold
-50.0									
Center 2.310000 GHz						Snan 1	2.50 MHz		
Res BW 120 kHz		VBW	1.2 MF	z			ep 1 ms		Min Hald
									Min Hold
Occupied Bandwidth			Total P	ower	29	.6 dBm			
4.5	168 MH	7							Detector
4:8									Peak►
Transmit Freq Error	-1.303 k	Hz	% of OE	3W Pow	/er 🤇	9.00 %		Auto	<u>Man</u>
x dB Bandwidth	5.014 MI	Hz	x dB		-20	6.00 dB			
MSG					STAT	บร			

Plot 7-43. Occupied Bandwidth Plot (NR Band n30 - 5MHz 16-QAM - Full RB)



Plot 7-44. Occupied Bandwidth Plot (NR Band n30 - 5MHz 64-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Occupied					
LXIRL RF 50Ω DC	CORREC	SENSE:INT	ALIGN AUTO	11:21:05 PM Jul 23, 3 Radio Std: None	2022 Trace/Detector
		rig: Free Run	Avg Hold: 100/100		
	#IFGain:Low #	Atten: 36 dB		Radio Device: BT	S
10 dB/div Ref 40.00 dE	3m				
Log 30.0					
20.0					Clear Write
10.0	m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
0.00			l I		
-10.0	/		l l		Average
					Average
-20.0 -30.0 m Amural	m		har w	mmm.	
Differ Agona and the t					V~~~
-40.0					Max Hold
-50.0					
Center 2.310000 GHz				Span 12.50 M	MHz
Res BW 120 kHz		VBW 1.2 MF	z	Sweep 1	
Occupied Bandwic	ith	Total P	ower 28.0	dBm	
4	.5088 MHz	2			Detector
					Peak►
Transmit Freq Error	-14.274 kH	z % of OE	3W Power 99	.00 %	Auto <u>Man</u>
x dB Bandwidth	5.044 MHz	z x dB	-26.	00 dB	
MSG			STATUS	3	

Plot 7-45. Occupied Bandwidth Plot (NR Band n30 - 5MHz 256-QAM - Full RB)



Plot 7-46. Occupied Bandwidth Plot (NR Band n30 - 10MHz π/2 BPSK - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Keysight Spectrum Analyzer - Occupied					
LXI RL RF 50Ω DC		SENSE:INT ter Freg: 2.310000000 GHz	ALIGN AUTO 09:51:53 P Radio Sto	PM Jul 23, 2022	Trace/Detector
	+++ Trig	: Free Run Avg Hold:	100/100		
	#IFGain:Low #Att	en: 36 dB	Radio De	vice: BTS	
10 dB/div Ref 40.00 dl	3m				
30.0					
20.0					Clear Write
10.0		mon			
0.00					
-10.0					Average
					Average
-20.0 -30.0 -30.0 -30.0	~~~		- Margary Margary	halle	
-40.0					Max Hold
-50.0					
Center 2.31000 GHz			Span 2	25.00 MHz	
Res BW 240 kHz		#VBW 750 kHz		eep 1 ms	Min Hold
		Total Power	30.4 dBm		
Occupied Bandwig		Total Power	30.4 dBm		
9	9.3186 MHz				Detector
Transmit Freq Error	-9.749 kHz	% of OBW Powe	er 99.00 %		Peak▶ Auto Man
x dB Bandwidth	10.16 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-47. Occupied Bandwidth Plot (NR Band n30 - 10MHz QPSK - Full RB)



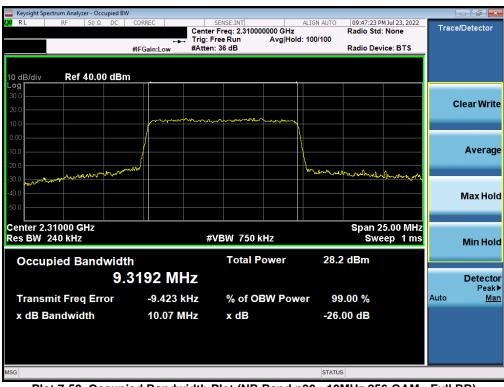
Plot 7-48. Occupied Bandwidth Plot (NR Band n30 - 10MHz 16-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 40 of 284
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Keysight Spectrum Analyzer - Occupied					
LXI RL RF 50Ω DC		SENSE:INT ter Freg: 2.310000000 GHz		9:49:08 PM Jul 23, 2022 dio Std: None	Trace/Detector
	Trig	:FreeRun Avg Hold	d: 100/100		
	#IFGain:Low #Att	en: 36 dB	Ra	dio Device: BTS	
10 dB/div Ref 40.00 dE	3m				
Log 30.0					
20.0					Clear Write
10.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
0.00	/				
-10.0	/		\ \		Average
			Lange 1		Averuge
a la avel de la contra de la co			Willia hallo	warme grander	
-40.0					Max Hold
-50.0					
Center 2.31000 GHz			s	pan 25.00 MHz	
Res BW 240 kHz		#VBW 750 kHz		Sweep 1 ms	Min Hold
		T-4-1 D	00 E JE	2	
Occupied Bandwid		Total Power	30.5 dE	sm	
9).3347 MHz				Detector
Transmit Freq Error	1.484 kHz	% of OBW Pow	er 99.00	0/	Peak▶ Auto Man
x dB Bandwidth	10.13 MHz	x dB	-26.00	dB	
MSG			STATUS		

Plot 7-49. Occupied Bandwidth Plot (NR Band n30 - 10MHz 64-QAM - Full RB)

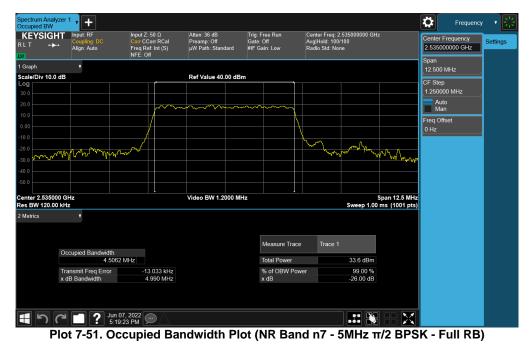


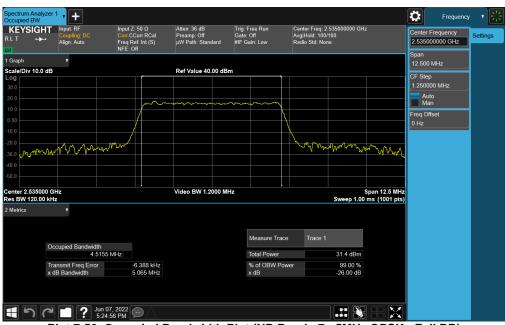
Plot 7-50. Occupied Bandwidth Plot (NR Band n30 - 10MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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NR Band n7

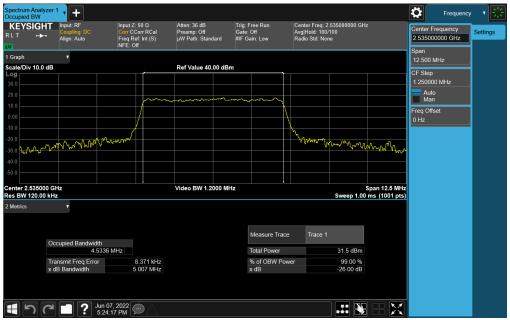




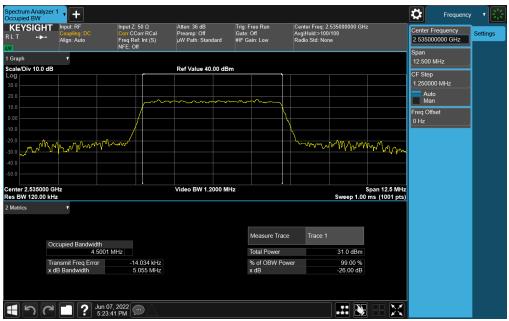
Plot 7-52. Occupied Bandwidth Plot (NR Band n7 - 5MHz QPSK - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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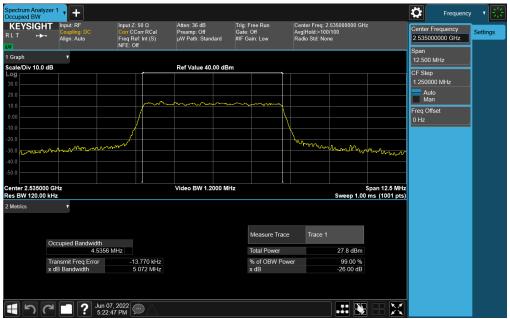
Plot 7-53. Occupied Bandwidth Plot (NR Band n7 - 5MHz 16-QAM - Full RB)



Plot 7-54. Occupied Bandwidth Plot (NR Band n7 - 5MHz 64-QAM - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Plot 7-55. Occupied Bandwidth Plot (NR Band n7 - 5MHz 256-QAM - Full RB)



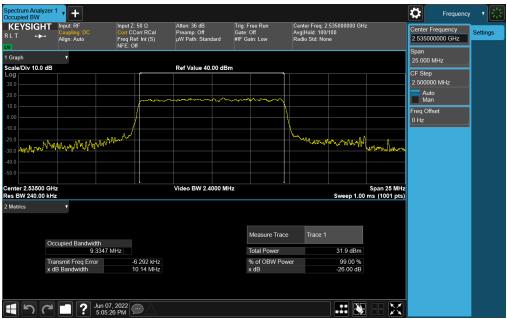
Plot 7-56. Occupied Bandwidth Plot (NR Band n7 - 10MHz π/2 BPSK - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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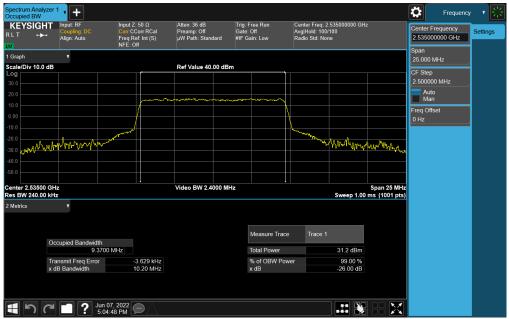
Plot 7-57. Occupied Bandwidth Plot (NR Band n7 - 10MHz QPSK - Full RB)



Plot 7-58. Occupied Bandwidth Plot (NR Band n7 - 10MHz 16-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager	
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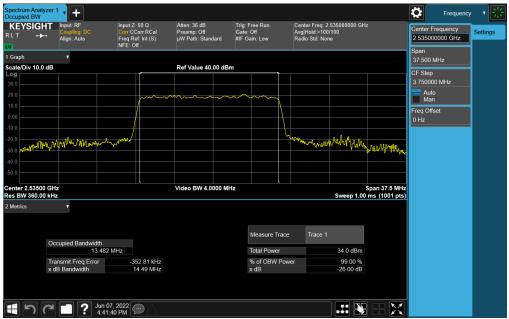
Plot 7-59. Occupied Bandwidth Plot (NR Band n7 - 10MHz 64-QAM - Full RB)

KEYSIGH ∟⊺ +►+		Input Z: 5 Corr CCo Freq Ref: NFE: Off	rr RCal	Atten: 36 dB Preamp: Off μW Path: Stan		Trig: Free Run Gate: Off #IF Gain: Low	Avg	nter Freq: 2 g Hold: 100 dio Std: No				requency 0000 GHz	Setting
Graph	*										Span 25.000 N	ИНz	
ale/Div 10.0	dB		ſ	Ref Value 40	.00 dBm		1				CF Step		
											2.50000		
0.0				- marine	m	m					Man		
00		/					N				Freq Offs	et	
		/					$\boldsymbol{\Lambda}$				0 Hz		I
0.0 vury lank	mannah	white					64	man	www.www	WIMMM			
enter 2.53500 s BW 240.00				Video BW 2.4	000 MHz					Span 25 MHz ms (1001 pts)			
Metrics	v v								Sweep 1.00	ms (1001 pts)			
						Measure Tra		Trace 1					
	Occupied Bandwidth					measure ma	ice	Trace					
	9.3312					Total Power			28.4 dBm				
	Transmit Freq Error x dB Bandwidth		506 kHz 10 MHz			% of OBW F x dB	ower	_	99.00 % -26.00 dB				

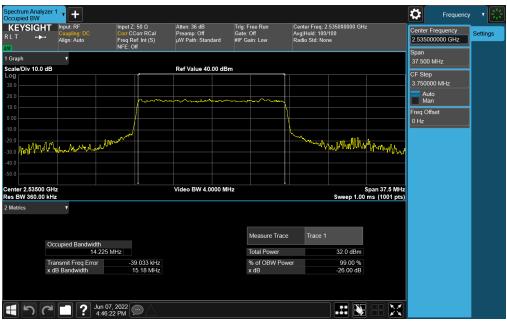
Plot 7-60. Occupied Bandwidth Plot (NR Band n7 - 10MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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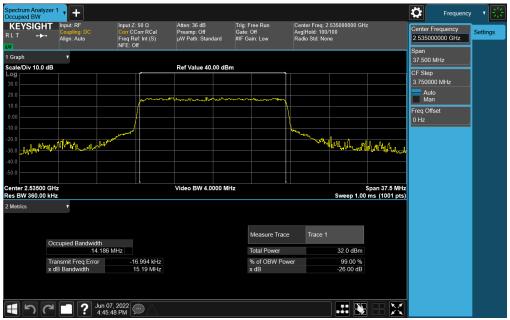
Plot 7-61. Occupied Bandwidth Plot (NR Band n7 - 15MHz π/2 BPSK - Full RB)



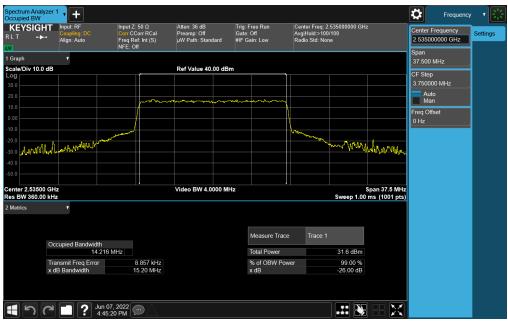
Plot 7-62. Occupied Bandwidth Plot (NR Band n7 - 15MHz QPSK - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 47 of 284	
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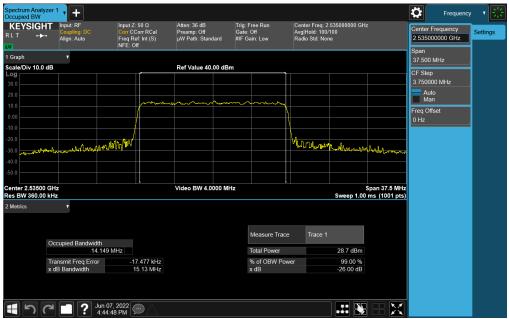
Plot 7-63. Occupied Bandwidth Plot (NR Band n7 - 15MHz 16-QAM - Full RB)



Plot 7-64. Occupied Bandwidth Plot (NR Band n7 - 15MHz 64-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	Test Dates: EUT Type:	
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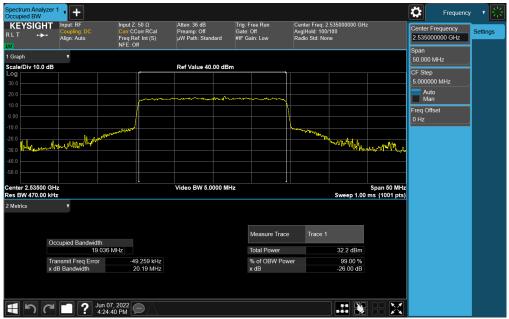
Plot 7-65. Occupied Bandwidth Plot (NR Band n7 - 15MHz 256-QAM - Full RB)



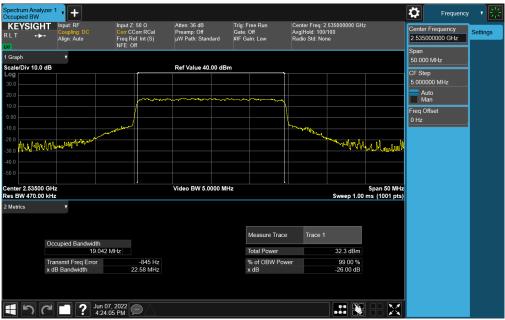
Plot 7-66. Occupied Bandwidth Plot (NR Band n7 - 20MHz π/2 BPSK - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 40 of 284	
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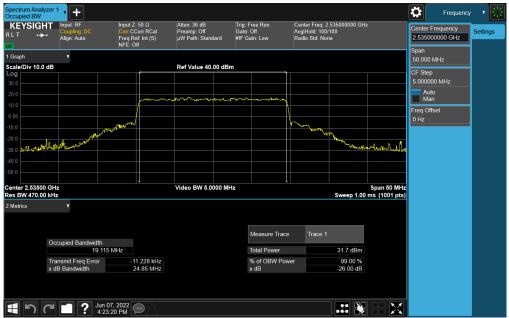
Plot 7-67. Occupied Bandwidth Plot (NR Band n7 - 20MHz QPSK - Full RB)



Plot 7-68. Occupied Bandwidth Plot (NR Band n7 - 20MHz 16-QAM - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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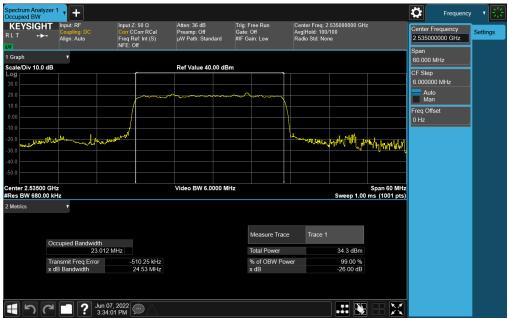
Plot 7-69. Occupied Bandwidth Plot (NR Band n7 - 20MHz 64-QAM - Full RB)

ccupied BW	T Input: RF	Input Z: 50 Ω	Atten: 36 dB	Trig: Free Run	Center From	: 2.535000000 GHz	Freque	Ľ
KEYSIGH	Coupling: DC	Corr CCorr RCal	Preamp: Off	Gate: Off	Avg Hold:>1	00/100	Center Frequency	Settings
ιLT + → -	Align: Auto	Freq Ref: Int (S)	µW Path∶ Standard	#IF Gain: Low	Radio Std: N	lone	2.535000000 GHz	
NI.		NFE: Off					Span	
Graph	*						50.000 MHz	
cale/Div 10.0	48		Ref Value 40.00 dE	3m	`		CF Step	
30.0							5.000000 MHz	
							Auto	
		mando	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	·······	↓		Man	
0.00		A					Freq Offset 0 Hz	
-10.0							0 HZ	
20.0					WL MARINA			
-30.0	And and the strate of the stra	April 1				mulaland	Advert a	
40.0								
-50.0								
enter 2.53500			Video BW 5.0000 N	IHz			50 MHz	
Res BW 470.00						Sweep 1.00 ms (10	JUT pts)	
Metrics	T							
				Measure Tra	ce Trace	1		
	Occupied Bandwidth							
	19.026			Total Power		28.8 dBm		
	Transmit Freq Error x dB Bandwidth	18.868 kHz 20.19 MHz		% of OBW F x dB	ower	99.00 % -26.00 dB		
	x db bundwiddri	20, 13 10112		A GB		20.00 00		
							X	

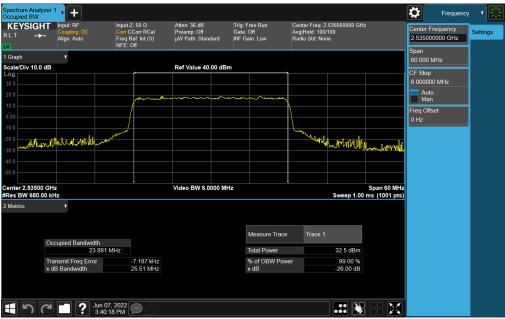
Plot 7-70. Occupied Bandwidth Plot (NR Band n7 - 20MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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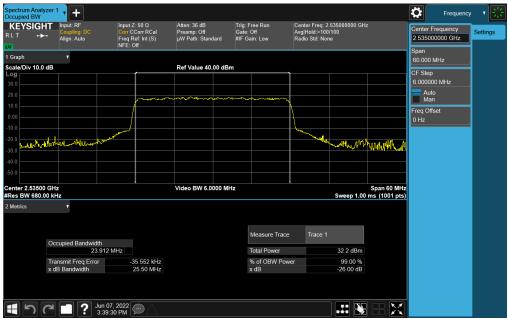
Plot 7-71. Occupied Bandwidth Plot (NR Band n7 - 25MHz π/2 BPSK - Full RB)



Plot 7-72. Occupied Bandwidth Plot (NR Band n7 - 25MHz QPSK - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager	
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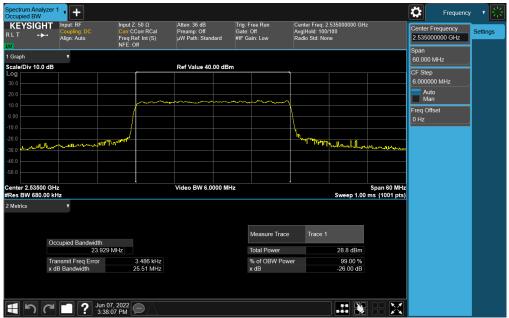
Plot 7-73. Occupied Bandwidth Plot (NR Band n7 - 25MHz 16-QAM - Full RB)



Plot 7-74. Occupied Bandwidth Plot (NR Band n7 - 25MHz 64-QAM - Full RB)

FCC ID: BCGA2757	element 🤤	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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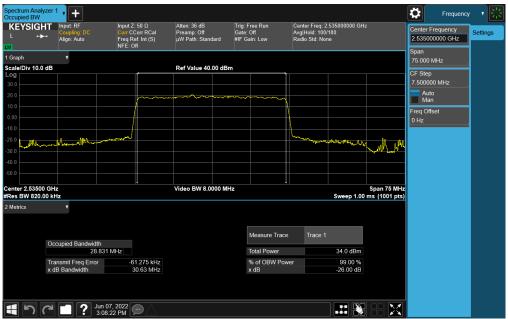
Plot 7-75. Occupied Bandwidth Plot (NR Band n7 - 25MHz 256-QAM - Full RB)

pectrum Analyzei ccupied BW							₽	Frequency	· • 🗦
KEYSIGHT	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr RCal Freq Ref: Int (S) NFE: Off	Atten: 36 dB Preamp: Off μW Path: Standard	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq Avg Hold:>1 Radio Std: N	: 2.535000000 GHz 100/100 None	2.53	r Frequency 6000000 GHz	Settings
Graph	•						Span 75.00	0 MHz	
cale/Div 10.0 dB			Ref Value 40.00 dB	m	-		CF St	en	
0.0								000 MHz	
				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~			luto 1an	
		/					Freq	Offset	
00							0 Hz		
	mathiliteration	nown			Mar and	he have her have been been been been been been been be	Lunder		
.0									
.0									
nter 2.53500 Gi es BW 820.00 I			Video BW 8.0000 M	Hz		Spa Sweep 1.00 ms	an 75 MHz (1001 pts)		
<b>Netrics</b>	۲								
				Measure Tra	ice Trace	1			
0	ccupied Bandwidth 28.72	0 MHz		Total Power		34.0 dBm			
Т	ansmit Freg Error	14.896 kHz		% of OBW P	ower	99.00 %			
x	dB Bandwidth	30.57 MHz		x dB		-26.00 dB			

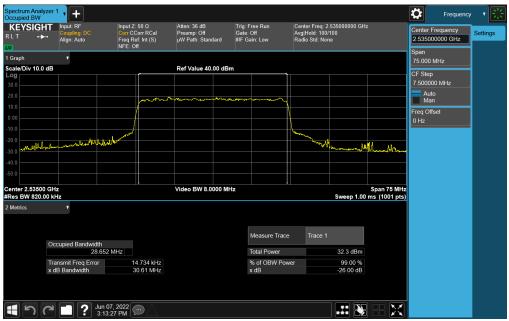
Plot 7-76. Occupied Bandwidth Plot (NR Band n7 - 30MHz π/2 BPSK - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Plot 7-77. Occupied Bandwidth Plot (NR Band n7 - 30MHz QPSK - Full RB)



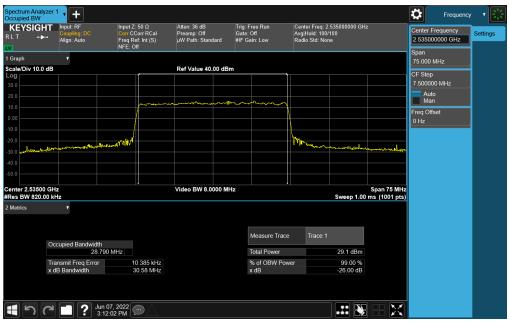
Plot 7-78. Occupied Bandwidth Plot (NR Band n7 - 30MHz 16-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager	
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Plot 7-79. Occupied Bandwidth Plot (NR Band n7 - 30MHz 64-QAM - Full RB)



Plot 7-80. Occupied Bandwidth Plot (NR Band n7 - 30MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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KEYSIGH :LT +→ ″	Coupling: DC	Input Ζ: 50 Ω Corr CCorr RCal Freq Ref: Int (S) NFE: Off	Atten: 36 dB Preamp: Off µW Path: Standard	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.5 Avg Hold: 100/1 Radio Std: None	00	Center Frequency 2.535000000 GHz	Settings
Graph	•						80.000 MHz	
cale/Div 10.0	dB		Ref Value 40.00 dl	Bm			CF Step	
							8.000000 MHz	
				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~		Auto Man	
							Freq Offset	
							0 Hz	
		-			the second		~	
20.0 Jun	man Annam Marine					and the second s		
10.0								
50.0								
enter 2.53500 Res BW 1.000			Video BW 8.0000 M	MHz		Span 8 Sweep 1.00 ms (100		
Metrics	v							
	0 . 10			Measure Tra	ice Trace 1			
	Occupied Bandwidth 38.77	4 MHz		Total Power		34.3 dBm		
	Transmit Freq Error	-3.138 kHz		% of OBW P	ower	99.00 %		
	x dB Bandwidth	41.08 MHz		x dB		-26.00 dB		

Plot 7-81. Occupied Bandwidth Plot (NR Band n7 - 40MHz π/2 BPSK - Full RB)

Spectrum Analyz Occupied BW	er 1 🔻 🕂					🛟 Frequency 🔻 🔆
KEYSIGH RLT +→-+	Coupling: DC	Input Ζ: 50 Ω Corr CCorr RCal Freq Ref: Int (S) NFE: Off	Atten: 36 dB Preamp: Off μW Path: Standard	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.535000000 GHz Avg Hold: 100/100 Radio Std: None	Center Frequency 2.535000000 GHz Settings
1 Graph						Span 80.000 MHz
Scale/Div 10.0 d	в		Ref Value 40.00 dB	m		CF Step
Log 30.0						8.000000 MHz
		me		malmon	~~~	Auto Man
10.0						Freq Offset
-10.0						0 Hz
-20.0	and the second second second second	Road			homenon	
-30.0						
-40.0						
Center 2.53500 (3H7		Video BW 8.0000 M	H 7	Span 8	30 MHz
#Res BW 1.0000			VIGEO ETV 0.0000 III		Sweep 1.00 ms (10	
2 Metrics	•					
				Measure Trace	Trace 1	
	Occupied Bandwidth 38.85	56 MHz		Total Power	32.3 dBm	
	Transmit Freq Error x dB Bandwidth	-74.994 kHz 41.14 MHz		% of OBW Pow x dB	er 99.00 % -26.00 dB	
1 50	Jun ? 2:0	07, 2022 04:25 PM				

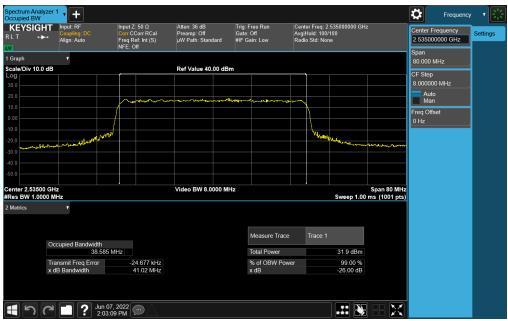
Plot 7-82. Occupied Bandwidth Plot (NR Band n7 - 40MHz QPSK - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Plot 7-83. Occupied Bandwidth Plot (NR Band n7 - 40MHz 16-QAM - Full RB)



Plot 7-84. Occupied Bandwidth Plot (NR Band n7 - 40MHz 64-QAM - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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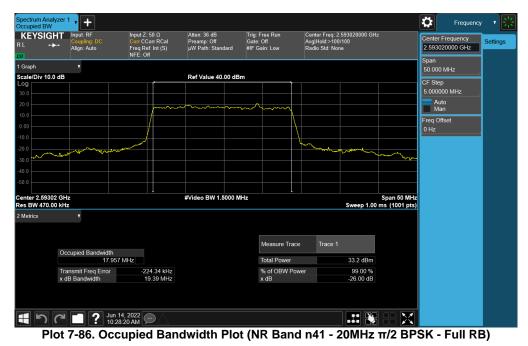
KEYSIGH ⁻ .⊤ •►•		Input Z: 50 Ω Corr CCorr RCal Freq Ref: Int (S) NFE: Off	Atten: 36 dB Preamp: Off μW Path: Standard	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.535000000 GHz Avg Hold: 100/100 Radio Std: None	Center Frequency 2.535000000 GHz	Settings
Graph	*					Span 80.000 MHz	
ale/Div 10.0 d	В		Ref Value 40.00 dB	im		CF Step	1
						8.000000 MHz	
					~~~	Auto Man	
						Freq Offset	1
00		/				0 Hz	
	المراجع والمعالية والمساحد والمراجع				American	and a second	
0.0							
nter 2.53500 ( es BW 1.0000			Video BW 8.0000 M	Hz	Sweep 1.00 ms	an 80 MHz	
letrics	T						
	0			Measure Tra	ce Trace 1		
	Occupied Bandwidth 38.715 N	инz		Total Power	30.5 dBm		
	Transmit Freq Error x dB Bandwidth	27.425 kHz 41.09 MHz		% of OBW Pe x dB	ower 99.00 % -26.00 dB		

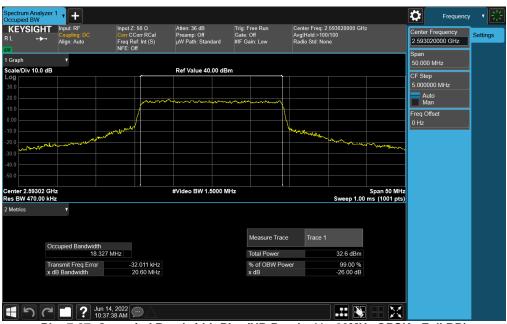
Plot 7-85. Occupied Bandwidth Plot (NR Band n7 - 40MHz 256-QAM - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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## NR Band n41

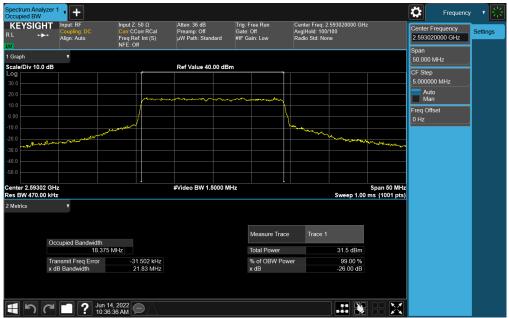




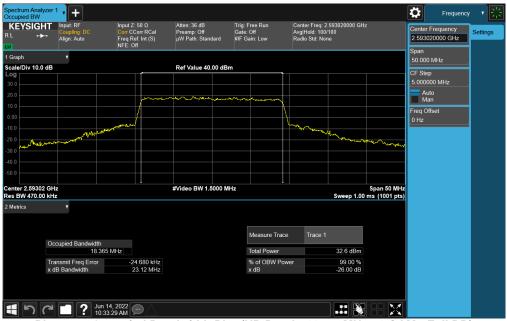
Plot 7-87. Occupied Bandwidth Plot (NR Band n41 - 20MHz QPSK - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Plot 7-88. Occupied Bandwidth Plot (NR Band n41 - 20MHz 16-QAM - Full RB)



Plot 7-89. Occupied Bandwidth Plot (NR Band n41 - 20MHz 64-QAM - Full RB)

FCC ID: BCGA2757	element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Plot 7-90. Occupied Bandwidth Plot (NR Band n41 - 20MHz 256-QAM - Full RB)



Plot 7-91. Occupied Bandwidth Plot (NR Band n41 – 30MHz π/2 BPSK - Full RB)

FCC ID: BCGA2757	element)	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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